COVID 19 AND CHILDREN'S PLAY – *update 2 September 2020*

Summary: This update, on behalf of members of the UK Play Safety Forum, concludes as follows:

- the position on COVID, children and play has not changed significantly since the first note of 17 June 2020
- evidence on the risks posed by play deprivation is growing and should be of concern
- even without the COVID pandemic there was cause for concern over the lot of children and young people in the UK
- depending on personal circumstances, children are affected in differing degrees by COVID-19 restrictions
- despite a massive effort by the research community there are still gaps in understanding on the risks of COVID-19, many of which gaps can be expected to persist for months if not years because of the associated complexity
- risks posed by outdoor play have received little direct attention
- the risk in schools to pupils and teachers is said to be low and it can reasonably be projected that the risk of outdoor play will be much lower still
- new studies are constantly emerging, but always need to be interpreted with care, giving due weight to the existing information base
- media and social media commentary often pick up on new studies in unhelpful ways, focusing on the most alarming implications, and treating them in isolation as opposed to seeing them as additional pieces of a larger jigsaw
- safety advice has an understandable tendency to be one-sided and hence risk averse and play providers should be aware of this in deciding upon proportionate approaches aimed at providing the best outcome for children

Introduction

Information on the COVID 19 virus and its direct impact on children's health and indirect impact (physical, mental, social) via curtailment of play outdoors is accumulating as research continues. This note provides an update on an earlier information note (17 June 2020).[1] Both have been prepared at the request of members of the UK Play Safety Forum.

New research dealing with the following matters has been sought via the internet:

- the risk to children from outdoor play deprivation
- the risk to children from COVID 19
- the risk of transmission of infection to adults by children
- the transmission of COVID via outdoor surfaces

We have attempted to extract and condense pertinent findings. Each section starts with a quote (in italics) from the 17 June note which summarises the position reached at that time. Our additional comments on the new information are also added in italics.

What are the Risks to Children from Outdoor Play Deprivation?

'Experts in child development and child psychiatry agree that children are experiencing multiple harms as a consequence of play deprivation.'

[1] COVID 19 and children's play. Note for the UK Play Safety Forum, David Ball, Tim Gill and Andy Yates, 17 June 2020.

'There has been a failure to properly assess the risks of collateral damage to children and adolescents.'

A multi-author Canadian paper (published 12 August 2020)[2] describes a survey via Canadian parents (n = 1472) of children and youth regarding physical activity and play. The finding is that there has been a sharp reduction during COVID-19 restrictions in physical activity, outside time, and an increase in sedentary behaviour. Less than ~5% of children and 0.6% of youth were meeting combined movement behaviour guidelines during the restrictions.

Thus, 'Children and youth experienced a significant decline in all physical activities, except household chores. The most dramatic decline was with outdoor physical activity and sport …..' The authors contend that the unintended unhealthy behaviour consequences of COVID-19 restrictions and 'stay home' advice need to be balanced with disease prevention messaging. With attentive and responsible spatial and temporal distancing a healthy marriage of "stay home" and "get outside and play" is achievable.

The above paper adds to the evidence of the unintended consequences of lockdown summarised in the 17 June 2020 note. A question suggested by this new study is whether the lockdown will have longer term consequences for the prior ambition to get children and young people more active. The risk of longer-term psychological damage has already been highlighted in the earlier note.

It is noted that this coincides with 'The Good Childhood Report 2020' by The Children's Society[3] (28 August) which has concluded that:

- *there has been a continued decrease in average happiness with life among 10-15-year olds in the UK*
- *happiness with friends is in decline*
- *15- year olds in the UK were among the saddest and least satisfied with their lives in Europe*
- *the Coronavirus pandemic affected children's happiness due to lack of choice they had in life*

<u>What is the Risk to Children from Covid-19?</u>

'COVID-19 is unusual for an infectious disease in that the risks to the young are very small.'

An invaluable, regularly updated, evidence summary on paediatric COVID-19 literature is provided by a team of doctors led by Alison Boast, Alasdair Munro and Henry Goldstein in collaboration with the UK Royal College of Paediatrics and Child Health.[4] Based on a review of the international research literature the authors report that (updated 17 July) COVID-19 appears to affect children less often, and with less severity, including frequent asymptomatic or subclinical infection. There is evidence of critical illness, but it is extremely rare. The role of children in transmission is unclear, but consistent evidence is demonstrating a lower likelihood of acquiring infection, and lower rates of children bringing infections into households.

