Dear Colleagues,

We are delighted to present to you the July edition of Florida Pediatrician. I would like to welcome James Burns, MD from Pensacola as our newest Editorial Board member. Jim is an Adolescent specialist who settled in Pensacola after serving in the U.S. Navy. We are delighted to have Jim on the board.

Since the last time I wrote, a lot has happened. Unfortunately, gun violence continues, and no real solutions have been offered to prevent future gun violence. It is not that we don't know what should be done, rather it is a lack of political will to make substantial and meaningful changes that can have a lasting effect for preventing gun violence. However, we must continue our efforts. We cannot give up this important effort.

More recently, we have all witnessed the horrific situation on our southern border where young children have been forcibly separated from their parents. I do not want to get into the immigrant debate, we will leave that for another time. What I want to talk about is the practice where more than 2,000 children have been separated forcibly from their parents. The audio of crying children and the young girl almost begging her captors to contact her aunt at the number she had memorized. I could not listen to the audio after first time, it disturbed me. Even now, writing about it is emotionally troubling to me. I was appalled that some were saying that these children are better off than they were in their home countries and that their “camps” were like summer camp or a boarding school. Having been in summer camp and boarding school, these “camps” were nothing like them. Even if these camps are better than where these kids came from, they did not have to suffer the brutality of separation from their parents. You don’t even have to be a parent to empathize with the cruelty of this act. As tough as it is on us that is not even the most terrible part of this craziness. It is the children and what it is doing to them now and will do to them in the long term. They will suffer severe psychological trauma for life. Forget for a moment that some of these children may never be re-united with their parents. Many believe that these children are scarred for life. For sure they will suffer from post-traumatic stress and probably much worse. These children are sure to suffer profound long term psychological trauma. I am glad that the separation policy has stopped, but much work still needs to be done. First order of business must be to do everything to unite these children with their families. But we must provide counselling for the children and their families. We must follow these children for long-term effects. We have violated the basic human rights of these children. We must make sure that this never happens again.

The sad thing is that this is not the first time this has happened in our nation’s history. Native American children were separated from their parents, African American parents who were slaves were separated from their children, and, in more recent history, we separated children from parents of interned Japanese American families. Enough is enough! We need to have laws that no matter what happens, children should not be separated from their parents unless the child is in danger. We have used in the U.S. and other parts of the world all sorts of excuses to legitimize separation of children. The American Academy of Pediatrics, Florida Chapter of the AAP, and almost every other organization that in any way has anything to do with children has spoken against this cruel practice. Many, many other organizations and individuals have also condemned this practice in the strongest terms.

I want to thank many of you who have spoken up against this uncivilized practice. We must stay vigilant and make sure we never have anything even remotely akin to this happen again. We have work to do.

Mobeen H. Rathore, MD, CPE, FAAP, FPIDS, FSHEA, FIDSA, FACPE
Editor, The Florida Pediatrician
Professor and Director
University of Florida Center for HIV/AIDS Research, Education and Service (UF CARES) Chief, Infectious Diseases and Immunology; Wolfson Children’s Hospital Jacksonville
Jacksonville, FL

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Editor, The Florida Pediatrician
Professor and Director
University of Florida Center for HIV/AIDS Research, Education and Service (UF CARES) Chief, Infectious Diseases and Immunology; Wolfson Children’s Hospital Jacksonville
Jacksonville, FL
ABSTRACT
This article reviews current knowledge of HIV testing along with primary care needs for HIV infected youth including immunizations and contraception. In addition, the availability of Pre-Exposure Prophylaxis for the prevention of HIV infection and the role of the pediatrician are discussed.

INTRODUCTION
Data from 2015 show that youth aged 13–24 accounted for 1 in 5 new HIV infections, with the vast majority occurring in minority men who are bisexual or men that have sex with male (MSM).1 Significantly, almost 40% of these youth are not aware of their diagnosis and when diagnosed, are the least likely out of any age group to be linked to care.

Pediatricians can play a key role in preventing and controlling sexual transmitted diseases (STDs) including HIV infection by promoting risk-reduction counseling, offering routine HIV and STD testing to adolescent and young adult patients in a nonjudgmental atmosphere. While STDs affect individuals of all ages, STDs take a particularly heavy toll on young people. The Centers for Disease Control and Prevention (CDC) estimates that youth ages 15–24 make up over one quarter of the sexually active population, but account for half of the 20 million new sexually transmitted infections that occur in the United States each year. Of concern, there has been an alarming increase in syphilis rates (15.1% from 2013 to 2014) among MSM, particularly those who are young and of color.1
At the end of 2013, an estimated 60,900 youth were living with HIV in the United States. While newly infected HIV youth acquire the infection through high risk behaviors, there is a growing population of adolescent and young adults who were infected perinatally and are now reaching adulthood. The broad uptake of combined antiretroviral therapy (cART) has changed the epidemiology of the disease in the United States and Europe. Hospitalization and mortality rates have declined dramatically, as have rates of opportunistic infections (OIs). 1 Despite significant progress, the mortality rate in the United States cohort is 0.6-0.8 per 100,000, which is 30-50 times higher than in uninfected children 2. In addition, youth have the lowest viral suppression rate of any age group with only 44% of HIV-1 infected youth being virologically suppressed. It is within the complexity of addressing the multidisciplinary needs of this chronic disease that the involvement of the pediatrician plays an important role in the provision of primary and preventive care for those HIV infected youth and in educating youth at risk.

HIV TESTING

In order to promote HIV awareness, decrease risk of transmission, and facilitate early treatment, the CDC recommends universal and routine HIV testing for all patients seen in health care settings who are 13 to 64 years of age. 4 In 2011, the American Academy of Pediatrics recommended that routine screening be offered to all adolescents at least once by 16 to 18 years of age in health care settings when the prevalence of the HIV patient population is more than 0.1%. In areas of lower community HIV prevalence, routing HIV testing is encouraged for all sexually active adolescents and those with other risk factors. 5 Despite these recommendations, data from the Youth Risk Behavior Surveillance System (YRBSS) which monitors health risk behaviors among youth, revealed that only 10% of high school students have been tested for HIV. Significantly, among male students who had sexual contact with other males, only 21% have ever been tested for HIV. 6 Nationwide, nearly half (43%) of all sexually active high school students and 49% of male students who had sexual contact with other males did not use a condom the last time they had sexual intercourse. In addition, one-third (33%) of male students who had sexual contact with other males reported sexual intercourse with 4 or more persons during their life, compared to 12% of all students who had ever had sexual contact. 7 The majority of individuals 15 to 24 years of age do not perceive that they are at risk of acquiring HIV infection and thus are unlikely to take measures to prevent themselves from contracting the disease.

