

International Horizon Scanning and Learning to Inform Wales' COVID-19 Public Health Response and Recovery

Report 17, 22/10/2020



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World Health Organization
Collaborating Centre on
Investment for Health and Well-being



Overview

The International Horizon Scanning and Learning work stream was initiated following and informing the evolving coronavirus (COVID-19) public health response and recovery plans in Wales. It focuses on COVID-19 international evidence, experience, measures, transition and recovery approaches, to understand and explore solutions for addressing the on-going and emerging health, wellbeing, social and economic impacts (potential harms and benefits).

The learning and intelligence is summarised in weekly reports to inform decision-making. These may vary in focus and scope, depending on the evolving COVID-19 situation and public health / policy needs.

This work is aligned with and feeding into the Welsh Government Office for Science and into Public Health Wales Gold Command. It is part of a wider Public Health Wales' systematic approach to intelligence gathering to inform comprehensive, coherent, inclusive and evidence-informed policy action, which supports the Wellbeing of Future Generations (Wales) Act and the Prosperity for All national strategy towards a healthier, more equal, resilient, prosperous and globally responsible Wales.

Disclaimer: The reports provide high-level summary of emerging evidence from country experience and epidemiology; research papers (peer-reviewed/not); and key organisations' guidance / reports, including sources of information to allow further exploration. The reports don't provide detailed or in-depth data/evidence analysis. Due to the novelty of COVID-19 virus/disease, and dynamic change in situation, studies and evidence can be conflicting, inconclusive or depending on country/other context.

In focus this week

-  **Transmission of COVID-19 in children and young people**
-  **COVID-19 epidemiology update**

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At a glance: summary of international learning on COVID-19

“...it’s important that all governments focus on the fundamentals that help to break the chains of transmission and save both lives and livelihoods.”

Dr Tedros Adhanom Ghebreyesus, WHO Director-General

Transmission of COVID-19 in children and young people

- ✚ Only a **small proportion of COVID-19 cases are reported in persons younger than 19 years of age** (fewer than 5% in the European Union/European Economic Area and the UK)
- ✚ **Most children develop a very mild form of COVID-19 disease, if any** (i.e. remain asymptomatic), with **very low hospitalisation and death rates**
- ✚ The small proportion of cases reported amongst children could be **due to their lower risk of developing symptoms and testing strategies not prioritising mild symptoms/children**
- ✚ The **role of children in COVID-19 transmission is not fully understood** yet, including:
 - Children’s susceptibility to the COVID-19 virus across different age groups
 - Children’s capability of COVID-19 transmission when asymptomatic / symptomatic
- ✚ **Substantial evidence suggests a transmission route between the community/household into childcare/educational settings; while limited evidence suggests a transmission route from these settings to the community/household**
- ✚ **Closures of childcare and educational institutions are unlikely to be an effective single control measure** for COVID-19 response and any such decisions need to be taken in the context of a comprehensive community mitigation strategy
- ✚ There is **very limited evidence for the effectiveness and efficiency of routine testing among children with lower tolerability / acceptance**
- ✚ A **combination of methods** should be used to determine infection rates and transmission routes, including PCR, surveillance data, population serological and small scale cohort/observational studies

More information is summarised **on pp.4-10**

COVID-19 epidemiology update

- ✚ Most countries across Europe, including the UK and Wales, are experiencing a **rise in COVID-19 cases**, i.e. increasing trends of case rate per 100,000
- ✚ The case rate trends are not always followed by increasing trends in death rate, i.e. **deaths have remained relatively stable across many countries in Europe**
- ✚ **Increasing death rate trends** are reported mostly in Central and Eastern Europe, for example, in Romania, Czechia, Hungary, Poland, Bulgaria, Croatia, Slovakia, Greece, etc.
- ✚ **Testing rates are increasing** in all countries, with positivity rates increasing in most but not all countries

More information is summarised on **pp.11-13**

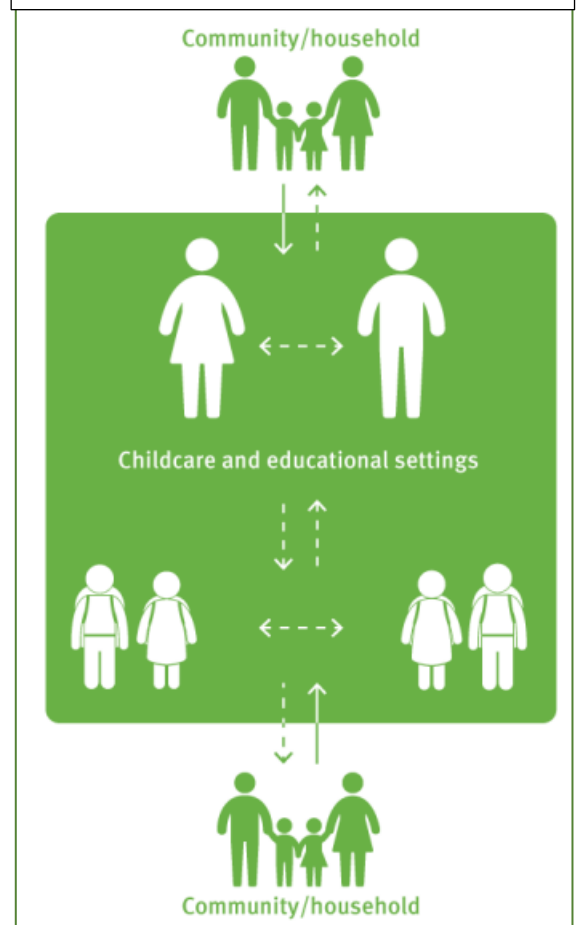
Transmission of COVID-19 in children and young people