Boast et al. also report additional international research up to 17 August. This includes American data which provides further evidence that COVID-19 is less dangerous in children than adults, and that the prognosis is good in the vast majority. This despite this population's high prevalence of underlying serious conditions, obesity, and relative deprivation. Other papers confirm a) children have lower rates of infection and severity than adults although adolescents were more infected in the paediatric

[2] Moore et al. International Journal of Behavioural Nutrition and Physical Activity (2020) 17:85 https://doi.org/10.1186/s12966-020-00987-8

[3] https://www.childrenssociety.org.uk/good-childhood-report-2020

[4] http://doi.org/10.31440/DFTB.24063

population (Italy), b) a study from S. Korea provides some evidence that children with COVID-19 are less infectious than adults, c) a Chinese review of international papers concludes that "Children are at a lower risk of developing COVID-19 and likely have a milder disease compared with adults. However, the evidence presented in this study is not satisfactory. Further investigations are urgently needed, and our data will be continuously updated."

A paper by Ladhani et al.[5] published on 12 August looked at the impact on children of the first pandemic peak in England. Children accounted for a very small proportion of confirmed cases despite the large numbers of children tested. SARS-CoV-2 (the strain of coronavirus that causes COVID-19) positivity was low even in children with ARI (acute respiratory infection). The findings provide further evidence against the role of children in infection and transmission of SARS-CoV-2.

Semple et al.[6] (28 Aug) report on the clinical features of UK children and young people (<19 years) admitted to hospital with COVID-19. They report that cases are less severe than in adults. Admission to critical care was associated with age under one month, age 10-14 years, and black ethnicity.

Overall, the new information does not detract from the 17 June 2020 information note. However, none of the above research was actually about children in outdoor play spaces and an extrapolation has to be made based on the reasonable presumption that infection is less likely in the open air because of dilution and more rapid destruction of the virus.

This message, about the low risk to children, was reaffirmed by Professor Whitty – 'children are "much less commonly" needing hospital treatment or becoming severely ill with coronavirus than adults,' no doubt drawing on ONS data which records 10 deaths (March to June) as due to COVID-19 among those aged 19 and under compared with 46,725 among those of 19+ years.

It is of course highly likely that the risk from playing out-of-doors will be substantially lower than the risk indoors. As was concluded in the 17 June note:

'The risk of COVID infection is much lower outdoors than indoors.'

<u>What is the Risk of Transmission to Adults?</u>

'Current evidence is that adults are more likely to be infected by other adults than by children.'

With respect to transmission to adults, Boast et al. conclude based on evidence to 17 July that: "The role of children in passing the disease to others is unknown, in particular given unknown numbers of asymptomatic cases. Notably, the China/WHO joint commission could not recall episodes during contact tracing where transmission occurred from a child to an adult. Studies of multiple family clusters have revealed children were unlikely to be the index case, in Guangzhou, China, Israel, the USA, Switzerland and internationally. Limited data on positive cases in schools have not demonstrated significant transmission, except within adolescent populations. Studies of younger children in schools have found low rates of transmission, but with very low case numbers."

A study by Public Health England (published 23 August) of COVID infections in schools since June provides some insight into pupil to pupil, pupil to staff, staff to pupil and staff to staff transmission.[7]

[5] https://adc.bmj.com/content/early/2020/07/28/archdischild-2020-320042
[6] BMJ 2020; 370 doi: https://doi.org/10.1136/bmj.m3249 (Published 27 August 2020)
[7] https://www.gov.uk/government/publications/sars-cov-2-infection-and-transmission-in-educational-settings

Of 67 single confirmed cases, there were 4 co-primary cases[8] and 30 COVID-19 outbreaks[9] during June 2020. The authors noted a strong correlation between number of outbreaks and regional COVID-19 incidence suggesting infection is originating in the community. Overall, SARS-CoV-2 infections and outbreaks were uncommon across all educational settings. Staff members had an increased risk of SARS-CoV-2 infections compared to students in any educational setting, and the majority of cases linked to outbreaks were in staff. The probable transmission direction for the 30 confirmed outbreaks was: staff-to-staff (n=15), staff-to-student (n=7), student-to-staff (n=6) and student-to-student (n=2).

Determining the risk of transmission from children and young people to adults is a very difficult scientific activity and is unlikely to be definitively answered in the short-term. The evidence is that while a risk inevitably exists it is small.

What is the Risk of Transmission via Contact with Outdoor Surfaces?

'Definitive answers are currently unavailable. The evidence is that COVID-19 may survive for up to several days indoors. In contrast, recent research reports that exposure to sunlight in the outdoors rapidly inactivates the virus. Survival of the virus on a surface does not necessarily mean it is able to infect as readily as when airborne.'

There is indisputable evidence that SARS-CoV-2 can survive on surfaces and thus potentially infect persons touching those surfaces. Research has found surface survival times of up to several days particularly in the presence of proteins[10] (airway secretions can provide a protein-rich medium) on plastics and metals.