Updated recommendations for HIV testing were issued by the CDC and the Association of Public Health Laboratories in 2014 following technological improvements that have resulted in an algorithm with increased sensitivity for early infection and reduced performance time for laboratory-based assays. 8 In addition, it has been recognized that risk of HIV transmission from persons with acute and early infection is much higher than that from persons with established infection further increasing the benefit of early detection and initiation of therapy. Pediatrics screening for HIV infection in children ages >24 month and youth, should request an FDA-approved antigen/antibody combination immunoassay (4th generation HIV Ag/Ab). This test detects HIV-1 and HIV-2 antibodies and HIV-1 p24 antigen and allows to screen for established infection with HIV-1 or HIV-2 and for acute HIV-1 infection (Figure 1).

Below are listed possible results and interpretation:

1. Specimens with a reactive antigen/antibody combination immunoassay result are tested with an FDA-approved antibody immunoassay that differentiates HIV-1 antibodies from HIV-2 antibodies. Reactive results on the initial antigen/antibody combination immunoassay and the HIV-1/HIV-2 antibody differentiation immunoassay should be interpreted as positive for HIV-1 antibodies, HIV-2 antibodies, or HIV antibodies, undifferentiated.

2. Specimens that are reactive on the initial antigen/antibody combination immunoassay and nonreactive or indeterminate on the HIV-1/HIV-2 antibody differentiation immunoassay should be tested with an FDA-approved HIV-1 nucleic acid test (NAT). A reactive HIV-1 NAT result and nonreactive HIV-1/HIV-2 antibody differentiation immunoassay result indicates laboratory evidence for acute HIV-1 infection. A reactive HIV-1 NAT result and indeterminate HIV-1/HIV-2 antibody differentiation immunoassay result indicates the presence of HIV-1 infection confirmed by HIV-1 NAT. A negative HIV-1 NAT result and nonreactive or indeterminate HIV-1/HIV-2 antibody differentiation immunoassay result indicates a false-positive result on the initial immunoassay.

3. No further testing is required for specimens that are nonreactive on the initial immunoassay.

The recommended algorithm has several advantages over previous recommendations, including more accurate laboratory diagnosis of acute HIV-1 infection, equally accurate laboratory diagnosis of established HIV-1 infection, more accurate laboratory diagnosis of HIV-2 infection, fewer indeterminate results, and faster turnaround time for most test results. The indications for and intervals between subsequent HIV testing are determined by level of risk. Those at very high risk should be offered HIV testing at least annually, whereas an interval of 3 to 5 years is reasonable for those at elevated but lesser degree of risk. Important indicators of very high risk include young MSM and intravenous drug users. Other adolescents at increased risk of HIV infection include those whose sexual partners are MSM, intravenous drug users, or HIV infected; those who report unprotected anal or vaginal sexual intercourse; those who have STIs; and sexually active youth who live in an area of increased HIV prevalence (defined by the CDC as a community with an HIV seroprevalence of at least 1%). The HIV-1 Western blot and HIV-1 IFA, previously recommended to make a laboratory diagnosis of HIV-1 infection, are no longer part of the recommended algorithm.

In addition to laboratory-based assays, several rapid HIV point of care (POC) tests are available for use in the office or urgent care settings. 9 Table 1 depicts main characteristics, advantages and disadvantages of POC tests. These tests require confirmatory serologic testing. For patients with privacy concerns, two home HIV tests: the Home Access HIV-1 Test System and the OraQuick In-home HIV test are currently approved. 10 The Home Access HIV-1 Test System requires a blood sample collected at home find infection later after infection than most lab-based tests, but earlier than tests conducted with oral fluid. The OraQuick In-Home HIV Test provides rapid results in the home and uses oral fluids. Because the level of antibody in oral fluid is lower than it is in blood, oral fluid tests find infection later after exposure than do blood tests. Up to 1 in 12 infected people may test false-negative with this test.

Positive results indicate the need for HIV medical care and an initial evaluation that includes additional laboratory tests (such as HIV-1 viral load, CD4+ T-lymphocyte determination, and an antiretroviral resistance assay) to confirm the presence of HIV-1 infection, to stage HIV disease, and to assist in the selection of an initial cART. Because no diagnostic test can be completely accurate in all cases of HIV infection, inconsistent or conflicting test results obtained during the clinical evaluation may warrant additional testing. Importantly, HIV infection may not be detected during the initial stages. The eclipse period is the initial interval after infection with HIV when no laboratory markers are consistently detectable (up to 10 days). The seroconversion window period is the interval between infection with HIV and the first detection of antibodies. This period is typically detected by viral molecular methods (HIV viral load or RNA) and is missed by antibody detection. Fourth generation testing has shortened this window period, with HIV-1 p24 antigen being detected after 14-17 days post infection. Antibody detection follows and is usually present by 3 to 4 weeks post-infection.
**HIV DIAGNOSIS | ACUTE AND EARLY HIV INFECTION**

Acute HIV-1 infection is the phase of HIV-1 disease immediately after infection that is characterized by high level of viremia, undetectable anti-HIV-1 antibodies and positive HIV-1 RNA or p24 antigen. Recent infection generally is considered the phase up to 6 months after infection during which anti-HIV-1 antibodies are detectable. A proportion of acute or recently acquired HIV infections may be seen in the setting of the pediatric office as a sick visit, in urgent cares, or in emergency rooms. An estimated 40% to 90% of patients with acute HIV-1 infection will experience symptoms of acute retroviral syndrome, such as fever, lymphadenopathy, pharyngitis, skin rash, myalgia, arthralgia, headache, diarrhea, oral ulcers, leucopenia, thrombocytopenia or transaminase elevation. However, because the self-limiting symptoms are similar to those of many other viral infections primary care clinicians often do not recognize acute HIV-1 infection. Other differential diagnosis may include viral illnesses such as Epstein-Barr virus (EBV) and non-EBV (e.g., cytomegalovirus) infectious mononucleosis syndromes, influenza, viral hepatitis, streptococcal infection, or syphilis. Pediatricians should maintain a high level of suspicion for acute HIV-1 infection in patients who have a compatible clinical syndrome—especially in those who report recent high-risk behavior. Youth may not always disclose or admit to high-risk thus, signs and symptoms consistent with acute retroviral syndrome should motivate pediatricians to consider a diagnosis of acute HIV-1 infection. Importantly, acute HIV infection can be asymptomatic and patient may remain asymptomatic for several years.

