

Epidemiology of Invasive Pneumococcal Disease in the Era of Childhood Vaccination – Newark, New Jersey

Newark Department of Health and Human Services

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INTRODUCTION

■ *Streptococcus pneumoniae* (Pneumococcus)

- Antimicrobial resistance
- Superficial Infections
 - Middle ear infections, sinusitis, conjunctivitis
- Invasive Pneumococcal Disease (IPD)
 - pneumonia, blood stream infections, meningitis, peritonitis, pyogenic arthritis

■ Vaccine Preventable

- Seven-valent conjugated vaccine
 - Universal recommendation for children
- 23-valent polysaccharide vaccine
 - High-risk children and adults
 - Universal recommendation for adults ≥ 65 years of age

INTRODUCTION

Newark, New Jersey

■ 273,546 residents*

	Newark %	NJ %	US %
Black	54	14	12
Hispanic	30	13	13
Under 5 years old	8	7	7
Below Poverty Level	28	9	12
Female	52	52	51

■ 2,100 per 100,000 living with HIV

Female	42%
Ages 34-54	68%

■ Immunization rates in Newark children

- Persistently below state and national levels**
- Recent dramatic improvement in rates

**Source: US Census Bureau, 2000. **Source: CDC National Immunization Survey
- <http://www.cdc.gov/vaccines/stats-surv/imz-coverage.htm#nis>*

OBJECTIVE

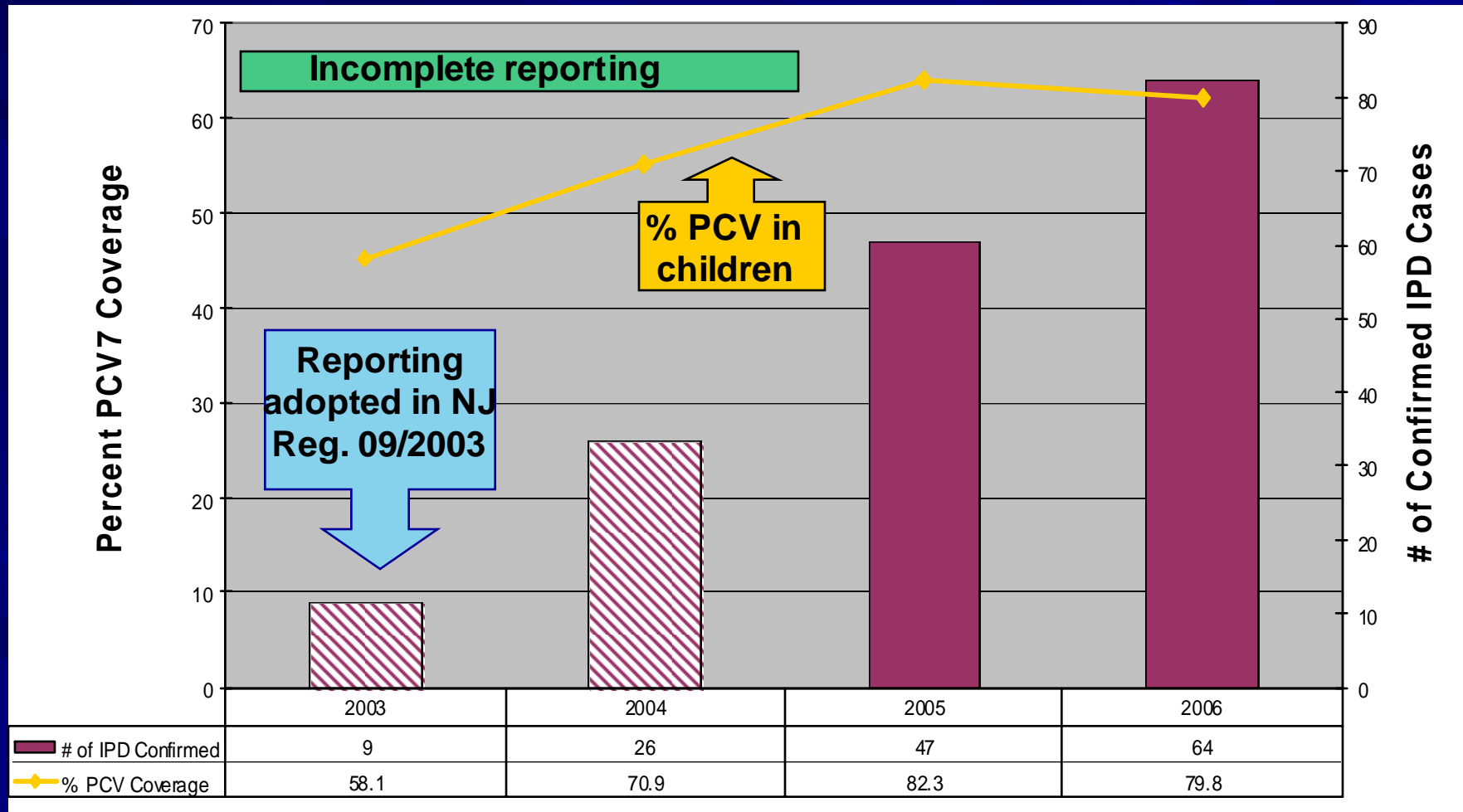
To describe the demographic characteristics of invasive pneumococcal disease (IPD) in Newark, NJ

