**TraCK- Transmission of COVID-19 in Kids.**

**A collaborative study between Imperial College London and Public Health England**

**Study team**

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**Previous work on Transmission of Infections in school children**

Over the last 3 years, Imperial College and PHE have collaborated in a study to track transmission of Scarlet Fever between children in nurseries and schools. The study has ethical approval and was funded by Action Medical Research. Using daily throat swabs of cases and weekly swabs of classroom and household contacts, the study showed rapid transmission of an identical strain of Strep A among healthy children in the same class. Some of the healthy children had Strep A in their throat, hands, and in exhaled air for several weeks; the strain was identical to the strain in the other children, so proving this to be a chain of transmission. We found that airborne spread was a major potential mechanism of transmission while contact with surfaces seemed to be less important, providing some important messages about how to prevent scarlet fever and strep A outbreaks in future. In doing the scarlet fever study, we have learned a lot about how to research transmission of respiratory infections in schools effectively. We now want to use the same approaches to study COVID-19 in schoolchildren.

**Aims of TraCK- Transmission of COVID-19 in Kids**

Retrospective studies have shown that children are unlikely to suffer symptoms of COVID-19, and that children are rarely the source of outbreaks or onward transmission. TraCK will attempt to rigorously check this is the case and provide answers to the following questions.

1. How quickly and efficiently can COVID-19 be transmitted between school children, if at all?
2. How long do children who are infected ‘carry’ viable (infectious) virus?
3. Do children transmit the virus to household contacts or school staff– or vice versa?
4. Does the classroom become contaminated, and is the virus found in the air of a classroom?
5. If children can transmit COVID-19, what is the mode of transmission? For example, is it by contact or airborne?

Answers to these questions will provide much needed information for modelling and public health guidance.

**Why is it important?** If the virus is not readily transmitted, by proactively seeking asymptomatic infection/carriage in healthy children and school staff who are exposed to a case, this study will be able to provide a high level of reassurance. On the other hand, if the infection is transmitted in a manner similar to strep throat, as outlined above, we may be missing a pool of infection that is of considerable public health importance.

**How will the study work?**

The study will be triggered if a single case of COVID-19 in a child or adult is notified in any school in the London area; notification means that Public Health England (PHE) know about the case. When this happens, a specialist from PHE will contact the Headteacher to provide advice in a confidential way, and will ask if their school is interested in taking part in the TraCK study. The school will anyway follow PHE advice at this stage and the affected child’s class (or contact group) will be asked to self-isolate for 2 weeks.

If the school is interested, we will ask them to send out our invitation leaflets to parents/guardians of all children in the same class, as well as parents/guardians of children in 2-3 other class groups in the school who aren’t sent home. The leaflets have an explanation of the study and a consent form attached; there are also leaflets for children aged under 8 and over 8 so that they understand that the study is happening and have a chance to agree or not. This can be done by email to reduce the need for paper copies.

The next day, all children who have consented, will have a combined nose and throat swab, a hand swab, and a saliva sample taken (this includes those isolating at home). This will be taken by a nurse or public health specialist who will visit the school at a time convenient to the school, or at home; they will wear PPE for this. The same samples will then be taken once a week for three more weeks (4 visits in all). We will also invite staff to participate. These samples will tell us if any virus has been transmitted to anyone else in these classes. People will be told their swab results; if they are positive, they will need to self-isolate. In order to find out if there is virus present in the school environment, we will take samples from commonly touched surfaces like door handles, and also air samples from some the classrooms and washrooms, chosen with the input and advice from the headteacher. We will do this in a way that does not disrupt school life too much.

If the notified case in the school is a child, we will also ask the child who has had coronavirus detected to participate. If consent is obtained from their parents/guardian, the child who is the ‘case’ will be swabbed on alternate days for one week, and then weekly thereafter; we will also collect stool samples where available. This will tell us how long a child might be infectious for, because we will test any positive samples for infectious (live) virus. In order to find out how a child might transmit virus we will take environmental samples from around the child’s home, and also air samples from different distances from the child. We might ask the child to shout or sing, to see if that affects the amount of virus in the air.

To find out if a child can transmit to their family and other household members, we will invite their household to take part as well. We will take weekly samples from adults and children, as we plan to do for classroom contacts. Swabbing of children at school and at home has been carefully rehearsed over the last 3 years in our scarlet fever studies.

**Practical challenges to carrying out the study**

* Timeliness.The study needs to be activated promptly when a case arises; the virus can disappear rapidly in affected individuals and the environment. We will therefore ask schools and families to decide if they want to take part as quickly as possible.
* School visits: We understand that studies like this cause extra work for schools: through the support of the NIHR we will be able to provide some study support costs to schools that join the study and provide outreach material for the children to access.
* Household visits. Because a single case of suspected COVID-19 arising in one class will result in isolation of the rest of their pod, we will have to visit children in their homes, with parental consent.
* Swab results – if the result is positive, this has an impact on the child, their household, and their school. Results of throat and nose swabs will therefore be fed back in a timely manner.

**Safeguarding** All contact with children will be undertaken by qualified healthcare professionals who can work with children. This will usually be a nurse or doctor. All healthcare professionals undertake safeguarding training. They may be accompanied by a technician assistant; all staff have undergone enhanced DBS checks.

**Confidentiality**. All confidential information related to study participants will be kept by PHE and the NHS lab processing samples. Confidential information will not be shared with Imperial College who will analyse the viral samples and data. Samples will all be coded .

**Ethics** The study has full ethical approval from the Health Research Authority (HRA)

**Funding** The study has been peer-reviewed and is funded by the DHSC/UKRI .