

*99<sup>th</sup> Meeting of the Public Health Agency Board*

*Thursday 15 February 2018 at 1:30pm*

*Fifth Floor Meeting Room, 12/22 Linenhall Street, Belfast*

**standing items**

- |      |   |                     |                 |
|------|---|---------------------|-----------------|
| 1    | Welcome and apologies                                 |                     | Chair           |
| 1.30 |   |                     |                 |
| 2    | Declaration of Interests                              |                     | Chair           |
| 1.30 |   |                     |                 |
| 3    | Minutes of Previous Meeting held on 20 December 2017  |                     | Chair           |
| 1.30 |   |                     |                 |
| 4    | Matters Arising                                       |                     | Chair           |
| 1.30 |   |                     |                 |
| 5    | Chair's Business                                      |                     | Chair           |
| 1.35 |   |                     |                 |
| 6    | Chief Executive's Business                            |                     | Chief Executive |
| 1.40 |   |                     |                 |
|      | To include:   |                     |                 |
|      | • Report of Inquiry into Hyponatraemia Related Deaths |                     |                 |
| 7    | Finance Report  | <b>PHA/01/02/18</b> | Mr Cummings     |
| 2.00 |   |                     |                 |

**items for approval**

- |      |   |                     |           |
|------|---|---------------------|-----------|
| 8    | HSCB-PHA Regional Review of Choking on Food | <b>PHA/02/02/18</b> | Mrs Hinds |
| 2.10 |   |                     |           |

**items for noting**

- |      |  |                     |           |
|------|--|---------------------|-----------|
| 9    | Annual Immunisation and Vaccine Preventable Diseases Report for Northern Ireland 2016-17 | <b>PHA/03/02/18</b> | Dr Harper |
| 2.35 |  |                     |           |
| 10   | Report of Measles Outbreak in Belfast, June-July 2017                                    | <b>PHA/04/02/18</b> | Dr Harper |
| 3.00 |  |                     |           |

## **closing items**

11 Any Other Business  
3.20

Chair

12 Details of next meeting:  
3.20

*Thursday 15 March 2018 at 1:30pm*

*Fifth Floor Meeting Room, 12/22 Linenhall Street, Belfast*

*98<sup>th</sup> Meeting of the Public Health Agency Board*

*Thursday 21 December 2017 at 1.30pm*

*Conference Rooms 3+4, 12-22 Linenhall Street, Belfast*

**Present**

- |                         |   |
|-------------------------|---|
| Mr Andrew Dougal        | - Chair   |
| Mr Edmond McClean       | - Interim Deputy Chief Executive / Director of Operations |
| Mrs Mary Hinds          | - Director of Nursing and Allied Health Professionals     |
| Councillor William Ashe | - Non-Executive Director                                  |
| Mr Brian Coulter        | - Non-Executive Director                                  |
| Mr Leslie Drew          | - Non-Executive Director                                  |

**In Attendance**

- |                  |                             |
|------------------|-----------------------------|
| Mr Paul Cummings | - Director of Finance, HSCB |
| Mr Robert Graham | - Secretariat               |

**Apologies**

- |                        |  |
|------------------------|--|
| Mrs Valerie Watts      | - Interim Chief Executive                    |
| Dr Carolyn Harper      | - Director of Public Health/Medical Director |
| Mr Thomas Mahaffy      | - Non-Executive Director                     |
| Ms Deepa Mann-Kler     | - Non-Executive Director                     |
| Alderman Paul Porter   | - Non-Executive Director                     |
| Mrs Fionnuala McAndrew | - Director of Social Care and Children, HSCB |
| Mrs Joanne McKissick   | - External Relations Manager, PCC            |

**100/17 | Item 1 – Welcome and Apologies**

- 100/17.1 The Chair welcomed everyone to the meeting. Apologies were noted from Mrs Valerie Watts, Dr Carolyn Harper, Mr Thomas Mahaffy, Ms Deepa Mann-Kler, Alderman Paul Porter and Mrs Fionnuala McAndrew.

**101/17 | Item 2 - Declaration of Interests**

- 101/17.1 The Chair asked if anyone had interests to declare relevant to any items on the agenda. No interests were declared.

**102/17 | Item 3 – Minutes of previous meeting held on 16 November 2017**

- 102/17.1 The minutes of the previous meeting, held on 16 November 2017, were approved as an accurate record of that meeting, subject to minor amendments in paragraphs 95/17.11 and 96/17.4.

**103/17 Item 4 – Matters Arising**

*94/17.4 Funding*

- 103/17.1 Mr Coulter asked if PHA benefitted from any additional funding allocated to the Department of Health. Mr Cummings explained that the funding was allocated to ensure that the overall health budget is in a break even position. He said that £7m has been allocated for winter pressures, and £7m for waiting list pressures, but that PHA had made no bids.
- 103/17.2 The Chair advised members that at the recent PHA Accountability Review meeting, the Permanent Secretary had indicated that PHA could use some of its management and administration surplus on funding a public information campaign. However, he added that the Permanent Secretary is seeking a report from PHA on the general effectiveness of campaigns.
- 103/17.3 Mr McClean expressed concern that much has been said about the effectiveness of campaigns, and added that it was the Permanent Secretary who wished to review the ceiling on campaign expenditure.

**104/17 Item 5 – Chair’s Business**

- 104/17.1 The Chair tabled his business for members and highlighted the report on antimicrobial resistance which will be presented later in the meeting.
- 104/17.2 The Chair advised that he had spoken at a recent conference about dementia and he congratulated all of those involved in organising this event, and in particular Eleanor Ross of PHA. Mr Coulter asked whether the withdrawal of funding support from Atlantic Philanthropies will impact on PHA. Mr Cummings said that there are agreements in place for Atlantic Philanthropies to fund initiatives for a further two years. Mr McClean added that PHA would look at any funding requirements as part of the totality of all available funding to PHA.

**105/17 Item 6 – Interim Chief Executive’s Business**

- 105/17.1 There was no Chief Executive’s Business.

**106/17 Item 7 – Finance Report (PHA/01/12/17)**

- 106/17.1 Mr Cummings presented the Finance Report and said that he was pleased to see a reduction in the surplus in programme expenditure in line with the forecast. He said that there was no significant change with regard to the management and administration budget with its surplus heading towards £1m. He advised that this will be used to fund non-recurrent programme initiatives.
- 106/17.2 Mr Cummings advised that the capital budget is slightly overspent, but that this is due to a timing issue.

- 106/17.3 Mr Drew thanked those who had been involved in overseeing this “catch-up” in the programme expenditure in line with the budget.
- 106/17.4 The Chair noted the number of vacancies, which equates to approximately 10% of the workforce. Mr Cummings said that since the announcement regarding the future of the PHA and HSCB, both organisations’ vacancy rates have increased as it has become difficult to fill posts given the uncertainty.
- 106/17.5 The Board noted the Finance Report.
- 107/17 Item 8 – Surveillance of Antimicrobial Use and Resistance in Northern Ireland, Annual Report, 2017 (PHA/02/12/17)**
- Mrs Hinds joined the meeting during this item.*
- 107/17.1 The Chair welcomed Declan Bradley and Lynsey Patterson to the meeting and invited them to present the 2017 Annual Report on the “Surveillance of Antimicrobial Use and Resistance in Northern Ireland”.
- 107/17.2 Dr Bradley began by explaining to members the meaning of antibiotic resistance and how it can affect individual patients, whereby when an antibiotic is prescribed, it can work against many bacteria in the body, but some resistant bacteria survive and consequently future infections become harder to treat with antibiotics.
- 107/17.3 Dr Bradley said that the infections described in this Report are those detected in blood and therefore represent the more serious infections, but that resistance is also a problem in more common infections, such as urinary tract infections. He explained that the information about antibiotic use in the Report was presented at a Northern Ireland level, but the team was working towards being able to provide information about antibiotic use on individual wards to healthcare teams. He advised that given the serious chance of death by infection today, the Chief Medical Officer has endorsed an approach to reduce the amount of antibiotic use and the incidence of Gram-negative bloodstream infection. He explained that the resistance to some antibiotics has doubled in recent years, which could have serious consequences for patient treatment and survival.
- 107/17.4 Dr Bradley said that the majority of antibiotic prescribing is in primary care. He advised that the use of Colistin (which is normally used as a last resort) is twice as high in Northern Ireland as it is in England.
- 107/17.5 The Chair said that public attitudes need to change and asked what work was being done to affect this change. Dr Bradley said that during World Antibiotics Awareness Week in November, there were many events and workshops with adults and children to teach them about infection and AMR. He added that a Public Health England programme called e-Bug will be being implemented in schools in Northern Ireland and that PHA is working with CCEA to get this mapped to the NI the school

- curriculum. For GPs, he advised that PHA is working with the Innovation Lab in the Department of Finance to influence GP antibiotic prescribing, including having carried out a survey about knowledge and attitudes regarding antibiotic prescribing. He also described work to implement in NI a toolkit called TARGET to support GPs' antibiotic decision-making. In secondary care, Dr Bradley advised that there is an Antimicrobial Stewardship Pharmacy Subgroup tasked with addressing this issue and there is the Antimicrobial Improvement Board which is chaired by Dr Lorraine Doherty of the PHA.
- 107/17.6 Mr Drew asked if there is a cultural issue and suggested that some of the main issues emanating from this Report should be shared with the public in a plain English way. He asked about new medical graduates and how they could be trained. Dr Bradley said that in the recent survey of primary care prescribers, they recognised antimicrobial resistance as an important and pressing issue. He said that there is currently no public information campaign in Northern Ireland, and a change in policy to allow this could help change the public's attitudes towards antibiotics.
- 107/17.7 Mr Coulter asked what PHA's understanding is of infection rates across secondary and community care, and how those rates compare with England. Dr Bradley advised that, in general terms, Northern Ireland has a high uptake of childhood vaccinations, which has sheltered the area from major outbreaks of some infections, such as measles. He said that PHA is developing a surveillance programme to monitor Gram-negative infections that result from healthcare given in the community. Dr Patterson said that in term of C. diff and MRSA, Northern Ireland's rates vis-à-vis C. diff compare favourably to England, but those for MRSA are higher in Northern Ireland.
- 107/17.8 Mr Coulter asked that, given demographic changes, whether manufacturers should take on some responsibility. Dr Bradley said that the priority for PHA was to work within its sphere of influence, including those that are part of HSC and independent contractors such as community pharmacists and general practitioners.
- 107/17.9 The Chair asked whether continuous low dose antibiotic as a prophylaxis is harmful. Dr Bradley said that there is not strong evidence that long term prophylaxis against urinary tract infection benefits patients, and it is an area of attention. He discussed some work that PHA has carried out to improve antibiotic prescribing for urinary tract infection in care homes.
- 107/17.10 The Chair asked whether GPs and pharmacies compile data about the effects of antibiotic prescribing on patients. Dr Bradley said that there is currently no effective feedback loop to prescribers about the effects of their own prescribing, but this is an area that PHA is working towards improving.
- 107/17.11 Councillor Ashe said that a major issue for him was patient notes and ensuring that patients are not given antibiotics if they are allergic to

- them. Dr Bradley acknowledged that this is important, and he said that GPs should also document the reason for prescribing antibiotics.
- 107/17.12 The Chair thanked Dr Bradley and Dr Patterson for presenting the report on this important area of work to the PHA Board.
- 107/17.13 The Board noted the report.
- 108/17 Item 9 – Research and Development Division Annual Report 2016/17 (PHA/03/12/17)**
- 108/17.1 The Chair welcomed Dr Janice Bailie to the meeting and invited her to give members an update on the work of the Research and Development division.
- 108/17.2 Dr Bailie began her overview by explaining that the R&D budget is now classed as capital expenditure, and is currently at a level of £10.3m. She added that an additional allocation of £3.2m of funding has been made available from the Department of Health, which is paid into a national funding pot held by Department of Health England, and allows Northern Ireland researchers access to the UK National Institute of Health Research (NIHR) funding streams. However, she noted that compared to the rest of the UK, health R&D is underfunded in Northern Ireland by a factor of 3.
- 108/17.3 In terms of how the budget is spent, Dr Bailie said that investment in infrastructure funding has been highly successful. She advised that there is a Public Health Network, the Northern Ireland Clinical Research Network covering twelve health areas including Primary Care, and a Cancer Trials Network. Research governance is managed by research offices in each of the HSC Trust areas. Dr Bailie explained that PHA also commissions research and gave examples of research in mental health and dementia care. She highlighted other potential areas of future commissioned research under consideration, including misuse of prescription drugs. R&D also contributes to a number of national and international funding consortia, one example being a forthcoming call for research in neuro-degenerative diseases.
- 108/17.4 The Chair asked whether doctors are able to access the necessary support for statistics or data analysis for research. Dr Bailie said that there is an issue, not solely in Northern Ireland, with regard to skills in statistics and data analytics. The Chair said that there is a need for qualified statisticians and Dr Bailie agreed with this and noted that many of the current statisticians are reaching retirement age and others are very heavily committed with existing workloads. Currently, R&D Division has addressed this by funding a Statistics and Methodology support service, which holds a list of statisticians who have agreed to provide HSC staff with statistical advice.
- 108/17.5 Mr Drew asked how it can be determined if a particular piece of research

represented value for money, and is not merely research for the sake of research. He also queried if research can be patented. Dr Bailie explained that there is an independent peer review process and that everything funded by PHA is of high quality, and that it is expected that there is an annual report and progress report on each study. Researchers are also expected to provide a dissemination plan and more recently, a pathway to impact plan. Dr Bailie conceded that on occasions it is difficult to measure the impact of research, but she gave the example of recent research regarding 'Living Well With COPD', where there is a self-management programme in each of the 5 Trusts with a second programme in development for bronchiectasis. She explained that any research carried out by PHA is uploaded onto Research Fish, which records measures of impact as well as the more conventional indicators such as publications. R&D Division also funds a regional HSC Innovations service, which works with the five HSC Trusts to advise on management of intellectual property.

108/17.6 Mr McClean commented on the links between R&D and Trusts and other networks, but he asked about the impact of Brexit. Dr Bailie said that there is some anxiety with regard to Brexit as under the Horizon 2020 programme each piece of work requires at least 3 member states working together and there is concern that there may now be a reluctance to involve the UK, due to the uncertainty of the outcome of Brexit negotiations. She said that after Brexit there is a number of options available whereby the UK could become an associate like Switzerland, which pays the H2020 contribution to allow their researchers full access, or there is the model of how the EU currently works with the US and Australia, which will fund their own researchers' participation in any project. She hoped that there would be some form of continued collaboration as Northern Ireland has been a net beneficiary of EU funding for health research. Mr McClean said that the Department of Health is currently looking at the impact of Brexit and that there is a wish to ensure there is minimal disruption.

108/17.7 Councillor Ashe asked if any approaches are made to pharmaceutical companies when it comes to securing funding for research. Dr Bailie said that there are a lot of studies carried out in conjunction with these companies, who often approach the HSC to carry out research on their behalf, and can on occasions provide drugs free of charge. She added that one of PHA's researchers had recently been able to secure a €50m EU grant, which was 50:50 match funded by a consortium of pharmaceutical companies and the EU commission. Councillor Ashe asked if the involvement of HSC in pharmaceuticals research gives them exclusivity. Dr Bailie said that it would depend on the product, but if the project was collaborative research, HSC would potentially have a share of the Intellectual Property and any input from HSC professionals is protected, with help from the HSC Innovations service. Councillor Ashe asked how much this research investment could be worth, and Dr Bailie said that UK-wide the investment in health R&D has been estimated around £8.8bn per year, with about 60% of that coming from the private



sector. She added that there is a challenge in Northern Ireland of having the capacity to deliver because some projects are so complex and that for some projects there is a small pool of people to study.

108/17.8 Mr Coulter noted there was little reference to social care research. He understood that efforts have been made to improve involvement of social care in research. He also queried the 3:1 ratio in favour of research carried out by Queen's University compared to Ulster University. Dr Bailie advised that she had attended the latest meeting of the Social Work Research Strategy Group and that this group is currently reviewing its priorities. She added that one of PHA's Programme Managers has been working with the Social Work R&D lead in HSCB and that, although this report is a snapshot of activity, there is work ongoing in the area of social care research, funded by HSC R&D Division. In terms of the apparent disparity in the research carried out by the two universities, Dr Bailie said that, besides the competitive schemes, Queen's are more proactive with proposals for e.g. match funding, but that she and Professor Ian Young have been encouraging Ulster University to become more proactive. She also added that the overall balance of funding to the local Universities by HSC R&D Division was reflective of their QR funding (awarded to higher education institutes based on the quality of their research outputs). She informed members that in terms of EU funding, Ulster University fares well, and for example had been highly successful in the recent INTERREG VA research and innovation funding call, receiving funding for 4 of the 5 funded projects.

108/17.9 Mr Coulter felt that the PHA Board should have more of a scrutiny role, particularly for projects where there is an element of the research that is specific to PHA. The Chair noted that in previous times there would have been closer links with the Department of Epidemiology at QUB and there would have been joint appointments. Dr Bailie advised that PHA retains links with the Centre for Excellence and the Northern Ireland Public Health Network.

108/17.10 Members noted the update on Research and Development.

**109/17 Item 10 – PPI Update (PHA/04/12/17)**

109/17.1 Mrs Hinds introduced Michelle Tennyson, Claire Fordyce and Brendan O'Hagan to the meeting and invited them to give the Board an update on Personal and Public Involvement (PPI).

109/17.2 Mrs Tennyson informed members that PHA had been an active participant in some of the workstreams relating to HSC transformation. She advised that PHA had also secured non-recurrent small grant funding for some of its PPI work and was continuing to carry out its statutory role in terms of PPI monitoring of HSC organisations. She added that PHA is working with the other parts of the United Kingdom and sharing its resources.

- 109/17.3 Mrs Tennyson advised that this year the Engage website has been launched which is seen as a one stop shop for PPI, and that there is also an e-learning package for service users and carers.
- 109/17.4 Mr O'Hagan told members that the Engage website was a project which aimed to have one portal for everything relating to PPI. He said that its development involved HSC staff, service users and carers and the Department of Health. He explained that the most difficult part was engagement, but PHA reached out to as many people as possible and that was a good example of co-production.
- 109/17.5 Mr O'Hagan said that the resources available are Trust specific and service specific and allows people to shape and transform their futures. He added that it could develop further as the transformation programme develops.
- 109/17.6 Mrs Tennyson gave members an overview of the PPI priorities for the next six months, which includes reviewing the outcomes of the PPI monitoring programme and also a piece of work around remuneration. She said that PHA will continue to provide the leadership role that it does.
- 109/17.7 The Chair asked Mr O'Hagan about his role on the Transformation Advisory Board. Mr O'Hagan said that involvement of the public is important and that in terms of further expansion to the Engage website, workshops could be held or social media could be used to involve the public. The Chair asked if information is being uploaded onto the Engage website. Mr O'Hagan said that there is a need to tidy up the various portals so that going forward there is information available on all of the transformation work.
- 109/17.8 The Chair asked where the responsibility for PPI lies in other parts of the United Kingdom. Mrs Tennyson said that it can lie within Trusts, or within local Councils.
- 109/17.9 Mr Coulter said that what is now apparent in the PPI work is a coherence that was missing before and that it is important that PPI remains at the forefront going forward. He still felt that there was some confusion regarding the language.
- 109/17.10 Mr O'Hagan said that the PPI forum was recently involved in the Daisy Hill Pathfinder Project, and that in Northern Ireland there is better linkages with the healthcare system than there is in other parts of the UK.
- 109/17.11 Members noted the PPI update.
- 110/17 Item 11 – Any Other Business**
- 110/17.1 There was no other business.

**111/17 | Item 12 – Date and Time of Next Meeting**

*Thursday 15 February 2018 at 1.30pm*

*Fifth Floor Meeting Room, 12/22 Linenhall Street, Belfast.*

Signed by Chair:

A handwritten signature in cursive script, appearing to read "Andrew Douglas".

Date: 15 February 2018

# **Public Health Agency**

## **Finance Report**

**2017-18**

**Month 9 - December 2017**



# PHA Financial Report - Executive Summary

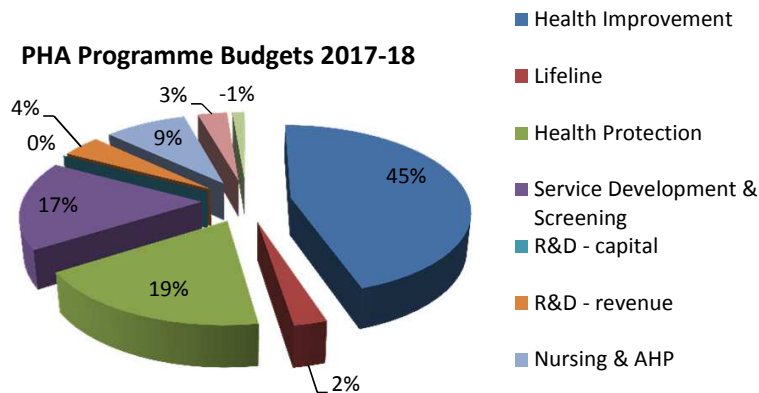
## Year to Date Financial Position (page 2)

At the end of month 9 PHA is underspent against its profiled budget by approximately £0.4m. Whilst this is not unusual for this stage of the year due to the difficulty of accurately profiling expenditure, budget managers will continue to be encouraged to review their positions and take the necessary action to minimise underspends.

This underspend is primarily within salaries budgets across the Agency, offset by Commissioning spend ahead of profile in a number of areas.

## Programme Budgets (pages 3&4)

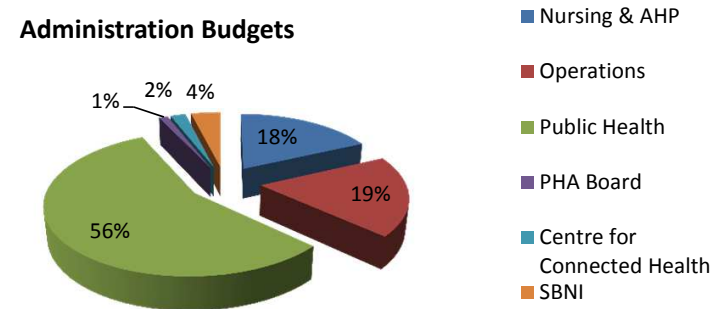
The chart below illustrates how the Programme budget is broken down across the main areas of expenditure.



## Administration Budgets (page 5)

Approximately half of the Administration budget relates to the Directorate of Public Health, as shown in the chart below.

There are currently approximately 30 vacant posts within PHA, and this is creating slippage on the Administration budget. It is currently estimated that this will rise to around £1.2m by year end, and this will be kept under close review as the year progresses. Management is proactively working to fill vacant posts and to ensure business needs continue to be met.



## Full Year Forecast Position & Risks (page 2)

PHA is currently forecasting a breakeven position for the full year. Slippage will arise in-year from the Lifeline and Administration budgets in particular, however management have re-invested the Lifeline slippage in other suicide prevention and mental health initiatives and the Administration slippage is being used to fund a range of in-year pressures and initiatives.

