

# Identifying strategies to increase influenza vaccination in GP practices: A positive deviance approach

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Identifying strategies to increase influenza vaccination in GP practices:

A positive deviance approach

Running head: Flu vaccination and positive deviance

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## **Abstract**

### *Background*

Influenza (flu) is an acute viral infection of the respiratory tract which can lead to serious complications for individuals within at-risk groups. Evidence indicates that aspects of organisation and delivery within GP practices can have an influence on the rates of flu vaccination uptake. Positive deviance is a methodological approach which facilitates identification of factors associated with high performance.

### *Aim*

To use positive deviance to isolate factors associated with high performance by comparing GP practices achieving high and low flu vaccination uptake.

### *Methods*

This was a qualitative study. Eighteen practice managers and two GPs from twenty GP practices participated, ten with high and low vaccination rates respectively. Telephone interviews were conducted, audio recorded and fully transcribed. Framework Analysis was used to analyse the data.

### *Results*

High uptake practices were more likely than low uptake practices to have a lead member of staff who demonstrated tenacity, have aspirational uptake targets, have developed and used additional prompts within their IT systems to identify eligible patients, have GPs who were opportunistically vaccinating, and use phone calls as a first line strategy to invite patients for vaccination.

### *Conclusion*

This is the first known qualitative study to identify strategies used by UK GP practices to deliver seasonal flu vaccination programmes. It is one of few studies using the robust and novel approach of positive deviance to inform healthcare recommendations. This approach has offered new and more nuanced insights into GP practice factors associated high flu vaccination uptake beyond those captured through large-scale survey research.

Mesh keywords: influenza, primary health care, general practice, vaccination

## Background

Influenza (flu) is an acute viral infection of the respiratory tract. In healthy individuals flu is usually self-limiting but for some it can be very serious resulting in hospitalisation. In England, a free annual flu vaccination has been offered for a number of years to those aged over 65 years, those in clinical risk groups, and pregnant women. In 2013, the roll-out of a programme to vaccinate all two to sixteen year olds against flu was also initiated. WHO guidance <sup>1</sup> indicates that developed countries should achieve a minimum of 75% uptake amongst the elderly population, and the European Union Council <sup>2</sup> recommends 75% uptake amongst all those at high risk. Whilst uptake in England has been approaching 75% for the over 65s for some years, that for clinical risk groups and pregnant women has consistently fallen well below this figure, as has uptake amongst the most recent cohort of children to be offered the vaccination <sup>3</sup>.

In England, the seasonal flu vaccination programme is operated through primary care. Individual practices, typically operated by General Practitioners (GPs), nurses and a practice manager, on average vaccinate 1000 patients within a 4-6 week period <sup>4</sup>. This process is managed independently with support from Public Health England (PHE) and public health colleagues working within local authorities. This is a large and complex task, requiring high levels of organisation, which is performed well by international comparisons <sup>5</sup>. In line with the Quality and Outcomes Framework <sup>6</sup>, GP practices receive financial incentives to achieve high uptake rates amongst their clinical risk groups, with pay reflecting percentage uptake beyond achieving a minimum threshold <sup>7</sup>.

At the individual level, the decision of patients to accept an invitation for flu vaccination is influenced by a number of factors, including perception of the threat of flu and fear of side-effects from vaccination <sup>8</sup>. Evidence also indicates however that practices themselves have an influence on uptake. A study by Dexter and colleagues <sup>4</sup>, involving the analysis of survey data from 795 practices across England, identified seven factors associated with higher flu vaccination uptake. These included, having a lead member of staff coordinating the flu campaign, producing a written report of practice performance, having a lead member of staff responsible for identifying eligible patients, interrogating practice IT systems to identify those eligible, sending out personal invitations to patients, persisting with vaccination attempts until QOF targets are reached, and the provision of flu vaccine to pregnant women by midwives. Dexter and colleagues initially identified practice factors to include in the survey through interviews with staff members from six high performing practices. The method used to identify these high performing practices, and what constituted 'high performance', is unknown. Furthermore, the approach taken does not reliably isolate factors peculiar to high performance. For this it is necessary to also identify the characteristics of lower performing practices and to draw comparisons.

