

Epidemiological Review of Schools

Academic year review of data August 2020 –
July 2021

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Significant contributions and thanks to:

Departments of Public Health and the Schools teams

Health Protection Surveillance Centre

Contact Management Programme

HSE Test and Trace

HSE Central Administration Team

HSE Live operating HSE Principals line and CCF facility line

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Term Dates Legend

The table below provides the details of the dates included in each week of testing.

Week	Dates
Term 1	23/08/2020 – 02/01/2021
Term 2	08/02/2021 - 10/04/2021
Term 3	11/04/2021 - 03/07/2021

Facility Groupings

The following groupings have been applied in the analysis within for the following Facility Types:

Facility Type	Facility Tag
Primary Schools	All Primary Schools (ages 5-13)
Post - Primary Schools	All Post - Primary + Grind Schools (ages 13-18)
Special Education	Special Education

Section 1: Introduction

Schools returned for on-site education in August 2020, following the guidance as laid out in the 'The Roadmap for the Full Return to School' as per the Department of Education advice.

Schools processes were established to manage cases and outbreaks within educational facilities.

As has been internationally recognised, the continuation of on-site schooling for children is vital for their opportunity for equitable access to education as well as their psycho-social wellbeing and access to health and social care services through the school setting. As per the WHO position – schools should be the first places to reopen within the pandemic, and the last to close. This was also core as part of the consensus statement of Consultants in Public Health Medicine in the Mid-term review undertaken in October, and this philosophy maintains. The importance and significance of ensuring educational facilities safely open to pupils, and remain safely open for pupils and staff are supported within the Public Health Medical community and the health services at large. Educational facilities are communities providing for not only the educational needs of pupils, but also many of their holistic, health and pastoral needs. It is a setting whereby social interaction and physical activity can be learned and occur in a place of safety, support and warmth

Infection with Covid-19 in children is generally a milder infection with a more limited disease course. Severe disease in children is uncommon, and rates of Paediatric Inflammatory Multisystem Syndrome (PIMS-TS) cases, thought to be triggered by Covid-19 infection, internationally, have remained very low. Transmission between children, particularly within the controlled environment that educational facilities can provide, has been nationally and internationally demonstrated to be low, and therefore schools are determined to be a low risk setting. However, schools, and children, are part of chains of infection and therefore schools processes were established to manage cases and outbreaks within these settings, and to allow better understanding and closer control of this infection within these settings.

Schools Process - Academic year 2020-21

- Children /Staff were tested through the usual symptomatic testing pathways either through their GP or self-referral /walk-in testing centres since HSE ICT attack
- For positive cases, a determination of whether the case was infectious within the school setting was made
- If infectious within the schools setting, cases were referred through to the Departments of Public Health and the Schools teams, for a Public Health Risk Assessment (PHRA)
- Through the process of the PHRA close contacts were determined using the definition of a close contact within an educational setting
- Close contacts identified were all excluded from school and tested as per the national testing protocol for close contacts (latterly PCR testing at D0 and D10) or no testing and 14 day restricted movements.

The numbers of PHRAs in this report reflect the PHRAs that led to the identification of some close contacts and the requirement for onward testing to be organised through the schools pathway.

Section 2: Overview Data from Departments of Public Health

2.1 Number of Schools where all staff and students were excluded and tested

Across the full academic year, 18 schools were requested to exclude all staff and students and undertake testing. A further facility had closed themselves and PH supported this maintain closed whilst they were completing the PHRA, as the scenario was more complicated scenario. The school then re-opened when the following day on Public Health advice.

2.2 Number of Leaving Certificate cases and close contacts identified around the State Examinations period.

Significant work were undertaken to ensure there were national and targeted messages to highlight awareness of the need for families, schools and broader communities to protect children undertaking their final exams, and minimise their exposures prior to exams. Approximately 58,000 students were within the 2019 Leaving Certificate class. Similar numbers would likely be within the 2020/21 cohort and they would have had the option to sit exams or receive accredited grades. In total 39 cases were identified amongst Leaving Certificate students in the period from finishing school to completing exams, and who came through to public health schools teams for relevant advice. Of these 39, 21 were required to miss some examinations to complete their isolation period. 41 close contacts were identified amongst leaving Certificate students, of whom 14 were precluded from sitting some examinations as their restricted movements period coincided with their examinations.

