

Trends in Hospitalizations among HIV-infected Children in New York City



Kai-Lih Liu, Ph.D., MPH¹; Vicki Peters, MD¹; Balwant Gill, Ph.D.¹;
Chere Mapson, RN, MS¹; Annette Brooks¹; Pauline Thomas, MD¹; and
Kenneth Dominguez, MD, MPH².

¹New York City Department of Health and Mental Hygiene, New York;

²Centers for Disease Control and Prevention, Atlanta, GA.

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Objectives

- To describe trends in hospitalizations among HIV-infected children in 1995-2000.
- To compare hospitalization rates, length of stay, and age at admission, stratified by reasons for hospitalization.



Methods (I)

- The Pediatric Spectrum of HIV Disease Project (PSD) is a CDC-funded national, longitudinal surveillance project that was initiated in 1989.
- Data is collected retrospectively from pediatric medical records of HIV-infected children at 6-month intervals until the child dies or is lost to follow up.
- This analysis includes children enrolled at the 10 New York City PSD (PSD-NYC) sites, in care from 1995 to 2000.



Methods (II)

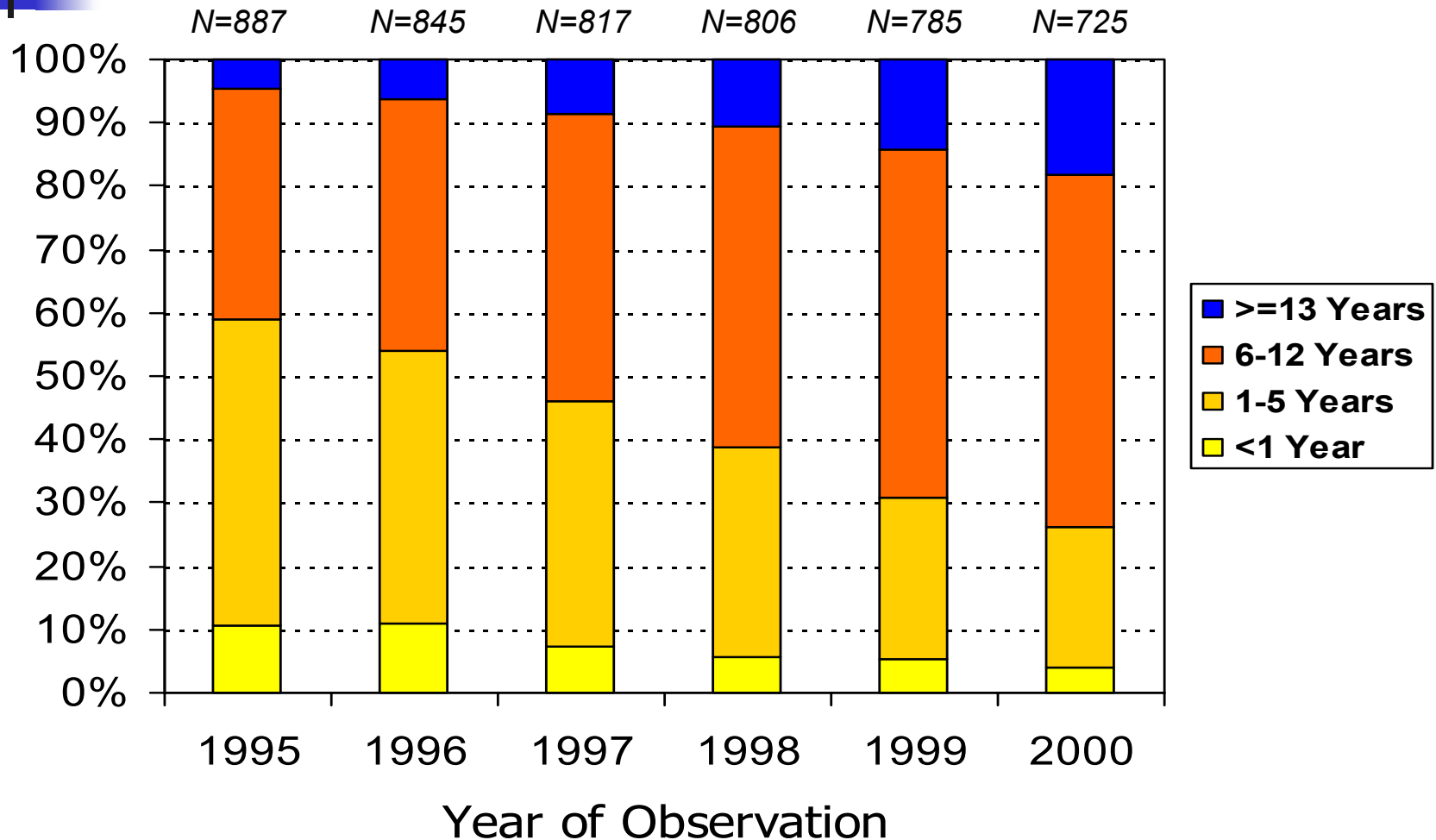
- Children Observed is defined as children who have clinical data available from at least one 6-month interval within each year of observation.
- Hospitalization data included:
 - Number of Admissions
 - Year of Admission
 - Length of Stay
 - Age at Admission
 - Hospital Discharge Diagnoses



