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**Effect of COVID-19 on Children**

Authors: Ebtsam S. Mahrous<sup>1</sup>, Rodaina Ahmed Mokbel<sup>2</sup>,

<sup>1,2</sup>: lecturer of Pediatric Nursing, Faculty of Nursing, Damanhour University

\*Corresponding author: [Ebtsam.salah@nur.dmu.edu.eg](mailto:Ebtsam.salah@nur.dmu.edu.eg)

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**Introduction:** COVID-19 should not target children in the first place, but they are at great risk of being among the biggest casualties of the pandemic. While the direct health effects of COVID-19 have luckily not affected them-at least until now-the crisis has a profound impact on their well-being. In particular, all children, of all ages and in all countries, are impacted by socio-economic impacts and, in some cases, by mitigation measures which, on the other hand, may do more harm than good. This is a universal epidemic, and the effect will last forever for certain children. In addition, there would be no fair distribution of the negative effects of this pandemic. Children in the poorest countries and those already in deprived or vulnerable circumstances are supposed to be the most detrimental to them. This is an unprecedented epidemic and poses unprecedented threats to children's rights, protection and growth around the world. Only unparalleled international solidarity with children and humanity can reduce these threats.

**Keywords:** Children, Covid-19, Pandemic.

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**Incidence of COVID-19 in Children**

In February 2020, World Health Organization (WHO) designated the disease as coronavirus disease 2019 (COVID-19) and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as the causative agent.<sup>1</sup> Virus transmission was recorded worldwide a few weeks later and was declared as a pandemic by WHO on March 11, 2020.<sup>2</sup> Egypt was included in the global distribution, and the first case was reported in Egypt on 14 February 2020.<sup>3</sup> On May 1, 2020, the total number of confirmed cases was 5895, with a fatality rate of 6.9 percent. Like other age groups, children were affected, but the overall incidence was less than 10 percent. Reported cases were 11 percent of the total confirmed cases among health care workers.<sup>4</sup>

**Infections and Transmission among Children**

It is not obvious whether children are as vulnerable relative to adults to COVID-19 infection and whether or not they can spread the virus as effectively as adults. Recent evidence indicates that children have the same or higher viral loads in

their nasopharynx relative to adults<sup>5</sup> and that children in households and camp settings will transmit the virus strongly.<sup>6,7</sup>

In community-based viral transmission, children can play a major role. Accessible evidence shows that children may have more involvement in the upper respiratory tract (including nasopharyngeal carriage) rather than lower involvement in the respiratory tract. There is also evidence of bacterial shedding in the stool for several weeks after diagnosis,<sup>8</sup> leading to alarm about fecal-oral transmission of the virus, especially for infants and children not trained in the toilet, and viral replication in the gastrointestinal tract.<sup>9</sup> Sustained shedding in nasal secretions and stool has important consequences for community spread in child care centers.

**Symptoms and Severity of COVID-19 in Children**

**Clinical Presentation:** For both children and adults, the incubation period of COVID-19 tends to be equal, at 2-14 days, with an average of 6 days.<sup>10</sup> Preliminary data centered on

extreme respiratory symptoms observed mainly in adults, with minimal initial data on the burden of COVID-19 in infants, such as fever, exhaustion, headache, myalgia, cough, nasal congestion or rhinorrhea, as well as loss of taste or odor, sore throat, shortness of breath or difficulty breathing, Abdominal pain, diarrhea, vomiting or nausea, and reduced appetite or poor nutrition. Children infected with COVID-19 may have all or all of these non-specific symptoms (such as upper respiratory symptoms only or gastrointestinal symptoms only), or may have asymptomatic symptoms. The most common symptoms in children are cough and/or fever.<sup>11-15</sup>

A recent virological study indicated that 16 percent of children with COVID-19 had asymptomatic infection, and this figure almost certainly underscores the true rate of asymptomatic infection since it is doubtful that many asymptomatic children would be tested<sup>16</sup>, although evidence indicates that about 45 percent of pediatric cases are asymptomatic.<sup>17</sup> The signs and symptoms of COVID-19 children are equivalent to other infectious and non-infectious systems, including flu, streptococcal pharyngitis, and allergic rhinitis. Preschool-aged children and infants were more likely to have serious clinical manifestations than older children.<sup>17</sup>

