

Tuberculosis in England

National quarterly report: Q4 2021

1 October 2021 to 31 December 2021

Provisional data

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Background

This report presents provisional data for the current and preceeding quarters for 2021 on tuberculosis (TB) case notifications in England. Notifications include patients with culture confirmed TB or if a patient has started treatment for TB based on the clinical presentation. It is mandatory to notify cases of TB in the UK within 3 working days of making or suspecting a diagnosis of TB. More details regarding notification of TB can be found here.

Detailed results for data up to the end of 2021 will be published in the annual report 'Tuberculosis in England: 2021 report' in 2022. The most recent annual report with data up to the end of 2020 is available at <u>Tuberculosis in England: annual report</u>.

This report aims to provide timely and an up-to-date summary of key epidemiological indicators to inform ongoing TB control efforts in England.

Note: data for 2021 are provisional and subject to validation and should be interpreted with caution. The data used for this report was extracted on 7 January 2022.

Overall numbers and geographical distribution

In the fourth quarter of 2021 (Q4 2021, 30 September to 31 December), 996 people were notified with TB in England. This is a 2.3% decrease compared to the same quarter in the previous year (Q4 2020: 1,019). Exact numbers are shown in Table 1. The number of TB notifications by quarter is shown in Figure 1.

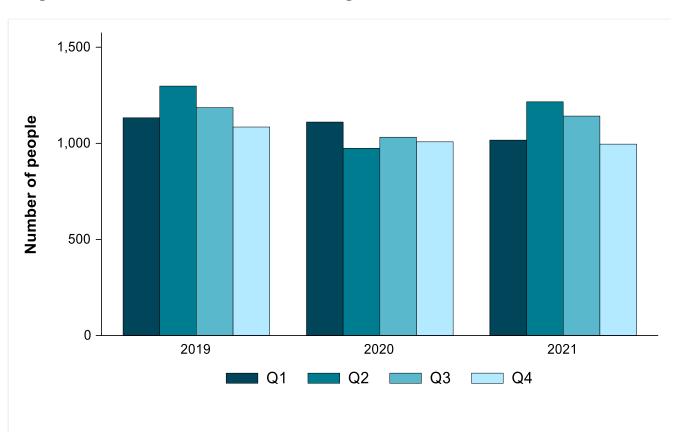


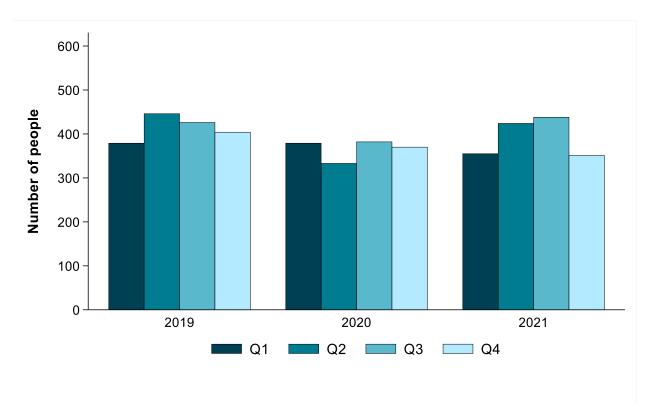
Figure 1: Number of TB notifications in England, Q1 2019 to Q4 2021

Note: due to the seasonality of TB notifications the most recent quarter is being compared to the same quarter in the previous year rather than to the previous quarter.

TB notifications by UKHSA Centre are shown in Figures 2a (London) and 2b (other UKHSA centres) and Table 1. In Q4 2021, the number of people notified with TB:

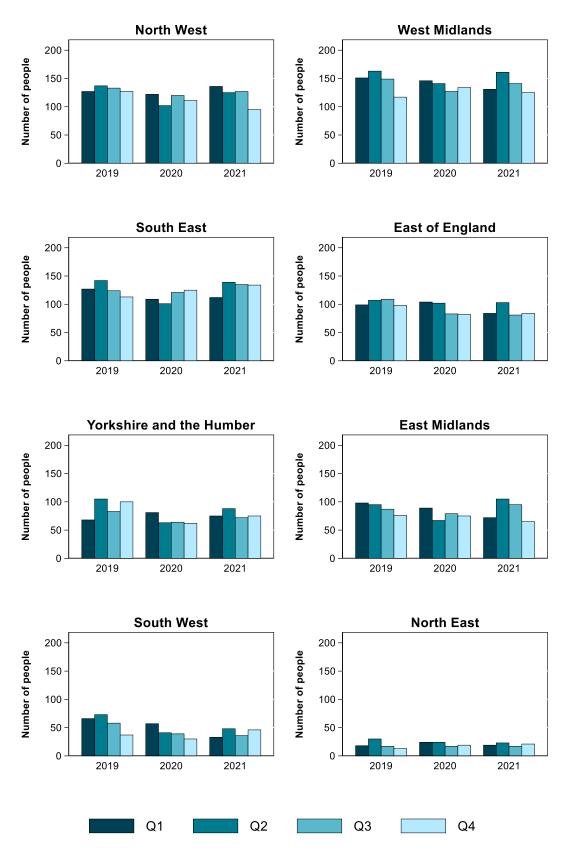
- increased in 4 UKHSA Centres compared to Q4 2020, namely the South West (+53.3%), Yorkshire and the Humber (+21.0%), the North East (+10.5%) and the Sout East (+7.2%)
- · remained the same in the East of England
- decreased in the North West (-20.8%), East Midlands (-13.3%), West Midlands (-6.7%) and London (-5.1%)

Figure 2a: Number of TB notifications in London^a, England, Q1 2019 to Q4 2021



^a Note the axes on the London figure are different to that of other regions due to the higher number of TB notifications in London.

Figure 2b: Number of TB notifications by UKHSA Centre, England, Q1 2019 to Q4 2021



Tuberculosis in England - National quarterly report: Q4 2021 (1 October 2021 to 31 December 2021)

Table 1: Number of TB notifications by UKHSA Centre, England, Q1 2019 to Q4 2021

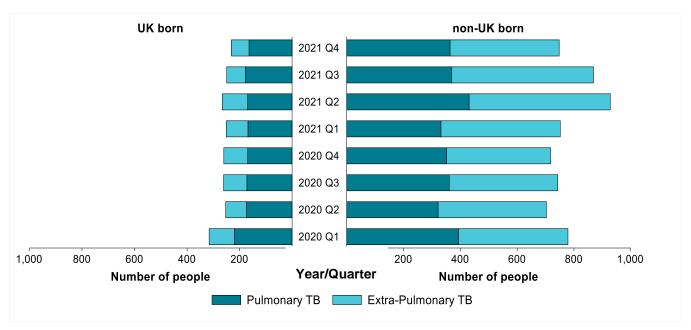
	2019					2020					2021				
UKHSA Centre	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
London	379	446	426	404	1655	379	333	382	370	1464	355	424	438	351 ↓	1,568
South East	127	142	124	113	506	109	101	121	125	456	112	139	135	134 🕇	520
West Midlands	151	163	149	117	580	146	141	127	134	548	131	161	141	125 ↓	558
North West	127	137	133	127	524	122	102	120	120	464	136	125	127	95 🗸	483
East of England	99	107	109	98	413	104	83	82	84	353	84	103	81	84 -	352
Yorkshire and the Humber	68	105	83	100	356	81	63	64	62	270	75	88	72	75 ↑	310
East Midlands	98	95	87	76	356	89	67	79	75	310	72	105	95	65 ↓	337
South West	66	73	58	37	234	57	41	39	30	167	33	48	36	46 🔨	163
North East	18	30	17	13	78	24	24	17	19	84	19	23	17	21 🛧	80
England	1,133	1,298	1,186	1,085	4,702	1,111	955	1,031	1,019	4,116	1,017	1,216	1,142	996	4,371

^a Ordered by decreasing total number of people with TB in Q4 2021
^b Arrows show whether there has been a decrease (↓), an increase (↑) or no change (₋) in the number of people notified with TB in each UKHSA Centre in Q4 2021 compared to Q4 2020

Demographic and clinical characteristics

The number of TB notifications by where a person is born (where known) is shown in Figure 3, sub-divided by whether the disease is pulmonary or extra-pulmonary (site of disease).

Figure 3: Number of TB notifications by place of birth and site of disease, England, Q1 2020 to Q4 2021



In Q4 2021 (n=748) there was a small increase (+3.6%) in the number of people notified with TB who were born outside the UK compared with Q4 2020 (n=722). The number born in the UK decreased in the same time period (Q4 2021: n=231, Q4 2020: 260, -11.2%).