Note: This report focuses on the COVID-19 transmission and testing of children and young people. The wider impacts of the pandemic, related to lockdown measures and education are discussed in [Reports 15 and 16](#).

COVID-19 transmission in children¹

- Fewer than 5% of COVID-19 cases reported in the European Union / European Economic Area (EA/EEA) countries and the UK have been in persons under 19 years of age
- The most common COVID-19 symptoms reported in children are fever and cough. Other symptoms include gastrointestinal, sore throat, shortness of breath, nasal congestion, muscle pain and headache, with varying prevalence among different studies
- Asymptomatic infection and mild symptoms are more prevalent in children than in adults
- Hospitalisations and deaths among children (less than 18 years of age) are uncommon
- Children are able to transmit the infection, but the dynamics and primary routes of transmission remain unclear
- Evidence indicates that children between the ages of 0-10 years have a reduced role in transmission compared to young adults (11 to 17 years of age) who appear to have a more significant role in transmission
- Substantial evidence suggests a transmission route between the community/household into childcare/educational settings; while there is limited evidence to suggest a transmission route from childcare/educational settings to the community/household²³ (Figure 1)
- The COVID-19 transmission among children in schools is less than for other viruses, such as influenza
- Young children's positivity rates (positive test for COVID-19 via Polymerase Chain Reaction (PCR)) have been low compared to adults throughout the pandemic⁴
- In addition to PCR testing, three methods have been used to estimate the number of positive COVID-19 cases in children and the population (Table 1):
 - ✓ Surveillance data
 - ✓ Population-based sero-epidemiological studies
 - ✓ Small scale studies
- Other methods to examine transmission have been used, such as COVID-19 in water based environments⁵⁶, however, they are outside the scope of this report

Figure 1: Routes of transmission involving children: solid arrows indicate strong evidence, dashed arrows indicate variable/mixed evidence



¹ <https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-schools-transmission-August%202020.pdf>

² https://www.cdc.gov/mmwr/volumes/69/wr/mm6914e4.htm?s_cid=mm6914e4_w

³ <https://pediatrics.aappublications.org/content/145/6/e20200702>

⁴ <https://www.aerzteblatt.de/int/archive/article/214818>

⁵ <https://www.sciencedirect.com/science/article/pii/S004313542030436X?via%3Dihub>

⁶ <https://www.nejm.org/doi/full/10.1056/nejmc2004973>

Table 1: Overview of methods used to determine population-level transmission of COVID-19⁷⁸

1. Surveillance data	2. (Population-based) sero-epidemiological studies	3. Small scale studies
<ul style="list-style-type: none"> • Published by public health authorities • Data relating to cases may be reflective of testing policies and case definitions • Pro: Accumulates a vast amount of testing data to provide best picture of confirmed cases • Con: Children more likely to be asymptomatic or mildly symptomatic and so may be less likely to be tested, resulting in cases not being captured by this method 	<ul style="list-style-type: none"> • Aim to determine proportion of population groups that have detectable antibodies • Provide indication of how many people have been infected with the virus • Study design and other factors need to be assessed before interpreting study results • Pro: Captures asymptomatic and mildly symptomatic cases; can be considered representative • Con: Cannot tell us a likely path of transmission between hosts 	<ul style="list-style-type: none"> • Primarily retrospective cohort studies of individual or clusters of outbreaks • Pro: Captures asymptomatic and mildly symptomatic cases and who they are likely to have transmitted to • Con: Data cannot be extrapolated, and so individual studies cannot be considered representative of wider patterns

Surveillance data

Epidemiology of COVID-19 in children⁹

- Children represent a very small proportion of COVID-19 cases. Of the 744,448 cases that were reported to The European Surveillance System (TESSy), 16,689 (2%) cases were between 0 and 11 of age (as of 26th July 2020)
- 14-day age-specific COVID-19 case notification rates are considerably lower for those aged <15, compared to older age categories (*examples in Figure 2*)¹⁰
- The distribution of positive cases within the population reflects testing policies and case definitions, which usually include the presence of symptoms
- The small proportion of cases reported amongst children might be due to the lower risk of children developing COVID-19 symptoms; or that children are not prioritised for testing, as they commonly experience milder symptoms
- Tolerability/acceptance for testing children may be lower due to invasiveness of the test

