

COVID-19: NOTE BY THE CHIEF MEDICAL OFFICER, CHIEF NURSING OFFICER AND NATIONAL CLINICAL DIRECTOR

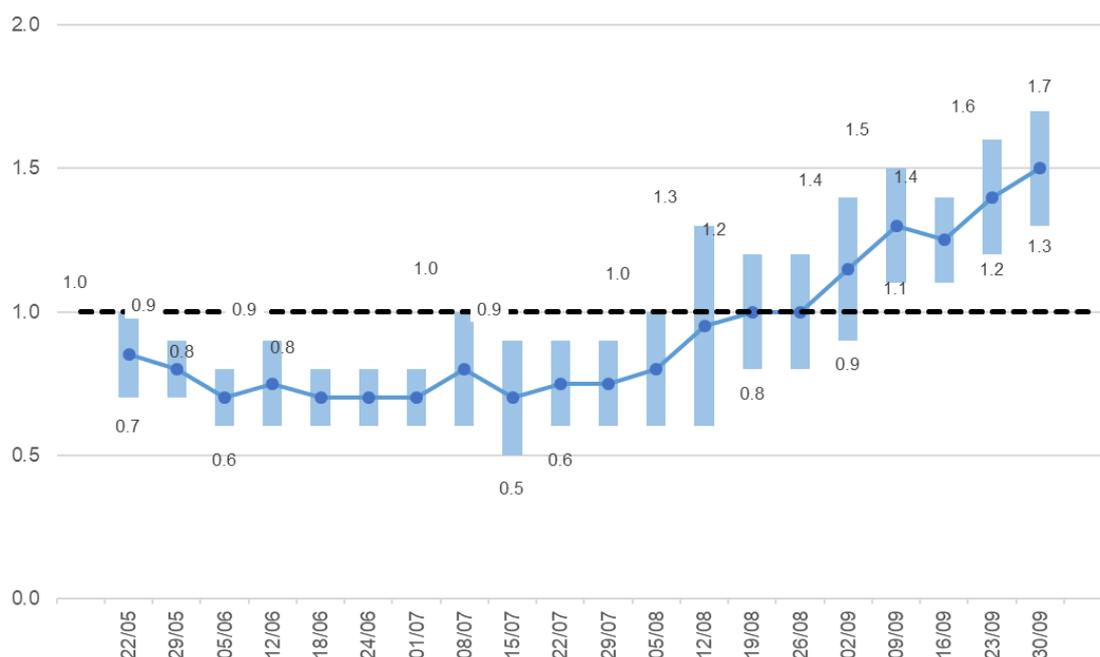
Introduction

1. This paper summarises the range of evidence we have on trends in infections, confirmed cases, hospital use and deaths and how these vary across Scotland. It considers the evidence about trends in people's behaviours and attitudes, and what that means for people's adherence to current social restrictions. Using this evidence base the paper then highlights what is likely to happen without any changes to policy interventions and examines the likely impact of proposed policy interventions.

The state of the epidemic

2. The rate of growth in the epidemic is increasing, with R now significantly above one (range 1.3 to 1.7). This is leading to accelerating numbers of cases and a rising test positivity rate in most areas of Scotland. The doubling time for cases across August and September is an average of 9 days (to 30th September), down from 11 last week (to 23rd September).

Figure 1: The R number in Scotland: May-September 2020, lower and upper bounds

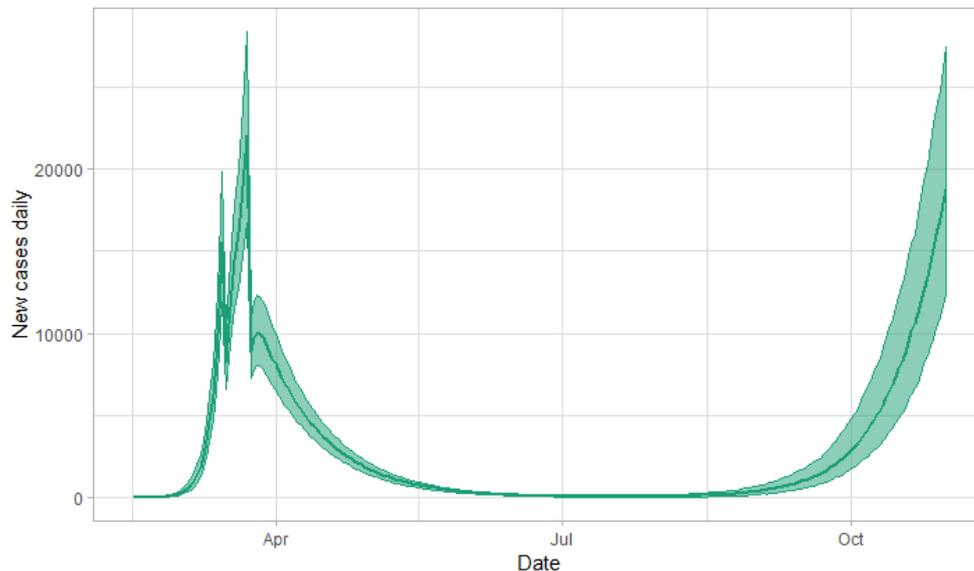


Source: Scottish Government modelling¹

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3. We know the total number of confirmed cases is lower than the total number of new Covid-19 infections, as some people don't have symptoms and some people with symptoms don't come forward for testing. Currently we estimate the total number of infections is around 2,900 per day, which represents around 13% of the peak in March/April.² **However, at the current rate of growth (7% increase per day), the number of infections would be at the level of the March peak by the end of October.**