### Severity of Illness in Children

Although COVID-19 children are less likely than older adults to become severely ill, there are subpopulations of children with an increased risk for more significant illness and complications from the virus. Recent COVID-19 hospitalization surveillance data revealed that the rate of hospitalization among children is low (8.0 per 100,000 population) relative to that of adults (164 per 100,000 population), but children's hospitalization rates are rising when Cases are deemed to be severe and critically ill if any of the following are present as O<sub>2</sub> saturation ≤ 92 percent or Pa O<sub>2</sub>/FiO<sub>2</sub> < 200 despite raising O<sub>2</sub> therapy to a maximum of 6 L/min, O<sub>2</sub> saturation ≤ 90 percent or Pa O<sub>2</sub>/FiO<sub>2</sub> < 300 in room air, If the patient is in septic shock or confused or hemodynamically unstable despite fluid resuscitation, If respiratory manifestations are associated with other organ failures, Chest radiography > 50% lesion or progressive lesion within 24–48 h<sup>18</sup> While children have lower rates of mechanical ventilation and death than adults, one in three children hospitalized with COVID-19 was admitted to the intensive care unit in the United States, which is the same as in adults.<sup>19</sup>

One viral surveillance analysis in PICU in China confirmed that coronavirus has been found in more children with acute respiratory distress syndrome.<sup>10, 11, 14</sup> Among all the children who have developed severe illness from COVID-19, most have had underlying medical conditions.<sup>19</sup>

### High risk children

Any child having chronic illness, such as diabetes, kidney disease, dialysis, mild to extreme asthma, severe heart disease, liver disease, and severe obesity (BMI > 40), Also Immunocompromising conditions such as active malignancy, treatment of cancer, transplantation of bone marrow or organs, poorly controlled HIV or AIDS, and excessive use of corticosteroids and Some medications that are immunosuppressive.<sup>18</sup>

### Testing, Isolation, and Quarantine for School-Aged Children

As children return to school and other in-person activities, pediatric healthcare providers should be equipped to answer

families' questions about testing and when it is safe to return to school or be with people outside the household.<sup>20</sup>

### Management of COVID-19 in Children

The choice of the site of management either at home or in hospital depends on the clinical presentation, necessity supportive treatment, possible risk factors for serious illness, and the willingness of the patient to self-isolate at home.<sup>21, 22</sup> When admitted, a child with confirmed or suspected COVID-19 is put in a single-person room with a door closed and probably a designated bathroom. In the absence of private space, the children are housed in the same room, at least two meters between them. Every child should only be assisted by one caregiver who is provided with a surgical face mask and encouraged to stay in a room with the child at all times. Pediatric health care providers should consider the following: clinical presentation of the child, the need for supportive care, underlying medical conditions, and the willingness of caregivers to take care of the child at home.<sup>10, 23</sup>

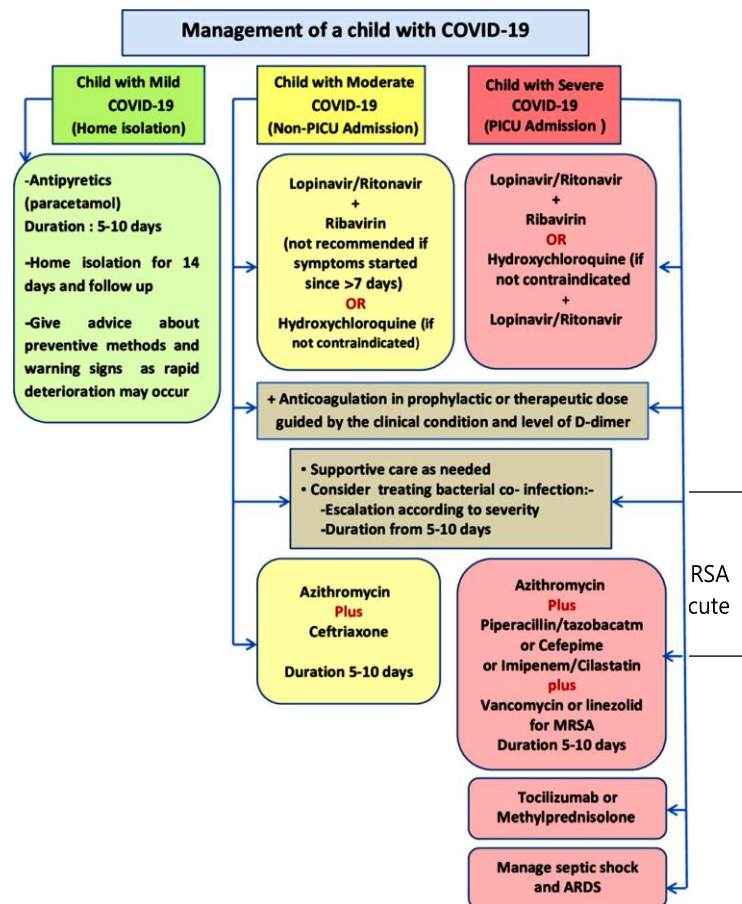
In the treatment of children afflicted with COVID-19, supportive treatment, including adequate fluid and caloric consumption and additional oxygen supplementation, should be used. The main goal is to avoid acute respiratory distress syndrome (ARDS), organ failure, and nosocomial secondary infections. Broad-spectrum antibiotics can be used if a bacterial infection is suspected figure 1.<sup>24</sup>

