

Annual Epidemiological Report

August 2019

HPV, MenC booster and Tdap vaccine uptake in Ireland, 2017/2018

Key Facts

- Although there has been improvement in uptake of the adolescent vaccines in 2017/2018 compared to the previous school year, many adolescent children did not avail of important vaccines offered through the school immunisation programme.
- Among the recommended cohorts in the academic year 2017/2018:
 - National uptake of at least HPV stage 2, considered to have complete a two dose course, was 64.1%
 - This is an improvement of 13.1% compared to the previous academic year
 - Among the Local Health Offices uptake ranged from 53.0% to 80.8%.
 - 86.5% of children had MenC booster vaccine
 - This is an improvement of 2.6% compared to the 2016/2017 academic year
 - Among the Local Health Offices uptake ranged from 74.8% to 94.3%.
 - 87.4% of children had Tdap vaccine
 - This is an improvement of 1.6% compared to 2016/2017 academic year
 - Among the Local Health Offices uptake ranged from 78.5% to 94.7%

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Background

HPV

Following a recommendation from the National Immunisation Advisory Committee (NIAC), that human papillomavirus (HPV) vaccine should be given to 12 year old girls, a routine Health Service Executive (HSE) school HPV vaccination programme began in May 2010 for girls in the first year of second level school and age equivalent in special schools and home schooled. The aim of the programme is to protect girls from their future risk of developing cervical cancer.

An HPV catch-up campaign for girls in sixth year of second level schools and their age equivalents in non-second level schools (ie special schools, home schooled, Community Training Centres and Youthreach) was added in the academic year 2011/2012 and continued during the academic years 2012/2013 and 2013/2014.

Quadrivalent HPV vaccine, which protects against HPV types 6, 11, 16 and 18 associated with 70% of cervical cancer, has been used in the school vaccination programme since the programme began. A schedule of two vaccine doses given at least six months apart was recommended since the academic year 2014/2015 for girls aged <15 years. Prior to this a schedule of three vaccine doses given over a six month period was recommended. This change is based on more recent data which showed that the immune response to two doses of the vaccine in 9-13 year old girls is comparable to a three dose course. The HPV vaccine does not protect against all cervical cancers, so regular cervical screening is still needed.

In the 2019/2020 academic year the programme will be extended to boys and HPV 9-valent vaccine will be introduced for both boys and girls in in the first year of second level school and age equivalent in special schools and home schooled

MenC

MenC (meningococcal group C) vaccine is recommended as part of the primary childhood immunisation programme. In recent years, evidence has emerged that immunity to meningococcal disease reduces over time, so a booster dose is recommended now to provide additional protection. The NIAC recommends vaccination with a booster MenC vaccine at 12-13 years of age. The MenC booster vaccine was introduced into the HSE schools immunisation programme in September 2014. This vaccine is offered to students in first year of second level schools and their age equivalents in special schools and home schooled.

In the 2019/2020 academic year the meningococcal ACWY vaccine, which protects against meningococcal disease caused by Men C and also types A, W and Y, will be offered instead of MenC to this age group.

Tdap

The NIAC recommends vaccination with Tdap (tetanus, low-dose diphtheria and acellular pertussis) vaccine at 11-14 years of age. The Tdap vaccine was introduced to the HSE schools immunisation programme on a phased basis from September 2011. The HSE extended the Tdap vaccination programme to all areas from September 2012. This vaccine is offered to students in first year of second level school and their age equivalents in special school and home schooled. It replaces the previous school based Td (Tetanus and low dose diphtheria) vaccination programme. The adolescent booster was changed because more cases of pertussis have been occurring in adolescents and adults due to the waning immunity that occurs over time, combined with a reduction in natural boosting.

The target for uptake of two doses of vaccine for the HPV vaccination programme is 85% and target uptake of MenC booster and Tdap vaccine is 95%.

The vaccinations are provided by vaccination teams from the Local Health Offices (LHOs) who go into schools in their areas to vaccinate or provide vaccination clinics free of charge for children in the target cohorts. Vaccinations provided through the schools immunisation programme are entered into the School Immunisation System (SIS). Please see the HSE-National Immunisation Office (NIO) website at www.immunisation.ie for detailed and current information on the school vaccination programme.

Cohort for vaccination in the academic year 2017/2018

The cohort for the 2017/2018 HPV, Tdap and MenC booster vaccination programme was children (girls only for HPV vaccine)

- in first year of second level schools
- and their age equivalents ie those who were born between 01/09/2005 and 31/08/2006
 - attending special schools or
 - registered with the Child and Family Agency Education Welfare Services to be home schooled.

Older students who are new entrants into special schools who have never been offered vaccination should also be offered vaccination.

Terminology used in this report

At least stage 1 - means a girl had a stage 1 HPV vaccine recorded on SIS, this girl may or may not have had a stage 2 HPV vaccine recorded on SIS.

