National Public Health Emergency Team

Sections 1 a to c of Department of Health Report to Government under *Roadmap for Reopening Society & Business* Decision-making Framework

25 June 2020

Action required

☐ **For noting**
☒ **For discussion**
☐ **For decision**

Note to the NPHET

A periodic report is submitted to Government with information on a number of matters in relation to Covid-19 including data regarding the progression of the disease, the capacity and resilience of the health service in terms of hospital and ICU occupancy and the capacity of sampling, testing and contract tracing.

Set out below is updated information on these measures which may assist in your deliberations on what measures could be modified in the next period.

A) Progression of the Disease

The NPHET considers a wide range of information when considering its public health advice to Government. The following criteria are considered when evaluating the status of the progression of the disease. These criteria will be reviewed on an ongoing basis and will be subject to change as the measures in place are modified. These criteria are not viewed in isolation, but rather within the larger situational context.

Criteria:

- Number of new cases per day
- Trend in deaths (by date of death)
- Total confirmed COVID-19 cases in hospital
- Trend in daily COVID-19 acute hospital admissions
- Hospitalisations as a percentage of newly confirmed cases
- Confirmed COVID-19 cases in ICU
- Trend in daily ICU admissions of confirmed COVID-19 patients
- ICU admissions as a percentage of hospitalised cases
- Trend in new clusters in residential care facilities
- New cases in residential care facilities
- Trend in new cases per day associated with clusters in residential care facilities
- Clusters and cases in non-healthcare settings
- Number of cases in healthcare workers
- Median number of close contacts

The latest data regarding the progression of the disease

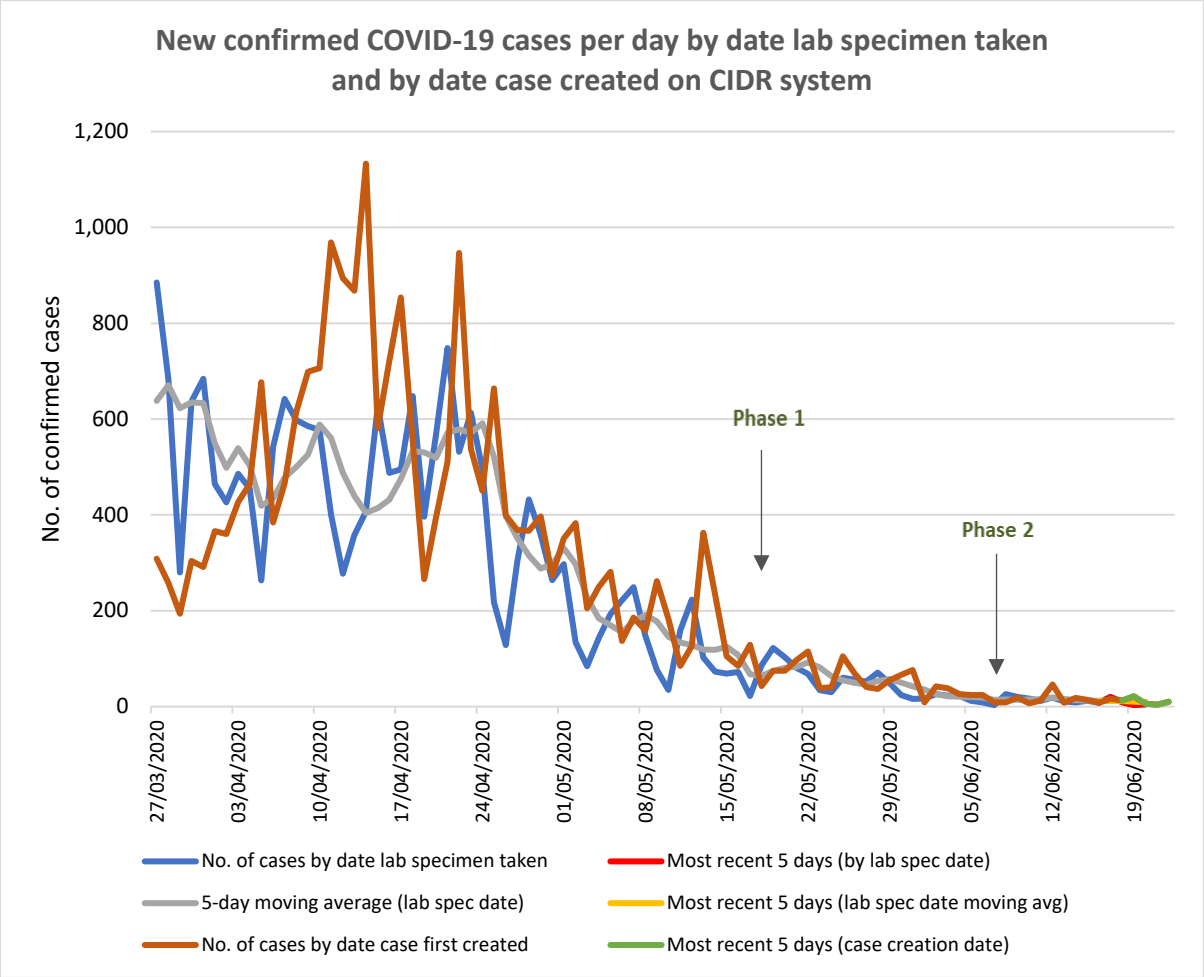
As at midnight on the 22nd of June 2020:

- there have been 25,391 patients with laboratory-confirmed cases of COVID-19.
- this equates to 516 people per 100,000 population having tested positive for COVID-19.
- the largest number of cases notified to the Department of Health by the HSE Health Protection Surveillance Centre (HPSC) on a single day was on 23rd April (n=936). This represents a later date of a peak number of cases than is observed in many other European Member States.

Disease incidence

As at midnight on the 22nd of June, the five-day moving average for confirmed cases newly reported to the Department of Health was 11. A new case is notified to the Department when it is confirmed they have COVID-19 and would be later than when the person first became ill or was tested. When considering the progression of the disease, considering the date when cases were tested is useful. The latest five-day moving average of new confirmed cases, based on the date the person's lab specimen

was taken (for testing), was 10. It must be noted that time lags in data reporting mean that data for the most recent five days should be considered provisional and subject to change. The latest average of 10 cases compares with a peak in the five-day average during the observed period of 671 on 28th March.

