

LONDON'S LOW FLU VACCINATION RATES, AND HOW TO FIX THEM



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Summary of recommendations

- **A new national local immunisation coordinator programme (2.1)**
NHS England and Improvement (NHSEI) should work to establish local immunisation coordinator roles, to work with deliverers of vaccination services.
- **A more London-friendly commissioning structure (2.1)**
A review of where strategic responsibility for improving immunisation coverage sits, to address the disparities in the numbers of patients and providers teams are responsible for.
- **Primary care access (3.1)**
Sufficient primary care for the population, particularly in deprived areas.
The declining number of GPs in recent years¹ has correctly been addressed in the government's policy goal of 6,000 additional GPs promised by 2024,² but efforts must be made to ensure that distribution is targeted to deprived areas that are currently underserved.
- **Better data sharing (2.2)**
Greater integration of community pharmacies by ensuring data sharing technology in both general practices and pharmacies are fully up to date.
- **New ways of reaching people (3.4)**
NHS England to explore using popup clinics for flu vaccination.

Executive Summary

Key Points

- ▶ Greater London reports the lowest uptake for adult flu vaccination out of all regions, across the largest eligible groups: over-65s, those in clinical risk groups, and pregnant women.
- ▶ The 2020-21 flu season has seen greater resourcing and expanded eligibility, as well as significant new challenges as a result of the COVID-19 pandemic. However, many barriers to improving coverage identified in this report will persist throughout and beyond the pandemic.
- ▶ Vaccination coverage for patients aged 65 and over in Greater London reached its lowest rate in the 2018/19 season (65.4%) since 2002, rising marginally to 66.2% in 2019/20. The gap in coverage between London and the national average peaked at 6.6% in 2019/20, and remains wider than it has ever been since the programme began in 2000.
- ▶ Coverage rates for at-risk groups fell substantially in London and nationally in the 2019/20 season, a continuation of a concerning trend in recent years.
- ▶ Lower income households report lower vaccination rates than higher income households. In London, 58% of eligible people from households earning below £20,000 were vaccinated, compared to 93% for patients from households earning above £80,000.
- ▶ This gap in reported vaccination rates between rich and poor is wider in London than other major urban areas in England.
- ▶ London's population is disproportionately young, mobile, and has the highest rates of poverty and homelessness out of all regions in England, and therefore has a high proportion of groups who are underserved by the system.
- ▶ The rate of decline in adult flu vaccine coverage in London steepened following the Health and Social Care Act of 2012.
- ▶ The centralisation of coordination and commissioning as a result of the 2012 Act had particular consequences in London: with 36 times more patients per commissioning team following the Act, no region has seen more centralisation of immunisation than London.

1. Background

Seasonal influenza accounts for around 11,000 excess deaths annually in England, based on Public Health England (PHE) estimates of the last five seasons, and is one of the most important drivers for winter pressure on the NHS.³ There is significant variation year-on-year, for instance with the 2017/18 estimate for excess deaths as high as 22,087, but the following season's was just 3,966. Worldwide, it is estimated that the virus causes 3 to 5 million cases of severe illness, and about 290,000 to 650,000 deaths annually.⁴

1.1 Who can get a flu vaccination in England?

The 2020/21 flu immunisation programme is highly unusual among recent years, with an enhanced scope due to its role in mitigating against the effects of the COVID-19 pandemic on winter healthcare capacity. The main difference is a greatly expanded list of eligible groups compared to a normal year.

In a typical year, such as 2019/20⁵, the free programme is offered to:

- those aged 65 years and over;
- those aged 6 months to under 65 years in clinical risk groups (see appendix for full list of conditions);
- pregnant women;
- those living in a residential or nursing home;
- the main carer of an older person or person with disabilities whose welfare may be at risk if the carer falls ill;
- children aged 2-3 and all primary school aged children;
- employers of frontline health and social care workers also have a responsibility to ensure their staff can get the free vaccine.

2019/20 was also the first year in which all primary school aged children were offered the nasal spray vaccine.

In 2020/21 this list was expanded⁶ to also include:

- adults aged 50-64 (from 1 December 2020)⁷
- household contacts of anyone on the NHS Shielded Patient List;
- year 7 children;
- health and social care workers employed through Direct Payment and Personal Health Budgets.

However, in a typical future year there is likely to be a much more limited eligibility for the flu vaccine, albeit depending on the development of the COVID-19 epidemic in the UK.

1.2 Vaccine coverage in England and London

The World Health Organisation (WHO) has urged member states to achieve 75% coverage among the over-65 age group for the seasonal flu vaccination.⁸ This is particularly challenging because unlike with most other vaccines, flu immunity requires a vaccination every year. In the run up to each winter season, national healthcare workforces around the world must plan and deliver vaccinations for millions of people.

Coverage of the vaccine in England among over-65s peaked in 2005/06 at 75.3%, reaching the WHO target, but it has since fluctuated between 74% and 70%.⁹ The UK as a whole consistently has among the highest levels of reported coverage out of all OECD nations, most often being the highest. For comparison, in 2016 the country with the highest coverage other than the UK (70.5%) was the United States at 69.1%, and the lowest was Germany at 35.3%.⁹

The 2020/21 flu vaccine campaign is expected to be an outlier, given the extra resource directed in as a result of the COVID-19 pandemic. As well as expanding the eligibility criteria for the flu vaccine, there has been a concerted effort to increase coverage to a minimum of 75%.¹⁰

The research presented in this report was conducted throughout the 2019/20 flu season, before the COVID-19 pandemic took hold and the expanded flu programme was announced.

However, key questions will remain even if the 75% target is reached in 2020/21. There has been an unprecedented focus on the flu vaccine this year, but how will a high bar be maintained if funding is not as extensive in future years? If the target is not reached, were there any underlying barriers that prevented the flu programme from reaching its full potential? The findings in this report and the vaccine coverage picture in London sheds some light on these questions.

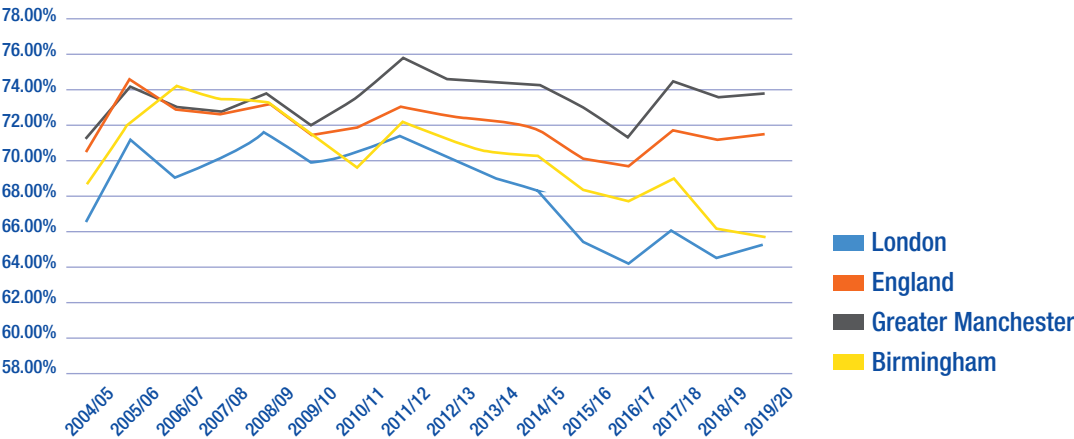
For the 2019/20 season, the coverage picture was:

- 66.2% for over-65s in London, compared with 72.4% for England.
- 41.8% for clinical at-risk groups in London, compared with 44.9% for England.
- 39.2% for pregnant women in London, compared with 43.7% for England.

For each of these three groups, these figures represented the lowest coverage rates in the country, making London a significant outlier compared to all other regions in England.¹¹ For the over-65 group, all other regions report coverage between 70% and 75%, compared to 66.2% in London.¹²

Perhaps most concerning for London is the trend of decline in uptake for adult seasonal flu vaccination in recent years. Figure 1 is a graph showing uptake for patients aged 65 and over in London, Greater Manchester, Birmingham and England. It shows that good progress was made between 2004 and 2011 in London, with coverage increasing from 67.5% to 72.2% and relatively little difference between the major cities. Since 2011, the progress has reversed, and the gap between London and England grew from 1.8% to a peak of 6.6% in 2018-19, the widest this gap has ever been. Slight improvements dialled this back to 6.2% in 2019-20,¹² but the gap in uptake for over-65s between London and England over the past two years remains wider than it has ever been. Coverage for this patient group in the capital has not been lower since 2002.

Figure 1
Adult influenza vaccine coverage rate for patients aged 65 and over, 2004 – 2020



Most striking is the difference in over-65 uptakes between London and Greater Manchester, with the former at an all-time low and the latter close to its all-time high. This is both a puzzle and a challenge. **If there is progress to be made in England, it can be found in improving the relatively low reported uptake in its most populous region, London.**

Also concerning is the decline in coverage in the at-risk individuals group, which fell from 44.4% last year to 41.8% in 2020: a continuation of a clear trend since 2016, which is mirrored in the national coverage rates.¹³

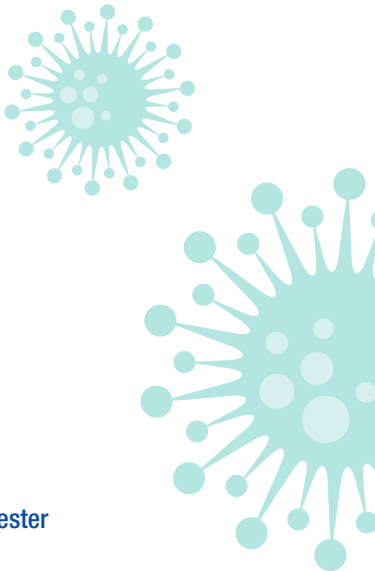
What these observations demonstrate is that, despite the coronavirus pandemic and its policy responses setting a radically different landscape for the flu vaccination programme, the long term factors lying at the root of London’s poor coverage rates are likely to remain present in the future.

This report brings together insights from

- a series of expert interviews with London based healthcare professionals;
- focus groups and surveys exploring the experiences and attitudes of eligible patients living in London and other urban areas in England;
- and a literature review combined with data analysis

to answer two important questions:

1. **Why is the adult seasonal flu vaccine coverage rate (VCR) in London reported to be lower than the rest of England and other cities?**
2. **What can be done to improve reported adult seasonal flu VCR in London?**



The research presented in this report was conducted throughout the 2019/20 flu season, and as such focuses predominantly on long term barriers and solutions, rather than those which have come to the fore in the 2020/21 season due to the COVID-19 pandemic and the consequently expanded flu vaccination programme.

