



Revue rapide évolutive, mise à jour 17: Quel rôle particulier jouent les garderies et les écoles dans la transmission de la COVID-19?



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Les auteurs déclarent n'avoir aucun conflit d'intérêts à divulguer.

Résumé

Contexte

À mesure que les États continuent à mettre en œuvre et à lever des restrictions pour ralentir la propagation de la maladie à coronavirus 2019 (COVID-19), ils sont confrontés à des décisions importantes quant à la manière et au moment de rouvrir et d'administrer les écoles et les garderies. Bien que l'on sache que les enfants sont des vecteurs actifs d'autres virus, comme celui de l'influenza, leur rôle dans la transmission de la COVID-19 est beaucoup moins clair.

Cette revue rapide a été produite pour soutenir la réponse de l'Agence de la santé publique du Canada à la pandémie de coronavirus 2019 (COVID-19). Cette revue vise à recenser, évaluer et résumer les nouvelles données de recherche à l'appui de la prise de décision fondée sur des données probantes.

Cette revue se fonde sur les données probantes issues de la recherche les plus récentes auxquelles il était possible d'avoir accès au moment de sa publication. Une version précédente a été terminée le 14 juin 2021. Cette version mise à jour inclut les données probantes disponibles au 22 juillet 2021.

Dans cette revue rapide évolutive, nous répondons à la question suivante : **Quel rôle particulier jouent les garderies et les écoles dans la transmission de la COVID-19?**

Qu'est-ce qui a changé dans cette version?

- Dans cette version, de nouveaux critères d'admissibilité ont été ajoutés afin de se concentrer sur les études les plus pertinentes au contexte actuel. Dans cette version, seules les études qui incluent des données recueillies à partir du 1^{er} janvier 2021 sont incluses. Bien que de grandes variations régionales existent, cela représente le moment où les vaccins ont commencé à être disponibles et où les variants préoccupants sont devenus plus courants dans plusieurs régions du monde. Par conséquent, 67 études précédemment incluses ont été retirées de cette version. Une version archivée de la mise à jour n° 16 peut être consultée [ici](#), et une liste des études précédemment incluses, mais maintenant exclues, peut être consultée à l'[Annexe 2](#).
- Quatre nouvelles synthèses ont été recensées, dont deux incluent une méta-analyse afin d'estimer la prévalence des infections à partir des tests RT-PCR et de la séroprévalence, les taux d'attaque secondaires à partir des cas index, les facteurs associés à la présence de cas, ainsi que les taux d'attaque secondaires en milieu scolaire. Les taux d'attaque secondaires estimés étaient de 2,54 cas par cas index, IC à 95 % = 0,76, 5,31 et 0,5 % de contacts étroits ayant eu un résultat positif (IC à 95 % = 0,1, 1,6) uniquement depuis un cas index d'enfant. Un plus jeune âge était invariablement associé à un plus faible risque de transmission. Dans les garderies, les résultats étaient partagés. Une incidence dans la collectivité plus élevée était invariablement associée à un plus grand nombre de cas en milieu scolaire. Les résultats étaient partagés en ce qui concerne le port du masque dans les écoles primaires. Un plus faible risque de transmission était associé au port du masque dans les écoles secondaires. Diverses mesures de distanciation physique ont été agglomérées dans la méta-analyse, et celles-ci sont associées à une réduction du risque de transmission (RC : 0,26, IC à 95 % = 0,18, 0,37). Dans la méta-analyse, une plus grande taille du groupe-classe (sans qu'une définition ou un nombre d'étudiants soient

donnés) était associée à un plus grand risque de transmission (RC : 1,26, IC à 95 % = 1,21, 1,30), ce qui contredit les résultats des études uniques incluses. Il est important de noter que ces revues incluent des études réalisées tôt dans la pandémie, et que les études incluses dans les synthèses incluses se chevauchent un peu.

- Des mises à jour de rapports tirés d'études longitudinales en cours en Allemagne, en Angleterre et en Suisse peuvent être consultées. La transmission généralisée demeure rare en milieu scolaire, bien que le pourcentage d'étudiants et de membres du personnel qui sont déclarés séropositifs (qui ont déjà été infectés) continue de croître.
- Une série de cas d'éclosions du variant préoccupant B.1.1.7 en Allemagne rapporte des taux d'attaque secondaires élevés. Cependant, peu de mesures de PCI étaient alors en place. Les auteures indiquent que ce variant préoccupant peut faire en sorte que les enfants sont plus vulnérables et plus contagieux. Cependant, aucune comparaison formelle à d'autres éclosions n'a été réalisée.
- Une nouvelle étude explore les associations entre les admissions en unité de soins intensifs et le nombre de cas et la réouverture des écoles après le congé scolaire en Italie. La réouverture des écoles était associée à une augmentation des cas aux soins intensifs. Toutefois, les auteures notent que d'autres mesures communautaires d'atténuation ont été modifiées au même moment. Le rôle de la réouverture des écoles est donc imprécis.

Faits saillants

- Bien que les données indiquent uniformément que les enfants peuvent contracter et transmettre la COVID-19, selon les rapports publiés à ce jour à la suite de réouvertures, le risque de transmission d'enfant à enfant et d'enfant à adulte dans les écoles primaires et les garderies est faible, lorsque des mesures de PCI sont en place et respectées. Le degré de certitude des données probantes est modéré (GRADE) et les conclusions pourraient changer à mesure que de nouvelles données apparaîtront. Le risque de transmission dans les écoles secondaires est plus variable. Les résultats indiquent que l'adhérence aux mesures de PCI mises en place en milieu scolaire et la réduction des activités à l'extérieur du milieu scolaire sont des éléments essentiels pour cette tranche d'âge. Cette tendance semble uniforme selon les données limitées ayant été recueillies à ce jour en présence de variants préoccupants.
- La mise en œuvre de mesures de contrôle des infections est cruciale pour réduire la transmission, surtout lorsque les taux de transmission communautaire sont élevés. Dans l'ensemble des territoires examinés, on observe une grande variabilité dans les politiques en place. Cela restreint la possibilité d'évaluer les effets de mesures spécifiques de PCI ou de faire des recommandations concernant les meilleures pratiques pour les garderies ou les milieux scolaires, en raison de la variabilité des mesures mises en œuvre. De nouvelles données probantes indiquent que le port du masque, le maintien d'au moins 1 m (3 pi) de distance – surtout chez le personnel –, le fait de restreindre l'accès des autres personnes à l'école, l'annulation des activités parascolaires, l'enseignement à l'extérieur et le dépistage quotidien des symptômes réduisent le nombre de cas dans les écoles. Des résultats contradictoires ont été obtenus en ce qui a trait aux associations entre la ventilation et la taille des classes. L'apprentissage hybride ou à temps partiel en personne semble associé à une plus grande incidence, comparativement à l'apprentissage à temps plein en personne. Le

degré de certitude des données probantes est faible (GRADE) et les conclusions pourraient changer à mesure que de nouvelles données apparaîtront.

- Selon l'ensemble des études, le nombre de cas parmi les élèves et les enseignants reflète les tendances dans la communauté. Peu de données probantes de grande qualité indiquent que la réouverture des écoles contribue de façon significative à la transmission dans la collectivité, surtout lorsque les taux dans la collectivité sont de faibles à modérés et que des mesures efficaces de PCI sont en place. Le rôle des écoles dans la collectivité environnante dans des zones à haute transmission communautaire est moins clair et n'est pas bien étudié. Le degré de certitude des données probantes est faible (GRADE) et les conclusions pourraient changer à mesure que de nouvelles données apparaîtront.
- Toutes les données des études recensées qui concernaient les colonies de vacances ont été recueillies à l'été 2020. Pour cette raison, ces études ne répondent pas aux critères d'admissibilité de cette version. Une version archivée incluant des études plus anciennes réalisées au sujet de colonies de vacances peut être consultée [ici](#).
- Les données continuent d'apparaître au sujet des répercussions des variants préoccupants sur la prévalence, les taux d'attaque secondaires, et les associations avec la mise en œuvre de mesures de PCI dans les écoles et les garderies, mais à ce jour, elles demeurent limitées. Il est possible que les résultats changeront à mesure que de nouvelles informations apparaîtront au sujet des répercussions des variants préoccupants sur la transmission dans les écoles et les garderies.
- Les études incluses dans cette revue ne contiennent pas de données probantes concernant l'expérience des inégalités sociales et structurelles vécues par certaines populations, comme les communautés autochtones ou racialisées. Plus d'études sont nécessaires pour assurer la représentation de ces populations dans la prise de décision.

Survol des données probantes et lacunes dans les connaissances

- Il existe peu de données au sujet de l'effet de la vaccination du personnel ou des élèves sur l'atténuation du risque de transmission dans les écoles et les garderies, ou sur les mesures de PCI qui pourraient être assouplies ou éliminées lorsque la couverture vaccinale est élevée dans un milieu scolaire.
- S'appuyant sur des rapports de cas, des recherches de contacts et des études transversales réalisés précédemment, de plus en plus de rapports se servent de données de surveillance nationales ou régionales et de stratégies complètes de recherche de contacts et de dépistage pour minimiser la probabilité de sous-estimer le nombre de cas. Bien que les rapports de surveillance identifient des cas parmi le personnel, les élèves et les enfants des écoles et des garderies, il s'agit généralement de cas uniques ou d'un petit nombre de cas, habituellement inférieur à cinq.
- Lors d'une éclosion, la transmission d'adulte à adulte semble plus courante que celle d'enfant à adulte ou d'adulte à enfant. Ce ne sont pas toutes les études incluses qui séparent ainsi les cas entre le personnel et les élèves.
- De plus en plus d'études ont sélectionné aléatoirement des écoles/classes/individus pour les soumettre au dépistage d'une infection active (grâce à la méthode RT-PCR) ou d'anticorps. Uniformément, dans ces études, peu de nouveaux cas sont détectés, ce qui donne à penser qu'une transmission asymptomatique généralisée ne se produit pas couramment dans ces milieux, surtout quand de rigoureuses mesures de PCI sont en place.

- Les études qui explorent les répercussions de la réouverture ou de la fermeture des écoles sur les taux de transmission dans la collectivité sont généralement limitées par leur dépendance à l'égard de simples corrélations et par un manque de prise en compte de facteurs de confusion potentiels, comme la coïncidence du moment de mise en œuvre choisi ou l'assouplissement d'autres mesures de santé publique, comme les balises encadrant les rassemblements, l'ouverture ou la fermeture des magasins et des restaurants, et l'exigence du port du masque dans la communauté.
- Le recours à une collecte de données plus rigoureuse (p. ex., des tests de dépistage aléatoires, des recherches de contacts et du dépistage exhaustifs) et de meilleurs rapports sur les données de surveillance (p. ex., cas index, transmission secondaire, prévalence globale) dans les futures études pourraient fournir des données plus robustes pour l'interprétation et améliorer la certitude des résultats.
- Les mesures de contrôle des infections étaient très variables d'un territoire analysé à un autre. Il est important de noter que les politiques en place peuvent varier à l'échelle régionale, au-delà de ce qui est rapporté dans les lignes directrices nationales.