2.3 Number of Variant of Concern (VOC), or probable variant of concern, cases and queries investigated and managed within educational facilities

Across the academic year 21 educational facilities were investigated because of a variant or 'probable variant' of concern amongst the cases and clusters. Of note, onsite education was not open through January and most of February whilst the alpha variant was managed as a VOC with enhanced restrictions. The phased return to school occurred once enhanced actions for the alpha variant had been stood down, and therefore these cases were managed as per any case of Covid-19 and were not therefore categorised as VOC incidents within schools. The VOC incidents here therefore refer to beta, gamma and delta variants.

2.4 Number of staff redeployed from the Education Sector (Department of Education affiliated staff and 'Better Start' affiliated staff..

Across the academic year, approximately 140 people from the Department of Education and Better Start supported the Schools teams. Their commitment to the teams varied from 0.5 WTE to 1WTE depending on the resource needs and surge capacity required.

2.5 Number of calls received through the HSE Principals line and HSE Child Care Facility Line

When all facilities were open, approximately 700 calls per month were referred through from Principals and Facility managers to the Schools teams. Since the ICT attack on May14th, this data are not available.

Section 3: Overview data Covid-19 in Children and Schools outbreaks

Data presented in this section of the report refer to data notified to the Health Protection Surveillance Centre, as per the requirements for a statutory notifiable infectious disease.

3.1 COVID-19 Cases by Age Group

Between March 1st 2020 and July 10th 2021, a total of 46,470 confirmed cases of Covid-19 among children aged 0-18 years were reported to HPSC (9,618 cases aged 0-4 years; 17,816 cases aged 5-12 years; 19,036 cases aged 13-18 years). This represents 17% of the total number of confirmed Covid-19 cases reported to HPSC during this time period and 4% of the total 0-18 year old population¹ in Ireland.

Week of Notification	Age Groups			Totals		
	0-4 years	5-12 years	13-18 years	0-18 years	% of 0-4 population	% of 5-18 Population
Week 10 (2020)- Week 26 (2021)	9,462	17,450	18,498	45,410	2.85%	3.91%
Week 35 (2020)- Week 26 (2021)	9,191	17,053	17,990	44,234	2.77%	3.81%

Table 1: Number and percentage of confirmed Covid-19 cases in children aged 0-18 years since week 10 when the cases were notified; and since week 35 when schools returned.

* The figures below for Weeks 19 to 26 are based on SARS CoV-2 results uploaded to the COVID Care Tracker (CCT), rather than results recorded on CIDR. These data are provisional and subject to ongoing review, validation and update.

