



Appendix

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Appendix to: Archer BN, Chiu CK, Jayasinghe SH, et al. Epidemiology of invasive meningococcal B disease in Australia, 1999–2015: priority populations for vaccination. *Med J Aust* 2017; 207: 382-387. doi: 10.5694/mja16.01340.

Epidemiology of invasive meningococcal disease in Australia 1999–2015: population groups as priorities for vaccination against serogroup B meningococcal disease

Appendix

Table 1: Box showing rules for reclassifying invasive meningococcal disease case notifications from a status of 'probable' to 'confirmed', NNDSS, 1999–2015

Rule 1: For cases notified from NSW, the Northern Territory and Queensland, if a laboratory diagnostic method is recorded for an individual case, then the case is assumed to have received a positive result for that respective test. This rule is not applicable to cases from other jurisdictions.*

Rule 2: If a case is captured as 'probable', but records an assumed positive (as per Rule 1) definitive or suggestive laboratory diagnostic method, as per the case definitions in use at the time of reporting, then the case is reclassified as 'confirmed'.

Rule 3: If a case is captured as 'probable', but has been assigned a phenotype, then the case is reclassified as 'confirmed', unless contradicting Rule 2 (i.e. when a laboratory diagnostic method does not fulfil the confirmed case definition in use at the time of reporting, e.g. polysaccharide antigen testing in specific years or jurisdictions).

** Laboratory diagnostic method data from Victoria includes both negative and positive results, which cannot be differentiated in the NNDSS dataset. Jurisdictional authorities from South Australia and Western Australia report a negative result for all probable cases for whom a laboratory diagnostic method was captured. No probable cases with laboratory diagnostic method data were identified from the Australian Capital Territory or Tasmania.*

Table 2: Figure 1 data table showing count and incidence rate of invasive meningococcal disease by serogroup by year, Australia, 1999-2015

Year	No. of cases (IR ^a)										
	Population ^b	Confirmed cases by serogroup								Probable cases	All cases
		A	B	C	W	X	Y	Non-groupable	Not grouped		
1999	18,812,264	1 (0.01)	268 (1.42)	138 (0.73)	9 (0.05)	0 (0.00)	5 (0.03)	31 (0.16)	136 (0.72)	0 (0.00)	588 (3.13)
2000	19,028,802	0 (0.00)	276 (1.45)	172 (0.90)	12 (0.06)	0 (0.00)	13 (0.07)	3 (0.02)	123 (0.65)	28 (0.15)	627 (3.30)
2001	19,274,701	0 (0.00)	293 (1.52)	158 (0.82)	6 (0.03)	0 (0.00)	8 (0.04)	2 (0.01)	133 (0.69)	82 (0.43)	682 (3.54)
2002	19,495,210	0 (0.00)	298 (1.53)	225 (1.15)	12 (0.06)	1 (0.01)	13 (0.07)	4 (0.02)	69 (0.35)	66 (0.34)	688 (3.53)
2003	19,720,737	1 (0.01)	293 (1.49)	156 (0.79)	6 (0.03)	0 (0.00)	10 (0.05)	1 (0.01)	53 (0.27)	36 (0.18)	556 (2.82)
2004	19,932,722	1 (0.01)	248 (1.24)	77 (0.39)	12 (0.06)	0 (0.00)	7 (0.04)	3 (0.02)	43 (0.22)	18 (0.09)	409 (2.05)
2005	20,176,844	1 (0.00)	258 (1.28)	47 (0.23)	12 (0.06)	0 (0.00)	10 (0.05)	0 (0.00)	36 (0.18)	29 (0.14)	393 (1.95)
2006	20,450,966	1 (0.00)	222 (1.09)	23 (0.11)	14 (0.07)	0 (0.00)	5 (0.02)	0 (0.00)	32 (0.16)	20 (0.10)	317 (1.55)
2007	20,827,622	0 (0.00)	225 (1.08)	20 (0.10)	9 (0.04)	1 (0.00)	13 (0.06)	1 (0.00)	21 (0.10)	15 (0.07)	305 (1.46)
2008	21,249,199	0 (0.00)	222 (1.04)	21 (0.10)	8 (0.04)	0 (0.00)	8 (0.04)	2 (0.01)	18 (0.08)	8 (0.04)	287 (1.35)
2009	21,691,653	0 (0.00)	199 (0.92)	14 (0.06)	5 (0.02)	0 (0.00)	8 (0.04)	1 (0.00)	26 (0.12)	7 (0.03)	260 (1.20)
2010	22,031,750	0 (0.00)	173 (0.79)	15 (0.07)	11 (0.05)	0 (0.00)	8 (0.04)	1 (0.00)	10 (0.05)	10 (0.05)	228 (1.03)
2011	22,340,024	0 (0.00)	186 (0.83)	9 (0.04)	12 (0.05)	0 (0.00)	12 (0.05)	1 (0.00)	18 (0.08)	4 (0.02)	242 (1.08)
2012	22,728,254	0 (0.00)	165 (0.73)	11 (0.05)	7 (0.03)	0 (0.00)	16 (0.07)	1 (0.00)	20 (0.09)	3 (0.01)	223 (0.98)
2013	23,117,353	0 (0.00)	106 (0.46)	8 (0.03)	11 (0.05)	0 (0.00)	15 (0.06)	0 (0.00)	5 (0.02)	4 (0.02)	149 (0.64)
2014	23,460,694	0 (0.00)	131 (0.56)	3 (0.01)	17 (0.07)	0 (0.00)	12 (0.05)	0 (0.00)	4 (0.02)	2 (0.01)	169 (0.72)
2015	23,789,338	0 (0.00)	112 (0.47)	2 (0.01)	34 (0.14)	0 (0.00)	22 (0.09)	1 (0.00)	7 (0.03)	5 (0.02)	183 (0.77)
1999-2015	-	5	3,675	1,099	197	2	185	52	754	337	6,306

