Annual report

Shingles (herpes zoster) vaccine programme in Scotland for 2016/17

NHS National Services Scotland

Executive summary

Shingles vaccine coverage for Scotland in the fourth year of the programme is presented in this report. The coverage of the vaccine in both the routine and catch-up cohorts is compared with previous years of the programme. The impact of deprivation on uptake of the vaccine is also discussed.

In the 2016/17 programme the vaccine was offered to those aged 70 years old and to a catch-up cohort of those aged 76 years. In addition, the two age groups, introduced in February 2016 (those aged 77 and 78 years) continued as targeted catch-up cohorts as they had not previously been in the programme for a full year.

In the fourth year of the programme, vaccine coverage reached 46.5% for the routine cohort representing a decrease of 7.9% from the 2015/16 season. There was also a substantial decline in coverage in the catch-up cohort of 11.7% to 39.8%. Provisional data reported by PHE for England and Wales until February 2017 also showed decreasing vaccine coverage in both cohorts, although not of the same magnitude. Similarly to previous seasons, vaccine coverage in the routine cohort (aged 70) was significantly higher than that of the catch-up cohort (aged 76) with a difference of 6.7%. However, there was an increase in coverage in those who were aged 70 years in the first year of the programme demonstrating that vaccination of groups who remained eligible was taking place opportunistically.

There are a number of possible reasons for the continued decline in shingles coverage, including confusion over eligibility and concerns around contraindications for the vaccine.

Shingles (herpes zoster) is a painful vesicular skin rash which is caused by reactivation of varicella zoster virus usually decades after the primary infection in childhood. Shingles lasts from between two to four weeks, however some people go on to develop post-herpetic neuralgia (PHN), which is a long-lasting neuropathic pain. The risk and severity of shingles and related complications increases with age. It is important that GPs continue to offer shingles vaccine to eligible patients in order to prevent the burden of disease associated with shingles and long term pain complications.

Health Protection Scotland

1. Introduction

Shingles (herpes zoster) is a painful vesicular skin rash which is caused by reactivation of varicella zoster virus usually decades after the primary infection in childhood.[1,2] Shingles usually lasts from between two to four weeks, however some people go on to develop post-herpetic neuralgia (PHN), which is a long-lasting neuropathic pain after rash has resolved. PHN can persist for months or years and is often very debilitating.[3,4] Treatment tends to focus on pain management and effective treatment with tolerable side effects is a major clinical challenge.

The risk and severity of shingles and PHN increases strikingly with age and is estimated to double with each decade.[5] Other significant complications include herpes zoster ophthalmicus (HZO), which is defined by shingles involvement in the ophthalmic division of the trigeminal nerve.[6] In Scotland annually, an estimated 7000 people aged 70 years and above develop shingles. Of these between 700 and 1400 develop PHN with approximately 600 shingles-related hospitalisations each year.[7]

A national Shingles vaccination programme was introduced in the UK in September 2013 using Zostavax®. The vaccine works by boosting the individuals' pre-existing VZV immunity with the aim to reduce the incidence and severity of shingles. As Zostavax® is a live attenuated vaccine, it is contra-indicated for patients who have a known primary or acquired immunodeficiency, or patients who are receiving current immunosuppressive therapy including high-dose corticosteroids, biological therapies or combination therapies. The Green Book Chapter 28a Shingles should be referred to for full details.

In the fourth year of the programme (1 September 2016 to 31 August 2017) the vaccine was offered to those aged 70 years old and to a catch-up cohort of those aged 76 years. In addition, the two age groups, introduced in February 2016 (those aged 77 and 78 years) continued to be included as catch-up cohorts as they had not been included in the programme for a full year previously. People who were eligible but had not yet taken up the offer of vaccine since the start of the programme in September 2013 continued to remain eligible until the age of 79. This report describes the coverage of the vaccine in both the routine and catch-up cohorts and compares with previous years of the programme. The impact of deprivation on uptake of the vaccine is also discussed.

2. Methods

Cumulative vaccine coverage data were extracted automatically from approximately 99% of GP practices in Scotland via GP IT software suppliers, on a monthly basis. Annual vaccine coverage is derived from the proportion of the total number of patients aged 70 and 76 years, as registered on 1 September 2016, who received shingles vaccine between 01 September 2013 to 31 August 2017. GP practice level data were matched onto national reference files to obtain information on Scottish Index of Multiple Deprivation (SIMD) and area type as defined by the Scottish Government's 4-fold urban/rural indicator with SIMD quintile assigned based on the postcode of the practice. Single variable logistic regression was used (separately for those aged 70 years and 76 years) to assess which variables (SIMD quintile, urban-rural indicator, NHS board, sex) had a significant association with uptake.