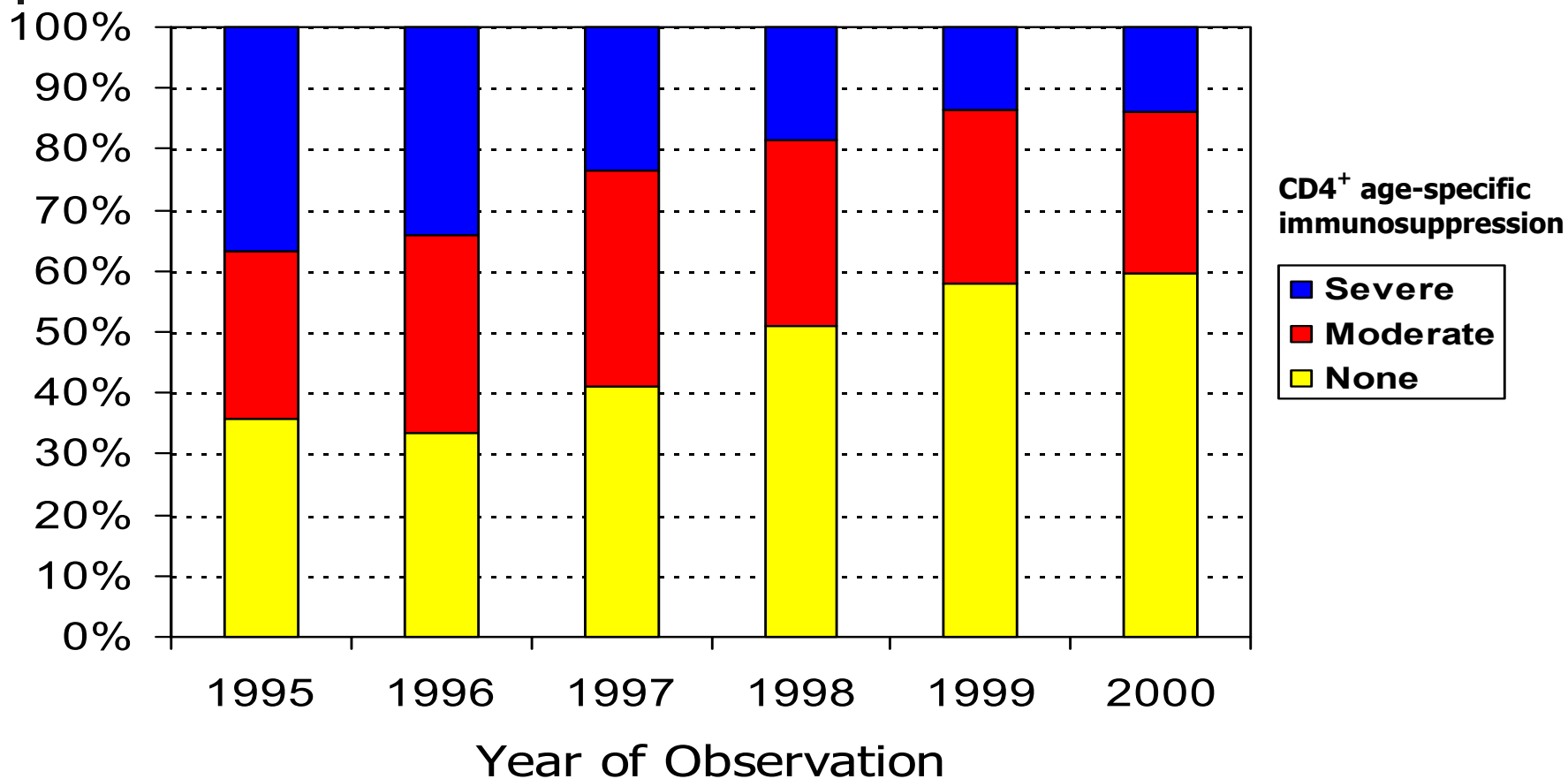
Methods (III)