Severity and complications of COVID-19 in children¹⁰¹¹

- Among EU/EEA countries, the proportion of cases hospitalised was lowest in the age groups 5-11 and 12-18 years (*Figure 3*)
- Among children (aged 0 to 11), hospitalisations were highest in those aged 0-4 (10%), compared to 3% in those aged 5-11 (*Figure 4*)

⁷ https://www.cdc.gov/mmwr/volumes/69/wr/mm6914e4.htm?s_cid=mm6914e4_w

⁸ <https://pediatrics.aappublications.org/content/145/6/e20200702>

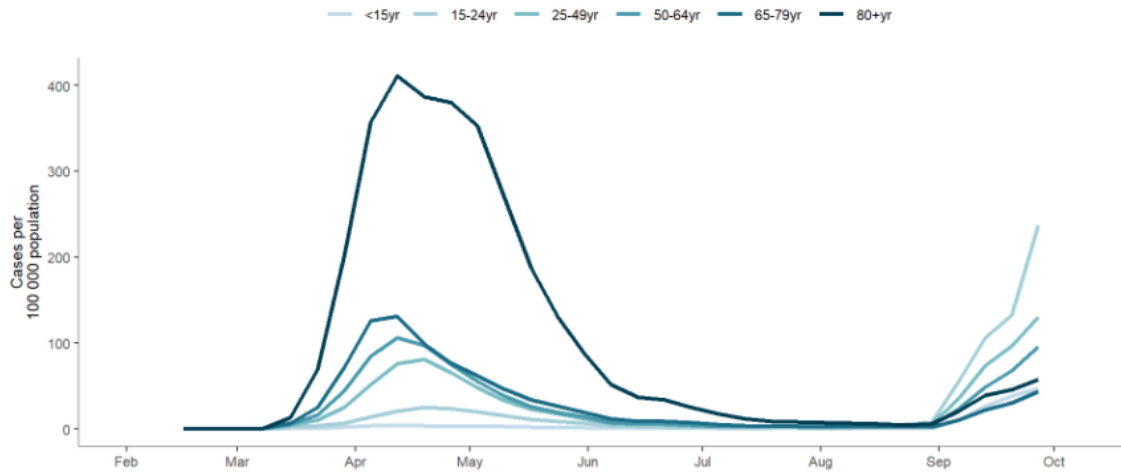
⁹ <https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-schools-transmission-August%202020.pdf>

¹⁰ <https://www.ecdc.europa.eu/en/covid-19/country-overviews>

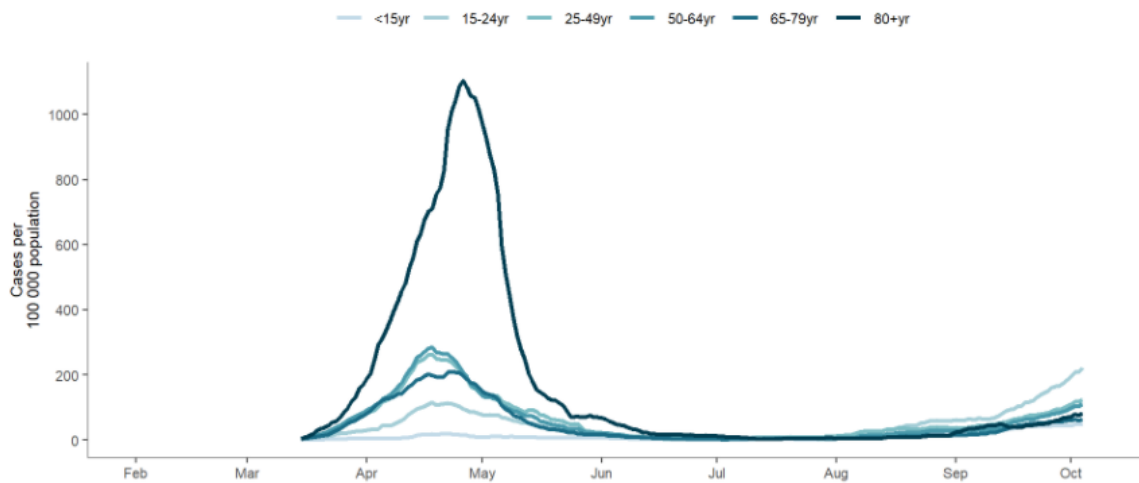
¹¹ <https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-schools-transmission-August%202020.pdf>

- Deaths among cases under 18 years of age are uncommon with 0.03% crude case-fatality reported among children, compared to 5.8% in those 18+, largely driven by deaths in cases aged 60+

Figure 2: 14-day age-specific COVID-19 case notification rate, by age group in three countries United Kingdom