Figure 2: Estimated total number of infections



4. In the past week (to Monday 5th October) there have been 18 deaths where someone has died within 28 days of their first positive test result for Covid-19 in Scotland, which is a noticeable increase over recent weeks given that there were 18 deaths based on this definition across the whole month before that.
5. Over the second half of September, cases have increased most rapidly for young people. While cases for people under 20 more than tripled in the week ended 28th September, over recent days there has hardly been any change in the number of new Covid-19 cases amongst this age group. The impact of Covid-19 on young people is yet to be fully understood, but evidence of the lasting effects of Covid-19, e.g. 'long Covid', are becoming more apparent including among younger people.
6. Cases are growing quickly in other age groups. Given Covid-19 affects older people more significantly, this increase will lead to an increase in deaths. Cases in people aged over 80 have grown by 60% in the last week and cases for those aged 60-79 have more than doubled with an increase of almost 120%. Cases in the last 7 days per 100,000 people (to Monday 5th October) are now highest amongst 20-39 year olds.³

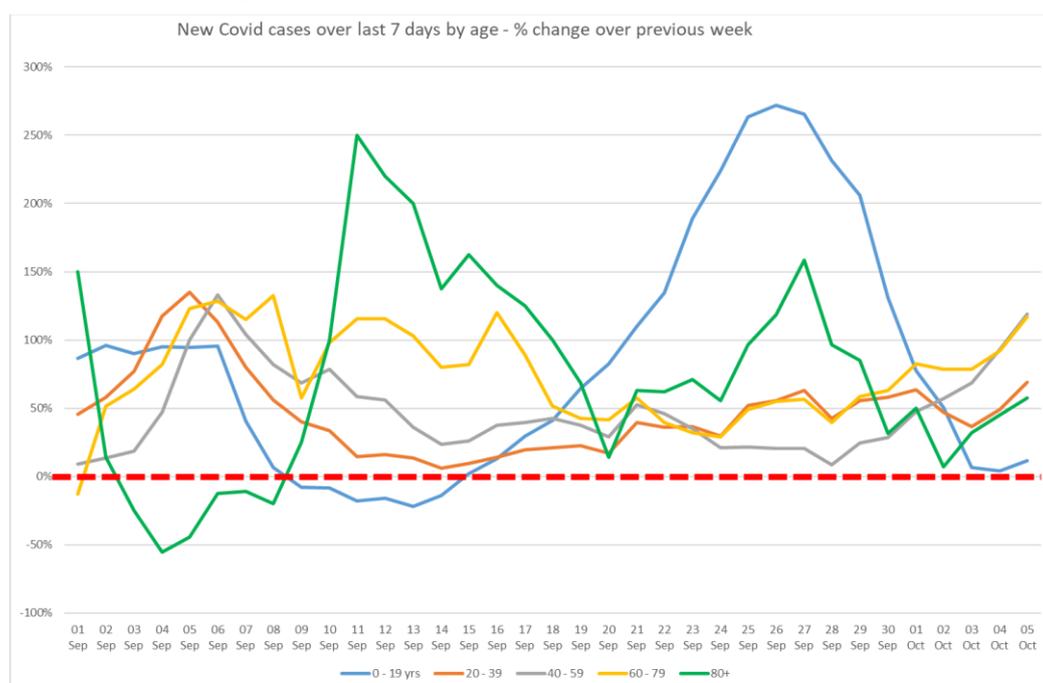
² <https://www.gov.scot/publications/coronavirus-covid-19-modelling-epidemic-issue-no-20/>

³ Source: Public Health Scotland

Table 1: Number of new cases in the last 7 days per 100,000 people by age³

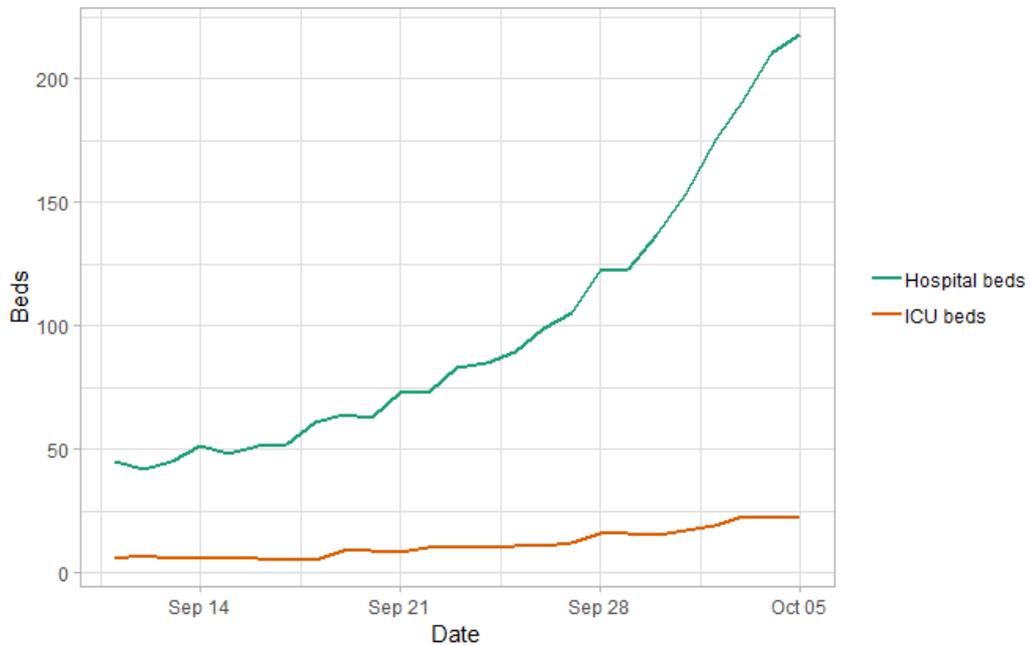
	31 August 2020	07 September 2020	14 September 2020	21 September 2020	28 September 2020	05 October 2020
0 - 19 yrs	12.0	16.9	14.6	30.6	101.3	113.0
20 - 39	19.3	34.7	36.9	51.6	73.6	124.6
40 - 59	9.6	19.5	24.1	36.9	40.1	87.7
60 - 79	2.9	6.3	11.4	18.1	25.2	54.7
80+	3.3	3.0	7.0	11.5	22.6	35.6