3. Results

3.1. Vaccine coverage for the routine and catch-up cohorts

Shingles vaccine coverage in 2016/17 for Scotland and by NHS board is shown in Table 1. Coverage in those aged 70 years (routine cohort) was 46.5% compared with 54.4% in 2015/16; 60.3% in 2014/15 and 59.3% in 2013/14. Coverage ranged from 39.2% to 59.5% by NHS board. Coverage in those aged 76 years (catch-up cohort) was 39.8% compared to 50.9% in 2015/16 and 55.4% in 2014/15 and ranged from 31.1% to 63.1% by NHS board. Vaccine coverage in the two additional catch-up cohorts introduced in February was 42.1% in those aged 77 years, and ranged from 34.9% to 64.6% and 42.6% in those aged 78 years and ranged from 35.7% to 63.4% by NHS board.

Figure 1 shows the vaccine coverage for both the routine and catch-up cohorts by NHS board. Coverage in the new catch-up cohort in 2016/17 (aged 76 years) showed a similar trend to previous years with coverage significantly lower than for those aged 70 years ($p < 0.001$). This trend was apparent across 13/14 NHS boards. Those NHS boards with low coverage in the routine cohort generally had low coverage in the catch-up cohorts.

Figure 1: Vaccine coverage for the routine and catch-up cohorts by NHS board.

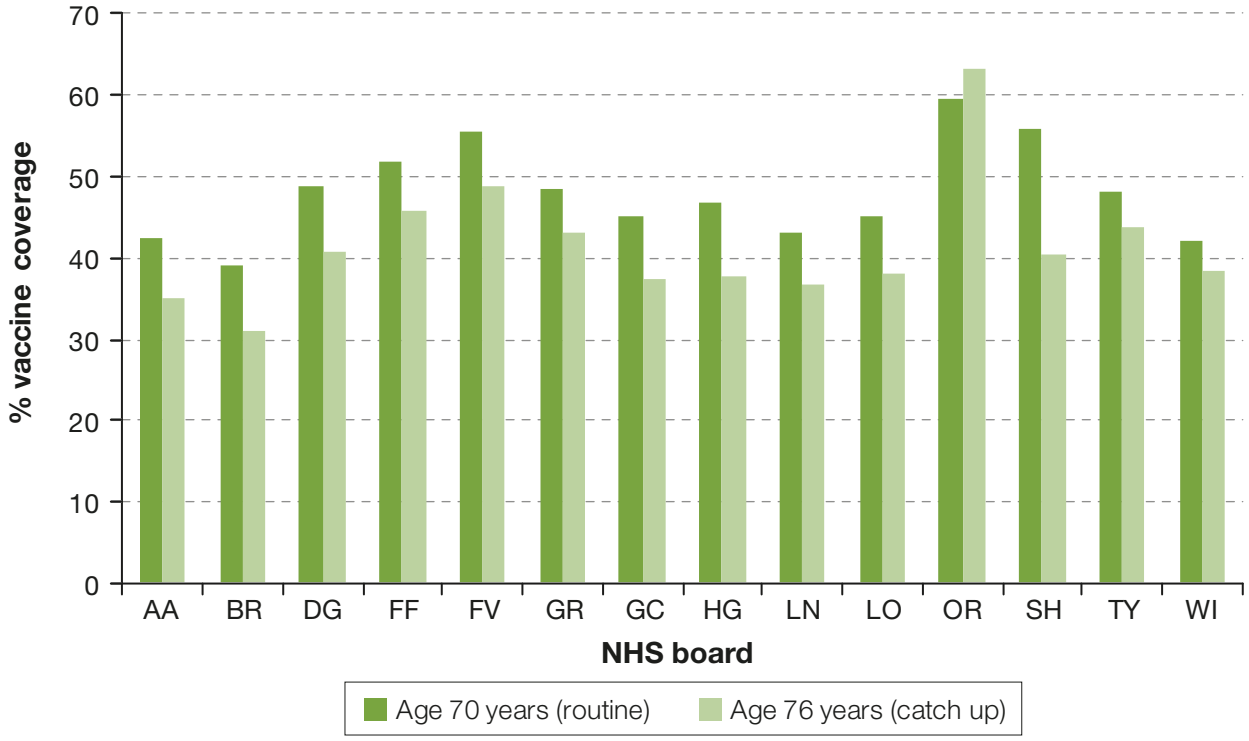


Table 1: Vaccine coverage in 2016/17 for the routine and catch cohorts by NHS board and all Scotland.