2. London Partnerships

Flu vaccination covers an unusually wide variety of groups, who interact differently with the health and care system. Those eligible include over-65s, many of whom are more restricted in mobility than most and some of whom are in social care; 18-64 year olds, of whom a far larger proportion are in employment and typically spend a lot more time away from their local area; expectant mothers, and people with serious health conditions, who typically have far more contact with hospitals than general practice. This requires good co-ordination between all healthcare providers involved.

Two aspects of Greater London suggest this is not happening in the capital¹: how it fits in the wider immunisation commissioning structure in England, and how pharmacy fits with London GP practices.²

2.1 London and the 2012 Act

The Health and Social Care Act 2012 centralised immunisation commissioning in England and this has adversely affected the ability of those involved in immunisation commissioning and coordination to work together effectively. Further, these changes have had a disproportionately negative impact on London and have likely been a major contributor to the low reported uptake for adult flu vaccination in the region.

Before the Act, Primary Care Trusts (PCTs), each covering an area roughly equivalent to a local authority, commissioned and planned immunisation services. Each PCT often had their own immunisation coordinator who would, among many other tasks, coordinate those involved with immunisation, provide training for staff, maintain a register of children and follow up poor results, all within their own local patch.

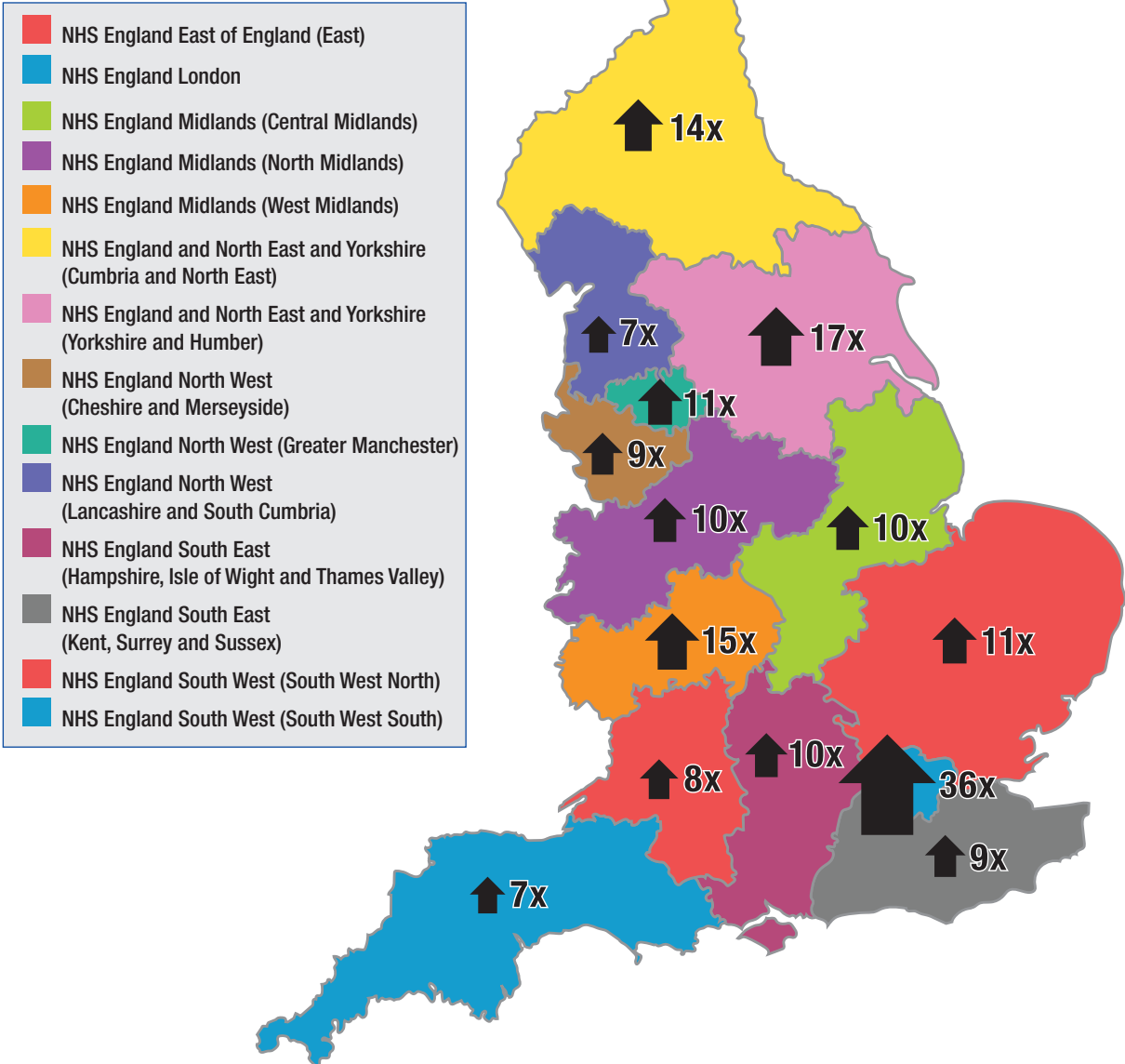
After the Act, the coordination and commissioning of immunisation moved from PCTs to NHS England Local Teams, of which there are 14 nationally. Embedded within each NHSE Local Team is a screening and immunisation team (SIT), employed by PHE, as well as at least one commissioning manager. The net effect is that immunisation has become much more centralised.

The centralisation of immunisation services and the loss of PCT coordinators has been found to be a cause of concern in research led by researchers at the London School of Hygiene and Tropical Medicine and involving PHE's Head of Immunisation. However, we argue that these concerns should be greatest in the case of Greater London.^{14,15} For example, a 2016 qualitative study found that successful immunisation programmes required strong working relationships between key individuals in different organisations, and that this had been a particular challenge in areas where each new immunisation team was covering a large number of CCGs and Local Authorities.¹⁴

Figure 2 is a map showing the percentage increase in patients per commissioning team, as commissioning transferred from PCTs to NHS England Local Teams, across England (see appendix for full data). As there were far more PCTs than the current Local Teams, there have been large increases in patients per commissioning team across the board. However, with 36 times more patients per commissioning team, no other region has seen more centralisation than London.

With 36 times more patients per commissioning team following the 2012 Act, no region has seen more centralisation of immunisation than London.

Figure 2 – Map showing the factor increase in patients per immunisation commissioning team after 2012 Act for each NHS England local team region ^{64,65}, including a 36-fold increase in Greater London. See appendix for full 2012/13 vs 2018/19 figures.



In Greater London, before the 2012 Act was implemented, immunisations were commissioned and organised by the 31 PCTs in the region, each responsible for their local patch and covering 1.9 million eligible patients in total. After the Act, it transferred to one team, the NHS England London Local Team, who in 2018-19 were responsible for overlooking all 2.2 million patients eligible for the vaccine.

This is an exceptionally high number of patients and providers to coordinate for one team and a far larger challenge than any other local team faces. Figure 3 is a table comparing Greater London with Greater Manchester Local Teams to further illustrate the point. This is based on the 2019/20 season eligibility criteria as opposed to the 2020/21 season for which (as discussed) there is an

Figure 3

Coordination challenge	Local Team	
	Greater London	Greater Manchester
Number of patients eligible for adult flu vaccination	2,227,232	848,970
Number of GP practices	2,186	729
Number of Immunisation Leads	1	1

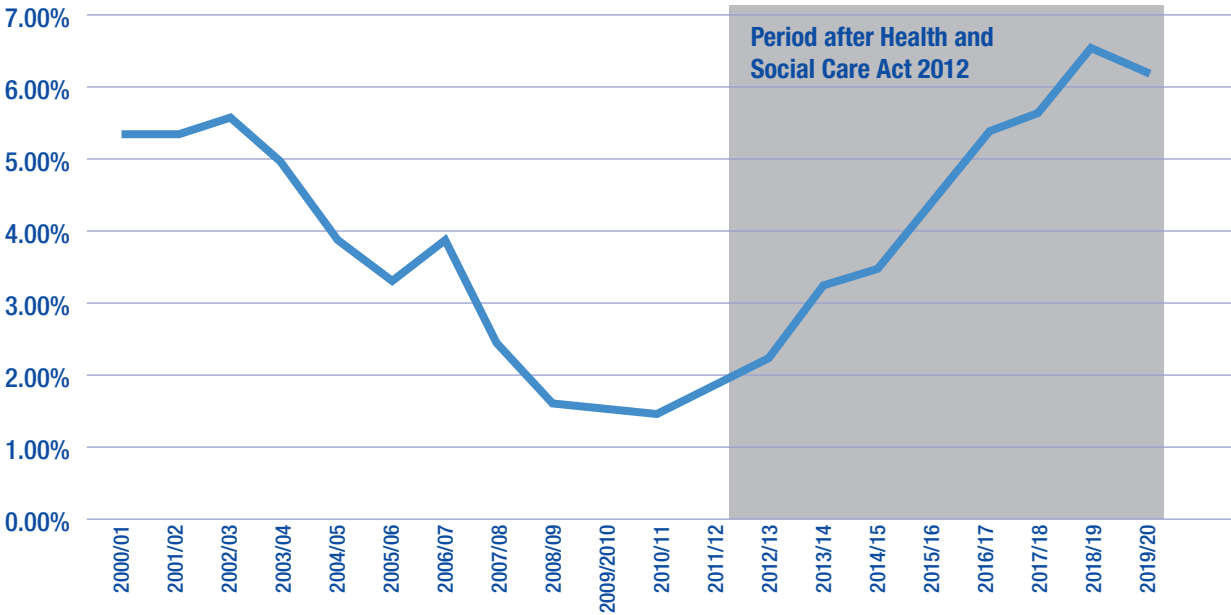
In every aspect, Greater London is the more challenging region, covering a higher number of patients, providers, Primary Care Networks (PCNs) and local authorities. Yet Greater London has just as many Immunisation Leads as Greater Manchester: just one, the standard for all Local Teams. The high level of centralisation in London means that local knowledge about the relationships between stakeholders in the area, experiences of local communities and capacity of workforce to deliver vaccines may be lost or under-utilised.

Evidence from a 2016 national study into the views of immunisation ‘managers’ (those who play a role in commissioning, improving or managing immunisation services) suggests that these concerns were well founded.¹⁵ London respondents reported especially low understanding of the distribution of roles among local

immunisation stakeholders, with particular concerns flagged around the level of support being extended to immunisation providers. Managers also reported low confidence in their local systems’ abilities to address inequalities in performance and deliver equitable services. Again, these confidence levels were lower in London than in any other region (33% compared to 47% nationally).

The changes brought by the 2012 Act marked the beginning of a decline in flu vaccine uptake for over-65s in Greater London, against the national trend. Figure 4 presents this most clearly. Prior to the Act, the gap between Greater London and England fell from 3.9 percentage points in 2004/05 down to 1.6 by 2008/09 percentage points, where it stayed at similar levels until 2012/13. Since then, the gap has risen to 6.6 percentage points.

