



Health Protection Surveillance Centre

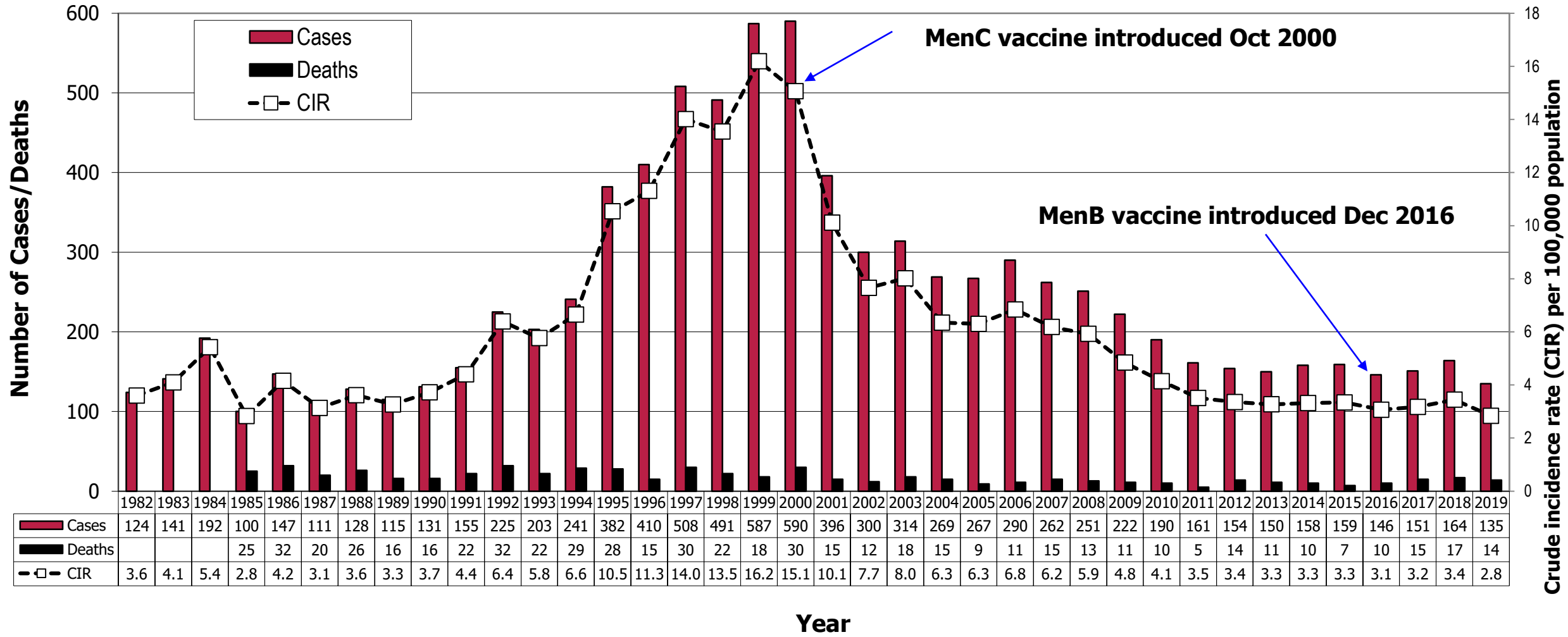
**Bacterial/Viral Meningitis & *Haemophilus influenzae* Trends in Ireland**

Updated 22/October/2020

- **Sections**
- Bacterial meningitis – Overview
- Invasive Meningococcal Disease (IMD)
- Viral meningitis, NOS (not otherwise specified)
- *Haemophilus influenzae*

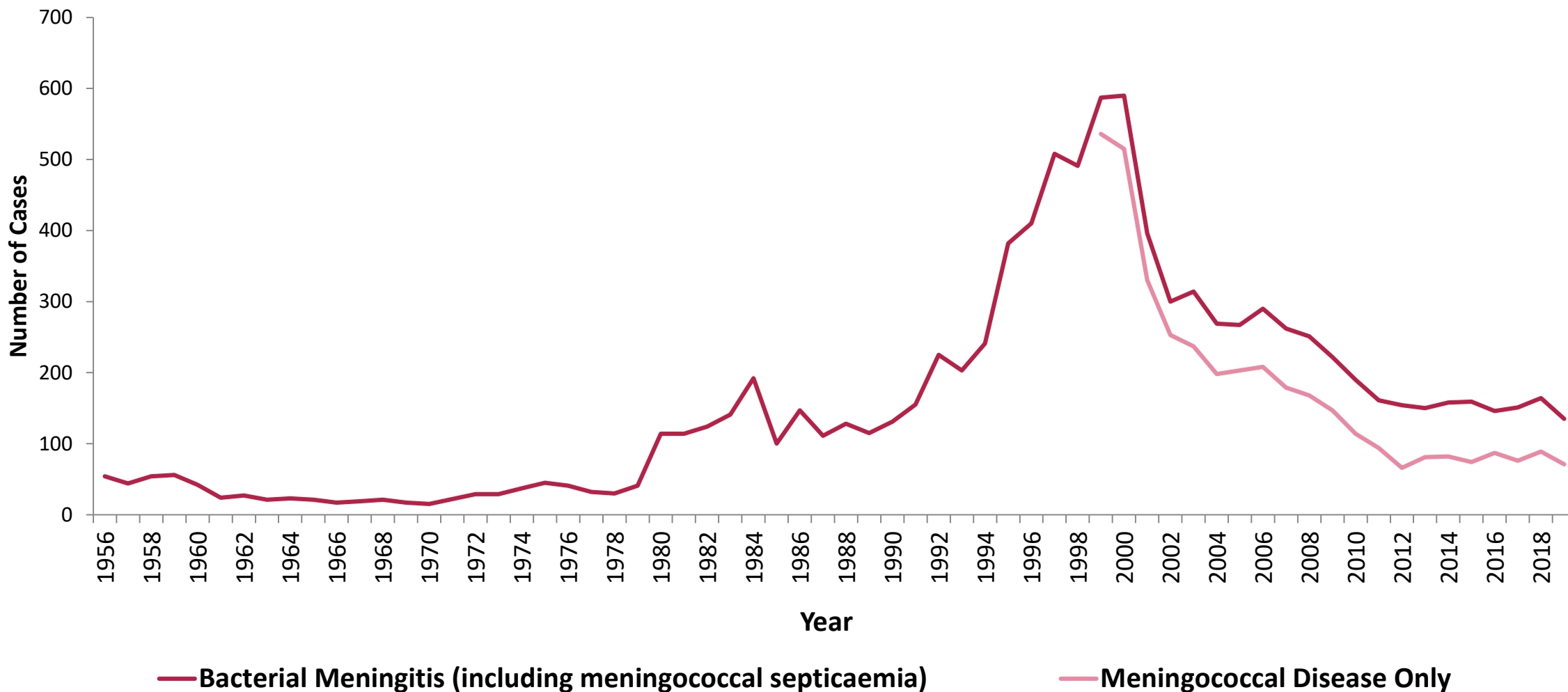
# **Bacterial meningitis – Overview**

# Notifications & Deaths from Bacterial Meningitis (incl. meningococcal septicaemia), 1982-2019\*



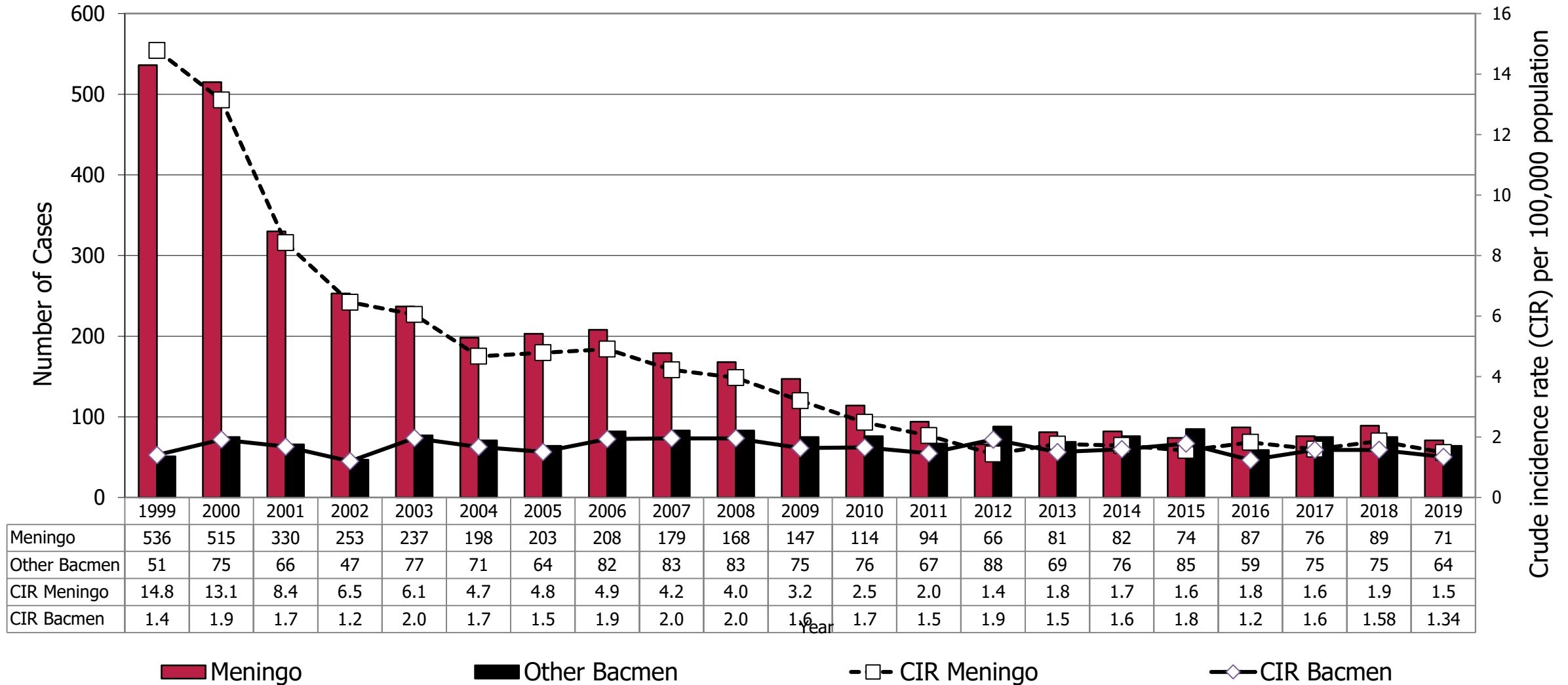
\*2018-2019 Tuberculosis meningitis data provisional

# Notifications Bacterial Meningitis (incl. meningococcal septicaemia), 1956-2019\*



\*2018-2019 Tuberculosis meningitis data provisional

# IMD & Other Bacterial Meningitis Cases & Incidence Rates 1999-2019\*



\*2018-2019 Tuberculosis meningitis data provisional; CIR-crude incidence rate per 100,000

