Public Health England

Protecting and improving the nation's health

Herpes zoster (shingles) immunisation programme: September 2016 to August 2017

Report for England

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

Public Health England
Wellington House
133-155 Waterloo Road
London SE1 8UG
Tel: 020 7654 8000
www.gov.uk/phe
Twitter: @PHE_uk
Facebook: www.facebook.com/PublicHealthEngland

Prepared by: Immunisation, Hepatitis and Blood Safety Department, PHE
For queries relating to this document, please contact: shingles@phe.gov.uk

Published December 2017
PHE publications
gateway number: 2017646

PHE supports the UN
Sustainable Development Goals

Contents

Executive summary

This report presents the evaluation of vaccine coverage for the fourth year of the herpes zoster (shingles) vaccination programme in England, from 1 September 2016 to 31 August 2017. In the fourth year of the programme the vaccine was routinely offered to adults aged 70 years on 1 September 2016 and to a single catch-up cohort of adults aged 78 years on 1 September 2016. Since April 2017, eligibility criteria were revised so that adults become eligible for the routine and catch-up programmes when they turn 70 or 78 years of age respectively, and remain eligible until their 80th birthday. PHE monitors shingles vaccination coverage through monthly cumulative data collections via automatic upload of GP practice data using the ImmForm[1] website.

Shingles vaccine coverage in the routine cohort (aged 70 years) was 48.3% in 2016/17 representing a 13.5% decline since the start of programme (54.9% in 2015/16, 59.0% in 2014/15, 61.8% in 2013/14). A decrease in coverage was also observed in the catch-up cohort (aged 78 years) to 49.4% in 2016/17 (from 55.5% in 2015/16 and 57.8% in 2014/15). Coverage decreased for both cohorts across all NHS Local Teams. Longer term follow-up data suggests that some of those eligible for shingles vaccination who did not receive it in the year they became eligible catch-up in subsequent years, so these coverage estimates are likely to increase (for example, coverage for 71 year olds in 2016/17 was 63.3% by the end of August 2017, 8.4% higher than coverage for this cohort at the end of August 2016).

The 69 and 77 year old cohorts in 2016/17, which included some individuals who reached their 70th or 78th birthday from 1 April 2017 and became eligible then under the new guidance had reached 4.9% and 5.6% coverage respectively by August 2017, 2.0% and 2.3% higher respectively than the coverage recorded for the 69 and 77 year old cohorts in August 2016.

Shingles is caused by the reactivation of a latent varicella zoster virus (VZV) infection and is typically characterised by a unilateral vesicular rash. The incidence and severity of shingles increase with age and an important complication is persistent pain extending beyond the period of rash, known as post herpetic neuralgia (PHN). The aim of the vaccination programme is to reduce the incidence and severity of shingles in those targeted by the programme by boosting individuals' pre-existing VZV immunity. Given the lower coverage achieved in the routine and catch-up cohort in 2016/17 compared with previous years, GPs are urged to continue to offer vaccinations to these cohorts as per current guidance, to improve protection in these age groups. A full assessment of coverage for cohorts eligible under the new guidance will be undertaken in late 2018.

[1] ImmForm is the system used by PHE to record vaccine coverage data for some immunisation programmes and to provide vaccine ordering facilities for the NHS: https://portal.immform.dh.gov.uk/

Introduction

Shingles is caused by the reactivation of latent varicella zoster virus (VZV) infection, following a decline in cell mediated immunity and the incidence of disease is known to increase with age. Shingles typically presents with a unilateral vesicular rash, usually limited to a single dermatome. The diagnosis is almost exclusively made on clinical suspicion with very few cases being laboratory confirmed. An important and debilitating complication of shingles is persistent pain extending beyond the period of rash known as post-herpetic neuralgia (PHN). The risk of PHN increases with age and is known to contribute significantly to the overall burden of shingles within the population [1, 2].

In 2010, the UK's Joint Committee on Vaccination and Immunisation (JCVI) recommended that a herpes zoster (shingles) vaccination programme should be introduced for adults aged 70 years with a catch up programme for those aged 71 to 79 years [3, 4]. On 1 September 2013, a shingles vaccination programme was introduced and vaccine was routinely offered to adults aged 70 years on 1 September 2013, and to those aged 79 years as part of the catch-up campaign. The aim of the programme is to reduce the incidence and severity of shingles in those targeted by the programme by boosting individuals' pre-existing VZV immunity.