An emerging approach used to examine the quality of health care and make recommendations for improvement is 'positive deviance' <sup>9</sup>. The central premise of this approach is that the knowledge about what works to improve care already exists within that community. It involves identifying and sharing practices employed by high performing organisations and is most suitable when there is variation in performance, and where there are robust and widely utilised measures of this performance. This is the case for flu vaccination uptake, monitored centrally from returns made by individual GP practices. A methodologically strong application of positive deviance involves the identification and contrast of practices used by both high and lower performers in order to isolate factors associated with success.

There is a paucity of research reporting on the application of positive deviance to inform healthcare recommendations. Within the context of flu vaccination, there is one study which used this approach to identify factors associated with vaccination uptake in a clinical setting<sup>10</sup>. This was however a US study examining how local health clinics responded during the 2009 H1N1 flu pandemic. The context of the pandemic, and the different organisation of healthcare delivery in the US, means that these findings have limited generalisability to the annual flu vaccination programme in the UK. This is the first known qualitative study to identify strategies used by UK GP practices to deliver seasonal flu vaccination programmes. It uses the robust and novel approach of positive deviance to isolate strategies associated with high performance by comparing GP practices achieving high and low flu vaccination uptake. This approach has the potential to offer new and more nuanced insights into factors associated with success beyond those captured through large-scale survey research.

## **Methods**

Institutional ethics approval was received for the study prior to commencement.

### *Identification of practices*

The flu vaccination uptake rates (for over 65s, under-65s with chronic illness, and pregnant women) for all practices in Coventry and Warwickshire were compared. Practices were sorted by percentage uptake at 31st January 2014 for each risk group. Practices with uptake above or below 75% in two or more risk groups were identified as having high or low uptake respectively, and then ranked by overall percentage uptake, that is, combined uptake across all groups. High and low uptake practices were ranked in descending and ascending order respectively. Finally a small number of practices were removed where the function or population was considered to be significantly different from others, for example where primarily the practice population was homeless, as these practices were considered to be less comparable and the findings less transferable.

### *Recruitment*

Researchers (KN and JP) contacted practices in the high and low uptake groups, working through the rank ordered lists in descending and ascending order respectively, and invited a senior member of staff (practice manager (PM) or GP) to participate. Individuals from the first ten practices on the list in the high uptake group participated. Within the low uptake group, four practices declined to participate. Where this occurred, researchers moved on to the next practice on the list until ten had been recruited.

### *Sample*

Participating practices were drawn from two neighbouring local authorities with a combined area of approximately 2000 km<sup>2</sup> and containing a total of 139 practices. Key characteristics of the practices are presented in table 1.

### *Table 1 about here*

Practices were mostly located in urban areas but a small number from each group had a rural designation. Practices in both groups were situated within a range of areas of deprivation; half of high and low uptake practices were situated within the top 40% most deprived neighbourhoods, and both groups had two practices within the top 40% least deprived

neighbourhoods. In both groups there were practices with a markedly greater proportion of elderly residents or young people. Similarly ethnic mix varied within the groups, with some practices situated within a largely White population and others within a largely non-White population. The size of practice populations varied. Practices in the high uptake group were typically smaller with a mean practice population of approximately 3500 (compared to 7500 in the lower group). Telephone interviews with 18 practice managers and two GPs from 20 practices (10 high and 10 lower) were conducted.

### *Data collection*

A semi-structured interview schedule was developed by the authors to collect information on the characteristics of each practice, types of strategies used to inform eligible patients about the flu vaccine and promote uptake, and aspects of leadership, planning and review. All interviews were conducted via telephone and audio recorded. Interviews were fully transcribed prior to analysis. At this point each participant was given a code, for example H4 or L2, the 'H' and 'L' denoting high and low uptake practices respectively.

