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

Report 5, 21/05/2020

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 and transition / 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.

In focus this week

- Health system recovery
- Re-opening education
- Easing lockdown impact on R
- Reporting COVID-19 deaths
- Country insight: the Netherlands

Contents

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

"Let our shared humanity be the antidote to our shared threat"
Dr Tedros Adhanom Ghebreyesus, Director-General of WHO

Health system recovery

- Establish a **dual track of health service delivery**[1] to ensure and maintain balance between responding to COVID-19 and recovery of regular service delivery patterns across the continuum of care, so that **no one is left behind**. This means:
  - Health systems must remain ready to provide the full range of services needed to prevent, diagnose, isolate and treat COVID-19 patients; and
  - Health systems need to address accumulated demand from services that may have been crowded out / postponed / cancelled to provide COVID-19 care.
- **Three essential components** to recover the health system and establish a dual track:
  - Encouraging the public to seek medical advice when needed
  - Using / scaling up telemedicine to provide essential services to the public
  - Recruiting, training and mobilising more health staff to serve the increased demand
- **Other common health system recovery practices across countries:**
  - Essential services maintained, e.g. emergency, urgent, primary care, maternity, etc.
  - Focus on mental health with remote services being established / strengthened, including pro-active calls to people from specific / vulnerable groups
  - Financial compensation or incentives for hospitals and other health care facilities

More information is summarised <mark>on pp. 5-8</mark>

Re-opening education

- **Safeguarding lives and holistic wellbeing is a priority,** balancing prevention and control of COVID-19 spread and the damaging impact of education lockdown
- Parents, teachers and communities must have **confidence** that the school system has the knowledge, resources and correct measures in place prior to reopening[2]
- **Trust** is fundamental and should be built through consultation, coordination, and communication with parents, teachers and communities
- **Re-opening education is critical in terms of**
- There is **no consistent approach**, nor common measures, implemented across European countries; and national decisions might not be optimal due to **subnational variance**
- The limited existing evidence shows that children are not substantially contributing to household transmission, e.g. they are **not yet 'super spreaders' of COVID-19**
- Re-opening schools require **significant logistical challenges**.
  Key prevention measures to consider include:
  – Wearing masks is key, mostly in secondary schools

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[1] *http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/technical-guidance/2020/strengthening-and-adjusting-public-health-measures-throughout-the-covid-19-transition-phases.-policy-considerations-for-the-who-european-region,-24-april-2020*
[2] *http://www.iiep.unesco.org/en/reopening-schools-how-get-education-back-track-after-covid-19-13424*

- Mock training and disinfection of schools in preparation for re-opening
- Small groups and no movement / mix between classes/cohorts/levels
- Desks rearranged to ensure physical distancing among students
- Schools have stockpiled thermometers, hand sanitizer and face masks
- A staged approach, such as beginning to reopen schools in areas that are less impacted by the outbreak, or those that have the hygiene facilities in place[3]
- Double-shifting schools, condensing curriculums and re-organising the traditional school day may be necessary to the ensure safety of all parties involved

More information is summarised <mark>on pp. 9-10</mark>

Easing lockdown impact on R

- There is no standard method for collecting data to estimate R, so projections and country-comparisons have limited validity
- R is an estimate, so should be used as an aid and not as the sole factor to determine the frequency/rate of infection in a country
- Estimating up to date accurate R is challenging due to the frequency, at which data is published, and the nature of the virus such as a-symptomatic cases and incubation period
- COVID-19 community transmission rates (R) have fallen in most European countries since the beginning of March and are estimated around and below 1
- Easing lockdown can increase community transmission, hence the Rt estimates

More information is summarised <mark>on pp. 11-16</mark>

Reporting COVID-19 deaths

- There is no common standardised method for attributing and recording deaths associated with COVID-19 and European countries differ in their approaches
- The definition of COVID-19 associated deaths can be complex and differs across European countries, which makes comparison difficult
- Over time, countries across Europe have included more settings in the COVID-19 deaths statistics: hospitals, care/nursing homes and wider community
- All countries state that further investigation into the death of an individual pose additional risk for staff, as deceased patients are still infectious.

More information is summarised <mark>on pp. 17-19</mark>

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[3] *https://www.susana.org/_resources/documents/default/3-3831-7-1588595613.pdf*

Health system recovery

Overview
Many health and care charities in the UK are concerned about the time it will take until health services are fully restarting again[4]. The pandemic increased demand on health care staff, as well as it brought a backlog of people fearing to seek medical advice and help.

Five immediate challenges to the health care system have been identified:
- Managing infection control and impact on capacity
- Understanding and addressing the full extent of unmet need
- Reassuring the public about using services
- Looking after and growing the workforce
- Improving and not just recovering services

Key policy options[5]:
- Create extended (dual) dashboard indicators (e.g. on utilization patterns)
- Retain preparedness and readiness for the COVID-19 response (e.g. capacity for identify, isolate, test, and treat all patients; create public health and laboratory surge capacity; enable communities to protect frontline workers; estimate surge demand; flexible and up to date plan for acute and intensive care; define financing mechanism for supplementary funding)
- Recover health service delivery, including:
  - ✓ Build on and resource primary health care to respond to pent-up demand from chronic conditions and delayed care seeking, including for mental health issues
  - ✓ Proactively use primary care population health management information systems to identify and work with high-risk individuals
  - ✓ Enhance and resource optimized service delivery platforms (video, phone, Internet), explore task sharing in line with existing scopes of practice, and consider expansion of scope of practice
  - ✓ Strengthen coordination between primary health care, social services and social care to provide comprehensive support to older people close to home supported through increased recruitment, cross-training and rapid learning cycles
  - ✓ Identify and remove barriers to seeking care
- Revisit infection prevention and control measures (IP&C) at the system level and within all health and long-term care facilities (such as nursing / care homes)
- Develop strategic approaches to preparing, shaping and supporting the health workforce in alignment with service need

Country overview
Wider health services impact and recovery was examined in selected countries and provided below. It includes aspects of primary and secondary care, cancer services, telemedicine, communication with the public and recruitment of health care staff.

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[4] *https://www.kingsfund.org.uk/press/press-releases/restarting-health-and-care-services-will-take-many-months*
[5] *http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/technical-guidance/strengthening-the-health-system-response-to-covid-19*

Ireland

Essential health services maintained during the outbreak, including essential primary and social care services, Emergency Departments, maternity care, urgent acute care, urgent outpatient and elective activity. The HSE:
- Ensures ongoing services for specialties including trauma, cancer, obstetrics, CF and organ transplant services
- Engages acute oncology clinical nurse specialists to reduce the number of oncology patients being admitted to acute services and to avoid unnecessary admissions through Emergency Departments
- Maintains urgent (elective) activity including urgent diagnostics, cancer rapid access clinics and dialysis
- Maintains community care, including for socially vulnerable groups, community palliative care, mental health, home support and care for older people and those within specialist disability services
- Supports general practice in delivering on-going essential care of patients
- Supports community pharmacists in delivering on-going care of patients
- Ensures provision of essential patient transport to maintain healthcare access

Community and mental health support provided:
- Range of supports provided with a focus on older people and most vulnerable
- 'The Community Call' government initiative mobilising a rapid response in every county with a free phone number advertised for people to get support locally
- Specific information on the HSE website in relation to minding your mental health during the outbreak

Communication with public:
- People are encouraged to contact their GP or health service by phone to access care
- Regular briefings of the Chief Medical Officer, the government and the HSE to make the public aware that non-COVID-19 service delivery is continuing despite the Covid-19 pandemic
- HSE Twitter campaign

All **non-essential surgery, health procedures and other non-essential health services are postponed** from 28th March. All visits to hospitals, residential healthcare centres, other residential settings or prisons are stopped with specific exemptions on compassionate grounds.

