



Public Health
England

Protecting and improving the nation's health

Rapid Investigation Team (RIT):

Overview and recommended actions following a preliminary investigation into COVID-19 exceedances in Leicester (June 2020)

28th June 2020

Summary and Recommendations

The initial analysis of pillar 1 (laboratory diagnostic data to support clinical services) and pillar 2 (all other testing) data suggested there is ongoing Covid-19 activity in Leicester with increasing numbers of cases being identified, most notably since early June 2020. It is considered likely that a large contribution to the apparent change may be associated with increasing testing - a steadily increasing proportion of infections (symptomatic and asymptomatic) are being identified rather than a true increase in the number of new infections occurring.

The most likely explanation is that there are elements of both an increase in ascertainment (that is a steady improvement of the proportion of cases identified) and an increase in the number of new infections that are occurring. However, while the R_t may be around 1 there is **no current evidence that the growth rate is entering an exponential phase** (that is $R_t \gg 1$).

Epidemiological evidence shows that the epicentre of the protracted COVID-19 activity is in North Evington in the northeast of Leicester - a deprived area where most people live in the 2/5th most deprived areas (69%) compared with 37% overall in Leicester, the ethnic population is diverse and less than 15% of the population is white British, and there is a large industrial presence, particularly food processing.

Observational data and the epidemiology suggest that transmission within households, poor compliance with social distancing within the community, and workplace transmission may all be contributing to the current situation.

Observations relevant to immediate measures are

- a high number of small manufacturing employers in the area with unknown adherence to control measures
- messaging deployed in the area has been incongruous with the ongoing nature of the outbreak
- implementation of social distancing in the community is reported and observed to be poor
- mobile testing units are deployed but have been unable to find suitable sites in the areas of interest and are unlikely to be fully utilised
- transport is unlikely to be contributing, as residence and employment are usually both close together in area with high use of walking and cycling.

In recent weeks, more COVID-19 cases are of working age. In the area of concern, it is reported locally that transient workers often live in over-crowded households, and social distancing and infection prevention measures can be difficult to implement in the workplaces

The current situation is finely balanced. If current measures are relaxed further and behaviours continue unchecked, there is a high risk of the situation escalating, requiring the implementation of stringent measures.

Recommendations

1. Observations by the rapid assessment team and discussions with local community contacts identified the immediate need for a re-focused communications strategy reflecting the language, cultural needs and media channels used by the community, using local spokespersons and making use of workplaces as focal points for community leadership
2. Increased local access to testing, particularly using walk up and community testing hubs with local community centres and leaders
3. The offer of increased testing in the workplace to detect asymptomatic cases, especially in the food industry, where cases are detected, potentially offering tests to all individuals in the workplace to detect asymptomatic and pre-symptomatic individuals.

4. Ensure staff in all workplaces who are cases or contacts receive appropriate sick pay (this may need additional treasury support)
5. Consideration of weekly testing of all care home staff within Leicester city to protect the most vulnerable for the next four weeks (approximately 250 care homes and therefore likely to need 25,000 tests per week through the Government testing service to facilitate this)
6. Delaying July 4, 2020 relaxation actions in Leicester and enhancement of enforcement or monitoring of social distancing guidelines for at least two weeks to allow the impact of the above measures to be assessed

Additional actions

The following additional actions to be considered include:

Leicester targeted enhanced actions (e.g. closure of non-essential shops and other areas where social gatherings may take place), closure of workplaces where >5% (or 10%) of staff are detected as positive within a two-week period.

Summary of epidemiology review (full data in appendix 1)

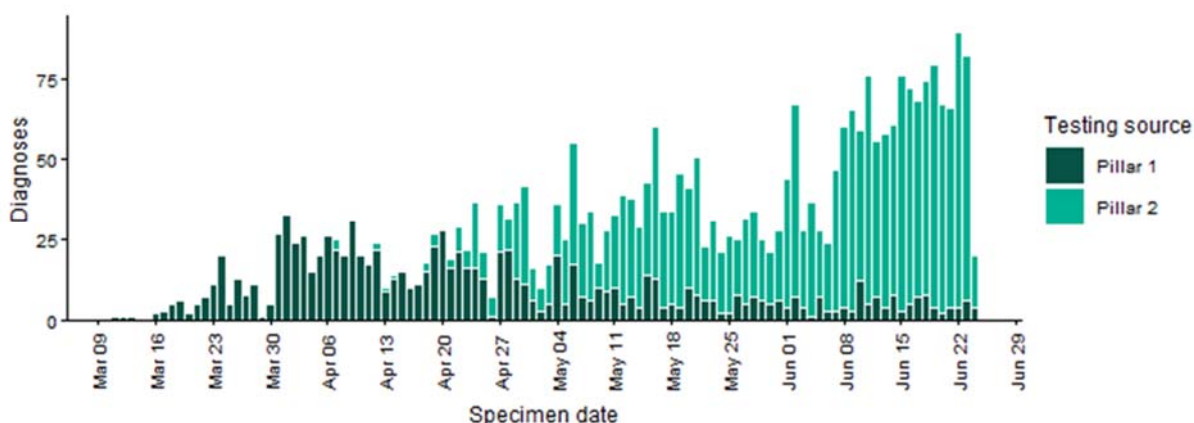
3,216 COVID-19 cases have been reported in Leicester since the pandemic resulting in rate of 90.54 cases per 10,000 population.

Table 1.1 Confirmed case numbers and rate per 10,000 population of confirmed cases in Leicester, East Midlands, and England (up to 24 June 2020)

Pillar	Leicester		East Midlands		England	
	No. cases	Rate	No. cases	Rate	No. cases	Rate
Pillar 1	1028	28.94	9858	20.52	159694	28.53
Pillar 2	2188	61.60	10175	21.18	80026	14.30
Total	3216	90.54	20033	41.70	239720	42.82

The epidemic curve for Leicester is shown for the start of the pandemic to 24 June 2020 (figure 1)

Figure 1.1 Epidemic curve of daily confirmed COVID-19 cases in Leicester, by specimen date, to 24 June 2020



A number of parameters have shown recent COVID -19 activity in Leicester to be an outlier:

- Leicester is in the top 10 local authorities by case count between 13 June and 22 June 2020 (table 1.2 appendix 1)
- The time-series plots for Leicester based on cases per 100 tests and number of tests per day shows that in contrast to a decreasing trend noted in the vast majority of other UTLAs in East Midlands and England, a gradual increasing trend has been noted in Leicester in the last few weeks (figure 1.3, appendix 1)
- Laboratory-confirmed COVID-19 cases and the seven-day moving average in East Midlands by local authority and report date below shows the increasing trend in Leicester in contrast to other areas (figure 1.4, appendix 1)
- The rate per 100,000 population of confirmed cases is higher in Leicester compared to East Midlands and England in recent weeks (figure 1.5 appendix 1).
- The rates of cases per 100,000 population shows that the rate seen in June 2020 is much higher compared to similar LAs. While Leicester also had the highest rate for all cases until 24 June, other LAs appear to have achieved better control of infection rates by June 2020 whereas rates in Leicester remain high

Age/sex distribution

The proportion of male to female confirmed cases in pillar 1 and 2 testing is similar - 49% of cases are female (figure 1.6 and 1.7, appendix 1) The majority of cases confirmed in the recent 14 days are aged 18-65 years. The number of cases in those aged 65 years and over has been stable but cases reported in those under 18 years of age have been slowly increasing in the last four weeks (figure 1.8, appendix 1).

The median age is 39 years (range 0-98). Cases are younger in Leicester compared with CIPFA nearest neighbours.

Table 1.4. Age profile of cases reported in June 2020 in Leicester compared to CIPFA nearest neighbours

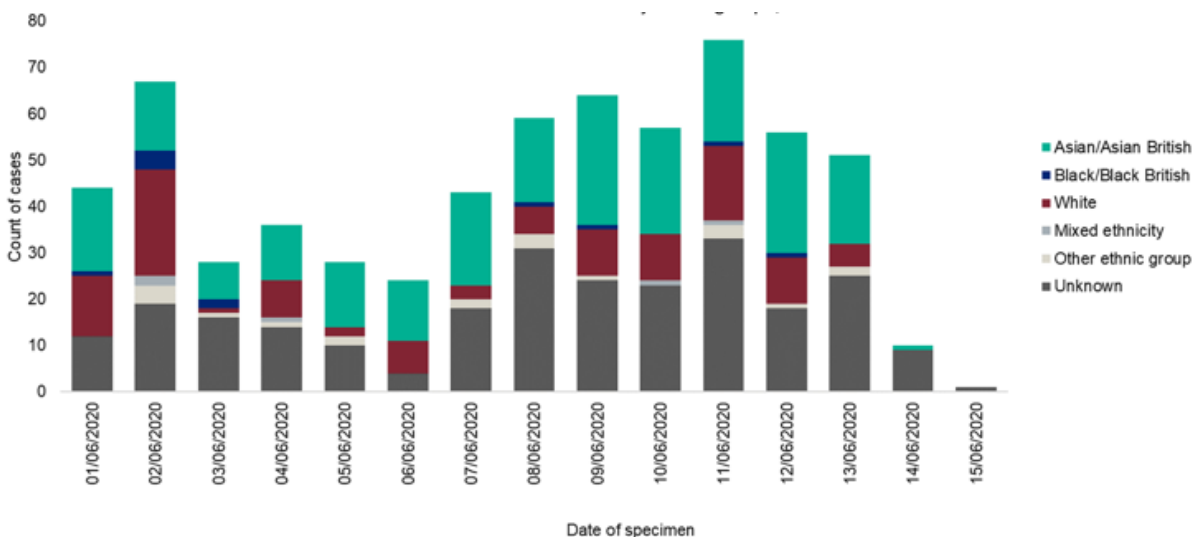
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Local Authority	Mean age of cases	Median age of cases	Range of ages	Number female	Number male
Leicester	40.5	39	0 - 98	530 (50.9%)	511 (49.1%)
Nearest neighbours	49.8	47	0-106	10,202 (57.9%)	7425 (42.1%)

Ethnicity of cases

Ethnicity of cases reported in Leicester in June 2020 is shown below, and likely reflects the ethnicity profile of the population.

Figure 1.9. Ethnicity of cases reported in June 2020 in Leicester

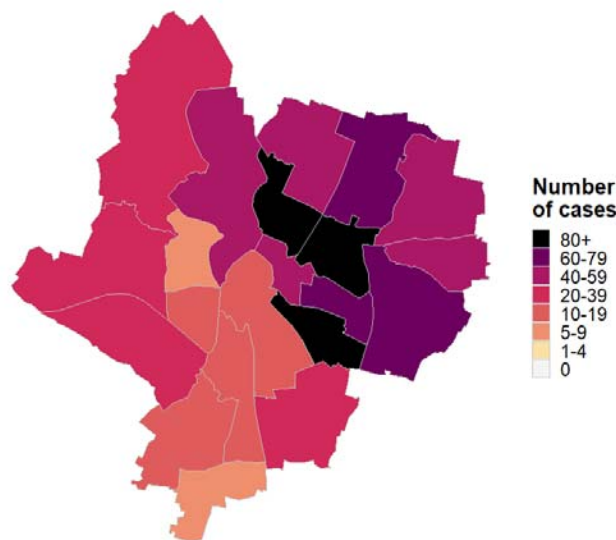


Location of residence of cases

Analysis of case counts by wards shows that the North East areas of Leicester has the most cases reported in the recent two weeks (figure 1.11).

An analysis of cases and positivity by wards in Leicester for cases to 25 June 2020 using SGSS/USD data shows that areas with high positivity include Belgrave, Evington, Spinney Hills, North Evington, Stonegate and Wycliffe (figure 1.13, appendix 1). This is a provisional finding and needs further analysis

Figure 1.11. Location of cases reported between 11 and 25 June by ward in Leicester



Symptom status

Using PHE laboratory data more cases were recorded as symptomatic at the time of the test compared to those recorded as asymptomatic or unknown (figure 1.15 and 1.16 appendix 1). North Evington ward has had more cases reported during this period compared to other wards

Occupation of cases

The majority of cases were recorded as unknown status, whereas “essential workers in another area” constituted the largest proportion among those with recorded occupation (figure 1.16 appendix 1).

Incidents and outbreaks reported to local Health Protection Team

East Midlands has reported 37 situations of interest in the last 3 weeks; with 22 related to Leicester postcodes. This is more than double the nearest region; with the majority of regions reporting less than 10 situations of interest in the last 4 weeks.

Many of these incidents are related to food factories/outlets with 8 of these related to the one large umbrella company around Leicester/ Leicestershire. This parent company employs 7232 and the top five languages spoken by staff Romanian, Polish, Hindi, Gujarati, Portuguese. The HPT have supported detailed risk assessments with the company and enhanced communications and actions.

