

Evidence Submission to the Welsh Parliament Children and Young People Education Committee November 30th 2020

RE: Children and schools need proper research to understand their role in, infection and transmission of Covid-19, to safeguard the human rights of children and their school communities

Introduction and background

In July 2020 as a team aligned to the Children and Young Adults' Research Unit at the Children's Hospital for Wales¹ we designed a research protocol which aims to create an evidence base in the Welsh context on the role that children play in transmitting the virus to others and the antibody prevalence of school aged children. We tried to secure funding from a UK-based charity but at the end of September they responded that they believed the study should be funded at a national government level.

We wrote to our colleagues at the Welsh Paediatric Society to seek advice and support regarding their own emerging evidence in the field and how we may progress this. We also wrote to the Ministers for Health and Education on October 8th asking for help to identify or provide a clear funding source to undertake a Wales-wide Covid-19 study with Welsh school aged children and their teachers.

The Ministers referred us to Health Care Research Wales who instructed us to apply for a grant to undertake the research and to speak with the Head of Programmes to discuss the project and funding options in full. However the grant application process will not respond quickly enough to the demands of the pandemic. At the end of October we contacted our research colleagues in England, who said they were also trying to secure funding to undertake similar research.²

We believe that research into children's and the school's role in rates of infection, and transmission of the Covid 19 virus should have been prioritised as soon as schools fully reopened. Additionally, it has been incredibly challenging to access Children's Rights Impact Assessments on decision making concerning the opening schools.

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² This project is called "Transmission of COVID in Schools" (TOCS) the chief investigators are Saul Faust and Paul Dimitri. This study is held up by the validation of a saliva based assay for COVID infection. Personal Communication with Professor Paul Dimitri November 6th 2020

The evidence

When the decision was made to open schools in Wales in June, there was inconclusive evidence on the role that children and indeed schools play in rates of infection and transmission of the Covid-19 virus. This was agreed by the *Welsh Government Technical Advisory Group on Education* on June 3rd which stated that,

*“The degree to which children and young people are infected by and transmit the SARS-Cov -2 virus is unclear”.*³

And the Technical Advisory Group on July 7th stated that,

*“There remains some on-going uncertainty in transmissibility of the disease by children”.*⁴

In a systematic review of the evidence by Viner et al published in the *Journal of JAMA Paediatrics* on September 25th, they concluded children and adolescents have lower susceptibility to SARS-CoV-2, with an odds ratio of 0.56 for being an infected contact compared with adults.⁵ However this review was completed between May 16th and July 28th 2020 when the majority of children globally were not in school. It also concurred with the WG Technical Advisory Group that there was still weak evidence that children and adolescents play a lesser role than adults in transmission of SARS-CoV-2 at a population level.

The majority of countries closed schools early in the pandemic, leaving little opportunity to study how the virus spreads in schools and back into the community. The research that had been conducted focused either at household level or research in schools had been conducted shortly after national lockdowns in several countries, when infection rates in the community were better under control.

Researchers from the *University of Massachusetts* warned in August that because children are so often asymptomatic they could be spreading the infection at school and bringing it home unknown. As Professor Alessio Fasano explains during the Covid-19 pandemic, we have mainly screened symptomatic subjects, so we have reached the erroneous conclusion the vast majority of people infected are adults.⁶ Their study published in the *Journal of Pediatrics* on August 20th, studied 192 at-risk youngsters up to the age of 22 who were tested for Covid-19. More than a quarter (49) tested positive for SARS-CoV-2 but only half had any of the viral

³ Welsh Government June 3rd, Technical Advisory Cell Our latest understanding of COVID-19 with respect to children and education, <https://gov.wales/sites/default/files/publications/2020-06/our-latest-understanding-of-covid-19-%20re>

⁴ Welsh Government July 7th 2020, Technical Advisory Cell Our latest understanding of COVID-19 with respect to children and education, https://gov.wales/sites/default/files/publications/2020-07/technical-advisory-group-advice-from-children-and-education-subgroup_1.pdf