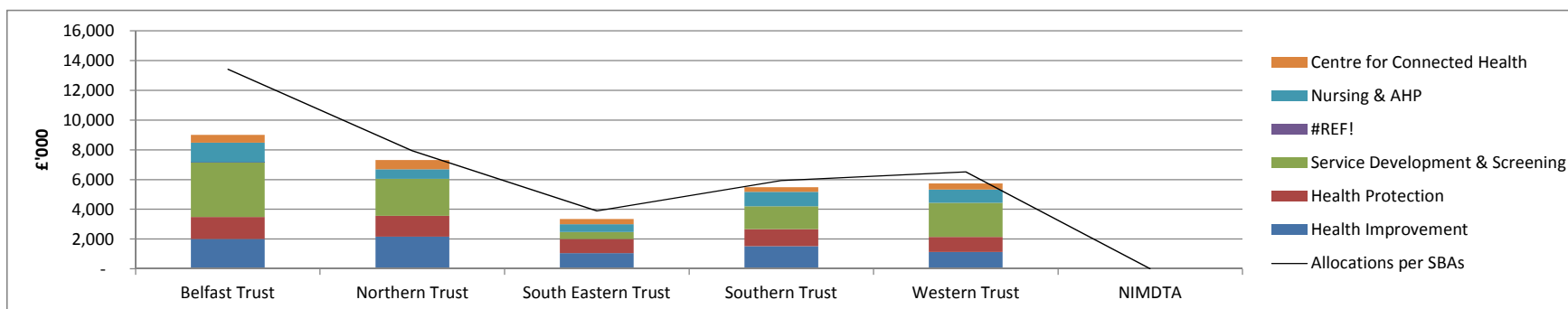
**Public Health Agency**  
**2017-18 Summary Position - December 2017**

	Annual Budget				Year to Date			
	Programme		Mgt & Admin	Total	Programme		Mgt & Admin	Total
	Trust £'000	PHA Direct £'000	£'000	£'000	Trust £'000	PHA Direct £'000	£'000	£'000
<b>Available Resources</b>								
Departmental Revenue Allocation	31,191	44,754	19,114	<b>95,058</b>	23,401	27,681	14,201	<b>65,282</b>
Revenue Income from Other Sources	11	252	424	<b>687</b>	-	139	273	<b>412</b>
<b>Total Available Resources</b>	<b>31,202</b>	<b>45,006</b>	<b>19,538</b>	<b>95,747</b>	<b>23,401</b>	<b>27,820</b>	<b>14,475</b>	<b>65,696</b>
<b>Expenditure</b>								
Trusts	31,202	-	-	<b>31,202</b>	23,383	-	-	<b>23,383</b>
PHA Direct Programme *	-	46,244	-	<b>46,244</b>	-	28,385	-	<b>28,385</b>
PHA Administration	-	-	18,301	<b>18,301</b>	-	-	13,530	<b>13,530</b>
<b>Total Proposed Budgets</b>	<b>31,202</b>	<b>46,244</b>	<b>18,301</b>	<b>95,746</b>	<b>23,383</b>	<b>28,385</b>	<b>13,530</b>	<b>65,299</b>
<b>Surplus/(Deficit) - Revenue</b>	<b>-</b>	<b>(1,237)</b>	<b>1,237</b>	<b>-</b>	<b>18</b>	<b>(566)</b>	<b>945</b>	<b>397</b>
<i>Cumulative variance (%)</i>					<i>0.08%</i>	<i>-2.03%</i>	<i>6.53%</i>	<i>0.60%</i>

The year to date financial position for the PHA shows an underspend against profiled budget of approximately £0.4m, mainly due to an underspend on Administration budgets (see page 5) offset by some PHA Direct expenditure ahead of profile (see page 4). It is currently anticipated that the PHA will breakeven for the year.

\* PHA Direct Programme includes amounts which may transfer to Trusts later in the year

## Programme Expenditure with Trusts



	Belfast Trust	Northern Trust	South Eastern Trust	Southern Trust	Western Trust	NIMDTA	Total Planned Expenditure	YTD Budget	YTD Expenditure	YTD Surplus / (Deficit)
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
<b>Current Trust RRLs</b>										
Health Improvement	2,009	2,158	1,059	1,512	1,131	-	<b>7,869</b>	5,930	5,901	29
Health Protection	1,469	1,403	950	1,153	1,012	-	<b>5,987</b>	4,490	4,490	0
Service Development & Screening	3,679	2,495	465	1,536	2,293	-	<b>10,467</b>	7,850	7,850	0
Nursing & AHP	1,327	643	526	966	887	-	<b>4,350</b>	3,251	3,262	(11)
Centre for Connected Health	528	616	348	312	425	-	<b>2,229</b>	1,672	1,672	0
Other	83	81	32	47	56	-	<b>300</b>	208	207	1
<b>Total current RRLs</b>	<b>9,095</b>	<b>7,397</b>	<b>3,380</b>	<b>5,527</b>	<b>5,803</b>	-	<b>31,202</b>	<b>23,401</b>	<b>23,383</b>	<b>18</b>
<b>Cumulative variance (%)</b>										<b>0.08%</b>

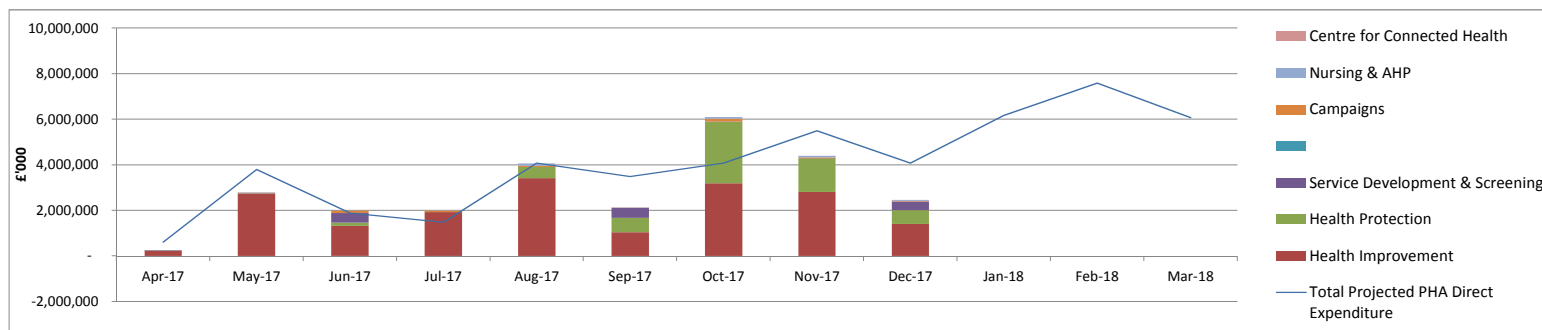
The above table shows the current Trust allocations split by budget area.

The year-to-date position shows a small variance against profile, but this is a timing issue only resulting from funds being transferred between PHA Direct and Trust budgets, with the expenditure yet to happen. These budgets will break even at the end of the year.

The Other line relates to general allocations to Trusts for items such as the Apprenticeship Levy and Inflation.



## PHA Direct Programme Expenditure



	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Total	YTD Budget	YTD Spend	Variance		
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000		
<b>Projected Expenditure</b>																		
Health Improvement	306	3,457	1,058	753	3,308	1,094	2,162	3,605	476	3,026	5,522	2,207	<b>26,973</b>	16,219	16,896	(677)	-4.2%	
Lifeline	264	264	264	264	264	264	(622)	138	138	138	465	138	<b>1,980</b>	1,240	1,240	0	0.0%	
Health Protection	-	27	31	131	424	1,429	1,764	1,314	942	828	598	956	<b>8,443</b>	6,061	6,060	1	0.0%	
Service Development & Screening	34	47	456	34	65	456	152	3	441	113	33	688	<b>2,521</b>	1,688	1,626	62	3.7%	
Research & Development - revenue	-	-	-	-	-	-	-	1,067	1,067	1,067	-	11	<b>3,211</b>	2,133	2,133	-	0.0%	
Campaigns	-	-	-	-	-	205	205	45	50	-	-	147	<b>652</b>	505	417	88	-100.0%	
Nursing & AHP	1	1	12	35	1	22	40	153	310	319	309	1,180	<b>2,381</b>	574	312	262	45.7%	
Centre for Connected Health	-	-	-	-	20	20	418	(373)	20	20	20	20	<b>167</b>	106	-	106	100.0%	
Other	-	-	-	-	-	-	(50)	(450)	(206)	(206)	(206)	(206)	<b>(1,324)</b>	(706)	(299)	(407)	100.0%	
<b>Total Projected PHA Direct Expenditure</b>	<b>605</b>	<b>3,795</b>	<b>1,821</b>	<b>1,217</b>	<b>4,082</b>	<b>3,490</b>	<b>4,070</b>	<b>5,501</b>	<b>3,237</b>	<b>5,304</b>	<b>6,742</b>	<b>5,140</b>	<b>45,006</b>	<b>27,820</b>	<b>28,385</b>	<b>(566)</b>		
<i>Cumulative variance (%)</i>																	-2.03%	
<b>Actual Expenditure</b>	<b>294</b>	<b>2,835</b>	<b>2,016</b>	<b>2,050</b>	<b>3,807</b>	<b>2,190</b>	<b>6,115</b>	<b>5,511</b>	<b>3,567</b>	-	-	-	<b>28,385</b>					
<b>Variance</b>	<b>311</b>	<b>961</b>	<b>(195)</b>	<b>(832)</b>	<b>275</b>	<b>1,300</b>	<b>(2,045)</b>	<b>(10)</b>	<b>(330)</b>				<b>(566)</b>					

The budgets and profiles are shown after adjusting for retractions and new allocations from DoH. The Campaigns budget was entirely retracted at the start of the year, but received an in-year allocation to cover pre-existing commitments and a Dementia initiative. Approval was also given recently to proceed with a Breastfeeding campaign.

The year-to-date position shows a £0.6m deficit, however this is a timing issue only, due to expenditure in advance of profile within Health Improvement. The negative budget in the Other line is an adjustment to reflect the forecast M&A surplus having been allocated to various PHA Direct Programme budgets to enable PHA to achieve a year-end breakeven position. The negative Lifeline budget in October reflects the reallocation of some of this funding to other suicide prevention and mental health initiatives within Health Improvement.

It should be noted that a significant proportion of the annual budget is profiled for the last quarter of the year. Budget managers will continue to review variances closely throughout the remainder of the year to ensure PHA meets its breakeven obligations.

**PHA Administration**  
2017-18 Directorate Budgets

	Nursing & AHP £'000	Operations £'000	Public Health £'000	PHA Board £'000	Centre for Connected Health £'000	SBNI £'000	Total £'000
<b>Annual Budget</b>							
Salaries	3,061	2,453	10,479	230	317	436	16,976
Goods & Services	469	1,209	489	33	76	324	2,601
Price Inflation				62			62
Savings target				(100)			(100)
<b>Total Budget</b>	<b>3,530</b>	<b>3,662</b>	<b>10,968</b>	<b>225</b>	<b>393</b>	<b>760</b>	<b>19,539</b>
<b>Budget profiled to date</b>							
Salaries	2,322	1,814	7,870	144	238	294	12,682
Goods & Services	315	908	355	15	37	163	1,793
<b>Total</b>	<b>2,637</b>	<b>2,722</b>	<b>8,225</b>	<b>159</b>	<b>275</b>	<b>456</b>	<b>14,475</b>
<b>Actual expenditure to date</b>							
Salaries	2,261	1,685	7,457	79	249	294	12,024
Goods & Services	323	698	321	(33)	33	163	1,506
<b>Total</b>	<b>2,584</b>	<b>2,383</b>	<b>7,778</b>	<b>46</b>	<b>283</b>	<b>456</b>	<b>13,530</b>
<b>Surplus/(Deficit) to date</b>							
Salaries	61	129	413	66	(12)	(0)	658
Goods & Services	(9)	209	34	48	4	0	287
<b>Surplus/(Deficit)</b>	<b>53</b>	<b>339</b>	<b>447</b>	<b>114</b>	<b>(7)</b>	<b>(0)</b>	<b>945</b>
<b>Cumulative variance (%)</b>	<b>2.01%</b>	<b>12.44%</b>	<b>5.43%</b>	<b>71.32%</b>	<b>-2.71%</b>	<b>0.00%</b>	<b>6.53%</b>

A savings target of £0.1m was applied to the PHA's Administration budget in 2017-18. This is currently held centrally within PHA Board, and will be managed across the Agency through scrutiny and other measures.

The year to date salaries position is showing a surplus which is being generated by approximately 30 vacancies currently within PHA. Although management is proactively working to fill vacant posts and ensure business needs continue to be met, it is expected that this surplus will grow to approximately £1.2m by year end. This situation will continue to be closely monitored in the context of PHA's obligation to achieve a breakeven position for the financial year.

## Public Health Agency 2017-18 Capital Position

	Annual Budget				Year to Date			
	Trust £'000	Programme PHA Direct £'000	Mgt & Admin £'000	Total £'000	Trust £'000	Programme PHA Direct £'000	Mgt & Admin £'000	Total £'000
<b>Available Resources</b>								
Capital Grant Allocation & Income	6,639	3,815	-	<b>10,454</b>	4,979	1,177	-	<b>6,156</b>
<b>Expenditure</b>								
Capital Expenditure - Trusts	6,639			<b>6,639</b>	4,979			<b>4,979</b>
Capital Expenditure - PHA Direct		3,815		<b>3,815</b>		1,655		<b>1,655</b>
	<b>6,639</b>	<b>3,815</b>	-	<b>10,454</b>	<b>4,979</b>	<b>1,655</b>	-	<b>6,634</b>
<b>Surplus/(Deficit) - Capital</b>	-	-	-	-	-	(478)	-	<b>(478)</b>
<i>Cumulative variance (%)</i>					<i>0.00%</i>	<i>-40.64%</i>	<i>0.00%</i>	<i>-7.77%</i>

PHA has received a Capital budget of £10.5m in 2017-18, most of which relates to Research & Development projects in Trusts and other organisations. Expenditure for the year to date is approximately £0.5m ahead of profile, and a breakeven position is anticipated for the full year.

## PHA Prompt Payment

### Prompt Payment Statistics

	December 2017 Value	December 2017 Volume	Cumulative position as at 31 December 2017 Value	Cumulative position as at 31 December 2017 Volume
Total bills paid (relating to Prompt Payment target)	£2,638,365	313	£35,052,590	3,871
Total bills paid on time (within 30 days or under other agreed terms)	£2,598,361	291	£34,678,297	3,608
<b>Percentage of bills paid on time</b>	<b>98.5%</b>	<b>93.0%</b>	<b>98.9%</b>	<b>93.2%</b>

Prompt Payment performance for the year to date shows that on value the PHA is achieving its 30 day target of 95%, although on volume performance is slightly below target at 93.2%. PHA is making good progress on ensuring invoices are processed promptly, and efforts to maintain this good performance will continue for the remainder of the year.

The 10 day prompt payment performance remained strong at 91.9% by value for the year to date, which significantly exceeds the 10 day DoH target for 2017-18 of 60%.

*HSCB-PHA Regional Review of Choking on Food***date** 15 February 2018**item** 8**reference** PHA/02/02/18**presented by** Mrs Mary Hinds, Director of Nursing, Midwifery and AHPs**action required** For approval**Introduction**

The Regional Serious Adverse Incident (SAI) group identified the need for a review of Adult SAIs and Adverse Incidents (AIs) relating to choking on food, to inform future regional safety work. The aim was to identify recurring themes, consider regional learning, highlight areas of good practice and to determine if regional actions are required to reduce/prevent reoccurrence of these incidents.

**Summary**

The review considered 17 SAIs occurring between May 2010 and April 2016, in 14 (82%) cases tragically the incident resulted in death. Key themes identified are outlined below:

- Aetiology of individuals who are at higher risk of choking
- Behaviours which increase the risk of choking
- Recognition of signs and symptoms of swallowing difficulties
- Communication and understanding of Speech and Language Therapy (SLT) recommendations
- Implementation of individual care plans
- Physical environment & impact of changes in environment
- Mealtimes and snacks
- Dysphagia training & awareness

Trust analyses of causal factors associated with 798 Adverse Incidents (between May 2010 to end April 2016) related to choking on food were also considered.

Prior to this review being commenced, a reminder of best practice letter relating to management and advice for patients/clients with swallow/dysphagia problems, was issued in October 2015. The learning focussed on the need to have robust systems in place, and working, to ensure that all staff involved in delivering care are fully aware, and reminded of, each resident's individual needs and care plans.

Additionally, there are many examples of improvement initiatives related to the prevention of choking currently across the region, a small sample of which are reflected in the report.

## **Conclusion**

The number and proportion of SAIs in this review that resulted in death emphasises the scale of the problem and the risks associated with dysphagia. The potential risk is also highlighted by the volume of regional related AIs.

The themes identified through analysis of SAIs and AIs, reinforce a need for co-ordinated efforts to facilitate learning and inform future quality improvement work with an aim of prevention or reduction of risk of choking in future.

A number of key messages relating to the areas below are identified within the report:

- Raising awareness
- Communication to staff delivering care directly
- Terminology
- Roles and responsibilities
- Education and Training
- Reporting
- Support to staff

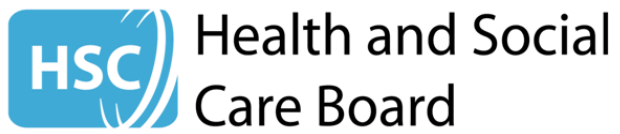
***A Regional Adult Dysphagia Group, led by PHA, has been established and will take forward the next steps outlined in the report as part of their core workplan.*** This is a multi-disciplinary group, founded on the principles of co-production, comprises of Service Users, Carers, Statutory, Independent, Voluntary and relevant Professional groups.

## **Equality Impact Assessment**

N/A

## **Recommendation**

The Board is asked to **APPROVE** the report.



## **THEMATIC REVIEW**

Report on the Regional Choking Review Analysis

February 2018

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## **Executive Summary**

### ***Background***

The Regional Serious Adverse Incident (SAI) group identified the need for a review of Adult SAIs and Adverse Incidents (AIs) relating to choking on food, to inform future regional safety work. The aim was to identify recurring themes, consider regional learning, highlight areas of good practice and to determine if regional actions are required to reduce/prevent reoccurrence of these incidents.

### ***Methods***

An inter professional review team was established with representation from the Public Health Agency (PHA), Health and Social Care Board (HSCB), HSC Trusts, the Regulation and Quality Improvement Authority (RQIA), a service user and other members of staff from HSC also contributed.

A review was undertaken of all SAIs reported between May 2010 and April 2016 where choking on food was associated with actual or potential harm. Qualitative analysis was carried out to identify the key themes. Themes identified by Trusts from reported AIs within the same period were also considered.

### ***Findings***

The review considered 17 SAIs; in 14 (82%) cases tragically the incident resulted in death. Key themes identified are outlined below:

- Aetiology of individuals who are at higher risk of choking;
- Behaviours which increase the risk of choking;
- Recognition of signs and symptoms of swallowing difficulties;
- Communication and understanding of Speech and Language Therapy (SLT) recommendations;
- Implementation of individual care plans;
- Physical environment & impact of changes in environment;
- Mealtimes and snacks;
- Dysphagia training & awareness.

Trust analyses of causal factors associated with 798 AIs related to choking on food were also considered, in addition to the themes outlined above Trusts had also identified the following themes:

- Posture of individuals when eating;
- Visitors, families, friends potentially unaware of SLT recommendations, giving individuals food which were not in keeping with the individuals care plan;
- Appropriate supervision when eating & drinking;
- Training in food preparation, CPR and first aid.

Throughout the review the team were made aware of a number of improvement initiatives underway or planned throughout the region which would have potential for scale and spread across the region.

## **Conclusion**

The number and proportion of SAIs in this review that resulted in death emphasises the scale of the problem and the risks associated with dysphagia. The potential risk is also highlighted by the volume of regional related AIs.

The themes identified through analysis of SAIs and AIs, reinforce a need for co-ordinated efforts to facilitate learning and inform future quality improvement work with an aim of prevention or reduction of risk of choking in future.

A number of key messages relating to the areas below are identified within the report.

- Raising awareness
- Communication to staff delivering care directly
- Terminology
- Roles and responsibilities
- Education and Training
- Reporting
- Support to staff

The Regional Dysphagia Group, led by PHA has been asked to take forward the next steps outlined in the report.

## 1.0 Introduction

Swallowing is one of the body's most complex actions involving the movement of food and fluids from the mouth to the stomach and comprises of four stages shown below:

1. Pre Oral- What happens before you eat
2. Oral-What happens in the mouth
3. Pharyngeal-What happens in the Throat
4. Oesophageal- What happens in the food pipe from the throat to the stomach



## 1.1 Swallowing Difficulties

Impairment can occur at any of the four stages and result in an individual developing dysphagia, a condition where an individual has difficulty with some or all of the swallowing process; this can be either a long term or short term issue.

Dysphagia can affect an individual physically, psychologically and socially and consequently their quality of life. It can lead to malnutrition, dehydration, chest infections and choking, complications are significant and can be life threatening.

Common indicators of dysphagia are:

- Coughing or choking before/during/after swallowing
- Difficulty or pain on chewing or swallowing
- Food or saliva pooling in the mouth
- Drooling
- Repeated chest infections or deterioration in respiratory conditions
- Changes in breathing after swallowing such as shortness of breath or wheeze

- Changes to voice quality such as wet, strained sounding voice.
- Food refusal or difficulty placing food in the mouth.

Difficulties that may be observed in those with dysphagia can include:

- Physical problems which can affect chewing, controlling food in the mouth and swallowing ;
- Behavioural problems such as eating too quickly, overloading the mouth or pica (eating inappropriate and non-food items);
- Reduced awareness or insight into the risks associated with eating behaviours.

## 1.2 Prevalence of Dysphagia

The prevalence of dysphagia varies with the aetiology and age of the individual. It is difficult to ascertain the prevalence rate for some populations because of the way dysphagia is reported, often forming part of other health conditions for which the patient is being treated.

Older adults are at a greater risk of developing dysphagia due to the way the swallow function changes with age. As well as the effects of age on the body, the increased incidence of diseases in older age such as dementia and stroke are also factors which contribute to growing numbers of older people presenting with dysphagia.

Dysphagia can be the result of a wide range of conditions and illnesses which are considered below:

### ***Acquired Neurological Conditions***

Acquired Neurological problems are as a result of damage to the brain or the nervous system. The most common acquired neurological conditions which can cause dysphagia are;-

- *Stroke* which occurs when blood supply to part of the brain is cut off. It is estimated that between 51 and 78% of people who suffer a stroke will have

some degree of swallowing difficulty Studies<sup>1</sup>. The nature and severity of dysphagia will depend on the type and location of the stroke.