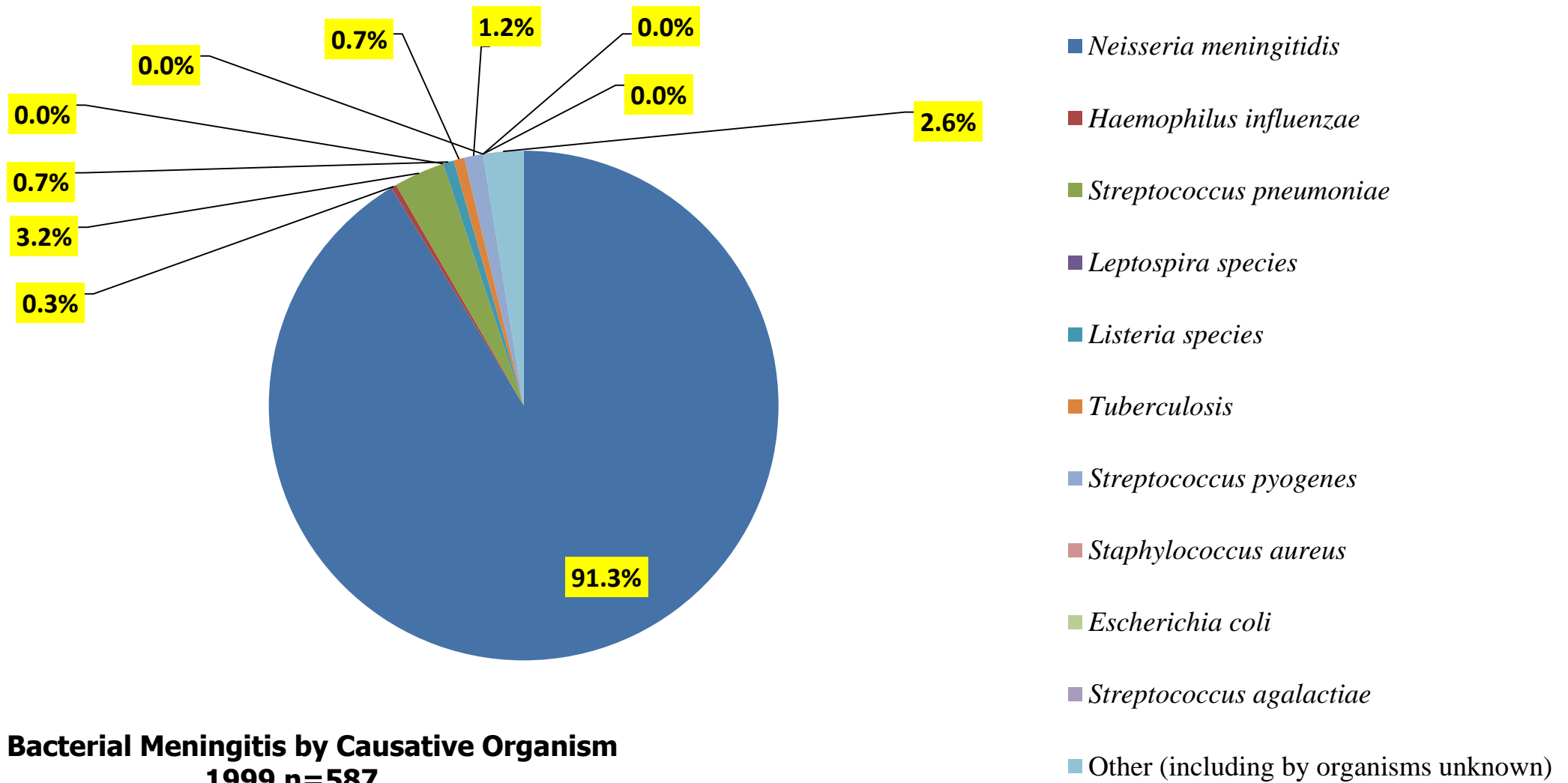
# Bacterial Meningitis-Related Notifications, 1999-2019\*



Organism	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2019-1999 % Change
<i>Neisseria meningitidis</i>	536	515	330	253	237	198	203	208	179	168	147	114	94	66	81	82	74	87	76	89	71	-86.8
<i>Haemophilus influenzae</i>	2	6	2	3	7	4	9	4	2	3	3	2	4	3	2	7	5	1	1	4	2	0.0
<i>Streptococcus pneumoniae</i>	19	25	20	15	25	22	19	24	35	27	22	16	23	37	33	39	32	37	37	40	28	47.4
Leptospira species	0	0	0	0	0	1	0	1	1	2	1	0	1	1	0	0	0	0	1	0	0	0.0
Listeria species	0	1	2	0	2	2	1	2	3	3	1	3	2	2	2	1	6	4	2	3	5	-
Tuberculosis	7	6	2	6	8	6	5	4	9	6	7	11	2	4	3	1	2	0	1	3	2	-71.4
<i>Streptococcus pyogenes</i>	0	0	0	0	0	0	1	1	0	2	0	2	0	1	3	0	4	0	2	0	1	-
<i>Staphylococcus aureus</i>	0	1	0	1	0	0	1	1	0	4	2	6	2	1	0	0	1	0	0	1	1	-
<i>Escherichia coli</i>	4	2	3	0	4	1	0	4	0	11	3	2	1	7	4	8	15	4	14	6	9	125.0
<i>Streptococcus agalactiae</i>	4	3	3	2	2	6	5	5	9	6	7	11	16	11	6	6	4	2	6	9	7	75.0
Other (including by organisms unknown)	15	31	34	20	29	29	23	36	24	19	29	23	16	21	16	14	16	11	11	9	9	-40.0
<b>Total</b>	<b>587</b>	<b>590</b>	<b>396</b>	<b>300</b>	<b>314</b>	<b>269</b>	<b>267</b>	<b>290</b>	<b>262</b>	<b>251</b>	<b>222</b>	<b>190</b>	<b>161</b>	<b>154</b>	<b>150</b>	<b>158</b>	<b>159</b>	<b>146</b>	<b>151</b>	<b>164</b>	<b>135</b>	<b>-77.0</b>

\*2018-2019 Tuberculosis meningitis data provisional

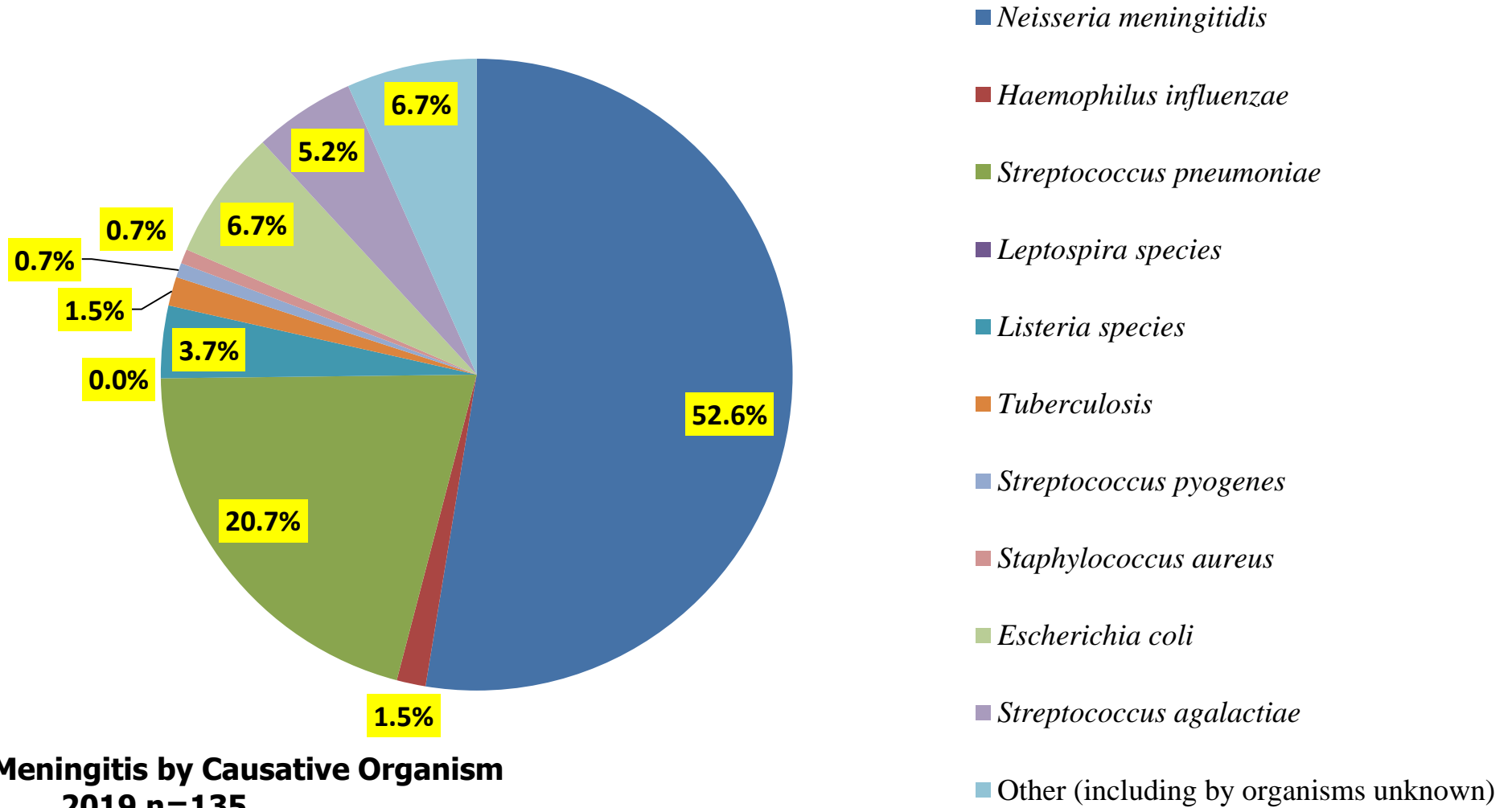
# Bacterial Meningitis Notifications, 1999