**CARING FOR HIV INFECTED YOUTH**

Pediatricians taking care of HIV infected youth face different patient needs in relation to decades ago. Mortality in children and youth with perinatal HIV infection has decreased by more than 80-90% since the introduction of protease inhibitor-containing combinations, and opportunistic and other related infections in children have significantly declined in the era of cART. Drug resistance testing has enhanced the ability to choose effective initial and subsequent regimens. Treatment strategies continue to focus on timely initiation of cART capable of maximally suppressing viral replication in order to prevent disease progression, preserve or restore immunologic function, and reduce the development of drug resistance. Availability of new drugs has led to more potent regimens with lower toxicity, lower pill burdens, and less frequent medication administration. As children and youth living with HIV infection are growing older, new challenges related to adherence, drug resistance, reproductive health planning, transition to adult medical care, and the potential for long-term complications from HIV and its treatments require special attention. Deaths due to opportunistic infections (OIs) have decreased and multi-organ failure due to end stage AIDS is the most common cause of death. Many of perinatally infected youth were from earlier birth cohorts who entered care late or received less potent antiretroviral regimens. The pattern of OIs and other illnesses that were typical of untreated HIV infection (Table 2) is uncommon today, although these problems may occur in unrecognized HIV infection or those known positive that are out of care or do not receive treatment reliably. Most common problems seen in perinatally infected youth include: 14

1. Neurocognitive/Neurologic: learning or cognitive impairment, attention disorders, behavioral problems, peripheral neuropathy
2. Growth and nutrition: short stature, lipodystrophy
3. Cardiovascular: dyslipidemia, mitochondrial toxicity, increase risk for cardiovascular disease and stroke, insulin resistance
4. Pulmonary: chronic lung disease, increase risk of progression if infected with tuberculosis
5. Hepatic: liver inflammation, other co-infections (hepatitis B/C)
6. Bone: osteopenia/osteoporosis
7. Reproductive health: HPV related disease
8. Hematologic: anemia, neutropenia, autoimmune disorders, higher risk of malignancy
10. Oral health: decay, periodontal disease, dental caries
11. Immunological: recurrent infection
12. Ocular: cataracts, glaucoma, decreased vision
13. Dermatologic: rashes, lichen planus, pruritus
14. Gastrointestinal: nausea, vomiting, diarrhea, constipation
15. Endocrine: growth retardation, pubertal delay, glucocorticoid deficiency
16. Cardiac: valvular disease, cardiomyopathy, left ventricular hypertrophy
17. Genitourinary: renal disease, alteration in male and female reproductive function

Table 1: Available HIV rapid tests

<table>
<thead>
<tr>
<th>TEST CATEGORY</th>
<th>HIV SCREENING TEST</th>
<th>RUN TIME</th>
<th>SINGLE USE</th>
<th>DETECTS IGG</th>
<th>DETECTS IGMM</th>
<th>USES WHOLE BLOOD</th>
<th>USES ORAL FLUIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AG/AB RAPID TEST</td>
<td>Determine HIV/1/2 Ag/Ab Combo</td>
<td>20 mins</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>INSTI HIV-1/2 Antibody test</td>
<td>&lt; 2 mins</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Uni-Gold Recombinant HIV Test</td>
<td>10 mins</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>HIV 1/2 STAT-PAK</td>
<td>15 mins</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SURE CHECK HIV 1/2 Assay</td>
<td>15 mins</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>OraQuick ADVANCE Rapid HIV-1</td>
<td>20 mins</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>HIV-1/2 Antibody Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPP HIV-1/2 Assay</td>
<td>&lt; 40 mins</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Revised G4 Rapid HIV-1 Antibody Test</td>
<td>&lt; 2 mins</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Adapted from 8
*Non CLIA waived

PPSV 23 should be administered at least 8 weeks following PCV 13 vaccine.

Pneumococcal polysaccharide vaccine (PPSV23): 2-dose series beginning at age 2 years and separated by 3 to 5 years. It is recommended that PCV 13 be administered at least 8 weeks following PCV 13 vaccine.
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7. May receive Meningococcal B vaccines (2 or 3 dose series) based on individual clinical decision and risk factors.

8. Varicella: Should be administered to all patients lacking history of immunization or varicella disease if CD4% >=15 or >200 (CD4 criteria for children and youth >5yo). MMR V is contraindicated in HIV infected youth as contains higher varicella vaccine dose than the monovalent vaccine.

9. MMR, MMR vaccine should be administered to all youth lacking history of immunization or disease if CD4% >=15 or >200 (CD4 criteria for children and youth >5yo). It is recommended that individuals with perinatal HIV infection who were vaccinated before effective cART should receive 2 appropriately spaced doses of MMR vaccine once effective cART has been established, unless they have other acceptable current evidence of MMR immunity.

SCHOOL AND SPORT PARTICIPATION

With effective cART, HIV-infected children experience much lower rates of serious illness, can participate in the same activities as their peers, and expect to live long and relatively healthy lives. Children and adolescents who have HIV infection can participate fully in the educational activities in school and practice any sport that the student's health allows. There is no obligation to notify school personnel of a student's HIV infection status. For all athletes, regardless of HIV infection status, skin lesions should be covered properly, and athletic personnel should use standard precautions when handling blood or body fluids that have visible blood. Some experts advise athletes who have a detectable viral load to avoid high-contact sports such as wrestling and boxing as they may create a situation that favors transmission (bleeding, skin breaks).

CONTRACTION

Access to high-quality reproductive health care is important for adolescents and young adults with HIV infection to prevent unintended pregnancies, STDs, and secondary transmission of HIV to partners and children. Pediatricians providing care for adolescents with HIV infection can help them make informed choices by addressing their contraceptive needs. HIV-infected youth can engage in risk sexual behaviors, and high rates of unintended pregnancy have been documented in this group. These statistics underscore the importance of reproductive counseling in HIV-infected youth. Even though HIV infection alone does not preclude the use of any hormonal contraceptive method, conditions and medications used in HIV-infected adolescents may influence contraceptive choices. Detailed guidance about the use of various contraceptive methods in women with medical conditions, including HIV infection, is beyond the scope of this manuscript but can be found in the US Medical Eligibility Criteria for Contraceptive Use and in a recent clinical AAP report on contraception. Typically, dual protection—the use of a condom in conjunction with a highly effective contraceptive method—should be a central component of reproductive health counseling for HIV-infected adolescents. Challenges including drug interactions between several hormonal methods and antiretroviral agents make decisions regarding contraceptive options more complex for these adolescents. Reproductive health discussions need to be integrated with discussions on HIV care, because a reduction in plasma HIV viral load below the level of detection (an “undetectable viral load”) is essential for the individual’s health as well as for a reduction in HIV transmission to partners and children.