Zostavax, which is a live attenuated vaccine, is the only licensed shingles vaccine in the UK [5]. It is derived from the Oka strain of VZV and has a significantly higher antigen content than the Varivax varicella vaccine [6]. Since it is a live vaccine, Zostavax should not be given to patients who have a known primary or acquired immunodeficiency state or patients who are receiving current immunosuppressive therapy including high-dose corticosteroids, biological therapies or specific combination therapies [6].

In the fourth year of the programme (1 September 2016 to 31 August 2017), the vaccine was routinely offered to adults aged 70 years on 1 September 2016 (i.e. born between 2 September 1945 and 1 September 1946). The fourth year of the programme also included a catch-up cohort of adults aged 78 on 1 September 2016 (i.e. born between 2 September 1937 and 1 September 1938). In addition, patients who became eligible in the first three years of the programme but have not been vaccinated against shingles remain eligible until their 80th birthday (patients aged 71, 72, 73 and 79 on 1 September 2016).

In April 2017, the eligibility criteria for shingles vaccine were adjusted such that adults become eligible once they turn 70 years or 78 years of age, and will continue to remain eligible until their 80th birthday [7].

This report describes vaccine coverage data in the routine and catch-up cohorts in the fourth year of the programme, updating provisional cumulative data published in April

2017 reporting coverage to end-February 2017 [8]. All PHE documents relating to the shingles vaccination programme, including previous annual reports, are accessible via the PHE shingles vaccination programme pages.

Methods

Monthly, cumulative vaccine coverage data for shingles vaccination in England were automatically extracted from records of participating general practices (GPs) in England via the ImmForm website. Data were then validated and analysed by PHE to check data completeness, identify and query any anomalous results and describe epidemiological trends. The automated monthly surveys measured the proportion vaccinated in two ways:

- **vaccine coverage** − the total number of patients aged 70 or 78 years on 1 September 2016 **who have ever received the vaccination** (numerator) as a proportion of the number of patients registered aged 70 or 78 years on 1 September 2016 (denominator)

- **vaccine uptake** – the total number of patients aged 70 or 78 years on 1 September 2016 **who received the vaccination between 1 September 2016 and 31 August 2017** (numerator) as a proportion of the number of patients registered aged 70 or 78 years on 1 September 2016 (denominator)

Vaccine coverage data was also collected for some previous routine and catch-up cohorts (those aged 71, 72, 73 and 79 on 1 September 2016) who have remained eligible for vaccination, and for some cohorts who started to become eligible in 2017 under the new eligibility criteria (those aged 69 and 77 on 1 September 2016). Vaccine uptake data by gender for the routine and catch-up cohort were also collected.

PHE also commissioned PRIMIS to provide Read Code specifications for clinical risk groups in whom shingles vaccination may be contraindicated [6]. Vaccine uptake data was collected on the number of individuals in the routine and catch-up cohorts who belonged to those risk groups, as well the number of them who were vaccinated.

Clinical Commissioning Group (CCG), Local Team (LT), Area Team (AT) and Local Authority (LA) level data are available for both the routine and catch-up cohorts on the PHE website.

[1] https://www.nottingham.ac.uk/primis/tools-audits/specifications/shingles.aspx

Participation and data quality

Out of 7,398 GP practices in England, 6,773 (91.6%) provided reliable annual shingles coverage data for the period 1 September 2016 to 31 August 2017, compared with 90.3% in the previous year. Final (August 2017) data for the smallest GP IT supplier were unreliable and excluded from this report. As a result, local shingles coverage estimates for a small number of LTs, LAs and CCGs have reduced participation from GP practices, particularly in South West England. GP practice representation by LT ranged from 74.7% (South West) to 97.8% (Yorkshire and Humber).

The monthly cumulative estimates for September and October 2016 include data from only three of four IT suppliers, representing 59.2% and 42.1% of GP practices respectively. Data from the smallest IT supplier were unreliable and excluded for July and August 2017.