**% Bacterial Meningitis by Causative Organism  
1999 n=587**



# Bacterial Meningitis Notifications, 2019



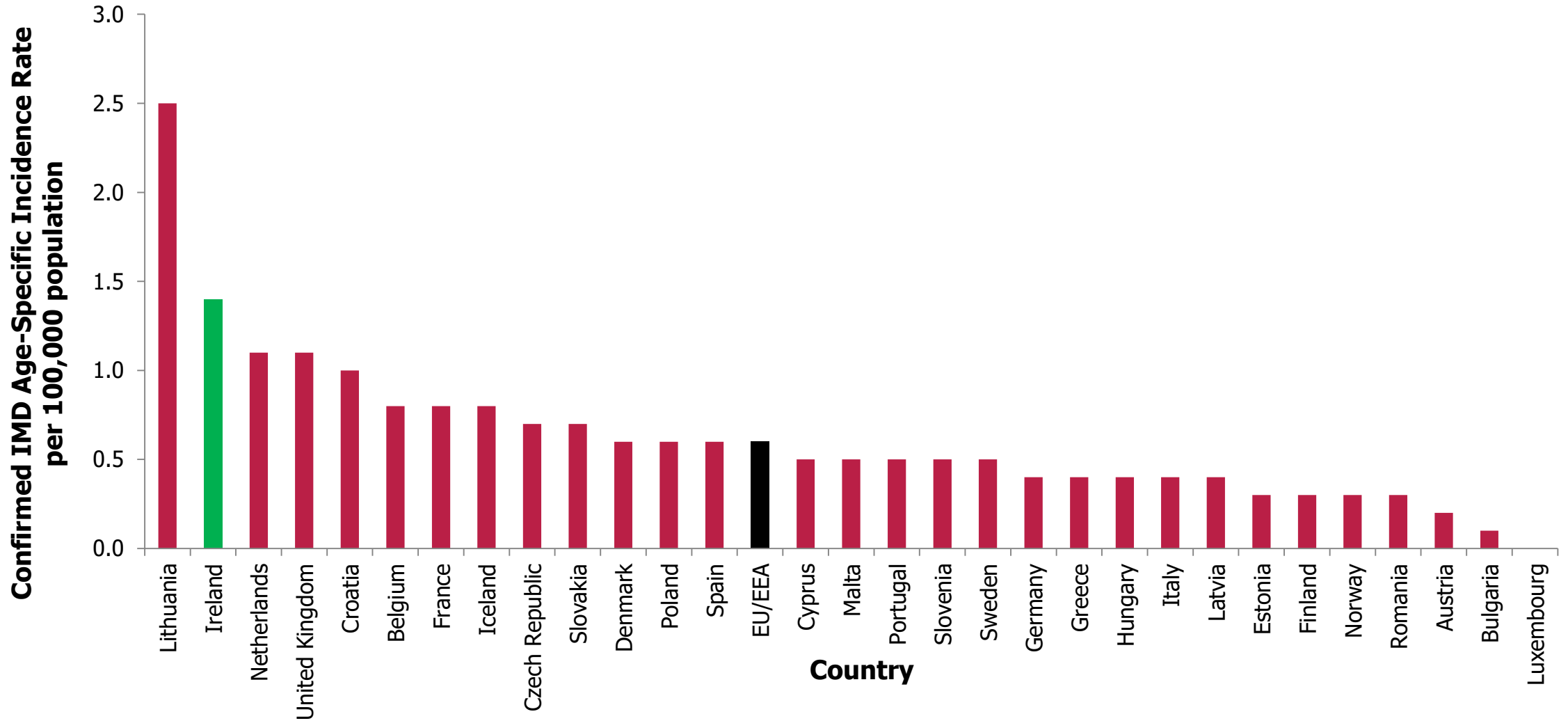
**% Bacterial Meningitis by Causative Organism  
2019 n=135**

# **Invasive Meningococcal Disease (IMD)**

# Rates of invasive meningococcal disease reported cases, EU/EEA, 2017



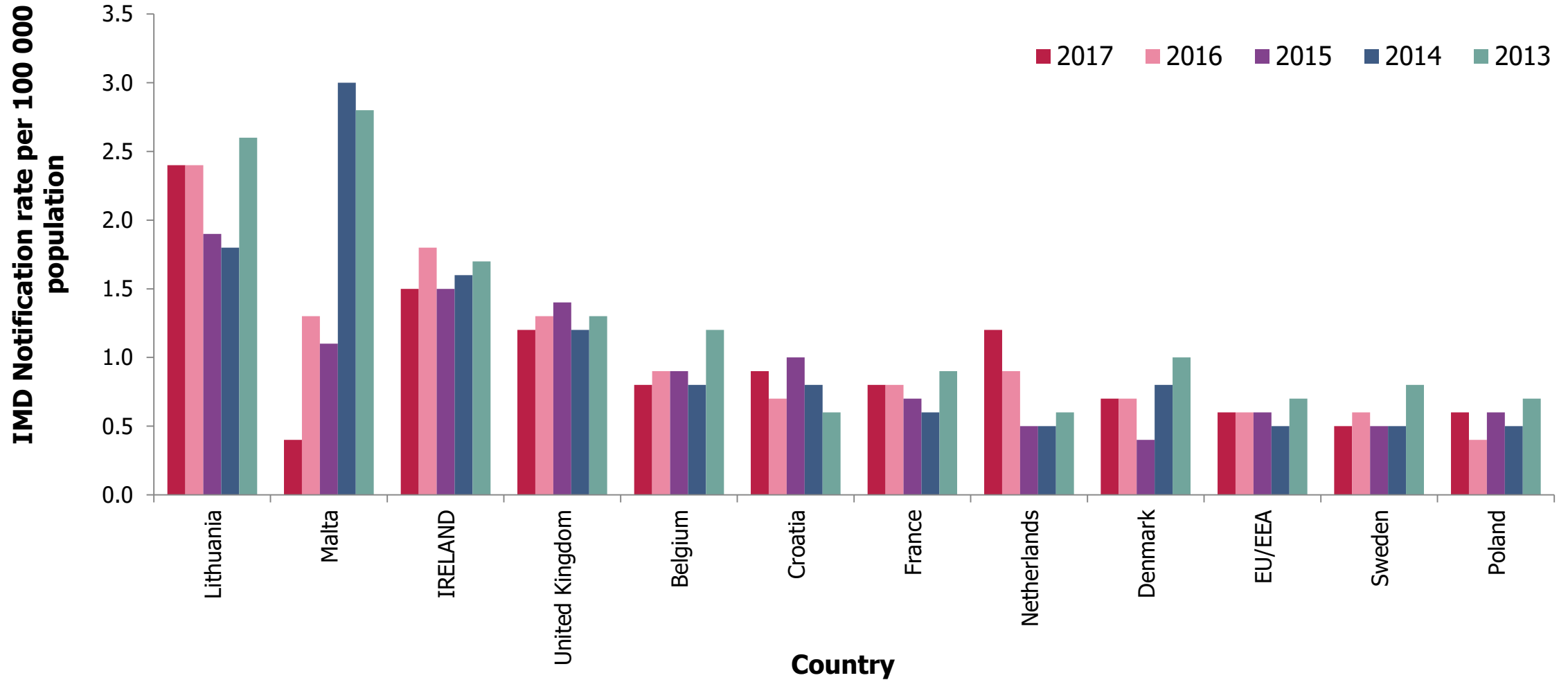
Source: [https://ecdc.europa.eu/sites/portal/files/documents/AER\\_for\\_2017-invasive-meningococcal-disease.pdf](https://ecdc.europa.eu/sites/portal/files/documents/AER_for_2017-invasive-meningococcal-disease.pdf)  
<https://www.ecdc.europa.eu/en/annual-epidemiological-reports>



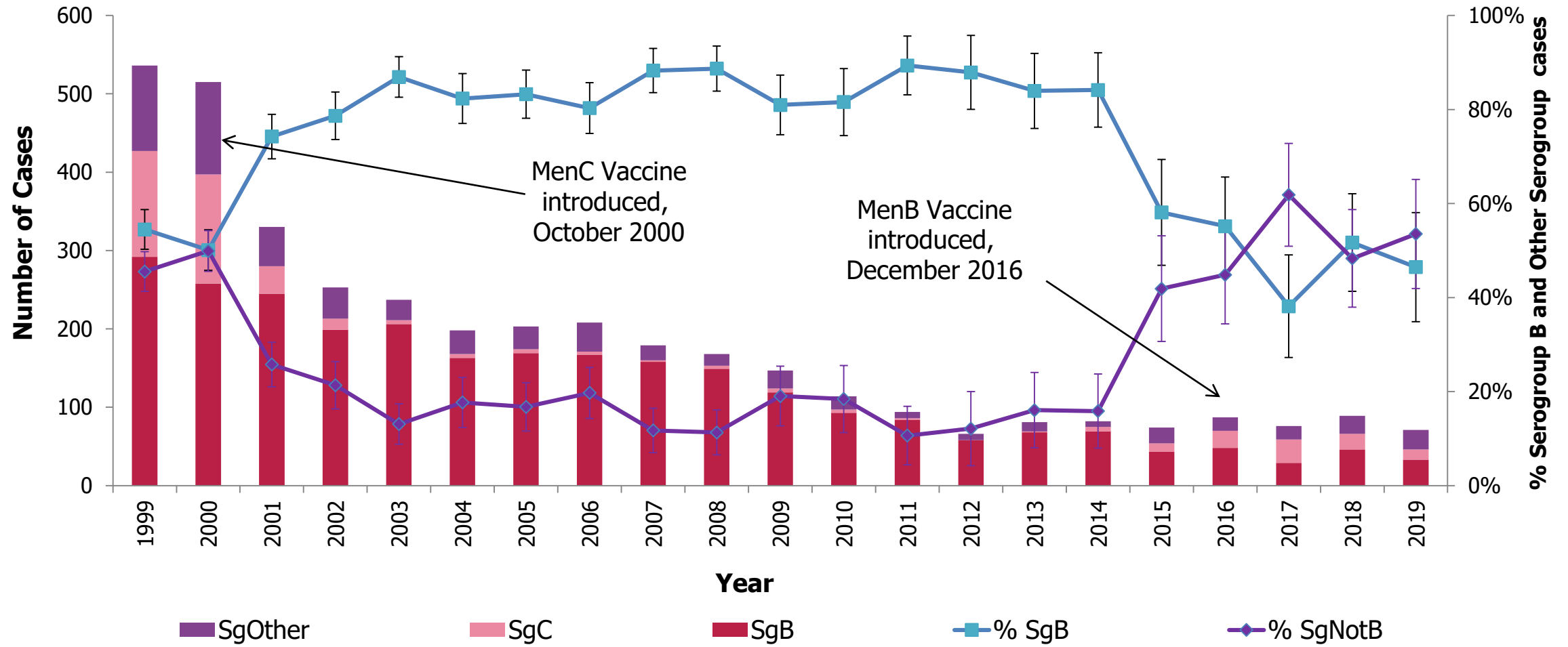
# Selected rates of invasive meningococcal disease reported cases, 2013-2017 in Europe



Source: [https://ecdc.europa.eu/sites/portal/files/documents/AER\\_for\\_2017-invasive-meningococcal-disease.pdf](https://ecdc.europa.eu/sites/portal/files/documents/AER_for_2017-invasive-meningococcal-disease.pdf)  
<https://www.ecdc.europa.eu/en/annual-epidemiological-reports>