NHS board	70 years old Cohort	70 years old Number	70 years old % coverage	76 years old Cohort	76 years old Number	76 years old % coverage	77 years old Cohort	77 years old Number	77 years old % coverage	78 years old Cohort	78 years old Number	78 years old % coverage
AA	4442	1885	42.4	3158	1112	35.2	2909	1014	34.9	2825	1009	35.7
BR	1546	606	39.2	1033	321	31.1	1060	389	36.7	937	366	39.1
DG	1970	963	48.9	1418	580	40.9	1366	671	49.1	1249	606	48.5
FF	4014	2079	51.8	2653	1216	45.8	2625	1193	45.4	2477	1082	43.7
FV	3137	1740	55.5	2166	1060	48.9	2121	972	45.8	2010	927	46.1
GR	5569	2697	48.4	3876	1670	43.1	3623	1676	46.3	3488	1691	48.5
GGC	9839	4427	45.0	7202	2698	37.5	7069	2494	35.3	6779	2458	36.3
HG	3828	1790	46.8	2690	1015	37.7	2503	1084	43.3	2378	1078	45.3
LN	6106	2637	43.2	4482	1648	36.8	4242	1687	39.8	4151	1664	40.1
LO	7557	3408	45.1	5303	2020	38.1	5034	2227	44.2	4966	2158	43.5
OR	257	153	59.5	217	137	63.1	181	117	64.6	183	116	63.4
SH	217	121	55.8	171	69	40.4	146	82	56.2	154	79	51.3
TY	4495	2164	48.1	3247	1416	43.6	3115	1524	48.9	2991	1454	48.6
WI	329	138	41.9	262	101	38.5	244	127	52.0	233	129	55.4
Scotland	**53306**	**24808**	**46.5**	**37878**	**15063**	**39.8**	**36238**	**15257**	**42.1**	**34821**	**14817**	**42.6**

*Please note that figures reported from the Island NHS boards are based on very small numbers.

Figure 2 presents the annual shingles vaccine coverage in the routine cohort by NHS board from the start of the programme until 2016/17 and shows that there has been a continuation of this decreasing trend in coverage. This is across all of the NHS boards.

Figure 2: Annual shingles vaccine coverage for routine cohorts by NHS board from 2013/14 to 2016/17.

