COVID-19's Impact on Pediatricians—From Practice to Hospital

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For all Your Work during COVID-19
Challenges with COVID-19

- Unknown disease: fear the unexpected
- News: contagious, high morbidity (need for ventilation) and mortality
- Getting flooded by info
- Not enough PPE
- Not enough testing capacity
- No treatment
- No vaccine
- Anxiety about own health, family and waiting for the surge
Hospital and ER Message to the Public.
Lack of PPE Leading to Innovation

- A UF Health anesthesiologist designed a mask using “surgical wrap” with 2 layers of the material are put together provides higher protection that the N95 masks. He worked with infection control staff to ensure that the design is as safe as possible, and is also easy to construct.
Masks For Everyone!

Several UF Health employees make masks for support personnel.
Protecting Health Care Workers

UF Health Jacksonville @UFHealthJax · Mar 31
Our emergency medicine and simulation center team developed an innovative, functional intubation box in order to protect our health care workers on the front lines of treating patients. @AndGodwin5 explained further on a recent @FCN2go feature: bit.ly/2Uyj3oF
Coronavirus pandemic: UF Health Jacksonville makes its own personal protective equipment
Coronavirus pandemic: UF Health Jacksonville makes its own personal protective equipment
This is an intubation box used to keep the healthcare worker safe from the coronavirus.
National Change in Practices in Hospitals

- Activated Hospital Incident Command System (HICS)
- Creating COVID/Non COVID waiting area and ER zones for isolation/separation
- COVID Tent for low-acuity infectious patients
- Minimizing exposure to aerosolized droplets: Avoiding nebulizers, increased use of MDI, HEPA filters for BVM
- AHA: CPR changes to minimize exposure: tele-resus
- Patient volume decrease (50% or more): impact on nursing staffing and provider productivity
- Constant adjustment of ED staffing/decrease hours/Furlough/Plans for high risk staff
Children’s Hospitals Challenges

- Children’s Hospitals Ask Health and Human Services For Coronavirus Relief Funding: 76 of the nation’s largest children’s hospitals signed a letter to HHS Secretary Alex Azar on May 19th asking that he immediately release additional money from a federal fund to keep the hospitals afloat.

- Cancelling/rescheduling procedure and appointments.

- Adding substantial costs to test thousands of children with routine flu to r/o Covid-19, adding screening procedures for all staff, patients and families, PPE, furlough, and implementing telehealth.

- Supporting increase in-home care to keep medically fragile children out of the hospital.
Is COVID-19 Catching Up with Kids?

- Bright spot: low rates of infection, hospitalization and complications in children and most children are asymptomatic or exhibit mild symptoms.

- Late April: clinicians in the UK recognized increased reports of previously healthy children presenting with a severe inflammatory syndrome with Kawasaki disease-like features: 8 cases with 1 death, all + COVID-19.

- From April 16 through May 4, 2020, 15 patients aged 2-15 years were hospitalized, many requiring ICU admission with similar clinical picture.

- As of May 12, 2020, the New York State Department of Health identified 102 patients with similar presentations, many of whom tested positive for COVID-19.

- 2 cases of Multisystem Inflammatory Syndrome in Children are confirmed in Florida.
Case Definition: Multisystem Inflammatory Syndrome in Children (MIS-C)

- An individual aged <21 years presenting with
  - Fever (>38.0°C for ≥24 h)
  - Laboratory evidence of inflammation: one or more of the following: elevated CRP, ESR, fibrinogen, procalcitonin, d-dimer, ferritin, lactic acid dehydrogenase, or IL-6, elevated neutrophils, reduced lymphocytes and low albumin
  - and evidence of clinically severe illness requiring hospitalization, with multisystem (>2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurological); AND

- No alternative plausible diagnoses; AND

- Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or COVID-19 exposure within the 4 weeks prior to the onset of symptoms
Monitoring: Multisystem Inflammatory Syndrome in Children

- **Worsening clinical picture** including worsening fever, cardiorespiratory deterioration, worsening GI symptoms, increasing HSM or lymphadenopathy, rash extension or worsening neurological symptoms.