# IMD by Serogroup, 1999-2019



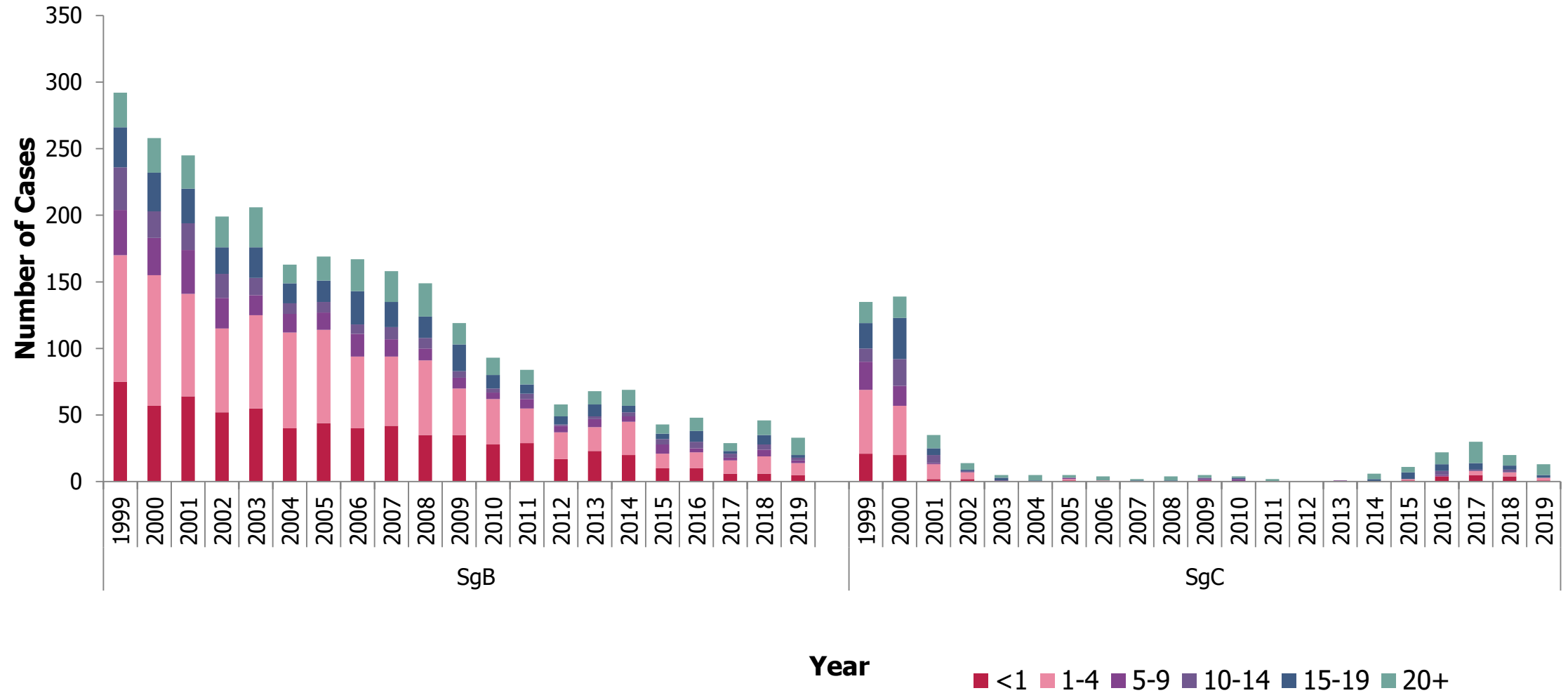
# Annual Number of IMD Cases by Serogroup, 1999-2019



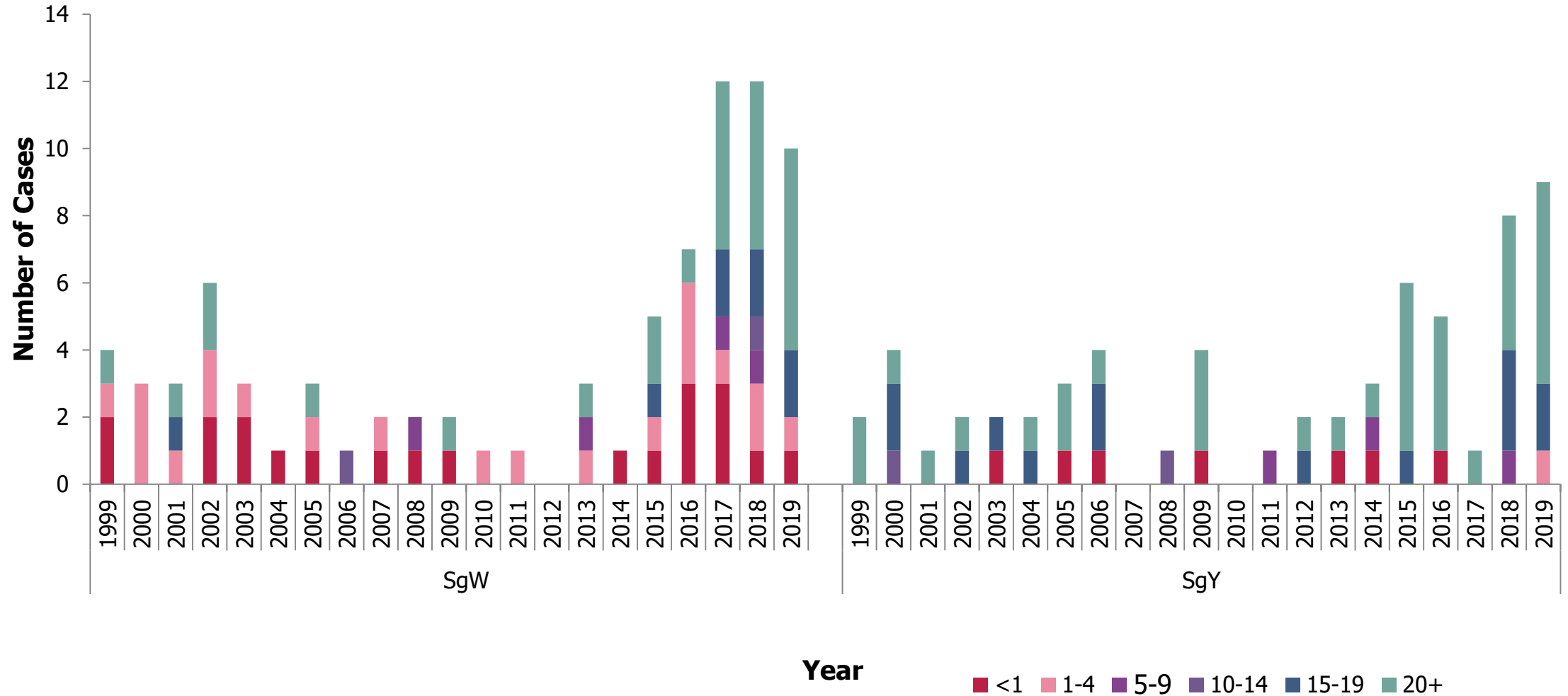
Year	SgB	SgC	SgW	SgY	SgNG	Sg29E	No serogroup detected	Total	% B	% C	% Other**
1999	292	135	4	2	12	0	91	536	54.5%	25.2%	20.3%
2000	258	139	3	4	6	0	105	515	50.1%	27.0%	22.9%
2001	245	35	3	1	7	0	39	330	74.2%	10.6%	15.2%
2002	199	14	6	2	1	0	31	253	78.7%	5.5%	15.8%
2003	206	5	3	2	4	0	17	237	86.9%	2.1%	11.0%
2004	163	5	1	2	1	0	26	198	82.3%	2.5%	15.2%
2005	169	5	3	3	2	0	21	203	83.3%	2.5%	14.3%
2006	167	4	1	4	1	0	31	208	80.3%	1.9%	17.8%
2007	158	2	2	0	0	0	17	179	88.3%	1.1%	10.6%
2008	149	4	2	1	1	0	11	168	88.7%	2.4%	8.9%
2009	119	5	2	4	0	0	17	147	81.0%	3.4%	15.6%
2010	93	4	1	0	0	0	16	114	81.6%	3.5%	14.9%
2011	84	2	1	1	0	0	6	94	89.4%	2.1%	8.5%
2012	58	0	0	2	0	0	6	66	87.9%	0.0%	12.1%
2013	68	1	3	2	0	0	7	81	84.0%	1.2%	14.8%
2014	69	6	1	3	1	0	2	82	84.1%	7.3%	8.5%
2015	43	11	5	6	1	1	7	74	58.1%	14.9%	27.0%
2016	48	22	7	5	1	0	4	87	55.2%	25.3%	19.5%
2017	29	30	12	1	1	1	2	76	38.2%	39.5%	22.4%
2018	46	20	12	8	0	0	3	89	51.7%	22.5%	25.8%
2019	33	13	10	9	0	0	6	71	46.5%	18.3%	35.2%