There are four situations where shops and supermarkets are reporting staff with COVID-19. It is important to note that the care homes are much less affected than late March/ early April suggesting that the measures introduced are protecting these settings

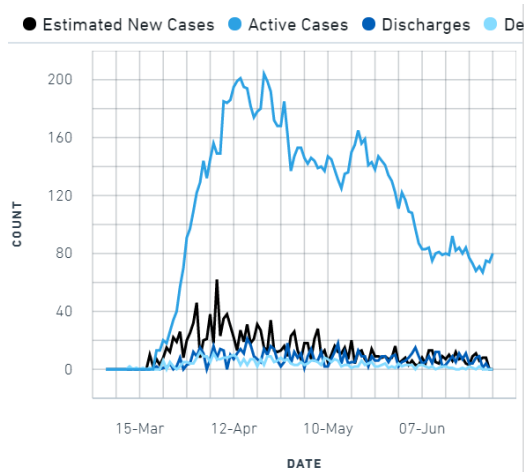
Impact on Hospitals

There are two schools (one Academy and one Nursery) and two care home incidents in the last four weeks. The Leicester Hospitals are contained within the Leicester, Leicestershire and Rutland STP. University Hospitals of Leicester NHS Trust (UHL) has four sites around Leicester. One of these sites (Glenfield Hospital) reported an outbreak on one ward where five patients who were screened as COVID negative on admission were subsequently detected as COVID positive following planned screens on day 5 of admission (i.e. likely incubating on admission). All other patients and staff were screened and a further 12 staff were found to be COVID-19 positive who were asymptomatic.

UHL has currently got 80 patients with confirmed COVID-19 in the hospitals; 10 requiring mechanical ventilation. The hospital surge happened in early April and admissions initially decreased rapidly but have remained steady at between 6 and 10 new COVID-19 confirmed admissions per day over the last four weeks.

UHL employs approximately 15,000 staff and 771 were absent on 27 June 2020 for COVID-related reasons (including shielding, vulnerable, household quarantine and symptoms). This is similar to other organisations.

Figure 1.17. Active cases, estimated new cases and discharges from University Hospitals of Leicester, 28/6/2020 (from NHSEI SitRep)



Summary of Modelling review (full detail in appendix 2)

The data from pillar 1 and pillar 2 cases of COVID 19 appears to suggest an ongoing outbreak or surge in Covid-19 activity within Leicester City, with increasing numbers of cases being identified since early June 2020.

A large contribution to the apparent change in recorded diagnoses may be associated with increasing testing. That is, there may be a steadily increasing proportion of infections (symptomatic and asymptomatic) being identified rather than a true increase in the number of new infections occurring.

However, the demonstration of cases being newly described in children by the local outbreak team does appear to be unusual and suggests that if an increase in the true number of infections (symptomatic and asymptomatic) occurring in the area then this increase is most likely to be restricted to the period from late May onwards.

The most likely explanation is that there are elements of both an increase in ascertainment (that is a steady improvement of the proportion of cases identified) and an increase in the number of new infections that are occurring.

While there is no current evidence that the growth rate is entering an exponential period at the current time (that is $R_t \gg 1$). As yet unpublished ONS data analysed for growth rates and doubling times by colleagues at the University of Manchester for the contiguous East of England and East Midlands Regions are giving a soft signal of plateauing case numbers that conflict with the general decline in numbers of new infections that are being seen elsewhere in England

Refocusing communications (full detail in appendix 3)

Community awareness of COVID-19 and an understanding of the control measures that are effective are vital components of the response to the COVID-19 pandemic. A robust and comprehensive communications strategy to support the response is therefore vital should consist of the following:

- Shared **key messages** across the civic society in Leicester that are:
 - clear and transparent about the ongoing situation;
 - available in the language of the local community and sensitive to the cultural needs of the population;
 - 'behaviourally specific' i.e. clearly communicate the actions that people need to take, when and how.
- Clarity of message across all Leicester City Council's **communications channels**.
- Frequent **media briefings** led by the DPH and other local health spokespeople.
- Upweighted **marketing** campaign.
- Grassroots **public engagement**.
- **Business engagement**; businesses are community focal points and should be used to provide leadership, support dissemination of messaging and adherence to guidance.
- Mobilisation of all **key influencers**.
- Mobilisation of **NHSEI comms and engagement**.

Contributors

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Appendix 1 Descriptive Epidemiology

This report presents a summary of the descriptive epidemiology of Covid-19 in Leicester.

1.1. Trend in case counts and rates

A total of 3,216 COVID-19 cases have been reported in Leicester equating to a rate of 90.54 cases per 10,000 population. In the last 14 days, 944 have been reported - 71 from Pillar 1 testing and 873 from Pillar 2.

Table 1.1 Number and rate per 10,000 population of confirmed cases in Leicester, East Midlands, and England (up to 24 June 2020)

Pillar	Leicester		East Midlands		England	
	No. cases	Rate	No. cases	Rate	No. cases	Rate
Pillar 1	1028	28.94	9858	20.52	159694	28.53
Pillar 2	2188	61.60	10175	21.18	80026	14.30
Total	3216	90.54	20033	41.70	239720	42.82

The epidemic curve is shown for the entire period until 24 June 2020 (figure 1) and for the 14-day period between 11 and 24 June 2020 inclusive (figure 2). This shows that cases reported in pillar 1 have declined from the peak in April and pillar 2 activity accounts for the majority of new cases reported since May 2020.

Figure 1.1 Epidemic curve of daily confirmed COVID-19 cases in Leicester, by specimen date, to 24 June 2020

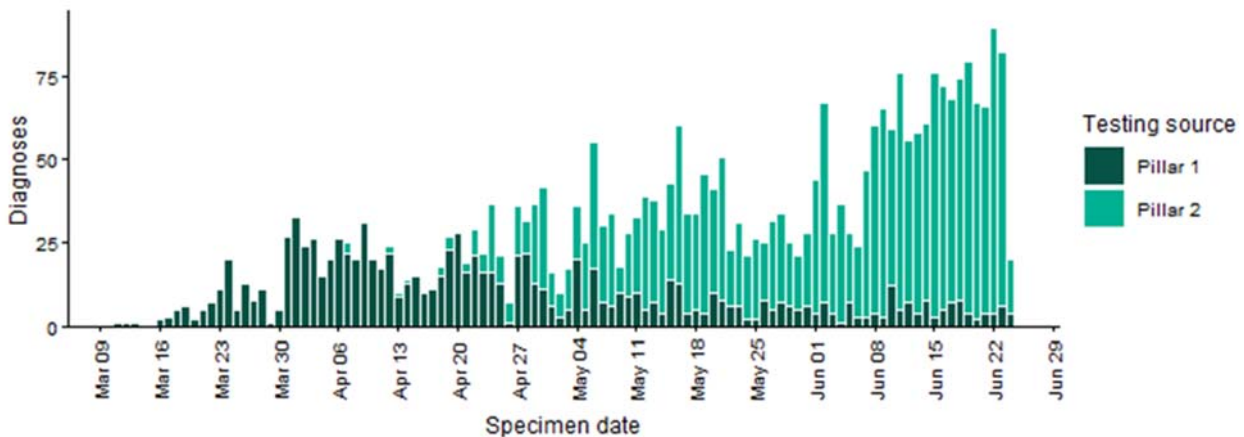
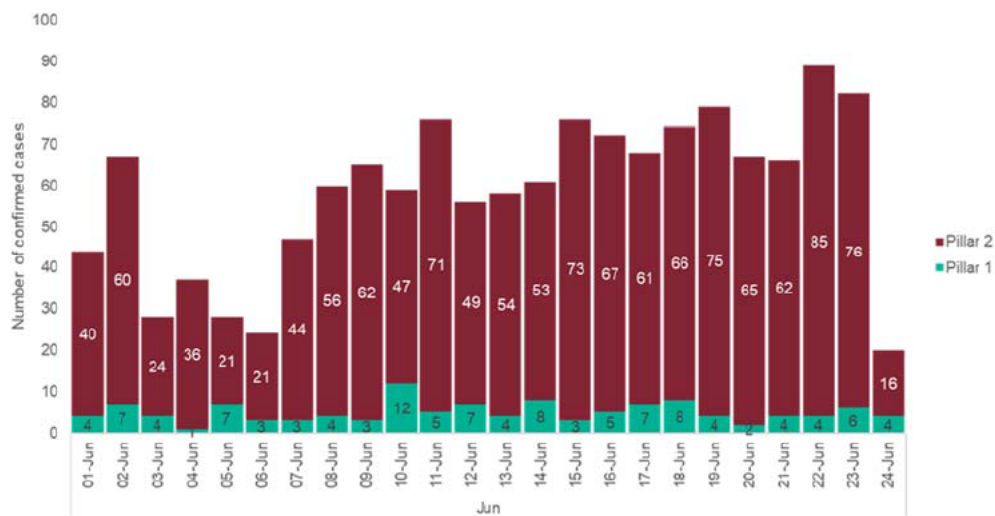


Figure 2. Epidemic curve of daily confirmed COVID-19 cases in Leicester, by specimen date, 11 June 2020 to 24 June 2020



The table below shows the top 10 local authorities with the highest number of cases in the done. This includes pillar 1 and pillar 2 COVID-19 cases combined, in the ten days investigation period 13/06/2020 and 22/06/2020, inclusive.

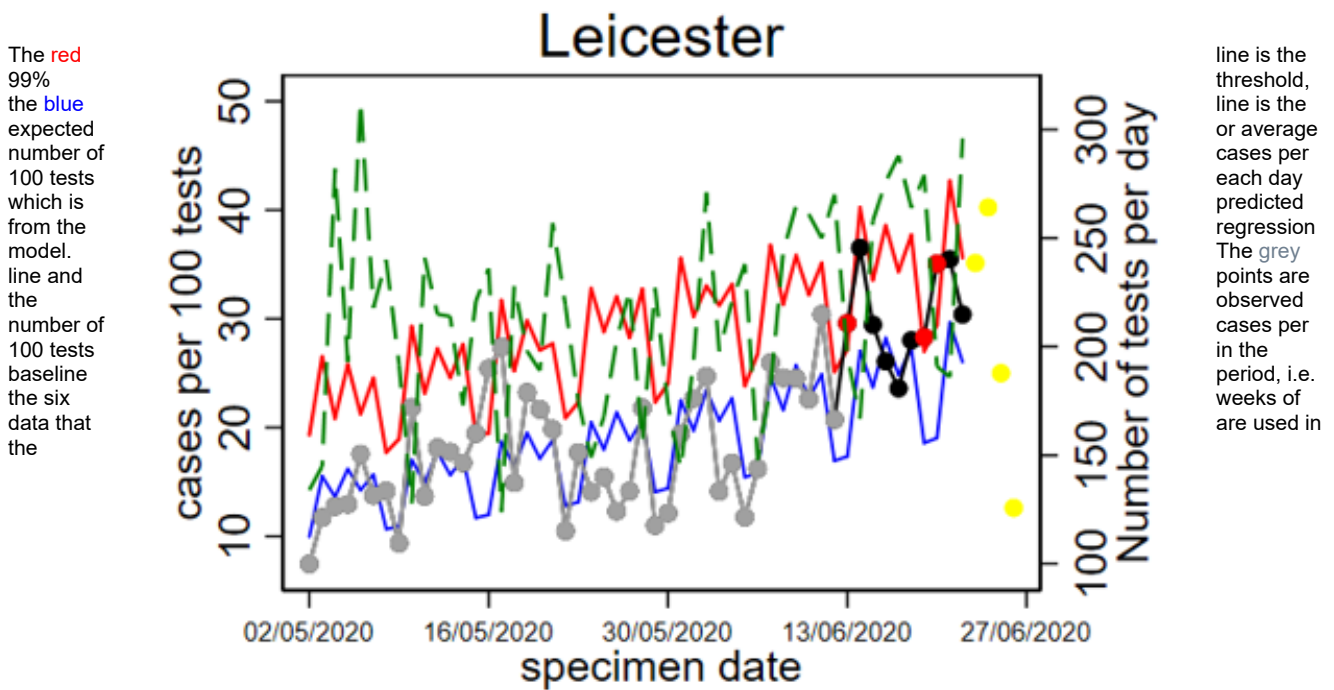
Table 1.2. Top 10 local authorities by case count between 13 June and 22 June 2020

PHEC	LTLA name	Observed	Expected	IRR	lower 95% CL	upper 95% CL
East Midlands	Leicester	711	582	1.055	1.033	1.077
Yorkshire and Humber	Bradford	493	379	1.018	0.996	1.04
Yorkshire and Humber	Sheffield	196	164	0.983	0.953	1.014
Yorkshire and Humber	Leeds	191	77	1.104	1.063	1.147
Yorkshire and Humber	Barnsley	187	72	1.055	1.014	1.098
Yorkshire and Humber	Kirklees	181	74	1.06	1.016	1.105
West Midlands	Birmingham	151	73	1.017	0.983	1.053
East of England	Luton	98	35	0.974	0.924	1.028
North West	Blackburn with Darwen	60	49	1.047	0.993	1.105
North West	Liverpool	49	40	1.004	0.939	1.074

The observed cases is the sum of the number of laboratory confirmed COVID-19 cases over the 10-day investigation period. The expected rate is the sum of the expected number of laboratory confirmed COVID-19 cases over the 10-day investigation period derived from the model used in the exceedance algorithm. Incident Rate Ratio (IRR) is the estimate of the relative change each day in the number of laboratory confirmed COVID-19 from the model (with 95% confidence limits). The results reported are derived from the time-series of laboratory confirmed cases, and the total number of laboratory tests for SARS-CoV-2, by specimen date and earliest test date, respectively, for each lower tier local authority. Due to delays in laboratory reporting into PHE, the most recent four days are deemed too incomplete to use and therefore have been ignored.

The time-series plots for Leicester based on cases per 100 tests and number of tests per day is presented below. In contrast to a decreasing trend noted in the vast majority of other UTLAs in East Midlands and England, a gradual increasing trend has been noted in Leicester in the last few weeks.