Méthodologie

Question de recherche

Quel rôle particulier jouent les garderies et les écoles dans la transmission de la COVID-19?

Recherche

Les bases de données et les sources suivantes ont été interrogées pour trouver des données probantes relatives au rôle des garderies et des écoles dans la transmission de la COVID-19, et ce, jusqu'au 22 juillet 2021. Cette recherche s'appuie sur la recherche précédente réalisée dans la seizième version de cette revue rapide.

- Pubmed's curated COVID-19 literature hub: [LitCovid](#)
- [TripDatabase](#)
- World Health Organization's [Global literature on coronavirus disease](#)
- [COVID-19 Evidence Alerts](#) from McMaster PLUS™
- [COVID-19 Living Overview of the Evidence \(L·OVE\)](#)
- [PROSPERO International prospective registry of systematic reviews](#)
- NCCMT [COVID-19 Rapid Evidence Reviews](#)
- [medRxiv preprint server](#)
- NCCDH [Equity-informed responses to COVID-19](#)
- NCCEH [Environmental Health Resources for the COVID-19 Pandemic](#)
- NCCHPP [Public Health Ethics and COVID-19](#)
- NCCID [Disease Debrief](#)
- NCCIH [Updates on COVID-19](#)
- [Public Health Ontario](#)
- [Uncover \(USHER Network for COVID-19 Evidence Reviews\)](#)
- Centers for Disease Control and Prevention's [Morbidity and Mortality Weekly Report](#)
- [Government of Ontario](#)
- Ontario [COVID-19 cases in schools and child care centres](#)
- Alberta [COVID-19: Education and childcare](#)
- Québec [Situation in Québec](#)
- [COVID-19 School Response Dashboard](#)
- Newfoundland and Labrador Centre for Applied Health Research ([NLCHAR](#))
- National Institute for Public Health and the Environment ([RIVM](#))
- Health Information and Quality Authority ([HIQA](#))
- National Centre for Immunisation Research and Surveillance ([NCIRS](#))
- Institut national de santé du Québec ([INSPQ](#))
- [Don't Forget the Bubbles](#)

Une copie de la stratégie de recherche complète peut être consultée à l'[Annexe 1](#).

Les informations concernant les politiques publiques sur les milieux de garde et scolaires ont été tirées des publications scientifiques et des pages Web gouvernementales de la santé publique pour les territoires couverts dans les articles de recherche inclus dans cette revue.

Critères de sélection des études

La recherche a d'abord inclus les synthèses récentes de haute qualité. Si aucune synthèse n'avait été trouvée, les études uniques ont été incluses. Les sources incluses ont été publiées en anglais et ont été soit révisées par des pairs, soit diffusées avant l'impression et avant leur révision par des pairs.

D'autres critères d'exclusion ont été établis (avril 2021) afin d'affiner l'objectif de cette revue, étant donné la grande quantité de données probantes.

- Les études qui ne font que rendre compte d'un nombre absolu de cas ou d'une prévalence globale dans une école ou un district sans calculer le taux d'attaque secondaire ou sans discuter la probabilité de transmission dans les écoles n'étaient pas admissibles.
- Les études qui décrivent le risque de COVID-19 ou de mortalité attribuable à la COVID-19 entre les parents, les élèves ou les parents d'enfants fréquentant l'école comparativement à ceux qui ne fréquentent pas l'école, ou les études qui ne décrivent pas l'exposition à l'école, étaient inadmissibles.
- Les études de modélisation prédictives qui n'utilisent que des données estimées (et non des données recueillies) n'ont pas été incluses.

D'autres critères d'exclusion ont été appliqués à cette revue évolutive afin d'en affiner l'objectif, étant donné la grande quantité de données probantes et l'évolution de la pandémie de COVID-19. À partir d'août 2021, les études ont été exclues si :

- les données ont été recueillies avant janvier 2021, alors que les vaccins n'étaient pas disponibles et que les variants préoccupants n'étaient pas répandus dans plusieurs pays.

	Critères d'inclusion	Critères d'exclusion
Population	Enfants et adolescents de 1 à 18 ans	Bébés
Intervention	Exposition à la COVID-19 ou diagnostic de COVID-19	
Comparaison	-	
Résultats	Cas confirmé ou suspecté de COVID-19	
Contexte	Écoles, garderies, colonies de vacances	Activités parascolaires, comme les équipes sportives

Extraction et synthèse des données

Les données qui concernent le modèle d'étude, le contexte, le lieu, les caractéristiques de la population, les interventions ou l'exposition et les résultats ont été extraites lorsqu'elles étaient rapportées. Nous avons synthétisé les résultats sous forme narrative en raison de la variété des méthodologies et des conclusions des études incluses.

Les synthèses trouvées qui étaient pertinentes à ce rapport se recoupaient considérablement en ce qui a trait à la littérature primaire couverte, mais elles ne rapportaient pas toutes les mêmes données tirées de ces études primaires. Nous avons choisi de réaliser une nouvelle synthèse au lieu de rendre compte des résultats qui se recoupent dans les synthèses trouvées, et ce, afin de présenter les données de façon plus succincte et plus claire. Les études primaires

ont été employées pour en extraire les caractéristiques et les principaux résultats, ainsi que pour en évaluer la qualité.

En raison du grand nombre d'études, celles-ci sont regroupées en tableaux afin que les études semblables puissent être examinées ensemble. Ces tableaux incluent 1) des études portant sur la transmission dans les écoles et les garderies; 2) des rapports de cas ou des séries de cas sur la transmission dans les écoles et les garderies; 3) des études qui explorent l'association entre les mesures de PCI et la transmission dans les écoles et les garderies; 4) des études examinant les répercussions de l'apprentissage en personne à l'école sur la transmission dans la collectivité; 5) des études uniques en cours; 6) des synthèses; 7) des synthèses en cours; et 8) des données de surveillance canadiennes.

Évaluation de la qualité des données probantes

Nous avons évalué la qualité des données probantes incluses en utilisant des outils d'évaluation critique, comme nous le décrivons ci-dessous. L'évaluation de la qualité a été réalisée par un examinateur et vérifiée par un deuxième examinateur. Les conflits ont été résolus par la discussion.

Méthodologie de l'étude	Outils d'évaluation critique
Synthèse	Assessing the Methodological Quality of Systematic Reviews (AMSTAR) AMSTAR 1 Tool
Cas-témoins	Joanna Briggs Institute (JBI) Checklist for Case Control Studies
Rapport de cas	Joanna Briggs Institute (JBI) Checklist for Case Reports
Série de cas	Joanna Briggs Institute (JBI) Checklist for Case Series
Cohorte	Joanna Briggs Institute (JBI) Checklist for Cohort Studies
Étude transversale	Joanna Briggs Institute (JBI) Checklist for Analytical Cross Sectional Studies
Prévalence	Joanna Briggs Institute (JBI) Checklist for Prevalence Studies
Quasi expérimentale	Joanna Briggs Institute (JBI) Checklist for Quasi-Experimental Studies
Essai clinique randomisé	Joanna Briggs Institute (JBI) Checklist for Randomized Controlled Trials

Les évaluations de la qualité effectuées pour chaque étude incluse sont disponibles sur demande.

L'approche [GRADE](#) (Grading of Recommendations, Assessment, Development and Evaluations) a été utilisée pour évaluer la certitude des résultats sur la base de huit domaines clés.

Selon l'approche GRADE en matière de qualité des données probantes, les **études observationnelles**, telles que celles incluses dans cette revue, fournissent des données probantes de **faible qualité**. Cette évaluation peut être réduite encore davantage en fonction d'autres domaines :

- un risque de biais élevé;
- l'incohérence des effets;

- le caractère indirect des interventions/résultats;
- des imprécisions dans l'estimation de l'effet;
- un biais de publication.

À l'inverse, elle peut être rehaussée sur la base des domaines suivants :

- un effet important;
- une relation dose-effet;
- une prise en compte des variables confusionnelles.

Pour chaque résultat, la certitude globale des données probantes a été déterminée en tenant compte des caractéristiques des données probantes dont on dispose (des études observationnelles, dont certaines n'ont pas été évaluées par les pairs, des variables confusionnelles potentielles qui n'ont pas été prises en compte, des essais et des protocoles d'essais différents, et une absence de groupes de comparaison valides). Un jugement selon lequel « la certitude globale est très faible » signifie que les résultats risquent fort de changer à mesure que de nouvelles données probantes apparaissent.

Résultats

Synthèse de la qualité des données probantes

Dans cette mise à jour, 9 nouvelles études individuelles, 4 nouvelles synthèses, 2 nouvelles études uniques en cours, et 5 mises à jour d'études individuelles précédemment incluses. 67 études **précédemment incluses** ont été exclues sur la base des nouveaux critères d'admissibilité, pour un total de 49 publications touchant à la question de recherche.

Une liste complète des études qui avaient précédemment été incluses et qui sont maintenant exclues peut être consultée à l'[Annexe 2](#).

Quel rôle jouent les écoles et les garderies dans la transmission de la COVID-19?

Résultats	Données probantes incluses		Certitude globale des données probantes (GRADE)
	Méthodologie de l'étude	n	
La transmission de la COVID-19 dans les écoles et les garderies (y compris le nombre de cas, le nombre de cas par rapport à la population et les taux d'attaque secondaires)	Synthèses	4	⊕⊕⊕○ Modérée ¹
	Observationnelle	13	
Les conséquences des mesures de PIC sur la transmission de la COVID-19 dans les écoles et les garderies (y compris le nombre de cas, le nombre de cas par rapport à la population et les taux d'attaque secondaires)	Synthèses	3	⊕⊕○○ Faible ²
	Essai clinique randomisé	1	
	Observationnelle	5	
La transmission de la COVID-19 dans la collectivité (modification du nombre de cas, et nombre de cas par 100 000 avant et après la réouverture des écoles)	Synthèses	1	⊕⊕○○ Faible ³
	Quasi expérimentale	3	
La transmission de la COVID-19 dans les colonies de vacances (y compris le nombre de cas, le nombre de cas par rapport à la population et les taux d'attaque secondaires)	-	0	N/A
<p>¹ Dans l'approche GRADE en matière de qualité des données probantes, les études observationnelles, telles que celles incluses dans cette revue, offrent des données probantes de faible qualité, et cette évaluation a été modifiée pour devenir modérée en raison d'un effet important.</p> <p>² Dans l'approche GRADE en matière de qualité des données probantes, les études observationnelles, telles que celles incluses dans cette revue, offrent des données probantes de faible qualité. Aucune modification n'a été apportée à cette évaluation.</p> <p>³ Dans l'approche GRADE en matière de qualité des données probantes, cette évaluation a été modifiée à la baisse en raison d'un risque élevé de biais et de l'imprécision dans l'estimation de l'effet.</p>			

Attention

Comme il faut rendre rapidement disponibles les nouvelles données probantes sur la COVID-19, plusieurs études émergentes n'ont pas été révisées par des pairs. Pour cette raison, nous vous conseillons la prudence quand vous utilisez et interprétez les données probantes incluses dans cette revue rapide. Nous avons fourni une synthèse de la certitude globale des données probantes afin de soutenir le processus de prise de décision. Lorsque c'est possible, nous vous recommandons de fonder vos décisions sur les données probantes de la plus haute qualité possible.

