Amer Siddiq | Amer Nordin | Effectiveness of a tailored training programme for smoking cessation intervention: A controlled trial to evaluate a program for healthcare providers

Objectives: Delivering an effective intervention requires healthcare providers to have skills to help smokers to quit and remain abstinent.

Background: Defining an effective intervention requires healthcare providers to have skills to help smokers to quit and remain abstinent.

Methods: A prospective controlled trial evaluated an eight-hour SCOPE program focused on knowledge and practical skills. Healthcare providers from various discipline including doctors, pharmacists, medical assistants and nurses were allocated to either an intervention group (n = 218) who received SCOPE training or a control group (n = 231) who continued with their usual organisation's training. A validated self-administered questionnaire, ProSCiTE assessed health care providers' knowledge, attitude, self-efficacy, practice behaviour and barriers on smoking cessation intervention.

Conclusions: Although most WHO European Region countries had introduced national regulation for e-cigarette use in public places, many countries still lack rules to protect bystanders in indoor settings.

Beladenta | Amaïla | Are bystanders protected by regulation of e-cigarette use in countries within WHO European Region?

Objectives: Little is known about exposure to second-hand aerosols from electronic cigarettes (e-cigarettes). This study describes policies regulating the use of e-cigarettes in public and private sites among countries within World Health Organisation (WHO) European Region, to identify barriers and promoters for adopting the regulation, and to evaluate their compliance with the WHO Framework Convention on Tobacco Control (FCTC).

Methods: An online survey was conducted among in-country experts from 53 countries of WHO European Region in May-July 2018. The survey collected data on national and sub-national policies regulating e-cigarette use in 27 public and private sites, level of difficulties in adopting the regulation, as well as support and compliance with the regulations. Proportion (%) of each measure across groups of countries was estimated. Factors associated with the regulation adoption were identified with Poisson and linear regression analyses.

Results: Responses from 48 out of 53 countries were collected. Among them, 77.1% regulated e-cigarettes, 58.3% had legislation on e-cigarette use at national level, and 10.4% at sub-national level. Twenty-one out of 27 sites were regulated. Regulations were more frequent among European Union (EU) countries. Education facilities were the most regulated sites (58.3% of countries), while private areas (homes, cars) were the least regulated ones (39.6%). Difficulties and support in adopting the national legislations, as well as compliance with regulation, were all in moderate level. One third of countries adhered to the WHO FCTC recommendation. Country's smoking prevalence, and income level were all plausibly linked with the regulation adoption.

Conclusions: Although most WHO European Region countries had introduced national regulation for e-cigarette use in public places, many countries still lack rules to protect bystanders in indoor settings.

Karolen | Adriaens | The effects of implementing the electronic cigarette in the standard quit-smoking treatment by tobacco counselors in Belgium

Objectives: Eurobarometer 2017 data show that in the EU only 5% of ex-smokers had quit smoking with the assistance of stop-smoking services. In Belgium, smokers can receive individual or group-based counseling by a tobacco counselor (i.e. health professionals who followed a specific additional training to become a tobacco counselor), whether or not in combination with the traditional smoking cessation aids (nicotine replacement therapy, NRT; smoking cessation medication). Until recently, Belgian tobacco counselors did not include electronic cigarettes (e-cigarettes) as a smoking cessation aid in their "standard treatment". The current prospective cohort study focused on implementing the e-cigarette as a smoking cessation aid in the "standard treatment" of tobacco counselors.

Methods: We investigated the change in smoking behavior in smokers willing to quit smoking under guidance of a counselor in group sessions. Smokers were free to choose their smoking cessation aid. Recruitment took place in two waves during 2017, starting in January and March (W1), or in September (W2). Over a period of seven months, participants filled out a questionnaire and performed a carbon monoxide (CO) measurement for four times. Five conditions were distinguished based on participant’s smoking cessation aid chosen at the first follow-up measurement: e-cigarette, NRT, medication, e-cigarette + NRT, and no aid. Efficacy in terms of quit-smoking rates will be assessed by comparing smokers who chose to use an e-cigarette with those who chose other or no smoking cessation aids.

Results: Preliminary results (n = 244) show that 40% of smokers who exclusively had chosen to use the e-cigarette to quit smoking were smoking abstinent (CO ≤ 7) six months after quit-smoking date. The percentages for those choosing NRT, medication, e-cigarette + NRT, or no aid were 23%, 33%, 31%, and 33%, respectively.

Conclusion: Although, these preliminary results should be interpreted with caution for now, they reconfirm data from our small pilot study and indicate that choosing an e-cigarette as a smoking cessation aid during group counseling has a positive effect on smoking abstinence in the long-term.
Laura Anton

Impact of a program to promote smoking intervention in mental health wards and after discharge [The PDT-sm program]

Objectives

The objective of the PDT-sm program is (a) to help maintain psychiatric patients’ abstinence after a hospital stay, and (b) to promote the coordination between hospital and outpatient units.

Methods

Twelve hospitals participated in the program adapting a protocol of smoking cessation intervention during hospital stay and its continuity after discharge. Smoking cessation intervention had to be followed up and registered for 1 year. All patients of the program were offered free pharmacological treatment for smoking cessation after discharge (NRT, varenicline and bupropion), provided by the Catalan Ministry of Health. Smoking cessation was verified with carboxymetry (CO).

Results

During 5 years, 548 smoker patients abstinent during hospital stay and motivated to quit after discharge accepted to participate in the program (61.2% males, mean age 46.7 years old). The main diagnostics were substance abuse (68.2%) and psychotic disorders (12.1%). Half of the patients consumed alcohol (47.8%) and 17% cocaine. 17.9% had a diagnosis of Cannabis Use Disorder. They smoked a mean of 25.5 cig/day; had a mean of 1.1 past quit attempts; with high nicotine dependence, high motivation to quit and CO levels of 20.0 ppm at admission and 2.1 ppm at discharge. 64.9% patients were hospitalized in detoxification units, 28.7% in acute-patients units and 6.4% in other units. At discharge, 51.1% patients were referred to specialized tobacco units, 25.8% to drug addictions units, 12.3% to mental health outpatient units and 11% to other units. Abstinence rates postdischarge were 67.3% at one week; 47.7% the 1st month; 27.4% the 3rd month; 14.6% the 6th month and 10.0% at 1 year. Professionals referred that smoking cessation intervention and the number of professionals involved increased in 80% of the participant hospitals. Systematic referral to outpatient units was achieved in 80% of the hospitals.

Conclusion

Smoking cessation after discharge from a mental health ward is plausible. PDT-sm program has prompted smoking cessation interventions during hospital stay and referrals at discharge with acceptable cessation rates; and has increased the number of professionals involved.

Laura Anton

GNTH Standards for Tobacco Control in Healthcare Centers

Objectives

The Global Network for Tobacco Free Healthcare Services (GNTH) https://www.tobaccofreehealthcare.org/; since its foundation in 1999, provides healthcare services with a systematic and comprehensive approach to tobacco free policies and management in accordance with the Framework Convention on Tobacco Control (WHO/FCTC). With the aim of creating guidelines to integrate comprehensive action on tobacco control and provide evidence-based care to all tobacco users at healthcare members, the GNTH developed 10 Standards that have been revised and updated.

Methods

GNTH Standards were initiated in 2003 by 6 countries (France, Ireland, Sweden, Catalonia, Denmark and Germany) as part of an EU-Funded project. These guidelines were reviewed and updated over the last 16 years by an international panel of experts to update to the current reality. The GNTH concept takes the actual eight evidence-based Standards with detailed implementation criteria and the Self-Audit tool (a self-administered questionnaire) to help guide healthcare services in achieving implementation and monitoring progress. National and regional networks achieve their progress using the Standards as a core support for implementing GNTH concept. The high-level implementation of all GNTH Standards is recognized within the certificate GNTH GOLD Forum Process.

Results

In 2006, 273 hospitals in 12 networks within nine countries where evaluated by means of the Self-Audit tool and was found that the implementation of GNTH concept over time improves the introduction of tobacco control policies at healthcare centres. These findings were replicated in various small research studies in other countries. Networking at healthcare services during these years has resulted in the GNTH concept being translated into 15 languages (2018) and effectively implemented in a variety of health systems in 20 countries across four continents.

Conclusion

The GNTH concept has been proven to support health services to implement comprehensive tobacco control policies. By implementing the GNTH concept, healthcare services will be enabled to delivery effectively on their obligations as defined in the WHO/FCTC.

Evelyn Arana

Assessing smoking patterns among U.S. Latinos from different countries of origin

INTRODUCTION: The biopsychosocial model recognizes many individual and sociocultural factors that contribute to smoking behavior, treatment response, and disease outcome. Important heterogeneity exists within racial, ethnic, and cultural groups that contribute to individual differences. Smokers from Latin American countries are understudied and underserved in regards to access to smoking cessation treatment resources.

OBJECTIVE: The objective of this study is to describe the association between smoking behaviors and country of origin in a diverse U.S. sample of Latinos.

METHODS: Participants (N=115) were drawn from an ongoing smoking cessation trial for Latinos in the U.S. As part of the baseline survey we assessed smoking patterns (cigarettes per day (CPD), nicotine dependence, use of menthol cigarettes, use of pharmacotherapy, e-cigarettes use, and past quit attempts), and country of origin.

RESULTS: Participants represent 14 countries collapsed into regions -- Latino U.S. born (16.5%), Central American (40.8%), Caribbean (11.3%), and South American (31.3%). The majority of participants were daily smokers (89.6%). Latinos from the Caribbean reported smoking significantly more CPD (15.8 CPD) compared to other Latino sub-groups (p=0.049). Nicotine dependence measured by time to first cigarette did not differ significantly across region, and approximately one-third of the sample (37.4%) smoked within 5 minutes of waking up. U.S.-born participants smoked significantly more menthol cigarettes (73.7%) compared to Latinos born in Latin America and the Caribbean (p=0.009). Almost half of participants reported previous Nicotine Replacement Therapy use (NRT, 46.4%). More Caribbean smokers (84.6%) have used NRT in the past compared to Latinos from other regions (p<0.001). The majority of participants (58.3%), regardless of region, have used e-cigarettes in the past to quit smoking.

CONCLUSION: Smoking characteristics of Latinos in the U.S. differ based on country of origin. Caribbean smokers appear to be the most distinct, reporting higher levels of smoking and use of NRT. This information may be useful for treatment efforts targeting subgroups of Latinos.
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<td>A Novel Worksite Smoking Cessation Intervention Targeting Hispanic/Latino Construction Workers: A Pilot Cluster Randomized Trial</td>
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**Objectives:** Smoking prevalence among US Hispanic/Latino construction workers is very high (31%). We aimed to test the feasibility, acceptability, and potential efficacy of a brief, culturally adapted workplace smoking cessation intervention targeting these workers.

**Methods:** Working with safety managers, we recruited adult Hispanic/Latino construction workers who smoked ≥5 cigarettes/day in a pilot cluster two-arm randomized controlled trial comparing an Enhanced Care (EC) group [brief culturally adapted behavioral group counseling session + two phone calls + referral to tobacco quitline (QL) + 6-weeks of nicotine replacement therapy (NRT)] to a Usual Care (UC) group [referral to QL + 6-week NRT] intervention. Participants received two follow-ups at 3- and 6-months after enrollment. Feasibility outcomes were enrollment efficiency, follow-up rates, adherence to treatment, and QL enrollment rates. The potential efficacy outcome was 6-month prolonged abstinence verified by expired CO <10 ppm.

**Results:** Seventeen construction sites were enrolled and randomized to the EC (8 sites; 65 smokers), or UC (8 sites; 69 smokers). Enrollment efficiency was 85.9%. Six-month follow-up rates were 76.9% (EC) and 66.6% (UC). In the EC, 93.8% received the workplace intervention, and 18.3% were enrolled by the QL. In the UC, 88.4% received the workplace intervention, and 33.9% were enrolled by the QL. Six-month prolonged abstinence rates were 35% (EC) and 10% (UC), with no significant difference.

**Conclusion:** The culturally tailored workplace smoking cessation intervention was feasible and acceptable, and it improved abstinence among Hispanic/Latino workers. Results will inform a larger study of the effectiveness of cessation approaches that have great potential for dissemination to US minority construction workers.

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<td>National estimates of cigarette smoking prevalence, time-trend, and correlates among people living with HIV compared with the general population in the United States: NHANES 1999-2016</td>
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**Objectives:** People living with HIV (PLWHIV) are at high risk of tobacco-related health disparities. Compared to non-smokers, PLWHIV smokers have higher risk of HIV-associated comorbidities (e.g., cancer, cardiovascular complications), shorter lifespan, lower quality of life, and lower adherence to antiretroviral therapies, which increases disease progression and transmission risk. Using a nationally representative sample, this study aimed to provide estimates of the prevalence, time-trend and correlates of current cigarette smoking among adult PLWHIV in the United States (US) compared to without HIV (controls).

**Methods:** Data were pooled from the 1999-2016 National Health and Nutrition Examination Surveys (NHANES). All adults (>20years) who self-reported current cigarette smoking (every day, sometimes), and were tested for HIV (HIV+, n=352; HIV-, n=26,322) were included in the analysis. Prevalence rates and 95% confidence intervals (95%CI), trend analysis by year, and multivariable logistic regression analyses were performed by race (White, Blacks, Hispanics) with the complex survey design adjustments.

**Results:** Compared to those without depression, PLWHIV smokers were more likely to be older (OR=1.10; 95%CI=1.056-1.131), males (1.06; 95%CI=1.056-1.131), with more than high school education (3.03; 1.04-8.90), and with depression (4.58; 1.43-14.60).

**Conclusions:** Cigarettes smoking among PLWHIV is a major public health problem in the US. Targeted and tailored smoking cessation and prevention interventions for this high-risk and often medically underserved population are urgently needed.

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<td>Racial/Ethnic differences in quitting smoking among people with depression in the US: NHANES 2005-2016</td>
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**Objectives:** Racial/ethnic minorities have greater difficulty in quitting smoking than White smokers in the US. Depression is an important barrier for quitting among minorities seeking treatment to quit. This study aimed to examine national estimates of prevalence, time-trend, and correlates of quitting smoking by race/ethnicity among adults with depression (Patient Health Questionnaire [PHQ-9] sum score >5) compared to those without depression (PHQ-9 score <5) in the US.

**Methods:** All adults (>20y), former smokers (self-reported smoking >100 cigarettes in their lifetime and do not smoke cigarettes now), and were tested for HIV (HIV+, n=152; HIV-, n=26,322) were included in the analysis. Quitting prevalence rates and 95% confidence intervals (95%CI), trend analysis by year, and multivariable logistic regression analyses were performed by race (White, Blacks, Hispanics) with the complex survey design adjustments.

**Results:** Compared to those without depression, quitting smoking in people with depression was the lowest in Blacks (28.8% vs 41.5%), followed by Whites (45.6% vs 61.9%) and Hispanics (45.8% vs 56.7%). From 2005 to 2016, quitting among those with depression increased the least among Black (5.6%), followed by Whites (5.8%), and Hispanics (13.0%). In regression analysis, people with depression were less likely to quit if they are younger (OR=1.05; 95%CI=1.04-1.06), less educated [}
Asaf Taghrid

Assessing the fidelity of delivery of a smoking cessation intervention designed to address racial/ethnic cessation disparities in the US

Objectives: Implementation fidelity refers to the extent to which a proposed intervention is delivered as designed and is necessary to determine how much the intervention in question is the primary mechanism in any changes observed. The Quitville Study is a dual-site, two-arm randomized controlled trial aimed at enrolling equal proportions of the three largest racial/ethnic groups in the US (Whites, Blacks, Hispanics) to evaluate the efficacy of 8-group sessions of cognitive behavioral therapy (CBT) compared to general health education (GHE) in eliminating racial/ethnic differences in cessation. This study aimed to assess the fidelity of delivery of the intervention sessions to the treatment manual.

Methods: A checklist summarizing the content of each session was created to record interventionist adherence to treatment manual using 3 categories (yes, yes but inadequate, no). Out of 558 audio-recorded sessions delivered, 94 (17%) were randomly selected and listened to rate if the study treatment manual was followed properly. Items with “yes or yes but inadequate” were considered as adherent. The fidelity of each of the 8 sessions was expressed as the percentage of overall treatment design features that were delivered. Mean and median of adherence were calculated for all sessions and compared by treatment group. Differences in mean were tested with Student’s t-test.

Results: Overall, 52.1% of the sessions were from GHE group. Average duration of session was 77 minutes (SD 22, median 76, min 25, max 128) and no statistical significance differences detected between the 2 study sites, treatment group, and language used during the session. Adherence of protocol was relatively high 95.6% (SD 4.4) and did not differ by treatment. For CBT group, adherence average was 95.6% (SD 6.3) with ranges 86-99%. For GHE adherence average was 95.3% (SD 2.6) with ranges 69-100%.

Conclusion: These results suggest that the delivery of the intervention of this study is not likely to have been impacted by issues of fidelity. As such, we can have great confidence that variability in the main outcome is not due to variability in interventionist adherence to the protocol.

Henri-Jean Aubin

Is reducing the number of cigarettes per day associated with reduction in tobacco induced excess mortality?

Stopping smoking at any age reduces smoking related mortality and prolongs life expectancy. However, it is controversial whether reduction in tobacco consumption (cigarettes/day: cpd) reduces or not - and to what extent - all-cause or cause-specific mortality.

Objectives: to compare mortality between (1) smokers achieving sustained reduction (cpd) smokers maintaining their smoking rate, and (2) between smokers achieving complete, sustained smoking cessation and smokers maintaining their smoking rate.

Methods: Systematic review and meta-analysis. PubMed, Embase, and Web of Science databases will be searched. Exposure: cpd at baseline, change in smoking rate at a second assessment, and mortality during a follow-up period. Types of studies: Longitudinal observational studies using individual data, with measures of smoking rate at baseline and at least one later time point and with systematic follow-up mortality data. Risk of bias will be assessed with the Newcastle-Ottawa scale. Effect sizes will be estimated by mortality hazard ratios, risk ratios or odds ratios and will be extracted or calculated from data provided by the publications or authors.

Results: The main study characteristics and random-effect meta-analyses will be presented for all-cause and cause-specific mortality. Heterogeneity will be explored with subgroup meta-analyses according to health status at baseline and start follow-up, country/world region, ethnicity, and with meta-regressions by age at baseline, age at beginning of follow-up, duration between baseline and second assessment of smoking rate, duration of follow-up, risk of bias score, year of publication.

Lourdes Baezconde-Garbanati

Exposure and Perceptions of secondhand smoke exposure (Vape, Tobacco and Cannabis) and support for smoke free multiunit housing policy among diverse populations in Los Angeles

Although California has experienced decreases in smoking prevalence, low-socioeconomic Hispanic/Latinos (HL) and African Americans (AA), who compose a large portion of the multiunit housing market in Los Angeles, are disproportionately exposed to higher levels of secondhand and thirdhand smoke in multi-unit housing (MUH). These populations also face new risks in exposure to toxic chemicals from SHS/vape (e-cigarettes, vape pens), and from legalized cannabis. Understanding population-based support for smoke free policies in MUH is critical to effectively engage in regulation of current and new and emerging tobacco and cannabis products, and to move populations towards cessation. 202 door-to-door surveys were conducted with tenants living in randomly selected MUH buildings with 20 or more units in racial/ethnic African American and Latino enclaves in the Greater Los Angeles area. We assessed knowledge, attitudes, beliefs and behaviors regarding establishing smoke-free policies in MUH that include restricting the use of combustible tobacco, cannabis, and electronic-smoking devices. Analysis of Variance and Chi-Square tests are used to compare predictor and outcome variables in the population. 65% of respondents were exposed to secondhand smoke from tobacco, electronic cigarettes, and/or cannabis in multi-unit housing. 68% reported they preferred to live in a completely non-smoking property (including outdoor common areas), and 74% reported they preferred to live in a non-smoking section of a building. 73% supported smoke-free/vape-free policies that implemented partial bans (where there are designated or set aside smoking sections) and 57% stated they would be in favor of a comprehensive policy with a total ban on tobacco, electronic vape and cannabis. HL and AA tenants in Los Angeles report high exposure to secondhand smoke from tobacco and cannabis. A large portion of tenants’ support smoke-free policies either partial or total bans of these products in MUH to avoid SHS/Vape/Cannabis exposure. Some exceptions were made regarding medical cannabis. Findings can inform state and local tobacco control policies that relate to smoke-free MUH and tobacco regulation.
Objectives: Dual-users of cigarettes and e-cigarettes are commonly treated as a single group in epidemiological research. Our study developed more nuanced classifications of this complex behavior and examined associations with demographics and future tobacco use behaviors using data from Waves 1-3 of the Population Assessment of Tobacco and Health (PATH).

Methods: Dual-users at Wave 1 (n=1,665) were categorized into 4 groups based on the frequency with which they used each product (i.e., some days, daily). Analyses identified demographic correlates of group membership and the prevalence of (1) completely switching to e-cigarettes and (2) quitting both products by Wave 3.

Results: The majority (69.6%) of dual-users smoked cigarettes every day and used e-cigarettes some days. Use of both products on some days was also common (14.6%), followed by daily use of both products (9.9%). Although some day smoking and daily e-cigarette use was the least common category (5.9%), nearly a quarter of these individuals (22.7%) completely switched to e-cigarettes by Wave 3. Adults who used both products on some days at Wave 1 had higher levels of income and educational attainment and were more likely to completely quit both products by Wave 3 (23.1%).

Conclusion: Adults who concurrently use cigarettes and e-cigarettes exhibit considerable heterogeneity in their use of these tobacco products, which is associated with subsequent harm reduction and quitting behaviors. Dual-users of cigarettes and e-cigarettes should not be considered a single, homogeneous group. The development of tobacco regulatory measures should be mindful of behavioral heterogeneity among dual-users and any related potential for unintended consequences.
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<td>Balbè</td>
<td>A networking model to enhance tobacco control in hospital mental health settings</td>
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<td>Acceptability of a quitline intervention for smoking cessation for patients with severe mental disorders at hospital discharge (061 QuitMental Study)</td>
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<td>Balwicki</td>
<td>Attitudes of Polish employers towards smoking/e-cigarette use in workplaces</td>
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### Background
For many years Poland has been undertaking initiatives aimed at reducing the problem of smoking among citizens. Many educational and legislative activities have been carried out. One of them was the introduction of smoking ban in workplaces and other public places in 2010. The aim of the was to look for attitudes of Polish employers towards smoking and e-cigarette use in workplaces.

### Methods
The cross-sectional survey was carried out on representative group of 2,501 employers from Poland in July/August 2018. Respondents answered to the original questionnaire with help of Computer Assisted Telephone Interview (CATI) method. Questionnaire consisted of 19 questions regarding attitudes towards smoking and e-cigarettes use in their workplaces. Data were analysed with the help of descriptive statistics, correlation analysis methods. Statistical significance was set at p<0.05.

### Results
Only 44.9% employers agree they should not take care for creation conditions for smoking tobacco/e-cigarettes use during working hours. The majority of respondents (53.7%) believe that non-smokers (who are going out to smoke) have fewer breaks in their work. In addition, 51.8% of respondents believe that smoking tobacco/e-cigarettes by employees brings economic losses to the company, and 55.0% think that smoking tobacco/e-cigarettes use during work spoils the company’s image. At the same time, as many as 88.5% of respondents indicated that their workplaces did not carry out activities encouraging persons to make quit attempts if they relapse post-discharge. This study, which will be recruiting patients until June 2019, examines the acceptability of this intervention and compares the characteristics of patients accepting and rejecting the intervention.

### Conclusions
While some areas of tobacco control within mental health services still require significant development, this initiative has improved tobacco control in these settings. This new scenario could enhance the quality of life and reduce morbidity and mortality of mental health patients.
### Smoking cessation in primary care— which behaviour change techniques are being used with pregnant Australian Indigenous patients? A feasibility study

**Objectives:** Smoking remains prevalent during pregnancy, around 15% of the Romanian pregnant women continue to smoke during pregnancy. Our objective was to report on beliefs about tobacco smoking and e-cigarette use among women who smoked and quit tobacco during pregnancy in a middle-income country.

**Methods:** 143 pregnant ex-smokers (57%) and smokers (43%) were surveyed between April 2016 – January 2017. The questionnaire consisted in 5 main sections such as: socio-demographics, medical and reproductive history, alcohol and smoking consumption, emotional health and quality of relationship with the partner. In the smoking section of the questionnaire women were asked to rate on a Likert scale (totally agree to totally disagree) 11 statements about smoking or e-cigarettes use during pregnancy. The cumulative “totally or partially agree” percentages are reported.

**Results:** Over 91% of pregnant smokers and 95% of ex-smokers agreed (totally or partially) that smoking is very bad for their health. Close to 95% of pregnant smokers and 95% of ex-smokers agreed that smoking is harmful for people around them. Over 83% of pregnant smokers and 92% of ex-smokers agreed that pregnancy smoking negatively affects the pregnancy and baby. 72% of pregnant smokers and 92% of ex-smokers agreed that quitting smoking any time during pregnancy reduces birth risks. More smokers (48%) than ex-smokers (19%) agreed that smoking a few cigarettes during pregnancy is not dangerous for them and baby. More pregnant smokers agreed that light (51%) and slim cigarettes (48%) are less harmful than regular cigarettes compared to ex-smokers (24% and 21%). Approximately 29% of pregnant smokers and 30% of ex-smokers agreed that e-cigarettes are less harmful than regular cigarettes.

**Conclusion:** Misperceptions and myths about tobacco cigarettes during pregnancy were prevalent in a Romanian sample, with large differences between pregnant women who smoke and those who quit. The largest difference was around the myth that a few cigarettes a day during pregnancy are acceptable. However, no differences were found in perceptions about e-cigarettes.

### Views of smoking cessation support available to pregnant women: A COM-B analysis of a systematic review of qualitative studies

**Objectives:** To synthesise qualitative data about views of a) health providers (HPs) giving smoking cessation care in pregnancy, and b) pregnant women's receipt of care using a COM-B (Capability, Opportunity, Motivation, Behaviour) framework.

**Methods:** Systematic search of online databases using keywords and MESH terms ‘Health providers’, “attitudes and practices, “smoking” and “pregnancy”. Qualitative and/or mixed methods papers from peer-reviewed journals included until 2018. Full text of articles were read by two independent authors for inclusion.

**Data:** Data was extracted by one author and 30% checked by another. First order and second order data were extracted and double-coded using the COM-B framework.

**Results:** Thirty studies were included from 15 countries (majority UK and Europe). 7 on HP perspectives, 19 on pregnant women's perspectives, 4 papers included both. HPs included: doctors, nurses, midwives, Aboriginal Health Workers, pharmacists and other allied HPs. HP viewpoints: capability was influenced by a lack of knowledge and training (capability) and time (opportunity) to provide interventions. HPs acknowledged that advice should be delivered in a non-judgemental manner and women's psychological state taken into consideration. Antenatal appointments were an opportunity for pregnant women to achieve cessation, an opportunity often missed due to perceptions that some pregnant women do not want to quit. Improving women’s motivation to quit was viewed as dependent on clear explanations of risks of smoking and safety of using quit methods. Women’s viewpoints: advice from HPs during antenatal visits was effective, if tailored and accompanied by biofeedback (smokerlyser readings), which could motivate. Sometimes considered as nagging, information from HPs helped some women make a decision about quitting. Frequent encounters with health promotion materials motivated women to quit and stay quit. However, motivation was impaired by cynicism towards NRT. Social opportunities included peer support and group sessions enabling women to hear other's experiences during pregnancy. Women were divided on whether having reminders about smoking and its effects would
Improving Nicotine Replacement Therapy Prescription Rates during Pregnancy: Results from the ICAN QUIT in Pregnancy Intervention

Objectives: Nicotine replacement therapy (NRT) is recommended for pregnant women who are unable to quit smoking with behavioural support only. However, NRT prescription rates during pregnancy are low. Previous interventions to improve health providers (HPs) smoking cessation care did not include any focus on improving NRT prescription rates. The development and pilot results of a multi-component behavioural intervention aimed to increase HPs NRT prescription rates during pregnancy will be presented.

Methods: A step-wedge clustered randomized trial in six Australian Aboriginal Medical Services. The intervention was developed based on extensive formative research including two systematic reviews, a cross-sectional survey and qualitative interviews with HPs, and guided by the behaviour change wheel. The intervention included webinar training for the HPs, an educational resource package, and free oral NRT to be provided to the women as needed. Both the webinar training and the educational resource package were designed to focus on improving NRT prescription rates. Health providers filled out a survey pre- and post-intervention, including questions on their knowledge, attitudes and practices regarding NRT prescription during pregnancy.

Results: A total of 50 HPs participated, 45 completed the pre-survey (90%) and 20 the post (40%). Mean NRT specific knowledge composite score improved from 68% vs 79% correct (difference 9.9, 95% CI 3.66, 16.14). Mean NRT specific attitude composite score improved from 3.37 (SD 0.6) to 3.64 (SD 0.7) (difference 0.36, 95% CI 0.13, 0.6). Self-reported NRT prescription rates were unchanged.

Conclusion: A multi-component intervention in Aboriginal Medical Services was feasible, and might improve HPs knowledge and attitudes toward prescribing NRT during pregnancy. Findings suggest that changing actual NRT prescription rates would require more intensive and comprehensive strategies. Several suggestions for future research in this area will be discussed.

What happens when Pandora’s Box is opened? An analysis of e-cigarette sales and marketing among tobacco retailers in NZ prior to legislative change

Objectives: In 2017, the New Zealand (NZ) Government announced its intent to liberalise the sale and promotion of electronic nicotine delivery systems (ENDS). The proposed legislation will permit any type of outlet to sell ENDS, and outlets that limit entry to over 18s will be able to advertise ENDS on their store exterior, offer discounts, free samples, and product testing. The objectives of this research were to estimate the proportion of tobacco outlets that sell ENDS, and examine the nature and extent of ENDS point-of-sale marketing, prior to legislative change; and examine whether ENDS availability and point-of-sale (PoS) marketing are greater in retail outlets more frequently visited by children.

Methods: We drew a proportional random sample of 281 tobacco outlets, including convenience stores, supermarkets and service stations, from a database of known tobacco retailers in the Wellington and Otago regions of NZ. We conducted store assessments to record the range of products sold, and the nature of product promotions in the store. We used descriptive statistics and regression modelling to analyse the data. Results: 22% of tobacco outlets sampled sold ENDS. Tobacco outlets selling ENDS were typically convenience stores (85%) and located in low socio-economic deprivation areas (52%). ENDS were visible at PoS in 89% of stores selling them, including 15% with self-service displays, and 15% with displays adjacent to children’s products. Advertising materials relating to ENDS were evident in 31% of the outlets selling them, and generally referred to ENDS being cheaper than traditional cigarettes, rather than promoting ENDS as safer than traditional cigarettes and/or as a way to quit smoking. Conclusions: While liberalising the sale and promotion of ENDS could increase smoking cessation rates, evidence examining smoked tobacco retail displays suggests that the Government’s radical transition from a tightly regulated marketing environment to a more liberal one, could be analogous to opening Pandora’s Box and makes documenting ENDS retailing and critically evaluating this policy change crucial to realising the potential benefit these products offer.

Perceptions of tobacco retail reduction policies in New Zealand

Background/objectives: The widespread retail distribution of tobacco promotes smoking by making cigarettes more accessible, by normalising smoking, and by increasing environmental cues to smoke. Substantially reducing tobacco availability has been identified as a crucial tobacco control strategy. Public attitudes toward tobacco and the ways in which they are sold may influence the development and introduction of policies. This study investigates how the general public view policy actions aimed at curbing tobacco retailing. Methods: This study uses in-depth face-to-face interviews with 26 individuals in Otago and Auckland, aged 18 years and above. Current smokers, former smokers, and never-smokers were recruited to provide a broad and diverse sample. Participants were recruited from all socioeconomic groups, and Māori and Pacific people were oversampled. Interviews probe participants’ perceptions of priority interventions to reach New Zealand’s 2025 smoke-free goal, explore views on the perceptions of policies that restrict the number of retailers, the outlet type, or the location of tobacco retailers, and the implications of different policies for current smokers, those who are attempting to quit, and children and young people who are susceptible to smoking. Interviews also explore participants’ perceptions of the rationale for these policies, the resultant changes in tobacco availability, and the fairness, effectiveness, and possible unintended consequences of policies. Results: We will present results on participants’ views of different policy options for reducing tobacco availability in New Zealand. Conclusion: Smoking prevalence is significantly higher among Māori than non-Māori. Our research focusing on tobacco availability is particularly important for mitigating the significant health impact from tobacco among Māori, who are disproportionately impacted by the clustering of tobacco retail outlets in deprived communities. Determining how the public might interpret and react to these policy ideas, some of which may be seen as controversial or paradoxical, could inform policy development and implementation.
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<th>Name</th>
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<tr>
<td>Clive Bates</td>
<td></td>
<td>New data on effects of alternative nicotine delivery devices on cigarette sales and on smoking prevalence</td>
<td>The effective practice of public health, epitomised by luminaries such as John Snow, involves detective work. We look for evidence from a myriad of sources. In dealing with the $800 billion global nicotine market there is a wealth of evidence on market dynamics from sources often overlooked by academics and regulators. Sales and tax data from government revenue agencies, financial market analyst reports, financial filings from publicly listed companies, information from manufacturers, retailers and consumers of alternative products and many other sources can better inform our understanding of the effects of alternatives to cigarettes on cigarette sales. Identifying and accessing such evidence, and incorporating it into our monitoring of the market, should be a priority.</td>
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<td>Rune Becher</td>
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<td>Nicotine promote the toxicity of resin-based biomaterials by impairing lysosomal function</td>
<td>Objectives: Tobacco products as well as nicotine containing replacements contain relatively high levels of nicotine. Although most research on cellular effects of nicotine has focused on receptor-mediated effects, the interaction with autophagy could also be due to the reported lysosomotropic property of nicotine that may impair lysosome function. The resin monomer 2-hydroxyethylmethacrylate (HEMA) is known to leak after dental treatment with HEMA containing materials. Studies have shown that cells defend themselves against HEMA exposure by increasing their autophagic capacity, a cellular function that depends on the lysosomes. The aim of this study was to elucidate the effect of combined exposure of nicotine and HEMA with special focus on lysosomes and autophagy. Methods: A human oral squamous carcinoma cell line PE/CA-P49 was exposed to HEMA (0-2 mM), nicotine (0-10 mM) and Bafilomycin (10nM; an inhibitor of lysosomal activity). The cell viability was measured by MTT assay. Western blotting was used to quantify the autophagy related protein p62/SQSTM1 (p62). Results: Exposure to 10 mM nicotine or 2 mM HEMA for 24 h had no measurable effect on cell viability. In contrast, combined exposure to 2 mM HEMA and nicotine reduced the cell viability to less than 50 % of control. Cells exposed to nicotine showed significant increased p62 levels. This level increased further when HEMA was added to the exposure mixture. Replacing nicotine with Bafilomycin showed similar results. Conclusion: We show that combined exposures to HEMA and nicotine cause synergistic toxicity. The results support that this effect is caused by inhibition of lysosome function and autophagic flux by nicotine as well as increased demand for autophagy in HEMA exposed cells.</td>
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<td>Laurence Belenger</td>
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<td>The assessment by smoking cessation specialists of smoking policies in Flanders' hospitals</td>
<td>Objectives: To diminish smoking in health institutions, regulation actions such as sensibilisation campaigns, smoking cessation sessions and the expansion of smoking bans are commonly undertaken. The aim of our study was to explore smoking control policies of hospitals in Flanders by interviewing their smoking cessation specialists. Methods: In Flanders 70 smoking cessation specialists work in an hospital environment. 28.57% of them were interviewed (N = 20; 8 men, 12 women; 5 working in university hospitals, 15 in general hospitals) between august and october 2018. The interviewees were asked to give an overall score (1 – 10) on the level of the hospital’s smoking policy. Existing actions and ideas for improvement were explored. To analyse the results thematic analysis was used. Results: The average rating of the level of the hospitals’ smoking policy was 6.18 (range 2 – 8,5). More than half (57.89 %, N = 11) received a score of 7 or higher. More than one quarter (26.32 %, N = 5) were reported to fail in implementing an adequate smoking policy (score ≤5). All smoking cessation specialists saw opportunities for the further enhancement of smoking control. Recurrent ideas were expansion of smoking cessation support, improving internal referral to the smoking cessation specialist by raising awareness amongst medical staff, creating environmental changes to further discourage smoking use and developing a hospital wide smoke-free policy. Commonly cited barriers were a lack of time and financial resources. Involvement of the management as well as governmental measures (such as financial support) were highlighted as important facilitators. Conclusion: Hospitals should continue to reinforce their policies and actions to create a smoke-free environment. Smoking cessation specialists stressed the importance of clear guidelines for an evidence-based practice policy and the need of a system to share good practices. To guide this process smoking cessation specialists are willing to take on an advisory role. Although inhouse-smoking cessation specialists could greatly contribute to the development and implementation of a smoke-free policy, their expertise is often underused.</td>
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Background: Smoking is the leading cause of premature death worldwide, with more than 7 million deaths occurring each year. Epidemiological surveillance is a key element in the fight against this scourge. In developed countries, while overall smoking rates fell during last decades, socio-economic and ethnic inequalities in smoking increased. We suggest this work, as an update of the smoking epidemiology among Tunisian males.

Methods: Data were obtained from the Tunisian Health Examination Survey (THES), cross-sectional national household survey conducted in 2016 and concerned 9182 participants. Smoking was defined by the daily or occasional use of tobacco products, including smoking and smokeless tobacco. We measured crude prevalence of current smoking according to socio-demographic variables (age, residence area, education level, household wealth quintile). For this analysis, only men aged 15 years and above were included.

Results: Smoking prevalence reached 48.3% of the included males (4362). The highest prevalence concerned men aged between 26 and 39 years (p<10-3). The most affected regions were the North-east (56.9%), the center-West (52.1%) followed by the capital, the Grand Tunis area (51.2%). No evidence of statistically significant difference was found over the area of residence (rural:48.0%/urban:48.5%). More than half of men with primary education level (54.9%) were smokers, compared to 38.5% among men with university education level. Further more, a socio-economic gradient was found, with the highest prevalences recorded among the most economically disadvantaged groups (55.4% of second quintile) compared to the most advantaged one (38.7%).

Conclusions and recommendations: Our study shown an alarming smoking rate in Tunisian men. Moreover, Tobacco use plays a significant role in the burden of premature death.

Nadia Ben Mansour

Developing health warning labels for waterpipe smokers in Tunisia: Results from a qualitative study

Background: Waterpipe (WP) use is highly prevalent among young people in Tunisia due to the widespread misperception that it is safer than cigarettes. Health warning labels (HWLs) can effectively convey smoking-related health risks but have yet to be developed for WP. This study aimed to adapt a set of 16 pictorial WP-specific HWLs developed by an international expert Delphi study, and centered on five major themes (health risks, nicotine dependence, harm to others, WP-specific harm, WP harm compared to cigarettes) to the Tunisian context.

Methods: Simulated gender focus group (FG) discussions (smokers n=16, non-smokers n=4) were conducted among young people (smokers n=16, non-smokers n=28, age 18-34 y) between January and April 2019. Data on socio-demographic characteristics and smoking behavior were collected. Then an individual evaluation was performed for each HWL followed by FG discussion in relation to communication outcomes and suggestions for improvement. The required time for each FG was 60 minutes.

Findings: HWLs related to "WP comparison harms to cigarettes" and "WP harms to others" were collectively judged as the most effective. Focus groups discussion results were in line with individual rating, especially for HWLs showing cancer (e.g., oral and lung cancer), and harm to children. Participants suggested other themes to be added (e.g., WP sexual effects). Forte improvement participants suggested using a Tunisian direct dialect supported by scientific terms for more credibility. Some suggested using interrogative/ironic sentences to catch more attention (e.g., "Are you still smoking?"). It was strongly highlighted to use affirmative style to communicate health risk (e.g., "WP use leads to, rather than "can lead to"). To improve images, participants suggested enhancing graphic resolution, color contrast and zoom for majority of pictures, especially those showing oral or lung cancer.

Conclusion and recommendations: Our study highlights the importance of tailoring HWLs for WP to the cultural context of the target population. The next step will be to select best placement on WP components (e.g., tobacco, device, charcoal) using experimental study.

Habiba Ben Romdhane

Tobacco control challenges in time of crisis: the case of Tunisia

Background: As most of the Eastern Mediterranean countries, Tunisia is facing the huge burden of tobacco smoking. Early in the 2000s, national program on tobacco control has been developed and revised in the 2006–2013 Action Plan on NCD Prevention and Control. The objective of this study is the implementation of the Action plan and its results on tobacco smoking in the context of crisis.

Methods: Our research entailed three levels of data collection: (i) analysis of two large nationally representative surveys conducted in 2005 on 7553 adults aged 35-70 years and in 2016 on 5439 adults from the same age group; (ii) modeling method to estimate the premature mortality attributable to smoking and (iii) analysis of official documents and stakeholders interviews. Walt and Gilson’s framework for policy analysis was used: content, actors, context, and process.

Findings: The importance of tobacco health impact is well recognized by all the actors. Tobacco control program is based on a comprehensive approach: legislation, information, education and warnings about the harmful effects of tobacco, and cessation programs. However, key informants were skeptical whether the political will existed to implement this Action Plan, which was dismissed as largely theoretical. Tobacco smoking evolution during the last decade confirmed the delay or even the lack of the implementation of the Action Plan. Tobacco is still alarming especially among men; the prevalence was 47.4% in 2005 vs 48.3% in 2016. It increased slowly on women and in rural area. 25% of deaths of men aged 35-69 years are attributable to smoking. According to key informant, the interventions are profoundly affected by the repercussions of the political and economic crisis following the uprisings which started in 2011.