### *Analysis*

Data were analysed using Framework Analysis<sup>11</sup>. Following a process of familiarisation with the transcripts, a coding framework was developed by the first author (KN). Initially codes reflected a priori issues informed by the interview schedule, however new codes were added as the process of indexing commenced. This involved coding each of the transcripts in turn with numerical labels, for example 2.1, 2.2 which represented each code. The framework was continuously refined as new codes emerged, or as existing codes were split or merged. This resulted in six final codes. A second researcher (JB) used the framework to code a sub-sample of ten transcripts to check for consistency of coding. A high level of agreement between coders was evident. Next 'charting' was undertaken. Two tables were created, one for high uptake practices and one for low uptake practices. Each table was identical, with column headings for each code and a row for each practice. A distilled summary of each participant's response in relation to each of the codes was placed within the relevant cell of the high and low tables as appropriate. Within each cell, a note indicating the page and line number of associated text was made to facilitate the identification of quotes at a later stage. This process of charting was also checked by the second researcher (JB) and once again a high level of consistency noted. Both researchers (KN and JB) then independently interpreted the data. This was done by making direct comparisons across all codes within a column, looking for areas of difference between the high and low uptake practices. Interpretations were then compared and discussed with each other and then the wider team. The final description of themes therefore reflects a shared understanding of the data. Following analysis, recommendations for GP practices to increase their flu vaccination uptake were developed. Whilst this was not an original aim of the study, the public health team involved felt that the learning should be shared as widely as possible. Accordingly, the recommendations were shared directly with all participating practices, and also all GP practices located within four clustered local authority areas, two of which were the authorities from which participating practices were drawn.

## **Results**

A summary of areas of difference between GP practices in the high and low uptake groups across six finalised codes is presented below. Illustrative quotes are provided in Table 2.

*Table 2 about here*

*Leadership*

Practice managers or practice nurses were most likely to be the lead in planning and coordinating flu vaccination within practices. In the high uptake group, leadership was always the responsibility of a single individual. In the low uptake group however, this was more fragmented, with either no clear lead in place or responsibility being shared by two or more people. Whilst there were skilled and motivated leads within both groups, it was notable that in the high uptake group there were a few leads that were especially driven and tenacious.

*Vaccination targets*

Most GP practices had flu vaccination targets and largely these were in line with the QOF minimum thresholds for clinical risk groups, and to achieve 75% uptake amongst the over 65s. There were several practices however within the high uptake group which had more aspirational targets which appeared to be more public health focussed than financially driven.

*Use of prompts on IT system*

Low uptake practices tended to use standard prompts built into their IT systems to alert the user that a patient was eligible for a flu vaccination. High uptake practices on the other hand made more sophisticated use of their systems by hand entering additional prompts.

*Opportunistic vaccination*

There was a clear distinction here between groups. In high uptake practices, GPs were reported to deliver the vaccination opportunistically, not allowing opportunities to vaccinate pass. There was an appreciation that this approach could capture some of the more ambivalent patients who may not otherwise book a separate appointment. There were a number of comments from those in the low uptake group however which indicated that this wasn't the culture within their organisation.

*Direct contact with patients*

At most practices, all eligible patients had at least one form of direct contact about the flu vaccination. Within the high uptake practices, initial contact was often made using several methods simultaneously, one of which was likely to be by telephone. In low uptake practices however, first contact was usually by a single method. Telephone calls were also sometimes used, but these were more likely to be used to 'mop up' the remaining patients.

*Planning and promotion*

It was clear that the flu vaccination programme placed a strain on GP practices and that high levels of planning and organisation were required to manage effective delivery. Most practices reported having a review and planning meeting sometime between June and August thus requiring that any input from supporting organisations is provided at or before this time. It was clear that in the low uptake group, a number of practices wished to identify where they could make improvements and also to develop and test out new strategies. In the high uptake group on the other hand, there were a few practices that reported that they were not exploring

other strategies, despite vaccination uptake still being low in some at-risk groups, particularly for pregnant women, and 2-3 year olds.

## **Discussion**

Using the approach of positive deviance we identified GP practices with diametrically opposed flu vaccination uptake rates and compared their in-house approaches and strategies to the vaccination of their patients. Five clear and distinct factors emerged. High uptake practices were more likely than low uptake practices to have a single lead member of staff who demonstrated tenacity, to have aspirational uptake targets, to have developed and used additional prompts within their IT systems to identify eligible patients, to have GPs who were opportunistically vaccinating, and to use a combination of methods including phone calls as a first line strategy to contact and invite patients for their vaccination.

