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Organisational factors affecting performance in delivering influenza vaccination to staff in NHS Acute Hospital Trusts in England: A qualitative study

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ABSTRACT

Health care workers are a priority group for seasonal influenza vaccination, which is recommended by the World Health Organisation. There is a wide variation in uptake between and within countries. England has achieved 69.5% of health care workers vaccinated overall in 2017/18 across NHS acute and community health care settings, but it varies between Trusts from 50% to over 92.3%. While attitudinal factors have been well researched, there is limited evidence on organisational factors associated with high uptake. In England, most NHS Trusts are now implementing a similar range of interventions as part of their flu programme, and it remains unclear why performance remains so variable. This qualitative study is the first to explore reasons for this variation and provide recommendations for lower performing Trusts on how to improve. Fifty-seven interviews of managers and vaccinators were conducted in nine hospitals with flu vaccination uptake ranging from just over 55% to above 90%. Our study found that while Trusts deployed a wide range of both demand generating and supply interventions to increase uptake, there were marked differences in the organisational and delivery models utilised. Our study suggests that organisational culture was possibly the most important ingredient when trying to differentiate between high and low performing Trusts. We found that a positive culture aimed at fostering continuous improvement and favouring non-coercion on balance yielded more adherence from staff. Where influenza vaccination was embedded in the organisation wellbeing strategy, rather than executed as a siloed seasonal programme, this tended to foster good performance. Improving performance of influenza vaccination in health care workers will involve not only deploying the right interventions, and following "best practices". It will require the adaptation of flu progamme delivery strategies to the organisation context, and embedding vaccination into the organisational culture, thus supporting the normalisation of yearly vaccination.

1. Introduction

International guidelines recommend annual influenza vaccination for all frontline healthcare workers (HCWs) [1,2]. Seasonal influenza vaccination decreases the transmission of influenza in health care settings [3,4] while there is moderate evidence that it reduces illness in patients [4–6], notably those who are immunecompromised [7]. These benefits, and the reduction of staff illness and absenteeism, render them cost-effective [8,9]. Despite this, seasonal influenza vaccine uptake in HCWs varies globally from <5% to over 99% [2,3]. In England, flu vaccination is recommended for frontline HCWs, provided by their employer to help protect both staff and those that they care for [10]. The average vaccination uptake rate in staff working across acute and community health care settings in England was 69.5% in 2017/18 [11]. From a global perspective this is relatively high, however it masks a wide variation in coverage across acute hospitals from 50% to over 92.3% [12].

Factors associated with low uptake of HCWs are well defined and include barriers to acceptance (fear of side effects, perception of lack of vaccine effectiveness or not being at risk of influenza;

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needle phobia; lack of faith that the vaccine is concordant with the virus strain in circulation; and inconvenience) [13–16,17,18], as well as constraints related to access [17,19]. Health care institutions use a variety of approaches to increase immunisation rates among employees (see Table 1) with multi-faceted programmatic strategies achieving the highest increase in vaccination rates [20,21]. Findings from systematic reviews confirm that the application of multiple interventions is associated with higher vaccine coverage [22] and that strategies limited to education or promotion activities result in minimal changes in vaccination rates [23]. Recent cross-sectional studies indicate that a multiple intervention approach (e.g. use of pop up clinics; extended clinics; peer vaccinators; mobile clinics; extensive communication; and use of flu champions) has become quasi-universal across NHS Trusts, which makes it difficult to understand why some Trusts still struggle to improve uptake rates [21,24]. It is possible that overcoming acceptability and access barriers is not solely sufficient to improve uptake and previous qualitative studies in other settings have pointed to the role of organisational culture in the delivery of the programme [25–27]. To date there have not been any UK focused qualitative studies that have investigated organisational factors of performance from the perspective of programme implementers. Our study provides insight into factors contributing to the wide variation in performance in hospital NHS Trusts in England.

We lack understanding of how lower performing Trusts can increase uptake and higher performing Trusts can solidify progress. Establishing and maintaining impetus is critical since studies have shown that fostering "the annual habit of being vaccinated" strengthens and sustains the performance of seasonal influenza vaccination programmes for HCWs [28 29]. In September 2018, England issued a new policy for health care workers vaccination that included a number of measures such as a new opt out policy, by which staff actively decline to receive the vaccine, and specific protection measures for higher risk clinical areas (eg oncology, neonatal intensive care, etc.) [30]. This qualitative study aims to investigate organisational aspects of vaccination delivery in a sample of high and low-performing acute NHS hospitals in England.