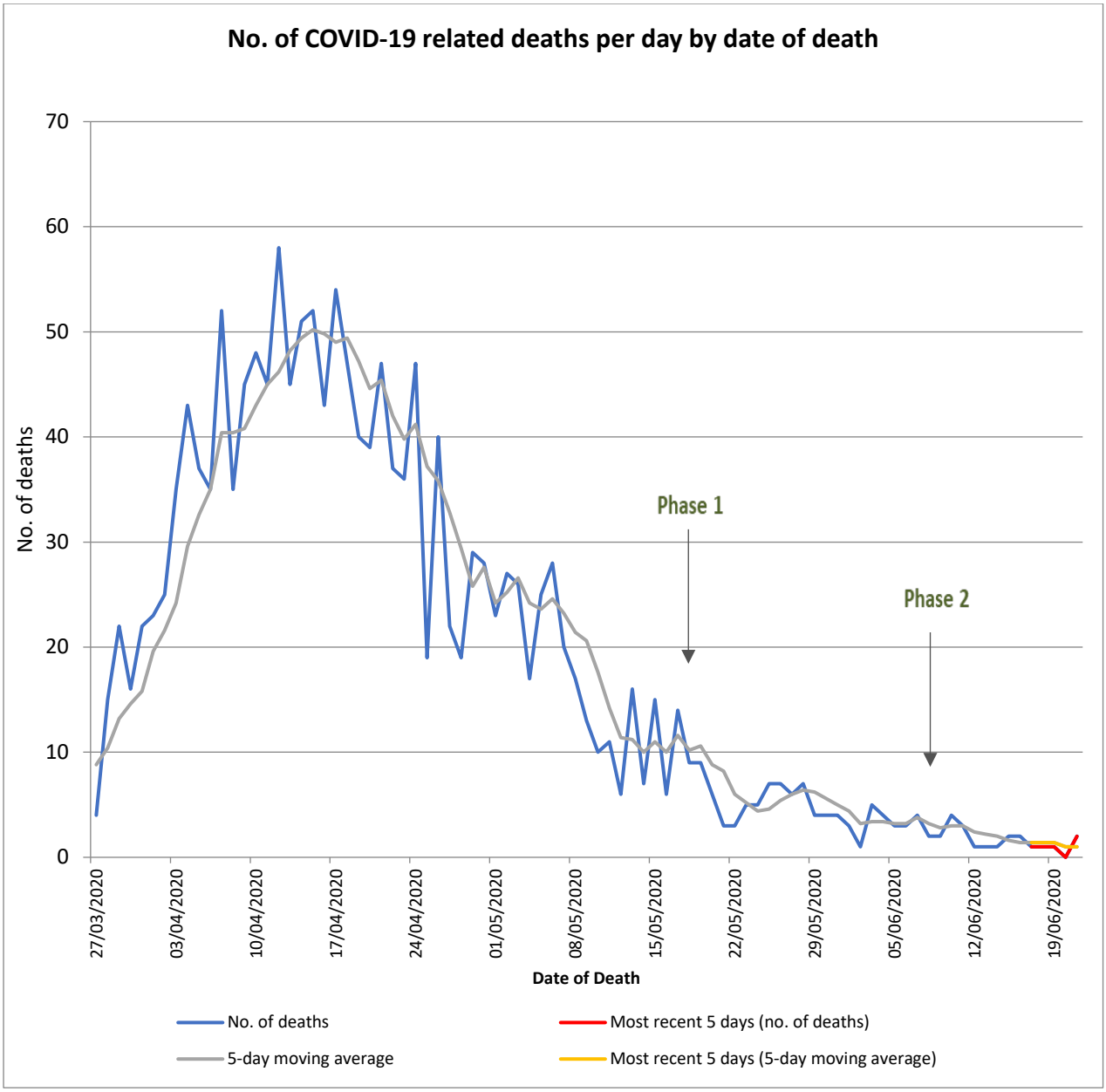


Source: HPSC, Daily CIDR Data Extract
Note: Time lags in data reporting mean that data for the most recent 5 days should be considered provisional and subject to change.

Disease impact

The latest five-day moving average for daily deaths, based on date of death, was 1.

As at midnight on the 22nd of June, the total number of COVID-19 related deaths (confirmed and probable cases) was to 1,720. The peak for new deaths recorded by date of death during the observed period was 58 on the 12th of April. Excluding the most recent five days (to account for delays in reporting of deaths), the five-day moving average of daily deaths, by date of death, was 1.4 (to the 16th of June). This is down from a peak of 50 on the 15th of April.



Source: HPSC, Daily CIDR Data Extract

Note: This includes all COVID-19 related deaths, both lab confirmed and probable.

Note: For consistency, this chart begins on 27/03/20, however the first COVID-19 related death occurred on 11/03/20. There were a total of 57 confirmed and probable COVID-19 deaths prior to 27/03/20 or with an unknown date of death and not shown in this chart.

Note: Time lags in data reporting mean that data for the most recent 5 days should be considered provisional and subject to change.

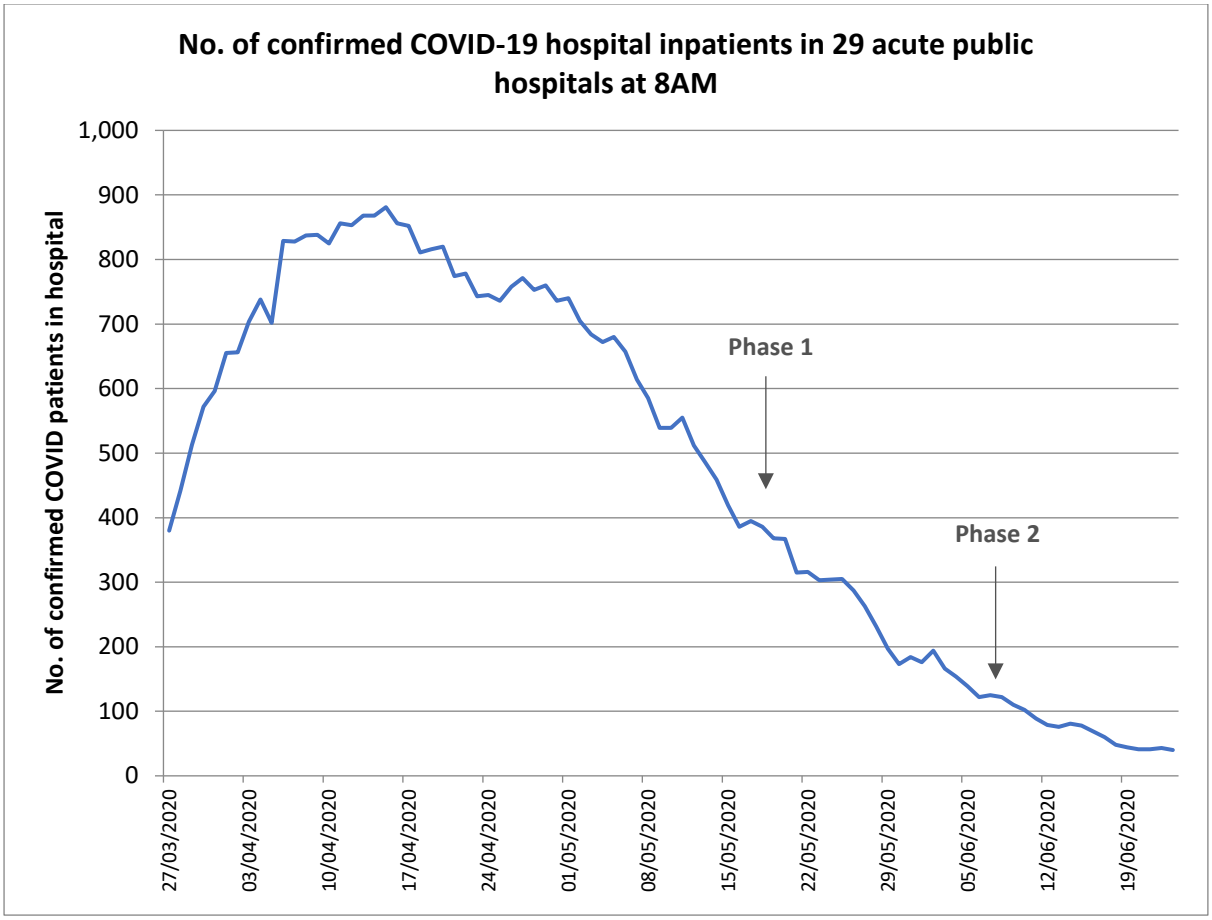
COVID-19 hospitalisations

There were 40 confirmed and 260 suspected cases of COVID-19 in hospital on June 23rd. There were 11 confirmed and 9 suspected cases in intensive care, of whom 11 were ventilated**.** The five-day moving average for new admissions of confirmed cases to hospital was 2 on the 23rd of June. The five-day moving average of new admissions to ICU was 0.2. Based on the latest data available, approximately 13% of all confirmed cases to date have been hospitalised, with 46% of those aged under 65. On the 23rd of June, the number of confirmed COVID-19 patients in ICU represented 36.3% of all confirmed COVID-19 patients currently in hospital. In total, 1.7% of all cases have being admitted to intensive care. Of those in ICU, 63% are aged under 65. The average length of stay in ICU is 15 days,

with 73% of patients discharged to a ward after their stay in critical care with 9% being transferred to a High Dependency Unit or another ICU.