At least stage 2 - means a girl had a stage 2 HPV vaccine recorded on SIS, she may or may not have had stage 1 HPV vaccine recorded on SIS.

At least stage 3 - means a girl had a stage 3 HPV vaccine recorded on SIS, she may or may not have had stage 1 or stage 2 HPV vaccine recorded on SIS.

Home schooled - refers to children registered with the Child and Family Agency Education Welfare Services to be educated at home. These children were recorded on SIS and reported here as home schooled.

Out of school - refers to vaccinated children who were neither enrolled in a second level school, special school nor registered with the Child and Family Agency Education Welfare Services as home schooled.

Local Health Office (LHO) - refers to the LHO the school is located in (it does not refer to the LHO in which the child resides).

Outside routine cohort - refers to those who were vaccinated but who were not in first year of second level schools or their age equivalents in special school or home schooled.

The denominator was defined as the number of children (girls only for HPV vaccine) in first year for second level schools and age equivalent (ie born between 01/09/2005 and 31/08/2006) in special schools and on the school roll on 30th September 2017 (when the school census is carried out) or registered with the Child and Family Agency Education Welfare Services (TUSLA) as home schooled. All the denominator data was entered onto SIS by the relevant System Administrator.

Uptake of HPV, MenC booster and Tdap vaccines

Here we report on the uptake of HPV, MenC booster and Tdap vaccines in the academic year 2017/2018, provided through the school immunisation programme and recorded on SIS on the 2nd July 2019. These figures are subject to change due to ongoing updating of data on the database. The numbers vaccinated do not include children vaccinated elsewhere e.g. abroad, by General Practitioners.

The data presented here are the result of collaboration between NIO, School Immunisation Teams, Immunisation Coordinators, Immunisation System Administrators, Immunisation administrative staff and HPSC.

Uptake of HPV vaccine

In Ireland, 64.1% of girls in second level schools and their age equivalents in special schools and home schooled were recorded as having received at least HPV stage 2 (considered to have completed a two dose course) (Table 1).

In comparison, uptake of at least HPV stage 2 (considered to have completed a two dose course) among girls in second level schools and their age equivalents in special schools and home schooled was 51.0% in 2016/2017, 72.3% in 2015/2016 and 86.9% in 2014/2015 (figure 1).^{1,2,3} Data are not directly comparable with academic years prior to 2014/2015. Prior to the academic year 2014/2015 a three dose schedule was recommended. In the academic year 2013/2014 88.2% of girls in first year in second level schools were recorded as having received at least HPV stage 2 while 84.9% of girls in first year in second level schools were recorded as having received at least HPV stage 3.⁴

Among the nine Community Healthcare Organisations (CHOs), in the academic year 2017/2018, uptake of at least HPV stage 2 among girls ranged from 59.2% to 73.1%. While among the 32 LHOs uptake of at least HPV stage 2 ranged from 53.0% to 80.8%. Uptake of at least stage 2 HPV by LHO is shown in Figure 2.