Conclusion: This study highlights major gaps in the implementation of a comprehensive approach to tobacco control, which is an urgent task regarding the alarming situation in the region. The challenges of working in such a context should not be used to justify avoiding efforts; relevant actions becomes even more crucial, and local capacity that can produce such actions more urgently needed.
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<td>Helene</td>
<td>Berlin</td>
<td>Survey on vaping and smoking cessation</td>
<td>Prior to this survey, there were little knowledge about Norwegian vapers. The objectives for the study have been to get more knowledge about vapers' background, former smoking habits, and to what degree vapers switch from cigarettes to vape.</td>
<td>Methods: The survey was distributed through various Facebook pages for vapers. It included a range of questions about smoking patterns and use of snus prior to vaping, previous attempts to quit smoking, and smoking patterns after starting to vape. The survey includes answers from as much as 886 respondents. We acknowledge that people who are active in vaping groups on Facebook could be more “committed” and enthusiastic than other vapers. Even so, the results give important knowledge regarding smoking behavior among well-accustomed vapers.</td>
<td>Results: A vast majority of the vapers smoked or used snus prior to vaping. 96% responded that they had smoked, and 33% said that they had used snus (daily or occasionally). A great portion of those who smoked prior to vaping had previously tried quitting. As many as 40% had tried more than 3 times, and 36% had tried 2-3 times. A large majority of the respondents had now quit smoking by substituting it with vaping. Only 9% still smoked, but less than half of these smoked daily. For this group, vaping has been much more effective than other methods for remaining smoke-free. Before vaping, 23% had failed to keep smoke-free for at least a week, and 20% had remained smoke-free for 1-4 weeks at most. After vaping, almost everyone have managed to remain smoke free for more than 4 weeks. While only 12% had previously managed to remain smoke-free for more than one year, today, 71% have accomplished this feat.</td>
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<td>Ivan</td>
<td>Berlin</td>
<td>Financial Incentives for Smoking Cessation in Pregnancy (FISCP). A Randomised, multicentre study</td>
<td>Objectives: To assess the efficacy of financial incentives on smoking abstinence among French pregnant smokers. Methods: Participants were pregnant smokers aged ≥18 years, smoking at least 5 manufactured or 3 rolled-on-your-own cigarettes per day and pregnant of &lt; 18 weeks of amenorrhoea. They were recruited, included and followed-up at monthly face-to-face visits in 20 maternity wards in France. Participants were randomized to the control or to the intervention group. After a predefined quit date, participants of the control group received 20 € vouchers at the completion of each visit but no financial incentive contingent on smoking abstinence. Participants of the intervention group were rewarded for their abstinence by vouchers on top of the 20€ show-up fee. The amount rewarding abstinence increased as a function of duration of abstinence to stimulate longer periods of abstinence. Main outcome measure: Complete abstinence from quit date up to the last, pre-delivery visit. Self-reports of abstinence were controlled by expired air CO ≤8 ppm and urinary anabasine &lt; 3 ng/mL. Secondary outcome measures: Point prevalence abstinence, time to relapse to smoking, birth weight, number of preterm births, small for gestational age. Results: Between 8 April 2016 and 8 April 2019 466 pregnant smokers were included and 460 randomised as planned. Baseline characteristics of the control vs intervention group were similar. E.g. age: 29.3 vs 29.1 years; European origin: 93.4 vs 93.9%; annual family income &lt; 30000 euros/year: 71 vs 69 %; motivated to quit: 8.4 vs 8.3 (range 0-10); age of first cigarette smoked: 14.8 vs 14.9 years; expired air CO:15.8 vs 14.4 ppm; cigarette per week: 66.3 vs 63.3; gestational age: 13.2 vs 13 weeks. As of today, the data analysis is ongoing. Conclusion: Recruitment progressed as planned. Baseline characteristics of the control and intervention groups were similar. The efficacy analysis is ongoing, its results will be presented at this symposium.</td>
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<td>Ivan</td>
<td>Berlin</td>
<td>Nicotine replacement therapy in pregnant smokers. A review of current knowledge and gaps</td>
<td>Objectives: To summarize current knowledge on nicotine replacement therapies (NRT) among pregnant smokers and suggest some future directions for research. Methods: Systematic review of published studies. Results: Efficacy: Evidence of the therapeutic efficacy of NRT in pregnancy is not established contrary to evidence in other population of smokers. Non-randomized, non double blind studies show some efficacy but randomized, double blind, trials did not show higher smoking cessation rate with nicotine patch than with placebo patch. Pregnant women who use NRT and abstain from smoking seem not to have significantly lower nicotine exposure and among those who use NRT and smoke, nicotine exposure seems to be constant. Nicotine metabolism is accelerated among pregnant smokers thus they may have higher need for nicotine and consequently higher NRT doses to sufficiently substitute nicotine from tobacco. Safety: Clinical studies did not report higher frequency of serious adverse events with NRT than with placebo or control. Similarly, postmarketing pharmacovigilance did not alert on increased risk with NRT in pregnancy. We suggest that future research a) characterizes smoking related differences between pregnant and non-pregnant smokers (e.g. withdrawal symptoms, craving, physiological changes involved in tobacco/nicotine use and efficacy of NRT); assesses b) the efficacy and safety of higher than usual doses of NRT and combined use of short- and long-acting NRT; and c) adherence to NRT. Conclusion: It is highly plausible that NRT use by pregnant smokers is not associated with adverse peri- and postnatal outcomes. It is likely to be an effective medication helping pregnant smokers quit. However, more research is needed to understand the specificities of pregnant smokers and adapt NRT use accordingly.</td>
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<td>Renee Bittoun</td>
<td>Shared Medical Appointments (SMAs) for Smoking Cessation and Relapse Prevention: A pilot in Primary Care Practices</td>
<td>Background: Shared Medical Appointments (SMAs), or group consultations are: &quot;...a series of individual office visits sequentially attending to each patient's unique medical needs individually, but in a supportive group setting where all can listen, interact, and learn.&quot; As such, they have particular relevance for chronic disease management. Prescriptions for smoking cessation therapies may require the prescriber to incorporate behavioural interventions however this is not always possible due to time constraints and lack of training. SMAs have been effectively tested for Type 2 diabetes in Australia and elsewhere. There would be benefit therefore in trialling a smoking cessation version of SMAs in clinical practice as a means of reducing smoking and its associated medical problems.</td>
<td>To evaluate the effectiveness and appeal of an SMA approach to a smoking cessation and relapse prevention programme in primary health care services. A secondary aim, based on outcomes of the research is to develop training processes for widespread dissemination of the service through medical practices.</td>
<td>Methods: Currently 5 primary care practices have been recruited to conduct SMAs for Smoking Cessation. A doctor and a facilitator pre-trained in smoking cessation issues conduct the SMAs in these practices. Smoking patients were individually assessed for nicotine dependence and recommended appropriate pharmacotherapies if required. In line with traditional SMA procedures, a Practice Nurse carried out basic smoking observations, such asExpired Carbon Monoxide (exp CO), time-to-first-cigarette (TTFC) and cigarettes / day (c/d) as baseline and during each subsequent education session attended. These results were documented and consenting patients allowed their results to be on open display for regular group sessions and comparisons. There were 5 group education sessions where topics regarding smoking, medications, diet, cardiac and respiratory effects were.</td>
<td>Results: SMA for smoking cessation has been enthusiastically received both by staff and patients. Attendance has been significant. Validated abstinence rates, appeal and sustainability will be presented.</td>
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<td>Renee Bittoun</td>
<td>A Protocol for a Tobacco Free Detox Unit</td>
<td>Objectives: Though it has become mandatory for public health facilities to become smoke-free in Australia it has been difficult to implement this policy in an acute detox in-patient facility. Patients object to a smoke-free environment, flout regulations, are argumentative and self-discharge. Staff can be in conflict with the patients and the regulations and unable to manage patients adequately according to the policy.</td>
<td>Methods: A protocol has been developed to better educate staff in the management of nicotine addiction, its impact on detoxification, and to have a completely smoke-free facility. Prior to the target for a smoke-free facility for World No Tobacco Day (May 31st) all staff of the detox unit were “in serviced” to manage nicotine withdrawals in inpatients so that all staff were “on the same page”. All patients on admission had a nicotine addiction questionnaire applied, an expired baseline expired Carbon Monoxide (exp CO) measure and adequate nicotine replacement therapy initiated. Throughout the short-term admission patients continued to have their nicotine withdrawals assessed, nicotine replacement therapy adjusted and their exp CO monitored in order to demonstrate changes. Frequent “smoking cessation” education groups were held with information and suggestions regarding ongoing “management” of smoking for discharged. All prospective new inpatients were advised that the facility was smoke-free and that the policy was strict, however all smoking patients were advised that their smoking could be “managed” prior to admission and throughout.</td>
<td>Results: Unlike prior attempts there was a smooth transition to a totally smoke-free facility. All staff had developed a better understanding of measuring and treatment of nicotine withdrawals and patients were better educated and accepting of the newer implementation, and its impact on their admission. The unit had few transgressions. Conclusions: The embedded education of all staff about nicotine addiction and smoking cessation at detox units allows for a smoother, less conflicting implementation to an uncompromising smoke-free facility.</td>
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<td>Melanie Boeckmann</td>
<td>A behavioural support intervention for tobacco cessation implemented in tuberculosis clinics in Bangladesh and Pakistan: which health messages are delivered in practice?</td>
<td>Objectives: Tobacco smoking is associated with adverse tuberculosis (TB) outcomes, and the dual burden of TB and smoking is high in Bangladesh and Pakistan. To provide smoking cessation support to TB patients, we developed a behavioural support (BS) intervention to be delivered as part of routine TB care. Using a standardized flipbook to provide patients with TB with information on their illness, on quitting smoking and on how to deal with withdrawal symptoms, trained health workers implement the intervention. This study, part of a trial and implementation study process evaluation with published protocol, aims to assess which messages of the BS intervention are delivered in practice.</td>
<td>Methods: Behavioural support sessions were audio-recorded with consent at 24 clinics. A pre-defined fidelity index consisting of two sub-indices assessed adherence and quality. Items were scored against a three-point Likert scale (not implemented, partially implemented and fully implemented) by two bilingual coders in each country. A final consensus score was given for each recording after discussion between coders. Frequencies of main intervention messages were summarized descriptively using SAS. Fidelity scores are presented by intervention message (=item).</td>
<td>Results: A total of 90 recordings, 37 from Bangladesh and 53 from Pakistan, were included in the analysis. In Bangladesh, in 70% of sessions patients were asked whether they used tobacco, and setting a quit date was addressed in around 30% of sessions. Health workers gave information on effects of quitting in almost 70% of sessions. In Pakistan, in only 30% of sessions was patients' smoking status checked, and only 3% of sessions mentioned setting a quit date. In 50% of sessions positive effects of quitting were discussed, and also in 50% of sessions was information given on withdrawal symptoms and how to deal with these.</td>
<td>Conclusion: Health workers discussed health effects of quitting smoking with their patients. Why a quit date was not set together with patients in the majority of assessed counselling sessions should be explored further together with health workers.</td>
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Objectives. The aim of the ongoing Full Flow Project (2016-2020) is to better understand how to use Patient-Gathered Data (PGD) from mHealth technologies to meet both patients' and health providers' needs in diabetes care. We aim to use Experience-Based Co-Design (EBCD) activities to design a system for sharing PGD, followed by a mixed-method study to test its feasibility. While diabetes interventions mainly focus on infrequently measured lab-data, we instead employ a comprehensive set of methods with the aim of understanding not only what, but also how and why measures have changed.

Methods. From 2016-2018, we conducted a series of EBCD activities involving individuals with Type 1 or Type 2 Diabetes, providers, Norwegian health authorities, Electronic Health Record vendors, developers, and design professionals to design a system for sharing PGD during consultations. In November 2018, we began a 6-month mixed-method study to test the feasibility of using the Full Flow Data Sharing System to share and prompt discussion of PGD, from the Diabetes Diary app, with providers during consultations, using standardized questionnaires, app usage-logs and PGD, post-consultation clinician questionnaires, lab-data, and study-end focus groups.

Results. Results of the co-design workshops included feedback about previous mHealth-related experience, expectations, opportunities, limitations, and interface design ideas for the Full Flow System. We are currently continuously tracking the app-usage and PGD of patient participants. Recruitment for providers and patients will end June 1st and July 1st, respectively. We will present the study design and updated results at the conference.

Conclusion: mHealth technologies enable patients to be more engaged in their health. We must acknowledge this trend by treating both providers and patients as expert resources in medical care and self-management, respectively. By a) involving both parties in testing, design and development of systems, and b) using a methods that measure users' health, experiences and wellbeing, we will be able to more effectively produce useful and usable systems while also more effectively understanding their impacts.

Objectives. To identify predictors of participant eligibility, recruitment and attrition rates in behavioural randomised controlled trials (RCTs) of smoking cessation.

Method. Meta-regression analyses of 173 behavioural RCTs, published between 1996-2018, included in the IC-SMOKE systematic review, directed at adults and using biochemically-verified smoking cessation outcomes at a 26 months. Predictors, varied by outcome and included participant characteristics (n=8), recruitment strategy and trial characteristics (n=6) and intervention characteristics (n=8). Pre-specified meta-regressions were conducted with predictors and logit-transformed eligibility rates (#randomised + #declined/#assessed for eligibility), recruitment rates (#randomised/#eligible) and attrition rates (#not-providing outcomes/#randomised).

Results. 137 and 118 out of 173 studies had complete data and were included in univariate meta-regressions for eligibility and recruitment rates. 602 timepoint/group/study out of 1107 observations were included in the multivariate meta-regression for attrition rate. The median eligibility, recruitment and attrition rates were 0.59 (IQR 0.49), 0.65 (IQR 0.40) and 0.20 (IQR 0.21), respectively.

Conclusions
Participants, trial and intervention characteristics as well as recruitment strategies appeared to influence recruitment, and trial and participant characteristics appeared to influence attrition in behavioural RCTs for smoking cessation.

Objectives. Smokers can respond defensively to on-pack warning labels, potentially reducing their effectiveness. The extended parallel processing model (EPPM) posits that including efficacy messages in labels reduces defensive responses and increases target behaviours. This study explored the feasibility and effectiveness of combining current Australian warning labels with efficacy content. Methods: Randomised Controlled Trial (RCT) with 77 smokers over three weeks. After a seven-day baseline phase (smoking from usual tobacco packaging), participants were randomised to one of two adhesive labels groups for the remaining 14-days: standard labels featuring efficacy messages (experimental group) or unmodified standard labels (control group). Participants recorded their cognitions and smoking behaviour in real-time using hand-held computers and completed additional scales during daily evening reports. Results: Multi-level analyses were used to test the relationships between group assignment, self-efficacy (assessed on a three-item, 9-point scale), and intentions to quit (two-item, 10-point scale). There was no main effect of experimental group on either self-efficacy (group difference= 10, n.s.) or intentions to quit (group difference=0, n.s.). However, greater self-efficacy was associated with higher intentions to quit (p<0.05). Smokers in the experimental group also expressed significantly higher intentions to quit (group difference=22, p<0.05), and significantly increased quit attempts (group difference=7, p<0.01). Conclusions: This study explored the possibilities for individuals to combine current warning labels with efficacy messages to increase their smoking cessation outcomes.
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<th>Ashley Brown</th>
<th>Responses to, and use of, a novel technology (e-cigarettes) by prisoners in Scottish prisons in the period immediately prior to going smoke-free</th>
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<tr>
<td>Francisco Cartujano-Barrero</td>
<td>Objectives: Smoking bans are being introduced in prisons around the world in response to high rates of prisoner smoking (~70%), to eliminate occupational exposures to second-hand smoke, and to protect non-smokers. There has been strong advocacy for smoking cessation support and aids, including sale of e-cigarettes, to accompany institutional smoking bans. However, there is limited evidence on smokers' opinions and experiences of trying vaping in this context.</td>
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<td>Methods: 28 interviews were conducted (in September-October 2018) with people in custody (prisoners) who had tried or were using e-cigarettes in prison immediately prior to the introduction of smoke-free policies in Scottish prisons on 30th November 2018. Data were thematically analysed, aided by the framework approach, to identify the range and diversity of opinions and experiences.</td>
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<td>Results: The use of e-cigarettes by imprisoned smokers was strongly influenced by their unique living environment. Experimentation with e-cigarettes was driven by a sense of excitement and curiosity surrounding the availability of a novel, and previously prohibited, technology; prisoners wanting to take positive steps to prepare for the imminent removal of tobacco, and 'appealing' product features e.g. flavoured e-liquids. There was positive feedback about the e-cigarettes which had been made available in prisons, with some prisoners saying they had exceeded their own expectations of reducing smoking in a matter of weeks. However, questions or concerns were raised with respect to the efficacy of vaping for some smokers, long-term safety, and future supply and affordability of products in prisons.</td>
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<td>Conclusion: Our findings about experimentation with vaping among imprisoned smokers prior to the implementation of a smoking ban suggest potential benefits of e-cigarettes accompanying institutional smoking bans and helping smokers in vulnerable circumstances to manage without tobacco. Given that e-cigarettes remain a relatively new technology, e-cigarette use in prison, and other residential and care settings, should be monitored longer term to enable early identification and mitigation of potential unintended adverse consequences.</td>
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<td>Francisco Cartujano-Barrero</td>
<td>Introduction: In Mexico, 8 in 10 smokers are interested in quitting smoking. However, only 6% of Mexican smokers take advantage of pharmacotherapy for smoking cessation, including Nicotine Replacement Therapy (NRT). Overcoming the burden of tobacco use, including low utilization and nonadherence of pharmacotherapy for smoking cessation, demands affordable, accessible, and effective solutions.</td>
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<td>Objective: To assess the feasibility and acceptability of a mobile intervention designed to increase use and adherence of NRT in Mexico.</td>
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<td>Methods: Thirty Mexican smokers who smoked 6 or more cigarettes per day were recruited in a program that encompasses 3 integrated components: 1) a tablet-based software that collects smoking-related information to support the development of an individualized quit plan; 2) a 12-week text messaging counseling program with interactive capabilities; and 3) free NRT mailed to their home. The study follow practice guidelines for treating smokers in Mexico to provide NRT. Text messaging interactivity related to NRT was analyzed. A 12-week follow-up assessment was completed.</td>
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<td>Results: Average age of participants was 38 years old, primarily male (56%), with at least an undergraduate degree (60%). All participants requested an initial supply of NRT and 60% requested refills. During the 12-week intervention period, participants sent 79 messages related to NRT. Three themes were identified within the 79 messages: enthusiasm (&quot;Today I am starting the patches! We will do it!&quot;), instructions (&quot;What is the best time to start using the patch?&quot;), and side effects (&quot;The [NRT] patches give me insomnia.&quot;). At 12 weeks, 30% of participants were biochemically verified abstinent using intent-to-treat (83% follow-up rate). All participants reported using NRT correctly.</td>
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<td>Objective: To assess the feasibility and acceptability of Decídetexto, a culturally accommodated mobile smoking cessation intervention, versus standard care (printed smoking cessation materials along with referral to telephone quitline counseling) on smoking abstinence at Month 6 among Latino smokers. We hypothesize that at Month 6, smokers in Decídetexto will have significantly higher cotinine-verified 7-day point prevalence abstinence than smokers in the control arm. (2)</td>
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<td>Methods: Decídetexto is an innovative mobile smoking cessation intervention (available in English and Spanish) that incorporates 3 integrated components: 1) a tablet-based software that collects smoking-related information to support the development of an individualized quit plan; 2) a 12-week text messaging counseling program with interactive capabilities; and 3) pharmacotherapy support. Decídetexto follows the Social Cognitive Theory (eg, intra- and extra-treatment social support, stimulus control, vicarious experience, social norms). Following the Cultural Accommodation Model, Decídetexto was informed by literature reviews, feedback from key stakeholders, focus groups with Latino smokers and ex-smokers, and results from pilot studies with Latino smokers. Participants in both groups are given access to free pharmacotherapy (nicotine patches or gum). Promotores de Salud will use community and clinic-based methods to recruit Latino smokers into the study (N=618). Participants in both conditions will complete follow-up assessment at Week 12 and Month 6.</td>
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<td>Discussion: Decídetexto is currently being evaluated. If successful, Decídetexto will be ready to be implemented in different community and clinic-based settings and low- and middle-income countries to reduce tobacco-related disparities.</td>
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Hong-Jun Chen
The prevalence of dual and poly tobacco use among males in 19 low-and middle-income countries: implications for a comprehensive tobacco control regulation

Objectives: Concurrently using two (dual users) or more than two (poly tobacco users) tobacco products has been linked to increased health risks and nicotine addiction compared to exclusive use of a single tobacco product. Dual and poly-tobacco use is common in low-and middle-income countries, especially in men. We aimed to estimate national prevalence of dual and poly tobacco use among men in 19 low-and middle-income countries. Such data are essential for effective tobacco control regulations.

Methods: Data from 19 countries around the world (African region n=10, American region n=2, South-East Asian region n=4, European region n=1, Eastern Mediterranean region n=1, Western Pacific region n=1) were obtained from the most recent wave of the Demographic and Health Survey (DHS), collected between 2013 and 2018. The prevalence of at least one tobacco product use, current dual and poly use were estimated using available sample weights. A total of 235,975 men aged 15-49 (India: 15-54) were surveyed. Tobacco products assessed included cigarettes, pipes, chewing tobacco, snuff by mouth or nose, cigar; and country specific tobacco products such as guthka/paan masala with tobacco and khaini in India; betel quid, kreteks and water pipe with tobacco in South East Asia and African countries.

Results: The highest prevalence of using at least one tobacco product among men was observed in Armenia (57%) followed by Myanmar (34%), India (29.4%) and Cambodia (28.6%). Overall prevalence of dual or poly-tobacco use among men was highest in Timor Leste (27.1%), Nepal (28.3%), Lesotho (13.2%) and India (9.3%). Cigarettes were among the most popular tobacco products in all countries, with smokeless tobacco being the major other form of tobacco in South-East Asian countries such as Nepal (25.73% chew, 16.04% betel quid with tobacco) and India (2.33% chew, 14.92% gutka and 12.36% khaini).

Conclusions: Dual and poly tobacco use is common among men especially in South-East Asian countries, mostly due to the concurrent use of cigarettes and smokeless tobacco. These findings highlight the need for tobacco control policies within this region which should adequately cover dual and poly use.

Hong-Jun Cho
Comparison of risk perception between heated tobacco products, electronic cigarettes and combustible cigarettes among Korean adults

1. Objectives: The use of heated tobacco products (HTP) has increased rapidly since June 2017. We examined the prevalence of tobacco product use and compared risk perception between HTP, electronic cigarettes (EC), and combustible cigarettes (CC) among Korean adults.

2. Methods: We performed an online survey with a panel between the age of 20 and 69. The number of included study subjects were 2,380 males and 4,700 females. 3. Results: The prevalence of current CC only use, HTP only use, and EC only use was 14.4%, 1.3%, and 0.9%, respectively. Current dual users of HTP and CC, EC and CC, and HTP and EC were 5.0%, 3.0%, and 0.5% of participants, respectively. Triple use prevalence of the three products was 3.4% of participants.

HTP users (34.6-54.2%) perceived HTP to be less harmful than CC while 11.5% of users of no tobacco products including HTP, EC, and CC responded the same. EC users (45.8-58.7%) perceived EC to be less harmful than CC while 69.9% of users of no tobacco products, including HTP, EC, and CC, considered these products equally harmful. HTP users (36.9-41.3%) perceived HTP to be less harmful than CC while 5.6% of users of no tobacco products including HTP, EC, and CC responded the same. EC users (8.5-32.1%) perceived EC to be more harmful than CC while 11.5% of users of no tobacco products including HTP, EC, and CC were considered the same.

Users of no tobacco products including HTP, EC, and CC, former users of tobacco products including HTP, EC, and CC, and CC only users perceived HTP or EC to be as harmful as CC (69.9-77.0% of users of no tobacco products, 68.2-73.9% of former users and 67.8-75.8% of CC only users). They considered HTP to be as harmful as EC (82.9% of no tobacco users, 82.9% of former users and 82.4% of CC only users). 4. Conclusion: In considering the lack of information on the relative harm of tobacco products, we need to pay attention to the relationship between tobacco control policy and risk perception.

Patricia Goe
An open plot to examine the acceptability and health effects of electronic cigarettes in HIV-positive smokers

Background: People living with HIV (PLWH) smoke at higher rates and suffer significantly more smoking-related morbidity and mortality compared with the general population of smokers. Past studies have shown that smoking cessation rates are substantially lower among PLWH and some HIV-positive smokers report ambivalence about quitting. Switching to electronic cigarettes (ECs) may be a viable option to reduce the negative health effects in smokers who are unable or unwilling to quit smoking combustible cigarettes (CCs).

Objectives: The purpose of this study was to examine the acceptability and health-related effects of ECs in HIV-positive smokers who were not seeking smoking cessation treatment.

Methods: Twenty HIV-positive smokers were recruited from two HIV clinics in the Northeastern United States. Following a baseline visit in which assessments were obtained and ECs were provided, each participant was seen for eight weekly visits in which self-report and biological assessments were obtained. E-liquid was provided weekly for eight weeks and participants were encouraged to use the EC whenever they would normally smoke a cigarette. Follow-up assessments and brief qualitative interviews were obtained at week 12.

Results: All participants were on antiretroviral therapy, 17 (85%) had an undetectable HIV viral load, 6 (30%) were female, mean age 52.7 (SD 9.3), and mean duration of years living with HIV 21.1 (SD 10.2). Mean cigarettes per day was reduced by more than 80% from 15.1 (SD 9.6) at baseline to 1.79 (SD 2.2) at week 8. Six (30%) participants transitioned completely from CCs to ECs, reporting no CC use in the past 7 days. Carbon monoxide levels decreased significantly from 15.7ppm (M: SD 7.6) at 81 to 6.7ppm (M: SD 5.6) at week 8. Cigarette dependence scores reduced significantly, while contemplation ladder scores (indicating quit motivation) increased significantly over time.

Conclusions: Switching from CCs to ECs in daily HIV-positive smokers appears to be feasible and acceptable, with beneficial effects, such as reduced toxicant exposure, reduced CC use and dependence, and increased motivation to quit.
Carole Clarke

Intestinal microbiota and metabolic changes after smoking cessation in people with type 2 diabetes: an exploratory study

Objectives
- Weight gain after smoking cessation involves several mechanisms such as decrease in metabolism, increase in eating and decrease in physical activity. However not all mechanisms are understood and other factors might be involved such as change in intestinal microbiota. The objective of this study is to examine prospectively the impact of smoking cessation on the intestinal microbiota in a population of type 2 diabetic smokers.

Methods
- This observational study is nested within the DISCGO study (Diabetes and Smoking Cessation: a Gender Oriented study), a randomized controlled trial assessing the 12-months efficacy of a behavioral smoking cessation intervention among type 2 diabetics. In a convenient subsample of 80 participants, we measured microbiota in participants’ stools at baseline, 3, 6 and 26 weeks after smoking cessation. Microbiota was analyzed by 16S ribosomal RNA (rRNA) PCR followed by high-throughput sequencing with the Illumina MiSeq approach. We measure continuous smoking abstinence at each visit with validation by expired air carbon monoxide (CO). Body mass index (BMI), waist circumference (WC) and metabolic biomarkers (glycated hemoglobin, cholesterol profile) are also assessed.
- We performed descriptive statistics to compare change in fecal microbiota from baseline to 3, 6 and 26 weeks between quitters and continuing smokers.

Results
- In this abstract, we present results of the seven first participants (4 women, 3 men). Their mean age is 56.4 years (SD 9.8), mean average cigarettes per day is 14.5 (SD 9.1). Among the seven participants, only one participant has quit smoking at the time of analyses. We provide description of the taxonomy at a phylum level for each participant. No significant differences are observed between quitters and continuing smokers.

Conclusion
- Due to the small sample size and low smoking cessation rates no significant changes in intestinal microbiota have been observed after smoking cessation in type 2 diabetic smokers. The study is ongoing and we will continue our analyses to better describe and understand how smoking cessation influences intestinal microbiota and its relationship with metabolism.

Anthony Clarke

A multicenter, double-blind, randomized, placebo-controlled phase 2b trial of cytisinicline in adult smokers

Background: (-)-Cytisine is believed to reduce the severity of nicotine withdrawal symptoms while inhibiting nicotine’s effects by targeting nicotinic acetylcholine receptors in the brain. Cytisine (1.5 mg dose) has been marketed as a smoking cessation drug in Central and Eastern Europe by Sopharma and licensed to Achieve Life Sciences for development in other territories. Studies have shown that cytisinicline (US generic name for cytisine) is effective in helping smokers to stop smoking using a titration schedule with a gradual reduction in cytisinicline tablets per day from 6 to 1 over a 25 day period. The intent of this trial was to compare the titration schedule vs a simplified 3 dose/day (tid) schedule and compare the 1.5 mg vs a 3.0 mg dose.

Methods:
- This was a six-arm, double-blind, randomized, placebo-controlled study in adults ≥18 years of age, smoking 10+ cigarettes daily, and willing to set a quit date. Subjects were stratified by body mass index and randomized 2:1 to cytisinicline (1.5 or 3.0 mg) or placebo. All subjects received behavioral support. Subjects received 25 days of treatment using either the titration or tid schedule. The study was blinded to dose but not to administration schedule, conducted in the US, and evaluated overall reduction in number of cigarettes smoked during the treatment dosing/schedules compared to respective placebo arms. Smoking assessments occurred daily during the 25-day treatment period via self-reported cigarette count. Smoking abstinence was confirmed by carbon monoxide during a follow-up period starting after Week 4 (end of 25-day treatment) and at Weeks 5-8 post-randomization. Other safety and efficacy comparisons were assessed.

Results:
- Study initiated in November 2018 and completed enrollment in February 2019. Total of 254 smokers were randomized (126 vs 128 to titration vs tid schedule). Baseline characteristics were 48.4 years in age; 48% male; 79% Caucasian; mean BMI at 27.7 kg/m2; and smoked an average of 17.4 cigarettes per day. Last follow-up subject visit occurred in April 2019 with final results available in June 2019. Data on safety and efficacy will be presented.

Anthony Clarke

Compliance results from a multicenter, double-blind, randomized, placebo-controlled phase 2b trial comparing two treatment schedules for cytisinicline in adult smokers

Objectives:
- (-)-Cytisine or cytisinicline is a naturally occurring plant-based alkaloid isolated from seeds of Cytisus laburnum (Golden chain) and used to reduce the severity of nicotine withdrawal symptoms while inhibiting nicotine’s effects by targeting nicotinic acetylcholine receptors in the brain. Although studies have shown that cytisinicline is effective in helping smokers to stop smoking using a titration schedule with a gradual reduction in tablets per day from 6 to 1 tablet over a 25 day period, compliance has not been optimal. The intent of this Phase 2b trial was to compare the commercial titration schedule vs a simplified 3 dose/day (tid) schedule for smoking cessation benefit as well as overall compliance. Methods: This was a six-arm, double-blind, randomized, placebo-controlled study conducted in male or female adults ≥18 years of age, smoking 10+ cigarettes daily, and willing to set a quit date. Subjects were randomized 2:1 to cytisinicline (1.5 or 3.0 mg) or placebo. Subjects received 25 days of treatment using either the commercial titration schedule or simplified tid schedule and received behavioral support during treatment. Subjects were required to log dose date and time(s) via a daily electronic diary during treatment. Treatment compliance was monitored by reviewing log entries via online daily reviews and providing feedback to subjects. In addition, a text messaging reminder system was implemented during treatment. The study was blinded to dose but not to administration schedule. Smoking cessation, safety and compliance comparisons were also assessed for cytisine doses versus placebo for each schedule. Results: Study initiated in November 2018 and completed enrollment in February 2019. Total of 254 smokers were randomized (126 vs 128 to titration vs tid schedule). Final outcomes to be available by end of June 2019. Conclusion: The effect of compliance in relationship to improved efficacy and other lessons learned for achieving increased compliance will be presented as part of the compliance symposium.
**Lisa Sanderson**

**Conclusions:** Varenicline was safe and effective in promoting long-term smoking cessation among African American daily smokers, demonstrating efficacy in light smokers as well as in moderate and heavy smokers. Future analyses will examine biopsychosocial mechanisms underlying the treatment effect.

**OBJECTIVES:** African American smokers experience the highest rates of tobacco-attributable morbidity and mortality in the U.S., and effective treatment is needed. Kick It at Swope IV was the first placebo-controlled trial of varenicline among African Americans, including all levels of daily smokers.

**METHODS:** Using a randomized, double-blind, placebo-controlled design, 500 African American daily smokers were randomized (3:2 ratio) to receive varenicline (1 mg bid; n=300) or placebo (n=200) for 12 weeks, along with culturally-relevant, individualized cognitive-behavioral counseling. Randomization was stratified by CPD (1-10 CPD or >10 CPD) and gender. Treatment outcome was salivary cotinine-verified 7-day smoking abstinence at Week 26 (primary outcome) and at Weeks 4 and 12.

**RESULTS:** Smokers opting for an e-cigarette were more likely to have reported complete abstinence from smoking at 4-6 weeks (62%) compared to NRT reported quit rates (52% CO validated) were collected at 4-6 weeks.

**CONCLUSION:** An e-cigarette intervention was significantly more effective for smoking cessation than an NRT protocol in this community pharmacy. The results for e-cigarettes appear to be better than in other e-cigarette studies with the caveat that participants chose their own products which may have introduced bias.

**Objectives**

- Finding effective ways to help pregnant women quit smoking and to remain abstinent in the long term is a public health priority, but few interventions are effective. E-cigarettes (EC) are increasingly used as a cessation aid, but little is known about their use in pregnancy.

- We aimed to estimate UK prevalence of EC use during pregnancy, to compare characteristics of women who use and do not use EC in pregnancy, and to examine pregnant women's attitudes towards them.

- Methods: Pregnant women aged ≥16, 8-24 weeks gestation attending antenatal clinics at 16 hospitals across the UK were invited to complete a short survey asking about EC use and smoking habits. Those who were EC users or current or recent ex-smokers (in 3/12 before pregnancy or since becoming pregnant) were eligible to complete a longer survey on their views and experiences of EC, current use of EC and their smoking behaviour.

- Results: Of 3360 pregnant women, 4.8% were currently using EC with 1.3% being exclusive users and 3.5% dual users (smoking and using EC). 15.3% were current smokers, but not using EC. Only 1 current EC user had never smoked.

- Conclusion: Overall EC prevalence is low amongst pregnant women in the UK. Most pregnant women who use ECs also smoke concurrently, although compared to non-EC users this group were more motivated to stop smoking.
<table>
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<tr>
<th>Karen Cropsey</th>
<th>Behavioral Approaches to Increase Medication Adherence</th>
<th>Objectives: Medication adherence for smoking cessation is critical for success; increasing success rates 3-4 fold over non-adherent participants. Traditionally, NRT and other medications are provided after a behavioral session with brief instructions on how to use these medications. However, adherence to any smoking cessation is suboptimal, with less than 50% using the medication as prescribed. While educational approaches appear to improve self-reported adherence, this has not translated to increased cessation. Most people attempt to quit without using any form of pharmacotherapy and most quit attempts fail, leading to a cycle of unsuccessful quitting and demoralization. However, confidence to quit may be a more salient predictor to quitting than motivation and interventions that boost confidence may be important for improving cessation rates. Methods: During this talk we will review several studies that have used different approaches to increase medication adherence, including nicotine sampling approaches and In Vivo sampling of NRT in session. Results: In nicotine sampling, the participant is provided a sample of NRT (2-4 weeks of therapy) to be used without the pressure to quit and have resulted in increased quit attempts and cessation, even among unmotivated smokers. In the In Vivo sampling strategy, use of NRT in session appears to boost use of medication after session while decreasing withdrawal and craving. Conclusion: These promising approaches may increase adherence and subsequent quitting over traditional behavioral smoking cessation techniques.</th>
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<td>Marina Dascal</td>
<td>Stay quit together – follow-up feasibility and biochemical verification in a postnatal smoking relapse prevention intervention</td>
<td>Objectives: To report on the follow-up feasibility and biochemical tobacco verification in a couple-focused postpartum intervention for smoking relapse prevention. Methods: The Stay Quit Together RCT enrolled immediately after birth women who quit smoking tobacco before or during pregnancy. The follow-up process lasted December 2018 to April 2019. We contacted women and their partners 6 months after the birth of the baby. The participants were asked to complete the follow-up questionnaires either by themselfes online or by telephone. The follow-up included questions regarding the smoking status, the relationship with the partner, and the level of satisfaction with the intervention. Women who self-reported as being non-smokers were asked to biochemically verify their smoking status using a NicAlert kit to measure the salivary cotinine level. Self-reported non-smoker women were asked to interpret the test result over the telephone and send a photo of the test result via smartphone. As an incentive for their participation in the follow-up process, each woman received a baby nasal aspirator. Results: Out of the 75 women who quit tobacco smoking before or during pregnancy enrolled in the RCT, 76% (58) were followed-up at 6 months postpartum. 67% of the followed-up women were either satisfied or very satisfied with the relapse prevention intervention. Close to 80% (46) of the women self-reported as non-smokers. Over 91% (42) of the self-reported non-smokers performed a salivary cotinine test to biochemically verify smoking status. Over 38% of the self-reported non-smokers were confirmed smokers by the cotinine tests. Fewer than 50% (44) of the life partners of the enrolled women participated in the RCT. The partner 6-months follow-up rate was 61%. Conclusion: A couple-focused postpartum smoking relapse prevention intervention showed a high follow-up rate and biochemical verification of the women's tobacco smoking status at 6 months after enrollment in the program. More efforts are needed to engage life partners in such future interventions.</td>
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<td>Lynee Dawkins</td>
<td>Development and validation of alternative health messages for electronic cigarette packs</td>
<td>Objectives: Many countries now mandate health messages on e-cigarette packs. These often mirror the warning labels used on cigarette packs emphasizing nicotine addiction or harms, but may be less relevant for e-cigarettes which constitute a reduced risk product for smokers. This study describes the development and validation of a selection of alternative health messages for e-cigarette product labelling. Methods: 26 messages focused on either harm-reduction or cessation were developed by the research team and were rated by 8 experts (behavioural scientists, health psychologists, policy advisors and adults with lived experience) for accuracy, persuasiveness and clarity. Eight messages which ranked highest across all three categories were further evaluated alongside the two current EU Tobacco Products Directive (TPD) nicotine addiction messages in a sample of 941 European residents (595 smokers, 298 non-smokers, 22 EC/dual users; 26 undisclosed) via an online questionnaire. Using a between-subjects design, participants were randomised to rate one message on how believable, understandable and convincing it was using 7-point Likert Scales (from 1=strongly disagree to 7=strongly agree). Results: Of the ten messages, one of the original TPD messages (“This product contains nicotine which is a highly addictive substance. It is not recommended for use by non-smokers”) achieved the highest overall rating (M=5.57, SD=1.34) for the three scales combined, followed by the other original TPD message (“This product contains nicotine which is a highly addictive substance”) (M=5.55, SD=1.23). The alternative health messages all scored similarly with: “Use of this product is much less harmful than smoking” achieving the highest overall score (M=5.17, SD=1.14). Conclusions: All messages were perceived as believable, understandable and convincing (achieving a mean score in the ‘agree’ range) with the TPD messages scoring the highest. These alternative messages can be a useful tool for future research for exploring the effects of e-cigarette messaging on harm perceptions and smoking behaviour and for future regulatory decision-making vis-à-vis e-cigarette product labelling.</td>
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### Marjin De Bruin

**Variability and effectiveness of control group interventions in smoking cessation trials: A systematic review and meta-analysis**

Objectives: To examine variability and effectiveness of interventions provided to comparator groups in smoking cessation trials. Design. Systematic review of randomised controlled trials (RCTs) of behavioural interventions for smoking cessation. Methods: We searched the Cochrane Tobacco Addiction Group Specialized Register for RCTs with objective outcomes measured at ≥6 months. Study authors were contacted to obtain comprehensive descriptions of their comparator interventions. Meta-regression analyses examined the relationships of smoking cessation rates with stop-smoking medication and behaviour change techniques (BCTs). Results: 104 of 142 eligible comparator groups (N=23,706) had complete data and were included in analyses. There was considerable variability in the number of BCTs delivered (M=15.97, SD=13.54, range:0-45) and the provision of smoking cessation medication (43% of groups received medication) across comparator groups and within categories of comparator groups (e.g., usual care, brief advice). Higher smoking cessation rates were predicted by provision of medication (B=0.32, p<.001). Modelled cessation rates in comparator groups that received the most intensive support were 15 percentage points higher than those who received the least (23 versus 8%). Conclusions: Interventions delivered to comparator groups in smoking cessation trials vary considerably in content, and cessation rates are strongly predicted by stop-smoking medication and number of BCTs delivered. This needs to be considered when synthesising and interpreting the results of such trials.

### Timothy Dewhirst

**Packaging as marketing communication: Codes and designs offering erroneous reassurance**

Objectives: Packaging is considered to be a key marketing variable that helps create brand personality (i.e., associates a product with human-like qualities such as ruggedness or sophistication), and the role of cigarette packaging in communicating brand image has been identified as particularly integral when tobacco companies face an increasingly regulated advertising environment. In this presentation, design elements of cigarette packaging are examined by considering the tobacco industry’s use of intra-brand family codes to convey relative strength, product “lightness,” and a hierarchy of reported tar deliveries. Methods: This paper features a case study approach, focusing on a particular industry and brand strategies. Using standard techniques, tobacco industry documents, made public from litigation, were reviewed, with the primary source of documents being the online Truth Tobacco Documents Library. Results: Brand extensions or variants have facilitated tobacco companies to ably position and create the perception that same cigarettes are healthier versions of others. Where not permitted to use product descriptors such as “light,” “mild,” and “low tar,” intra-brand family codes such as colours, numbers, and symbols continue to be used to infer relative harm (on the basis of their sequential tar yields) and ensure that variants remain associated with product descriptors previously deemed misleading and deceptive. Conclusions: Policy interventions to counteract tobacco companies from communicating a hierarchy of supposed relative harm within brand families include implementation of a single presentation requirement (as observed in Uruguay) and standardized packaging (as observed in Australia).

### Binita Dhungel

**A study on prevalence of nicotine use and dependence in depression and schizophrenia**

**Introduction:**
Individual suffering from depression and schizophrenia have a considerable prevalence of tobacco use. Comorbid tobacco use contributes to higher mortality and morbidity in cases of depression, schizophrenia and other psychiatric illness. Despite of this understanding, there is paucity of study looking into prevalence of tobacco use and nicotine dependence in patients with depression and schizophrenia in low income countries like Nepal.

**Objectives:**
The study aimed at determining the prevalence of nicotine use, dependence and motivation to quit in patients with depressive disorders and schizophrenia.

**Materials and Methods:**
A descriptive cross-sectional study was carried out among both inpatient and out patients with diagnosis of depression and schizophrenia at department of psychiatry and mental health, Tribhuvan University Teaching Hospital (TUTH). Data were collected using semi-structured proforma and WHO STEPS Instrument for Nicotine Use. If patient was found to be tobacco user, Fagerström Test for Nicotine Dependence, Modified Fagerström - Smokeless Tobacco, Heaviness of Smoking Index, and Assessment of Motivation: Readiness to Quit Ladder were applied. Data were tabulated and analyzed using Statistical Package for Social Sciences (SPSS).

**Results:**
A total of 218 patients including schizophrenia (n=97) and depression (n=121) were enrolled in the study. Total respondents with history of nicotine use was 56.42% (n=123) with 38.07% (n=83) were dependent on nicotine (either smoked or smokeless tobacco or both). Prevalence of nicotine use disorder in cases of schizophrenia and depression was 55.67% (n=97) and 57% (n=121). The level of dependence was not significantly different between diagnosis of schizophrenia and depression. Median value of readiness to quit tobacco was 4 which indicates they were thinking about quitting to planning to quit in the next 6 months and this was statistically significant (p<0.05) for both diagnoses.

**Conclusion:** Prevalence of nicotine use and dependence was found higher among both depression and schizophrenia. Use of standardized and translated screening tools can be used efficiently to evaluate the burden of nicotine use.
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<th>Name</th>
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<td>Fiona</td>
<td>Affordability of factory-made (FM) and roll-your-own (RYO) cigarettes across six European (EU) countries from 2016 to 2018: Findings from the EUREST-PLUS ITC 6 European Country Survey</td>
<td>Data from Wave 1 (2016) and Wave 2 (2018) of the EUREST-PLUS ITC 6 European Country Survey were used to estimate affordability among current smokers from six European countries.</td>
<td>Cigarette affordability considers the price smokers pay for cigarettes in relation to their incomes. Due to differential taxes levied on FM cigarettes and loose tobacco in the EU, RYO smokers may have greater ability to pay for cigarettes. This study estimated the affordability of FM and RYO cigarettes in 6 EU countries.</td>
<td>In five EU countries, RYO cigarettes were significantly more affordable than FM cigarettes and remained more affordable by 2018. Tax harmonization policies that equalize prices across products will make RYO cigarettes less affordable, thereby eliminating potential sources of lower-cost alternatives for price-sensitive smokers.</td>
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<td>Pete</td>
<td>Is discontinuation or new use of one substance associated with changes in using other substances in young adults?</td>
<td>Data were available in a longitudinal investigation of 1294 Grade 7 students recruited in ten Montreal-area high schools in 1999. In this analysis, 795 participants contributed self-report data on past-year use of cigarettes, other tobacco products, waterpipe, cannabis, alcohol and illicit drugs at age 20 (2007–8) and age 24 (2011–12). Participants were categorized according to whether their use of each substance changed between age 20 to 24. Those who did not change included sustained non-users and sustained users. Discontinuers stopped using the substance, and new users began using a substance or reusing a substance not been reported four years earlier.</td>
<td>Psychoactive substance use is common in young adults. Whether discontinuation or uptake of a substance alters the patterns of using other substances is unknown. The objectives were to describe changes in use of six substances in early adulthood, and to investigate whether change in the use of one substance relates to changes in other substances.</td>
<td>Discontinuators stopped using the substance, and new users began using a substance or reusing a substance not been reported four years earlier. Results: 7%, 28%, and 65% of participants reported using 0, 1 and ≥2 substances at age 20. One-third reported the same number and types of substances at age 24. In regard to each substance, 4-17% of participants sustained use or non-use, 4-17% discontinued use, and 5-12% began use. Discontinuers reported the greatest declines in number and use of other substances, and new users reported the greatest increases. Conclusions: While 68% of participants reported changes in their overall profile of substance use, use of specific substances was relatively stable in early adulthood. Discontinuation may relate to life changes during young adulthood such as beginning a long-term relationship, joining the workforce, adopting a healthier lifestyle or beginning a family.</td>
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Objective: To describe past-year e-cigarette use with nicotine, without nicotine or to smoke cannabis among young adults and, for each of these e-cigarette modalities, to assess whether users consume other substances with nicotine and what proportion experience nicotine dependence (ND) symptoms.