Table 1
Key components of influenza programme operational strategies (adapted from [23;25]).

Components	Definition	Examples
Education or promotion	Organized effort to raise awareness and/or increase knowledge about influenza and influenza vaccination	Educational sessions and materials, material or events promoting vaccine, incentives.
Improved access to vaccine	Strategies to allow for easier access to vaccination for health care personnel	Mobile vaccine carts, peer-to-peer vaccination, additional or extended vaccine clinics, reminders.
Legislation or regulation	Interventions involving changes in vaccination policy for health care personnel	Staff vaccination policy, mandatory vaccination programs*, declination forms or opt-out.
Measurement and feedback	Tracking of vaccination rates of health care personnel and dissemination of results	Regular monitoring of vaccination coverage rates, reporting of coverage rates to administrators and health care personnel
Role models	Activities that involve leaders and/or senior staff to encourage vaccination	Vaccination advocates and champions, public support from leaders, visible vaccination of senior staff.
Management and organisational policy	Assignment of dedicated staff and resources; legal and institutional policies	Steer of the programme; allocation of resources; Signed declination statements: Mandatory vaccination*

* To date influenza vaccination in health care workers is not mandatory in England.

2. Methods

2.1. Site and interviewee selection

This study focused on secondary care ("acute") NHS Hospital Trusts. We selected 20 Trusts that represented a wide range of geographic locations, varied in workforce numbers and hospital type, with 10 Trusts with higher uptake and 10 Trusts with lower uptake rates, according to data from the previous vaccination season (2017–18). Uptake varied from over 90% to just over 50%. Higher uptake was defined as above 60%, and lower uptake as below 60%. Study invitations were sent to these 20 sites, of which nine sites responded positively.

An average of eight to 10 staff were contacted in each Trust to represent flu programme managers and vaccinators. The number of types of interviewees for each Trust is described in Table 2. Managers generally included programme leads, chief nurses, and department managers. Vaccinators included a mix of programme vaccinators (occupational health or infection control clinical staff) and peer vaccinators from a range of hospital settings (e.g. oncology, theatres, community). Interviewees were asked to describe the organisation and delivery of the flu vaccination programme in their Trust. Interview questions focused on activities pertaining to vaccination programme planning, resourcing, communication and incentivisation, and the interviewees experience in delivering these activities. Interviewees were also asked to describe factors affecting vaccine programme implementation in their Trust, perceived barriers to vaccination acceptance amongst their workforce, and the approaches they used to increase programme performance and their perceived effectiveness. After staff provided informed consent, they were interviewed either face to face, in private spaces at the workplace, or by phone. All interviews were audio recorded.

2.2. Analysis

Interviews were transcribed verbatim and analysed thematically in the qualitative analysis software NVivo (version 11, QSR International Pty Ltd., Melbourne, Australia). We used both an inductive and deductive approach. Interviews were transcribed verbatim and analysed thematically using the stages outlined by Braun and Clarke (2006) [31]: data familiarisation, coding and theme identification and refinement. Interviews were coded using initial codes generated from the interview topic guide and the organisational components of the delivery strategy highlighted in the above framework (Table 1). The coding framework was developed iteratively and new emerging themes were added and was further refined by all four researchers (SB, TC, PP, SMJ) who then performed coding of the transcripts. Following the coding of each interview transcript, codes were collated to generate broader sub-themes and themes. The relationships between codes, sub-themes and themes were re-visited and refined by all four researchers, as part of an iterative process. The analysis was led by SMJ and all authors commented and inputted in the final analysis.

2.3. Ethical approval

The study received full ethics approval from Public Health England's Research Support and Governance Office (RSGO).

Table 2
Interviews by staff type and affiliation.