METHODS

- **Retrospective analysis of passive surveillance data**
- **Cases of invasive pneumococcal disease (IPD) reported by health care providers and laboratories**
- **Case definition - Confirmed**
 1. Clinically compatible with IPD and laboratory isolation of pneumococcus from a normally sterile site
 2. Diagnosed between 2003 and 2006
 3. Newark Resident
- **Data Analysis using SPSS Software, EPI Info, MS Excel**

RESULTS

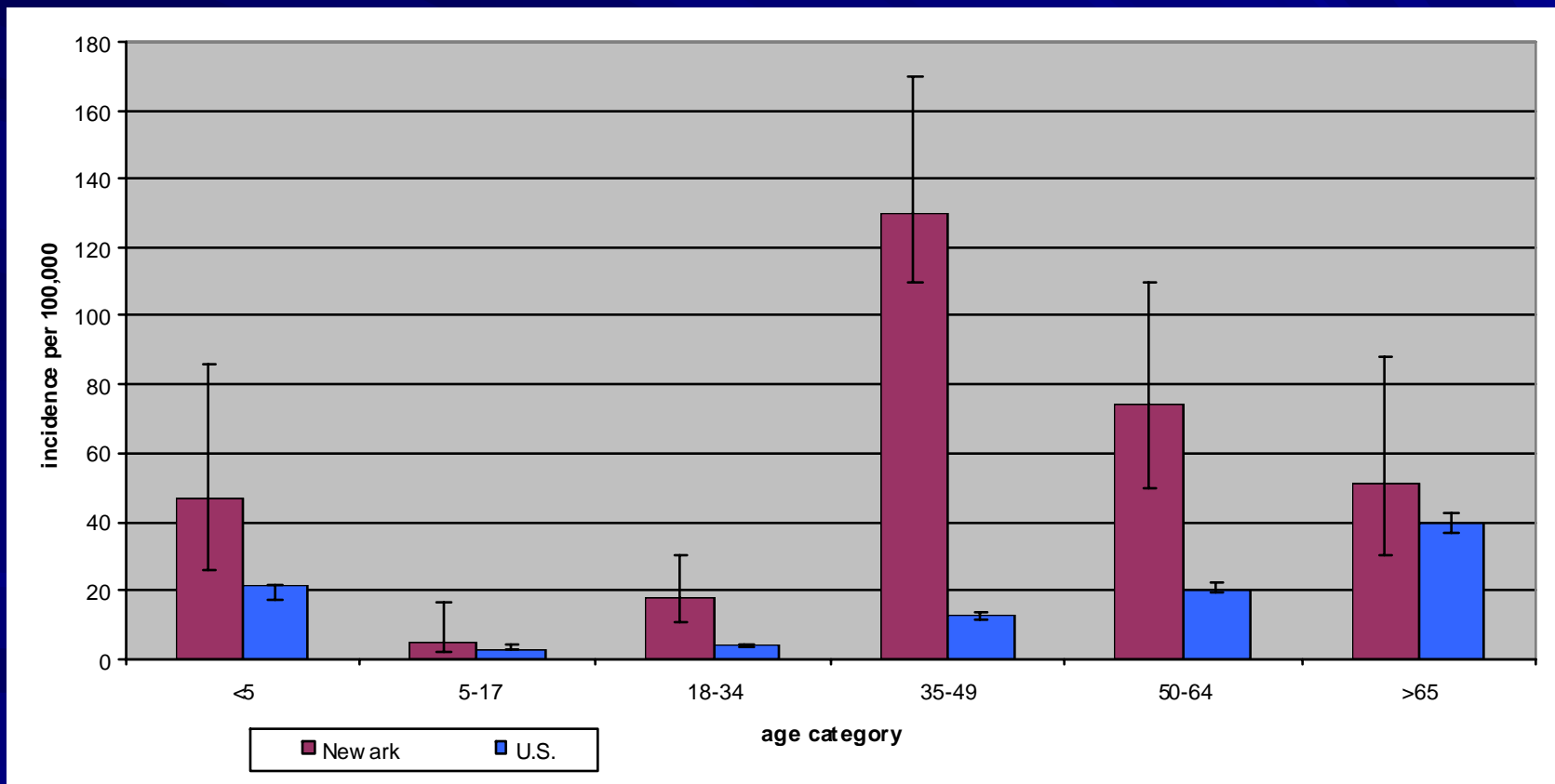
Total Number of Confirmed Cases (n=146) from 2003 to 2006 and Percent PCV7 Coverage Among Children 19-35 Months of Age - Newark, NJ