### Considerations for care at home include whether:

Home care is preferable if the child's situation and house condition allow and stable enough to receive care at home, availability of appropriate caregivers, presence of a separate bedroom where the patient can be isolated until recovery, open access to food and other necessities, capability of the patient and other household members of adhering to recommended precautions as part of home care or isolation.

### Immunizations and Well-Child Care

Healthcare providers and families must work hard to maintain children up to date with all recommended vaccinations, particularly influenza vaccinations for the 2020-2021 influenza seasons.[25] All neonates should visit pediatricians shortly after



hospital discharge (three to five days of age). Ideally, all neonates must visit pediatricians even during the COVID-19 pandemic, to assess feeding and weight gain, monitor for dehydration and jaundice, ensure effective confirmatory tests and follow-up were done with neonatal screening and maternal well-being was assessed. To reduce the chance of exposure to COVID-19 among healthcare staff, patients, and families, all healthcare facilities should ensure that infection prevention and control policies are enforced.

### The Impact of COVID-19 on children

UNICEF is working tirelessly all around the world to help reduce the transmission and negative effects on children, families, and populations of the COVID-19 pandemic. Primary, working to avoid the spread of COVID-19 and treat those who fall ill. Second, we are working to resolve the implications of policy responses aimed at containing the outbreak, including preserving regular health care for both children and mothers, ensuring continuity of schooling, safeguarding and shielding mothers and children from maltreatment, and improving social security to keep children and their families safe. Third, we are working to improve the pathways underpinning of the system.<sup>26</sup>

The detrimental consequences of COVID-19 and the extraordinary steps taken concerning COVID-19 on maternal and child wellbeing, contain it. Children are at risk not only of illness, but also of missing family members and parents or being isolated from them. The loss of essential preventive and curative support and materials arising from suspensions of programs and transportation networks, as well as financial restrictions, impacts mothers and children.<sup>27</sup>

A specific danger to the most vulnerable communities is limited access to hospitals, schools, social workers, water and sanitation, and the lack of child protection and greater social care is especially adverse to women and children in need of safety. The economic impact of both the pandemic prevention steps taken by governments and the likely knock-on the results of the predicted global recession are lingering over all of these concerns: 5 Many facets of family wellbeing and nutrition would be impacted by lower incomes, public and private debt, and limited access to commodities.<sup>28</sup>

Children are impacted by this epidemic in three main ways: 1- Infection with the virus itself; 2- The effects of immediate socio-economic interventions to stop the spread of the virus and put an end to the pandemic; 3- The possible long-term consequence of the delayed implementation of the Sustainable Development Goals. The effects could be divided into four parts: 1) falling into poverty; 2) learning; 3) health and survival; and 4) safety.

**Falling into poverty:** A substantial decline in economic activity across all major economies and the subsequent global recession have resulted from the physical distancing and lockdown steps required to save lives and reducing the spread of the virus.<sup>29</sup> **Learning:** There is no historical precedent for the worldwide closing of schools. Country-wide closures have been implemented by 188 nations, affecting more than 1.5 billion children and young people, and it is difficult to understand the possible losses that could result in learning for today's younger generation and the growth of their human capital. Many schools provide distance learning to their pupils to minimize these losses.<sup>30</sup>

**Survival and health:** To date, the direct effect of infection with COVID-19 on children has been much milder than for other age groups. Preliminary evidence from observed cases in

China and the US indicate that hospitalization rates are between 10 and 20 times lower for symptomatic children than for middle-aged patients and 25 and 100 times lower for hospitalized patients than for elderly patients, with children being the least likely to need critical treatment.<sup>28</sup>

**Safety:** For most children, the home is a source of protection and security. But tragically, for a minority, the reverse is the case.<sup>28</sup> The most common type of violence encountered by children is violence by caregivers. They are most frequently observers to domestic violence against women, which is believed to have risen in many nations.<sup>27</sup>

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