Table 1: Single Studies, Within School Transmission

Reference	Date Released	Study Design	Setting, Location	IPAC measures	Summary of Findings	Quality Rating:
New evidence reported on August 12, 2021						
Ulyte, A., Radtke, T., Abela, I.A., Haile, S.R., Ammann, P., Berger, C. ... Kriemler, S. (2021). Evolution of SARS-CoV-2 seroprevalence and clusters in school children from June 2020 to April 2021 reflect community transmission: Prospective cohort study Ciao Corona . <i>Preprint</i> .	Jul 19, 2021	Cohort	Primary, middle and secondary schools Zurich, Switzerland	<ul style="list-style-type: none"> • Distancing • Cohorting • Reduced common activities • Masks (gradual adoption starting with adults then upper and middle schools, masks for lower age children not mandated) • Contact tracing • Quarantine policies • School-wide screening with RT-PCR testing in cases of suspected outbreak starting Feb 2021 • Schools remained open for physical attendance from May 2020 to the end of the 2020/21 school year 	<p>In Jun/Jul, Oct/Nov 2020, Mar/Apr 2021 classes and schools were randomly selected to take part in seroprevalence testing. 2974 children from 275 classes in 55 schools enrolled. Median participation within each class was 50%.</p> <p>Seroprevalence increased from 1.5% (95% CI=0.6,2.6) in Jun – Jul to 6.6% (95% CI=4.0,8.9) in Oct – Nov and 16.4% (95% CI=12.1,19.5) in Mar-Apr 2021. Community daily incidence of positive cases peaked at 88/100,000 on Oct 28, 2020.</p> <p>There were no differences by sex but did differ by district and age.</p> <ul style="list-style-type: none"> • Higher in middle school (aged 8-13, 19.5%) vs. upper level (age 12-17, 12.4%), p=0.02 • No difference between lower (aged 7-19, 16%) and middle or upper. <p>At least 1 seropositive child was detected in all 55 schools and in 184/275 (67%) classes, (range 0-15 per school, 0-13 per class).</p> <p>14% of classes at clusters of 3+ cases; 25 were investigated further. Within-school transmission was likely in 12/25 (48%), improbable in 7/25 (28%) and undetermined in 6/25 (24%).</p> <p>Most PCR-positive cases were linked to a household source.</p>	High <i>PREPRINT</i>

<p>Ladhani, S.N., Ireland, G., Baawuah, F., Beckmann, J., Okike, I.O., Ahmad, S., ... Ramsay, M. E. (2021). Emergence of SARS-CoV-2 Alpha (B.1.1.7) variant, infection rates, antibody seroconversion and seroprevalence rates in secondary school students and staff: active prospective surveillance, December 2020 to March 2021, England. Preprint.</p>	<p>Jul 16, 2021</p>	<p>Cohort</p>	<p>Secondary Schools</p> <p>Derbyshire, West London, East London, Greater Manchester, Hertfordshire and Birmingham, England</p>	<ul style="list-style-type: none"> Masks (students, except when seated in class) Widespread full closure in Mar 2020 partial reopening in Jun 2020, in-person Sep 2020 and closure Jan 5 - Mar 8, 2021 	<p>Point-prevalence testing occurred in 18 secondary schools at points: T1, Sept 22 – Oct 17, 2020, T2, Dec 3 – 17, 2020 and T3, Mar 23 – Apr 21, 2021.</p> <p>At T3, only 5.7% of students and 70.3% of staff attended in-person school part-time and 11.5% of students and 29.7% of staff attended full-time. 42.9% of staff and 1.3% of students reported being vaccinated.</p> <ul style="list-style-type: none"> From T2-T3, 5.7% (62/1094) of students and 4.4% (35/792) of staff had RT-PCR confirmed infection (through study testing or national registry) Seroprevalence increased from 11.0% at T1, to 13.3% at T2 and 20.9% at T3. Using the N and S antibody test, at T3, seroprevalence was 36.3% (370/1018) in students and 31.9% (245/769) in staff <p>Seroprevalence varied widely by region.</p> <p>Students who attended school in-person during at T3 had higher odds of seropositivity vs. those learning from home: OR: 2.27 (95% CI=1.06,4.68)</p>	<p>Moderate</p> <p><i>PREPRINT</i></p>
<p>Schenk, B., Hoehl, S., Rudych, O., Menger, D., Farmand, S., Wrobel, F. ... Ciesek, S. (2021). Longitudinal testing for SARS-CoV-2 RNA in day care centers in Hesse, Germany, during increased local incidence and with VOC Alpha as</p>	<p>Jul 3, 2021</p>	<p>Cohort</p>	<p>Daycare centers</p> <p>Hesse, Germany</p>	<ul style="list-style-type: none"> Not reported 	<p>SAFE KiDS 2: 577 children, 334 staff from 47 daycare centers were tested weekly for 4 weeks via RT-PCR in Jan – Feb 2021. 7-day community incidence 66.0 to 138.7 per 100,000</p> <ul style="list-style-type: none"> 7/577 (1.21%) children tested positive 1/334 (0.3%) staff tested positive Only 3/8 positive cases were confirmed via health dept testing In 6/8 positive cases, other household members also tested positive No in-school transmission was detected No VoC detected 	<p>Low</p> <p><i>PREPRINT</i></p>

<p>dominant variant: Results of the SAFE KiDS 2 and SAFE KiDS 3 study. Preprint.</p>					<p>SAFE KiDS 3: 756 children, 226 staff from 46 daycares centres tested weekly for 4 weeks via RT-PCR in May – Jun 2021. 7-day community incidence 4.7-124.6 per 100,000; alpha VoC prominent. No positive results were detected.</p> <p>Results suggest that daycare centers have a limited role in transmission even with high community incidence.</p>	
<p>Goldfarb, D.M., Mâsse, L.C., Watts, A.W., Hutchison, S.M., Muttucomaroe, L., Bosman, E.S. ... Lavoie, P.M. (2021). SARS CoV-2 seroprevalence among Vancouver public school staff in British Columbia, Canada. Preprint.</p>	<p>Jun 18, 2021</p>	<p>Prevalence</p>	<p>Vancouver School District</p> <p>Vancouver, British Columbia, Canada</p>	<ul style="list-style-type: none"> Physical distancing Enhanced cleaning Enhanced ventilation Cohorts Screening (staff and students) Regular surface cleaning Unidirectional flow of students Masks (not mandatory until Feb 2021 for grades 6-12 and for grades 4-12 in Apr 2021) Hand hygiene (hand sanitizer in classrooms and common areas) Quarantine policies Staggered recess and lunch breaks 	<p>Incidence was calculated amongst 47,280 students and 7071 staff using surveillance data from Sep 2020 – May 2021.</p> <ul style="list-style-type: none"> Students: 9.8/1000 students (range: 0 to 63/1000 by school) Staff: 13/1000 classroom, 14/1000 non-classroom staff (range: 0 to 167/1000) <p>Across 107 schools</p> <ul style="list-style-type: none"> 63% had no confirmed staff cases 24% had 1 staff case 13% >1 staff case Median student cases per school was 3 <p>21.5% (363/1686) of staff reported close contact with a positive case but only 1.4% (24/1689) of staff self-reported a positive test. 5 reported close contact with a student or staff member, 7 with a family member, 1 with both a co-worker and family member and 11 unknowns.</p> <p>1556 school staff underwent seroprevalence testing Feb – May 2021.</p> <ul style="list-style-type: none"> 2.2% (95% CI=1.6,3.1) tested positive Seroprevalence in age, sex and geography-matched donors was 2.0% (95% CI=1.5,2.7) (no difference) 	<p>Moderate</p> <p>PREPRINT</p>

Previously reported evidence						
Haag, L., Blankenburg, J., Unrath, M., Grabietz, J., Kahre, E., Galow, L., ... Armann, J. P. (2021). Prevalence and transmission of SARS-CoV-2 in childcare facilities: A longitudinal study . <i>Preprint</i> .	Apr 18, 2021	Cohort	14 Daycare facilities Dresden, Saxony, Germany	<ul style="list-style-type: none"> Masks (parents) 	<p>From Jul 15, 2020 – Jan 31, 2021, COVID-19 seropositivity of children, parents, and staff from 14 daycares was monitored during periods of low and high community prevalence. No participants were seropositive at baseline.</p> <p>Period of low prevalence; 4 confirmed cases:</p> <ul style="list-style-type: none"> 1/154 (0.7%) staff 1/196 (0.5%) parent 2/232 (0.9%) children <p>Period of high prevalence; 63 confirmed cases in 8 facilities:</p> <ul style="list-style-type: none"> 23/87 (12.3%) staff <ul style="list-style-type: none"> More administrative staff (20.8%) vs. childcare staff (8.1%), p=0.034 25/236 (10.6%) parents 15/222 (6.8%) children <ul style="list-style-type: none"> 4 clusters, range 2-3 children 5/12 cases had no facility link 	Moderate PREPRINT
Gettings, J.R., Gold, J.A.W., Kimball, A., Forsberg, K., Scott, C., Uehara, A. ... Vallabhaneni, S. (2021). SARS-CoV-2 transmission in a Georgia school district – United States, December 2020–January 2021 . <i>Clinical Infectious Diseases</i> , ciab332.	Apr 17, 2021	Prevalence	School district in metropolitan Atlanta, Georgia, USA	<ul style="list-style-type: none"> Enhanced cleaning Enhanced ventilation Hand hygiene Masks (except during sports) Physical distancing (<3 ft. in elementary schools due to higher class sizes) Plastic barriers around desks 	<p>From Dec 1, 2020 – Jan 22, 2021, 98 school cases were identified; 86 included in analysis:</p> <ul style="list-style-type: none"> 33 (38.4%) staff; 53 (61.6%) students <ul style="list-style-type: none"> Of 1,119 close contacts, 68 of 688 tested were positive <p>Secondary Attack Rate (SAR) among:</p> <ul style="list-style-type: none"> Students: 5.8% (95% CI=3.6,8.0) Staff: 13.1% (95% CI=9.0,17.2) <p>Higher SAR occurred in:</p> <ul style="list-style-type: none"> Indoor high impact sports: 23.8% (95% CI=12.7,33.3) Staff interactions: 18.2% (95% CI=4.5,31.8) Elementary classrooms: 9.5% (95% CI=6.5,12.5) <ul style="list-style-type: none"> Elementary teachers: 15.0 (95% CI=10.2,19.8) 	Moderate