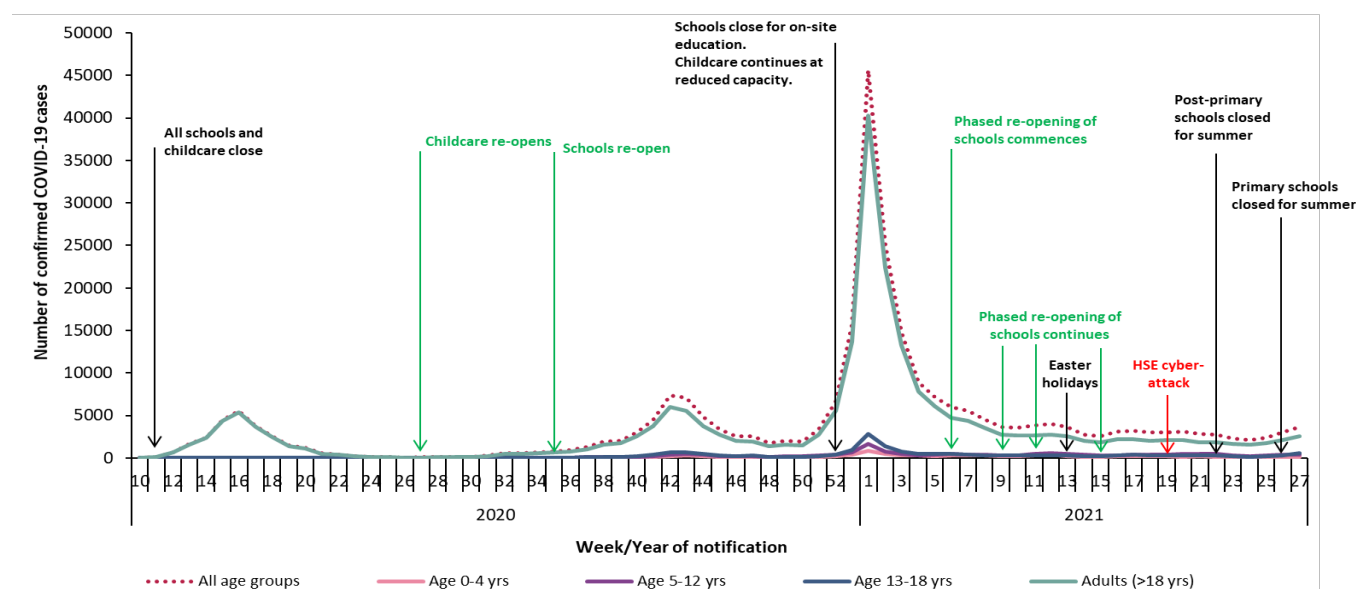


Figure 1: Data from week 19 2021 onwards are based on SARS CoV-2 results uploaded to the COVID Care Tracker (CCT). Please note that these data do not represent notified cases, and have not undergone the data validation procedures undertaken through CIDR.

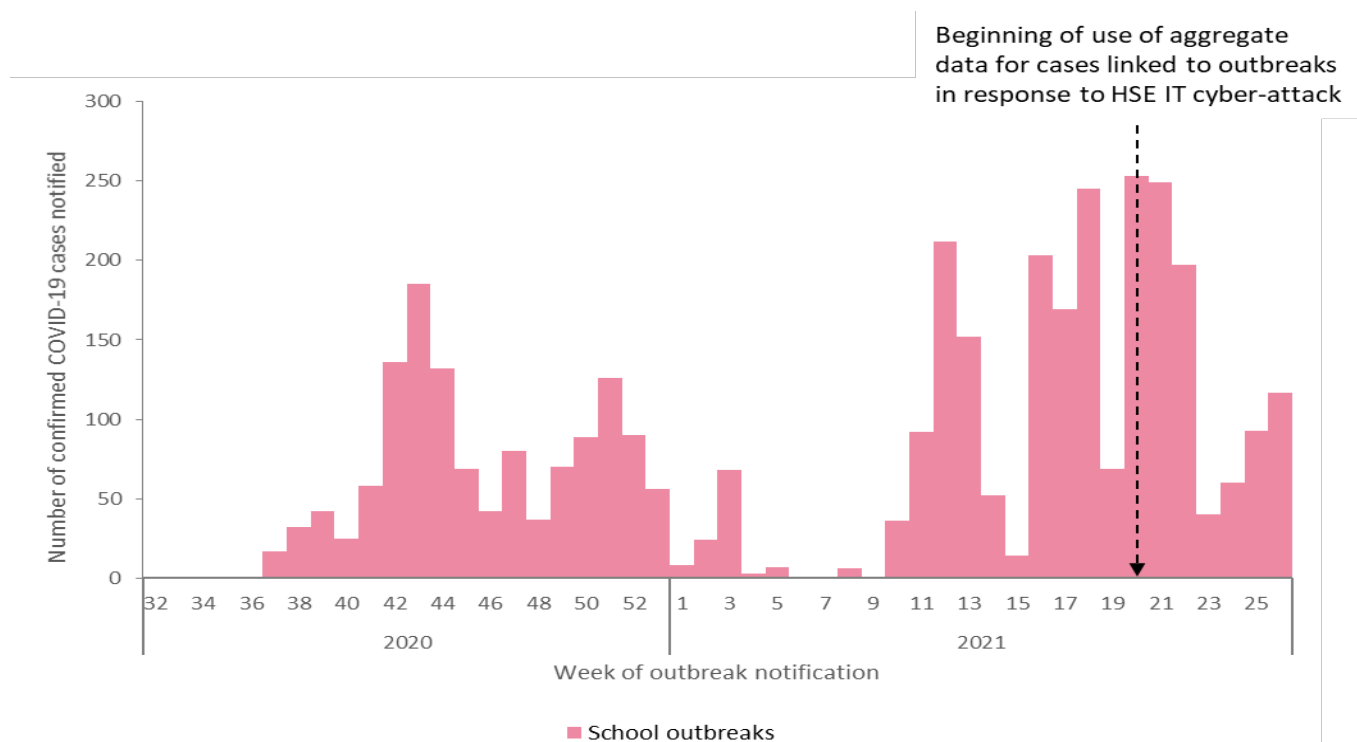
¹ Population data are based on Census 2016