\*\* Other includes serogroups W135, Y, NG, 29E, and no serogroup detected

# Number of Serogroup B and C cases, 1999-2019

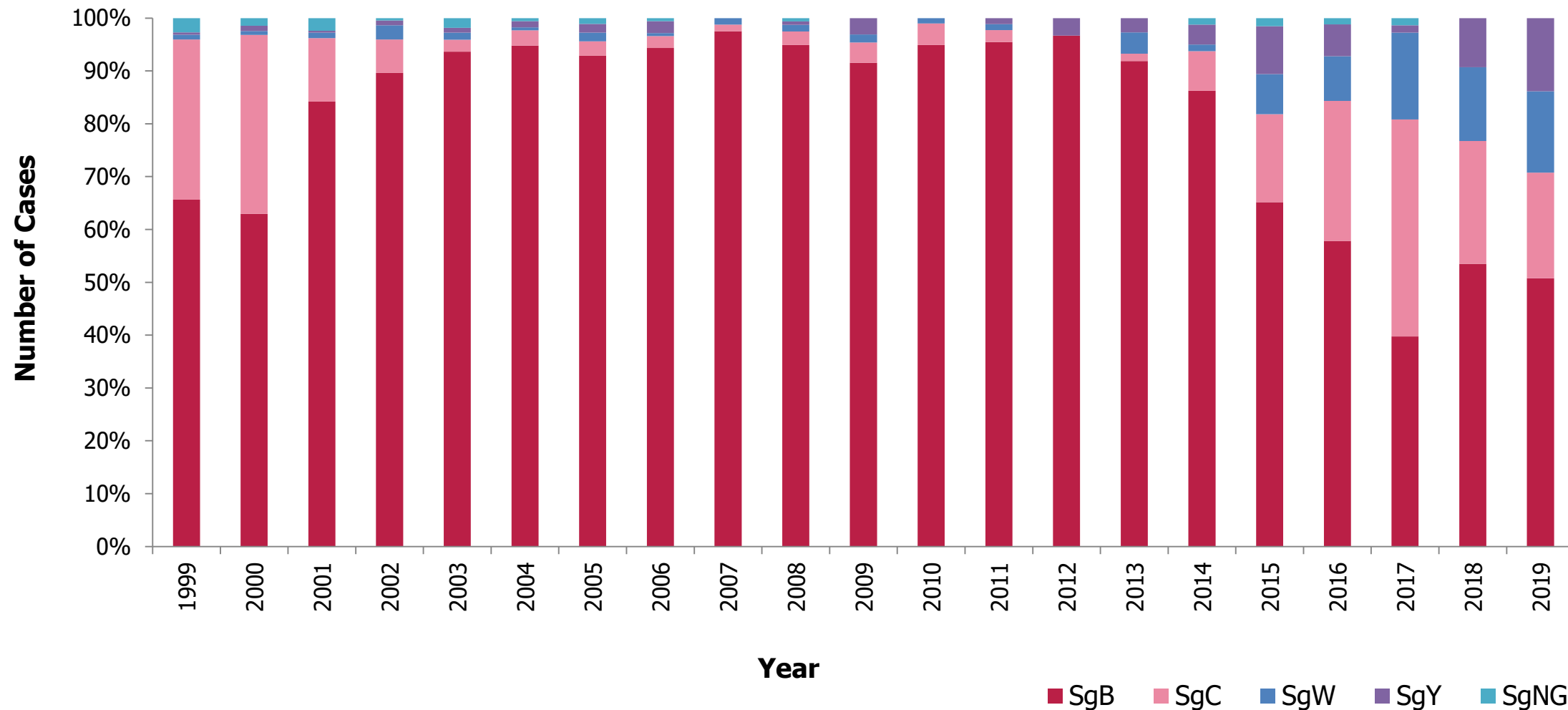


# Number of Serogroup W and Y cases, 1999-2019

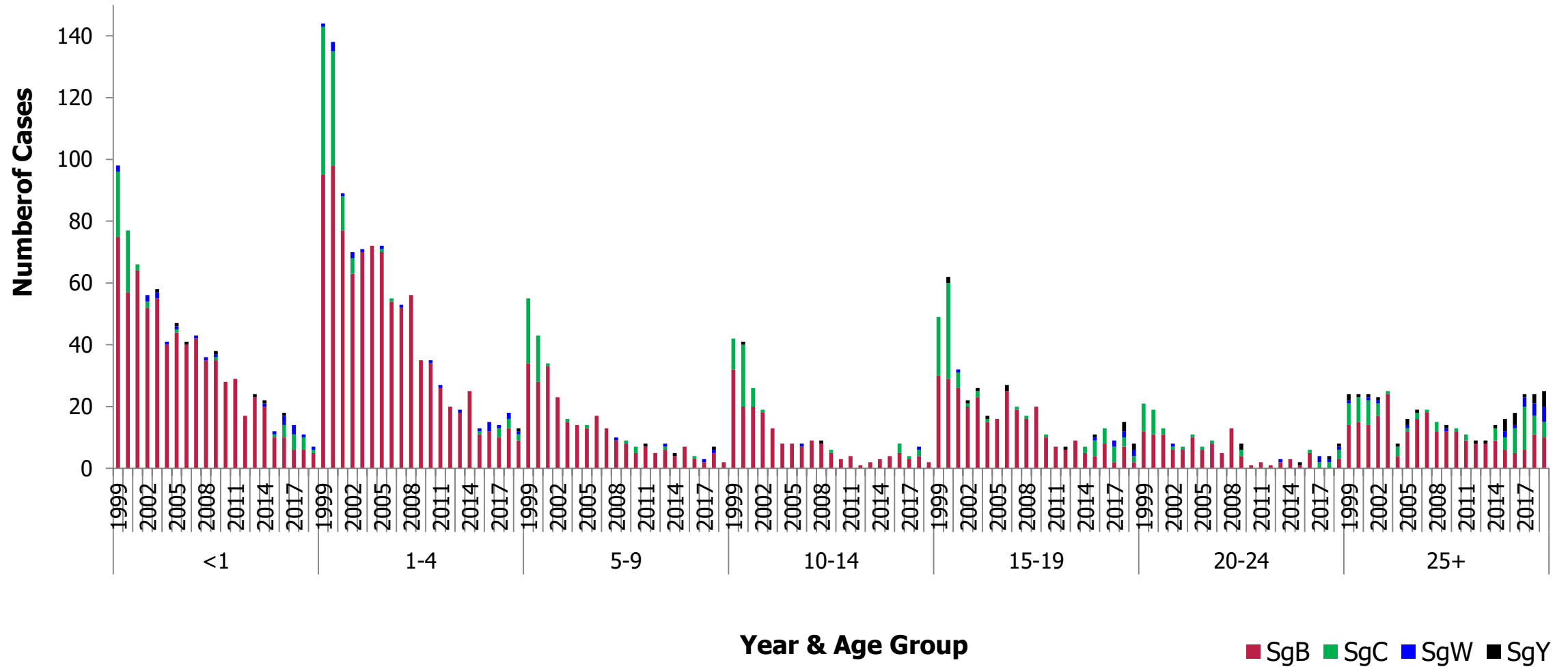




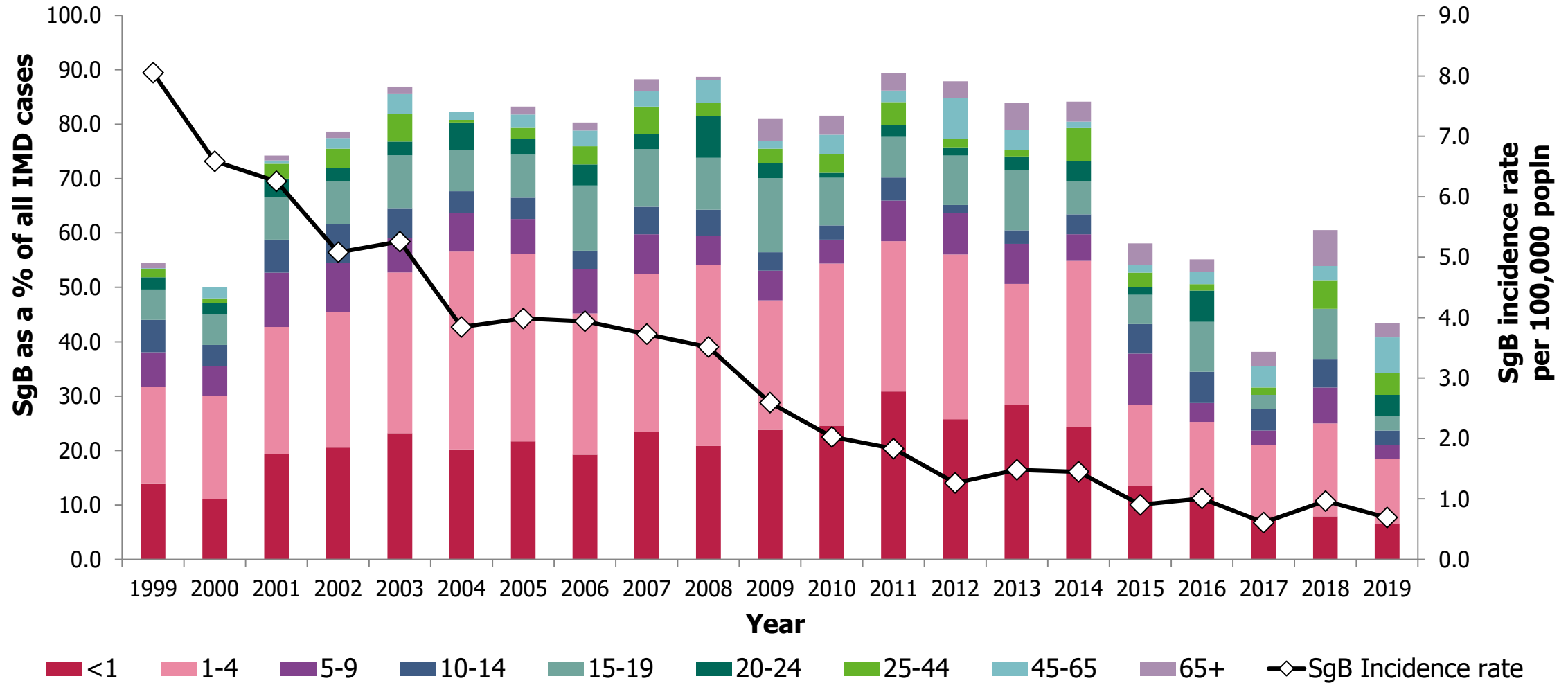
# Percentage of IMD cases by Serogroup & Year, 1999-2019