Table 1. HPV uptake among girls in the academic year 2017/2018

Data extracted from the School Immunisation System 02/07/2019

Community Healthcare Organisation (CHO)	Local Health Office/CHO	First Year girls in second level and age equivalent* in special schools, home schooled and out of school						Outside Routine Cohort		
		Denominator	Numbers vaccinated with:		% Vaccinated with:		Denominator	Numbers vaccinated with:		
			At least	At least	At least	At least		At least	At least	At least
			Stage 1	Stage 2	Stage 1	Stage 2		Stage 1	Stage 2	Stage 3
CHO1	Cavan/Monaghan	937	637	620	68.0%	66.2%	N/A	5	4	3
	Donegal	1137	640	603	56.3%	53.0%	N/A	19	15	5
	Sligo/Leitrim	653	417	406	63.9%	62.2%	N/A	3	3	1
	CHO1 Total	2727	1694	1629	62.1%	59.7%	N/A	27	22	9
CHO2	Galway	1774	1304	1283	73.5%	72.3%	N/A	47	46	17
	Mayo	862	559	534	64.8%	61.9%	N/A	40	38	9
	Roscommon	349	215	206	61.6%	59.0%	N/A	14	13	1
	CHO2 Total	2985	2078	2023	69.6%	67.8%	N/A	101	97	27
CHO3	Clare	758	544	538	71.8%	71.0%	N/A	42	40	5
	Limerick	933	705	686	75.6%	73.5%	N/A	10	10	3
	Tipperary NR/East	1015	723	706	71.2%	69.6%	N/A	1	1	0
	CHO3 Total	2706	1972	1930	72.9%	71.3%	N/A	53	51	8
CHO4	North Cork	632	400	389	63.3%	61.6%	N/A	21	20	1
	North Lee-Cork	1366	882	845	64.6%	61.9%	N/A	56	45	5
	South Lee-Cork	1226	803	784	65.5%	63.9%	N/A	45	44	21
	West Cork	352	203	193	57.7%	54.8%	N/A	8	8	2
	Kerry	983	546	524	55.5%	53.3%	N/A	22	12	2
	CHO4 Total	4559	2834	2735	62.2%	60.0%	N/A	152	129	31
CHO5	Carlow/Kilkenny	1072	770	741	71.8%	69.1%	N/A	49	40	9
	South Tipperary	633	384	370	60.7%	58.5%	N/A	0	0	0
	Waterford	854	581	576	68.0%	67.4%	N/A	4	4	2
	Wexford	1092	659	614	60.3%	56.2%	N/A	7	7	4
	CHO5 Total	3651	2394	2301	65.6%	63.0%	N/A	60	51	15
CHO6	Dublin South	963	753	716	78.2%	74.4%	N/A	6	7	4
	Dublin South East	749	611	605	81.6%	80.8%	N/A	19	16	9
	Dublin West	1082	730	682	67.5%	63.0%	N/A	31	11	0
	Kildare/West	1818	1206	1156	66.3%	63.6%	N/A	11	9	1
	CHO6 Total	2550	1919	1864	75.3%	73.1%	N/A	38	35	15
CHO7	Dublin South City	829	643	636	77.6%	76.7%	N/A	25	24	5
	Dublin South West	797	476	458	59.7%	57.5%	N/A	9	8	1
	Dublin West	1082	730	682	67.5%	63.0%	N/A	31	11	0
	Kildare/West	1818	1206	1156	66.3%	63.6%	N/A	11	9	1
	CHO7 Total	4526	3055	2932	67.5%	64.8%	N/A	76	52	7
CHO8	Laois/Offaly	1071	709	677	66.2%	63.2%	N/A	3	2	1
	Longford/Westmeath	952	650	630	68.3%	66.2%	N/A	14	15	4
	Louth	1107	676	651	61.1%	58.8%	N/A	15	10	0
	Meath	1404	954	935	67.9%	66.6%	N/A	45	44	10
	CHO8 Total	4534	2989	2893	65.9%	63.8%	N/A	77	71	15
CHO9	Dublin North West	1354	863	806	63.7%	59.5%	N/A	33	27	4
	Dublin North Central	710	475	410	66.9%	57.7%	N/A	19	15	4
	Dublin North	1613	1016	960	63.0%	59.5%	N/A	5	0	0
	CHO9 Total	3677	2354	2176	64.0%	59.2%	N/A	57	42	8
Home schooled		70	5	4	7.1%	5.7%	N/A	1	0	0
Total of LHOs and home schooled		31985	21294	20487	66.6%	64.1%	N/A	642	550	135
Out of School		N/A	0	0	N/A	N/A	N/A	0	0	
Total of LHOs, home schooled and Out of School		N/A	21294	20487	N/A	N/A	N/A	642	550	135

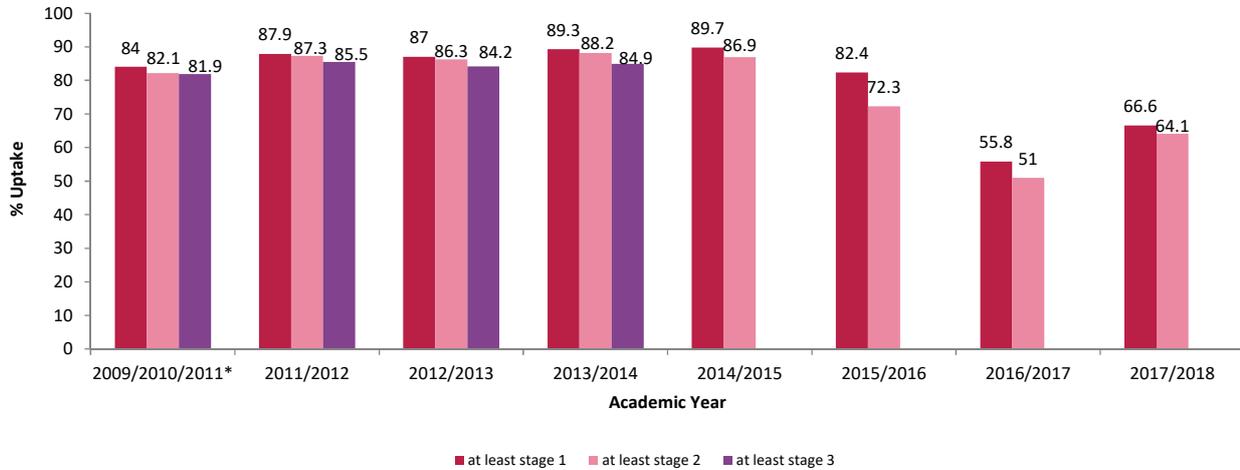
*Age equivalents are those born between 01/09/2005 and 31/08/2006

Eighteen children were recorded on SIS in the routine cohort (first year in second level or age equivalent in special school) and vaccinated with stage 3 HPV; these stage 3 vaccinations are not shown in the table above.