PREVENTING HIV: THE PEDIATRICIAN AND PREP

Pre-exposure prophylaxis, or PrEP, is a proven effective strategy to help prevent HIV infection by taking a single tablet of tenofovir and emtricitabine (TDF/FTC, or Truvada) daily. In 2014, the US Public Health Service release the first comprehensive clinical practice guidelines for PrEP. PrEP can lower the risk of getting HIV infection by up to 92% in those patients who took the medication consistently. PrEP should be considered for people who are HIV-negative and at substantial risk for HIV infection. This includes: 1) ongoing relationship with an HIV-positive partner; gay or bisexual man who has had anal sex without a condom or been diagnosed with an STD in the past 6 months or heterosexual man or woman who does not regularly use condoms during sex with partners of unknown HIV status and who are at substantial risk of HIV infection (people who inject drugs or have bisexual male partners). PrEP can be considered for heterosexual couples in which one partner is HIV positive and the other is HIV negative as one of several options to protect the partner who is HIV negative during conception and pregnancy. The pediatrician can identify youth at risk and counsel them on the availability of this option. Local HIV providers and community partners may offer this service within the community. A recent study evaluated the safety, tolerability, and acceptability of TDF/FTC and patterns of use, rates of adherence, and patterns of sexual risk behavior among healthy young MSM aged 15 to 17 years. In this cohort, while the use of PrEP was safe and well tolerated, only approximately half of the youth achieved protective drug levels during the monthly visits, and adherence decreased with quarterly visits. This underscores the important role of ongoing health education and risk reduction in youth along with other innovative approaches to promote adherence and follow up.

<table>
<thead>
<tr>
<th>TABLE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STAGE 3: DEFINING OPPORTUNISTIC INFECTIONS IN HIV</strong></td>
</tr>
<tr>
<td><strong>Bacterial infections, multiple or recurrent</strong></td>
</tr>
<tr>
<td><strong>Candidiasis (esophagus, bronchi, lung)</strong></td>
</tr>
<tr>
<td><strong>Cervical cancer, invasive</strong></td>
</tr>
<tr>
<td><strong>Coccidioidomycosis, disseminated or extrapulmonary</strong></td>
</tr>
<tr>
<td><strong>Cryptococcosis, extrapulmonary</strong></td>
</tr>
<tr>
<td><strong>Cryptosporidiosis, chronic intestinal</strong></td>
</tr>
<tr>
<td><strong>Cytomegalovirus disease (other than liver, spleen, or nodes)</strong></td>
</tr>
<tr>
<td><strong>Cytomegalovirus retinitis</strong></td>
</tr>
<tr>
<td><strong>Encephalopathy attributed to HIV</strong></td>
</tr>
<tr>
<td><strong>Herpes simplex: chronic, or bronchitis, pneumonitis or esophagitis</strong></td>
</tr>
<tr>
<td><strong>Histoplasmosis, disseminated or extrapulmonary</strong></td>
</tr>
<tr>
<td><strong>Isosporiasis, chronic intestinal</strong></td>
</tr>
<tr>
<td><strong>Kaposi sarcoma</strong></td>
</tr>
<tr>
<td><strong>Lymphoma, Burkitt</strong></td>
</tr>
<tr>
<td><strong>Lymphoma, immunoblastic</strong></td>
</tr>
<tr>
<td><strong>Lymphoma, primary of brain</strong></td>
</tr>
<tr>
<td><strong>Mycobacterium avium complex or Mycobacterium kansasii, disseminated or extrapulmonary</strong></td>
</tr>
<tr>
<td><strong>Mycobacterium tuberculosis of any site, pulmonary, disseminated or extrapulmonary</strong></td>
</tr>
<tr>
<td><strong>Pneumocystis jiroveci</strong></td>
</tr>
<tr>
<td><strong>Pneumonia, recurrent</strong></td>
</tr>
<tr>
<td><strong>Progressive multi-focal leukoencephalopathy</strong></td>
</tr>
<tr>
<td><strong>Salmonella septicemia, recurrent</strong></td>
</tr>
<tr>
<td><strong>Toxoplasmosis of brain, onset at age &gt; 1 month</strong></td>
</tr>
<tr>
<td><strong>Wasting syndrome attributed to HIV</strong></td>
</tr>
</tbody>
</table>

Adapted from CDC 2014

3. Meningococcal ACWY and Meningococcal B vaccines: Two doses of Meningococcal ACWY vaccine are recommended in patients with HIV, with revaccination every 5 years. Serogroup B meningococcal vaccine (MenB) is not routinely recommended. Young adults and adolescents age 16 through 23 years (preferred age range is 16 through 18 years) may receive Meningococcal B vaccines (2 or 3 dose series) based on individual clinical decision and risk factors.

4. HPV: Three dose series is recommended in HIV infected youth.

5. HBV: Routine assessment of seroconversion (anti-HBsAb ≥10 mIU/mL) 1-2 months after completion of series should be performed to confirm a protective response. A second series is recommended if no immunity follows primary series. Annual anti-HBs testing and booster doses when anti-HBs levels decline to < 10 mIU/mL should be considered in individuals with ongoing risk for exposure.

6. Influenza vaccine: Administer inactivated vaccine yearly.

7. Haemophilus influenzae type b (Hib): Administer one dose of Hib vaccine to children ≥5 years if incomplete Hib vaccine history.

8. Varicella: Should be administered to all patients lacking history of immunization or varicella disease if CD4% >=15 or >200 (CD4 criteria for children and youth >5yo). MMR V is contraindicated in HIV infected youth as contains higher varicella vaccine dose than the monovalent vaccine.

9. MMR, MMR vaccine should be administered to all youth lacking history of immunization or disease if CD4% >=15 or >200 (CD4 criteria for children and youth >5yo). It is recommended that individuals with perinatal HIV infection who were vaccinated before effective cART should receive 2 appropriately spaced doses of MMR vaccine once effective cART has been established, unless they have other acceptable current evidence of MMR immunity.
Approximately 13-23% of sexually experienced persons aged 15–17 years and those aged 18–25 years on a parent’s insurance plan would not seek sexual and reproductive health care because of concerns that their parents might find out. In addition, having time alone with their provider during a health care visit has been shown to improve the likelihood of receiving a sexual risk assessment and STD testing. The pediatrician can assist youth by informing them of alternative venues to be tested such as through local health departments and community based clinics or outreach events where testing is provided confidentially and free of charge.

Over 84% of youth aged 15 to 24 reported in the Kaiser Family Foundation survey, that there is stigma around HIV in the United States. This suggest that youth may not be comfortable discussing their status with others and talking with their partners about ways to protect themselves from HIV and other STDs. For gay and bisexual youth who are just beginning to explore their sexuality, homophobia can pose obstacles to utilizing HIV prevention services, testing, and treatment. Gay and bisexual high school students may engage in risky sexual behaviors and substance abuse because they feel isolated and lack support. They are more likely than heterosexual youth to experience bullying and other forms of violence, which also can lead to mental distress and engagement in risk behaviors that are associated with getting HIV. The pediatrician plays an important role in identifying these barriers and providing nonjudgmental clinical advice and STD prevention and counseling.

CONCLUSION

Important advances in HIV care and prevention allow HIV-infected children and youth to live longer and healthier lives. Challenges such as long term co-morbidities, mental health, stigma and social determinants impact HIV care and prevention. The pediatrician can play an important role in identifying new infections, providing comprehensive primary care, and advocating for HIV-infected youth or those at risk for infection.