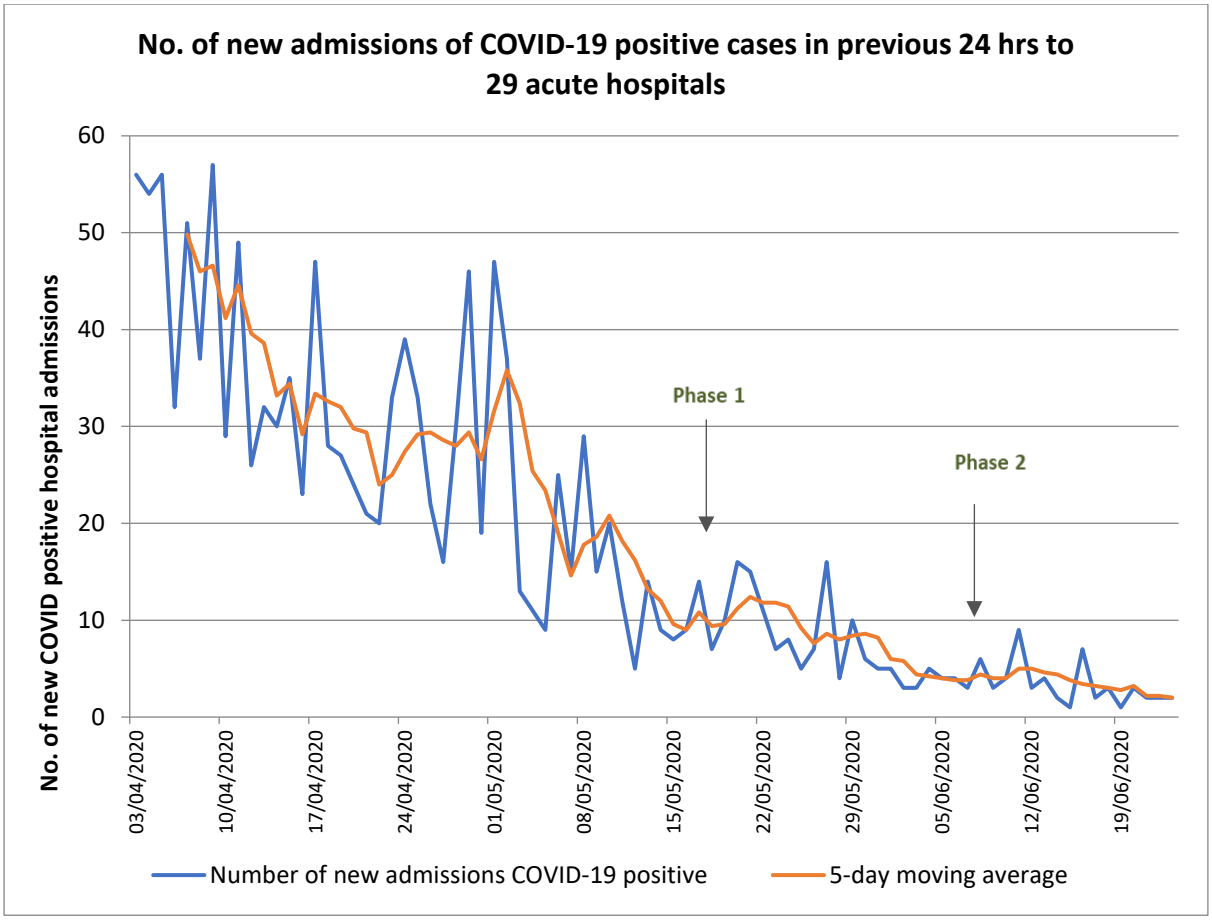
Trends in COVID-19 admissions to hospital

The number of confirmed COVID-19 hospital inpatients per day has been steadily declining in recent weeks. As at 23rd of June, there were 40 hospital inpatients with confirmed diagnosis of COVID-19. This is a 67% decline since the beginning of Phase 2 on 8th June.



Source: HSE, SDU, extract from SBAR - 29 Hospitals

The number of new admissions of COVID-19 positive patients to hospital has been trending downwards overall in recent weeks. As measured by a 5-day moving average, there was an average of 2 COVID-19 positive patients daily being admitted to our public hospitals over the 5 days ending 23rd June.



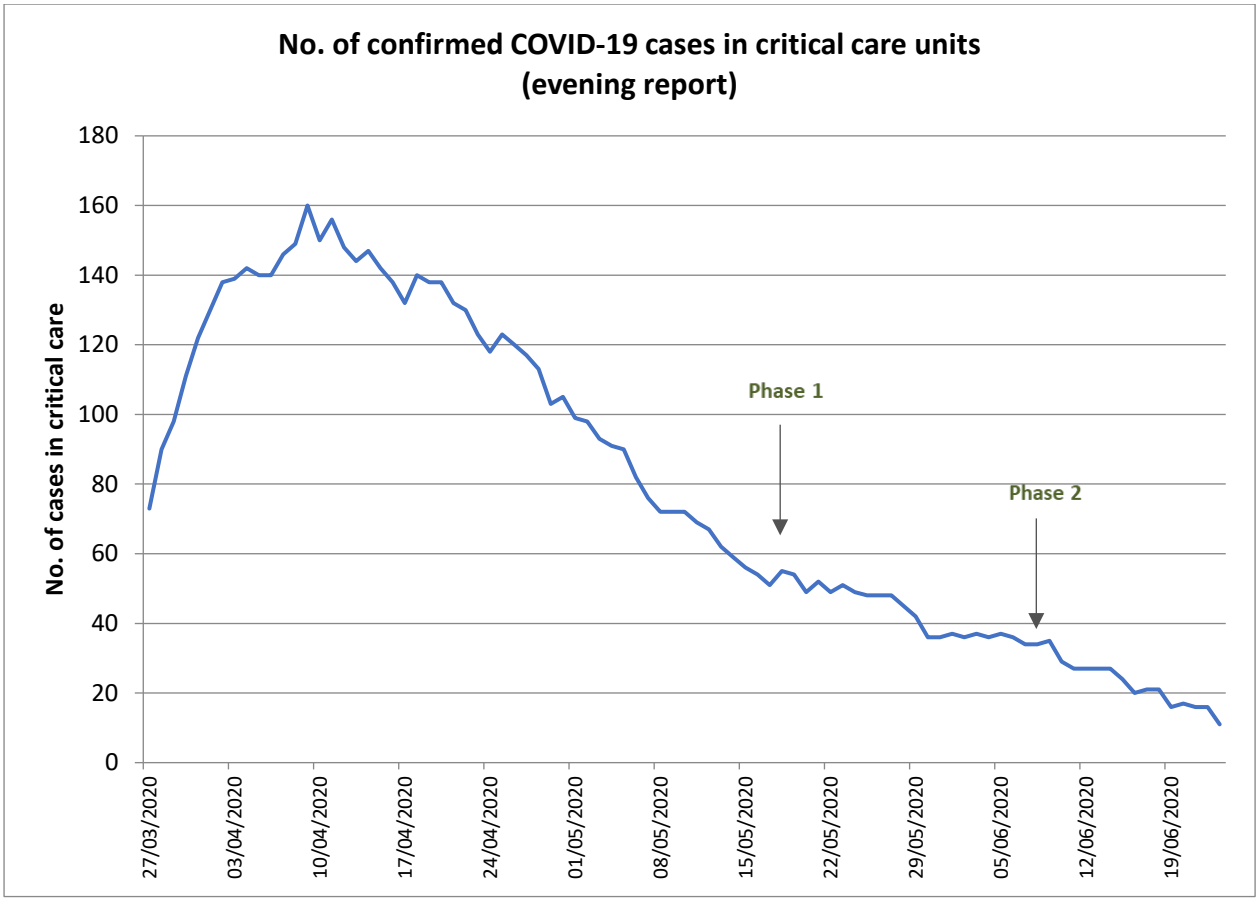
Source: HSE, SDU, extract from SBAR - 29 Hospitals

Note: This variable only began to be collected on 03/04/20. Therefore the earliest date that a 5-day moving average can be calculated is 07/04/20

Trends in COVID-19 admissions to critical care

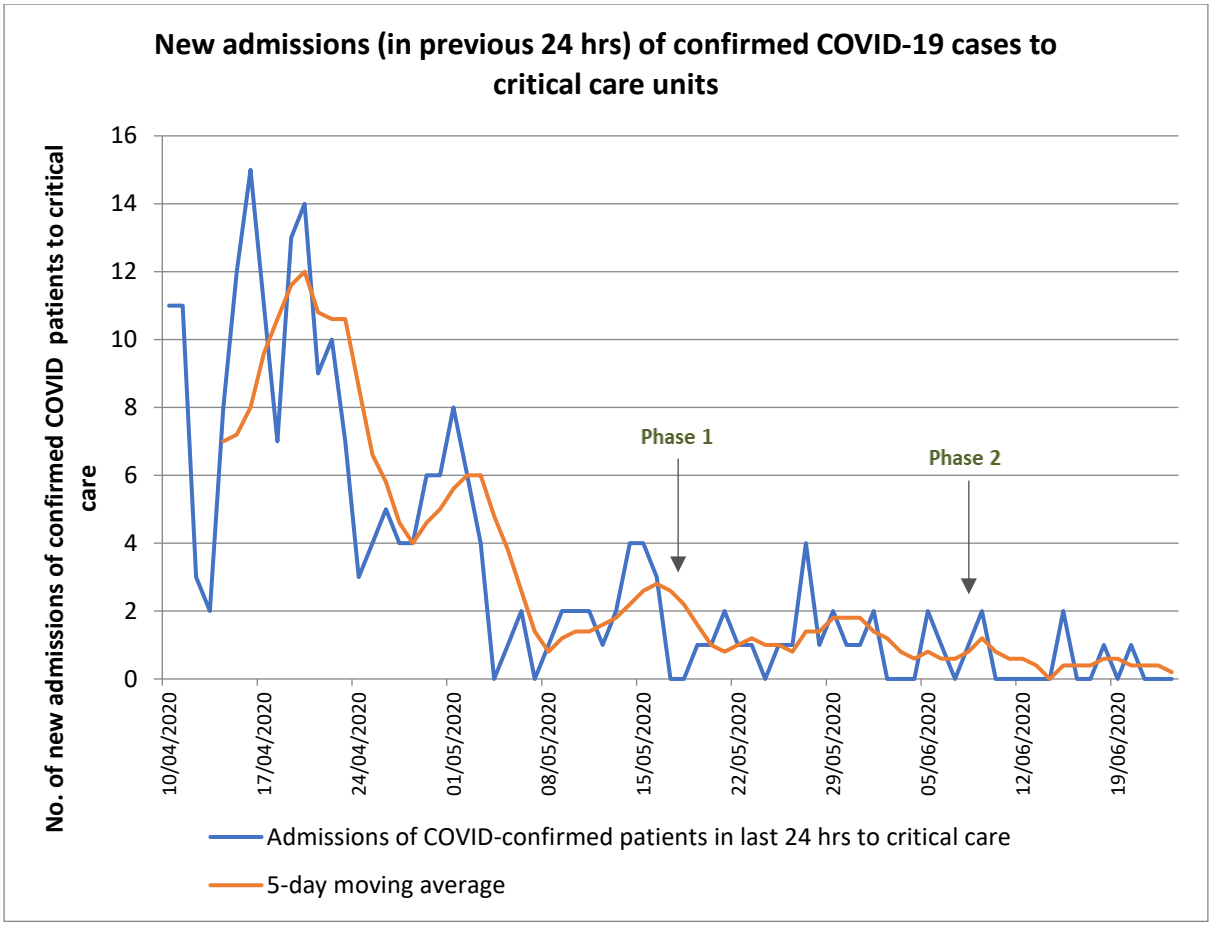
The charts set out in this section provide an overview of recent trends relating to key indicators on COVID-19 activity in critical care units.