Italy
- Decisions about the re-organization of services are taken at regional and local level.
- Travel allowed for health reasons
- Civil protection personnel, municipality employees and volunteers, and NGOs work to support vulnerable people at home and in long-term care facilities.
- Childbirth clinical pathways remain in function, with the obligation to adopt all safety measures
- All check-ups that are deferrable must be postponed
- Launch of 108 initiatives to enhance the delivery of services through digital technology. Of these, 38 are COVID-19 specific; the others are dedicated to diabetology, cardiology, general medicine, oncology, neurology and psychology.

France
- 1000 health reservists mobilised - a community of voluntary health professionals who can be mobilized by the State, including doctors, caregivers, laboratory technicians, radio handlers, etc.
- Not an immediate reconfiguration of service; no designated hospitals to deal with COVID-19 patients
- Recommendations to call mobile emergency services rather than to go directly to the hospital
- Tele-consultations already available & reimbursed - represented a quarter of all consultations, with 70% of GPs providing online consultation services
- To support mental health services, telephone hotlines were set up

Germany

- GP surgeries remained open, increasing number of consultations over the phone
- Selective and non-essential surgery postponed at the beginning of the outbreak - now gradually returning to normal
- Cancer patients recommended not to postpone planned cancer therapy, as the benefit of the treatment outweighs the risk of possible COVID-19 infection in most patients with acute cancer. Patients with a well-controlled cancer can talk to their doctors about whether the therapy can be postponed[6]
- Digital health infrastructure has helped enormously to secure safe and efficient diagnosis and treatment
- Hospitals are supported (receiving financial compensation or incentives) in case planned operations have been postponed; and when hospital/ICU beds are being kept free (40% of ICU beds kept free)
- On 30th April, hospital capacity re-opened for planned operations

Denmark

- Guidelines for resuming regular activities throughout the healthcare system, with a continued focus on the reduction of the spread of infection
- Restructuring and continued planning of the healthcare system's activities in relation to increased activity
- Mobilisation of healthcare professionals and healthcare-related partners/staff
- All services maintained, but non-critical elective surgery procedures postponed
- Existing and extensive home care services continue
- Specific recommendations issued for homeless, residents and staff of care/support facilities for vulnerable groups[7]
- No specific initiatives reported to expand access to or otherwise support mental health services
- The citizens have been encouraged to seek their GP to the same extent as before the COVID-19 epidemic
- There is no specific statement or agreement on when the treatment guarantees are expected to be reintroduced
- Video, telephone or other alternative consultations already in place and scaled up during the epidemic.

Iceland

- Temporary measures to give priority to COVID-19 patients in the health services, but still ensuring essential care
- A reserve and backup team of trained healthcare professionals to provide care as part of the COVID-19 response
- Public are encouraged not to hesitate to contact their primary care centres or medical doctors.
- Separate hours designated in health care centres to keep non-COVID-19 and potentially COVID-19 patients apart.
- Website chats, helplines and alternative communication channels promoted, i.e. tele-medicine already in use prior to the pandemic, but has been more extensively and systematically employed
- 'Tele-friends' pro-actively call individuals from vulnerable groups to provide contact, reduce social isolation and anxiety, associated with the outbreak and related social restrictions

Sweden

- New measures to strengthen care of the elderly and health care[8]

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[6] https://www.krebsinformationsdienst.de/aktuelles/2020/news012-coronavirus-ansteckungsgefahr-bei-krebs.php

[7] https://sim.dk/nyheder/nyhedsarkiv/2020/mar/plakater-og-pjecer-giver-raad-om-coronavirus-til-hjemloese-og-saerligt-udsatte/
[8] https://www.government.se/press-releases/2020/05/new-measures-to-strengthen-care-of-the-elderly-and-health-care-during-the-covid-19-crisis/

- Overall, the Swedish health care system's capacity for intensive care has doubled during the COVID-19 outbreak
- The general guideline is that care that can wait should wait; resulting in cancelled or postponed services
- The private sector and military have provided support with material resources
- People encouraged not to hesitate to seek emergency care for urgent conditions
- Introducing triage to separate suspected COVID-19 cases from other patients. In some counties, all drop-in visits in primary care cancelled
- Digital visits for primary care already available for all residents and expanding their existing digital platforms
- New government funded initiative for up to 10,000 people to train in health and social care. Plus 1000 high school vocational education and training places
- Additional funding to strengthen and develop public health and other health services

New Zealand[910]
- Health and disability care services operate as normally as possible
- Services will open and operate normally where possible, while managing public health risks
- Strict hygiene measures and physical distancing measures will remain in place
- Infection prevention and control principles must be adhered to across the system
- Testing for COVID-19 continues at community-based assessment centres, designated practices, and some general practices
- Services operate remotely i.e. online or by phone where possible
- Cancer screening programmes are gradually returning to normal
- People who missed their breast or cervical screening appointments will be contacted to make new appointments
- Bowel screening is resuming in a phased manner. Some home kits provided.
- Community mental health service appointments will be online or by phone where possible; some face-to-face
- Urgent and crisis community mental health services continue as usual.
- There is a range of welfare, mental health and wellbeing programmes underway to provide support
- Community midwives will provide services in a variety of ways, including face-to-face and on-line appointments
- Community dental services are open for routine, urgent and emergency care for people without COVID-19 or suspicion of COVID-19
- Vaccination continuing as normal the public encourages to continue with routine immunisations

Republic of Korea
- Focus on adopting telemedicine[11] and up-scaling of phone consultation and delivery of prescriptions
- Actively recruit healthcare professionals and station them at healthcare facilities in need (e.g. 750 public health doctors and 96 army doctor candidates, and continuing to recruit nurses[12])

[9] https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-current-situation/health-and-disability-services-alert-level-2#screening
[10] https://www.health.govt.nz/system/files/documents/pages/covid-19-health-and-disability-services-at-alert-level2-12may2020.pdf
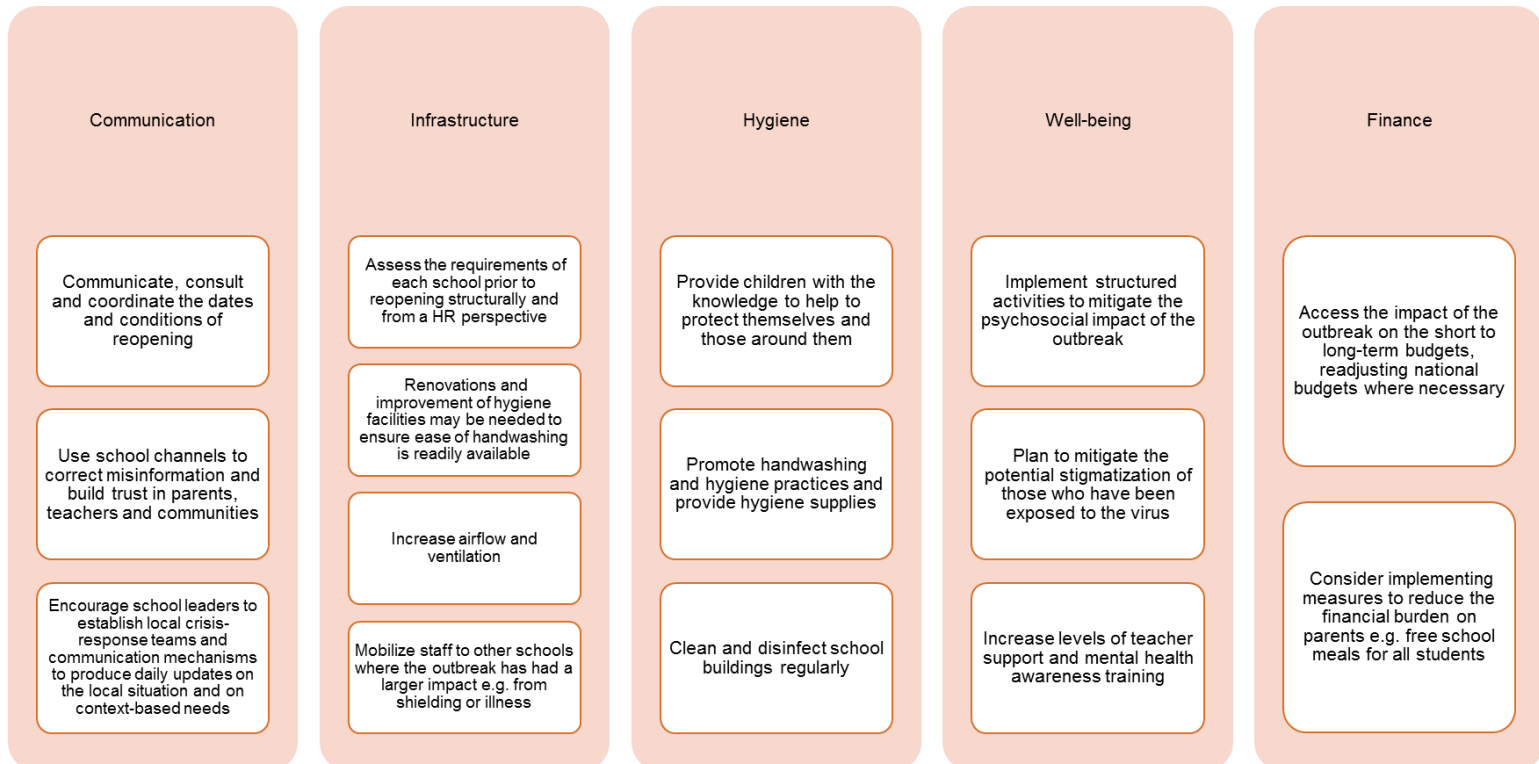[11] http://www.koreaherald.com/view.php?ud=20200515000293&ACE_SEARCH=1
[12] http://ncov.mohw.go.kr/en/infoBoardView.do?brdId=15&brdGubun=151&dataGubun=&ncvContSeq=2187&contSeq=2187&board_id=&gubun=