In Q4 2021, the number of people with pulmonary TB accounted for 54.0% (538/996) of all people with TB, having slightly increased from 52.7% in Q4 2020 (531/1,008). For those born outside the UK, this proportion was 48.7% (364/748), whilst the proportion was much higher among people born in the UK (71%, 164/231).

Note: the numbers do not correspond to the total number of notifications due to missing data.

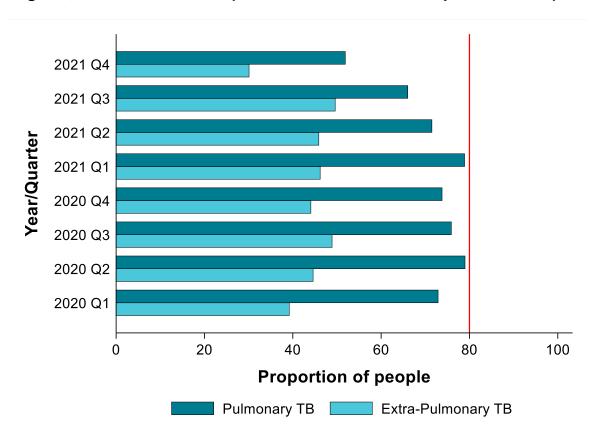
Missing data may reflect the difficulties obtaining data (for example, patient died or language barriers). Place of birth was not known for 17 notifications in Q4 2021. There were 14 notifications in Q4 2019 where place of birth was unknown and 26 in Q4 2020. Site of disease was unknown in 7 notifications (5 in 2020 and 2 in 2019, all in notifications from non-UK born persons or where place of birth was not known).

Culture confirmation

Microbiological culture of TB from patients with suspected disease comfirms diagnosis and provides valuable information on antimicrobial susceptibility of TB and possible transmission events between persons notified with TB. The difficulty of obtaining cultures from some patients, especially children, is acknowleged. However, the TB Action Plan 2021-2026 Priority Three workplan (Action 3.3) aims to increase culture confirmation rates by 5% per year with a specific target within the workplan (3.3.2a) to reach the European standard of 80% culture confirmation for pulmonary disease.

In 2019, 61.5% of all notifications were culture confirmed (2,896/4,702). For all pulmonary disease only, 75.1% (1,967/2,602) were cultured confirmed. In 2020, 60.7% (2,505/4,125) notifications were culture confirmed with 75.3% (1,659/2,204) of pulmonary cases being culture confirmed. For 2021, preliminary data shows the number of culture confirmed cases is 55.5% (2,426/4,371). For pulmonary cases, the proportion culture confirmed is 61.3% (1,487/2,426). This number will increase as laboratory results are confirmed. Figure 4 shows the proportion of culture confirmed notifications received by the number of culture confirmed notifications by disease site (pulmonary or extra-pulmonary) by quarter/year. As some people have both pulmonary and extra-pulmonary disease, the summed proportion is greater than 100.

Figure 4: Proportion of culture confirmation among TB notifications by site of disease, England, Q1 2020 to Q4 2021 (red line indicates 80% European standard)



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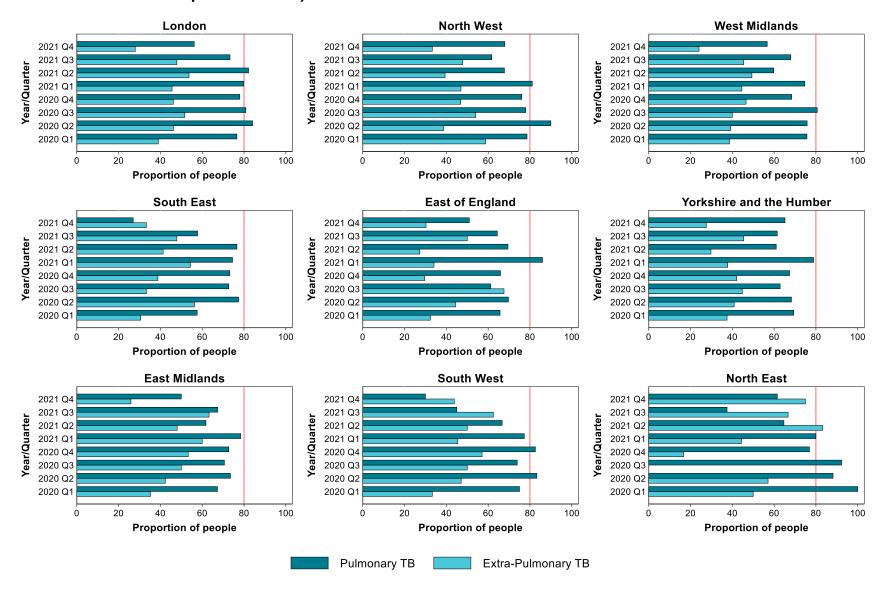
Among people with pulmonary TB, the proportion who were culture confirmed was lower at 66.0% in Q3 2021 compared to 75.9% in Q3 2020. The proportion with culture confirmed extrapulmonary TB increased slightly over the same time period (Q3 2021: 49.6%, Q3 2020: 48.9%).