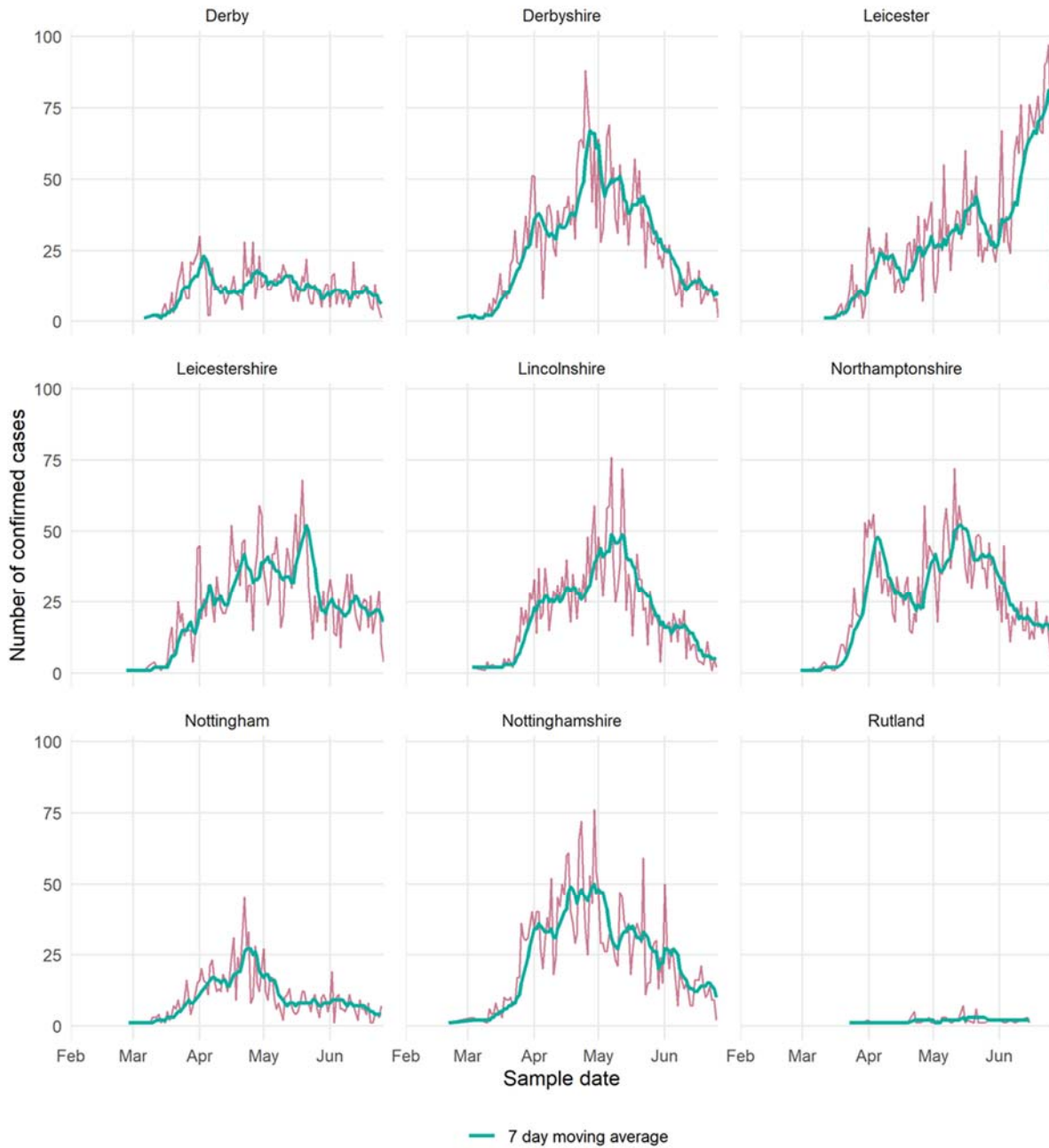
Figure 1.3. Time series plot of cases per 100 tests and number of tests per day, Leicester



exceedance algorithms regression model. The black line and points are the observed number of cases per 100 tests in the 10-day investigation period. The yellow points are the observed number of cases per 100 tests in the last four which are subject reporting delay so ignored. The green dashed line is the total number of tests (pillar 1 and pillar 2 tests combined) each day in the LTLA. A rough estimate of the number of cases each day can be obtained by multiplying the observed cases per 100 tests each day by the number of tests each day, and dividing by 100.

The figure below (1.4) showing the trend of cases across local authorities in East Midlands shows the increasing trend in Leicester in contrast to other areas

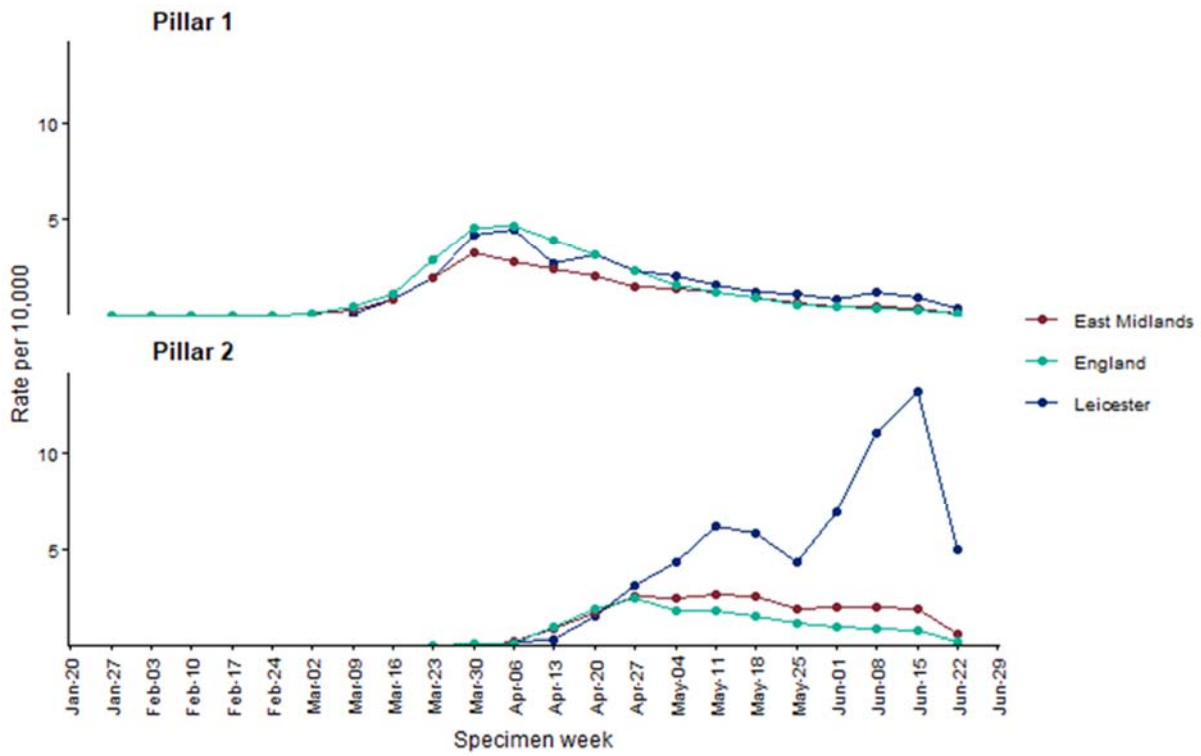
Figure 1.4: Laboratory-confirmed COVID-19 cases and seven day moving average in East Midlands by local authority and report date



Includes both Pillar 1 and Pillar 2 data. Excludes cases with unassigned upper tier local authority

The figure below shows that the rate per 100,000 population of confirmed cases is higher in Leicester compared to East Midlands and England in recent weeks.

Figure 1.5. Rate per 10,000 population of weekly confirmed cases in Leicester, East Midlands, and England (up to June 24 2020)



The table below showing the rates of cases per 100,000 population shows that the rate seen in June 2020 is much higher compared to similar LAs. While Leicester also had the highest rate for all cases until 24 June, other LAs appear to have achieved better control of infection rates by June 2020 whereas rates in Leicester remain high.

Table 1.3. Number of cases by local authority, epicell data, all cases and June 2020, mid-2019 ONS population

Local Authority	1-24 June 2020		All cases	
	Total	Cases per 100,000 population	Total	Cases per 100,000 population
Leicester	1,490	420.6	3,303	932.5
Nottingham	148	44.5	1,139	342.1
Coventry	71	19.1	1,309	352.3
Luton	215	100.9	1,329	623.8
Sandwell	138	42.0	1,608	489.6
Wolverhampton	107	40.6	1,355	514.5
Salford	113	43.7	1,280	494.5
Oldham	345	145.5	1,764	744.0
Blackburn with Darwen	157	104.9	954	637.3
Derby	225	87.4	1,237	480.8
Rochdale	338	152.0	1,454	653.7
Bradford	1,137	210.6	3,889	720.5
Liverpool	121	24.3	2,372	476.3
Southampton	66	26.1	911	360.8
Kingston upon Hull, City of	183	70.4	1,523	586.3
Newcastle upon Tyne	73	24.1	1,510	498.6

NOTE: the above table is ordered according to how close each LA is to Leicester with those at the top being most similar and those at the bottom least similar.

1.2 Age/sex distribution

The age-sex pyramid of cases confirmed in pillar 1 and 2 testing is shown below. The proportion of male to female cases is similar (49% Female).

Figure 1.6. Population pyramid for confirmed cases in past 14 days in Pillar 1 (June 11 2020 to June 24 2020) and prior (March 11 2020 to June 10 2020)

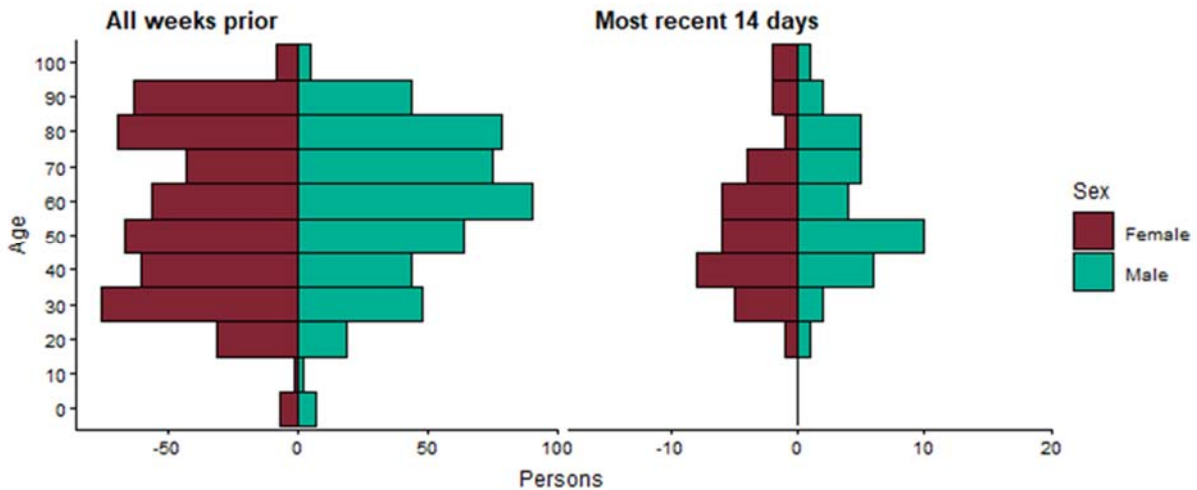
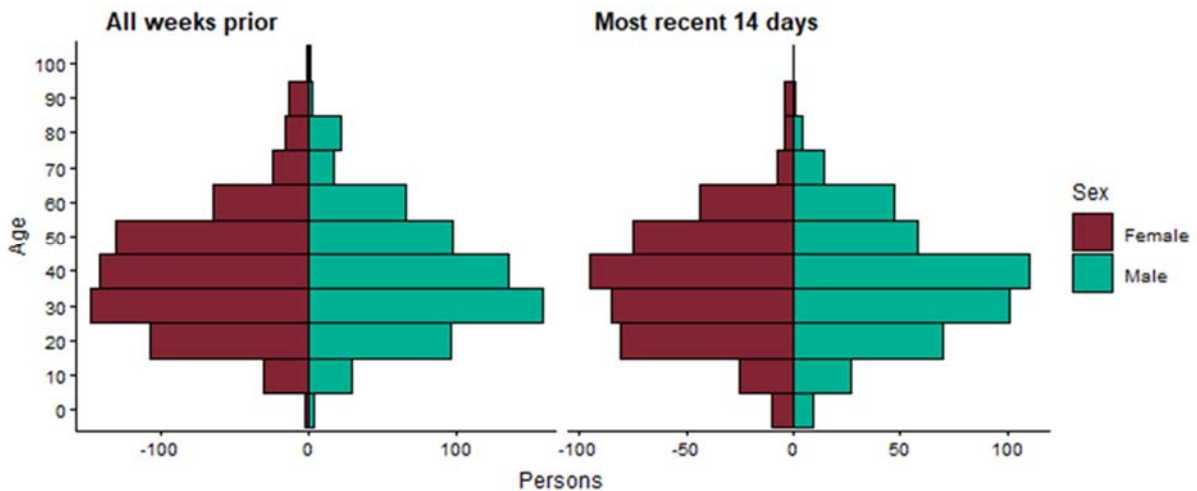
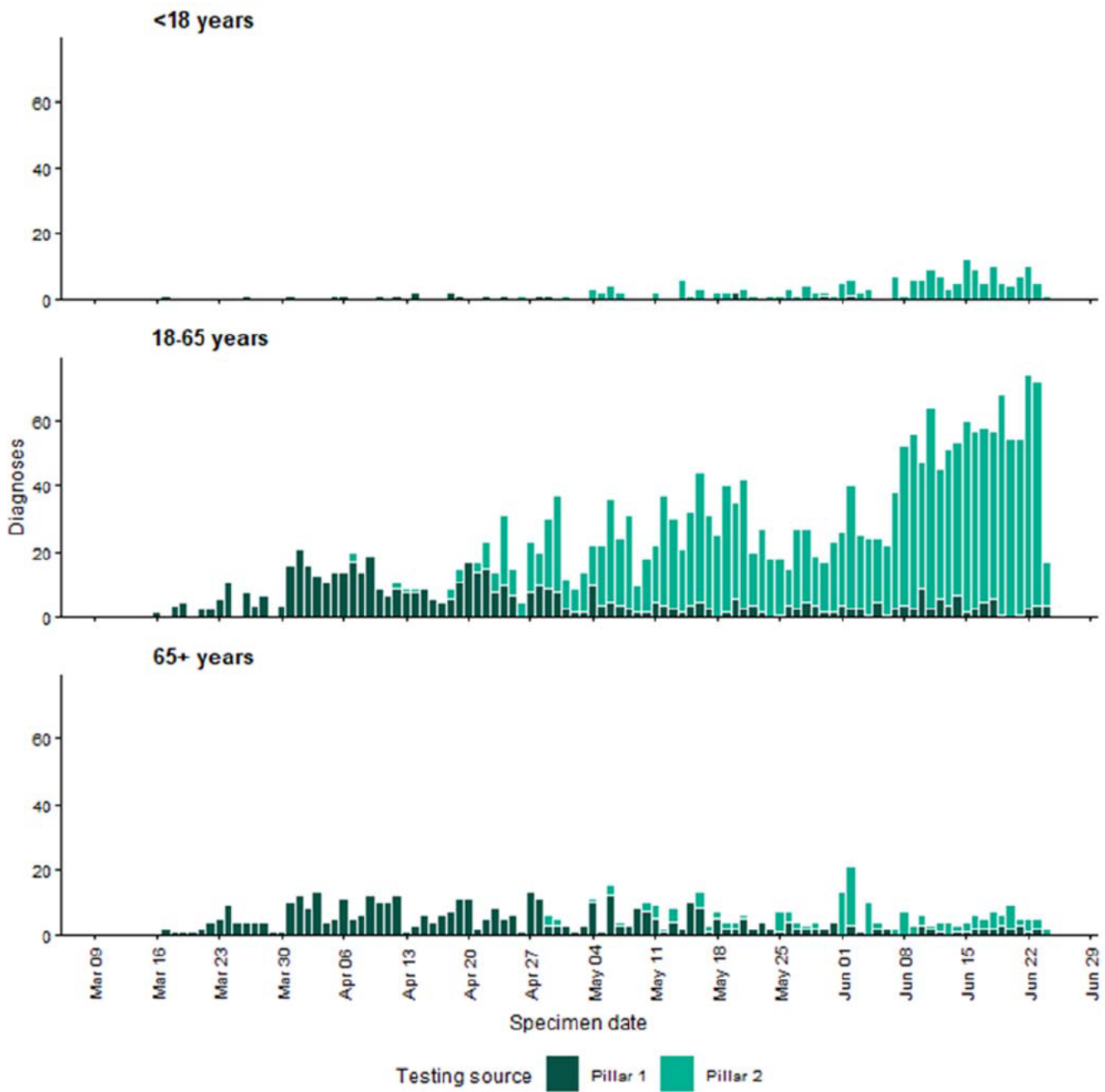