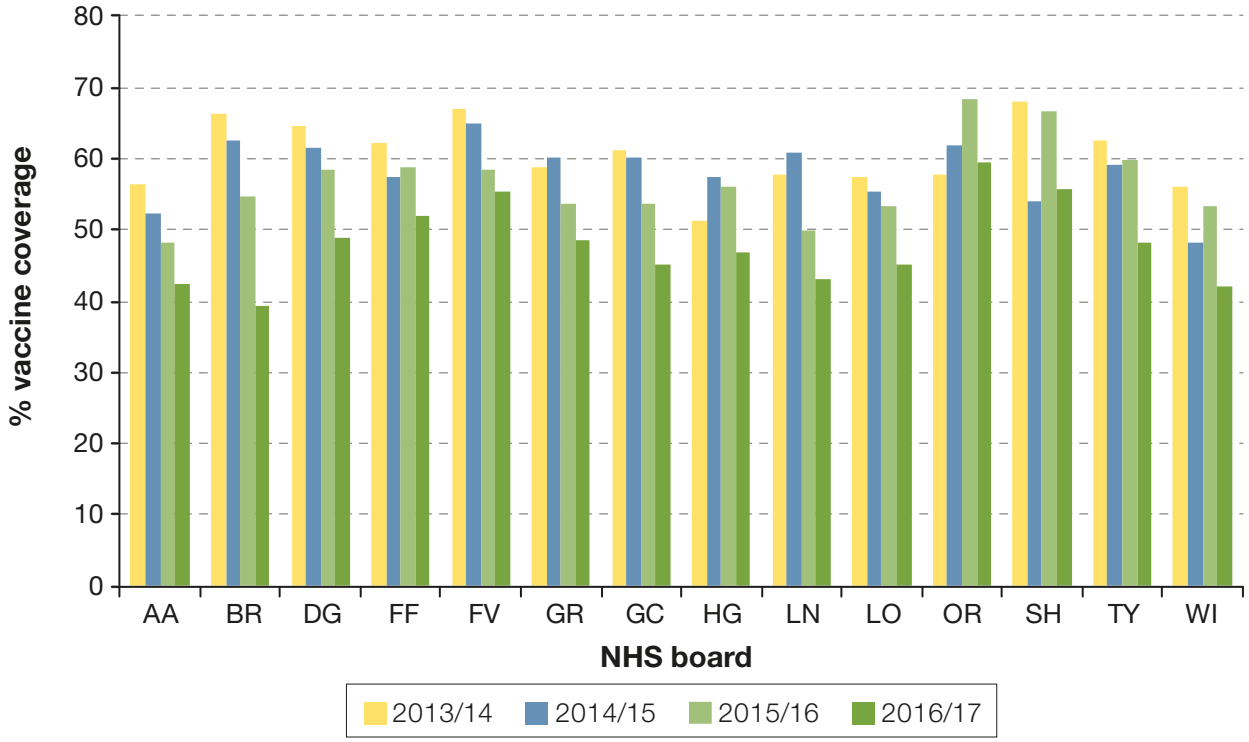


Figure 3 and Figure 4 present the cumulative increase in vaccine coverage by month for both the routine and catch-up cohorts for 2016/17 compared with previous years. The increase in vaccine coverage over time in the routine cohort showed a similar trend as previously with the majority of vaccines, approximately 70%, administered by the end of December, coinciding with the seasonal influenza vaccination programme. However