- **Laboratory signs of increasing inflammation**
  - Falling blood cell counts
  - Rising ferritin
  - Unexpectedly low or falling ESR
  - Rising fibrinogen or new onset low fibrinogen
  - Rising ALT, AST or LDH
  - Rising triglycerides
  - Rising D-dimers
  - Low serum sodium with worsening renal function

**Be aware: Deterioration can be rapid: Close F/U**
Hassenfeld Children’s Hospital
Pathway for Diagnosis and Management of Multisystem Inflammatory Syndrome in Children

Fever ≥ 3 days* and one or more of the following:
GI symptoms, Rash, Conjunctivitis, Oral changes, Cough, Headache/Irritability, Extremity Swelling, Lymphadenopathy
OR
Fever ≥ 4 days and no obvious source

Unstable with signs of shock

Initiate fluid resuscitation and sepsis protocol
Monitor for signs of cardiac dysfunction
Early PICU admission

Stable

Labs (MISC Order set)

CBC  Urinalysis  D-dimer  Coag panel
BMP  Blood culture  Covid PCR  Ferritin
LFTs  Troponin  Covid IgG  Procalcitonin
CRP  BNP  VBG w/lactate  Respiratory panel
ESR  EKG  LDH  Chest x-ray

Please add pictures of rashes to Epic chart

Labs abnormal and other sources of infection excluded

Maintain isolation precautions as per NYU protocol
Consult rheumatology (if patient has any elevated inflammatory markers)
Consult cardiology on all admitted patients
Consider hematology consult if significantly elevated D-dimer
Consider infectious diseases consult

Unstable
Admit to PICU

Stable
Admit to floor

*Strongly recommend follow up within 24 hours (either with PMD or return to ER) for patients with 2 days of fever and any symptoms listed
COVID-19 Laboratory-Confirmed Hospitalizations
Preliminary data as of May 09, 2020

Covid-19-associated Hospitalizations By Age
- 0-4 yr
- 5-17 yr
- 16-49 yr
- 50-84 yr
- 65+ yr

<table>
<thead>
<tr>
<th>Calendar Week End Date (MMWR Week No.)</th>
<th>Case Counts</th>
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<tbody>
<tr>
<td>Mar-07-2020 (10)</td>
<td></td>
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<tr>
<td>Mar-14-2020 (11)</td>
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<tr>
<td>Mar-21-2020 (12)</td>
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<td>Mar-28-2020 (13)</td>
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<tr>
<td>Apr-04-2020 (14)</td>
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<td>Apr-11-2020 (15)</td>
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<td>Apr-18-2020 (16)</td>
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<tr>
<td>Apr-25-2020 (17)</td>
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<td>May-02-2020 (18)</td>
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<tr>
<td>May-09-2020 (19)</td>
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<tr>
<td>May-16-2020 (20)</td>
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</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>0-4 yr</th>
<th>5-17 yr</th>
<th>16-49 yr</th>
<th>50-84 yr</th>
<th>65+ yr</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>56</td>
<td>74</td>
<td>4035</td>
<td>5651</td>
<td>9359</td>
<td>19337</td>
</tr>
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</table>

The Coronavirus Disease 2019 (COVID-19)-Associated Hospitalization Surveillance Network (COVID-NET) hospitalization data are preliminary and subject to change as more data become available. In particular, case counts and rates for recent hospital admissions are subject to lag. As data are received each week, prior case counts and rates are updated accordingly.
Effects of the COVID-19 Pandemic on Routine Pediatric Vaccine Administration

Cumulative change in all noninfluenza doses ordered Jan 6–Apr 19, 2020 versus Jan 7–Apr 21, 2019

Jan 20: first U.S. COVID-19 case reported (Washington)

Mar 13: U.S. national emergency declared

Cumulative change in all measles-containing doses ordered Jan 6–Apr 19, 2020 versus Jan 7–Apr 21, 2019

No. of measles-containing vaccine doses administered

≤24 mos

>24 mos–18 yrs

Week beginning date
Children Vaccination and ER Practices

- Children with fever account for as many as 20% of pediatric visits in the ER

- Immunization history, such as recent vaccination or a history of inadequate immunizations will impact screening for occult bacteremia/sepsis in infants.