Method: Data were available in a longitudinal investigation of 1294 Grade 7 students recruited in a purposive sample of ten high schools in Montreal, Canada in 1999. In this analysis, 622 participants age 30 on average contributed self-report data (2017-19) on past-year use of e-cigarettes with nicotine (yes, no) or to smoke cannabis (yes, no). Data were also collected on use of other substances containing nicotine (e.g., cigarettes, cannabis with tobacco, cigars) and ND symptoms.

Results: 20% of all participants (59% male) reported past-year e-cigarette use. Of these, 5-11% reported daily use. 65% of e-cigarette users reported one of the three e-cigarette modalities investigated; 26% reported two, and 9% used all three. 10% of all participants used e-cigarettes with nicotine; they used a mean of 2.8 (SD 0.8) other substances with nicotine and 84% reported ND symptoms. 8% of all participants used e-cigarettes without nicotine; used a mean of 2.3 (SD 1.2) substances with nicotine and 62% reported ND symptoms. 11% of all participants used e-cigarettes to smoke cannabis; they reported a mean of 1.8 (SD 1.4) substances with nicotine and 52% reported ND symptoms.

Conclusions: Most e-cigarette users (68-85%) reported using other substances containing nicotine. There appeared to be a dose response in level of ND according to modality of use, possibly reflecting the number of substances used that contain nicotine. Young adults who use e-cigarettes with nicotine and smoke combustible cigarettes may be seeking additional sources of nicotine to assuage ND symptoms and for its mood-altering effects.

Objective: We described the frequency and predictors of sustained quitting in young adulthood among students who smoked cigarettes during their last year of high school.

Method: Data were drawn from an ongoing investigation of 1294 grade 7 students age 12-13 recruited in 1999-2000 in 10 high schools in Montreal, Canada. Using data collected at age 20 and 24, participants who reported cigarette smoking in grade 11 were categorized as: (1) sustained quitters (i.e., non-smokers at age 20 who remained smoke-free at age 24); (2) recidivists (i.e., non-smokers at age 20 who smoked at age 24); (3) new quitters (i.e., smokers at age 20 who reported non-smoking at age 24); or (4) sustained smokers (i.e., smokers at ages 20 and 24).

Results: Among 254 grade 11 smokers, 16% were sustained quitters, 63% were sustained smokers, 8% were recidivists and 13% were "new" quitters. Twelve percent of sustained quitters reported daily smoking in grade 11 compared to 10% of recidivists, 28% of new quitters and 48% of sustained smokers. Higher proportions of new quitters and sustained smokers reported nicotine dependence symptoms. Sustained smokers and recidivists rated short-term consequences of smoking and social disapproval as less important reasons to quit than sustained and new quitters. Only 15% of sustained smokers were offered help by their doctors in the past year, but 45% reported using a cessation aid.

Conclusions: Only 16% of grade 11 smokers sustained quitting in young adulthood. Cessation assistance including programs that increase self-awareness of developing nicotine dependence, must be made available in high school to help novice smokers to stop smoking before nicotine dependence becomes intractable and before it becomes too difficult to quit.

Supporting Indigenous Smokers To Assist Quitting (SISTAQUIT) randomised controlled trial: implementation challenges

Objective: The purpose of this study is to assess the ongoing challenges with implementing the SISTAQUIT randomised controlled trial in up to 30 Australian Aboriginal Medical/Health Services. SISTAQUIT aims to train services in evidence-based culturally competent care for smoking cessation in pregnancy.

Method: A qualitative documentary analysis employing COM-B framework (capability, opportunity, motivation – behaviour). Data including challenges and opportunities each study site encounters in the process of implementing SISTAQUIT trial is being continually collected from the Research Facilitators (RFs), Service Managers and CEOs during individual or group meetings, face to face, via phone or videoconference. The data was iteratively analysed using a thematic analysis considering COM-B model components for implementing the study.

Results: Challenges identified in implementing the trial include the following: 1. Capability-loss of knowledge, memory and skills if study implementation is delayed; 2. Motivation: RFs may not receive direct benefits from stipends paid to sites, pregnant women may not be sufficiently motivated to participate despite a shopping voucher reimbursement; 3. Physical Opportunity- study sites are under-staffed, have high staff turnover (also impacts the opportunity to have skilled RFs, and new staff need training), staff have competing demands, variations across sites include communication channels, staff hierarchy, and priorities for the research trial. 4. Social Opportunity: RF attendance at group training and videoconference meetings are impacted by organisational time constraints.

Conclusions: Relationships and regular communication with managers, CEOs and the RFs are critical to our research in a real-world complex setting with multiple demands. Providing continuous support to the RFs and an environment for them to exchange experience is crucial in a national multi-site study. Directly reimbursing the RFs may result in better recruitment outcomes since financial incentives were identified as an enabling factor. Local advertisement of the study at community events may increase study awareness and participation rates.
**Fabienne El-Khoury Lesueur**

**Free access to nicotine substitutes and e-cigarettes for tobacco cessation: STOP, a pilot French intervention study among socially-disadvantaged smokers**

**Background**
Smoking rates in France are high, and present a substantial socio-economic gradient. Compared to smokers with favorable socio-economic position (SEP), those with low SEP may be more dependent on nicotine, have more financial difficulties to buy nicotine substitutes, and have more difficulties seeking medical assistance to quit smoking. Tailored approaches are therefore needed to help to reach and assist hard-to-reach populations.

**Methods**
STOP (Sevrage Tabagique à l’aide d’Outils dédiés selon la Préférence) is an ongoing pilot intervention study, examining the acceptability of a smoking cessation centered on the patient’s preference. Smokers with low SEP, wishing to quit, are recruited in six healthcare centers in Greater Paris area (2 hospitals, 2 municipal health centers, 2 addiction prevention centers) by health professionals and are offered substitute(s) of their choice for 4 weeks. Participants can choose between different types of nicotine substitutes (NS; patches, inhalers, gum, tablets, etc.) and/or an electronic cigarette delivered free of charge. They also benefit from adapted advice and follow-up by trained health professionals. The acceptability of this approach is examined in patients but also among doctors, using a mixed-method approach.

**Results**
So far, 30 smokers have been included in our study, 20% chose e-cigarettes, 38% chose NS, 36% chose both, and 2 participants (8%) chose neither. More than half of participants quit smoking (66%) at one week after inclusion, with 11 reporting tobacco abstinence out of 16 participants followed for 4 weeks. The average number of cigarettes smoked decreased from 15 (sd=10) at inclusion to 8.5 (sd=5) among those who didn’t quit at four week.

In qualitative interviews, one of the facilitators highlighted by health professionals was the perceived “met need” of smokers with low SEP when given free quitting aids without upfront-payment. One of the reported obstacles is the difficulty in scheduling consecutive follow-up meetings in short time.

**Discussion**
It is feasible to implement a smoking cessation programme aimed at smokers with low SEP, embedded in the healthcare system. If proven effective, this in

| Omar El-Shahawy |
| Hookah smoking transitions among US young adults: Results from the first three waves 1-3 of the Population Assessment of Tobacco and Health (PATH) Study |

**Background**
Longitudinal studies of hookah smoking patterns are limited. Methods: We examined hookah smoking patterns among young adults (YAs; 18-24 years) in the United States between waves one (W1; 2013/2014), two (W2; 2014/2015), and three (W3; 2015/2016) of the Population Assessment of Tobacco and Health (PATH) Study. Relative risk ratios were estimated to examine correlates of hookah smoking patterns using multinomial logistic regression analyses of weighted data. Results: Of the 1,472 YAs who reported current (every day or someday) hookah smoking at W1, 50.6% reported quitting at W2 and W3 (sustained quitters, n=745), 21.5% reported quitting between W2 and W3 (recent quitters, n=319), 20.9% reported continued smoking (n=296), and 7.1% reported quitting at W2 and current smoking at W3 (relapsers, n=112). In adjusted analyses, compared to continued smoking, respondents making more than $100,000 (vs. making $<25,000) were more likely to be recent quitters (arRR=2.1, 95% CI=1.0, 4.3, p=0.05), and relapsers (arRR=2.6, 95% CI=1.1, 6.5, p=0.05). Compared with White, YAs identifying as non-Hispanic Other were less likely to be sustained quitters (arRR=0.4, 95% CI=0.2, 0.8, p=0.03) and those who own a hookah (vs. not) were less likely to be sustained quitters (arRR=0.4, 95% CI=0.3, 0.6, p=0.001). Those who used non-combustible tobacco in the past 30 days (vs. no past 30-day use) were more likely to relapse to hookah smoking (arRR=1.8, 95% CI=1.1, 3.1, p=0.05). Gender, sexual orientation, education, geographic region, average length of sessions, past 30-day other combustible tobacco use, alcohol and marijuana use were not associated with the observed patterns. Conclusions: More than 2/3 of YA hookah smokers had quit by W3. Not sustaining quitting among YAs who own a hookah may relate to the social aspect of hookah use. Relapsing to hookah smoking among those who currently use non-combustible tobacco suggest that use of non-combustible tobacco may trigger relapse to smoking hookah or there could be tendency for complementary use of hookah with non-combustible products. This study expands our understanding regarding hookah use characteristics and determinants for continued use.
Helen Eminson
Evaluation of the institutionalisation of tobacco cessation within routine Tuberculosis programmes: results from implementation research in Pakistan, Nepal and Bangladesh

Background: Low- and middle-income countries (LMICs) are disproportionately impacted by interacting epidemics of tuberculosis (TB) and tobacco consumption. Research indicates behavioural support delivered by health workers effectively promotes tobacco cessation. Behaviour support is not currently included within routine work of National TB Programmes (NTPs). Our TB and Tobacco Consortium undertook implementation research with NTPs in Nepal, Bangladesh and Pakistan to integrate tobacco cessation within routine TB services. Based on process evaluations alongside a hybrid cessation trial and in collaboration with NTP managers, we developed theories of change and implementation strategies. Strategies focused on: revisions to national TB reporting forms, inclusion of cessation in NTP training and supervision. Here we present our evaluation of these implementation strategies in 59 health facilities in Pakistan; 5 in Bangladesh and 18 in Nepal.

Methods: We used mixed method to evaluate implementation including: i) analysis of routine records to assess reporting of tobacco status and behaviour support provision, ii) before and after assessment and observation of training iii) qualitative interviews with 22 TB health workers, 21 facility managers and 3 district managers on extent of implementation using the Consolidated Framework for Implementation Research (CFIR).

Results: NTP managers were trained as trainers in each country. Knowledge and confidence to deliver cessation training among trainers improved (e.g. in Nepal from 56% confident to 87%) and among TB health workers (e.g. 72% to 88% in Pakistan). Analysis of TB records and the qualitative data is ongoing and will be ready for presentation in June 2019.

Conclusion: Where implementation strategies address health system barriers, behaviour support for tobacco cessation can be delivered as part of routine practice. With support of policy makers and the institutionalization of these implementation strategies, all TB patients can potentially benefit from tobacco cessation.

Catherine Elzerbi
Participants’ experiences of a randomised controlled trial (RCT) designed to reduce relapse to smoking

Objectives: To study the feasibility, acceptability and use of processes and interventions in a four-arm RCT: (i) usual care, (ii) smoking replacement choice including nicotine replacement therapies (NRT) and e-cigarettes, (iii) web-based behavioural intervention, (iv) combination of (i) and (iii) aiming to reduce relapse to smoking in abstinent smokers who had received smoking cessation treatment in UK and Australia. All participants received supportive text messages, with greater frequency and personalization in arms (ii) and (iv).

Methods: 86 RCT participants (including abstainers, lapsers and relapers) were purposively invited upon completion of 3 or 6 month follow-up to take part in semi-structured telephone interviews. Interviews explored participants’ experiences of study processes and interventions. Data were analysed using the Framework method.

Results: The following themes emerged: many reported using multiple non-study methods to cope with urges to smoke and there was differential engagement with study interventions; additional benefit from follow-up surveys and contact with the research team was reported; texts were helpful reinforcement and could be improved if content and timing were tailored to individual circumstances, but there were some reports that texts triggered urges; participants in arm (ii) would have appreciated additional literature outlining e-cigarette safety and risks evidence, relative to smoking; e-cigarette flavours (menthol and tobacco) were unacceptable to some, but liked by others; tapering e-cigarette nicotine content over time was important for some; advice and strategies provided in arm (iii) were useful when accessed, but preference was expressed for a mobile phone app rather than a web-based programme.

Conclusion: Intervention strategies were broadly acceptable, but participants generally preferred some tailoring to their specific needs, where appropriate. There was no one-size-fits-all solution and a variety of study and non-study interventions were used concurrently which should be accounted for in future research; this suggests that a variety of different interventions should be promoted to prevent relapse.

Katie Elzerbi
A comprehensive evaluation of the impact of recent English tobacco control policy using secondary data

Objectives
Smoking is the biggest avoidable cause of death and disability in England. A range of laws and policies aimed at preventing this harm have been introduced in England to try to prevent young people from becoming smokers and encourage existing smokers to quit and to protect others from the harmful effects of cigarette smoke. This Study aimed to evaluate the effects of these policies using publicly available data.

Methods
We developed logic models for each policy that indicated the anticipated causal pathways for each policy and used these to develop hypotheses for our analysis. Interrupted time series analysis was carried out systematically and using a consistent approach across policies, datasets, outcomes and populations. Outcome measures were adult smoking prevalence, quitting behaviour and consumption. Models were adjusted for sociodemographic factors, e-cigarette prevalence and mass media expenditure. Datasets included the Smoking Toolkit Study (STS) and the Health Survey for England (HSE).

Results
Following a point of sale display ban in large shops in April 2012, based on the STS data, there was a significantly steeper declining trend in adult smoking prevalence. This finding was supported by results from the HSE. A similar result was found when analysing quit attempts. Following a point of sale ban in small shops in April 2015, there was a significantly steeper decline in trend in adult prevalence. There was also a significant decline in trend in quit attempts. No significant impact of the smoke-free policy on smoking prevalence was found and we found no evidence of a combined impact of the three policies that were implemented in October 2015 (proxy purchase ban, minimum age of purchase for e-cigarettes and smoking ban in cars carrying children) on adult prevalence.

Conclusions
Both display ban policies were followed by a decline in the trend for smoking prevalence and quitting attempts in adult smokers. A key strength in this study was its consistent and theory-based approach which allowed us to assign impacts to a certain policy with more confidence. This novel approach to policy analysis could also be applied in other disciplines.
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<th>Author</th>
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<tr>
<td>Arshad</td>
<td>Trends in electronic cigarette use in young people in Great Britain 2013-2019</td>
<td>Background: In our present study, we report findings from the 6th annual survey of young people in Great Britain. Continued monitoring of e-cigarette use among young people is essential, as although use by never smokers remains low, this could change. Methods: Young people aged 11-18 years old in Great Britain were surveyed online by YouGov in March-April 2019. Use of e-cigarettes and perception of harm were assessed and compared in relation to smoking history, age and gender. Results: Data from the 1st-5th annual waves indicate a slowing trend of e-cigarette uptake in current smokers, and that regular use or e-cigarettes may have plateaued and remains largely confined to current smokers. Results from the 6th wave (2019) are presented and discussed in the context of the previous waves. Conclusion: Although experimentation has grown, regular use of e-cigarettes by never smokers remains low.</td>
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<td>Hanno</td>
<td>Flavorant–Solvent Reaction Products and Menthol in JUUL E-cigarettes and Aerosol</td>
<td>Significance Since 2017, the &quot;Juul&quot; e-cigarette has become the best-selling e-cigarette on the US market. Juul refill e-liquids contain the common e-liquid solvents propylene glycol (PG) and glycerol (VG), nicotine in salt form as nicotine benzoate, and flavorants. In a recent study, we showed that flavor aldehydes react during simple storage conditions with PG, and the generated acetal compounds differently activated irritant receptors in the airways than their parent compounds. The inhalational safety of such flavor aldehyde PG/VG acetals is unknown. The goal of this study was to quantify flavor aldehyde–solvent reaction products formed in the popular Juul e-liquid during storage and their delivery to the vapor, and to quantify nicotine salt and menthol and their carryover from e-liquid to vapor. Methods Neat Juul e-liquid from all eight available flavors in October 2018 (classic menthol, classic tobacco, cool cucumber, cool mint, crème brulée, fruit medley, mango, Virginia tobacco) and trapped vapor generated by a commercial Juul e-cigarette were analyzed by gas chromatography-mass spectrometry (GC-MS) for flavor aldehydes, their reaction products with PG and VG, menthol, and nicotine benzoate. Results The reaction products of vanillin with PG and VG were detected and delivered to the vapor (73% and 59%, respectively). Four of the eight flavors contained menthol ranging from 0.1-1 wt.-% and one flavor was not overtly labeled as mentholated (fruit medley). Nicotine vapor concentrations were found at similar levels as for combustible cigarettes. Conclusion &amp; Relevance Juul users are exposed to the reported newly-formed compounds with unknown inhalational safety. Further, Juul users are inhaling similar levels of nicotine and menthol as combustible cigarette and mentholated combustible cigarette smokers, respectively, whether or not they are drawn to the devices by the availability of flavors.</td>
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<td>Konstantinos</td>
<td>New data on safety of e-cigarettes</td>
<td>Examining the safety/risk profile of e-cigarettes is one of the key issues in assessing the public health impact of these products. This presentation will review key studies on e-cigarette safety that were published over the past 12 months. While long-term prospective epidemiological studies on e-cigarette use are lacking, some cross-sectional population surveys have examined the association between e-cigarette use and disease, especially cardiovascular and respiratory disease. The presentation will focus on the key findings and interpretation of these studies while methodological issues will be raised. The panel discussion will present the main research questions that need to be answered and whether the available evidence can provide reasonable guidance for healthcare professionals on the appropriate advice that smokers should receive.</td>
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Background: Previous case-control studies and a small number of cohort studies in high-risk populations have found an association between smoking and tuberculosis, but no cohort studies have been conducted in the general population on this to date.

Methods: To investigate the association between smoking and tuberculosis in a cohort of a general population. Methods: Passive case finding and household contact investigation of TB patients was routinely done in Pakistan. Four districts with a high concentration of slums were selected as intervention areas: Lahore, Rawalpindi, Faisalabad and Islamabad. From July 2013-June 2015, contact investigation beyond household was conducted: all people staying within a radius of 50 metres (using Geographical Information System) from the household of smear positive TB patients were interviewed and screened for tuberculosis as part of other activities of project. Those with presumptive TB were investigated using smear microscopy and the Xpert MTB/RIF test was performed on smear negative patients. All the diagnosed TB patients were linked to TB treatment and care.

Results: A total of 783043 contacts were screened for tuberculosis, of whom 19815 (2.53%) were smokers. Smoking was common among men, in diabetic & teenage, elderly age population and in household contact of smear positive TB patients. Smoking was associated with an increased risk of tuberculosis (odds ratio [OR] 2.49; 95% confidence interval, 2.27 – 2.69) in households contact of smear positive TB patients. The association was stronger among those greater than 45 years of age (OR, 11.09) than those between 25-44 years of age (OR, 5.83) and diabetic persons (OR,2.0).

Conclusions: Smoking was associated with a twofold increased risk of active tuberculosis in a cohort of general population.

Objective: To investigate smokers' beliefs about the relative harmfulness of e-cigarettes vs. cigarettes, and whether EC users are using ECs because they believe ECs to be less harmful.

Methods: Cross-sectional analyses from representative samples of adult (≥18 years) current and former smokers participating in International Tobacco Control (ITC) surveys in 25 countries (including high-income (HIC) and low-/middle-income countries (LMICs) at the most recent survey wave. Respondents were asked four questions about nicotine: (1) whether cigarettes contain nicotine, (2) whether nicotine is the "main substance [in cigarettes] that makes people smoke"; (3) the harmfulness of nicotine, (4) whether nicotine causes "most of the cancer from smoking."

Results: Weighted prevalence estimates were computed. Knowledge that cigarettes contain nicotine in 8 countries (all LMICs) was >90% in Malaysia, Mexico, and Uruguay, but <50% in India and Zambia. Awareness that nicotine was the "main substance in cigarettes that makes people smoke" was >90% in UK, NZ, Korea, 80-90% in Australia, Canada, US, 78% in Japan, and >65% in Bangladesh, Zambia. Belief that nicotine was very or extremely harmful was variable, with 6 EU countries being lower (Hungary (20%), Poland (24%), Germany (26%), Spain (33%), Romania (42%), Greece (45%)) than England (49%), Austria (52%), US (56%), and Canada (63%). The misconception that nicotine "causes most of the cancer" was extremely variable across 19 countries, from Thailand (96%), Korea and Malaysia (88%), China (79%), and Mexico (78%) to UK (28%), Australia and US (30%), and Canada (32%).

Conclusions: There was considerable cross-country variability in beliefs about nicotine. The rise in new nicotine products, beliefs about nicotine will play an important role in consumers' (and policymakers') beliefs about and use of vaping products, heated tobacco products, and cigarettes, and transition/substitution rates among these products.

Objective/Background: Past studies have shown that smokers and non-smokers are prone to incorrect beliefs about nicotine. The surge in new nicotine products such as vaping products and heated tobacco products (HTPs) elevate the importance of tracking and understanding beliefs about nicotine. The objective of this study was to assess smokers' beliefs about nicotine across 25 countries.

Methods: Data come from adult smokers and ex-smokers in 8 EU countries [6 EUREST-PLUS ITC countries in 2016 and 2018: Germany, Greece, Hungary, Poland, Romania, Spain (average N=1,083), Netherlands (2017:N=1,061), and England (2018:N=4,098)], and in 14 non-EU countries (at each country's most recent survey wave, 2012 to 2018; N=1,000-8,000). Weighted GEE estimates were produced of: (1) perceptions of relative harmfulness of ECs vs. cigarettes; (2) whether lower harmfulness was a reason for EC use.

Results: At both waves (2016, 2018) of the 6 EUREST-PLUS countries (DE, GR, HU, PO, RO, ES), >50% of smokers believed that ECs are less harmful than cigarettes is related to the likelihood of trying and using ECs, most frequently to try to quit smoking. But little is known about whether perceptions vary across countries. This study presents data from 8 EU countries and 14 non-EU countries on perceived harmfulness of ECs compared to cigarettes, and whether EC users are using ECs because they believe ECs to be less harmful. Data: come from adult smokers and ex-smokers in 8 EU countries [6 EUREST-PLUS ITC countries in 2016 and 2018: Germany, Greece, Hungary, Poland, Romania, Spain (average N=1,083), Netherlands (2017:N=1,061), and England (2018:N=4,098)], and in 14 non-EU countries (at each country's most recent survey wave, 2012 to 2018; N=1,000-8,000). Weighted GEE estimates were produced of: (1) perceptions of relative harmfulness of ECs vs. cigarettes; (2) whether lower harmfulness was a reason for EC use.

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Objectives

- Adolescent smoking is one of the most modifiable factors with clear adverse effects for the fetus and family. The aim is to present the development of Smoke Free Together (SFT), an mHealth pregnancy and postpartum couple-focused tobacco smoking cessation intervention.

Methods:
- SFT is a partnership between US and Romanian research institutions, obstetrics and gynecology clinics in Cluj-Napoca (Romania) and SAMAS, a national non-governmental organization providing perinatal education. The study builds on Self-Determination Theory and uses Motivational Interviewing, focusing on the couple's dyadic efficacy. The framework integrating these concepts into a new smartphone app is the Behavioral Intervention Technology Model. SFT development included: formative data collection, app development and usability testing (a think-aloud protocol and debriefing), and a counselor's manual and training for the telehealth counseling component. The randomized controlled trial engages smokers and their partners during pregnancy and postpartum. The primary outcome is maternal smoking cessation.
- Results: In the formative phase, 11 pregnant ex-/smokers participated in 1-hour telephone interviews, revealing a high interest for a smoking cessation app containing different nicotine concentrations among current cigarette smokers with no plans to quit. The main outcome here is a comparison of intent-to-treat, self-reported 7-day point prevalence cigarette abstinence, biochemically confirmed by exhaled CO of <10ppm at visit 8 (9 months after randomization). Results: At 9 (4 weeks prior), 13%, 8%, 2% of the 0mg/ml group had an intermediate quit rate (6/130, 4.6%). The mean exhaled CO among self-reported quitters was <1ppm for all groups. At visit 9 (9 months after randomization), across groups participants were on average 46 years old, 41% male, 67% White, and smoked 19 CPD with no significant between-group differences. At visit 10, significantly more participants in the 36mg/ml group [14/130, 10.8%] than in the 0mg/ml group [1/130, 0.8%] were abstinent (Fisher’s Exact Tests, p=0.007 and 0.025, respectively). The 8mg/ml group had an intermediate quit rate (6/130, 4.6%). The mean exhaled CO among self-reported quitters was <1ppm for all groups. At visit 10 (4 weeks prior), 13%, 8%, 2% of the 0mg/ml, 8mg/ml, 36mg/ml groups were also abstinent. At visit 10, 0%, 0%, 83% and 86% of those same groups who were abstinent, were still using their study product. All 14 in the 36mg/ml group who were abstinent at v10, were using their assigned product when they first achieved abstinence, an average of 95 days earlier. Conclusion: When smokers seeking to reduce smoking try ECIGs, very few spontaneously quit in the short term. However, if smokers continue to use an ECIG with high nicotine delivery for over 5 months, a greater proportion succeed in completely switching to ECIGs, as compared with placebo or no ECIG.

Objectives

- Amid concern over the potential impact of e-cigarette marketing on youth vaping and smoking, some jurisdictions have implemented e-cigarette marketing restrictions. Two waves of the Youth Tobacco Policy Survey were used to examine youth responses to e-cigarette marketing during a period of significant change for UK e-cigarette marketing regulation.

Methods:
- A repeat cross-sectional in-home survey was conducted with 11-16 year olds across the UK. Wave one was conducted in August and September 2014 (n=1205), two to three months before a new code of practice for e-cigarette advertising was introduced. Wave two was conducted in August and September 2016 (n=1213), three to four months after the introduction of the TPD e-cigarette advertising restrictions. We explored any changes in trying e-cigarettes and e-cigarette brand and marketing awareness. We also examined whether awareness of e-cigarette marketing was associated with susceptibility to vape among youth who had never vaped and never smoked.

Results:
- Prevalence of ever trying e-cigarettes increased from 12% in 2014 to 27% in 2016. Among those who had never tried e-cigarettes and never tried smoking, e-cigarette brand awareness was low and decreased from 35% (able to name any brand) in 2014 to 10% in 2016. The vast majority (78% in 2014, 76% in 2016) had noticed at least one of five forms of e-cigarette marketing (TV adverts, posters/billboards, social media, special price offers, displays in shops). Awareness of TV adverts was 99% in 2014 and 98% in 2016. Awareness of TV adverts also decreased from 37% in 2014 to 27% in 2016. Susceptibility to vape decreased from 31% in 2014 to 25% in 2016. The number of e-cigarette marketing channels young people were aware of was positively associated with susceptibility to vape.
- Conclusion: Our findings indicate an association between e-cigarette marketing and youth vaping susceptibility, and show reductions in e-cigarette brand awareness, awareness of some forms of e-cigarette marketing and vaping susceptibility, during a period of time when product specific rules were introduced for e-cigarettes marketing.
Daniel Frings

Comparison of Allen Carr’s Easyway programme with NHS-standard specialist cessation support: a randomised controlled trial

Objectives
In England alone in 2017 14.9% of adults were classified as smokers, with 77,900 deaths attributed to smoking. Many smokers want to quit and often make several attempts to do so, but the majority fail due to both physiological and psychological factors. A combination of behavioural and pharmacological support is currently judged to be the gold standard for assisting cessation. However, it is important to continually evaluate the relative efficacies of various interventions, and to develop the evidence base for methods which, while well-established, have not been tested systematically. One such treatment is the Allen Carr’s Easyway (ACE) method of stopping smoking. The ACE programme focuses on a single session of support without the use of pharmacotherapy. We compared the effectiveness of ACE with the National Health Service (NHS) gold standard support in the UK.

Methods
A two-arm, parallel-group, blinded, randomised controlled trial was conducted in London, UK, between February 2017 and May 2018. Adult (≥ 18 years) smokers wanting to quit were randomised (with computerised block randomisation, stratified by age (18-37 or ≥38), sex (male or female), number of previous quit attempts (none made over past year or attempts reported over past year), and level of nicotine dependence (45 or ≤5 Fagerstrom test for nicotine dependence)) in a 1:1 ratio to either Allen Carr’s Easyway method of stopping smoking or Lambeth and Southwark’s NHS 1-1 stop smoking service which included funded pharmacotherapy.

The primary outcome was biochemically verified continuous abstinence up to 6 months (exhaled breath carbon monoxide measurement ≥ 10 ppm). Primary analysis was by intention to treat.

Results
620 people were randomised (310 to ACE and 310 to the 1-1 NHS stop smoking service) and were included in the intention-to-treat analysis. At 6 months verified abstinence was 19.4% (60 out of 310) in the ACE intervention and 14.8% (46 out of 310) in the NHS stop smoking intervention (risk difference for ACE versus NHS 4.5% [95% CI -1.4% to 10.4%, OR = 1.41]).

Conclusion
ACE method appears to have similar effectiveness to specialist NHS smoking cessation support.

Karine Gallopin-Morvan

Dissuasive cigarettes: which cues (colours and/or warnings) may be the most effective at deterring young people from smoking?

Objectives
Cigarettes are responsible for most tobacco-related morbidity and mortality across Europe. With large pictorial warnings on cigarette packs, the cigarette stick has become an increasingly important promotional tool for tobacco companies. Our objective was to explore young people’s perceptions of cigarette sticks that were designed to be dissuative (e.g., displaying a health warning or being unattractively coloured).

Methods
An online survey was conducted with 261 smokers in France aged 15-25 years. We used a 3 (warnings: no warning vs text warning [Smoking kills] vs text warning and pictogram [skull and crossbones]) x 2 (colours: partially coloured cigarette [green filter, white cigarette paper] vs fully coloured cigarette [green]) between-subjects design. Participants viewed one of seven images showing someone smoking a cigarette, either one of the six warning/colour combinations or a regular cigarette. We allocated participants by gender and age group to ensure each experimental group had a balanced profile.

Participants were asked about the attractiveness of the cigarette, perception of danger, taste of tobacco, image of the smoker, embarrassment of smoking in front of friends, and the desire to reduce consumption or quit.

Results
Warnings decreased the attractiveness of cigarettes and perceived good taste of tobacco, increased perceived embarrassment of smoking in front of friends, decreased desire to smoke in front of friends and increased desire to quit. The most dissuasive cigarette on these variables was the stick that displayed both the text warning (Smoking kills) and pictogram (skull and crossbones). There was no effect of warnings on attitudes towards the stick, on perception of danger or intentions to reduce tobacco consumption. Partially vs fully coloured cigarettes had no effect on tested variables but moderated the influence of warnings: interaction effects were found on attitudes towards the cigarette and embarrassment of smoking.

Conclusion
This study highlights the importance of the appearance of cigarettes and suggests that use of innovative warnings on cigarettes merits consideration as a tobacco control measure.

Claire Garnett

Understanding the association between spontaneous quit attempts and improved smoking cessation success rates

Objectives
Almost half of smoking quit attempts are ‘spontaneous’ (initiated as soon as the decision to quit has been made) and are associated with increased rates of quit success. This study aimed to assess how far other factors may account for this association.

Methods
Data were used from respondents to a survey representative of the adult population in England from 2006 to 2016. We included 2,018 respondents who were current smokers at baseline and had attempted to quit between baseline and six-month follow-up. Logistic regression models assessed the association between quit success and spontaneous quit attempts while adjusting for smoking and sociodemographic characteristics collected at baseline and quit attempt characteristics collected at follow-up.

Results
Spontaneous quit attempts were associated with greater odds of quit success (OR=1.31, 95%CI=1.07-1.60, p=0.001) but the association was not significant in the fully adjusted model (ORadj=1.19, 95%CI=0.95-1.49, p=0.121). In this adjusted model, those who attempted to quit without cutting down first (ORadj=3.08, 95%CI=2.46-3.88, p<0.001) and were male (ORadj=1.44, 95%CI=1.16-1.80, p<0.001) had greater odds of success; while a greater number of attempts in the past 6 months, stronger urges to smoke (strong vs. none), higher daily cigarette consumption, and lower social grade (I vs. A8) were associated with lower odds of success (ORadj range=0.32–0.98, p=0.030). Quit attempts made without cutting down first were correlated with spontaneous quit attempts (r=0.150, p<0.001) and appeared to account for the diminished association between spontaneous quitting and success (ORadj=1.18, 95%CI=0.96-1.46, p=0.113).

Conclusions
The apparent benefit of spontaneous over planned quit attempts may be attributable to spontaneous quit attempts being more likely to involve quitting without cutting down first (i.e. abrupt cessation) than cutting down first (i.e. gradual cessation). Therefore, abrupt cessation may be a more useful target for advice to improve the chances of successful quitting.
<p>| Kathleen Garrison | A Quantitative Analysis of Smoking and Vaping Norms | Objectives Smoking is a leading cause of preventable death in the world. Though most smokers want to quit, very few achieve this annually, thus more effective and scalable treatments are needed. Mobile health is a promising tool for helping smokers quit. In particular, smartphone apps are positioned to be a major player in the efforts to reduce smoking globally. This talk will report and expand on findings from a recent review of smartphone apps for smoking cessation, including technical and theoretical bases for design, and data on clinical efficacy and effectiveness. Methods This review used the Obesity-Related Behavioral Intervention Trials (ORBIT) model to categorize and discuss smartphone apps for smoking cessation. This talk will additionally evaluate apps according to the American Psychiatric Association model, new guidelines to rating mental health apps. Results Thirty-three smartphone apps for smoking cessation were identified in 55 papers, designed for general/specific populations. App intervention features were under-specified and sometimes inconsistent (e.g. gamification), and most apps used a small number of features. All apps identified some theoretical basis. Most apps were studied at ORBIT phase 1, followed by phase II studies, with very few phase III-IV efficacy or effectiveness trials, in line with prior reviews. Available clinical efficacy data is promising but limited. Conclusion Findings indicate that intervention features of smartphone apps for smoking cessation should be better specified, and consistent terms used in reporting. Studies of apps have been conducted using diverse methods (qualitative, efficacy, translational). However, there is a need for greater programmatic effort such that early phase (i.e. design) research is conducted prior to clinical testing and is reported. Further, such research might improve clinical outcomes. More work is needed to link specific app features with clinical outcomes. Findings support ORBIT as an effective model to summarize and guide research. Continued improvements in evidence-based app design and clinical testing should accelerate the progress of research on smartphone apps for smoking cessation. |
| Helle Garritsen | Association between smoke-free legislation in hospitality venues and smoking among adolescents and young adults: a systematic review | Objectives Worldwide, many countries have implemented smoking bans in cafes, bars, restaurants and other hospitality venues in order to create smoke-free public places. Although effects on adults have been summarised, reviews on young people are currently lacking. This systematic review aimed to assess the literature on the association between smoke-free legislation in hospitality venues and smoking behaviour among adolescents and young adults. Methods We conducted a systematic PubMed search in October 2018, which was updated in May 2019, supplemented with snowballing from references of relevant articles. We searched for studies that assessed the association of any form of smoke-free legislation in any hospitality venue with a smoking behaviour outcome (i.e., initiation, current smoking, frequency, quantity, cessation, and relapse) among adolescents and young adults (10-25 years). Study selection was not restricted to specific study designs, years, or settings. Results 384 publications were initially found, 30 full texts were screened, and 9 were included for review. Included studies were published between 2005 and 2016, and eight were conducted in the USA. Smoking initiation was studied two times; initiation decreased in one study, while no difference before and after implementation of smoke-free legislation was found in the other. Current smoking was studied in five studies and decreased significantly after implementation in three studies. The number of days smoked by smokers in the past 30 days decreased in three out of four studies. Two studies found less progression towards more frequent smoking after implement |
| Phillip Gendall | A Qualitative Review of Mobile Applications for Smoking Cessation | Objectives Smoking is a leading cause of preventable death in the world. Though most smokers want to quit, very few achieve this annually, thus more effective and scalable treatments are needed. Mobile health is a promising tool for helping smokers quit. In particular, smartphone apps are positioned to be a major player in the efforts to reduce smoking globally. This talk will report and expand on findings from a recent review of smartphone apps for smoking cessation, including technical and theoretical bases for design, and data on clinical efficacy and effectiveness. Methods This review used the Obesity-Related Behavioral Intervention Trials (ORBIT) model to categorize and discuss smartphone apps for smoking cessation. This talk will additionally evaluate apps according to the American Psychiatric Association model, new guidelines to rating mental health apps. Results Thirty-three smartphone apps for smoking cessation were identified in 55 papers, designed for general/specific populations. App intervention features were under-specified and sometimes inconsistent (e.g. gamification), and most apps used a small number of features. All apps identified some theoretical basis. Most apps were studied at ORBIT phase 1, followed by phase II studies, with very few phase III-IV efficacy or effectiveness trials, in line with prior reviews. Available clinical efficacy data is promising but limited. Conclusion Findings indicate that intervention features of smartphone apps for smoking cessation should be better specified, and consistent terms used in reporting. Studies of apps have been conducted using diverse methods (qualitative, efficacy, translational). However, there is a need for greater programmatic effort such that early phase (i.e. design) research is conducted prior to clinical testing and is reported. Further, such research might improve clinical outcomes. More work is needed to link specific app features with clinical outcomes. Findings support ORBIT as an effective model to summarize and guide research. Continued improvements in evidence-based app design and clinical testing should accelerate the progress of research on smartphone apps for smoking cessation. |</p>
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<th>Duncan</th>
<th>Gillespie</th>
<th>A model of smoking dynamics in England, 2001-2060</th>
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<td><strong>Objectives</strong>: Smoking-related deaths remain common in England, and sustained investment in tobacco control is needed to realise the potential public health benefits. However, it is unclear how future trends will arise from the cohort dynamics of smoking, and how they might impact socioeconomic inequalities in mortality. We introduce a dynamic and socially-stratified model of cohort smoking histories that we use to forecast smoking-related mortality.</td>
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<td><strong>Methods</strong>: We estimated the probabilities of transition between never, current, former smoking, stratified by year, age, sex and socioeconomic conditions. To do so, we developed a novel method based on the Health Surveys for England 2001-2016, which adjusts for biases using published estimates of smoking relapse and smoking-related disease risk, and data on cause-specific mortality. Socioeconomic conditions were quantified by quintiles of the Index of Multiple Deprivation. We then assessed the contributions of trends in individual smoking initiation and quitting to the observed and projected population trends in smoking and mortality to 2060.</td>
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<td><strong>Results</strong>: Smoking initiation showed clear declines in later cohorts, that were slowest for males who live in the most deprived conditions. Our estimated probabilities of quitting smoking were more constant over time, but were lower for deprived males and showed a characteristic age-pattern: high before approx. age 18, a mid-life peak, and then a later-life rise after approx. age 60. Our model showed that our estimated probabilities of smoking initiation and quit produced a good fit to the observed trends in smoking prevalence from 2001-2016. If these patterns persist, then an ongoing decline in smoking is projected. We show the potential impact of different scenarios for future change on mortality and mortality inequality.</td>
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<tr>
<th>Duncan</th>
<th>Gillespie</th>
<th>Health economic evaluation of tobacco control policy: the example of point of sale tobacco display bans in large and small shops in England</th>
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<td><strong>Objectives</strong>: When many different tobacco control interventions are introduced in a short space of time it can be difficult to evaluate their separate impacts on long-term health and economic outcomes. To do so requires modelling how future period trends in smoking and related health and costs will arise from the cohort dynamics of smoking, and how these dynamics are changed by the introduction of a policy. We introduce a dynamic and socially-stratified model of cohort smoking histories for England, and demonstrate its application to the evaluation of the effects of point of sale tobacco display bans in large shops (implemented 6th April 2012) and small shops (implemented 6th April 2015).</td>
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<td><strong>Methods</strong>: To model policy impacts on smoking, we used the Sheffield Tobacco Policy Model (STPM) for England, which recapitulates the past trends in smoking prevalence since 2001 and then forecasts up to 2060. Our simulation is based on time-varying and socially-stratified smoking transition probabilities that we estimated using the Health Surveys for England 2001–2016 and then forecast. We used the statistical estimates of policy effect derived from prior analysis of smoking prevalence, smoking quit attempts and quit success, stratified by age, sex and social grade. We used these effects to adjust our simulation, and then evaluated the effects up to 2060 on trends in smoking prevalence, quality-adjusted years of life lost due to smoking, and the costs of hospital admissions. Uncertainty in our outcomes comes from the statistical uncertainty in the estimated policy effects.</td>
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<td><strong>Results</strong>: In the symposium we will explain our methodology and show the results of our analysis of the effects of the point of sale tobacco display bans in large and small shops. We will show these results in terms of the impact on ongoing trends and in terms of the population distribution of effects at different numbers of years after policy implementation.</td>
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<th>Daniel</th>
<th>Giovenco</th>
<th>A content analysis of cigarette packaging in the United States</th>
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<td><strong>Objectives</strong>: Cigarette packs are influential forms of tobacco marketing that can increase product appeal and implicitly communicate health risks to consumers. This study documented pack characteristics of the top-selling cigarette products in the U.S. and conducted a market share analysis to identify popular packaging features.</td>
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<td><strong>Methods</strong>: The 50 cigarette products with the highest national unit sales in 2018 were identified using Nielsen Scantrack sales data and subsequently purchased in local tobacco retailers. Packs were coded for features such as size, color, text, and promotions. Descriptive analyses, weighted by total unit sales, documented the market share of pack characteristics and examined brand-level differences.</td>
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<td><strong>Results</strong>: The packs in the sample constituted over half (59.0%) of the total cigarette market share. The most popular brands were Marlboro (34.6%), Newport (15.5%), and Camel (10.4%). Almost half of packs (40.1%) contained a color name, the most common being Gold and Silver. Popular text descriptors included “flavor” (38.3%), “smooth” (35.4%), and “mellow” (15.0%). Over half of packs (57.2%) referenced a promotional deal or loyalty program, and this was almost entirely driven by the Marlboro brand. Examples of promotional text included “Earn points, get rewards” and “50 cents off.”</td>
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<td><strong>Conclusion</strong>: The top-selling cigarette packs in the U.S. often contain features that may influence consumer risk perceptions (e.g., color names, text descriptors). Marlboro, the most popular brand, places rewards program information directly on all of its packs. Restricting these practices via plain packaging laws or other mechanisms may reduce product appeal.</td>
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<td>Author</td>
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<td>Girvalaki</td>
<td>Availability of Smoking Cessation Products among 10 Balkan Countries</td>
<td>Objectives: The aim of the present study was to investigate the availability of Nicotine Replacement Therapy (NRT) (gum, patch, sublingual tablets, lozenge, inhaler, nasal spray) and other pharmacotherapy (Varenicline, Bupropion, Cytisine) used as a smoking cessation aid in 10 Balkan countries (Albania, Bulgaria, Greece, Kosovo, Montenegro, North Macedonia, Romania, Serbia, Slovenia, Turkey). Methods: The structured 8-item self-administered questionnaire in English was distributed via e-mail among country representatives. The questionnaire covered availability and price of smoking cessation products. Bosnia &amp; Herzegovina and Croatia were not included, as information were not available. Results: Among the 10 participating countries, there were: 1 lower-middle-income country (Kosovo), 7 middle-income (Albania, Bulgaria, Montenegro, Romania Serbia, North Macedonia and Turkey) and 2 high-income countries (Greece and Slovenia). Albania was the only country where none of the listed NRTs and pharmacotherapy aids was available while first line pharmacotherapy (NRT, Varenicline, Bupropion) was not available in Albania and North Macedonia. Out of listed 6 forms of NRT, each lower- and middle-income country, on average, had 2,3 forms available in the market but they are fully reimbursed by the healthcare system only in Turkey. High income countries had on average 3.0 form of NRT available in the market but in none of them, they are reimbursed. Bupropion and varenicline are not available in 4 lower- and middle-income countries. Cytisine was available in 6 of the lower- and middle-income countries but not in any high income countries. Conclusion: Despite the high prevalence of smoking in the wider European region and the evident efficacy of NRT and pharmacotherapy along with behavior counseling in tobacco treatment delivery, the availability in Balkans is still low. Balkan countries should work through the full implementation of Article 14 of WHO FCTC and make tobacco treatment delivery available for all citizens willing to quit smoking.</td>
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<td>Grøtvedt</td>
<td>Trends in maternal use of snus and smoking tobacco in pregnancy. A register study in Southern Norway</td>
<td>Background: The use of tobacco products including Swedish snus (moist snuff) in pregnancy may give adverse health outcomes. While smoking prevalence has decreased among fertile women in Norway, snus use has increased during the last years. We investigated whether these trends were reflected also during pregnancy in a population of women in Southern Norway. Methods: Data on smoking tobacco and snus use at three time points before and during pregnancy for 20 844 women were retrieved from the electronic birth record for the years 2012-2017. The results for the three-year period 2015-2017 was compared with a previously studied period 2012-2014. For the period 2015-2017 prevalence and quit rates of tobacco use within groups of age, parity and education were reported. Within the same groups adjusted quit rates were analyzed using logistic regression. Mean birthweight and Apgar score of offspring were calculated for tobacco-users and non-users. Results: There was an increase of snus use before pregnancy from the period 2012-2014 to the period 2015-2017 from 5.1% (CI 4.6-5.5) to 8.4% (CI 7.8-8.9). Despite this, the use of snus during pregnancy did not increase from the first to the second period, but stabilized at 2.8% (CI 2.5-3.2) in first trimester and 2.0% (CI 1.7-2.2) in third trimester. Cigarette smoking decreased significantly both before pregnancy and during pregnancy. The adjusted quit rates were higher in the last period compared to the first, for both snus and smoking tobacco. Odds ratios for quitting both snus and smoking tobacco during pregnancy were highest for women aged 25-34 years, for those giving birth for the first time and for those with a high level of education. Conclusions: There was a marked increase in maternal snus use before pregnancy in the studied period. The proportion that used snus through pregnancy remained constant. Cigarette smoking decreased both before and through pregnancy in the same period.</td>
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<td>Hajek</td>
<td>Nicotine delivery from and user reactions to Juul and other types of e-cigarettes</td>
<td>Dual users attended the laboratory after overnight abstinence and used a range of e-cigarette products ad-lib over five minutes (one product at each session). They also attended a session where they used their own cigarette. Blood samples were collected at 0, 2, 4, 6, 8, 10 and 30 minutes. The comparisons of nicotine intake from different products and relevant user ratings provide information on the potential efficacy of different products in smoking cessation and on their abuse potential.</td>
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Characterizing Treatment Adherence, and its Impact on Treatment Efficacy and Research Results

Objectives: However effective a treatment, patients can only benefit from it if they use it. There are a number of known determinants of treatment adherence, some more relevant for the field of smoking cessation than others. Methods: Two different markers of adherence can affect both smoking cessation trials and clinical practice. One concerns treatment drop-outs, smokers who stop attending treatment sessions; and the other concerns adherence in a narrower sense of using the treatment as prescribed, e.g. using medications at the recommended dose and for the recommended duration or using, say, coping strategies as recommended. Results and Conclusion: The presentation will use data and experience from recent RCTs, including a trial of e-cigarettes versus NRT, to illustrate some of the ways in which adherence issues can affect treatment efficacy and research results.