The number of confirmed COVID-19 cases in critical care units was 11 on the 23nd of June (evening report). This represents a 68% decline since the beginning of Phase 2 (on 8th June) and compares with a peak of 160 on the 9th of April.



Source: National Office of Clinical Audit, ICU Business Information System, 28 acute public hospitals and 5 private hospitals

When considering the impact of new admissions of COVID-19 positive patients it is useful to keep in mind the relatively low numbers per day admitted to these units which can cause an appearance of larger increases/decreases. The 5-day moving average of new daily admissions to critical care units is 0.2 to 23rd June. This is down from a peak of 12 on the 20th of April.

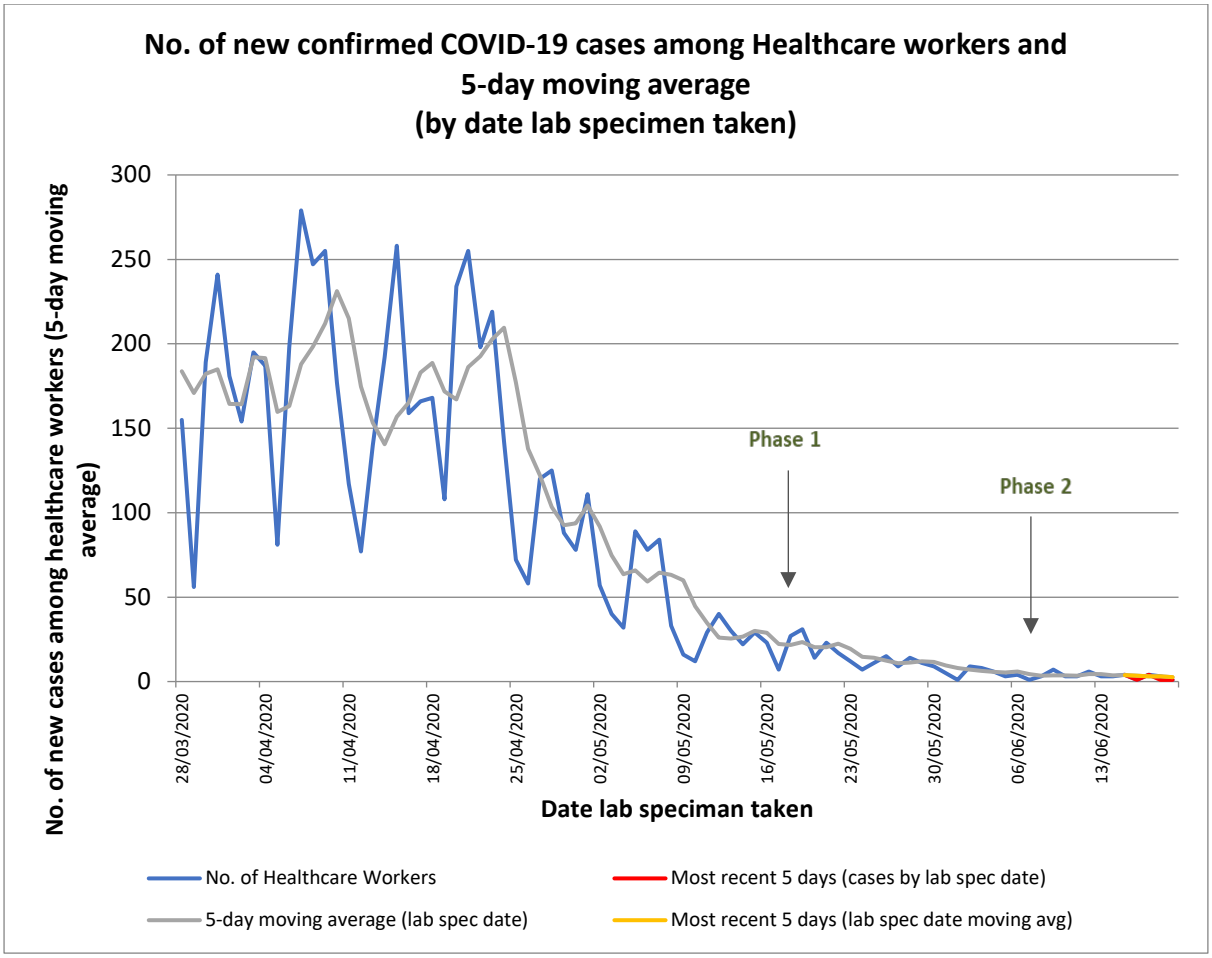


Source: National Office of Clinical Audit, ICU Business Information System, 28 acute public hospitals and 5 private hospitals
Note: This variable only began to be collected on 10/04/20. Therefore the earliest date that a 5-day moving average can be calculated is 14/04/20

Healthcare workers

Based on data available at midnight 22nd of June, 32% (n=8,173) of all confirmed cases to date has been among healthcare workers. The number of confirmed cases among healthcare workers as measured by the 5-day moving average peaked at 230 on the 10th April. This has been declining since the end of April to now stand at 3. Approximately 0.6% of healthcare workers who have been diagnosed with COVID-19 have been admitted to intensive care and there have been 7 deaths amongst healthcare workers.

It should be noted than an enhanced testing programme of the residential care sector took place in mid-April. This included testing of staff within this sector. An increase in the numbers of newly confirmed cases in healthcare workers during this time can be seen in the graph below.



Source: HPSC, Daily CIDR Data Extract

Note: Time lags in data reporting mean that data for the most recent 5 days should be considered provisional and subject to change.

Outbreaks/Clusters of COVID-19 in Hospitals and Residential Care Facilities in Ireland

During week ending on the 20th of June, (week 25) there were 98 new COVID-19 outbreaks notified as compared to 102 during week 24 2020. Of the 98 outbreaks notified in week 25, 93 were delayed notifications of family outbreaks which occurred in March (n=47), April (n=38) and May (n=8). Further information on outbreaks is available in section D.

Influenza Like Illness Rate

The sentinel GP Influenza-like illness (ILI) consultation rate slightly increased during week 25 2020 (week ending 20th June) to 2.8 per 100,000 compared to an updated rate of 0.7 per 100,000 in week 24. The ILI rate remains stable and below baseline (18.07 per 100,000). The ILI rate has now been below baseline for seven continuous weeks. The ILI rate peaked during week 12 with a rate of 187.6 per 100,000. This was reflective of the current COVID-19 pandemic rather than influenza.

Modelling data

The effective reproduction number as at 23rd of June is estimated to be between 0.5 and 0.8. Given the low numbers of cases seen in past several days, we would expect reproduction number to be low. However, it should be noted that the small number of cases makes the reproduction number difficult

to estimate, and the more meaningful number to monitor in our country at this point in the pandemic is the number of new cases per day.