Figure 4
Gap in flu vaccine coverage for patients aged 65 and over between London and England in percentage points, over time



“There does need to be someone out there in the community sorting out what should be done and what shouldn’t be done with flu vaccines. It’s a big campaign and a lot of patients that it involves and definitely someone out there in the community coordinating that (would help), because it’s pretty much non-existent at the moment.”

– Practice Manager working in London

“The only thing we struggle with is the house-bound patients, I think, and we find the district nurses are supposed to do this for us, but we found last year in the end it was actually getting to the end of December/January before they were going to vaccinate them. So we find we have to block our nurses off in the practice and actually go out and do those patients.”

– Practice Manager working in London

“(Our borough) used to have really high uptake rates and we used to have an immunisation coordinator, when they left our vaccination rates fell quite clearly. They would speak to families and patients and, you know, get them, convince them to go and get it done.”

– Consultant in Public Health working in a London borough

Recommendations:

Where once there was a sole focal point for the commissioning, evaluation, and coordination of immunisations (in the form of PCTs), these roles are now dispersed over various organisations with varying geographies, often covering much larger populations and with less resource.

We make two key proposals to address this which, for the reasons given above, are of particular importance to the problems facing the London region.

- NHS England and Improvement (NHSEI) should work to establish local immunisation coordinator roles to work with providers of vaccination services. These local coordinators would act as ‘on-the-ground’ local champions for vaccine uptake, helping providers to work more closely with their eligible patients, and providing a resource for the most up to date information on effective interventions at a local level.

It is vital that coordinators are situated at ‘place’ level, so they are able to understand local contextual factors that affect uptake. NHSEI should therefore work with Sustainability and Transformation Partnerships (STPs) and Integrated Care Systems (ICSs) to understand the right place for these coordinators to sit within the system, so that the role is not overstretched.

- A review of where strategic responsibility for improving immunisation coverage sits. Since the 2012 Public Health reforms, the teams responsible for improving immunisation coverage have been spread across far greater populations than their predecessors situated in PCTs. Moreover, there are substantial differences in the size of

population for which different NHSE Local Teams (and the PHE-employed SITs embedded within them) are responsible – with London facing the biggest challenge nationally, in this respect. The proposed abolition of Public Health England, along with a continuing drive to embed ICSs in guidance and legislation, present a perfect opportunity to address this by reviewing where responsibilities for improving immunisation coverage are situated.

One proposal could consist of a regional advisory team which provides advice, leadership and support, and commissioning responsibilities sitting within ICSs. Given the NHS Long-Term Plan ambition for every part of the country to be an Integrated Care System (ICS) by 2021¹⁶, this would increase the overall number of commissioning teams from 14 to 42, and would go some way to addressing the disparities outlined above – providing five teams commissioning for Greater London where currently there is just one. This would put into practice the NHSEI vision, reasserted in their November 2020 Board paper, that “decisions taken closer to the communities they affect are likely to lead to better outcomes.”¹⁷

2.2 Pharmacy in London

“There is a bit of a bugbear there because what we find is sometimes we’re getting [data from community pharmacy], sometimes we’re not, sometimes there’s a delay, there’s an administrative burden on the practice, so then we have to input the patient’s records even though we haven’t given them the vaccine. So it is a bit of a frustration. (...) I can understand why they’re doing it, but sometimes it’s not a smooth process.”

– GP working in London

The introduction of community pharmacies as nationally commissioned providers of the adult flu vaccine since 2015, while well received by patients, has produced greater complexity in the system and may be artificially deflating reported uptake in Greater London.¹⁸ In our sample of 2,001 at-risk 18-64 year olds in the UK, vaccinated participants were asked where they received their flu vaccination in 2018/19 winter season. Figure 5 compares the percentage of respondents who had been offered the flu vaccination in general practice and in pharmacy, from locations which had a sample of at least 50 in our survey. It shows that Greater London had the highest percentage of patients receiving the vaccine in pharmacy, and the lowest in general practice.

“It’s poor. I don’t understand, we have electronic prescribing with [community pharmacies], that we can send data down to them, I don’t understand why there’s not a simpler mechanism for flu, as soon as they record then it should shoot straight to the practices and the information there, and we just import and add it, rather than having to key in and create more work and data entry. (...) They’re obliged to tell us, I’m not sure they do, I’m not sure anyone’s monitoring it, but we don’t seem to, considering our numbers have decreased and it’s because people are going to the pharmacist – why we’re not getting that data, I’m not sure...”

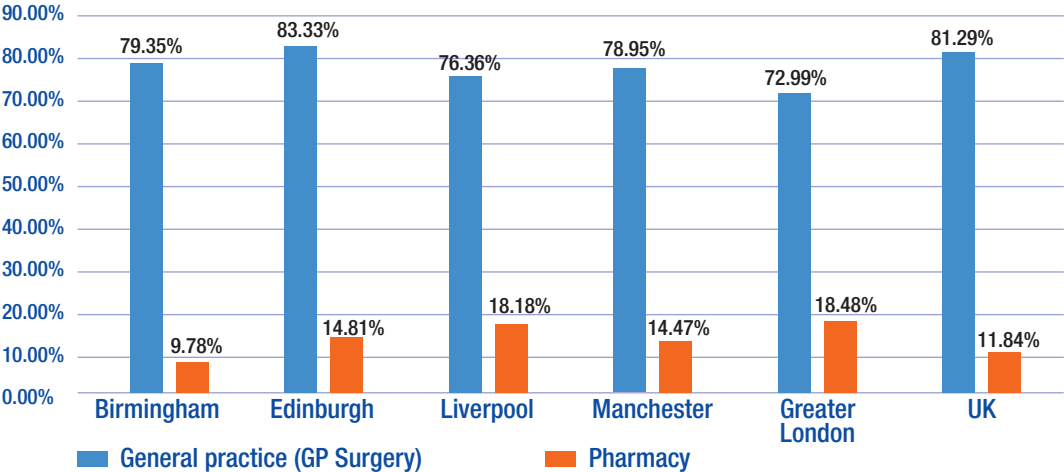
– Practice manager working in London

A study of the initial London pilot of using pharmacies to deliver flu vaccines found that a significant number of pharmacy vaccinations were not transferring to official reporting data.¹⁹ In 2019, it was reported that only 40% of general practices were able to receive digital data transfers from community pharmacies.²⁰

This is an important point, and likely accounts for some of the observed gap in coverage rates, but a quick comparison between cities shows that it is unlikely to be the full explanation. For example, Figure 5 shows that the proportion of pharmacy-delivered vaccinations for at-risk patients is similar in Liverpool and London, and yet the reported coverage rate in Liverpool City Region is 45.7% - nearly a percentage point higher than the national rate (44.9%) and substantially higher than London region’s 41.8%.¹²

With its higher rates of pharmacy vaccination, London may be disproportionately affected by data loss, meaning its lower reported uptake may not be entirely reflective of the actual number of people vaccinated. Furthermore, communication difficulties between community pharmacies and general practice will likely be compounded by London’s lack of coordination at place level.

Figure 5
In which setting were you offered a flu vaccination? (18-64 year olds, at risk)





There are good reasons to think that the increasing provision of flu vaccination through pharmacy settings in London has been a positive initiative, well suited to some of the specific needs of urban populations. In our sample of 888 clinically at-risk patients and patients aged 65 and over, 62% of respondents agreed that the flu jab being offered at a local pharmacy made it easier for them to get vaccinated. In our focus groups, both at-risk under-65s and patients aged 65 and over were positive about having the option of getting the flu vaccine at pharmacy.

“Definitely pharmacy. I think they do it daily. I don't know for definite, but I think they do it daily. And with the doctor, it's like one day, like mine's on a Thursday, I think. So definitely, cos my pharmacy's under my house. So is my doctor, but I'd rather, like, not wait. Like, if, if I was going alone, I'd go straight to the pharmacy.”

– Clinically at-risk patient

“In the past, I've gone to the GP, and there's been this huge queue. They let you know, and there's a huge queue, and you wait in the cold, and it's like a kind of factory line. So I thought I'm not- I'm not going to this anymore. And I just happened to go into Sainsbury's, to the Lloyds Pharmacy, and said, 'Oh, do you have to make an appointment to have a flu jab?' So she said, 'No, I can do it now for you.’”

– Over-65 focus group participant

Much of this sentiment suggests that the greater flexibility in appointment times is an important element to why patients like the community pharmacy option. Given young people's concerns about time availability, pharmacy access would thus be particularly important for younger people eligible for the flu vaccine. This is likely to be of particular benefit within London given the higher than average commuting times in the capital region.

Another consideration that has arisen in 2020 is that as a result of the COVID-19 pandemic there may be less willingness among the public to visit GP surgeries in person. One in ten (11%) did not feel comfortable (as of July 2020) visiting their GP service,²¹ and it is as yet unknown whether there may be a long term effect associated with this, leading to more people growing accustomed to the notion of using their local pharmacy where before they might not have.

This is supported by a study in Wales which found that community pharmacies are particularly good at reaching younger at-risk patients, with extended opening hours and urban locations being positively associated with the number of vaccinations given.²² This would suggest that London, the largest urban area with one of the youngest at-risk patient cohorts, is still an appropriate area for using community pharmacy to deliver flu vaccines, despite issues with data.

Recommendation:

Community pharmacy may present a challenge for smooth linkage of uptake data, but this is no cause to row back on its enhanced role. To improve coordination in this area, NHS England should:

- **Ensure data sharing technology in both practices and pharmacies are fully up to date.** In 2018, NHS England announced the creation of Local Health and Care Record Exemplars (LHCRES), regional initiatives to establish consistent data standards for integrated health and care records, supported by £7.5 million of funding.²³ One of the new LHCRES is dedicated to Greater London, known as 'One London'. The remit of initiatives such as One London should include ensuring that general practices, community pharmacies and other providers in London have the ability to digitally send and receive data.

3. London’s population and primary care

Greater London stands out from other English cities for many reasons beyond its sheer size and population. One example is the ‘mobility’ of its population, with a greater percentage of its inhabitants entering, leaving and moving around than any other city. Other factors of significance include its age profile, which is substantially younger than other major cities, and its high levels of ethnic diversity. Finally, many of London’s residents experience poverty: the capital has the highest levels of relative poverty of all regions in England.²⁴

Each of these three factors have been identified as associated with underserved populations when it comes to providing fair and equitable access to vaccines.^{25, 26, 27} The system in its current form is failing to deliver for these populations, and this is a key reason for the capital region’s low reported uptake.