Trust	No. of HCWs involved with direct patient care 2017/18	Vaccination uptake (2017–18)	No. of managers interviewed	No. of vaccinators interviewed	Total no. of staff interviewed
1	7000–8000	>85%	2	4	6
2	3000–4000	>85%	5	3	8
3	6000–7000	>85%	3	3	6
4	4000–5000	>85%	2	2	4
5	1000–2000	70–80%	1	1	2
6	>9000	70–80%	4	5	9
7	5000–6000	<60%	5	3	8
8	3000–4000	<60%	3	3	6
9	3000–4000	<60%	2	6	8
Total			**27**	**30**	**57**

3. Results

A total of 57 staff flu programme vaccinators and managers from nine Trusts were interviewed between 7 March and 24 May 2019. We have grouped the findings from the interviews into six key areas; leadership and management, organisational culture; delivery strategy, facilitating access to vaccination, managing resources, and monitoring programme performance and benchmarking.

3.1. Leadership and management

3.1.1. Organisational leadership

Vaccination programme leadership was strong in all Trusts interviewed, with substantial involvement of the Board and executive team, often led by the Chief Nurse. In high performing Trusts, the degree of engagement tended to be higher, with Board Trust directors leading by example either by being involved in vaccinating or being vaccinated. In high performing Trusts, the Executive Team was responsible for weekly monitoring, facilitating interdepartmental coordination and leveraging of the wider capacity of the organisation. The role model example set by the Executive team supported engagement across the whole Trust.

3.1.2. Programme leadership

The organisational lead of the programme varied across Trusts. Occupational Health or Infection Control led in four and three Trusts respectively, while a dedicated flu team coordinated the programme in the two other Trusts. Higher performing Trusts tended to have a simpler governance structure, characterised by a "command and control" delivery model that made it easier to monitor performance. It tended to involve a smaller operational team that steered the planning and monitoring of vaccination activities.

Several programmes had undergone a recent change in leadership or were considering change. Interviewees weighed the benefits and drawbacks of the locus of programme leadership, with some arguing that the programme had a more natural home with Occupational Health (OH), which is responsible for occupational vaccination, while others felt that OH could be less well connected to the Trust's daily operations and was also sometimes understaffed. Irrespective of the model, clarity of leadership and sufficient resources were deemed critical to achieving good performance.

3.2. Organisational culture

3.2.1. The role of organisational culture

The overarching culture of the organisation underpinned how the influenza vaccination programme was viewed and adhered to by staff. High performing Trusts showed visible leadership in fostering a culture of engaging staff in the influenza programme. A culture that framed the influenza programme within a commitment to staff wellbeing was associated with high performance. As part of the focus on well-being several Trusts stressed the broader benefit staff influenza immunisation afforded to protecting the whole community from disease.

> *"And I think it's a great place to work, that's what it comes down to, it's a happy place... we look after people. And if that's the mantra then obviously flu kind of follows suit with that... if your culture is an engaging culture, you said, we did, you said this so we did this, people respond to that. So, I do think that the culture in its entirety's the biggest thing."* ***Trust 1***

The same high performing Trust noted that they had successfully fostered normalisation of flu vaccination:

> *"I think the culture's changed. Because people now ask us for the vaccines rather than us telling them, and I believe that's, year on year, why we've been one of, you know, we've been one of the top performing Trusts for the last four years."* ***Trust 1***

Conversely, lower performing Trusts tended to use negative arguments such as declining vaccination being equated to breaching Nursing and Midwifery Council code of conduct and sometimes resorted to an approach that is more coercive. Because some staff in low performing Trusts felt a sense of defeat, mandatory vaccination was sometimes seen as the way forward.

Staff reported feeling pressured by the implementation of the new opt-out policy, by which staff who chose not to get vaccinated had to sign a declination form stating why they did not want the vaccine. In high performing Trusts, this could be seen as bringing a negative element to a largely successful programme. One Trust that had introduced a contractual obligation for vaccinating all new staff admitted that the implementation of this policy had been challenging and had been met with considerable staff and Union resistance.

> *"And I think part of it, as well for some people, they feel like the Trust bully them, and some people are just saying well, you know what, the Trust make me do so many things that I don't want to do. I'm allowed to do this; I'm allowed to say yes or no."* ***Trust 5***

3.2.2. Organisational Sub- cultures

Sub-cultures within the organisation could play an important role in accepting vaccination. For example, several Trusts reported that, spurred by local group dynamics, specific groups of staff would in some cases decline the vaccine. In some cases, refusals seemed to be more prevalent in certain ethnic groups (eg. Africans), or certain departments or professional groups (eg. nurses). Reasons for refusal were not always investigated or understood by the programme managers.

