Safety, Efficiency, Timeliness, and Clinical Effectiveness

Presentation at **Research Workshop on Adolescent Health Care Services and Systems**

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Charge

1. What do we know about safety, efficiency, timeliness, and clinical effectiveness in adolescent health care? What are the strengths and deficiencies in quality of adolescent care? What are the gaps in our knowledge? How does quality vary between adolescents and other age groups?

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What are the important issues to address?

- What brings youth to health care?
- What are the vulnerabilities/dependencies of youth on the health care system?
- What are the critical health behaviors in adolescence that will affect long term health?

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What brings kids to health care?

Visits	0-5	6-11	12-18
Outpatient	Well child	Well child	Well Child
	URI, OM	URI, OM	ADHD, psych
	Asthma	ADHD	Acne
ED	URI, OM	Wound	Sprain
Hospital	Newborn	Asthma	L&D
	LRI	Appi	Psychoses
		ADHD	ADHD
In hospital Death	Birth	Cancer	Trauma
	Cong Heart	Trauma	Cancer
	Premie/RDS	LRI	Heart, LRI

Miller et al, Amb Peds 2005

Dependencies, Vulnerabilities, Future

- Youth with special health care needs
  - Common chronic conditions (asthma, allergy, ADHD)
  - Less common chronic conditions (sickle cell, cystic fibrosis, JRA, cancer)
- Prevention
  - Sex (STD, pregnancy), drugs/substance use and abuse, violence/injury
  - Obesity

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What do we know about safety?

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Patient Safety-Hospitals

	Med Errors[1,2,3]	Potential ADE[4,5,2,6]	Adverse Events[7,8]	Preventable Adverse Events[7,9]	Patient Safety Indicators[10,11,12]	Med Error[13,14]
0-1m	62	20	0.63	0.53	0.4	1.29
1m-12m	41	5			1.2	
2-5	48	8	0.92	0.22	-	3.39
6-12	58	12			1.2	5.05
13-18	63	11	3.41	0.95	1.6/1.9	2.87
>18	86	14				
>18			3.84	1.5		

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Safety

- Generally: Adolescents have highest rates, or highest rates next to ill neonates, of various types of errors and harm.
- Harm results from diagnostic errors as well as therapeutic. Children and youth generally have less harm from surgery. Labor and delivery may play a large role.

  …adolescents experience the highest rates of both adverse events and preventable adverse events…studies that focus on the specific risks experienced by adolescents in the context of medical care are needed.

  - Woods et al, Pediatrics 2005
- Little known about safety in other settings (ambulatory, mental health) for teens

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Efficient

- Antibiotic Use
  - Overall, 44%/46% of visits for colds/URI's result in rx for antibiotic.
  - Relative to children 0-4 yrs, school age and adolescent children are nearly twice (1.94, 1.88) times as likely to get an antibiotic prescription
    - 1992 NAMCES data, Nyquist et al, JAMA 1998

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Prescribing of Recommended and Nonrecommended Antibiotics at Visits by Children With Sore Throat

Table 2. Prescribing of Recommended and Nonrecommended Antibiotics at Visits by Children With Sore Throat

Characteristic	Proportion of Visits, % (N = 4158)	All Antibiotics (N = 4158)		Nonrecommended Antibiotics* (n = 2313)	
		%†	Adjusted OR (95% CI)‡	%†	Adjusted OR (95% CI)‡
Calendar year, per 1 y			0.93 (0.88-0.97)		1.05 (0.97-1.12)
Age, y					
3-5	17	49	1.00	26	1.00
6-11	45	58	1.52 (1.10-2.11)	25	0.89 (0.57-1.38)
12-17	38	48	0.87 (0.62-1.20)	30	1.16 (0.73-1.84)

Similar rates of receiving either appropriate or inappropriate antibiotics for a sore throat. >25% of children treated with antibiotics for a sore throat do so without an appropriate test, but no information on whether worse for adolescents.

Linder, J. A. et al. JAMA 2005;294:2315-2322.

JAMA

Efficient?

Out of Pockets Expenses: Children and Youth with Special Health Care Needs

	<6 yrs	6-11 yrs	12-17 yrs
Prevalence (%)	10.3	16.4	19.5
OOP expenditures >$500 (%)	11.2%	16.5%	22.6%

Families with teens with a chronic illness are twice as likely to have high out of pocket expenses than families of a child under 6 years old.

Newachek, Arch Ped Adol Med 2005; 159.

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Efficiency

- Adolescents do appear to have a higher rate of overuse of antibiotics.
- Whether there are other areas of over-use and waste in adolescent care is not known.

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Timely

Indicator 4.11: How many children/youth (ages 0-17) have a personal doctor or nurse (PDN) who is consistently available when phone advice or urgent care is needed for child? (derived -- group needing phone advice and/or urgent care only)

		% Not consistently available	% Consistently available when needed	Total %
0-5 yrs old	**%**	**8.5**	**91.5**	**100.0**
	C.I.	(7.7 - 9.3)	(90.7 - 92.3)	
6-11 yrs old	**%**	**7.9**	**92.1**	**100.0**
	C.I.	(7.1 - 8.7)	(91.3 - 92.9)	
12-17 yrs old	**%**	**8.5**	**91.5**	**100.0**
	C.I.	(7.8 - 9.3)	(90.7 - 92.2)	

Roughly 8-9 % of families report being unable to get timely access to their personal provider when needed; this does not differ across the pediatric age groups

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HEDIS® 2004-Access to Primary Care

	Commercial		Medicaid	
	Mean	**P50**	**Mean**	**P50**
Rate 12-24 Months	96.3	97.3	92.0	94.9
Rate 25 Months-6 Yrs	88.4	89.4	81.5	84.7
Rate - 7-11 Yrs	88.4	88.9	81.7	83.3
Rate - 12-19 Yrs	85.7	86.9	78.9	82.2

Adolescents are somewhat less likely than younger children to have had a visit to primary care in the past year in managed care, both commercial and Medicaid.