^a IR: Incidence rate per 100,000 population

^b Mid-year estimated resident population sourced from: Australian Bureau of Statistics. 3101.0 - Australian Demographic Statistics, Jun 2016 Canberra: Australian Bureau of Statistics; 2016 [updated 15 Dec 2016; cited 7 Mar 2017]. Available from: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0>.

Table 3: Figure 2 data table showing count and incidence rate (IR) of invasive meningococcal disease serogroup B (2006-2015) and serogroup C (1999-2002) by age by year, Australia, 1999-2015

Age (years)	Serogroup B: 2006-2015			Serogroup C: 1999-2002		
	No. of cases	Person years	IR (95% CI) ^a	No. of cases	Person years	IR (95% CI) ^a
0	324	2,952,909	10.97 (9.81-12.23)	26	1,001,896	2.60 (1.70-3.80)
1	149	2,913,081	5.11 (4.33-6.01)	31	1,009,308	3.07 (2.09-4.36)
2	81	2,886,322	2.81 (2.23-3.49)	25	1,017,911	2.46 (1.59-3.63)
3	54	2,854,894	1.89 (1.42-2.47)	15	1,026,697	1.46 (0.82-2.41)
4	40	2,829,121	1.41 (1.01-1.93)	19	1,040,326	1.83 (1.10-2.85)
5	24	2,820,989	0.85 (0.55-1.27)	16	1,054,616	1.52 (0.87-2.46)
6	21	2,805,450	0.75 (0.46-1.14)	15	1,065,301	1.41 (0.79-2.32)
7	18	2,789,773	0.65 (0.38-1.02)	9	1,073,635	0.84 (0.38-1.59)
8	10	2,774,500	0.36 (0.17-0.66)	9	1,079,033	0.83 (0.38-1.58)
9	14	2,766,618	0.51 (0.28-0.85)	2	1,083,142	0.18 (0.02-0.67)
10	11	2,760,565	0.40 (0.20-0.71)	8	1,080,098	0.74 (0.32-1.46)
11	12	2,768,759	0.43 (0.22-0.76)	4	1,073,258	0.37 (0.10-0.95)
12	14	2,781,964	0.50 (0.28-0.84)	6	1,066,177	0.56 (0.21-1.22)
13	18	2,798,244	0.64 (0.38-1.02)	9	1,063,253	0.85 (0.39-1.61)
14	22	2,816,764	0.78 (0.49-1.18)	15	1,063,582	1.41 (0.79-2.33)
15	25	2,834,555	0.88 (0.57-1.30)	20	1,064,300	1.88 (1.15-2.90)
16	37	2,857,982	1.29 (0.91-1.78)	24	1,065,433	2.25 (1.44-3.35)
17	73	2,884,297	2.53 (1.98-3.18)	32	1,061,476	3.01 (2.06-4.26)
18	117	2,934,188	3.99 (3.30-4.78)	64	1,057,062	6.05 (4.66-7.73)
19	97	3,004,164	3.23 (2.62-3.94)	36	1,052,331	3.42 (2.40-4.74)
20	70	3,066,080	2.28 (1.78-2.88)	32	1,042,153	3.07 (2.10-4.33)
21	34	3,114,854	1.09 (0.76-1.53)	28	1,033,628	2.71 (1.80-3.92)
22	27	3,164,618	0.85 (0.56-1.24)	14	1,026,542	1.36 (0.75-2.29)
23	29	3,228,112	0.90 (0.60-1.29)	15	1,030,260	1.46 (0.81-2.40)
24	15	3,257,908	0.46 (0.26-0.76)	14	1,043,730	1.34 (0.73-2.25)
25	25	3,256,199	0.77 (0.50-1.13)	13	1,064,175	1.22 (0.65-2.09)
26	16	3,237,804	0.49 (0.28-0.80)	4	1,093,095	0.37 (0.10-0.94)
27	12	3,221,440	0.37 (0.19-0.65)	4	1,131,152	0.35 (0.10-0.91)
28	6	3,203,575	0.19 (0.07-0.41)	9	1,171,480	0.77 (0.35-1.46)
29	6	3,184,320	0.19 (0.07-0.41)	5	1,187,483	0.42 (0.14-0.98)
30-34	36	15,601,314	0.23 (0.16-0.32)	30	5,771,168	0.52 (0.35-0.74)
35-39	36	15,674,731	0.23 (0.16-0.32)	28	5,946,206	0.47 (0.31-0.68)
40-44	35	15,770,668	0.22 (0.15-0.31)	17	5,823,995	0.29 (0.17-0.47)
45-49	55	15,345,315	0.36 (0.27-0.47)	23	5,374,729	0.43 (0.27-0.64)
50-54	46	14,687,452	0.31 (0.23-0.42)	18	5,035,175	0.36 (0.21-0.56)
55-59	36	13,347,076	0.27 (0.19-0.37)	13	3,953,684	0.33 (0.18-0.56)
60+	96	42,490,248	0.23 (0.18-0.28)	41	12,783,487	0.32 (0.23-0.44)
Total	1,741	221,686,853	0.79 (0.75-0.82)	693	76,610,977	0.90 (0.84-0.97)