"Within different directorates who work together much more closely, they all clumped together and as a group mentality decided not to have the vaccination." Trust 9

3.2.3. Relying on middle management to ensure effective delivery

Middle management was reported as essential to achieving high uptake by being able to "*rally their troops*" and "*go and try and influence*" staff to be vaccinated. For example, some managers organised vaccination sessions for their staff. In several Trusts, the nominal list of unvaccinated staff was shared with the matron and managers were expected to "*go back into areas and to do a push and support it a bit more*" (Trust 4). Some managers framed influenza vaccination as a professional responsibility on par with professional accreditation (eg. Revalidation).

"And I think we, people were a little bit reluctant to sort of become flu vaccinators and I said, "Come on, girls, it's something more, it's re-validation." Trust 4

However, there was a recognition in most Trusts that managers would need to be careful not to coerce staff to be vaccinated and many promoted a more "cajoling" approach that was felt to be more effective.

"There are sometimes managers that get really, 'come on, you've got to be vaccinated, you're in a high-risk area, and if you don't, this will happen and that may happen... I know, but be kind, and you'll get them on board much quicker." Trust 3

3.3. Delivery strategy

3.3.1. Programme delivery modalities

All Trusts deployed a similar range of delivery strategies, using static, remote drop-in clinics, roving vaccinators, and encouraging staff to make appointments directly with vaccinators. All offered vaccination on night shifts and during weekends and made substantial efforts to offer vaccines to all staff, often coming back several times to clinical and non-clinical areas over the influenza season.

Trusts, especially highest performers, deployed a staggered strategy whereby they invested substantial resources at the early stage of the season, offering large all-day static clinics in visible locations and prioritising vaccinating staff working in high-risk areas – defined as working with those who are immunocompromised and departments of haematology, oncology, bone marrow transplant, neonatal intensive care and special care baby units. Later in the season, they adopted a more targeted approach and a deliberate mop up strategy. High performing Trusts tailored their delivery strategy to ensure that most remote satellite sites would be reached, often using peer vaccinators.

The setup of the vaccination programme varied significantly with, at one end, a Trust that vaccinated 8000 staff with 3 central team vaccinators and one peer vaccinator, to a Trust that involved over 120 peer vaccinators to vaccinate a staff of 4000. Most Trusts had a peer vaccinator in antenatal clinics, with the rationale that vaccination was already routinely provided to patients there. Most Trusts reported an increase in the number of peer vaccinators in recent years. However, it was noted that not all trained peer vaccinators were active, or active to the same level.

3.3.2. Organisational aspects of using peer vaccinators

Interviewees reported that peer vaccinators were particularly valued in busy areas and to reach staff with atypical schedules, such as those working night and weekend shifts; in particularly busy environments such as theatres; and reaching out to overloaded consultants. They were also used to increase uptake in decentralised clinical settings such as community clinics.

"Previously I would have to have taken a half morning, literally a half morning off, in order to wander over to Occupational Health, have a vaccine and come back, which you can't afford really. Nobody can afford to do that." Trust 3

Peer vaccinators were mainly positive about their role, and the fact that they were in control of the vaccination in their ward. Many also valued the opportunity to engage with colleagues beyond their regular professional network. Schemes to recognise and reward peer vaccinators performance were appreciated.

Perceptions of the impact of peer vaccination on uptake varied. Some interviewees attributed progress in overall uptake to the increase in the number of peer vaccinators, while others noted that they had reduced the number of peer vaccinators over time in an effort to ensure more control and consistency of the programme. To mitigate inconsistency of practice, Trusts provided additional support to peer vaccinators, such as ward-based supportive supervision, and a WhatsApp group to respond to questions.

"In terms of having a consistent team, which the infection control team are, we will have a consistent view of how what is said. Whereas, if you start having lots of peer vaccinators, they might all approach it slightly differently." Trust 2

Deployment of peer vaccinators would often involve offering the vaccine in an ad hoc manner, with the Trust providing a list of peer vaccinators to staff, placing the onus on the individual vaccinator rather than the programme.