Note: Q3 2021 is being compared as the number for Q4 2021 will likely increase as final results for cultures may not yet be available.

Figure 5 shows the changes by UKHSA centre showing that the number of culture confirmed TB notifications differs by centre. In Q3 2021, the largest changes in the proportion of people with culture confirmation were seen for:

- pulmonary TB in the East of England, being slightly higher than in Q3 2020
- pulmonary TB in the North East, being much lower than in Q3 2020
- extra-pulmonary TB in the North West, being higher than in Q3 2020
- extra-pulmonary TB in the East of England, being lower than in Q3 2020

Figure 5: Proportion of culture confirmation among TB notifications by site of disease and UKHSA Centre, Q1 2020 to Q4 2021 (red line indicates 80% European standard)



Multi-drug resistant/rifampicin resistant (MDR/RR) TB

Resistance to antimicrobial therapy is a major concern for treatment of TB, requiring extended therapy of between 12 to 24 months. All notifications with a positive culture are tested for antimicrobial susceptibility using whole genome sequencing. If a notification does not have a positive culture, no resistance results are available.

This report uses the World Health Organization (WHO) guidance of multidrug or rifampicin resistance (MDR/RR). Multidrug resistance is classified as resistance to isoniazid and rifampicin. Figure 6 shows the number of notifications that are MDR/RR resistant.

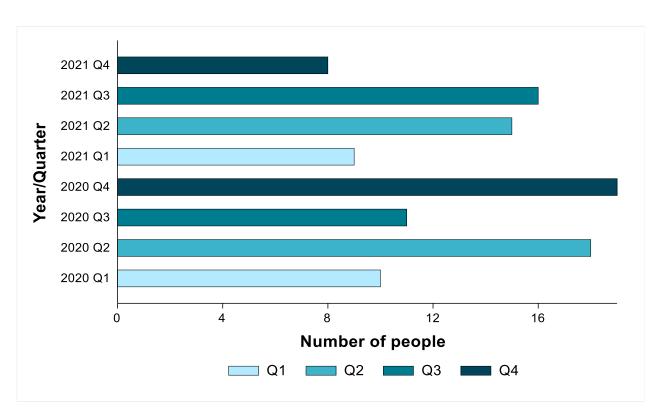


Figure 6: Number^a of TB notifications with MDR/RR-TB, England, Q1 2020 to Q4 2021

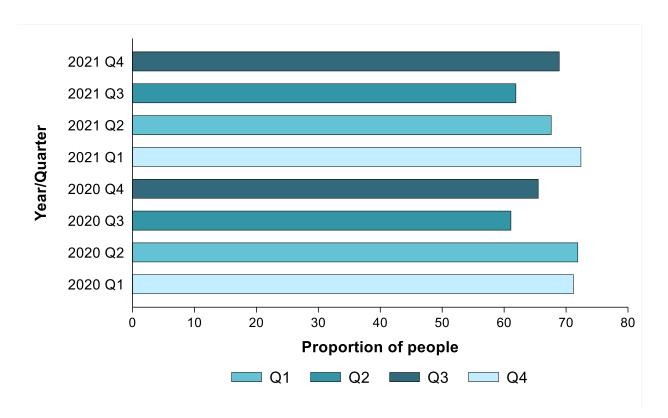
There were 8 people notified in Q4 2021 with confirmed MDR/RR-TB. Overall, 48 people were notified with MDR/RR-TB between Q1 and Q4 2021, compared to 58 from Q1 to Q4 2020. Numbers may increase as final results for cultures in the most recent quarters may not yet be available.

^a Note figure displays numbers rather than proportions due to low number of MDR/RR-TB notifications.