# IMD Cases by Age Group & Year, 1999-2019

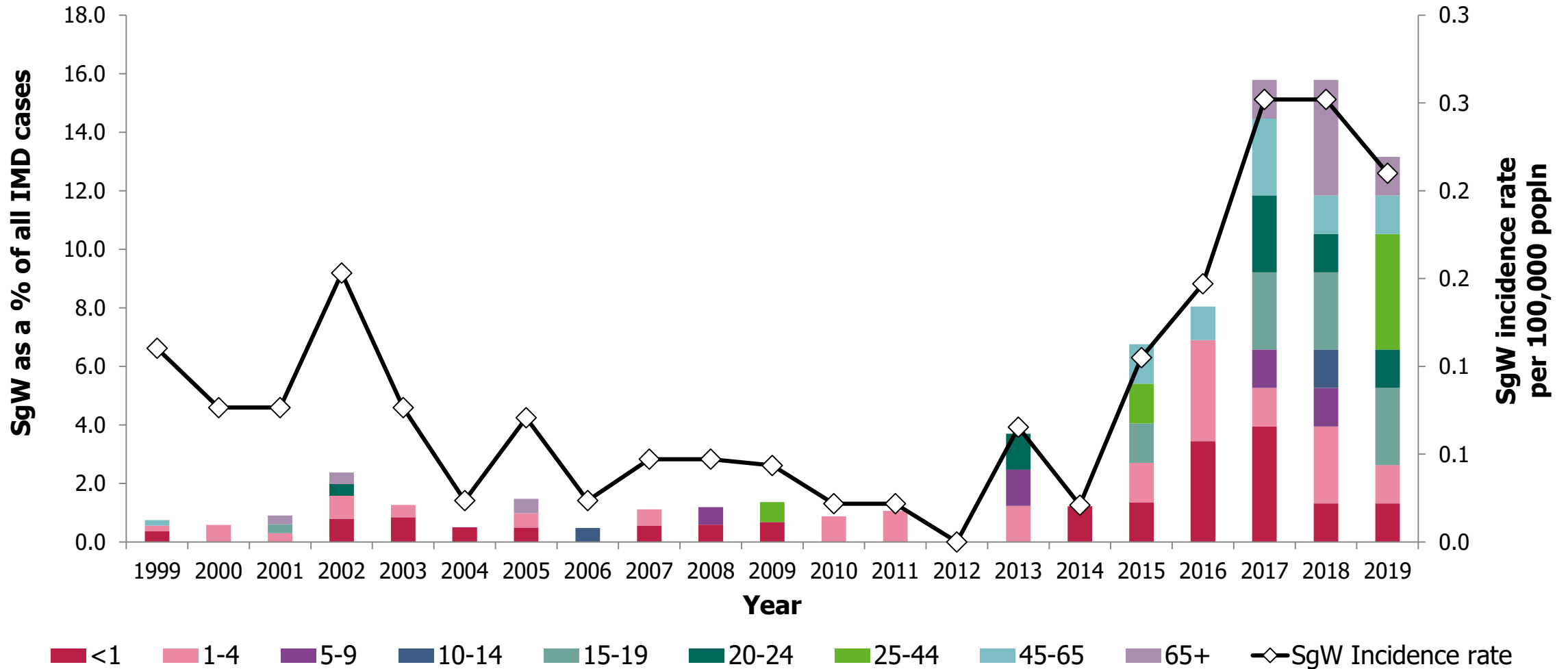


# MenB Cases as a % of All IMD Cases, 1999-2019

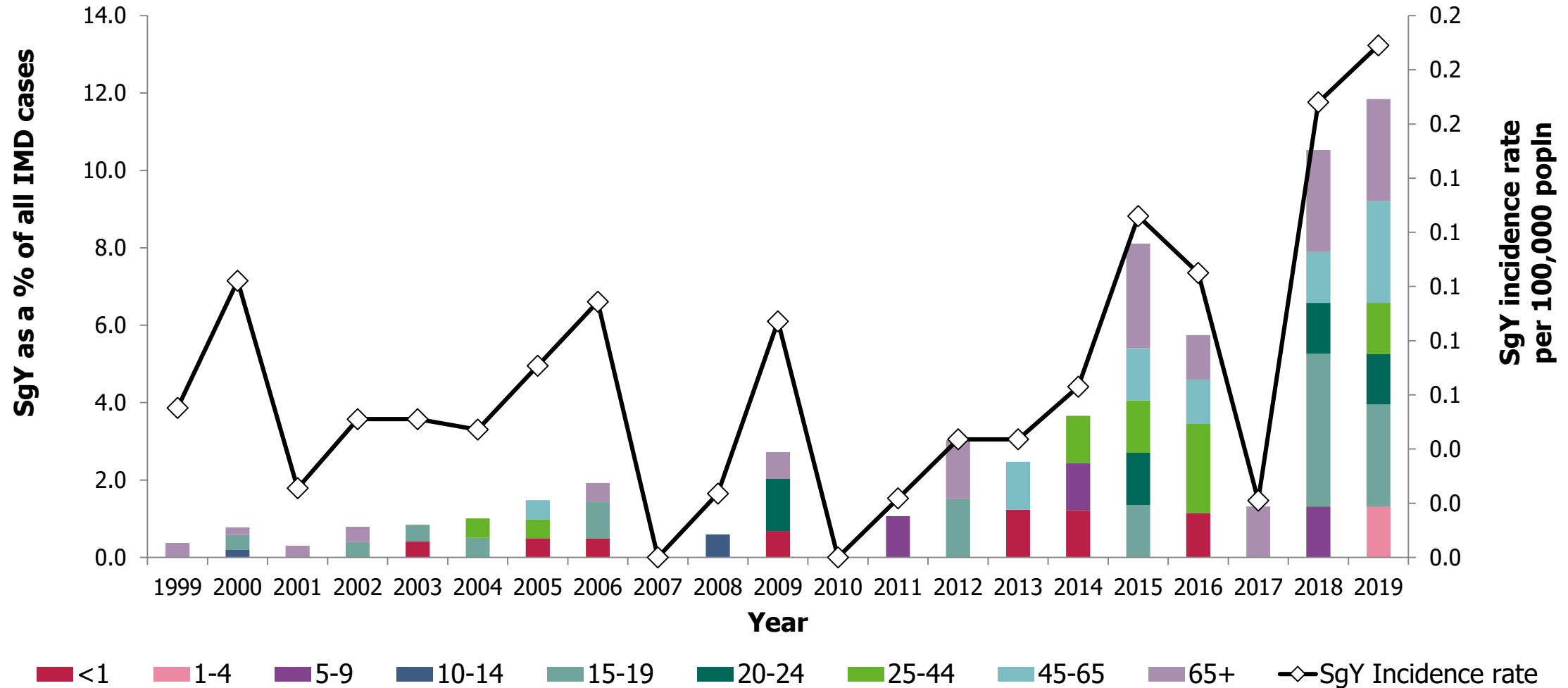




# MenW Cases as a % of All IMD Cases, 1999-2019



# MenY Cases as a % of All IMD Cases, 1999-2019



## **Viral meningitis, NOS (not otherwise specified)**

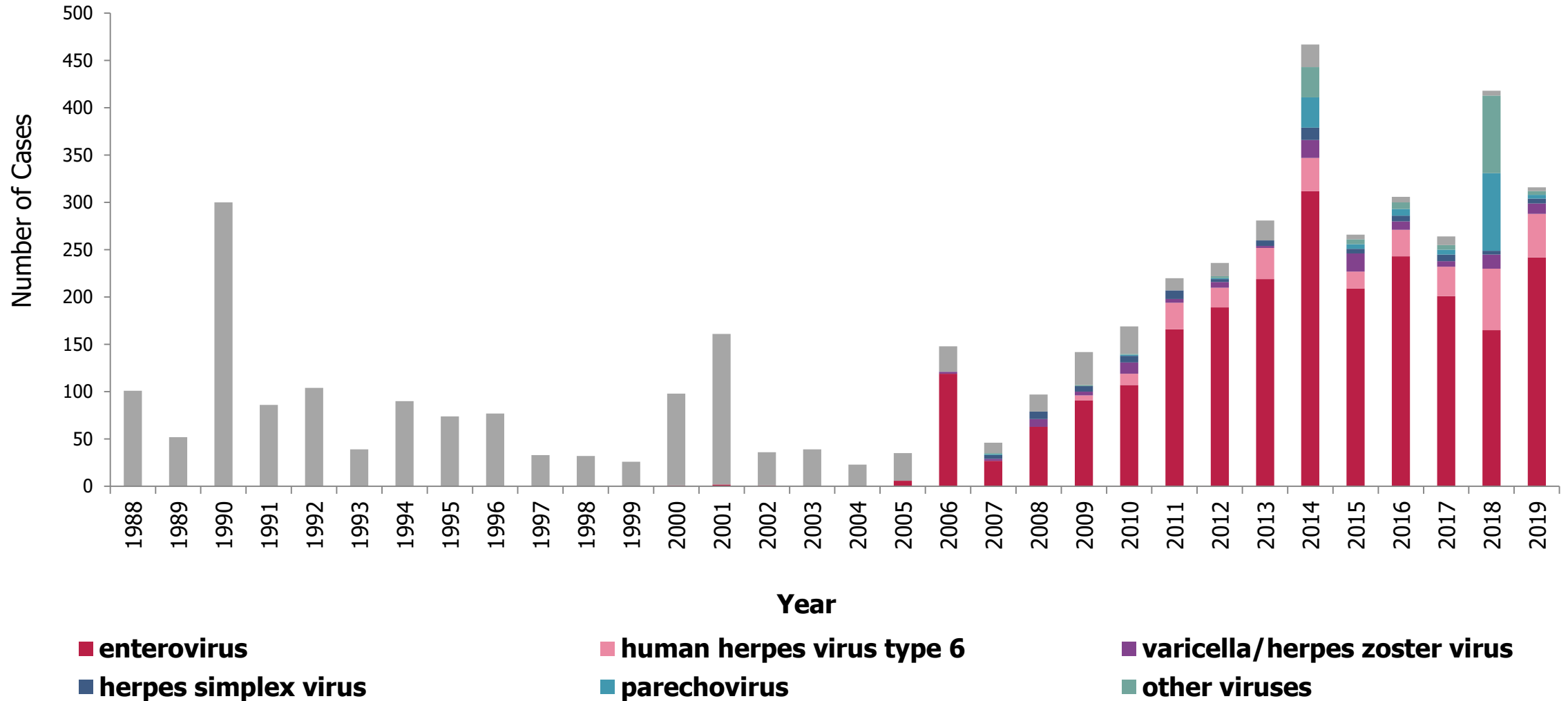
# Viral Meningitis, NOS, Notifications, 1999-2019



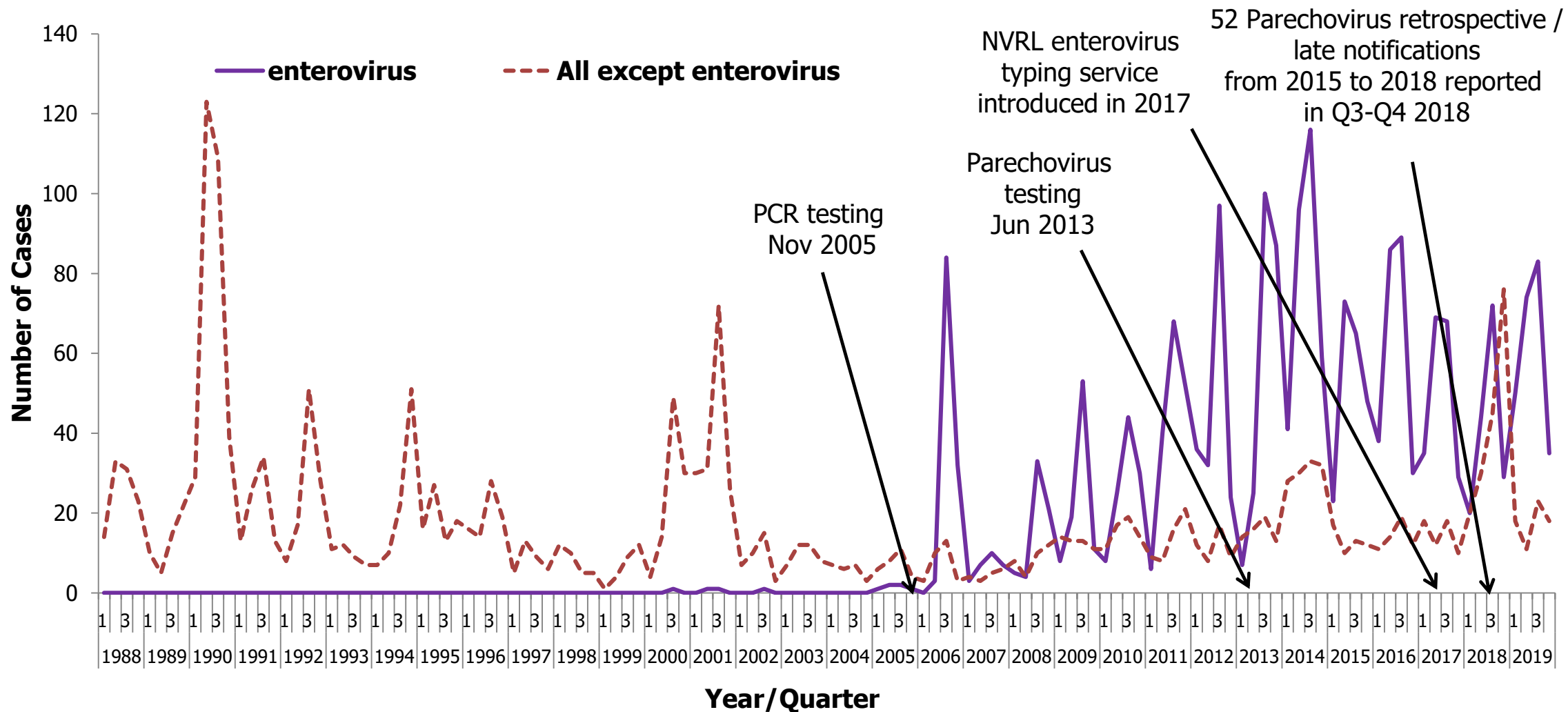
Organism	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2009-1999 % Change
Enterovirus	0	1	2	1	0	0	6	119	27	63	91	107	166	189	219	312	209	243	201	165	242	+165.9
Human Herpes virus type 6	0	0	0	0	0	0	0	0	0	0	5	12	28	21	33	35	18	28	31	65	46	+820.0
Varicella / herpes zoster virus	0	0	0	0	0	0	0	2	2	8	4	12	4	6	2	19	19	9	6	15	11	+175.0
Herpes simplex virus	0	0	0	0	0	0	0	0	4	8	6	7	9	3	6	13	5	6	7	4	5	-16.7
Parechovirus	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	32	5	7	5	82	4	-
Adenovirus	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	-
Not specified	26	97	159	35	39	23	29	27	11	18	35	29	13	14	21	24	5	6	9	5	4	-88.6
<b>Total</b>	<b>26</b>	<b>98</b>	<b>161</b>	<b>36</b>	<b>39</b>	<b>23</b>	<b>35</b>	<b>148</b>	<b>45</b>	<b>97</b>	<b>142</b>	<b>168</b>	<b>220</b>	<b>235</b>	<b>281</b>	<b>435</b>	<b>261</b>	<b>299</b>	<b>259</b>	<b>336</b>	<b>312</b>	<b>+119.7</b>