"It's not that coordinated, to be honest. They're just on as they... it's a very ad hoc thing, but it works, so..." Trust 6

While using peer vaccinators was seen as a way to save resources, and for example to reduce resorting to bank staff, recruiting and training peer vaccinators could generate additional workload.

3.3.3. Cultural aspects of using peer vaccinators

There were different views on the benefits and drawbacks of the clinical interaction between staff and peer vaccinators. One peer vaccinator reported that because of a relationship of trust with colleagues, they could more easily tailor inter-personal communication (eg. by talking about protecting an elderly relative or young children) and reassure anxious staff.

"[I tell the person], "it doesn't hurt at all," and I think because then they know me, if they get scared, then they're not embarrassed or anything like that. I think it helps and also we just try and have a laugh at the same time because they know me." Trust 8

However, there were potential pitfalls to this close relationship, including reports that peer vaccination administered in busy wards could be more "tense" for staff, with vaccination being rushed in busy clinical areas. Other examples reported by peer vaccinators were that any "difficult" conversation about refusal could be made awkward because of the familiarity between vaccinators. When the manager was also the peer vaccinator, tension could arise:

"...and then you could say you get a bit into I'm their boss and I'm maybe... it's not the right word for it, but harassing them to have it. So it's a very fine line between people feeling like you're cajoling them into doing something and actually them bringing out a grievance against you because you're harassing them into having it." Trust 9

3.4. Facilitating access to vaccination

3.4.1. Adapting service to staff needs

Trusts valued flexibility in their delivery strategy, and made efforts to adapt to demand and accommodate needs. The emphasis was on vaccinators going to staff rather than asking staff to go to vaccination services. This also involved developing approaches such as peer-to-peer counselling (eg. porter to porter) or providing a quiet room for needle phobic staff.

Making sure that the service was designed to match needs was considered a key ingredient of achieving high uptake and this led one high performing Trust to consult every department to enquire how they wanted the vaccine to be delivered, thus implicitly placing the onus on them to engage their staff.

> *"We can't say how we're going to do it, we've got to listen to what the staff tell us that they want, because if we deliver what they want then, really, we're setting ourselves up to succeed in that they'll get the vaccines."* *Trust 1*

3.4.2. Providing convenient access

Providing easy access to vaccination was considered by all Trusts to be critical to attaining high uptake and significant efforts were made to achieve this. Particular attention was paid to high-risk areas, often using peer vaccinators. Deliberate strategies were also used by ward managers such as the provision of a special clinical room in the immunology clinic for advising staff with allergies.

> *"It's so busy all the time, it's difficult for people to go off and be vaccinated. Whereas when they're doing it in our own area, you just catch them as they're going from one patient to another, you know, it only takes seconds so... the uptake has certainly been better over the last couple of years [since started to doing this]."* *Trust 7*

All Trusts also carried out opportunistic vaccination, organising sessions in staff meetings and induction events. One Trust had even shifted its bi-annual all staff meeting to coincide with the launch of the influenza campaign.

> *"So, if anybody is having a team meeting, estates, our estates colleagues always meet 8:30 on a Wednesday morning so we'll go down at 8:30. And we can get the big bulk of staff in that way."* *Trust 2*

3.4.3. Communicating vaccination opportunities to staff

Communication was aimed at the entire staff, with the intention of attaining high uptake, with several Trusts stating their ambition to achieve "herd immunity". Trusts placed a particular emphasis on vaccinating front-line healthcare workers who are the recommended target of the influenza programme. However, one hospital had reduced its Trust wide communication in recognition of the "normalisation" of the programme.

> *"We don't do as much myth busting, I think, as we did because people aren't asking for that anymore. What we do do is we do say, well done, if you've had your vaccine."* *Trust 1*

Trusts communicated through intranet, email and social media, with more targeted information about vaccination slots in specific clinical areas. For example, one hospital was careful not to announce so-called "closed sessions" for specific wards more than two weeks before actual vaccination to ensure that people would not "procrastinate", and would seize the immediate opportunity. In some cases, communication seemed more ad hoc, with a timetable communicated on the day or provided as part of clinical handover between shifts.