- Reasons for hospitalization, based on hospital discharge diagnosis, were classified as:
 - HIV-related (CDC clinical categories A-C)
 - Probably HIV-related (e.g., pneumonias without specific causes, severe childhood infections, metabolic conditions, blood product transfusions, placement of devices, organ dysfunction)
 - Non HIV-related (e.g., asthma, surgery for appendicitis, accidents)

Age Distribution of HIV-infected Children Observed, by Year of Observation, PSD-NYC, 1995-2000.



Distribution of CD4 Immunosuppression* among HIV-infected Children Observed, by Year of Observation, PSD-NYC, 1995-2000.



* 13% of children with missing information on CD4 Counts

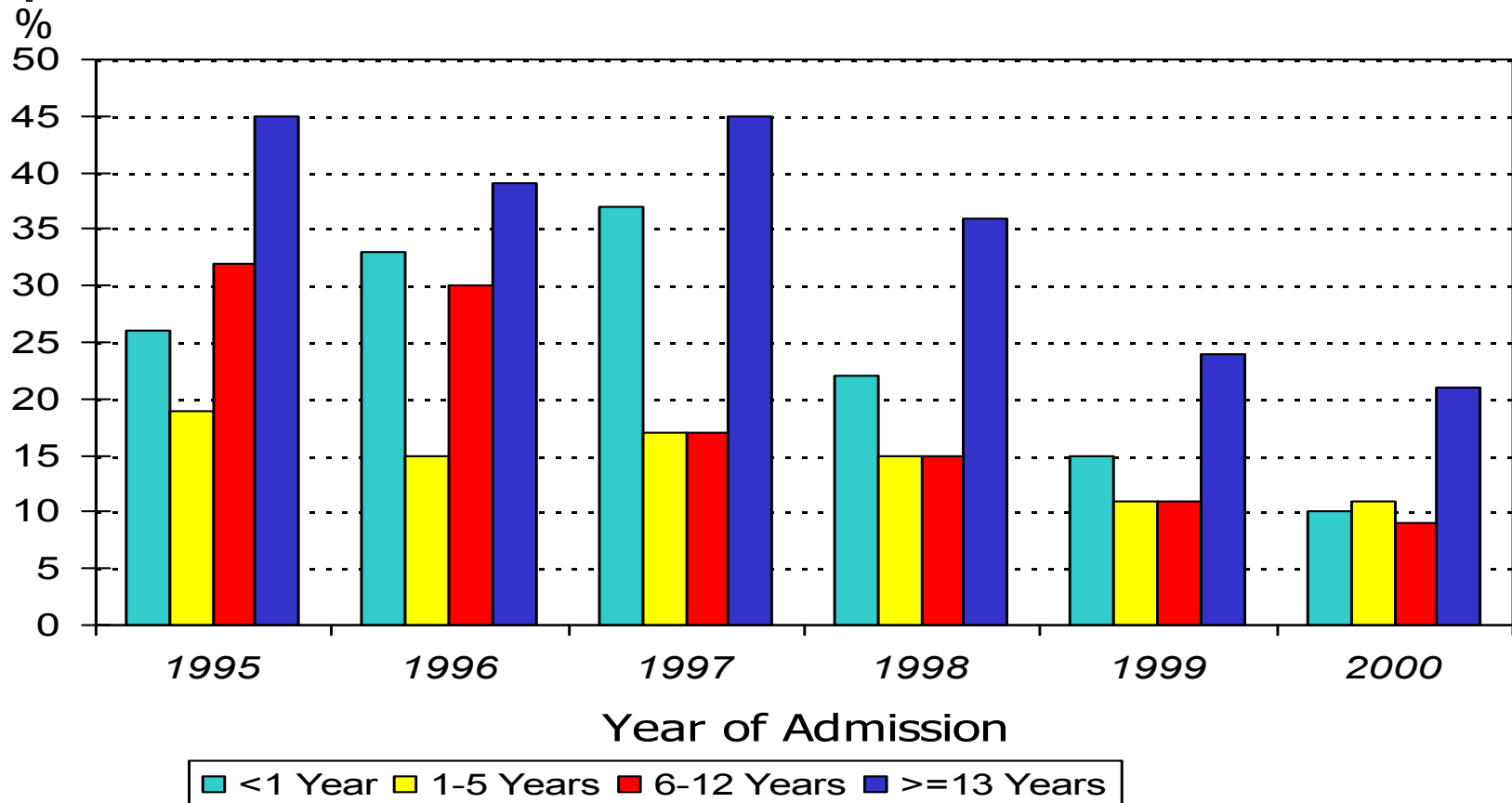
Result 1. Trends in Hospital Admissions and Length of Stay among HIV-infected Children, PSD-NYC, 1995-2000.