- Florida State Health Online Tracking System (SHOTS) immunization registry access reduced the percentage of screening blood draws.

- We have 3 months to vaccinate our children before school reopens! *(FCAAP is planning on a Vaccination Campaign)*
What percentage of reductions in vaccine administrations occurred in your practice due to COVID-19?

- None: 227 answered, 5 skipped
- 1-5%: 227 answered
- 6-20%: 227 answered
- 21-40%: 227 answered
- 41-60%: 227 answered
- 61-80%: 227 answered
- 81-100%: 227 answered
1. Data presented on COVID-19-associated hospitalizations collected through COVID-NET are preliminary and may change as more data are received.
2. The discrepancy between the total number of cases identified to date on ‘Laboratory-Confirmed-COVID-19-Associated Hospitalizations (https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html) and ‘COVID-19-Associated Hospitalizations By Age’ and the number of cases with information on characteristics (including race/ethnicity) differs because the characteristics data are restricted to cases with complete chart reviews. These data will be updated each week as additional chart reviews are completed.
3. The denominator for each characteristic is the total number of patients with non-missing data for that characteristic.
4. Race/Ethnicity is classified as Non-Hispanic White, Non-Hispanic Black, Hispanic and Other. The other category contains Asian/Pacific Islander, Native American/Alaskan Native, Multi-race, and Other.
COVID-19 Laboratory-Confirmed Hospitalizations
Preliminary data as of May 09, 2020

Selected Underlying Medical Conditions

<table>
<thead>
<tr>
<th>Medical Condition</th>
<th>Pediatric</th>
<th>Adult</th>
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</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>25%</td>
<td>12.9%</td>
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<tr>
<td>Autoimmune disease</td>
<td>0%</td>
<td>2.9%</td>
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<tr>
<td>Cardiovascular disease</td>
<td>4.2%</td>
<td>35.2%</td>
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<tr>
<td>Chronic lung disease</td>
<td>0%</td>
<td>21.9%</td>
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<tr>
<td>Gastrointestinal/liver disease</td>
<td>4.2%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Hypertension</td>
<td>4.2%</td>
<td>58.5%</td>
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<tr>
<td>Immune suppression</td>
<td>0%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Metabolic disease</td>
<td>4.2%</td>
<td>41.8%</td>
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<tr>
<td>Neurologic disease</td>
<td>8.3%</td>
<td>22%</td>
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<tr>
<td>Obesity</td>
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<td>58.3%</td>
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<tr>
<td>Pregnancy</td>
<td></td>
<td>49.6%</td>
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<tr>
<td>Renal disease</td>
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<td>15.9%</td>
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<tr>
<td>Other disease</td>
<td></td>
<td>16.7%</td>
</tr>
<tr>
<td>No known condition</td>
<td></td>
<td>36%</td>
</tr>
</tbody>
</table>
What Pediatricians Can do to Flattening the Curve in Health Disparities Related to COVID-19?

A Framework to Approach Racial Health Inequities during the COVID 19 Pandemic

Jacqueline Douge, MD, MPH, FAAP
Section on Minority Health, Equity, and Inclusion (SOMHEI)

Rhea Boyd, MD, MPH, FAAP
Section on Minority Health, Equity, and Inclusion (SOMHEI)
One of our team member: Mom is at work and decided to isolate herself from family for their own safety!

The stuffed toys left on Miller’s bed from her son, Daniel, serve as a reminder of her family’s love.
The Importance of Emergency Care During COVID-19

The number of patients with medical conditions and life-threatening emergencies coming to emergency departments across the country has sharply declined since...