Results

Vaccine coverage

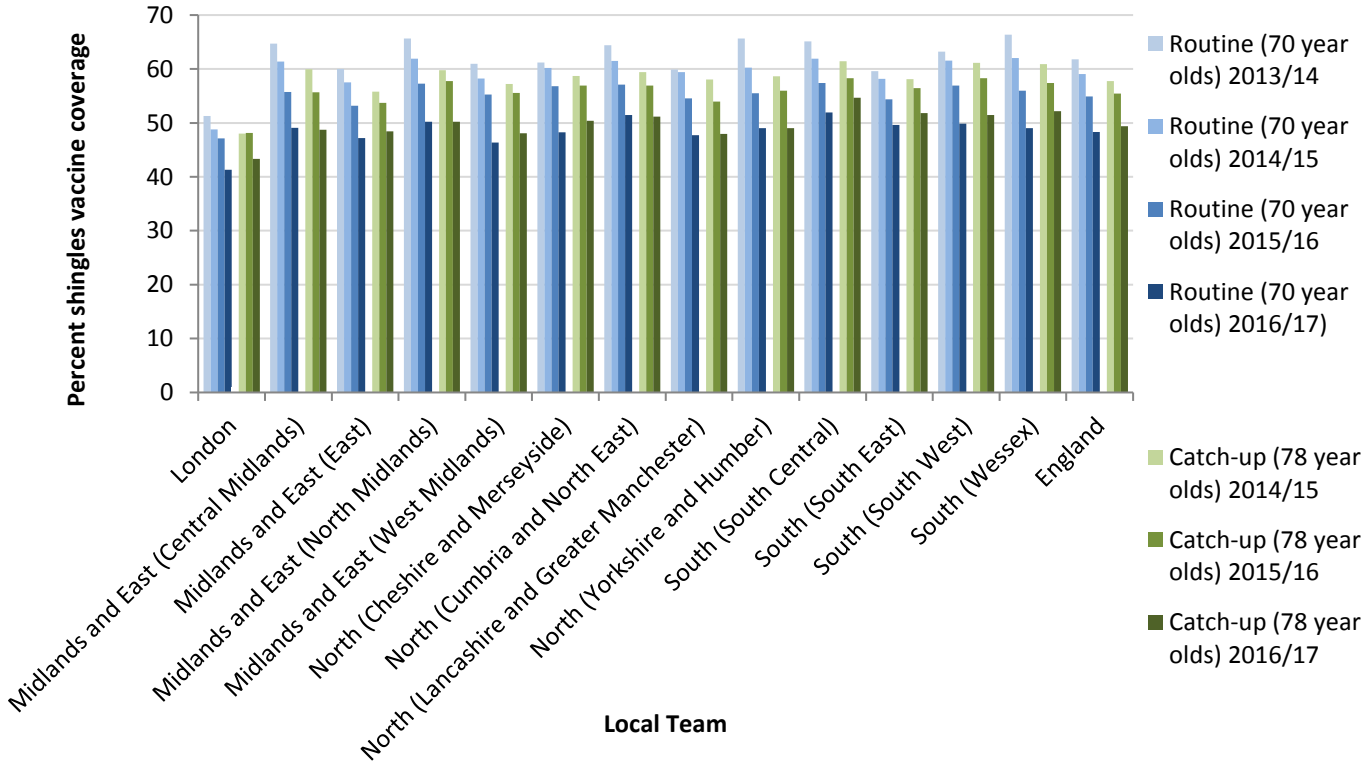
In the routine cohort, annual shingles vaccine coverage was 48.3% in 2016/17, compared with 54.9% in 2015/16, 59.0% in 2014/15 and 61.8% in 2013/14. Most (10/13) LTs had coverage below 50%, with coverage ranging from 41.3% (London) to 51.9% (South Central) (Table 1, Figure 1). Shingles vaccine uptake (i.e. vaccinated between 1 September 2016 and 31 August 2017) for the routine cohort was 46.0%, compared with 52.0% uptake for the routine cohort in 2015/16.

Coverage for the catch-up cohort was 49.4%, compared with 55.5% in 2015/16, 57.8% in 2014/15 (no comparative data for 2013/14). Six out of 13 LTs had coverage below 50%, with coverage ranging from 43.3% (London) to 54.6% (South Central) (Table 1, Figure 1). Shingles vaccine uptake (ie vaccinated between 1 September 2016 and 31 August 2017) for the catch-up cohort was 46.6%, compared with 52.8% uptake for routine cohort in 2015/16.