					<ul style="list-style-type: none"> ○ Symptomatic staff; 13.7% (95% CI=9.1,17.8) <p>Lower SAR occurred in:</p> <ul style="list-style-type: none"> • Asymptomatic students: 2.3% (95% CI=0.6,4.6) • Elementary students: 2.7% (95% CI=0.7,5.3) <p>69 samples were sequenced. No variants of concern were detected.</p>	
<p>Aiano, F., McOwat, K., Obi, C., Powell, A.A., Flood, J.S., Bhardwaj, S. ... Saliba, S. (2021). COVID-19 outbreaks in nurseries during rapid spread of the B.1.1.7 variant of SARS-CoV-2 in England: Cross-sectional national surveillance, November 2020 – January 2021. <i>Preprint</i>.</p>	Apr 15, 2021	Prevalence	Daycares England, The United Kingdom (B.1.1.7)	<ul style="list-style-type: none"> • Cohorts • Physical distancing 	<p>From Nov 2, 2020 – Jan 31, 2021, 324/32,852 daycares reported an outbreak (0.98%). This study includes data from 173 daycares, reporting 1657 cases: 510 children (31%), 1147 staff (69%) (median 8 cases/outbreak, mode 2 cases/outbreak)</p> <p>Overall SAR was 9.1% (95% CI=8.65,9.48)</p> <ul style="list-style-type: none"> • Child index case in 26% of outbreaks: SAR: 7.97% (95% CI=7.24,8.77) (Highest in those <1 and decreased with age) • Staff index case in 72% of outbreaks: SAR: 9.48% (95% CI=8.98,10.0) <p>Staff to staff transmission was highest (SAR: 32.98, 95% CI=31.19,34.82), followed by child to staff (SAR: 26.28, 95% CI= 23.54,29.21) and lowest in child-to-child transmission (SAR: 3.55, 95% CI=3.01,4.19).</p> <p>SAR were higher in Jan 2021 when B.1.1.7 variants increased (compared to Nov 2020), suggesting variants may be more transmissible, although community rates also rose at the same time:</p> <ul style="list-style-type: none"> • Children: SAR: 4.21% (95% CI=3.72,4.77) vs. 2.34% (95% CI=1.94,2.81) • Staff: SAR: 33.96% (95% CI=32.23,38.30) vs. 24.26% (95% CI=21.97,26.72) 	<p>Low</p> <p><i>PREPRINT</i></p>

<p>Gandini, S., Rainisio, M., Iannuzzo, M.L., Bellerba, F., Cecconi, F., & Scorrano, L. (2021). A cross-sectional and prospective cohort study of the role of schools in the SARS-CoV-2 second wave in Italy, <i>The Lancet Regional Health – Europe</i>, 5, 100092.</p>	<p>Mar 26, 2021</p>	<p>Prevalence</p>	<p>Kindergarten, elementary, middle and high schools, Italy</p>	<ul style="list-style-type: none"> • Ban on sports and music • Frequent ventilation • Hand hygiene • Masks (staff, high school students) • Negative test following exposure (some schools) • Physical distancing (1m between seats) • Reduced school hours • Temperature check • Unidirectional flow of students 	<p>From Sep 30, 2020 – Feb 28, 2021, incidence and positivity were lower amongst elementary and middle school students compared to general population; incidence was higher in high school students in 3 of 19 regions. Incidence in teachers was no different from other occupations after adjusting for age.</p> <p>Active contact tracing occurred following case identification from Nov 23 – Dec 5, 2020; mean number of tests per case ranged from 9-17. Clusters (2+ cases in 1 week) were found in 5-7% of schools with a case.</p> <p>Teacher to teacher transmission (37%) was more common than student to teacher (10%) (p=0.007).</p> <p>Incidence by school level (Nov 23-28):</p> <ul style="list-style-type: none"> • Kindergarten: 0.21% of children and 2.35% of teachers • Elementary: 0.35% of children and 1.83% of teachers • Middle: 0.45% of students and 1.60% of teachers <p>Increase in R_0 was not associated with staggered school reopening date but were linked to a national election. School closures in two regions did not lower R_0.</p>	<p>High</p>
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<p>Hershow, R.B., Wu, K., Lewis, N.M., Milne, A.T., Currie, D., Smith, A.R., ... Chu, V.T. (2021). Low SARS-CoV-2 transmission in elementary schools – Salt Lake County, Utah, December 3, 2020–January 31, 2021. <i>Morbidity and Mortality Weekly Report</i>, 70(12), 442-448.</p>	<p>Mar 26, 2021</p>	<p>Cross-sectional</p>	<p>K-6 schools, Salt Lake County, Utah, USA</p>	<ul style="list-style-type: none"> • 6ft distance • High mask use (86%) • 81% in-person learning • Plexiglass barriers for teachers • Staggered mealtimes 	<p>From Dec 3 – Jan 21, 2021, susceptible school contacts of 51 index cases (40 students, 11 staff) were contacted:</p> <ul style="list-style-type: none"> • Of 1041 close contacts, 735 (70.6%) were tested, 12 were positive (SAR: 1.6%) • 5 of 12 positive cases were classified as school-associated • Four of five events were deemed to be due to lapses in IPAC measures (<6ft distance during class (2) or lunch (2), and poor mask compliance (2). • Tertiary transmission was detected in 3 households 	<p>Moderate</p>
<p>van Loon, W., Hommes, F., Theuring, S., von der Haar, A., Körner, J., Schmidt, M. ... Mockenhaupt, F. P. (2021). Renewed absence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections in the day care context in Berlin, January 2021. <i>Clinical Infectious Diseases</i>, ciab199.</p>	<p>Mar 2, 2021</p>	<p>Cohort</p>	<p>Kindergarten, Metropolitan Berlin, Germany</p>	<p>Not reported</p>	<p>From Jan 17 – 23, 2021, children, families, and staff from 12 kindergarten programs were sampled:</p> <ul style="list-style-type: none"> • 149 kindergarten children • 74 staff • 472 household members <p>All tested negative for COVID-19. Community weekly incidence in the same time period was 110/100,000.</p> <p>Small sample size (n=12 centres) may not be representative of the >2600 kindergartens in Berlin.</p>	<p>Low</p>

Table 2: Case Reports and Case Series Following School Reopening

Reference	Date Released	Location, Setting	IPAC Measures	Summary of Findings	Quality Rating:
New evidence reported on August 12, 2021					
Loenenbach, A., Markus, I., Lehfeld, A.-S., an der Heiden, M., Haas, W., Kiegele, M. ... Buchholz, U. (2021). SARS-CoV-2 variant B.1.1.7 susceptibility and infectiousness of children and adults deduced from investigations of childcare centre outbreaks, Germany, 2021. Eurosurveillance, 26(21), pii=2100433.	May 27, 2021	Daycare centers Hesse, Germany	<ul style="list-style-type: none"> • Cohort • Separate bathrooms • Masks (staff outside of cohort) • Parents not allowed to enter the building and mandatory mask-wearing during children's drop off and pick up 	<p>From Jan – Feb 2021, B.1.1.7 outbreaks occurred in 3 daycares 11/12 cohorts in 3 centres developed secondary cases. All children and staff were offered testing; uptake not reported.</p> <p>Overall SAR:</p> <ul style="list-style-type: none"> • Daycare 1: 37% (95% CI=26,49) • Daycare 2: 27% (95% CI=16,42) • Daycare 3: 17% (95% CI=9,28) <p>SAR for close contacts (<1.5m for >15 min):</p> <ul style="list-style-type: none"> • Daycare 1: 53% (95% CI=30,75) • Daycare 2: 33% (95% CI=12,65) • Daycare 3: 22% (95% CI=12,37). <p>SAR among non-close contacts</p> <ul style="list-style-type: none"> • Daycare 1: 32% (95% CI=21,45) • Daycare 2: 26% (95% CI=14,42) • Daycare 3: 6% (95% CI=1,26). <p>SAR for children</p> <ul style="list-style-type: none"> • Daycare 1: 31% (95% CI=20,45) • Daycare 2: 27% (95% CI=14,46) • Daycare 3: 17% (95% CI=8,32) <p>SAR among adults</p> <ul style="list-style-type: none"> • Daycare 1: 53% (95% CI=32,73) • Daycare 2: 28% (95% CI=12,51) • Daycare 3: 17% (95% CI=7,37). <p>Household contacts were also offered testing, but no systematic surveillance occurred. Pooled household SAR: 37% (95% CI=28,47).</p> <p>The authors suggest that child susceptibility and infectiousness are higher with the B.1.1.7 VoC, but no formal comparisons were made.</p>	Moderate

Previously reported evidence					
<p>Berke, E.M., Newman, L.M., Jemsby, S., Bhalla, N., Sheils, N.E., Oomman, N. ... Cangelosi, G.A. (2021). Pooling-in-a-pod: A strategy for COVID-19 testing to facilitate safe return to school. <i>Preprint.</i></p>	<p>May 25, 2021</p>	<p>Independent K-12 school, Washington DC</p>	<ul style="list-style-type: none"> • Daily symptom screening • Masking • Physical distancing • Modified extracurriculars • “Facility optimization” • Hybrid learning (1-12 only, K all in person) 	<p>This project aimed to test the feasibility of ‘pool in a pod’ cohort-specific testing for early case detection and management.</p> <p>From Nov 30, 2020 – Apr 30, 2021, 863 students and 264 staff took part in twice a week testing (participation varied by week).</p> <p>Over 34 testing sessions, there were 1733 negative and 4 positive pools. Outside confirmatory testing identified a two positive cases; the rest were false positives.</p> <p>Weekly cost-per-person was \$24.24. Return to in-person learning after initiating testing procedures with no increase in positive cases.</p>	<p>Moderate PREPRINT</p>
<p>Gold, J.A.W., Gettings, J.R., Kimball, A., Franklin, R., Rivera, G., Morris, E., ... Georgia K-12 School COVID-19 Investigation Team. (2021). Clusters of SARS-CoV-2 infection among elementary school educators and students in one school district- Georgia, December 2020- January 2021. <i>Morbidity and Mortality Weekly Report, 70(8), 289-292.</i></p>	<p>Feb 26, 2021</p>	<p>Elementary schools, Georgia, USA</p>	<ul style="list-style-type: none"> • Masks (except while eating) • Plastic dividers on desks (but students sat <3 ft apart) 	<p>From Dec 1, 2020 – Jan 22, 2021, 9 clusters (of ≥ 3 linked COVID-19 cases) involving 13 staff and 32 students at 6 schools were identified. 2600 students and 700 staff attended school during this time.</p> <p>18/69 (26%) household contacts tested positive. Median cluster size (including household members) was 6 (range 3-16).</p> <p>Index patients were:</p> <ul style="list-style-type: none"> • Staff (4 clusters) • Student (1 cluster) • Unknown (5 clusters) <p>Probable transmission included:</p> <ul style="list-style-type: none"> • Staff-to-student (8 clusters) • Student-to-student (4 clusters) • Student-to-staff (3 clusters) • Staff-to-staff (2 clusters; which was followed by staff-to-student transmission and resulted in 15/31 school-associated cases) <p>9 clusters involved lack of physical distancing, 5 inadequate student mask use.</p>	<p>Moderate</p>