REFERENCES

CONCLUSION
Transition is defined as the "purposeful, planned movement of adolescents and young adults with chronic physical and medical condition from child-centered to adult-centered health care systems" (3). In contrast to the singular moment transfer-of-care happens, the transition process occurring over years should be coordinated, uninterrupted, patient-centered, culturally, and developmentally appropriate. A consensus policy statement by The American Academy of Pediatrics, American Academy of Family Physicians, and American College of Physicians-American Society of Internal Medicine emphasized the goal of healthcare transition to optimize health function as the individual moves from pediatric family-centered care to patient-centered adult health care setting (4). Currently, substantial disparity exists as CHD patients experience transition in healthcare systems. The purpose of this literature review is to raise awareness of the challenges patients, families, and providers face as CHD patients age out of the pediatric system and transition to adult care.

PREPARATION FOR ADOLESCENT TRANSITION
The period of adolescence poses a significant challenge in the CHD transition process. Adolescence encompass asynchronous biological and psychosocial developments. As these young adolescents prepare to take on increased responsibility for self-care and health management, recognition of the impact of chronic illness on each adolescent's development with regard to tasks required for successful transition is essential. The timing of transition is influenced by the patients' developmental age and chronic illness perception. Interventions should be tailored to their maturity level instead of chronological age. Consequently, healthcare interventions including education, and screening are vital at this juncture.

Young adolescents are at a vulnerable stage as they strive for autonomy yet, still require appropriate support and guidance. Bustrum, and coworkers (5) discussed the need for structured and developmentally appropriate interventions to ensure a successful transition process. They examined determinants for adolescent self-efficacy and healthcare management that include increased patient education, active participation in care, and concurrent parental guidance and support. They concluded that adolescents should learn more about their health and gradually assume responsibility for their care. It was imperative that patient education be individualized and provided when they are ready to assume accountability. Addressing questions directly toward the patient instead of their parents/caregivers encourages active participation in care by allowing self-reflection. Furthermore, despite an adolescent's desire to be independent, secondary parental support promoted a feeling of safety during transition. Parental supervision and the setting of examples for positive health behaviors facilitated autonomy and enabled these young adults to secure identity (5).

Present data are evolving regarding transition from pediatric to adult CHD care setting. A multicenter, randomized, controlled trial by Acuna, Sparud-Lundin, Brat, and Moons (6) is currently underway to evaluate the effectiveness of a structured transition program on young patients with chronic illness. The STEPSTONES project (Swedish Transition Effects Projects Supporting Teenagers with Chronic Medical Conditions) proposed a 2 year systematic patient-centered approach to CHD transition. The researchers postulate that effective empowerment will mitigate the complexity of navigating through the adult health care system and empower young adults as they transition to adult care. The study utilizes patient empowerment as a primary outcome that will likely lead to secondary outcomes of improved health status and quality of life (6).

FAMILY-CENTERED CARE VERSUS PATIENT-CENTERED CARE
Historically, CHD patients have been managed by pediatric cardiologists. For the most part, referrals and transfer to adult congenital cardiology are driven by acquired health comorbidities and typical adult social issues as these young patients age out of the pediatric system. As the CHD population continues to grow and age, the need for adult congenital heart disease (ACHD) providers also increases. The fundamental challenge in healthcare transition is bridging the cultural care gap between pediatric and adult care setting. The pediatric setting utilizes a family-centered care while the adult setting employs a patient-centered approach. Both approaches are developed in collaborative partnership with health care providers, but the patient-centered approach focuses on patient values and individual preferences, which ensures that the patient's values guide the clinical interventions.

Van Staa, Jadaglo, Meeteren, and Latour (7) described patients' and families' opinions regarding pediatric and adult culture of care. The investigators noted that while some young adults viewed their transition process as seamless, others found the change more burdensome than anticipated. Some patients had difficulty establishing trust with the new adult-oriented setting. The researchers postulate that effective empowerment will mitigate the complexity of navigating through the adult health care system and empower young adults as they transition to adult care. The study utilizes patient empowerment as a primary outcome that will likely lead to secondary outcomes of improved health status and quality of life (6).
Another challenge that families face is the role shift between parents and young adults. While it was accepted that the transition process is assessing family and youth readiness. The plan of care should be regularly updated noting all active problems, current treatment, as well as issues that may require surgical or procedural intervention. The plan of care should provide a comprehensive medical health summary compiled in collaboration from the primary care provider (PCP) and all pediatric subspecialties. This plan should include all previous procedures and relevant conditions treated. Lastly, emergency plans should be developed and reviewed to minimize confusion in a time of concern or crisis. After identifying and establishing a relationship with an ACHD provider, transfer of care should occur only when the patient's condition is stable. Ultimately, a successful transition process culminates with an ongoing collaborative partnership between the adult PCP and ACHD specialist (8, 9).

According to the AAP/AACF/ACP, the planned transition process should commence as early as age 12 years and be integrated into routine pediatric clinic visits in a collaborative approach to foster self-management skills and support active participation in healthcare decisions (9). Healthcare transition promotes self-efficacy which prepares young adults to assume adult roles, allows them to manage their own health, and navigate the healthcare system independently (9, 10). Table 2 outlines transition developmental tasks suggested for specific age groups to support the transition process (10).

### CONTRIBUTING FACTORS TO GAPS IN ACHD CARE

Grown patients with CHD require periodic evaluation by an ACHD cardiologist throughout their lives. Therefore, successful transition to ACHD care is paramount. ACHD cardiologists received specialized training in diagnosis, treating, and managing adult patients with CHD. Accordingly, patients benefit from ACHD specialists who understand CHD anatomy and physiology, residual hemodynamics, psychosocial burden of chronic CHD, and the impact of comorbid conditions associated with the aging process. Ongoing follow-up is necessary to monitor progressive conditions such as valvular disorders, cardiac arrhythmias, and cardiac dysfunction. Patients who are lost to follow-up, return to care with cardiovascular symptoms and are more likely to have a threefold increase in urgent cardiac interventions (11).