The findings of this study should be considered in light of its strengths and weaknesses. The approach used to identify practice characteristics and strategies associated with high flu vaccination uptake is robust and ensures that factors common across the board are not erroneously selected. The method used to identify high and low uptake practices was also strong, ensuring that practices had relatively high flu vaccination uptake for all at risk groups, rather than just a high overall uptake figure. Practices were also drawn from a reasonably large geographical area, with diverse neighbourhoods including a mix of rural and urban locations, and both high and low levels of deprivation. A weakness of the study was ceasing data collection on pragmatic grounds rather than on the achievement of saturation. It is possible that including further practices would have enabled further differences between high and lower performing groups to emerge. A further weakness was the absence of information on the number of Whole Time Equivalent (WTE) GPs, nurses and other supporting staff within each practice. This could have been used along with data on the size of each practice population to provide an indication of the level of patient demand. This is important as patient demand may have affected each team's ability to perform strategies to increase vaccination uptake.

The findings from this study share similarities to those by Dexter and colleagues<sup>4</sup> which have been used to develop a checklist of recommend strategies for GP practices to employ in the annual flu plan produced by Public Health England (see<sup>12</sup> for the most recent edition). There are however some additional and more nuanced factors which warrant attention. Dexter and colleagues<sup>4</sup> identified that having a lead member of staff arranging the vaccination campaign was associated with increased uptake. In the present study, all of the high uptake practices had a single lead member of staff. In the low uptake practices however, leadership was somewhat fragmented with either no lead or the responsibility shared across members of the team. What also set the high uptake practices apart was having a lead who was particularly driven and determined to achieve their uptake target. Leadership in the high uptake practices pertained not only to key functions such as ordering in sufficient supply of vaccine and managing their cold storage, as were common amongst their counterparts, but also to the setting of targets, running reports to identify eligible patients, coordinating and enthusing staff to work together, and regularly reviewing and reporting on progress.

In the high uptake practices, an aspirational uptake target was more likely to be reported than in the low uptake practices. The target for low uptake practices was usually the achievement of QOF benchmarks. High uptake practices indicated that there was a continual push to improve performance and to do better for their patients. Dexter and colleagues<sup>4</sup> asked



respondents to indicate at what point they ceased vaccinating each year. Continuing vaccination until QOF targets had been reached rather than stopping sooner, such as when vaccine supply ran out, was associated with greater uptake. They concluded that the pursuit of QOF targets may be a driving force behind higher uptake levels. In the present study, those leading vaccination within GP practices were almost without exception practice managers or practice nurses who are unlikely to personally benefit from any related financial reward. Whilst QOF targets may be working to motivate performance up to a threshold value, it appears that more aspirational attainment is driven by motivations beyond financial gain.

This study corroborates the finding of Dexter and colleagues <sup>4</sup> that higher uptake is associated with sophisticated use of IT systems and the addition of in-house prompts to alert practice staff to patient eligibility for flu vaccination. Exceptional examples were uncovered of lead members of staff interrogating their systems on a daily basis, identifying patients due to visit and then coordinating the response of staff to ensure the opportunity for vaccination was not lost. Dexter and colleagues <sup>4</sup> found higher flu vaccination uptake to be associated with direct patient contact. In the present study, a variety of methods was used across the two groups to contact patients. What set the high uptake practices apart was their use of multiple methods, including making telephone calls, as a first line strategy. Telephoning patients may be particularly effective due to the personal nature of the invitation, because it reduces burden on the patient, and because it may capture the more ambivalent patients who may not otherwise be sufficiently motivated to book at appointment. Of note, the low uptake practices tended to be larger in size than the high uptake practices which may make this approach less feasible.

A factor which was isolated as unique to high uptake practices in the present study was the tendency for GPs to opportunistically vaccinate. Whilst this was reported by high and low uptake practices, those in the former group were doing it more consistently and there was the suggestion that they recognised the importance of this in order to avoid some patients, particularly the more ambivalent ones, ‘slipping through the net’. Opportunistic vaccination by GPs was not investigated by Dexter and colleagues <sup>4</sup>. Our findings suggest that this may be an additional distinguishing factor associated with higher uptake.