School term	Children aged 0-4 years	Children aged 5-12 years	Children aged 13-18 years	Total Children aged 0-18 years	Total cases across all age groups	Proportion of cases in children aged 0-18 years
Term 1 2020/2021 (23/08/2020 – 26/12/2021)	2,124	4,158	4,852	11,134	58,148	19%
Term 2 2021 (07/02/2021 – 27/03/2021)	2,089	3,027	2,423	7,539	31,069	24%
Term 3 2021 (11/04/2021 – 26/06/2021)	1,813	4,210	6,023	12,046	30,423	40%
Total	6,026	11,395	13,298	30,719	119,640	26%

Table 2: Number and proportion of confirmed Covid-19 cases in children aged 0-18 years compared to all age groups by 2020/21 academic term in Ireland

3.2 Covid-19 Outbreak in educational facilities

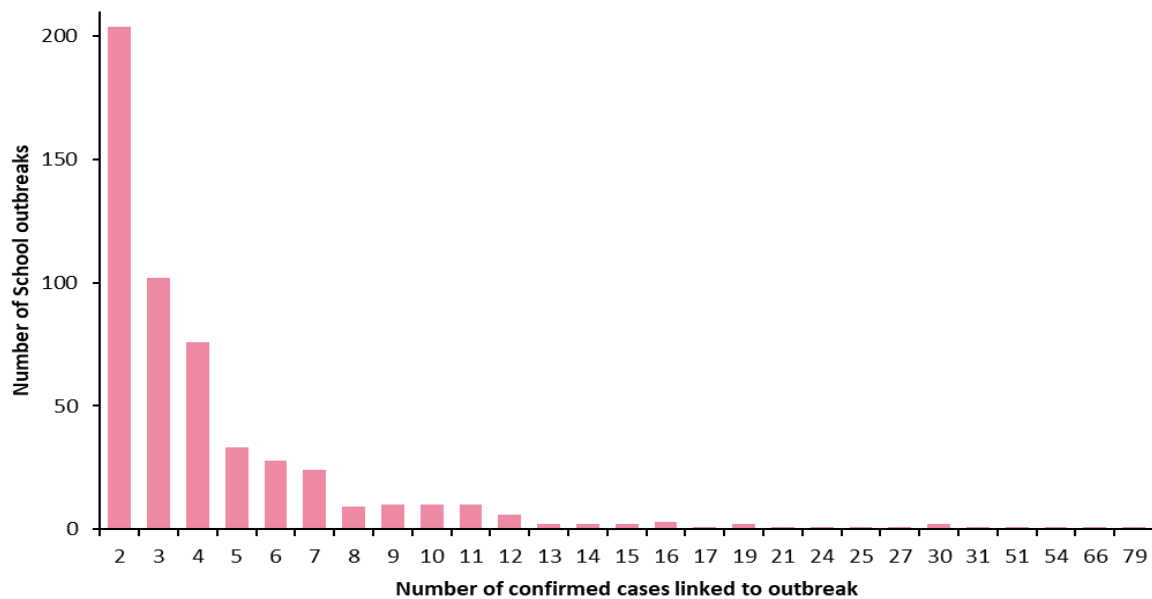
Since the first re-opening of schools in August 2020, a total of 832 outbreaks associated staff and children in schools were reported to HPSC (Figure 5a). A total of 3,655 cases were linked to these outbreaks². Outbreaks reported up until the HSE IT cyber-attack ranged in size from 0-79 linked cases, with 92% of outbreaks involving fewer than 10 linked cases and 34% of outbreaks involving only two linked cases.



