Appendix: goals and implementation.

Table 3: Goals for infection control in New Zealand schools and potential projects to support effective implementation.

Goals	Implementation	Comments
Air quality in classrooms is excellent at all times	Roll out community trials of what works in the New Zealand setting, enabling the education system to monitor and sustain good indoor air quality while maintaining thermal comfort in different building types, seasons and climate areas. Establish policies. Other jurisdictions (e.g., France) have legislation to ensure appropriate ventilation standards in schools;[66] New Zealand could liaise with policy and implementation counterparts to adapt for the New Zealand context. Carry out an evaluation targeting insights into barriers and enablers for schools and teachers implementing policies and guidelines for air quality (and other mitigations including infection control and masking) effectively, consistently and equitably. Develop a public health-led tailored education package for schools around ventilation and how it works, aimed at a wide audience including whānau, students and providers who go into schools (e.g., public health nurses, community organisations, Hauora Māori providers) so that they can also become advocates. Develop a plan that includes short- to medium-term measures (e.g., portable air filtration units) that transition over time to a sustainable future of longer-term, structural changes to deliver a high standard of indoor air quality.	Optimising ventilation was shown to achieve a substantial reduction in COVID-19 cases in school settings in Italy.[67] Portable air filtration units are shown to reduce airborne SARS-CoV-2 virus.[68] A high standard of air quality protects against a large number of infectious diseases and air pollution, enables cognitive function and better learning, and reduces allergy symptoms.[69] Several research projects are currently in progress in New Zealand. School and system conditions can mean that well-intentioned practitioners cannot realise the health and inclusive curriculum goals they aspire to and the barriers to implementation are not well understood.
Children, young people and staff are not in school while they are infectious	Identify effective and acceptable protocols for schools, such as test-to-return (identifying when they are no longer infectious after isolation), test-to-stay (identifying whether close contacts of a case are infectious), and/or routine testing (to identify persons who are infectious but have no symptoms). Develop a risk-assessment system and identify specific supports that may be needed to achieve this goal, especially for children whose wellbeing is compromised when they are not in school. These assessments and support would overlap strongly with initiatives to protect children's wellbeing during the summer break (which is a much longer time away from school than any infectious disease quarantine period). Conduct trials of rapid point-of-care tests that can detect an array of other respiratory viruses as well as SARS-CoV-2.	Modelling of test-to-return options by Covid Modelling Aotearoa shows that current advice not to test is likely resulting in a high number of people with COVID-19 returning to public settings while still infectious.[70] Siblings need to be included in outbreak control planning to prevent seeding of infections into other school years and other schools. For this goal to work, negative impacts of absence must be addressed, e.g., with absence of sanctions and provision of financial and other support to students and teachers.