	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>
Number of Children Observed	887	845	817	806	785	725
Number of Children with at Least One Hospitalization (%)	230 (26%)	209 (25%)	169 (21%)	141 (17%)	105 (13%)	85 (12%)
Total Number of Admissions	408	365	277	211	153	118
Hospitalization Rate*	46.0	43.2	33.9	26.2	19.5	16.3
Median Length of Stay (days)	5	5	5	4	5	5
Mean Length of Stay (days)	8.4	8.9	9.3	6.6	9.4	9.7

* Hospitalization Rate (per 100 children observed) within each year
 = (Total Number of Admissions / Number of Children Observed) x 100

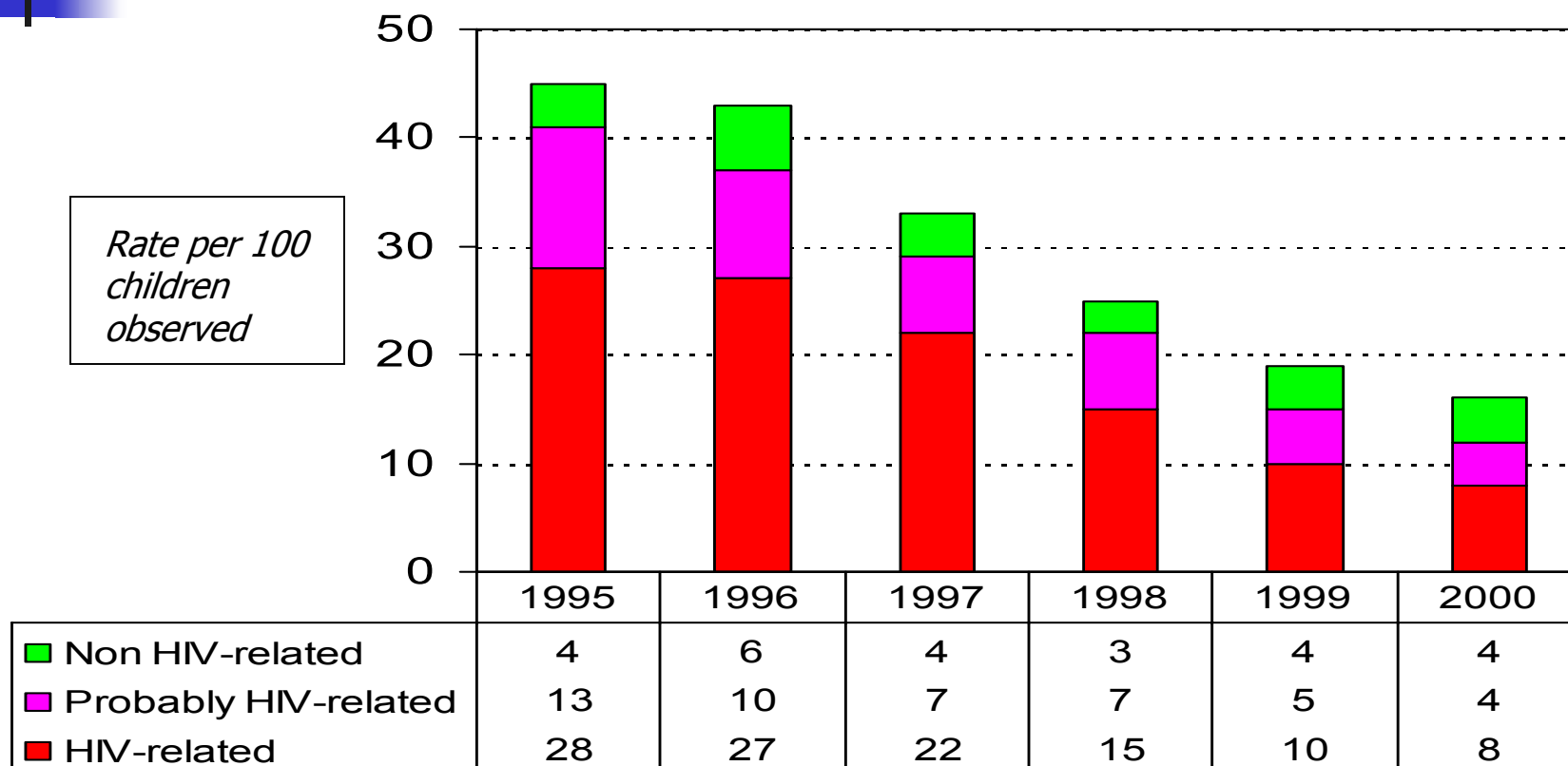
Note: Chi-square test for trend shows a significant decreasing trend in number of children hospitalized from 1995 to 2000 (p<0.00001).