Ireland



Germany

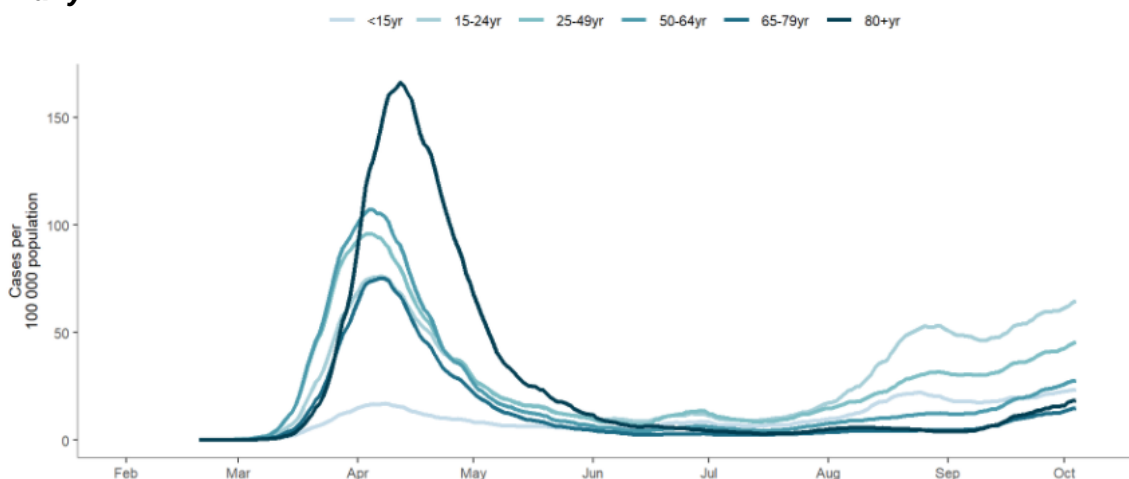


Figure 3: Proportion of hospitalised COVID-19 cases by age group, The European Surveillance System (TESSy), EU/EEA and UK, 26 July 2020¹²

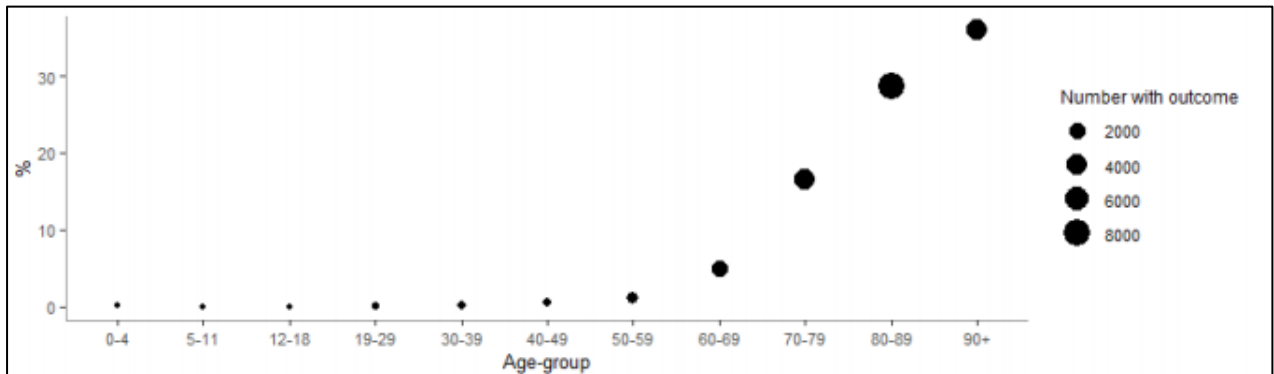
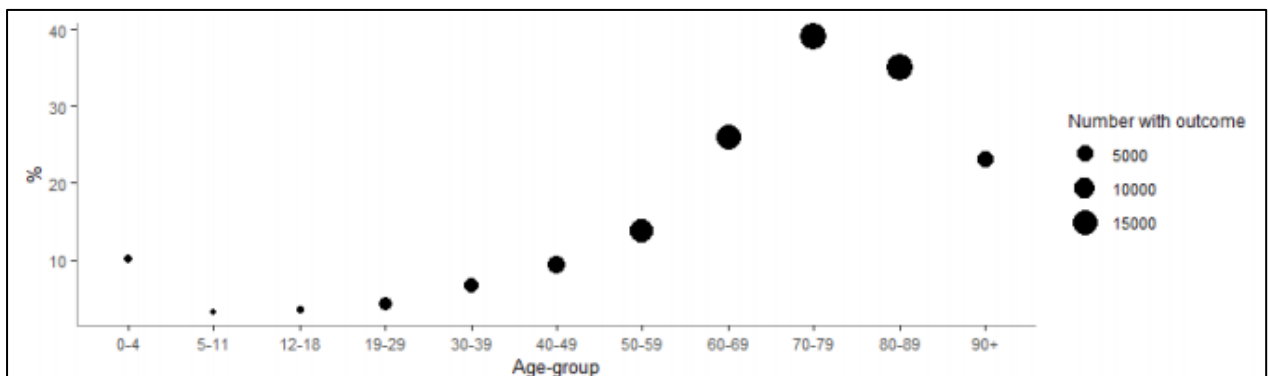