Data from week 20 onwards are based on aggregate outbreak data manually collected/collated and submitted to HPSC by regional Departments of Public Health on a weekly basis. Please note that number of linked cases was correct at the time of reporting to HPSC but the outbreak may have grown in size since the time of reporting.

² These data include 231 outbreaks and 1,009 linked cases that were reported as aggregate data to HPSC on a weekly basis since the HSE IT cyber-attack. Data on case numbers was correct at the time of reporting to HPSC but the outbreak may have increased in size since reporting.

Figure 2 (above). Number of cases linked to COVID-19 outbreaks associated with staff and children in schools in Ireland between week 32, 2020 and week 26, 2021



*Excludes outbreaks with <2 linked cases (n=66)

Figure 3: Number of Covid-19 outbreaks associated with staff and children in schools by the number of linked confirmed cases per outbreak in Ireland between week 32, 2021 and week 19, 2021

Section 4: Overview schools testing process, academic year data

Data presented in this section of the report refer to testing undertaken through the schools testing pathways by Public Health, in place since September 2020.

4.1 Schools testing, overview data by sector, academic year (23/08/2020 – 02/01/2021, 08/02/2021 – 10/04/2021, 11/04/2021 – 03/07/2021)

The table below provides a summary of the testing completed across all schools facilities for the academic year 2020/2021 with a breakdown of detection rates (%) for close contacts for all school types:

Facility Type	No. different Facilities	No. Tested	No. Detected	Detected %	No. Not Detected	Range Positivity %	IQR Positivity %
Primary	1,163	73,215	1,841	2.51%	71,275	0.0 – 7.2%	1.3-3.0%
Post Primary	498	24,603	442	1.80%	24,136	0.0 - 5.8%	0.0-2.3%
Special Education	76	2,656	90	3.39%	2,555	0.0-18.2%	0.0 – 5.0%
	1,737	100,474	2,373	2.36%	97,966	0.0-6.8%	1.6-2.8%

Table 3: Summary of testing of identified close contacts across the different settings

44% of educational facilities required some meaningful contact with Public Health Schools teams across the academic year. 10% of the school population (staff and students included) were identified as close contacts, excluded and tested through the schools processes. Of note: Schools in Ireland have an average class size of 24.1 in mainstream classes.³

4.2 Schools Facility Testing by Age - Academic Year

Table 4 below provides a summary of the testing and test results by age category

School Type	Age	Tested	Tested %	Detected	Detected %	Not Detected
Primary	0-19	66,374	66%	1,725	2.67%	64,557
	+20	6,841	6%	116	1.72%	6,718
Post Primary	0-19	23,118	23%	414	1.82%	22,680
	+20	1,485	2%	28	1.92%	1,456
Special Education	0-19	1,461	2%	63	4.53%	1,390
	+20	1,195	1%	27	2.32%	1,165
		100,474	100%	2,373	2.42%	97,966

³ Data for pupil and teacher cohort per sector are as per:

<https://www.education.ie/en/Publications/Statistics/Key-Statistics/key-statistics-2019-2020.pdf>

Table 4: Summary of testing of identified close contacts across the different educational settings, across the three school terms

4.3 Tests and Detected close contacts % by Public Health Region - Academic Year

Table 5 provides a summary of the number of tests and detected Cases undertaken across the Schools Testing programme by Public Health Region.