Figure 1.7. Population pyramid for confirmed cases in past 14 days in Pillar 2 (11 June 2020 to 24 June 2020) and prior (March 11 2020 to June 10 2020)



The majority of cases confirmed in the recent 14 days are aged 18-65 years. The number of cases in those aged 65 years and over has been stable whereas cases reported in those under 18 years of age have been slowly increasing in the last four weeks.

Figure 1.8. Epidemic curve of daily confirmed COVID-19 cases over time in Leicester by age group (March 11 2020 to June 24 2020)



The median age is 39 years (range 0-98). Cases are younger in Leicester compared with CIPFA nearest neighbours.

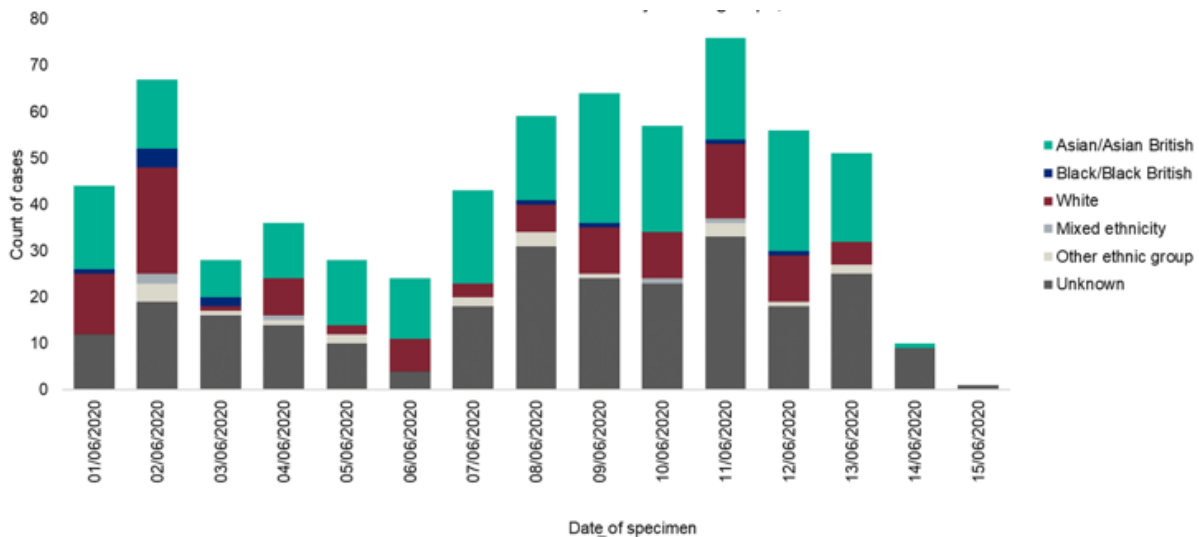
Table 1.4. Age profile of cases reported in June 2020 in Leicester compared to CIPFA nearest neighbours

Local Authority	Mean age of cases	Median age of cases	Range of ages	Number female	Number male
Leicester	40.5	39	0 - 98	530 (50.9%)	511 (49.1%)
Nearest neighbours	49.8	47	0-106	10,202 (57.9%)	7425 (42.1%)

1.2. Ethnicity

Ethnicity of cases reported in Leicester in June 2020 is shown below, likely reflects the ethnicity profile of the population.

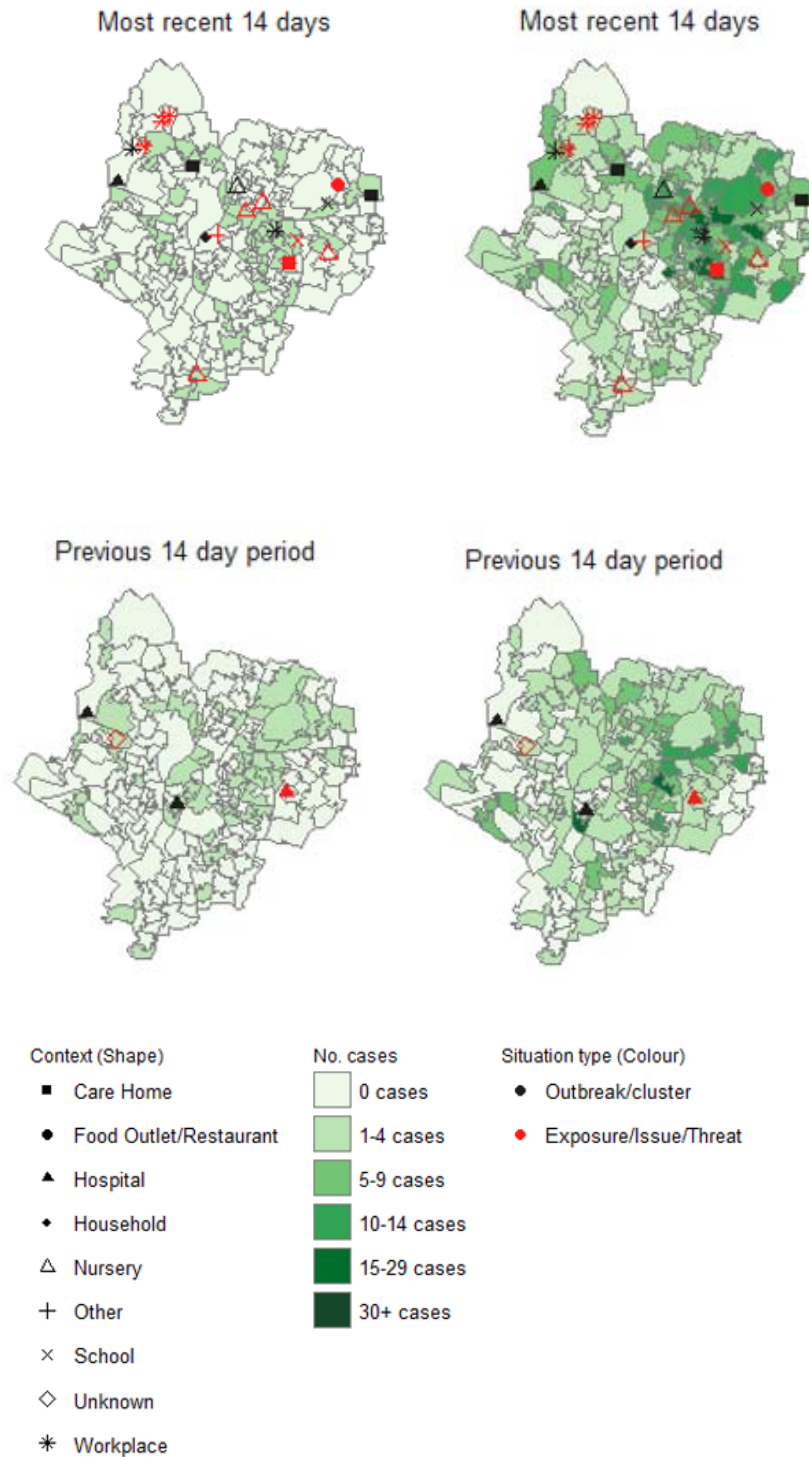
Figure 1.9. Ethnicity of cases reported in June 2020 in Leicester



1.3. Location of residence of cases

The map below shows the location of cases resident in Leicester for the last 28 days. As noted earlier, cases diagnosed in pillar 2 account for the majority of cases in last 14 days.

Figure 1.10. Map of new cases reported from Pillar 1 (left) and Pillar 2 (right) in Leicester in recent 14 days (June 11 2020 to June 24 2020) and prior 14 days (May 28 2020 to June 10 2020), overlaid with outbreak/cluster information from HPZone

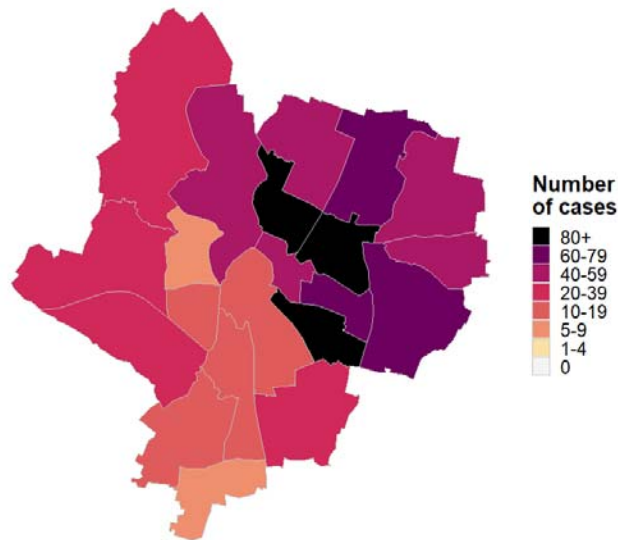


Analysis of case counts by wards shows that the North East areas of Leicester has the most cases reported in the recent two weeks.