- *Parkinson's Disease* is caused by a loss of nerve cells within the brain. Recent studies indicate that 80 to 95% of those diagnosed develop dysphagia throughout the course of the disease<sup>2</sup>.
- *Multiple Sclerosis (MS)* affects the brain and/or spinal cord, causing a wide range of potential symptoms, including dysphagia. Between 35 and 45 % of those with MS will present with dysphagia, whilst more common in the advanced stages of the condition it can occur at any time<sup>3</sup>.
- *Motor Neurone Disease (MND)* is a progressive and terminal disease which results in degeneration of the motor neurones, or nerves, in the brain and spinal cord. It is estimated that between 30 and 100% of those diagnosed will experience swallowing difficulties. The degree of difficulty is dependent on the type of MND and also the stage of the condition with significant swallowing problems becoming very common in the later stages of the disease.<sup>4</sup>
- *Dementia* is a condition associated with an ongoing decline of brain functioning. Whilst there are a range of different types of dementia, dysphagia is very common among those diagnosed and is usually related to the aging process combined with changes within the brain caused by the dementia itself. Exact estimates of what percentage of those with dementia will develop dysphagia are difficult to find. Some studies indicate that between 13 and 57% of dementia sufferers will develop swallowing problems<sup>5</sup>, when

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<sup>1</sup> Martino, R et al; (2005) Dysphagia after stroke: incidence, diagnosis, and pulmonary complications. *Stroke*, Volume 36, Issue 12

Mann, G et al; (2000) Swallowing Disorders following Acute Stroke: Prevalence and Diagnostic Accuracy. *Cerebrovascular Diseases*, Volume.10, No. 5.

<sup>2</sup> Sultrup, I; Warnecke, T; (2016) Dysphagia in Parkinson's Disease. *Dysphagia*. Volume 31, Issue 1, pp 24–32

<sup>3</sup> Calcagno, P et al; (2002) Dysphagia in multiple sclerosis – prevalence and prognostic factors. *Acta Neurologica Scandinavica*, Volume 105, Issue 1, Pages 40–43

<sup>4</sup> Walshe, M; (2014) Oropharyngeal Dysphagia in Neurodegenerative Disease. *Journal of gastroenterology and hepatology research* , volume 3, no 10.

<sup>5</sup> Alagiakrishnan, K et al; (2013) Evaluation and management of oropharyngeal dysphagia in different types of dementia: a systematic review. *Arch Gerontol Geriatr* Volume 56, Issue 1, Pages 1-9

individuals have needs that require them to reside in a care home environment this figure rises to 68%<sup>6</sup>.

### ***Congenital/developmental conditions***

Dysphagia can also be caused by conditions a person is born with or problems which occur as an individual develops.

### ***Learning disability***

A learning disability is a lifelong condition which affects a person's ability to learn new skills. Learning disabilities, also known as intellectual disabilities, can be caused by a wide range of factors such as birth injury, an accident or illness in childhood or the presence of specific conditions such as Down Syndrome or Rett Syndrome.

Adults with a learning disability are at greater risk of eating, drinking and feeding difficulties than the general population. Whilst there is no reliable data on the numbers of people with learning disabilities who have swallowing problems, estimates range from 36% (based on speech and language therapy caseloads) to over 70% (based on inpatient populations). More recent studies have shown that approximately 15% of adults with learning disabilities require support with eating and drinking and 8% of those known to learning disability services will have dysphagia<sup>7</sup>. People with learning disabilities are more likely to present with behaviours which increase the risk of choking whilst eating and drinking, such as eating quickly or impulsively.

### ***Cerebral palsy***

Cerebral palsy is caused by a brain injury which occurs before, during or soon after birth. It is a lifelong condition which affects normal movement and coordination. Typical swallowing problems in those with cerebral palsy include reduced oral skills, poor coordination of the swallow and difficulty coordinating swallowing with

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<sup>6</sup> Steele, C et al; (1997) Mealtime Difficulties in a Home for the Aged: Not Just Dysphagia. *Dysphagia*, Winter; **12**:43-50.

<sup>7</sup> Guidance, Swallowing difficulties (dysphagia), Updated 23 June 2017, Public Health England.

breathing. Dysphagia can range in severity depending on the nature and severity of the brain injury.

### ***Mental health conditions***

Individuals with mental health problems are reported to be at a higher risk of choking than the general population<sup>8</sup>, this can be as a result of side effects of medication, movement disorders, seizures and eating/drinking behaviours which increase the risk of choking. In addition, those with mental health problems may be more likely to have a higher incidence of dental problems due to long term medication. It is also important to note that mental illness can co-exist with the conditions listed above which may further increase the risk and likelihood of significant swallowing problems occurring. Literature shows that 35% of people admitted to an acute mental health unit and 27% of patients attending a mental health day hospital can present with dysphagia<sup>9</sup>.

### ***Respiratory conditions***

Any condition which causes difficulty in breathing can also cause swallowing problems. Studies have shown that 27% of those with chronic respiratory conditions such as COPD (Chronic Obstructive Pulmonary Disease) show signs of dysphagia when screened<sup>10</sup>. When breathing conditions deteriorate, the incidence of swallowing problems increases significantly, with recent studies showing 88% of those with acute respiratory conditions having significant dysphagia<sup>11</sup>.

### ***Cancer***

Dysphagia is common among those presenting with cancers of the head and neck occurring in between 50-60%<sup>12</sup> of head and neck cancer survivors, this may be a

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<sup>8</sup> Fioritti, A et al; (1997) Choking Incidents among Psychiatric Patients: Retrospective Analysis of Thirty-one Cases from the West Bologna Psychiatric Wards. *Canadian Journal Psychiatry*, Vol 42, Issue 5.

<sup>9</sup> Regan, J et al; (2006) Prevalence of Dysphagia in acute and community mental health settings. *Dysphagia* Volume 21, Issue 2, pp 95–101.

<sup>10</sup> McKinstry, A et al (2010) Outcomes of dysphagia intervention in a pulmonary rehabilitation program. *Dysphagia*, Volume 25, Issue 2, pp 104–111

<sup>11</sup> Kobayashi, S et al (2007) Impairment of the swallowing reflex in exacerbations of COPD; *Journal List Thorax*, volume .62 issue 11

<sup>12</sup> Shune, SE et al (2012) Association between severity of dysphagia and survival in patients with head and neck cancer. *Head and Neck*, Volume 36, pp 776-784

result of the location of the tumour, surgery or a side effect of treatment such as chemotherapy or radiotherapy.

## **Malnutrition**

Dysphagia is strongly associated with malnutrition and vice versa. Literature shows that patients with Parkinson's disease who have dysphagia are four times more likely to lose 4.5 kg weight and require puree food and energy dense supplements<sup>13</sup>. For patients with Motor Neurone Disease, 70-80% can develop dysphagia and 20% develop malnutrition<sup>14</sup>. Patients with dementia who are malnourished are at higher risk of dysphagia (68.6%) and 41.7% of patients with dysphagia are at higher risk of malnutrition.<sup>15</sup> The practical issues include consuming too little of energy and protein releasing food due to eating smaller food portions and consuming less fluid despite eating more frequently throughout the day.

## **1.3 Choking**

Choking is the introduction of a foreign object (edible or non-edible) into a person's airway which becomes lodged and reduces or completely obstructs the airflow to the lungs. It is an acute episode in which the person will cough incessantly or experience a colour change (with inability to cough or speak effectively) while ingesting food or drink. The solid or liquid has to be expelled to terminate the event.

Whilst it is recognised that anyone can experience a choking episode people with dysphagia have a higher risk of choking and the consequences can be fatal in all groups.

Whilst it is not possible to prevent all episodes of choking, reducing the risk of choking and improving the safety of individuals who have dysphagia, is essential. For the purpose of this review the focus is related to *choking on food*.

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<sup>13</sup> Beyer PL et al (1995), Weight change and body composition in patients with Parkinson's Disease. *Journal of the American Dietetic Association*, Volume 95, Issue 9, Pp 979–983.

<sup>14</sup> Desport JC et al (1999), Nutritional Status is a prognostic factor for survival in ALS patients. *Neurology* Volume 22; 53(5):1059-63.

<sup>15</sup> Carrion, S et al; (2015) Oropharyngeal dysphagia is a prevalent risk factor for malnutrition in a cohort of older patients admitted with an acute disease to a general hospital. *Clinical Nutrition*, Volume 34, Issue 3, Pp 436–442.



### **Higher risk food**

Certain types of food can carry a higher risk of choking and may need to be modified or avoided for people with dysphagia, they include:

- round or long-shaped foods eg. sausages, grapes, sweets
- hard, tough, chewy, fibrous, stringy, dry, crispy, crunchy or crumbly foods
- floppy' foods eg. lettuce, cucumber, uncooked baby spinach leaves
- pips, seeds, pith/inside skin, skins or outer shells eg. on peas, grapes, husks
- hard chunks eg. pieces of apple
- sticky foods eg. cheese chunks, marshmallows
- juicy food where juice separates off in the mouth to a mixed texture eg. water melon
- foods of mixed consistency (eg. solids mixed with gravy, soup with lumps of vegetables)

National Patient Safety Agency's National Dysphagia Texture Descriptors provide standard terminology that be used by all health and social care professionals and food providers when communicating about an individual's requirements for a texture modified diet.

The food textures are:

**B**= Thin Puree

**C**= Thick Puree

**D**= Pre-mashed

**E**= Fork mashable

Normal Diet

The fluid texture are:

Normal fluid

**Stage 1:** Syrup thick

**Stage 2:** Custard thick

**Stage 3:** Pudding thick

## **2.0 Background**

### **2.1 National context**

Over the last 15 years there has been an increasing focus on choking as a significant safety issue. The National Safety Council highlight that choking is identified as the 4<sup>th</sup> leading cause of unintentional death.

The National Patient Safety Agency (NPSA)<sup>16</sup> in Great Britain reported that there were 605 reported incidents of choking related to adults with learning disabilities between April 2004 - 2007. Review of these incidents identified that they mainly happened at mealtimes with 41% occurring in residential care homes and 58% within inpatients and assessment services.

In 2007 NPSA developed specific guidance with an aim to ensure safer practice for adults with learning disabilities who have difficulty in swallowing. The guidance highlights best practice and provides resource materials to give practical help<sup>17</sup>. The National Reporting and Learning Service (NRLS) encourage healthcare organisations to foster a culture of patient safety and to consider human factors when designing and implementing systems and process.

In June 2011, the Department of Health England as part of the 'Improving Health and Lives Confidential Inquiry'<sup>18</sup> examined preventable deaths of people with learning disability and reported that a number of deaths were caused by solids or liquids going down the wrong way in the lung. The review included stories relating to people with learning disabilities who choked and died in care homes. Their findings showed that people died when carers were not looking after them, first aid was not used properly when the person was choking, staff were not following the care plans for eating and drinking and that people who were at risk of choking were not protected from that risk.

In September 2012, a multi-agency review carried out in Hampshire<sup>19</sup> following 5 cases of choking resulting in death, in learning disability clients, reported to Hampshire County Council between 2005 - 2010. The report sought to understand why people with a learning disability are at greater risk of choking and to determine how outcomes could be improved for individuals who are at risk of choking, in any care setting. There were a number of work stream areas identified during the review which were seen to influence the successful management of risk of choking, including:

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<sup>16</sup> [www.nrls.npsa.nhs.uk](http://www.nrls.npsa.nhs.uk)

<sup>17</sup> National Patient Safety Agency 'problems swallowing?' (July 2007) Resources for clients and carers: Ensuring Safer practice for Adults with learning disabilities who have dysphagia

<sup>18</sup> [www.improvinghealthandlives.org.uk](http://www.improvinghealthandlives.org.uk)

<sup>19</sup> Hampshire Safeguarding Adult Board, Multi-Agency Partnership, September 2012, Reducing the risk of choking for people with a learning disability.

- Recognition of people who may be at risk of choking
- Appropriate referral to health professionals for advice and planning
- Care staff training around the recognition of risk, mental capacity assessments and best interests decision making, and First Aid to be given when someone chokes
- Effective commissioning and monitoring of placements for people who are at risk of choking
- Consistent reporting of choking incidents including application of safeguarding processes
- Information for the public.

Public Health England “making reasonable adjustments to dysphagia services for people with learning disabilities” – provides some excellent examples of training models for service providers, carers and families<sup>20</sup>

## 2.2 Local context

### ***Minimum Care Standards for Regulated Services***

The Department of Health NI has developed minimum standards for a range of regulated services. The standards outlined below, specify the arrangements, facilities and procedures that need to be in place in each setting to ensure the delivery of a quality service.

- Care standards for Nursing Home April 2015
- Minimum Care Standards for Independent Healthcare Establishments (2014)
- Residential Care Homes Minimum Standards Updated August 2011
- Domiciliary Care Agencies Minimum Standards Aug 2011
- Day Care Settings Minimum Standards Jan 2012

Within each of the standard documents there are specific standards and criteria related to nutrition and mealtimes which have direct relevance to providing care for individuals with dysphagia.

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<sup>20</sup> Public Health England, Making reasonable adjustments to dysphagia services for people with learning disabilities (March 2016).

The minimum care standards for each setting also have specific standards related to staff training and development, with the following related criteria:

*The training needs of individual staff for their roles and responsibilities are identified and arrangements are in place to meet them.*

### **Trust Policies & Procedures**

Each of the Trust organisations has policy or procedures/protocols in place relating to the management of dysphagia.

### **Promoting Good Nutrition Strategy**

The overall vision of PGN strategy, is to improve the quality of nutritional care of adults in Northern Ireland in health and social care, whether delivered or commissioned, through the prevention, identification, and management of malnutrition in all health and social care settings including peoples own homes.

The PGN strategy clearly demonstrates that malnutrition and swallowing difficulties are interlinked.

The 10 Key Characteristics within the strategy sets the scene for the development of a framework for action, by describing what good nutritional care looks like for each characteristic.

The two key actions related to dysphagia are:

- People with swallowing difficulties are screened
- All adults identified as having swallowing difficulties have a full swallow assessment by a Speech and Language therapist.

Evaluation of the implementation of the PGN strategy, within adult hospital settings, identified an opportunity for further regional engagement in order to understand current regional practice in relation to dysphagia screening and full swallow assessments. A scoping exercise which focused on 3 particular elements pertaining to dysphagia, namely dysphagia awareness, dysphagia screening and full swallow assessment of patients was carried out regionally. The findings of the scoping

exercise have been shared with the Regional Adult Dysphagia Group and will inform the regional dysphagia action plan going forward.

### ***Incident Reporting***

When a serious event or incident occurs, it is important to ensure that there is a systematic process in place for safeguarding services users, staff, and members of the public. One of the building blocks for doing this is a clear, regionally agreed approach to the reporting, management, follow-up and learning from serious adverse incidents (SAIs). Working in conjunction with other Health and Social Care (HSC) organisations, the *HSCB/PHA Procedure for the Reporting and Follow up of Serious Adverse Incidents* was developed to provide a system-wide perspective on serious incidents occurring within the HSC and also takes account of the independent sector where it provides services on behalf of the HSC. The procedure defines an adverse incident and outlines the criteria for reporting of a serious adverse incident.

### ***Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)***

In May 2014 the Health & Safety Executive (HSENI)<sup>21</sup> advised that if a death or major injury arises due to service user choking, in connection with the Trust's work activities, and it could have been prevented by the Trust through risk assessment, identifying and implementing control measures or if a failure to do any of these was identified, that this should be reported under RIDDOR<sup>22</sup>.

RIDDOR requires employers and others to report deaths, certain types of injury, some occupational diseases and dangerous occurrences that **'arise out of or in connection with work'**. Generally, this covers incidents where the work activities, equipment or environment (including how work is carried out, organised or supervised) contributed in some way to the circumstances of the accident.

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<sup>21</sup> <https://www.hseni.gov.uk/publications/date/2014>

<sup>22</sup> RIDDOR (Reporting of Injuries, diseases and Dangerous Occurrences Regulations (NI) 1997)

### ***Dissemination of Regional Learning***

Prior to this review being commenced and following regional recommendations arising from a SAI review, a reminder of best practice letter relating to management and advice for patients/clients with swallow/dysphagia problems, was issued in October 2015<sup>23</sup>. The learning focussed on the need to have robust systems in place, and working, to ensure that all staff involved in delivering care are fully aware, and reminded of, each resident's individual needs and care plans.

### ***Dysphagia Awareness Training***

Currently dysphagia awareness training is not considered mandatory across the region. There is a variation of training provided across HSC and independent sector organisations which is accessed from both statutory and private providers, including training offered by nutritional and pharmaceutical companies.

### ***Improvement Initiatives***

There are many examples of improvement initiatives related to the prevention of choking across the region, a small sample of which are highlighted below.

#### *Stop Choking DVD link/song*

A free help stop choking app which has been developed for people with learning disability is available at [helpstopchoking.hscni.net](http://helpstopchoking.hscni.net). The app provides easy access to resources which include a choking awareness book, videos, leaflets and advice. Feedback has shown that people with learning disability have found the app easy to use and have loved being in control of their own learning.

#### *Experiential Learning*

A project using quality improvement methodology was undertaken in a care home in one Trust area. This project looked at the level of support required by care home staff to care for dysphagic clients safely. The model has suggested that experiential learning allows staff to have a concrete experience with clients they know, to reflect

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<sup>23</sup> HSCB/PHA Reminder of Best Practice Letter, Management and advice for patients/clients with swallow/dysphagia problems, October 2015

on their experience and generate ideas on how to manage in the future, and to transfer this learning to new clients. This is done safely with a SLT clinician on hand through the early stages to support and guide.

### *Quality Improvement*

A nationally recognized quality improvement project was undertaken by an independent provider organisation in partnership with a Trust. The project focused on choking, dysphagia and speech and language assessments with a key aim that all nurses, care assistants and support staff working within the group of care homes were aware of speech and language recommendations for each individual resident.

This drive in quality improvement resulted in the displaying of choking risk cards for visitors and visual cues for staff in dining rooms and tea trollies. This piece of work also helped improve written and verbal communication processes between the multidisciplinary team, the care teams and the catering staff through face-to-face learning and practice development. The outcomes of this initiative led to statistically significant reductions in episodes of choking and associated weight-loss.

### *Trust wide improvement initiative*

One organisation has established a Trust wide cross- divisional group to fully implement and embed the Trust Dysphagia Management Policy for Adults. Training has been provided to over 800 staff community and hospital settings and 'pop up' ward based key facts information sessions have also been delivered. A Dysphagia page has been created on the staff intranet to allow all staff easy access to information to support their practice such as the SLT regional information leaflets re Textured Modified Diets. Additionally guidance is now available regarding the provision of snacks to service users who require a textured modified diet; snack lists are available which are appropriate to Acute and Community Hospital settings and for community and domiciliary settings. An information poster has been provided to all hospital wards, adult centres, short breaks and supported living settings along with a leaflet which has been produced and disseminated to all staff who work with adults who have dysphagia, including domiciliary care staff. A dysphagia champion was appointed on an interim basis in September 2016 and has audited practice in

Acute and community Hospitals and in Learning Disability facilities. The audit identified areas of excellent practice and areas for improvement. Excellent practice in Learning Disability facilities included the discrete use of service user photographs in serving areas to ensure that people who required texture modified foods were provided with the correct meals and snacks and having a dedicated member of staff responsible for ensuring that all SLT dysphagia care plan documentation is shared within the unit.

### **3.0 Aims and Objectives**

The Regional SAI review group identified the need for a review of SAIs & AIs relating to choking on food, to inform future safety work. The aim of this review was to identify recurring themes, consider regional learning and determine actions required to reduce/prevent reoccurrence of choking on food as well highlighting areas of good practice.

It is important to note that the SAI reports included are unlikely to represent all of the near misses and harm that result from choking on food. In recognition, all HSC Trusts agreed to share adverse incident information (related to choking on food) from Trust Datix systems. This review therefore considers both SAIs and AIs to obtain an overall view of actual and potential harm associated with choking on food and related causal factors.

The SAIs and AIs included in this analysis have been individually reviewed at Trust level and resulting recommendations have been implemented locally or regionally where appropriate.

The objectives of this review were:

- Document the number of SAIs and AIs relating to choking on food
- Document key issues raised, in relation to care and treatment
- Identify themes arising from the SAIs
- Identify documented contributory or causal factors
- Give consideration to learning from AIs relating to choking on food
- Identify areas of good practice



- Make recommendations for further work or for specific improvements in the delivery of care and services, where appropriate; and
- Prepare a written report of the review, for learning and sharing with relevant parties. This report will be presented to Quality, Safety & Experience Group (QSE) prior to approval from SMT/AMT.

## 4.0 Methodology

### 4.1 Analysis of Serious Adverse Incidents

SAIs for consideration within this review were identified using the agreed search criteria below within the Regional DATIX database

- Choking
- Aspiration pneumonia
- Asphyxiation
- Difficulty swallowing

SAI notifications forms were screened for inclusion in the review by two reviewers. Full reports were requested where the SAI was related to choking on food. Using the above methodology, there were 17 cases which were identified and considered within the review.

Identification of the contexts and causal factors associated with choking on food was undertaken using qualitative methodology, predominantly the use of grounded theory<sup>24</sup>, whereby the issues were identified while reviewing the data (instead of using preconceived hypotheses). Each SAI report included was assigned analytic theme(s), which formed the basis for the issues identified.

### 4.2 Findings of Serious Adverse Incidents

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<sup>24</sup> Charmaz K. Grounded theory. Qualitative psychology: A practical guide to research methods. 2003 Mar 6:81-110.

## **Outcome**

In 14 (82%) cases tragically the incident resulted in death.

## **Demographics**

### **Reporting Organisation**

There was variation in the number of SAIs reported by Trust organisations across all Adult Programmes of Care, ranging from 0 to 7.

### **Age and Gender**

Of the 17 incidents, 10 occurred with males and 7 with females. 11 of the SAIs occurred in persons under 70 years, 6 occurred in those greater 70 years. Ages ranged from 42-80 years.

### **Care Setting**

There was a variation in the settings in which the incidents occurred with most (58%) in nursing and residential care homes. Other settings included supported and independent living, and day centres.

## **5.0 Thematic Analysis of SAIs**

From the SAIs reviewed the following themes were identified:

### **Causes**

The SAIs reviewed show a prevalence of choking episodes among groups for whom the risk of choking is inherently higher, such as those with a mental health diagnosis (41%), learning disability (35%) and dementia.

Behaviours known to increase the risk of choking were identified as a strong theme. This was referenced in 9 (52%) of cases with the following terminology being used within reports:

- Eating quickly;
- Bolting food;
- Drinking fluids impulsively;

- Eating non-food items;
- Taking and eating other people's food;
- Tendency to gulp food/liquids;
- agitated behaviours;
- Holding food in mouth

### **Patients/Clients known to Speech and Language Therapy**

In 13 (76%) of the 17 cases, individuals were known to Speech and Language Therapy (SLT) and there is evidence in the majority of the cases that recommendation for management and texture modification had been made.