B) Capacity and Resilience of the Health Service in Terms of Hospital and ICU Occupancy

Context

The initial focus for acute services in the response to COVID-19 was surge capacity, and the continuation of essential time-critical non-COVID care. The trajectory of the disease means there is now an opportunity for increasing provision of non-COVID care including more routine care. Key challenges to be managed will include capacity, infection control and mitigation of risk for patients and healthcare workers.

Hospital occupancy will need to remain at a level that allows for surge capacity to respond to increased demand for COVID care periodically, and the current recommendation is for 80-85%, as opposed to the near 100% occupancy levels prior to the pandemic. Providing non-COVID elective care will require processes and protocols to mitigate risk for patients and healthcare workers. These will have operational implications including on patient flow and throughput. They are described in guidance on risk mitigation which has been developed under the auspices of the Expert Advisory Group and approved in principle by NPHET on 1 May.

The Irish Epidemiology Modelling Advisory Group (IEMAG) subgroup on demand and capacity has developed a predictive model which offers the potential to predict general acute bed and critical care bed demand for different scenarios. Consideration is being given currently to how this can best support capacity planning over the coming weeks and months.

Utilisation of available beds has to be balanced between the needs of COVID-19 patients, emergency admissions and elective procedures and the management of delayed transfers of care. The tables overleaf reflect the Acute Hospital capacity situation of the Health service in the context of the current COVID-19 Pandemic response. This excludes Critical Care Capacity.

Overview of current Acute Hospital Bed Capacity – Public Hospitals

Available beds is the total bed complement less the number of occupied beds, beds not available when they are temporarily closed for reasons such as infection control, maintenance/refurbishment or staffing shortages and beds occupied by delayed transfers of care cases.

This data should be understood in the context of the current reduced level of non-urgent elective activity and a reduced level of attendance to and admission from Emergency Departments. It is important to note that attendance at Emergency Departments is returning to near what would be expected at this time of year and the number of patients being admitted through EDs has also increased.

It is also important to note that the number of beds available in not distributed evenly and in some hospitals relatively few beds are available. However, there are surge beds available if required.

The surge capacity requires an additional 858 staff. These are currently subject to the Ireland On Call recruitment process. Note that absenteeism due to COVID-19 as at 17 June 2020 is 335 in Acute Services. This is largely reflected in the 280 closed beds in the table below.

Between 28th May and 19th June the number of beds vacant and available in public hospital has increased from 443 to 739. This remains below the 853 beds available on 14 May.

	14-May	24-May	28-May	19-Jun
Public Hospitals	**Beds**			
Total In-patient beds	11,597*	11,597*	11,597*	11,597
Minus beds closed for infection control	*-172*	*-127*	*-138*	*-126*
Minus beds closed	*-244*	*-175*	*-280*	*-152*
Subtotal available beds	11,181	11,295	11,179	11,319
Day Case Beds for Surge		*+1,633*	*+1,633*	*+1,633*
Additional Surge Acute Beds		*+485*	*+485*	
Total Surge Capacity	+2,118	+2,118	+2,118	+1,633
Total Overall Available Capacity	13,299	13,413	13,297	12,952
Of which = beds occupied	12,446	12,829	12,854	12,213
In-patient beds currently vacant and available (current capacity)	**853**	**584**	**443**	**739**

Source: Special Delivery Unit, HSE

* The figure for inpatient beds in public hospitals was incorrectly reported in previous reports (by an additional 310 beds). Data for inpatient beds, available beds/capacity and vacant beds for previous periods has been corrected in the table above.

Overview of current Acute Hospital Bed Capacity – Private Hospitals

Private Hospital Capacity

The additional capacity available in private hospitals is set out below. This capacity will cease to be available after 30 June, though it is expected that access to it would be available in a COVID-19 surge scenario. There was a decrease in the number of in-patient beds vacant, going from 949 on 14 May to 881 on 19 June.

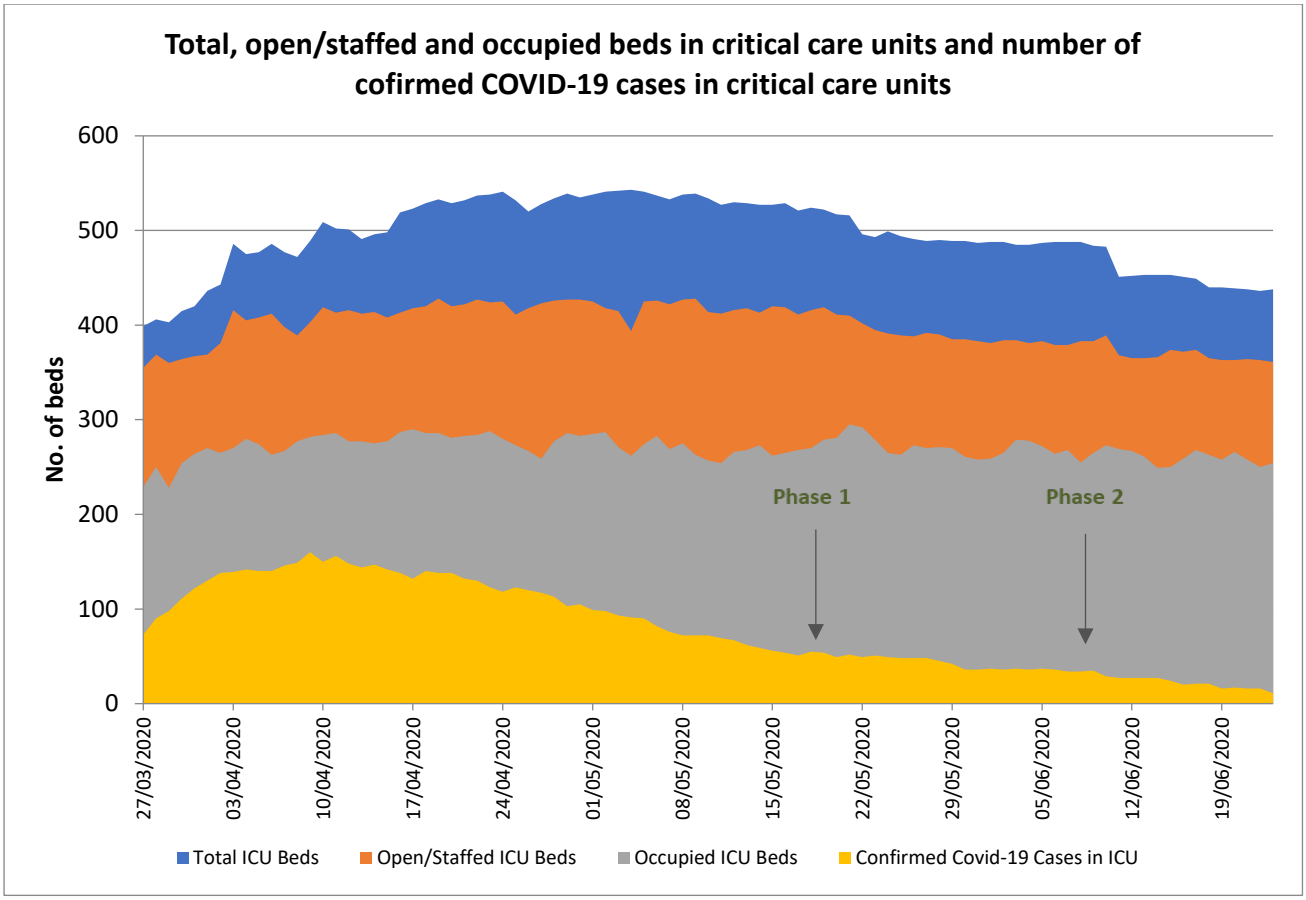
	14-May	24-May	28-May	19-Jun
Private Hospitals	**Beds**			
Total In-patient beds	1,696	1,696	1,696	1,696
In-patient beds that are vacant	**949**	**831**	**831**	**881**
Day patient beds	569	569	569	569

Source: Special Delivery Unit, HSE

Overview of current Critical Care Bed Capacity

Total bed capacity in critical care units in 28 public acute hospitals and five private hospitals is shown below. There is a steady decline in the number beds needed to be occupied by COVID-19 confirmed patients since mid-April. This is in contrast to non-COVID-19 confirmed patients whose numbers in critical care have been steadily growing over the last number of weeks.