However, the World Health Organisation (WHO) reports (9 July)[11] that despite consistent evidence as to SARS-CoV-2 contamination of surfaces and the survival of the virus on certain surfaces, there are no specific reports which have directly demonstrated fomite (objects or materials able to carry infection) transmission. People who come into contact with potentially infectious surfaces often also have close contact with the infectious person, making the distinction between respiratory droplet and fomite transmission difficult to discern. Nonetheless, WHO consider that fomite transmission is considered a likely mode of transmission for SARS-CoV-2, given consistent findings about environmental contamination in the vicinity of infected cases and the fact that other coronaviruses and respiratory viruses can transmit this way.

The RIVM (Dutch National Institute for Public Health and the Environment) has concluded (22 July) as follows: "It also seems unlikely that the novel coronavirus is spread via parcels or surfaces (such as a door or shopping cart). Although it has been demonstrated in the laboratory that this is possible, that experiment was done under ideal conditions that will rarely occur in actual practice. The most important thing is: minimise your risk and wash your hands regularly."[12]

The US Centres for Disease Control and Prevention (CDC) reports (10 July) that, in the context of household cleaning and disinfection: "On the other hand, transmission of novel coronavirus to persons from surfaces contaminated with the virus has not been documented**.** Recent studies indicate that people who are infected but do not have symptoms likely also play a role in the spread of COVID-19.

[8] Co-primary cases were defined as ≥2 confirmed cases with a common epidemiological link who were diagnosed at the same time.
[9] An outbreak was defined as ≥2 epidemiologically linked cases.
[10] https://wwwnc.cdc.gov/eid/article/26/9/20-1788_article
[11] https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions
[12] https://www.rivm.nl/en/novel-coronavirus-covid-19/spread

Transmission of coronavirus occurs much more commonly through respiratory droplets than through objects and surfaces, like doorknobs, countertops, keyboards, toys, etc. Current evidence suggests that SARS-CoV-2 may remain viable for hours to days on surfaces made from a variety of materials."[13]

K. D. Young, reporting in Emergency Medicine News (30 April),[14] summarises research on infection by fomite transmission, concluding that "There are few to no clear cases of COVID-19 fomite transmission found in the literature. A workplace investigation found the only contact between the transmitter and recipient of the virus to be when, while sitting back to back in a canteen, one turned around to the other and asked for the salt. …. Likewise, an investigation into the case of a woman in Charlotte, NC, who had left her house only once in three weeks to go to the pharmacy concluded that she was infected by touching the pharmacy keypad. On the other hand, an article about a case cluster from a carnival party in Germany stated, "In Heinsberg, his team of coronavirus detectives could find scant evidence of the virus being transmitted via the surfaces of door handles, smart phones or other objects." It may be difficult to answer this one. It is hard to say whether the virus was passed via a salt-shaker fomite or respiratory droplets despite sitting back to back except for a brief period."

Young also reports the results of two surface stability studies: "The COVID-19 virus persists longer on hard surfaces such as plastic and steel compared with soft surfaces such as cardboard." He adds, however, that "These durations represent experimental conditions and may not represent the actual ability to become infected from touching a contaminated surface. Although decontamination of objects brought in from outside the home is still recommended, the risk of fomite transmission from mail, packages, takeout delivery, and grocery bags is thought to be minimal."

Finally, Young cites unpublished data from the US Department of Homeland Security Science and Technology Directorate from a recent White House briefing which suggests that the coronavirus is inactivated on surfaces in full direct midday sunlight in three minutes and in aerosols in full direct sunlight in 10 minutes, and further that the half-life reported on surfaces in full-intensity sunlight is as short as two minutes. It was apparently concluded that outdoor daytime environments are at lower risk for transmission.

The working hypothesis which follows from this is that while fomite transmission can occur it is hard to detect and likely very rare in comparison with droplet or aerosol transmission. The question remains about the actual level of risk posed by surface transmission in outdoor playgrounds. Professor Emanuel Goldman has written in The Lancet (3 July)[15] that the studies on persistence bear little resemblance to actual conditions, being made under laboratory conditions using abnormally high doses. This is in accord with Young's review above. He goes on to say "In my opinion, the chance of transmission through inanimate surfaces is very small, and only in instances where an infected person coughs or sneezes on the surface, and someone else touches that surface soon after the cough or sneeze (within 1–2 h). I do not disagree with erring on the side of caution, but this can go to extremes not justified by the data. Although periodically disinfecting surfaces and use of gloves are reasonable precautions especially in hospitals, I believe that fomites that have not been in contact with an infected carrier for many hours do not pose a measurable risk of transmission in non-hospital settings. A more balanced perspective is needed to curb excesses that become counterproductive."

In our opinion Goldman's assessment is reasonable based on the current state of knowledge.

Written for PSF by David Ball, Tim Gill, and Laurence Ball (2 September 2020)

[13] https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html
[14] https://journals.lww.com/em-news/blog/BreakingNews/pages/post.aspx?PostID=528
[15] https://www.thelancet.com/pdfs/journals/laninf/PIIS1473-3099(20)30561-2.pdf