### **Documentation of SLT recommendations**

Of the 13 cases known to SLT, In 11 (87%) cases the investigation report considered that there was evidence of written documentation to support the swallow recommendations.

### **Communication of swallow recommendations to staff**

From review of the incident reports it would appear that despite swallow recommendations being documented, availability of these recommendations to staff actually involved in meal provision and feeding was not always ensured. Some of the reasons detailed within the incident reports for this included:

- Nursing care plan relating to dysphagia needs was not in place;
- New staff member;
- Staff member was transferred from another unit;
- Swallow recommendations were not easily accessible in the dining area;
- Personal individual placemat was not in place in dining room;

### **Understanding of SLT terminology**

The reports indicated that there are issues with the clarity and/or understanding of individual care plans and the SLT terminology used within care plans. On a review of the incidents there is evidence to suggest that even when recommendations were available to staff there was a lack of understanding in staff actually involved in the meal provision and feeding. There was recognition within a small number of the

review reports that food textures observed, as well as those recorded on food diaries and records of care were not in keeping with those recommended by SLT.

In 5 (41%) of the 12 cases where SLT assessment had resulted in modification to diet recommendations, texture descriptors had been used. It was recognised that in the remaining cases, a small number had occurred prior to 2012 when national texture descriptors had been published. It was noted that the Dysphagia Diet Food Texture Descriptors terminology was not used universally in all verbal and written communication and reference was made to training and awareness which had been delivered in advance of the introduction of texture descriptors.

### **Meal and snack times**

Over half (58%) of the choking episodes reported as SAIs occurred at mealtimes, 5 occurred at snack time and in a small number of cases it was unclear as to when the incident had occurred.

### **Food Type**

In 5 (30%) of the cases sausages were identified as the food which caused the individual to choke. Other foods detailed within review reports included bread & butter, sandwich, cake, orange, scone, soup and braised steak.

In 9 (53%) of the 12 cases where SLT recommendations had been made for a modified diet, the food which resulted in choking was not of the texture recommended by the SLT, a small number of incidents occurred outside of mealtimes when individuals were given snacks, not by staff but by others who may not have been aware of their dietary requirements or by taking food not intended for them.

### **Change of environment**

There does appear to be a theme relating to a move or change in environment or change to routine, this was referred to in 6 (35%) of the reports, with individuals recently resettled from long term care facilities, discharged from hospital to a nursing home and admitted to the acute hospital environment from home or another care environment.

### **Changing needs of individuals**

Changing needs of the individual was noted in a number of the 17 cases reviewed. Signs of chest infection, recurrent chest infections, requirement for antibiotic therapy and pneumonia were referenced within reports along with recognition of chest infection as a possible sign of swallow difficulty and aspiration. Deterioration in clinical course in individuals with conditions known to increase the risk of swallowing difficulties, as having the potential to affect their ability to swallow is also noted.

### **Swallow awareness training for frontline staff**

In less than 5 of the 17 reports reference was made to swallow awareness training. In a small number of reports reference was made to in house training provided both by Speech and Language Therapists and by catering staff within the care settings.

In 7 (41%) of the 17 reports, recommendations are made in relation to swallow awareness/dysphagia training, they are not explicit as to who should deliver the programmes or the content. A small number of the reports note that this training is not currently considered as mandatory.

### **Support to staff and others who witness choking incidents**

The need for support to families, carers and other residents/clients who witness choking incidents is referenced within reports.

A small number of the reports make specific reference to the traumatic nature of these incidents and the need for support to staff. Within these reports there is reference to the support provided from senior staff in clinical areas along with occupational health input and care call helplines.

## **6.0 Good Practice Identified**

It is important to note there were many examples of good practice highlighted throughout the SAI review reports these included:

- Prompt and effective management of choking episodes. The benefits of ensuring all staff are trained and updated in emergency first aid and CPR has been demonstrated throughout a number of these reported incidents. The procedure for summoning emergency assistance worked extremely well in many instances;
- Comprehensive pre admission assessments and documentation completed in many cases;
- Early and appropriate involvement of SLT and dietetics teams within the care planning process;
- Clear evidence of written documentation from SLT to support the swallow recommendations and this had been communicated and shared by the SLT professional with the clinical areas;

## 7.0 Analysis of Adverse Incidents

In order to complement the findings of the thematic review of SAIs, Trusts agreed to share information held on DATIX relating to all AIs resulting from choking on food between May 2010 to end April 2016 (across all adult Programmes of Care). Datix was searched using the following key words:

- choking;
- aspiration pneumonia;
- asphyxiation;
- difficulty swallowing.

Following review by Trusts **798** AIs were considered as relevant.

### 7.1 Findings

#### *Reporting Organisation*

There was a variation in the number of AIs reported by Trust organisations ranging from 62 - 349.

### ***Care Setting***

There was a variation in the settings in which the incidents occurred with almost half (46%) occurring in Day Care settings, 28% in hospital settings and 15% in nursing and residential care homes. Remaining settings included supported living and individuals' own homes.

### ***Day Care Settings***

There was variation in the number of reported AIs in day care settings between Trusts, this ranged from 33 to 140 per Trust with 365 in total. The majority of day care settings in which incidents occurred were those who provided care for individuals with learning disabilities and mental health needs.

### ***In-patient Hospital settings***

Many of 222 incidents occurring in hospital were reported within mental health and learning disability settings along with clinical areas which provided care for the elderly and those with dementia. A small percentage of incidents were reported from acute inpatient hospital settings. The range of incidents reported by Trust was 16 to 109.

### ***Nursing & Residential Care Settings***

There were 116 (15%) incidents occurring in nursing and residential care home settings, reported incidents ranged by Trust from 7 to 66.

### ***Supported Living***

Adverse incidents in supported living settings accounted for 7% (57) of total reported incidents, which Trust reported numbers ranging from 6 to 19.

### ***Own home***

Incidents in this category were reported mostly by support workers providing care within the clients own home.

## **Other**

The 23 incidents categorised in the other setting were mostly community settings including rehabilitation environments and also where exact location was not specified.

## **Food Types**

Where the type of food which caused the individual to choke was detailed, similar to the review of SAIs, the majority of the food types are known to carry a higher risk of choking, these included:

- Sausage
- Chicken
- Biscuits
- Toast
- Lettuce
- Orange

## **7.2 Themes identified**

Whilst it was acknowledged that there would be less information available than that within an SAI review report, Trusts were asked to identify key themes from AI analysis. The key themes identified below were similar to those identified in the analysis of SAIs:

- Known history of swallowing difficulty;
- Interpretation, understanding and documentation;
- Training: food preparation, dysphagia, CPR, first Aid;
- Recommendations which were present were not always adhered to;
- Behavioural issues;
- Posture of patient when eating;
- Visitors giving patients food they were not allowed;
- The importance of personalised care planning with regards to dietary requirements;
- Appropriate supervision in dining rooms.



## Outcome

When reviewing the information provided in relation to adverse incidents it was also noted that in a number of incidents reference was made to the requirement of first aid measures including, back slaps, abdominal thrusts and suctioning measures by staff members present at the time of the incident along with doctors on call and paramedics. Prompt response and effective first aid measures clearly had a positive impact on the outcome for these individuals.

## 8.0 Learning

The SAIs reviewed show a prevalence of choking episodes among groups for whom the risk of choking is inherently higher, such as those with a mental health diagnosis, learning disability and dementia. Similarly, although the aetiology for all AIs was not available to the thematic review team in all cases, almost half of the incidents (365) occurred in day care settings, the majority in day care centres for those with learning disabilities and mental health needs. In addition, many of the incidents occurring in hospital (222) were reported within mental health and learning disability settings along with clinical areas which provided care for the elderly and those with dementia. Behaviours which are known to increase the risk of choking were described in many of the cases.

In the SAIs reviewed there is reference to level of access to SLT where it was requested. Interventions by SLT tend to be in response to a referral to the service. In order to obtain timely and appropriate referrals to SLT there continues to be a need for awareness training of frontline staff in the identification of signs and symptoms that indicate that there may be swallowing difficulties and how and when to refer appropriately for full swallow assessment.

Another causal factor highlighted was the changing needs of the individual and the timeliness of reassessment. Many people's ability to swallow safely will rapidly decline during periods of ill health and advice on how to respond in this urgent situation is often needed. Review of recommendations and consideration of clinical

condition allow patients/clients to follow the least restrictive diet, supporting a better quality of life, adherence to SLT recommendations and appetite. As the SAIs incidents have all occurred within client groups for whom swallowing difficulties are prevalent, swallow awareness training for frontline staff may result in increased safety for this population and rapid identification of those at increased choking risk so that timely referrals can be made to SLT.

Currently within Northern Ireland there is no regional consensus to which staff groups should access training & dysphagia awareness training is not recognised as mandatory. There is a variety of training programmes available in relation to dysphagia, swallow awareness and food preparation. However, there does not appear to be consistency across the Trusts and Independent Providers in relation to access to this training, length, content, whether they are mandatory or not or how competency is accessed. Those who access training do so from both statutory and private providers including nutritional and pharmaceutical companies. This ad-hoc approach has the potential to result in confusion. There is a need to ensure that the training for staff that is delivered is quality assured and standardised so that a common message is communicated in agreed language.

It is important to stress that simply accessing training is not enough and practice and learning from recent improvement initiatives would indicate that on-going monitoring of practices and support relating to dysphagia management within care facilities is essential to ensure that training is embedded.

In reviewing the SAI reports the importance of effective communication with the staff caring directly for individuals with swallowing difficulties was highlighted as an area for learning. Whilst the reports referred to written documentation of swallow recommendations in most cases detail relating to the availability of these recommendations to staff actually involved in meal provision and assistance with feeding was not always clear.

Although not referred to in all reports, a small number referred to the displaying of information relating to swallowing recommendations for example on a personal placemat at the clients table, whilst others displayed them on the walls of the

residents room. Sharing of the information contained within care plans including swallow recommendations can be misunderstood or misinterpreted by staff who are delivering care.

There is a need to consider the impact of environmental changes and changes to routine both on the individual and staff involved. The transfer of information from one facility to the next can be an issue but importantly there may be issues relating to the knowledge one team will have of a person from whom they have had caring responsibility for a long period of time. Some of the subtle caring practices may be difficult to capture and therefore to communicate effectively.

The precise sharing of information relating to all aspects of care and where possible, the careful and planned transfer of a client from one care setting to another so that those with the most knowledge of the individuals' care needs can be closely involved in the resettlement of the client into their new surroundings. The discharge care pathway needs to be clearly described with the "key" worker clearly identified. This individual is the central point through whom information relating to all care needs is disseminated.

When a patient safety incident occurs, a first priority is to care and support for the person, their family members and carers and indeed other service users who have witnessed the adverse/serious adverse event. The subsequent impact on front-line workers involved in or exposed to the event should also be acknowledged. These staff members need emotional and professional support from colleagues and supervisors, so that the occurrence of patient safety incidents results in learning and constructive changes in practice if indicated.

## **9.0 Conclusion**

This review provides an analysis of SAIs relating to 'choking on food' reported across all programmes of care for the period of 6 years, 1 May 2010 to 31 March 2016. Themes identified from regional AIs associated with choking on food between 1 May 2010 to 30 April 2016, were also considered.

The reasons why patients choke are complex and can have numerous contributing factors such as physical illness, learning disability, mental health, medication and age.

The regional multi-disciplinary review group have identified recommendations to facilitate learning and inform future quality improvement work with an aim of prevention or reduction of risk of choking in the future. It is not usually possible to eliminate all risks but staff have a duty to protect individuals as far as 'reasonably practicable'<sup>25</sup>. This means the avoidance of any unnecessary risk. It is also clear that there were many examples of good practice highlighted throughout the reviews.

## 10.0 Key Messages

### *Regional*

- Public awareness and awareness of staff should be raised regionally of the groups of people for whom there is a higher risk of choking.
- Terminology for food and fluid texture descriptors should be agreed regionally for use universally across all HSC facilities and by providers of modified meal contractors.
- A regional approach to agreeing roles, responsibilities along with tailored training & education to the level of competence and skills required by different groups of staff should be taken.
- Key safety messages from the thematic review and the dysphagia scoping exercise should be shared with relevant stakeholders, especially with those caring directly for individuals with swallowing difficulties.

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<sup>25</sup> NPSA (March 2007) '*Healthcare risk assessment made easy*'

## Individuals

- Care plans relating to individual dietary needs should be clear and unambiguous and should include swallowing recommendations, requirements for supervision, assistance with feeding and food and fluid consistency.
- Clear mechanisms for the communication of swallowing recommendations to those who are caring directly for individuals with swallowing difficulties should be developed including when transferring between locations.
- The needs of individuals with swallowing difficulties should be communicated effectively, particularly at pivotal times such as handover, meal and snack times, or if patients/clients move facilities, attend day centres or go out in the care of their relatives, carers or others. The development of a process for a safety pause before any meals and snack times are served to consider risks, based on one question such as *'what patient safety issues for meal and snack times do we need to be aware of today?'* should be considered.
- When planning menus consideration should be given to food that can carry a higher risk of choking and requirement for necessary modifications or in some cases avoidance.
- Individuals who have experienced a deterioration with their swallowing, dysphagia, or who have difficulty with chest infections or aspiration should be reviewed and their needs reassessed.

## Family/ carer

- Families, carers and visitors (if appropriate) should be made aware if there is any risk of individuals choking and be kept up to date of relevant requirements regarding individual dietary needs.
- Information in an easy to understand format on dysphagia management should be made available for people with swallowing difficulties and their families and carers.

## **Staff**

- The training and development needs of staff providing care and services for individuals with swallowing difficulties should be identified and arrangements put in place to meet them.
- Staff/witness support and counselling, should be available for any member of staff or witnesses involved either directly or indirectly in a choking incident.
- To help continuously improve safety in the future, systems should be put in place for the accurate reporting of patient safety incidents involving all patients with dysphagia.

## **11.0 Next Steps**

A Regional Adult Dysphagia Group led by PHA has been recently established, comprised of Service Users, Carers, Statutory, Independent, Voluntary and Community Sectors and relevant staff groups.

The aim of the group is to improve identification and management of swallowing difficulties for adults with dysphagia and the following objectives have been set:

- Improve awareness of dysphagia;
- Standardise approach for identifying people with dysphagia;
- Standardise approach for managing people with dysphagia;
- Improved access to specialist intervention;
- Work towards a co production approach with service users and carers.

As a result of learning from this review the Regional Adult Dysphagia Group are asked to engage with relevant stakeholders to consider the following actions and subsequently develop an action plan with clear time frames for completion and implementation;

1. Develop a regional plan for communication of key safety messages arising from the thematic review, to include consideration of promotional materials and media aimed at raising awareness.
2. Develop proposals for consideration and approval by relevant stakeholders in relation to a regional approach to dysphagia awareness and training for all staff groups which would carefully consider the following areas:
  - Access to awareness and training;
  - Delivery options;
  - Theoretical content as required by staff group;
  - SLT care plan “language”/terminology including texture descriptors;
  - Appropriate supervision of patients whilst eating or drinking.
  - Assessment and compliance
  - Roles and responsibilities
3. Develop regional recommendations in relation to timeliness of SLT dysphagia assessment and intervention.
4. Seek regional consensus in relation to the use of Dysphagia Diet Texture Descriptors across the region. In reaching comprehensive consensus with all relevant stakeholders, agree a regional plan for dissemination and implementation using an agreed communication and assurance framework to ensure sharing with and awareness of relevant staff groups families and carers.
5. Seek and share outcomes of current improvement initiatives related to choking on food and give consideration to potential for spread to other areas.
6. Determine the value of a standardised format for swallow recommendations for use in all care settings. If agreed, engage with relevant stakeholders including professional groups to develop same.

- 7 Determine the value of regional guidance in relation to accurate reporting of patient safety incidents involving all patients with dysphagia. If agreed, engage with relevant stakeholders including professional groups to develop same.



*Annual Immunisation and Vaccine Preventable Diseases Report for Northern Ireland 2016-17*

**date** 15 February 2018

**item** 9

**reference** PHA/03/02/18

**presented by** Dr Carolyn Harper, Medical Director

**action required** For noting

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## Summary

The Health Protection Directorate Immunisation Team has compiled the 'Annual Vaccine Immunisation and Vaccine Preventable Diseases Report for Northern Ireland, 2016-17'. The report documents vaccine uptake for all vaccine programmes and epidemiology of vaccine-preventable diseases, as summarised.

## Immunisation Programmes

- For the year 2016-17 uptake of three doses of DTaP/IPV/Hib vaccine by 12 months of age was 97.0% in Northern Ireland, which is a slight decrease from the previous year, but still above the 95% target level
- Uptake of one dose of MMR vaccine by 2 years of age was 94.9%. This is a decrease from last year and just below the 95% target level
- Uptake of two doses of MMR by 5 years of age was 92.8% and has been generally increasing since 2013, but is still below the 95% target level
- By the end of school year 10, 89.6% of girls had completed a course of HPV vaccine, a slight decrease from 90.7% in 2015-16
- By the end of school year 12 in 2017, 94.1% of young people had received two doses of MMR vaccine, 85.7% had received a booster of Td/IPV vaccine and 86.5% had received the new meningococcal ACWY vaccine
- For the year 2016-17, 46% of 70 year olds received the shingles vaccine and 45.4% of 78 year olds. This is a further decrease of 6.2% from the previous year, but eligible people continue to be immunised in subsequent years
- In October 2016, a three dose HPV vaccine programme for men who have sex with men (MSM) under 46 years of age commenced across GUM clinics. Provisional data for the first year shows that 65.2% of MSM up to 46 years of age have had at least one dose of the HPV vaccine, 35.7% at least two doses and 11.2% have completed the course
- In September 2017 a new combined vaccine containing protection against hepatitis B was added to the primary immunisation schedule for babies at 2, 3 and 4 months of age

## **Vaccine Preventable Diseases for 2016**

- Thirty-three cases of meningococcal disease were notified to PHA, with 20 cases (61%) laboratory confirmed
- 40% of laboratory confirmed cases were caused by serogroup B, followed by 30% serogroup W135, 20% serogroup C and 10% serogroup Y
- The proportion of serogroup B cases have halved between 2014 and 2016 since introduction of the Men B vaccine
- There were 144 cases of invasive pneumococcal disease, with 76% occurring in those over 45 years of age, and the majority of these over 65 years. The majority of cases were due to serogroups not included in the vaccines
- There were 15 cases of invasive haemophilus influenza disease but no cases of Haemophilus Influenzae B (Hib)
- Pertussis cases increased to 110 cases from 99 cases in 2015, but this is still fewer than in 2012 (314). The majority are in those over 25 years of age
- There was one confirmed case of measles, unvaccinated and associated with an outbreak at a mass gathering event in England
- Mumps cases increased to 222 cases from 200 cases in 2015, which is still a decrease from 2013. The majority of cases are adolescents and young adults, of which over 90% received two doses of MMR vaccination

## **Priorities for Improvement**

- PHA will continue to work with GP, health visitor and Child Health Information System colleagues to gain a greater understanding of the variation of pre-school immunisation uptake across Northern Ireland and work together to improve coverage, particularly where this is currently below 95%
- PHA will work with Child Health Information System to investigate in more detail the MMR coverage of children in Northern Ireland and work towards a coverage of 95% receiving two MMR vaccines for all children
- PHA will work with school health and communications colleagues to improve the uptake of HPV vaccine for 2017-18
- PHA will work with GP colleagues to gain a greater understanding of the decline in shingles uptake and work to improve the uptake for 2017-18
- PHA will work with the Northern Ireland Maternity Administrative System (NIMATS) to introduce data extraction on vaccination uptake for vaccinations given in pregnancy
- PHA is carrying out a qualitative study with individuals from the Roma community to better understand the knowledge, attitudes and barriers to vaccinations

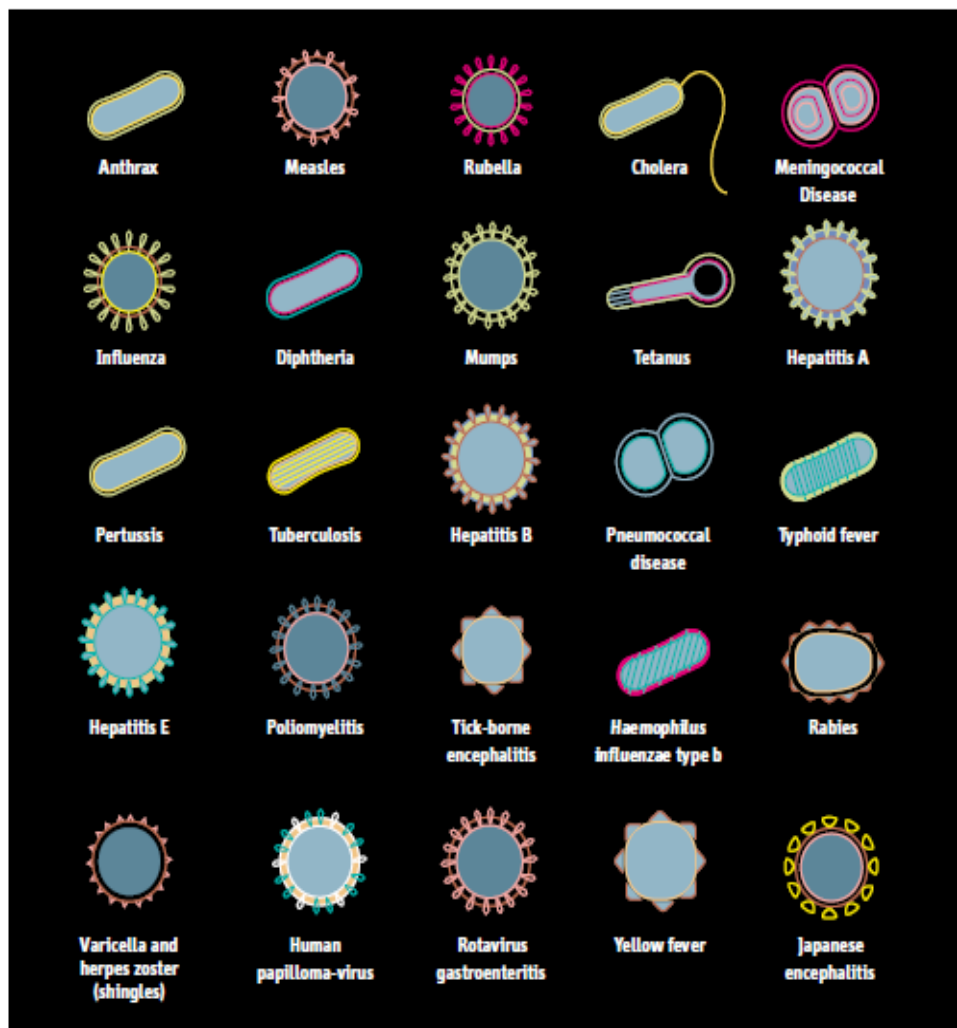
## **Equality Impact Assessment**

N/A

## **Recommendation**

The Board is asked to **NOTE** the report.