⁵Viner RM, Mytton OT, Bonell C, et al. Susceptibility to SARS-CoV-2 Infection Among Children and Adolescents Compared With Adults: A Systematic Review and Meta-analysis. *JAMA Pediatr*. Published online September 25, 2020. doi:10.1001/jamapediatrics.2020.4573

⁶Lael M. Yonker, MD , Anne M. Neilan, MD, Yannic Bartsch, PhD, Galit Alter, PhD, Jonathan Z. Li, MD, MMSc, Alessio Fasano, MD, Pediatric SARS-CoV-2: Clinical Presentation, Infectivity, and Immune Responses Published: August 19, 2020 [https://www.jpeds.com/article/S0022-3476\(20\)31023-4/fulltext](https://www.jpeds.com/article/S0022-3476(20)31023-4/fulltext)

classic symptoms. This study revealed that children may be a potential source of contagion in the SARS-CoV-2 pandemic in spite of milder disease or lack of symptoms, and immune dysregulation is implicated in severe post-infectious MIS-C.⁷ A report carried out by the *US Centers for Disease Control and Prevention (CDC)* into an outbreak at a summer camp in Georgia indicated that children, even asymptomatic cases, may play an important role in transmission. The children were aged 6-19 years and after testing 344 attendees, 260 were positive.⁸ Boast et al reported from serologic screening conducted globally that approximately 50% of children may be asymptomatic, with only 10-15% exhibiting symptoms.⁹

The Public Health England (PHE) SKIDS research in school settings was carried out at the end of lockdown when infection rates were better under control and during a period when children were still expected to socially distance in small class bubbles. It reported that there were 121 cases that were linked to outbreaks – 30 in children and 91 in staff. More than one million children attended school during the June to July period of the study and no children were admitted to hospital and only one staff member. The report said there was a strong correlation between levels of community infection and the number of outbreaks in education settings. Dr Shamez Ladhani however made it clear,

*“But you have to understand that these were circumstances where we had just come out of lockdown and there were very small school numbers that were open at the time with very small classes”.*¹⁰

A study by Panovska-Griffiths et al in August reported that reopening schools even if done so partially will lead to a second wave of infections, unless testing is increased significantly.¹¹ We were informed by PHE in August that they had not been funded to continue their research with the reopening of schools in September when mitigating circumstances in schools were different (i.e. no social distancing in primary schools, large class sizes, higher community infection rates, and winter pressures) and as scientists correctly anticipated we have now entered a second wave of the pandemic. An article in the *Lancet* August 3rd,

*“we urgently need large-scale research programmes to carefully monitor the impact of schools reopening as Public Health Skids study aims to do”.*¹²

The *European Centre for Disease Prevention and Control* August 6th publication concluded that we still do not have a comprehensive evidence base regarding how infectious asymptomatic children are and outbreaks in schools may be difficult to detect due to the

⁷Lael M. Yonker, MD, Anne M. Neilan, MD, Yannic Bartsch, PhD, Galit Alter, PhD, Jonathan Z. Li, MD, MMSc, Alessio Fasano, MD, Pediatric SARS-CoV-2: Clinical Presentation, Infectivity, and Immune Responses Published: August 19, 2020 [https://www.jpeds.com/article/S0022-3476\(20\)31023-4/fulltext](https://www.jpeds.com/article/S0022-3476(20)31023-4/fulltext)

⁸Reference: *Centers for Disease Control and Prevention, Morbidity Weekly Report (MMWR), SARS –CoV-2 Transmission and Children, Weekly/August 7 2020/ 69 (31); 1023-1025*

⁹Boast A, Munro A, Goldstein, H. An evidence summary of Paediatric Covid 19 literature. Don't forget the Bubbles. 2020.

¹⁰ Guardian News Article August 23rd 2020, Covid outbreaks in English schools uncommon says PHE.

¹¹Panovska-Griffiths J, Kerr CC, Stuart et al, *Determining the optimal strategy for reopening schools, the impact of test and trace interventions, and the risk of occurrence of a second wave of Covid 19 epidemic*, *Lancet Child Adolescent Health* 2020, August 3.