Table 1. Shingles vaccine coverage in England by age cohort and Local Team to end August 2017

Local Team	Per cent of practices reporting data in Aug 2017	Percentage of age cohort vaccinated to end August 2017	
		Routine 70 years	Catch-up 78 years
London	91.3	41.3	43.3
Midlands and East (Central Midlands)	95.1	49.1	48.7
Midlands and East (East)	97.2	47.2	48.4
Midlands and East (North Midlands)	92.7	50.2	50.2
Midlands and East (West Midlands)	89.4	46.3	48.1
North (Cheshire and Merseyside)	93.7	48.3	50.4
North (Cumbria and North East)	92.1	51.4	51.1
North (Lancashire and Greater Manchester)	90.8	47.7	48.0
North (Yorkshire and Humber)	97.8	49.0	49.1
South (South Central)	91.0	51.9	54.6
South (South East)	86.3	49.6	51.8
South (South West)	74.7	49.8	51.5
South (Wessex)	93.7	49.0	52.2
England	**91.6**	**48.3**	**49.4**

Figure 1. Annual (September to August) shingles vaccine coverage for routine and catch-up cohorts by Local Team and for England 2013/4 to 2016/17



Vaccine coverage by Local Authority for the routine cohort ranged from 20.7% to 60.6%, and for the catch-up cohort from 26.3% to 63.3% see web tables.

Similarly to the previous years, most of those vaccinated in the 2016/17 programme received shingles vaccine in the last few months of the calendar year, during the seasonal influenza vaccination campaign. By the end of January 2017 (the end of the seasonal influenza vaccination coverage monitoring period for 2016/17) approximately 85% of those vaccinated by the end of August had received their vaccine (Figures 2 and 3).

Figure 2. Monthly cumulative shingles vaccine coverage for routine cohorts 2013/14 to 2016/17 and the percentage of GP practices reporting in 2016/17, England