# Annual Immunisation and Vaccine Preventable Diseases Report for Northern Ireland 2016-17



# Acknowledgements

The Public Health Agency immunisation team would like to thank everyone who works so hard across Northern Ireland to ensure that the population is protected against vaccine preventable diseases by maintaining high vaccine coverage. This includes health visitors, school health teams, GPs, practice nurses, treatment room nurses, midwives, Genitourinary Medicine (GUM) staff, Trust occupational health staff, Northern Ireland Child Health teams and PHA communications team.

We are grateful to all those who contributed to the uptake data in this report including Northern Ireland Child Health System teams, school health teams and surveillance colleagues Joy Murphy, Ruth Campbell, Cathriona Kearns and Monica Sloan.

The front cover image, taken from the WHO *Global Vaccine Action Plan 2011-2020*, represents all bacteria and viruses for which a vaccine is available, highlighting what a valuable and growing resource vaccines are across the world to protect against infectious diseases.<sup>1</sup> Not all of these vaccines are routinely used in Northern Ireland as vaccine recommendations are based on the local epidemiology of vaccine preventable diseases.

Dr Jillian Johnston, Dr Lucy Jessop, Grainne McKeown and Alison Quinn

December 2017

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[http://www.who.int/immunization/global\\_vaccine\\_action\\_plan/GVAP\\_doc\\_2011\\_2020/en/](http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/)  
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# Summary

## Immunisation Programmes

- For the year 2016-17 uptake of three doses of DTaP/IPV/Hib vaccine by 12 months of age was 97.0% in Northern Ireland, which is a slight decrease from the previous year, but still above the 95% target level
- Uptake of one dose of MMR vaccine by 2 years of age was 94.9%. This is a decrease from last year and just below the 95% target level
- Uptake of two doses of MMR by 5 years of age was 92.8% and has been generally increasing since 2013, but is still below the 95% target level
- By the end of school year 10, 89.6% of girls had completed a course of HPV vaccine, a slight decrease from 90.7% in 2015-16
- By the end of school year 12 in 2017, 94.1% of young people had received two doses of MMR vaccine, 85.7% had received a booster of Td/IPV vaccine and 86.5% had received the new meningococcal ACWY vaccine
- For the year 2016-17, 46% of 70 year olds received the shingles vaccine and 45.4% of 78 year olds. This is a further decrease of 6.2% from the previous year, but eligible people continue to be immunised in subsequent years
- In October 2016, a three dose HPV vaccine programme for men who have sex with men (MSM) under 46 years of age commenced across GUM clinics. Provisional data for the first year shows that 65.2% of MSM up to 46 years of age have had at least one dose of the HPV vaccine, 35.7% at least two doses and 11.2% have completed the course

- In September 2017 a new combined vaccine containing protection against hepatitis B was added to the primary immunisation schedule for babies at 2, 3 and 4 months of age

### **Vaccine Preventable Diseases for 2016**

- Thirty-three cases of meningococcal disease were notified to PHA, with 20 cases (61%) laboratory confirmed
- 40% of laboratory confirmed cases were caused by serogroup B, followed by 30% serogroup W135, 20% serogroup C and 10% serogroup Y
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## Priorities for Improvement

- PHA will continue to work with GP, health visitor and Child Health Information System colleagues to gain a greater understanding of the variation of pre-school immunisation uptake across Northern Ireland and work together to improve coverage, particularly where this is currently below 95%
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- PHA will work with the Northern Ireland Maternity Administrative System (NIMATS) to introduce data extraction on vaccination uptake for vaccinations given in pregnancy
- PHA is carrying out a qualitative study with individuals from the Roma community to better understand the knowledge, attitudes and barriers to vaccinations

# Introduction

According to the *WHO Global Vaccine Action Plan 2011-2020*, “Overwhelming evidence demonstrates the benefits of immunisation as one of the most successful and cost-effective health interventions known.”<sup>1</sup> Their vision for the Decade of Vaccines (2011–2020) is of a world in which all individuals and communities enjoy lives free from vaccine preventable diseases.

Immunisation policy for Northern Ireland is set by the Department of Health, on advice from the independent Joint Committee for Vaccines and Immunisation (JCVI). This committee regularly reviews the epidemiology of vaccine preventable diseases (VPDs) in the UK and makes recommendations on the introduction of new programmes in response to changes in disease incidence and the likely cost-effectiveness of vaccination programmes. The UK has a very comprehensive vaccine programme, free at the point of delivery for those eligible by virtue of age or risk group status.

Northern Ireland has implemented all JCVI recommendations and has some of the highest immunisation uptakes worldwide. This has undoubtedly contributed to a reduction in the burden of communicable diseases in Northern Ireland.

Though vaccine coverage is high overall, health inequalities mean that some groups of people and some areas in Northern Ireland are less likely than others to be vaccinated. The PHA immunisation team is committed to working towards the WHO vision where individuals and communities enjoy lives free from VPDs by maintaining and improving uptake rates of all immunisations.

The 2016-17 Northern Ireland Vaccination Report includes information on the vaccine coverage in each of the programmes and information on the epidemiology of VPDs. Data in each section is provided at different time points in the year depending on the programme:

- Immunisation coverage information is presented for the financial year April 2016 - March 2017 for childhood immunisations up to the age of 5, in line with national COVER statistic reporting

- Data for immunisations provided in schools and the shingles vaccine is presented from September 2016 - August 2017 in line with the delivery of those programmes. Information on influenza immunisations has been published elsewhere, in the Surveillance of Influenza in Northern Ireland 2016-17 report<sup>2</sup>
- This year, epidemiological information on vaccine preventable diseases is presented for the calendar year 2016.

## The Routine Childhood Immunisation Schedule in Northern Ireland from October 2017

When to immunise	Diseases vaccine protects against	How it is given
<b>2 months old</b>	Diphtheria, tetanus, pertussis (whooping cough), polio, Hib and hepatitis B Pneumococcal infection Rotavirus Meningococcal B infection	One injection One injection Orally One injection
<b>3 months old</b>	Diphtheria, tetanus, pertussis, polio, Hib and Hepatitis B Rotavirus	One injection Orally
<b>4 months old</b>	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B Pneumococcal infection Meningococcal B infection	One injection One injection One injection
<b>Just after the first birthday</b>	Measles, mumps and rubella Pneumococcal infection Hib and meningococcal C infection Meningococcal B infection	One injection One injection One injection One injection
<b>Every year from 2 years old up to P7</b>	Influenza	Nasal spray or injection
<b>3 years and 4 months old</b>	Diphtheria, tetanus, pertussis and polio  Measles, mumps and rubella	One injection  One injection
<b>Girls 12 to 13 years old</b>	Cervical cancer caused by human papillomavirus types 16 and 18 and genital warts caused by types 6 and 11	Two or three injections over six months
<b>14 to 18 years old</b>	Tetanus, diphtheria and polio Meningococcal ACWY	One injection One injection

## Targeted Childhood Immunisations

When to immunise	Diseases vaccine protects against	Vaccine given
At birth, 1 month old and 12 months old	Hepatitis B	Hepatitis B vaccine
At birth	Tuberculosis	BCG
Six months up to two years	Influenza	Inactivated flu vaccine
11 to less than 18 years	Influenza	Flu nasal spray or inactivated flu vaccine

(For children assessed as being at risk of these conditions)

## Routine Immunisation Schedule for Adults

When to immunise	Diseases vaccine protects against	Vaccine given
Age 65 years	Pneumococcal Disease	PPV-23
Annually from age 65 years	Influenza	Inactivated flu vaccine
Age 70 years	Shingles	Zostavax®

## Targeted Adult Immunisations

Who to immunise	Diseases vaccine protects against	Vaccine given
Risk groups described in annual CMO letter	Influenza	Inactivated flu vaccine
Risk groups described in Green Book	Pneumococcal Disease	PPV-23
Pregnant women from 16 <sup>th</sup> gestational week	Pertussis (Whooping Cough) in newborn	Boostrix-IPV®

Men who have sex with men, aged ≤45 years who attend GUM clinics	Anal, throat and penile cancer caused by human papillomavirus types 16 and 18 and genital warts caused by types 6 and 11	Gardasil ®
All adults born since 1970 with no history of two doses of MMR vaccine	Measles, mumps and rubella	MMR vaccine
Catch-up cohorts published annually	Shingles	Zostavax ®

# Uptake and Coverage in Childhood Immunisation Programmes

## Immunisations up to 12 months of age

In 2016-17, the immunisation schedule for all babies was a course of primary immunisations at the ages of 2, 3, and 4 months to protect against diphtheria, tetanus, polio, pertussis, *Haemophilus influenzae* type B (DTaP/IPV/Hib), pneumococcal disease (PCV), rotavirus, and meningococcal group B. The rotavirus vaccine schedule must be completed by 24 weeks of age, whereas all the other immunisations can be given later if a child has missed them at the scheduled time. This explains why the rotavirus vaccine uptake is slightly lower than the other vaccines given under 12 months of age. The uptake of primary immunisations in Northern Ireland is consistently equal to or higher than other areas of the UK. However, there is variation of uptake by local commissioning group (LCG) area, with uptake 1-2% lower in Belfast than other areas (Table 1).

**Table 1. Completed primary immunisations by 12 months of age, 2016-17, Northern Ireland and UK**

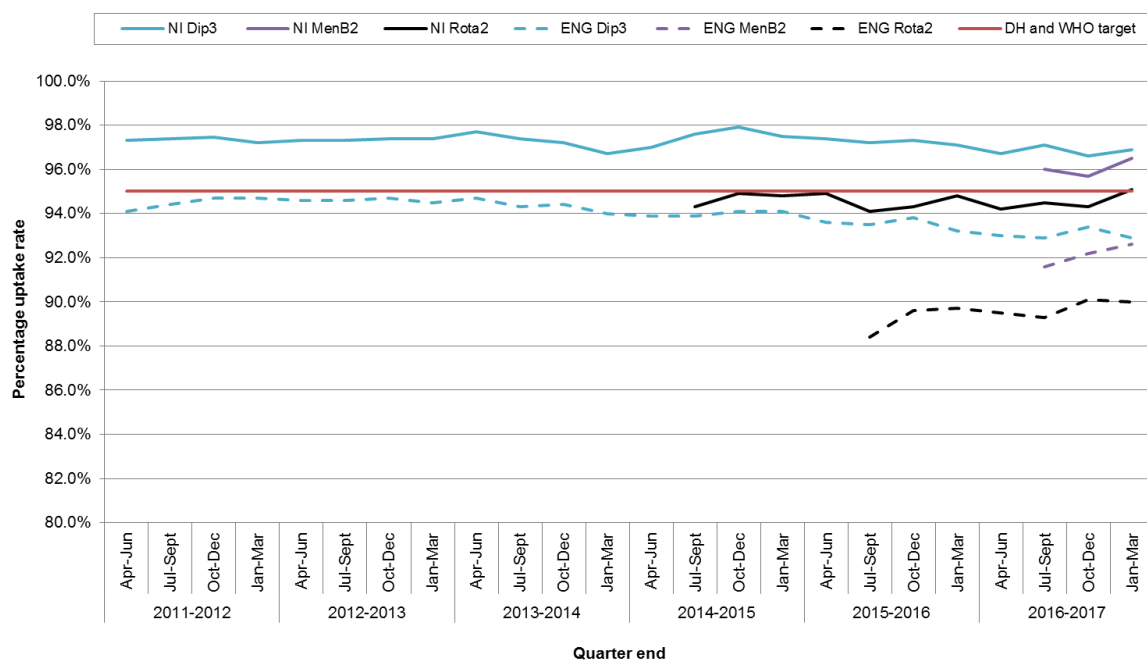
Area	% vaccinated at 12 months		
	DTaP / IPV / Hib3	PCV2	Rota2
<b>Belfast</b>	94.8%	94.8%	93.2%
<b>South Eastern</b>	97.1%	97.1%	94.6%
<b>Northern</b>	97.8%	97.7%	95.1%
<b>Southern</b>	97.6%	97.5%	94.8%
<b>Western</b>	97.5%	97.6%	94.1%
<b>NI Total</b>	<b>97.0%</b>	<b>97.0%</b>	<b>94.4%</b>
<b>England</b>	93.4%	93.5%	89.6%
<b>Scotland</b>	96.8%	96.8%	93.1%
<b>Wales</b>	96.3%	96.2%	94.1%

Source: Quarterly COVER returns (Northern Ireland Child Health System and PHE)

Only three quarters of data are so far available for the uptake of two doses of the new meningococcal group B vaccine by the age of one, however, uptake is around 96%. This is very similar to the uptake of other vaccines given at this age and shows

that parents have welcomed this addition to the immunisation programme. Full year's data will be reported in next year's report.

**Figure 1. Diphtheria, Meningococcal B and Rotavirus vaccination uptake rates at 12 months of age, April 2011 – March 2017, Northern Ireland and England**



Source: Quarterly COVER returns (Northern Ireland Child Health System and PHE)

### Immunisations up to 24 months of age

Infants are offered immunisations just after their first birthday to protect against measles, mumps and rubella (MMR), pneumococcal disease (PCV), meningococcal group C and *haemophilus influenza type B* (Hib/MenC). Uptake of these immunisations is measured at their second birthday. Uptake rates of all immunisations at 24 months for 2016-17 (Table 2) are above the 95% target, with the exception of a slight dip for MMR1 to 94.9% and they are higher than the uptake across the other parts of the UK. Again, uptake of vaccines at 24 months is lower in Belfast LCG area than the other LCG areas and falls below 95% for all immunisations given just after the first birthday. Since 2012-13 uptake of MMR has closely mirrored that of all the other immunisations given just after the first birthday showing that parents are now choosing for their children to receive all the vaccines offered at this visit.

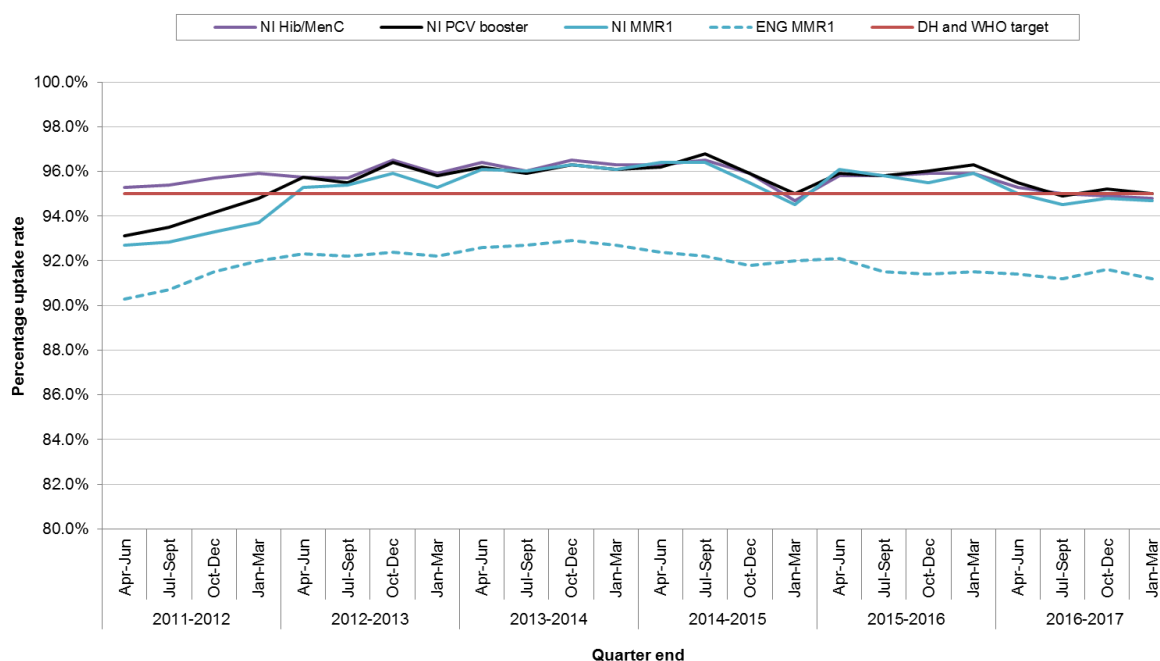


Table 2. Completed primary immunisations by 24 months of age, 2016-17, Northern Ireland and UK

Area	% vaccinated at 24 months			
	DTaP / IPV / Hib3	PCV Booster	Hib/MenC	MMR1
<b>Belfast</b>	96.1%	91.1%	90.7%	91.1%
<b>South Eastern</b>	98.0%	95.5%	95.5%	95.0%
<b>Northern</b>	98.3%	96.1%	96.0%	95.7%
<b>Southern</b>	98.3%	95.8%	95.9%	96.2%
<b>Western</b>	98.5%	96.5%	96.4%	95.9%
<b>NI Total</b>	<b>97.9%</b>	<b>95.1%</b>	<b>95.0%</b>	<b>94.9%</b>
<b>England</b>	95.1%	91.5%	91.5%	91.6%
<b>Scotland</b>	97.7%	94.9%	95.0%	94.9%
<b>Wales</b>	97.0%	95.4%	94.5%	95.1%

Source: Quarterly COVER returns (Northern Ireland Child Health System and PHE)

Figure 2. Haemophilus Influenzae type B and Meningococcal group C, Pneumococcal and MMR1 vaccination uptake rates at 24 months of age, April 2011 – March 2017, Northern Ireland and England



Source: Quarterly COVER returns (Northern Ireland Child Health System and PHE)

## Immunisations up to five years of age

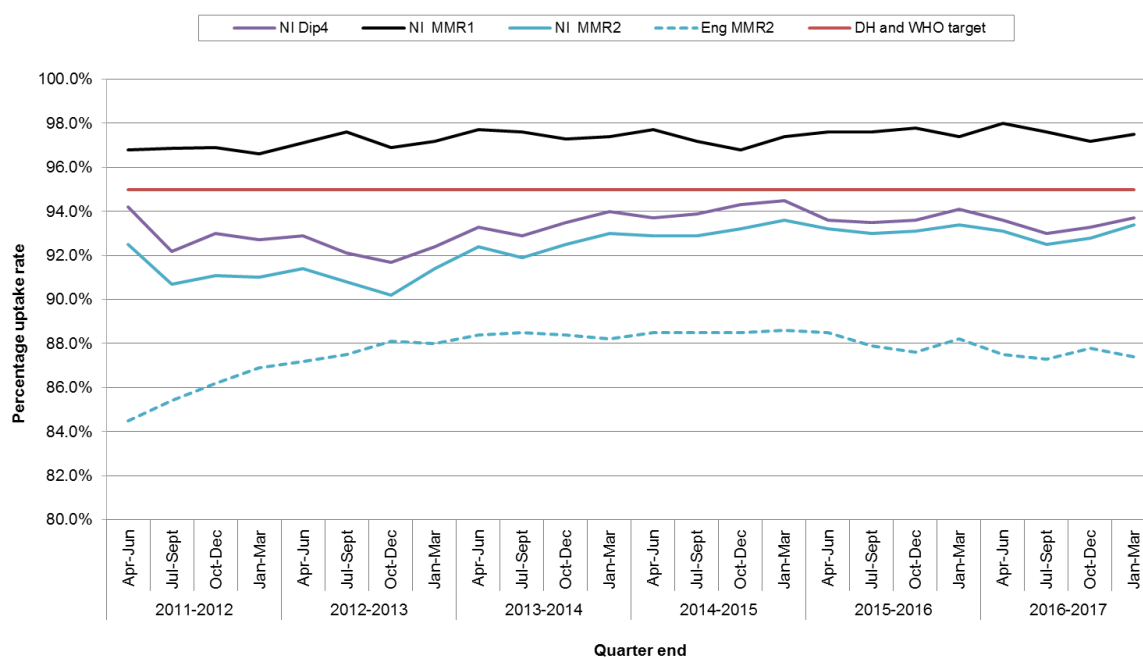
Children are offered “pre-school booster” immunisations from the age of 3 years and 4 months, providing a fourth dose booster of protection against diphtheria, tetanus, polio and pertussis (DTaP/IPV) and a second dose of MMR vaccine. Uptake of these vaccines is measured at their fifth birthday. Uptake of booster immunisations for MMR and DTaP/IPV measured at 5 years show that this is below 95% for 2016-17. As was the case at 12 months and 24 months, uptake in the Belfast area is lower than the other LCG areas. Uptake of MMR2 is below the 95% target needed to ensure that the spread of measles outbreaks can be contained through herd immunity, making improving MMR2 uptake an important goal.

**Table 3. Completed primary immunisations and boosters by 5 years of age, 2016-17, Northern Ireland and UK**

Area	% vaccinated at 5 years			
	DTaP/IPV/Hib3	MMR1	MMR2	DTaP/IPV booster
<b>Belfast</b>	96.4%	96.3%	88.3%	88.2%
<b>South Eastern</b>	98.2%	97.6%	93.2%	93.9%
<b>Northern</b>	98.3%	97.7%	94.4%	95.2%
<b>Southern</b>	97.6%	97.5%	93.3%	93.6%
<b>Western</b>	97.7%	98.2%	94.5%	95.1%
<b>NI Total</b>	<b>97.7%</b>	<b>97.4%</b>	<b>92.8%</b>	<b>93.3%</b>
<b>England</b>	95.6%	95.0%	87.6%	86.2%
<b>Scotland</b>	98.0%	96.9%	92.9%	93.4%
<b>Wales</b>	94.8%	96.7%	90.3%	92.5%

Source: Quarterly COVER returns (Northern Ireland Child Health System and PHE)

**Figure 3. Diphtheria and MMR vaccination uptake rates at 5 years of age, April 2011 – March 2017, Northern Ireland and England,**



Source: Quarterly COVER returns (Northern Ireland Child Health System and PHE)

## Work to Improve Uptake of Pre-School Immunisations

In 2017, PHA worked with Health and Social Care Board and Child Health System (CHS) colleagues to produce data for each GP practice on their uptake of pre-school immunisations. This was sent to all practices along with a sheet explaining how practices can work with the CHS to ensure that all eligible children are called in a timely way for the immunisations that they are due.

PHA plan to contact some of the practices with lower uptake to see if any additional help can be provided to them to improve their systems. The uptake letter will now also be produced on an annual basis to assist all practices to review their uptake.

## Teenage immunisations

### Human Papilloma Virus (HPV)

In 2008, the Human Papilloma Virus (HPV) vaccine was introduced for girls aged 12-13 years old, with a catch-up campaign for girls up to 18 years old. The HPV vaccine offers protection against types 16 and 18 of the virus which together cause up to

70% of cervical cancers, as well as protection against types 6 and 11 of the virus which cause genital warts. The programme is delivered routinely in schools with vaccines given in year 9 and then opportunities provided in school to catch-up on missing doses in year 10.

The uptake of a completed course by the end of year 9 has fallen somewhat since a maximum in 2012, but due to further clinics being offered in year 10, nearly 90% of girls had completed the course by the end of year 10 in June 2017 (Table 4, Figure 4).