N/A-Not applicable

Please see the section of this report labelled 'Terminology used in this report' for further information on the terms used in this table and report.

Figure 1. Uptake (%) of HPV vaccine by academic year among first years of second level schools and their age equivalents in special schools and home schooled*



A schedule of two vaccine doses given at least six months apart was recommended since the academic year 2014/2015 for girls aged <15 years. Prior to this a schedule of three vaccine doses given over a six month period was recommended.

'at least stage 2' means a girl had a stage 2 recorded on the database, they may or may not have had stage 1 recorded.

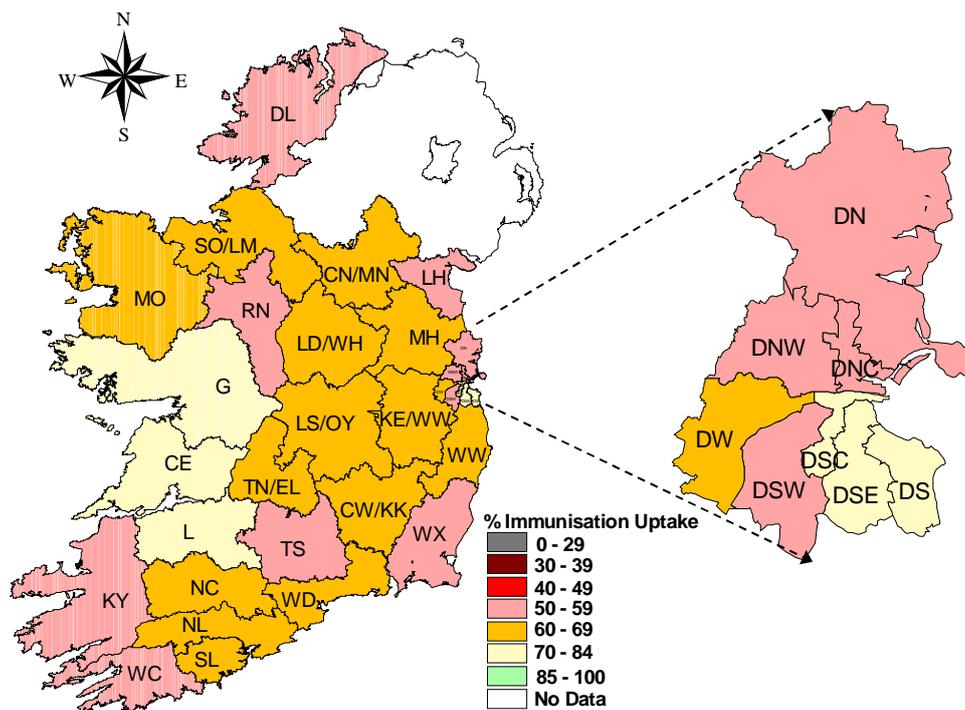
'at least stage 3' means a girl had a stage 2 recorded on the database, they may or may not have had stage 1 or 2 recorded.

HPV uptake data from 2011/2012 are available on the HPSC website.⁵

*Uptake for 2009/2010 and 2010/2011 cohorts of first year girls vaccinated from May 2010 was measured by manual reports and national uptake for the combined cohort was estimated at 82.1% for the second dose and 81.9% for the third dose.⁶

*Uptake rates shown here for 2012/2013, 2013/2014 and 2014/2015 are for those in first year only

Figure 2. Uptake (%) of HPV vaccine stage 2 (considered to have completed a two dose course) among girls in first year of second level or age equivalent in special schools in the academic year 2017/2018, by Local Health Office



Data were extracted from the School Immunisation System on the 02/07/2019.

LHOs in Dublin are highlighted separately for ease of viewing. Please see table 4 to translate LHO abbreviations.

Uptake of MenC booster vaccine

In the academic year 2017/2018, uptake of the MenC booster vaccine in children in first year in second level schools and their age equivalents in special schools and home schooled was 86.5% (Table 2).

In the academic year 2017/2018, there was some regional variation with uptake among the CHOs ranging from 79.4% to 89.7%. Uptake among the Local Health Offices ranged from 74.8% to 94.3% (Table 2, Figure 3).