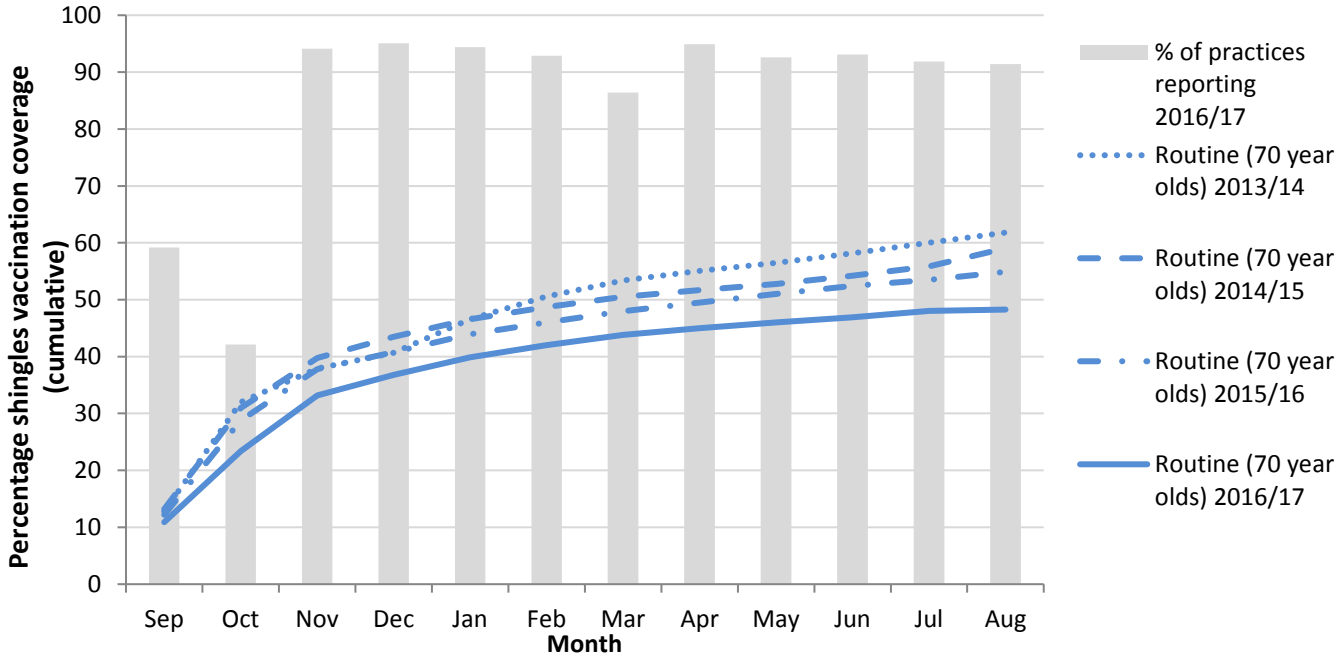
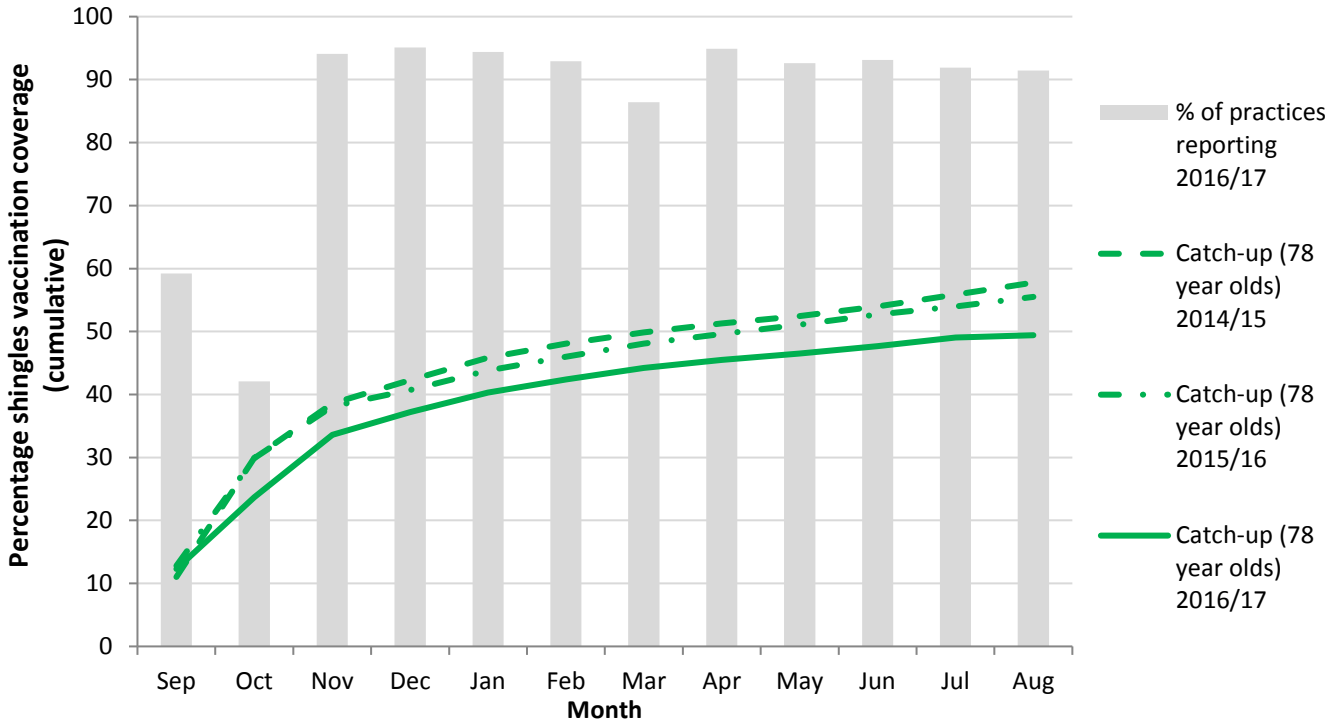