Figure 3: Percentage change in new Covid-19 cases in Scotland: last 7 days vs previous 7 days. September and October 2020³



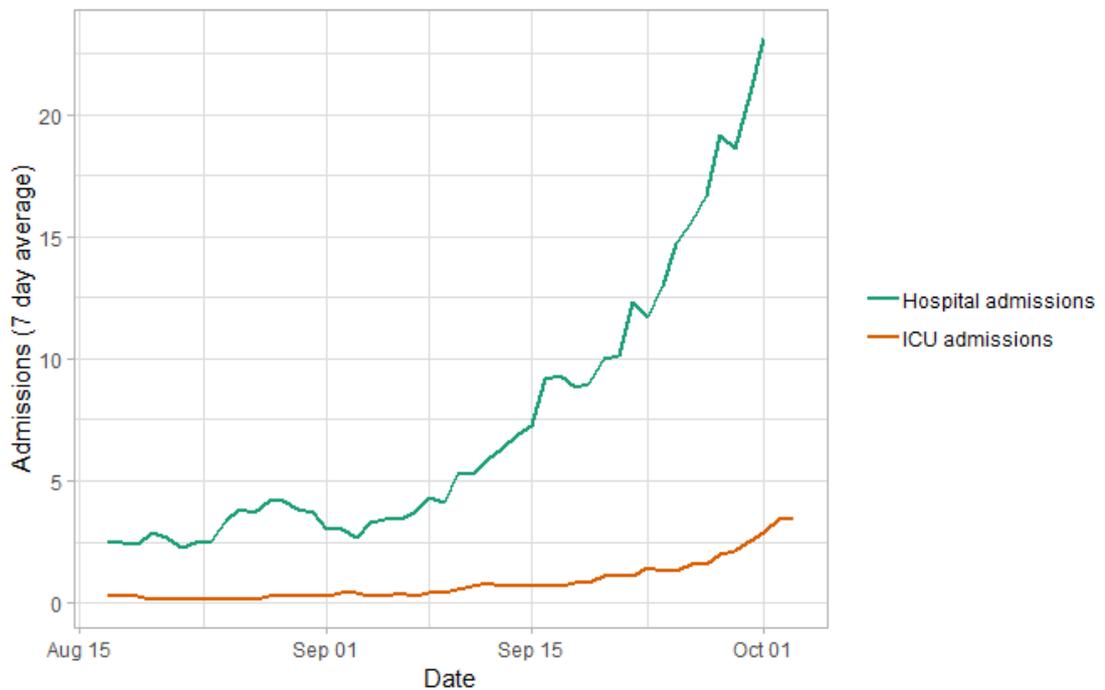
- The number of hospital admissions and people in ICU, while still low, continues to increase rapidly: a 79% increase in the number of people in hospital with Covid-19 in the week to Monday 5th October. We expect this to continue rising, with this typically lagging behind new cases by 1-2 weeks.

Figure 4: Trends in the number of people in hospital with Covid-19, Scotland, September to October 2020



Source: Scottish Government website: <https://www.gov.scot/publications/coronavirus-covid-19-trends-in-daily-data/>

Figure 5: Trend in the number of people admitted to hospital and ICU with Covid-19



Source: Scottish Government website: <https://www.gov.scot/publications/coronavirus-covid-19-trends-in-daily-data/> (and now available and updated regularly on the Public Health Dashboard https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview)

The position in central Scotland

8. At a regional level the epidemic is showing a highly variable and changing pattern, as can be seen in Table 2 below.

Table 2: Positive cases by Health Board, to week ended 5th October, by specimen date¹

Health Board	New positive cases tested in past seven days	Rate positive cases per 100,000 population in past seven days	Cumulative positive cases
Ayrshire and Arran	234	63.4	1,932
Borders	32	27.7	544
Dumfries and Galloway	40	26.9	449
Fife	143	38.3	1,473
Forth Valley	190	62.0	1,631
Grampian	133	22.7	2,451
Greater Glasgow and Clyde	1,728	146.1	10,755
Highland	75	23.3	728
Lanarkshire	825	124.6	5,187
Lothian	943	103.9	5,749
Orkney	0	0.0	23
Shetland	0	0.0	60
Tayside	160	38.3	2,674
Eileanan Siar (Western Isles)	21	78.6	50
Total	4,524	82.8	33,706

Source: Scottish Government website: <https://www.gov.scot/publications/coronavirus-covid-19-trends-in-daily-data/>; and Public Health Scotland dashboard:

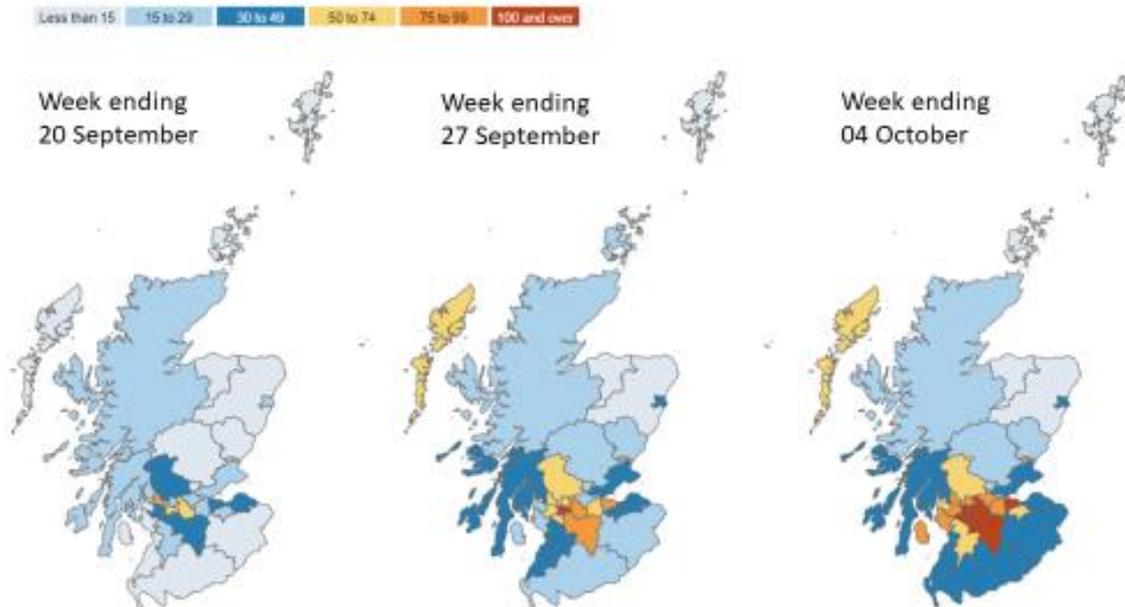
https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview

¹ This table includes cases with specimen date up to 5th October as reported on 6th October so data are incomplete for the latest days. Rates will be higher when full test results are available.

9. The position in Central Scotland is of particular concern. Several Health Board areas including Greater Glasgow and Clyde, Lanarkshire and Lothian have been tracking rates in excess of 100 positive cases per 100,000 population over the last 7 days, with a rate of 146.1 in Greater Glasgow and Clyde over the last 7 days. Each of these Health Boards has been adding over 100 additional new cases to their count per day over the last week, and for Greater Glasgow the number of daily cases has been in excess of 200 cases per day (with 1,728 new positive cases in the week to 5th October).

10. These 3 Health Board areas now account for three quarters of all new positive cases in Scotland over the past 7 days and nearly two thirds of cumulative positive cases overall. However, we can also now see that neighbouring areas in Ayrshire and Arran and Forth Valley are also showing an increase in excess of 55 cases per 100,000, suggesting there may be a 'ripple' effect spreading from existing areas of high case numbers and growth.

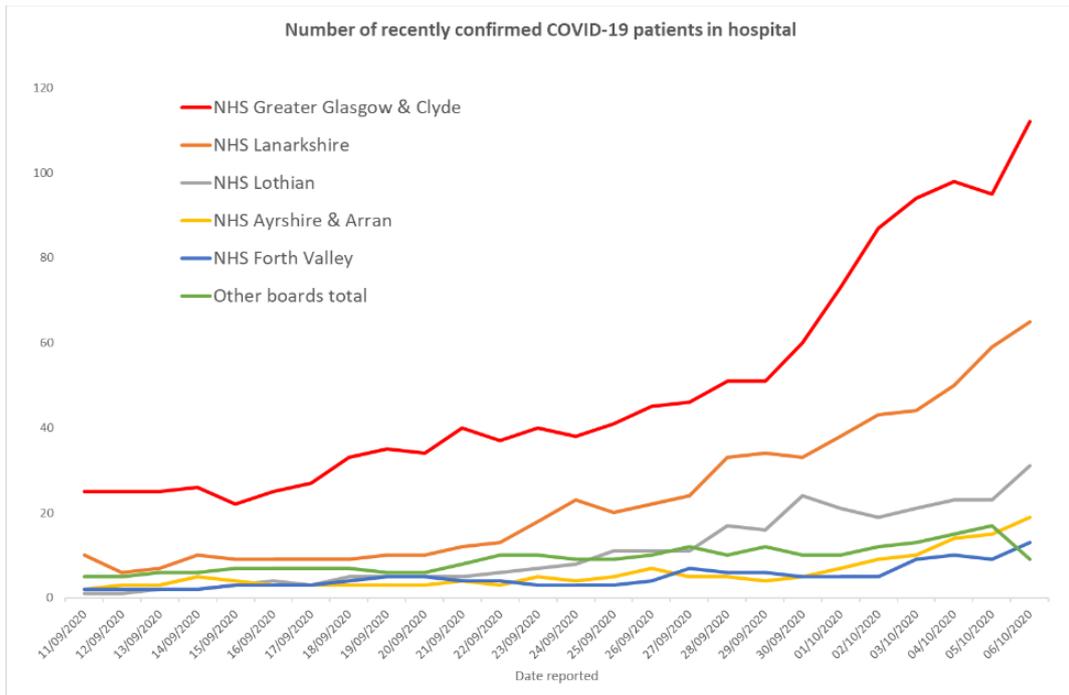
Figure 6: 7 day total cases per 100,000 population



11. Analysis by the National Incident Management Team (NIMT) of the situation in NHS Lanarkshire highlighted an increasing contribution of those aged 40-64 years of age to this increase. The NIMT noted that this pattern now appears to be repeating in NHS Greater Glasgow and Clyde, and the concern is that this pattern may spread into other areas.