Table 1.5 Number and proportion of cases reported between 11 and 25 June 2020 in the top 10 wards in Leicester

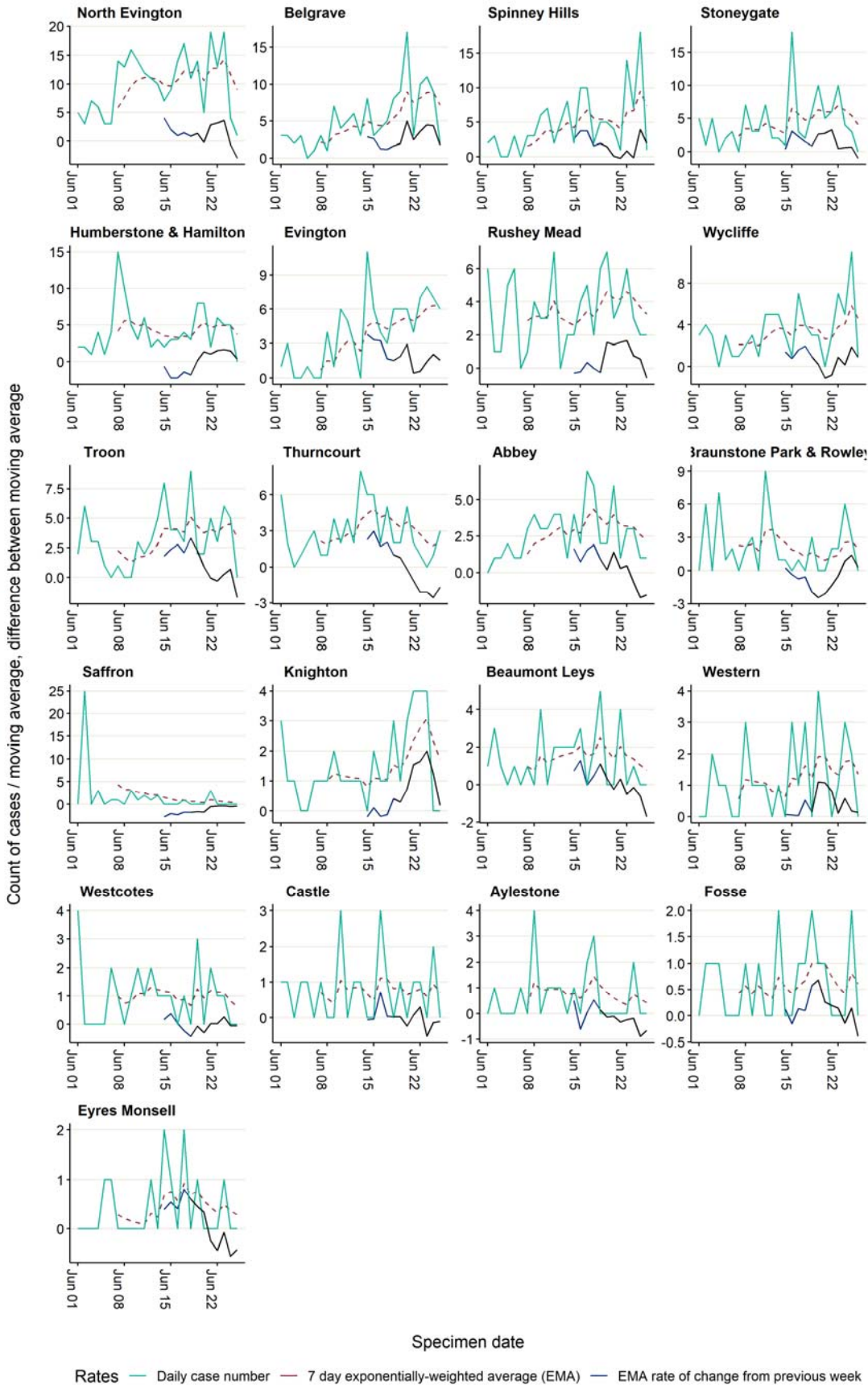
Ward	Number	% of Total
North Evington	161	16.7
Belgrave	97	10.1
Stoneygate	82	8.5
Spinney Hills	79	8.2
Evington	73	7.6
Troon	61	6.3
Wycliffe	56	5.8
Humberstone & Hamilton	53	5.5
Rushey Mead	53	5.5
Abbey	43	4.5

Figure 11. Location of cases reported between 11 and 25 June by ward in Leicester



The figure below shows the trend of cases in wards in Leicester in June 2020

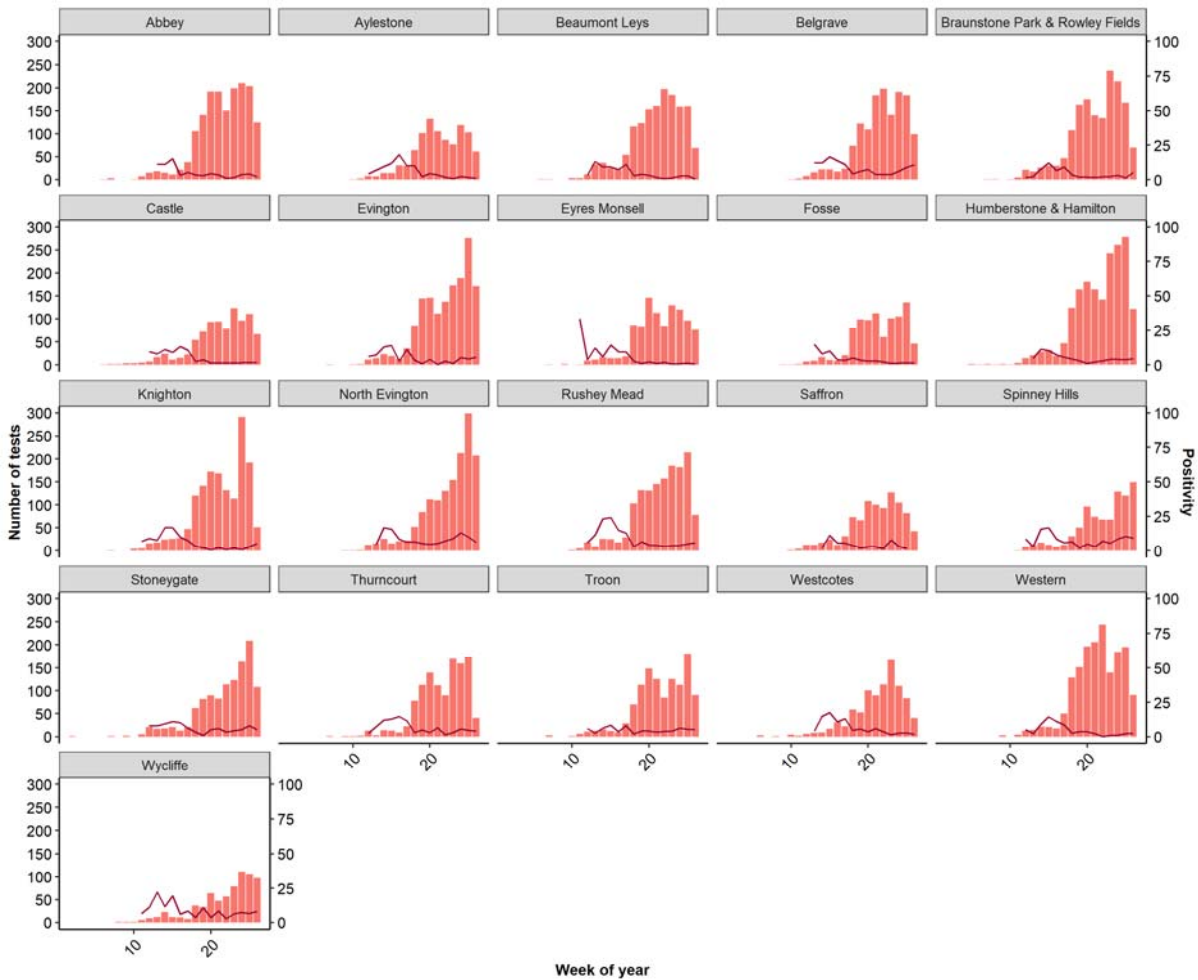
Figure 1.12. Trend of cases in wards in Leicester, June 2020



The facet panel below shows the number of cases and positivity by wards in Leicester for cases to 25 June 2020 using SGSS/USD data. Areas with high positivity include Belgrave,

Evington, Spinney Hills, North Evington, Stoneygate and Wycliffe. This is a provisional finding and needs further analysis

Figure 13. Cases and positivity by ward in Leicester, June 2020



1.4. Symptom status

The figure below shows the case distribution by symptom status (figure 15) and by ward (figure 16) as recorded on SGSS. More cases were recorded as symptomatic at the time of the test compared to those recorded as asymptomatic or unknown. North Evington ward has had more cases reported during this period compared to other wards.

Figure 1.14. 7-day moving average of confirmed COVID-19 cases by recorded symptom status, Leicester, 01 May - 26 June

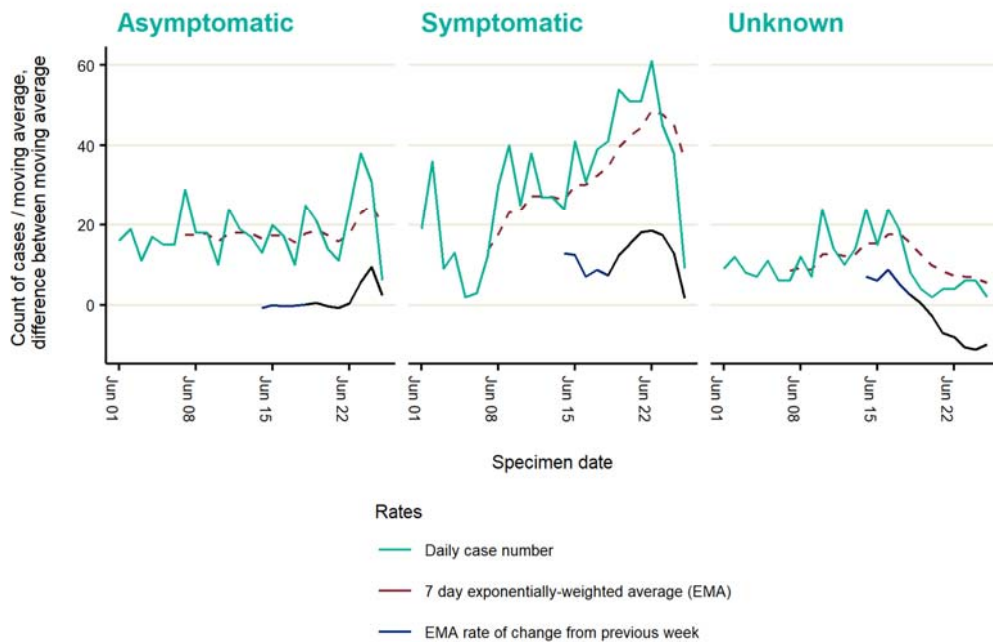
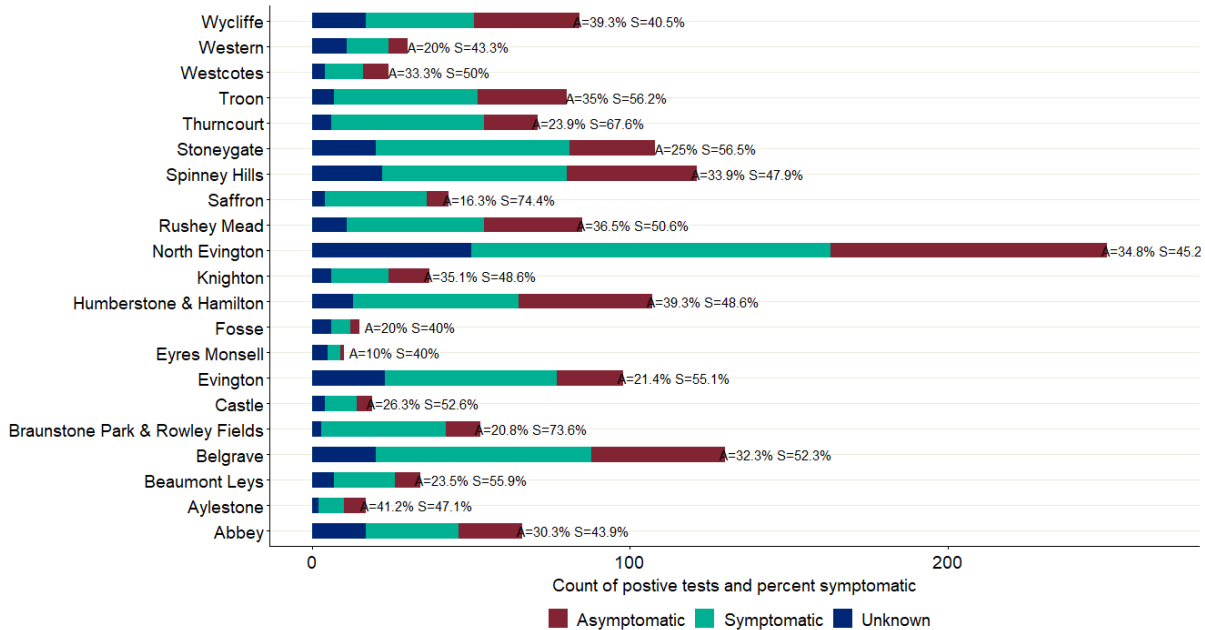