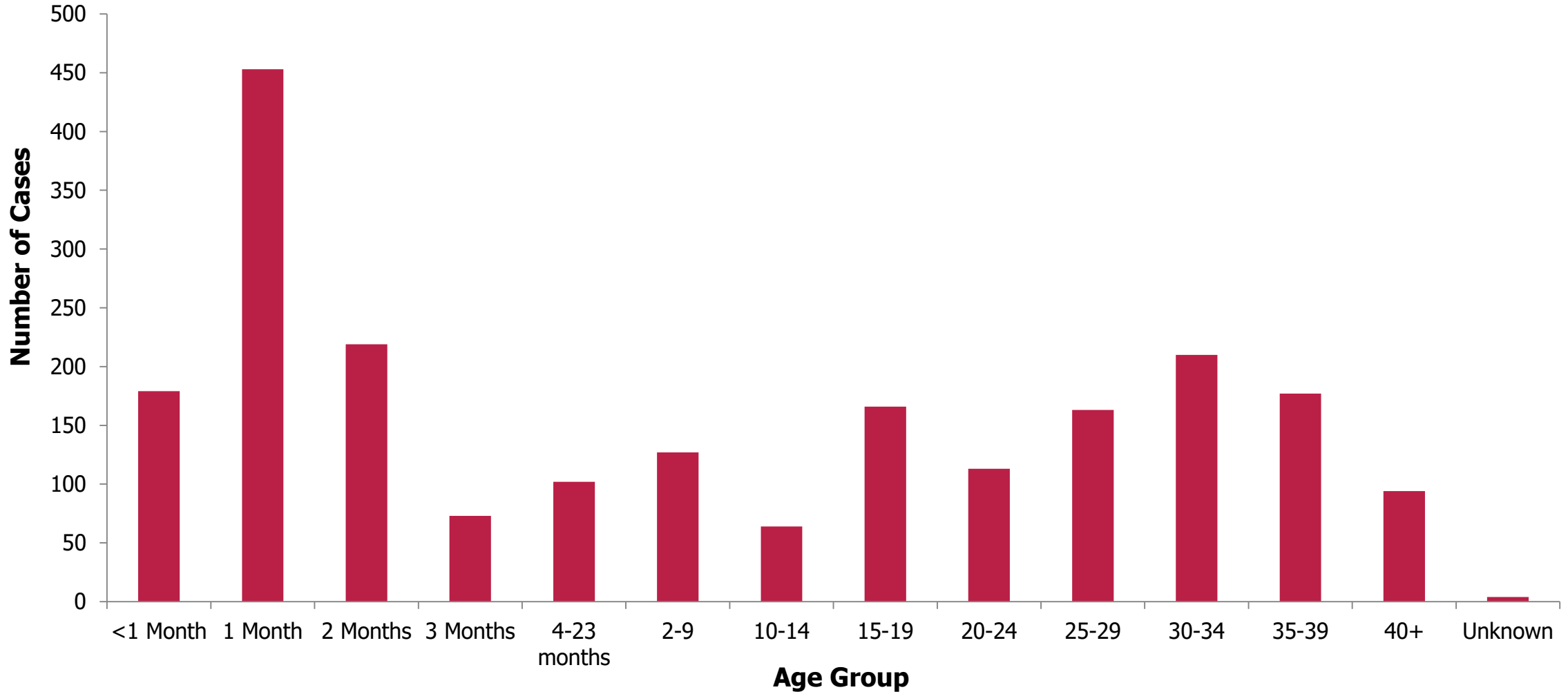
# Viral Meningitis (NOS) Cases by Causative Organism, 1988-2019



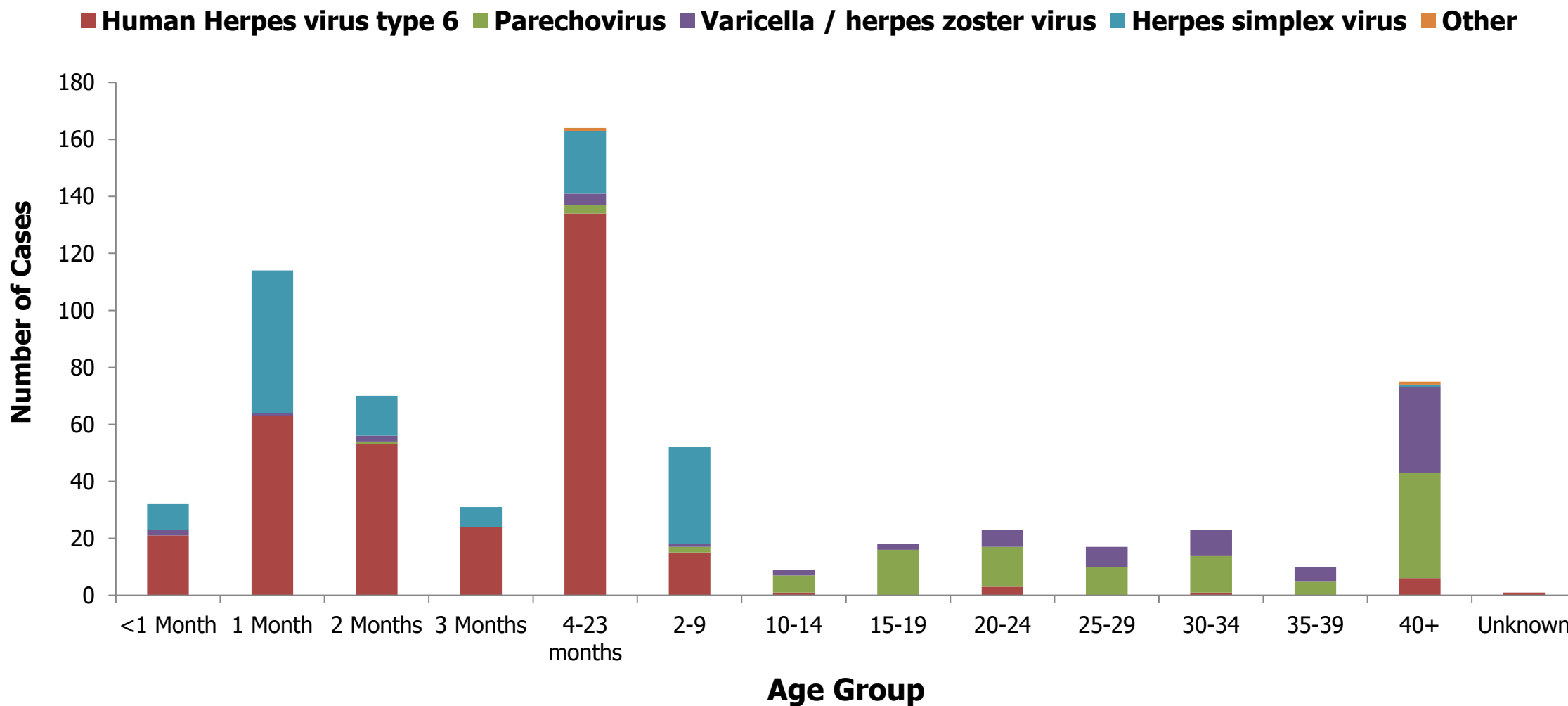
# Quarterly Number of Viral Meningitis (NOS) Cases, 1988-2019