this varied across NHS board and ranged from 56% to 89% vaccines administered within the same time period. The catch-up cohort showed a slower trend over time with 65% of vaccines administered by the end of December.

Figure 3: Monthly cumulative vaccine coverage for the routine cohort (age 70 year olds) for the 2016/17 season by month compared to 2013/14, 2014/15 and 2015/16 data.

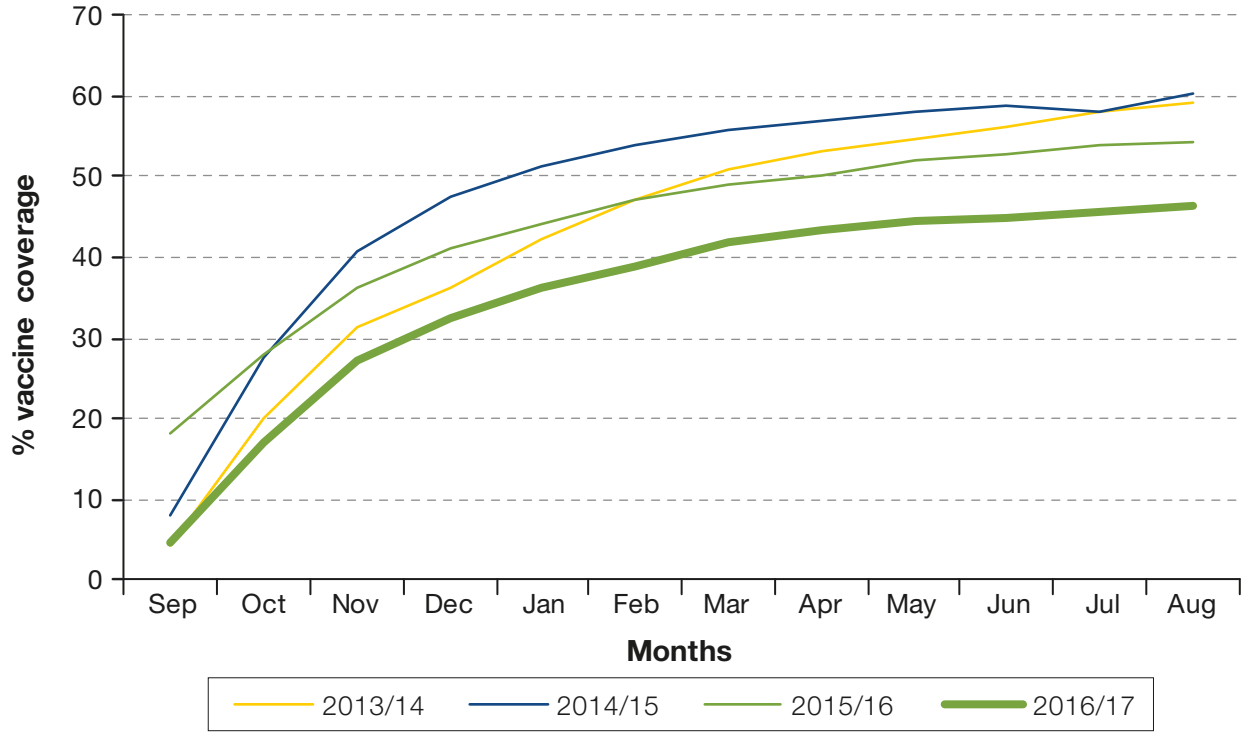
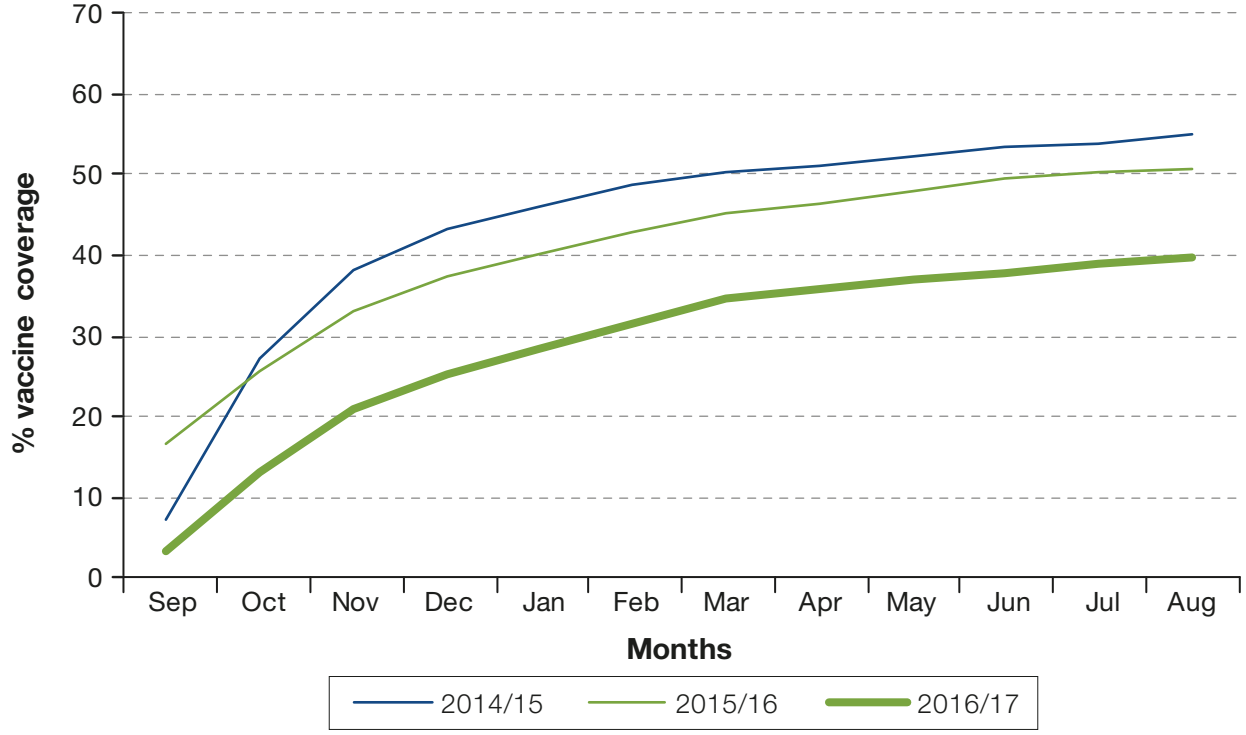