3.1 Income and deprivation

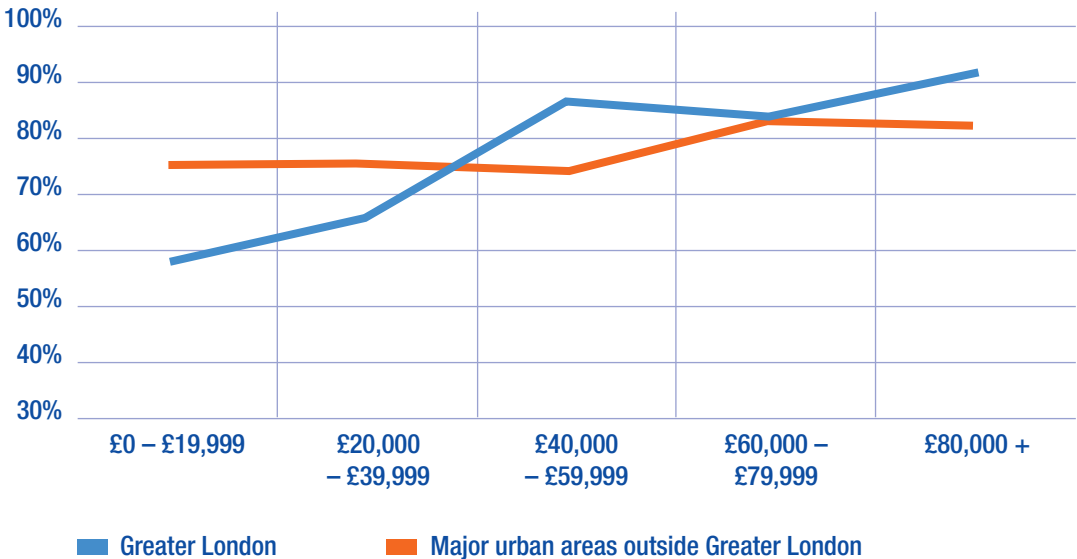
London has the highest levels of relative poverty in the country, with the highest proportion of people in relative low income after housing costs.²⁴ Previous studies have documented the link between socioeconomic deprivation and decreased odds of being vaccinated in the UK, particularly among old adults.²⁸

In our own survey of 888 residents of major English cities, all eligible for flu vaccination, we also found that income was related to uptake, with those from lower annual household income less likely to have been vaccinated. In fact, Figure 6 shows that our survey found the relationship stronger in Greater London compared to other major urban

areas. In Greater London, 58% of those from households earning below £20,000 were vaccinated, compared to 93% for households earning above £80,000. In all combined remaining urban areas, the difference was also present but smaller, reporting uptake of 73% versus 82% for the two income groups.

London is very socioeconomically diverse, containing some of the most affluent and some of the most deprived neighbourhoods in the country, and with a high degree of variation on a local level. This means that the links between poverty and uptake will be obvious for some providers and much less so for others.

Figure 6
Percentage of over-65s and at-risk under-65s who received the vaccine in the 2018-19 season, by annual household income group



This is sadly a typical picture, reflecting the inverse care law that manifests in many aspects of population health: that availability of care is lowest for the populations that need it most. Recent analysis by the Health Foundation has found that general practices in areas of higher deprivation are underfunded relative to need.²⁹ Given that the majority of flu vaccinations are delivered through general practice, even in London where pharmacy vaccination is more common, this is likely to play a significant role in the low reported uptake rates.

Analysis by the Nuffield Trust in 2019 showed that large parts of London fared poorly on the number of GPs per patient: coverage in North West London, for example, was the lowest in the country (at 54 per 100,000) and also the fastest falling (by 5.1% between 2016-18).¹

Recommendation:

- **Sufficient primary care for the population, particularly in deprived areas.** The declining number of GPs in recent years¹ has correctly been targeted by the government through its stated policy goal of 6,000 additional GPs promised by 2024,² but efforts must be made to ensure that distribution is targeted to deprived areas that are currently under-doctored.

3.2 Population mobility

“It’s not 100%, and I think that because we’ve got quite a fluid population around here, lots of young families moving in and out, a lot of refugee families that come and go. So, that population is quite hard to target and get them in.”

– Practice nurse working in London

The mobility of London’s population is another factor which makes a strong flu vaccination programme particularly important in the capital. Almost 10% of the capital’s population are either leaving or entering, which is a higher proportion than another region.³⁰ This can lead to extra barriers to primary care access, because as people move, both patients and GP practice staff have to re-establish lines of communication with each other. One practice may have a different way of contacting patients compared to another. This adds an extra window of time where the opportunity to vaccinate a patient may be lost.

Research into childhood vaccinations conducted in 2007 suggested that children who lived in families which had moved during pregnancy or particularly frequently were

more likely to miss out on vaccinations.³¹ There is little research on the effect of population mobility on adult vaccinations, but similar research in 2002 on adult cervical screening found that list inflation in London caused by population mobility may have up to 11% of patients missing out on invitations for screening, causing a drop in uptake.³²

A further factor limiting access to vaccines for London’s most mobile communities is that they are also less likely to be registered with a GP in the first place. GP registers are beset with counting issues, with both over- and under-counting occurring for various reasons, so it is not possible to enumerate the exact registration gap for particular groups.³³ However, there is substantial evidence of low registration and use of primary care services among migrants, people experiencing homelessness, and Gypsy Roma Traveller communities.^{34,35,36} These are all groups that have disproportionately high populations in London.^{37, 38, 39}

Addressing this issue is therefore vital in London, and NHS England provides toolkits, guidance and advice which practices and commissioners should ensure they follow in order to improve registration among socially excluded groups.⁴⁰ However, it should be noted that improving action on this front, while paramount, will not automatically make progress on the low coverage rates quoted in this report, since unregistered individuals are not reflected in the reported uptake figures.

3.3 Ethnicity

Another factor that has consistently shown an association with vaccine coverage is ethnicity, and as one of the most ethnically diverse cities in the world, this bears particular relevance for London. Uptake among those from Black, Asian and minority ethnic (BAME) backgrounds has tended to be lower than the overall uptake rates for the general population, a trend which has been seen in multiple vaccination contexts within the UK.^{41, 42, 43}

A 2020 study looking at vaccine uptake among at-risk adults in England between 2011 and 2016 found that these disparities by ethnicity were also evident for the flu vaccine.²⁸ In this period, Black patients in particular were consistently the least likely to be vaccinated, a result which held true in both the 18-64 and 65+ cohort. It is likely that in general the lower coverage rates seen among minority ethnic groups can partially be explained by the greater levels of socioeconomic deprivation in these communities, which is also associated with lower uptake rates (as outlined in section 3.1). However, the ethnic disparities in 2011-2016 flu uptake rates remained even after adjusting for deprivation and other factors, indicating that ethnicity



as a factor behind this health inequality merits further research, as well as further action and engagement from vaccination coordinators and local public health.

These considerations have special weight in the London context, where eight out of the 10 most ethnically diverse local authorities in the country be found.⁴⁴ On top of having the highest overall proportion of people from BAME backgrounds in the country, London’s population also displays a much greater variety of ethnic groups compared to other areas that also have substantial minority ethnic populations.

For example, in London, 3.4% of the population have ethnic backgrounds they identify as ‘other’ (meaning other than ‘White British’, ‘White other’, ‘Black’, ‘Mixed’, or ‘Asian’); but in no other regions is this figure greater than a percent, the next highest being 0.9% in the West Midlands.⁴⁴ The fact that at least 300 languages are spoken in the capital also speaks to this ‘additional’ diversity in London’s ethnic make-up.⁴⁵

This is important because there is evidence from childhood vaccinations that some of the lowest vaccine uptake rates are observed in smaller ethnic groups.⁴³ This research has not been replicated for the flu vaccine and its eligible groups, but it demonstrates that newer and smaller communities may need particular attention when it comes to outreach programmes.

3.4 Age and under-65s

“For me, the challenge for London is more of the fact that it is a younger population.”

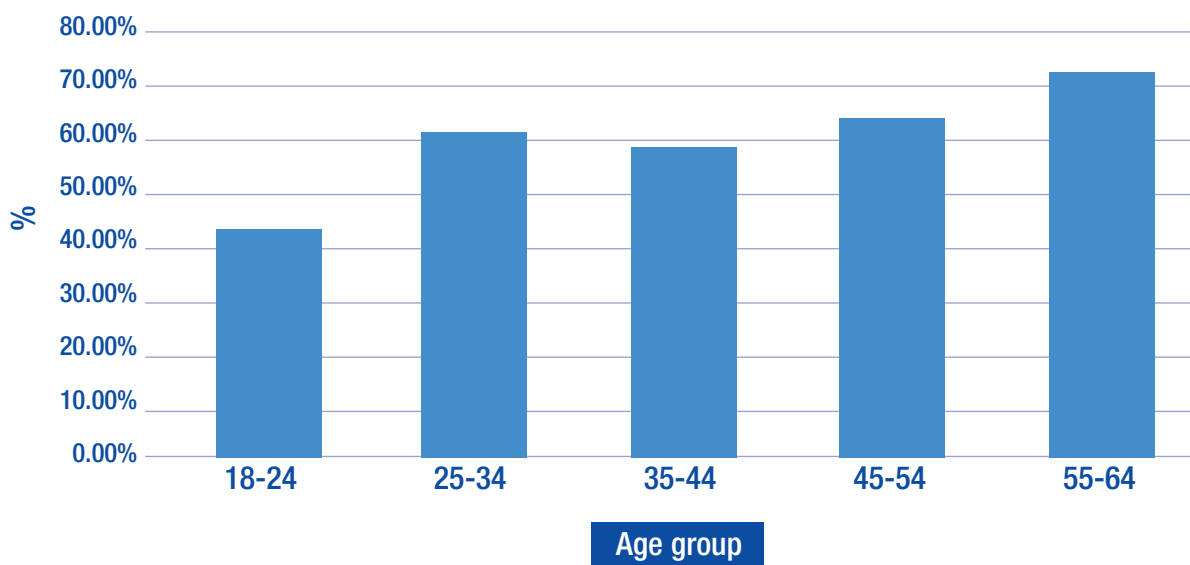
– Practice Partner GP working in London

Uptake for the at-risk 18-64 cohort in London may be lower because this cohort has a lower average age than the equivalent cohorts elsewhere. In Greater London, 41% of this group are under 35, a higher proportion than any other region. The South West cohort have the lowest proportion of under 35s at 35% and the West Midlands the second highest at 38%.⁴⁶

This is important to acknowledge because prior research suggests that younger groups are more likely to miss appointments and find access more difficult.^{26,27} In our survey sample of 2,001 at-risk 18-64 year olds from across the UK, we found that the younger they were, the less likely they were to report having been vaccinated during the 2018-19 winter season, as presented in Figure 7. Fifty-seven percent of 18-34 year olds in the cohort were vaccinated, lower than the 68% of 45-64s. The gap is clearest between the 18-24 and 55-64 age groups, at 45% and 72% respectively.