Table 3: Single Studies, Associations Between Mitigation Measures and Outcomes

Reference	Date Released	Study Design	Setting, Location	IPAC measures	Summary of Findings	Quality Rating:
New evidence reported on August 12, 2021						
Rubin, D., Eisen, M., Collins, S., Pennington, J.W., Wang, X., & Coffin, S. (2021). SARS-CoV-2 infection in public school district employees following a district-wide vaccination program – Philadelphia County, Pennsylvania, March 21–April 23, 2021 . <i>Morbidity and Mortality Weekly Report (MMWR)</i> . 70, 1040–1043.	Jul 30, 2021	Prevalence	School District of Philadelphia Philadelphia, United States	<ul style="list-style-type: none"> Weekly antigen tests 	<p>Weekly antigen screening tests were required from all employees Mar 21 – Apr 23, 2021, following employee-targeted mass vaccination (Feb 23 – Apr 3, 2021).</p> <p>Among 22,808 eligible employees, 10,700 (46.9%) received ≥ 1 dose; 46.1% received 2 doses.</p> <p>By Apr 23, 34,048 tests were conducted within 54% school staff who returned to in-person learning; 0.7% were positive.</p> <ul style="list-style-type: none"> 19/21,083 (0.09%) received 2 doses 21/1737 (1.21%) received 1 dose 198/11,228 (1.76%) unvaccinated RR 2 doses vs. unvaccinated = 0.04 (95% CI=0.02,0.07) RR 1 dose vs. unvaccinated = 0.69 (95% CI=0.44,1.07) <p>Amongst asymptomatic staff:</p> <ul style="list-style-type: none"> 18/21,019 (0.09%) received 2 doses 14/1717 (0.82%) received 1 dose 134/11,007 (1.22%) unvaccinated RR 2 doses vs. unvaccinated = 0.07 (95% CI=0.04,0.11) RR 1 dose vs. unvaccinated = 0.67 (95% CI=0.39,1.16) 	High
Young, B.C., Eyre, D.W., Kendrick, S., White, C., Smith, S., Beveridge, G., ... Peto, T.E.A. (2021). A cluster randomised trial of the impact of a policy of daily	Jul 25, 2021	Cluster randomized controlled trial	Secondary schools and colleges, England, UK	<ul style="list-style-type: none"> Isolation for cases and contacts Contact tracing Daily rapid antigen testing 	<p>From Apr 19 – Jun 27, 2021, 201 schools were assigned to one of two conditions following identification of a school case: 10-days of home isolation (control) or continued attendance with voluntary daily rapid testing (intervention).</p> <p>RT-PCR confirmed cases were identified in both intervention (740 or 61.8/100,000 per</p>	High PREPRINT

testing for contacts of COVID-19 cases on attendance and COVID-19 transmission in English secondary schools and colleges. Preprint.					<p>week) and control (657 or 59.1/100,000 per week). Using intention to treat analysis:</p> <ul style="list-style-type: none"> • Symptomatic RT-PCR confirmed infection (vs. control): Incidence Rate Ratio (IRR): 0.96 (95% CI=0.75,1.22) • Any community RT-PCR confirmed infection (vs. control): IRR: 0.96 (95% CI=0.76,1.20) • % of asymptomatic contacts testing positive on study-related PCR test (vs. control): IRR: 0.73 (95% CI=0.33,1.61) • % of symptomatic contacts testing positive on routine community test: IRR: 1.21 (95% CI=0.82,1.79) <p>Daily testing is non-inferior to self-isolation in infection control and is a safe alternative to home isolation for school-based exposure.</p>	
<p>Oster, E. (2021, May 23). National COVID-19 school response dashboard.</p>	<p>May 23, 2021</p>	<p>Prevalence</p>	<p>Schools, USA</p>	<ul style="list-style-type: none"> • Varied by county 	<p>From Aug 31, 2020 – May 23, 2021, 7,770,832 students learning in-person and 1,641,392 in-person staff were included in the dashboard.</p> <p>From May 10 – 23, 2021</p> <ul style="list-style-type: none"> • Daily case rate = 8 per 100,000 students (0.11%). • Daily case rate = 6 per 100,000 staff (0.09%) • The community case rate in school-matched population was 9 per 100,000, positivity rate of 3.22%. <p>Case rates (per 100,000) by mitigation strategies include:</p> <p><u>Student masking vs. no mask</u> Low/moderate community transmission (<50 total new cases per 100,000 persons in the past 7 days, or approximately <7 cases per day)</p> <ul style="list-style-type: none"> • Students: 4/10,279 (0.04%) vs. 2/1428 (0.14%) • Staff: 5/10,320 (0.05%) vs. 4/1427 (0.28%) 	<p>Low</p> <p>NOT PEER REVIEWED</p>

					<p>Substantial community transmission (50-99 total new cases per 100,000 persons in the past 7 days, or ~7-14 cases per day)</p> <ul style="list-style-type: none"> • Students: 8/26,051(0.03%) vs. 7/5137 (0.14%) • Staff: 8/25,813 (0.03%) vs. 7/5121 (0.14%) <p>High community transmission ≥ 100 total new cases or more per 100,000 persons in the past 7 days, or approximately >14 cases per day</p> <ul style="list-style-type: none"> • Students: 25/101,874 (0.02%) vs. 19/20,342 (0.09%) • Staff: 32/99,628 (0.03%) vs 18/20,047 (0.09%) <p><u>6-foot student distancing vs. 3-foot vs. no distancing</u></p> <p>Low/moderate community transmission</p> <ul style="list-style-type: none"> • Students: 5/6294 (0.08%) vs. 3/661(0.45%) vs. 1/3132 (0.03%) • Staff: 5/6292 (0.08%) vs. 3/661 (0.45%) vs. 4/3133 (0.13%) <p>Substantial community transmission</p> <ul style="list-style-type: none"> • Students: 9/17,669 (0.05%) vs. 7/1285 (0.54%) vs. 5/8487 (0.06%) • Staff: 8/17,647 (0.05%) vs. 7/1285 (0.54%) vs. 6/8485 (0.07%) <p>High community transmission</p> <ul style="list-style-type: none"> • Students: 26/79,167 (0.03%) vs. 19/3271 (0.58%) vs. 15/19,718 (0.08%) • Staff: 30/78,712 (0.04%) vs. 32/3271 (0.98%) vs. 26/19,700 (0.13%) <p><u>Increased ventilation vs. no ventilation</u></p> <p>Low/moderate community transmission</p> <ul style="list-style-type: none"> • Students: 5/6129 (0.08%) vs. 2/3877 (0.05%) • Staff: 5/6129 (0.08%) vs. 5/3877 (0.13%) 	
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					<p>Substantial community transmission</p> <ul style="list-style-type: none"> • Students: 9/17,476 (0.05%) vs. 6/9891 (0.06%) • Staff: 8/17,460 (0.05%) vs. 7/9883 (0.07%) <p>High community transmission</p> <ul style="list-style-type: none"> • Students: 25/70,635 (0.04%) vs. 21/31,286 (0.07%) • Staff: 31/70,571 (0.04%) vs. 27/30,877 (0.09%) <p><u>In-person student density</u></p> <p>Low/moderate community transmission</p> <ul style="list-style-type: none"> • Students: <ul style="list-style-type: none"> ○ Density <60%: 6/5622 (0.11%) ○ Density 60-90%: 4/8118 (0.05%) ○ Density >90%: 2/8462 (0.02%) • Staff: <ul style="list-style-type: none"> ○ Remote: 4/186 (2.15%) ○ Density <60%: 8/4984 (0.16%) ○ Density 60-90%: 8/8063 (0.10%) ○ Density >90%: 5/8447 (0.06%) <p>Substantial community transmission</p> <ul style="list-style-type: none"> • Students: <ul style="list-style-type: none"> ○ Density <60%: 8/18,839 (0.04%) ○ Density 60-90%: 8/21,500 (0.05%) ○ Density >90%: 5/12,062 (0.08%) • Staff: <ul style="list-style-type: none"> ○ Remote: 11/401 (2.74%) ○ Density <60%: 10/17,209(0.06%) ○ Density 60-90%: 11/21,333 (0.05%) ○ Density >90%: 10/12,062 (0.08%) <p>High community transmission</p> <ul style="list-style-type: none"> • Students: <ul style="list-style-type: none"> ○ Density <60%: 25/65,225 (0.04%) ○ Density 60-90%: 22/67,042 (0.03%) ○ Density >90%: 15/33,841 (0.04%) • Staff: <ul style="list-style-type: none"> ○ Density >90%: 15/33,841 (0.04%) ○ Remote: 43/1601 (2.69%) 	
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					<ul style="list-style-type: none"> ○ Density <60%: 31/57,607 (0.05%) ○ Density 60-90%: 36/65,322 (0.06%) ○ Density >90%: 28/33,532 (0.08%) 	
Previously reported evidence						
Oster, E., Jack, R., Halloran, C., Schoof, J., & McLeod, D. (2021). COVID-19 mitigation practices and COVID-19 rates in Schools: Report on data from Florida, New York and Massachusetts. <i>Preprint.</i>	May 21, 2021	Quasi-experimental	Florida, New York and Massachusetts, USA	<ul style="list-style-type: none"> • Cohorts • Enhanced ventilation • Masks • Reduced student density • Physical distancing (6 ft.) • Symptom screening • Temperature checks <p>Varied by state</p>	<p>Student IRRs for mitigation practices were calculated by State over the 2020-2021 school year:</p> <ul style="list-style-type: none"> • Florida: <ul style="list-style-type: none"> ○ Student density ≥ 80 vs. 10-49%: IRR: 0.576, $p < 0.001$ ○ Student density 50-79 vs. 10-49%: IRR: 0.773, $p < 0.001$ ○ Staff mask mandate vs. none: IRR: 0.990, $p > 0.05$ ○ No mask mandate vs. any: IRR: 1.116, $p > 0.05$ ○ Ventilation improvements: IRR: 0.858, $p > 0.05$ • Massachusetts: <ul style="list-style-type: none"> ○ Student density ≥ 80 vs. 10-49%: IRR: 0.627, $p < 0.001$ ○ Student density 50-79 vs. 10-49%: IRR: 0.655, $p < 0.01$ • New York <ul style="list-style-type: none"> ○ Student density $\geq 80\%$ vs. 10-49%: IRR: 0.628, $p < 0.001$ ○ Student density 50-79 vs. 10-49%: IRR: 0.708, $p < 0.001$ ○ Ventilation improvements vs. none: IRR: 0.938, $p > 0.05$ <p>Higher in-person learning density is consistently associated with lower student cases.</p>	Moderate <i>PREPRINT</i>