RESULTS

Estimated age-specific rates of invasive pneumococcal disease – Cases per 100,000

Newark, 2003-2006 & National, 2005



*CDC Active Bacterial Core Surveillance (ABCs) Report, Emerging Infections Program Network, 2005
<http://www.cdc.gov/ncidod/dbmd/abcs/survreports/spneu05.pdf>

RESULTS

Characteristics of persons with IPD, Newark 2003-2006

		Newark	Census
Median Age at Onset, years (n=142)		45 (range: 0.3, 87.1)	30
Gender (n =146)	Females	57 %	52 %
Race (n =146)	Black or African American	66 %	54 %
	White	10 %	27 %
	Other/Unknown	24 %	14 %
Ethnicity(n =146)	Hispanic or Latino	11 %	30 %
	Non-Hispanic or Latino	49 %	70 %
	Other/Unknown	38 %	0 %
No pre-existing medical conditions/HIV unknown		51 %	NA
Pre-existing medical conditions/ HIV unknown		26 %	NA
HIV infected		22 %	2%
HIV negative		1 %	NA
Crude rate per 100,000		53.4	14

RESULTS

Characteristics of persons with IPD stratified by HIV Infected and HIV Unknown, Newark 2003-2006

		HIV Infected %	HIV Unknown%
Gender (n=145)	<i>Male</i>	25	52
	<i>Female</i>	75	47
Age Distribution (n=141)	<5	0	9
	5-17	0	3
	18-34	13	8
	35-49	69	50
	50-64	19	18
	>65	0	12
Race (n=145)	<i>African Am/Black</i>	88	60
	<i>Other</i>	12	27
	<i>White</i>	0	13
Ethnicity (n=145)	<i>Hispanic or Latino</i>	0	14
	<i>Non-Hispanic/Non-Latino</i>	66	54
	<i>Other</i>	11	41

CONCLUSION

- Age-group distribution
 - Different than national rates
 - Adults aged 35-54
- 22% of cases are known HIV infected
- 77% have unknown HIV infection status
- Association of HIV with IPD in Newark needs further investigation

LIMITATIONS

- Reporting artifact:
 - New reporting system developed in 2003
 - IPD reporting adopted into NJ Regulations in 2003
 - 2 years of reliable data
 - Incomplete reporting of HIV status
 - Lack of data on vaccine status
- Lack of serotype data
- Lack of denominator for HIV status unknown

IMPLICATIONS

- *Need evaluation of health care among HIV infected Newark residents, including immunization against pneumococcus*
- *Need future analysis of serotype distribution to understanding any replacement disease by non-vaccine serotypes in this vulnerable population*

Thank you! Visit Newark!



Corey A Booker, Mayor

Maria E. Vizcarrondo, Director of Child and Family Well-Being

Marsha McGowan, Health Officer