Goals	Implementation	Comments
Additional protection via masking is rapidly available during serious outbreaks (e.g., periods of high COVID-19 transmission and/or seasonal respiratory infection and/or an emerging influenza pandemic)	Conduct a trial and survey of high-quality child-sized respirator masks in school settings to identify enablers and barriers to mask use and test mitigation strategies, along the lines of the randomised clinical trial by Science et al.[71] Conduct a qualitative study to develop best practice guidelines for enabling access to communication when staff and students are masked, including technological and behavioural strategies (e.g., microphones and amplifiers), slower speech patterns, reduced background noise, clear face masks, written or electronic text (including live captions) and non-verbal communication (e.g., using gestures or hand signals).	The WHO advises mask-wearing for children over the age of 5 years, emphasising that "*the best interest, health and well-being of the child should be prioritized*".[72] A 2019 randomised clinical trial of a paediatric N95 mask in children aged 7–14 that measured safety, fit and comfort reported that the mask was "*well fitting, comfortable and safe for use in children at rest and on mild exertion*".[73] The trial of mask-wearing by Science et al. reported that masks were well accepted by the children, and that there was less hand-to-face contact among the children wearing masks, compared with the control goup of children not wearing masks.[71]
Schools are resourced to provide high-quality teaching, learning and other support online or in a hybrid model during infectious disease outbreaks	Conduct trials, particularly in schools in low-income areas, to identify effective and equitable strategies for resourcing online or hybrid education during a major outbreak or other public health emergency. Leverage educational networks and develop case studies that support improved quality of online learning delivery in support of goals for learners' inclusion, health and educational progress, and the wellbeing of learners and teachers. Develop a policy design project using collaboration between educators and infectious disease modellers to develop a decision framework about when it is appropriate to move to online or hybrid learning as a circuit-breaker during active outbreaks.	There is a digital divide: national infrastructure for internet access is inadequate and not every learner has access to an appropriate device for learning. Waiting until schools are compelled to close because of high levels of sickness is disruptive to both education and population health. A move to online or hybrid learning should be a planned action with a smooth transition and resources in place to protect health and learning.
School-based health outcomes and progress on curriculum aspirations are equitable, rights-based and uphold Te Tiriti o Waitangi	Identify the impact of long COVID, fatigue and pre-existing/new health conditions on school attendance and learning; communicate solutions that are proposed by students and their families. Ensure that there is formal monitoring and reporting of inequities in the school system (see below). Enable iwi and hapū interventions: for example, Ngāti Toa has welcomed a settlement with the Ministry of Education that will see it buy the land of 40 public schools in the Wellington region, negotiated under the Ngāti Toa Rangatira Claims Settlement Act 2014. Their active role in the community pandemic response along with other iwi, including supporting other mātāwaka iwi responding to the COVID-19 pandemic in the region, has further demonstrated pro-equity solutions that all iwi exhibited within their regions, that afforded and augmented opportunities to improve Crown and Māori relationship.	Impacts of the COVID-19 pandemic have been highly inequitable.[56,74] As part of Crown and Māori relationships to support obligations of Te Tiriti o Waitangi articles, Te Puni Kōkiri developed the COVID-19 Whānau Recovery Fund and is continuing to support hapū, iwi, Hauora Māori providers and organisations to facilitate a Māori-led response and recovery from COVID-19.

Goals	Implementation	Comments
School communities are well informed and are actively participating in programmes to improve health and wellbeing	Use a Citizen Science approach – develop projects with active participation by children and staff, including teaching and non-teaching staff and families. Develop a network of Kaupapa Māori research and researchers in school communities, especially Kura Kaupapa Māori, where tamariki and whānau can take on researcher roles, so that lived experience defines and leads outcomes. Develop systems for school leaders, including school boards, to access and respond to relevant data for decision making. Provide guidance and capability building for school leaders to strengthen their leadership capabilities for dealing with challenges associated with establishing and sustaining initiatives targeting these health goals. Develop and deliver learning resources for staff, students and whānau about infection control and healthy schools.	Previous campaigns about handwashing and sun safety have carried health promotion messaging beyond school settings and into communities. Initiatives developed or put in place can be embedded as contexts for young people learning the knowledge, understandings, skills, values and capabilities set out in the curriculum.
There is a high level of situational awareness throughout the school system	Establish schools as sentinel surveillance sites for monitoring incidence of infectious diseases, particularly COVID-19, respiratory syncytial virus (RSV), influenza and Group A streptococcal infection (GAS). Direct all schools to collect a set of key reporting requirements, with a subset of schools providing intensified surveillance for a range of infectious diseases, combined with collection of other in-depth measurements. Develop a system to measure and report a range of key health and learning indicators, e.g., the prevalence and impact of long COVID, inequities in health and education, days lost to education through infectious diseases and many more, where possible, linking this information into national data collections. Link school data to existing population cohorts, e.g., Growing Up in New Zealand and WellKiwis, for better understanding of household-level factors. Develop a surveillance hub to manage the surveillance and reporting functions in collaboration with other key agencies, or contract one of them to do it. Develop communication systems to ensure that school communities are always well informed about infectious disease outbreaks and are empowered to take preventive action.	A high standard of information is required for multiple purposes, including: Rapid awareness and response to community outbreaks and/or emergence of a new pandemic disease. Developing evidence-informed policy relating to schools. Evaluating the success of trials and programmes.