PH Region	No. Tested	Tested %	Detected	Detected %	Not Detected
East	42,645	42%	1,008	2.36%	41,582
Midlands	10,964	11%	237	2.16%	10,713
Mid-West	10,575	11%	208	1.97%	10,363
North-East	8,990	9%	252	2.80%	8,726
North-West	7,107	7%	183	2.57%	6,898
South	7,366	7%	212	2.88%	7,140
South-East	5,430	5%	100	1.84%	5,324
West	7,397	7%	173	2.34%	7,220
	100,474	100%	2,373	2.36%	97,966

Table 5: the number of tests and detected Cases undertaken across the Schools Testing programme by Public Health Region.

The redeployment allocation from the Department of Education was split accordingly and hence >50% were allocated to the East to support the Public Health teams.

4.4 PHRA Breakdown of Referrals for all Schools Facility Types - Academic Year

Table 6 below provides a summary of the number of Public Health Risk Assessments (PHRAs) generated through referrals created across all school

Facility Type	No. different Facilities with testing undertaken	No. facilities 1 PHRA and onward testing*	No. facilities 2 PHRA and onward testing*	No. facilities 3 PHRA and onward testing*	No. facilities 4+ PHRA and onward testing*
Primary	1,163	499	338	159	199
Post Primary	498	169	129	86	115
Special Education	76	28	26	15	8
	1,737	696	493	260	322

* The number of PHRA referral figures are calculated using proxy markers and therefore totals will not always align to the total number of facilities that had testing undertaken.

At primary level (3106 facilities) – 38% of schools required a PHRA and onward testing

- 16% of primary schools required this on only one occasion
- 11% required this on two occasions
- 5% on three occasions and
- 6% on four or more occasions

At post primary level (723 facilities) - 69% post primary schools required a PHRA and onward testing

- 23% required this on only one occasion
- 18% required this on two occasions
- 12% on three occasions and
- 16% on four or more occasions

For special education facilities (134 facilities) - 57% of facilities required a PHRA and onward testing

- 21% required this on only one occasion
- 19% required this on two occasions
- 11% on three occasions and
- 6% on four or more occasions

Experiences from the Departments of Public Health identified, that the majority of close contact positive cases were identified on the first test offered to schools close contacts (usually D3-4 after exposure). Occasionally there was a positive test result identified on the D10 test results. There were other exposures associated with these D10 positive test results too. National, non schools specific data from the CMP, also concurs that positivity at Test 1 is significantly higher than positivity determined at test 2.

Significant operational challenges and time spent were encountered by schools teams trying to manage issues around linking test results to exist from restricted movements and a return to the school setting.

Section 5: Conclusions and Recommendations

Data analysis are reassuring that case positivity amongst identified contacts is low, despite the high levels of community transmission experienced across Ireland, at various times during the course of the pandemic.

Over the course of the academic year, 44% of all schools nationally required a clinical PHRA and onward testing for close contacts identified. 56% of schools therefore did not require this intervention from public health over the course of the year.

100,474 close contacts were tested through the schools testing system across the three different types of school educational facilities; this represents 10% of the school community.

Nationally at primary level, 2.5% of identified close contacts have tested positive for Covid-19. The corresponding figure for the post primary sector is 1.8% and 3.4% for the SEN sector.

The national comparison for positivity amongst close contacts has varied over the year from between approximately 10-30% and therefore the schools data are reassuring.

There has been a need to exclude all staff and students from 18 schools across the country over the academic year secondary to public health concerns. Staffing resilience was a problem for some schools, particularly earlier on in the academic year. Clear attention to 'pods' for staffing and resilient rosters should be given to minimise the numbers of close contacts which may be identified amongst staff from interactions outside the classroom. This improved over the course of the year.

Amongst all tested through the schools pathway, 91% tested were students and 9% staff. Close contact positivity rates amongst staff were 1.72% in the primary sector; 1.92% in the post-primary sector and 2.32% in the SEN sector.