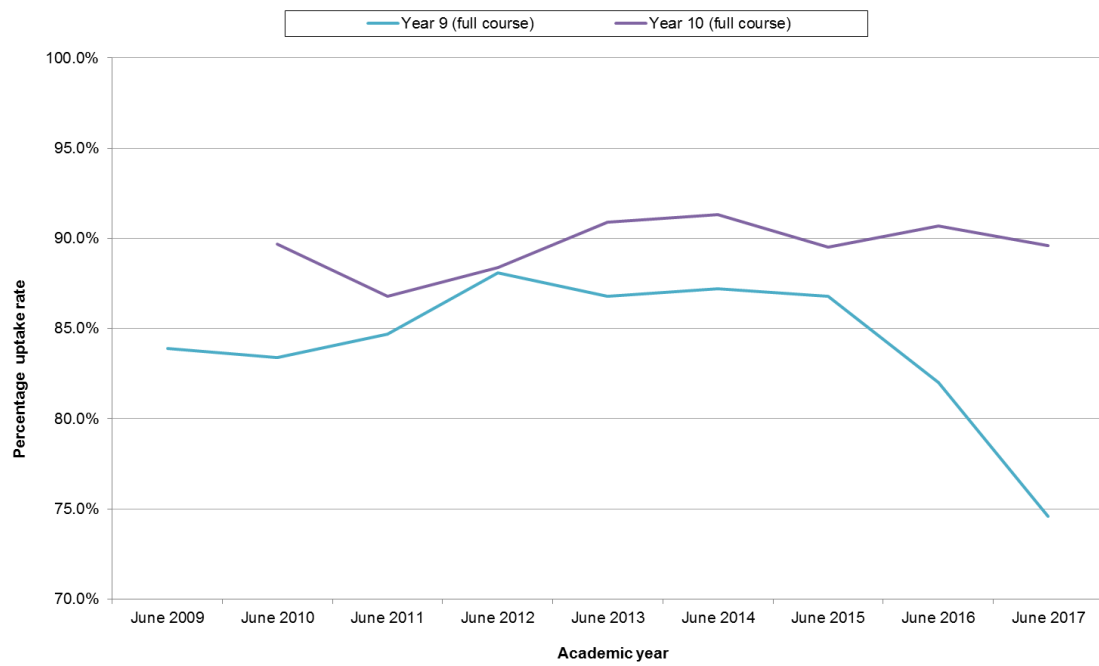
Disappointingly there was a continued decrease in uptake of the HPV vaccine in year 9 for the academic year 2016-17. PHA are investigating the reason for this decrease. These girls are offered the chance to be immunised in year 10 and PHA are working with communications colleagues and school health to improve the uptake for the 2017-18 campaign.

**Table 4. HPV vaccination uptake rates, year 9 and 10 girls completing full course, 2009-17, Northern Ireland**

	<b>Year 9 (full course)</b>	<b>Year 10 (full course)</b>
<b>June 2009</b>	83.9%	
<b>June 2010</b>	83.4%	89.7%
<b>June 2011</b>	84.7%	86.8%
<b>June 2012</b>	88.1%	88.4%
<b>June 2013</b>	86.8%	90.9%
<b>June 2014</b>	87.2%	91.3%
<b>June 2015</b>	86.8%	89.5%
<b>June 2016</b>	82.0%	90.7%
<b>June 2017</b>	74.6%	89.6%

Source: Northern Ireland Child Health System

Figure 4. HPV vaccination uptake rates, year 9 and 10 girls completing full course, 2009-17, Northern Ireland



Source: Northern Ireland Child Health System

## Diphtheria, Tetanus and Polio booster

In year 11, school health teams offer a booster vaccine to all young people against diphtheria, tetanus and polio (Td/IPV), commonly known as the “school leaver booster”. For most young people this will be the fifth and final dose that they require. At this visit, school health also offer MMR to any children who have not yet received two doses to ensure that they complete the recommended course. There is a further opportunity to receive the Td/IPV and MMR vaccines in year 12 for those who have not yet completed the course. Eighty-five percent of pupils received the school leaver booster by the end of year 12 (Table 5). Pupils who have not received this vaccine from school health can request it from their GP. The target for uptake of two doses of MMR is 95% as this is the level required to contain the spread of measles in the community. It is very encouraging to note that even though the level of two doses of MMR is below this level at five years of age, by the end of year 12 the population coverage for two doses of MMR has increased to 94.1%.

**Table 5. Annual school leaver booster vaccine coverage, 2016-17, Northern Ireland**

Area	Year 11 % vaccinated	Year 12 % vaccinated
<b>Belfast</b>	79.6%	85.1%
<b>South Eastern</b>	75.2%	83.1%
<b>Northern</b>	80.3%	86.8%
<b>Southern</b>	81.3%	89.0%
<b>Western</b>	72.9%	82.8%
<b>NI Total</b>	<b>78.4%</b>	<b>85.7%</b>

Source: Northern Ireland Child Health System

**Table 6. Annual MMR2 vaccine coverage, 2016-17, Northern Ireland**

Area	Year 12 % vaccinated
<b>Belfast</b>	93.0%
<b>South Eastern</b>	92.4%
<b>Northern</b>	95.1%
<b>Southern</b>	94.4%
<b>Western</b>	95.2%
<b>NI Total</b>	<b>94.1%</b>

Source: Northern Ireland Child Health System

## Meningococcal ACWY vaccine

The meningococcal ACWY (Men ACWY) vaccine programme was introduced in the UK in August 2015 in response to an outbreak of meningococcal group W disease across the UK. Teenagers aged 14-18 years and university “freshers” were chosen as the target group for immunisation. For operational reasons the programme was introduced in a phased way. All young people with dates of birth between 02/07/96-01/07/99 were offered immunisations by their GP, and children in year 11 and 12 were offered immunisation by school health. All young people in the eligible age range but who have not yet been immunised can request this from their GP up to the age of 25 years.

The Men ACWY vaccine is now provided routinely to young people in schools in year 11 with the school leaver booster and MMR, with an opportunity to catch up in year 12. By the end of year 12 in 2016-17, 86.5% of young people were immunised with the Men ACWY vaccine, which is an increase of 12.4% from the previous year.

**Table 7. Coverage of Men ACWY for year 11 and 12, September 2017, Northern Ireland**

<b>Area</b>	<b>Year 11 (DOB 02/07/01 - 01/07/02) % vaccinated</b>	<b>Year 12 (DOB 02/07/00 - 01/07/01) % vaccinated</b>
<b>Belfast</b>	81.3%	85.5%
<b>South Eastern</b>	74.7%	83.6%
<b>Northern</b>	80.2%	86.8%
<b>Southern</b>	81.4%	89.1%
<b>Western</b>	74.8%	86.7%
<b>NI Total</b>	<b>79.0%</b>	<b>86.5%</b>

Source: Northern Ireland Child Health System and HSCB

# Uptake and Coverage in Targeted Childhood Immunisation Programmes

## **Hepatitis B vaccine to babies born to hepatitis B positive mothers**

Hepatitis B is a virus that mainly affects the liver and is transmitted by blood and bodily fluids. From August 2017, hepatitis B vaccine has been added to the universal primary immunisation schedule at 2, 3 and 4 months of age.

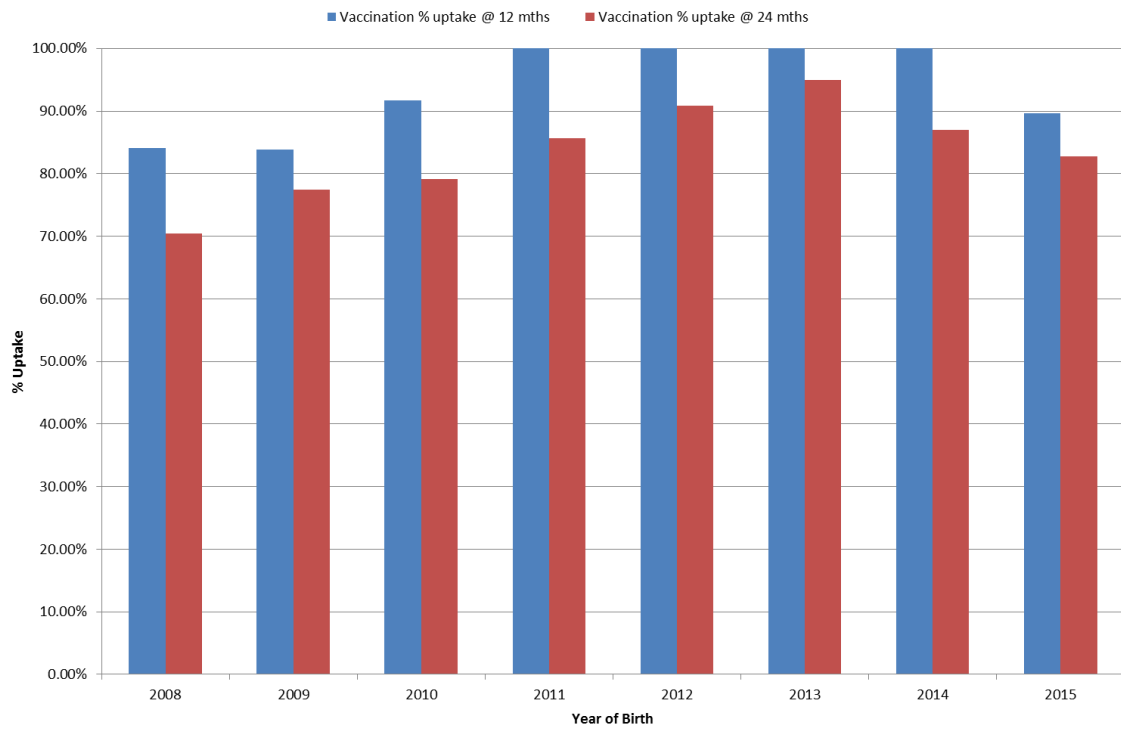
A selective hepatitis B immunisation programme is also delivered to protect those thought to be at high risk of contracting the infection. One group offered the hepatitis B vaccine are babies born to hepatitis B positive mothers. This is because hepatitis B can pass from mother to baby during pregnancy, birth or early life and without intervention about 90% will develop chronic hepatitis B infection which can lead to liver cirrhosis and liver cancer.

All pregnant women in Northern Ireland are offered testing for hepatitis B as part of their antenatal care and if found to be hepatitis B positive, their babies are offered post exposure hepatitis B immunisation to prevent mother to child transmission at or around the time of birth. Babies born before August 2017 receive the vaccine at birth, 1, 2 and 12 months of age. Following introduction of hepatitis B to the childhood schedule (August 2017), babies born to mothers that are hepatitis B positive will also receive extra doses at birth, 1 and 12 months.

Numbers of babies born to hepatitis B positive women are small in Northern Ireland, with a mean of 36 (25-48) cases occurring annually. Figure 5 shows by calendar year of birth, the uptake of the first three doses by the baby's first birthday and for the first four doses by the baby's second birthday. Since 2011 all babies born to hepatitis B positive mothers have received three doses of vaccine by their first birthday and since 2012 over 90% have received four doses by their second birthday. Some of the lower uptake in the second year of life is attributed to families moving out of Northern Ireland.



Figure 5. Hepatitis B vaccine uptake at 12 and 24 months for babies born to hepatitis B positive mothers, 2008-15, Northern Ireland



Source: Northern Ireland Child Health System

# Uptake and Coverage in Routine Adult Immunisation Programmes

## Shingles vaccine

The shingles vaccine programme for older adults was introduced in September 2013 following recommendation by JCVI in 2010 and a Northern Ireland policy outlined in HSS(MD) 27/2013.<sup>3,4</sup>

The programme has been offered to people aged 70 years on 1 September each year, with catch-up cohorts planned so that all people who were aged in their 70s when the programme started on 1 September 2013 will be offered the vaccine over time (Table 8). Individuals who were previously eligible but did not take up the vaccine can still get vaccinated until they are aged 80 years on 1 September of the current catch-up programme year.

**Table 8. Eligible cohorts for the Shingles vaccine (age on 1 September of each year)**

Time Period	Routine Cohort	Catch-up Cohort	Still Eligible
1 Sept 2013- 31 Aug 2014	70 years	79 years	NA
1 Sept 2014- 31 Aug 2015	70 years	78 and 79 years	71 years
1 Sept 2015- 31 Aug 2016	70 years	78 years	71, 72 and 79 years
1 Sept 2016- 31 Aug 2017	70 years	78 years	71, 72, 73 and 79 years
1 Sept 2017- 31 Aug 2017	70 years	78 years	71, 72, 73, 74, 79 years

Source: Apollo Information System

Uptake of the vaccine is estimated using the Apollo information system to count the number of vaccinated people and the eligible population recorded in primary care information systems. The reporting year for shingles is taken from 1 September to 31 October the following year.

Since the programme began shingles vaccine uptake has been between 50% and 57% in the two main cohorts, with a further 5% to 7% taking up the vaccine in the year after they became eligible (Table 9). Disappointingly, in 2016-17, uptake in the

eligible ages (70 and 78 years) were both slightly lower than the previous year, 46.0% and 45.4% respectively. This fall is consistent with elsewhere in the UK. Planning for the 2017-18 cycle is underway and PHA is looking at ways to improve the uptake.

**Table 9. Estimated Shingles vaccine uptake, 2013-14 to 2016-17, Northern Ireland**

Time period	Age on 1 September (years)				
	70	71	72	78	79
1 Sept 2013 - 31 Aug 2014	52.5%	NA	NA	NA	49.7%
1 Sept 2014 - 31 Aug 2015	56.8%	4.8%	NA	54.4%	54.4%
1 Sept 2015 - 31 Aug 2016	52.2%	5.6%	NA	50.3%	6.6%
1 Sep 2016 - 31 Aug 2017	46.0%	5.5%	3.1%	45.4%	6.0%

Source: Apollo Information System

### **Pneumococcal Polysaccharide Vaccine (PPV)**

Two pneumococcal vaccinations are available the pneumococcal conjugate vaccine (PCV) and pneumococcal polysaccharide vaccine (PPV). The PPV vaccine provides protection for 23 strains of pneumococcal disease and is offered to all of those over 65 years of age and those under 65 years with clinical risk factors.

Uptake of the vaccine is estimated for those over 65 years and 75 years of age using the Apollo information system to count the number of vaccinated people and the eligible population recorded in primary care information systems. GP practices generally offer the vaccine at the same time as the influenza and shingles vaccine at the start of the flu season.

Information from General Practice information systems indicates that from 1 September 71.2% of 65 to 74 year-olds and 91.5% of those aged 75 years or greater have ever received PPV.

# Uptake and Coverage in Targeted Adult Immunisation Programmes

## **Pertussis (whooping cough) vaccine in pregnant women**

In October 2012 the pertussis vaccine in pregnancy programme commenced as an emergency response to a national outbreak and was offered between 28 and 32 weeks gestation. The vaccine programme has continued since then and since May 2016 is offered from 16 weeks of gestation until delivery.

Recording uptake of vaccines for a pregnant cohort is difficult because of the changing number of pregnant women. Prior to August 2017 there has been no source of data available to allow accurate uptake rate of pertussis vaccine in pregnancy to be calculated. Uptake was estimated by the number of *pertussis vaccine in pregnancy* administration fees claimed for by GPs and the number of live births in the same time period (Table 10). In 2016, 18,164 vaccines were claimed by GPs. This is higher than in previous years and likely to be because the vaccine was offered at an earlier stage in pregnancy thus enabling more women to receive it. In addition, claims do not represent when the vaccination was delivered. The annual estimate for 2016 (75.4%) is likely to be an overestimation.

**Table 10. Number of Pertussis vaccine administrative claims and live births, 2013-16, Northern Ireland**

<b>Year</b>	<b>No. vaccines claimed by GP practices</b>	<b>Number of live births</b>	<b>Estimated uptake</b>
2013	14,131	24,277 (2013)	58.2%
2014	14,025	24,394 (2014)	57.5%
2015	15,046	24,215 (2015)	62.1%
2016	18,164	24,076 (2016)	75.4%

Source: HSCB administrative claims by GP; Annual report of Registrar General

This year the PHA immunisation team is working with HSCB/PHA maternity service commissioners to introduce recording pertussis and influenza vaccine on to the Northern Ireland Maternity Administrative System (NIMATS). NIMATS is a regional electronic information system that records maternal and neonatal information at the

time of delivery. Next year accurate uptake of pertussis vaccination should be available for all pregnant women delivering after 24 weeks gestation.

### **HPV vaccine in MSM aged up to 46 years who attend GUM clinics**

In 2008 the girls' HPV vaccine programme was introduced across the UK. Studies have shown that, in addition to directly protecting females, the vaccine induces herd protection, which provides protection to boys when there is high vaccine coverage in girls. However, while the girls' programme confers indirect protection to heterosexual males, MSM receive little benefit from it. Evidence suggests that 80-85% of anal cancers, 36% of oropharyngeal and 50% of penile cancer are linked to HPV infection. In November 2015, the JCVI advised a targeted HPV vaccination programme with a course of three doses for MSM aged up to and including 45 years who attend GUM clinics.<sup>5</sup>

In October 2016, the HPV vaccine programme for MSM was offered across Northern Ireland. Three doses are offered preferably within one year, but up to two years. Anonymised data is extracted from the GUM clinic Genito-Urinary Medical Clinic Activity Dataset (GUMCAD) to estimate the number of vaccines delivered and number of MSM up to 46 years attending a clinic.

For this year's annual report, provisional data has been presented for the first year of the programme from 1 October 2016 to 30 September 2017 (Table 11). The table shows that 65.2% of MSM up to 46 years of age have had at least one dose of the HPV vaccine. There are limitations to these figures. Not all clinics started offering the vaccine on 1 October. Uptake figures are dependent on accurate coding of vaccines by health professionals. The PHA is working with GUM clinics to validate the data.

**Table 11. Uptake of HPV vaccine programme in MSM up to 46 years of age, 1 October 2016 - 30 September 2017, Northern Ireland**

	<b>Uptake of ≥ one dose</b>	<b>Uptake of ≥ two dose</b>	<b>Complete</b>
2016/17*	65.2%	35.7%	11.2%

Source: GUMCAD

\*provisional data

# Epidemiology of Vaccine Preventable Diseases in Northern Ireland

This section of the report presents epidemiological data on vaccine preventable diseases (VPD) where there are regional vaccination programmes. VPD surveillance data is used to monitor the burden and impact of the disease and evaluate and test the effectiveness of the vaccine programmes.

This report includes information on VPDs highlighted below. Epidemiological information on the other diseases can be found in the disease specific surveillance reports.<sup>2,6,7,8,9</sup> This year data has been presented for the 2016 calendar year.

Bacterial VPDs	Viral VPDs
<i>Meningococcal Disease*</i>	<i>Measles*</i>
<i>Invasive Pneumococcal Disease*</i>	<i>Rubella*</i>
<i>Haemophilus Influenza*</i>	<i>Mumps*</i>
<i>Pertussis*</i>	<i>Polio*</i>
<i>Diphtheria*</i>	Varicella
<i>Tetanus*</i>	HPV
Tuberculosis	Influenza
	Hepatitis B
	Rotavirus

\*VPDs included in this report

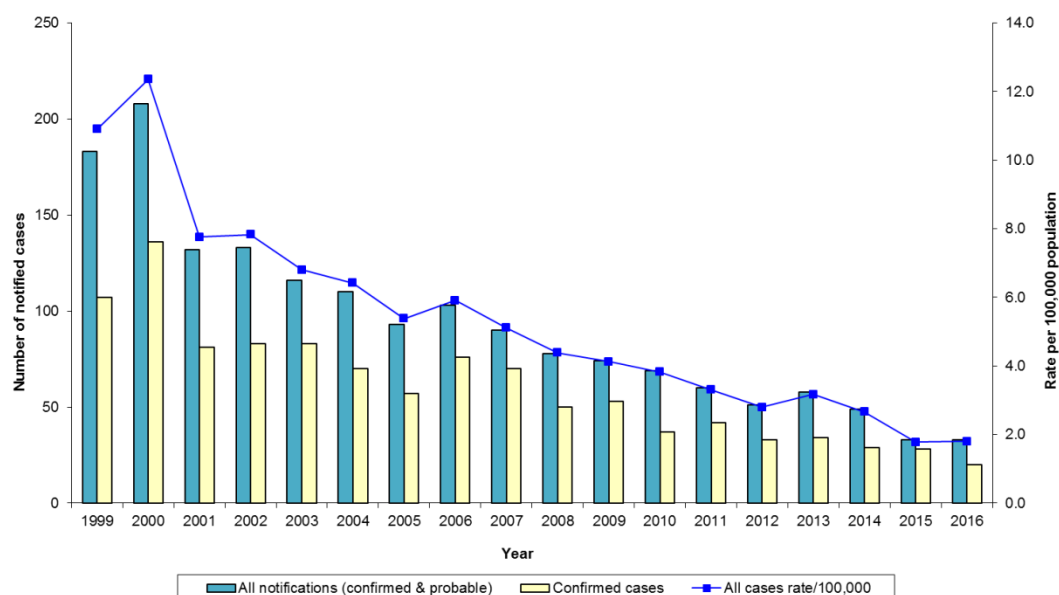
## Meningococcal disease

Meningococcal disease is notifiable across the UK. The PHA Health Protection Duty Room is notified of all suspected cases. Enhanced Surveillance of Meningococcal Disease (ESMD) was first implemented in Northern Ireland in 1999 to monitor known and suspected cases of invasive meningococcal disease (IMD). ESMD is based on notifications from clinicians, laboratory confirmed reports from local laboratories and the Public Health England Meningococcal Reference Unit in Manchester.

In 2016, 33 cases of IMD were notified to the duty room, of which 20 (61%) were laboratory confirmed cases. The rate of notification of IMD in Northern Ireland is

1.8/100,000 population. From 1999 to 2016 this rate has fallen by 83% from 10.9/100,000 population (Figure 6).