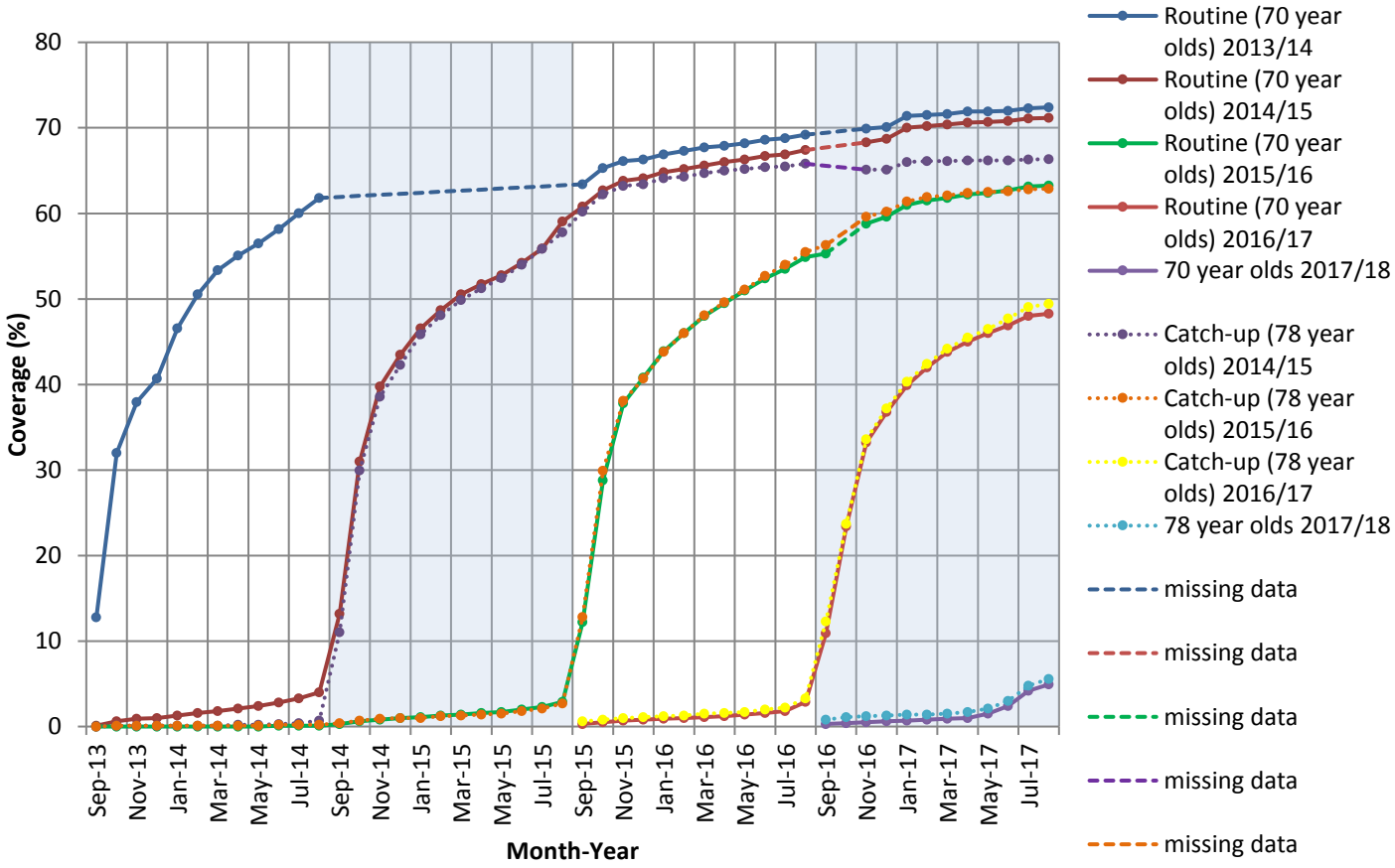
Figure 3. Monthly cumulative shingles vaccine coverage for catch-up cohorts 2014/15 to 2016/17 and the percentage of GP practices reporting in 2016/17, England



Vaccine coverage in previous years' cohorts continued to increase in 2016/17. Those aged 71 years in 2016/17 (ie those in the routine 70 year old cohort in 2015/16) had increased coverage from 54.9% in August 2016 to 63.3% by the end of August 2017. Similarly, those aged 70 years in 2013/14 and 2014/15 had steadily increased coverage to 72.4% and 71.2% respectively by August 2017 (Figure 4).

The 69 year old cohort in 2016/17 ('70 year olds 2017/18'), which includes some individuals who reached their 70th birthday from 1 April 2017 and became eligible under the new guidance had reached 4.9% coverage by August 2017, 2.0% higher than the coverage recorded for the 2015/16 69 year old cohort in August 2016 (Figure 4). Similarly the 77 year old cohort ('78 year olds 2017/18'), which includes some individuals who reached their 78th birthday from 1 April had reached 5.6% coverage by August 2017, 2.3% higher than the coverage recorded for the 2015/16 77 year old cohort in August 2016. It is therefore likely that part of the decrease in coverage in 2016/17 is a data artefact related to the change in eligibility criteria as a proportion of those eligible under the new criteria are in the 69 year old cohort. Nevertheless, coverage has decreased in 2016/17 even after taking this into account.

