



The following information resources have been selected by the National Health Library and Knowledge Service Evidence Virtual Team in response to your question. The resources are listed in our estimated order of relevance to practicing healthcare professionals confronted with this scenario in an Irish context. In respect of the evolving global situation and rapidly changing evidence base, it is advised to use hyperlinked sources in this document to ensure that the information you are disseminating to the public or applying in clinical practice is the most current, valid and accurate.

YOUR QUESTION

When does contact tracing become ineffective?

What does the European Centre for Disease Prevention and Control say?

[Rapid risk assessment: Novel coronavirus disease 2019 \(COVID-19\) pandemic: increased transmission in the EU/EEA and the UK – sixth update¹](#)

NEED FOR IMMEDIATE TARGETED ACTION

In the current situation where COVID-19 is rapidly spreading worldwide and the number of cases in Europe is rising with increasing pace in several affected areas, there is a need for immediate targeted action. The speed with which COVID-19 can cause nationally incapacitating epidemics once transmission within the community is established, indicates that in a few weeks or even days, it is likely that similar situations to those seen in China and Italy may be seen in other EU/EEA countries or the UK.

RISK ASSESSMENT

The risk of severe disease associated with COVID-19 infection for people in the EU/EEA and UK is currently considered moderate for the general population and high for older adults and individuals with chronic underlying conditions, based on the probability of community transmission and the impact of the disease. The risk of transmission of COVID-19 in health and social institutions with large vulnerable populations is considered high. The impact of transmission in health and social institutions can be mediated by the application of effective infection prevention and control and surge capacity. The EU/EEA and the UK are quickly moving toward a scenario of sustained community transmission of COVID-19. The situation is evolving very quickly and a rapid, proactive and comprehensive approach is essential in order to delay transmission, as containing transmission to local epidemics is no longer considered feasible. A rapid shift from a containment to a mitigation approach is required, as the rapid increase in cases, that is anticipated in the coming days to few weeks may not provide decision makers and hospitals enough time to realise, accept and adapt their response accordingly if not implemented ahead of time. Measures taken at this stage should ultimately aim at protecting the most vulnerable population groups from severe illness and fatal outcome by reducing transmission and reinforcing healthcare systems.

NECESSARY MEASURES TO MITIGATE THE IMPACT OF THE PANDEMIC

Given the current epidemiology and risk assessment, and the expected developments in the next days to few weeks, the following public health measures to mitigate the impact of the pandemic are necessary in EU/EEA countries:

- Social distancing measures should be implemented early in order to mitigate the impact of the epidemic and to delay the epidemic peak. This can interrupt human-to-human transmission chains, prevent further spread, reduce the intensity of the epidemic and slow down the increase in cases, while allowing healthcare systems to prepare and cope with an increased influx of patients. Such measures should include:
 - the immediate isolation of symptomatic persons suspected or confirmed to be infected with COVID-19;
 - the suspension of mass gatherings, taking into consideration the size of the event, the density of participants and if the event is in a confined indoor environment;