<p>Lessler, J., Grabowski, K., Grantz, K.H., Badillo-Goicoechea, E., Metcalf, J.E., Lupton-Smith, C. ... & Stuart, E.A. (2021). Household COVID-19 risk and in-person schooling. <i>Science</i>, 327(6546), 1092-1097.</p>	<p>Apr 29, 2021</p>	<p>Cross-sectional</p>	<p>Schools, USA</p>	<ul style="list-style-type: none"> • Cancelled extracurriculars • Closed common spaces (playgrounds, cafeterias) • Cohorting • Masks • Physical distancing (extra space, separators between desks) • Reduced class size • Restricted entry • Symptom screening • *Substantial heterogeneity in number and type of IPAC measures mandated across states. 	<p>From Nov 24 – Dec 23, 2020, and Jan 11 – Feb 10, 2021, data on schooling behaviours and COVID-19 outcomes from 50 states were collected via an online survey (2,142,887 respondents, 284,789 reported living with at least one child in in-person schooling).</p> <p>Compared to full-time in-person, part-time in-person was not associated with risk of COVID-19 outcomes once mitigation measures are accounted for.</p> <p>For every additional IPAC measure implemented there was a decrease in odds of a positive test (adjusted OR: 0.93, 95% CI=0.92,0.94); symptoms screening was associated with the greatest risk reduction. When 7 or more IPAC measures were implemented, risk largely disappeared (with a complete absence of risk with 10 or more IPAC measures). Among those reporting 7 or more mitigation measures, 80% reported student/teacher mask mandates, restricted entry, desk spacing and no supply sharing.</p> <p>Associations between IPAC measures and positive tests varied; outdoor instruction, restricted entry, no extracurriculars, and daily symptom screening were associated with significant risk reductions:</p> <ul style="list-style-type: none"> • Student mask mandate: adjusted OR: 0.91 (95% CI=0.83,1.00) • Teacher mask mandate: adjusted OR: 0.91 (95% CI=0.83,1.00) • Same teacher all day: adjusted OR: 1.00 (95% CI=0.93,1.08) • Same students all day: adjusted OR: 0.93 (95% CI=0.86,1.00) • Outdoor instruction: adjusted OR: 0.88 (95% CI=0.80,0.98) • Restricted entry: adjusted OR: 0.88 (95% CI=0.81,0.95) 	<p>Moderate</p>
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					<ul style="list-style-type: none"> • Reduced class size: adjusted OR: 1.01 (95% CI=0.94,1.09) • Closed cafeteria: adjusted OR: 1.03 (95% CI=0.95,1.11) • Closed playground: adjusted OR: 1.01 (95% CI=0.92,1.10) • Desk shields: adjusted OR: 1.12 (95% CI=1.04,1.22) • Extra desk space: adjusted OR: 0.96 (95% CI=0.89,1.04) • No extracurriculars: adjusted OR: 0.73 (95% CI=0.68,0.79) • No sharing supplies: adjusted OR: 0.92 (95% CI=0.85,1.00) • Daily symptom screen: adjusted OR: 0.78 (95% CI=0.73,0.84) • Part-time in person: adjusted OR: 0.97 (95% CI=0.91,1.03) 	
van den Berg, P., Schechter-Perkins, E.M., Jack, R.S., Epshtein, I., Nelson, R., Oster, E., & Branch-Elliman, W. (2021). Effectiveness of 3 versus 6 feet of physical distancing for controlling spread of coronavirus disease 2019 among primary and secondary students and staff: A retrospective, statewide cohort study. <i>Clinical Infectious Diseases</i>, ciab230.	Mar 10, 2021	Cohort	242 public schools, Massachusetts	<ul style="list-style-type: none"> • Cohorting • Dedicated isolation space for symptomatic students • Enhanced cleaning • Enhanced ventilation • Hand hygiene • Masks (staff, students \geq grade 2) • Physical distancing (>3 vs. >6 feet) • Symptom screening (staff, students) 	<p>From Sep 24, 2020 – Jan 27, 2021, daily incidence in students and staff were compared in school physical distancing requirements of 3 vs. 6 feet. In total, 4226/537,336 (0.79%) students and 2382/99,390 (2.4%) staff tested positive.</p> <p>Cases were similar in all districts:</p> <ul style="list-style-type: none"> • Staff IRR: 0.989 (95% CI=0.73,1.33) • Student IRR: 0.891 (95% CI=0.59,1.34) <p>After adjusting for community incidence:</p> <ul style="list-style-type: none"> • Staff IRR: 1.02 (95% CI=0.75,1.37) • Student IRR: 0.904 (95% CI=0.62,1.33) 	Moderate

Table 4: Single Studies, Community-level Impact of School Reopening

Reference	Date Released	Study Design	Setting, Location	IPAC measures	Summary of Findings	Quality Rating:
New evidence reported on August 12, 2021.						
Sebastiani, G. & Palù, G. (2021). COVID-19 Pandemic: Influence of Schools, Age Groups, and Virus Variants in Italy. <i>Viruses</i> , 13(7), 1269.	Jun 29, 2021	Quasi-experimental	Italy, post-Christmas Break, post delayed school closures	Not reported	<p>From Jan – Feb 2021, the incidence of COVID-19 in school aged children was compared staggered school re-openings across the country.</p> <ul style="list-style-type: none"> Hospital ICU admissions consistently decreased over the course of Jan 2021 which coincided with a delay in school re-opening after the Christmas Break (values not provided) The increased incidence of COVID-19 among those 0-9 in the first 10 days of Jan 2021 is statistically significant (p<0.001) (data not provided). Incidence peak occurred 14-days after return to remote schooling (data not provided) 	Low
Previously reported evidence						
Bignami-van Assche, S., Boujija, Y., Fisman, D., & Sandberg, J. (2021). In-person schooling and COVID-19 transmission in Canada's three largest cities. <i>Preprint.</i>	Mar 23, 2021	Case series	School-aged children, Montreal, Toronto, and Calgary, Canada	<ul style="list-style-type: none"> Masks (varied): <ul style="list-style-type: none"> Toronto: mandatory for elementary and secondary schools; encouraged for kindergarten. Montreal: mandatory in common areas for elementary, and later, in classrooms for secondary schools. 	<p>Levels of community transmission were low when schools reopened (Aug 25 – 31, 2020):</p> <ul style="list-style-type: none"> 11.3/100,000 Montreal 10.0/100,000 Toronto 26.7/100,000 Calgary <p>Montreal and Toronto implemented IPAC measures (restaurant and recreation closures, gathering restrictions) in Oct 2020; by Dec, all 3 cities had implemented these and additional measures (work from home, business closures).</p> <p>Levels of community transmission had risen by end of study period (Jan 6 – 12, 2021):</p> <ul style="list-style-type: none"> 356.9/100,000 Montreal 165.9/100,000 Toronto 153.5/100,000 Calgary 	Low PREPRINT

				<ul style="list-style-type: none"> ○ Calgary: mandatory K-12, could be removed when seated in classrooms (cohorts, physically distanced) • Optional remote or hybrid learning 	<p>In Toronto and Calgary, infection trends in 0–19-year-olds paralleled adults; in Montreal, increased rates among adults were preceded by increases among 10–19-year-olds, suggesting Montreal school IPAC measures were insufficient.</p> <p>One week after schools closed for winter holiday break, weekly incidence declined among 0–19-year-olds but continued to rise in other age groups.</p>	
<p>Perramon, A., Soriano-Arandes, A., Pino, D., Lazcano, U., Andrés, C., Català, M., ... Soler-Palacin, P. (2021). Epidemiological dynamics of the incidence of COVID-19 in children and the relationship with the opening of schools in Catalonia (Spain). <i>Preprint</i>.</p>	Feb 17, 2021	Quasi-experimental	Primary and secondary schools, Catalonia, Spain	<ul style="list-style-type: none"> • Cohorting • Enhanced ventilation • Hand hygiene • Infographics • Masks (students aged ≥ 6) • Mass screening campaigns • Cohort screening/quarantining with positive case 	<p>From Sep 14, 2020 – Jan 31, 2021, 48,914 (of 942,881) children (aged <18) tested positive for COVID-19 (5.2%). Variant B.1.1.7 was first detected in Catalonia at end of December.</p> <p>Incidence for aged <12 lower than general population; incidence aged 12-17 similar or higher. Age associated with higher incidence.</p> <p>Incidence impacted by changes in active screening/testing. Daily tests and cases among children, compared with the general population, decreased when schools were closed (p<0.001). During first 11 weeks, positivity rate in children ($\leq 5\%$) was lower than general population; positivity rate increased when schools were closed for holidays (p<0.001) due to a decrease in screening/testing.</p> <p>Rate of cases in children was significantly lower than for adults during whole study period (p<0.001).</p>	<p>Low</p> <p><i>PREPRINT</i></p>