12. The number of people in hospital with confirmed COVID-19 has been increasing in recent weeks from a low level in the summer. Of the 262 people in hospital on 5th October, the majority were in GGC (112) and Lanarkshire (65) (although note that people from other areas could potentially be treated in these Board areas).

Figure 7: Confirmed COVID-19 patients in hospital by health board



13. Latest figures show there were 25 recently confirmed COVID-19 cases in ICU, so numbers are still very low compared with the first peak in April when there were around 200. Of these, 6 are in Greater Glasgow and Clyde, and 6 in Lothian.
14. The nature of these data suggest the need for urgent local measures in Greater Glasgow and Clyde, Lanarkshire and Lothian to focus on reducing the rate of growth and incidence of cases in these areas. However, analysis of the latest data suggests that local restrictions should also be extended to those areas that are also beginning to show signs of tracking a significant increase in case numbers – namely Ayrshire and Arran and Forth Valley.

How does Scotland compare in the UK and internationally

15. The UK Nations are broadly tracking each other in cases per 100,000, though the R value is currently higher in Scotland than other UK Nations.

Table 3: R value in the UK

	Lower limit	Upper limit	Change in the last week
Scotland	1.3	1.7	Lower and upper limit increasing
England	1.2	1.6	Lower limit constant and upper limit increasing
Wales	1.0	1.5	Lower limit constant and upper limit increasing
NI	1.1	1.5	Lower limit constant and upper limit increasing

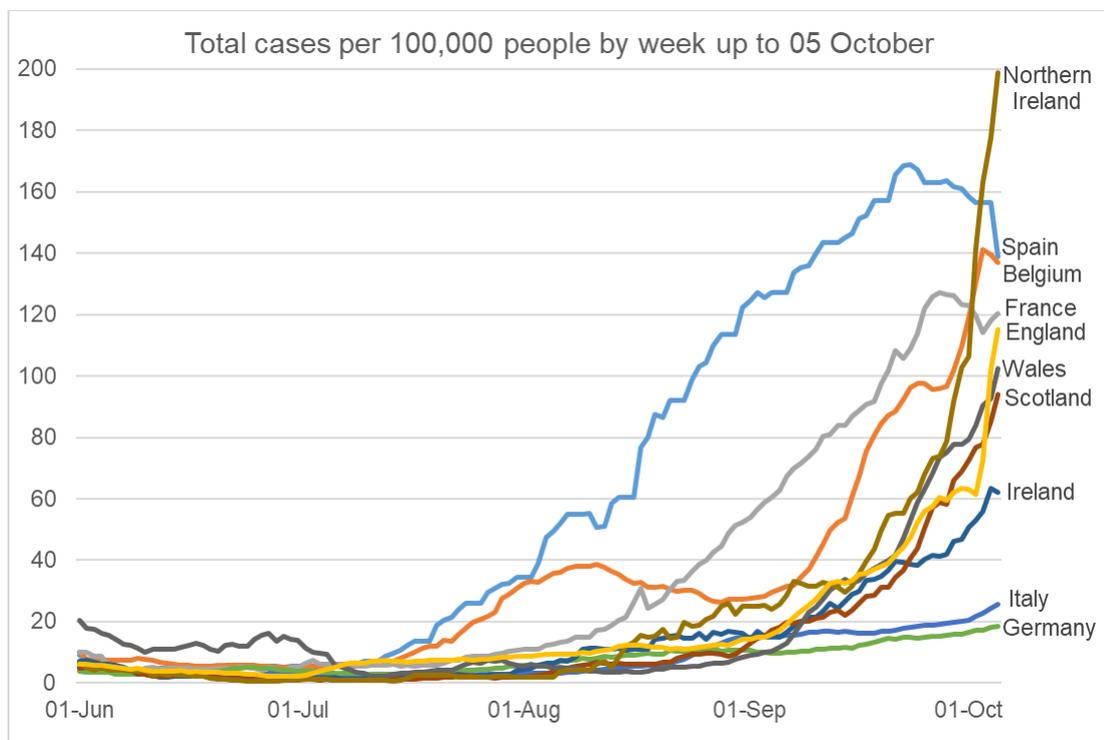
16. The latest doubling times vary with Scotland showing a lower mid-range estimate but there is large uncertainty around the value ranging from 7.6 to 12.1.⁴

Table 4: Rate of change in R value in the UK

	Doubling Time	Lower estimate	Upper estimate
UK	9.9	8.6	11.7
England	11.6	8.8	16.9
Wales	11.4	8.0	19.6
Scotland	9.3	7.6	12.1
Northern Ireland	13.7	10.0	21.8

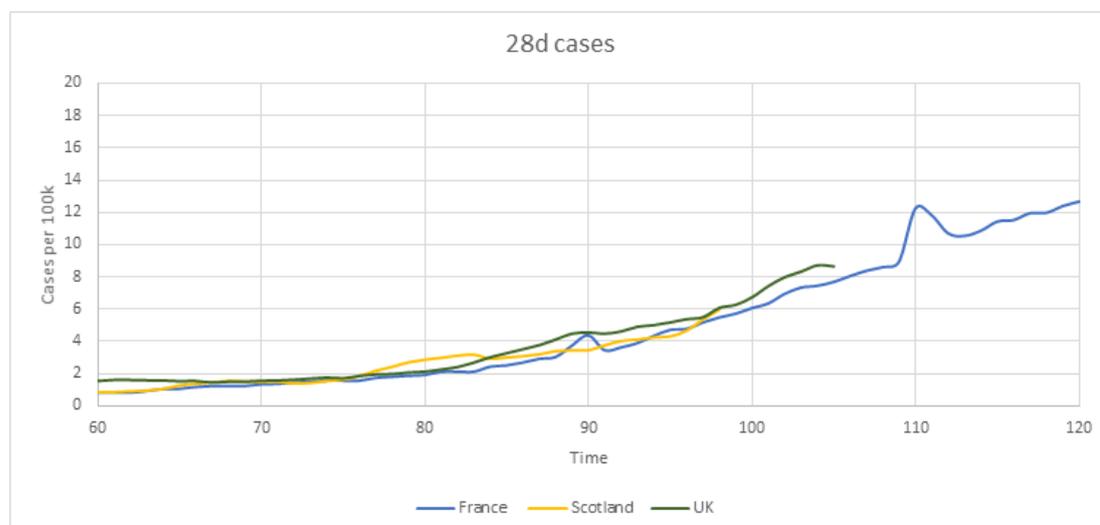
17. Cases are increasing across Europe and many countries are dealing with a second wave.