¹²Edmunds W J, Finding a path to reopen schools during the Covid 19 pandemic, *Lancet* August 03, 2020

relative lack of symptoms in children.¹³ The European research recommends that more specialised studies need to be performed with the focus on children to better understand infection and antibody dynamics.¹⁴ They also stated there is conflicting published evidence on the impact of school closure/reopening on community transmission levels, which also necessitates further research. This lack of an evidence base was confirmed by Boast et al on September 4th, who stated, “the role of children in passing the disease to others is unknown, in particular given the unknown number of asymptomatic cases”.¹⁵

As soon as schools opened in Scotland and England many children were forced to self-isolate with Covid-19 positive cases reported in children and teachers. We began monitoring the number of schools affected by Covid-19 cases in Wales and we became aware of hundreds (to date thousands) of children being forced to self-isolate.¹⁶

We started to learn that there needs to be continued support for families regarding guidance on how to manage children with symptoms and what a positive result means for the child and the schools. Guidance around temperature monitoring was suggesting 37.8 degree Celsius is high but this would lead to nearly every child being tested for COVID-19 by the end of winter resulting in over burdening the system. Additionally the Rapid 19 study we were a part of found that children were more likely to show gastro symptoms but none of the testing criteria was changed based on this evidence.¹⁷ We also recognised the need to link back the numbers of positive cases to the numbers of Welsh children being admitted with suspected PIMS-TS. By having a better understanding of the transmission rates amongst children and young people we knew that we would be better able to understand PIMS-TS prevalence.¹⁸

All of the above we reported to Ministers for Health and Social Services and Education on the 8th October 2020.

¹³ European Centre for Disease Prevention and Control, *Covid 19 and the role of school settings in Covid 19 transmission*, 6th of August 2020 <file:///C:/Users/Dell/Downloads/COVID-19-schools-transmission-August%202020.pdf>

¹⁴ A recent systematic review presenting data on 2 914 paediatric patients with COVID-19 from China, Spain, Iran, the Republic of Korea and the United States identified 14.9% asymptomatic cases in children. Patel NA. *Pediatric COVID-19: Systematic review of the literature*. *American Journal of Otolaryngology*. 2020;41(5):102573

¹⁵ Boast A, Munro A, Goldstein, H. An evidence summary of Paediatric Covid 19 literature. Don't forget the Bubbles. 2020.

¹⁶ More than 2, 000 cases of coronavirus have been reported in 695 maintained schools across Wales since term began in September. These are of course only the cases where individuals sought tests because of coronavirus symptoms. This does not account for all the asymptomatic individuals.

¹⁷ Thomas Waterfield, Chris Watson, Rebecca Moore, Kathryn Ferris, Claire Tonry, Alison P Watt, Claire McGinn, Steven Foster, Jennifer Evans, MarkD Lyttle, Shazaad Ahmad, Shamez Ladhani, Michael Corr, Lisa McFetridge, Hannah Mitchell, Kevin Brown, Gayatri Amirthalingam, JulieAnn Maney, Sharon Christie *Seroprevalence of SARS-CoV-2 antibodies in children - A prospective multicentre cohort study*. <https://www.medrxiv.org/content/10.1101/2020.08.31.20183095v1>

¹⁸ Patrick Davies, Claire Evans, Hari Krishnan Kanthimathinathan, Jon Lillie, Joseph Brierley, Gareth Waters, Mae Johnson, Benedict Griffiths, Pascale du Pré, Zoha Mohammad, Akash Deep, Stephen Playfor, Davinder Singh, David Inwald, Michelle Jardine, Oliver Ross, Nayan Shetty, Mark Worrall, Ruchi Sinha, AshwaniKoul, Elizabeth Whittaker, Harish Vyas, Barnaby R Scholefield*, Padmanabhan Ramnarayan, *Intensive care admissions of children with paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS) in the UK: a multicentre observational study*, *Lancet Child Adolesc Health* 2020; 4: 669–77

According to recent data from the ONS infection study, which randomly samples the population each week, infection rates were highest in older teens and young adults, while the rate of infection among younger children was no different to adults.¹⁹ This indicates quite clearly that children of all ages can and do contract the virus and can infect others.