Uptake of the MenC booster vaccine in children in first year in second level schools and their age equivalents in special schools and home schooled was 83.9% in 2016/2017, 86.7% in 2015/2016 and 87.9% in 2014/2015 (Figure 4).^{7,8,9}

Table 2. MenC booster vaccine uptake in the academic year 2017/2018

Data extracted from the School Immunisation System 02/07/2019

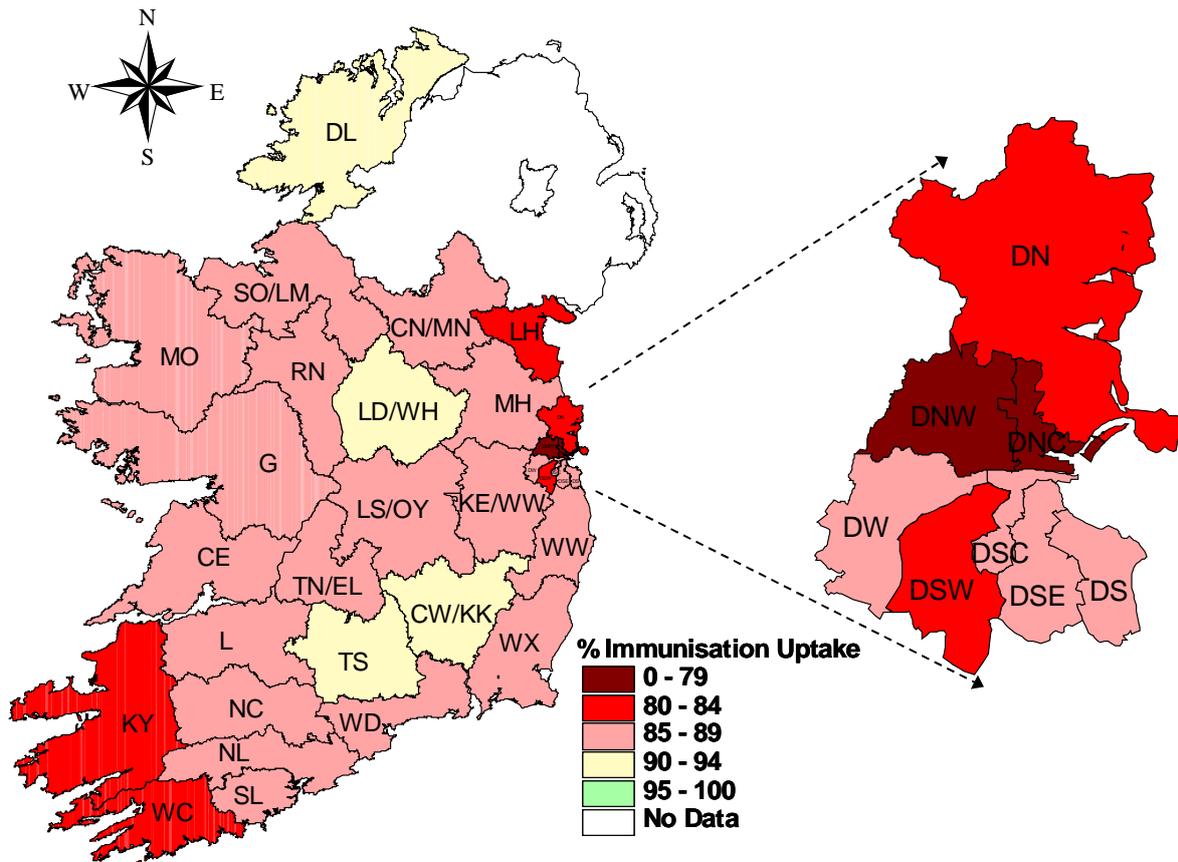
Community Healthcare Organisation (CHO)	Local Health Office/CHO	First Years in second level and age equivalent* in special schools, home schooled and out of school			Outside Routine Cohort	
		Denominator	Numbers vaccinated with MenC booster	% Vaccinated with MenC booster	Denominator	Numbers vaccinated with MenC booster
CHO1	Cavan/Monaghan	1924	1675	87.1%	N/A	5
	Donegal	2318	2097	90.5%	N/A	7
	Sligo/Leitrim	1405	1261	89.8%	N/A	4
	CHO1 Total	5647	5033	89.1%	N/A	16
CHO2	Galway	3711	3193	86.0%	N/A	42
	Mayo	1775	1566	88.2%	N/A	25
	Roscommon	693	601	86.7%	N/A	2
	CHO2 Total	6179	5360	86.7%	N/A	69
CHO3	Clare	1512	1345	89.0%	N/A	17
	Limerick	1980	1738	87.8%	N/A	5
	Tipperary NR/East	1981	1759	88.8%	N/A	2
	CHO3 Total	5473	4842	88.5%	N/A	24
CHO4	North Cork	1313	1143	87.1%	N/A	4
	North Lee-Cork	2800	2429	86.8%	N/A	37
	South Lee-Cork	2531	2252	89.0%	N/A	22
	West Cork	722	602	83.4%	N/A	5
	Kerry	1938	1636	84.4%	N/A	18
	CHO4 Total	9304	8062	86.7%	N/A	86
CHO5	Carlow/Kilkenny	2062	1944	94.3%	N/A	43
	South Tipperary	1318	1206	91.5%	N/A	1
	Waterford	1778	1578	88.8%	N/A	20
	Wexford	2295	1961	85.4%	N/A	8
	CHO5 Total	7453	6689	89.7%	N/A	72
CHO6	Dublin South	2098	1873	89.3%	N/A	7
	Dublin South East	1398	1243	88.9%	N/A	18
	Wicklow	1735	1479	85.2%	N/A	5
	CHO6 Total	5231	4595	87.8%	N/A	30
CHO7	Dublin South City	1549	1380	89.1%	N/A	2
	Dublin South West	1756	1412	80.4%	N/A	3
	Dublin West	2039	1756	86.1%	N/A	24
	Kildare/West	3769	3241	86.0%	N/A	2
	CHO7 Total	9113	7789	85.5%	N/A	31
CHO8	Laois/Offaly	2297	2060	89.7%	N/A	5
	Longford/Westmeath	2160	1958	90.6%	N/A	4
	Louth	2231	1866	83.6%	N/A	10
	Meath	2835	2443	86.2%	N/A	37
	CHO8 Total	9523	8327	87.4%	N/A	56
CHO9	Dublin North West	2720	2118	77.9%	N/A	13
	Dublin North Central	1585	1186	74.8%	N/A	16
	Dublin North	3194	2648	82.9%	N/A	6
	CHO9 Total	7499	5952	79.4%	N/A	35
Home schooled		78	14	17.9%	N/A	1
Total of LHOs and home schooled		65500	56663	86.5%	N/A	420
Out of School		N/A	1	N/A	0	0
Total of LHOs, home schooled and Out of School		N/A	56664	N/A	N/A	420