New data on effects of e-cigarettes on smoking cessation

The effects of e-cigarettes (EC) on smoking cessation can be examined in two different ways. One is to examine the effects of EC when they are provided proactively by health professionals; the other assesses effects of EC use by smokers who purchase them as consumer products, outside clinical settings. Regarding effects of vaping in the treatment context, data will be reviewed from two new trials with long-term outcomes. We will also consider reactions by the treatment and tobacco control communities. Regarding effects of vaping on smoking cessation outside the clinical context, studies will be covered that examined methods used at the last quit attempt and the quit attempt outcomes. New studies were also published that report smoking cessation rates in cohorts of smokers who did and did not try vaping in the past. The results of these recent studies will then be put into the context of previous evidence to consider whether there now exist sufficient grounds to guide health professionals in recommending or not recommending EC to smokers seeking assistance with smoking cessation.

Additional Behavioural Support as an Adjunct to Pharmacotherapy for Smoking Cessation

Objectives: To evaluate the effect of adding or increasing the intensity of behavioural support for people using smoking cessation medications, and to assess whether there are different effects depending on the type of pharmacotherapy, or the amount of support in each condition. Methods: We searched databases and trial registries to June 2018. We included randomised or quasi-randomised controlled trials in which all participants received pharmacotherapy for smoking cessation and conditions differed by the amount or type of behavioural support. We excluded trials recruiting only pregnant women and trials which did not set out to assess smoking cessation at six months or longer. The main outcome measure was abstinence from smoking after at least six months of follow-up. We calculated the risk ratio (RR) and 95% confidence interval (CI) for each study. Where appropriate, we performed meta-analysis using a random effects model. Results: Eighty-three studies (29,536 participants) met the inclusion criteria. We judged 16 studies to be at low risk of bias, 21 studies to be at high risk of bias and the rest at unclear risk of bias. Results were not sensitive to the exclusion of studies at high risk of bias. We pooled all studies comparing more versus less intensive support in the main analysis. There was evidence of a small but statistically significant benefit from additional behavioural support (RR 1.13, 95% CI 1.08 to 1.22; I² = 8%, 65 studies, n = 23,331) for abstinence at longest follow up, and this effect was not different when we compared subgroups by type of pharmacotherapy or intensity of contact. Conclusions: There is high certainty evidence that providing behavioural support in addition to pharmacotherapy has a small but important effect. Increasing the amount of behavioural support is likely to increase the chance of success by about 10% to 20%, based on a pooled estimate from 65 trials. Subgroup analysis suggests that the incremental benefit from more support is similar over a range of levels of baseline support. More research is needed to evaluate associations between effectiveness and different behavioural components of interventions.
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<th>Name</th>
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<td>Laura</td>
<td>Measuring heart rate with smartphone apps to remotely assess smoking status and abstinence in free-living conditions: a pilot study</td>
<td>Methods: In a randomized controlled clinical trial 122 overweight smokers were given dietary advice, support and varenicline during a quit attempt. Quitters were defined according to the Russell standard (5 cigarettes after the quit date) and validated with expired breath CO &lt;10 ppm. 108 participants completed assessments at baseline and after 12 weeks of which 78 were quitters at 12 weeks. cTnI was measured with a high-sensitivity assay with a limit of detection of 1.2 ng/L (Abbott Diagnostics).</td>
<td>HR differed significantly across the three conditions (F(2, 34)=14.37, p&lt;0.001). In comparison with smoking, HR was significantly lower on the non-smoking days without NRT (by 13.4 (SE=3.04) BPM, 95%CI=5.4-21.4, p=0.001) and with NRT (by 10.4 (2.76) BPM, 95%CI=3.1-17.8, p=0.004). There was no statistically significant difference in HR between the two non-smoking days (p=0.39).</td>
<td>This randomized clinical trial showed no significant change in cTnI between quitters and continuous smokers after 12 weeks.</td>
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<td>Eli Heggen</td>
<td>Does smoking cessation change Cardiac Troponin I concentrations?</td>
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<td>cTnI concentrations were significantly higher in men than women (median 2.2 ng/L versus 1.3 ng/L, p=0.003) and correlated with age (Spearman’s rho 0.4, p&lt;0.001). There was no correlation between cTnI and number of cigarettes smoked (Spearman’s rho 0.06, p=0.6). The change in cTnI concentrations from baseline to 12 weeks did not differ between quitters and continuous smokers (table).</td>
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<td>Aleksandra Herbeč</td>
<td>Qualitative evaluation of an online smoking cessation intervention delivered using private Facebook groups: what quitters want</td>
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Janet Hoek

A Longitudinal Qualitative Exploration of Smoking and Vaping Norms

Objectives:
Although many smokers follow self-imposed smokefree norms and smoke in neither their homes nor cars, they may develop different norms with respect to vaping. While vaping is believed to pose fewer risks than smoking, evidence it is not risk-free has led to debate over whether smokefree norms ought also to apply to vaping. We explored the perceptions and practices of people who had recently switched, or attempted to transition, from smoking to vaping.

Methods:
We used longitudinal in-depth interviews with 22 participants (13 women) aged 19 to 55 years. At intake, we purchased each participant an ENDS device and met with them after 2, 6, 12 and 18 weeks to probe their experiences of transitioning from smoking to ENDS use. We analysed the data using interpretative phenomenological analysis, an approach appropriate to probing how participants’ lived experiences of smoking and vaping use evolved during the study period.

Results:
Sixteen participants reported their homes were smokefree; three sometimes smoked inside; one had a special room for smoking, and two routinely smoked inside. Of the 16 with smokefree homes, 13 reported vaping inside their home with most making this change by week 2. Three key themes explained these transitions: convenience, evasion of judgment, and boundary testing. Many participants found indoor vaping much more convenient than going outside to smoke; inclement weather, feeling hungover, and tiredness, all supported this theme. A small minority felt highly sensitive to others’ perceptions; they vaped covertly inside their home to avoid eliciting negative judgments. A minority reported vaping in public indoor settings to test whether and how venue owners differentiated smoking and vaping. Only three participants extended smokefree indoor norms to vaping because of concerns for their children’s health or tenancy requirements.

Conclusions:
Most participants had established smokefree home norms but quickly adopted different norms with respect to vaping. Evidence a minority vaped in public indoor spaces to elicit reactions hig
**Janet Hostina**

**Determinants of Support for Interventions Designed to Manage Tobacco Product Waste**

Objectives: Trillions of cigarette butts are littered each year, making tobacco product waste (TPW) a major environmental hazard. As the final link in the tobacco use chain, smokers are often held responsible for TPW; however, extended producer liability models provide a different perspective by highlighting tobacco companies’ role in creating a product that causes harm to users and their environment. We examined determinants of support for different measures designed to reduce TPW.

Methods: We conducted a cross-sectional online survey of New Zealand smokers (n=398) and non-smokers (n=414), and examined respondents’ knowledge of TPW and their views on measures that could address the environmental problems TPW causes. We developed multi-variable logistic regression models to estimate determinants of perceived responsibility for TPW.

Results: We first estimated determinants of support for measures targeting individual behaviour change, such as fines, education and on-pack information. Smokers were significantly more likely than non-smokers to support educational interventions, and significantly less likely to support fines or increased smoke-free areas. Māori (indigenous peoples of New Zealand) were significantly less likely to support fines, but both Māori and Pacific respondents were significantly more likely to support a butt refund scheme. We next estimated reactions to producer-oriented measures, such as law changes requiring tobacco companies to fund TPW clean-up costs. Smokers were significantly less likely than non-smokers to support producer-oriented measures, though Māori and Pacific respondents were significantly more likely than non-Māori to support these measures.

Conclusions: Reducing TPW requires a multi-dimensional approach; social marketing campaigns may be required to increase awareness of the hazard TPW presents and the role tobacco companies play in creating this problem. Increased knowledge may foster support for policies designed to shape behaviour; however, policy makers should also employ measures to reduce smoking prevalence, which remains the most effective way to reduce TPW.

**Richard Holiday**

**E-cigarettes for Smoking Cessation in Patients with Periodontitis: Pilot RCT**

Objectives: Electronic cigarettes (e-cigarettes) are a new approach to smoking cessation with emerging evidence of effectiveness. This pilot trial aimed to assess the viability of delivering and evaluating an e-cigarette intervention for smoking cessation or harm reduction within the dental setting, prior to a definitive study.

Methods: An external pilot 2-armed parallel group, individually randomised controlled trial, with a 1:1 allocation ratio, was conducted over 22 months in the Newcastle Dental Clinical Research Facility. Eligibility criteria included being a tobacco smoker, having periodontitis and not currently using an e-cigarette. All participants were provided with non-surgical periodontal therapies and smoking cessation advice. The intervention consisted of an e-cigarette starter kit with brief training. Proposed outcomes for a future definitive trial, in terms of smoking behaviour and periodontal/oral health were collected over 6 months. Analysis was descriptive, with 95% confidence intervals presented where appropriate.

Results: Eighty participants were successfully recruited from a range of dental settings. Participant retention was 73% (n=58; 95% CI: 62%-81%) at 6 months. The e-cigarette intervention was well received, with usage rates of 90% (n=53; 95% CI: 77%-96%) at quit date. 20% (n=8; 95% CI: 11%-35%) of participants in the control group used an e-cigarette at some point during the study (based on instructions). The majority of the outcome measures were successfully collected, apart from a weekly smoking questionnaire which had poor completion rates. Reductions in expired air carbon monoxide over 6 months of 6 ppm (95% CI: 1-10 ppm) and 12 ppm (95% CI: 8-16 ppm) were observed in the control and intervention groups respectively. Rates of abstinence (carbon monoxide-verified continuous abstinence for 6 months) for the two groups were 5% (n=2; 95% CI: 1%-17%; control group) and 15% (n=6; 95% CI: 7%-29%; intervention group).

Conclusions: Data suggest that a definitive trial is feasible and that the intervention may improve smoking quit rates. Insights were gained into how best to conduct the definitive trial.

**Andreea Hostina**

**Development of the Stay Quit Together mHealth intervention**

Objectives: Many women who quit smoking during pregnancy relapse after birth, but this issue is starting to be approached through digital means. This paper reports on the development of the Stay Quit Together intervention, a mHealth intervention that aims to support women to stay smoke-free after birth.

Methods: The starting point of this intervention was adapting a pre-existing app, iCoach, developed initially for smokers who wanted to quit. We translated the content of the app in Romanian and we made several changes in order for it to address our target population. The second step was to develop around 600 pregnancy-tailored messages based on motivational interviewing techniques. The messages addressed both the women and their partners, as another component of the intervention is dyadic efficacy.

Results: The app has three main sections: Daily tips, Library and Panic tips. The “Daily tips” are messages that the user receives every day in order to remain motivated to stay smoke-free and the “Library” section offers information about smoking for the users that want to further read. The users can press a Panic Button when they feel like smoking and they want to avoid it. When pressing this Button, they receive “Panic tips”, messages that pop up in order to support them to get over the moment.

The SMS component was informed through the research team’s prior work and resulted in messages addressing coping, motivation or confidence enhancement and general well-being.

Conclusions: This initiative is one of the few mHealth interventions that were developed in the past years. By using information collected through prior projects, the research team created a large number of tailored messages and to adapt the content of an already existing app. mHealth interventions are an emerging approach in the field of Public Health and using them is a step forward in research. By having the appropriate theoretical basis, such interventions can be successfully developed.
### Carolina Hidalgo and Huang Wei

**Objectives:** Pod-based vaping systems (PVSs), such as JUUL, has transformed the US tobacco landscape, replacing older generations of electronic vaping products (EVPs) and gaining popularity among youth. Previous research has demonstrated that perception of risk plays a crucial role in decisions to use tobacco. However, few studies have examined how youth perceive the risks of EVPs and how their risk perceptions play a role in their decisions to use such products, including PVSs. The objectives of this study are to examine youth perceptions of harm about EVPs relative to combustible cigarettes, and the association between their risk perception and use of PVSs among American youth and young adults.

**Methods:** A nationally representative sample of youth (age 13-17, n=2043) and young adults (age 18-24, n=1843) were drawn from two commercial panels (AmeriSpeak Panel by NORC and Knowledge Panel by Ipsos). Descriptive and *χ²*2 statistic assessed risk perception and prevalence of past 30-days use of PVSs among youth and young adults. Logistic regression models were used to assess the relationship between product use and demographic characteristics and risk perceptions. A poststratification weight specific to this study using an iterative proportional fitting procedure (raking) was employed in all analyses.

**Results:** 24.5% of youth and 32.6% of young adults perceived EVPs to be more or equally harmful as cigarettes. About two fifths of youth and young adults perceived EVPs to be more or equally harmful as cigarettes were associated with lower odds of using EVPs and PVSs among both youth and young adults. Conclusion: Youth and young adults who perceive EVPs as more harmful or equally harm as cigarettes are less likely to use EVPs and PVSs. Efforts monitoring how youth's and young adults' perception change as vaping products evolve are needed.

### Carolina Hidalgo and Huang Wei

**Objectives:** Tobacco market has undergone significant changes in recent years due, in part, to the rapid growth of electronic vaping products (EVPs). In particular, the pod-based vaping systems (PVSs), such as JUUL, has transformed the US tobacco landscape. Previous studies have established a link between exposure to EVP advertising and use of such products, however, no studies have examined exposure to PVS-specific advertising and use of PVSs among youth. The objective of this study is to examine the association between exposure to PVS-specific advertising and use of PVSs among American youth.

**Methods:** A nationally representative sample of American youth (age 13-17, n=2043) was drawn from two commercial panels (AmeriSpeak Panel by NORC and Knowledge Panel by Ipsos). Logistic regression models were used to assess the relationship between past 30-day use of PVSs and exposure to PVS-specific advertising, as well as demographic characteristics. A poststratification weight specific to this study using an iterative proportional fitting procedure (raking) was employed in all analyses.

**Results:** Youth were exposed to PVS-specific advertising on a variety of media channels, including online and social media (16.3%) and retail store (15.3%). Overall, the prevalence of past 30-day PVS use was 5.7% among the youth sample in our study. Adjusting for gender, race/ethnicity, household income, and geographic region, youth who reported exposure to PVS-specific advertising across any of several media channels were significantly more likely to have used PVSs within the past month (OR 8.49 [95% CI, 3.85-18.7]).

**Conclusion:** Exposure to PVS-specific advertising in retail stores or online or on social media was associated with higher odds of past 30-day use of PVSs among American youth. Policies that regulating youth-targeted PVS advertising may be helpful in reducing youth use of PVSs.

### Karin Hummel

**Objectives:** Recent research indicates that there is an association between use of e-cigarettes and smoking tobacco cigarettes among adolescents. We present baseline data of a study among Dutch adolescents that examines use of both products with the aim to describe and compare both user groups.

**Methods:** We conducted online surveys among Dutch adolescents (11-18 years) in 2018 (n=1984). We asked whether respondents had ever used tobacco cigarettes and e-cigarettes, and whether they used them in the past 6 months. We also asked how old respondents were when they first used the products. Furthermore, we asked questions about whether the used liquid contained nicotine, about the liquid flavor, and the generation of e-cigarettes. Finally, we asked tobacco users about their self-identity as smoker, and e-cigarette users about their self-identity as e-cigarette user.

**Results:** 9.5% of respondents indicated that they had ever smoked tobacco, while 20% had ever used an e-cigarette. Use in the past 6 months was lower among e-cigarette ever users (42.4%) than among tobacco cigarette smokers (78.1%); 49.7% had used both products in the past 6 months. On average, respondents were 14 years old when they first smoked tobacco, and 13 years old when they first used an e-cigarette. Most e-cigarette users used liquids without nicotine, with fruit flavor, and a third generation e-cigarette. More than 70% of smokers scored low on the question about their self-identity as smoker, and more than 68% of e-cigarette users scored low on the question about self-identity as e-cigarette user. There were no age differences in the self-identity as smoker or e-cigarette user.

**Conclusion:** Our results indicate that twice as many Dutch adolescents experiment with e-cigarettes than with tobacco. Furthermore, they start experimenting with e-cigarettes at a younger age than experimenting with tobacco. However, tobacco users seem to be more stable in their behavior and keep using tobacco. Dual use is relatively common for use of tobacco and e-cigarettes in the past 6 months. Self identity as smoker or e-cigarette use does not seem to play an important role among adolescents.
Abby Hunter

**A James Lind Alliance Priority Setting Partnership to identify the priorities for research into electronic cigarettes**

**Objectives:**
- Smoking is the leading cause of preventable death. Helping people quit smoking has major potential to improve the current and future health of all NHS patients. Electronic cigarettes (EC) are now the most popular method for quitting smoking in the UK, and are estimated to be 95% safer than cigarettes. However, there is much uncertainty and controversy associated with EC. The James Lind Alliance Priority Setting Partnership provides a formal structure for patients and clinicians to agree uncertainties and priorities for research in EC. In this partnership, ‘patients’ encompasses smokers, vapers and any interested member of the public.

**Methods:**
- Patients and clinicians have been invited to submit their questions on EC that they want answered by research. These questions were analysed, combined into summary questions and explored to see if research had already answered these questions. The remaining summary questions were included in a second prioritisation survey.

**Results:**
- The first survey achieved a response rate of 76.5%, representing 1887 submitted questions. Almost a quarter (22%) were healthcare professionals. The number of questions submitted per person ranged from 1 to 16. The mean age was 47 years, and there was an almost equal split of males (57%) and females (42%).
- The second prioritization survey included 52 unanswered summary questions for people to vote on their top 10 in order of importance. Questions represented a variety of topics such as: the safety and effectiveness of EC for smoking cessation, including in specific populations such as in pregnancy and people with mental health issues; health effects; education and support; policies; products; behaviours; accessibility; environmental and financial issues. The top 25 questions will be discussed in a final workshop with patients and clinicians, to agree a top 10.

**Conclusions:**
- The top ten uncertainties will be disseminated widely to raise awareness among key stakeholders and funders. Given that resources for research are limited, it is important for funders to understand the priorities so that future research can be targeted accordingly.

Abby Hunter

**Exploring the views of healthcare professionals regarding the use of electronic cigarettes in pregnancy**

**Objectives:**
- Finding effective ways to help pregnant women quit smoking and remain abstinent is a public health priority. Electronic cigarettes (EC) could be a suitable cessation tool in pregnancy for those who struggle to quit smoking, however it is not known what healthcare professionals (HCP) think, know and do regarding EC and pregnancy. Using the Capability Opportunity Motivation Behaviour (COM-B) model, along with the Theoretical Domains Framework, the aim was to conceptualise the factors which explain or determine HCP attitudes, knowledge and behaviours towards EC in pregnancy, within the wider context of smoking cessation.

**Methods:**
- Telephone interviews were conducted with 60 midwives, general physicians, health visitors, and stop smoking practitioners (SSP) across the UK. Interviewees were recruited through participant databases, the National Centre for Smoking Cessation and Training, social media, and by contacting heads of medicine, midwifery and local stop smoking services.

**Results:**
- Interviews were analysed thematically using the ‘Framework’ approach. Themes included 1) Pragmatism vs Apprehension. Some HCP recognised that EC are safer than cigarettes and the potential benefits for quitting smoking. However, others were more cautious and fearful about discussing an unlicensed product, due to uncertainties of the long-term safety of the product and the potential harm to the baby. 2) Opportunity and Responsibility. Some HCP did not consider smoking cessation a priority within their role, other than referring a smoker on to specialist support. Others were not familiar with guidelines, or were restricted by employer policies on what they could say about EC. 3) Knowledge and Training. Although SSP were generally more knowledgeable and positive about EC, there were still some who were not happy to recommend EC in pregnancy. A lack of knowledge and confidence in discussing EC meant that further training would be welcomed by nearly all HCP.

**Conclusions:**
- EC guidelines are not currently reaching HCP, leading to confusion over what they can recommend. HCP must be sufficiently informed about EC and have adequate training to offer advice to pregnant smokers.

Qamar Iqbal

**Steps taken for comprehensive tobacco control at district level**

**Objectives:**
- Gujranwala District is the 5th most populous city of Pakistan (2.027 million). All groups were uncover like Schools/Colleges, civil administration, official/private departments community groups & general public at smoking prohibited areas & less aware on hazards of tobacco products use and no work in the field of tobacco prevention, control implementation and cessation facilities before 2010

**Methods:**
- Formed a District implementation Committee (DIC) under the chairmanship of Duty Commissioner (DC) for tobacco control and members from concern departments like Education, Health, Police, Transporters and Civil Societies etc. Effective decisions making meetings of DIC & provided protection to all with tobacco control laws

**Results:**
- Set up a Tobacco Cessation Clinic at DHQ Hospital 1st in Pakistan

**Order by DC to all city district government departments to follow carrying “No Smoking messages” on official files

**Letters to all Health Care Facilities to implement Tobacco control Laws

**Smoke free colleges // Smoke free public offices. // Smoke free public places // On Official Rate List was included to sale tobacco products “under 18” is punishable. My Short booklet for students and general public

**I filed a FIR against Tobacco Industries/ Retailer on violation of TAPS and Tobacco Control Laws

**Survey Study Report on Illicit Trade of Cigarettes in Islamabad to encounter TI’s arguments

**A pilot survey research report on smokeless tobacco products in Islamabad & Rawalpindi districts.

**Conclusion:**
- Covered all groups through comprehensive tobacco control by awareness companions, cessation facilities and laws implementation

**To form District enforcement team for strict implementation of tobacco control laws

**To encounter tobacco industries interference & tactics timely
### Effect of hydro-alcoholic extract of Delphinium denudatum (Jadwar) on nicotine withdrawal in nicotine dependent rats

**Background**
Delphinium denudatum (jadwar, family: Ranunculaceae) is one of the most important drugs used in the indigenous system of Unani medicine in India. The present study aims to characterize the effect of hydro-alcoholic root extract of Delphinium denudatum for its ability to attenuate mecamylamine precipitated nicotine withdrawal in nicotine dependent rats.

**Methods**
Male adult Wistar albino rats (175-250gms) were made physically dependent by subcutaneous infusion of nicotine (9.0mg/kg/day) via a 7 day osmotic pump; whereas control rats received saline via osmotic pumps. Test doses of hydro-alcoholic extract of Delphinium denudatum root (200, 400, 800, 1600 mg/kg) were given orally daily for 7 days. On 7th day of infusion of pumps, nicotine withdrawal, were precipitated with subcutaneous injection of nicotine antagonist mecamylamine (1 mg/kg), 2 hours after the test dose. Somatic signs of withdrawal were scored for 15 mins by using the global Gellert-Holtzman (GH) rating scale followed by a measurement of motor activity.

**Results**
Oral administration of Delphinium denudatum root extract suppressed hyper-locomotion at higher doses (800 and 1600 mg/kg) during withdrawal in nicotine-dependent rats, which had no significant effect at lower doses. Moreover, higher doses (800 and 1600 mg/kg) also showed a significant attenuation of mecamylamine (1 mg/kg) induced nicotine withdrawal (GH Score), whereas no significant effect was observed at low doses.

**Conclusion**
These results suggest that Delphinium denudatum may prove to be potential therapeutic agents to attenuate the symptoms of nicotine withdrawal and facilitate tobacco smoking cessation (Supported by, Ministry of AYUSH, Govt. of India, New Delhi).

### Smokeless tobacco characteristics and related cultural myths amongst disadvantaged women in India

**Objectives**
India has a huge problem of smokeless tobacco use in disadvantaged women. The study aimed to elucidate tobacco use characteristics and beliefs regarding tobacco use in disadvantaged women with a view to plan intervention.

**Methods**
The sample of 100 women tobacco users was recruited from an urban resettlement colony in Delhi. A prior available sampling frame was utilized and the sample was selected through systematic random sampling.

**Results**
The mean age of the sample was found to be 43 years (SD = 12.8). Most of these women were housewives (69%), illiterate (61%) and came from a socio-economically disadvantaged background. They were predominantly smokeless tobacco users with gut (pyrolysed tobacco product used as dentifrice) and betel quid with tobacco being the most common smokeless tobacco products used. One-third of women cited perceived beneficial effects of tobacco on oral health like smokeless tobacco use being good for gum health and relief of dental pain for initiation and maintenance of tobacco use. Oral health problems were the most commonly identified reason (46%) for relapse to tobacco use as well. Nearly half of women had never previously attempted to quit tobacco use and the mean number of quit attempts among those who tried to quit was very low (1.3 ±0.7). Nearly 40% reported cancer as one the major harms of tobacco use. However awareness of other harms was very low. Most women perceived self-help alone (57%) and advice and guidance only (52%) as adequate interventions to quit tobacco use.

**Conclusions**
There is a need to educate about harms of continued tobacco use and knowledge regarding availability of treatment should be provided. Incorrect beliefs regarding the perceived beneficial effects of smokeless tobacco for oral health issues need to be specifically addressed and this should be an integral part of treatment.

### E-cigarette use and susceptibility to smoking initiation among young adults living in a strict regulatory environment

**Objective:** One of the most important tobacco control strategies has been the denormalisation of smoking behaviours, a strategy that is potentially threatened by the increasing popularity of e-cigarettes. In countries with permissive regulations around the marketing and sale of e-cigarettes, use of the devices among non-smokers has been found to significantly predict initiation of conventional cigarette smoking. Research assessing the gateway hypothesis in countries with conservative regulations is limited. To extend the existing evidence base, the present study examined susceptibility to future tobacco cigarette use among e-cigarette users residing in Australia, a country with a strict regulatory environment.

**Methods:** Never smokers aged 18-25 years (n = 519, 55% female) were recruited by an online web panel provider. Among respondents, 17% had ever used an e-cigarette and 4% were current users. Susceptibility to tobacco smoking initiation was assessed by asking respondents how curious they were about e-cigarettes and how willing they were to smoke, and their future smoking intentions. Several individual and social covariates were included in regression models.

**Results:** Susceptibility to future tobacco smoking was greater among ever and current e-cigarette users compared to never users, even after controlling for a variety of individual and social covariates. Moderation analyses indicated that susceptibility was greater when the assessed social factors were conducive to tobacco use.

**Conclusions:** Results suggest that e-cigarettes have the potential to increase risk of tobacco cigarette smoking even among young adults living in a strict regulatory environment. Given insufficient evidence that e-cigarettes are effective for smoking cessation, maintaining existing strict regulations should be a public health priority to ensure e-cigarettes do not undermine decades of effective tobacco control efforts.
Sven-Eric Jordt

Pulegone, A Carcinogenic Mint Derivative, Is Present In E-Liquids And Smokeless Tobacco Products

Objectives: In October 2018, US FDA enacted a new rule banning six flavor chemicals from addition to food. These compounds include pulegone, a mint flavor, that the US National Toxicology Program (NTP) identified as a carcinogen in animal studies, and evaluated as a possible carcinogen in humans by the International Agency for Research on Cancer (IARC). Analytical studies by CDC revealed that pulegone is present in mint and menthol-flavored e-liquids and smokeless tobacco products (SLT). Since FDA intends to exempt mint/menthol-flavored e-cigarettes from proposed regulations, the health risk associated with pulegone in these products is of concern and needs to be evaluated.

Methods: For risk assessment Margin of Exposure (MOE), the risk parameter used by regulatory agencies, was calculated by dividing the FDA-provided no-significant-effect-level (NOEL) of pulegone from animal studies by the average human exposure from use of mint/menthol-flavored e-cigarette or SLT products analyzed in the CDC studies. Results were compared to risk due to pulegone contained in combustible menthol cigarettes. The carcinogenicity risk is inversely proportional to MOE, with a threshold of 10,000; thus, MOE values below 10,000 require risk-mitigating interventions.

Results: Depending on daily consumption rates, MOEs ranged between 325-6,012 for e-liquids and 549-1,646 for SLT, all several-fold below the threshold of 10,000. Predicted pulegone exposure in e-cigarette users was 44-1,608 times higher, and in SLT users 126-3,191 times higher than in menthol cigarette smokers.

Conclusions: Analytical studies from CDC and other labs suggest that pulegone is present in a wide range of menthol/mint-flavored e-liquids and SLT. Based on our risk analysis, pulegone should be prioritized for carcinogenic risk-mitigating interventions. Regulators and manufacturers are advised to mandate comprehensive testing of all mint/menthol-flavored tobacco products to minimize pulegone content before endorsing these products as alternatives for smokers.

Sabrina Katsaounou

Is tobacco smoking related to anxio-depressive symptoms? Results of a representative survey of the German population (DEBRA Study)

Objectives: The causal link between tobacco smoking and symptoms of anxiety and depression is not fully understood. However, smoking cessation is more difficult for smokers with than for smokers without such complaints. This study aims at assessing current prevalence rates of anxio-depressive symptoms related to tobacco consumption and tobacco addiction in Germany, a country with a high smoking rate (28%).

Methods: The German Study on Tobacco Use (DEBRA, www.debra-study.info) continuously collects data from representative population samples (every second month in a new sample of ~2,000 people aged ≥14 years). For the current report, we used data from 4 waves (06/2018 to 01/2019). Of 8,166 respondents, 7,291 (89.3%) were willing to answer questions on anxio-depressive symptoms (health questionnaire for patients, PHQ-4, value range: 0-6 = none to severe symptoms). We analysed associations between smoking status, tobacco dependence (only in current smokers, with the “Heaviness of Smoking Index”, value range: 0-6 = very low to heavy dependence), and symptoms of anxiety and depression (cut-off ≥ 3, respectively) using multivariable logistic regression.

Results: 5.1% (95%CI=4.6-5.6%) of respondents reported symptoms of anxiety, and 3.3% (95%CI=2.9-3.7%) symptoms of depression (weighted data). Adjusted for age, sex, household income, and education, current smokers were more likely to show symptoms of anxiety (OR=1.31, 95%CI=1.04-1.65, P=0.022) and depression (OR=1.81, 95%CI=1.37-2.39, P<0.001) than never-smokers. Ex-smokers did not differ from never-smokers. In current smokers, higher levels of tobacco dependence were associated with symptoms of anxiety and depression (adjusted ORs= 1.27 and 1.33 per increasing level of dependence, respectively; both P<0.001).

Conclusion: Anxio-depressive symptoms are associated with tobacco smoking and tobacco addiction in the German population. Although the causality is still unclear, this relationship should be taken into account in health education and smoking cessation. Particularly, since several studies report an improvement of psychological complaints following successful tobacco abstinence.

Paraskewa Katsaounou

WHO-ERS project on smoking cessation in primary care in countries with high smoking attitudes. Three years experience

WHO-ERS Train the Trainer (TTC) in smoking Cessation (SC) is a successive 3year collaboration (2016-19) to support WHO’s training activities for building capacity of WHO Member States to provide SC interventions (SCIs) to smokers both in hospital and primary care settings. 5 countries with high prevalence of tobacco use and low availability of SC support were selected (Greece, Moldova, Bangladesh, Ecuador, Nigeria).

Objectives: 1. To train trainers in smoking cessation
2. To produce an e-learning material in smoking cessation

Methods: 1) A national training network capable of further training HCPs was established to provide brief TCIs to respiratory patients, 2) an online 6module training course on brief TCIs for HCPs was developed in English. 3) WHO Train the trainers material has been used.

Results: The TTC workshops were jointly conducted by WHO and ERS experts as 30-40 HCPs were trained on brief TCIs in each country and subsequently endorsed to train others through structured cascading training programs. Consequently, the national training teams conducted 4-6 training workshops for primary care providers (PCPs) from 2-4 cities in each country. All trained PCPs were supported to deliver 5As and 5Rs brief TCIs. More than 15,000 smokers were enrolled and given brief advice on quitting as existing training centres for on-the-job training of PCPs were strengthened in all countries to train PCPs on brief TCIs. Success quitting rates at 1m. were (37.1%, 31.7%, 48.4% and 60% respectively) although from unexperienced HCPs. We stress the example of Ecuador where quitting rates at 4 months was 57.2% and at 6 m. 48.9%.

Conclusion: We strongly believe that all health care professionals should incorporate brief advice in their daily professional routines. The WHO-ERS Smoking Cessation Training Project is a model of how building capacity of WHO Member States’ health systems to promote one of the wide-reach approaches to tobacco cessation - brief tobacco interventions as part of healthcare providers’ routine practice - is attainable through simple international alliances.
Background: Social influence is a key predictor of adolescent smoking. However, adolescents’ tendency to be positive influencers may allow them to play a role in preventing smoking. Smoking prevention interventions have not yet applied strategies of positive social influence. For instance, this is the case with our web-based smoking prevention program called ASPIRE.

Methods: Through a retrospective analysis of a randomized controlled trial for ASPIRE, 1,098 adolescents (mean age 15.64) were randomized to receive ASPIRE or a control condition. Past 30-day smoking status, exposure to smokers (proportion of friends who smoke), and being a positive influencer were measured at both baseline and 18-month follow up. Generalized structural equation modeling of a cross-lagged model (2 time points) with logistic regression was employed. Unstandardized coefficients were specified for continuous outcomes and odds ratios were specified for binary outcomes.

Results: Being a positive influencer was related to lower likelihood of smoking by 18 months (OR=0.48, p<0.05). Early smoking behavior predicted a higher exposure to friends who smoke (B=0.13, p<0.01). Also, early exposure to smokers predicted lower likelihood of becoming a positive influencer (B=0.16, p<0.05). However, the proportion of friends who smoke did not predict future smoking behavior (OR=2.21, p=0.06). As expected, being in the ASPIRE group did predict lower smoking behavior by 18 months (OR=0.48, p<0.05).

Conclusion: Being a positive influencer can play a crucial role in preventing personal smoking behavior in the future. By lowering exposure to friends who smoke, a program may be able to encourage adolescents to positively influence each other. In order to boost intervention success, future work may introduce features of positive social influence through peer-to-peer interaction, which is lacking in currently available tobacco prevention programs.
### Amina Khan

**Objectives:** A systematic review and meta-analysis of the association between genetic predisposition to initiate smoking and ever use of e-cigarettes.

**Background:**TB and tobacco use are referred to as "colliding epidemics." This interaction of TB and tobacco is responsible for over 15-20% of TB-related deaths, which could amount to an excess of 40 million TB deaths by 2050. Reliable statistics on the causes of death in any population are essential for setting priorities in the health sector. Our main objective is to determine causes of TB deaths as documented in the TB and tobacco trial.

**Methods:** Data was collected as part of a multicountry, double-blind, randomised, parallel-group, placebo-controlled trial, which was a part of a 4-year project titled "Tobacco cessation within TB programs: A 'real world' solution for countries with the dual burden of disease" (TB & Tobacco), in which adults diagnosed with pulmonary TB (PTB) disease were recruited in Pakistan and Bangladesh. Each patient was actively followed up for one year at health centres, by telephone and home visits. All serious adverse events with details were reported according to strict SOPs.

**Results:** Among 2472 patients, there were 87 deaths out of 107 serious adverse events (SAEs) reported. Top causes reported were Heart disease (18.39%), respiratory complication (15.21%), and pleural effusion (8.04%). All deaths reported had no relation to the Investigational Medicinal Product (CTIMP) which was the medicinal intervention in this trial for tobacco cessation.

**Conclusion:** 83% out of all reported SAEs were deaths. Understanding factors leading to death following the diagnosis of TB is important to predict prognosis in TB patients. A proper vital registration system should be in place for causes of death, especially in LMICs with a dual burden of (TB and tobacco) should be in place.

### Jasmine Khouja

**Objectives:** A systematic review and meta-analysis on the association between smoking initiation and ever use of e-cigarettes.

**Background:** Current evidence suggests that e-cigarette use is far less harmful than smoking, but there are concerns that e-cigarettes may act as a gateway to smoking. Observational studies have shown a strong association between smoking and vaping, but it is unclear whether this link is causal or the result of shared aetiology (e.g., risk-taking behaviour). The aim of this study was to investigate whether e-cigarette use compared to non-use in young non-smokers is associated with a shared genetic aetiology for smoking and vaping.

**Methods:** We conducted a systematic review using PubMed, Embase, Web of Science, and Wiley Cochrane Library databases, and the 2018 Society for Research on Nicotine and Tobacco, and Society for Behavioural Medicine conference abstracts. All studies of young people (up to 30 years) with a measure of e-cigarette use prior to smoking exposure and an outcome measure of smoking for which an odds ratio could be calculated were included. Reviews and animal studies were excluded. Results of 9,199 results from the search (after duplicates were removed), 16 studies were included in the meta-analysis. There was strong evidence for an association between e-cigarette use among non-smokers and later smoking (OR 4.59, 95% CI 3.60 to 5.85) when the results were meta-analysed in a random effects model. However, there was high heterogeneity (I² = 88%).

**Conclusion:** Although there was high heterogeneity between studies, the meta-analysed results suggest that e-cigarette use among non-smoking young people is strongly associated with later smoking. Whilst the association between e-cigarette use among non-smokers and subsequent smoking is strong, the available evidence is limited by the reliance on self-report measures of smoking history without biochemical verification. Additionally, none of the studies included negative controls which would provide stronger evidence for whether the association may be causal. Much of the evidence also failed to measure and take into account the nicotine content of the e-liquids used by non-smokers meaning it is difficult to make conclusions about whether nicotine is the mechanism driving this association.

### Jasmine Khouja

**Objectives:** Observational studies have shown a strong association between smoking and vaping, but it is unclear whether this link is causal or the result of shared aetiology (e.g., risk-taking behaviour). The aim of this study was to investigate whether there is a shared genetic aetiology underlying smoking initiation and ever use of e-cigarettes.

**Methods:** We calculated polygenic risk scores for smoking initiation in a UK-based young adult cohort, the Avon Longitudinal Study of Parents and Children (ALSPAC), using single nucleotide polymorphisms (SNPs) identified in a recent genome-wide association study (the Genome Wide Association Studies & Sequencing Consortium of Alcohol and Nicotine use). We investigated the association between these scores and smoking initiation polygenic risk scores with negative control outcomes (a range of other risky behaviours). Restricting the analyses to never smokers indicated that the association is not solely due to a causal link between smoking and vaping.

**Results:** Among 2472 patients, there were 87 deaths out of 107 serious adverse events (SAEs) reported. Top causes reported were Heart disease (18.39%), respiratory complication (15.21%), and pleural effusion (8.04%). All deaths reported had no relation to the Investigational Medicinal Product (CTIMP) which was the medicinal intervention in this trial for tobacco cessation.

**Conclusion:** 83% out of all reported SAEs were deaths. Understanding factors leading to death following the diagnosis of TB is important to predict prognosis in TB patients. A proper vital registration system should be in place for causes of death, especially in LMICs with a dual burden of (TB and tobacco) should be in place.
Elizabeth Klein

Framing health communications to promote female smoking cessation

Objective/Background: Tobacco warning labels are intended to communicate health risk information to current tobacco users on products and their advertisements. Current mandatory warnings in the United States (U.S.) use loss-framing to highlight negative consequences. Although women smoking at lower prevalence than men, they experience equal if not more difficulty sustaining cessation. Positive or gain-framed warning may be more effective to reach female smokers, especially during a stigmatized behavior of smoking during pregnancy. U.S. mandated cigarette warnings include a single message focused on pregnancy, using a loss-framework. Examination of tobacco warning framing focused on women is warranted.

Methods: In a clinic-based convenience sample, female current smokers of reproductive age (18-44 years old) were recruited to complete a brief self-administered survey on health warnings. Participants were asked to rate 5 gain- and 5 loss-framed warning messages as text-only statements, such as "Start Living. Stop smoking." versus "Stop hurting yourself. Stop smoking." Participants self-reported ratings for every warning on 7 attributes of perceived effectiveness (e.g., believability, relevance) using a 10-point Likert-type scale. Mean perceived effectiveness scores were calculated across each message.

Results: Preliminary data show that gain-framed message themes on talking to a doctor about quitting and freedom were perceived more effective than loss-framed messages; themes on secondhand smoke, self-control, and protecting the unborn baby had better ratings on perceived effectiveness (e.g., believability, relevance) using a 10-point Likert-type scale. Mean perceived effectiveness scores were calculated across each message and aggregated by gain- and loss-framing.

Conclusions: Perceived effectiveness of message framing varied by the content of the messages about smoking cessation during pregnancy or children. Tailored communications to women of reproductive age may be a promising strategy to help promote sustained smoking cessation.

Taru Kinnunen

Health care professionals promoting smoke free pregnancies: Challenges and successes

The rates of tobacco use among pregnant women have not declined as fast as those in general population. Despite the known health risks, high rates such as 18% (France) and 15% (Finland) have been reported. Tobacco use is especially common among low SES, young and single mothers. To improve pregnancy outcomes, it is imperative that health care professionals (HCP) deliver effective treatment. Prenatal visits are frequent, and thus, provide a unique opportunity for HCP to promote smoking cessation. Depending on the region HCP may vary from obstetricians to midwives, to specialized or public health nurses.

Majority of HCP recognize the importance of their role in smoking cessation. Inadequate knowledge and skills, low confidence and fear of mothers' resistance are factors that impede success of intervention. Further, newer nicotine products (e.g., e-cigarettes) and unclear role of pharmacological treatments pose additional challenges for smoking cessation implementation. Non-disclosure of tobacco use by a pregnant woman may lead to a missed opportunity to intervene. Incorporating nicotine as part of the general drug screening may offer one solution. Both urine cotinine and CO measurements have been used successfully in clinical trials and community settings. In addition to using 5A or other tobacco use treatment guidelines, interventions delivered by HCP that include brief advice and follow-up and additional materials (e.g., video training, online support) can be helpful. Financial incentives have also been found useful. However, the provider-patient relationship is the most significant asset for successful cessation.