# Enterovirus related Viral Meningitis (NOS) Cases by Age Group, 2009-2019 (n=2,144)



# Non-enterovirus related Viral Meningitis (NOS) Cases by Age Group, 2009-2019 (n=639)



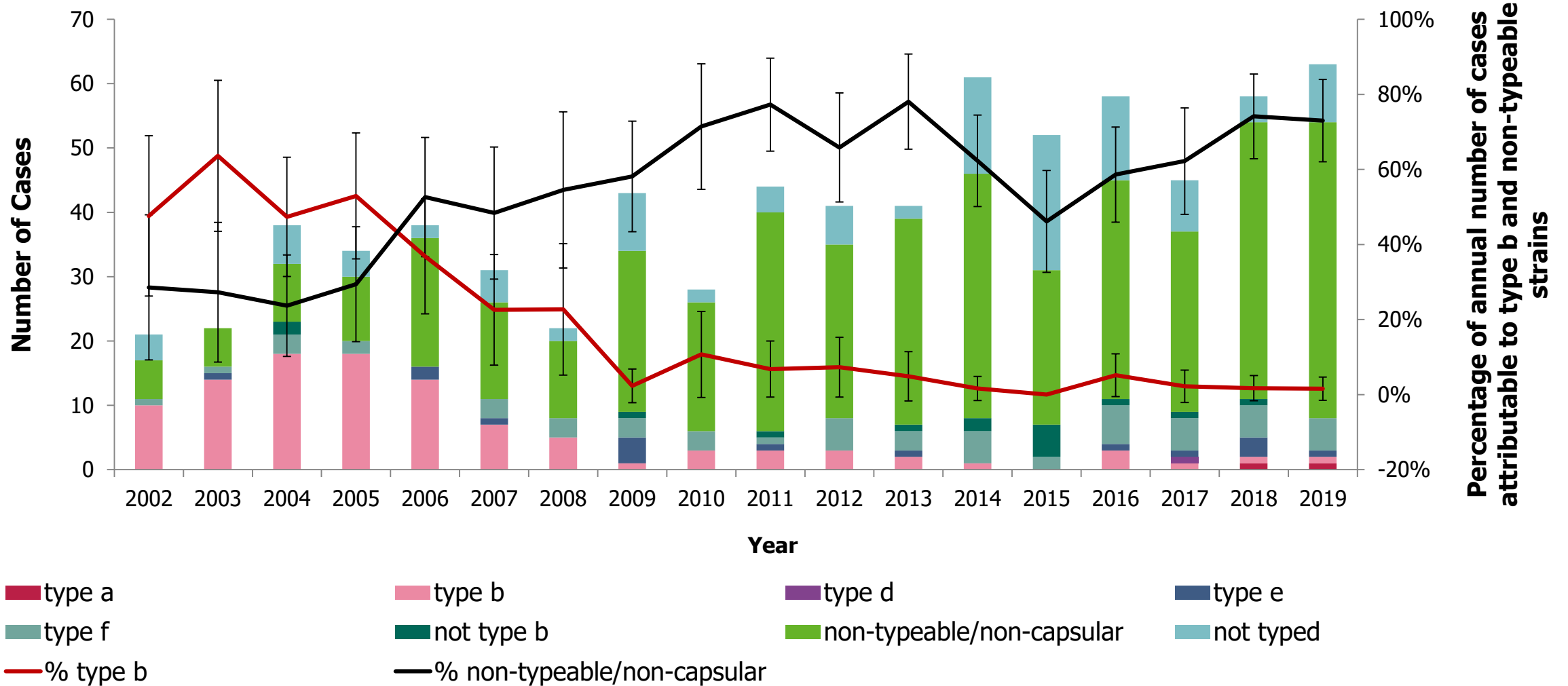
# **Invasive *Haemophilus influenzae***

# Haemophilus influenzae Notifications by Year & Type, 2002-2019

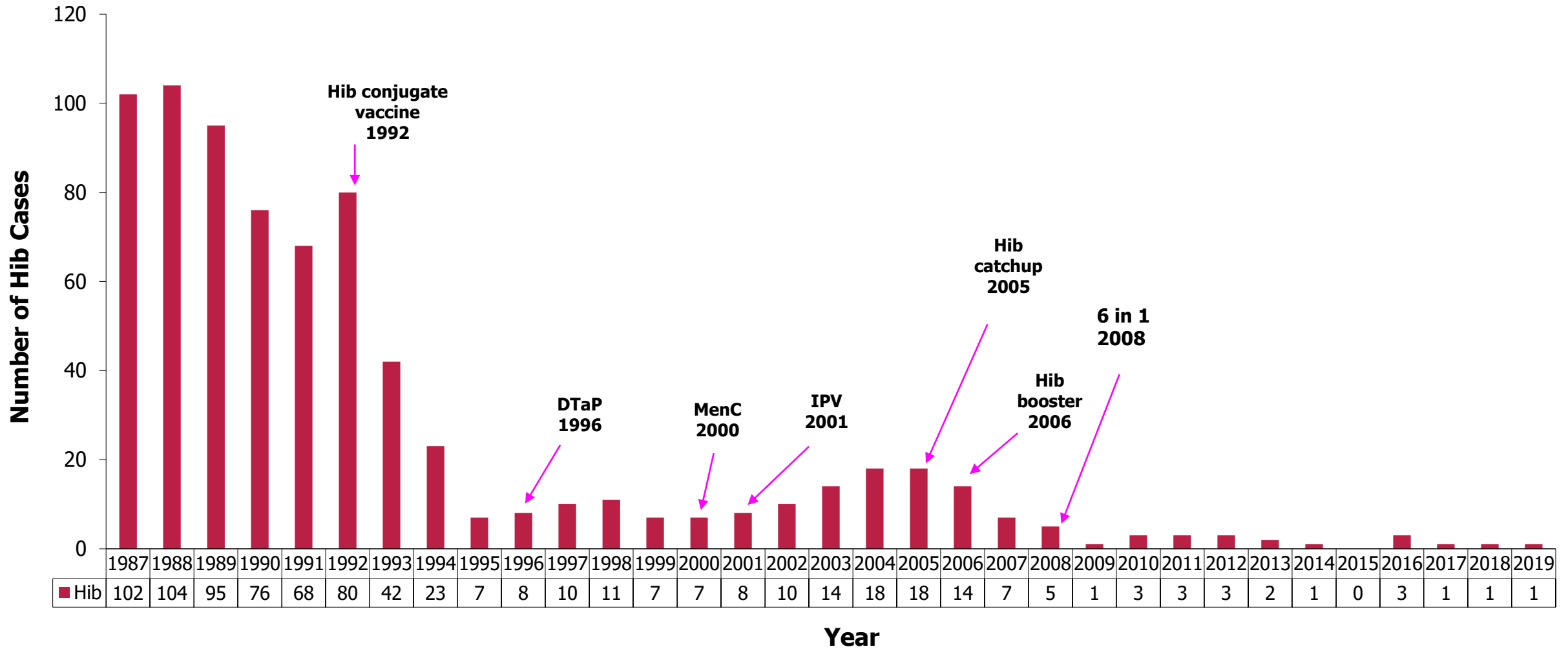


Organism	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
type a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
type b (HiB)	10	14	18	18	14	7	5	1	3	3	3	2	1	0	3	1	1	1
type d	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
type e	0	1	0	0	2	1	0	4	0	1	0	1	0	0	1	1	3	1
type f	1	1	3	2	0	3	3	3	3	1	5	3	5	2	6	5	5	5
not type b	0	0	2	0	0	0	0	1	0	1	0	1	2	5	1	1	1	0
non-typeable/non-capsular	6	6	9	10	20	15	12	25	20	34	27	32	38	24	34	28	43	46
not typed	4	0	6	4	2	5	2	9	2	4	6	2	15	21	13	8	4	9
<b>Total</b>	<b>21</b>	<b>22</b>	<b>38</b>	<b>34</b>	<b>38</b>	<b>31</b>	<b>22</b>	<b>43</b>	<b>28</b>	<b>44</b>	<b>41</b>	<b>41</b>	<b>61</b>	<b>52</b>	<b>58</b>	<b>45</b>	<b>58</b>	<b>63</b>

# Haemophilus influenzae Notifications by Year & Type, 2002-2019

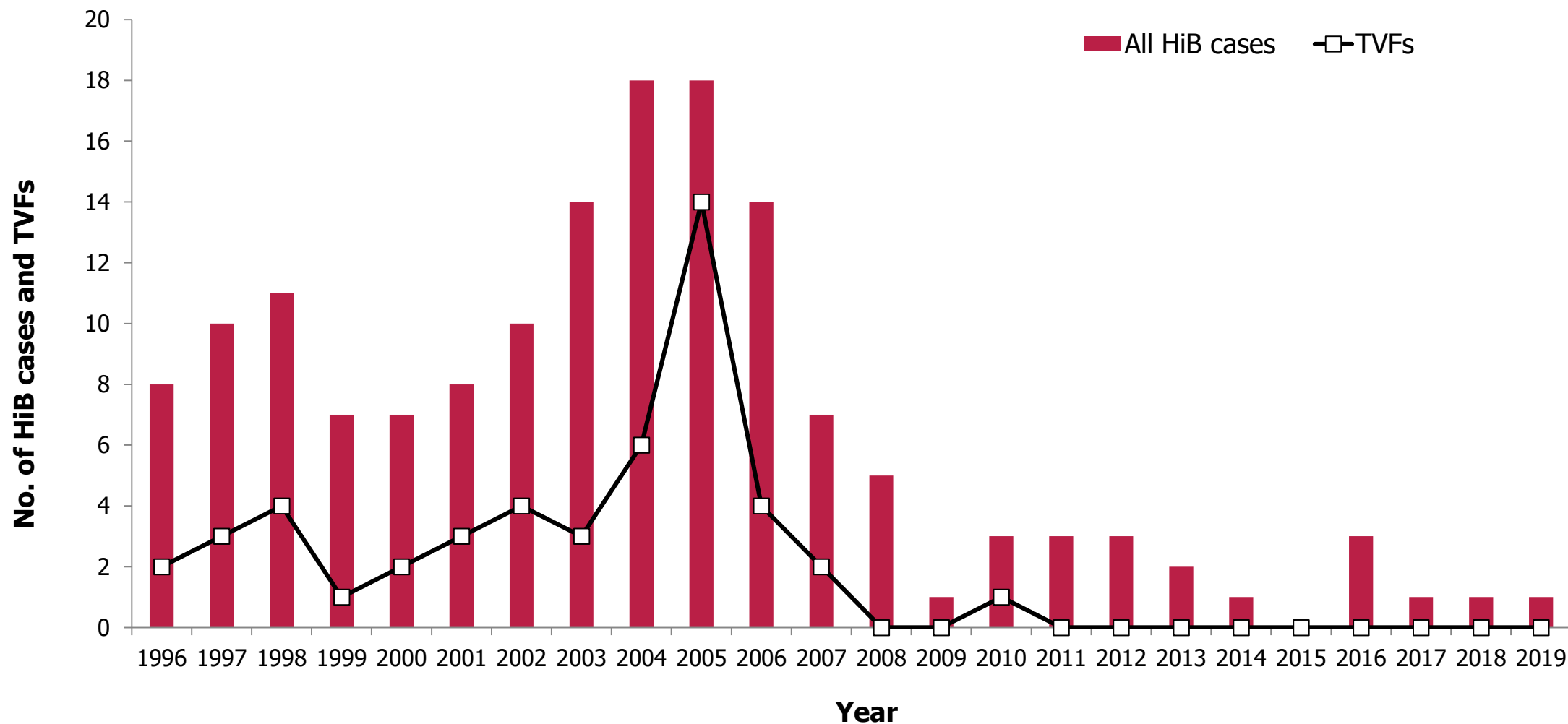


# Invasive HiB Cases, 1987-2019

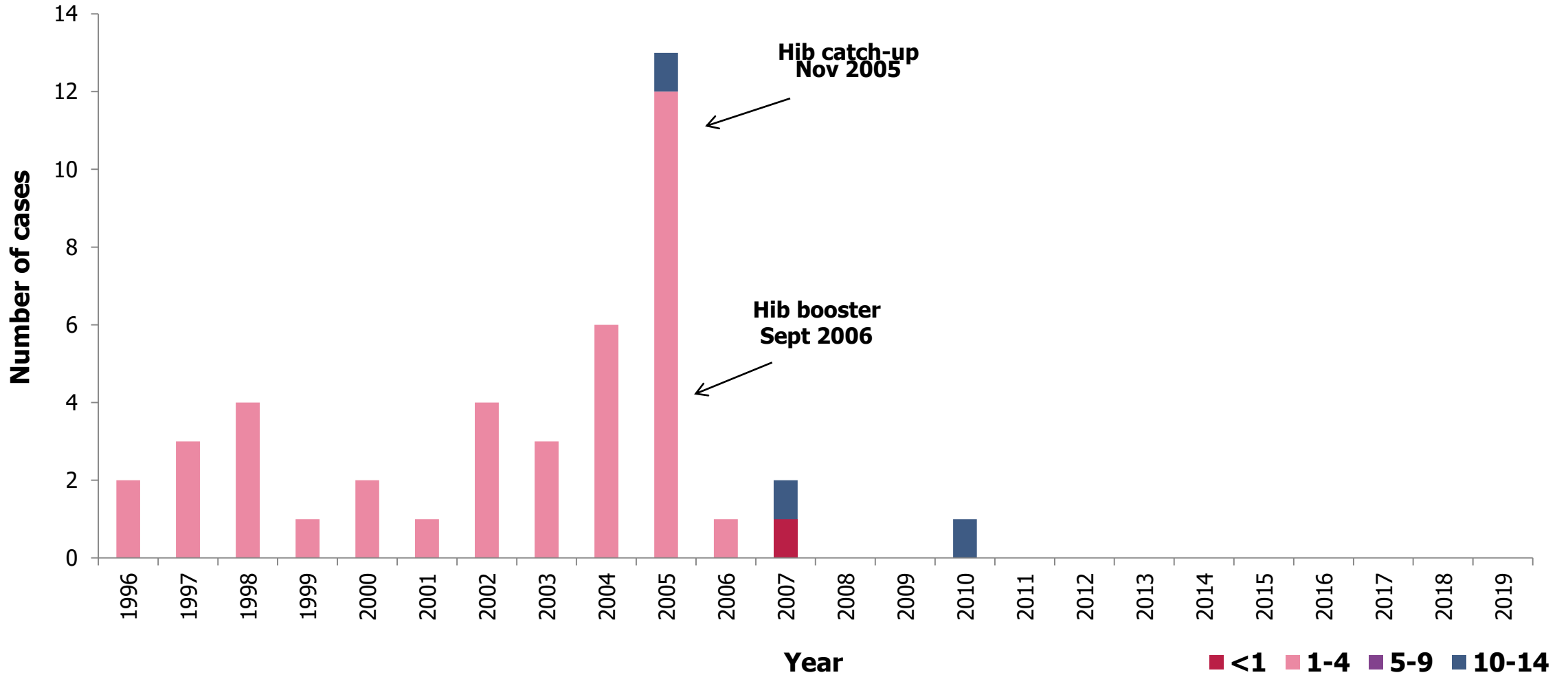




# Annual Number of HiB cases and True Vaccine Failures (TVFs), 1996–2019



# True Hib Vaccine Failures by Age Group, 1996-2019



# Acknowledgements



- Departments of Public Health
- Microbiology Laboratories
- Irish Meningitis & Sepsis Reference Laboratory (IMSRL) in the CUH, Temple Street
- National Virus Reference Laboratory (NVRL)