There is not one clear reason why younger patients are less likely to be vaccinated. It may be related to how they access immunisation services and how much time they feel they have available for healthcare appointments. Time and convenience certainly appeared to have a relationship with age in our own survey of at-risk patients, with 18-34 year

Figure 7
% of clinically at-risk patients vaccinated for the 2018-19 winter season in the UK, by age group





olds (20%) four times as likely as 45-64 year olds (5%) to list 'no time' as a reason for not receiving the flu vaccine in the 2018-19 winter season, as shown in Figure 8. It is also possible that GP registration rates are lower among the youngest cohort. While this could be true just for at-risk Londoners, it is not supported by national breakdown of registered patients by age, which suggests registration rates are if anything marginally higher for younger groups.⁴⁷

18-34 year olds were four times as likely as 45-64 year olds to list 'no time' as a reason for not receiving the flu vaccine.

While all age groups listed 'fear of side effects' as the most common reason for not receiving the vaccine in our survey, this feeling of not having enough time may exacerbate the fear of side effects among younger people, as one of the focus group participants explained:

"It might have something to do also with (...) contemplating the idea of, like, that it can have some side effects after having the flu. I think that's something that put me off sometimes, a couple of times. Like, oh, I'm here now in the middle of the week, working, and I'm super busy. I'm doing like 8 to 10 hours every day, and if I had- get the flu jab and then I know that maybe in the next, like, two or three days, I might feel a little bit eugh, down, or, like, I had a small cold, like a weak cold, (...) risking to have two or three days with, like, reduced productivity..."

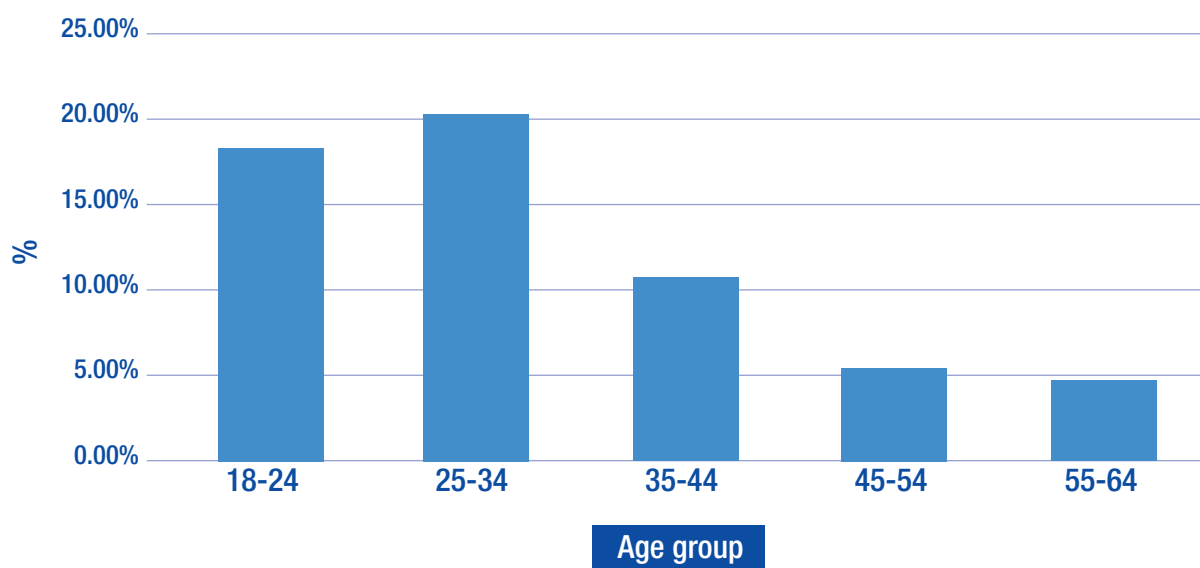
– At-risk patient living in London

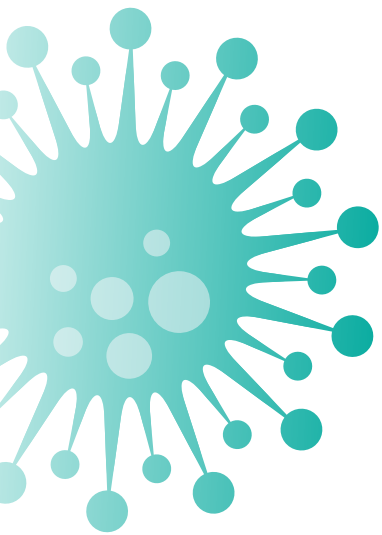
"We do very well with over-65s, it's the under-65s who are reluctant more so, and I think, my feeling is that its due to that they may be working and they worry that (the vaccine) may cause them time off work etcetera, those sorts of things, even though it's supposed to be beneficial."

– GP working in London

With a younger at-risk patient cohort, GP practices in London may be having to disproportionately manage the challenge of a patient group who struggle to fit in general practice in their busy lives. London-wide flu vaccination campaigns should bear this in mind when targeting the 18-34 group, encouraging workplaces to allow time for appointments and to support the campaign.

Figure 8
% of respondents listing 'no time' as a reason for not receiving the flu vaccine in the 2018-19 winter season, by age





We also found differences in vaccination uptake across various age groups within the 65+ cohort. In our sample of 438 people aged 65 and over, we found that 68% of those aged 65-69 were vaccinated, compared to 79% of those aged 70 and over. Again, Greater London is unique in having 29.2% of the over-65 group aged 65-69, the highest of all regions, the lowest being 26.8% in the East of England and the second highest being 28.8% in the North East.⁴⁶ Campaigns in London, therefore, should also focus on patients who are relatively new to the 65 and over cohort.

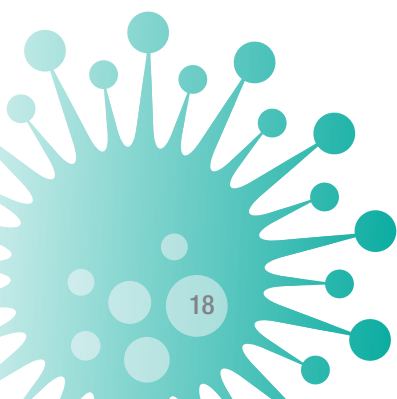
While a younger population is not unique among cities in England, the youth challenge in London is further compounded by the fact the population is uniquely mobile and relatively low in income. Measures that may favour more mobile and young patients involve increasing the number of places they can receive the vaccine, through pop-up clinics at gyms, shopping centres and campuses, closer to where they live and work. This type of innovation is supported by our finding that patients in Greater London were more likely to support it (61%) than those from other major urban areas (54%).

Recommendation:

- **NHS England to explore using popup clinics for flu vaccination**, particularly aimed at the younger individuals of the at-risk patient cohort. These may cross CCG and local authority boundaries by reaching people away from their registered practice, and thus may need the support of regional NHS structures such as the relevant STP/ICS.

For locations, infrastructure within the community should be looked to first, providing they meet the basic requirements. Locations that could be considered first include leisure centres, gyms, libraries, centres of faith, shopping centres, university campuses or schools.

As demonstrated by the extension of flu vaccination to pharmacy settings, ensuring smooth data collection and transfer from new settings into the system is vital groundwork if this is to be a success.



4. Patients and practices in London

In section 3.1 we looked at groups that have on average been let down by the London system, and argued for better targeting of general practice resource towards areas of high deprivation. In this section we first look at whether there is evidence that on more specific measures London practices and pharmacies are performing more poorly than others. Poor performance could include: being ineffective in improving patient awareness of flu and availability of the vaccine, infrequent or unhelpful communication with registered patients, or providing limited access to vaccine appointments. Secondly, we explore whether inter-city differences in attitudes to flu vaccination could also explain some of the divergence in coverage rates.

We asked patients questions on their understanding and experience of flu and flu vaccination, as well as questions regarding their contact with vaccine providers, choosing patients from major urban areas only in order to make comparisons most relevant for Greater London.

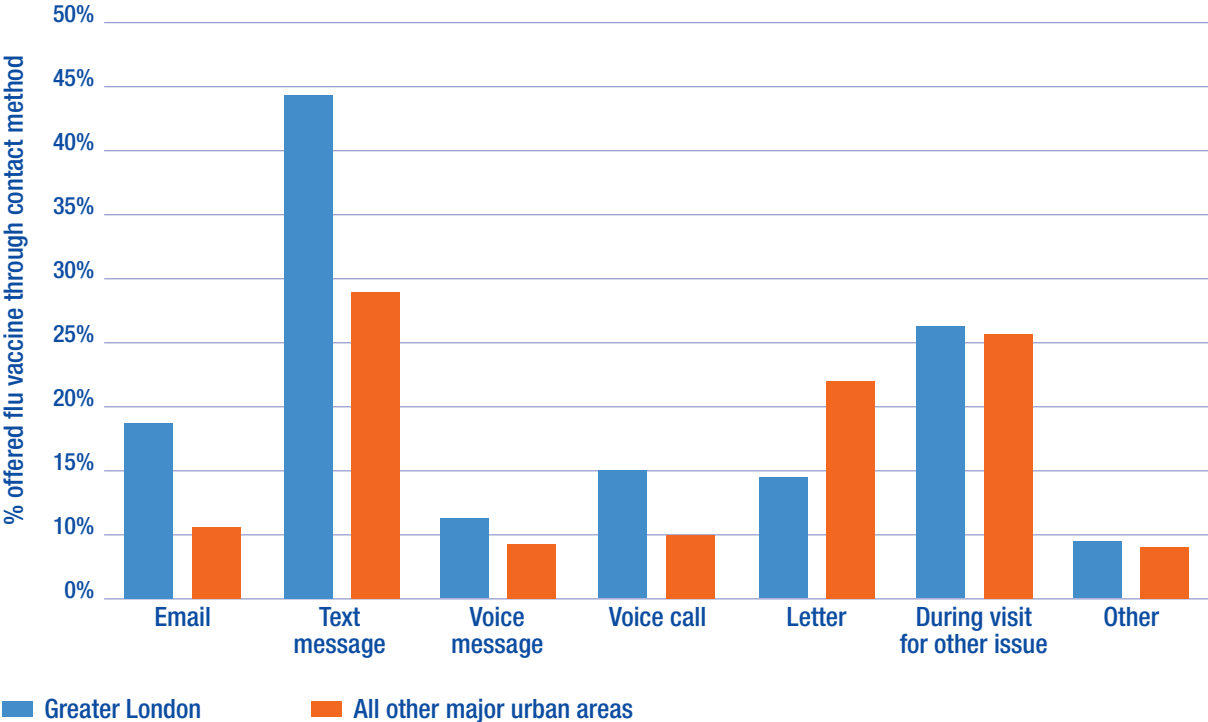
4.1 Appointment availability and contacting patients

A previous RSPH report on vaccinations across the life course, *Moving the Needle*, highlighted availability, timing and location of appointments as three primary barriers to adult vaccinations.⁴⁸

In our survey of 888 patients from London and other major urban areas, the clearest differences were in how patients

were contacted, as presented in Figure 9. Those from the capital city were much more likely to be contacted by text message (44%) than those from all other major urban areas in England (28%). On the other hand, those from other urban areas were more likely to be contacted by letter (23%) than those from Greater London (14%).