*Age equivalents are those born between 01/09/2005 and 31/08/2006

N/A-Not applicable

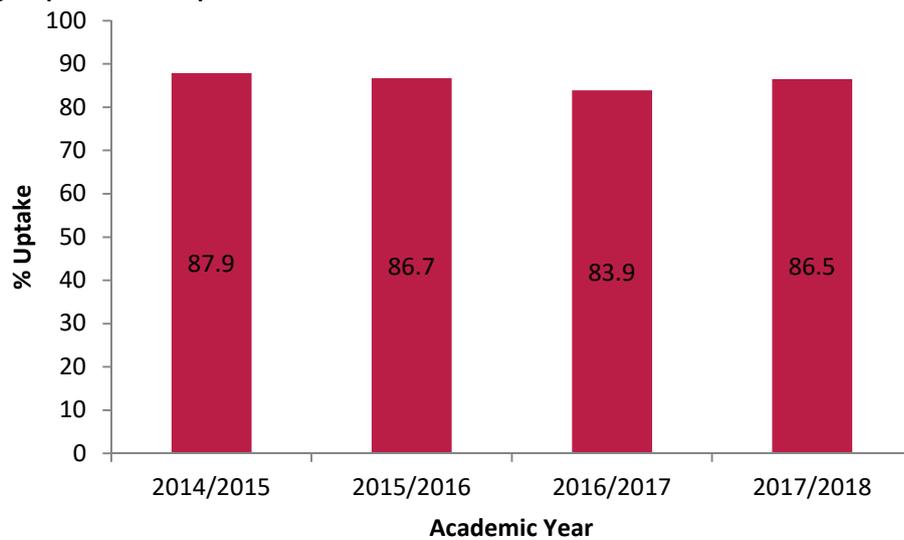
Please see the section of this report labelled 'Terminology used in this report' for further information on the terms used in this table and report.

Figure 3. Uptake (%) of MenC booster vaccine, among first years of second level schools and their age equivalents in special schools, by Local Health Office in the academic year 2017/2018



Data were extracted from the School Immunisation System on the 02/07/2019. LHOs in Dublin are highlighted separately for ease of viewing. Please see table 4 to translate LHO abbreviations.

Figure 4. Uptake (%) of MenC booster vaccine by academic year among first years of second level schools and their age equivalents in special schools and home schooled.



Uptake of Tdap vaccine

In the academic year 2017/2018, uptake of the Tdap vaccine in children in first year in second level schools and their age equivalents in special schools and home schooled was 87.4% (Table 3).

In the academic year 2017/2018, there was some regional variation with uptake among the CHOs ranging from 81.1% to 90.4%. Among the Local Health Offices uptake ranged from 78.5% to 94.7% (Table 3, Figure 5)

Uptake was 85.8% in the academic year 2016/2017, 89.2% in 2015/2016 and 89.1% in 2014/2015.^{10,11,12} Uptake was 83.7% in the academic year 2013/2014 among the 31 LHOs, out of a total of 32 LHOs, reporting data.¹³ Uptake was 82% in 2012/2013 among 29 of 32 LHOs.¹⁴