## **Conclusions**

The above findings lead to primary understandings which are of value to GP practices and public health officials tasked with monitoring and improving flu vaccination uptake. Strategies including providing in-house training on how to exploit the available functions within practice IT systems, training and supporting administrative staff to invite patients for vaccination by telephone, and developing a culture and systems which support GPs to embed vaccination into routine appointments, all have the potential to positively impact upon vaccination rates. Furthermore, professional development and training of primary care staff which encourages individuals to lift expectations above routine targets and achievement would be valuable.

The findings of the present study have been contrasted with those of Dexter and colleagues <sup>4</sup> to demonstrate the complementarity of approaches. On the whole the factors associated with success across the two studies overlap, however the approach adopted by the present study more precisely defines the criteria. Large scale survey studies have an important place, enabling the strength of association between practice factors and vaccination uptake to be statistically derived and compared. However, it should be recognised that in doing so these

factors are potentially reduced to proxy measures. Breaking down the aspects of success that are salient, and in particular isolating those that are unique to high performing organisations, in addition to larger scale quantitative studies, is a methodologically sound and rigorous approach. This combination of methods enriches understanding and provides solid ground on which to inform policy change.

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Table 1 Key characteristics of participating GP practices<sup>1</sup>

Practice number	Deprivation <sup>2</sup>	Percentage over 65 years <sup>3</sup>	Percentage under 18 years <sup>3</sup>	Percentage non-White (British or Northern Irish) <sup>3</sup>	Rural and urban area classification <sup>4</sup>	Size of patient population (approx)
1	13,284	25	20	3	Town and Fringe	5,200
2	6,720	15	21	8	Urban >10k	2,300
3	26,896	22	19	5	Town and Fringe	3779
4	23,724	14	19	27	Urban >10k	5400
5	13,304	6	10	32	Urban >10k	4300
6	4,256	9	23	50	Urban >10k	2700
7	18,099	22	17	7	Urban >10k	3200
8	3,435	8	30	83	Urban >10k	2,500
9	8,347	7	18	54	Urban >10k	1,800
10	6,969	11	27	19	Urban >10k	3,200
11	12,218	19	21	8	Urban >10k	4000
12	21,219	23	19	3	Village Hamlet and Isolated Areas	4600
13	19,669	7	25	4	Urban >10k	5600
14	864	9	31	79	Urban >10k	3,600
15	10,628	19	21	31	Urban >10k	2,657
16	18,395	28	9	18	Urban >10k	13,000
17	14,819	10	12	35	Urban >10k	6,300
18	9,514	28	13	7	Urban >10k	14,000
19	13,104	12	25	3	Town and Fringe	12 000
20	22,534	13	23	6	Town and Fringe	10 000

<sup>1</sup>Rows shaded in light grey represent high uptake practices, and rows shaded in dark grey represent low uptake practices

<sup>2</sup>Based on Index of Multiple Deprivation (IMD) sourced using Index of Deprivation 2015 Explorer. Available at: <http://dclgapps.communities.gov.uk/imd/idmap.html>. IMD is given for Local Super Output Area (LSOA) in which GP practice based. Figure represents position in ranked order of most deprived English neighbourhoods (where 1 = most deprived). Total number of total LSOAs is 32,844.

<sup>3</sup>Data based on 2011 census available at: <http://www.neighbourhood.statistics.gov.uk/dissemination/LeadHome.do?m=0&s=1456823364977&enc=1&nsjs=true&nsck=false&nssvg=false&nswid=1366>.

<sup>4</sup>Data reflects area classification for Super Output Area (SOA) in which LSOA located. Available at:

<http://www.neighbourhood.statistics.gov.uk/dissemination/LeadHome.do?m=0&s=1456823364977&enc=1&nsjs=true&nsck=false&nssvg=false&nswid=1366>.

