Michigan Department of Community Health

MDCH

Summary of Vaccine Preventable Diseases Reported to the Michigan Department of Community Health, 2003

This is a summary of reported cases of selected vaccine-preventable diseases in Michigan in 2003. Totals for 2002 are provided for comparison in Table 1 (below).

Congenital Rubella - No cases of congenital rubella were reported in 2003.

Diphtheria - No cases of diphtheria were reported in 2003.

***Haemophilus influenzae* invasive disease –** Twenty five cases of invasive *H. influenzae* disease were reported to MDCH; of these, 8 were under age 5 years and the remaining 17 were 16 years of age or older (ranging in age from 16 to 86 years).

Of the 8 cases under 5 years old, the median age was 5.5 months, with a range from 1 day to 13 months. Additional clinical, surveillance, and laboratory data were available for 7 cases (88%). Five of the 7 (71%) involved primary bacteremia, one (15%) presented with meningitis, and one (15%) had pneumonia with *H. influenzae* isolated from the blood. Of the 7 for which serotyping of the isolate was completed, 3 (43%) were identified as type b, 2 (29%) were identified as serotypes other than b, and 2 (29%) were untypeable. Of the 3 type b cases, one was a 3 month-old who had received no Hib vaccine doses, one was a 12 month-old in an Amish community who also had received no Hib vaccine doses, and one was a 13 month-old who had received 3 doses of Hib vaccine.

Measles – Two cases of measles were reported in Michigan in 2003. The cases, involving a 9 month-old female and a 25 year-old female, may have been commonly exposed to an unidentified source case, as their onsets of rash were within 2 days of each other and they were concurrently present at a hospital emergency department approximately 13 days prior to rash onset. Both cases were confirmed by measles IgM serology; viral culture was performed on one of the cases and was negative. The 25 year-old related a history of 1 dose of measles vaccine at age 15 months, while the 9 month-old had not received any doses of a measles vaccine, being younger than the minimum recommended age of 12 months for routine MMR vaccination.

Mumps – Eight cases of mumps were reported in 2003; 6 (75%) were female. As in other recent years, more cases were reported in adults than in children. This shift in disease burden to older age groups for what was traditionally regarded as a childhood illness is the result of comprehensive and routine immunization efforts focused on the childhood years.

Overall, the median age was 26.5 years, with a range from 16 months to 54 years. Two cases were under 5 years of age, one was 17, and the remaining five cases ranged in age from 25 to 54 years. Seven (88%) of the eight cases were serologically confirmed. All 8 cases were identified as sporadic; there were no known epidemiologically linked cases, clusters or outbreaks. Three cases, ages 1 year, 4 years, and 17 years, had documentation of prior receipt of mumps-containing vaccine, with 1, 1 and 2 doses respectively. Immunization history was negative or unknown for the 5 adult cases.

Pertussis - One hundred forty cases of pertussis were reported in 2003, more than twice the number (62 cases) reported in 2002 (an increase of 125%). 76 (54%) were female, 64 (46%) were male. Cases ranged in age from 5 days to 76 years, with a median age of 5 years.

Of note is the fact that 45 cases, nearly 1/3 of the total, were among adults (20 years of age and older), a noticeably higher proportion than in previous years. In recent years there has been a growing sense that adolescents and adults, who typically experience milder disease, may play a significant role in transmission of pertussis in the community. The increase in reported cases in adults may reflect ad greater recognition of this phenomenon among clinicians in Michigan.

A further breakdown of the age distribution is provided in the table below:

Age group	# of cases	% of total
0 - 6 months	45	32
7 – 12 months	4	3
1 - 4 years	19	14
5 - 9 years	7	5
10 - 19 years	20	14
20+ years	45	32
Total	140	100

Cases were reported from 30 counties and from all reporting regions of the state. While the majority of cases were reported as sporadic, non-outbreak cases, 15 clusters of cases were identified; these clusters were largely among family and extended family settings and ranged in size from 2 to 10 cases, with a median size of 3 cases.

Diagnosis of disease was confirmed by laboratory testing (culture- or PCR-positive) for 72 (51%) of cases. An additional 28 cases were considered confirmed by epidemiologic linkage to a lab confirmed case. The remaining 40 cases were considered probable cases, meeting the clinical case definition for pertussis as established by CSTE/CDC (14+ consecutive days of cough illness with at least one of the following symptoms: paroxysms of cough, post-tussive vomiting, or inspiratory whoop).

Overall, information on immunization history was available for 113 (80%) of cases. Of these, 71 (51%) had a history of receiving an age-appropriate number of pertussis vaccination doses. Pertussis vaccine is licensed for use in children aged 2 months to 7 years.
Of 39 cases reported in children 3 months to 7 years of age, 20 (51%) had a history of receiving an age-appropriate number of vaccination doses; the remaining 19 (49%) of this group potentially represent cases that might have been prevented if all age-appropriate vaccine doses

had been administered according to the recommended routine childhood immunization schedule.

Data on duration of cough was available for 127 (91%) cases: the median cough duration was 34 days (range 8 to 114 days). Paroxysmal coughing was reported in 120 (86%) cases; post-tussive vomiting was reported in 79 (56%) cases, whoop was reported in 67 (48%) cases, and apnea was reported in 61 (44%) cases.

Overall, 41 (29%) cases were hospitalized; among infant cases under 6 months of age 80% were hospitalized. Pneumonia confirmed by chest x-ray was reported in 16 (11%) cases.

Rubella - No cases of rubella were reported in Michigan in 2003.

Tetanus - No cases of tetanus were reported in Michigan in 2003.

Varicella - Surveillance for varicella in Michigan primarily consists of reports of weekly aggregate case counts from schools and child-care programs. In 2003, 4,171 cases were reported, representing a 22% decrease from the 5,352 reported in 2002. This continues the declining trend in varicella incidence observed since the late 1990s. Age or age group information was available for 3,826 (92%); of these, 377 (9.8%) were under age 5 years. Varicella vaccine was licensed for use in the US in 1995.

Table 1 - Number of reported cases of vaccine preventable diseases, Michigan, 2003 and 2002

Disease	Total Cases 2003	Total Cases 2002	Cases < 5y.o. 2003	Cases < 5y.o. 2002
Congenital Rubella	0	0	0	0
Diphtheria	0	0	0	0
H. influenzae invasive	25	18	8	7
Hepatitis B	223	327	4	2
Measles	2	0	1	0
Mumps	8	7	2	1
Pertussis	140	62	68	25
Poliomyelitis	0	0	0	0
Rubella	0	1	0	0
Tetanus	0	2	0	0
Varicella	4,171	5,352	377	438