3.5. Managing resources

3.5.1. Use of resources

All Trusts reported that the programme required significant resources, and some acknowledged that with staff shortages, achieving high uptake was made more challenging. This also meant that Trusts increasingly had recourse to using bank staff. One Trust used the NHS-CQUIN (Commissioning for Quality and Innovation) incentive payment [32] to secure additional resources for the programme. High performing Trusts focused their efforts and optimised their resources:

> *"When you're vaccinating nearly... well, let's say 93% of the organisation, am I going to spend all the time concentrating on the 7%? It's a waste of our time."* *Trust 1*

In lower performing Trusts, managers observed that considerable investment did not always result in increased performance. Nurses might hold vaccination clinics and have no attendees.

One way to maximise resources was to schedule large investments at the start of the campaign, with one Trust noting that any gain after 6 weeks into the campaign tended to be small. To maximise use of resources, strategies included targeting lowest performing wards, leveraging capacity such as midwives vaccinating other members of staff, and integrating vaccination with existing activities such as infection control ward rounds.

> *"We visit all the adult in-patient wards every morning at half past 7 for what's officially called the infection control ward round. But it's unofficially called poo patrol. It's the poo and flu patrol in winter."* *Trust 2*

All Trusts valued the contribution the NHS incentive payment programme CQUIN made in improving uptake and were concerned about the reversal of these gains if the indicator was to be removed from the scheme.

3.5.2. Staff resources

Vaccinators reported high workload that sometimes led to neglecting other responsibilities, notably for those in Occupational Health and Infection Control departments. However, they felt that they performed an important responsibility vis-a-vis protecting patients, and many reported enjoying clinical and social interactions. Prizes for vaccinators were valued as recognition on behalf of the organisation. However, several staff in low performing Trusts reported feeling discouraged by the inability to increase uptake despite significant efforts.

> *"To be honest I honestly can't from the top of my head, think of anything we could potentially do to be able to increase the flu uptake."* *Trust 9*

3.6. Monitoring programme performance and benchmarking

Monitoring of programme performance varied between Trusts in both the frequency and set up. Most Trusts interviewed reported that vaccination data management incurred a high workload, and that ascertaining uptake could be complicated by uncertainties about which population should be targeted.

The way regular performance of the programme was communicated to staff also varied. In one Trust, a "Needle barometer" would inform the whole Trust of current performance, while in another one there was no understanding of actual performance and an overestimation by vaccinators of uptake compared to reality. High performing Trusts were more explicit about uptake progress during the influenza season. These also recognised that knowing

your performance and benchmarking against peers was important and effective.

"Being able to feedback real time statistics on how we're doing and how neighbouring Trusts are doing, has been very useful." Trust 6

Interviewees were divided on the benefits of reporting ward by ward, some seeing this as *"naming and shaming*". However, all recognised that this was important information to support effective monitoring. Most Trusts monitored reasons for refusals and incorporated findings in the design of the strategy for the following year.

4. Discussion

Irrespective of their vaccination uptake, all participating Trusts were fully committed to the HCW influenza vaccination programme and deployed a wide range of strategies and resources to reach all staff. It was striking that organisational models for the delivery of the programme tended to vary markedly across Trusts, in terms of governance, number and type of vaccinators, communication and monitoring strategies. Among interviewees, there was a recognition that delivery strategies needed to be tailored to the particular context in which Trusts operated and that there was no "fit for all" model. Our study suggests that organisational culture was possibly the most important ingredient when trying to differentiate between high and low performing Trusts. We found that a positive culture aimed at fostering continuous improvement and favouring non-coercion on balance yielded more adherence from staff. Several Trusts reported that declining vaccination could, in some cases, be a way for staff to exert their dissatisfaction with the organisation, beyond the issue of vaccination. In line with previous research [33–35], we found that when the influenza programme was perceived by staff as a natural component of the organisational wellbeing strategy, as opposed to being a seemingly siloed campaign, there was higher acceptance of the programme.

Nevertheless, our study identified a number of approaches that seemed more prevalent in high performing Trusts than low performing Trusts. These included a visible and engaged leadership; a feedback loop of results and benchmarking to steer the programme; engagement of departments across the whole organisation beyond the flu team; a deliberate approach tailoring the delivery strategies to needs of staff; and the availability and timeliness of resources to deliver the programme. This is consistent with what has been reported in other countries [26,27].