Result 2. Percentage of Children Hospitalized*, by Age at Admission and Year of Hospital Admission, PSD-NYC, 1995-2000.



* Within each age group, percentage of children hospitalized at least once
= $(\text{Number of Hospitalized Children} / \text{Number of Children Observed}) \times 100$

Result 3. Hospitalization Rates*, by Reasons for Hospitalization and Year of Admission, PSD-NYC, 1995-2000.



* Hospitalization Rate within each year
 = (Number of Admissions / Number of Children Observed) x 100

Note: Chi-square test for linear trend shows a significant decreasing trend in hospitalization rates by reasons for hospitalization (p=0.004).

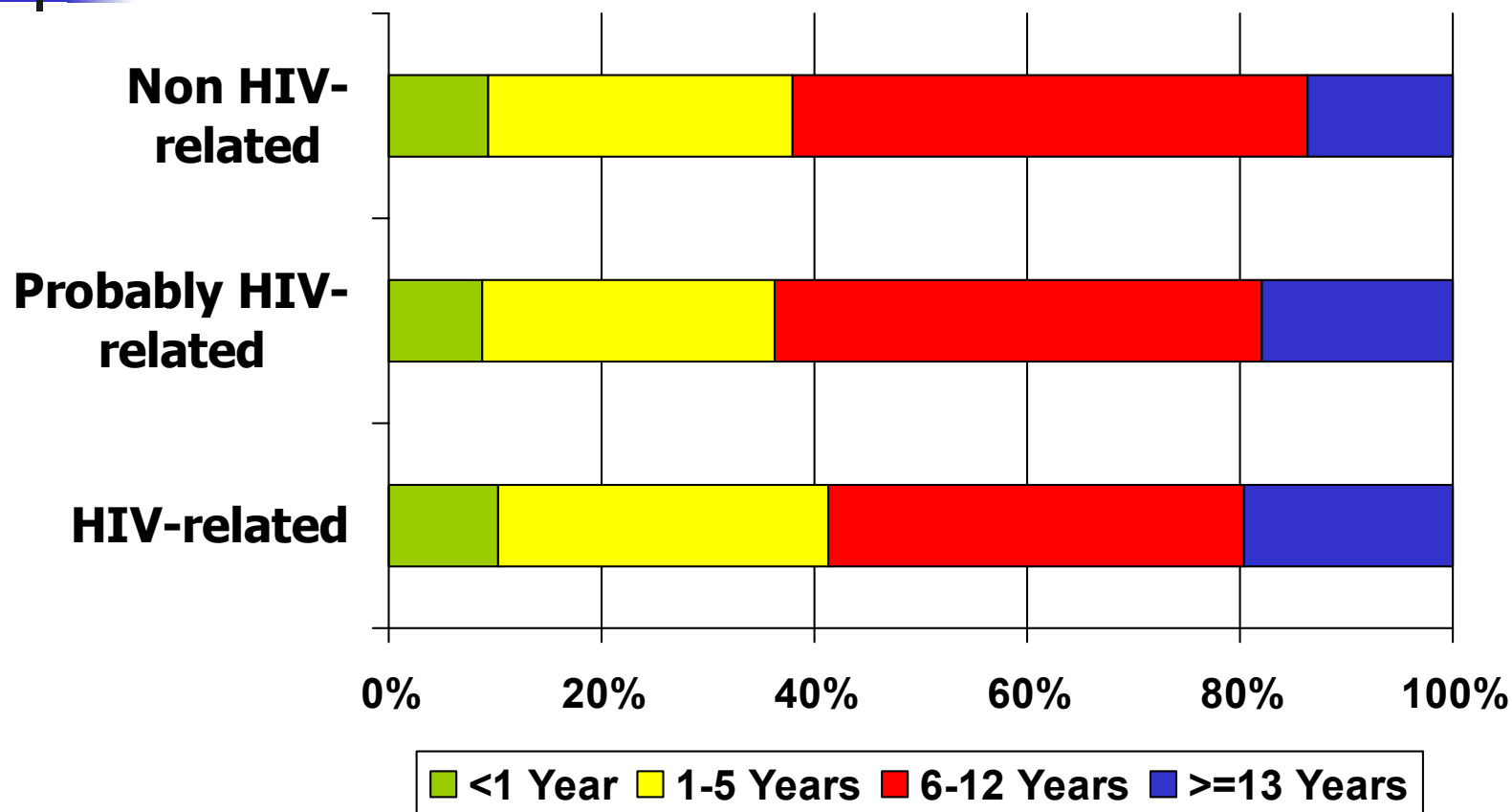


Result 4. Length of Stay, by Reasons for Hospitalization, PSD-NYC, 1995-2000.

		Length of Stay (days)			
Reasons for Hospitalization	N	Median	Range	Mean*	95% C.I.
Any reason	1493	5	1 - 123	8.5	7.9 - 9.1
HIV-related	902	4	1 - 123	9.8	9.0 - 10.6
Probably HIV-related	378	5	1 - 78	6.3	5.5 - 7.0
Non HIV-related	213	4	1 - 99	7.1	5.6 - 8.6

* ANOVA test of differences in mean length of stay by reason for hospitalization: $p < 0.0001$

Result 5. Age at Hospital Admission, by Reasons for Hospitalization, PSD-NYC, 1995-2000.



Note: No significant differences in the distribution of age at admission by reasons for hospitalization ($p=0.48$).



Conclusions (I)

- From 1995 to 2000, the number of admissions and the percentage of hospitalized children decreased steadily.