Table 2 Illustrative quotes summarising differences between high and low uptake GP practices

Code	Illustrative quote
Leadership	<p data-bbox="794 336 1401 479">So we're so obsessed about this, or I am I guess, and I've been doing this job for 34 years so I can tell you that its always this big thing ... Honestly, it's OCD!' (H4)</p> <p data-bbox="794 517 1406 772">She [lead] is like a dog with a bone! She really, really does want to get everybody in who's entitled. So you know we, we do as much as we possibly, possibly can and you know we don't really give up until it's, we feel as if we've flogged it to death with some people!' (H3)</p>
Vaccination targets	<p data-bbox="794 813 1394 920">'Every year we want to do better than last year. I strongly believe that everyone in an at-risk group must be vaccinated' (H7)</p> <p data-bbox="794 958 1382 1066">'As high as we possibly can, more than the previous year, that's what we say every year' (H9)</p>
Use of prompts on IT system	<p data-bbox="794 1104 1401 1655">'But it's easy to overlook that [QOF alert] because if it comes up with every single patient going in ... it's easy for them to miss that they need the flu jab. So we just help them ... you can put a manual alert on that patient's individual record and we'll often do that, 'Dr, needs flu jab, don't let me keep asking xx', you know! Or then you've got the [digital] appointment book and you can put messages under the name of the patient on the appointment book ... you know, with little bits of extra information like 'patient is coming for', I don't know, 'prescription review' or you might put in there instead 'please can you do the flu jab while they're in there'' (H4)</p> <p data-bbox="794 1693 1401 1984">'We put an alert on everybody's record that pops up when they book an appointment, when they come and see a doctor, there's an alert on saying 'eligible for flu jab', and then those are taken off as and when the flu jab's given. So we continually run reports to see, at any given time, who's entitled and hasn't been [and had one]' (H3)</p>

<p>Opportunistic vaccination</p>	<p>‘They [GPs] do [give opportunistically]; they actually have flu jabs available within their surgeries. So they will opportunistically give the flu jab to the patient’ (H5)</p> <p>Yes, yeah [GPs always give the vaccination opportunistically], I mean unless a patient had come in because they were having a heart attack or something like that! ... we do do a lot of opportunistic vaccinations’ (H3)</p> <p>‘You know, whilst they’re here I think people sort of like.. maybe somebody who’d say ‘oh I haven’t got time to book an appointment’, you know being offered it there and then I think it makes people more willing to sort of like to do it’ (H3)</p> <p>That’s why our doctors will do flu jabs as well, because otherwise if we just rely on the nurse doing it you might get some slip through the net’ (H6)</p> <p>‘GPs are definitely less likely themselves to give it there and then. They will normally refer it to the nurse’ (L12)</p> <p>‘They’re supposed to [laughter]... Well, most of them do, yeah, or they book them in to see the nurse’ (L19)</p>
<p>Direct contact with patients</p>	<p>‘We tend to adopt a calling program first, so we’ll try phoning them, and if we’ve not got an up to date phone number, in those cases, we can’t get hold of them, we will send letters’ (H6)</p> <p>‘The receptionists are very proactive. They are given lists of eligible patients and they will call them several times. We will mail out if necessary but I think the personal touch is important. Letters can be a waste of time’ (H7)</p> <p>‘We’ll run a report to identify the patients that the system is telling us should have one and haven’t had, so we’ll send a letter to all of those patients, and we generally do three letters’ (L11)</p>

	<p>‘That’s [sending letters] the most time efficient way of doing it because obviously there were so many people to ring you don’t have enough hours in the day to ring everybody’ (L12)</p>
<p><i>Planning and promotion</i></p>	<p>‘I guess there’s just, you know, there’s always a little bit more that you can do isn’t there to try, and you know we’ll certainly be positively working towards that this year to see if we can increase those numbers’ (L11)</p> <p>Yeah, so basically we review ... this year we wanted to sort of target the over 65s more ... I would like to improve the over 65s to get that to over 75 percent. So that will be the target this year for the nursing team. And again from that it will be; can we offer more clinics? Do we need to do weekend clinics? It’s how we actually all sit down and discuss that in July’ (L12)</p> <p>‘No, no [we don’t review], because, I don’t know if you saw last year’s figures, but we’re usually one of the highest, usually first or second in the city and that’s been for quite a number of years now, so we’re happy with what we’re doing’ (H9)</p> <p>‘If it works why change it? If we were struggling to hit our targets we’d do other things’ (H10)</p>