Smokefree pregnancies are important for the health of the mother and infant and society at large. Effective treatments for nicotine dependent mothers can be time consuming and the safety of pharmacological aids is unclear, which poses a challenge for uniform guidelines. However, developing effective strategies and implementing them are desperately needed.

Seung-Hee Kim

The actual use and the risk perception of Korean Heated Tobacco Product

The actual use of Heated Tobacco Product (HTP) is rapidly increasing in Korea from 2017, the smoking status is almost unknown. The purpose of this study is to identify the actual use of HTP in Korean adults and the risk perception of HTP which is expected to be a major factor affecting the use. Method: We conducted an online survey using a research panel of companies called EMBRAIN. The survey was conducted for Koreans between the ages of 20 and 69 years old in November, 2018. The questionnaire was about the sociodemographic characteristics of the subjects and consisted of the usage of combustible cigarette(e-cigarette), HTP, e-cigarette and the risk perception of each tobacco. The frequency of each variable was analyzed through the SPSS24 using the original data file. 3. Results: The results of the use of tobacco was that 5041(72%) out of 7,000 people were never smokers and 931(13.3%) were former smokers and 1028(14.7%) were current smokers. Of the current smokers, 286(27.8%) were only cigarette users and 239(23.3%) were only HTP users and 138(13.4%) were only e-cigarette users. The rest were three kinds of tobacco dual and triple users. 108(10.5%) were dual users of cigarettes and HTP and 161(15.7%) were dual users of HTP and e-cigarette and 302.9% were dual users of cigarettes and e-cigarette and 66(6.4%) were triple users of cigarettes and HTP and HTP and e-cigarette. We examined the perceived risk of each of never smokers, former smokers, and current users of tobacco types. The health risks and indirect exposure risks, smoking cessation help, and indoor availability to HTP were compared with cigarette. HTP users reported that HTP is less harmful and less risk of indirect exposure than cigarette and HTP is helpful in smoking cessation and can be used indoors(χ2 p-value<0.05). 4. Conclusion: The trend of tobacco use is changing from single use to dual use. The users of HTP think HTP positively and the non-users of HTP have a permissive attitude toward HTP. At the national level, there is a need for a smoking cessation business in response to dual using of tobacco products and a mass media campaign that can increase knowledge of HTP hazards.
| Name         | Role | Title                                                                 | Objectives and Methods: Centre for treatment of tobacco dependence works full time for smokers only since the year 2005. We offer intensive psychobehavioural intervention (described in detail at http://www.sltz.cz/intervention-structure) and pharmacotherapy (varenicline, nicotine replacement therapy, and/or bupropion). During the baseline visit except of basic clinical examination personal history is collected including question about mental health/psychiatric diagnoses including psychiatric medication. We ask specifically about anxiety, depression, bipolar affective disorder, schizophrenia, eating disorders or drug and alcohol abuse (year of onset, pharmacological treatment). Results: Among 6,598 patients who came to the baseline visit between 1/2005 and 10/2018, 1,677 (25%) mentioned some kind of psychiatric diagnosis. This number almost doubled from 17% in 2005 to 33% in 2018, as well as other drug abuse and past- or current alcohol-related problems: increase from 14% to 35%, respectively. At the same time, the smoking prevalence in the Czech population decreased from 31% in 2004 to 25% in 2017 in the population 15+, including both daily and occasional smokers.

Conclusion: In frame of the tobacco dependence treatment, increasing attention may be paid to screening and specific treatment in smokers with and occasional smokers. At the same time, the smoking prevalence in the Czech population decreased from 31% in 2004 to 25% in 2017 in the population 15+, including both daily and occasional smokers.

| Name         | Role | Title                                                                 | Objectives: To assess whether the effectiveness of individual-level behavioural smoking cessation interventions for disadvantaged groups is moderated by tailoring.

Methods: Several databases were searched for randomised Controlled Trials (RCTs) or pragmatic RCTs of individual-level smoking cessation interventions tailored for disadvantaged groups, and universal (non-tailed) interventions that reported outcomes by socio-economic position (SEP). Biostatistically validated or self-reported abstinence at 6 months follow-up in each trial was collected. Meta-analyses using random-effects models were performed including (1) all interventions and tailored interventions in low SEP groups and (2) universal interventions in high-SEP groups and low-SEP groups separately. Unadjusted and adjusted mixed-effects meta-regression analyses were conducted to assess associations between tailoring of the intervention and intervention effectiveness, and to explore associations between other important intervention delivery variables and intervention effectiveness.

Results: 39 RCTs were included. Of these n = 23 interventions were tailored; n = 16 were universal. There was evidence that individual-level interventions for smoking cessation in disadvantaged groups were more effective than usual care/control (RR 1.58, 95% CI 1.37 – 1.82; 39 studies, 22,253 participants; I² = 60.90%). In unadjusted and adjusted meta-regression models, tailored interventions did not yield better outcomes than universal interventions for disadvantaged groups (R² = 0.01 [0.15], 95% CI -0.32 – 0.29). In fact, similar effect sizes and levels of heterogeneity were observed in separate meta-analyses of universal (non-tailed) interventions using trial data from Nhg-SEP (RR 2.08, 95% CI 1.40 – 3.10, I² = 81.5%) and low-SEP participants (RR 2.11, 95% CI 1.33 – 3.31, I² = 76.3%).

Conclusions: There was evidence that individual-level interventions can assist disadvantaged smokers to quit and that without tailoring they are similarly effective for smokers with and without disadvantage. There was no evidence that tailoring of interventions for disadvantaged smokers moderated effectiveness for smoking cessation.

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<tr>
<th>Eva Kralikova</th>
<th>Intervention to smokers in psychiatry: can nurses make a difference? Pioneer education changes in the largest Czech psychiatric hospital</th>
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<td><strong>Objectives:</strong> Smoking prevalence is about double as high in psychiatric compared to general population. In the Czech Republic overall, about 25% smoke in the age 15+ group, while the prevalence amongst psychiatric patients is not described in detail. At present, no mandatory training of psychiatric healthcare staff is in place.</td>
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<td><strong>Methods:</strong> In 2017, the largest Czech psychiatric hospital (423 nurses, 133 physicians) initiated education of the health care personnel about brief intervention to smokers. Since August 2017, electronic nursing assessment documentation includes mandatory questions on patient’s smoking status and a type of intervention provided by the nurse.</td>
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<td><strong>Results:</strong> Since August 2017, 17.5% of nurses (74/423), 25% of physicians (33/133) and 13 other employees (i.e. therapists, nutritional therapists, addictions, social workers) were educated in the brief intervention in smokers. From 10,049 patients hospitalized between August 1, 2017, to December 31, 2018, smoking prevalence was noted in 42% at the first hospitalization, while in the re-hospitalized, it was 48%. Unfortunately, in 16% of the patients, the smoking status could not be determined. The number of identified smokers increased up to 59% in the last month of follow-up, when also 54% of them received at least the brief intervention.</td>
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<td><strong>Conclusions:</strong> Systematic education of health care personnel together with an offer of tobacco dependence treatment as part of the standard psychiatric care has been challenging to implement. However, together with an international collaboration and pressure supported by existing new evidence, such efforts will gain important support. This in turn will contribute to successful tobacco cessation efforts in this population.</td>
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<th>Eva Kralikova</th>
<th>Tuberculosis (TB) and Tobacco Use Treatment: Context evaluation</th>
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<td><strong>Objectives:</strong> Principles of effective tobacco dependence treatment (TDT) are well documented and described in guidelines in developed countries. But, in low/middle income countries (LMIC), such guidelines must be contextualized based on specific economic, logistic, cultural, ethnical, social, societal, and other differences including health care systems.</td>
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<td><strong>Methods:</strong> In frame of the “TB &amp; Tobacco” project, existing literature was reviewed for possible barriers and facilitators of TDT, specifically in TB patients in LMIC. Valuable insight was gained from a policy review and semi-structured interviews with key stakeholders at all structure levels involved in the project in Bangladesh, Nepal, and Pakistan.</td>
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<td><strong>Results:</strong> No consistent published data for the defined population were found, and experiences of participating health workers also differed. Main facilitators included availability of inexpensive smoking cessation interventions, including behavioral therapy with pharmaceutical provided within TB care, for tobacco users it was high willingness to quit or previous quit attempts. Barriers were a lack of knowledge about tobacco use harms overall and in relation to TB specifically; insufficient awareness about pharmacotherapy; inadequate tobacco control policies, including poor availability of affordable TDT in those countries; for tobacco users it was a high level of tobacco dependence and treatment non-adherence.</td>
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<td><strong>Conclusion:</strong> In patients with TB, quitting tobacco use is a crucial condition for successful TB treatment outcomes. Changes in tobacco control in LMIC have to be implemented both on national and local levels. Experiences from different countries have to be transferred with respect to local context. For countries with high TB prevalence, there is a missed opportunity to incorporate almost non-existing TDT into a relatively well established system of TB treatment.</td>
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<th>Mirte Kuipers</th>
<th>Visibility of smoking in public and private spaces and adolescents' positive beliefs about smoking: survey in seven European cities</th>
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<td><strong>Objectives:</strong> To determine adolescent-reported visibility of smoking in different public and private spaces in Europe, and associations between smoking visibility and beliefs about the benefits of smoking.</td>
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<td><strong>Methods:</strong> We used SILENE-R cross-sectional survey data (2016/17) of 10,798 14-16-year-old students from 55 secondary schools in seven European cities. Respondents reported for private and public spaces whether they had seen others smoke there in the last six months. Beliefs about the benefits of smoking were measured on a 7-item scale; higher scores indicated more positive beliefs. Multilevel linear regression analyses determined associations while controlling for potential confounders and stratifying by smoking status.</td>
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<td><strong>Results:</strong> Most students reported observing others smoke in public spaces, especially at train/bus stations (84%). Positive beliefs about smoking of never smokers were positively associated with seeing others smoke in restaurants (β=0.03, 95%CI=0.01;0.05), train/bus stations (β=0.05, 95%CI=0.01;0.08), leisure/sports facilities (β=0.04, 95%CI=0.01;0.06), but not at home, a friend's home, or bars. Associations were of similar magnitude for ever smokers.</td>
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<td><strong>Conclusions:</strong> Smoking in several public places is highly visible to adolescents. Reducing this visibility might weaken positive beliefs that adolescents have about smoking.</td>
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Adam Kulhánek
Changes in patterns of tobacco use and motivation to quit smoking related to implementation of smoke-free legislation in the Czech Republic

Objectives: Tobacco smoking is the major public health issue and leading cause of mortality and premature deaths. Smoke-free policy is one of the key public health instruments to promote health in population. The Czech Republic ranks among the states with the highest prevalence of tobacco use in Europe. In 2017, new comprehensive smoke-free law prohibiting smoking in indoor public places (such as bars, pubs and cafes) was implemented. Our study examined the smoking behavior and motivation to quit in Czech adult smokers 2 months before and 3 months after the implementation of new smoke-free law.

Methods: We conducted a prospective cohort study prior to and after the implementation of an Act No. 65/2017 Coll. (i.e., new smoke-free law). Data were collected in two waves (pre-post legislation change) via paper-and-pencil self-reported questionnaires administered by trained nurses in five general practitioners offices in Prague. The research sample consisted of 131 adult smokers. The study was approved by ethics committee of the Czech National Monitoring Centre for Drugs and Drug Addiction.

Results: We found differences in tobacco smoking patterns and motivation to quit in Czech adult smokers in the observed period of legislative change. Our data showed that prior and after the legislative change there was a statistical significant decrease in the daily consumption of cigarettes (an average of 1.7 cigarettes per day). Smoking in indoor public spaces decreased to almost zero, while tobacco consumption in outdoor public spaces (such as streets and squares) increased by nearly 20%. We also observed statistically significant increase of motivation to quit smoking.

Conclusion: The study brings valuable indication of the desired public health impact related to key legislative change in the Czech Republic. According to our findings, smoking prohibition in indoor public places can be associated with the reduction of daily cigarette consumption and change of preferred place to smoke.

Mirta Kuipers
Changes in youth smoking following adoption of local smoke-free policies in Indonesia: Findings from national data of 2007 and 2013

Objectives: Policy stakeholders in districts and provinces in Indonesia have increasingly adopted smoke-free policies (SFPs) in the last decade. The aim of this study was to quantify the association of local SFP adoption with daily and non-daily smoking among Indonesian youth.

Methods: Data on 239,170 adolescents (12-17 years old) were derived from the 2007 and 2013 national health survey. SFPs of 445 districts in 33 provinces were identified from government documents, and categorized into no policy, moderate, and strong policy. Multilevel logistic regression analysis assessed the association of adoption of provincial and district SFP over time with daily and non-daily smoking. We controlled for survey year, SFP in 2007, socio-demographics, and district characteristics.

Results: Daily smoking and non-daily smoking declined from 4.4% and 4.2% in 2007 to 3.7% and 3.6% in 2013, respectively. Adoption of SFP at district level was associated with non-significant decreases in odds of daily (OR:0.86, 95%CI:0.70-1.05) and non-daily (OR:0.94, 95%CI:0.79-1.12) smoking. Adoption of strong SFP at province-level was associated with lower odds of non-daily smoking (OR:0.64, 95%CI:0.49-0.84), but not significantly with daily smoking (OR:0.80, 95%CI:0.57-1.14). Adoption of moderate SFP, both at district and province-level, was not associated with smoking behaviour.

Conclusion: Sub-national smoke-free policies in Indonesia did not strongly affect youth smoking. Implementation and enforcement may need to be strengthened to improve future effectiveness.

Adam Kulhánek
A randomized controlled trial of eHealth intervention for smoking cessation “Endre” in the Czech Republic

Objectives: Internet delivered health interventions have been proven as an efficient therapeutic tool changing health-risk behaviors including tobacco smoking. eHealth modalities bring new opportunities of smoking cessation in real time, highly available, personalized and effective way. Tobacco smoking prevalence is high among Czech adults. In response to this drawback we study the eHealth intervention in the Czech settings.

Methods: Based on international collaboration, we have been performing randomized controlled trial focused on comparing text messages (SMS) and email reminders on user engagement and proportion of reported quit attempts in an online smoking cessation. Respondents have been recruiting via websites and social media. First-wave study sample will consist of ~ 150 participants and the recruitment will be ongoing. Participant randomization: two arms of either 1) receiving reminders to finish online session via text message (experimental) and 2) receiving reminders to finish online session via email (active comparator). The eHealth smoking cessation programme “Endre” provides 14 unique online sessions daily in two months divided into preparation, quitting and follow-up phase.

Results: The study is ongoing. We will introduce preliminary results, specifically, smokers profiles, the number of completed online sessions, reported quit attempts and number of sessions started after the first reminder, user’s feedback, follow-up success rates etc. Findings from the Czech Republic will be compared to the preliminary outcomes from the RCT that is underway in Norway.

Conclusion: The eHealth intervention for smoking cessation constitute a promising and innovative direction in addiction treatment.
Christina N. Kyriakos  
Objectives: The revised European Union (EU) Tobacco Product Directive (TPD) which went into effect in 2016, prohibits the placing on the market of boxed cigarettes and roll-your-own (RYO) tobacco products with a characterising flavour (Directive 2014/40/EU, Article 7). The objective of the EUREST-FLAVOURS project is to provide the European Commission (EC) with scientific and technical expertise to facilitate the implementation of the current tobacco control policies with a view to assist in the methodology specifications on whether tobacco products impart a clearly noticeable flavour other than tobacco.

Methods: Regulatory implementation strategies for making Article 7 of the TPD fully operational include, but are not limited to the entry into force of two Commission Implementing Acts, the creation of an Independent Advisory Panel, the setting up of a Technical Group of Sensory and Chemical Assessors, and lastly, establishing uniform rules and methodology to support whether or not a tobacco product has a characterising flavour—the latter two processes facilitated by the EUREST-FLAVOURS project.

Results: The specification of the methodology to support the decision whether a tobacco product has a characterising flavour other than tobacco that is ‘clearly noticeable’, is based on a comparison of sensory profiles of test products and reference products, as well as complemented, as appropriate, by a chemical assessment of the product composition properties.

Conclusions: The EU TPD Article 7 is among very few policies regulating tobacco product flavours globally to have banned characterising flavours, including menthol (to go into effect in May 2020) in boxed cigarettes and RYO tobacco. An understanding of the policy implementation strategies and methodology for determining whether a product possesses a characterising flavour has significant public health policy implications in the EU and beyond.

Christina N. Kyriakos  
Objectives: The European Union (EU) Tobacco Products Directive (TPD) regulations on tobacco product presentation include the requirement of graphic warning labels and a ban on packaging elements that create misperceptions about a tobacco product’s characteristics, health effects, risks or emissions. The aim of the EUREST-PLUS ITC Europe Surveys is to evaluate the psychosocial and behavioural impact of EU TPD implementation on smokers.

Methods: Trajectories of tobacco use were examined among women (18-49 years) who completed Wave 1 (W1) and Wave 2 (W2), or W2 and Wave 3 (W3) of the U.S. Population Assessment of Tobacco and Health (PATH, 2013-2016) study, and were using cigarettes, filtered cigars and/or cigarillos in the first wave over which data were included for that respondent (Time 1; T1). We examined the proportion of respondents whose tobacco use trajectories from T1 to Time 2 (T2) were harm-maintaining (continued using combusted tobacco), harm-reducing (transitioned to electronic nicotine delivery systems (ENDS), or harm-eliminating (quit tobacco). Multinomial logistic regressions were conducted to examine associations between ENDS use, demographic, and psychosocial characteristics with each trajectory.

Results: A majority of women (88%) exhibited harm-maintaining trajectories, followed by harm eliminating (14.7%) and harm-reducing (2.3%) trajectories. Use of ENDS at T1 was associated with increased odds of harm reduction and decreased odds of harm elimination. Younger women were more likely to make both harm reducing and harm-eliminating transitions. Increased educational attainment, identifying as Black or Hispanic, increased psychiatric symptoms, and pregnancy were associated with harm elimination, whereas living at or above poverty was associated with harm reduction.

Conclusion: Study results contribute new information on characteristics that distinguish women whose longitudinal trajectories of tobacco use maintain, reduce, or eliminate harm, and the nuanced role of ENDS in these trajectories.

Allison Kurti  
Impact of Electronic Nicotine Delivery Systems and Other Respondent Characteristics on Tobacco Use Trajectories among a U.S. National Sample of Women of Reproductive Age

Objectives: Identifying predictors of tobacco use trajectories that differ in harm among reproductive-aged women may inform efforts to protect women and children against adverse health impacts of tobacco use.

Methods: Trajectories of tobacco use were examined among women (18-49 years) who completed Wave 1 (W1) and Wave 2 (W2), or W2 and Wave 3 (W3) of the U.S. Population Assessment of Tobacco and Health (PATH, 2013-2016) study, and were using cigarettes, filtered cigars and/or cigarillos in the first wave over which data were included for that respondent (Time 1; T1). We examined the proportion of respondents whose tobacco use trajectories from T1 to Time 2 (T2) were harm-maintaining (continued using combusted tobacco), harm-reducing (transitioned to electronic nicotine delivery systems (ENDS), or harm-eliminating (quit tobacco). Multinomial logistic regressions were conducted to examine associations between ENDS use, demographic, and psychosocial characteristics with each trajectory.

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Conclusion: Study results contribute new information on characteristics that distinguish women whose longitudinal trajectories of tobacco use maintain, reduce, or eliminate harm, and the nuanced role of ENDS in these trajectories.
Bruno Lafont  
**Phase II Study Assessing Efficacy and Safety of NFL-101 as a Tobacco Cessation Therapy (CESTO II trial)**

Objectives: Long-term smoking cessation or reduction had been observed in thousands of patients when 1 or 2 subcutaneous injections of a desensitization treatment against tobacco allergy were taking place concomitantly with Target Quit Date (TQD). SFFthera developed a tobacco cessation drug candidate (NFL-101) consisting of a nicotine-free extract of tobacco proteins. According to the observations made during CESTO, a Phase I study on 24 smokers, NFL-101 appears to work by reducing cigarette appetite immediately and over a week after each injection. The main objectives of CESTO II are to select the most efficient dose and to assess long-term efficacy of NFL-101 compared to a placebo, for abrupt cessation and reduction before cessation.

Methods: CESTO II is starting as a 99-patient, 3-arm (200 µg /200 µg /placebo), monocentric (Eurofins Optimed, France), randomised, double-blind, placebo-controlled Phase II clinical trial.

- D1: 1st injection at TQD - D8: 2nd injection - D15, M1: follow-up visit - M3: follow-up visit with assessment of initial primary endpoint of 3-month continuous abstinence - M6: follow-up visit - M12: final visit

Planned amendment: - addition of optional, 3rd or 4th injections one week after M3 and M6, only for patients who are not abstinent at those timepoints and who will commit to a new, simultaneous quit attempt and an added follow-up visit at M9 and upon further project funding:
- inclusion of up to 201 additional patients, opening of 1 or 2 additional centers
- change of primary endpoint to 12-month continuous abstinence

Results: Primary endpoint: 12-month continuous abstinence measured from D15 to M12, confirmed by exhaled CO and urinary cotinine, with an efficacy objective of 30% for NFL-101 versus 10% for its placebo.

Secondary endpoints: continuous abstinence between two visits: 7-day point prevalence abstinence, number of cigarettes, exhaled CO, urinary cotinine, 50% reduction, questionnaires (MNDW, FTCQ-12, MRSS).

Conclusion: Successful results for abrupt cessation or reduction before cessation would pave the way to Phase 3 trial(s) and the possible registration of an innovative, non-chemical and affordable treatment of tobacco addiction.

Tessa Langley  
**Using logic models to inform tobacco control policy outcome evaluation**

Objectives: A key challenge in the evaluation of population-level tobacco control policies is understanding how each policy is likely to work and in whom. Logic models are a visual representation of the anticipated causal pathway of an intervention and are useful in identifying the key measures of policy impact. We aimed to develop a set of logic models that could be widely used in tobacco policy evaluation.

Methods: We developed logic models for policies recently implemented in England. We used an iterative process to develop models for each policy, before combining outcomes into a single overarching model. We initially reviewed policy documents to identify the outcomes expected to result from the implementation of each policy, and then conducted a literature review of existing policy evaluations to identify further outcomes. The draft models were refined through meetings of the research team, and we obtained feedback from a range of stakeholders including a public involvement group and national tobacco control policymakers and revised the models accordingly.

Results: The final models represented expected causal pathways for each policy and identified the populations in which outcomes were expected to occur (e.g., adult smokers, young people). The models included short term outcomes (such as policy awareness, compliance and social cognitive outcomes), intermediate outcomes (such as changes in smoking behaviour) and long term outcomes (such as mortality, morbidity and health service usage).

Conclusion: The logic models guided the development of hypotheses and choice of outcome measures in subsequent evaluations of tobacco control policies. The use of logic models enables prospective and theory-based planning of evaluation analyses, which in turn enhances the transparency of policy evaluation. The use of logic models should be encouraged in the evaluation of tobacco control policy, as well as in other areas of public health.

Ilke Lee  
**Cigarette pack size and consumption: a pilot and adaptive randomised controlled trial**

Objectives: The likelihood of smoking cessation increases as consumption decreases. Smaller cigarette pack size has been associated with reduced consumption, suggesting pack size as a target for tobacco control. However, there is a dearth of experimental evidence to determine whether the association is causal. This novel pilot and adaptive parallel group RCT aimed to estimate the impact on consumption of reducing cigarette pack sizes from 225 to 20.

Methods: Seventeen smokers of ≥5 cigarettes per day in Australia were randomised to smoke from their usual pack size (225) or from smaller packs (20). The primary outcomes were: i. retention rate and ii. within-arm standard deviation (SD) of number of cigarettes smoked per day over 4 weeks, to inform the sample size needed to detect an estimated reduction of 2 cigarettes per day.

Results: Participant retention was 82% (n=14/17). The estimated SD of the number of cigarettes smoked per day was 5.1 (95% CI [3.7, 8.2]).

Adaptive RCT

Methods: The study aimed to obtain complete data on a maximum 206 participants. An interim analysis was planned to provide a more accurate SD, and assess feasibility of achieving the effect size via sample size re-estimation. The primary outcome was number of cigarettes smoked per day over 4 weeks.

Results: The interim analysis took place when 124 participants had been randomised. Of these, 61 provided complete data for the primary outcome (retention: 49%). The analysis suggested 552 additional participants would be needed to complete the study for sufficient power to demonstrate the expected effect. Thus the study was terminated for futility. After data cleaning and imputation for incomplete information, analysis was carried out on 79 participants. Preliminary results show the mean cigarettes smoked per day over 4 weeks was 15.9 in the intervention arm and 16.8 among controls (difference 0.9: 95% CI [2.6, 4.3]).

Conclusion: With the maximum feasible sample size, the RCT would have been unable to demonstrate a reduction of 2 cigarettes per day, though such an effect cannot be ruled out.
OBJECTIVES: Cumulative smoke damage's (smoke load's) predominant roles in lung, and some pre-2007 all sites cancer, age-standardized cancer mortality rate (rate) changes are clear. But smoke load's potential contributions to recent cancer rate decreases have not been reported. So, we will present these associations across the years 2000-2017 cancer rate decreases in England and Wales (England), Ireland, Scotland, and Northern Ireland men studied. To reduce cancer mortality in these men, nearly exclusively focusing on reducing smoke exposures may be merited. Smoking-attributable fractions of all-sites cancer mortality by nation-year will also be presented for the men studied.

METHODS: We obtained age-nation-year-specific lung and non-lung (all sites but lung) cancer rates from the Norwegian Institute For Public Health and 1990-2013 annual rates from the International Agency For Research On Cancer. We used Stata regressions. The resulting regression for the 2000s allowed estimation of the all sites cancer death rate if unexposed men had a lung cancer death rate of 4/100,000, similar to “unexposed female rates in Portugal and Mexico in 1955. The smoking-attributable fraction of all sites cancer death equals (the observed rate - the unexposed's estimated rate)/the observed rate.

RESULTS: Age-adjusted non-lung cancer deaths/100,000/year rates studied ranged, respectively, from 201 to 321 for secondary versus basic education and 290 to 202 for 1990 versus 2013 years. Non-lung/lung cancer rate slopes were 0.86 (95% confidence interval -0.18-1.9, R-squared 0.99) across education in 1990-1999, 0.87 (95% confidence interval -0.73-2.5, R-squared 0.98) across education in 2000-2009, and 2.76 (95% confidence interval 2.34-3.19, R-squared 0.89) from 1990 to 2013 without, and negligibly different with, Cochrane-Orcutt adjustment for possible autocorrelation.

CONCLUSION: Very strong, consistent, dose-response, and biologically plausible, so possibly causal, associations between smoke load and non-lung death rates were seen across the nationally representative disparities in nationally representative Norwegian men ages 45-74 years.

Bruce Leistikow

How much did smoke load decreases reduce cancer mortality from the year 2000 to 2017 in England and Wales, Ireland, Scotland, and Northern Ireland men ages 35-64 years?

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CONCLUSION: Very strong, consistent, dose-response, and biologically plausible, so possibly causal, associations between smoke load and non-lung death rates were seen across the nationally representative disparities in nationally representative Norwegian men ages 45-74 years.
Might smoke load disparities explain nearly all recent occupational cancer mortality disparities in Italian men?

OBJECTIVES: Cumulative smoke damage’s (smoke load’s) predominant roles in lung, upper-aero-digestive-tract (UADT (ICD-10 codes C00-C14, C15, C32)) and some other cancer mortality rate (rate) disparities are clear. But smoke load’s potential contributions to recent occupational cancer disparities have not been reported. So, I assessed those in nationally representative Italian men ages 20-64 years.


RESULTS: Age-adjusted all other cancer deaths/100,000/year rates studied ranged, respectively, from: 40.0 for “upper non-manual workers” to 49.5 for “non-skilled manual workers” strata. All other/UADT cancer rate slopes were 1.9 (95% confidence interval 0.76-3.07, R-squared 0.84, p=0.02).

CONCLUSION: A strong, dose-response, and biologically plausible association between smoke load and cancer death rates was seen across occupations in the nationally representative Italian men studied. The association is consistent with other nations and stratifications and so possibly causal. To reduce occupational cancer mortality disparities in Italian men, nearly exclusively focusing on reducing smoke exposures may be merited.

The England Model of Nicotine Vaping and Cigarette Use

Introduction: Unlike many countries in Europe, England has implemented initiatives that have encouraged the use of nicotine vaping products (NVPs) as an alternative to smoking cigarettes. The implications of this approach for smoking cessation, dual use and non smokers use are not yet fully apparent. The purpose of this study is to model the potential health impact of nicotine vaping in England.

Methods: The previously validated Great Britain SimSmoke policy simulation model is adapted to England, and extended using data on NVP use and estimates of the relative risks of exclusive and dual use of cigarettes and NVPs. To estimate initial levels and transitions to and from NVP use, we rely primarily on data from the English Toolkit study as well as related studies. Cohort-based methods previously used in a US NVP model are applied. The model provides estimates of the impact of NVP use on attributable deaths by comparing use patterns and attributable deaths to a counterfactual where NVP are not available (i.e., setting all NVP use to zero). Sensitivity analyses are applied to incorporate different estimates of the health risks and transitions to and from NVP use.

Results: The model is used to show the reduction in cigarette use as well as the increase in vaping and the trade-off of reduced deaths from smoking relative to increased deaths from NVP use. The structure of the model, particularly advances that are made by adopting a cohort approach will be discussed, as well as how different model assumptions and parameters impact vaping behaviors, smoking related behaviors (i.e., initiation, cessation and relapse) and predicted health outcomes. Preliminary results indicate as much as a 20% relative reduction in cigarette use as a result of NVP use.

Conclusions: The model shows the net health outcomes of England’s policies promoting vaping as an alternative to cigarettes compared with a policy where NVPs are effectively prohibited. The variation in parameters across different sensitivity analyses indicate where better data are required to derive more reliable and valid estimates of the magnitude of the effects.

Smoking cessation with cytisine among Tuberculosis (TB) patients: cost-effectiveness analysis

Objectives: Evidence suggests that Nicotine Replacement Therapy (NRT) is effective in combination with behavioural support (BS) for smoking cessation. However, a cost of US$112-685 for an 8-10 weeks treatment course with NRT could be one of the key barriers that prevent people who smoke in the low- and middle-income countries (LMICs) from quitting. In contrast, cytisine has not only been proven to be a safe and efficacious cessation aid, but also shows its affordability by a cost of US$20-30 for a 25 days treatment course. The National Tuberculosis Programmes (NTPs) provide a great opportunity to offer smoking cessation intervention to those who seek treatment for TB and smoke.

Methods: A double-blind, randomised, parallel group, placebo-controlled trial, comparing BS+cytisine and BS+placebo for tobacco cessation in patients with TB who smoke daily, was conducted in Bangladesh and Pakistan. We collected data on the intervention costs and costs to the public or voluntary healthcare service providers. The outcome will be CO-verified (Carbon Monoxide) continuous abstinence rate and Quality-Adjusted Life Years (QALYs) derived from EQ-SD-SL. The primary analysis will be undertaken in the form a cost-effectiveness analysis from a public and voluntary sector perspective at six months post randomisation. We will estimate an intervention cost per quitter in each arm. A cost-utility analysis will then present an Incremental Cost-Effectiveness Ratio (ICER) by dividing the difference in total costs between two groups by the difference in QALYs between two groups. Secondary analyses will include a cost-effectiveness analysis using TB-related outcomes instead of QALYs, a cost-utility analysis at 12 months post randomisation, and participants’ out-of-pocket payments.

Results: The data collection is in its final stage and not currently available for analysis. The results will be presented at the conference.
Nicola Lindson

Abrupt versus gradual smoking cessation: strengthening the evidence

Objectives. To systematically review the evidence comparing the efficacy of abrupt and gradual smoking cessation interventions, and investigate whether this varies by pharmacotherapy use.

Methods. We searched databases and trial registries to October 2018. We included RCTs, recruiting smokers, with at least one trial arm providing instructions to reduce smoking before quitting, and one trial arm providing instructions to quit smoking abruptly. We excluded RCTs that did not assess cessation at least six months following baseline. Eligibility was assessed by two authors. We meta-analysed abstinence data using a random-effects Mantel-Haenszel model, where a risk ratio (RR) greater than one indicated a benefit of gradual cessation. We conducted subgroup analyses, grouping by pharmacotherapy use.

Results. We included 20 RCTs (N=8323). When pooled, neither gradual nor abrupt quitting resulted in superior quit rates (RR=1.03, 95% CI=0.89 to 1.20; I²=31%). Sensitivity analysis removing studies that provided a higher intensity intervention in the gradual group did not change the result. When studies were split by type of pharmacotherapy used, neither gradual nor abrupt quitting resulted in superior quit rates when no pharmacotherapy was used (RR=1.00, 95% CI=0.89 to 1.19; I²=0%; 12 studies; N=4466), or NRT were used (RR=0.94, 95% CI=0.73 to 1.22; I²=27%; 7 studies; N=1550). However, one study of varenicline found quit rates were higher when participants were asked to reduce the number of cigarettes they smoked over three weeks before quitting completely (RR=1.48, 95% CI=1.16 to 1.90; N=314), resulting in a significant difference between sub-groups (I²=73%).

Conclusions. This analysis more than doubled the number of participants included in a previous analysis. As our findings do not indicate that one method is better than the other, the evidence continues to suggest that smokers can be advised and supported to quit at all once or by reducing their smoking first. This is the case if smokers quit using no pharmacotherapy or NRT. However, new evidence suggests smokers who use varenicline may benefit from reducing their smoking before quitting. This should be investigated further.

Nicola Lindson

A Cochrane Review of interventions to increase adherence to medications for tobacco dependence

Objectives. We updated a Cochrane review, to assess the effectiveness of interventions designed to increase adherence to medications for smoking cessation, in comparison to a control group typically representing standard care. Methods: Searches of the Cochrane Tobacco Addiction Group's Specialised Register, and clinical trial registries were carried out in September 2018. Studies were screened and data extracted using standard Cochrane methods. We meta-analysed medication adherence and smoking cessation data using random-effects models to calculate pooled standardised mean differences (SMD) and risk ratios (RR) respectively. Results: We identified 2 new studies, providing a total of ten eligible RCTs, including 3655 participants. Adherence interventions were provided in addition to standard behavioural support, and typically provided further information on the rationale for, and emphasised the importance of, adherence to medication, and/or supported the development of strategies to overcome problems with maintaining adherence. Seven studies targeted NRT, two buproprion and one varenicline adherence. A meta-analysis pooling the ten studies provides evidence that adherence interventions lead to small improvements in adherence to smoking cessation medications (SMD 0.10, 95% CI 0.03 to 0.18, n = 3655, I² = 6%), and an analysis of five studies suggests they may also lead to modest increases in long-term cessation rates (RR = 1.16 (95% CI), 0.96 to 1.40, n = 3583, I²=48%). However, the CI encompass minimal harm as well as moderate benefit in the latter case. Conclusion: The evidence suggests that enhanced behavioural support, focusing on adherence to smoking cessation medications, may modestly improve adherence to cessation medications and smoking cessation rates. However, this evidence is limited by risk of bias and imprecision. We found no studies investigating whether interventions to increase medication adherence are effective for people who are stopping smoking without behavioural support. We will provide further discussion on the certainty of the evidence, and what can be done to strengthen the evidence base.
Marianne Lund  

**Increasing rate of nondaily smokers in Norway**

Objectives: Prevalence of nondaily smoking in the Norwegian population has been stable the last 30 years at 10-12%. While daily smoking rates are declining, reaching 12% in 2018, nondaily smokers account for an increasing proportion of all smokers. The aim is to investigate the relative rate of nondaily smokers between 2003 and 2018, including subgroups of nondaily smokers; nondaily smokers who were former daily smokers (transitional nondaily), and stable nondaily smokers. Further on, to investigate whether characteristics of nondaily smokers have changed in the periods before and after 2010.

Methods: We analysed cross-sectional data from MIPH/SBS tobacco survey, representative for the adult population. The data collection takes place quarterly each year monitoring current smoking behaviour, while the 4th quarter includes information like former smoking status and intention to quit. Socio-demographic and tobacco use behaviour characteristics of nondaily smokers were compared for two periods (2003-2010 and 2011-2018) to investigate any changes in nondaily smoker composition. Regression methods in STATA were used.

Results: The relative proportion of nondaily smokers in the population of all smokers increased between 2003 and 2018, from 26% to 37%. The increase was observed among nondaily smokers without previous experience with daily smoking (stable nondaily smokers). In both time periods nondaily smokers were more likely to be younger, males and with high education. In 2003-2010, stable nondaily smokers were significantly younger than transitional nondaily smokers. In 2011-2018, stable nondaily smokers were in addition to being younger, also more likely to have higher education compared to both daily and transitional nondaily smokers. Stable nondaily smokers were less interested in quitting compared to both daily and transitional nondaily smokers.

Conclusions: The increasing group of young, well educated nondaily smokers without previous experience of daily smoking, and with a reduced interest in quitting, may be a new challenge for tobacco control.

Ingeborg Lund  

**Pack perceptions and differentiation between tobacco packages before and after implementation of standardized packaging in Norway. Results from two repeated cross-sectional surveys**

Objectives: A focal goal of marketing is to make a product different from other similar products in ways that matters for the preference of buyers. Package design is important for differentiation, and can influence the experience of the product itself. Norway implemented standardized packaging of tobacco July 1. 2018. The aim of this paper was to study tobacco brand differentiation and pack perceptions before and after Norway’s implementation of the legislation.

Methods: Two repeated cross-sectional surveys were conducted, the first wave before and the second after implementation of the policy. Adult tobacco users aged 16 and over answered questions about perceptions of their tobacco packages. Respondents were drawn from a web-panel, the net sample was 3250 at Wave 1 (05-06/2017) and 1913 recurrent and 544 new respondents at Wave 2 (12/2018 - 03/2019). Youth aged 16-23 were asked about their perceptions of cigarette and snus packages. Respondents were drawn from a web panel, N=1200 at each time-point (05/2017 and 11/2018).

Results: Adults: While 34.8% of smokers and 13.8% of snus users did not like the look of their branded pack, 56.5% of smokers and 27.4% of snus users disliked their standardised pack. Similarly, 86.7% of smokers disagreed that their branded pack made their brand stand out compared to other brands increased from 73.3% before standardisation to 90.5% after standardised packaging. For snus users, the corresponding percentages were 79.7% for branded packs, and 85.7% for standardised packs. Among smokers, disagreeing that their cigarette pack made their brand stand out compared to other brands increased from 73.3% before standardisation to 90.9% after. Among snus users, this rose from 66.5% to 87.8%.

Youth: There was a decline in respondents agreeing that ‘some brands have packages that look better than others’ (cigarettes: branded 42%, standardized 29%, snus: branded 50%, standardized 28%). Evaluations of particular cigarette and snus packages differed less in 2018 compared to in 2017.

Conclusion: Adult tobacco users expressed more negative perceptions of their personal tobacco pack after standardized packaging. Differentiation between packs was lower after standardisation both among adults and youth.

Daniel Malan  

**Nobody likes a liar, even when they are telling the truth**

The objective of the paper is to assess, from an ethical perspective, whether it is acceptable for tobacco companies to be involved in tobacco harm reduction, defined as any measure that decreases the risk attached to using tobacco or nicotine. There have been significant pronouncements about the positive health effects of alternative nicotine delivery devices such as e-cigarettes. For example, Public Health England has estimated that e-cigarettes are around 95% less harmful than smoking. At the same time, research also continues about possible negative effects, for example youth uptake and the gateway effect. One of the areas where there is substantial agreement, is that e-cigarettes can be a very effective solution to assist adults to give up smoking. It therefore seems reasonable that the use of e-cigarettes or other vaping products in this context should be cautiously supported by as many stakeholders as possible. However, the involvement of the tobacco industry itself is controversial. The industry has a long history of dishonest communication to consumers and regulator. On the other hand, tobacco companies have access to cutting-edge research capabilities and because of their size compared to other independent producers could potentially have a substantial positive impact. This has to be tempered against the backlash from some stakeholders who argue that it is morally reprehensible for any company to manufacture and sell both cigarettes and e-cigarettes at the same time. With reference to the fable of the boy who cried wolf, the question is posed: is it possible to assess the overall impact of tobacco harm reduction objectively, based only on current facts and current context? Based on an analysis of public communication about the potential health benefits and risks of e-cigarettes and other vaping products by tobacco companies, e-cigarette manufacturers and other stakeholders, two ethical theories – utilitarianism and deontology – will be applied to make suggestions whether tobacco companies should be allowed, from an ethical perspective, to position themselves as part of the solution.
Cold-receptor activation by tobacco products: L-isopulegol is a potent alternative to menthol

**Objectives:**
Tobacco additives can contribute to the attractiveness and addictiveness of the product. One way is the facilitation of inhalation due to suppression of the body’s defense responses. This is of special relevance in the context of smoking initiation in young people. Substances like menthol and isopulegol can activate the TRPM8 receptor and subsequently lead to a cooling analgesia that eases tobacco smoke inhalation. This physiological effect can occur well below sensory thresholds. Using live cell imaging, we have studied the minimal concentrations of agonists including different isomers that activate the receptor in an in vitro setting. These data help to identify potent alternatives to menthol and can be used as a scientific basis for an extrapolation to effects in vivo.

**Methods:**
The increase of intracellular calcium concentration in response to activation of the cold-receptor TRPM8 was monitored in HEK293 cells via the increase in fluorescent intensity of the fluorescent dye Fluo-4. We tested whether different agonist concentrations are able to activate the TRPM8 receptor in vitro.

**Results:**
In a previous study, the minimum effective concentration of racemic menthol was determined as 100 nM. In this study, we focused on the biologically more active enantiomers and found activity of L-menthol in the picomolar range. With a minimum effective concentration of 1 nM, L-isopulegol could be confirmed as a potent substitute of menthol. After extrapolation, we expect L-menthol and L-isopulegol to be physiologically effective without the creation of an aroma sensation.

**Conclusion:**
Substances that mediate a characteristic aroma are already regulated by the European Tobacco Product Directive. Some additives that activate the TRPM8 receptor do not have characteristic aroma properties or are active below the sensory thresholds. Therefore, additives that can activate TRPM8 at low concentrations should be regulated internationally because of their potential to facilitate smoking.

Behavioural support for smoking cessation in Tuberculosis (TB) patients in Pakistan and Bangladesh

**Objective:**
Smoking cessation is offered rarely within health services in low- and middle-income countries (LMICs). Given the negative impact of smoking on tuberculosis (TB) outcomes, offering cessation support to TB patients can accelerate their recovery and prevent long-term conditions. We recently completed a randomized controlled trial, testing cytisine vs. placebo, in TB patients in Bangladesh and Pakistan, at 6- and 12-months post-intervention. While behavioural support was included in both trial arms, not all participants received it. This was mainly due to the availability of staff at the time of the visit. This offered a unique opportunity to investigate differences in smoking cessation and TB outcomes, between those who received, and those who did not receive behavioural support.

**Methods:**
A secondary analysis of trial data obtained from 2,388 TB patients in Pakistan and Bangladesh was conducted. All participants had pulmonary TB, were current smokers (who had smoked at least 25 days in the past month) and were interested in quitting. Patients were recruited from health centres in Bangladesh and Pakistan. For those who received behavioural support, this was delivered at day 0 and day 5 of the trial. The main outcome is self-reported smoking cessation, which is biochemically verified by a CO level of <10ppm. Relative risks of smoking abstinence and TB cure rates was computed using log binomial regression.

**Results and conclusion:**
Due to an embargo on disclosing trial findings, the results of this study, which is closely linked with the trial data, cannot be disclosed until 30th July 2019. The findings from this study will provide valuable information regarding the role of behavioural support in smoking cessation in TB patients, within the context of LMICs.