Re-opening education

Overview

- The role of children as disease carriers has not been studied enough yet, but the existing limited evidence shows that they still have limited contribution to the household/community transmission of the virus
- Children often have a milder course of the disease or are asymptomatic
- Infection rates of children appear to be similar to other age groups
- Children are often not presented in the data as they are not being tested
- Severe COVID-19 infections are rare in those under 18 years of age, comprising only 1.4% of those admitted to hospital. Only 0.8% are under 5 years of age.
- Asymptomatic / pre-symptomatic transmission poses a risk for COVID-19 spreading widely in educational facilities and cannot be prevented without strict prevention measures
- School closures, confinement, and psychological distress can have serious potential consequences on the future well-being of children and young people, as well as on those of their teachers and families, especially related to equity in health and educational attainment[13].

Key elements to consider for re-opening schools:

Communication	Infrastructure	Hygiene	Well-being	Finance
Communicate, consult and coordinate the dates and conditions of reopening	Assess the requirements of each school prior to reopening structurally and from a HR perspective	Provide children with the knowledge to help to protect themselves and those around them	Implement structured activities to mitigate the psychosocial impact of the outbreak	Access the impact of the outbreak on the short to long-term budgets, readjusting national budgets where necessary
Use school channels to correct misinformation and build trust in parents, teachers and communities	Renovations and improvement of hygiene facilities may be needed to ensure ease of handwashing is readily available	Promote handwashing and hygiene practices and provide hygiene supplies	Plan to mitigate the potential stigmatization of those who have been exposed to the virus	Consider implementing measures to reduce the financial burden on parents e.g. free school meals for all students
Encourage school leaders to establish local crisis-response teams and communication mechanisms to produce daily updates on the local situation and on context-based needs	Increase airflow and ventilation	Clean and disinfect school buildings regularly	Increase levels of teacher support and mental health awareness training	
	Mobilize staff to other schools where the outbreak has had a larger impact e.g. from shielding or illness			

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[13] http://www.iiep.unesco.org/en/five-steps-support-education-all-time-covid-19-13382

Multisystem inflammatory syndrome in children and adolescents

- Case reports and small series from Europe and North America describe clusters of children and adolescents with acute multisystem hyper-inflammatory syndrome, similar to Kawasaki disease and toxic shock syndrome, which might be related to COVID-19[14]
- There is urgent need for collecting data on the risk factors, causality, clinical presentation, severity, outcomes, epidemiology and relevant treatment interventions

Country overviews[1516]

Overview for selected countries with re-opening education facilities. In some countries, such as Ireland, Italy, Spain and Portugal, schools will remain closed until the next academic year.

Germany[1718]
− A hygiene plan in place, e.g. frequently used areas, such as toilets, to be cleaned regularly
− Social distancing rules in place
− School administrators have the authority in individual cases to exclude schoolchildren from teaching if they pose a health risk
Belgium
− Classes resume with a limited number of pupils to make sure social distancing is fully respected
− Classes rearranged to make sure each child has four square meters and each teacher eight square meters of space available.
− Temperatures taken as students entered schools
− Face masks worn by teachers and students
Denmark
− Parents and visitors not allowed on school premises
− Children arrive and leave school at different times
Singapore[19]
− Measures to reduce mingling of students - grouped based on their class and level and allocated designated rooms, preferably on different levels, to minimise contact
− Wearing of masks by students and staff throughout their time in school is one of the key measures
− Where interactions need to be facilitated - students in small groups & safe distancing maintained
− Ensure smaller numbers with fixed groups of four-five
− Ensure children and staff have their snacks/ meals separately with staggered timings;
− Maintain safe distancing through queue markers and alternate seating in canteens, plus stagger arrival and dismissal times to ease congestion
− Currently no evidence that spraying disinfectant on a fully clothed individual can 'disinfect' them
− Selective testing, taking a risk-based approach - routine testing of students and staff not done but if higher risk of infection, may be tested

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[14] *Multisystem inflammatory syndrome in children and adolescents with COVID-19* https://www.who.int/publications-detail/multisystem-inflammatory-syndrome-in-children-and-adolescents-with-covid-19
[15] https://gemreportunesco.wordpress.com/2020/03/24/how-are-countries-addressing-the-covid-19-challenges-in-education-a-snapshot-of-policy-measures/
[16] https://www.tes.com/news/coronavirus-reopening-schools-how-does-it-work-around-world
[17] https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2020/Ausgaben/19_20_02.pdf?__blob=publicationFile
[18] https://www.schulministerium.nrw.de/docs/Recht/Schulgesundheitsrecht/Infektionsschutz/300-Coronavirus/FAQneu_Coronavirus_Hygiene/index.html
[19] https://www.moe.gov.sg/faqs-covid-19-infection

Easing lockdown impact on R

Overview

The **reproduction number R (called Rt or simply R)** describes the spread of an infectious agent in a population, as the mean number of individuals an infected person passes the infection on to. R can be estimated using statistical methods and epidemiological data. The R changes over time and can therefore also be referred to as Rt (t = time). R is proportional to the contact rate and will vary according to the local situation, calculating it by measuring variables such as hospital admissions or confirmed cases[20].

Evidence shows that if R is below one, the virus should die out in a population. Countries have been working to achieve this through control mechanisms such as social distancing and workplace restrictions[21].

Country comparison of R

− COVID-19 transmission rates have fallen in most European countries since the beginning of March. By mid-April the R was approaching 1; on 15th May 15 it was between 0.7 and 1, even after restrictions were being eased.**[22]**

− There are multiple methods to calculate R causing inconsistencies in the data, as well as lack of transparency around the methodology and recording of R globally

− Epidemiological data on COVID-19 is not readily available via the national Ministry of Health or Public Health databases for most countries

− Each country approach to calculating R0/t differs and, due to the incubation period, there are delays

Country overview of the R value over time and related lockdown measures are shown on pp. 13-16 for Italy, Ireland, France, Denmark, Spain, Belgium, Iceland, Portugal, New Zealnd and Singapore.