Figure 9
How were patients contacted about a flu vaccination in Greater London vs other major urban areas



It is not clear what Greater London’s greater use of non-traditional ways of formally contacting patients, text and email, means in terms of uptake. Their use may be simply reflective of London’s younger population who may be more comfortable with these contact methods, and its highly mobile population, with text and email not dependent on physical addresses.

In fact, the survey results suggested that providers in Greater London perform about as well as elsewhere at inviting patients to have the vaccine. In both groups a large majority reported being invited: 92% for Greater London respondents and 90% from other cities. Overall, the majority of people were contacted by their GP (81%), with a minority contacted by someone else (9%), and this was the case for both Greater London and elsewhere.

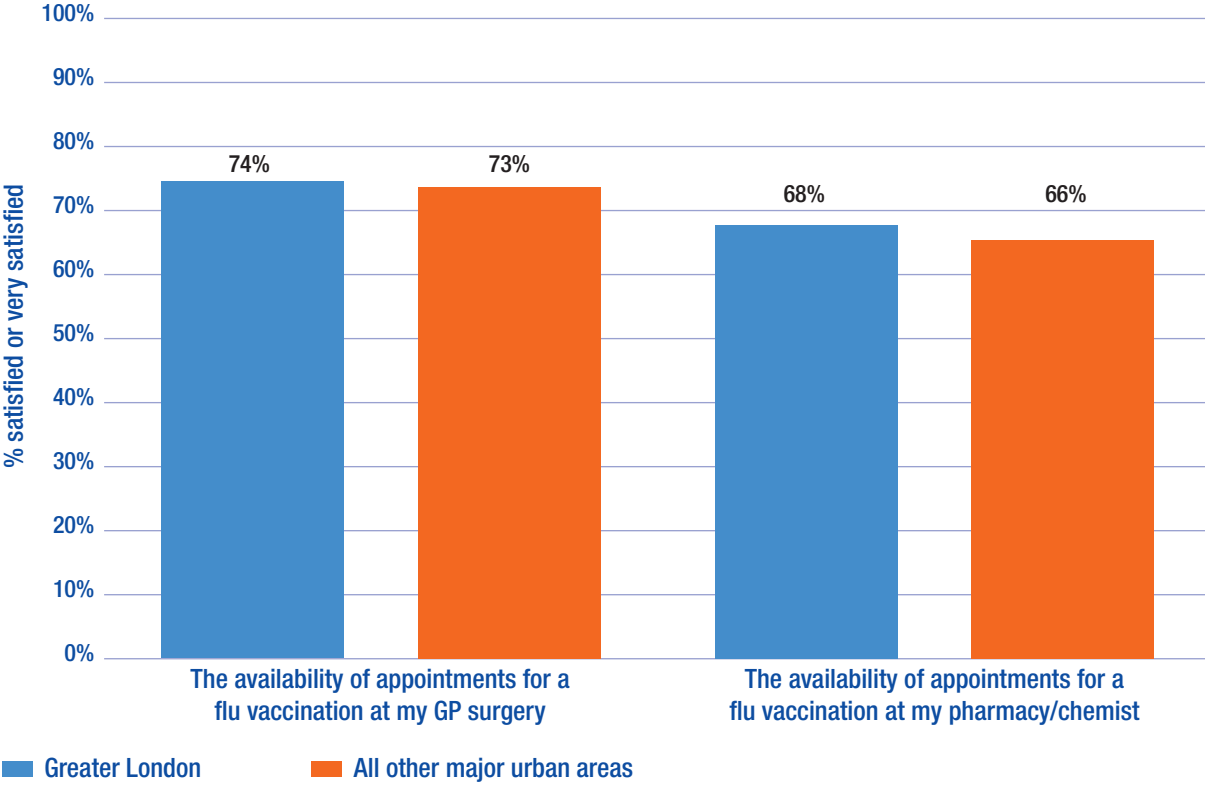
Similarly, there appeared to be no difference between Greater London and other areas on patients’ experience of accessing vaccine services, as demonstrated in Figure 10. Both areas reported almost the exact same levels of satisfaction for the availability of GP and pharmacy appointments.

However, there were significant limitations with this survey in that it is likely that groups who find primary care more difficult to access are underrepresented in the sample. For example, whereas ONS statistics find the London population as 44.9% White, our survey had 86% of Greater London participants responding as White or White British.⁴⁹ It is therefore possible that overall poor performance among London providers has been masked in the above results by an underrepresentation of those whose vaccination needs are most frequently unmet.

Furthermore, there is broader evidence that the characteristics of general practice on offer to a local population vary according to levels of deprivation, in ways that may very plausibly affect vaccine uptake. For example, the recent trend towards larger agglomerated practices – which can more easily access economies of scale, and therefore may be more likely to employ effective contact methods for driving uptake – has not occurred nearly as much in deprived areas. Practices run by a single GP, on the other hand, are particularly over-represented in deprived areas,²⁹ and there is some evidence that smaller practices are associated with poorer quality care.⁵⁰

More research is needed to determine whether London practices, particularly those in deprived areas, are on balance less likely to be using the most effective measures for driving uptake.

Figure 10
Patient satisfaction levels with appointment availability in Greater London vs other major urban areas



4.2 Patient awareness

Attitudinal surveys conducted for *Moving the Needle* in 2018 also found that fear of side effects was the primary reason for choosing not to vaccinate with respect to nearly all vaccines.⁴⁸ Thirty-six percent of those who had chosen not to get the flu jab cited this reason (more than any other concerns, including those to do with convenience or access). Could differing levels of patient awareness between London and other urban areas account for some of the gap between the capital and the rest of the country?

After asking survey participants questions to interrogate their level of awareness of and attitude to the flu vaccine, we found no evidence that overall awareness in London differs from that in other major urban areas. This reinforces the importance of focusing on the factors outlined in sections 2 and 3 in accounting for the gap in coverage rates.

As Figure 11 demonstrates, respondents in Greater London and other urban areas both had high levels of agreement that the flu jab is important for those at risk (88% and 86%), is safe (79% and 78%) and that flu is a serious illness (88% and 86%). Greater London respondents in fact reported very marginally higher levels of agreement on these points (though not with statistical significance).

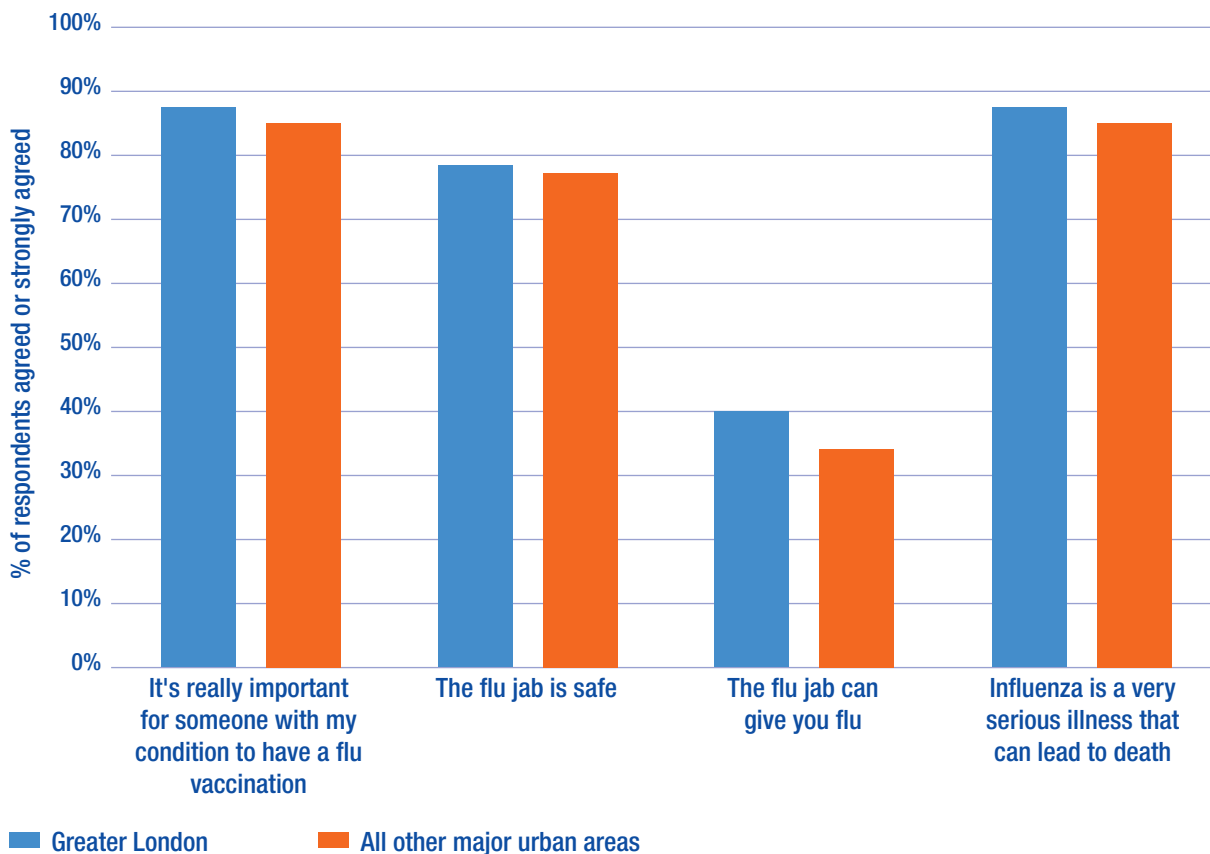
The greatest difference was found with the statement that the ‘flu jab can give you the flu’, with 40% of Greater London respondents compared with 34% elsewhere. This might suggest that the myth is more widespread among patients in Greater London, however the gap was not statistically significant. In our discussions with patients, the idea of the vaccine causing illness was indeed present.

More worrying in general is the fact that this myth holds sway with over a third of the population, London or elsewhere. This should remain a concern for providers across England, and is something that healthcare professionals need to anticipate and manage in their discussions with patients.

However, the key message from these findings is that this data should be understood principally as evidence that London’s coverage problem is best remedied by addressing problems of access and provision, and not patient attitudes.