Outbreaks occurred, but were usually of small scale (2-3 subsequent cases) with usually friendship groups testing positive amongst both pupils and staff. Experiences from the Departments of Public Health were that student to adult transmission was unusual. Adult to adult, adult to child or child to child transmission were all more commonly seen than student to adult transmission. Transmission was particularly identified amongst close friendship groups for both staff and children. Adult to child transmission was more common in settings where extra assistance was being provided for a child, highlighting the importance of all other mitigation measures when physical distance is not able to be maintained. Test positivity was predominantly seen on the ASAP test offered (usually Day3-4 and rarely on the D10 test).

The proportion of confirmed cases who are children has increased significantly in term 3 in comparison to term 1. This is in line with national data on the average age of cases decreasing, and reflects the impact of the vaccination programme.

The strong belief maintains that schools are places of education, equity, opportunity and healthcare. The evidence shows that educational facilities can be low risk settings for Covid-19 with the clear focussed attention to the exclusion of those with symptoms consistent with Covid-19, mitigating measures in place and infection, prevention and control measures as laid out in the national recommendations. Children should therefore be afforded the opportunity to continue their education as a high priority, with minimum unnecessary interruptions.

It should be acknowledged that the response to schools dominated much of the work for Departments of Public Health, and this needs to be set alongside the competing areas of higher clinical need for Departments of Public Health to deal with.

Nationally, we should look to use the national data and significant experiences from the Schools teams conducting the PHRA, to enable schools and other component parts of the HSE to start management of cases and identification of close contacts, following agreed protocols. This will help ensure that all but outbreak investigation and management should occur within the Departments of Public Health, with the exception of the SEN sector, for whom processes should continue as normal.

Recommendations

- Schools should seek to re-open as a high priority
- All recommendations for risk mitigation and infection prevention and control should continue
- Testing regimes and exclusion periods for children should be considered again nationally
- Linking testing result to the ending of restricted movements should be reconsidered in the education setting
- Protocols, as required, should be developed for implementation, where appropriate, outside of the Departments of Public Health
- An online portal for close contact testing requirements should be urgently developed
- Data analysis and review should continue, and relevant actions taken as required
- Engagement with relevant education stakeholders should continue facilitated between Health and the Department for Education

Section 6: Appendices – School testing data per term

6.1 Term 1 - Schools Facility Testing (Term Dates: 23/08/2020 – 02/01/2021)

The table below provides a summary of the testing completed across all schools for Term 1 with a breakdown of detection rates (%) for all School types:

Facility Type	No. different Facilities	No. Tested	No. Detected	Detected %	No. Not Detected	Range positivity (%)	IQR Positivity (%)
Primary	723	24,046	719	2.99%	23,292	0-7.2	1.6-3.4
Post Primary	363	9,219	174	1.89%	9,029	0-5.8	0.8-2.5
Special Education	46	1215	46	3.79%	1,166	0-18.2	0-5.1
	1,132	34,480	939	2.72%	33,487	0-6.8	1.7-3.2

Schools Facility Testing by Age

The table and graph below provides a summary of the testing and test results by Age Category for School and Childcare facility types

School Type	Age	Tested	Tested %	Detected	Detected %	Not Detected
Primary	0-19	21,702	63%	656	3.02%	21,015
	+20	2,344	7%	63	2.69%	2,277
Post Primary	0-19	8,648	25%	162	1.87%	8,471
	+20	571	2%	12	2.10%	558
Special Education	0-19	660	2%	29	4.39%	628
	+20	555	2%	17	3.06%	538
		34,480	100%	939	2.72%	33,487

PHRA Breakdown of Referrals for all Schools Facility Types

The table below provides a summary of the number of PHRAs generated through referrals created across school facilities

Facility Type	No. different Facilities	No. facilities 1 PHRA and onward testing*	No. facilities 2 PHRA and onward testing*	No. facilities 3 PHRA and onward testing*	No. facilities 4+ PHRA and onward testing*
Primary	723	498	173	46	18
Post Primary	368	218	89	45	21
Special Education	48	24	14	8	0
	1,132	740	276	99	39

* The number of PHRA referral figures are calculated using proxy markers and therefore totals will not always align to the total number of facilities that had testing undertaken.