^a IR (95% CI): Incidence rate per 100,000 person years (95% confidence interval)

Table 4: Table showing secular trends in the incidence of serogroup B invasive meningococcal disease by State/Territory, Australia, 1999–2015

Year	No. of cases (IR ^a)								
	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Australia
1999	3 (0.95)	95 (1.49)	5 (2.55)	46 (1.33)	19 (1.27)	7 (1.48)	48 (1.03)	45 (2.43)	268 (1.42)
2000	3 (0.95)	93 (1.44)	6 (3.01)	37 (1.05)	19 (1.27)	10 (2.11)	51 (1.08)	57 (3.03)	276 (1.45)
2001	3 (0.93)	89 (1.36)	10 (4.96)	69 (1.93)	22 (1.46)	5 (1.06)	47 (0.99)	48 (2.52)	293 (1.52)
2002	1 (0.31)	105 (1.60)	7 (3.46)	59 (1.62)	16 (1.06)	7 (1.48)	57 (1.18)	46 (2.39)	298 (1.53)
2003	3 (0.92)	101 (1.53)	10 (4.96)	54 (1.44)	26 (1.71)	9 (1.88)	54 (1.11)	36 (1.84)	293 (1.49)
2004	4 (1.22)	82 (1.23)	8 (3.95)	50 (1.31)	11 (0.72)	7 (1.45)	55 (1.12)	31 (1.57)	248 (1.24)
2005	4 (1.21)	73 (1.09)	7 (3.40)	43 (1.10)	18 (1.17)	10 (2.06)	62 (1.24)	41 (2.04)	258 (1.28)
2006	4 (1.19)	57 (0.85)	6 (2.87)	56 (1.40)	14 (0.90)	4 (0.82)	63 (1.24)	18 (0.88)	222 (1.09)
2007	3 (0.88)	77 (1.13)	4 (1.87)	59 (1.44)	12 (0.76)	3 (0.61)	48 (0.93)	19 (0.90)	225 (1.08)
2008	2 (0.57)	50 (0.72)	4 (1.82)	73 (1.73)	19 (1.20)	1 (0.20)	50 (0.95)	23 (1.06)	222 (1.04)
2009	2 (0.56)	58 (0.82)	5 (2.21)	51 (1.18)	20 (1.24)	3 (0.59)	36 (0.67)	24 (1.07)	199 (0.92)
2010	1 (0.28)	50 (0.70)	2 (0.87)	41 (0.93)	22 (1.35)	5 (0.98)	33 (0.60)	19 (0.83)	173 (0.79)
2011	2 (0.54)	44 (0.61)	3 (1.30)	51 (1.14)	17 (1.04)	6 (1.17)	44 (0.79)	19 (0.81)	186 (0.83)
2012	1 (0.27)	42 (0.57)	3 (1.27)	45 (0.99)	26 (1.57)	4 (0.78)	29 (0.51)	15 (0.62)	165 (0.73)
2013	2 (0.53)	27 (0.36)	2 (0.82)	25 (0.54)	18 (1.08)	2 (0.39)	19 (0.33)	11 (0.44)	106 (0.46)
2014	1 (0.26)	23 (0.31)	3 (1.23)	30 (0.64)	33 (1.96)	1 (0.19)	27 (0.46)	13 (0.51)	131 (0.56)
2015	1 (0.26)	23 (0.30)	1 (0.41)	20 (0.42)	28 (1.65)	1 (0.19)	29 (0.49)	9 (0.35)	112 (0.47)
1999-2015	40 (0.68)	1,089 (0.93)	86 (2.32)	809 (1.16)	340 (1.26)	85 (1.01)	752 (0.85)	474 (1.29)	3,675 (1.03)

^a IR: Incidence rate per 100,000 population

ACT: Australian Capital Territory, NSW: New South Wales, NT: Northern Territory, QLD: Queensland, SA: South Australia, TAS: Tasmania, VIC: Victoria, WA: Western Australia.