Figure 8: 7-day sum of cases per 100,000 population in Europe



⁴ <https://www.gov.scot/publications/coronavirus-covid-19-modelling-epidemic-issue-no-20/>

Figure 9: Trajectory of cases in France plotted 28 days ahead of Scotland and UK



18. Looking internationally, in terms of total cases per 100,000 Scotland is continuing to closely track the situation in France with a 4 week lag, and Spain with a 6 week lag. Scotland currently has half the number of new infections as France and a quarter of those as Spain. Death rates in Spain increased significantly in mid-September and are now at a level 10 times the rate in Scotland (2.2 deaths per day per million people).
19. Both France and Spain have introduced strict new measures to reduce their rising numbers of infections and deaths including the closure of all bars in Paris for two weeks from 6th October, bars and restaurants in Marseille closed for 15 days from 30th September and additional restrictions Madrid with bars and restaurants closing by 10 pm.

The issue of compliance

20. High compliance with all restrictions adopted and mitigating measures put in place will give us our best chance of suppressing the virus without having to implement the most stringent restrictions. Data on compliance is collected weekly through public polling. The latest data available⁵ highlights a number of areas where compliance could be improved.
21. Figure 10 shows that 'complete' compliance with regulations and guidance is moderate: Nearly two in five people (38%) report 'complete compliance' (i.e. they rate themselves 7 on a scale of 1 (no compliance) to 7 (complete compliance)). 79% of people report either complete or almost complete compliance (rating 6-7); and a fifth (19%) report a score of 1-5 (lower compliance). 22% agree they adapt the guidance as they don't think everything is necessary. Men, people aged under 45, and those in households

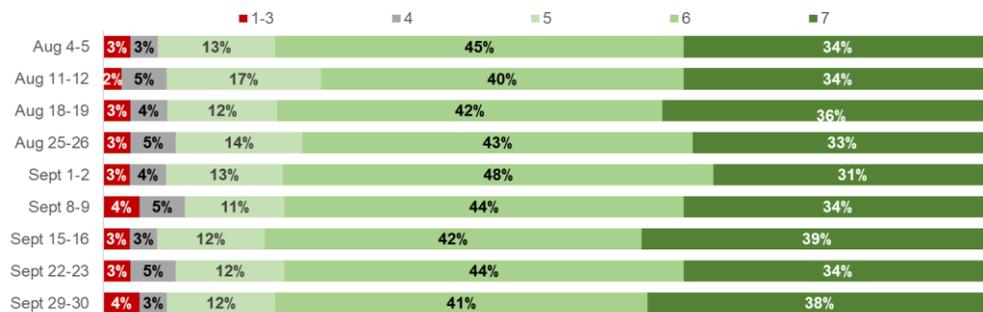
⁵ Data source: YouGov, all fieldwork 29 September – 1 October, except where noted.

with children are more likely to agree that they 'adapt' guidance than their counterparts.

22. Over time the pattern of compliance overall is fairly stable.

Figure 10: Claimed compliance with guidance in Scotland

Extent to which you are following the regulations and guidance



Source: YouGov (c1,000 respondents)⁶

23. Claimed compliance with wearing face coverings is high: only 3% in supermarkets, and 1% on public transport did not comply. However, kissing and not wearing face coverings when car sharing is more common: 6% hugged or kissed someone not in their household; 5% shared a car with someone and did not open windows / wear a face covering 'in the last week'.

24. Claimed compliance with the rules around not meeting in homes and meeting in groups of no more than 6 people / 2 households elsewhere is relatively good, 97% of people did not meet in each other's homes, 99% followed the 6/2 rules indoors and outdoors. Overall however, 12% said they did not comply with meeting rules.

25. Claimed compliance with self-isolation and quarantine is low: A UK-wide survey by King's College London (fieldwork between 2nd March and 5th April 2020) showed that of those who reported having experienced symptoms of COVID-19 in the last seven days, only 23.1% in Scotland (18.2% across the UK) said they had not left home since developing symptoms

26. Non-compliance is due to both voluntary and non-voluntary factors, including things like: knowledge of the rules; inability to work from home or having high contact occupations; living in shared accommodation; as well as lower motivation (due to lower individual risk of severe disease) and lack of confidence in guidelines i.e. no visible enforcement.