Table 5: In-progress Single Studies

Title	Anticipated Release Date	Setting	Description of Document
New evidence reported on August 12, 2021			
Universitätsmedizin Greifswald. (2021). Analyzing the incidence of SARS-CoV-2 infected children and teenager in Western Pomerania . <i>German Clinical Trials Register, DRKS00024635</i> .	Not reported	Not specified	This seroprevalence study will measure the infection rate of COVID-19 and temporal changes in COVID specific antibodies in children aged 6 months – 17 years.
Universitätsklinikum Heidelberg. (2021). The Potential of home-based screening for SARS-CoV-2 when opening schools in Baden-Württemberg (COVID-19) . <i>German Clinical Trials Register, DRKS00024845</i> .	Not reported	School	This surveillance study will monitor the incidence and prevalence of COVID-19 in students and staff in a primary school using an at home rapid test with confirmation through PCR testing.
Previously reported evidence			
Zimmerman, K. (2021). Coronavirus-19 (COVID-19) and related outcomes in school aged children (ABC health outcomes in children) . <i>ClinicalTrials.gov, NCT04757831</i> .	Feb 15, 2026	Schools	This study will measure the incidence of non-severe and severe COVID-19 disease including risk factors and outcomes, among children (aged ≤ 21).
Chu, H. (2021). Reopening schools safely and educating youth (ROSEY) research study (ROSEY) . <i>ClinicalTrials.gov, NCT04859699</i> .	Jun 2023	Schools	This pilot study includes a clustered randomized control trial (RCT) assessing the effectiveness of a testing program on student attendance in K-8. Incidence of COVID-19 will be compared between the control; students who receive weekly PCR testing and the intervention; students who receive weekly testing and risk mitigation communication materials to educate them on COVID-19 health and safety measures.
Zimmerman, K. (2021). COVID-19 surveillance and exposure testing in school communities . <i>ClinicalTrials.gov, NCT04831866</i> .	Apr 15, 2023	Schools	This study will compare incidence of COVID-19 in schools performing weekly surveillance testing on 10-20% of students and 100% with schools performing exposure testing on students and staff after close contact with a confirmed COVID-19 case.
Newland, J. G. (2021). Assessing Testing Strategies for Safe Return to K-12 Schools in an Underserved Population . <i>ClinicalTrials.gov, NCT04875520</i> .	Mar 31, 2023	Schools	This clustered RCT will compare the incidence of school-based COVID-19 transmission between weekly student and staff surveillance testing vs. testing only symptomatic students and staff.
Duysburgh, E. & Vermeulen, M. (2020). Prevalence and incidence of antibodies against SARS-CoV-2 in children measured for one year in Belgium: A sero-epidemiological prospective cohort study . <i>ClinicalTrials.gov, NCT04613817</i> .	Aug 31, 2021	Schools	This study will determine the seroprevalence and seroconversion of antibodies against the virus that causes COVID-19 in primary and secondary school-aged children at different time points.
Kaiser, R. (2021). SARS-CoV-2 surveillance in childcare facilities . <i>German Clinical Trials Register, DRKS00023507</i> .	Not reported	Daycare	This study will assess the feasibility of testing children and staff at daycares for COVID-19 twice per week for two weeks.

Sweeney-Reed, C.M., Wolff, D., Niggel, J., Kabesch, M., & Apfelbacher, C. (2021). Pool testing as a strategy for prevention of SARS-CoV-2 outbreaks in schools: Protocol for a feasibility study . <i>JMIR Research Protocols</i> , 10(5), e28673.	Not reported	School	This study will assess the feasibility of an infection monitoring program in schools in an effort to enable targeted quarantining in place of full school closures.
Zinszer, K., McKinnon, B., Bourque, N., Zahreddine, M., Charland, K., Papenburg, J. ... Quach, C. (2021). Seroprevalence of anti-SARS-CoV-2 antibodies among school and daycare children and personnel: Protocol for a cohort study in Montreal, Canada . <i>Preprint</i> .	Not reported	Daycares, schools	This longitudinal cohort study will estimate the seroprevalence and seroconversion of antibodies against the virus that causes COVID-19 among students and staff in primary and secondary school and daycares in Montréal, Canada.
Universitätsklinikum Rostock. (2020). Prospective Study initiated by University Hospital Rostock concerning COVID-19 in mothers, nursery and school teachers of children in Rostock . <i>German Clinical Trials Register</i> , DRKS00022504.	N/A	Daycare, schools	This study will measure prevalence of COVID-19 and associated antibodies in mothers, daycare nurses and teachers, and schoolteachers over the period of 12 months.

Table 6: Syntheses

Reference	Date Released	Review Conclusions	Quality Rating
New evidence reported on August 12, 2021			
Martinoli, C., Raimondi, S., Bellerba, F., Sasso, C., Basso, A., Cammarata, G., Gandini, S. (2021). Estimating SARS-CoV-2 circulation in the school setting: A systematic review and meta-Analysis. Preprint.	Jul 19, 2021 (Search completed May 15, 2021)	<p>This systematic review and meta-analysis included 41 studies that estimate COVID-19 prevalence and transmission in primary and secondary school settings.</p> <p>Studies that conducted random or longitudinal screening for infection (n = 21) identified 323 confirmed cases in >120,000 subjects; pooled mean percent positive was 0.44% (95% CI=0.13,0.92) with high heterogeneity across studies ($I^2=92%$)</p> <ul style="list-style-type: none"> Estimates differed significantly between cross-sectional (0.31%, 95% CI=0.05,0.81) and cohort studies (1.14%, 95% CI=0.01,4.19), p=0.03 Children were no more likely to be positive than adults, pooled OR: 0.83 (95% CI=0.53,1.29) <p>Seroprevalence studies (n = 9) identified 354 confirmed cases among 17,879 subjects; pooled mean seroprevalence was 3.9% (95% CI=1.15,8.19), $I^2=100%$</p> <ul style="list-style-type: none"> Estimates differed significantly between cross-sectional (1.49%, 95% CI=0.07 4.69) and cohort studies (10.31%, 95% CI=2.44,22.74), p=0.005 Children were less likely to be seropositive than adults; OR: 0.57, 95% CI=0.49,0.68, $I^2=21%$ <p>Contact tracing studies (n = 15) included 747 index cases and 112,622 contacts; pooled mean SAR: 2.54 (95% CI=0.76,5.31), $I^2=100%$</p> <ul style="list-style-type: none"> Child index cases had lower odds of transmitting to a secondary case vs. adults, pooled OR: 0.26 (95% CI=0.11,0.63), $I^2=44%$ Child close contacts were no more likely to be positive than adult close contacts, pooled OR: 0.60 (95% CI=0.25,1.47), $I^2=63%$ <p>Findings suggest that although infection does occur in schools, there is low COVID-19 circulation and limited child-to-adult or child to child transmission.</p>	Moderate PREPRINT
Viner, R., Waddington, C., Mytton, O., Booy, R., Ladhani, S., Panovska-Griffiths, J., ... Melendez-Torres, G.J. (2021). Transmission of SARS-CoV-2 by children and young people in households and schools: A meta-analysis of population-based and contact-tracing studies. Preprint.	Jul 9, 2021 (Search completed Apr 5, 2021)	<p>This systematic review and meta-analysis included 24 studies (16 population-based, 6 contact tracing and 2 that used both approaches) on transmission of COVID-19 from those aged 0-19 to other children and adults in school settings.</p> <p>The pooled SAR from child index cases in school studies (n=8) was 0.5% (95% CI=0.1,1.6), $I^2=94.79%$.</p> <p>Odds of transmission was not different from child vs. adult index cases in school settings, pooled OR: 0.27 (95% CI=0.06,1.28), $I^2=87.97%$.</p>	Moderate PREPRINT

	<p>Factors associated with lower school prevalence detected by RT-PCR include:</p> <ul style="list-style-type: none"> • Age ≤7, 0.05% (95% CI=0.005,0.50) vs. any age 0.45% (95% CI=0.23,0.87%), p=0.009 <p>Factors associated with higher school prevalence detected by RT-PCR include:</p> <ul style="list-style-type: none"> • Age 12-19, 1.62% (95% CI=0.30,8.78) vs. any age 0.45% (95% CI=0.23,0.87%), p=0.014 • Current community incidence per 100,000, OR: 1.003 (95% CI=1.001,1.004) • Last month community incidence per 100,000, OR: 1.003 (95% CI=1.001,1.006) • Masks vs. no masks in secondary schools, OR: 4.43 (95% CI=1.71,11.47) • Masks vs. no masks in primary and secondary schools, OR: 4.64 (95% CI=1.89,11.37) <p>No association was found between school prevalence detected by RT-PCR and:</p> <ul style="list-style-type: none"> • Age 5-12, 0.40% (95% CI=0.08,2.11%) vs. any age 0.45% (95% CI=0.23,0.87%), p=0.829 • Number of school mitigation measures, OR: 1.64 (95% CI=0.79,3.39) • Two-month prior community incidence per 100,000, OR: 1.002 (95% CI=0.997, 1.006) • % face-to-face learning, OR: 1.007 (95% CI=0.985,1.029) <p>Factors associated with lower school seroprevalence include:</p> <ul style="list-style-type: none"> • Masks vs. none, primary and secondary schools, OR: 0.13 (95% CI=0.05,0.37) <p>No association was found between school seroprevalence and:</p> <ul style="list-style-type: none"> • Age 5-12, 3.57% (95% CI=0.11,12.1%) vs. any age 1.44% (95% CI=0.31,6.70%), p=0.37 • Age 12-19, 5.22% (95% CI=0.19,17.7) vs. any age 1.44% (95% C=0.31,6.70%), p=NR • Current community incidence per 100,000, OR: 1.001 (95% CI=0.998,1.004) • Last month community incidence per 100,000, OR: 1.006 (95% CI=0.999,1.013) • Two-month prior community incidence per 100,000, OR: 1.015 (95% CI: 0.988,1.042) • Number of school mitigation measures, OR: 1.006 (95% CI=0.74,1.37) • Masks vs. no masks in secondary schools, OR: 0.95 (95% CI=0.63,1.43) • % face-to-face learning, OR: 1.007 (95 %CI=0.97,1.04) 	
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<p>European Centre for Disease Control and Prevention. (2021, July 8). COVID-19 in children and the role of school settings in transmission - second update.</p>	<p>July 8, 2021 (Search date NR)</p>	<p>This review explores the role of schools on the transmission of COVID-19 in Europe, and strategies to reduce risk. The number of studies included were not reported.</p> <p>Risk of infection in school settings:</p> <ul style="list-style-type: none"> • When mitigation measures are in place, infection spread in schools is limited (moderate confidence); however determining source of transmission is difficult. • Secondary infections in school settings are more likely to occur if the index case is a teacher than a student, other factors being equal (moderate confidence). • Staff and adults working within the school setting are not at an increased risk of severe COVID-19 compared to the general population (low confidence). • Authors conclude susceptibility and infectiousness of children, adolescents, and educational staff is higher with current community transmission compared to pre-VOC time points (data not provided to support this). <p>Strategies to mitigate risk:</p> <ul style="list-style-type: none"> • Implementing multiple physical distancing and hygiene measures can significantly reduce the possibility of transmission within schools (high confidence). These include: <ul style="list-style-type: none"> ○ De-densification (classroom distancing, staggered arrival times, cancellation of certain indoor activities, especially among other students) ○ Hygiene measures (handwashing, respiratory etiquette, cleaning, ventilation, and face masks for certain age groups). • Timely testing and isolation or quarantine of symptomatic cases is important • Rapid antigen tests should be considered 	<p>Low</p>
<p>Reynolds, C., Ng, S., & Yang, W. (2021). Factors affecting the transmission of SARS-CoV-2 in school settings. <i>Preprint.</i></p>	<p>Jun 22, 2021 (Search completed Feb 17, 2021)</p>	<p>This meta-analysis includes 17 studies with 26 school clusters, including 630 secondary cases among 8322 contacts, median SAR: 0.007 (IQR=0,0.17).</p> <p>Factors associated with lower odds of transmission, adjusting for other measures):</p> <ul style="list-style-type: none"> • Surveilling all contacts vs. only symptomatic, OR: 0.54 (95%CI: 0.45,0.65) • Mixed school (primary and secondary) vs. preschool: OR: 0.26 (95% CI=0.18,0.39) • Primary schools vs. preschool: OR: 0.12 (95% CI=0.07,0.20) • Social distancing: adjusted OR: 0.26 (95% CI=0.18,0.37) • Mask wearing, OR: 0.52 (95% CI=0.35,0.78) <p>Factors associated with higher odds of transmission, adjusting for other measures:</p> <ul style="list-style-type: none"> • Community transmission, per 10 cases/100,000 per week, OR: 1.26 (95% CI: 1.22,1.30) • Increase in class sizes: OR: 1.26 (95% CI=1.21,1.30) <p>No association found in final model between high school vs. preschool, average class size, weekly death rate, humidity.</p>	<p>Low</p> <p><i>PREPRINT</i></p>

