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 Frederick G. Adams, D.D.S., M.P.H., Commissioner

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MEASLES IN CONNECTICUT

Measles in 1989

In 1989 measles incidence was the highest it has been since the late 1970s, both in Connecticut (Figure 1) and nationally. Overall, 229 cases were reported in Connecticut for a rate of 6.8 per 100,000 persons, comparable to the national incidence rate of 7.3 per 100,000.

Measles cases were reported from 50 of 169 towns and all eight counties in Connecticut, with Hartford County and city having the highest incidence (Table 1). Measles cases occurred throughout the year with peak activity in March through July (Figure 2).

Figure 1

REPORTED CASES OF MEASLES CONNECTICUT, 1970 - 1989

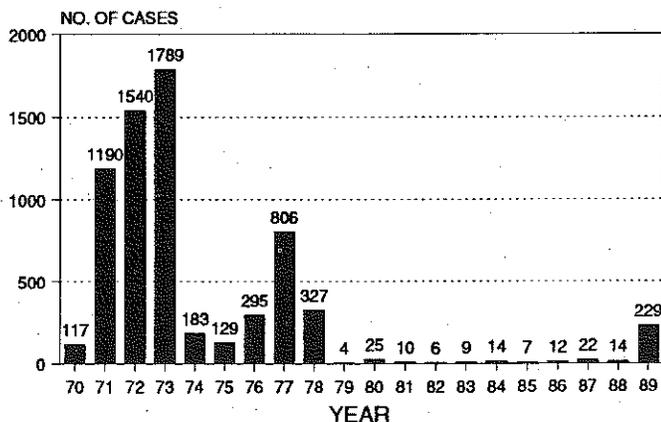
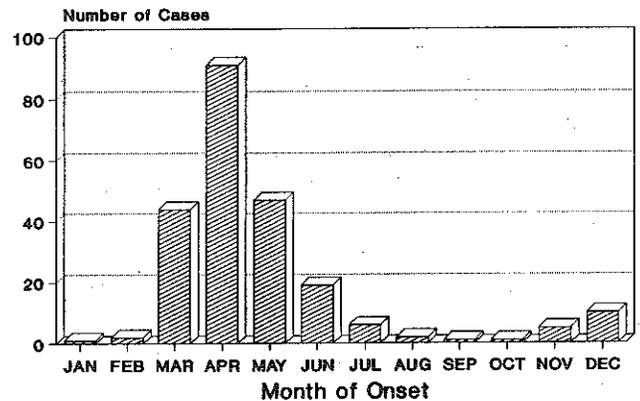


Figure 2

MEASLES BY MONTH OF ONSET CONNECTICUT - 1989



Cases involved all age groups, with the highest rate and rate of increase seen in children less than 12 months of age (Table 2). The high incidence rate in children aged 10-14 years resulted from several extensive school outbreaks. In Hartford where a community-wide outbreak occurred, affected children tended to be younger than elsewhere: 51% were less than 5 years old and 25% were less than one year old compared to 17% and 5% respectively in the rest of the state.

The distribution of cases by race/ethnicity was not equal, with rates highest in Hispanics (65 cases, 15.9 cases per 100,000) followed by whites and blacks (134 and 12 cases respectively, 4.6 cases per 100,000 each). Most of the Hispanic cases (82%) occurred in Hartford, where the incidence rate in Hispanics was 190 per 100,000.

Table 1. Measles Incidence By County and Selected Towns, Connecticut, 1989

County	No. Cases	Incidence*
Hartford	103	11.8
Fairfield	74	8.6
New Haven	39	4.8
Other	13	1.6
TOTAL	229	6.8
Selected Towns		
Hartford	71	53.4
New Canaan	32	171.6
Milford	16	30.5
West Hartford	9	14.6
Danbury	8	11.3

*Incidence per 100,000 population

Vaccination status of cases by age is shown in Table 3. Only 43% of cases in children aged 15 months to 4 years had received measles vaccine, and only 34% of cases in adults aged 20-32 years had documentation of any measles vaccination. While nearly all school-aged children (5-19 years old) had been vaccinated once, very few had received two doses of MMR.

Other than Hartford, most towns with multiple cases had institution-based outbreaks. Outbreaks occurred in four schools, two colleges, and two hospitals. In addition, at least 23 cases (10%) were traceable to exposure in emergency rooms, physicians' offices or hospital wards. Although there were 41 measles-associated deaths nationally, there were no deaths in Connecticut. With few exceptions, the number of cases per outbreak was limited to five or less. This is a tribute to prompt reporting and a rapid containment response, which included institutional and community immunization and exclusion of susceptibles from certain activities.