Figure 11

Patient awareness of and attitudes to the flu vaccine in Greater London vs other major urban areas



5. Case studies from London

We looked at the performance of all CCGs across Greater London in the 2018/19 season and 2019/20 season, to see if any clear trends at CCG level emerged. In order to capture in one metric the performance across all patient groups, an uptake score was calculated which combined reported uptake for at-risk groups, over-65s, and pregnant women.* The 2019/20 scores are listed in a CCG league table in Figure 13 and visually presented as a Greater London map in Figure 12. Lighter shades of blue correspond to better vaccine coverage in that CCG (and a lower 'uptake score').

Figure 12



Uptake score (best to worst)

2.8 - 8.6	best performing quintile
8.6 - 14.5	
14.5 - 20.3	
20.3 - 26.2	
26.2 - 32.0	Worst performing quintile

* To calculate uptake scores: CCGs were first given a ranking from 1-32 for each patient group (1 for highest coverage). The 'uptake score' presented here is the average of those three rankings, with each ranking weighted by the size of each patient group in that CCG.

5.1 Case study: Tower Hamlets

The borough that comes out on top in our uptake scoring is Tower Hamlets, being by far the highest performing borough for uptake among all groups. For both at-risk patients aged 18-64 and pregnant patients, Tower Hamlets performs above the national reported coverage, a stand-out achievement for a CCG in a region that consistently reports the lowest coverage in the country.

The Tower Hamlets population

The population of Tower Hamlets has:

- The 9th highest percentage of people entering and leaving the borough in 2015/16,³⁰
- The 7th lowest median household income,⁵¹
- The 4th highest percentage of wards (over 30%) among the most deprived in England.⁵²

With relatively high mobility and deprivation, national trends might lead one to expect poorer health outcomes in the CCG; however, the impressive vaccine coverage rates demonstrate that the underserving of certain groups and demographics is not an inevitability. Tower Hamlets is successful not just in immunisation, but is often among the highest performing CCGs in England for other primary care service quality indicators.⁵³

Practice in Tower Hamlets

One reason for this success is that practices in the area have the capacity to perform efficiently and effectively. All practices in Tower Hamlets have access to one central data hub, which supports all GP staff to track which patients have missed appointments and what their contact details are to recall them.⁵⁴ This data hub also provides demographic data and health outcome data so that practices have a good understanding of their local populations and the challenges they face.

Working together in Tower Hamlets

High performance in Tower Hamlets' success can be attributed to its pioneering work in being the first CCG to develop primary care networks (PCNs), a programme which has inspired NHS England's nationwide strategy to integrate all practices in England into PCNs.⁵⁵ One study found that the network structure in Tower Hamlets did increase uptake of vaccinations after implementation.⁵⁶ Each PCN, supported by a network coordinator, delivers care packages which are aimed at improving priority areas, including management of immunisation. The study suggested the strength of this set-up was its ability to bring together "strong clinical and management engagement and leadership involving the director of public health, primary care trust managers, and clinical champions".

The Tower Hamlets story shows just how much more important good system-level coordination is in influencing coverage rates. The development of PCNs throughout Greater London will be decisive in improving vaccination uptake rates, but they will also need strong leadership and local involvement. Once again this reiterates the importance of establishing and funding local immunisation coordinators, who would be important links between PCNs, non-GP providers, CCGs and local authorities.

5.2 Case study: The Tri-borough

West London CCG (Kensington and Chelsea), Central London CCG (Westminster), and Hammersmith & Fulham CCG are the lowest performing CCGs in our London uptake league table. These CCGs are located in the London boroughs of Hammersmith and Fulham, Kensington and Chelsea, and Westminster, which form a cluster in Central London.

This cluster of boroughs has been known as the 'Tri-borough', after the three local authorities attempted to jointly provide services between 2011 and 2017.⁵⁷ While the Tri-borough arrangement separated in 2017, the health and care model in Westminster and Kensington & Chelsea remains closely connected and jointly planned through a shared Better Care Fund.⁵⁸ As in the case of Tower Hamlets, a closer look at the Tri-borough finds that good practice and coordination matter the most for uptake.

The Tri-borough population

The populations of the three boroughs are relatively similar socioeconomically. Stand out details include:

- Having the 2nd, 4th and 7th highest median household income out of all 32 London boroughs in 2012/13,⁵¹
- Having the 2nd, 7th and 11th highest percentage of people entering and leaving the borough in 2015/16.³⁰

In other words, the Tri-borough population is simultaneously among the most affluent and most mobile of all the London boroughs. This could mean two things for the challenges faced by vaccine providers. On the one hand, attendance rates at GP appointments are on average higher among higher income patients, and one may therefore expect to see this translating into higher uptake than compared to areas with higher rates of deprivation, such as Tower Hamlets. On the other hand, high population turnover means practices may struggle to remain up to date with their registers, and hence struggle to retain contact with eligible patients, leading to lower uptake.

Another factor associated with relative affluence of the Tri-borough population is that there are higher rates of private healthcare use. NHS England estimates, for example, that Kensington & Chelsea and Westminster have approximately 100 private practices in their area.⁵⁹ NHS England considers this to be high; however, there is no readily available data on private practice to provide borough comparisons. Private practice takes more affluent patients who are more likely to be vaccinated out of NHS GP data, meaning that official NHS uptake reporting will be more skewed to less affluent patients who are, on average, less likely to be vaccinated.

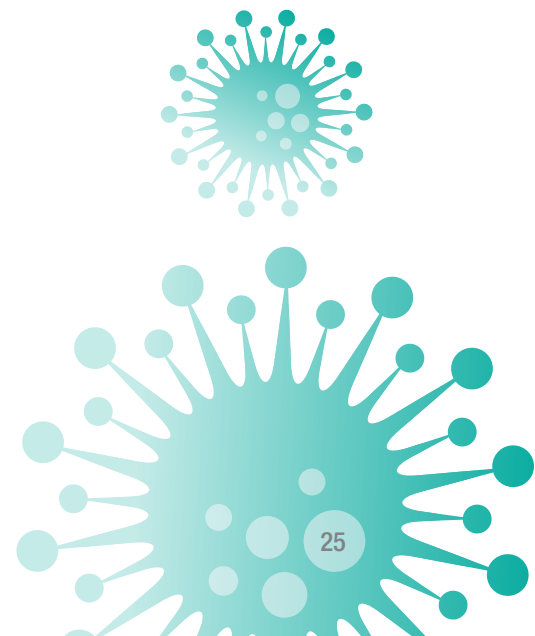
Provider practices in the Tri-borough

Unlike Tower Hamlets, there is no central data hub available in either Kensington & Chelsea or Hammersmith & Fulham. The three boroughs are part of the wider North West London STP, which has developed its own Whole Systems Integrated Care dashboard system, which provides data on patients from different care settings, as well as demographic information. However, it is not clear whether this system can provide as accurate lists for call/recall as is the case in Tower Hamlets. NHS England advised that the “level of robust recall” in Kensington & Chelsea and Westminster GP practices varied and were often still very manual intensive.⁶⁰

Coordination in the Tri-borough

Whereas Tower Hamlets has a decade’s experience of commissioning primary care services through PCNs (including the initial pilot projects), the three CCGs in the Tri-borough have had sole responsibility of primary care only since 2017, developing PCNs since then. The culture of integrated care and data is thus still developing in the Tri-borough, though the implementation of the PCNs should support this.

One challenge for the new PCNs in the Tri-borough will be to understand better their local populations and where they have received their vaccinations, whether it be from NHS, community, private or overseas providers.



6. Conclusions

The London population is highly mobile, disproportionately young, and has high rates of very localised deprivation. These population factors map onto groups of people who have too often been let down by our vaccination programme, and indeed our health system more generally. In this report, we hope to have demonstrated this is not an inevitability. If population challenges could explain low uptake in London, one would expect coverage to have always been low in the capital. This is not the case. Up until 2010, London made good progress in approaching national coverage rates, but the gap between the city and England has consistently widened since then.

Therefore, the more important question to emerge has been: why did things start to go wrong at this point? Arguably the most likely candidate is the extreme centralisation of immunisation planning in London, implemented through the Health and Social Care Act 2012.

To improve uptake in London, those who coordinate the flu vaccine in London need to have a good understanding about their population, their extensive network of providers and the data collection processes which they use. This can only be achieved 'on-the-ground', with people working at the local level who are able to build in-depth and active relationships across the health system. This is why NHS England needs to find space and resource in its system for local scrutiny of immunisation performance, through local coordinator roles, and address the imbalance in commissioning teams that leaves London uniquely overstretched.

With the right structure and workforce in place, London can fully explore new ways of improving access to and awareness of flu vaccination for the population, whether it is through new campaigns, new settings or new ways of contacting people.

Finally, in the shorter-term context of the unfolding COVID-19 pandemic and the development of potential vaccines, it is important that we take any opportunities presented to learn about what works for driving uptake. There may well be excellent opportunities to innovate and learn, for example, how effective different approaches can be for reaching underserved communities. It is vital that the interventions and developments are monitored and evaluated closely so that those with the highest impact can be retained as best practice in the future.



Appendix

Methodology and limitations

As well as the desktop research presented in this report, we carried out two surveys of patients eligible for the flu vaccine, a series of semi-structured interviews with primary care staff, and further supplemented this with two patient focus groups.

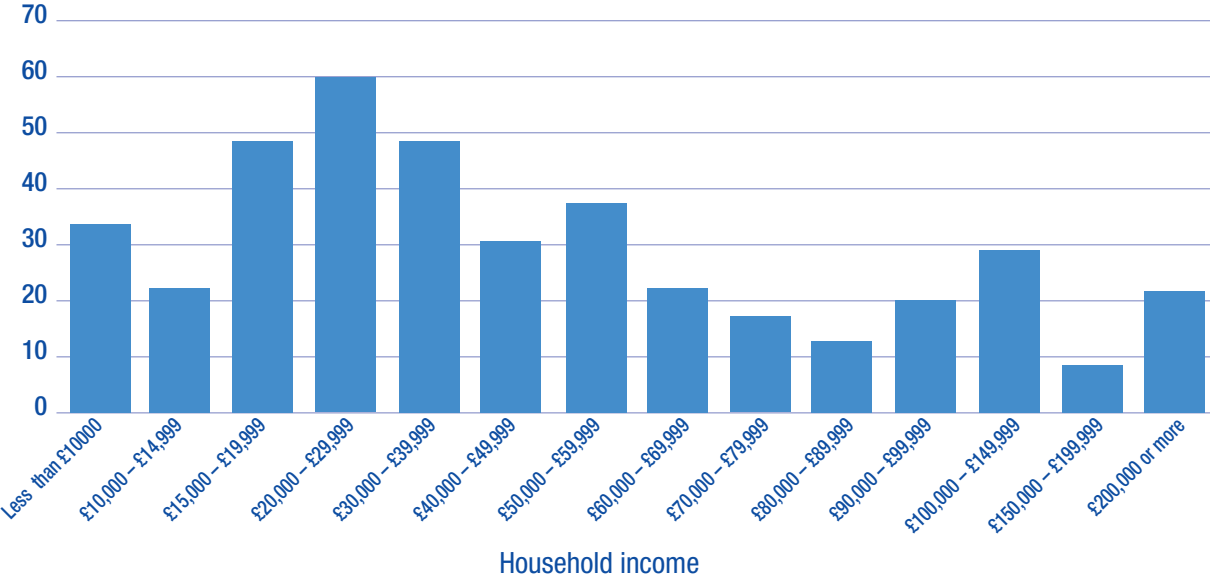
Survey of at-risk patients aged 18-64

Commissioned by Sanofi-Pasteur, we carried out an online survey with 2,001 UK at-risk adults between 7/12/19 and 20/12/19 through market research company Toluna. The most prominent health conditions in the sample were chronic respiratory disease (41%), diabetes (22%), being morbidly obese (13%) and having a weakened immune system (10%). The sample was 83.7% White, with the second most common ethnicities Asian or Asian British (7.6%) and Black or Black British (5.5%); this is broadly representative of the UK's population.