On November 9th, we were pleased to see an evidence review from the *Welsh Government Technical Advisory Group on Education (TAG)*. This report referred to the ONS evidence that children were picking up and transmitting Covid 19 at far higher levels than they first envisaged particularly those in the 11 to 17 age group and the REACT study that also confirmed that rates in school students are consistently seen to reflect rates in the general population.²⁰ The TAG's review also indicated that although children were far more likely to be asymptomatic and not become seriously unwell, they were more likely to be the first positive or index case to any household,

“There is now evidence of higher levels of infection and transmission in school-based age groups than previously recognised, a higher rate of asymptomatic transmission; and children are more likely to be the first case in a household. This new evidence indicates that schools being open is associated with higher rates of infection in the population, although the mechanisms for this remains unclear”²¹

This is in direct contrast to the early evidence in contact household tracing studies that suggested that children were least likely to be the index case.²² It also agrees with the concerns we had identified in the summer regarding children's role in asymptomatic transmission when we tried to secure funding for a Wales wide study and with the evidence we submitted to Ministers regarding children's role in infection and transmission. We are also pleased that there is further consideration given to measures to minimise transmission in schools. However as the TAG group indicate the mechanisms for higher rates of infection still remain unclear and there still remains unanswered questions regarding children and the school's role in transmission and infection.

¹⁹ONS Infection Control Study

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveys/pilot/6november2020#age-analysis-of-the-number-of-people-in-england-who-had-covid-19>

²⁰ Riley et al https://www.imperial.ac.uk/media/imperial-college/institute-of-global-healthinnovation/REACT1_Round5_Paper.pdf

²¹ Technical advisory Group Children and Education, Evidence review on Children and Young People Under 18 in Preschool, School or College following the Firebreak – 09/11/2020 Evidence review on Children and Young People Under 18 in Preschool, School or College following the Firebreak – 09/11/2020, <https://gov.wales/sites/default/files/publications/2020-11/technical-advisory-group-evidence-review-on-children-and-young-people-under-18-in-preschool-school-or-college-following-the-firebreak.pdf>

²² RCPCH Evidence summary 30 June 2020 <https://www.rcpch.ac.uk/resources/covid-19-researchevidence-summaries#transmission>

Conclusion

There have been no school based studies in Wales to date and it is our recommendation that there should be urgent and ongoing research regarding children's incidence and prevalence of infection, their symptoms and their role in transmission of COVID-19 to the community. We continue to **urgently recommend that Welsh Government lead with partners a Wales wide study with Welsh school aged children, teachers and their households**. The TAG November 9th report also recommended that there should be additional data analysis and research should be commissioned, of specific school age cohorts to address key identified unanswered questions relating to the balance between infection control and effective education for school and FE students under 18.²³

We also support the TAG's recommendation **to urgently consider the feasibility of mass asymptomatic testing programmes in schools to enhance infection control**. This should be done within a research context and we believe this will contribute to protecting the health and well-being of pupils, students, teachers, parents, grandparents and other caregivers.²⁴

It is essential that there is an **evidence base that fully justifies Welsh Government Ministers' decision to open or close schools** and one that seeks to promote the full range of children's rights to education, survival and development and the highest attainable standard of health²⁵ and also protects the human right to life of everyone who is interconnected with school communities.²⁶

We also need to start a new national discussion, as Professor Lawrence Gostin, commented just last week,

“the biggest gap in our Covid 19 vaccine plans is children. Children are not represented in clinical trials..... this puts at risk not only safer school openings, but also our herd immunity strategy”.

This is further complicated by the emergence of a multisystem inflammatory syndrome in children and adolescents and whilst the links between PIMS-TS and COVID 19 are still unknown further investigations are needed urgently to inform strategies for vaccine development for them.

²³ Ibid, pt.36

²⁴ Ibid, pt.32

²⁵ Rights of Children and Young Persons (Wales) Measure, Articles 28, 6, 24

²⁶ Human Rights Act 1998, Article 2