Figure 4. Monthly cumulative shingles vaccine coverage for routine and catch-up cohorts monitored between September 2013 to August 2017, England



Contra-indications, refusals and uptake by gender

An estimated 2.8% of the routine cohort and 3.6% of the catch-up cohort fell into clinical risk groups in whom shingles vaccine may be contraindicated. Vaccine uptake in these groups was 26.5% for the routine cohort, and 17.5% for the catch-up cohort compared to 33.1% for the routine cohort and 36.1% for the catch-up cohort in 2015/16.

7.3% of 70 year olds and 8.3% of 78 year olds were recorded as having declined the vaccine, compared to 6.1% and 7.0% respectively in 2015/16, and 8.5% and 9.6% respectively in 2014/15.

In 2016/17, as in 2015/16, vaccine uptake was higher in males for the catch-up cohort (47.9% males vs 45.6% females) but lower in males for the routine cohort (45.4% males vs 46.5% females).

Discussion

The fourth year of the shingles vaccination programme in England continued to see a decline in coverage. There may be a number of factors that have contributed to the continuing declining trend in shingles vaccine uptake. These include difficulties in practices identifying the eligible patients during busy influenza immunisation clinics, a lack of call/re-call in the service specification to allow mop up of those who missed immunisation during the flu season, and possible lowering of patients' awareness of the vaccine since its introduction in 2013. In order to mitigate these, PHE has revised and simplified the eligibility criteria, basing eligibility on turning 70 or 78 rather than calculating age on a specific date. PHE has released communication materials to explain those changes, including posters, leaflets and an eligibility calculator [7].

The experience of the programme so far shows that coverage in specific cohorts increases in the years following the year the cohort becomes eligible for the vaccine. It is therefore expected that, like in previous years, coverage in those who were 70 on 1 September 2016 will increase in subsequent years.

Coverage in the routine cohort in 2016/17 was 48.3%, but among those becoming eligible in 2016/17 (aged 70 years on 1 September 2016), only 46.0% were vaccinated between September 2016 and August 2017. This suggests 2.3% of this cohort was vaccinated prior to becoming eligible. Similarly, 2.8% of the catch-up cohort was vaccinated prior to becoming eligible.

Approximately 2.5% of the age cohorts eligible for the shingles vaccine are identified as contra-indicated (immunocompromised), and approximately a quarter of those are recorded to have received the vaccine. Read codes record whether an individual is on a

particular medication, but not the specific dose. However the eligibility criteria for shingles are dose-dependent for certain treatments, in particular steroids and methotrexate. Because the majority of patients on these medications are on doses below the threshold for contra-indication, most patients recorded as receiving these medications are not classified as contra-indicated in the shingles coverage collection, regardless of the dose they are prescribed.. Omiting individuals receiving higher (immunosuppressive) doses of these medications, for whom shingles vaccine is contra-indicated, from the contra-indicated category within the shingles coverage collection may have two consequences: a) an underestimation of the proportion of individuals in the routine and catch-up cohorts who are contra-indicated, which would be consistent with other estimates of the number of immunosuppressed individuals in this age group and b) an underestimation of vaccine coverage among those who are not classified as contra-indicated.

The UK is one of the few countries to have introduced a shingles vaccination programme for older adults and to collate comprehensive coverage data [9]. Uptake data for Northern Ireland in 2016/17 for the routine (46.0%) and catch-up (45.4%) cohorts are in line with England uptake data (46.0% and 49.4% respectively) in these cohorts [data provided by Public Health Agency, Health and Social Care Northern Ireland]. Coverage data for Scotland and Wales in 2016/17, 46.5% and 46.2% respectively in 70 year olds and 39.8% in 76 year olds (Scotland) and 46.5% in 78 year olds (Wales), is also in line with England coverage data (48.3% and 49.4% respectively) [data provided by Health Protection Scotland and Health Protection, Public Health Wales].

In the United States (US) adults aged 60 years and older are receommended to receive shingles vaccine, and n 2015 coverage for this age group was 30.6%[10]. Australia included shingles vaccine as part of its national immunisation programme free of charge from November 2016 for those aged 70 years, with a five year catch-up programme for those aged 71-79 years [11]. Canada also recommend the shingles vaccine for older adults, but the vaccine has not previously been publicly funded, hence coverage has been low (estimated coverage in Alberta, Canada, was 8.4% for those aged 60 and above from 2009 to 2013) [12]. Shingles vaccine has been available free of charge for those aged 65-70 years in Ontario since September 2016, but coverage data are not currently collected [13].