Figure 4: Monthly cumulative shingles vaccine coverage for catch-up cohorts for the 2016/17 season compare to 2015/16 and 2014/15 data.*



*NB. The catch-up cohort age groups vary by year therefore are not directly comparable.

In line with previous years, those who were eligible for the programme from the start, and who had not previously taken up the offer of vaccine, remained eligible until the age of 79 years. Vaccine coverage for those aged 71 and 72 and 73 years who were aged 70 in the 2015/16, 2014/15 and 2013/14 programmes increased to 59.7%, 67.2% and 69.3%, respectively, showing that vaccination of these groups who remain eligible is still taking place on an opportunistic basis.

3.2. Vaccine coverage by gender

Figure 5 presents vaccine coverage by gender for the routine cohort by NHS board and shows a wide variation for males ranging from 25.2% to 57.1% and for females ranging from 30.1% to 67.2%.

Figure 5: Annual vaccine coverage by gender by NHS board for 2016/17 for the routine cohort (age 70 years).

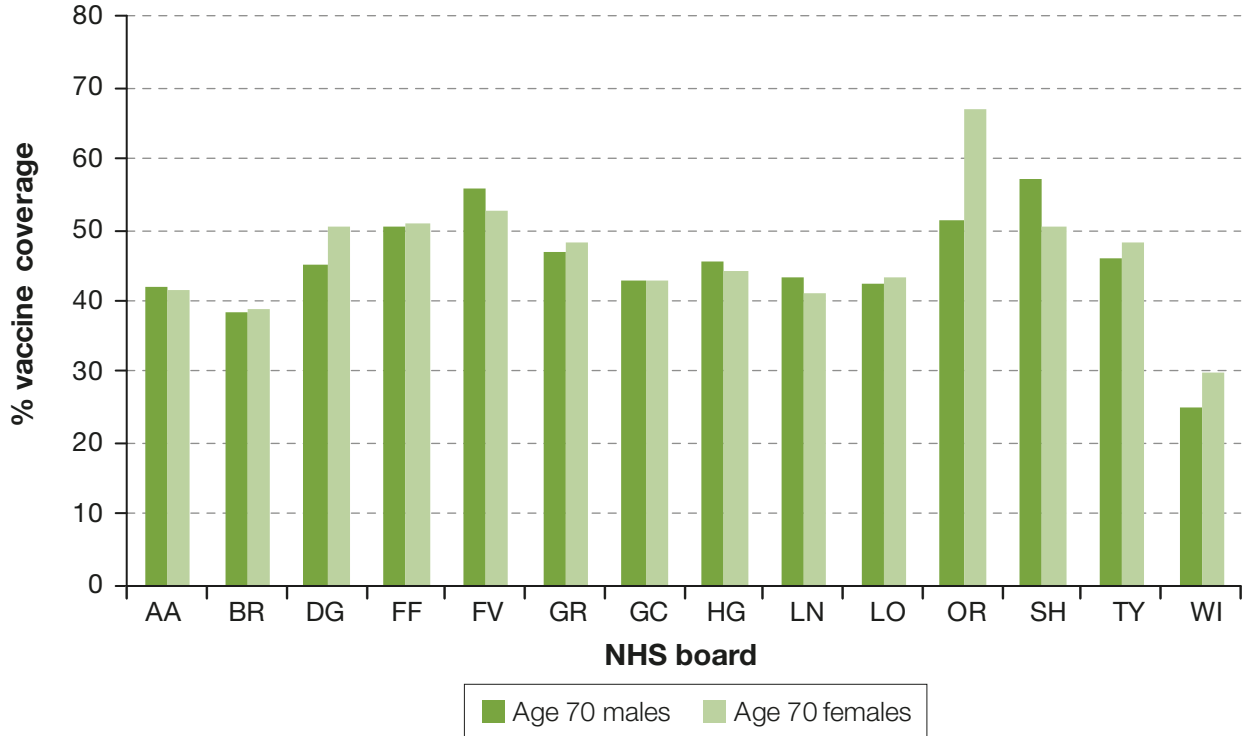
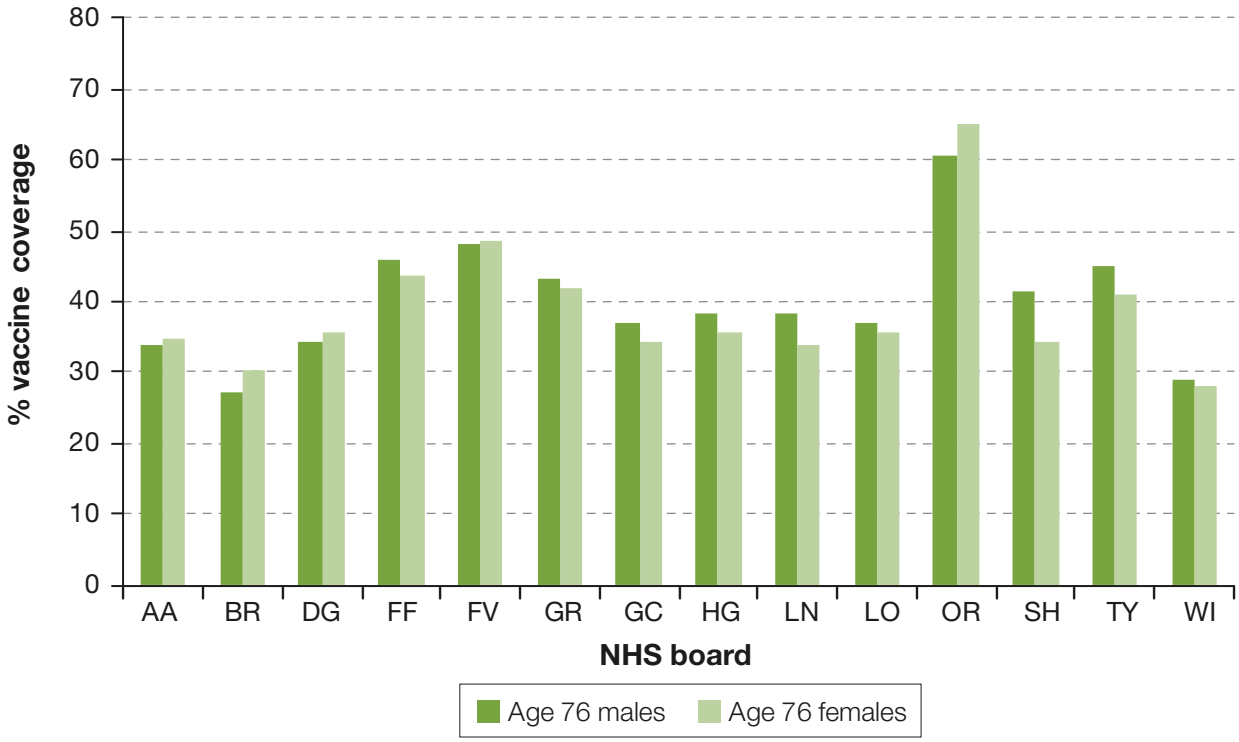