**Figure 6. Number of notified and confirmed cases of IMD and overall rates per 100,000 population, 1999-2016, Northern Ireland**

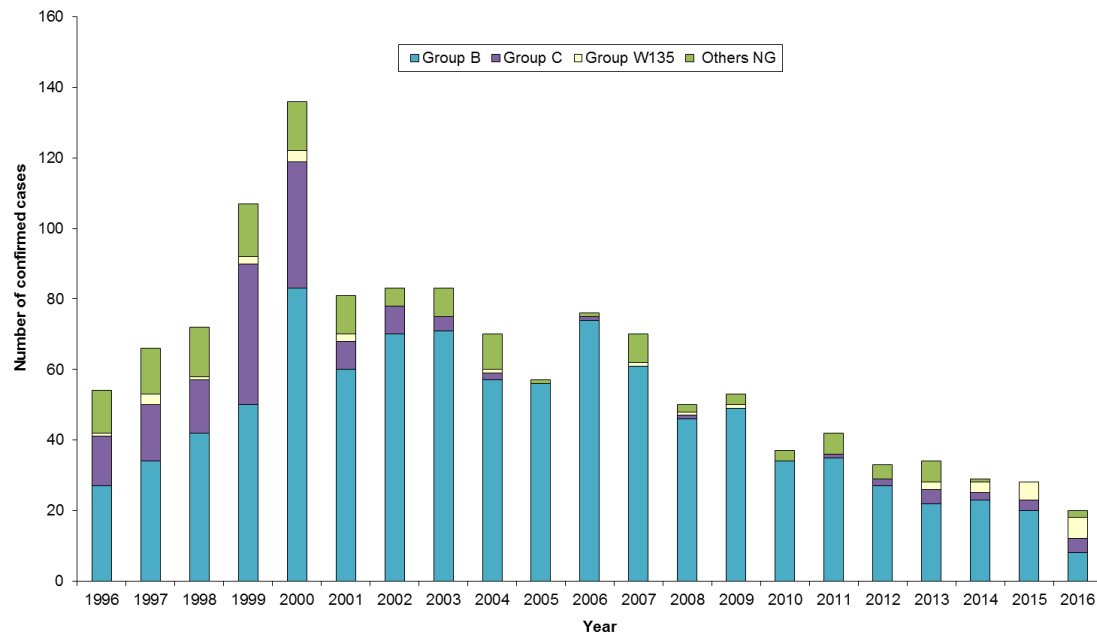


Source: Enhanced Surveillance of Meningococcal Disease (ESMD) in Northern Ireland

Laboratory confirmed cases were tested locally by Polymerase Chain Reaction (PCR) testing (45%; 9/20), culture of *N. meningitidis* (20%; 4/20) or PCR and culture (35%; 7/20).

In 2016, 40% (8/20) of confirmed cases were serogroup B, a further 6 serogroup W135, 4 serogroup C and 2 serogroup Y. Whilst serogroup B remains the most common serotype, the proportion of serotype B cases has halved from 79% in 2014, before the introduction of the meningococcal B vaccine programme in September 2015 (Figure 7). An increase in W135 cases has occurred across the UK over the past few years, including Northern Ireland, although the increase has been lower.

**Figure 7. Laboratory confirmed cases of IMD by serogroup, 1996-2016, Northern Ireland**

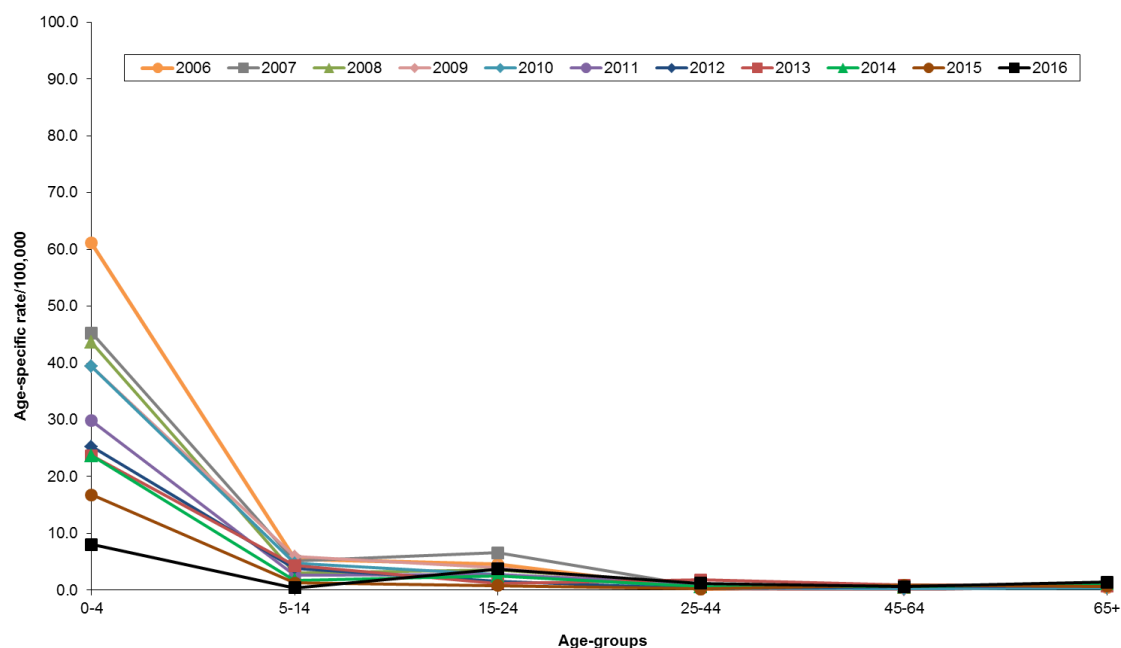


Source: Enhanced Surveillance of Meningococcal Disease (ESMD) in Northern Ireland

Consistent with previous years, age-specific incidence during 2016 was highest in infants and young children (Figure 8). Ages ranged from 2 months to 70 years with a median of 20 years. The rate of IMD has fallen in 2016 in those aged 0-4 years and is nearly 8 times lower when compared with the level in 2006.



**Figure 8. Age-specific incidence rates of IMD, 2006-16, Northern Ireland**



Source: Enhanced Surveillance of Meningococcal Disease (ESMD) in Northern Ireland

Of the 20 confirmed cases the average length of stay in hospital was 26 days (range 3-168 days). Four IMD associated deaths occurred in 2016, giving a case fatality ratio of 12% compared with 9% in 2015. One case was confirmed as serogroup C, one case serogroup Y, one case serogroup W135 and the other case was not laboratory confirmed.

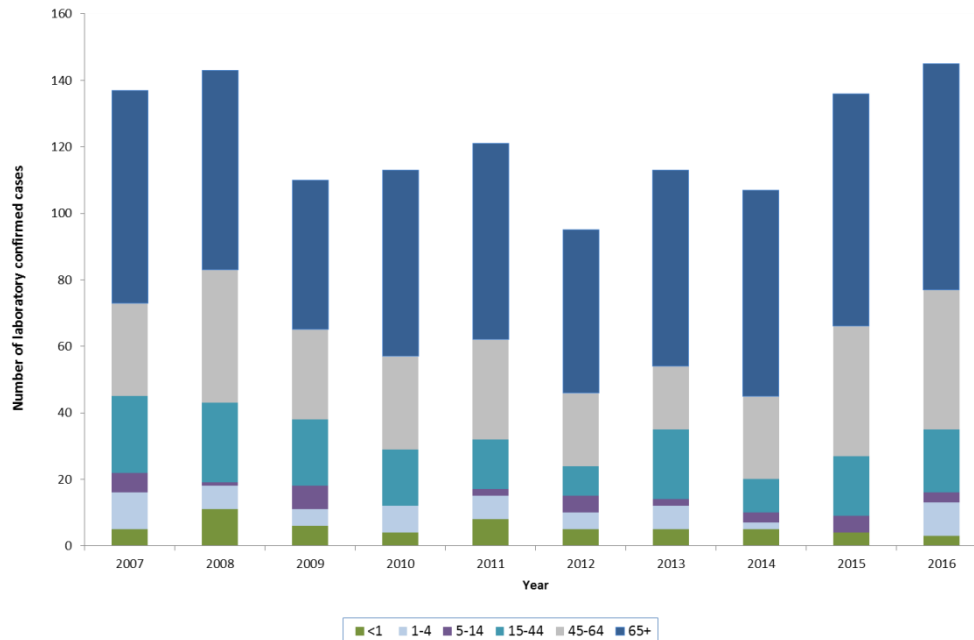
### **Pneumococcal disease**

Invasive pneumococcal disease (IPD) is defined as pneumococcal infection of any usually sterile site. Clinical presentation includes meningitis, bacteraemia, empyema, arthritis and peritonitis. Surveillance is based on voluntary reports from clinicians, laboratory confirmed reports from local laboratories and serogroup characterisation by the Public Health England Respiratory and Vaccine Preventable Bacteria Reference Unit (RVPBRU).

During 2016, 144 confirmed cases of IPD were reported by local laboratories. The majority of cases were over 45 years of age (76.3%), with 47.2% of this group over 65 years of age. From 2000 reported IPD cases increased from 120 to a peak of 177

in 2003, before declining by 47% to 94 in 2012. Since 2012 there has been an upward trend again (Figure 9).

**Figure 9. Laboratory confirmed cases of Invasive Streptococcus Pneumoniae by age group, 2007-16, Northern Ireland**



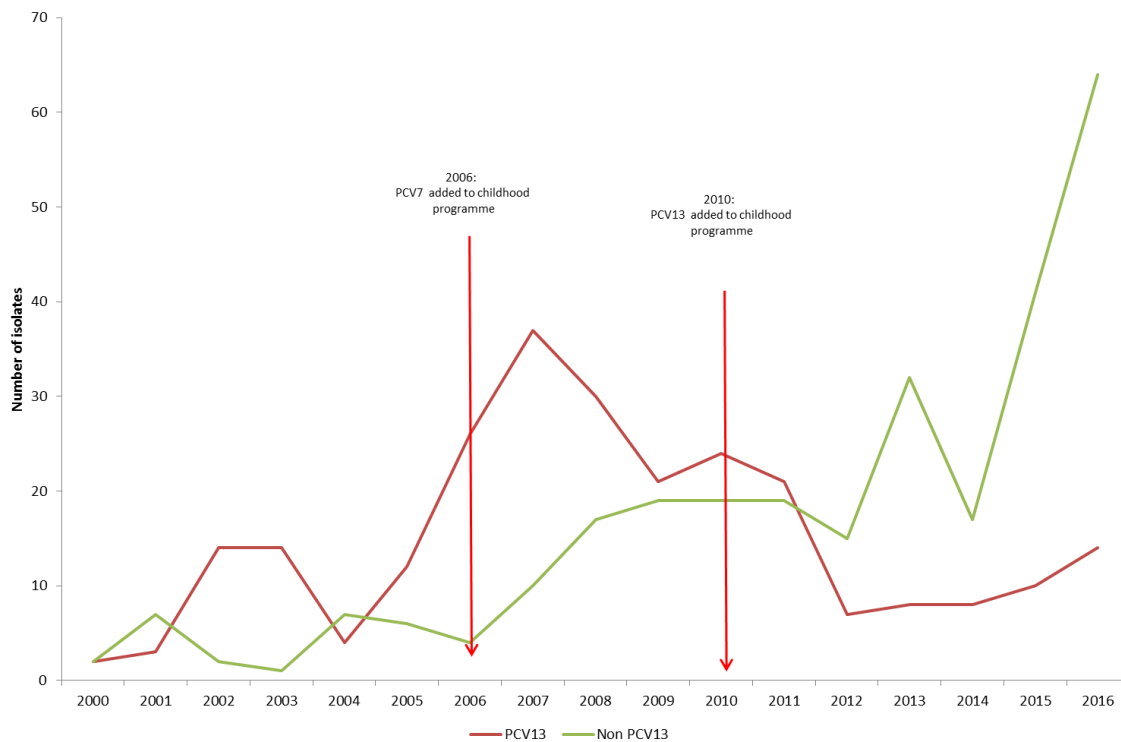
Source: Regional CoSurv Laboratory System

Pneumococcal isolates from cases under 5 years of age are referred to the reference unit for serogroup characterisation. Local laboratories may also voluntarily refer isolates from other cases. In 2016, 54% of isolates were sent to the reference laboratory and typed; 67% typed in those under 5 years of age, 50% in those 5-64 years and 56% in those over 65 years of age. This is in comparison to 2000 when only 3% of isolates were sent to the reference laboratory.

Recommendations for the pneumococcal vaccination have undergone a number of changes over the years. Since 2010, pneumococcal conjugate vaccine containing 13 serotypes (PCV13) has been offered as part of the childhood programme. Where serogroup characterisation is available, data has been broken down by the number of cases caused by PCV 13 serogroup and the number caused by non-PCV13 serogroup (Figure 10). In 2016, 82% (64/78) of IPD cases were caused by a non-PCV13 serogroup. Since 2000, the number of PCV13 serogroup cases increased to

a peak in 2007 before decreasing, with further reductions seen after 2010. In contrast the number of non-PCV13 cases has increased, particularly since 2012.

**Figure 10. Laboratory confirmed cases of IPD by PCV/non-PCV serogroup, 2000-16, Northern Ireland**

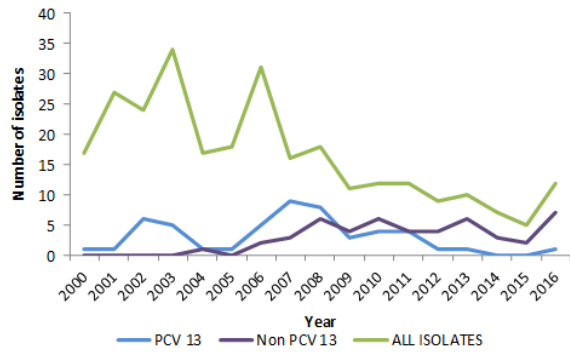


Source: CoSurv

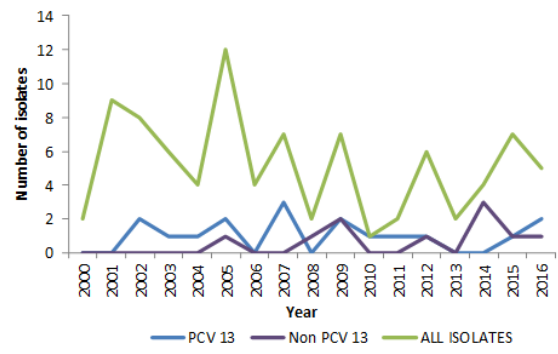
The following four figures outline the same information according to age groups: under 5 years of age, 5-17 years; 18-64 year and over 65 years of age. IPD cases in those under 5 years of age have reduced dramatically, with PCV13 cases accounting for very little IPD disease. IPD cases in the other three age groups also fell to some degree. However, since 2013, there is an indication that cases are increasing, as a result of non-PCV serogroup type. This is consistent across the UK and national surveillance systems are monitoring it carefully.

**Figure 11. Laboratory confirmed cases of IPD by PCV/non-PCV serogroup, by age group, 2000-16, Northern Ireland**

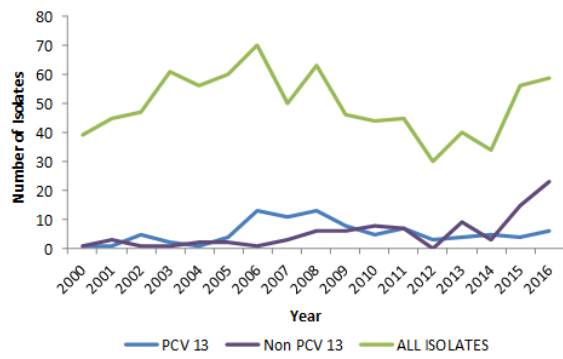
Under 5 years



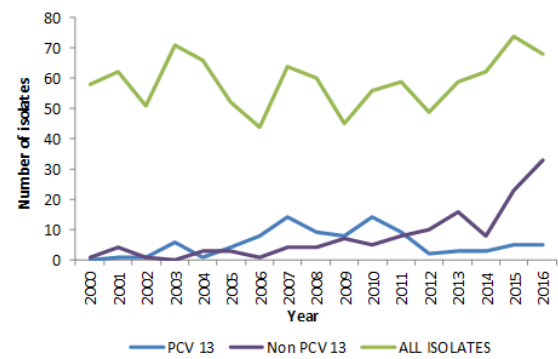
05-17 years



18-64 years



65+



Source: CoSurv

## Haemophilus Influenzae

Haemophilus Influenzae can cause serious invasive disease. Before the introduction of vaccination, type b (Hib) was the prevalent strain. Hib meningitis was one of the most common causes of meningitis in those under 5 years of age. The disease was rare in children under three months of age, rising during the first year, before declining steadily to four years of age after which infection was uncommon.

Surveillance of haemophilus influenza is based on reports from clinicians, laboratory confirmed reports from local laboratories and serogroup characterisation by the Public Health England Respiratory and Vaccine Preventable Bacteria Reference Unit (RVPBRU). Enhanced surveillance is carried out for invasive haemophilus disease on those under 10 years and all haemophilus influenzae b infections.

During 2016, there were 15 confirmed cases of invasive haemophilus influenza disease. Since 2007 there has been no discernible trend with the mean number of cases 15 (10-24) (Table 12). Serotype information was available for just under half of cases (47%; 7/15). During the 10 year period, the majority cases with serogroup information available were caused by non-capsulated serotype (34%). Since 2015, there have been no cases of invasive Hib disease (Table 12).

**Table 12. Invasive Haemophilus Influenzae cases by serotype, 2007-16, Northern Ireland**

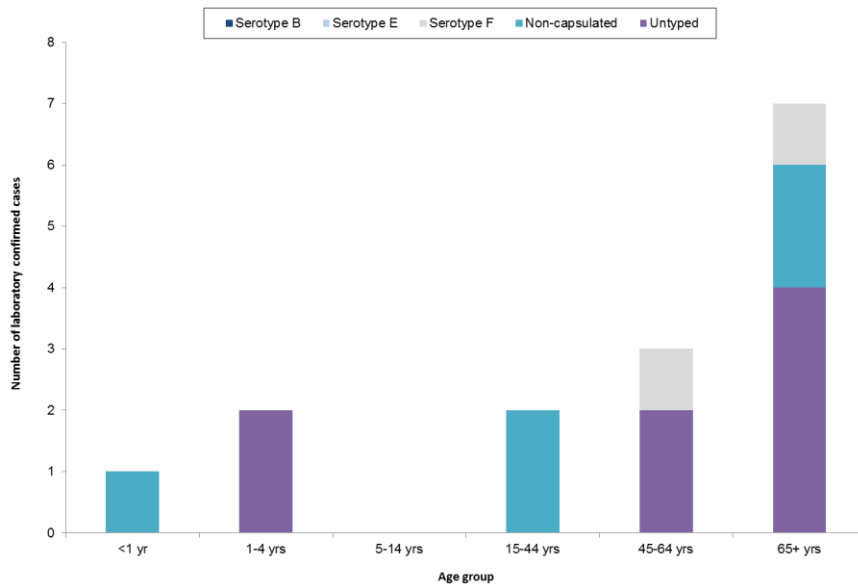
Year	Serotype B	Serotype E	Serotype F	Non-capsulated	Untyped	Total
2007	2	0	0	1	12	<b>15</b>
2008	0	1	1	3	8	<b>13</b>
2009	1	1	0	7	3	<b>12</b>
2010	3	1	0	5	10	<b>19</b>
2011	1	0	0	8	15	<b>24</b>
2012	0	0	1	7	4	<b>12</b>
2013	0	0	1	6	3	<b>10</b>
2014	1	0	0	4	8	<b>13</b>
2015	0	0	0	6	12	<b>18</b>
2016	0	0	2	5	8	<b>15</b>
<b>Total</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>52</b>	<b>83</b>	<b>151</b>

Source: CoSurv

\*Untyped means that the isolate was not sent to the Reference Lab

In 2016, the largest proportion of invasive Haemophilus Influenzae cases occurred in those over 65 years of age (47%; 7/15) (Figure 12).

**Figure 12. Laboratory confirmed cases of Invasive Haemophilus Influenza, by serotype and age group, 2016, Northern Ireland**



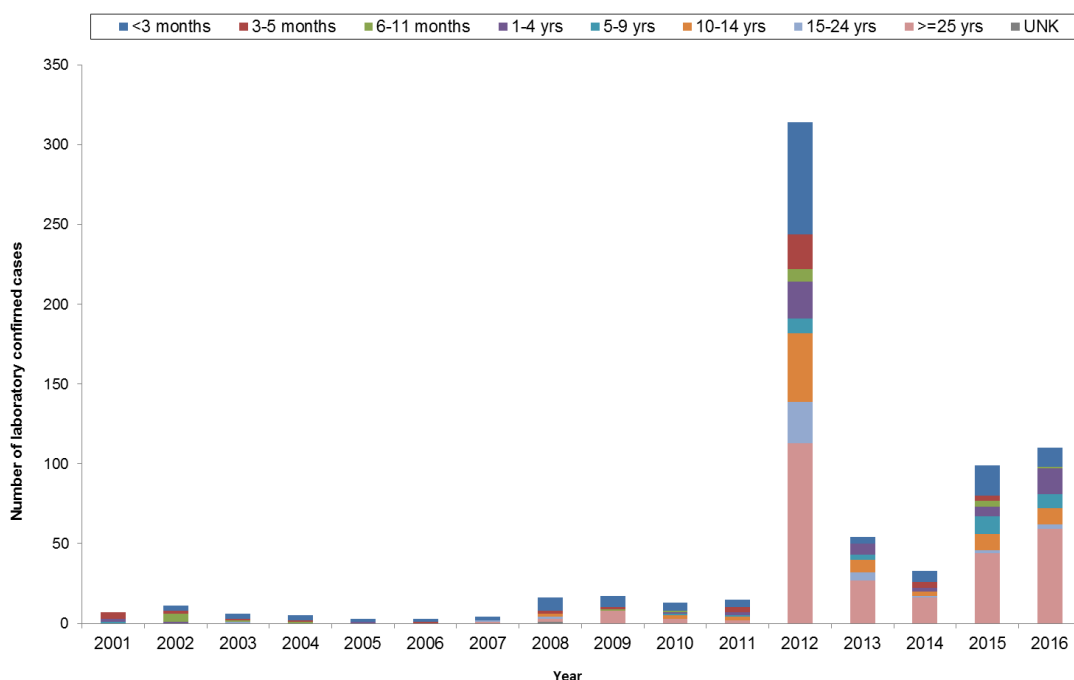
Source: CoSurv

### **Pertussis (whooping cough)**

Pertussis (whooping cough) is a notifiable disease across the UK, with notifications in Northern Ireland sent to the PHA acute response duty room. Local laboratories also report confirmed cases of pertussis to the PHA.

In 2016, there were 110 laboratory confirmed cases of pertussis in Northern Ireland. The greatest number of cases were in those aged over 25 years (54%; 59/110). Prior to 2012, the mean annual number of cases was 9 (3-17). In 2012, cases peaked to 314, consistent with the rest of the UK and when a national outbreak was declared. Since 2012 the mean number of cases has remained higher than the pre-outbreak baseline at 74 (33-110) with this calendar year the highest number seen since 2012 (Figure 13).

**Figure 13. Laboratory confirmed cases of Pertussis by age group, 2001-16, Northern Ireland**



Source: Regional CoSurv/ Pertussis Enhanced Surveillance System

In response to the national outbreak in 2012, the programme to vaccinate pregnant women was introduced with the aim of protecting babies too young to be vaccinated themselves. Due to the success of the programme and because of the continuing higher incidence of whooping cough it has been continued on the advice of JCVI.

In 2016, there were 12 cases of whooping cough in babies aged under 3 months old, of which six (50%) were born to mothers who had received the whooping cough vaccine in pregnancy. Due to the small numbers it is not possible to determine whether there is an association with the proportion vaccinated (Table 13).