The Equality Act 2010 requires PHE to ensure that interventions and services are designed and implemented in ways that meet the needs of different groups in society, advancing equality of opportunity between protected groups and others. In order to monitor inequalities in vaccine coverage, these data are delineated by gender and ethnicity. Higher vaccine coverage in males continued to be recorded for the catch-up cohort in 2016/17, but lower for males for the routine cohort, as for 2015/16. National data collected in 2014/15 has been analysed to explore inequalities in vaccine coverage

and identified that compared with White British, some ethnicities had significantly lower coverage even after adjusting for geography and deprivation [14]. Differences in shingles vaccine coverage by ethnic group have also been reported in the United States where, in those aged 60 years and older in 2015, highest coverage was observed in Whites (34.6%) compared with Blacks (13.6%), Hispanics (16.0%) and Asians (26.0%) [10]. Data for England will continue to be monitored and PHE, together with its partners, has agreed to form a working group to better describe and address inequalities in uptake across all vaccine programmes.

Given the lower coverage achieved in the routine and catch-up cohort in 2016/17 compared with previous years, GPs are urged to continue to offer vaccinations to these cohorts all year round, including outside of the influenza vaccine programme season as per current guidance, to improve protection in these age groups, who remain eligible until they reach the age of 80.

References

1. Van Hoek, A.J., et al., *Estimating the cost-effectiveness of vaccination against herpes zoster in England and Wales.* Vaccine, 2009. **27**(9): 1454-67.
2. Gauthier, A., et al., *Epidemiology and cost of herpes zoster and post-herpetic neuralgia in the United Kingdom.* Epidemiol Infect, 2009. **137**(1): 38-47.
3. Joint Committee on Vaccination and Immunisation. *Statement on varicella and herpes zoster vaccines 29 March 2010.* 2010; Available from: http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/ab/JCVI/DH_094744
4. Public Health England, *Herpes zoster (shingles) vaccination programme to protect the elderly. HPR 7(35): news, 30 August 2013. See also: "Introduction of shingles vaccine for people aged 70 and 79 years", DH/PHE guidance, 12 July 2013.* HPR, 2013. **7**(35).
5. Public Health England. *The complete routine immunisation schedule from Autumn 2017*. 2017; Available from: https://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule
6. Public Health England. *Shingles (herpes zoster): the green book, chapter 28a.* 2016; Available from: https://www.gov.uk/government/publications/shingles-herpes-zoster-the-green-book-chapter-28a
7. Public Health England. Shingles: guidance and vaccination programme. 2017; Available from: https://www.gov.uk/government/collections/shingles-vaccination-programme#vaccination-progrhttps://www.gov.uk/government/collections/shingles-vaccination-programme#vaccination-programme-2017-to-2018amme-2017-to-2018
8. Public Health England. *Shingles vaccine coverage report (England) September 2016 to February 2017.* HPR, 2017. **11**(16).
9. European Centre for Disease Prevention and Control. *Vaccine schedule*. Available from: http://vaccine-schedule.ecdc.europa.eu/Pages/Scheduler.aspx
10. Williams, W.W., et al., *Surveillance of Vaccination Coverage Among Adult Populations — United States, 2015, MMWR*. 2017. 66(11): 1-28.
11. Immunise Australia Program, Australian Government Department of Health. *Herpes-zoster (Shingles): National Shingles Vaccination Program*. Available from: http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/immunise-herpes-zoster
12. Liu, X.C., et al., *Herpes zoster vaccine (HZV): utilization and coverage 2009-2013, Alberta, Canada.* BMC Public Health, 2014. **14**: 1098.
13. Ontario Government Newsroom. *Ontario making shingles vaccine free for seniors*.15 September 2015. Available from: https://news.ontario.ca/mohltc/en/2016/09/ontario-making-shingles-vaccine-free-for-seniors.html
14. Ward, C., et al., *Sociodemographic predictors of variation in coverage of the national shingles vaccination programme in England, 2014/15.* Vaccine, 2017. **35**(18): 2372-2378.