### LOSS TO FOLLOW-UP: IMPLICATIONS AND OUTCOMES

The primary indicator for success of CHD interventions in children was long-term survival (14). While some interventions are curative, i.e., PDA ligation and VSD/ASD closure, more complex CHD defects require lifelong surveillance under the care of a CHD specialist. In many instances, untimely and preventable CHD deaths occur in adults, not children (15). Lifelong follow-up of patients supports early detection of residual hemodynamic complications including arrhythmias, reduced exercise

### Table 1: Cultural Differences in Pediatric and Adult Care Systems (adapted from reference #7, p. 827)

<table>
<thead>
<tr>
<th>Pediatric Care</th>
<th>Adult Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients are generally healthy</td>
<td>Adult patients generally have more complex health issues</td>
</tr>
<tr>
<td>Pediatric patients need support</td>
<td>Adult patients are autonomous</td>
</tr>
<tr>
<td>Family-centered care</td>
<td>Individualized care</td>
</tr>
<tr>
<td>Collaborative decision making focusing on parental choices</td>
<td>Independent informed decisions</td>
</tr>
<tr>
<td>Empathic and paternalistic communication style</td>
<td>Formal and businesslike approach</td>
</tr>
<tr>
<td>Holistic care</td>
<td>Disease oriented care</td>
</tr>
<tr>
<td>Utilizes interdisciplinary approach</td>
<td>Specialist oriented</td>
</tr>
</tbody>
</table>

### Successful Transition Process

In 2014, The National Alliance to Advance Adolescent Health and The Center for Health Care Transition Improvement developed the Six Core Elements of Health Care Transition to improve the process of clinical transition from pediatric to adult care setting (8). This system was developed in alignment with the 2011 clinical report on transition by the American Academy of Pediatrics, American Academy of Family Physicians, and American College of Physicians (AAP/AACP/ACP) and aimed to mobilize quality improvement initiatives to ensure effective transition of young adults. The ‘Got Transition’ program identified six quality indicators and implemented sequential algorithms and innovative strategies for transitioning youth. The six fundamental elements of effective transition process include: establishing a transition policy, transition registry, readiness assessment, plan of care, transfer of care, and ongoing adult care (8).

The first step to health care transition is the development of a transition policy. The policy should clearly define each practice's approach and timing of transfer. A transition registry enables each practice to identify and track the progress of individual transition and allows stratification of health services to those with special needs. Another key component of the transition process is assessing family and youth readiness. The plan of care should be regularly updated noting all active problems, current treatment, as well as issues that may require surgical or procedural intervention. The plan of care should provide a comprehensive medical health summary compiled in collaboration from the primary care provider (PCP) and all pediatric subspecialties. This plan should include all previous procedures and relevant conditions treated. Lastly, emergency plans should be developed and reviewed to minimize confusion in a time of concern or crisis. After identifying and establishing a relationship with an ACHD provider, transfer of care should occur only when the patient's condition is stable. Ultimately, a successful transition process culminates with an ongoing collaborative partnership between the adult PCP and ACHD specialist (8, 9).

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### Table 2: Healthcare Transition Timetable (adapted from reference #10)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Transition Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 12-14</td>
<td>Increase health care knowledge</td>
</tr>
<tr>
<td>Ages 15-17</td>
<td>Assume responsibility in making clinic appointments</td>
</tr>
<tr>
<td>Ages 18 &amp; Older</td>
<td>Secure health insurance coverage</td>
</tr>
</tbody>
</table>

Several studies explored the challenges associated with pediatric to adult congenital cardiology transition. Young adults most often feel well and may not need acute interventions and therefore fail to seek follow-up care. The authors identified several factors associated with successful transition. Patients with moderate and complex CHD were more likely to transfer to ACHD care (12). The likelihood of successful transition was 3.6 times more likely for patients who required CHD interventions and those with poor health status as compared to those patients with simple CHD who did not require interventions (13). Recent cardiac catheterization in the last 5 years also warranted ongoing care with ACHD specialist (11). Successful transition is improved by the individual understanding the importance of follow-up care. Some ACHD patients who required intervention early in life assumed that follow-up is unnecessary and believed their defect was repaired or “fixed.” Parental involvement has been noted as a protective factor for a successful transition of care. Attending portions of clinic appointments without their parents promoted independence and successful transfer while a complete lack of parental involvement negatively impacted youth transition. A lapse in medical care was four times more common in some young adults who lived away from home (13). Barriers to transfer of care included a lack of medical insurance and inadequate access to ACHD providers. Most importantly, missed cardiology appointments in adolescence served as the strongest predictor for gaps in care. Higher socioeconomic status contributed to favorable transition. Lower income families were more likely to miss clinic appointments due to transportation and financial issues associated with less flexible work schedule. Cardiology referral to an ACHD specialist also positively influenced successful transfer of care (11).
tolerance, heart failure, or sudden death. Therefore, tailored interventions to prevent significant gaps in ACHD care should be of the utmost priority during the transition process (15).

Several studies recognized the impact of failure to transition and loss of follow-up care on CHD morbidity. Gurvitz et al. (16) indicated a two-fold increase in the number of patients requiring ER admissions during the transition period. These hospital admissions were less likely to occur at designated CHD centers. Additionally, these patients presented with cardiovascular symptoms and cardiac complications requiring immediate interventions. CHD mortality rates increased 2.7 times for patients between the age of 20-70 years (17).

**IMPORTANCE OF COLLABORATIVE HEALTH CARE GUIDANCE**

Adolescents and adults with CHD often have additional medical problems that require care by several specialists and subspecialists. To avoid inefficiency or exposure to unnecessary risks in the plans developed independently by the various specialists, it has been highly recommended that all CHD patients have a PCP that follows the medical home model (18). The American Academy of Pediatrics defines a medical home as a practice that is “an accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective to every child and adolescent” (18). It is quite important to maintain the medical home concept and functionality when transitioning from the pediatric environment to an adult care environment. Similar to the heterogeneous nature of CHD patients, the makeup of the medical home must be individually addressed and maintained through the transition. While initiating transition, it is essential to emphasize the importance of maintaining such a patient home with their adult provider and reviewing with the patient the lifelong nature of their condition. Such education will avoid the misconception that CHD is a childhood disease or their procedures have been completed or their condition is stable or that their care is complete (19).

The adult or family medicine PCP, receiving the transfer of care, will also need to know the patient’s individual history, monitor the care provided by specialists, manage conditions that do not require specialist care, and refer questions back to the congenital cardiologist when necessary. The greatest risk, and thus the most important goal during transition is to mitigate the patient being lost to follow-up. PCP’s should also coordinate care on non-cardiac health issues to avoid fragmentation of services. Similarly, PCP’s should be cognizant of a young adult’s baseline function and appropriately triage signs and symptoms that require cardiology evaluation (19).

In addition to transitioning the medical home, it is imperative that transitioning to an ACHD center is equally critical. ACHD providers will need a comprehensive history and transition plan. The CHD plan of care should indicate the complexity of the heart defects and include stratification of risks and potential complications. The ACHD providers should be available as a resource to contribute to the care provided by other specialists in a capacity to avoid unnecessary testing or procedures and the inaccurate interpretation of tests and procedures. This highlights the importance of an ACHD specialist in providing expertise in interpretation of data specific to adults in the context of congenital heart care (19).

**CONCLUSION:**

The transfer of care continues to be a challenge often leading to gaps in health care as young adults transition from pediatric to adult care. Experience from the growing population of adult patients with CHD has highlighted the importance of uninterrupted, lifelong surveillance in contrast to the unfortunate and preventable complications many have suffered from gaps in care. Collaborative relationship among the providers, patient, and families during this vulnerable period support a successful transition.