The main findings from this trial will be presented in the symposium C4: “The safety, effectiveness and cost-effectiveness of cytisine in achieving six-month continuous smoking abstinence in tuberculosis patients: a double-blind, placebo-controlled randomised trial”
Funding: EU Horizon 2020 [grant nr. 680995]
Trial protocol DOI: 10.1111/add.14242

The effects of cigarette pack inserts with efficacy messages on responses to health warnings

**Objectives:**
Fear appeals theory suggests that threatening tobacco warnings may backfire in the absence of sufficient efficacy to deal with the threat. Inserts inside cigarette packs, which provide information about how (self-efficacy: SE) and why (response efficacy: RE) to quit smoking may provide a method of increasing smokers’ efficacy, thereby reducing negative reactions to warnings.

**Methods:**
We conducted an online experiment with 466 current adult smokers in the UK. Participants were randomised to view either four control inserts (CI) or four efficacy inserts (EI), prior to viewing either three pictorial (high threat) or three text-only (low threat) warnings mocked up on cigarette packs. After viewing the inserts, participants reported their SE and RE, as well as reactions to the warnings. All responses were on a 1-5 scale.

**Results:**
Although participants reported that the EI were more helpful for quitting than CI (Mean Difference (MD)=0.82, 95% CI=0.68 to 0.96, p<0.001), EI did not increase either SE (MD=0.05, 95% CI=0.18 to 0.27, p=0.7) or RE (MD=-0.13, 95% CI=0.63 to 0.24, p=0.5). As expected, participants viewing pictorial warnings reported higher perceived message effectiveness (PME; p<0.001), negative affect (p=0.003) and reactance (p<0.001) than those viewing text warnings. Crucially, there was little evidence that efficacy insert condition influenced any of the reactions to the warnings (PME: p=0.2, negative affect: p=0.6, reactance: p=0.2) and there were no insert type x warning type interactions (all p>0.3).

**Conclusion:**
Single online exposure to efficacy inserts did not impact responses to threatening (i.e. pictorial) warnings. However, this may be because the inserts did not increase SE or RE. These findings suggest that other types of messages and interventions may be necessary to increase smokers’ efficacy. More research is needed to explore the ongoing debate regarding the importance of efficacy and threat for effective fear communication.
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<th>Name</th>
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<tr>
<td>Olivia Maynard</td>
<td>E-cigarette use in young people: overview of recent research</td>
<td>Experimentation and regular use of e-cigarettes and vaping products by people under the age of 18 remains a contentious issue across Europe and further afield. This presentation will provide an update on one provided at last year's SRNT Europe conference with the latest data from recent studies. This will include an ongoing NIHR funded programme of research examining the impact of the EU Tobacco Products Directive e-cigarette regulations on youth in the UK. Data from the USA and Canada suggest a sharp rise in experimentation with e-cigarettes from 2017 and some evidence of more frequent use including in non-smokers. These patterns have not yet been observed in the UK and possible reasons for these differences, including the EU’s regulatory framework and other domestic policy developments will be discussed.</td>
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<td>Joe McCernon</td>
<td>Effects of Smoking Environments and Smoking Cessation Medication Preloading on Cue-Induced Craving and Smoking Behaviors</td>
<td>Objectives: We aimed to evaluate the effects of drug pretreatment (varenicline; nicotine replacement therapy (NRT); placebo) on personal smoking environment (PSE) cue reactivity, smoking behavior during a delay to smoking task (DST), and cessation outcomes during a quit attempt. We also evaluated the association between PSE reactivity and cessation outcomes during a quit attempt. Methods: Participants (n=81; mean [SD] cigarettes/day = 14.5 [7.0]) were randomly assigned to 1 week of preloading with varenicline, NRT, or placebo prior to a smoking quit attempt. Just prior to the quit attempt, participants underwent two cue reactivity sessions (neutral vs. PSE cues) while in an abstinent state. A DST followed each cue reactivity session. Participants then initiated a smoking quit attempt and returned to the lab for up to 4 follow-up visits. Linear mixed models were used to evaluate the impact of drug type on cue-induced craving and DST smoking behavior. Linear and logistic regression analyses were used to assess the impact of drug type on cue reactivity and smoking cessation outcomes. Results: Preloading condition did not affect cue-induced craving, but PSE cues provoked greater cue-induced craving (p=0.006). Randomization to NRT (p=0.003) or varenicline (p=0.017) resulted in a significantly smaller CO boost during the DST task versus placebo. Greater smoking-nonsmoking post-cue craving scores were associated with increased odds of lapse during the quit attempt (p=0.018). Randomization to NRT was associated with a greater number of days to lapse (p=0.048), while randomization to varenicline was associated with a trend toward greater number of days to lapse (p=0.125), during the quit attempt. A trend was observed such that greater cue reactivity was associated with fewer days to lapse (p=0.085). Conclusion: This study replicates earlier findings that PSEs provoke craving. However, we also provide preliminary evidence that PSE-provoked craving is not attenuated by first-line pharmacotherapies prior to quitting smoking. These data suggest that interventions—behavioral or pharmacological—that attenuate PSE reactivity could augment medication efficacy.</td>
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<td>Erin Mead</td>
<td>Randomized Trial of a Reduced Nicotine Standard and Menthol Ban for Cigarettes in Male Menthol Smokers</td>
<td>Objective: The FDA has authority to reduce, but not eliminate, nicotine from cigarettes, and to ban menthol from cigarettes. We examined the potential impact of these two regulatory actions alone and in combination on smoking and dependence in male menthol smokers. Methods: In a randomized controlled trial, 80 non-treatment-seeking, male menthol smokers (≥5 menthol cigarettes per day (CPD)) were randomized to: (1) reduced nicotine content (RNC) cigarettes (0.07 mg nicotine yield) without menthol, (2) RNC cigarettes with menthol (RNC-Men), and (3) conventional nicotine (CN) cigarettes (0.8 mg) without menthol. Adjusting for income, employment and baseline values, we used linear regression to examine the effect of group on changes in CPD (study, non-study, and total), number of non-smoking days, exhaled carbon monoxide (CO), dependence, craving, withdrawal, and cigarette acceptability at 3 and 6 weeks post-randomization. Results: At 3 weeks, men assigned to RNC cigarettes were smoking fewer study CPD (b=-5.60, SE=2.46, p=0.028), but more non-study CPD (b=2.21, SE=0.96, p=0.025), than men assigned to CN cigarettes, compared to baseline. We did not find any other group differences in CPD, number of non-smoking days, and CO. At 3 weeks, the RNC-Men group had a greater decrease in dependence (b=-1.99, SE=0.80, p=0.013), and a greater increase in withdrawal symptoms of insomnia (b=1.12, SE=0.45, p=0.017) and restlessness (b=1.26, SE=0.51, p=0.018) than the CN group, but no differences at week 6. We did not find any other group differences in changes in craving and other withdrawal symptoms. The two RNC groups rated their study cigarettes as less acceptable than the CN group in terms of taste, smell, and satisfaction, but ratings did not differ between the two RNC groups. Conclusion: There appeared to be no effect of switching to RNC cigarettes, with or without menthol, compared to CN cigarettes. Reduced nicotine, rather than lack of menthol, appeared to influence acceptability ratings. Future research should examine the effect of these potential product standards in women, who may be more susceptible to a menthol ban.</td>
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Erin Mead

Cigarette and Waterpipe Smoking During Pregnancy in Egypt

Objectives: To examine cigarette and shisha (i.e., waterpipe or Nargille) smoking among pregnant women in Egypt, and associations with attitudes, carbon monoxide (CO), and perinatal outcomes.

Methods: A convenience sample of pregnant women were recruited and surveyed during their last trimester from maternity hospitals in Cairo (June 2015 to May 2016; N=200). Women who reported current daily, weekly, or monthly use were considered smokers. After birth, we collected birth weight and gestational age. We conducted Mann-Whitney tests and multivariate logistic regression (adjusting for age, education, employment, and husband smoking). Results: During pregnancy, 29% of women reported smoking cigarettes (10%), shisha (15%), or both (4%). Only 2 women reported quitting. Women who had greater odds of smoking if they were older (OR=3.5 (95% CI=1.3-9.5)), more highly educated (OR=4.6 (10.5-209.6)), or had a husband who smoked (OR=11.3 (2.3-54.9)). Compared to non-smokers, smokers perceived greater social acceptability of smoking (mean±SD: 4.3±0.3 vs. 1.3±0.7 on a 5-point scale, p<0.001), and ease of enforcing non-smoking rules at home (3.1±1.2 vs. 2.1±1.0, p<0.001). Non-smokers perceived greater harm to the fetus (4.1±0.9 vs. 4.1±0.7, p<0.001) and baby (4.6±0.9 vs. 4.2±0.5, p<0.001) from smoking, but lower fetal harm from secondhand smoke (3.6±1.0 vs. 3.9±0.4, p=0.0414). Smokers had higher mean CO than non-smokers (3.3±1.5 vs. 0.3±0.3 ppm, p<0.001), with no difference by product type. Babies born to smokers had lower mean birth weight (2382.8±189.9 vs. 2990±477.6 g, p<0.001) and 2-4 year-olds (OR=3.47, 95%CI=1.25-9.63) were more likely to be exposed than 10-17 year-olds. Patients with public insurance/self-pay were 8.7 times (95%CI=4.31-17.71) more likely to be exposed than patients with private insurance. Those with a past medical history of bronchiolitis >1ng/ml were classified as having biochemical verification of TSE. We conducted chi-square tests to assess the agreement between TSE status and cotinine. Results: Overall, 71% of EHR classifications were correct based on cotinine. Specificity analyses showed 67% were correctly identified as exposed to tobacco smoke. Sensitivity analyses showed 77% were correctly identified as unexposed. The Negative Predictive Value was 0.61; 39% were misclassified as unexposed. The Positive Predictive Value was 0.81; 19% were misclassified as exposed. Univariate models indicated 1-year-olds (OR=5.63, 95%CI=2.4-11.14) and 2-4 year-olds (OR=3.47, 95%CI=1.25-9.63) were more likely to be exposed than 10-17 year-olds. Patients with public insurance/self-pay were 8.7 times (95%CI=4.31-17.71) more likely to be exposed than patients with private insurance. Those with a past medical history of bronchiolitis (OR=3.47, 95%CI=1.25-9.63), asthma and/or bronchiolitis diagnosis (OR=2.9, 95%CI=1.35-5.90) were at increased risk of being exposed. Patients who had >1 emergency department visit within the past six months were 2.4 times (95%CI=1.27-4.42) more likely to be exposed. Age, insurance type, and asthma and/or bronchiolitis diagnosis remained significant in the adjusted models. Conclusion: Almost 40% of children were misclassified in the EHR as unexposed to tobacco smoke. The use of biochemical verification should be used as part of universal TSE screening during pediatric hospitalizations.

Enkeleidt Aga Mechili

Are Balkan countries losing the fight against tobacco?

Objectives: WHO FCTC treaty was developed in response to the growing tobacco epidemic and includes evidence-based tobacco control measures. The level of the implementation still varies among Parties. The main aim of this study is to assess the level of implementation of the WHO FCTC among the Balkan countries.

Methods: In order to conduct this analysis, we reviewed the WHO report on the global tobacco epidemic, 2017, containing 2016 data, for 8 middle income (Albania, Bosnia and Herzegovina-BiH, Bulgaria, Montenegro-Romania Serbia, Turkey and North Macedonia) and 3 high-income (Croatia, Greece and Slovenia) Balkan countries.

Results: All countries have ratified the WHO FCTC treaty/equivalent laws. Additionally, all countries have specific national government objectives in tobacco control as well as a national agency or specific unit. For all Balkan countries except for North Macedonia, cigarettes are now less affordable in comparison to 2008. BiH is the country with less comprehensive smoke-free laws for different environments. According the WHO report, designated smoking rooms for government facilities, cafes/bar/pubs etc. exist in Croatia and Slovenia while in Montenegro and Serbia no complete smoke-free laws exist for indoor offices and workplaces or restaurants/cafes. Only Croatia, Romania, Slovenia and Turkey have free national telephone quitlines. Turkey is the only country that national health insurance/national health service fully reimburses the cost of NRT, Bupropion and Varenicline. In Romania the cost of Bupropion and Varenicline are fully covered, while in Montenegro these two products are not legally sold.

Conclusions: A heterogeneity exists between Balkan countries with regards to the level of WHO-FCTC Implementation. Future studies focused on the implementation and the level of enforcement of the tobacco control policies are necessary so that Balkan policymakers and tobacco control advocates can join forces for Smoke-free Balkans. Availability of free quitlines, reimbursement of pharmacotherapy and the complete enforcement of Smoke-free environments legislation are key elements policymakers should deal with.

Ashley Merianos

Electronic Health Record Classification of Tobacco Smoke Exposure and Cotinine Levels among Hospitalized Pediatric Patients

Objectives: Documentation of children’s tobacco smoke exposure (TSE) in the electronic health record (EHR) can have important implications for clinical care. Our objectives were to compare the accuracy of EHR classification of TSE with cotinine verification and to explore parent and child variables associated with biochemically verified TSE.

Methods: Participants were 171 hospitalized pediatric patients who had EHR documentation of TSE and measured salivary cotinine. Children with cotinine >1ng/ml were classified as having biochemical verification of TSE. We conducted chi-square tests to assess the agreement between TSE status and cotinine. Results: Overall, 73% of EHR classifications were correct based on cotinine. Specificity analyses showed 67% were correctly identified as exposed to tobacco smoke. Sensitivity analyses showed 77% were correctly identified as unexposed. The Negative Predictive Value was 0.61; 39% were misclassified as unexposed. The Positive Predictive Value was 0.81; 19% were misclassified as exposed. In univariate models, 1-year-olds (OR=5.63, 95%CI=2.41-13.14) and 2-4 year-olds (OR=3.47, 95%CI=1.25-9.63) were more likely to be exposed than 10-17 year-olds. Patients with public insurance/self-pay were 8.7 times (95%CI=4.31-17.71) more likely to be exposed than patients with private insurance. Those with a past medical history of bronchiolitis (OR=3.47, 95%CI=1.25-9.63), asthma and/or bronchiolitis diagnosis (OR=2.9, 95%CI=1.35-5.90) were at increased risk of being exposed. Patients who had >1 emergency department visit within the past six months were 2.4 times (95%CI=1.27-4.42) more likely to be exposed. Age, insurance type, and asthma and/or bronchiolitis diagnosis remained significant in the adjusted models. Conclusion: Almost 40% of children were misclassified in the EHR as unexposed to tobacco smoke. The use of biochemical verification should be used as part of universal TSE screening during pediatric hospitalizations.
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<th>Name</th>
<th>Country</th>
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<td>Crawford</td>
<td>Karnataka</td>
<td>Smokers’ response to using pack inserts promoting cessation: A naturalistic study</td>
<td>To explore how smokers in Scotland responded to the inclusion of pack inserts promoting cessation inside their cigarette packs. Methods: A naturalistic design was employed, where daily cigarette smokers (N=114), recruited in the four largest cities in Scotland between February and May 2018, were asked to complete an online survey each Thursday (midweek) and Sunday (weekend) for the two week study. For either the first or second week (ordering was randomised), pack inserts promoting cessation, adapted from those used in Canada, were included in smokers’ cigarette packs. Results: Paired comparisons were run for the midweek (insert vs no insert) and weekend survey responses (insert vs no insert). When comparing midweek responses, motivation to quit smoking was significantly higher when participants had inserts inside their packs (p&lt;0.05). There were no significant differences in efficacy (self-efficacy, response-efficacy), threat (susceptibility, severity), warning salience (looking closely, thinking about what they are saying), risk perceptions, fear perceptions, pack avoidance (covered pack, kept pack out of sight), feelings about smoking (enjoyment, satisfaction, good), or cessation and related behaviours (stubbeted out a cigarette, forgone a cigarette, smoked less, smoked less around others, thoughts about quitting, wanted to quit). When comparing weekend responses, looking more closely at the warnings (p&lt;0.01) and thinking more about what the warnings were telling them (p&lt;0.05) was significantly higher when participants had inserts inside their packs. Conclusion: Tobacco companies have used the inside of the cigarette pack, in the form of cigarette cards, coupons or promotional inserts, to communicate with consumers for well over a century. This study suggests that pack inserts promoting cessation may be a viable policy option.</td>
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<td>Morar</td>
<td>Romania</td>
<td>Preliminary feasibility and acceptability of SMOKE-FREE TOGETHER: an mHealth intervention for family smoking cessation in Romania</td>
<td>To study the feasibility and acceptability of an mHealth smoking cessation intervention for couples during and after pregnancy in Romania. Methods: The SMOKE-FREE TOGETHER (SFT) is being tested in a Randomized Controlled Trial (RCT), with enrollment ongoing since January 2019. The target population is represented by pregnant women who smoke and their partners. Eligibility includes: 18 years old or more, being in the 2nd or 3rd pregnancy trimester, being a smoker, living with a stable partner and using an Android smartphone. The RCT uses Facebook and Instagram targeted advertising to direct potential subjects to the project website, in order to self-enroll via a Qualtrics-based informed consent form and a baseline survey. The program is also promoted through partnerships with SAMAS NGO and ISARA a local baby-wearing products company. Eligible subjects are contacted by phone to complete enrollment. Feasibility and acceptability is reported based on the online self-enrollment in the program. Results: 1190 women self-screened for eligibility on the SMOKE-FREE TOGETHER website between January-May, 2019. Non-eligibility included 1.18% younger than 18; 16.81% not being in the second or third trimester; 9.5% being non-smokers; 3.19% did not have a stable partner; and 2.86% did not have an Android smartphone. 39 out of 81 eligible women are enrolled in the RCT: 11 in the app-only group, 10 in the counseling-only group, 8 in the App+counseling group and 10 in the control group. The participants started using the app and are also receptive to the counseling sessions. Conclusion: A couple-focused mHealth pregnancy smoking cessation intervention shows early evidence of feasibility and acceptability. Increased app notifications may enhance app use and its potential for sustainable smoking cessation.</td>
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<td>Mulpadi</td>
<td>Karnataka</td>
<td>Awareness and utilization of quit line number on tobacco packs among tobacco users and vendors in Udupi district, Karnataka, India</td>
<td>To study the awareness and utilization of newly introduced quit line number on tobacco packs among tobacco users and vendors. Methods: Sample size: As per the pilot study, the prevalence of awareness of quit line number in tobacco users and vendors was 25% and 28% respectively. Considering specific nonresponse rates, precision and confidence intervals, sample size worked out to be 330 tobacco users and 135 vendors. After obtaining the Institutional Ethics Committee approval (No: IEC 153-2019), this cross-sectional study was conducted in March 2019 in a purposive sample of tobacco users and vendors aged 18 and above. The study was carried out at the point of sale where the vendor was administered a semi-structured questionnaire to collect data regarding his awareness about the quit line number. The investigator also interviewed tobacco users visiting the shop for buying tobacco and assessed their knowledge and utilization of the quit line number. The data were entered in the Kobo Toolbox application and analysed using SPSS 15.0. Results: Most of the tobacco users; i.e. 301 (84.55%) were not aware/did not observe any quit line number on tobacco pack. About 23 (41.18%) tobacco users out of 55 who had seen the quit line number on tobacco packs perceived that the number was helpful to quit tobacco. Only three out of the total tobacco users tried calling the quit line number. Majority of about 112 (84.8%) of the tobacco vendors did not observe the quit line number. About 108 of 132 (81.8%) of the vendors were not aware that quit line number would help the tobacco user quit tobacco and only 15 (11.4%) of total vendors felt the need of an awareness program for the utilization of the number. None of the tobacco users enquired about the quit line number nor called the quit line number in presence of the tobacco vendor. Conclusion: Most of the tobacco users and vendors had basic education but were not aware of the quit line number on the tobacco packs. Hardly, a handful of tobacco users used the quit line number, implying that the awareness in a nation with recent initiation of quit line is cardinal for effective tobacco control.</td>
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Low parental perceptions of exposure are related to riskier parental smoking behaviour

Background: Exposure of 40% of the world’s children is caused predominantly by parental smoking in and around the home. Children exposed to second and thirdhand smoke are prone to respiratory and ear infections, cot death, and more likely to become smokers. Previous research identified common parental misconceptions about children’s exposure. The Parental Perceptions of Exposure (PPE) questionnaire was designed and validated to assess how parents perceive children’s exposure to tobacco smoke in different circumstances. We hypothesized that parents’ perceptions of exposure may be related to smoking behaviour around children.

Methods: Families with at least one smoking parent and a child up to age 8 were recruited for a randomized controlled trial (RCT) which aimed to reduce child exposure to tobacco smoke exposure (TSE) (NCT02867241). Recruitment was conducted through daycare centres and social media. Parents provided data on PPE (rating children’s exposure in hypothetical situations; higher scores indicating a broader, more inclusive definition of exposure), children’s reported exposure and parental smoking habits. The study included 160 families from central Israel, of which 82 completed the PPE at baseline. Results: Mean age of children was 3 years (SD 1.92; 3 months-7.8 yrs). 53% of mothers and 76% of fathers were daily smokers. Mean PPE was 87.1±18.9, range 28-118. PPE differed according to home smoking habits: families who reported smoking only outside the home exhibited higher PPE (mean 93.3±13.4, n=22) than those who reported smoking in the vicinity of the home including balconies (mean 85.1±20.0, n=40; p= .039). PPE corresponded with parental reports of frequency of home exposure, with those reporting rare or no exposure having higher PPE scores than those who reported daily or weekly exposure (p<.011).

Conclusions: Parents who smoke inside the home demonstrate narrower perceptions of exposure, rating children as being less exposed in depictions of smoking inside and outside the home and car. Parental perceptions of exposure were shown to be associated with parental smoking habits, constituting a potential target for intervention.

Parental smoking around young children: Practices, beliefs and conflicts

Significance: Many parents continue to smoke around their children despite the widely known risks of children’s exposure to tobacco smoke. We sought to learn about parental smoking behavior around children from parents’ perspectives.

Methods: Semi-structured interviews were conducted with 65 smoking parents or partners of smoking parents of children up to age 7, who were asked to describe how smoking fits into their life, where they smoke, home smoking rules, specific behaviors they perform to protect the child and conflicts within the family. Interviews were recorded and transcribed and thematic analysis performed. Recruitment was challenging due to the sensitive nature of the topic.

Results: Many parents described smoking around their children in certain areas of the home, outdoors, and in what they consider to be open or ventilated areas. Parents had different conceptions of which areas or distances were considered ‘safe’. Feelings of guilt were often expressed as well as an emphasis on efforts to protect their children. Mitigating practices were common and parents held mixed views as to how effective these practices are in protecting their children from exposure to tobacco smoke. Many smoking parents described conflicts both internal and with other family members regarding the protection of children. Parents who continue to smoke around their children despite understanding the health risks often felt powerless to effect change, as well as being uncertain as to the effectiveness of their protective strategies; others were aware but reluctant to change.

Conclusion: Findings shed light on some of the difficulties faced by smoking parents and obstacles to maintaining a smoke-free environment for their children, providing insight for the type of information and support required by smoking parents to help them better protect their children from exposure to tobacco smoke.

The availability of quit-smoking products and counselling in community pharmacies in Târgu Mureș, Romania

Objective: Pharmacists may play an important role in tobacco cessation assistance. The study aimed to assess the availability of tobacco cessation products and services in community pharmacies in Târgu Mureș, Romania.

Methods: The cross-sectional observational study included a randomly selected representative sample of 47 pharmacies in Târgu-Mureș. A protocol and on-location assessment scenario were developed to evaluate the availability of quit-smoking products and counselling. Data were collected using the “mystery client” method in April 2019 by four trained assessors. The study was approved by the ethics committee of the local medical university.

Results: The most recommended medication was nicotine replacement therapy, either as gum (80%), patch (70%) or sublingual spray (53%). Varenicline was recommended in 8.5% of the pharmacies. A few pharmacists also recommended plant-based extracts or sprays. Smokers’ positive feedback was mentioned in 32% of the pharmacies as evidence of medication’s efficacy. None of the pharmacists mentioned research as proof of efficacy. A brief description of how the medication works was given in 55% of cases. While dosing was explained in 80% of the pharmacies, warnings about the adverse effects were presented in only 8.5%, and withdrawal symptoms were evaluated in only 19.1%. Advice regarding quit strategies and techniques was given in 40% of the pharmacies, with most recommending will power (60%), replacement of the tobacco habit and gestures with either chewing gum, menthol drops, sunflower seeds, or other healthy snacks (43%). Referral to a medical professional or stop-smoking center was given by 70% of pharmacists.

Conclusions: Overall, most pharmacists recommended at least one evidence-based medication and provided information on how to take it. Evidence regarding efficacy and warnings about adverse effects were largely omitted. The advice regarding quit techniques was of varying quality including questionable tips in some instances. The study identified strengths and weaknesses that will be useful in developing a training program aimed to promote a quit-smoking intervention in the community pharmacies in Târgu Mureș.
Sema Nagelhout

Implementation of financial incentives for successful smoking cessation in real-life company settings

Objective: Employees who quit tobacco are healthier, more productive, less absent from work, and longer employable than employees who continue to use tobacco. We performed a randomized controlled trial that showed that adding a financial incentive to a smoking cessation group training program in company settings is effective in increasing abstinence rates. The next step is implementing this intervention in real-life, where the funder of the study is no longer paying for the incentives but companies have to pay them themselves.

Methods: We are performing semi-structured qualitative interviews among 20 company managers and 20 (formerly) smoking employees with a low socioeconomic position between January and June 2019. In these interviews, we identify under which conditions the intervention with financial incentives is acceptable and how it could be implemented in real-life. After this needs assessment, we will develop an implementation strategy by using Intervention Mapping. Our target group is employees with a low socioeconomic position who smoke tobacco daily.

Results: Our randomized controlled trial showed that the proportion of individuals abstaining from smoking in the intervention group (training program + incentive) was significantly higher than in the control group (training program only) after 12 months: 41% versus 26%, adjusted odds ratio 1.93, 95% CI 1.31-2.85, p=0.0009. At the time of the SRNT conference, we will have performed the qualitative interviews and analyzed the data and will have started developing the implementation strategy. Our findings and conclusions for the real-life implementation will be presented at the conference.

Conclusion: Financial incentives in addition to a smoking cessation group training program can significantly increase long-term smoking abstinence. This result alone is not enough to ensure that companies will pay financial incentives for their smoking employees. An implementation strategy is needed to ensure that the intervention is implemented on a large scale. Moreover, effort is needed to ensure that people with a low socioeconomic position take part in the smoking cessation program.

Rima Nakkash

"I fell on the floor the first time I smoked it": Exploring determinants of use of Midwakh tobacco among youth in Lebanon

Objectives: Didka (or dizzyines in English) is a type of Alternative Tobacco Product (ATP) that is increasing in popularity in the Arab world; it is smoked out of a pipe called a Midwakh. Midwakh use has been documented mostly in the United Arab Emirates; yet, recent evidence is suggesting that it may be expanding to other countries in the Arab world. Given the high expatriate population in the Arabian Gulf (over 80%), there is concern that Midwakh use could also diffuse across the globe. Only one study has explored Midwakh use from a qualitative perspective. Our study aimed to explore the determinants of Midwakh use among young people in Lebanon.

Methods: After obtaining ethical approval, we conducted 4 Focus Group Discussions with a total of 18 Midwakh triers, smokers and ex-smokers aged 18-25 years. Discussions were recorded, transcribed and analyzed thematically. Results: Eleven themes were identified. Each theme was described and quotes were identified. For example, the 'Smoking Initiation' theme included the age and location of trying Midwakh, factors influencing and feelings experienced during that first trial. Quotes included: "The first Midwakh head I tried to smoke I was with my friend in Dubai, I was 16 years old, I could not smoke 16; I spit and felt like I was going to vomit. "The Buzz' theme included the description of a 'Buzz' and the methods of smoking Midwakh that influence the Buzz. Quotes included: "It is like a head rush," "I would inhale so much in the first sip and then blow and then directly take a second sip and the buzz would last a minute". The presentation will review all themes supported by relevant quotes.

Conclusion: Midwakh tobacco use is appealing to youth due to the lightheadedness feeling that it causes, lack of odor, absence of stains on lips, low cost, perceived harm reduction and its ability to satisfy nicotine craving with small amounts of tobacco. Future research is needed to more thoroughly understand the components of the tobacco smoke, and its physiologic short term and long-term health effects. Further qualitative research is also important to assess generalizability of our results to other contexts.

Rima Nakkash

Developing health warning labels for waterpipe tobacco smoking products: Feedback from focus group discussions with youth in Lebanon

Background: Waterpipe tobacco (WP) smoking has become the most widespread smoked tobacco product among youth in the Eastern Mediterranean region. This increase is concerning given waterpipe's addictive and harmful health effects, misperception of its relative safety compared to cigarettes and the absence of tailored evidence-based policy solutions. A promising policy avenue to curb WP smoking lies in the application of health warning labels (HWLs) on WP tobacco and products. This study aims to get feedback from WP smokers and nonsmokers (age18-34) in Lebanon about 13 pictorial(text/image) HWLs developed through an international expert Delphi study. The HWLs cover 4 major themes (addiction-harm to others;WP specific misconceptions;WP specific harms) in relation to communication outcomes (eg.attention, reaction, identification) and ways to improve them.

Methods: 4 focus groups discussions (FGDs) with WP smokers and 4 with nonsmokers of mixed gender were conducted (8/10/FGD, n= 80). All FGDs were recorded and transcribed for thematic analysis. Results: For "attention", participants noted the HWLs were "graphic" ,"powerful" and hold a "shock value". However, some images were "very dark" and of "poor quality". Regarding "communication" some HWLs were not believable. The text messages accompanying the images were said to have "too much text". As for "identification", different participants identified with different HWL. In terms of text accompanying the image, the most common "improvement" suggestion from both WP smokers and nonsmokers was removing the word "can"("can" in Arabic), to emphasize the message. Some participants suggested to modify the text based on the Lebanese dialect and make it more "concise". Similarly, others suggested adding more facts (eg. Percentages) in the text and using catch phrases to maximize smokers' attention. Many saw the need for enhancing the colors and graphics of the pictures. Conclusion: Both WP smokers and nonsmokers were highly engaged in giving feedback on the HWLs and provided specific suggestions for improvement.A revised set of HWLs needs to be developed based on participants feedback to enhance message communication and effect.
Objective: To determine the long-term effect of incentives for smoking cessation.

Methods: Systematic review of randomised controlled trials, allocating individuals, workplaces, groups or communities to smoking cessation incentives or control, including mixed populations and pregnant women. The outcome was abstinence from smoking at longest follow-up (at least six months from intervention start or to the end of pregnancy).

Results: 33 mixed-population studies met inclusion criteria, of 21,600 participants in community settings, clinics, workplaces, and drug clinics. We judged eight studies to be at low risk of bias, ten at high risk, with the remaining at unclear risk. We included 10 studies of 2,571 pregnant smokers. We judged two studies to be at low risk of bias, one at high risk, and seven at unclear risk. 24 of the trials were run in the USA, two in Thailand and one in the Philippines. The rest were European. The relative risk (RR) for quitting with incentives at longest follow-up compared with controls was 1.49 (95% confidence interval (CI) 1.28 to 1.73; 31 RCTs, adjusted N = 20,097; I² = 33%). We conducted a sensitivity analysis exploring the effect of incentives offered continuously, up until long term follow-up, compared with studies where longest follow-up was beyond the end of the incentive period. Results were not sensitive to the exclusion of six studies where incentives were offered at long term follow up (RR 1.40 95% CI 1.16 to 1.69; 25 RCTs; adjusted N = 17,058; I² = 36%). We included 10 studies of 2,571 pregnant smokers. We judged two studies to be at low risk of bias, one at high risk, and seven at unclear risk. When pooled, nine of ten trials with usable data (eight USA and one UK), delivered a RR at longest follow-up (up to 24 weeks post-partum) of 2.38 (95% CI 1.54 to 3.69; 9 RCTs; N = 2273 participants; I² = 41%), favouring incentives.

Conclusions: Overall there is high quality evidence that incentives improve smoking cessation rates at long term follow-up in mixed population studies. The effect of incentives appears to be sustained over time (while in place and following discontinuation). There is moderate quality evidence that incentives for pregnant women improve smoking cessation rates, both at the end of pregnancy and post-partum.
European smokers' support for tobacco control measures: findings from the EUREST-PLUS ITC Europe Surveys

Objectives: In light of the new European Union Tobacco Products Directive partial implementation to this date, it is important to understand the changes in public support for further tobacco control measures and the underlying psychosocial characteristics of smokers who support further tobacco policies.

Methods: Data from Wave 1 (2016) and Wave 2 (2018) of the EUREST-PLUS ITC 6 Country Survey, a cohort of about 6000 adult smokers in 6 European countries (Germany, Greece, Hungary, Poland, Romania, Spain) were used to 1) estimate the percentages of support for seven different tobacco control measures were estimated, overall, and by country and 2) to examine the predictors of support of measures found to have a significant increase in support before and after the implementation of the new TPD using adjusted GGE regression model.

Results: There was no evidence for changes in support for tobacco control measures in the overall sample between waves. Support was higher for the measures to further regulate tobacco products (50.5%), and for the tobacco companies being held accountable for the harm caused by smoking (48.8%). Almost four in ten smokers agreed to a total ban on cigarettes and other smoked tobacco products within ten years, given assistance to cessation is provided. In the country-specific analysis, significant findings were found only in Greece and Spain. Having a negative attitude towards smoking and considering smoking denormalized in society were predictors of support for more industry responsibility in Spain (OR=1.29 95%CI: 1.11-1.52; OR=1.25 95%CI:1.05-1.49) and more tobacco regulation in Greece (OR=1.38 95%CI: 1.14-1.66; OR=1.46 95%CI:1.24-1.71). Quit intention was a predictor of support for more industry responsibility of smoking health harms and for plain packaging of tobacco products in Spain.

Conclusion: Most smokers support stronger government action to control tobacco products. Smokers also support that the tobacco industry should be held accountable for the health harms smoking causes. Those who want to quit smoking are more supportive of policies that might help them quit.
Jennifer Pearson

**A multimethod comparison of nicotine delivery, topography, and appeal of a cigalike and pen-style e-cigarettes**

**Objectives:** The evolution of the ECGI product class has sparked interest in how ECGI nicotine delivery and appeal affect ECGI and combusted tobacco use. The primary aim of this study was to compare adult smokers’ blood nicotine concentration and puff topography when smoking their own brand of cigarettes (OB) to two styles of entry-level ECGI: a MarkTen XL cigalike (MT; ~25-35 mg/mL nicotine) and a pen-style device (eGo; 3.3 v, with 1.5 Ohm dual coil cartomizer, 25 mg/mL nicotine). An additional aim was to assess change in nicotine delivery, topography, and appeal after participants used the devices for 3 days. Secondary aims were: 1) to examine differences by menthol preference; and, 2) to assess whether lab measures predicted continued ECGI use at the 30-day follow-up. Methods: Smokers (N=31; 21 male, 20 menthol, mean (M) cigs/day=16.6) participated in 6 lab visits (LV) and an online 30-day follow-up survey. In LVs 2-6, participants completed: 1) directed bouts with attached topography equipment; 2) blood samples before/after each directed bout; and, 3) assessments of product appeal (e.g., taste, look, feel, etc). Participants smoked OB in LV2, used device 1 in LV 3 & 4, and used device 2 in LV 5 & 6 (counterbalanced). Results: After the first directed bout, blood nicotine concentration was higher for OB (M = 18.0 mg/mL; SD = 13.9) than MT (M = 2.2 mg/mL; SD = 6.6; p's < .001). Change in blood nicotine concentration was > 0 for the 1st and 2nd use of MT (p<.001), but only the 2nd use of eGo (p=.04). Blood nicotine was higher for menthol than non-menthol smokers after the OB directed bout (p=.02), but there were no differences in blood nicotine by menthol preference after any ECGI condition. Most comparisons of appeal were non-significant, though participants “liked the look” of MT more than eGo (p=.01). Lab assessments did not predict ECGI use 1 month later. Additional topography and craving reduction data will be presented. Conclusion: Neither device delivered nicotine well, even after participants had time to familiarize themselves with the devices. Devices were poor substitutes for cigarettes.

Ollila Persson

**Statutory outdoor smoking bans in schools – impact on student and personnel tobacco use in 2008–2015**

**Objectives:** The impact of smoke-free policies, especially school tobacco policies, on youth populations is unclear. We study the effects of a comprehensive ban on all tobacco use on school indoor and outdoor premises, enacted in the Finnish Tobacco Control Act in 2010. Methods: We use nationwide School Health Promotion (SHP) study data, comparing years 2011 (T1), 2013 (T2) and 2015 (T3) with baseline (2008/2009/2010). Participants (n=331,339) were from 423 general upper secondary schools (SUIS) and 343 vocational institutions (VoCi). The effects of time, school type, and their interaction were tested with multilevel logistic regression. Results: The legislation change resulted in sustained lower likelihood of smoking on school premises, by personnel [T3 OR .48 (95% CI .47–.49)] and students [T3 .41 (.40–.43)]. Student smoking next to school became less likely [T2 .95 (92–97); T3 .75 (79–77)] after a temporary increase [T1 1.16 (1.12–2.20)]. Perceiving smoking prohibited at school became and remained more likely [T3 3.25 (1.18–3.33)]. Perceiving close supervision regressed [T2 .95 (93–97); T3 .82 (80–84)] after a temporary increase [T1 1.26 (1.23–1.29)]. Student daily smoking became less likely in last two measurements [T2 .82 (80–84); T3 .63 (63–65)]. Changes in school types were mostly similar, but more pronounced in VoCi. Conclusions: Extending the statutory ban to all school outdoor premises decreased smoking during school day, on and off school premises, and was associated with less daily smoking among students over time. Schools where smoking was common benefitted the most of a comprehensive ban.

Magdalena Opazo Breton

**Cigarette consumption and quitting after the implementation of the smoke-free legislation in Great Britain: a difference-in-difference approach**

**Objectives:** Several countries have implemented smoke free legislation in order to protect non-smokers from tobacco smoke exposure and to restrict smoking opportunities. In Great Britain, a comprehensive smoking ban in public places was implemented in 2006-2007 (March 2006 for Scotland, March 2007 for Wales and July 2007 for England). We exploited variation in smoking behaviour by population subgroup and variation in time of implementation, to estimate a difference-in-difference model for Great Britain. Methods: Using data from the General Lifestyle Survey (2000-2011) we used logistic regression to investigate differences in the odds of being a former smoker and negative binomial regression to investigate differences in the rate of cigarette consumption among current smokers using the following comparison groups: a) working and non-working, b) full-time workers and non-full-time workers, c) non-confirmed smokers (25 years old or lower) and confirmed smokers (above 25 years old), d) low and non-low socioeconomic status (based on occupation) and, e) from birth cohorts with low ever-smoking prevalence and high ever-smoking prevalence. Results: There was a statistically significant decrease in the likelihood of cigarette consumption among individuals in non-low socioeconomic group (IRR: 0.95, 95% CI: 0.93 to 0.98), from birth cohorts with low ever-smoking prevalence (IRR: 0.96, 95% CI: 0.94 to 0.99), and from working population (IRR: 0.97, 95% CI: 0.94 to 0.99). There was a significant increase in the odds of being a former smoker only among individuals from birth cohorts with low ever smoking prevalence (OR: 1.12, 95% CI: 1.07 to 1.17). Conclusion: Our difference-in-difference model demonstrates a reduction in cigarette consumption among those subgroups in which smoking is less frequent and in those spending more time in smoke-free places, while an increase in quitting was only observed among those from birth cohorts with fewer ever smokers. This highlights the relevance of subgroup analysis when studying general population tobacco control policies.
Background & Objectives: Matrix metalloproteinase-9 (MMP9) play an imperative role in smoking related illnesses including cardiovascular diseases. The health hazard is basically due to presence of nicotine content in tobacco. Cotinine is the major degradable product of nicotine metabolism and is regarded as a sensitive marker for tobacco exposure. This study was designed to assess and compare the level of serum MMP-9 and urinary cotinine (UC) in smokeless tobacco chewers (STC) and healthy tobacco non-users (controls).

Methods: A Community-based comparative cross-sectional study was conducted in Dharan Sub-Metropolitan City from August 2017 to July 2018. A total of 102 STC and same number of healthy controls of age 18-44 years were enrolled in the study. A structured questionnaire was introduced to subjects after taking the informed consent and biochemical tests for lipid profile, MMP-9 and UC were done. Snowball technique was used to enroll tobacco chewers. Ethical clearance was obtained from Institutional Review Committee of BPKIHS, Nepal. Data was entered in Microsoft excel-2007 and statistical analysis was done by SPSS version 11.5.

Result: The findings from the present study revealed that UC was significantly higher in STC group (1259.20±44.20 pg/ml) compared to the control group (8.86±2.45 pg/ml) (p<0.001). Serum MMP-9 was significantly higher in STC group (1528.28±544.41 ng/L) compared to control group (87.77±25.83 ng/L) (p<0.001). A strong positive correlation was found between MMP-9 and UC in STC group (r=0.001), while MMP-9 and UC were not significantly different with duration of tobacco use. STC group had significantly higher MMP-9, UC, Lipid parameters (TC, TG, LDL-C) and lower HDL-C than Control group.

Conclusion: Habitual Tobacco chewers were confirmed by the measurement of cotinine in urine which was significantly higher in STC. This finding highlights the importance of cotinine which can be used as a biomarker for the tobacco exposure. Similarly MMP-9 is seen to be significantly raised in the STC with positive correlation with UC, which might attribute for the increased risk of CVDs as compared to the healthy controls.

Mariliis Põld
What makes physicians want to quit smoking? Cross-sectional data 2002 and 2014 in Estonia

Objectives: The aim of the present study was to explore factors associated with desire to quit smoking among Estonian physicians in 2002 and 2014.

Methods: Study was based on Estonian physicians' smoking survey carried out in 2002 and 2014. Self-reported data of current smokers were drawn from the surveys (n=322 in 2002 and n=189 in 2014). A logistic regression model was used to analyse the association between desire to quit smoking and factors related to smoking behaviour among current smokers.

Results: More than half of current smokers reported desire to quit smoking (55.3% in 2002 and 52.9% in 2014). Physicians who were concerned about harms of smoking, had significantly higher odds for desire to quit compared to those who were not concerned (OR=8.86; 95% CI 4.15–19.74). Compared to physicians with no quit attempts, odds for desire to give up smoking were significantly higher among physicians who had attempted to quit. Wish to set a good example was significantly associated with desire to quit (OR=2.38; 95% CI 1.12–5.09). Medical specialty was also associated with desire to quit - compared to specialist doctors, dentists had significantly higher odds to desire to quit smoking (OR=2.42; 95% CI 1.25–4.69).

Conclusions: More than half of Estonian smoking physicians expressed the desire to quit. Desire to quit was associated with concern about harms of smoking, number of previous quit attempts, setting a good example, and medical specialty. The findings suggest that there is a need for smoking cessation counselling services that are addressed especially for physicians in Estonia.

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Guadalupe Porciano-Rodriguez
Efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial

In Mexico nicotine dependence account for significant mortality, morbidity, and socioeconomic burdens. Aim: The aim of this study is to evaluate the efficacy of transcranial magnetic stimulation (TMS) versus nicotine patches (NP) in a group of 50 smokers, included in a randomized controlled trial.

Methods: Adult smokers of at least 10 cigarettes per day during the last year were recruited with advertisements at the School of Medicine, they were free of other addictions and without psychiatric comorbidities, motivated to quit, passed the TMS Adult Safety and Screening Questionnaire, and signed an informed consent. They were randomized into two groups of 25 smokers each one. Both groups filled during two weeks a self-registration diary of smoking and the quitting day was stabilized in the third week through abrupt cessation. The Group 1 received NP during eight weeks in a dose according the number of cigarettes smoked. Group 2 received three sessions of TMS per week with a duration of 45 minutes and intensity of 570 Hz at a constant intensity of 5.800 milligauss, during eight weeks (24 sessions). Activpulse Pro+ equipment was used, the target stimulation site was located using the 10-20 EEG coordinates, and it was the left dorsolateral prefrontal cortex, a circular coil with 60 mm of diameter was used for all procedures. Every week exhaled CO, weight and vital signs were measured. Withdrawal symptoms were evaluated each week.

Follow up will be at three, six and 12 months after the end of treatment.

Results: We included 27 men and 23 women, with a mean age of 51.5 years who smoked an average of 15.85 cigarettes per day. After 10 weeks the efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial. Efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial. Efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial. Efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial. Efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial. Efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial. Efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial. Efficacy of Transcranial Magnetic Stimulation vs Nicotine Patches for cessation in a group of Mexican smokers included in a randomized controlled trial.