- social distancing measures at workplaces (for example teleworking, suspension of meetings, cancellation of non-essential travel);
 - measures in and closure of schools, taking into consideration the uncertainty in the evidence of children in transmitting the disease, need for day care for children, impact on nursing staff, potential to increase transmission to vulnerable grandparents;
 - cordon sanitaire of residential areas with high levels of community transmission.
- Ensuring the public is aware of the seriousness of COVID-19. A high degree of population understanding, solidarity and discipline is required to apply strict personal hygiene, coughing etiquette, self-monitoring and social distancing measures. Community engagement and acceptance of stringent social distancing measures put in place are key in delaying and reducing further spread.
- Prevention and control of COVID-19 in hospitals and long-term care facilities is an immediate priority in order to:
- slow the demand for specialised healthcare, such as ICU beds;
 - safeguard populations vulnerable to severe outcomes of infection;
 - protect healthcare workers that provide care;
 - minimise the export of cases to other healthcare facilities and the community.
- Every healthcare facility should initiate training for all staff and those who may be required for healthcare provision during surge capacity. Countries should identify healthcare units that can be designated to care for COVID-19 cases, to minimise transmission to non-cases and to conserve PPE. Countries and healthcare institutions should identify additional facilities that can be used for the cohorting of cases with mild symptoms, in the event that surge capacity is exceeded by healthcare facilities. The highest priority for use of respirators [FFP2/3] are healthcare workers, in particular those performing aerosol-generating procedures, including swabbing.
- If resources or capacity are limited, rational approaches should be implemented to prioritise high-yield actions, which include: rational use of confirmatory testing, reducing contact tracing to focus only on high-yield contacts, rational use of PPE and hospitalisation and implementing rational criteria for de-isolation. Testing approaches should prioritise vulnerable populations, protection of social and healthcare institutions, including staff.
- National surveillance systems should initially aim at rapidly detecting cases and assessing community transmission. As the epidemic progresses, surveillance should monitor the intensity, geographical spread and the impact of the epidemic on the population and healthcare systems and assess the effectiveness of measures in place. In circumstances with capacity shortages and strict implementation of social distancing measures, surveillance should focus on severe acute respiratory infections, sentinel surveillance in outpatient clinics or collection of data through telephone helplines.

A strategic approach based on early and rigorous application of these measures will help reduce the burden and pressure on the healthcare system, and in particular on hospitals, and will allow more time for the testing of therapeutics and vaccine development.

What does the Health Protection Surveillance Centre (Ireland) say?

[Novel Coronavirus 2019 \(COVID-19\). National interim guidelines for public health management of contacts of cases of COVID-19, including healthcare workers:](#)²

This document summarises interim recommendations for contact management for COVID-19. It is the first national guidance issued for COVID-19. It is based on the current knowledge of the situation in China and experiences with SARS-CoV and MERS-CoV. It is guidance suitable for a high containment phase, when no or limited number of cases have been identified in Ireland. It may change if and when we move to a mitigation phase.

Contact tracing should be initiated IMMEDIATELY after a confirmed case of COVID-19, or a highly likely suspected case is identified in Ireland. Close contacts of a confirmed case should undergo active follow-up for 14 days after the last possible exposure to a confirmed COVID-19 case. Contact should be made with them on a daily basis to ask about relevant symptoms for 14 days after the last possible exposure to a confirmed COVID-19 case. The lead team

undertaking this can make an operational decision as how best to manage this such as use of telephone calls, text messages or emails on a daily basis.

Casual contacts should undergo passive follow-up for 14 days after the last possible exposure to a confirmed COVID-19 case.

What does the international literature say?

Hellewell. Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts³

In most scenarios, highly effective contact tracing and case isolation is enough to control a new outbreak of COVID-19 within 3 months. The probability of control decreases with long delays from symptom onset to isolation, fewer cases ascertained by contact tracing, and increasing transmission before symptoms. This model can be modified to reflect updated transmission characteristics and more specific definitions of outbreak control to assess the potential success of local response efforts.

Keeling et al. The Efficacy of Contact Tracing for the Containment of the 2019 Novel Coronavirus (COVID-19)⁴

For contact tracing to be an effective public health measure requires secondary cases to be discovered before they become infectious; hence the time from the primary case becoming infectious to the tracing of their contacts needs to be shorter than the incubation period. Longer time scales would allow tertiary cases to be infected and would snowball the tracing process. In addition, those contacts that are traced either need to be effectively screened for infection and quarantined or otherwise isolated so that they do not pose a risk to others. Therefore, while contact tracing has the potential to control COVID-19 and other close-contact pathogens the ultimate success relies on the speed and efficacy with which suspect contacts can be contained.