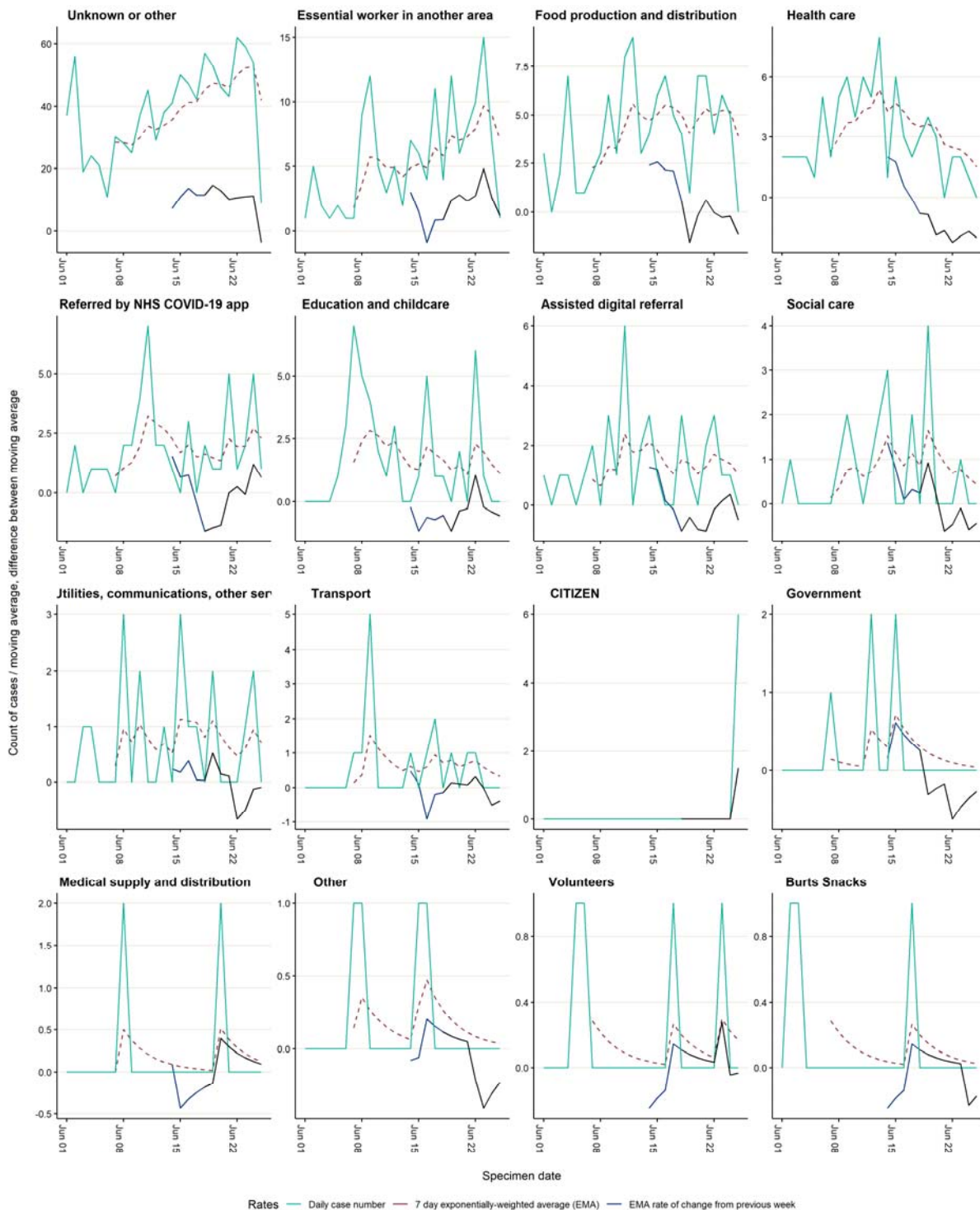
Figure 1.15. COVID-19 cases by ward and recorded symptom status, Leicester local authority, 01 May - 26 June (Source: SGSS)



1.5. Recorded occupation

The facet panel below shows the recorded occupation for cases reported in June 2020. The majority were recorded as unknown status whereas “essential workers in another area” constituted the largest proportion among those with recorded occupation.

Figure 1.16. 7-day moving average of confirmed COVID-19 cases by recorded occupation, Leicester, 01-26 June



1.6. Incidents reported to local Health Protection Team

East Midlands has reported 37 situations of interest in the last 3 weeks; with 22 related to Leicester postcodes. This is more than double the nearest region; with the majority of regions reporting less than 10 situations of interest in the last 4 weeks.

Many of these incidents are related to food factories/outlets with 8 of these related to the one large umbrella company around Leicester/ Leicestershire. This parent company employs 7232 and the top five languages spoken by staff Romanian, Polish, Hindi, Gujarati, Portuguese. The HPT have supported detailed risk assessments with the company and enhanced communications and actions.

There are four situations where shops and supermarkets are reporting staff with COVID-19.

There are two schools (one Academy and one Nursery) and two care home incidents in the last four weeks. It is important to note that the care homes are much less affected than late March/ early April suggesting that the measures introduced are protecting these settings.

1.7. Backward contact tracing

A current study on the utility of backward contact tracing is being piloted across England. Leicester city residents have been included in the pilot. Against an intended sample of 50 cases, only 11 cases in the city had successfully completed the study until 24 June 2020. Preliminary analysis of the 11 cases did not identify any events with multiple households attending. Most of the cases did not report leaving home, other than for visiting supermarkets.

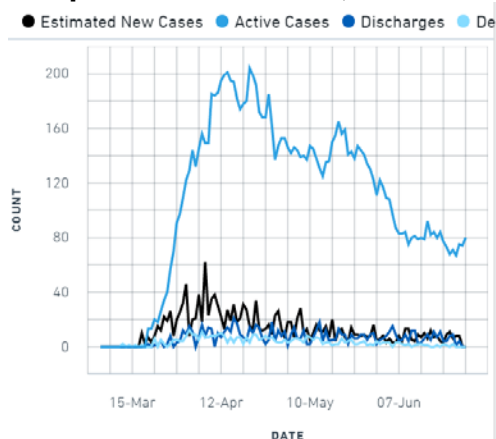
1.8 Impact on Hospitals

The Leicester Hospitals are contained within the Leicester, Leicestershire and Rutland STP. University Hospitals of Leicester NHS Trust (UHL) has four sites around Leicester. One of these sites (Glenfield Hospital) reported an outbreak on one ward where five patients who were screened as COVID negative on admission were subsequently detected as COVID positive following planned screens on day 5 of admission (i.e. likely incubating on admission). All other patients and staff were screened and a further 12 staff were found to be COVID-19 positive who were asymptomatic.

UHL has currently got 80 patients with confirmed COVID-19 in the hospitals; 10 requiring mechanical ventilation. The hospital surge happened in early April and admissions initially decreased rapidly but have remained steady at between 6 and 10 new COVID-19 confirmed admissions per day over the last four weeks.

UHL employs approximately 15,000 staff and 771 were absent on 27 June 2020 for COVID-related reasons (including shielding, vulnerable, household quarantine and symptoms). This is similar to other organisations.

Figure 17. Active cases, estimated new cases and discharges from University Hospitals of Leicester, 28/6/2020 (from NHSEI SitRep)



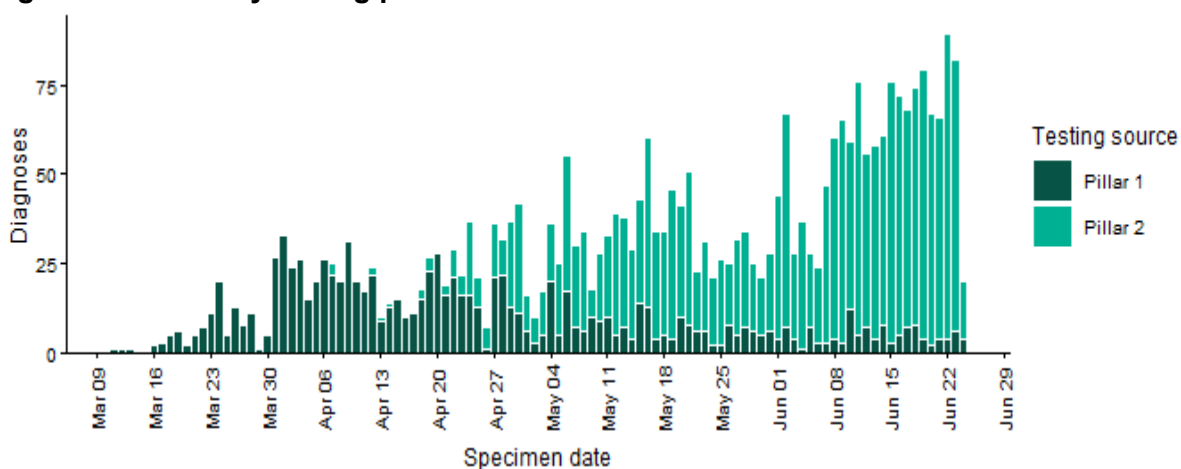
Appendix 2 - modelling observations and analysis

Observations

The histogram of pillar 1 and pillar 2 diagnoses appear to suggest that there is an ongoing outbreak of Covid-19 in Leicester with increasing numbers of cases being identified on subsequent days, most notably since early June 2020. However, the absolute change in numbers of clinically unwell cases cannot be readily distinguished from the numbers of new infections (symptomatic and asymptomatic) that might be expected to be seen due to the very significant changes in testing regimes that have occurred during the period mid-March to late June.

It is important to note that both the numbers of tests that can be performed has increased and that the testing regime has been used for a wide range of purposes including outbreak investigation and screening.

Figure 2.1 Cases by testing pillar over time



The national epidemic peaked in the last week of March 2020, and the available laboratory diagnostic data to support clinical services (pillar 1) is most likely to have remained representative of the clinical cases that have arisen in Leicester (as opposed to all the detected infections, clinical and sub-clinical, that are contained in the pillar 1 plus pillar 2 diagnoses); and in that respect the pillar 1 diagnoses appear to be similar to the general national picture for clinically apparent disease at and around the epidemic peak in late March 2020.

The rise in pillar 2 diagnose is probably linked, in part, to the availability of testing to the general public, and at least one component of the rise in new diagnoses is due to a steadily increasing proportion of infections (symptomatic and asymptomatic) being identified rather than a true increase in the number of new infections occurring.

There is an almost linear rise in the numbers of new cases being identified from the beginning of May until mid-June. However, this is not characteristic of unconstrained growth of an epidemic from an organism that is well characterised as having an $R_0 \approx 3$.

The proportion of positive PCR tests (as a proportion of all test) is rising. This is suggestive of a genuine increase in numbers of new infections, not simply an artefact of increasing test rates.

This effect is most marked in the under 19-year-old group where the proportion of test positive cases fell to $\approx 5\%$ (across all age groups) after the end of the initial epidemic peak, and has climbed back from mid-May to a current value of $\approx 15\%$.

The proportion of positive tests in working age people has also risen to $\approx 15\%$.