Conclusions: TMS offers a unique perspective on the pathophysiology of nicotine addiction and can complement successfully the existing therapeutic modalities.
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<tr>
<th>Author</th>
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<td>Andrea</td>
<td>Prediction of therapeutic outcome using real-time fMRI neurofeedback in tobacco dependent patients</td>
<td>Background: One of the most prominent symptoms in addiction disorders is the strong desire to consume a particular substance (craving). The strong association between craving and the probability of relapse emphasizes the importance of craving in the therapeutic process. Former studies have demonstrated that neuromodulation using real-time fMRI (rtfMRI) neurofeedback (NF) can be used as a treatment modality in tobacco dependent smokers.</td>
<td>Methods: During the rtfMRI NF training patients participate in several rtfMRI NF sessions in order to train the modulation of neuronal responses. The aim of the present project was to determine, whether it is possible to predict the outcome of NF training plus group psychotherapy at the beginning of the treatment. For that purpose neuronal responses during the first rtfMRI NF session of patients who remained abstinent for at least three months were compared to those of patients with a relapse. Methods: 46 dependent smokers participated in the study. All patients were participants of a certified smokefree course. In addition, all patients took part in three NF sessions within 5 weeks. Patients were randomized to a real (n=22) and a sham condition (n=24). During the rtfMRI NF sessions tobacco-associated and neutral pictures were presented. Subjects were instructed to reduce their neuronal responses during the presentation of smoking cues in an individualised region of interest for craving (ROI).</td>
<td>Patients of the real-group revealed enhanced neuronal responses during the first NF session. The results of the first NF sessions could be useful as predictor whether a tobacco-smoking person will be able to achieve success after the behavioural group therapy and NF training in quitting smoking or not. Conclusion: These results suggest that there is a probability of estimating the chance of a successful withdrawal in patients smoking tobacco by analysing the first rtfMRI NF session.</td>
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<td>Tabassum</td>
<td>Systematic review of barriers and enablers to smoking cessation among Indigenous Australian women in pregnancy and postpartum employing the socioecological model</td>
<td>Objective: Using the socioecological model (SEM), this systematic review studied barriers and enablers to smoking cessation in pregnancy and/or postpartum among Indigenous Australian women to identify strategies that hold the most potential for future interventions. The SEM considers health behaviours to have interacting influences from multiple levels - individual, family, community, society, system.</td>
<td>Methods: Ten academic databases were searched with search terms related to Indigenous Australians, pregnancy, smoking and smoking cessation. Two reviewers independently screened and appraised papers. Narrative analyses and synthesis of data were performed using integrative and interpretive approaches.</td>
<td>Results: Out of 3862 papers, N=14 (9 quantitative, 5 qualitative) were included (participants: 1306 women, 3 partners, 234 health professionals, 2220 patient records). Reduced cigarette consumption and quitting in pregnancy is common; women took an independent approach and ownership of their quit attempts. Major barriers at individual level included increased stress and depression pre and post pregnancy, boredom, and the idea that smoking cessation care may not be necessary. At family level, a lack of support from family and partner was a key challenge. Peer pressure and widespread presence of social cues often deterred women from quitting smoking. Environmental stressors like racial discrimination and lack of employment opportunities were societal level barriers. At system level, inconsistent and inadequate support from health professionals have a significant impact on women's cessation journey. Sources of barriers and enablers were not mutually exclusive; mother, grandmother, aunts, and partner can be supportive or hinder women trying to quit. Community elders were considered a source of support. Conclusion: A systematic review to map the barriers and enablers Indigenous Australian women may experience in quitting smoking in pregnancy and/or postpartum, using a SEM model at individual, family, community, societal and system levels, facilitated the identification of potential strategies for culturally appropriate interventions at the required level(s).</td>
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<td>Depressive symptoms and smoking cessation: A longitudinal study of adult twins</td>
<td>Objective: To examine the longitudinal association of depressive symptoms with smoking cessation among daily smokers at baseline.</td>
<td>Methods: We used prospective data from the adult Finnish twin cohort (mean age at baseline: 38.3 years). A total of 1,438 daily smokers in 1990 were followed to be re-examined for their smoking status in 2011. Self-reported depressive symptoms at baseline were assessed by the Beck Depression Inventory (BDI), which was applied as a three-category variable (None/Minimal, Mild, and Moderate/Severe) based on the BDI scores. Self-reported smoking status at follow-up (daily, occasional, or former smoker) was analyzed as the outcome. Multinomial logistic regression analyses were conducted to model the association between depressive symptoms and change in smoking status. Twins were analyzed as individuals, but because observations on twins within twin pairs may be correlated, cluster-robust standard errors were estimated. Analyses were adjusted for age, sex, marital status, social class, binge drinking, and somatic health. Cigarettes per day (CPD) was used as a proxy for baseline nicotine dependence.</td>
<td>Results: Moderate/Severe depressive symptoms at baseline were associated with lower likelihood of smoking cessation two decades later. When adjusted for multiple covariates, those with Moderate/Severe depressive symptoms had 46% lower likelihood of being a former smoker rather than remaining a daily smoker at follow-up (relative risk ratio, RRR=0.54, 95% CI: 0.30-0.96) when compared to those with None/Minimal depressive symptoms. When CPD, which was positively correlated with BDI scores was included in the model, the estimate was somewhat attenuated and evidence for an independent association of depressive symptoms with smoking cessation was less clear (RRR=0.62, 95% CI: 0.35-1.12). Conclusion: In a population-based sample, higher depressive symptoms were associated with lower likelihood of smoking cessation after more than twenty years. However, higher baseline level of nicotine dependence among depressed smokers may partly explain this association. Nevertheless, depression remains an impediment for smoking cessation.</td>
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**Caroline Reyes-Guzman**

### Tobacco Use Profiles by Asthma Status for Adults and Youth in Waves 1-3 of the PATH Study (2013-2016)

**Background:** Smoking prevalence in the U.S. is at an historic low (14.1%), yet 25% of adults with asthma are current cigarette smokers. Smoking triggers asthma symptoms and exacerbates asthma-related morbidity; ENDS can trigger asthma symptoms among youth.

**Methods:** Population Assessment of Tobacco and Health (PATH) study adult questionnaire data from waves 1 (32,320), 2 (28,362), 3 (28,148) and youth questionnaire data from waves 1 (13,651), 2 (12,172), 3 (11,814) were analyzed. Separate analyses of tobacco use by asthma status were restricted to adults (27,121) and youth (11,440) with data across all waves. Current tobacco use was determined by self-reported frequency of use of at least one product at wave 3 (cigarettes, ENDS, hookah, smokeless tobacco, snus, cigars, cigarettes, or pipes). Current use groups were divided into exclusive tobacco and combinations of poly-tobacco use.

**Results:** Among 27,121 adults, 26.1% reported current use of any tobacco product at wave 3 and 13.8% reported a diagnosis of asthma. Among asthmatic adults, 28.0% reported current tobacco use compared to 5.6% without asthma (p<0.01). The distribution of tobacco use patterns among asthmatic adults were not significantly different from those of non-asthmatics (p=0.60). Among asthmatic adults who reported current tobacco use, 58.4% were exclusive combustible cigarette users, 5.0% were exclusive ENDS users, 9.1% were dual cigarette and ENDS users, 13.2% were poly-tobacco users, and 12.3% were other combustible tobacco product users. Among 11,440 youth (ages 12-17), 7.3% reported current use of any tobacco product and 19.1% reported a current asthma diagnosis. Compared to non-asthmatic youth, a higher proportion of asthmatic youth were dual combustible cigarette and ENDS users (14.4% vs. 12.3%), poly-tobacco users (14.8% vs. 9.8%), and other combustible users (14.9% vs. 9.0%).

**Conclusions:** Adults and youth with asthma reported greater tobacco product use than the general non-asthmatic population and most of that use involved combustible tobacco products. It is important for health care providers to discuss tobacco use with their asthmatic patients as part of their asthma care.

**Caroline Reyes-Guzman**

### Chronotype (Sleep Timing) and Cigarette Smoking: Findings from the National Health and Nutrition Examination Survey (NHANES), 2015-2016

**Background:** Chronotype reflects individual preferences in daily activity and sleep-wake rhythm. Recent studies indicate that adults with late chronotypes are more prone to health-impairing behaviors, such as drug and alcohol use, and metabolic effects, than their early counterparts.

**Methods:** Adult questionnaire data from the 2015-2016 cycle of the National Health and Nutrition Examination Survey (NHANES) were analyzed. Chronotype was determined by a respondent’s “mid-sleep,” defined as the midpoint of sleep onset and awakening. Current smokers were categorized into one of three groups based on chronotype tertiles: early, normal, and late. Among current smokers, outcomes of interest included past 30-day smoking intensity (cigarettes per day [CPD]) and frequency (number of days smoked), and nicotine dependence (time to first cigarette after waking). Three separate logistic regression models were fit to assess the association between each outcome of interest and chronotype, adjusting for sociodemographic and tobacco use behavior covariates.

**Results:** Among 5,882 adults, 18.0% (1,060) were current smokers. Compared to early chronotypes, a larger proportion of late chronotypes were current smokers (21.58% vs. 18.56%) and smoked cigarettes within 5 minutes of waking (27.65% vs. 25.65%). In adjusted models, smokers with a late chronotype were 2.6 times more likely to have a higher nicotine dependence, 1.9 times more likely to be daily (versus nondaily) smokers, and 3.1 times more likely to be heavy (versus light) smokers, compared to smokers with an early chronotype. Late chronotype is significantly associated with increased nicotine dependence, increased CPD, and increased smoking frequency as compared to early chronotype. These findings highlight the need to understand the impact of circadian preference on tobacco and substance use, and to provide improved smoking cessation therapies among smokers with late chronotypes.

**Rebecca Richmond**

### Investigating DNA methylation signatures of e-cigarette use

**Objectives:** Epigenetic differences have been found between cigarette smokers and non-smokers in the form of pronounced changes in DNA methylation. We aimed to ascertain whether e-cigarette use is associated with changes in DNA methylation and to evaluate the degree of similarity between methylation signatures in tobacco-naïve e-cigarette users (“vapers”) and cigarette smokers (compared with non-smokers).

**Methods:** The SEE-Cigs study recruited individuals aged 16-35 years who could be classed as: “Vapers” (vaped at least weekly for the past 6 months and smoked <100 times in their lifetime), “Non-smokers” (smoked and/or vaped <100 times in their lifetime) and “Smokers” (smoked at least weekly for the past 6 months and vaped <100 times in their lifetime). Participants were deemed eligible for inclusion were sent a saliva collection kit from which DNA was extracted. DNA methylation was assayed using the Illumina HumanMethylationEPIC array which targets >850,000 “CpG” sites in the genome. We performed an epigenome-wide association study (EWAS) to identify methylation differences in: i) vapers (n=32) vs. non-smokers (n=32) and ii) smokers (n=32) vs. non-smokers (n=32). Models were adjusted for sex, age, education level, body mass index, household smoking, recreational drug use and batch. We also assessed whether there was evidence for enrichment of smoking-related methylation sites identified in previous studies.

**Preliminary Results:** Methylation at 19 CpG sites was associated with vaping (vs non-smoking) and at 4 CpG sites was associated with smoking (vs non-smoking) at p<10^-5. There was some evidence for enrichment of previously identified smoking-related sites in the EWAS of smoking but less so in the EWAS of vaping.

**Conclusions:** Findings revealed that vaping is associated with differences in DNA methylation at numerous sites in the genome and that the methylation profile of vapers is distinct from that of smokers. Further work to investigate the biological importance and potential health implications of the observed methylation changes is required.
### Table 1: Key Findings

<table>
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<tr>
<th>Objective</th>
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<tr>
<td>Do Tobacco Tax Increases Increase Illicit Cigarettes Market Share?</td>
<td>Increase illicit tobacco trade. Therefore, we studied the size of illicit cigarette markets and its responsiveness to higher tobacco taxes in four low- and middle-income countries.</td>
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**Objective**

While tobacco smoking is declining in Finland among adolescents, smokeless tobacco (snus) use is increasing. Socioeconomic differences in snus use are understudied, especially in the context of intergenerational social mobility. Our aim was to examine snus use and its associations with social mobility during 2008–2017 in Finland.

**Methods**

Five waves of the cross-sectional School Health Promotion Study during 2008–2017 were used (15–21 years, N = 384,379). The adolescents’ educational orientation (academically oriented / non-academically oriented) was compared with the educational track of the parents as a proxy for intergenerational social mobility, which was used as the independent variable in regression models to examine the differences in daily snus use. Four groups of social mobility were identified: stable high, upward mobile, stable low and downward mobile. Both absolute and relative differences in snus use were examined.

**Results**

While tobacco smoking is declining in Finland among adolescents, smokeless tobacco (snus) use is increasing. Socioeconomic differences in snus use are understudied, especially in the context of intergenerational social mobility. Our aim was to examine snus use and its associations with social mobility during 2008–2017 in Finland.

**Conclusions**

Adolescent snus use is strongly associated with the educational track, as non-academically oriented adolescents have an increased risk of smokeless tobacco use. In the future, socioeconomic differences in harms caused by smokeless tobacco use may increase among Finnish men.

**Objective**

To examine adults’ cigarette smoking status at the point of their first purchase of a JUUL e-cigarette, and to examine rates of key transitions in cigarette smoking status over adults’ first three months of using JUUL vaping products.

**Methods**

Participants were 55,414 adults (≥ 21 years) in the United States recruited at their first ever purchase of a JUUL Starter Kit in a brick and mortar retail store or online through JUUL’s e-commerce platform. Online surveys assessed patterns of use of JUUL vaping products, conventional cigarettes, and other e-cigarettes products, monthly for three months. We report rates of three transitions in smoking status for each monthly assessment: (i) current smoker to former smoker (cessation); (ii) former smoker to past 30-day smoker (re-initiation); and (iii) never smoker to past 30-day smoker (initiation).

**Results**

New purchasers of a JUUL Starter Kit were current smokers (49.4%), non-current past 30-day smokers (23.2%), former smokers (33.3%) and never smokers (8.9%). Approximately 25.1% of baseline current smokers and 42.3% of baseline non-current past 30-day smokers reported past 30-day abstinence from smoking at three months. In contrast, 11.3% of baseline former smokers and 7.7% of baseline never smokers were past 30-day smokers at three months. Daily users of the JUUL vaporizer and those who did not use a secondary e-cigarette were more likely to have quit smoking and less likely to have re-initiated smoking at three months. Primary users of Mint or Mango flavored JUULpods (vs. Virginia Tobacco flavored JUULpods) were less likely to have initiated smoking at three months.

**Conclusions**

Using JUUL vaping products for three months was more strongly associated with smoking cessation than with smoking initiation or re-initiation in this cohort of adult new users. If JUUL products are demonstrated to present fewer health risks than cigarette smoking, the observed patterns of JUUL-cigarette transitions would likely yield a short-term net reduction in harm to this cohort.

**Objective**

To examine acute effects of nicotine on non-drug related rewards in smokers and non-smokers.

**Methods**

Objectives: Animal research has established that nicotine can enhance the reward value of non-drug related sensory and appetitive stimuli (e.g. a light or tone). One research group in the US have demonstrated similar effects in abstinent and minimally-deprived human smokers. Nicotinic enhancement of reward in human non-smokers would confirm that this effect could not be explained by reversal of withdrawal or classical conditioning of nicotine with other rewarding stimuli. This study, therefore, explored whether this effect of nicotine can be replicated in non-smokers using an oral spray.

**Results**

Results: All participants found more apples (F(1,57) = 52.599, p < 0.001) and spent longer on the task (F(1,57) = 45.611, p < 0.001) when their music was played. Participants could terminate the task at any time. Dependent variables were number of apples found and total time spent on task.

**Conclusion**

These data suggest that non-smokers are sensitive to the reward-enhancing effects of nicotine. As with animal research, reversal of withdrawal and/or classical conditioning of nicotine with rewards cannot explain this finding in non-smokers. Nicotine’s enhancement of the reward value of sensory, non-drug related rewards may be one attractive feature of smoking and may have implications for smoking cessation if nicotine-substitution is not used.
Jaqueline Scholz  

**A new model for preclinical pharmacokinetics studies of nicotine delivery from e-cigarettes**

Objectives: The potential therapeutic benefits as well as the abuse risk of e-cigarettes (EC) are substantially determined by the nicotine inhaled dose, rapidity and site of absorption. EC are increasingly being used as nicotine replacement therapy (NRT). However, there are few nicotine pharmacokinetics (PK) models after EC use. We developed a novel model in pigs for nicotine PK studies in preclinical applications.

Methods: General anesthesia was induced by 3mg/kg of propofol. Pigs were intubated to conserve spontaneous ventilation and anesthesia was maintained by isoflurane in the inhaled air. Arterial and venous blood lines were placed for blood sampling. A 2 min continuous EC (istick miniTM with GS Air-MTM atomizer, 1.5Ω from Elfaix used at 8.5W with air flow open) vaping was administered via the endotracheal tube. The e-liquid used was AlfaLiquid OriginalTM FR-M, containing 6mg/mL of nicotine. The nicotine dose administered was measured by weighing the device before and after vaping. Blood samples were taken prior to and at 2, 5, 10, 20, 40, 80 and 120 min after vaping. Nicotine and Cotinine plasma levels were measured by a LC/MS method.

Results: 6 pigs were included. Despite the same administration protocol, the nicotine dose administered varied from 0.41 mg to 9.06 mg. However, PK profiles were similar for 5 pigs. One pig showed a different absorption profile, probably due to hypoventilation during vaping. The absorption peak of nicotine (Cmax) was quickly attained (2 min) and varied from 5.5 to 50.6 ng/mL. Cotinine, the main metabolite, appeared 5 to 10 min after the vape session and the Cmax was reached between 5 and 40 min. Arterial and venous plasma levels had similar profiles, but arterial were 1.5 to 3 times higher than venous levels. Nicotine elimination was faster in arterial than in venous plasma and the terminal elimination phase was reached 120 min after vaping.

Conclusion: PK profiles after vaping in pigs are very close to those described after human vaping or “classical” cigarette administration, contrasting with other NRT such as gums or patches characterized by slower nicotine delivery. EC may offer an excellent alternative to quit smoking.

Irene Schmutterer  

**Smoking Prevalence in Austria — Differences between Men and Women**

Objective  
The research question is in which aspects men and women differ in smoking behavior (prevalence) in Austria.  

Method  
To answer the research question, epidemiological data from different sources (population surveys on consumption frequency and causes of death statistics) was used, analyzed and compared.

Results  
Over many decades the smoking habits of men and women in Austria have become more and more similar. Young men started smoking less often, young women more often than before (cohort effect). This development can also be seen in mortality rates (lung cancer). Currently, fewer women than men smoke. On average, female smokers smoke less Cigarettes per day than male smokers. Compared to other European countries, Austrian women rank highest regarding daily smoking, while Austrian men are positioned midrange. Differences can also be seen in the prevalence of e-cigarette and water pipe/shisha consumption. More men than women steam/smoke these products.

Conclusion  
Although differences between men and women in smoking behavior have decreased in recent decades, there are still aspects where they differ.

Jaqueline Scholz  

**Contribution of a new behavioral technique in effectiveness of smoking cessation treatment with varenicline**

Varenicline is the most effective drug for smoking cessation. In addition to reducing withdrawal symptoms, it blocks the pleasure of smoking. Previous trials using varenicline oriented the patient stop smoking on the 14th day on treatment and promote change of habits and routine. The cessation rate obtained over 12 weeks with this method is about 40%. However, in clinical practice we noticed the anguish in smokers in stopping abruptly and many did not realize the positive effect of varenicline on cessation. In this way, since 2016 we have developed a new intervention model to associate with the use of varenicline that we call “discipline smoking”. It consists of smoking standing, alone, in an isolated area, facing a wall, without any stimulus, except the cigarette itself. The patient is advised that he can smoke, if he so desires, but can do it only this way. Objective: evaluate the effectiveness of this method in patients treated with varenicline. Methods: We evaluated 342 patients treated from January 2016 to December of 2018 in a smoking cessation clinic. All patients received prescription of varenicline as the first treatment option and were instructed to return on appointment after 2 weeks of initiation of the medication and to smoke in discipline methods from day 8 on varenicline use. Subsequent visits were performed between the 4th and 6th week, between the 6th and 8th week and between the 9th and 12th week of treatment. Varenicline was prescribed for 12 weeks. Monoximetry (CO) and vital signs was performed in all visits.

Results - The continuous abstinence rate from 9 to 12 week was 68% confirmed with CO concentration.

Discussion - The technique of disabling positive reinforcement model and replacing it with null or negative reinforcement in relation to the act of smoking seems more rational considering varenicline’s mechanism of action. The smoking cessation occurs in a progressive and controlled manner by the patient.

Conclusion - This new technique presents as promising to improve the success rate of varenicline treatment on smoke cessation. With limitations of being an observational study, a randomized trial should be done to test this technique.
Ernado Seo

Assessment of the tobacco retail environment before implementation of a municipal tobacco retailer licensing policy: Lucknow, India (January 2019)

Objectives: To determine the density of tobacco retailers in Lucknow’s Rajendra Nagar ward, and to document the tobacco retailer environment and compliance with other national and state tobacco control policies.

Methods: In January 2019, trained data collectors walked all streets of Rajendra Nagar ward and recorded geographic coordinates of tobacco retailers and entrances of the ward’s 10 schools. Using an electronic audit form, data collectors recorded retailer type and availability of tobacco and non-tobacco products. In a convenience sample, additional data were collected, including: presence of tobacco advertising or promotion (TAP), tobacco product display, pictorial health warning (PHW) labels on packs, PHW board display, and availability of single sticks. Using ArcMap, we calculated several retailer density measures.

Results: A total of 162 tobacco retailers were identified, indicating an overall density of 5.4 per 1000 people. Permanent non-grocery shops were the most common retailer type (41%), followed by small grocery shops (31%), kiosks (21%), street vendors (7%). Nearly all retailers (99%) sold smokeless tobacco products, while 89% sold bids and 87% sold cigarettes. Most retailers (92%) sold non-tobacco products. On average, there were 22 retailers within 200 meters of a single retailer. Between 1 and 12 retailers were located within 100 yards of each school, in violation of national law (mean=6). Among the convenience sample (n=31), compliance with select tobacco control policies varied: compliance with the requirement for PHW labels on packs was highest (94%), followed by the TAP ban (74%), single stick sales ban (19%), product display ban (13%), and the PHW board requirement (3%).

Conclusion: Lucknow’s Rajendra Nagar ward has a high density and substantial clustering of tobacco retailers. Though there is higher compliance with some tobacco control policies, many retailers violate key provisions such as the ban on product display, single stick sales, and sales near schools. Lucknow should fully implement and enforce the tobacco retailer licensing policy to reduce tobacco retailer density and aid enforcement of existing tobacco control laws.

Hong Gwan Seo

Does new smoking cessation program (5-day residential intensive treatment program) work in South Korea?

objectives: The price of one pack of cigarettes has been increased 80% since 2015 in Korea. With new revenue Ministry of Health and Welfare(MOH) of Korean government expanded public services for smoking cessation. MOH designated 18 regional smoking cessation support centers nationwide. The centers has 5-days residential intensive treatment program (5-RITP) for heavy tobacco users. All the services were given for free. This study aims to investigate qtr smoking rates (QSR) of 5-RITP at Northern Gyeonggi Smoking Cessation Support Center in 2016-2018.

Methods: Eligible participants for 5-RITP are current smokers who has more than 20 pack year smoking history or patients who continue smoking after treatment of smoking related diseases such as lung cancer or ischemic heart disease. 5-RITP provides pharmacotherapy for nicotine dependence, and counselling as a group or as an individual. It also provides education on harm of smoking, benefit of cessation, immorality of tobacco company, dealing methods for smoking craving, lifestyle modification. The participants received follow-up care at 2, 4, 8, 12 and 16 weeks by visiting centers or telephone counselling. QSR (4 weeks & 6 months) were measured based on self-report or urine cotinine test.

Results: A total number of participants 5-RITP was 836 for three years. Males were 1,504 (90.0%) and females were 168 (10.0%) respectively. Proportion of participants aged 60 or over were 55.6%. Average QSR was 91.3% at 4 weeks and 54.9% after 6 months after 5-RITP. According to sex, QRS between male (91.5%) and female (89.3%) were very similar at 4 weeks. However, QRS at 6 months reported no significant difference between male (54.8%) and female (56.0%). With respect to QSRS by age, the rates at 4 weeks showed similar results each year by age. However, QRSs of participants aged 60 or over was higher than younger age groups at 6 months.

Conclusion: South Korea’s new smoking cessation program (5-RITP) yielded fruitful results in helping heavily addicted smokers in quitting.

Neha Sharma

Impact of individualised homeopathic treatment on smoking cessation and quality of life

Cigarette smoking is a chronic condition associated with high morbidity and mortality worldwide. Successful pharmacologtic treatments are available but found more effective when combined with behavioural interventions. Among non-conventional medicines, acupuncture, hypnosis and homeopathy is widely used as a supportive therapy. There has been no clinical trial to assess the impact of homeopathy for smoking cessation.

Methods: To determine the effectiveness of individualised homeopathy treatment for smoking cessation and quality of life, a randomised, placebo-controlled, clinical trial was conducted on 48 smokers wanting to quit. After informed consent, participants were randomised into Homeopathy group (HG) or Placebo group (PG). All of them receive homeopathic consultation and counselling but only homeopathy group received homeopathic medicines.

Smoking abstinence was considered when they could quit completely and continuously by the end of 4 months. Quality of life was measured through Short form-36 questionnaire.

RESULTS: After 4-month of intervention period, significant abstinence was found in homeopathy group compared to placebo (p<0.001). Comparatively, significant improvement was reported in role-emotional, general health, vitality and mental health. Physical and mental component had a better score in homeopathy group but could not reach significance levels.

CONCLUSION: Individualised Homeopathic treatment could be a safe, feasible intervention to better support smoking cessation and improve quality of life. Further and long term follow up studies are required.
Tobacco use among pregnant women in 42 low and middle income countries (LMICs): a secondary data analysis from the Demographic and Health Surveys

Radha Shukla

Objective: To estimate and compare the most recent prevalence rates of tobacco use between pregnant women and women of the reproductive age group in LMICs. Furthermore, to understand the effect of education and socio-economic status on tobacco use among women in these two groups. Method: We used the DHS data from 42 LMICs between the years 2010-2016. Prevalence estimates are generated for exclusive smoking, smokeless tobacco (SLT) use and dual use for women of reproductive age group and pregnant women and multinomial regression analysis to understand the effect of socio-demographic characteristics. Results: Prevalence of exclusive smoking among women of reproductive age group is 1.20% (95% CI: 0.96-1.46) and among those who are pregnant is 0.69% (95% CI: 0.51-0.90) and that of exclusive SLT use is 0.86% (95% CI: 0.53-1.27) and 0.56% (95% CI: 0.33-0.84), respectively. The highest prevalence of exclusive smoking among pregnant women is in Timor-Leste (4.9% and a 95% CI of 2.85-8.37) and that of exclusive SLT is in Lesotho (4.7% and a 95% CI of 2.55-8.35). The relative risk ratio (RRR) for exclusive smoking and exclusive SLT use among pregnant women when compared to non-pregnant women is 0.85 (95% CI of 0.67-1.09) and 0.81 (95% CI of 0.67 – 1.00) respectively. Compared to women with no formal education, women with secondary education have RRR of 0.68 (95% CI of 0.51-0.91) for exclusive smoking and RRR of 0.64 (95% CI of 0.43-0.96) for exclusive SLT use. The RRR for exclusive smoking reduces from 0.65 (95% CI of 0.59-0.72) in the 2nd quintile (poorer) to 0.36 (95% CI of 0.18-0.73) in the highest quintile (richest). Lowering education and wealth index is inversely related to smoking among pregnant women. Results: Data collection is complete and data cleaning and analysis is currently underway. Follow-up rate for the primary outcome (6 months) was 92%. Conclusions: The prevalence does not statistically differ among both groups of women and suggests an inverse relationship of tobacco use with education and wealth index. Therefore, it is important to intervene and increase awareness for pregnant women regarding tobacco use and to focus more on women from the low-socioeconomic status as they bear the greatest burden of tobacco use.

Blended Face-to-face and Web-based Smoking Cessation Treatment: a description of patients’ user experience

Lutz Siemer

Background/Objectives: Blended treatment -- a combination of Web-based and face-to-face (F2F) therapy -- is a promising eHealth service, because it is expected that in blended treatment the strengths of one mode of delivery will compensate for the weaknesses of the other. The aim of this study is to examine the key elements of the patients’ user experience (UX) in a blended smoking cessation treatment (BSCT) in routine care.

Methods: Patients’ UX was collected by in-depth interviews (n=10) at an outpatient smoking cessation clinic in the Netherlands. Content analysis was used to describe the users’ experience applying Hassenzahl’s UX model from a user perspective examining the key elements of UX: (1) standards and expectations, (2) apparent character (pragmatic and hedonic attributes), (3) usage situation, and (4) consequences (appeal, emotions, behavior). Results: In general, the UX of BSCT was good. Patients had a positive-pragmatic standard and neutral-open expectation towards BSCT, and the pragmatic attributes (usability, utility) of both the Web-sessions and the F2F-sessions were mostly positive. However, for the hedonic attributes (stimulation, identification, evocation), Web-sessions differed from F2F-sessions: patients reported lower stimulation for the Web-sessions (“online won’t get through to me”), lower identification (“online is not my style”), and negative evocations (comparing the Web-sessions to e.g. “bookkeeping”). Ultimately, we found three types of combinations of appeal, emotions (e.g. satisfaction) and behavior (adherence; quitting): positive, negative, and mixed consequences.

Conclusions: In the light of this study, the expectation that blended treatment combines "the best of both worlds" because the strength of one mode of delivery can compensate for the weaknesses of the other, can be supported. However, this was mainly found in only one way: F2F-sessions compensated for the weaknesses of Web-sessions. This study emphasizes the relevance of aspects of hedonism such as e.g. fun, joy or happiness which may be addressed to further improve UX and ultimately treatment effectiveness.
Charlie Smith

Objectives: Misperceptions regarding relative harms of e-cigarettes (ECs) are common among the general population, and it remains unclear whether these are more prominent among smokers with mental health conditions; a group which may particularly benefit from ECs for harm reduction purposes. This study aimed to assess harm perceptions of ECs relative to combustible cigarettes among a nationally representative sample, stratified by mental health status.

Methods: A cross-sectional, nationally representative survey (Smoking Toolkit Study) of 6,735 adults in England who identified as current smokers of any combustible tobacco product during 2016 and 2017. The associations of mental health status (measured by self-reported mental health diagnosis and past year treatment) with harm perception of ECs relative to combustible cigarettes (measured by correct perceptions [less harmful] vs wrong perception [more harmful, equally harmful, and don’t know]) was analysed with logistic regression, controlling for potential confounders, including socio-demographic characteristics, cigarette and e-cigarette use characteristics, internet use, and newspaper readership. Results: A similar proportion of smokers with mental health conditions (with [62%] and without past year treatment [61%]) and without mental health conditions (62%) wrongly believed that ECs are not less harmful than cigarettes (adjusted OR 1.02, 95% CI: 0.90-1.15 and adjusted OR 1.05, 95% CI: 0.87-1.26, respectively). Being female, non-white, aged 15-34 and 55-64, in manual and labour employment (or unemployed), not having past-16 qualifications, no experience of EC use, being a daily smoker, not being motivated to quit in the next month, not using the internet and not reading broadsheet newspapers were all associated with more inaccurate harm perceptions. Conclusion: The majority of smokers in England do not believe that ECs are less harmful than combustible cigarettes, with no differences between smokers with and without mental health conditions. Research is needed to explore how best to communicate messages regarding ECs to smokers particularly where smoking prevalence is high.

Matthew Smith

Objectives: Cardiometabolic risk factors among young adults has been related to early onset of chronic health conditions such as hypertension and Cardiovascular disease. Much less is known about the perceptions of cardiovascular risk severity among current young adult smokers. The purpose of this study was to identify the extent to which current cigarette smoking behavior among college students in the United States is associated with perceptions of severity for three interrelated cardiovascular risk factors: (1) obesity; (2) high blood pressure; and (3) cardiovascular disease.

Methods: Data were analyzed from 1,361 college students in the United States using an internet-delivered survey. Participants were asked to rate how severe they thought cardiovascular risk factors were using Likert-type scales ranging from 1 (not severe at all) to 10 (extremely severe). A series of least squares regression models were fitted to identify factors associated with severity perceptions about these three interrelated cardiovascular risk factors.

Results. The majority of participants was female (64.2%) and non-Hispanic white (67.8%). Forty-seven percent of participants self-reported smoking one or more cigarettes in the average week, and 39.2% were overweight or obese. Relative to nonsmokers, participants who smoked perceived obesity (B=0.12, P<0.001), high blood pressure (B=0.09, P=0.001), and cardiovascular disease (B=0.12, P<0.001) to be significantly more severe. Across models, females perceived all three cardiovascular risk factors to be more severe (P<0.005). Relative to non-Hispanic whites, Hispanic and Asian/Pacific Islander participants perceived all three cardiovascular risk factors to be less severe (P<0.002).

Conclusion. Although current cigarette smokers perceived cardiometabolic risk factors as less severe than nonsmokers, the likelihood of developing multiple cardiovascular-related comorbidities is high among smokers. Interventions should be provided to college students to prevent and reduce smoking behavior as well as educate them about interrelated cardiometabolic risks associated with smoking, especially among female and minority college students.

Kirstie Soar

Objectives: Cannabis remains one of the most widely used illicit drugs, with smoking it as a ‘joint’, often combined with tobacco, being one of the most common methods of consumption in Europe (Hamilton, 2017). However, cannabis vaping is beginning to emerge as an alternative, which could reduce exposure to tobacco. This study aimed to explore comparative psychoactive effects and examine belief and behaviours regarding cannabis vaping in relation to smoking, and therefore subsequent exposure to tobacco.

Methods: An online Qualtrics survey was completed by 110 cannabis users between 2017-2018, mean age 29 years, 73% male, 83% white ethnicity, 74% educated to a degree level of above. 22% were exclusive cannabis vapers, 59% vaped and smoked cannabis (dual users) and 19% reported other consumption methods except vaping e.g. smoking.

Results: Of those smoking cannabis 52% did so using tobacco. Of the cannabis vapers, 15% indicated the reasons they would continue to vape cannabis was because they ‘wanted to stop smoking cannabis’ and only 22% wanted another method in addition to smoking cannabis’, 49% of vapers reported that the frequency of smoking cannabis had decreased since they started vaping. Significantly more of those who exclusively vaped cannabis did so because they wanted to stop smoking and reported a reduced urge to smoke relative to those who smoked and vaped cannabis. Reported benefits of vaping relative to smoking were also endorsed by the majority of cannabis users e.g. helped cut back on tobacco smoking, healthier than smoking, less irritation on airways, it was viewed as a good replacement to smoking cannabis.

Conclusions: Over half of the cannabis users reported smoking with tobacco. Since cannabis vaping, nearly half reported a reduction in smoking cannabis, thus presumably reducing exposure to tobacco. The benefits of vaping relative to smoking and tobacco exposure were also endorsed. Data therefore suggests switching to vaping cannabis has implications on reducing tobacco exposure, and cannabis users are doing so for this reason.
The impact of tobacco control policies on global smoking prevalence from 2009 to 2017

Background: The WHO's Framework Convention on Tobacco Control (FCTC) has bolstered efforts in reducing rates of global tobacco use. Yet, gaps in uptake and enforcement of the FCTC remain. Better understanding the effectiveness of the FCTC in reducing tobacco use is important in strengthening future control efforts.

Aim: Assess the impact of varying levels of tobacco control policies on smoking prevalence across 175 countries from 2009 to 2017.

Methods: Country-level achievement scores for smoke free (P), health warnings (W), and advertising (E) policies, as well as cigarette prices, from 2008 to 2016 were sourced from WHO data repositories. The relative income price (RIP) of cigarettes, computed as the percentage of the per capita gross domestic product required to purchase half pack of cigarettes a day for the course of a year, was utilized as our marker of affordability. Policy indicators were linked to current smoking estimates from the Global Burden of Disease Study considering a one-year policy lag. Mixed effect linear models were utilized to assess the impact of policies on sex and age specific smoking prevalence.

Results: Each one-unit increase in P, W, and E achievement scores decreased global male smoking prevalence rates by 1.1%, 2.1%, and 1.9%, respectively. A 10 percentage point increase in RIP was associated with a 9% decline. For females, each 1 point increment in W and E scores was associated with 3.6% and 1.9% relative reduction in prevalence, respectively. P laws did not have an effect on female smoking, except for those aged 30-49. A 10 percentage point increase in RIP lowered overall female prevalence by 6% but was not statistically significant for those aged 50 and older. Had all countries implemented P, W, and E policies at their highest level and adopted cigarette prices of $5.73 or higher by 2016, smoking prevalence would have been approximately 12% lower for males and females in 2017.

Conclusion: Tobacco control policies are effective in reducing smoking prevalence over time, with greater gains observed when policies are implemented simultaneously.

Smokeless tobacco (Swedish snus), unhealthy eating, and weight dissatisfaction in adolescents

Objective: Cigarette smoking has been linked to weight-related concerns and unhealthy weight control practices. However, little is known about weight dissatisfaction and eating among adolescents who utilize smokeless tobacco products. The aim of the current study was to investigate differences in unhealthy eating behaviors and weight dissatisfaction in male and female adolescents who never, occasionally, or regularly use snus.

Methods: Adolescents aged 16-19 years enrolled in high school completed a cross-sectional, online survey of adolescent health and well-being. Meal skipping and snus frequency were assessed in the total sample (N = 23,622), and items assessing weight dissatisfaction (n = 3563) were administered to subsamples. Analyses were adjusted for cigarette smoking, parental education, and socio-economic status. Results: Adolescents who used snus, especially on a daily basis, reported less regular breakfast, lunch, and dinner consumption. Females who used snus on an occasional basis reported significantly more disturbed eating pathology. Snus use was associated with weight dissatisfaction in males and females, manifesting differentially according to gender and snus use frequency. Conclusion: Unhealthy eating behaviors and weight dissatisfaction were significantly elevated among adolescent snus users. Increased awareness that occasional snus use may signal disturbed eating pathology among young females is important for detection and prevention efforts.

Underreporting of the active content of behavioural-interventions: A systematic review and meta-analysis of randomized trials of smoking cessation interventions

Objectives: Despite its importance, underreporting of the active content of experimental and comparator interventions in the published literature has not been previously examined for behavioural trials. We assessed completeness and variability in reporting in 142 randomised controlled trials (RCTs) of behavioural interventions for smoking cessation published between 1/1996-11/2015. Method: Two coders reliably identified the potential active components of experimental and comparator interventions (activities targeting behaviours key to smoking cessation and qualifying as behaviour change techniques, BCTs) in published, and in unpublished materials obtained from study authors directly. Results: Unpublished materials were obtained for 129/204 (63%) experimental and 93/142 (65%) comparator groups. For those, only 35% (1200/3403) of experimental and 26% (491/1891) of comparator BCTs could be identified in published materials. Reporting quality (number of BCTs/total BCTs) varied considerably between trials and between groups within trials. Experimental (vs. comparator) interventions were better reported (B(SE)=0.34 [0.11], p<.001). Unpublished materials were more often obtained for recent studies (B(SE)=0.093 [0.03], p=0.03) published in behavioural (vs. medical) journals (B(SE)=1.03 [0.41], p=0.01). Conclusions: This high variability in underreporting of active content compromises reader’s ability to interpret the effects of individual trials, compare and explain intervention effects in evidence syntheses, and estimate the additional benefit of an experimental intervention in other settings.
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<th>Marie-Pierre Sylvestre</th>
<th>Depressive symptoms and cigarette smoking in adolescents and young adults: the mediating role of friends smoking</th>
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<td>Objective: This study examines the mediating role of friends smoking on the association between depressive symptoms and cigarette smoking across the transition from adolescence to adulthood.</td>
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<td>Methods: Data for the early adolescent (n=1114 age 13 to 15) and mid-to-late adolescent (n=863 age 16 to 17) samples were drawn from Nicotine Dependence In Teens (NDIT) study. Data for the young adult sample (n=4579 age 18 to 21) were drawn from the Avon Longitudinal Study of Parents and Children (ALSPAC) study. The 6-items Kandel depression scale and Mood and Feeling Questionnaire were used to measure depressive symptoms in NDIT and ALSPAC, respectively. Variables measuring depressive symptoms were standardized to enhance comparability across samples. Mediation analyses were performed to investigate the total effect of depressive symptoms on cigarette smoking and its decomposition into natural direct effects (NDE) and natural indirect effects (NIE) through friends smoking.</td>
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<td>Results: The total effect of depressive symptoms on cigarette smoking was consistent in the early adolescent and young adult samples (OR (95%CI) = 1.58 (1.22, 2.04) and 1.44 (1.31, 1.59), respectively). It was 1.12 (0.89, 1.41) in mid-to-late adolescents. In early adolescents, the OR for the NDE was 1.47 (1.14, 1.89) and the OR for NIE was 1.08 (1.02, 1.14), suggestive that friends who smoke accounted for 16% of the total effect of depressive symptoms on cigarette smoking. The NIE was null for both the mid-to-late adolescent (0.99, (0.88, 1.13)) and young adult samples (1.01, (0.90, 1.22)), suggestive that the effect of friends smoking was attenuated over time.</td>
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<td>Conclusion: Peer smoking explains a portion of the association between depressive symptoms and cigarette smoking in adolescents, but its influence decreases during the transition from adolescence to adulthood. Our finding highlights the importance of addressing peer influence, which can be positive or negative, in the adoption or maintenance of health-related habits in early adolescence.</td>
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<th>Marie-Pierre Sylvestre</th>
<th>Cigarette smoking trajectories in adolescent smokers: Does the time axis metric make a difference?</th>
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<td>Objectives: Most studies that model adolescent cigarette smoking trajectories use age or grade as the time axis, possibly obscuring depiction of the natural course of cigarette smoking onset. We used real and simulated data to contrast trajectories obtained using these two time axis metrics.</td>
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<td>Methods: Data were drawn from the NDIT study, a prospective investigation of 1293 adolescents recruited in 1999-2000 in 10 high schools in Montreal, Canada. Cigarette consumption and nicotine/tobacco dependence (cravings, withdrawal symptoms, the mFTQ, ICD-10 tobacco dependence) were measured every 3 months during high school using questionnaires. We used group-based trajectory modeling to estimate trajectories of smoking and nicotine/tobacco dependence in: (i) incident smokers, using time since cigarette smoking onset as the time axis; and (ii) all smokers, using age as the time axis. We simulated a cohort of adolescents who started at age 12, 14, or 16 years and who followed one of three trajectories of smoking (stable-low, moderate escalators and early rapid increasers) and replicated the trajectory analysis to investigate the effect of using age of onset or age as the time axis.</td>
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<td>Results: Five trajectories were identified in incident smokers: stable-low consumers (40%), low-level decreasers (38%), slow escalators (8%), moderate escalators (8%), early-rapid escalators (3%). Four trajectories were identified in all smokers (the model did not differentiate stable-low and low-level decreasers). Trajectories were similar across nicotine/tobacco dependence, and generally reflected cigarette smoking trajectory shapes in incident smokers. The rate of change was attenuated across trajectories when age was used as the time axis. Simulated data suggest that the attenuation reflected the mixing of adolescents with different smoking and nicotine/tobacco dependence histories in the trajectories.</td>
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<td>Conclusions: Modeling a mix of incident and prevalent adolescent smokers obscures depiction of the natural course of smoking onset and identification of factors associated with the natural course.</td>
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<th>Marie-Pierre Sylvestre</th>
<th>Two decades of trajectory analysis of cigarette smoking in adolescents: what have we learned?</th>
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<td>Objectives: Trajectory analyses differentiate subgroups of smokers based on early cigarette smoking patterns. We systematically reviewed this literature to assess its usefulness in identifying youth at risk of sustained smoking.</td>
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<td>Methods: PubMed and EMBASE were searched for articles published between Jan 1, 1980 and Dec 31, 2016. Of 955 studies, 41 were retained. Data on trajectories and predictors were extracted. Given variability in shape across studies, trajectories were categorized based on predominant features (low-stable, increasing, other). The latter two were considered higher risk.</td>
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<td>Results: 14/41 studies reported 4 trajectories. 39-72% of participants were low-stable cigarette users, 11-21% were increasing, and 7-11% were other. Fewer trajectories were identified in smaller studies, studies with &lt;5 data points and studies using a 2-category smoking indicator. Age, sex, ethnicity, parental education, behavior problems, depression, academic performance, cigarette use, parent and friends smoking, alcohol use and cannabis use were associated with trajectory patterns. Adolescents in the higher risk trajectories were more likely to engage in substance use and less likely to have a high school diploma.</td>
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<td>Conclusion: Risk factors and outcomes identified mirror those from studies that do not use trajectory analyses, providing evidence of convergent construct validity of trajectories. Heterogeneity across studies in number and shape of trajectories may be due to the data-driven nature of trajectory modelling that involves statistical decisions that can overfit the data. Studies were not consistent in identifying windows of opportunity for intervention and it is unclear whether differences across trajectories at a given point in time are sufficiently important to warrant targeted intervention. Trajectory analysis may prove more useful in investigating smoking patterns in a given population, than in identifying individuals at risk who need intervention, especially since smoking behavior may be fluid across development and subject to change rather than static within a single &quot;at-risk&quot; trajectory.</td>
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Among US Youth and Young Adults

Prevalence of Use and Perceived Trends of Using Pod-Based Vaping Devices

Objective: In current state of tobacco control, there is a growing support for alternative products, as well as inevitable concern for them to be a new treat and no less harmful than traditional products. In Ukraine one of the alternatives, namely tobacco heating system (THS), is becoming more and more popular and claimed as better alternative to smoking.