R value country focus: Germany

− The so called 'NowCasting' provides an estimation of the historical number of COVID-19 cases in Germany, taking into account the delay in diagnosis, reporting and transmission

− Daily R updates are estimated by the Robert Koch Institute since the beginning of April, which has aided authorities in easing lockdown and monitoring re-emergence

− R of 1.3 means doubling the number of new cases within 11 days

• R alone is not sufficient to describe the current epidemiological situation of COVID-19

The figure below shows the change in R value in relation to the different lockdown / ease of lockdown measure over March – May 2020.

Data on current disease activity can be found in the daily situation reports on the Robert Koch Institute dashboard https://corona.rki.de/
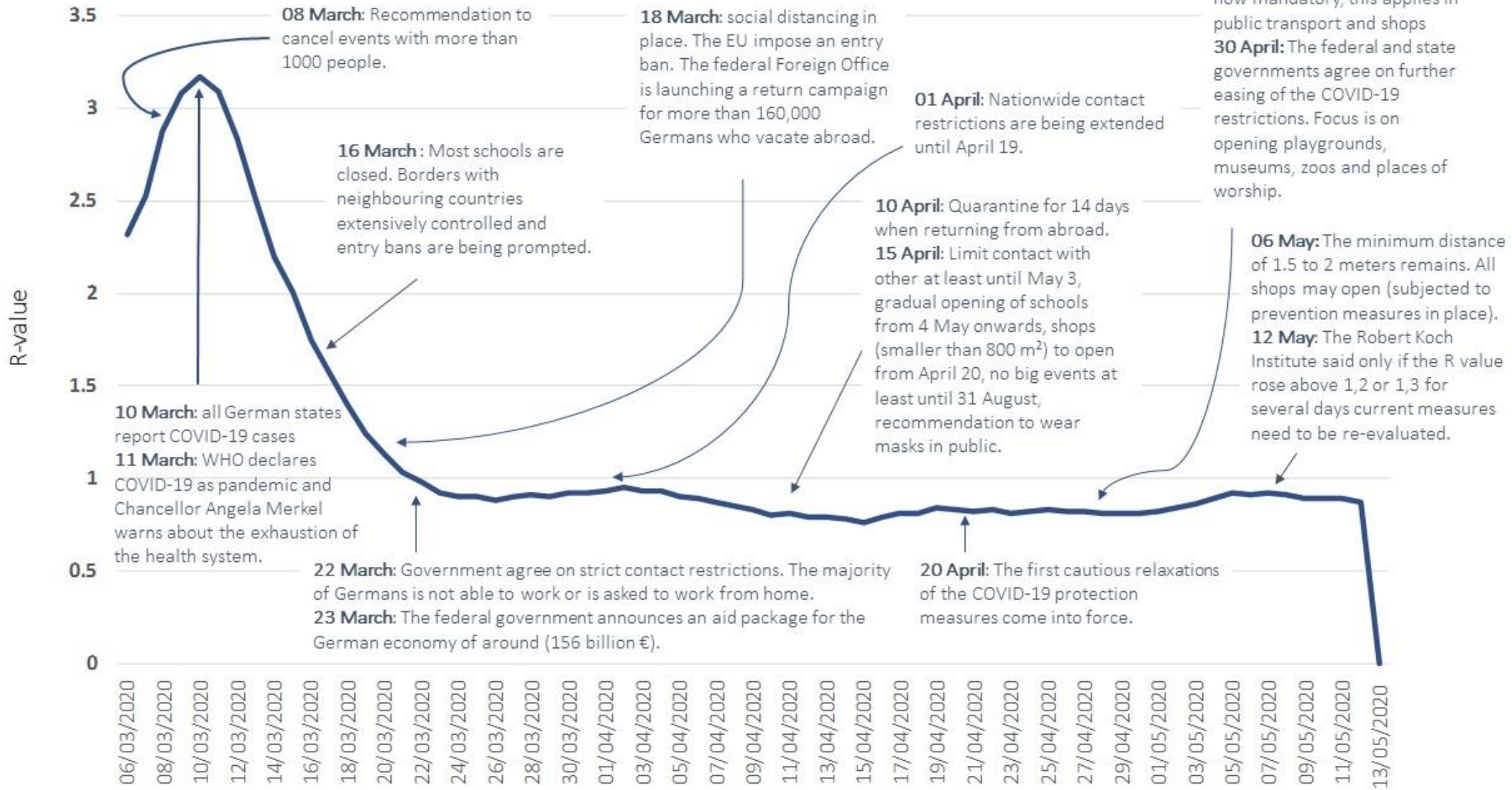
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[20] *https://gov.wales/sites/default/files/publications/2020-05/unlocking-our-society-and-economy-continuing-the-conversation.pdf*
[21] *George MacDonald, The Epidemiology and Control of Malaria, Oxford University Press, London (1957)*
https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1002588
[22] *https://epiforecasts.io/covid/*

COVID-19: point estimation of the 7-day R value, Germany, 6th March to 13th May 2020

08 March: Recommendation to cancel events with more than 1000 people.

18 March: social distancing in place. The EU impose an entry ban. The federal Foreign Office is launching a return campaign for more than 160,000 Germans who vacate abroad.

01 April: Nationwide contact restrictions are being extended until April 19.

27 April: In all German federal states, a mouth protection is now mandatory, this applies in public transport and shops

30 April: The federal and state governments agree on further easing of the COVID-19 restrictions. Focus is on opening playgrounds, museums, zoos and places of worship.

16 March: Most schools are closed. Borders with neighbouring countries extensively controlled and entry bans are being prompted.

10 April: Quarantine for 14 days when returning from abroad.
15 April: Limit contact with other at least until May 3, gradual opening of schools from 4 May onwards, shops (smaller than 800 m^2) to open from April 20, no big events at least until 31 August, recommendation to wear masks in public.

06 May: The minimum distance of 1.5 to 2 meters remains. All shops may open (subjected to prevention measures in place).
12 May: The Robert Koch Institute said only if the R value rose above 1,2 or 1,3 for several days current measures need to be re-evaluated.

10 March: all German states report COVID-19 cases
11 March: WHO declares COVID-19 as pandemic and Chancellor Angela Merkel warns about the exhaustion of the health system.

22 March: Government agree on strict contact restrictions. The majority of Germans is not able to work or is asked to work from home.
23 March: The federal government announces an aid package for the German economy of around (156 billion €).

20 April: The first cautious relaxations of the COVID-19 protection measures come into force.

R-value

3.5
3
2.5
2
1.5
1
0.5
0

06/03/2020 08/03/2020 10/03/2020 12/03/2020 14/03/2020 16/03/2020 18/03/2020 20/03/2020 22/03/2020 24/03/2020 26/03/2020 28/03/2020 30/03/2020 01/04/2020 03/04/2020 05/04/2020 07/04/2020 09/04/2020 11/04/2020 13/04/2020 15/04/2020 17/04/2020 19/04/2020 21/04/2020 23/04/2020 25/04/2020 27/04/2020 29/04/2020 01/05/2020 03/05/2020 05/05/2020 07/05/2020 09/05/2020 11/05/2020 13/05/2020

Tracking of R over time[23] and summary of easing lockdown impact

Italy

2.2 (3rd February) - 1.0 (8-19th May)

One of the most high risk regions, Umbria, is projected to have an increase in R0 to almost 3.0 over the next coming weeks as lockdown measures are eased. The R0 ranges regionally and only seven regions have been projected to maintain a R0 below 1.0 during the lifting of lockdown restrictions[24]

Government guidance on the next transition phase: 18th May – 31st July

Movement restrictions:

- Within region: movement no longer restricted; more restrictive measures may be applied to specific areas
- Inter-regional travel: journeys outside one's region prohibited until 2nd June (except for proven self-certified work, urgent need, or health reasons). From 3rd June - journeys across the national territory allowed
- International travel: international travel is prohibited until 2nd June (except for proven self-certified work, urgent need, or health reasons). From 3rd June – allowed, however, more restrictive provisions may be applied for specific states/territories; also be governed by limits placed by EU rules

Quarantine: Quarantine persons are prohibited from leaving their residence unless hospitalized or their recovery is confirmed; Precautionary quarantine may be applied by health authorities to persons having had close contact with confirmed COVID-19 cases

Masks - required in enclosed spaces and in shops; also recommended in open but crowded areas; **Gloves** - required in grocery stores

Gatherings: prohibited in public or places open to the public. Demonstrations, events, and shows of any type with the presence of an audience, including cultural, recreational, sports, trade, any conferences/conventions can ONLY take place where it has been determined that it is possible based on epidemiological data trends and following specific legal regulations.