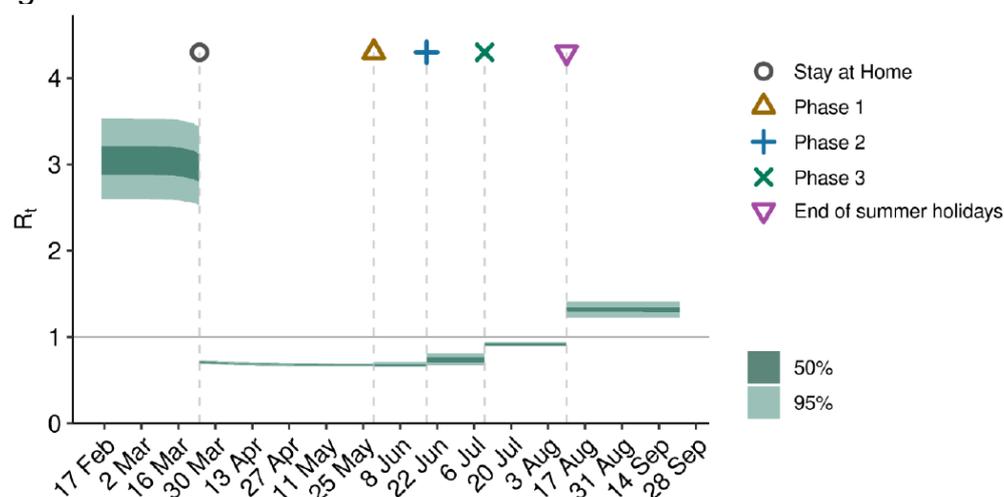
27. Over the coming period, we will work with the public and sectoral partners to review our approach to compliance and mitigations and ensure that barriers to compliance are addressed.

⁶ Thinking about ALL of the guidance from the Scottish Government on what to do and what not to do during the Coronavirus pandemic (including distancing and hygiene measures and restrictions)..On a scale of 1-7, where 1 is 'Not at all' and 7 is 'Completely', to what extent do you feel you are following the regulations and guidance?

Suppressing the virus

28. We know that the virus spreads when people mix. The growth we are seeing now started in late July when we started to relax restrictions and people started meeting up again. It is clear that the lifting of restrictions at Phase 3 caused an increase in the R number (see Figure 11 below).

Figure 11: Trends in R in Scotland



Source: Scottish Government modelled estimates using Imperial College model code; actual data⁷

29. The impact of opening schools, Universities and colleges is also apparent from Figure 11.

30. The situation is not the same now as it was back in July. We have a much enhanced Test and Protect system, there is wider use of face coverings, and businesses have become more adapt at implementing mitigating measures. So we don't have to lock back down again completely, but we need to reduce the rate of transmission and give the virus fewer chances to spread between us.

31. In considering what we want to do next, we are mindful of the impact of the virus and of measures to restrict its spread on people's wider health, the economy, and wider society.

32. We want as many as possible of the activities of daily life to continue, and for as much as possible of our economy to remain open. In particular, we support Ministers' determination to keep schools, colleges and universities open. Loneliness and social isolation is something we are very aware of and wish to minimise. In order to suppress the virus, decision-takers have to take into account the increase in transmission that arises from these settings and priorities. We are aware this poses hard choices about keeping other sectors open.

⁷ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/general-publications/weekly-and-monthly-data-on-births-and-deaths/deaths-involving-coronavirus-covid-19-in-scotland>

33. The earlier the adoption of further restrictions, the greater the likely impact on suppressing the virus, and the greater chance we have of avoiding a longer period of more severe restrictions later on. This will also minimise the economic and social harms that could result from later and more severe restrictions..

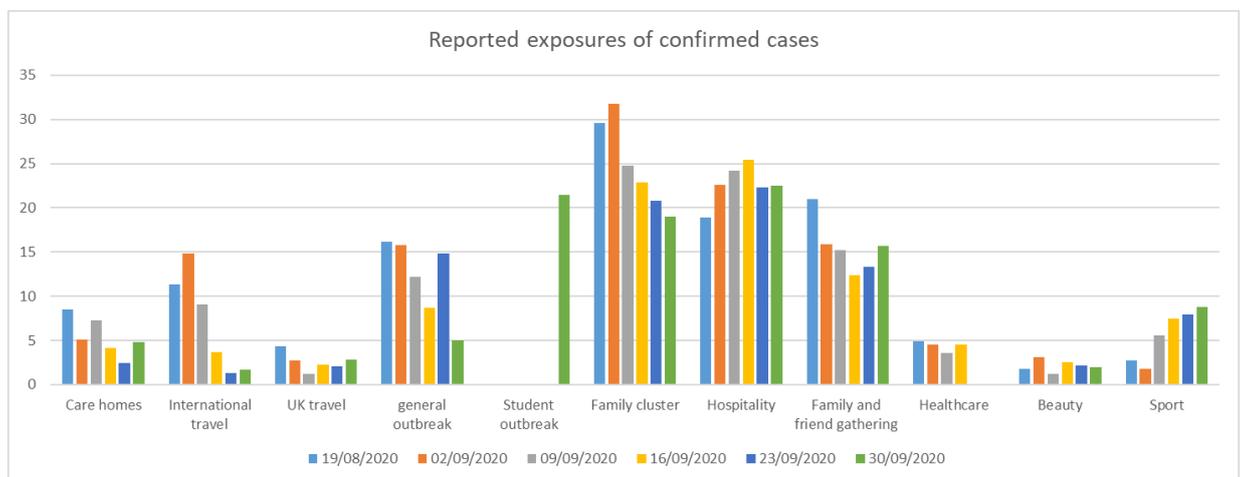
The role of hospitality in suppressing the virus

34. Up to 15th July, hospitality was closed. Following entry into Phase three of the route map, hospitality reopened. Our modelling of R at that time shows that around three weeks after the opening of hospitality, R rose to 1 and above. While this cannot be entirely attributed to hospitality, it is likely to have played a significant role.