Treatment delays

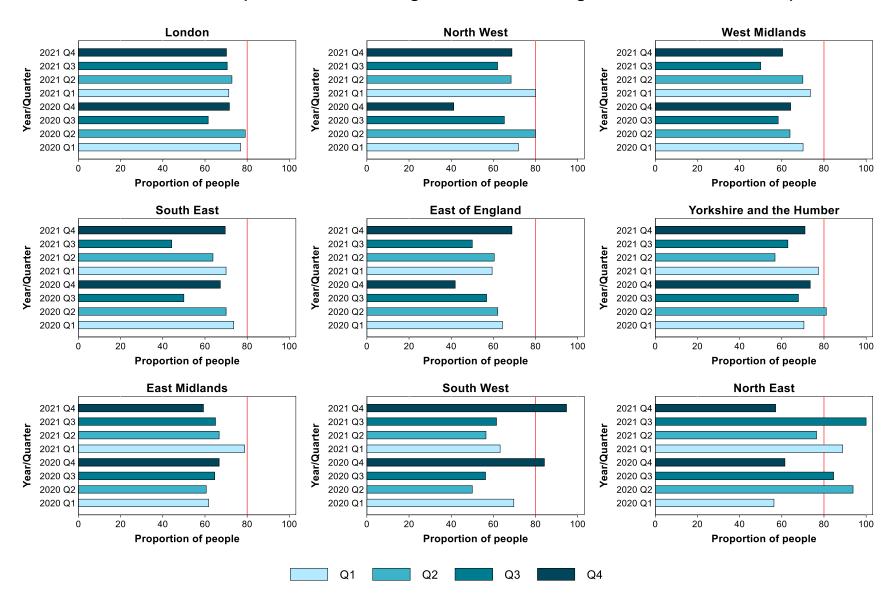
Treatment delay is the time between the reported symptom onset date and treatment start date. It reflects either delays in patients seeking healthcare or delays in diagnosis after presentation, or both. Treatment delays are reported only for pulmonary TB (Figure 7) due to the risk that extended treatment delays may increase transmission within communities. The graph stops at 80%, not 100%, to reflect the Action Plan target of 80% of people starting treatment within 4 months. Figure 8 shows the proportion of people starting treatment within 4 months by UKHSA centre (note the axis is 100% in Figure 8, with 80% target indicated). Analysis excludes those with post-mortum diagnosis.

Figure 7: Proportion^a of pulmonary TB notifications starting treatment within 4 months (symptom onset to treatment start), England, Q1 2020 to Q4 2021



In Q4 2021, 68.9% of people with pulmonary TB started treatment within 4 months of symptom onset, compared to 65.5% in Q3 2020. This proportion will likely increase as some people in the most recent quarter are yet to begin treatment as data was extracting on 7 January 2022 reporting to 31 December 2021.

Figure 8: Proportion of pulmonary TB notifications starting treatment within 4 months (symptom onset to treatment start) by UKHSA Centre, Q1 2020 to Q4 2021 (line indicates 80% target for number starting treatment within 4 months)



In Q4 2021, the proportion of people with TB who started treatment within 4 months of symptom onset in:

- the South West, East of England and South West were higher than in Q4 2020
- East Midlands was slightly lower than in Q4 2020
- the other regions were broadly similar.

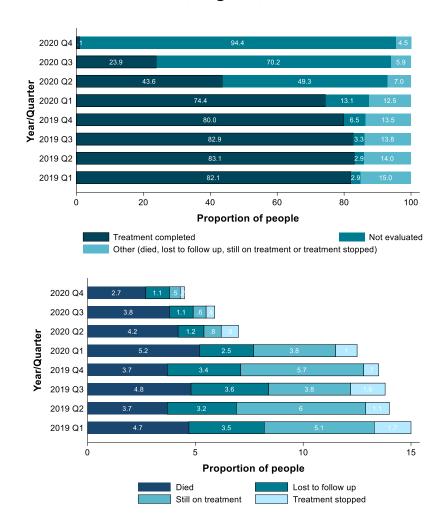
Treatment outcomes

Treatment outcomes are reported for persons notified in 2020 with drug sensitive TB, the majority of whom should have completed treatment within 12 months of treatment start, as Data are not presented for those notified in 2021 as many will not have completed treatment. The data excludes people in the drug resistant cohort and those with CNS, spinal, miliary or cryptic disseminated TB as treatment time for these groups usually exceeds 12 months. Where treatment outcome is reported as not known or transferred to a different country, data are included in the not evaluated group. Figure 9a shows outcomes for notifications where treatment is complete, not evaluated or other (proportion shown in bars). The category 'other' comprises those who died, were lost to follow-up, are still on treatment or where the treatment was stopped, the proportion of each of these is shown in Figure 9b.