Table 3. Tdap vaccine uptake in the academic year 2017/2018

Data extracted from the School Immunisation System 02/07/2019

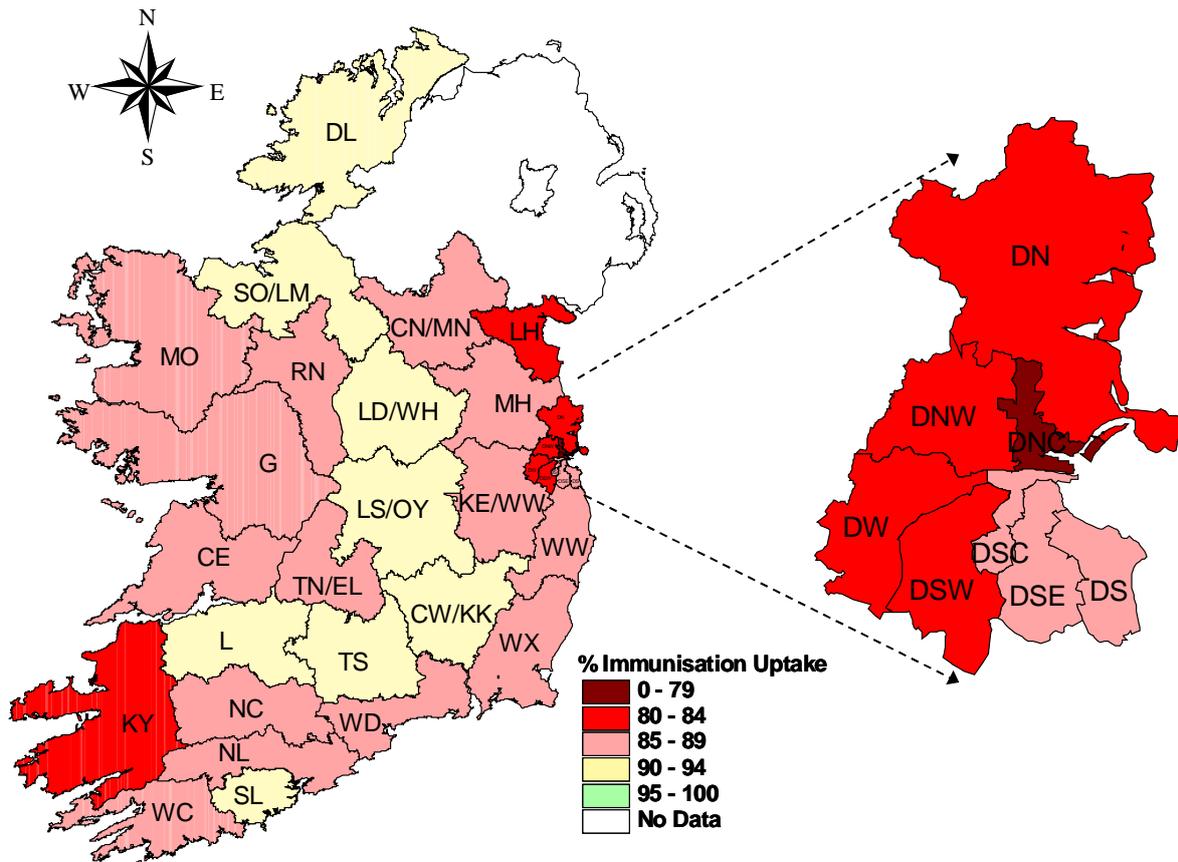
Community Healthcare Organisation (CHO)	Local Health Office/CHO	First Years in second level and age equivalent* in special schools, home schooled and out of school			Outside Routine Cohort	
		Denominator	Numbers vaccinated with Tdap	% Vaccinated with Tdap	Denominator	Numbers vaccinated with Tdap
CHO1	Cavan/Monaghan	1924	1705	88.6%	N/A	2
	Donegal	2318	2109	91.0%	N/A	9
	Sligo/Leitrim	1405	1274	90.7%	N/A	2
	CHO1 Total	5647	5088	90.1%	N/A	13
CHO2	Galway	3711	3197	86.1%	N/A	28
	Mayo	1775	1593	89.7%	N/A	16
	Roscommon	693	605	87.3%	N/A	8
	CHO2 Total	6179	5395	87.3%	N/A	52
CHO3	Clare	1512	1344	88.9%	N/A	20
	Limerick	1980	1786	90.2%	N/A	5
	Tipperary NR/East	1981	1762	88.9%	N/A	1
	CHO3 Total	5473	4892	89.4%	N/A	26
CHO4	North Cork	1313	1152	87.7%	N/A	6
	North Lee-Cork	2795	2463	88.1%	N/A	32
	South Lee-Cork	2531	2278	90.0%	N/A	27
	West Cork	722	628	87.0%	N/A	4
	Kerry	1938	1638	84.5%	N/A	38
	CHO4 Total	9299	8159	87.7%	N/A	107
CHO5	Carlow/Kilkenny	2062	1953	94.7%	N/A	24
	South Tipperary	1318	1214	92.1%	N/A	0
	Waterford	1778	1586	89.2%	N/A	16
	Wexford	2295	1987	86.6%	N/A	6
	CHO5 Total	7453	6740	90.4%	N/A	46
CHO6	Dublin South	2098	1884	89.8%	N/A	4
	Dublin South East	1398	1238	88.6%	N/A	7
	Wicklow	1735	1482	85.4%	N/A	7
	CHO6 Total	5231	4604	88.0%	N/A	18
CHO7	Dublin South City	1549	1386	89.5%	N/A	3
	Dublin South West	1756	1428	81.3%	N/A	6
	Dublin West	2191	1800	82.2%	N/A	14
	Kildare/West	3769	3314	87.9%	N/A	2
	CHO7 Total	9265	7928	85.6%	N/A	25
CHO8	Laois/Offaly	2297	2072	90.2%	N/A	2
	Longford/Westmeath	2160	1978	91.6%	N/A	2
	Louth	2231	1881	84.3%	N/A	8
	Meath	2835	2533	89.3%	N/A	14
CHO8 Total	9523	8464	88.9%	N/A	26	
CHO9	Dublin North West	2720	2176	80.0%	N/A	16
	Dublin North Central	1585	1244	78.5%	N/A	10
	Dublin North	3194	2664	83.4%	N/A	5
	CHO9 Total	7499	6084	81.1%	N/A	31
Home schooled		78	13	16.7%	N/A	0
Total of LHOs and home schooled		65647	57367	87.4%	N/A	344
Out of School		N/A	1	N/A	N/A	0
Total of LHOs, home schooled and Out of School		N/A	57368	N/A	N/A	344