**Table 13. Annual Pertussis cases in babies under 3 months of age according to whether mother was vaccinated in pregnancy, 2013-16, Northern Ireland**

Year	Number of cases <3 months of age	Number of mothers vaccinated	Number of mothers not vaccinated
2013	4*	1 (33.3%)	2 (66.7%)
2014	7	1 (14.3%)	6 (85.7%)
2015	19*	5 (27.8%)	13 (72.2%)
2016	12	6 (50.0%)	6 (50.0%)

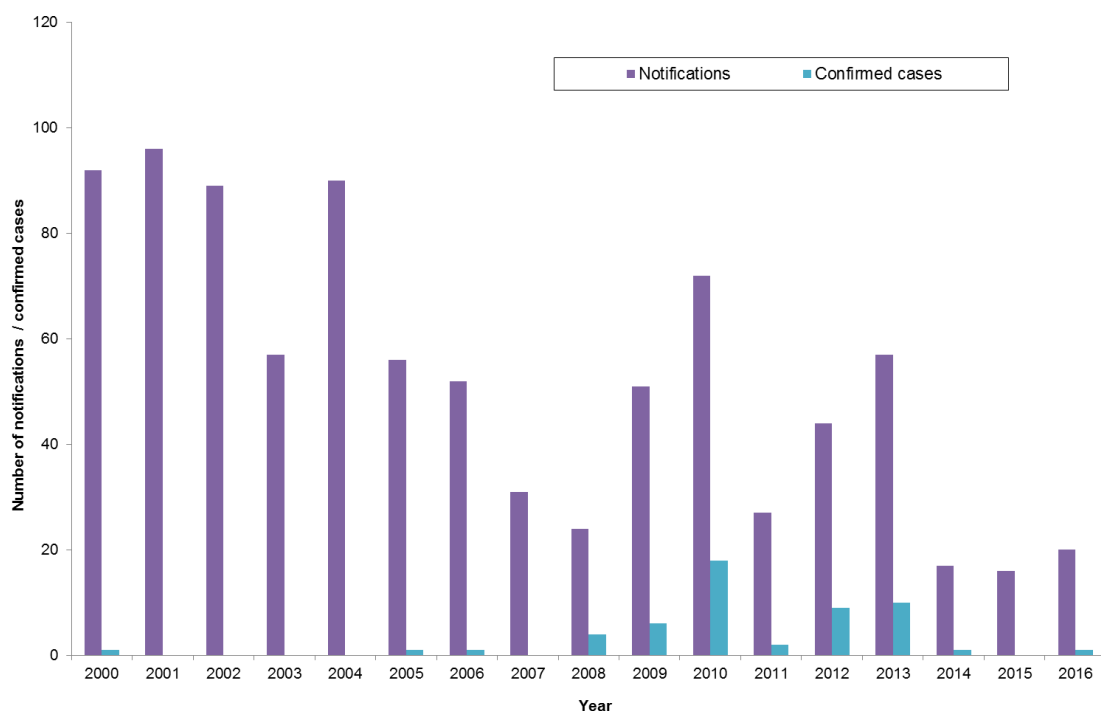
Source: Pertussis Enhanced Surveillance System (Note: \*vaccination status of mother unknown in one case)

## Measles

Measles surveillance is obtained from data from notifications to the PHA acute response duty room and local laboratories. Characterisation of isolates from confirmed cases is done by the Virus Reference Department, Public Health England.

In 2016, there were 20 notifications of measles to the duty room and one confirmed case. Notifications in Northern Ireland are low and have reduced since 2000 (Figure 14). The number of confirmed cases is even lower. The one case in 2016 was in an unvaccinated adult associated with an outbreak at a mass gathering event in England. All confirmed cases in recent years have been unvaccinated imported cases.

**Figure 14. Notifications and laboratory confirmed cases of Measles, 2000-16, Northern Ireland**



Source: Measles Enhanced Surveillance System and HPZone

## Mumps

Mumps surveillance is obtained from data from notifications to the PHA acute response duty room and local laboratories.

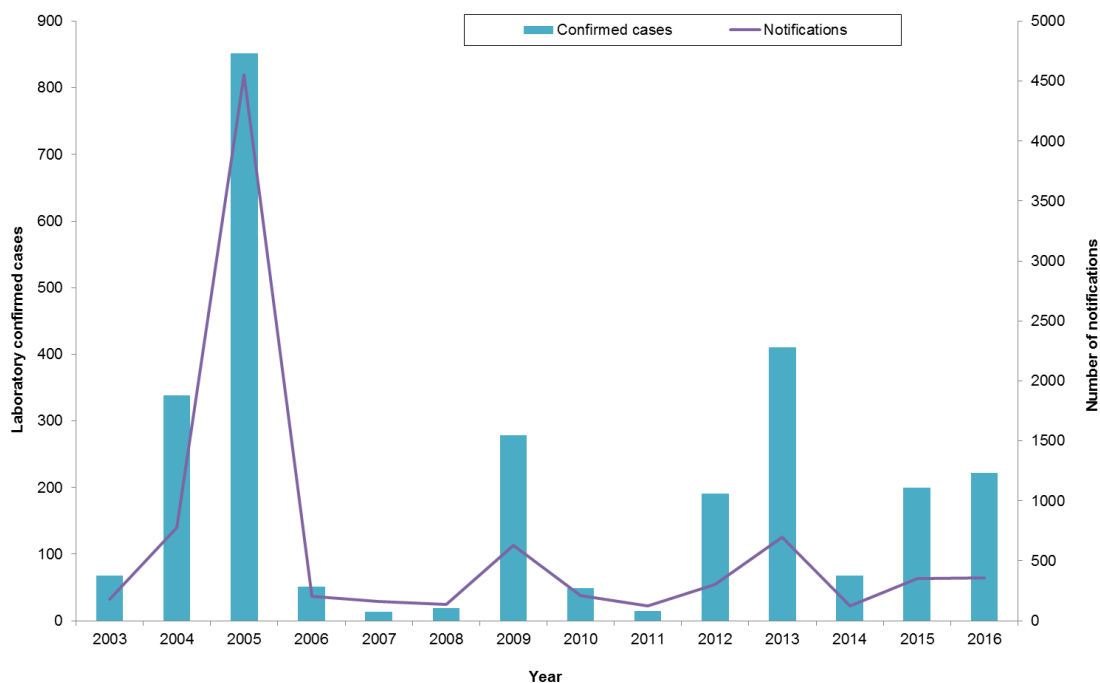
In 2016, there were 222 laboratory confirmed cases of mumps. This is an increase compared to 2015 (200), but fewer than the number reported in 2013 (410).



Following the introduction of the MMR vaccine in 1988, the incidence of mumps substantially decreased. Since 2004 there has been a persistent increase across the UK with the number of laboratory confirmed cases peaking in 2005 (Figure 15).

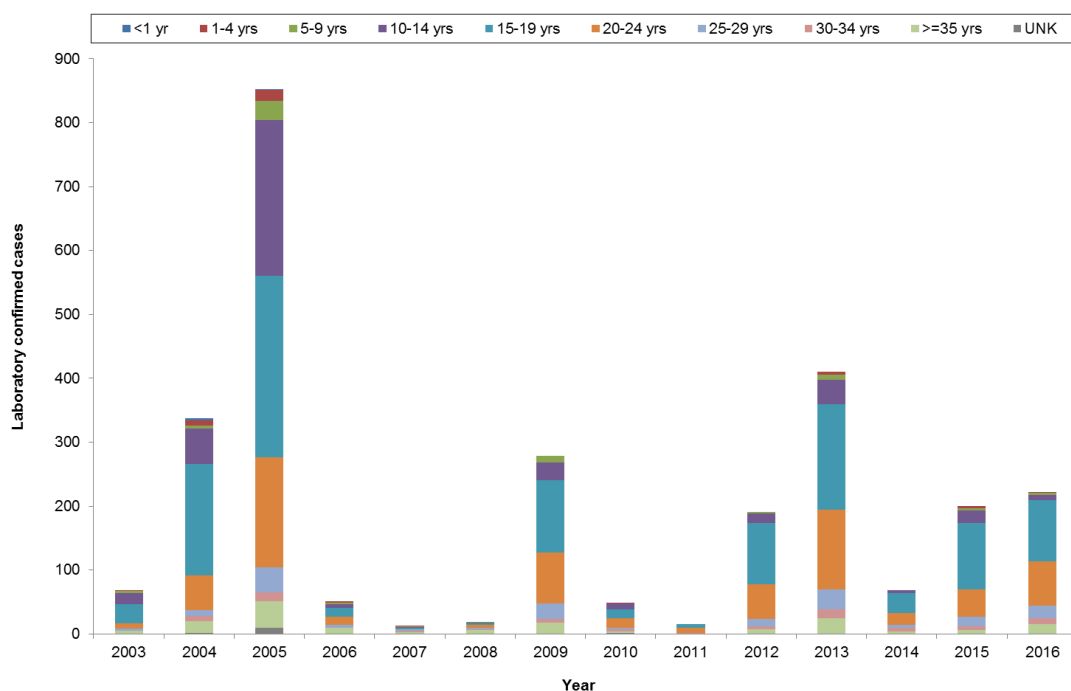
The majority of cases (74%; 165/222) were 15-24 years of age and of those, 94% had received two doses of MMR vaccine. In the past four years the majority of mumps cases have been adolescents and young adults (Figure 16). The observed increase in cases may represent waning immunity within the fully and/or partially vaccinated population.

**Figure 15. Notifications and laboratory confirmed cases of Mumps, 2003-16, Northern Ireland**



Source: Mumps Enhanced Surveillance System and HPZone

**Figure 16. Laboratory confirmed cases of Mumps, by age group, 2003-16, Northern Ireland**



Source: Mumps Enhanced Surveillance System and HPZone

Note: salivary antibody testing for mumps ceased in May 2010

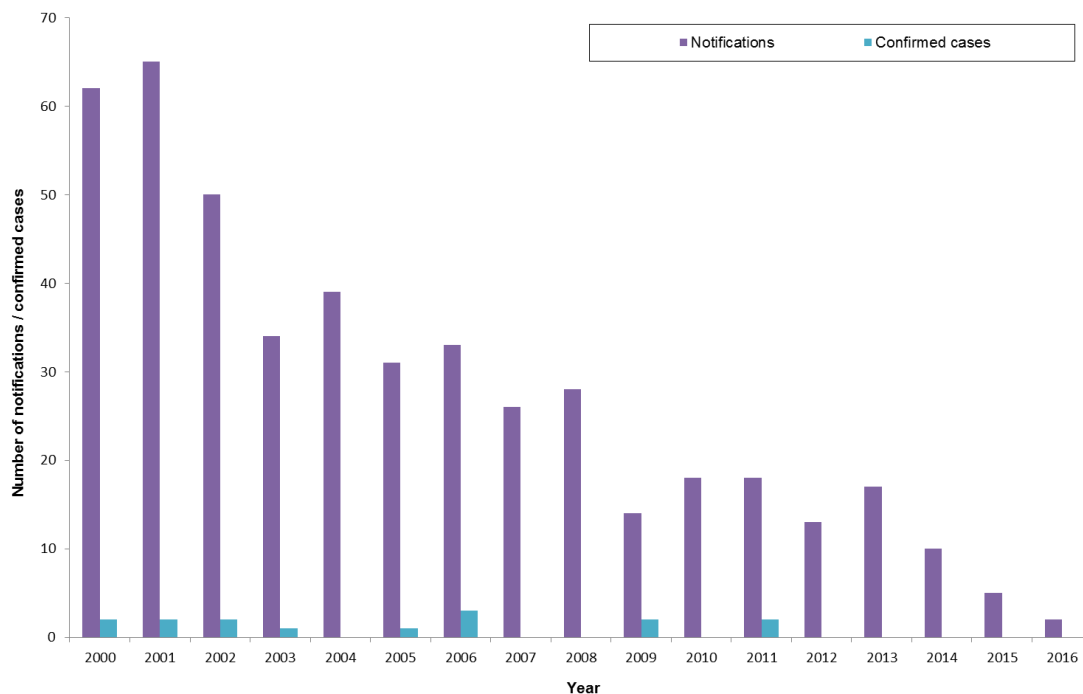
### Rubella (German Measles)

Rubella is an acute viral infection that is generally a mild illness, but if acquired by women in early pregnancy (in the first 16 weeks) can have devastating effects on the unborn child, leading to congenital rubella syndrome.

Rubella surveillance is obtained from data from notifications to the PHA acute response duty room and local laboratories. Information on characterisation of confirmed cases is provided by the Virus Reference Department, PHE.

Since 2012, there have been no laboratory confirmed cases of rubella and a reducing number of notifications to the PHA. Since introduction of the MMR vaccine in 1988 cases of rubella have fallen dramatically (Figure 17).

**Figure 17. Notifications and laboratory confirmed cases of Rubella, 2000-16, Northern Ireland**



Source: Rubella Enhanced Surveillance System and HPZone

### **Diphtheria, Tetanus, Polio**

Following the introduction of vaccine into the universal childhood programme, the incidence of these three infections has fallen dramatically. There have been no cases in Northern Ireland in recent times.

# Conclusions

The year 2016-17 has again been a successful one for the childhood and adult immunisation programmes.

Uptake of immunisations for children under 5 years of age continues to be amongst the highest in the UK although work continues to ensure that this high level is maintained. In general, the uptake of immunisations for school aged children is very good, with uptake of 2 MMRs by year 12 nearly at the 95% level. There was a dip in the uptake of HPV vaccine for girls in year 9 in 2016-17, and this will be closely monitored by PHA.

The HPV vaccine programme for MSM has been successfully rolled out across Northern Ireland and initial figures indicate good uptake. Disappointingly there has been a gradual decline of shingles uptake overtime that is consistent with the rest of the UK. This year, PHA will look at this in more detail to try to determine ways to improve uptake. New improvements to the data collection across programmes will also enable more accurate uptake reporting for subsequent years.

This year, we reported on pneumococcal and haemophilus influenza diseases. There has been an increase of non-vaccine type pneumococcal disease, particularly in older age groups. Again, there has been an increase in pertussis and mumps and a decrease in confirmed meningococcal disease cases.

# Recommendations

- PHA will continue to work with GP, health visitor and Child Health System colleagues to gain a greater understanding of the variation of pre-school immunisation uptake across Northern Ireland and work together to improve coverage, particularly where this is currently below 95%
- PHA will work with Child Health System to investigate in more detail the MMR coverage of children in Northern Ireland and work towards a coverage of 95% receiving two MMR vaccines for all children
- PHA will work with school health and communications colleagues to improve the uptake of HPV vaccine for 2017-18
- PHA will work with GP colleagues to gain a greater understanding of the decline in shingles uptake and work to improve the uptake for 2017-18
- PHA will work with the Northern Ireland Maternity Administrative System (NIMATS) to introduce data extraction on vaccination uptake for vaccinations given in pregnancy
- PHA will monitor the incidence of pertussis, particularly in infants under 3 months of age and continue to promote vaccination to pregnant women
- PHA is carrying out a qualitative study with individuals from the Roma community to better understand the knowledge, attitudes and barriers to vaccinations

## Sources of further information

The most useful resource for health professionals is the on-line version of The Green Book, which contains the most up-to-date information on immunisation.

Name	Link
Immunisation against Infectious Diseases (“The Green Book”)	<a href="https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book">https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book</a>
Public Health Agency Immunisation page	<a href="http://pha.site/immunisationvaccine-preventable-diseases">http://pha.site/immunisationvaccine-preventable-diseases</a>
Public Health England Immunisation page	<a href="https://www.gov.uk/government/collections/immunisation">https://www.gov.uk/government/collections/immunisation</a>
Chief Medical Officer (CMO) letters (Northern Ireland):	<a href="https://www.health-ni.gov.uk/publications/letters-and-urgent-communications-2017">https://www.health-ni.gov.uk/publications/letters-and-urgent-communications-2017</a>
Country Specific Vaccine schedules	<a href="http://apps.who.int/immunization_monitoring/globalsummary/schedules">http://apps.who.int/immunization_monitoring/globalsummary/schedules</a>
Vaccination of individuals with uncertain or incomplete immunisation status	<a href="https://www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status">https://www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status</a>
Public Health Agency Publications	<a href="http://www.publichealth.hscni.net/publications">http://www.publichealth.hscni.net/publications</a>

# Glossary of Terms

**Antigen:** A substance that when introduced into the body stimulates the production of an antibody.

**Apollo:** Software used to extract data from primary care systems

**BCG:** (Bacillus Calmette-Guerin) is a vaccine primarily used to provide protection against Tuberculosis (TB)

**Booster Vaccine:** This is an additional dose of vaccine given following an earlier dose / course of vaccines which is referred to as primary vaccines. The purpose of a booster dose is to increase / “boost” immunity.

**Vaccine Cohort:** Group of people who are eligible for a vaccine programme based on age or other risk factors for developing a vaccine preventable disease.

**COVER:** (Cover of Vaccination Evaluated Early) is a quarterly data collection used to evaluate childhood immunisation coverage across the UK.

**Diphtheria:** is an infectious disease caused by the bacterium *Corynebacterium diphtheriae*. It primarily infects the throat and upper airways.

**DTaP/IPV/Hib Vaccine:** This vaccine offers protection against diphtheria, tetanus, pertussis, polio and *haemophilus influenza type b*. It is commonly referred to as the “five in one”.

**DTaP/IPV/Hib/Hep B:** This vaccine offers protection against diphtheria, tetanus, pertussis, polio, *haemophilus influenza type b* and hepatitis B. It is commonly referred to as the “six in one” or “hexa” vaccine.

**Epidemiology:** The study of the distribution and determinants of health-related states / events (including disease) and the application of this study to the control of diseases / other health problems.

**Hepatitis B:** is a viral infection that attacks the liver and can cause chronic disease.

**Hepatitis B positive:** is a term used to describe someone who has hepatitis B infection and the diagnosis is based on the detection of hepatitis B surface antigen from a blood sample.

**Hib:** Haemophilus influenza type b is the second most common cause of bacterial pneumonia.

**HPV Vaccine:** is a vaccine that offers protection against certain types of Human Papilloma Virus.

**Human Papilloma Virus (HPV):** is a viral infection that is mainly transmitted via sexual contact. HPV-related disease includes genital warts, cervical and ano-genital cancers.

**Immunisation:** is a process whereby a person is made immune / resistant to an infectious disease, typically by administration of a vaccine.

**Inactivated Vaccine:** is a vaccine that is made from microorganisms (bacteria, viruses, other) that have been killed through physical / chemical processes. These killed organisms cannot cause disease.

**Incidence:** is the number of individual who develop a specific disease / experience a health-related event during a particular time period.

**IMD:** (Invasive meningococcal disease) is caused by bacteria known as *Neisseria meningitidis*.

**LCG:** Local commissioning groups

**Measles:** is a vaccine preventable disease. Measles is a serious respiratory disease that causes a rash and fever and can cause significant morbidity and mortality.

**Men ACWY Vaccine:** Inactivated vaccine that offers protection against invasive meningococcal disease caused by *Neisseria meningitidis* groups A, C, W & Y.

**Meningococcal Group B Vaccine:** Inactivated vaccine that offers protection against invasive meningococcal disease caused by *Neisseria meningitidis* group B.

**Meningococcal Group C Vaccine:** Inactivated vaccine that offers protection against invasive meningococcal disease caused by *Neisseria meningitidis* group C.

**MMR Vaccine:** Combined vaccine used to offer protection against measles, mumps and rubella. MMR is a live vaccine i.e. contains attenuated / weakened organisms.

**MSM:** Men who have sex with men.

**Pertussis:** is a highly contagious disease of the respiratory tract caused by *Bordetella pertussis*. The disease caused by this bacterium is commonly referred to as “whooping cough”.

**PCR:** (polymerase chain reaction) is a method used to analyse a short sequence of DNA/RNA.

**PHE:** (Public Health England) is an executive agency of the Department of Health in England.

**Pneumococcal Disease:** is caused by a bacterium known as *Streptococcus pneumoniae*. Pneumococcal disease can range from upper respiratory tract infections to pneumonia, septicaemia and meningitis.



**Polio:** is a highly infectious disease caused by a virus. It invades the nervous system and can cause total paralysis in hours.

**Rotavirus:** is a virus that can cause severe diarrhoea and vomiting, especially in babies and young children.

**Rubella:** (German Measles) is a viral disease that causes a fever and a rash. It can cause defects in pregnant women who develop the infection.

**Serogroup:** A group of bacteria containing a common antigen / a group of viral species that are antigenically closely related.

**Shingles:** is caused by *varicella zoster virus* (VZV), the same virus that causes chickenpox.

**Tetanus:** is an infection caused by a bacteria called *Clostridium tetani*. The bacteria produce a toxin that causes painful muscle contractions.

**Tuberculosis:** (TB) is caused by the bacterium *Mycobacteria tuberculosis*. It usually causes infection of the lungs but can cause infection in other parts of the body too. If not treated properly TB can be fatal.

**WHO (World Health Organisation):** is a specialised agency of the United Nations that was established to prevent international spread of diseases.

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*Report of Measles Outbreak in Belfast, June-July 2017***date** 15 February 2018**item** 10**reference** PHA/04/02/18**presented by** Dr Carolyn Harper, Medical Director**action required** For noting**Summary**

Between June and July 2017, a small outbreak of measles occurred in Belfast. An Outbreak Control Team was established to investigate and control the outbreak. This report documents the chronology, epidemiological and microbiological findings, control measures and recommendations to prevent future outbreaks.

**Findings**

Between 26th June and 12th July 2017 five confirmed and one probable case of measles was identified. Cases had a median age of 13 years, and were United Kingdom, Romanian and Zimbabwean nationalities. None of the cases were vaccinated, three required hospitalisation, but there were no deaths. Confirmed cases were caused by an identical measles strain; and the same strain from an ongoing measles outbreak in Romania.

Epidemiology and microbiology findings support the conclusion that the likely source of the outbreak was an imported case that had recently travelled from Romania. Control measures included contact tracing and post-exposure prophylaxis for vulnerable contacts, active case finding, written information for health professionals and the public and publicity messages in the media, social media and website to reinforce uptake of the Measles, Mumps and Rubella (MMR) vaccine.

This outbreak is an important reminder of the infectiousness of measles, the ongoing risk of imported cases even when there is high vaccination uptake and the intensive resources required from public health, primary care and Trusts to control the outbreak.

**Recommendations**

Targeted efforts to increase vaccine uptake amongst the Roma community

Increase awareness of measles symptomatology amongst health

**Progress**

During 2017-18 the Health Protection Directorate has commissioned qualitative research to understand the attitudes, views and barriers to vaccines.

An update on measles disease has been published in the foundation doctor newsletter.

professionals

Findings from the outbreak will be presented to paediatric training groups.

Travel advice for the public

Regular travel advice will be provided throughout the year to increase awareness of the importance of the MMR prior to travel.

### **Equality Impact Assessment**

N/A

### **Recommendation**

The Board is asked to **NOTE** the report.