- Mayors may temporarily close public areas where it isn't possible to ensure minimum social distancing of 1m
- Meetings must respect minimum social distancing of 1m and preferably should be held remotely
- Religious services are conducted in compliance with the protocols and appropriate measures to prevent the risk of contagion
- Visits with friends are allowed, but 1m distance must be respected

Teaching activities: educational institutions of all grades and levels continue to be suspended

Economic and social activities: permitted if they comply with national guidelines or protocols suitable for preventing of reducing the risk of contagion.
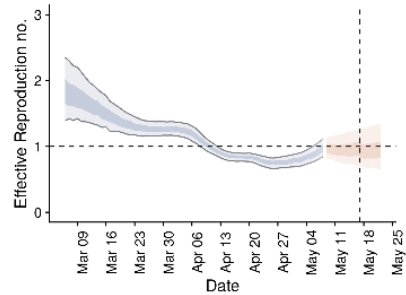
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[23] https://epiforecasts.io/covid/posts/global/
[24] https://epiforecasts.io/covid/posts/national/italy/

13

- Shopping centres – to reopen with entrances staggered
- Cafes & restaurants - to reopen with new safety protocols

Ireland
### 2.3 (9th March) - 0.8 (8-19th May)

Department of Health states: "Before the introduction of social distancing almost three other people were infected by each Covid-19 patient in the community (R = 2.8). As a result of social distancing and other restrictions, each Covid-19 patient now infects less than one other individual in the community (R=0.8)."
Daily epidemiology reports do not include monitoring of R0.[25]

France
### 3.2 (3rd February) - 0.9 (8-19th May)
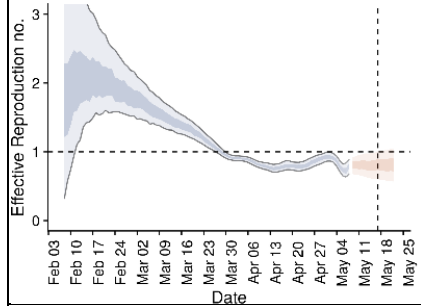
The lockdown is estimated to have reduced the reproductive number from a high of 2.90 to around $R_t = 0.67$[26]. It is estimated that less than 5% of the French public have been infected[1], and so measures that limit transmission risk were recommended to continue beyond the 11th May lifting in order to avoid a rebound of the epidemic.
There is a reported incubation period of 11 to 12 days in 97% cases[27]. As Lockdown was lifted on 11th May, so it is too soon to analyse any potential effects of the lockdown being lifted.

Denmark
1.8 (9th March) - 1.0 (8-19th May)
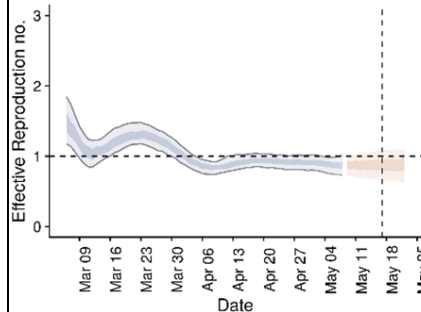
Despite easing lockdown measures, Denmark has seen a decrease in their R0 from 0.9 to 0.7 during the first week of May.

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[25] https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/casesinireland/epidemiologyofcovid-19inireland/
[26] Saljie et al (2020) - https://science.sciencemag.org/content/early/2020/05/12/science.abc3517
[27] Lauer et al (2020) - https://www.acpjournals.org/doi/10.7326/M20-0504

## Spain
2.4 (24th February) - 0.7 (8-19th May)

Commenced their antibody testing strategy[28] in order to calculate the amount of the population that has developed antibodies against COVID-19. The study, carried out by the Carlos III Institute for Health and the National Statistics Institute, aims to test 90,000 people in 36,000 households and, so far, only 5% of the population have been found to have the right antibodies to protect them from the virus.
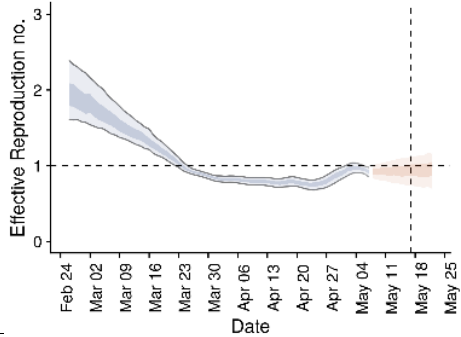
Belgium
2.1 (2nd March) - 0.8 (8-19th May)

Belgium will lift its lockdown gradually, in four phases.
Schools will restart on 18 May, with a maximum of 10 students per class.
Cafes, restaurants and some tourist attractions will open after 8 June, if there has been no second spike in cases. Trips abroad may also be allowed in early June.
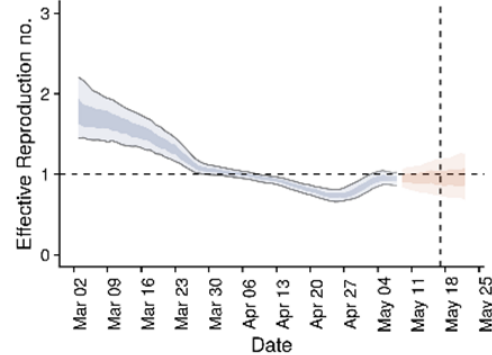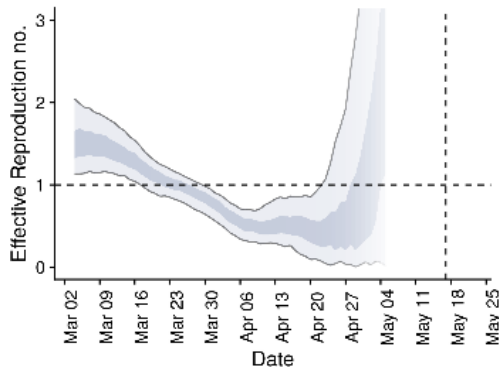

Iceland
2.0 (2nd March) - 1.2 (8-19th May)

Iceland has provided accessible public data throughout the pandemic, which has established the public's trust in measures being taken. This was a contributing factor to them not having to impose a lockdown nationally.

NB: Very low number of cases (as in Icelnad) makes an accurate approximation of Rt difficult to ascertain, hence the skewed graph.
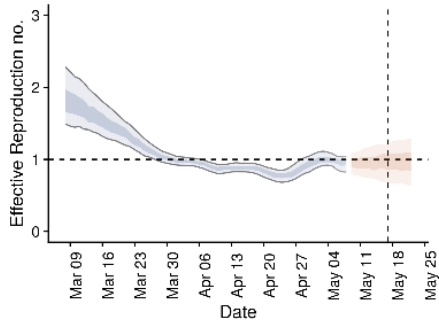
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[28] https://www.lamoncloa.gob.es/lang/en/gobierno/news/Paginas/2020/20200427seroprevalence.aspx

Portugal
## 2.2 (9th March) - 0.8 (8-19th May)

Vending machines selling masks, hand gel and gloves have been installed in Lisbon and Porto subways.