Transition interventions should commence early and focus on increasing self-efficacy. An effective transition process reiterates the integration of pediatric and adult care services in providing seamless care. Adult patients with CHD have specialized health care needs that require an expertly trained cardiologist knowledgeable about CHD processes, complex cardiac anatomy, and associated medical comorbidities. It is incumbent upon CHD specialists and PCPs to provide collaborative healthcare management to ensure that CHD patients receive lifelong, follow-up care.

Transition tools have been developed to facilitate the continuation of care for CHD patients into adulthood. Florida HATS (www.floighthats.org) and ‘Got Transition’ (www.gotttransition.org) offer systematic tools that aid medical providers to implement education toward a seamless transition and prevention of gaps in care. A cooperative effort among PCPs and specialists is needed to prepare the foundation necessary for patients to achieve a fitting career. Alternatively, for individuals unable to be self-sustaining, the opportunity to arrange access to available adult support systems is essential to avoid care gaps amongst this vulnerable population. A successful transition and transfer-of-care is the ideal capstone to all the effort and progress achieved amongst the many pediatric care providers.

**REFERENCES:**

The FCAAP is happy to report another successful Legislative Session! From start to finish and for multiple reasons, the 2018 Florida Legislative Session was particularly tumultuous. Nonetheless, the FCAAP stayed focused and achieved success in the budget and with substantive legislation. The Legislative Committee met regularly and received frequent written reports and updates, and the Executive Committee was also on top of all the issues. We engaged members through Action Alerts, and we had more than 15 residents and faculty from across the state attend Children’s Week to lobby the Legislature. Key FCAAP accomplishments are summarized below:

• The FCAAP priority to require physicians to input certain vaccination information into the DOH SHOTS registry and to require schools to query the SHOTS registry (rather than the paper Form 680) got all the way to the House Calendar in two bills and got through one Senate committee. This success should give us a head start for the 2019 Session.

• Senate budget proposal to cut Healthy Start by $19 million was defeated.

• Senate budget proposal to reduce Medicaid retroactive eligibility from the current 90 days down to 30 days for children and pregnant adults was defeated.

• An effort to require consultation of the PDMP for all patients receiving controlled substances was mitigated by the FCAAP with language exempting such consultation for children under 16 years of age.

• An effort to allow guns in schools when the school is on private church property was defeated early in the Session.
• There are many changes related to guns and mental health treatment, but some highlights are:
  • With some exceptions, the waiting period for the purchase of firearms is the later of 3 days or the completion of a background check.
  • With some exceptions, must be 21 or older to purchase a firearm.
  • Prohibits a bump-fire stock from being imported, transferred, distributed, sold, keeping for sale, offering for sale, possessing, or given away within the state.
  • Approximately $250 million was appropriated for school hardening, safe schools, and guardian program.
  • Over $69 million was appropriated to the DOE to fund the mental health assistance allocation.
  • $18.3 million was appropriated to DCF for additional mobile crisis teams to ensure reasonable access among all counties.

Other issues of interest which passed during the 2018 Session are as follows:

• DOH will provide perinatal mental health information through its Family Health Line and direct birth centers to include a mental health screening, etc.
• A direct primary care agreement is no longer deemed “insurance” and is thus no longer subject to regulation under the code.
• Persons under 18 years of age are no longer authorized to get married except that a 17-year-old may marry an 18 or 19 year old with approval from the guardian and upon completion of a premarital preparation course.
• Nonvoting members were added to the pediatric cardiovascular technical advisory panel; the panel must provide additional reports; hospitals providing pediatric cardiology services must meet certain guidelines; AHCA must contract with certain entities to provide information about hospital’s pediatric cardiac programs on AHCA’s webpage.
• A public records exemption was put into place for certain information concerning child advocacy center personnel or child protection team members and their spouses and children.
• Certain medical professionals must report to the Department of Health adverse incidents occurring as a result of an attempted or completed birth in a planned birthing center or out of a hospital; DOH must review each adverse incident report and determine whether it is subject to disciplinary action, and DOH must take disciplinary action if appropriate.
• An autocycle is defined as a motorcycle with 2 wheels in the front and one in the rear, and requires autocycle passengers and drivers under 18 to wear a seatbelt.

Orbital Cellulitis with Subperiosteal Abscess

Mason Henehan, BS, MS1, Mobeen H. Rathore, MD1,2,3
1University of Florida College of Medicine
2University of Florida Center for HIV/AIDS Research, Education and Service (UF CARES)
3Pediatric Infectious Diseases and Immunology, Wolfson Children's Hospital, Jacksonville, Florida

A 7-year-old Somali-American male presented with a 4-day history of progressively worsening eye swelling. 4 days prior to admission patient complained of a dull frontal headache and right eye swelling. Later his left eye also became mildly swollen. Three days prior to admission, his primary care provider (PCP) saw him. After collecting, a specimen for blood culture, a dose of intramuscular (IM) ceftriaxone that was administered, at the time of the first visit with the PCP. The following day the PCP again saw him and a second dose of IM ceftriaxone was given. On the day of admission, his PCP because of worsening orbital swelling again saw patient. At this time, he was referred to the emergency department (ED) and was admitted to the hospital. On admission patient complained of increasing malaise and eye pain, and both eyes were swollen with the right eye nearly completely closed. There was a history of upper respiratory tract symptoms including purulent rhinorrhea 10 days prior to admission. There was no recent head trauma or insect bites. Patient had history of recurrent sinusitis.

On examination patient is a non-toxic, well-appearing child with temperature 37.2 degrees C, Blood Pressure 109 mm Hg/ 89 mm Hg, Pulse 90/minute and respiratory rate 18 breaths per minute. He had bilateral eye swelling and periorbital erythema, however the right eye had worse proptosis and surrounding erythema. Patient had severe restriction of ability to lift the right eyelid but left eyelid remained fully functional. Patient’s extraocular movements of right eye were restricted and painful for abduction in the lateral plane but had near full range of motion in the vertical plane. Extraocular movements of left eye were intact. There was no conjunctival injection or eye discharge. Examination of other cranial nerves and rest of neurologic exam were normal without any focal deficits. The Remainder of the physical exam yielded no abnormalities. The blood culture done at the PCP’s office was growing Gram-negative bacilli. A complete blood count on the peripheral smear showed a white blood cell count was 11,200/dL with 55% neutrophils, 31% lymphocytes, 12% monocytes, and 2% eosinophils. Patient was started empirically on intravenous ceftriaxone and clindamycin.

A CT scan of the head (Figures 1-3) with contrast enhancement showed thickening of the medial aspect of the right orbit with a subperiosteal abscess measuring 3.5cm x 0.7cm x 1.5cm. The abscess appeared to have extended through the lamina papyracea from the nasal sinuses and into the orbit. The abscess was encroaching on the right medial rectus and optic nerve sheath. There were also opacifications of the right maxillary sinus, right ethmoid air cells, and right sphenoid sinus consistent with chronic sinusitis. There were no radiographic findings to suggest cavernous sinus involvement.
Given the location of the abscess ophthalmologic and otolaryngology, services were consulted and the patient went to the operating room for an abscess drainage and sinus wash out. On the third day, the Gram-negative bacilli in the blood culture were identified as beta-lactamase negative Haemophilus influenzae that were Ampicillin susceptible. Patient’s eye swelling and restricted extraocular movements almost completely resolved by 48 hours after the procedure and the patient was discharged from the hospital with oral amoxicillin-clavulanate to be taken 400 mg twice daily for 21 days.