One high performing Trust in our study seemed to have moved nearer to achieving a normalisation of seasonal influenza vaccination, where the yearly influenza vaccine is considered as a "norm". This is consistent with previous research that shows influenza vaccination is influenced not only by individual factors but also by structural determinants such as social and cultural norms [36,37]. This is supported by research that identifies "having been vaccinated in the previous year" as a key predictor of vaccination for that influenza season [38].

The role of managers in fostering high uptake has been previously highlighted [26,39]. Senior staff championing influenza vaccination [21] and perceived importance of the influenza programme, by managers, was found more often in higher uptake Trusts compared to lower uptake Trusts [24]. The importance of a recommendation by the ward manager was also identified as an important factor of uptake in a Dutch study [40]. Our study suggests that middle managers have a key role to play in supporting high adherence and improving programme performance. Guidance should be provided to middle level managers on how to support their staff to get vaccinated, while avoiding unhelpful coercion and pressure. This is particularly relevant for ward managers who are also peer vaccinators, as these need to manage the tension between achieving vaccination targets and acknowledging the individual right to decline the vaccine. Finally, group dynamics and sub-organisational cultures within organisations would need to be further examined, as these act as a reinforcer of compliance [21] as well as a vector for vaccine refusal.

The level of commitment, effort and investment that high performing Trusts have demonstrated to achieve these results should not be underestimated though. Given that lower performing Trusts already have a comprehensive and multi-faceted influenza vaccination programme and evidence has shown that many of these activities were not related to differences between higher and lower uptake Trusts [24], any improvement in uptake is likely to necessitate more than transferring of best practices from high performing Trusts. While more coercive approaches were being considered by several staff in some lower performing Trusts, it seems that pathways towards sustainable performance would require an in-depth understanding of both individual and organisational causes of non-vaccination and engagement of staff and managers in implementing a tailored programmatic strategy [35].

5. Strengths and limitations

This is a small sample of acute hospital Trusts, which is unlikely to be representative of all NHS organisations. It only included acute Trusts that tend to perform comparatively better in uptake than community-based Trusts such as mental health, ambulances and community service Trusts. Although the sample of Trusts included fewer lower than higher performing Trusts, the range in performance and profile of these acute Trusts generated a rich set of interviewees' responses. While the findings explore differences in implementation between higher and lower uptake Trusts during one influenza season, interviewees reflected on change over the years, allowing them to reflect on pathways to improved performance. Finally, we cannot exclude respondents' response bias, notably for those managing the programme while we recognise that views of implementers might diverge from those health care workers targeted by the programme. However, the inclusion in the sampling strategy of vaccinators allowed us to give a more nuanced perspective about programme implementation than previous studies, which only surveyed either the occupational health team or the influenza campaign staff [21,24].

6. Conclusion

NHS hospitals in England have achieved an impressive level of vaccination uptake for seasonal influenza compared with most high-income countries. Despite strong national political commitment and support for the programme, there is persistent variation in performance. This study was able to shed light on key factors, and in particular to identify that organisational and management culture was important in achieving and maintaining high uptake. This points to embedding the influenza programme within a broader occupational health and wellbeing, having strong leadership and a normalising work culture to gain adherence by staff.

CRediT authorship contribution statement

SMJ, PP, AE, and SB participated in the conceptualization of the study. SMJ led the methodology and PP, TC, SB, AE and JY contributed to the further design of the methodology. SMJ, PP, TC and SB supported data acquisition and formal analysis of the qualitative evaluation. SMJ led the original draft of the manuscript. All authors supported review and editing of the manuscript.

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: [Tracey Chantler, Sadie Bell, Pauline Paterson and Sandra Mounier-Jack report that they were in receipt of funding from the National Institute of Health Research while conducting this research. Pauline Paterson has received research funding from GlaxoSmithKline, and has received honorariums from Sanofi Pasteur and Pfizer. Angela Edwards and Joanne Yarwood worked for Public Health England for the duration of this research. Douglas Gilbert worked at NHS England and NHS Improvement during the duration of the study.]

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The views expressed are those of the authors and not necessarily those of the NHS, the NIHR, the Department of Health, Public Health England or of the London School of Hygiene & Tropical Medicine.

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