35. From the details of interviews that have been completed as part of Test and Protect at the time of reporting, we can see that the percentage of individuals who have tested positive for Covid-19 and who have reported hospitality exposure (pubs, restaurants, cafes etc.) has been consistently over 20% in September and up to 26% in the period from the end of July to the beginning of October. All ages are included but of the 26%, half were in the 20-39 age group.

36. Figure 12 below shows the percentage of individuals who have tested positive for Covid-19 that reported having visited a venue or taken part in a recreational activity within 7 days of their symptoms developing or receiving a positive test.

Figure 12: Percentage of Covid-19 cases that were exposed to different settings per week



37. The data do not indicate where people who have tested positive were infected. It is not a measure of causation except if there is a clear and bounded outbreak. However it does highlight that people who have been infected have been in hospitality settings where they could have spread the virus to others. As the levels of virus in the community rise, this consideration becomes more important.

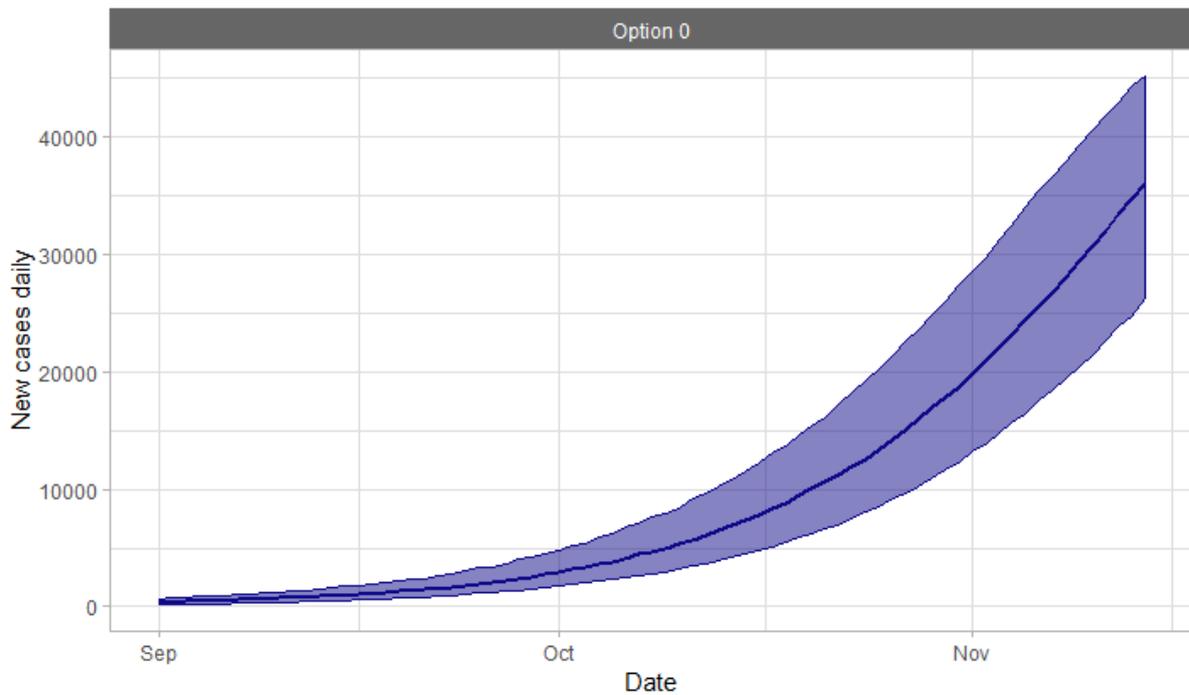
38. Finally, the scientific data around transmission highlight that the biggest risks for transmission are associated with close contact with an infected individual for a prolonged period of time. Each place an individual visits brings different risks depending on a range of factors, such as the mix and number of people present, the amount of time individuals are likely to spend there, the ability to maintain 2m distancing, the likelihood of pinch points where people might gather (e.g. toilets, entrances and exits), the standard and type of ventilation, the likelihood of people touching surfaces and goods, and the potential for noise.
39. Looking at these factors, any indoor setting where the public mixes freely with members of different households and people of different age groups carries a number of risks. Hospitality therefore presents one of the highest risks. Generally this setting involves people of different ages with different individual risk profiles mixing with other households, or being seated in close proximity to other households, for more than 15 minutes. Depending on the nature of the premises, ventilation may be a problem and controlling the movement of people within the premises is difficult. Keeping surfaces clean is another challenge. Raised voices may be more likely in a crowded environment and the wearing of face masks may not be possible, presenting additional risks. A key risk factor is the 1m distancing arrangement, as evidence suggests that 1m distancing carries between 2 and 10 times the risk of 2m distancing.
40. The risks in hospitality are exacerbated by some behaviours. As people will generally visit with family or friends they will naturally be less concerned about distancing and this behaviour will also be influenced by the disinhibiting impact of alcohol.

The likely impact of new measures

41. New National restrictions on household visiting introduced on 22nd September should help to reduce the spread of the virus.

However, without further interventions our modelling shows that new infections are likely to continue to increase and could hit a peak similar to that experienced in March during October (see Figure 13 below).

Figure 13: Modelled cases without further intervention



42. This emphasises the need for further action. A temporary set of more comprehensive restrictions across the central belt, which is responsible for 75% of positive tests for a defined period should have the impact of reducing the value of R further and also the infectious pool within the population. While this temporary intervention is made it allows time for a range of further measures to improve compliance and mitigation to be put in place, across the entire country, enabling continued suppression of the infectious pool. This includes reviewing current regulations and guidance and confirming if there is a need for existing regulations to be extended. This action will reset the trajectory of the virus in Scotland and reduces the risk of cases in the central belt overwhelming the NHS.