Figure 2.2 % of tests with positive results in <19-year age group

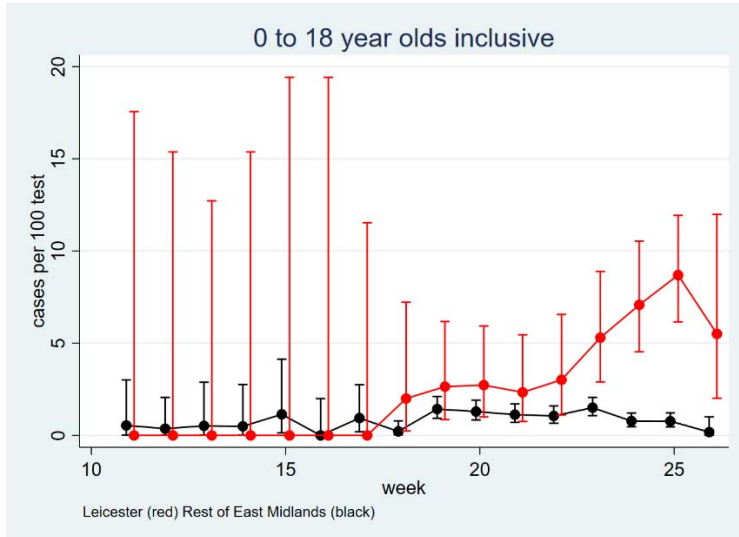


Figure 2.3 % of tests with positive results in 19-64 year age group

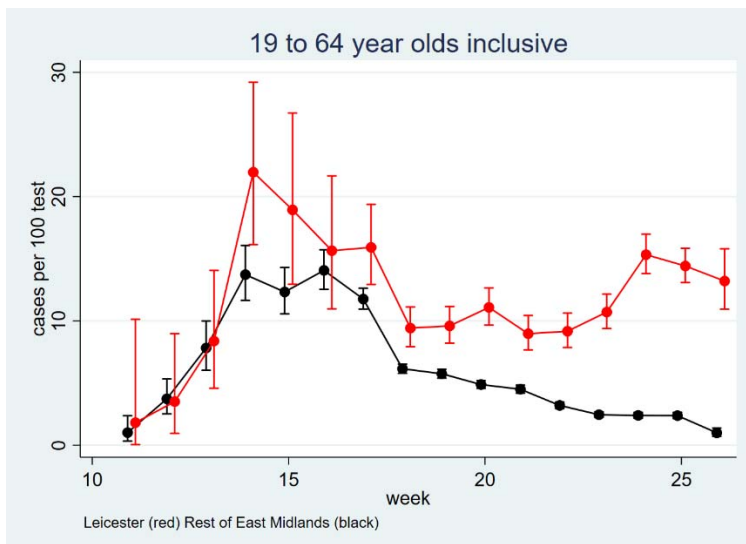
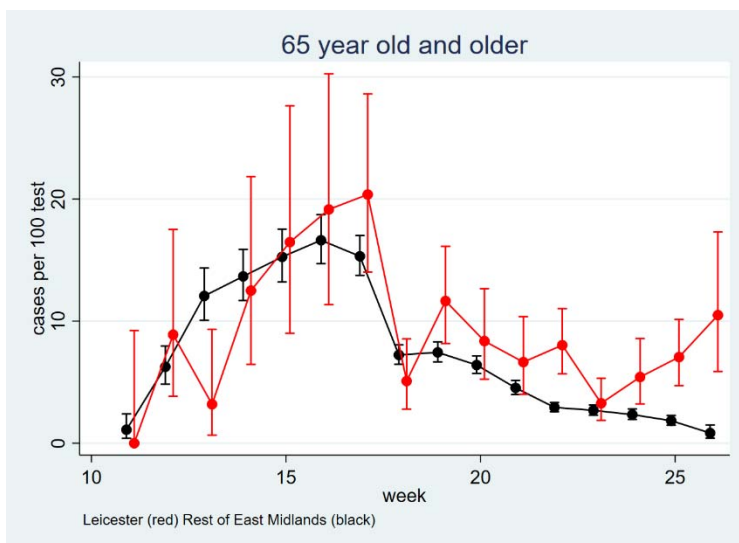
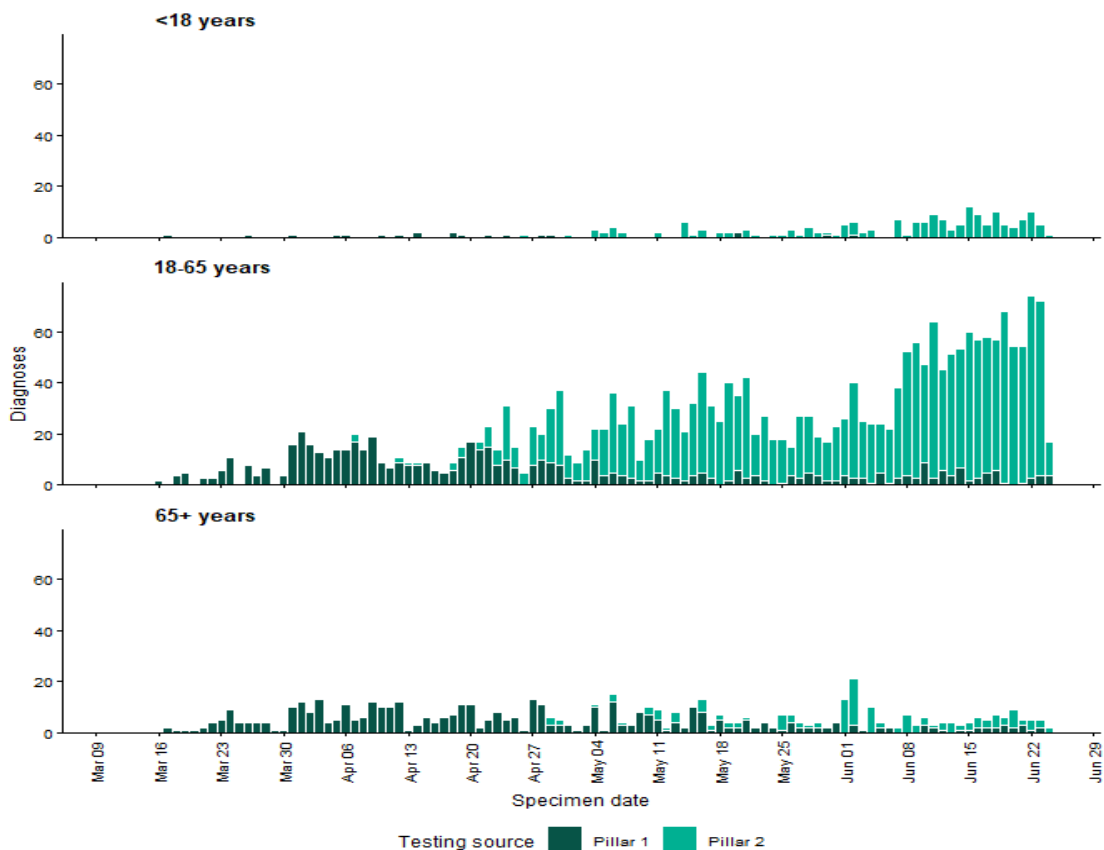


Figure 2.4 % of tests with positive results in 65+ year age group



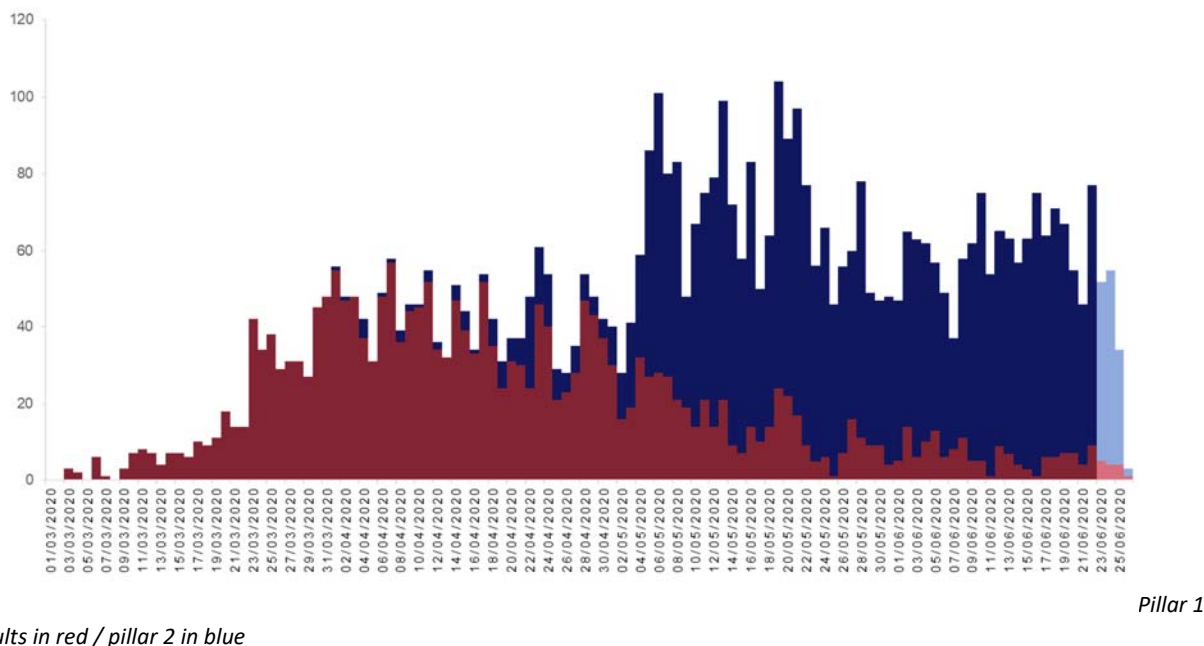
Disaggregation of cases by age groups of these diagnoses in Leicester suggests that if an excess of infections has occurred then it is occurring in young and middle-aged people:

Figure 2.5 - Cases by <18 years, 18-65 years and 65+ years over time



There is, however, no similar rise in such diagnoses notable across England, with the numbers of diagnoses in children relatively static since the introduction of pillar 2 testing.

Figure 2.6 England confirmed cases <19 years old by diagnostic pillar



results in red / pillar 2 in blue

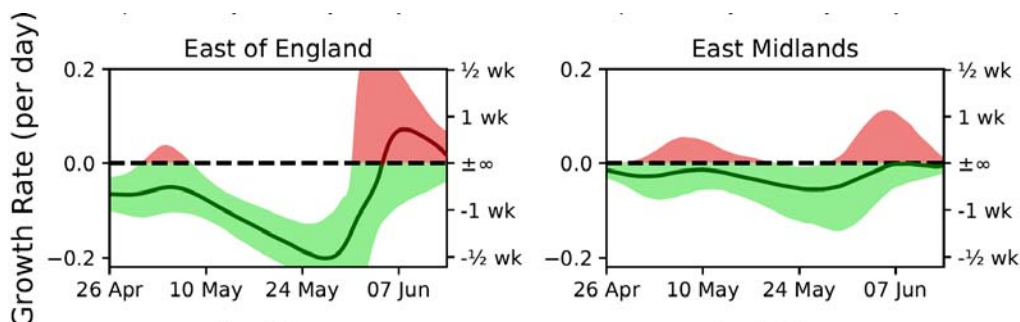
Since the beginning of June there has been good provision of primary school access for children in Leicester, with 38% of the all age school capacity now being available (we believe that secondary

access is currently still restricted to children of essential workers); and of this 94% of child-day place availability capacity is being utilised.

We have been unable to provide any analytical link to correlate this observation with any real or apparent rise in new infections in the Leicester area. However, it would seem sensible to investigate this association to exclude any evidence of the recent rise in observed case numbers being linked to a return of larger numbers of children to school at the beginning of June.

As yet unpublished ONS data analysed for growth rates and doubling times by colleagues at the University of Manchester for the contiguous East of England and East Midlands Regions are giving a soft signal of plateauing case numbers that conflict with the general decline in numbers of new infections that are being seen elsewhere in England (see figure below where the brown areas refer to increased growth).

Figure 2.7 Growth rate per day – East of England and East Midlands



These soft signals are also to be seen in national data from ONS at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurvey/pilot/england25june2020>

- (1) PHE exceedance reports only identify Leicester (rising) and Bedford (plateauing) as significant trends in these regions.
- (2) There are no explanatory outbreaks in care homes, hospital settings, or industrial processes to immediately explain the apparent rise in new diagnoses to be found from searching outbreak reports and case report databases.
- (3) There are no supportive death reporting data suggestive of an epidemic dynamic that is different in the East Midlands Region to the rest of England at this time.

Conclusions

- (1) The strongest evidence of an outbreak is given by the numbers of new infections identified in children and working age people, and rising proportion of positive tests also seen in these age groups, from late May onwards. These are trends not observed in other parts of the Midlands, or related travel areas.
- (2) Evidence for the scale of the outbreak is limited and may, in part, be artefactually related to growth in availability of testing.
- (3) If an outbreak is occurring, then care should be taken to ensure that the artificial geographical reporting boundaries do not obscure a problem that may cross the East Midlands and East of England border.

Appendix 3 – Detailed communications brief

3.1 Context

Epidemiological evidence suggests that the epicentre of the protracted COVID-19 activity is in the northeast of Leicester, a deprived area with a diverse ethnic population¹, and a large food processing industrial presence. Observational data and the epidemiology suggest that transmission within households, poor compliance with social distancing within the community, and workplace transmission may all be contributing to the current situation. Whilst some messaging has been deployed in the wider community and to retail, these messages are now incongruous with the ongoing nature of the COVID-19 activity, and implementation of control measures in the community has been observed to be poor. Further observation by the rapid assessment team and discussions with local community contacts has identified the need for a re-focused communications strategy reflecting the language, cultural needs and media channels used by these groups, using local spokespersons and making use of workplaces as focal points for community leadership. This approach and the actions outlined in this strategy are consistent with recent COVID-19 specific guidance produced by SAGE (see Appendix 3).

3.2 Key messages

- National messaging is that the situation is easing; however,
- Locally, there is a need to be clear about how and why the Leicester messaging is different to the rest of the country - what action residents should take, why, and how to make it easier for themselves/others.

1. Council-owned communication channels

- 'Clear the decks' in order to gain purity of the message - only push out COVID-19 messages.
- Ensure versions of all messages are available in the languages of the local population (e.g. Gujarathi).
- Change Twitter and Facebook header images to carry 'Stay at home' message.
- Pinned Tweet/Post need to carry 'Stay at home' message.
- Message / graphic on website homepage.
- Schedule at least 4 posts a day at key times, ensure that messages are available in different languages.
- Make video/s from DPH key content on YouTube channel and cease the storytelling from Leicester Libraries in favour of more video content outlining key messages
<https://www.youtube.com/user/leicestercouncilnews>
- Engage local community representatives to support video content in local language(s).
- Push out graphic messages on Instagram account:
<https://www.instagram.com/leicestercitycouncil/>

2. Media

- Arrange daily briefings (almost like a local version of the No.10 daily briefings). DPH to lead alongside local NHS (Regional PHE experts will also be happy to support) to consistently communicate the importance of social distancing behaviours
- Push out a stream of feature driven content to the media (DHSC central comms to provide) that can be localised:
 - Key symptoms;
 - Testing opportunities – who can get tested, how, what's it like;
 - Asymptomatic contagion – to drive isolation message if contacted;
 - How to cope in isolation - support available etc.
 - When / how to stay safe at work.
- Offer 'good news' stories to demonstrate what is being done, using case studies with people drawn from the local community.

¹ ESRC Centre on Dynamics of Ethnicity (CoDE). Geographies of Diversity in Leicester. In, Local Dynamics of Diversity: evidence from the 2011 census. October, 2013.
<http://hummedia.manchester.ac.uk/institutes/code/briefings/localdynamicsofdiversity/geographies-of-diversity-in-leicestershire.pdf>

- Arrange a managed visit to a MTU.
- Actively use media channels used by the local population, for example, Sabras Radio (<http://www.sabrasradio.com/>), Starplus TV channel (<https://www.hotstar.com/gb>)

3. Marketing

- Over the weekend all paid for marketing activity in Leicester (e.g. social media, digital out-of-home media, and print) has been upweighted across all channels over the weekend into next week.
- If the alert level in Leicester is changed and / or there is a policy decision to lockdown some part or all of the city, DHSC central comms can create a 'local COVID alert for Leicester' campaign. (NB. the 'Stay Home, Save Lives' campaign featuring the red and yellow creative cannot be used).
- Draft creatives could be ready within 6 hours and it would take 24 hours to get a new campaign into the media.
- All assets would need to be made available in Gujarati, Punjabi, Bengali, Polish and alternative formats i.e. audio, video.
- The city dressing (lamp post banners etc) which currently carry the 'Great to have you back' message should be reconsidered and replaced with stronger warning messages.