Note: the latest 3 quarters tend to show a high proportion of people with treatment outcomes recorded as "not evaluated" despite having started at least 12 months previously. This reflects a delay in reporting the final outcome. The proportion not evaluated is expected to decrease with time.

The proportion of people with drug sensitive TB (with an expected treatment duration of less than 12 months) who completed treatment at 12 months was 78.0% for people notified in Q4 2020.

Figures 9a (top) and 9b (bottom): Outcomes at 12 months for people with drug sensitive TB with expected treatment duration <12 months¹, England, Q1 2019 to Q4 2020



Social risk factors

Social risk factors reported as categorical yes/no variables with current or past history recorded as yes. Information on these social risk factors are collected though the routine surveillance system via interviews by the clinical team. Social risk factors that are recorded are history of prison drug and alcohol use and homelessness. Data reported is for persons over 15 years and older due to low numbers in children.

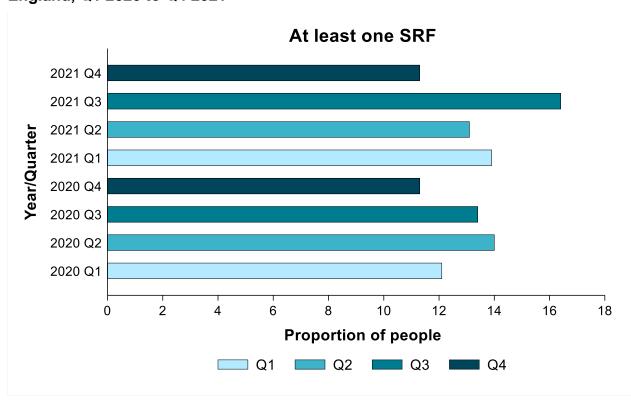


Figure 10: Proportion of TB notifications (≥15 years) with social risk factors (SRF)^a, England, Q1 2020 to Q4 2021

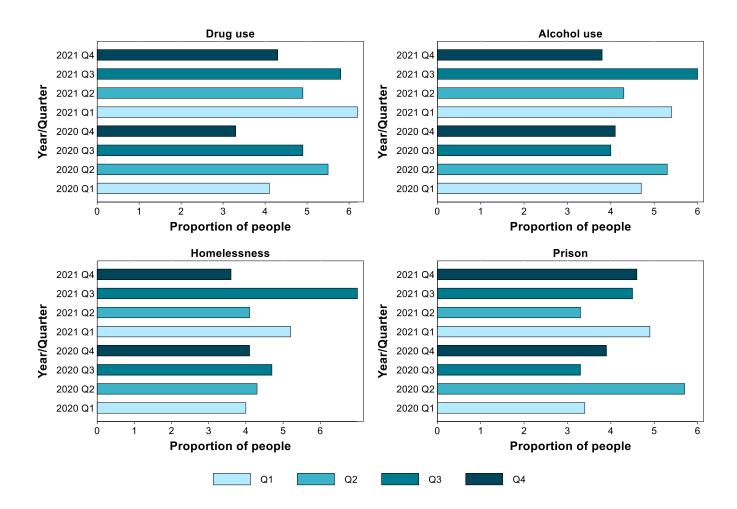
In Q4 2021, 11.3% of people with TB aged 15 years and older had at least one SRF, the same as Q4 2020.

For single risk factors, shown in Figure 10, the proportion of people with TB in Q4 2021 with:

- current or a history of drug misuse was higher than in Q4 2020
- alcohol misuse was lower than in Q4 2020
- current or a history of homelessness was lower than in Q4 2020
- imprisonment was higher than in Q4 2020

^a Note the axes on the figure for people with at least one SRF are different to that for individual SRFs due to the higher proportion of people with at least one SRF

Figure 10: Proportion of TB notifications (≥15 years) with social risk factors, England, Q1 2020 to Q4 2021 continued



About the UK Health Security Agency

The UK Health Security Agency is an executive agency, sponsored by the <u>Department</u> of Health and Social Care.

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