As small neighbourhood shops open, masks will be obligatory in enclosed public spaces like supermarkets and on public transport from Monday onwards, with rule-breakers incurring fines of up to 350 euros. As small neighbourhood shops open, masks will be obligatory in enclosed public spaces like supermarkets and on public transport from Monday onwards, with rule-breakers incurring fines of up to 350 euros.

New Zealand
## 1.9 (16th March) - 0.6 (8-19th May)
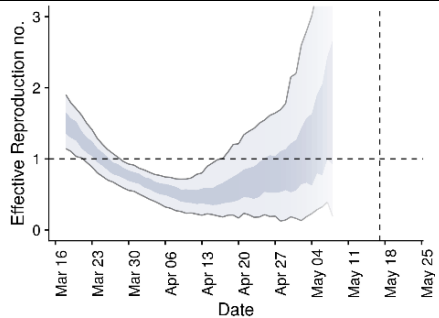
R0 dropped to as low as 0.4 during the early stages of lockdown. Their data, knowledge and insight centre, Te Punaha Matatini, have developed a method for measuring and estimating R0 globally, by using a commonly employed approach to estimate this effective R0 number from daily case data for Covid-19 in other countries.

NB: Very low number of cases (as in New Zealnd) makes an accurate approximation of Rt difficult to ascertain, hence the skewed graph.

Singapore
1.9 (3rd February) - 1.1 (8-19th May)
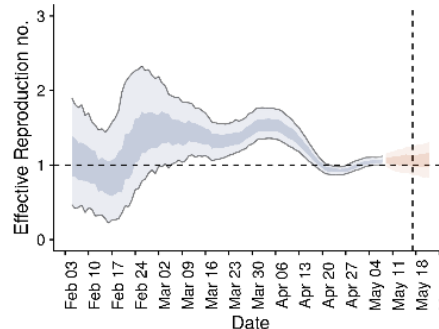
Whilst Singapore's R0 was projected to rise from 1.5 to 2.1 once lockdown was implemented, it was reported that, during lockdown, the R0 in Singapore did indeed spike at first due to a lack of mitigation measures, especially for migrant workers sharing dormitories - but these were swiftly implemented and the R0 is now beginning to reduce. The R0 is currently being monitored and maintained by the use of national tracking apps.[29] Their daily situation report only records the incident rate and not the R0.[30]

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[29] http://www.oecd.org/coronavirus/policy-responses/testing-for-covid-19-a-way-to-lift-confinement-restrictions-89756248/
[30] https://www.moh.gov.sg/docs/librariesprovider5/local-situation-report/situation-report---18-may-2020.pdf

Reporting COVID-19 deaths

Overview

WHO has developed the following definition for reporting COVID-19 deaths:

"*A COVID-19 death is defined for surveillance purposes as a death resulting from a clinically compatible illness in a probable or confirmed COVID-19 case, unless there is a clear alternative cause of death that cannot be related to COVID disease (e.g. trauma). There should be no period of complete recovery between the illness and death[31]*".

COVID-19 deaths reporting in **15 European countries** was explored: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, and the UK.
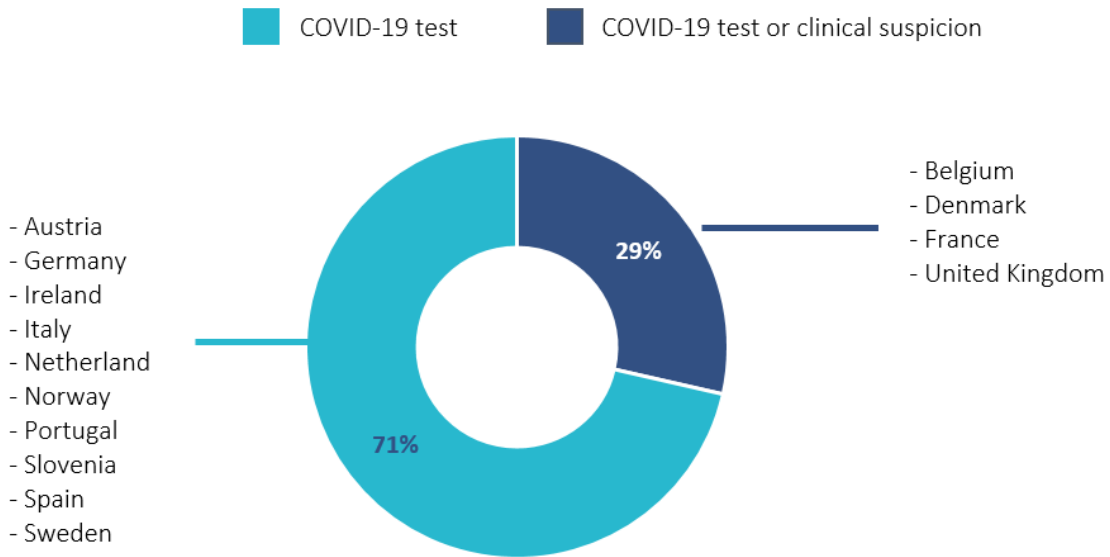
Summary of findings

− There is no common standardised method for attributing and recording deaths associated with COVID-19 and European countries differ in their approaches
− Differences are due to testing or resource capacity, public health and policy approaches
− The definition of COVID-19 associated death is complex and defined differently across European countries:
  ✓ In four countries (Belgium, Denmark, France, and the UK), death is registered in the COVID-19 death statistic even if COVID-19 is not the confirmed primary cause of death, but the individual has previously tested positive
  ✓ Over time, countries across Europe have included more settings in the COVID-19 deaths statistics
− All countries state that further investigation into the death of an individual pose additional risk for staff, as deceased patients are still infectious. For example, in Belgium, deaths in nursing homes are counted as COVID-19 associated deaths even if there were not a confirmed infection.

Figures 1 and 2 below show how are selected European countries defining deaths from COVID-19 and in which settings are they reported from.

Figure 3 shows comparison between COVID-19 cumulative death rates, percentage died COVID-19 cases, cases' rate and testing rates across 15 European countries.

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[31] *https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200411-sitrep-82-covid-19.pdf*

Figure 1. Selected European countries defining deaths from COVID-19

Legend:
- COVID-19 test
- COVID-19 test or clinical suspicion

Donut chart segments:
- 29% — COVID-19 test or clinical suspicion
  - Belgium
  - Denmark
  - France
  - United Kingdom
- 71% — COVID-19 test
  - Austria
  - Germany
  - Ireland
  - Italy
  - Netherland
  - Norway
  - Portugal
  - Slovenia
  - Spain
  - Sweden

* Information for Finland is unavailable.

Figure 2. Which settings are reporting COVID-19 deaths?