Figure 4: Crude case fatality rate by age group among all notified COVID-19 cases, The European Surveillance System (TESSy), EU/EEA and UK, 26 July 2020¹²



Population-based sero-epidemiological studies (Table 2)

- Sero-epidemiological testing determines the presence of COVID-19 antibodies, developed in response to the infection (asymptomatic/symptomatic)
- Multiple sero-epidemiological studies have been carried out globally, as they help to create a picture of the true number of infections

For example: in Paris, 1.8% of children had a positive PCR (antigen) test for COVID-19, showing active infection, while the rate of children testing positive for antibodies was significantly higher (10.7%)¹³, showing past infection

Small scale studies (Table 3)

- Data across countries shows that transmission from children occurs, but is less than between adults; and schools re-opening has not led to COVID-19 spikes in low-transmission countries¹⁴
- The only EU/EEA countries (Sweden and Iceland) that kept pre-schools or primary schools open with mitigation measures (e.g. hand hygiene, physical distancing, staying home when ill, etc.) during the pandemic did not report larger numbers of hospitalised cases among children, despite the overall outbreak being severe and prolonged in Sweden

¹² <https://www.ecdc.europa.eu/en/covid-19/country-overviews>

¹³ <https://www.medrxiv.org/content/10.1101/2020.06.12.20129221v2.full.pdf>

¹⁴ <https://www.aerzteblatt.de/int/archive/article/214818>

Table 2: Examples of population sero-prevalence studies for COVID-19 in Europe (ECDC)¹⁵

Country	Number	Type of Study	Age Group	Collection Period	Context	% of positive samples
Spain ¹⁶	6527 children	Nationwide population based household random sampling – 2 collections	Household Focus: 0-19 years	27 April – 11 May	After peak of first wave during lock down	3.4- 3.8
Switzerland (Geneva) ¹⁷	214 children	Repeated population based household sampling	5-19 years	3-weekly sampling, April	After peak of first wave	6.1
Belgium ¹⁸	N/A	National prospective cross-sectional	0-20 years	30 March – 30 April	During lockdown	5
Germany (Gangelt) ¹⁹	405 households	Random sampling household study	5-14 and 15-34 years	30 March – 7 April	After peak of first wave before lockdown	9.1 and 15.4
Sweden ²⁰	1600 children	Outpatients presenting for non-COVID related consultation	0-19 years	Weeks 18 - 21	No lockdown with measures advised	4.7-7.5
Netherlands ²¹	2 096 individuals	Nationwide random population sampling	0-19 years	31 March - 13 April	During lockdown	1-2%

Table 3: International examples of small-scale studies for COVID-19 transmission

Country	Date published	Key findings
Greece ²²	7/8/20	Analysis of 24 familial clusters found: <ul style="list-style-type: none"> – No evidence of child-to-adult or child-to-child transmission – Children were more likely to have an asymptomatic infection compared to adults – Infected children were significantly more likely to have a low viral load while adults were more likely to have a moderate viral load
South Korea ²³	7/8/20	<ul style="list-style-type: none"> – 107 paediatric COVID-19 index cases and 248 of their household members were identified – The Secondary Attack Rate (SAR) from children to household members was low in settings with social distancing
Australia ²⁴	3/8/20	Prospective cohort study found that transmission rates were low in educational settings during the first wave, consistent with mild infrequent disease in the 1.8 million child population
Salt Lake City, USA ²⁵	11/9/20	Analysis of 3 childcare sites (184 persons observed, 110 children) found: <ul style="list-style-type: none"> – 31 confirmed cases occurred with 13 (42%) in children – Transmission was documented from the children to at least 12 (26%) of 46 non-facility contacts (confirmed or possible cases) – Transmission was observed from two of three children with asymptomatic infection
Georgia, USA ²⁶	31/7/20	A retrospective cohort study of an outbreak at an overnight youth camp found that younger children were as likely to become infected with COVID-19 as older attendees
Guangzhou, China ²⁷	13/8/20	Prospective cohort study of 3410 persons found that 0-17 year olds accounted for 5.3% of index cases
Shenzhen, China ²⁸	27/4/20	<ul style="list-style-type: none"> – 391 COVID-19 cases and 1286 close contacts were identified – The household secondary attack rate was 11.2% (95% confidence interval (CI) 9.1-13.8) – Children were as likely to be infected as adults (infection rate 7.4% in children <10 years vs population average of 6.6%), although less likely to have severe symptoms

¹⁵ <https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-schools-transmission-August%202020.pdf>