Table 7: In-progress Syntheses

Title	Anticipated Release Date	Setting	Description of Document
New evidence reported on August 12, 2021			
Lopes-Junior, L.C., Siqueira, P.C., & Maciel, E.L.N. (2021). School reopening and risks accelerating the COVID-19 pandemic: a systematic review and meta-analysis of the observational studies . PROSPERO CRD42021265283.	Sep 30, 2021	Community, daycares, schools	This review and meta-analysis will summarize available evidence on school reopening and its impact on the transmission rate of COVID-19 among children, adolescents and young adults.
Luquine Jr., C.D., Milhomens, L.M., Domene, F.M., De Lucca Da Silva, J., de Araújo, B.C., Lopes Bezerra da Silva, L.A. ... Barreto, J.O.M. (2021). SARS-CoV-2 infection in schools: rapid review . PROSPERO, CRD42021257375.	Jun 26, 2021	Schools	This rapid review will summarize differences in COVID-19 infection rates between students and staff in primary and secondary schools, post re-opening.
Previously reported evidence			
Little, T., Reinhard, D., & White, S. K-12 non-pharmacological responses to influenza-like and Coronavirus illness outbreaks in US schools – A systematic review . PROSPERO, CRD42021247217.	Aug 31, 2021	Schools	This review will summarize available evidence as to the effectiveness of non-pharmaceutical interventions and/or prevention strategies employed by K-12 school on the transmission of COVID-19.
Bhamani, S., Tabani, A., Ahmed, D., & Saleem, A. (2020). A rapid systematic review on COVID transmission trends in children on schools reopening in lower middle income countries . PROSPERO, CRD42020204925.	Jul 31, 2021	Schools	This review will summarize virus transmission among children and outbreaks occurring after schools re-open in lower middle-income countries.
Karki, S.J., Lange, B., Heinsohn, T., & Joachim, A. (2021). The risk of infection and contribution to transmission of SARS-CoV-2 in school staff - a systematic review . PROSPERO, CRD42021239225	Apr 15, 2021	Schools	This systematic review will summarize the risk and rate of COVID-19 transmission from staff working in schools, including secondary attack rates among students and the general population.
Lange, B., Ott, J., & Karki, S. J. (2021). Evidence synthesis gaps in understanding disease burden of children, transmission parameters in schools and households and effects of measures implemented in schools during the COVID-19 pandemic – a rapid systematic review of systematic reviews . PROSPERO, CRD42021231866.	Mar 31, 2021	Home, school	This rapid review of systematic reviews will summarize evidence syntheses on the disease burden of COVID-19 in children, their role, and the role of schools in transmission, and the effects of mitigation measures.

<p>Chatterji, M., Kitamura, K., Muenig, P., Willson, G.E., De Leon Jr., R., & Allegrante, J.P. (2020). <u><i>The relative effectiveness of multilevel interventions in reducing risks of transmission of lethal viruses in Grade K-12 school communities and school linked populations: a systematic review and best-evidence synthesis.</i></u> PROSPERO, CRD42020201930.</p>	<p>Aug 29, 2020</p>	<p>School and school-linked populations</p>	<p>This review will report on the relative efficacy of multilevel intervention in reducing risks of COVID-19 and other lethal viruses among kindergarten to grade 12 school communities and in school linked populations.</p>
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Table 8: Canadian Surveillance Data

Reference	Date Released	Study Design	Setting, Location	IPAC measures	Summary of Findings	Quality Rating:
New evidence reported on August 12, 2021.						
Government of Alberta. (2021, July 30). COVID-19: Education and child care.	Jul 30, 2021	Prevalence	Primary and secondary schools, Alberta	<ul style="list-style-type: none"> • Cohorting • Enhanced cleaning • Hand hygiene • Masks (staff, students grade 4+, when physical distancing not possible) • Physical distancing (staff, students) • Screening • Strict symptomatic stay-at-home policy¹ 	School (185 total) status classification as of Jun 30, 2021 <ul style="list-style-type: none"> • 30 outbreaks (10+ cases) • 21 outbreaks (5-9 cases) • 55 alerts (2-4 cases) • 79 open (i.e., no status to report) 	Moderate NOT PEER REVIEWED
Government of Ontario. (2021, July 28). COVID 19 cases in child care centres.	Jul 28, 2021	Prevalence	Licensed child care centres and agencies, Ontario, Canada	All daycares: <ul style="list-style-type: none"> • Cohorting • Enhanced cleaning • Masks, eye protection (staff) • No non-essential visitors • Record keeping • Screening • Drop-off, pick-up protocols² 	<p>From Jun 12, 2020 - Jul 28, 2021, a total of 7568 cases occurred in those connected to daycare settings in Ontario:</p> <ul style="list-style-type: none"> • 4540 child cases • 3028 staff/provider cases <p>As of Jul 28, 2021, 28 (0.52%) centres were currently reporting a case; 3 (0.06%) centres were closed.</p> <p>Reported daycare closures are due to outbreaks or operational considerations (i.e., # of staff in isolation resulting in insufficient # of staff available to keep school or daycare centre open; regional closures in local public health unit areas not considered.</p> <p>Transmission source unknown for cases, therefore unable to report the proportion of cases due to in-daycare transmission.</p>	High NOT PEER REVIEWED

¹ Government of Alberta. (2021, January 19). [COVID-19 information: guidance for school re-entry - scenario 1.](#)

² Government of Ontario. (2020, January 12). [COVID-19: Reopening child care centres.](#)

<p>Government of Québec. (2021, July 26). Daily numbers for the province – public and private school systems highlights.</p>	<p>Jul 26, 2021</p>	<p>Prevalence</p>	<p>Public and private school system, Québec</p>	<ul style="list-style-type: none"> • Alternating in-person/remote attendance (secondary schools in red and orange zones) • Cohorting • Enhanced cleaning • Masks (staff, students grades 5+; in red and orange zones, all students, except preschoolers) • Physical distancing³ 	<p>Data from 2740 public schools, 254 private schools including over 1,300,000 students and 226,000 staff.</p> <p>Confirmed positive cases in the school from start of school in Sep - Dec 22, 2020:</p> <ul style="list-style-type: none"> • Public: 14,929 students, 3558 staff • Private: 2443 students, 480 staff • Total: 17,372 students (~1.3% of all students), 4038 staff (~1.8% of all staff) <p>Confirmed active cases in school system on Jun 7, 2021:</p> <ul style="list-style-type: none"> • Public: 643 students, 58 staff • Private: 167 students, 8 staff • Total: 810 students (~0.06% of all students), 6 staff (~0.003% of all staff) <p>Confirmed variant cases since March 12, 2021:</p> <ul style="list-style-type: none"> • Public: 1097 • Private: 288 • Total: 13,855 <p>Number of schools that have had a positive case Jan 5 – Apr 29, 2021:</p> <ul style="list-style-type: none"> • 2576 (94%) <p>At the close of the 2021 school year (Jun 23) there were a total of 3381 completed outbreaks in school environments (no additional data provided)</p> <p>As of Jul 26, 2021 childcare establishments reported 2 active outbreaks and 1300 completed outbreaks (no additional data provided)</p>	<p>Low</p> <p>NOT PEER REVIEWED</p>
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³ Government of Québec. (2021, January 11). [Organization of educational activities in 2020-2021 \(COVID-19\).](#)

Government of Ontario. (2021, July 20). COVID-19 cases in schools and child care centres.	Jul 5, 2021	Prevalence	Primary, secondary schools, and daycares, Ontario, Canada	<p>All schools:</p> <ul style="list-style-type: none"> • Cohorting • Enhanced cleaning • Masks, eye protection (staff) • No non-essential visitors • Record keeping • Screening <p>Primary and secondary schools (in addition):</p> <ul style="list-style-type: none"> • Hand hygiene • Student masks grades 1-12, in school (hallways, class), on school transportation, outdoors (when cannot distance) • Physical distancing • Scheduled remote learning days (grades 9-12) • Staggered bell times (suggested) • Targeted testing (voluntary, participating schools)⁴ 	<p>From Sep 5, 2020 – Jul 5, 2021, a total of 15,292 school-related cases were reported in publicly funded schools in Ontario:</p> <ul style="list-style-type: none"> • 11,462 student cases • 2661 staff cases • 1169 ‘other’ cases (not identified) <p>As of Apr 9, 2021, schools moved to remote learning due to increasing COVID-19 cases in communities.</p> <p>From Apr 19 – Jun 30, 2021 there were 260 additional cases reported:</p> <ul style="list-style-type: none"> • 120 student cases • 140 staff cases <p><i>* Cases may be those not captured prior to April closure as well as students with special education needs who continued in-person learning and staff who support them.</i></p> <p>Transmission source unknown for cases, therefore unable to report the proportion of cases due to in-school transmission</p>	Moderate NOT PEER REVIEWED
Previously reported						
Government of Ontario. (2021, July 9). COVID-19: data for asymptomatic testing of students and school staff.	Jul 9, 2021	Prevalence	Primary, secondary schools, Ontario, Canada	<p>All schools:</p> <ul style="list-style-type: none"> • Cohorting • Enhanced cleaning • Masks, eye protection (staff) • No non-essential visitors • Record keeping • Screening <p>Primary and secondary schools (in addition):</p> <ul style="list-style-type: none"> • Hand hygiene 	<p>From Feb 1, 2021 - Apr 30, 2021, 64,526 rapid asymptomatic tests were conducted across 602 schools; a total of 411 additional cases were detected (0.73%).</p> <p>The number of cases identified by school board ranged from 0 to 151, and percent positive tests per school board ranged from 0 to 2.6%.</p>	Low NOT PEER REVIEWED

⁴ Government of Ontario. (2020, November 27). [Guide to reopening Ontario's schools.](#)

				<ul style="list-style-type: none"> • Student masks grades 1-12, in school (hallways, class), on school transportation, outdoors (when cannot distance) • Physical distancing • Scheduled remote learning days (grades 9-12) • Staggered bell times (suggested) • Targeted testing (voluntary, participating schools)⁵ 		
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⁵ Government of Ontario. (2020, November 27). [Guide to reopening Ontario's schools](#).

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