Figure 6 presents vaccine coverage by gender for the catch-up cohort by NHS board and shows a wide variation in coverage for males ranging from 27.5% to 60.8% and for females ranging from 28.3% to 65.2%.

Figure 6: Annual vaccine coverage by gender by NHS board for 2016/17 for the catch-up cohort (age 76 years).

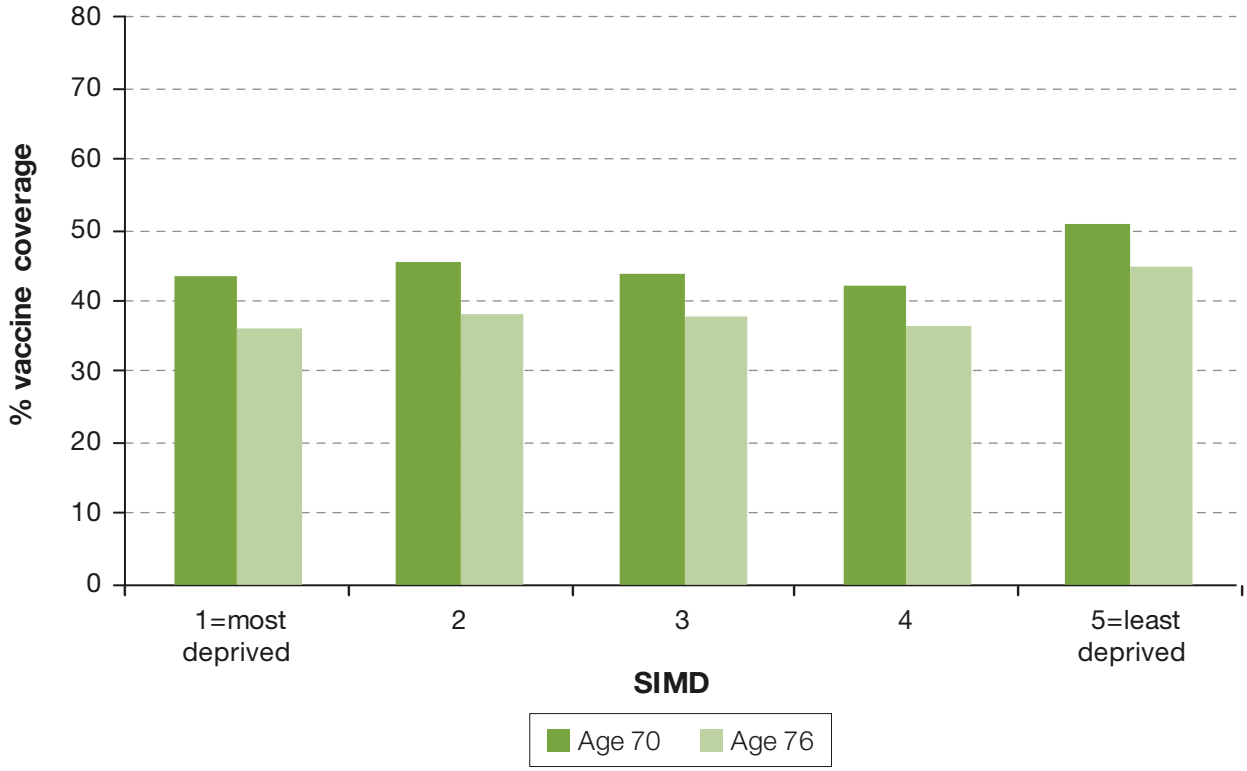


For both males and females, vaccine coverage was higher in the routine cohort compared to the catch-up cohort (45.0% compared to 39.5% for males, 45.1% compared to 37.6% for females). In the routine cohort, coverage for males and females was not significantly different ($p = 0.704$), whereas in the catch-up cohort uptake for females was significantly lower than for males ($p < 0.001$).