6.2 Term 2 - Schools Facility Testing (Term Dates: 08/02/2021 – 10/04/2021)

The table below provides a summary of the testing completed across all schools for Term 2 with a breakdown of detection rates (%) for all School types:

Facility Type	No. different Facilities	No. Tested	No. Detected	Detected %	No. Not Detected	Range positivity (%)	IQR Positivity (%)
Primary	326	16,265	343	2.11%	15,910	0-2.8	0-2.3
Post Primary	107	3,585	55	1.53%	3,528	0-2.3	0.8-1.9
Special Education	24	880	25	2.84%	851	0-12.5	0.6-4.3
	457	20,730	423	2.04%	20,289	0-2.6	1.6-2.5

Schools Facility Testing by Age

The table and graph below provides a summary of the testing and test results by Age Category for School and Childcare facility types

School Type	Age	Tested	Tested %	Detected	Detected %	Not Detected
Primary	0-19	14,568	70%	323	2.22%	14,233
	+20	1,697	8%	20	1.18%	1,677
Post Primary	0-19	3,313	16%	51	1.54%	3,260
	+20	272	1%	4	1.47%	268
Special Education	0-19	511	2%	19	3.72%	489
	+20	369	2%	6	1.63%	362
		20,730	100%	423	2.04%	20,289

PHRA Breakdown of Referrals for all Schools Facility Types

The table below provides a summary of the number of PHRAs generated through referrals created across school facilities

Facility Type	No. different Facilities	No. facilities 1 PHRA and onward testing*	No. facilities 2 PHRA and onward testing*	No. facilities 3 PHRA and onward testing*	No. facilities 4+ PHRA and onward testing*
Primary	326	171	144	10	1
Post Primary	107	58	46	3	0
Special Education	24	9	12	3	0
	457	238	202	16	1

* The number of PHRA referral figures are calculated using proxy markers and therefore totals will not always align to the total number of facilities that had testing undertaken.

6.3 Term 3 - Schools Facility Testing (Term Dates: 11/04/2021 – 03/07/2021)

The table below provides a summary of the testing completed across all schools for Term 3 with a breakdown of detection rates (%) for all School types:

Facility Type	No. different Facilities	No. Tested	No. Detected	Detected %	No. Not Detected	Range positivity (%)	IQR Positivity (%)
Primary	651	32,904	779	2.37%	32,073	0-3.3	1.6-2.6
Post Primary	254	11,799	213	1.81%	11,579	0-3.6	0-1.7
Special Education	25	561	19	3.39%	538	0-12.5	0-3.6
	930	45,264	1,011	2.23%	44,190	0-3.2	1.5-2.6

The table and graph below provides a summary of the testing and test results by Age Category for School and Childcare facility types :

School Type	Age	Tested	Tested %	Detected	Detected %	Not Detected
Primary	0-19	30,104	67%	746	2.48%	29,309
	+20	2,800	6%	33	1.18%	2,764
Post Primary	0-19	11,157	25%	201	1.80%	10,949
	+20	642	1%	12	1.87%	630
Special Education	0-19	290	.5%	15	5.17%	273
	+20	271	.5%	4	1.48%	265
		45,264	100%	1,011	2.23%	44,190

PHRA Breakdown of Referrals for all Schools Facility Types

The table below provides a summary of the number of PHRAs generated through referrals created across school facilities

Facility Type	No. different Facilities	No. facilities 1 PHRA and onward testing*	No. facilities 2 PHRA and onward testing*	No. facilities 3 PHRA and onward testing*	No. facilities 4+ PHRA and onward testing*
Primary	651	245	210	45	37
Post Primary	254	112	102	35	11
Special Education	25	10	12	3	0
	930	367	324	83	48

* The number of PHRA referral figures are calculated using proxy markers and therefore totals will not always align to the total number of facilities that had testing undertaken.