Methods: To assess the effect of these products comparing to the traditional smoking, we analyzed 80 people in 4 groups: 20 healthy individuals, not smokers; 20 smokers (smoking history 8-10 years); 20 THS users (more than a year), ex-smokers (smoking history less than 8 years); 20 patients who quit smoking during a year after 8-10 years of smoking history. Parameters analyzed: respiratory function (lung volumes, VC, FEV1), coagulative blood analysis, coagulative blood analysis, coagulative blood analysis, cell immunology indicators (CD3, CD4, CD8).

Results: In patients with average cigarette per day number of 15,6 ± 6,9 and smokers' index 186,9 ± 83,4 (high risk of smoking disease development) respiratory function changes, characterized as obstructive, was observed. It was related to the disruption of air flow in bronchi. In patients who switched over to THS combined, light restrictive/obstructive changes of respiratory function was observed. In patients who quit smoking light obstructive changes were observed. Both quitting and switching over to THS leads to improvement of indices of blood clotting and prevent further development of DIC syndrome. Improvement of proliferative function CD3 and CD4 was observed in healthy subjects, in those who quit and those who switched over to THS. Smoking cessation and switching over to THS after 1 year favor the restoration of neutrophil phagocytic activity. According to the obtained data, smoking cessation and switching over to THS can facilitate faster reduction in endogenic intoxication.

Eugenii Symonets

Analysis of the respiratory, coagulative and inflammation changes in people, according to the type of their tobacco use

Among US Youth and Young Adults

Are smoking cessation behaviours associated with a perceived public stigma of smokers and cultural values? Cross-sectional analyses of Norwegian data 2011–2013

Objective: Introducing evidence suggests that smoker stigma is an unintended consequence of tobacco denormalisation policies. Little is known about the dissemination of stigmatizing attitudes towards smokers, including their associations with cultural values. Applying a cultural approach that conceptualises stigma as a moral and intersubjective issue, we test whether the tendency to agree that smokers are stigmatized differs according to smoking status, SES and cultural values in the overall population, and whether perceived public stigma was associated with retrospective attempts to cease smoking and future cessation plans among daily smokers.

Methods: We merged data from the biennial national survey Norwegian Monitor 2011 and 2013 (Total N=7,792, N smokers=1,696, N ex-smokers=2,265).

Perceived public smoker stigma was measured as follows: ‘How do you agree or disagree with the following statement? Most people think less of a person who smokes’. Responses were recoded into ‘totally or partially agree’ and ‘totally or partially disagree’. Binary logistic regression was applied. In the total sample, the tendency to agree that smokers are stigmatized was regressed on smoking status, with particular emphasis on ex-smoker status, controlling for socio-demographics and cultural values. Thus, stigma was treated as a dependent variable. In addition, we addressed whether perceptions of public smoker stigma merely among daily smokers were associated with recent attempts to quit, a short-term intention to quit and a future non-smoker identity. In these analyses, stigma was treated as an independent variable.

Results: In the total sample, ‘smokers with current plans to quit’ comprise the smoking status group that expressed the highest perceived public stigma, while ex-smokers express a higher perceived public stigma than never smokers. Among daily smokers, we found a significant association between perceived public stigma and recent attempts to quit, but not between stigma and future non-smoker identity. Conclusion: These findings indicate that stigma has contributed to smoking cessation in the past, without it necessarily continuing to be the case in the future.

Gunnar Sæbø

Andrew Tan

Prevalence of Use and Perceived Trends of Using Pod-Based Vaping Devices Among US Youth and Young Adults

Objective: E-cigarette use among young people increased substantially since the introduction of pod-based vaping devices in 2017 including JUUL and other competing brands such as Suorin and Vuse. This study aims to describe the prevalence of US youth and young adults’ current use and perceived popularity of JUUL, Suorin, and Vuse.

Methods: We surveyed a national online sample of 2000 US youth and young adults aged 15-24 from December 2018-January 2019. We estimated prevalence of past-30-day use of JUUL, Suorin, and Vuse.

Results: JUUL use was more prevalent among youth (12.9%) and young adults (18.1%) than Suorin (4.4% and 6.7%, respectively) or Vuse (2.1%, 6.2%, respectively). Overall, 15.0% of youth and 22.0% of young adults reported using any of these three brands. Majority of youth (79.9%) and young adults (73.3%) reported that JUUL use was increasing among people their age. Less than half of youth and young adults reported use of Suorin (44.2% and 39.0%, respectively) or Vuse (37.0% and 37.7%, respectively) was increasing among people their age.

Conclusion: Current use and perceived trends of increasing use of JUUL were higher compared with competing brands Suorin and Vuse among a national sample of US youth and young adults. Continued surveillance of JUUL and other popular brands is recommended to more accurately assess the prevalence of vaping high nicotine content pod-based devices among young people.
Harry Tan

**Objectives**

This study examines trends and correlates of exposure to secondhand smoke (SHS) from combusted tobacco and secondhand aerosol (SHA) from e-cigarettes among US youth.

**Methods**

Data were from the National Youth Tobacco Survey (NYTS) from 2015 to 2018. Participants were asked how often in the past 30 days they 1) breathed smoke from someone who was smoking tobacco products and 2) breathed vapor from someone using an e-cigarette in indoor or outdoor public places. Responses were recorded to no exposure (0 days) versus exposure (1 or more days). Covariates included sex, school type, race/ethnicity, speaking non-English language at home, e-cigarette use, past 30-day use of other tobacco products, living with someone who used other tobacco products. We analyzed the weighted prevalence of exposure to SHS and SHA annually from 2015-2018 and correlates of SHS and SHA exposure using 2018 data.

**Results**

About half of US youth (48.7-53.4%) reported SHS exposure in public places between 2015 to 2018. Prevalence of SHA exposure remained stable at 25.2-26.5% between 2015 and 2017 and increased to 33.2% in 2018. Females (vs. males), non-Hispanic whites (vs. non-Hispanic blacks and Hispanics), ever and past 30-day e-cigarette users (vs. never users), past 30-day other tobacco use, and those who live with someone who used e-cigarettes had increased odds of SHA exposure. Youth who live with someone who used other tobacco products had higher odds of SHA exposure while non-Hispanic whites (vs. non-Hispanic other races) and high school students had higher odds of SHA exposure.

**Conclusion**

More US youth reported exposure to SHA in public places in 2018 compared with previous years. Surveillance of SHA exposure trends, education about potential SHA harms for parents and youth, and updating smokefree policies to keep pace with the rapidly changing tobacco product landscape are needed to protect young people from increased exposure to tobacco product emissions, including from e-cigarettes. Further research is necessary to examine reasons for higher SHS and SHA exposures in certain subgroups of youth.

Andy Tan

**Objectives**

To evaluate the extent to which an advertising campaign was effective at promoting accurate perceptions of e-cigarettes, encouraging e-cigarette use among smokers, and increasing the rate of quit attempts.

**Methods**

In January 2018, Cancer Research UK piloted an advertising campaign in the North of England that aimed to increase awareness of the relative harms of e-cigarettes compared with combustible tobacco. Cross-sectional surveys were conducted on samples of adults (≥16 years, n=2217) living in Greater Manchester (campaign region) and Yorkshire & Humber and the North East (control region) before and after the campaign period. We used generalised estimating equations to test interactions between time (pre-campaign, post-campaign) and region (campaign, control) for harm perceptions of e-cigarettes, attitudes towards and recent use of e-cigarettes, motivation to stop smoking, and recent quit attempts.

**Results**

36.7% of those in the intervention region recognised the campaign. In the general population, interactions between time and region were non-significant (BF = 0.76 – 1.19). Smoking exposure in persons exposed to other people smoking was less likely to be highly motivated to quit both before (OR = 0.81, 95% CI 0.69–0.95) and after (OR = 0.72, 95% CI 0.59–0.89) adjustment, such that there was a greater negative association between exposure and motivation to quit in persons who were not highly dependent. None of the other socio-demographic factors significantly moderated this association, and none — including nicotine dependence — significantly moderated the relationship between smoking exposure and quit attempts. All non-significant interactions, besides social grade (BF = 1.49), had Bayes Factors that supported the hypothesis of no moderation (BF range: 0.12-0.21).

**Conclusion**

Current smokers who are exposed to other people smoking in their presence are less likely to have high motivation to quit, yet are just as likely to make a quit attempt. Besides nicotine dependence, socio-demographic factors do not moderate the relationship that smoking exposure has with motivation and attempts to quit.

Harry Tattan-Birch

**Objectives**

Do socio-demographic factors moderate the association between smoking exposure and motivation and attempts to quit? Evidence from a cross-sectional survey

**Methods**

Participants (15,136) came from the Smoking Toolkit Study, a repeated cross-sectional survey of individuals in England aged ≥ 16 years. Data were collected monthly from November 2014 to February 2019. Current smokers were asked whether other people smoke in their presence, how motivated they were to quit, and whether they had made a quit attempt in the past year. The socio-demographic factors measured were occupation-based social grade, housing tenure, nicotine dependence, drinking habits, and disability.

**Results**

Current smokers who were exposed to other people smoking in their presence were less likely to be highly motivated to quit both before (odds ratio (OR) = 0.88, 95% CI 0.80-0.97) and after (0.85, 0.78-0.94) adjustment for socio-demographic and seasonal factors. However, they were no less likely to have made a quit attempt in the past year in either unadjusted (1.04, 0.97-1.13), Bayes Factor (BF) = 0.05) or adjusted models (0.98, 0.91–1.07, BF = 0.15). Nicotine dependence moderated the association between smoking exposure and motivation to quit both before (1.25, 1.00–1.56) and after (1.27, 1.02–1.58) adjustment, such that there was a greater negative association between exposure and motivation in those who were not highly dependent. None of the other socio-demographic factors significantly moderated this association, and none — including nicotine dependence — significantly moderated the relationship between smoking exposure and quit attempts. All non-significant interactions, besides social grade (BF = 1.44), had Bayes Factors that supported the hypothesis of no moderation (BF range: 0.12-0.21).

**Conclusion**

Current smokers who are exposed to others who smoke in their presence are less likely to have high motivation to quit, yet are just as likely to make a quit attempt. Besides nicotine dependence, socio-demographic factors do not moderate the relationship that smoking exposure has with motivation and attempts to quit.

Harry Tattan-Birch

**Objectives**

Impact of a regional educational advertising campaign on harm perceptions of e-cigarettes, prevalence of e-cigarette use, and quit attempts among smokers

**Methods**

In January 2018, Cancer Research UK piloted an advertising campaign in the North of England that aimed to increase awareness of the relative harms of e-cigarettes compared with combustible tobacco. Cross-sectional surveys were conducted on samples of adults (≥16 years, n=2217) living in Greater Manchester (campaign region) and Yorkshire & Humber and the North East (control region) before and after the campaign period. We used generalised estimating equations to test interactions between time (pre-campaign, post-campaign) and region (campaign, control) for harm perceptions of e-cigarettes, attitudes towards and recent use of e-cigarettes, motivation to stop smoking, and recent quit attempts.

**Results**

36.7% of those in the intervention region recognised the campaign. In the general population, interactions between time and region were non-significant for all outcomes except for perception of e-cigarettes as effective quit aids, with smaller increases from pre- to post-campaign in the campaign region (49.9% to 54.0%) compared with the control region (40.5% to 55.0%; OR = 0.66, 95% C.I 0.45–0.98, p = .04). However, this was not the case among current smokers (OR = 1.36, 95% CI 0.59–3.17, p = .47). Smokers’ motivation to quit increased in the intervention region (44.0% to 48.0%) but decreased in the control region (40.5% to 21.5%; OR = 2.97, 95% CI 1.25–7.16, p = .01). There were no other significant interactions for current smokers. Bayes factors suggest there is insufficient evidence to determine the impact of the campaign across outcomes where interactions were non-significant (BF = 0.86 – 1.11).

**Conclusion**

When compared to the control region, the campaign was associated with greater increase in motivation to quit among smokers but a smaller increase in perception of e-cigarettes as an effective quit aid among non-smokers, which may be due to different baseline perceptions across regions.
Exploring a hype: A qualitative longitudinal study of use of e-cigarettes among youth in Norway

Objectives: For the first time in our century, we see the contours of a generation of smoke free youths in Norway. However, increasing use of e-cigarettes among youth internationally, and in the US particularly, has evoked fear for a new nicotine addicted generation. Little is known about how youth use and understand e-cigarettes in a Nordic context. The aim of this study is to explore how the user culture of e-cigarettes unfold among a group of youth over time.

Methods: Using a longitudinal design we conducted group interviews with 118 eighth graders (boys n=58, girls n=62), spring 2015 (T1). First follow-up (T2) was conducted with 10th graders the fall semester 2017 (n = 85); and second follow (T3) up was conducted as individual interviews (n = 95), spring semester 2018.

Results: At T1, we found that most had heard about e-cigarettes. The interviewees accounted for the appeal with e-cigarettes related to its novelty and various flavours. Only a few had tried. At T2, all had heard about e-cigarettes. The interviewees emphasised in addition to flavours, harmlessness, performance and accessibility online. About 1/3 had tried, however few had used nicotine, and few owned their own device. At T3, vaping had lost status. It was predominantly described as ‘childish’ and the use as belonging to the past.

Conclusion: We find that e-cigarettes invites experimentation and open up space with the lack of strong smells. The longitudinal design highlight how vaping and e-cigarettes in this sample occur as a ‘hype’ over a steady user pattern: as something new they played with, but soon lost interest in.

Emerging social gradient in young adults snus use in Norway, a study of trends from 2010 to 2018

Objectives: The prevalence of smoking has been decreasing in Norway for decades. Snus is less harmful than smoking, but snus use has increased substantially over the last decade, especially among females. The increased use of snus has resulted in a slightly increased overall tobacco use. There has been a clear social gradient in smoking for years, with a higher smoking prevalence among individuals with low socioeconomic status (SES). The social gradient in snus use is less studied, and earlier studies have failed to find an association between snus use and SES. The aim of this study is to investigate the development of smoking and snus use in Norwegian young adults from 2010 to 2018, and compare trends in smoking and snus use across gender, age and SES.

Methods: The study was based on three waves (2010, 2014 and 2018) from the SHoT study, a Norwegian national student survey for higher education. Variables on smoking, snus use, gender, age and SES were used. Chi-square tests and logistic regression analysis were used to test significance, and Mantel–Haenszel weights were used to test trends in stratified cross-tabulations.

Results: Daily smoking decreased from 6 % to 2 % from 2010 to 2018, but daily snus use increased from 13 % to 20 %, resulting in small increase of overall daily tobacco use. Low SES was associated with both daily smoking and snus use across all three SHoT waves. Occasional smoking was also associated with low SES all three waves, however occasional snus use was only associated with low SES in 2010. There were no significant changes across waves in neither the association between occasional or daily smoking and SES, nor the association between occasional or daily snus use and SES.

Conclusion: The combination of increasing daily snus use prevalence, a clear social gradient in snus use, and health hazards related to snus use, may result in snus use fueling the social gradient in health the same way as smoking has. Both smoking and snus use were associated with low SES in all three waves, except for occasional snus use that was only associated with low SES the first wave, an interesting finding regarding the social gradient in health.
Longitudinal trends in smoking habits in the general population with focus on COPD, asthma, diabetes mellitus, ischemic heart disease and stroke

Objectives: To describe changes in smoking habits and predictors of quitting in the general population during 10 years according to prevalence and incidence of chronic diseases affected by smoking.

Methods: Population: 10,251 individuals enrolled in 2004 in the Copenhagen General Population and re-examined in 2014. Participants were classified as smokers or non-smokers and either healthy or suffering from COPD, asthma, diabetes mellitus, ischemic heart disease and stroke.

Results: Smoking prevalence was 15.4% in healthy participants, 29.8% in those with COPD, 15.8% in those with asthma, 21.7% in diabetes mellitus, 17.2% in ischemic heart disease and 18.6% in participants with previous stroke. In all groups, smoking prevalence declined during the 10 years of observation. Among healthy subjects who developed one of the above-mentioned diseases during follow-up, individuals who developed COPD had the highest initial smoking prevalence (51.5%). Quit rate were highest in those who developed asthma resulting in smoking prevalence in this group of 8.2% versus 27.7% in COPD.

Significant predictors of quitting were new diagnosis of ischemic heart disease (Odds ratio (OR) 2.33 (95% confidence interval (CI), 1.61-3.42), P<0.001), new diagnosis of asthma (OR 1.84 (CI 1.18-2.90), P<0.01) and low number of pack-years (P<0.001) but not the genotype CHRNA3 rs1051730 AA.

Conclusions: In the general population, smoking declined substantially from 2004 to 2014. Individuals with prevalent smoking related diseases continue to smoke more than healthy individuals. Incident ischemic heart disease and asthma, but not COPD, stroke nor diabetes are associated with a higher chance of quitting.
Michael Tønnesen

Quit rates in smokers with asthma, COPD, diabetes and cardiovascular disorders versus controls in the EAGLES study

Objectives: EAGLES was a randomized, double-blind, triple-dummy, placebo- and active-controlled (nicotine patch [NRT]; 21 mg per day with taper) trial of varenicline (1 mg twice a day) and bupropion (150 mg twice a day) for 12 weeks with a 12-week non-treatment follow-up conducted in 16 countries between Nov 30, 2011, and Jan 13, 2015. Participants were motivated-to-quit smokers with or without psychiatric disorders who received brief counselling at each visit. The total population enrolled comprised 8144 smokers.

Methods: We examined treatment adherence, quit rates and adverse events in smokers with asthma, chronic obstructive pulmonary disease (COPD), diabetes and cardiovascular disorders (n=1372) versus controls without these comorbidities (n=6039). Smokers with cancer or alcohol dependence were excluded (n=733).

Results: Smokers with medical comorbidities were older than controls (mean age, 52.2 years vs. 45.1 years), and more likely to have a psychiatric disorder (14.2% vs. 10.1%) and reside in the USA (54.3% vs. 49.2%). However, Fagerström Test for Cigarette Dependence scores were similar (mean [SD], 5.7±2.0) in both groups. Adherence was similar in smokers with medical comorbidities and controls. Continuous abstinence rates (CAR) are shown in the table for weeks 9–12 and 9–24. Smokers with diabetes or cardiovascular comorbidities did not differ in overall quit rates from controls, but rates were lower in patients with asthma (CAR9–24, 10.5% vs. 16.6%) and COPD (CAR9–24, 9.7% vs. 16.5%) compared with controls. Adverse event data did not differ across the above medical comorbidities versus controls.

Conclusions: Quit rates with varenicline were higher than other treatments in smokers with or without medical comorbidities. Smokers with medical comorbidities had lower quit rates than controls due to lower rates in smokers with asthma or COPD. This may indicate higher dependence in smokers with these comorbidities.

Phil Van den Brand

Modeling approach How financial incentives increase smoking cessation: a structural equation modeling approach

Objectives: Financial incentives effectively increase smoking cessation rates, but it is unclear via which psychological mechanisms incentives influence quit behavior. The current study examines how receiving financial incentives for smoking cessation leads to quitting smoking and investigates several mediators of that relationship.

Methods: The study sample consisted of 542 tobacco smoking employees from 61 companies in the Netherlands who completed the follow-up questionnaire. The current study is a secondary analysis from a cluster randomized trial (RCT) where employees received smoking cessation group counselling at the workplace. Participants in the intervention group additionally received financial incentives of €350 in total for 12-month continuous smoking abstinence. We used Structural Equation Modeling to test a model that assesses the effects of financial incentives through smoking cessation programme evaluation, medication use, attitudes, self-efficacy and social influences on quit success. We additionally tested whether an individual’s reward responsiveness moderated the influence of incentives on quit success.

Results: The effect of financial incentives on quit success was mediated by a higher likelihood of medication use, and by a higher self-efficacy. The effect of incentives did not depend significantly on individual reward responsiveness.

Conclusions: The results of the current study suggest that financial incentives may be used to increase medication use and self-efficacy for quitting smoking, which offers an indirect way to increase successful smoking cessation.
Objectives. Policies to restrict youth access to tobacco, such as minimum legal age of tobacco sale (MLA) laws, are generally based on the premise that people are able to make an informed choice to start smoking after they reach the minimum age. In most countries this is 18, although in some countries they have raised that age to 21. An issue with this approach is that it focuses entirely on the choice-making process before the person starts to smoke, but does not protect the ability to make an informed choice to quit once they have started smoking. This is especially pertinent for people below age 25, as the brain is biologically more vulnerable to developing an addiction before age 25. In this presentation, I explore the conceptual grounding of MLA laws and present a case for raising the minimum legal age of tobacco sale to 25 (MLA25).

Methods. Drawing on neurobiological evidence and the notions of agency, freedom of choice and informed consent, I present a conceptual framework to ground policies on restricting youth access to tobacco.

Results. Development of the prefrontal cortex, the part of the brain that is often associated with 'free will' and that protects people from developing an addiction, is not complete until age 25. The implication is that people are more vulnerable to developing an addiction if they start smoking before that age. Even though people are generally able to make informed choices about their lives after age 18 and before age 25, their ability to make an informed choice to quit using a highly addictive product, such as tobacco, can be permanently impaired if they start using it before age 25. Thus when it comes to addictive products such as tobacco, protection of people's ability to make informed, free choices to use that product requires restricting their use of that product until they are at least 25 years old.

Conclusions. Countries should, at minimum, raise the legal age of buying tobacco to 25.

Objectives. Worldwide, 40% of children are still exposed to second-hand smoke (SHS). This may have serious consequences for their physical health and cognitive development. Both indoor and outdoor SHS-exposure, and their adverse effects, are seen as preventable, mostly through protective actions of adults. To effectively inform and support adults, it important to know their attitudes towards the prevention of children's SHS-exposure. This study aims to examine these attitudes among Dutch adults, including the relationship with demographic and socio-cognitive variables.

Methods. A cross-sectional survey was conducted in 2015 among a representative sample of the Dutch population. We used 5-point Likert scales to measure attitudes towards prevention of children's SHS-exposure (not important-very important), risk perception of SHS (not harmful-very harmful), social norm of SHS-exposure (unacceptable-very acceptable), and knowledge of SHS and smoking risks (not true-definitely true). We performed univariate and multivariate logistic regression analyses with age, sex, parenthood, education and smoking status as covariates.

Results. Respondents (n=1,027) were positive about the prevention of children's SHS-exposure (M=4.59, SD=0.66). Positive attitudes were more prevalent among parents (OR=1.65, 95% CI 1.20-2.27), high-educated adults (OR=1.81, 95% CI 1.24-2.61), non-smokers (OR=3.57, 95% CI 2.00-6.09), and adults over the age of 25 (OR=1.78, 95% CI 1.02-3.08). Multivariate regressions showed significantly positive relationships with socio-cognitive variables: perceiving SHS-exposure as very harmful (OR=27.73, 95% CI 11.89-64.68), a high level of knowledge about risks of SHS-exposure (OR=6.22, 95% CI 2.93-13.22) and smoking (β=0.76, 95% CI 1.41-3.26), or perceiving SHS-exposure as very unacceptable (OR=5.26, 95% CI 0.11-0.34).

Conclusion. Positive attitudes towards the prevention of children's SHS-exposure were related to risk perception, knowledge and social norm. Interventions to strengthen this attitude could address knowledge of SHS-exposure risks and the social norm, especially among adults who are aged 18-24 years, no parent, low-educated, or smoker.

Objectives. To investigate disparity in degree attainment between students according to ethnicity and smoking status. This study examines: 1) prevalence of smoking in undergraduate students at a UK metropolitan university over time; and 2) whether achievement is a function of ethnicity and smoking status, and more specifically whether smoking moderates the relationship between achievement and ethnicity.

Methods. First year undergraduate students (n=380) completed a questionnaire on their smoking behaviour at the start of each semester in academic year 2015/2016. The majority of students 75.3% (n=280) were aged 18 to 21 years, and from a Black and Ethnic Minority (BME) group (51.1%, n=194). 147 (38.7%) participants completed the questionnaire in Semester 1, 124 (32.6%) in Semester 2, and 109 (28.7%) at both time-points. The academic achievement outcome was the end of semester adjusted average grade, obtained from university records.

Results. Prevalence of smoking was 24.4% (n=59) in Semester 1, 18.5% (n=41) in Semester 2, and similarly reduced from 21.1% to 17.4% among those who participated at both time-points. Hierarchical regression analysis showed ethnicity and smoking status accounted for 19.5% of variance in academic achievement at Semester 1, R² = .195, F(2, 217) = 22.98, p < .001, and for 13.4% at Semester 2, R² = .134, F(2, 200) = 15.50, p < .001. Adding the interaction term between ethnicity and smoking status to the regression model accounted for an additional 2.0% of the variance in attainment at Semester 1 ΔR² = .020, ΔF(1, 216) = 5.31, p = .022, b = -11.152, 95%CI [-20.693, -1.690], t = -2.30, p <.05. Examination of the interaction showed a greater negative effect of smoking on achievement among BME students than White students. While a similar interaction was observed in Semester 2 this was not significant.

Conclusion. Smoking prevalence in first year undergraduate students appears to be most pronounced at the start of the academic year, decreasing to levels comparable to those of the general population by the middle. Smoking may contribute to disparity in degree attainment via enhancing negative impact on BME students.
Ford Finne, Vilardaga

**Nicotine concentration in snus in Norway 2005, 2010 and 2015**

**Background:** In the period 2005-2015, the prevalence of snus use in Norway increased from 5 to 10% among adults, 16-74 years, and from 9 to 19% among young adults, 16-24 years. This increase was accompanied by an increased market diversification, both regarding flavours, forms and nicotine content. Addressing concerns about increased nicotine exposure among snus users, the aim of this paper was to examine the nicotine content in the Norwegian snus market in 2005, 2010 and 2015.

**Methods:** Upon request from the Norwegian Institute of Public Health, producers of snus sold on the Norwegian market were asked to provide the market share, type (loose or pouch), size of container (in grams), water and nicotine content of their 10 most sold snus products in 2005, 2010 and 2015. From this, we calculated the percentage of nicotine per gram snus and per serving, weighted for market share and water content. In addition, we calculate the market share of snus with a nicotine content of less than 2%, between 2 and 3% and more than 3%.

**Results:** Weighted for market share and water content, the average percentage of nicotine in dry snus was 1.7 in 2005, 1.9 in 2010 and 2.3 in 2015. However, the percentage of nicotine per serving was 1.4 in 2005 and 1.3 in both 2010 and 2015. In 2005, 90.8% of snus sold in Norway had a nicotine content of less than 2% and 9.2% had a content of 2% or 3%. In 2010, the corresponding figures were 53.0% and 47.0%. In 2015, 21.0% of the snus sold had a nicotine content below 2%, 52.7% percent had a content of 2% or 3% and 26.3% percent had a nicotine content of 3% or more.

**Conclusion:** Over the last decade, snus has become more prevalent and contains more nicotine per gram snus. Moreover, the market share of snus with a relatively high nicotine content (above 3%) has increased. At the same time, the amount of nicotine per serving has remained stable. This is most likely the result of consumers preferring smaller pouches over larger servings of loose snus. Given that the average number of pouches used per day has remained stable across the period, the nicotine exposure among users was likely similar in 2005 and 2015.

Rogar, Vilardaga

**Pilot Randomized Controlled Trial of Learn to Quit, a Novel Smoking Cessation App Designed for Individuals with Co-Occurring Tobacco Dependence and Serious Mental Illness**

**Objectives:** High rates of tobacco use among people with serious mental illness (SMI) along with their unique needs, suggest the importance of developing tailored smoking cessation interventions for this group. Previous early-phase work empirically validated the design and content of Learn to Quit, a theory-based app designed for this population.

**Methods:** In a pilot randomized controlled trial we compared the feasibility, acceptability and preliminary efficacy of Learn to Quit versus NCI QuitGuide, an app designed for the general population. All participants received nicotine replacement therapy and technical assistance. Daily smokers with SMI (n = 62; Mean Cigarettes per Day = 17.5) participated in the trial with outcomes assessed at weeks 4, 8, 12, and 16.

**Results:** Compared to QuitGuide, Learn to Quit participants had larger number of app interactions (847 vs. 205; p<0.001), longer durations of app use (4.24 hrs vs. 2.14 hrs; p<0.044), and higher usability scores (85 vs 79, p=0.046). At week 16, Learn to Quit led to greater reductions in cigarettes per day (10.5 vs 5.6 for QuitGuide; p<0.001), and higher verified 30-day point-prevalence abstinence (12% vs. 3% for QuitGuide; OR = 3.86, CI: 0.41 to 36). Changes in psychiatric symptoms and adverse events did not significantly differ between conditions (all p's >0.309).

**Conclusion:** This pilot trial provides strong evidence of Learn to Quit’s usability, feasibility, and safety. Preliminary evidence suggests the app may be efficacious. A randomized controlled efficacy trial is needed to test the app in a larger sample of smokers with SMI.
Andrea Villanti

**OBJECTIVES**
The purpose of our study was to identify cessation-related content and a content delivery strategy that resonates with socioeconomically-disadvantaged young adults (SDYAs). Smokers.

**METHODS**
Eight focus groups and 2 interviews were conducted with 36 SDYAs smokers aged 18-29 in Burlington, Vermont in 2018. Structured focus group guides probed for the contexts and facilitators that cue their smoking, reasons for smoking, and the barriers to cessation; they were also asked about the messages or modalities that would make a smoking cessation more novel or relevant and more likely to motivate them to change their behavior. Three coders used the Framework Method analysis tool to systematically develop the coding structure based on pre-assigned transcripts, then one coded all study transcripts using NVivo software (QSR International).

**RESULTS**
Two distinct groups of SDYA smokers emerged: daily smokers for whom smoking was a "ritual" or "chore" and non-daily smokers for whom smoking was reinforced by stress and social situations. Most participants noted the role of cigarettes in managing stress or anxiety as a barrier to quitting. The use of other tobacco products (e.g., cigars) was common. SDYA smokers were largely supportive of a mobile approach to a cessation intervention, citing it as "better than the quitline" and "more tailored to the individual" as benefits to this strategy, as well as the ability to include games or rewards, community support, distractions, and visuals. Recommendations for tailoring content included providing tools for self-monitoring and progress indicators, feeding their own goals back to them, providing games for distraction during craving, and employing a relatable, humorous, and empathetic voice/tone in content.

**DISCUSSION**
Mobile and social media offer relevant channels for delivering smoking cessation interventions to young adult smokers, including SDYAs. Tools to build coping skills, improve self-monitoring, remind participants of their goals, and provide distraction during craving in a relevant voice and format may improve uptake of cessation interventions in this group.

**OBJECTIVES**
The current pilot study examined whether the effect of a single, brief exposure to nicotine education messages on beliefs about nicotine, nicotine replacement therapy (NRT), e-cigarettes, and reduced nicotine content (RNC) cigarettes differed by age group (18-34 vs. 35+).

**METHODS**
521 U.S. adults (aged 18+) on Amazon Mechanical Turk completed a 15-minute survey in 2018; 56% (n=294) were aged 18-34. After completing items on sociodemographics, literacy, and cancer risk behaviors, participants were randomized in a 2:1:1 ratio to one of three conditions: nicotine education (n=263), sun safety education (attention control, n=128), no message control (n=130). Analyses conducted in 2019 examined whether there differential effects of exposure to the messaging on nicotine, NRT, e-cigarette, and RNC cigarette beliefs in younger versus older adult respondents.

**RESULTS**
There was balance on age group by study condition at baseline (p = 0.34). Following exposure, participants in the nicotine education condition reported fewer false beliefs about nicotine (p<0.001), NRT (p=0.001), and e-cigarettes (p=0.05) compared to the control conditions. Younger age was not associated with any of these outcomes. Inclusion of age group in the model attenuated the relationship between nicotine education and false beliefs about RNC cigarettes (b=-1.10, p<0.06), such that young adults were likely to hold greater false beliefs about RNC cigarettes (b=-1.57, p<0.01). There was not, however, a significant interaction between study condition and age group on the outcome of RNC false beliefs.

**CONCLUSION**
Findings from the current study suggest that a brief nicotine messaging intervention has similar impact in young and older adults. Greater false beliefs about RNC cigarettes among young adults highlights that public education accompanying a nicotine reduction in cigarettes may require tailored messaging for this age group.

**OBJECTIVES**
Similar Impact of Brief Nicotine Messaging on Nicotine-Related Beliefs in Young vs. Older Adults

**METHODS**
521 U.S. adults (aged 18+) on Amazon Mechanical Turk completed a 15-minute survey in 2018; 56% (n=294) were aged 18-34. After completing items on sociodemographics, literacy, and cancer risk behaviors, participants were randomized in a 2:1:1 ratio to one of three conditions: nicotine education (n=263), sun safety education (attention control, n=128), no message control (n=130). Analyses conducted in 2019 examined whether there differential effects of exposure to the messaging on nicotine, NRT, e-cigarette, and RNC cigarette beliefs in younger versus older adult respondents.

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Findings from the current study suggest that a brief nicotine messaging intervention has similar impact in young and older adults. Greater false beliefs about RNC cigarettes among young adults highlights that public education accompanying a nicotine reduction in cigarettes may require tailored messaging for this age group.

**OBJECTIVES**
Smoking and nicotine toxicity during pregnancy

**RESULTS**
It has been known for a long time that maternal tobacco smoking is harmful to fetal development, although the full spectrum of the fetotoxic effects has not been revealed, yet. Smoking increases the risk of losing the baby, due to increased spontaneous abortions, perinatal death, or increased risk for unexplained sudden infant death. Maternal smoking adversely affects placental functions and growth of the fetus leading often to premature birth. It is a fact that babies of smoking mothers are smaller than babies of non-smoking mothers. More recent data implicates decreased brain volume, functions and structure in smoke exposed babies. Long term effects include altered lung, brain, metabolic and immunological functions. Nicotine is the addictive component in tobacco, and a very toxic compound. During the past decades, data has been accumulating of its toxicity during fetal development. Fetus is exposed to nicotine most commonly through maternal smoking as for instance in Finland still every eighth pregnant woman smokes during pregnancy. According to animal studies prenatal exposure to nicotine disturbs significantly especially the development of central nervous system and lungs. In mechanistic studies nicotine increases cell proliferation and angiogenesis, and inhibits apoptosis, increasing the risk for tumor promotion. During fetal development nicotine exposure seems to alter epigenetic programming, which may be transferred beyond generations and is regarded as a prime mechanism in developmental origin of disease. Alternative nicotine products, such as smokeless tobacco, snus and electronic cigarettes, as well as nicotine replacement therapy to end smoking, are used also by pregnant women. Consequently, it would be important to collect data about the use of nicotine during pregnancy and continue animal and mechanistic studies for a more complete understanding of the risks of fetal exposure.
Olivia Willemsen

**Objectives**

Given their potential use for harm reduction by smokers, many have argued for more accurate communication about the risks e-cigarettes and smokeless tobacco relative to cigarettes. In the United States, this could be addressed in part through regulatory approvals allowing tobacco companies to make “modified risk tobacco product” (MRTP) claims in their advertising, and several applications are pending. However, the impact of future MRTP claims may depend on whether these are perceived as “new” information and lead to smokers switching products. This study provides data about smokers’ perceived exposure to and potential behavioral response to MRTP claims.

**Methods**

We analyzed measures from Wave 3 of the US-based Population Assessment of Tobacco and Health (PATH) study, which asked respondents to indicate if they had seen any e-cigarettes, snus or other smokeless tobacco products that claim to be less harmful in the past 12 months, and asked, among those responding yes, about their likelihood of using the products in the next 30 days. Data were collected between October 2015 and October 2016. Analyses were limited to adult current smokers.

**Results**

While about 29% of adult smokers indicated having seen e-cigarettes claiming to be “less harmful,” far fewer noted having seen snus (5.1%) or other smokeless tobacco (5.6%) with such claims. For each product, the prevalence of claim exposure was higher among those who perceived the product to be “less harmful” than smoking compared to “as or more harmful” (34.4% vs. 27.9% for e-cigarettes; 10.2% vs. 4.7% for snus; 11.4% vs. 5.2% for other smokeless, pc = 0.01). Among smokers who noticed products with “less harmful” claims, the percentage who would use them was similar across product type (24%-27%). Use intentions were higher among males (32.3%) versus females (19.2%) for snus and among daily (25.1%) versus non-daily smokers (22.1%) for other smokeless tobacco.

**Conclusions**

Smokers are more likely to report exposure to MRTP claims for e-cigarettes than for smokeless tobacco, despite a lack of FDA-allowed claims at the time of data collection. Such claims may motivate some smokers to use MRTPs.

Robert West

**Objectives**

To develop recommendations for improved reporting of randomised controlled trials of smoking cessation interventions.

**Method.** We followed the Guidance for Developers of Health Research Reporting Guidelines. With the CONSORT-SPI (Social and Psychological Interventions) reporting tool as the backbone, potential additions were identified from other tools (e.g., TIDieR, Russell) and input from the experts. Experts were asked to vote online on the importance of 10 proposed changes on a 9 point Likert scale (1-3 = not important, 4-6 = important but not critical, 7-9 = critical). We then organised a full-day meeting to discuss these results and cast a vote: Not critical or Critical. Votes with at least 75% critical were considered to be necessary additions to CONSORT-SPI.

**Results.** Seventeen experts completed the online voting. The results were discussed with 15 international experts attending the meeting. Agreement was achieved on 12 additions to CONSORT-SPI covering the methodology section (e.g. how, where, when and by whom participants were recruited), result section (e.g. sample descriptives of those excluded, declined participation, non-responders, drop-out and discontinued intervention, availability of the statistical scripts for running the analysis over the outcome dataset and of the statistical outputs and number of participants who smoke, quit, non-responders, dropout).

**Conclusions and further work.** A consensus exercise identified 12 additional items of information that should be included in reports of randomised controlled trials of smoking cessation interventions. The next stage is to draft guidance on how these items can best be applied to randomised controlled trials of smoking cessation interventions.

Marc Willemse

**Objectives**

National tobacco control advocacy partnerships or alliances are crucial in ultimately getting effective tobacco control on national policy agendas. Very little research has been conducted to examine such tobacco control partnerships. We developed a tool to assess the characteristics of tobacco control advocacy organisations, using expert opinions and theory about public health partnership strength.

**Methods.** Data were collected by means of focus groups with tobacco control advocacy experts from Denmark, France, Germany, Ireland, Lithuania, the Netherlands, Poland, Romania, Spain, and Sweden. Data were analysed using a deductive coding approach guided by Lasker et al.’s (2001) framework of public health partnership functioning.

**Results.** Ten aspects of partnerships were found to be important: (1) financial independence from government, (2) having expertise to interpret and transform data and to engage in advocacy, (3) following an evidence based approach, (4) having access to nationally data on relevant aspects of smoking and tobacco control, (5) having good connections to policymakers, journalists, researchers, and other partnerships, (6) partner heterogeneity (7) begin able to resolve conflicts, (8) having a central coordinating office, (9) having clear rules or statutes, and (10) a shared vision on tobacco control strategy and solutions. The 10 characteristics were used to construct profiles of tobacco control partnerships on three dimensions related to partnership strength: resources of the partnership (12 questions), partner characteristics (2 questions) and partnership characteristics (8 questions).

**Conclusion.** Based on the results we developed a partnership assessment tool, which is currently being pilot tested. The tool may provide insight into how different partnerships across and within European countries are organised along these dimensions. This may be used to further develop or strengthen such partnerships and to conduct research into tobacco control partnership effectiveness in Europe and beyond.
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<td>Conclusion: Despite TPD restrictions on these products, MFC smokers in Wave 2 were not more likely to quit smoking than smokers of unflavoured cigarettes. Thus, the already implemented ban on characterising flavours (other than menthols) has this far been a largely wasted tobacco control opportunity, with less than one in four smokers of other flavoured cigarettes quitting, and the vast majority switching to unflavoured tobacco. However, dependence levels and quit intentions of MFC smokers in Wave 2 appear to be favourable to cessation. This provides an opportunity for tobacco control ahead of the implementation of the ban on menthol cigarettes in 2020. That the implementation of the ban should be accompanied with tailored cessation support campaigns.</td>
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Laurie Zawertailo
Concurrent daily e-cigarette use improves long-term quit outcomes in a smoking cessation treatment program

Objectives: Electronic cigarettes (e-cigs) may be effective for smoking cessation; however, little evidence exists regarding the long-term effectiveness of concurrent e-cig use in smokers intending to quit. We investigated whether frequency and duration of e-cig use predicts long-term abstinence in daily smokers enrolled in a smoking cessation program providing cost-free nicotine replacement therapy (NRT) and in-person behavioural counselling.

Methods: At 6- and 12-months following enrollment in a smoking cessation treatment program, patients were asked about their e-cig use and were categorized into daily, non-daily, or non-users. Smoking abstinence a 6- and 12-months, as well as relapse between 6- and 12-months was compared among user groups.

Results: At 6-month follow-up 31.2% of non-e-cig users (n=5010), 16.8% of non-daily e-cig users (n=434), and 27.6% (n=295) of daily e-cig users quit. Non-daily quit at 6-months was significantly lower than daily and non-e-cig users (<0.001). At 12-month follow-up, 29.4 % of non-e-cig users, 9.9% of non-daily e-cig users, and 31.6% of daily e-cig users quit. Among participants who did not quit at 6-months, daily e-cig use was significantly associated with greater quit rates than non-daily and non-e-cig users at 12-months (p<0.001). Among participants who were quit at 6-months, non-daily e-cig use was significantly associated with greater relapse rates at 12-months compared to daily and non-e-cig users (<0.001).

Conclusion: Non-daily e-cig use was associated with poorer quit outcomes in smokers receiving NRT plus counselling. Daily e-cig use had no effect on quit at 6-months but was associated with higher quit rates at 12-months and therefore may be useful for quitting and relapse prevention following NRT treatment.

MISSING
Historic tobacco legislation in Israel: a moment to celebrate

Landmark tobacco control legislation was passed in Israel on Dec. 31rst, 2018. Regulations concerning marketing and advertising were substantially strengthened to address all tobacco, nicotine and smoking products. Digital media was included for the first time. Electronic cigarettes, which were previously largely unregulated, will now fall under existing tobacco legislation. The changes occurred following years of attempts which culminated in successful last-minute efforts to promote the legislation just before the early-disbanding of the 20th Israeli Parliament (Knesset). The changes overcame intense opposition from the tobacco lobby, and occurred despite the fact that the basic elements for prevention policy postulated by the Richmond model were not in place. The cohesive partnership between legislators, public health organizations and professionals, advocacy groups, academia, and leading journalists was critical to this success. This case study provides important lessons for up-to-date tobacco control policy, in the age of rapid global changes in the tobacco, vaping and nicotine landscape.