Legend:
- Hospitals & care homes
- Hospital & care homes (and wider public)
- Hospitals

Donut chart segments:
- Slovenia
- Spain
- 14% (Hospitals)
- 14% (Hospital & care homes (and wider public))
  - Norway
  - Finland
- 72% (Hospitals & care homes)
  - Austria
  - Belgium
  - Denmark
  - France
  - Germany
  - Ireland
  - Netherlands
  - Portugal
  - Sweden
  - United Kingdom

* Italy has been exlcuded from this output. Note that in Italy some care homes are included in the death data, but the majority of deaths recorded seem to be from hospitals

Figure 3. Comparison between COVID-19 cumulative death rates, percentage died COVID-19 cases, cases' rate and testing rates across 15 European countries

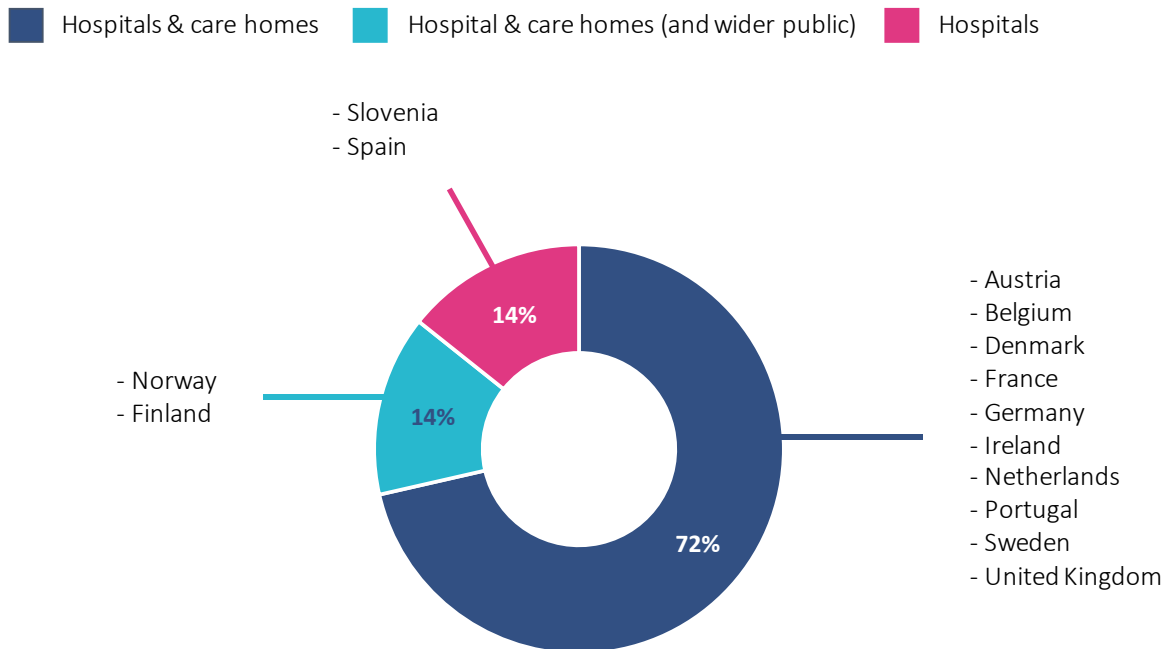COVID-19 cumulative death rate per 100,000, selected European countries, 20 May 2020

Country	Value
Belgium	79.5
Spain	59.3
Italy	53.0
UK	52.3
France	42.1
Sweden	36.3
Netherlands	33.0
Ireland	31.9
Portugal	12.0
Germany	9.7
Denmark	9.5
Austria	7.
Finland	5.4
Slovenia	5.0
Norway	4.4

Confirmed COVID-19 cases that have died, percentage, selected European countries, 20 May 2020

Country	Value
Belgium	16.3
Spain	12.0
Italy	14.2
UK	14.1
France	20.1
Sweden	12.2
Netherlands	12.9
Ireland	6.4
Portugal	4.2
Germany	4.6
Denmark	5.0
Austria	3.9
Finland	4.7
Slovenia	7.1
Norway	2.8

COVID-19 cases, rate per 100,000, selected European countries, 20 May 2020

Country	Value
Belgium	486.4
Spain	495.7
Italy	373.8
UK	370.6
France	209.7
Sweden	298.3
Netherlands	256.2
Ireland	498.6
Portugal	284.1
Germany	211.3
Denmark	189.2
Austria	182.9
Finland	115.6
Slovenia	70.9
Norway	155.2

COVID-19 tests per 100,000, selected European countries, 20 May 2020

Country	Value
Belgium	6,218
Spain	6,498
Italy	5,134
UK	4,087
France	2,122
Sweden	2,080
Netherlands	1,765
Ireland	
Portugal	6,494
Germany	3,758
Denmark	5,771
Austria	
Finland	2,280
Slovenia	
Norway	3,786

Sources:

1. Data on testing was extracted from Statista. Available at the following links:
https://www.statista.com/statistics/1104645/covid19-testing-rate-select-countries-worldwide/
https://www.statista.com/statistics/1108867/number-of-coronavirus-tests-per-capita-in-the-nordics/
3. WHO Coronavirus Disease (COVID-19) Dashboard. Available at: https://covid19.who.int/
4. Population data was extracted from The World Bank Data dashboard. Available at: https://data.worldbank.org/indicator/SP.POP.TOTL

Country insight: the Netherlands

Overview

The first case of COVID 19 was confirmed in the Netherlands on the 27th of February 2020. After that incidence has been rising quickly, mostly following several larger events that took place in February, including carnival in the Southern part of the Netherlands. The peak for hospitalisations was on the 27th of March with 610 new patients. The peak for mortality was on the 31st of March with 175 being reported as deceased.

From June, everyone in the Netherlands who has symptoms can be tested.

A large-scale study on immunity (and herd immunity) began at the end of March

A contract tracing App is in development, although it has not been successfully implemented to date. The app has suffered a data breach and further privacy concerns have been raised.

The confirmed cases over March to May 2020 and the related R values are presented on Figure 4 below.

Figure 4. Confirmed cases on estimated date of infection and estimated R value
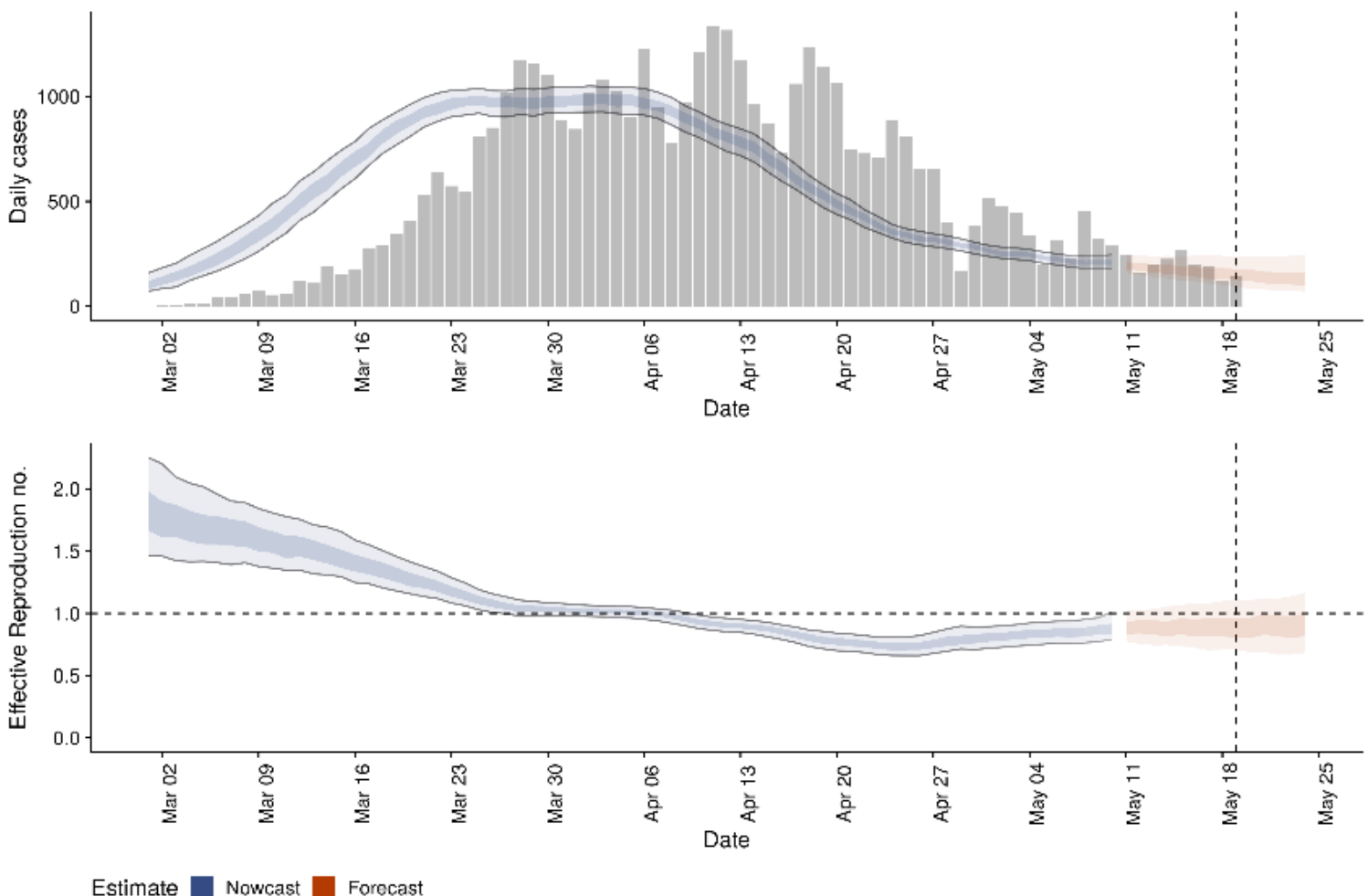
Overview of Four Step plan presented on the 6th of May 2020 by the Dutch Government with extensive scientific input from the Dutch National Public Health Institute (RIVM)