- The median and mean length of stay did not vary significantly over time, but children hospitalized for an HIV-related reason had a significantly longer length of stay than children with other reasons.
- Hospitalization rates decreased for both HIV-related and probably HIV-related reasons in the period of 1995 to 2000.



Conclusions (II)

- The age-specific percentage of hospitalized children decreased after 1995. No significant differences in age at admission were found among reasons for hospitalization.
- The decreasing hospitalization trend among HIV-infected children since 1995 coincides with the introduction of combination antiretroviral therapy and the pediatric guidelines for prophylaxis of opportunistic infections.



Participating Institutions and Pediatricians at NYC sites

Project Staff at the New York City Department of Health and Mental Hygiene

-
- Albert Einstein Hospital (Arye Rubinstein)
 - Bronx Lebanon Hospital (Saroj Bakshi)
 - Downstate University Hospital (Edward Handelsman)
 - Harlem Hospital (Elaine Abrams)
 - Incarnation Children's Center (Cathy Painter)
 - Jacobi Hospital (Andrew Wiznia)
 - Kings County Medical Center (Ninad Desai)
 - Montefiore Hospital (Nathan Litman)
 - New York Hospital (Joseph Stavola)
 - North Central Bronx Hospital (Jacob Abadi)
 - Lisa-Gaye Robinson, M.D.
 - Sharon Browne
 - Karla McFarlane
 - Catrice Abner
 - Myrna Beckles
 - Patricia Diggs-Herman
 - Stephanie Manning
 - Carol McFarlane
 - Samuel Sawyerr
 - James Swanzy-Parker