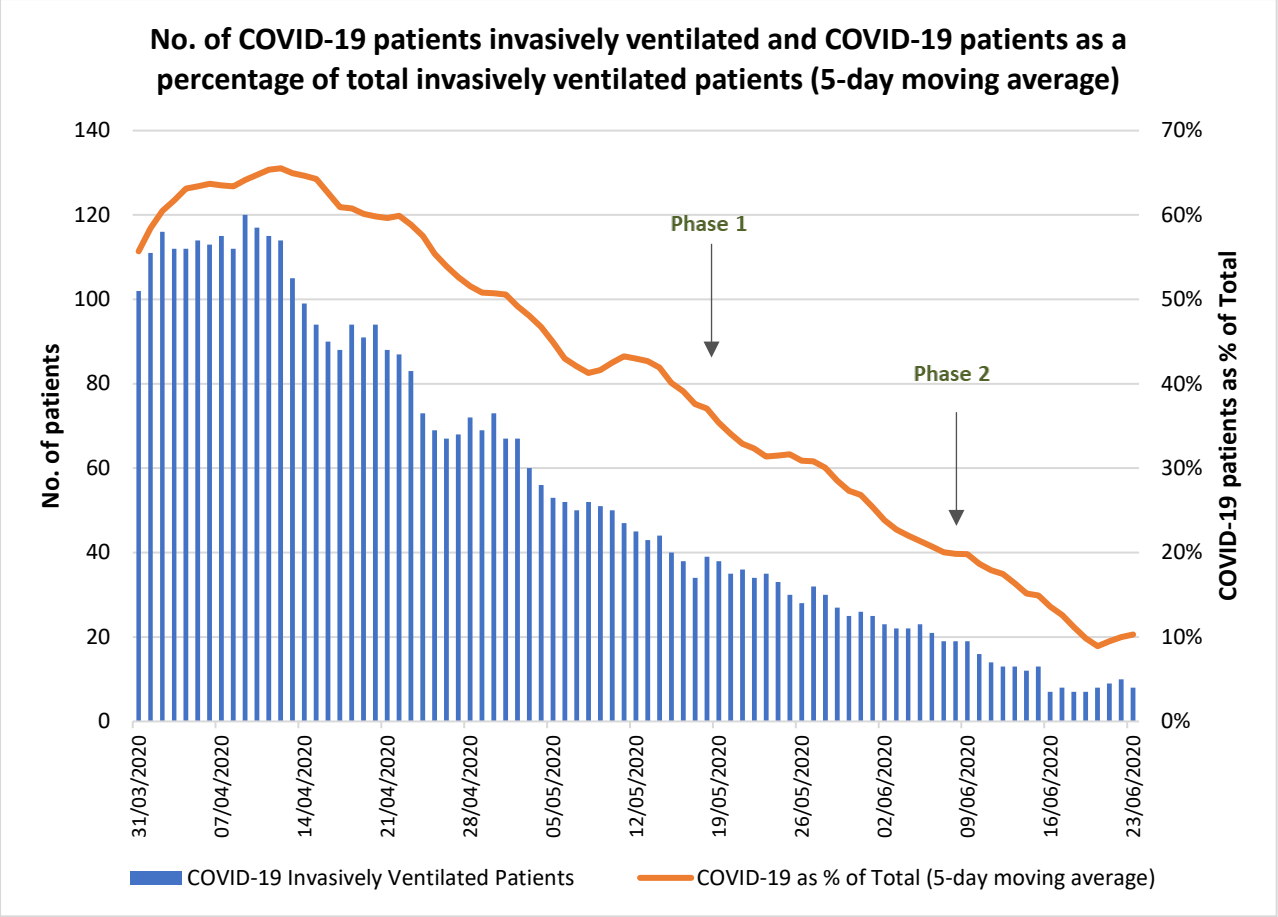
The decline in total ICU beds is influenced by the fact that, as the number of COVID patients has declined, some 'Off Unit' critical care bed capacity (beds not located in critical care units but identified as additional critical capacity to cope with COVID-19) are no longer being reported as critical care beds.



Source: National Office of Clinical Audit, ICU Business Information System, 28 acute public hospitals and 5 private hospitals

Note: The decline in Total ICU Beds is influenced by the fact that, as the number of COVID patients has declined, some 'Off Unit' critical care bed capacity (beds not located in critical care units but identified as additional critical care beds for COVID-19) are no longer being reported as critical care beds.

In addition to the number of critical care beds that are occupied by COVID-19 patients, the extent to which the total ventilation capacity of critical care units is being used to treat COVID-19 patients is another important consideration when assessing ICU capacity. With regard to the number of COVID-19 patients invasively ventilated, this has been steadily declining since a peak of 120 on the 9th of April reaching 8 on the 23rd of June. The share of total invasively ventilated patients accounted for by COVID-19 cases (as a 5-day moving average) has been steadily falling from 66% on the 12th of April to 10% on the 23rd of June.



Source: National Office of Clinical Audit, ICU Business Information System, 28 acute public hospitals and 5 private hospitals

Note: As data from the NOCA ICU-BIS system began on 27/03/2020, the earliest date that a 5-day moving average can be calculated is 31/03/20

C) Capacity of the Programme of Sampling, Testing and Contact Tracing

Overview

Ireland has adopted a robust process of testing, isolation and contact tracing as a key strategy for containing and slowing the spread of COVID-19, as advocated by WHO, ECDC and many countries to "break the chain of transmission".

Sufficient testing capacity will be critical to inform any future public health decisions about (1) the timing of the relaxation of current social distancing measures (2) monitoring the impact of any such decision and (3) responding to any cases detected.

The HSE has worked intensively to develop the infrastructure, processes and capacity to ensure we have a system of real-time testing, isolation and tracing, all underpinned by robust information systems.

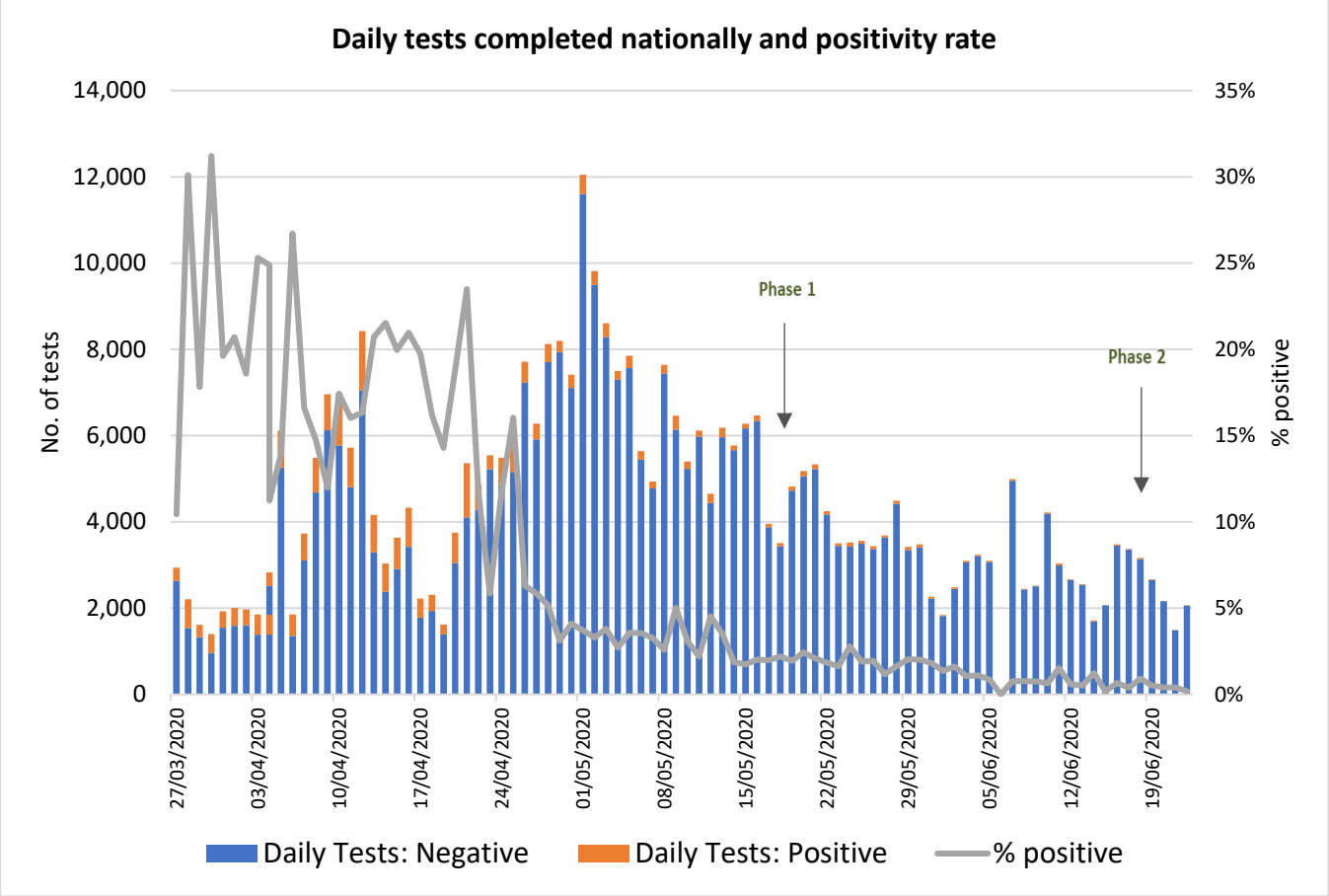
There is now capacity across the full testing and tracing pathway for the agreed target of 15,000 tests per day. Turnaround times have also improved significantly. The HSE had set a target end-to-end turnaround time from referral to completion of contact tracing of 3 days or less for 90% of cases and this target is now being met.