Table 2. Measles Incidence by Age, Connecticut, 1984-89

Age-group	1984-1988		1989		Relative Risk**
	No.	Avg. Annual Rate*	No.	Rate*	
≤ 1	2	0.8	25	52.9	66.1
1-4	11	1.2	37	20.8	17.3
5-9	4	0.4	21	10.8	27.0
10-14	7	0.7	54	26.6	38.0
15-19	24	2.2	30	13.6	6.2
20-24	11	0.9	22	9.0	10.0
25-29	5	0.4	17	6.1	15.3
≥ 30	3	0.03	23	1.3	43.3
TOTAL	67	0.4	229	6.8	17.0

* Incidence per 100,000 population ** 1989 rate/1984-88 average

Measles in 1990

For the first 23 weeks of 1990 (January 1-June 8), 105 cases were reported in Connecticut, compared to 192 cases during the same time period in 1989. Nationally, there was nearly a 40% increase in cases during the same period.

Measles in Connecticut in 1990 has been characterized by: a) continued high rates in pre-school aged children and adults in their 20s and 30s, especially among Hispanics in Hartford and Bridgeport (47% of all cases have Hispanic surnames, 75% are in the two age groups), and b) outbreaks in settings where there is a concentration of young adults (hospitals, correctional facilities).

Only 34% of the 65 cases aged 15 months to 4 years and 20-33 years have documentation of previous measles vaccination.

Table 3. Vaccination Status of Measles Cases by Age, Connecticut, 1989

Age Group	Total	% Vaccinated
0-11 mos.	25	0%
12-14 mos.	9	0%
15 mos. - 4 years	28	43%
5-19 years	105	95%
20-32 years	41	34%
> 33 years	21	0%
Total	229	55%

Editorial Note

The epidemiology of measles in Connecticut has mirrored the change seen nationally (1). It highlights areas of concern which need to be addressed if measles incidence is to be reduced to earlier low levels. The increase in measles in unvaccinated preschool-aged children and young adults, especially among Hispanics in urban areas, may be in part a result of poor age-appropriate vaccination rates in children.

Although not yet documented in Connecticut, low rates of vaccination in inner-city children in other parts of the country with sustained community outbreaks have been well documented (2). The gradual aging of persons born between 1957 and the early 1970s may also be a factor. These persons are least likely to have had natural measles or to have benefited from the most potent measles vaccines and school immunization requirements. They now make up the majority of the parent population and an increasing portion of the workforce. Incidents of spread between children and adults have become increasingly common.

Prevention of measles in these groups will require intensive efforts to document and increase age-appropriate vaccination levels in inner-city preschool-aged children, especially in Hispanic children and their parents. It may also require decreasing the age of routine initial vaccination to 12 months in some high-risk areas.

A substantial percentage of transmission has occurred in health-care settings, between patients waiting in emergency rooms and between patients and staff in both inpatient and outpatient settings. Prevention of such transmission will require triage, isolation and decreased waiting times for patients with measles-like illnesses coming to emergency rooms. It will also require that administrators of all acute-care facilities require that their personnel be fully protected against measles, as recommended by both the ACIP and the AAP (3).

The increase in measles has also occurred among school-aged children and adolescents. Most of these the persons involved in cases have been vaccinated at least once. Of note, approximately 5% of persons who receive a single dose of measles vaccine will not develop protective immunity. If measles virus circulates at relatively low levels, as it did between 1980-88, then the risk of measles among vaccine failures will be small and such persons will accumulate in the population. However, when measles virus is then introduced into schools and colleges, the number of susceptible persons is often sufficient to sustain transmission and outbreaks may occur.

In order to reduce this pool of susceptible vaccinated persons, the Connecticut DHS, in collaboration with the Connecticut Chapter of the AAP, has recommended and is supplying a second dose of vaccine to persons at high risk of measles, including middle-junior high school and post-secondary school entrants. Proof of receipt of two doses of measles-containing vaccine will be required of all college entrants beginning September 1990. Regulations are being modified to require two doses of MMR vaccine for middle-junior high school entrants beginning September 1991. If fully implemented, this strategy should eventually eliminate measles outbreaks in these settings.

In the meantime, aggressive outbreak control measures in school-based outbreaks with re-vaccination of persons at risk will continue to be necessary (3).

References

1. CDC. Measles - United States, 1989 and the first 20 weeks 1990. MMWR 1990;39:353-63.
2. CDC. Update: measles outbreak - Chicago, 1989. MMWR 1990;39:317-26.
3. ACIP. Measles prevention: recommendations of the Immunizations Practices Advisory Committee. MMWR 1989;38 (no. S-9).

The 1990 Public Health Code is now available for purchase.

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at
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REPORTS OF SELECTED COMMUNICABLE DISEASES, CONNECTICUT, YEAR TO DATE

DISEASE	1/1/90 TO 8/03/90*	1/1/89 TO 8/04/89	% CHANGE
AIDS	252	285	-11.6%
GONORRHEA	5351	5668	- 5.6%
SYPHILIS P&S	595	630	- 5.6%
MEASLES	168	210	-20.0%
RUBELLA	3	0	--
TUBERCULOSIS	85	92	- 7.6%
HEPATITIS A	56	188	-70.2%
HEPATITIS B	127	99	+ 28.3%
SALMONELLOSIS	483	562	-14.1%
SHIGELLOSIS	95	105	- 9.5%

* Figures Subject To Change

20

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