Stoecklin. First cases of coronavirus disease 2019 (COVID-19) in France: surveillance, investigations and control measures, January 2020⁵

A novel coronavirus severe acute respiratory syndrome coronavirus 2, SARS-CoV-2 causing a cluster of respiratory infections (coronavirus disease 2019, COVID-19) in Wuhan, China, was identified on 7 January 2020. The epidemic quickly disseminated from Wuhan and as at 12 February 2020, 45,179 cases have been confirmed in 25 countries, including 1,116 deaths. Strengthened surveillance was implemented in France on 10 January 2020 in order to identify imported cases early and prevent secondary transmission. Three categories of risk exposure and follow-up procedure were defined for contacts. Three cases of COVID-19 were confirmed on 24 January, the first cases in Europe. Contact tracing was immediately initiated. Five contacts were evaluated as at low risk of exposure and 18 at moderate/high risk. As at 12 February 2020, two cases have been discharged and the third one remains symptomatic with a persistent cough, and no secondary transmission has been identified. Effective collaboration between all parties involved in the surveillance and response to emerging threats is required to detect imported cases early and to implement adequate control measures.



REFERENCES

- ¹ European Centre for Disease Prevention and Control <https://www.ecdc.europa.eu/en/publications-data/rapid-risk-assessment-novel-coronavirus-disease-2019-covid-19-pandemic-increased> ACCESSED 13 MARCH 2020
- ² Health Protection Surveillance Centre <https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/contacttracingguidance/National%20Interim%20Guidance%20for%20contact%20tracing%20V.6.pdf> Accessed 13 MARCH 2020
- ³ Hellewell, Joel et al DOI: [10.1016/S2214-109X\(20\)30074-7](https://doi.org/10.1016/S2214-109X(20)30074-7) ACCESSED 13 MARCH 2020
- ⁴ Keeling, Matt J et al <https://www.medrxiv.org/content/10.1101/2020.02.14.20023036v1.full.pdf> ACCESSED 13 MARCH 2020
- ⁵ Stoecklin, Sybille Bernard DOI: [10.2807/1560-7917.ES.2020.25.6.2000094](https://doi.org/10.2807/1560-7917.ES.2020.25.6.2000094) ACCESSED 13 MARCH 2020

Produced by the members of the National Health Library and Knowledge Service Evidence Team.[†] Current as at 16 March 2020. This evidence summary collates the best available evidence at the time of writing. Emerging literature or subsequent developments in respect of COVID-19 may require amendment to the information or sources listed in the document. Although all reasonable care has been taken in the compilation of content, the National Health Library and Knowledge Service Evidence Team makes no representations or warranties expressed or implied as to the accuracy or suitability of the information or sources listed in the document. This evidence summary is the property of the National Health Library and Knowledge Service and subsequent re-use or distribution in whole or in part should include acknowledgement of the service.

The following PICO(T) was used as a basis for the evidence summary:

P Population person location condition/patient characteristic	Suspected or confirmed COVID-19 patient
I Intervention length location type	CONTACT TRACING
C Comparison another intervention no intervention location of the intervention	
O Outcome	EFFECTIVENESS AT SLOWING BREAKING THE CHAIN OF TRANSMISSION

The following search strategy was used:

```
(((((("PANDEMICS"[MESH TERMS]) OR ("INFLUENZA, HUMAN"[MESH TERMS])) OR (PANDEMIC OR PANDEMICS OR INFLUENZA)) OR (INFLUENZA AND HUMAN)) OR ("HUMAN INFLUENZA")) OR (((COVID-19) OR (CORONAVIRUS OR "CORONA VIRUS" OR "2019-NCOV" OR "2019 NCOV")) OR ("SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2"[*]) OR (WUHAN[TITLE/ABSTRACT] AND VIRUS[TITLE/ABSTRACT])) OR ("2019 NOVEL CORONAVIRUS" OR "2019 NEW CORONAVIRUS"))))
```

[†] Isabelle Delaunois, Medical Librarian, HSE Mid-West University of Limerick Hospitals, Limerick [Author]; Maura Flynn, Librarian, Midland Regional Hospital, Tullamore [Author]; Marie Carrigan, Librarian, St. Luke's Radiation Oncology Network, Rathgar [Author]; Brendan Leen, Regional Librarian, HSE South, St. Luke's General Hospital, Kilkenny [Editor].