The HSE is continuing to work to improve turnaround times and consistency across the full testing and contract tracing pathway through further process improvements and automation where possible.

Testing & Contact Tracing Activity

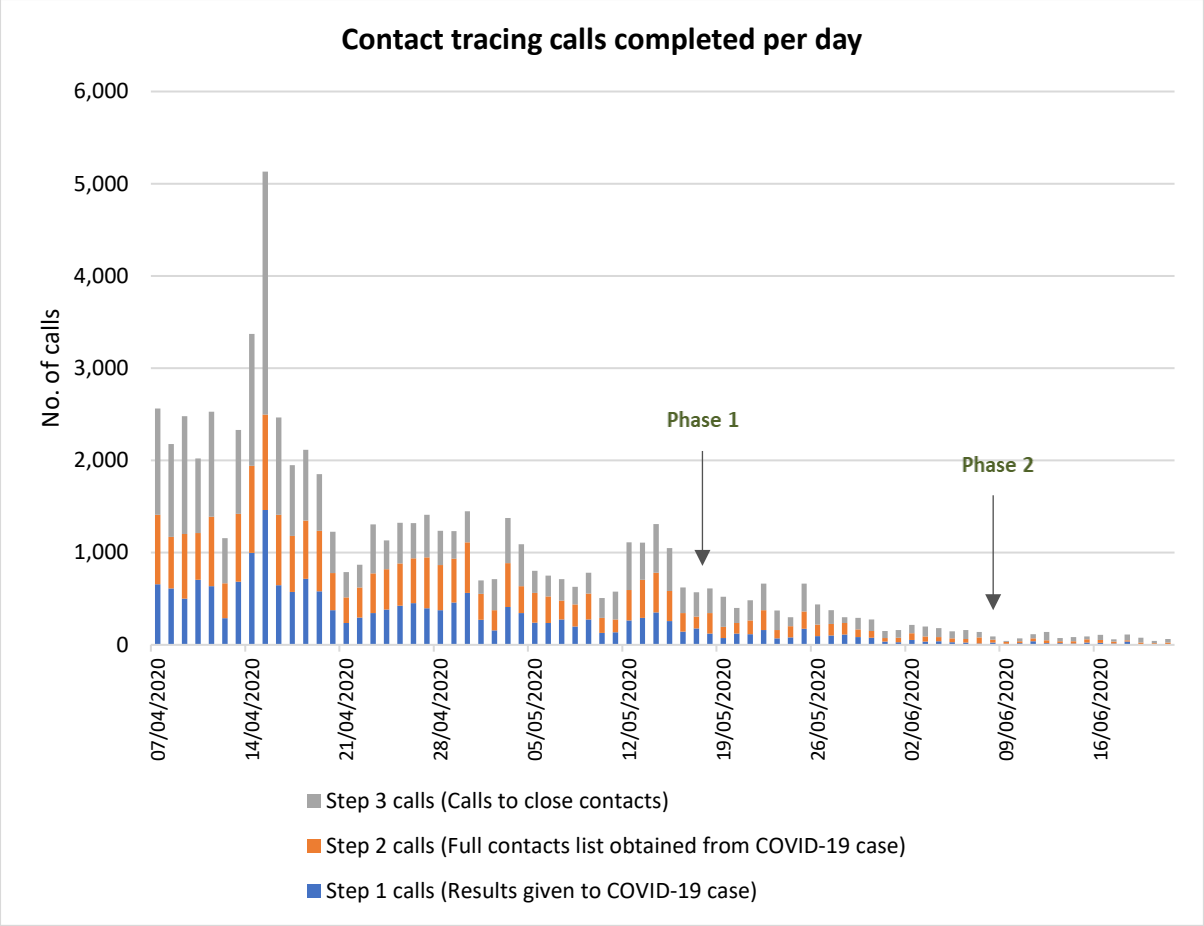
Testing activity levels and positivity rates are influenced by a range of factors: prevalence of the virus, testing strategy and case definition and testing capacity. Activity levels have fluctuated since testing commenced. There was a peak of over 8,000 tests processed a day in mid-April as a result of the utilisation of a German laboratory to process a build-up of samples, with a further peak at the start of May reaching 12,000 on one day reflecting the roll-out of a one-off mass testing programme across Long Term Residential Care facilities. In general, activity levels have gradually decreased during May and June. Over the last week (16 June – 22 June), 18,417 tests were completed, averaging over 2,600 tests per day.

There has also been considerable fluctuation in the positivity rate. For the month of April, the rate was generally between 15% - 30% reflecting a relatively narrow case definition at the time. NPHET made a number of changes to the case definition in late April and early May which resulted in effectively a lower threshold for testing referrals. Between the 1st - 22nd of June, the daily positivity rate has fallen from 1.4% to 0.2%. In total, for all tests completed to date, 7% have been positive.



Source: Daily testing reports from HPSC

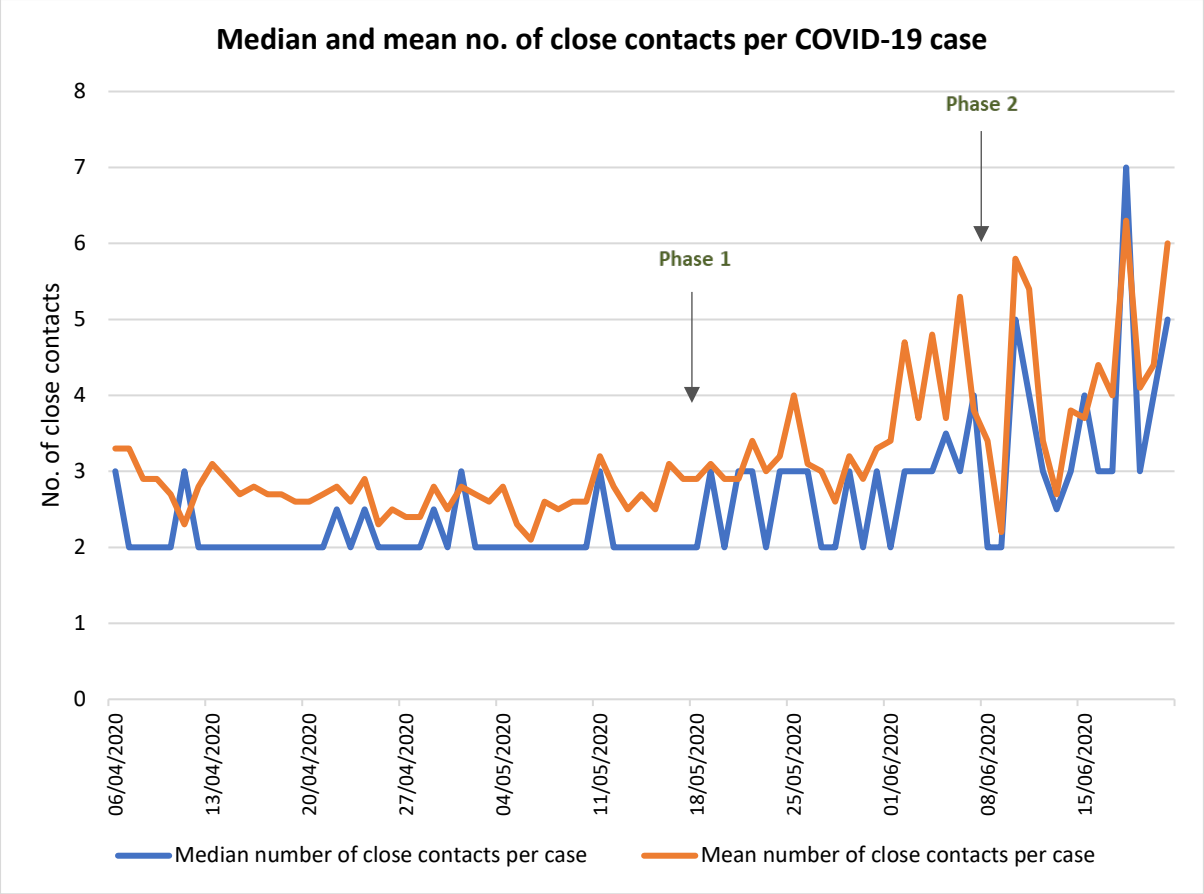
Contact tracing activity levels are influenced by the number of positive cases and the number of close contacts that each individual case has. The process involves three steps: an initial call to the person that was tested to confirm the result, a follow-up call to that person to gather information on their close contacts, and finally calls to all close contacts identified. As with testing activity levels, contact tracing activity has fluctuated since March. Over the week (15th June – 21st June), 557 calls were made across Calls 1, 2 and 3 by Contact Tracing Centres to communicate positive results and trace close contacts.