¹⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7336131/>

¹⁷ <https://www.medrxiv.org/content/10.1101/2020.05.02.20088898v1>

¹⁸ <https://www.medrxiv.org/content/10.1101/2020.06.08.20125179v3>

¹⁹ <https://www.medrxiv.org/content/10.1101/2020.05.04.20090076v2>

²⁰ <https://www.folkhalsomyndigheten.se/contentassets/9c5893f84bd049e691562b9eeb0ca280/pavisning-antikroppar-genomgangen-covid-19-blodprov-oppnervarden-delrapport-1.pdf>

²¹ <https://www.rivm.nl/en/novel-coronavirus-covid-19/children-and-covid-19>

²² <https://onlinelibrary.wiley.com/doi/full/10.1002/mv.26394>

²³ <https://adc.bmj.com/content/early/2020/08/06/archdischild-2020-319910>

²⁴ <https://www.sciencedirect.com/science/article/pii/S2352464220302510?via%3Dihub>

²⁵ https://www.cdc.gov/mmwr/volumes/69/wr/mm6937e3.htm?s_cid=mm6937e3_w

²⁶ <https://www.cdc.gov/mmwr/volumes/69/wr/mm6931e1.htm>

²⁷ <https://www.acpjournals.org/doi/10.7326/M20-2671>

²⁸ <https://www.sciencedirect.com/science/article/pii/S1473309920302875?via%3Dihub>

China, Italy, Japan, Singapore, Canada and South Korea ²⁹	16/6/20	<ul style="list-style-type: none"> - Susceptibility to infection in individuals under 20 years of age is approximately half that of adults aged over 20 years - Clinical symptoms manifest in 21% (95% CI 12–31%) of infections in 10-19 year-olds, rising to 69% (95% CI 57–82%) in people aged over 70 years - Interventions aimed at children might have a relatively small impact on reducing COVID-19 transmission, particularly if the transmission of subclinical infections is low
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Routine testing strategies, including considerations for children^{30,31}

- Most countries do not experience challenges related to the willingness among the general population to be tested, although there have been reported challenges for specific regions and socio-economic groups in some countries
- In most national testing strategies and guidelines, **children and young people are not prioritised** for testing
- There is **limited evidence of the effectiveness and efficiency of routine testing in children**
- Concerns have been raised in France and Belgium regarding testing specific groups, such as babies and children, with revision of testing guidelines to be made more restrictive
- Five key **objectives for testing**, suggested by the European Centre for Disease Prevention and Control (ECDC):
 - ✓ to control transmission
 - ✓ to monitor COVID-19 transmission rates and severity
 - ✓ to mitigate the impact of COVID-19 in healthcare and social care settings
 - ✓ to detect clusters or outbreaks in specific settings
 - ✓ to maintain COVID-19 elimination status once achieved
- **Testing strategies should be flexible and rapidly adaptable** to change, depending on the local epidemiology, transmission, population dynamics and resources
- Ideally, **all people with COVID-19 symptoms should be tested** as soon as possible after symptom onset
- People testing positive should isolate and timely contact tracing should be carried out, ensuring that **all close contacts are tested**, irrespective of symptoms
- **Healthcare and social care settings** require intensive testing when there is community transmission; all patients/residents should be tested upon/immediately prior to admission
- Local authorities should develop a testing and compliance scheme for foreseeable critical situations, e.g. in schools or work places
- Countries experiencing high COVID-19 transmission in a local community should consider **testing the whole population of the affected area** to enable identification of infectious cases and allow for their prompt isolation to interrupt chains of transmission
- Depending on the epidemiological situation, size and population density of the affected area, **a whole community/population testing approach could be less disruptive for society and more cost-effective**, than introducing and ensuring compliance with more stringent public health measures

²⁹ <https://www.nature.com/articles/s41591-020-0962-9>

³⁰ https://ec.europa.eu/health/sites/health/files/preparedness_response/docs/common_testingapproach_covid-19_en.pdf

³¹ <https://www.ecdc.europa.eu/en/covid-19/surveillance/testing-strategies>

Country examples of testing strategies

Germany³²

- Testing is an essential part of Germany's comprehensive pandemic control strategy
- Rationale (Robert Koch Institute):
 - ✓ Targeted testing enables the number and distribution of infected people to be recorded quickly and precisely
 - ✓ Testing contributes to a more up-to-date and better picture of the situation
 - ✓ This is the basis for breaking the chain of infection and protecting the health system from being overloaded
- Priority groups, according to the national testing strategy:
 - ✓ Symptomatic individuals
 - ✓ People who were in contact with individuals tested positive (for example, individuals living in the same household or warned by the Corona Warn App); patients/residents and staff of hospitals, health and social care settings which have an outbreak