*Age equivalents are those born between 01/09/2005 and 31/08/2006

N/A-Not applicable

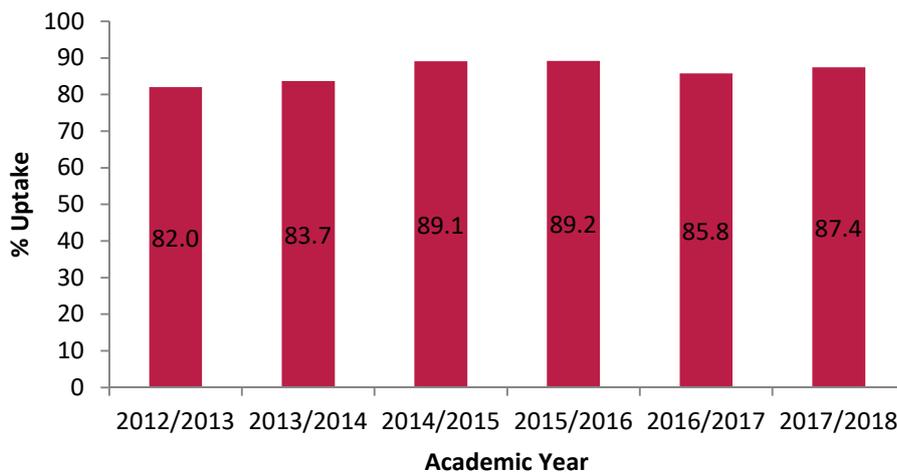
Please see the section of this report labelled 'Terminology used in this report' for further information on the terms used in this table and report.

Figure 5. Uptake (%) of Tdap, among first years of second level schools and their age equivalents in special schools, by Local Health Office in the academic year 2017/2018



Data were extracted from the School Immunisation System on the 02/07/2019. LHOs in Dublin are highlighted separately for ease of viewing. Please see table 4 to translate LHO abbreviations.

Figure 6. Uptake (%) of Tdap by vaccine by academic year among first years of second level schools and their age equivalents in special schools and home schooled.



2012/2013 and 2013/2014 data are based on data reported by 29 and 31 LHOs, respectively, out of a total of 32 LHOs.

Table 4. Local Health Office (LHO) abbreviations used in this report

Local Health Office Abbreviations	Local Health Office
CE	Clare
CN/MN	Cavan/Monaghan
CW/KK	Carlow/Kilkenny
DL	Donegal
DN	Dublin North
DNC	Dublin North Central
DNW	Dublin North West
DS	Dublin South
DSC	Dublin South City
DSE	Dublin South East
DSW	Dublin South West
DW	Dublin West
G	Galway
KE/WW	Kildare/West Wicklow
KY	Kerry
L	Limerick
LD/WD	Longford/Westmeath
LH	Louth
LS/OY	Laois/Offaly
MH	Meath
MO	Mayo
NC	North Cork
NL	North Lee-Cork
RN	Roscommon
SL	South Lee-Cork
SO/LM	Sligo/Leitrim
TN/EL	Tipperary North /East Limerick
TS	South Tipperary
WC	West Cork
WD	Waterford
WX	Wexford
WW	Wicklow

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