Source: HSE Daily COVID-19 Situational Report

Number of close contacts

The median number of close contacts remained stable between 2 and 3 close contacts per person throughout April and into mid-May. However, as can be seen below the median number of close contacts, while fluctuating, has exhibited an increasing trend since the beginning of Phase 1. This is to be expected as restrictions are eased and individuals become increasingly mobile.



Source: HSE Daily COVID-19 Situational Report

COVID-19 Excess Mortality

Different countries count deaths in different ways and so the data is not always consistent or comparable at an international level. Unlike Ireland, for example, many other countries are not able to report on deaths in nursing homes or in the community and many just report on laboratory confirmed deaths in hospitals. Some countries do not report deaths which were not directly attributable to COVID-19. In many countries they report completely separately on the registered deaths and are unable to link them with the deaths by place of death such as hospital or nursing home.

In Ireland we can link all these different data streams and provide a breakdown on where these deaths are occurring. It does however mean there can be a lag while all of this work to link data happens and for the notification to reach the HPSC and the Department of Health.

In Ireland, every effort is being made to report on all deaths linked to COVID-19, including

- all clinicians have been written to, to emphasise to them the importance of death certification and notification of deaths,
- outbreak control teams have been asked to ensure that all confirmed or suspected cases in Residential Care Facilities are notified,
- a census of mortality in residential care settings has been undertaken,
- Funeral Directors have been written to, to ask them to encourage families to use the online option for death certification and to submit death certification in a timely manner.

Non-COVID-19 Excess Mortality

Since 2005, HPSC has received weekly mortality data from the General Register Office (GRO) on deaths registered in Ireland during the previous week. These data have been used to monitor all-cause and influenza and pneumonia deaths as part of the influenza surveillance system. Ireland participates in the European mortality monitoring group (EuroMOMO) and the HSPC uses their algorithm, A-MOMO, to generate the outputs.

All-cause death is an important index to monitor during any pandemic as COVID-19 (like influenza) exacerbates any underlying illness. Therefore, an increase in deaths would be expected from other causes such as strokes and myocardial infarction. In Ireland we have a long period before families are required to register a death - up to 3 months.

The latest excess weekly mortality report, produced by HPSC on data up to Sunday 21 June 2020 (end of week 25), demonstrates a significant excess of deaths (all cause 'pneumonia and influenza' specifically) for weeks 13-18, inclusive. To date, no excess mortality has been recorded for the period covering weeks 19-24, inclusive, although the delay in registration of deaths prevents a more complete and timely analysis of this.

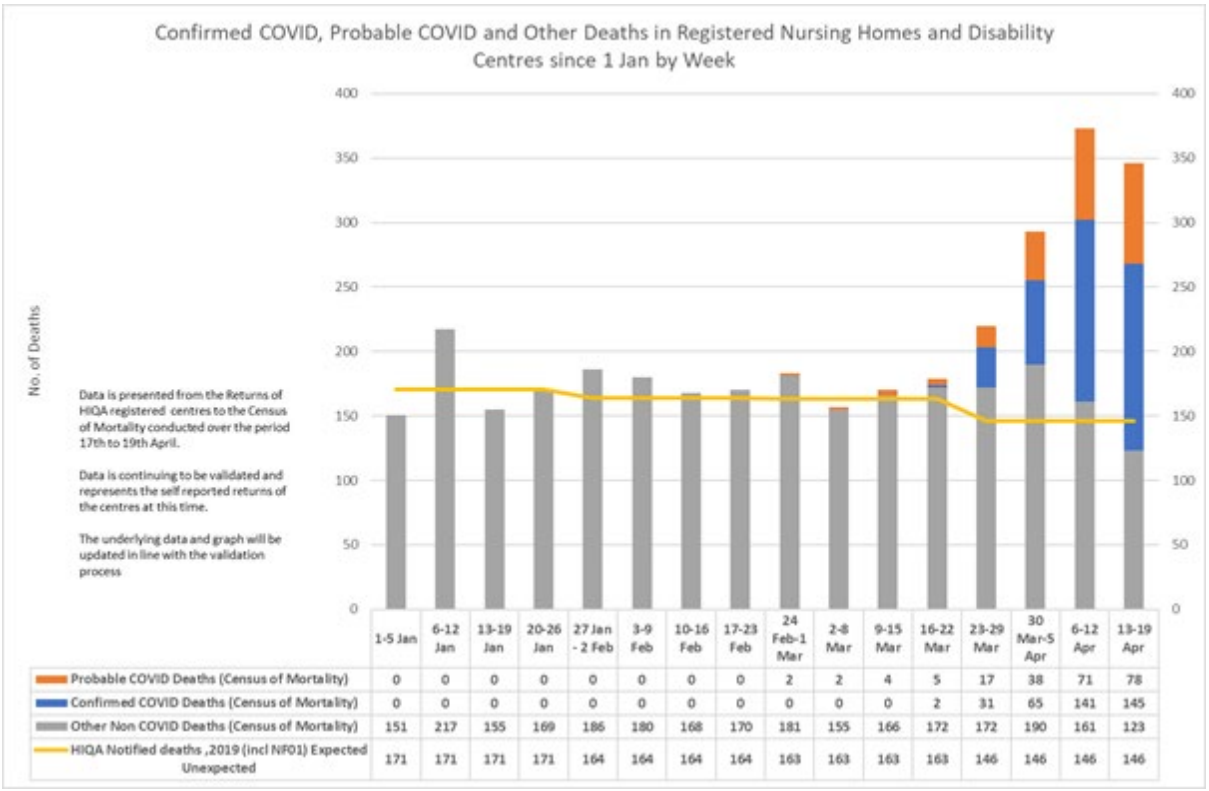
Mortality Census LTRC

In order to enhance the picture of all mortality in LTRC settings, including lab confirmed and probable deaths, and as per NPHET's actions on 17th April 2020, the Department of Health undertook a census of mortality rates in all registered LTRC settings. This census reported 3,367 total deaths having occurred in LTRCs during the period Jan – 19th April 2020 as set out below.

Mortality Census of Long Term Residential Care Facilities
1 Jan – 19 April 2020

	COVID-19 Lab confirmed deaths	COVID-19 Probable deaths	Total COVID-19 deaths	All deaths
Nursing Homes	376	209	585	3,243
Disability	8	8	16	73
Mental Health*	10	4	14	51
Total	394	221	615	3,367

Data was compared between the census of mortality and other sources of mortality data including the Health Information and Quality Authority (HIQA) NF02 notifications and Health Protection and Surveillance Centre (HPSC). It demonstrated that the number of cases matched closely between these sources. The data in the chart below would suggest that excess deaths in this period were COVID-19 related.



	1-5 Jan	6-12 Jan	13-19 Jan	20-26 Jan	27 Jan - 2 Feb	3-9 Feb	10-16 Feb	17-23 Feb	24 Feb-1 Mar	2-8 Mar	9-15 Mar	16-22 Mar	23-29 Mar	30 Mar-5 Apr	6-12 Apr	13-19 Apr
Probable COVID Deaths (Census of Mortality)	0	0	0	0	0	0	0	0	2	2	4	5	17	38	71	78
Confirmed COVID Deaths (Census of Mortality)	0	0	0	0	0	0	0	0	0	0	0	2	31	65	141	145
Other Non COVID Deaths (Census of Mortality)	151	217	155	169	186	180	168	170	181	155	166	172	172	190	161	123
HIQA Notified deaths ,2019 (incl NF01) Expected Unexpected	171	171	171	171	164	164	164	164	163	163	163	163	146	146	146	146