Scotland³³

- Scotland's most recent testing strategy update (17 August 2020) adapts and sets out the role of continued testing
- Testing priorities:
 - ✓ Testing of anyone with symptoms (Test & Protect)
 - ✓ Proactive case finding by testing contacts and testing in outbreaks
 - ✓ Protecting the vulnerable and preventing outbreaks in high risk settings by routine testing
 - ✓ Testing for direct patient care, to diagnose and to treat, and to support safe patient care as NHS services restart
 - ✓ Surveillance to understand the disease, track prevalence, understand transmission and monitor key sectors

Canada³⁴

- A study assessed active testing (through PCR) of groups at increased risk of acquiring COVID-19 in all Canadian provinces
- The study revealed five groups who should be prioritised for active testing strategies, based on expected prevalence of infection:
 - ✓ contacts of people who are positive for COVID-19, and
 - ✓ at-risk populations, such as hospital staff, community health care workers, people in long-term care facilities, essential business employees, school children and staff
- The study concluded that active testing of groups at increased risk appears feasible and would support the safe reopening of the economy and schools more broadly

³² https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Teststrategie/Nat-Teststrat.html

³³ <https://www.gov.scot/publications/coronavirus-covid-19-scotlands-testing-strategy-adapting-pandemic/pages/3/>

³⁴ <https://www.cmaj.ca/content/192/40/E1146>

COVID-19 epidemiology update

Countries of the European Union/European Economic Area and the UK³⁵

A comparison between case rate, death rate, positivity rate (% of positive tests) and testing rate across Europe is presented in *Table 4*.

Key findings

- Most countries across Europe, including the UK and Wales, are experiencing a **rise in COVID-19 cases**, i.e. increasing trends of case rate per 100,000
- The case rate trends are not always followed by increasing trends in death rate, i.e. **deaths have remained relatively stable across many countries in Europe**
- **Increasing death rate trends are reported mostly in Central and Eastern Europe**, for example, in Romania, Czechia, Hungary, Poland, Bulgaria, Croatia, Slovakia, Greece, etc.
- **Testing rates are increasing** in all countries, with **positivity rates increasing in most but not all countries**

Cases over the latest 14-day period

- Currently, Belgium has the highest 14-day case notification rate (469.4 per 100,000), compared to Norway which has the lowest (34.1 per 100,000)
- The United Kingdom has a 14-day case notification rate of 242.4 per 100,000 and is currently in a sustained increasing trend
- The 14-day case notification rate for Wales is 262.2 per 100,000, higher than that of the United Kingdom³⁶

Deaths over the latest 14-day period in EU/EEA countries and the UK

- Spain has the highest 14-day death rate (36.2 per 100,000) compared to Iceland and Liechtenstein, which currently have the lowest (both 0 per 100,000)
- The 14-day death rate for the United Kingdom is 11.8 per 100,000, the trend has been categorised as a current sustained increasing trend

Testing for COVID-19

- Luxembourg has the highest testing rate for COVID-19 (6,453 per 100,000), compared to Bulgaria which has the lowest recorded testing rate (429 per 100,000)
- In comparison, the United Kingdom has a testing rate of 2,857 per 100,000
- The testing rate for the latest 14-day period for Wales is 2,675 per 100,000³⁶

³⁵ https://covid19-country-overviews.ecdc.europa.eu/#3_eueea_and_the_uk; <https://www.ecdc.europa.eu/en/covid-19/country-overviews>

³⁶ <https://public.tableau.com/profile/public.health.wales.health.protection#!/vizhome/RapidCOVID-19virology-Public/Headlinesummary>

Table 4: 14-day case notification rate, 14-day death rate, positivity (%) and testing rate for countries of the European Union/European Economic Area and the United Kingdom

Source: European Centre for Disease Prevention and Control (Extracted 19/10/2020)

Country	Case rate		Death rate		Positivity (%)		Testing rate	
	Value	Trends	Value	Trends	Value	Trends	Value	Trends
Spain	308.1		36.2		10.5		1,445	
Romania	160.5		34.6		11.3		836	
Czechia	432.7		29.5		19.6		1,375	
Malta	152.4		24.3		3.3		3,336	
Hungary	128.7		20.2		8.8		701	
Belgium	469.4		18.1		11.5		2,680	
France	285.7		14.7		11.3		1,485	
Poland	93.9		14.4		10.7		576	
Bulgaria	55.3		14		7.8		429	
Portugal	122.9		12		4.8		1,470	
Croatia	96.3		11.8		7.9		790	
United Kingdom	242.4		11.8		5.8		2,857	
Netherlands	344.6		11.6		16.4		1,278	
Luxembourg	170.9		9.8		1.6		6,453	
Austria	132.6		8		3.9		1,477	
Greece	45.2		5.6		3.3		688	
Italy	68.6		5.3		3.4		1,293	
Lithuania	59.7		5		4.5		701	
Ireland	145.9		4.9		4.2		1,962	
Cyprus	34.5		3.4		0.8		2,417	
Denmark	101.1		3.3		1		5,295	
Slovakia	187.1		3.1		11.5		1,030	
Estonia	51.4		3		2.4		851	
Slovenia	147.2		2.4		8.5		1,084	
Latvia	49.1		2.1		2.1		1,407	
Sweden	77.5		2		2.9		1,250	
Germany	46.6		1.9		1.4		1,320	
Norway	34.1		0.9		1.9		1,068	
Finland	36.3		0.5		1.5		1,630	
Iceland	240.6		0		1.9		3,969	
Liechtenstein	54.7		0					