**DISCUSSION:**

Orbital (or sepsal) cellulitis is a serious infectious condition that is considered a medical and surgical emergency. Importantly, it must be distinguished from periorbital (or preseptal) cellulitis, which is a relatively less serious condition. Clinically, both periorbital and orbital cellulitis present with eye swelling and erythema, typically without conjunctival injection or discharge. However, orbital cellulitis is more likely to have symptoms of vision changes, restricted and painful extraocular movements, proptosis, chemosis, and has inflammation that also involves the pericocular fat and ocular muscles. With orbital cellulitis, the most common risk factor is preceding sinusitis. Therefore, the most common organisms isolated in abscesses include, Streptococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis, Staphylococcus aureus, and various anaerobes, are the same organisms often responsible for chronic sinusitis. When suspected, imaging via orbital/head CT with contrast enhancement is the modality of choice to evaluate for orbital cellulitis and its possible complications.

Early involvement of ophthalmologic and otolaryngology services should be involved early in the course of disease. Complications of orbital cellulitis are what make this such a dangerous entity. Primarily, subperiosteal abscess is the most serious concern as it can exacerbate proptosis and further restrict extraocular movements, as well as lead to permanent vision loss if it sufficiently damages the optic nerve. Overall, orbital cellulitis has been shown to lead to loss of vision in 3-11% of patients. Other complications include brain abscess and cavernous sinus thrombosis. Intracranial extension of infection is more likely in children who are old enough to have developed a frontal sinus. For treatment, antibiotic choice should remain the same organisms often responsible for chronic sinusitis. When suspected, imaging via orbital/head CT with contrast enhancement is the modality of choice to evaluate for orbital cellulitis and its possible complications.

**SUGGESTED READING:**


"The extent of physical, emotional, psychological, and social problems present in some student populations is so great that the primary mission of the school - education - cannot proceed if these pathologies are not addressed."

Carnegie Council on Adolescent Development

A high school principal in our district told parents the school’s vision: “To prepare every student for success.” Teachers, others in the educational system, and members of the community, share this worthy goal. One of the stakeholders who is intimately involved in student success is the school nurse. The school nurse is a liaison between the school, the medical community and the family. Very often, the school nurse is a translator: helping the educational community understand the medical diagnosis and terminology, and helping the parent understand the educational terminology and how it relates to their student’s diagnosis. A student’s presence in the classroom may not mean the student is ready to learn. If the student has health problems: physical, mental, emotional and/or social, and these health problems are ignored or improperly addressed, the body may be there, but the mind is not. There is a barrier to learning. School nurses in the school work with the medical community outside the school to assist those students whose health problems put them at risk for failure. In the 2016-2017 school year, Florida had 2,801,978 students. Of those, 724, 573 students, or 26%, had a chronic illness (DOH, 2017). Chronic health conditions continue to increase and are becoming more complex (AAN, 2018). The American Academy of Pediatrics, the National Association of School Nurses, and Healthy People 2020, all support the value of a school nurse’s involvement in chronic disease management. (AAP, 2016; Healthy People 2020, 2017; NASN, 2016).

For many schools, the first indication of a mental or behavioral issue is a request to see the school nurse for “an upset stomach.” Underlying this request may be several issues upsetting the student including anxiety, depression, school/personal violence and bullying. The incidence among students is increasing and manifesting itself at younger ages. Each year 13% - 20% of students experience a mental health issue each year and a study done in Massachusetts indicates that school nurses spend 32% of their day dealing with mental health issues (AAN, 2016). The school nurse plays a definite role in the identification and care management of these mental health issues in the school setting (Bohnenkamp, Stephan & Bobo, 2015). The earlier in a student’s education that health problems are addressed, the better the outcomes. The student will be absent less. They will spend more time actually engaged in learning and they will be less apt to drop out of education altogether. Researchers discovered that school nurses impact academic achievement in five distinct areas: assisting with the identification and management of mental health issues, decreasing absenteeism, increasing immunization compliance, improving chronic condition management and promoting healthy behaviors. This allows students to remain in school and improves academic achievement (AAN, 2018).
Teachers need expertise, curricula and technology to educate and prepare our students for the world in which they live. They also need to know how to educate the students in their classes with health conditions (Praeger, S., 2013). Whether it is providing education to teachers and other children about a student's health condition or transitioning a hospitalized student back into the classroom, this is the school nurse's area of expertise. She utilizes medical information from her own education and information provided by other colleagues in the medical field. Teachers need to understand how allergies, untreated or improperly treated, can affect a student's math scores (Hogate, Giel, Selekmam, 2013) or how a low blood sugar in a student with diabetes can impact that student's reasoning skills for up to four hours (Butler, Kaup, Swanson, & Hoffman, 2013). When a class rejoices because a student with cancer has finished his chemotherapy and can return to school, the teacher needs to understand how the chemotherapy can affect his short-term memory (Selekman, Bochenek, Lukens, 2013).

Finally, teachers need students in the classroom to hear and learn the lessons being taught. When a school nurse is present, the number of clinic visits and the length of time in the clinic drops. According to the 2016-2017 Florida School Health Report, Florida averages 85,590 clinic visits each day (DOH, 2017). If students are only in the clinic for 15 minutes, and most visits are longer, that adds up to 21,398 hours of lost instructional time every day in Florida. To promote healthy behaviors and address the health needs of our students; the World Health Organization (WHO) supports school health services as a viable strategy (AAN, 2018). A school can have a dozen intensive reading or math classes, but if students are not there, it is difficult to learn.

School nursing is recognized as a specialized practice that advances the well-being, academic success, and lifelong achievement of students. Florida has less than 1500 registered school nurses to promote health and safety, intervene with actual and potential health problems, provide case management services and actively collaborate with others in the medical field to serve the students and families in our care (DOH, 2017).

The recommendation of the American Academy of Pediatrics and the National Association of School Nurses is at least one full-time registered nurse in each school to serve as a bridge between health and education (AAP, 2016; NASN, 2016). The current school nurse caseload averages one nurse to 2,382 students and one nurse to 3.15 schools. (DOH, 2017). The American Academy of Nursing believes all students “must have daily access to a full-time school nurse who is part of a comprehensive health-care and education system” (AAN, 2018). This access will improve the health of our students and decrease the number of healthcare dollars needed in the future to address chronic conditions. School nurses are working to improve student success in the classroom and in life.

REFERENCES


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