3.3. Impact on vaccine coverage by deprivation

Figure 7 shows the vaccine coverage by the Scottish Index of Multiple Deprivation (SIMD) quintiles. For each of the SIMD quintiles, vaccine coverage was lower for the catch-up cohort. For both the routine and catch-up cohort, coverage was highest in GP practices in the most affluent areas (SIMD5), compared with GP practices in most deprived areas (SIMD1) with coverage of 50.9% compared to 43.4% ($p<0.001$) for 70 year olds and 44.8% compared to 36.2% ($p<0.001$) for 76 year olds. The SIMD quintile had a significant association with vaccine coverage however the trend was not linear across the SMID quintiles.

Figure 7: Vaccine coverage by Scottish Index of Multiple Deprivation (SIMD) quintiles for routine and catch-up cohorts in 2016/17.



For each urban-rural category, vaccine coverage was lowest in very remote areas and highest in remote small towns.

4. Discussion

In the fourth year of the shingles vaccine programme in Scotland, vaccine coverage reached 46.5% for the routine cohort representing a decrease of 7.9% from the 2015/16 season. There was also a substantial decline in coverage (11.7%) in the catch-up cohort from 50.9% to 39.8%. Provisional data for England and Wales reported by PHE until February 2017 also showed decreasing vaccine coverage in both cohorts, although not of the same magnitude.[8]

Similarly to previous seasons, vaccine coverage in the routine cohort (aged 70) was significantly higher than that of the catch-up cohort (aged 76) with a difference of 6.7%. This trend was apparent across 13/14 NHS boards. This is in contrast with that reported by PHE since the start of the programme, where coverage for both the routine and catch-up cohorts has been similar.

There are a number of possible reasons for the continued decline in shingles coverage. A decision was made in Scotland, to add a further two catch-up cohorts, those aged 76 and 77 years in February 2016, to the 2015/16 programme to ensure efficient use of vaccine stock within its shelf life. These two cohorts subsequently remained eligible as targeted catch-up cohorts during the 2016/17 programme (then aged 77 and 78 years), with a new catch-up cohort added on the 1 September 2017 of those aged 76 years. Feedback from NHS boards indicated that this may have resulted in some confusion over eligibility and this may therefore

have contributed to a reduction in vaccine coverage. It is anticipated that by the 2018/19 season, there will no requirement for any further catch-up cohorts and the programme will be aimed at those aged 70 years, which should result in less confusion over eligibility.

Feedback from NHS board also cited concerns around shingles being a live vaccine and contraindications for vaccination. This has resulted in some NHS boards actively recommending that administration of shingles vaccine was uncoupled from the seasonal influenza clinics for reasons of safety. This may impact on uptake as patients would have to be recalled for shingles vaccine at another time.

Since the start of the programme in 2013, there has been a wide variation in vaccine coverage between individual GP practices which ranges from 0% to 100% even within the same NHS board. While the reasons for this remain unclear, it does highlight potential inequalities in access to the vaccine, particularly when the success of the programme depends on the individual practice recall system.

As in previous seasons, deprivation had an impact on vaccine coverage with GP practices in the most affluent areas having significantly higher coverage than practices in the most deprived areas, which has also been reported in England.[9]

As in previous years, data was collected on patients who were contraindicated for vaccine, of 4.1% in those aged 70 years and 3.4% in those aged 76 years. However the data also showed vaccine uptake of 14.3% and 18% within those who were recorded as contraindicated. Investigation with individual practices indicated that some patients had historic diagnoses for which the correct clinical decision was to vaccinate; these were however, still being counted as contraindicated. It is probable therefore that these data are not reliable for estimating the proportion of the population who are contraindicated for shingles vaccine.

Vaccine coverage increased from 59.7% to 69.3% in those who were aged 70 years in the first year of the programme (2013/14), demonstrating that vaccination has continued in those who remained eligible and who had not previously taken up the offer to be vaccinated.[10]

It is important that GPs continue to offer the shingles vaccine to eligible patients in order to prevent burden of disease associated with shingles, particularly long term pain complications. Continued monitoring is important to inform local and national practice to encourage uptake of vaccine.

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NHS board abbreviations

AA Ayrshire & Arran	**BR** Borders	**DG** Dumfries & Galloway	**GGC** Greater Glasgow & Clyde
FF Fife	**FV** Forth Valley	**GR** Grampian	**HG** Highland
LO Lothian	**LN** Lanarkshire	**OR** Orkney	**SH** Shetland
TY Tayside	**WI** Western Isles		

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