Countries in the rest of the world

Singapore³⁷

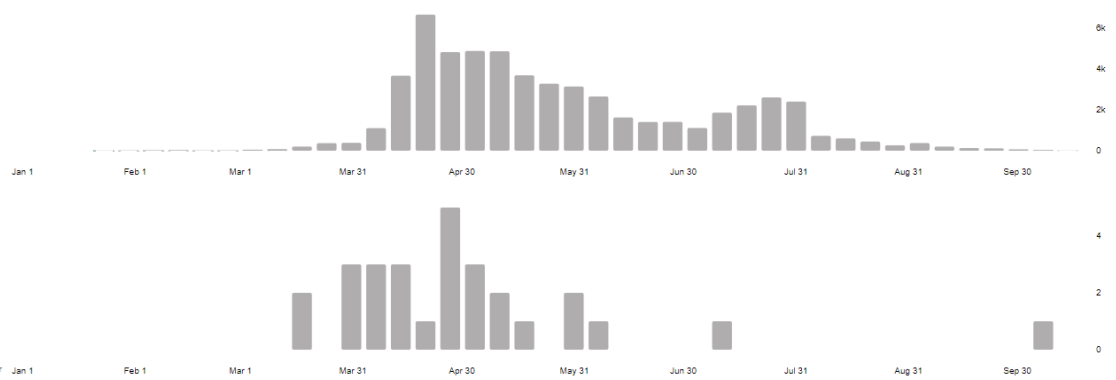
- There have been 57,911 cases and 28 deaths, related to COVID-19 in total, since the start of the pandemic. The trend in weekly number of cases/ deaths is presented on *Figure 5*
- Cases and deaths relating to COVID-19 are considerably lower in recent weeks, compared to earlier weeks in the pandemic
- The total unique persons swabbed was 17,880 per 100,000 over the course of the pandemic (as of 12 October 2020)³⁸

Figure 5: COVID-19 cases and deaths in Singapore, week-by-week, 03 January to 19 October 2020

57,911
confirmed cases

28
deaths

Source: World Health Organization
Data may be incomplete for the current day or week.



New Zealand³⁹

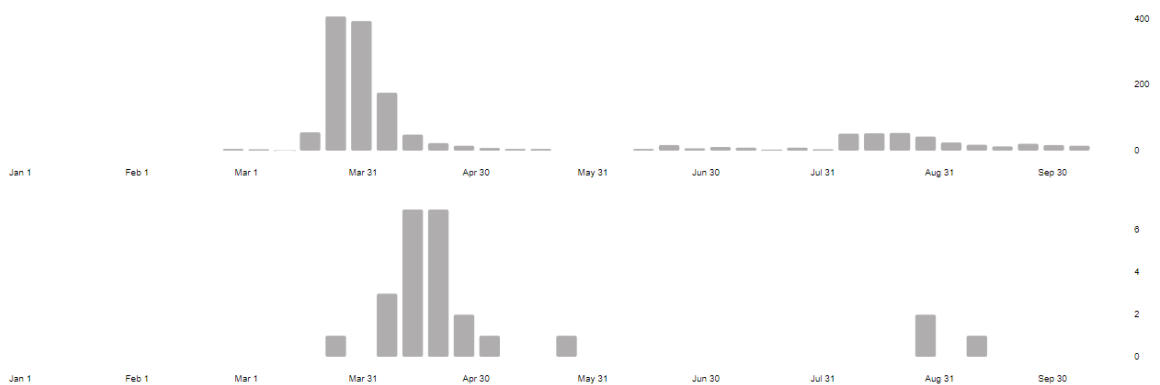
- There has been 1,530 cases and 25 deaths in total, related to COVID-19, since the start of the pandemic (*Figure 6*)
- Similar to Singapore, the number of cases observed in recent weeks is considerably lower compared to earlier periods in the pandemic
- New Zealand has conducted 1,031,888 COVID-19 tests to date⁴⁰

Figure 6: COVID-19 cases and deaths in New Zealand, week-by-week, 03 January to 19 October 2020

1,530
confirmed cases

25
deaths

Source: World Health Organization
Data may be incomplete for the current day or week.



³⁷ <https://covid19.who.int/region/wpro/country/sg>

³⁸ <https://www.moh.gov.sg/covid-19>

³⁹ <https://covid19.who.int/region/wpro/country/nz>

⁴⁰ <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-testing-data>

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