4. Public engagement

- Consider door drops to households in key areas; essential that materials are available in multiple languages and ideally pictorial.
- Door drop to all open shops, takeaways and other food outlets and aim for high visibility of messages where people are congregating
- Targeted BAME outreach in the North East of the City, i.e. deploy street ambassadors to support public health messaging, ideally multi-agency and including people drawn from the local community.

5. Business engagement

- Brief and engage management teams of factories around which the housing in the most affected areas is clustered and where many residents work - provide messaging material for dissemination, suggest content for communications to employees and answer questions about local implementation of IPC measures and social distancing.
- Ensure people who work in or run shops or similar environments understand the COVID-secure guidelines.
- Brief and engage support functions such as the East Midlands Chamber of Commerce and the Leicester & Leicestershire Enterprise Partnership.

6. Influencers

- Develop a clear narrative and brief key influencers such as:
 - Business leaders and Employers;
 - School leaders – the strongest evidence of a local outbreak is the is the number of new infections in children (many between the ages of 12 and 15);
 - Faith leaders;
 - Emergency services;
 - Sporting celebrities i.e. Leicester City Football Club, Leicester Tigers.

7. NHSEI comms and engagement

- Support marketing campaign throughout primary and secondary care
- Brief and engage workforce and encourage staff to act as ambassadors

3.3 Evaluation

- Essential to ensure that the audiences are receiving and acting on messages
- Develop an accompanying evaluation strategy to include:
 - Metrics on implementation of communications and messages (e.g. door drops, media plays, etc.)

- Recruit members of the community for rapid evaluation to inform the iteration of the communication strategy via virtual focus groups, interviews and or ethnography (e.g. socially distanced door knocking).
- Online / telephone population survey targeted to Leicester postcodes.

3.4 Background issues

- Marketing assets currently being shared do not talk to an outbreak scenario (message issue).
- Communities affected may not be able to access current comms (channel issue).
- DPH has limited availability to do proactive comms due to being ID (timing issue).
- LCC offer a fortnightly media briefing to the Leicester Mercury and BBC Radio Leicester on how services are responding to the pandemic. No data is shared.
- LCC has a close and productive working relationship with the Mercury and the outlet is well respected by the other regional media who often follow the Mercury's lead on stories.
- Many local communities only get their information from foreign media such as Savros Radio.
- There is significant media interest/enquiries about outbreaks, particularly those involving workplaces.
- Static posts accounts (see **Appendix 2**) are being shared on LCCs Facebook and Twitter and have been shared with partners. There is no COVID related content on LCCs Instagram account.
- A video message from the DPH has been produced (2 days ago), posted onto LCCs YouTube channel and shared via LCCs Facebook and Twitter accounts:
<https://www.youtube.com/watch?v=x-MQa4oE7Yw&feature=youtu.be>
- Information went out in the Your Leicester e-newsletter.
<https://your.leicester.gov.uk/t/3WAY-15B9O-19ZIK0ZJ87/cr.aspx?v=0>
- Website homepage carries web banner:
<https://www.leicester.gov.uk/>
- All the specific actions taken by Leicester City Council are outlined in the Communications / Community Engagement Workstream report, presented to the IMT on 24.6.20

3.5 Immediate actions taken by PHE

- Briefed the Leicester Mercury (26.6.20) to advise that it's not possible to provide details of individual outbreaks but that we want to work with them to convey the wider city picture – supplied a line for them to use in response to tip off's from the public.
- All paid for marketing activity in Leicester has been upweighted across all channels over the weekend into next week, for example:
 - On Instagram and Facebook we will reach 99% of users at a frequency of over 4 today and tomorrow.
 - 2-page adverts booked in the Leicester Mercury from Monday to Wednesday (which can be extended) plus in the surrounding weekly papers.
 - Digital out-of-home is upweighted from Monday.
- Already have strong BAME media presence but looking at upweighting that from next week.

Below are links to relevant parts of the social distancing, symptoms and testing campaigns supplied to LCC by [REDACTED] (PHE Regional Marketing Manager - Midlands and East) 019.6.20:

Social distancing

Basic infection prevention and control measures including hand hygiene and social distancing materials can be found at the links below as part of the Stay Alert campaign. The simpler, graphical assets previously mentioned and which were produced for Nottingham are also available here in the web banners and digital screens – these are referenced on the CRC as ‘icon creative’ and include the examples below.

<https://coronavirusresources.phe.gov.uk/stay-alert-to-stay-safe-/resources/additional-social-media/>

<https://coronavirusresources.phe.gov.uk/stay-alert-to-stay-safe-/resources/additional-social-media/>

Symptoms

Materials for symptoms are available at these links:

<https://coronavirusresources.phe.gov.uk/Symptoms/resources/social-media-resources/>

<https://coronavirusresources.phe.gov.uk/Symptoms/resources/Digital-Screens/>

<https://coronavirusresources.phe.gov.uk/Symptoms/resources/posters/>

<https://coronavirusresources.phe.gov.uk/Symptoms/resources/alternative-resources-symptoms/>

Testing

Materials to encourage testing are available at these links including (1st in the list) animated video:

<https://coronavirusresources.phe.gov.uk/Test-and-Trace/resources/additional-social-media/>

<https://coronavirusresources.phe.gov.uk/Test-and-Trace/resources/digital-ooH/>

<https://coronavirusresources.phe.gov.uk/Test-and-Trace/resources/social-media-resources/>

<https://coronavirusresources.phe.gov.uk/Test-and-Trace/resources/alternativeresources/>

Coronavirus tweets: updated 24 June (translations needed):

1. Remember: the risk of catching #coronavirus is much less, if you're 2 metres away from an infected person than if you're 1 metre away. Until the number of cases in #Leicester comes down, please be extra cautious and continue to keep 2 metres apart from people you don't live with.
2. Following a spike in positive results in #Leicester, it's important that we take extra care to protect ourselves and others from #coronavirus. Please continue to keep 2 metres apart from those you don't live with, limit your contact with others and wash your hands regularly
3. If you have symptoms of #coronavirus, or you've been in close contact with someone who has, please get tested as soon as you can. Book your test online at nhs.uk/ask-for-a-coronavirus-test or call 119. Testing sites now open at Birstall P&R, Spinney Hill park and Evington leisure centre.
4. Following a spike in positive results in #Leicester, we've set up a #coronavirus test centre in Spinney Hill Park. If you have symptoms, please get tested as soon as you can. It's best if you book your test online at nhs.uk/ask-for-a-coronavirus-test, or call 119 to arrange a time.
5. If you've tested positive for #coronavirus, you must stay at home for at least 7 days from when your symptoms started. People in your household need to stay at home for 14 days to stop the spread of the virus. If you still have symptoms, stay at home until you feel better.
6. The coronavirus pandemic isn't over yet so please remember that you can't visit other people in their homes, or meet in an indoor space, unless you've formed a bubble with them. Take extra caution and limit your contact with others to stop the spread of the virus in #Leicester.
7. Got an appointment for a #coronavirus test? Please remember to bring photo ID, a face covering and the verification code you received when booking your test. Find out more about the mobile test unit in #Leicester's Spinney Hill Park here: bit.ly/2NtJqri
8. We're increasing our #coronavirus testing capacity in #Leicester, with a new drive-up test centre opening in Victoria Park from tomorrow (Thursday 25 June). If you have symptoms, or you've had close contact with someone with the virus, please call 119 to book your test.

3.6 Overview of the SPI-B principles of effective guidance development and implementation

Provide a culturally appropriate and credible rationale

- **Transparency and Legitimacy:** Provide a clear, convincing explanation of why guidance is necessary and for the good of the community as a whole, along with the scientific evidence base to support this claim.
- **Equality and Equity:** Ensure guidance is fair and feasible for all sectors of the community.
- **Clarity:** Ensure guidance is precise, detailed, reasonable and consistent.

Engage the community

- **Co-creation:** Involve all sectors of the community, and all relevant agencies, in developing and implementing policies through guidance.
- **Planning:** Allow time for all sectors of the community to plan for implementing guidance.
- **Feedback:** Monitor and report impact of guidance changes using trusted measures. This would should be supported by local community consultation mechanisms where available.

Enable adherence

- **Scaffolding:** Harness existing organisational structures, policies and processes.
- **Environmental enabling:** Re-design environments (e.g. shared spaces) to make adherence possible.
- **Resource Enabling:** Provide practical support (e.g. financial/logistical) to ensure all sectors of the community can adhere.

Further details of these principles are provided in the SPI-B paper entitled, “Behavioural principles for updating guidance to minimise population transmission². These principles are based on theory and evidence compiled by SPI-B, which has been published in a peer-reviewed journal³.

IMT Workstream Report Update

Workstream: Communications / Community Engagement

Date: 24/06/20

Leads: Miranda Cannon / [REDACTED]

Progress update / activities completed:

- Press release referring to spike and giving general advice issued Thurs 18 June
- DPH Ivan Browne gave media interviews to BBC East Midlands Today, ITV Central News, BBC Radio Leicester, GEM 106 FM, Leicester Mercury, Fri 19 June
- Social media posts – Twitter and FB issued Fri 19 June
- Information on MTU from City Mayor shared with community and faith leaders on WhatsApp and social media, Sat 20 June
- Press release on opening of Spinney Hill MTU issued Sun 21 June
- Social media posts – Twitter and FB issued Sun 21 June and every day subsequently
- Briefing given by City Mayor to Labour Group councillors, Mon 22 June
- Update to schools issued in schools’ daily newsletter with follow up briefing, Mon 22 June
- Produced signage for mobile test centre, Mon 22 June
- Media briefing on local situation and MTU given to BBC Radio Leicester and Leicester Mercury on Tues 23 June by City Mayor
- City Mayor gave interview to BBC East Midlands Today on Tues 23 June
- Key messages and updated social media posts prepared and signed off, Tues 23 June (attached)
- Lead item in Your Leicester e-newsletter issued Tues 23 June – goes to 60k+ subscribers

² See:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/895857/SO539 Behavioural principles for updating guidance to minimise population transmission.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/895857/SO539_Behavioural_principles_for Updating_guidance_to_minimise_population_transmission.pdf)

³ Bonell C. et al. Harnessing behavioural science in public health campaigns to maintain ‘social distancing’ in response to the COVID-19 pandemic: key principles. Journal of Epidemiology and Community Health. 08 May 2020. doi: 10.1136/jech-2020-214290.

- Information on test sites added to main Coronavirus webpage on Council website <https://www.leicester.gov.uk/your-council/coronavirus/>
- Created website page for business advice and guidance on reopening and public advice for staying safe
- Produced and distributed 'Advice and Guidance for Reopening' document
- Produced Queue Management with Social Distancing document
- Produced lamppost wraps for city centre and neighbourhoods with safety messages
- Produced bin stickers for city centre and neighbourhoods with safety messages
- Produced safety signage for council buildings with Estates and Buildings to prepare for reoccupation by workforce
- Coordinated safety artwork for highways and transport
- Health Scrutiny meeting received a briefing on Tues 23 June
- Updated messages shared with LRF, LPT, PHE, UHL and CCG, Tues 23 June
- Update given to LRF Media and Comms Cell meeting and partners asked to share and amplify the Leicester specific messages, Tues 23 June
- City Mayor gave interview to BBC Radio Leicester at 7am on Wed 24 June
- Provided advice on local outbreak communications to other authorities

Planned activities:

- Advice message specific to the area to be recorded with Deputy City Mayor Cllr Piara Singh-Clair in Punjabi and Hindi, Wed 24 June, for use on community radio
- Advice message specific to the area to be recorded in Urdu with Chair of Muslim Burial Council, Wed 24 June for use on community radio
- General advice and warning to be cautious interview to be recorded with DPH Ivan Browne for use on social media, Wed 24 June
- Social media messages around booking at MTU to continue this week
- More detailed social media on stricter messaging – stay 2 metres apart, strictly limit contact with others, protect yourself and your family, start Wed 24 June
- Updated message from City Mayor to be shared with community contacts/leaders for us on WhatsApp and social media, Wed 24 June
- Updated message from City Mayor to be shared on City Mayor Twitter account, Wed 24 June
- Email and staff newsletter to go out to LCC senior managers, Trade Unions and LCC staff, Wed 24 June
- CCG to facilitate messages from GPs via text messaging and support messages via community networks
- CCG Chair to also support community messaging via community radio
- Key messages to be translated into 5 community languages for use on social media and via WhatsApp
- Produce new document on COVID-19 Advice and Guidance for Reopening to support 4 July businesses reopening
- More on-street public safety messaging being deployed eg lamppost wraps, floor stickers etc
- Continue to update and add to the main coronavirus information website pages on leicester.gov
- Continue work to produce safety signage for council buildings and other assets eg parks

Issues/risks:

- Some delay to sign off to key messages to consider implications of Government announcements – sign off now complete
- City Mayor requests messages are put into context in terms of this being “based on a limited number of tests and a comparatively small increase in positive results”

Decisions required from IMT:

- Postcode data to identify possible requirements for further targeted activity

Additional information:**Social media stats:****LCC Facebook**

Date	Post	Reach	Interactions
19.06.20	Rise in City Cases	13,144	320
16.06.20	Latest cycle lanes	12,354	312
21.06.20	New testing site	8,218	1,219
22.06.20	New testing site	4,424	245
17.06.20	New cycle lanes	4,090	93

Twitter

Date	Post	Reach	Interactions
21.06.20	New testing site	13,003	786
17.06.20	Cycle Lane	11,207	893
21.06.20	Coronavirus still in Leicester	10,650	360
21.06.20	Evington testing	9,103	149
19.06.20	Evington Testing	9,007	612