Inclusion criteria: resident of the United Kingdom, aged 18 to 64, with a health condition that qualifies inclusion in the at-risk flu-vaccine-eligible group.

Limitations: There was good representation across the spectrum of household incomes among respondents, but overall there was an over-representation of higher incomes among the sample (see graph). Due to sampling restrictions, this was a UK-wide survey as opposed to England-specific (this is a limitation as health is devolved).

Household income distribution – at-risk 18-64s sample (England median = £32.5k)



Survey of urban at-risk and over-65s patients

We carried out an online survey of 888 adults eligible for the flu vaccine living in urban areas in England, between 6/12/19 and 22/12/19. Respondent recruitment was weighted towards London, in order to have a high enough number of respondents from Greater London to be comparable to all other urban areas combined. 261 survey participants were from Greater London, 29% of

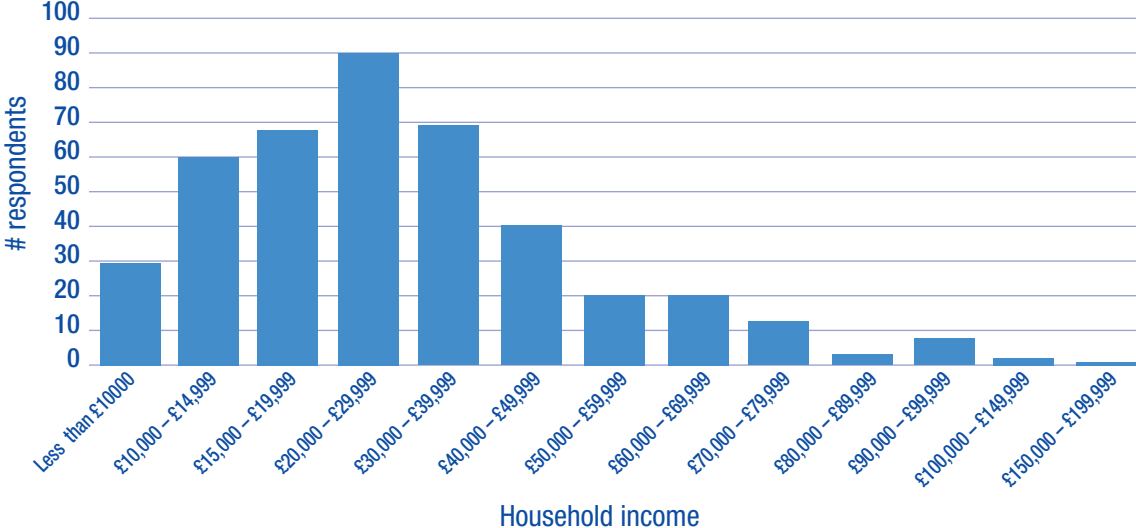
the sample, and 627 were from other major urban areas. 438 respondents were at-risk patients aged 18 to 64 and the other 450 were aged 65 and over. There was a good representation of the spectrum of household incomes, and the sample was overall broadly representative the London and England populations (as per below graph for over 65s).

Inclusion criteria: resident of one of 67 ONS-identified conurbations in England with at least 100,000 population, and either:

- Aged 18 to 64, with a health condition that qualifies inclusion in the at-risk flu-vaccine-eligible group.
- Aged 65 and above.

Limitations: as this sample focused on urban areas in England only, it is not representative of the country as a whole. As noted previously, the London-based sample is not representative in terms of ethnicity of the actual London population, representing a major limitation in the survey. Whereas ONS statistics find the London population as 44.9% White, our survey had 86% of Greater London participants responding as White or White British.⁴⁹

Household income distribution – over 65s sample (London and England median = £36.4k and £32.5k respectively)



Interviews with primary care staff

We spoke to seven healthcare professionals working in general practice on their experience of and views on delivering the adult seasonal flu vaccine. We used the same semi-structured interview approach for each healthcare professional.

Inclusion criteria:

- General practitioner, working in an NHS practice that delivers at least 50 flu vaccines in a winter season in any London borough, a practice partner, with a minimum of 3 and maximum of 35 years' experience.
- Practice nurse, working in any NHS practice that delivers at least 50 flu vaccines in a winter season in any London borough, with a minimum of 3 and maximum of 35 years' experience.
- Practice manager, working in any NHS practice that delivers at least 50 flu vaccines in a winter season in any London borough, with a minimum of 3 and maximum of 35 years' experience.

Limitations: Interviewees were sampled through recruitment supported by CCG leads across Greater London. As support from CCG leads was variable, we were only able to capture practice staff representing 3 of the 32 CCGs in London within the time available for recruitment. The 3 CCGs represented covered South-West, North and East London.

Focus groups of eligible patients in London

To supplement the above, we conducted two focus groups in October 2019. Group 1 consisted of four people and Group 2 consisted of eleven people. Both groups were asked the same list of questions in a semi-structured group interview. The questions investigated people's views on and experiences of flu and flu vaccination.

Inclusion criteria:

- Focus group 1: resident of any London borough, aged 18 to 64, with a health condition that qualifies inclusion in the at-risk flu-vaccine-eligible group
- Focus group 2: resident of any London borough, aged 65 and over

Limitations: These focus groups were of relatively small sample size. Data collected will also have been subjected to selection biases, as interviewees were sampled by recruiting through patient groups and age-related support groups, who are likely to involve people more aware of the complexities of the healthcare system compared to the general population. The 65 and over group were all of White ethnicity, which is not representative of the Greater London population.

The requirement of being physically present for the focus group also excluded the at-risk patients with poorer health, who may be unable to leave the house as easily. To overcome this methodological restriction, we also conducted two one-to-one phone interviews with patients, who expressed interest but were unable to attend the at-risk patient focus group for this very reason. We used the same semi-structured method in these two interviews.

Seasonal Influenza - Background

What is flu?

Influenza, often known as 'flu', is a common viral infection of a person's respiratory system, which includes their nose, throat and lungs. It is also referred to as 'seasonal flu' because every year most infections occur in winter.

There are three types of the flu virus that are known to infect and cause illness in humans. The first of these, 'Type A', is most likely to cause serious illness and infection and is the most often the target of vaccines. There are many different strains of Type A that change over time, meaning that the most common strain of the virus may be different for each winter season.

What does it mean to have the 'flu'?

Symptoms of flu include a sudden onset of fever (having a body temperature of 38°C or above), cough, headache, muscle and joint pain, sore throat and a runny nose. Otherwise healthy individuals may recover from these symptoms within a week, though the cough can last several weeks. In more serious cases, flu can lead to a severe infection of the lungs, known as pneumonia, which can be deadly.

What is influenza vaccination?

There is no cure for flu, but there are ways of preventing infection from occurring. One of the most effective ways of doing this is through vaccination. A flu vaccine contains either a harmless form of the virus, or 'dead' particles extracted from the virus known as antigens.

When the contents of a vaccine enter your body, they are recognised by your immune system as a threat and destroyed. Once this process is completed, the body keeps memory cells which can repeatedly generate immune responses if the body encounters the same germ again. This allows the immune system to respond quickly and effectively if the virus is ever encountered 'naturally', preventing infection.

Because the virus content is inactivated or changed so they cannot cause infection, flu vaccines cannot give you the flu. Work from PHE suggests that, on average, the flu vaccine prevented 38% of flu cases each year in England since 2015.⁶¹ Research from the International Longevity Centre in 2018 suggested that flu vaccination helps avert between 5,678 and 8,800 premature deaths per year in England.⁶²

As part of the Global Flu Surveillance and Response System (GISRS), the World Health Organisation (WHO) monitors flu in laboratories from centres in 123 countries.⁶³ Findings from the GISRS allow the WHO to make the global standard prediction for which flu strains will be most common for the coming winter, informing the development of the next annual batch of vaccines.

Patients per commissioning team

The below table shows the numbers of patients eligible for a flu vaccination per commissioning body in both 2012/13 and 2018/19, once the (pre-2012) PCTs have been mapped onto the (post-2012) NHSE local team regions.^{64, 65}

At-risk conditions for the flu vaccine eligibility

To be recognised as at-risk, you must have one of the following conditions:

- chronic respiratory disease (e.g. asthma, COPD-chronic obstructive pulmonary disease, emphysema or bronchitis)
- chronic heart disease (e.g. heart failure, coronary heart disease, heart attack or angina)
- chronic kidney disease
- chronic liver disease (e.g. hepatitis or liver cirrhosis)
- chronic neurological conditions (e.g. Parkinson's disease, motor neuron disease or MS-multiple sclerosis)
- diabetes
- spleen issues (e.g. no spleen, or sickle cell disease)
- having a weakened immune system due to disease or certain medications (e.g. steroids, chemotherapy, HIV)
- being seriously overweight (body mass index above 40)⁶⁶

NHS England Local Team (2019)	Number of PCTs in equivalent regions pre-2012 Act	Number of eligible patients registered per commissioning body (2012-13)	Number of eligible patients registered per commissioning body (2018-19)	% increase in eligible patients per commissioning body
Yorkshire and the Humber	15	106,761	1,809,397	1695
Greater Manchester	10	76,876	848,970	1104
Lancashire and South Cumbria	5	89,900	606,447	675
Cumbria and North East	13	75,440	1,024,044	1357
Cheshire and Merseyside	8	93,222	873,839	937
North Midlands	9	119,889	1,219,303	1017
West Midlands	8	89,134	1,381,045	1549
Central Midlands	9	153,550	1,458,943	950
East	9	133,598	1,467,892	1099
South West South	6	150,393	1,037,008	690
South West North	7	100,545	806,965	803
Hampshire, Isle of Wight and Thames Valley	8	141,051	1,347,326	955
Kent, Surrey and Sussex	8	167,609	1,449,749	865
London	31	61,461	2,227,232	3624

Appendix

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