Phase 1: 11th of May 2020
- Primary schools, special schools and childcare will partially open.
- Hairdressers and beauticians can reopen with appointments
- Pedicurists and physiotherapists can reopen with appointments
- You can play sports outside. But you must stay 1.5 metres away from other people.
- Libraries can reopen

Phase 2: 1st of June
- You must wear a face mask on the bus, tram, metro and train. Only use the bus, tram, metro or train if you really need to
- Secondary schools will reopen
- Outside seating areas will reopen
- Restaurants, café and bars will open for up to 30 people. People must make a reservation
- Cinemas will open for up to 30 people. Tickets must be bought in advance
- Theatres and concert halls will open for up to 30 people. Tickets must be bought in advance
- Museums will open. Tickets must be bought in advance

Phase 3: 1st of July
- Campsites will open again. Showers and toilets at campsites will also be open
- Cinemas, restaurants, bars, cafés, theatres and concert halls will open for up to 100 people

Phase 4: 1st September
- Fitness centres will open again
- Playing sports inside and playing contact sports will be allowed
- Sports matches and competitions can be held. Professional football matches can also be held. But without spectators

Rationale

Rationale for relaxing measures in phase 1 sectors/facilities: most clients are local and are expected to come to their appointment alone. Reopening will not lead to more people on public transport or in public spaces. Hairdressers, opticians, pedicurists etc. also have facilities in place that make it easy to comply with the hygiene instructions, for instance, handwashing.

Rationale for face mask on public transport: It is anticipated that public transport will become busier around 1 June, it will be more difficult to stay 1.5 metres apart. It will also be impossible to carry out a preliminary risk check.

Measures to address the impact of COVID 19

Contact tracing
From June, everyone in the Netherlands who has symptoms can be tested. If someone tests positive the municipal health service (GGD) will carry out in-depth source and contact tracing. This means that all unprotected contacts will be traced from two days before the onset of the

symptoms until the patient went into isolation. Digital tools may be used in order to quickly gather as much relevant data as possible. Development of an App is still ongoing.

Research: Large-scale study on immunity
The RIVM started a large-scale study on COVID-19 immunity, including herd immunity. This multi-year study will continuously provide information to control the COVID-19 outbreak. The RIVM will invite 6,000 people from all over the country to take part, ranging from the ages of 2 and 92 years old. Participants will be recruited from a pool of those already involved in a long-term study on protection against infectious diseases (known as the PIENTER study).

Putting social distancing on the map[32]
As Dutch cities and town often consist of narrow streets and alleys, the Technical University in Delft in collaboration with the Amsterdam Institute for Advanced Metropolitan Solutions (AMS Institute), has developed a dashboard of city maps that show on a street and neighborhood level if social distance rules can be respected when moving in public space. It offers an overview of different factors, such as the width of the footpath and location of bus stops, affecting our ability to respect social distancing rules. The project intends to raise awareness about constraints posed by the design of public space and contributes to decision making for COVID-19 related interventions in urban planning.

Addressing shortages of PPE[33]
As a result of the shortage of protective garments in the Netherlands, a central allocation model has been developed to assess the availability of protective garments and manage distribution. The Regional consultative body acute care assesses the demand for these garments at the regional level, which are aggregated every day to create an overview at the national level. The National Consortium Assistive Devices manages the physical distribution of the available resources. Initially, this model focused on supplying hospitals as a first priority. Since Monday 12 April, the distribution will be focused on the risk for care personnel of being infected by a patient as a result of the treatment. This implies that personnel at nursing homes and home care nurses will have better access to protective masks of high quality when treating COVID-19 patients. However, this does not solve the problem of the continuous scarcity.

Education
RIVM, the National Institute for Public Health and the Environment has advised that the health risks for children are very limited. As a consequence children at primary schools are not expected to maintain 1.5M distance to each other and, only where possible, maintain 1.5M distance to adults. Parents and teachers must keep their distance from one another.

Current hygiene regulations, such as no shaking hands, remain in effect.
Adults and children with health problems or belonging to the risk groups (above 70 years or with certain underlying conditions) do not visit schools.
The effects of opening childcare and schools are closely monitored. Pedagogical staff and teachers are able to be tested for the virus if they show symptoms.

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[32] *https://www.tudelft.nl/en/2020/tu-delft/social-distancing-dashboard-provides-roadmap-for-city-dwellers/*
[33]*https://www.covid19healthsystem.org/countries/netherlands/livinghit.aspx?Section=2.1%20Physical%20infrastructure&Type=Section*

Type	Date returned	Measures in place	
		Prevention	Schedule
Pre-school and nursery (0-4)/ Childminder (0-12)	11th May	Social distancing for adult - adult contact in school settings only	As per pre-lockdown
Special educational settings	11th May	Social distancing for adult - adult contact in school settings only	
Primary/ out of hours	11th May	Social distancing for adult-adult contact in school settings only The out-of-hours service is available on days when children go to school and not on other days	Shorter school days Homework Smaller groups
Secondary	2nd June	Partially opening only if approved by experts within the Outbreak Management Team. It must be possible to secure the physical 1.5 meter distance.	Shorter school days Homework Smaller groups
Vocational and higher education	Distance learning only		

Mitigating economic impact[34]

Support measures by the Dutch Government to mitigate the economic impact of COVID-19 include:

- Wage support for companies that have at least 20% loss of revenue. Companies can apply for support of 90% of their total wages, depending on the severity of the loss in revenue. A requirement is that there are no job losses in the period for which support is asked for.
- Independent entrepreneurs can receive an additional financial support to supplement their income up to the national social minimum, which is about EUR 1200 for single households and about EUR 1600 for families. This support does not have to be paid back. A loan against reduced interest is also an option.
- The guarantee fund for financing entrepreneurs will increase its funds for companies hit by the COVID-19 crisis. For some companies that have problems in paying interest and redemption on loans, redemption can be postponed and interest will be lowered to 2%.
- Some other measures, such as temporary abolishment of tourist tax and compensation for sectors that are compulsory closed, are still under development

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[34]*https://www.covid19healthsystem.org/countries/netherlands/livinghit.aspx?Section=6.1%20Measures%20in%20other%20sectors&Type=Section*

GIG
CYMRU
NHS
WALES

Iechyd Cyhoeddus
Cymru

Public Health
Wales

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