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Timeliness

- Good data are not available on timeliness
- Difficulties with access to subspecialty care for children with chronic conditions is widespread; how this affects adolescents is not known.
- Parent reports of access do not appear to differ between younger children and adolescents, yet
- Access to and waits for mental health services is a major quality concern

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Effective: Prevention

- Teens do see health care providers
  - WA state: 88% visit in past year
  - FL: 68% preventive visit in past year
- Teens engage in risky behaviors
  - FL: 73% (depression, smoked, sexual intercourse, drinking 30 days, no seatbelt)
- Process and content of preventive health care visits not matched to need
  - Private/confidential only <50% of time (FL)
  - Critical risk behaviors addressed <55% time

Shenkman, Pediatrics 2003; 112; 533-41

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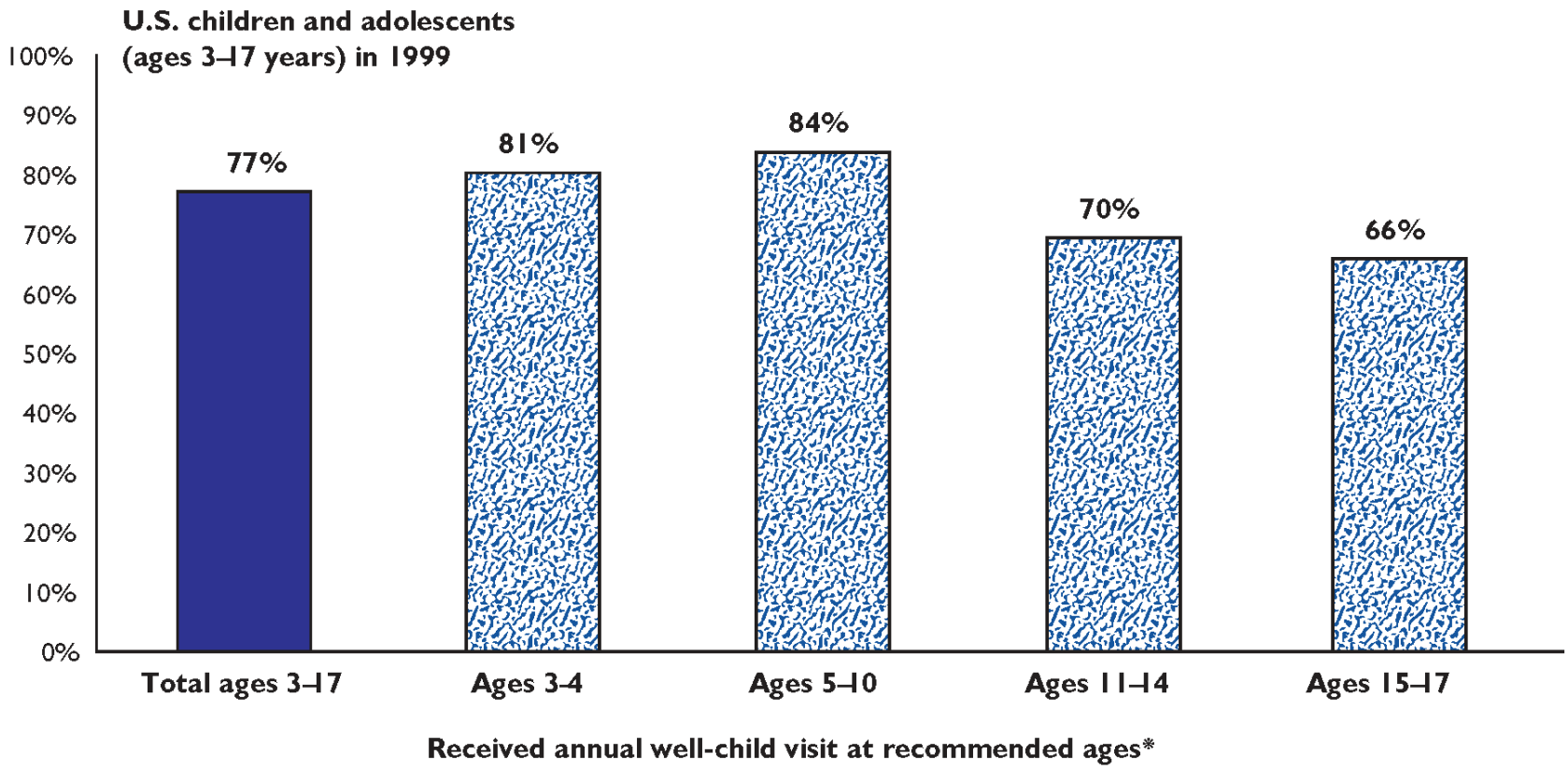
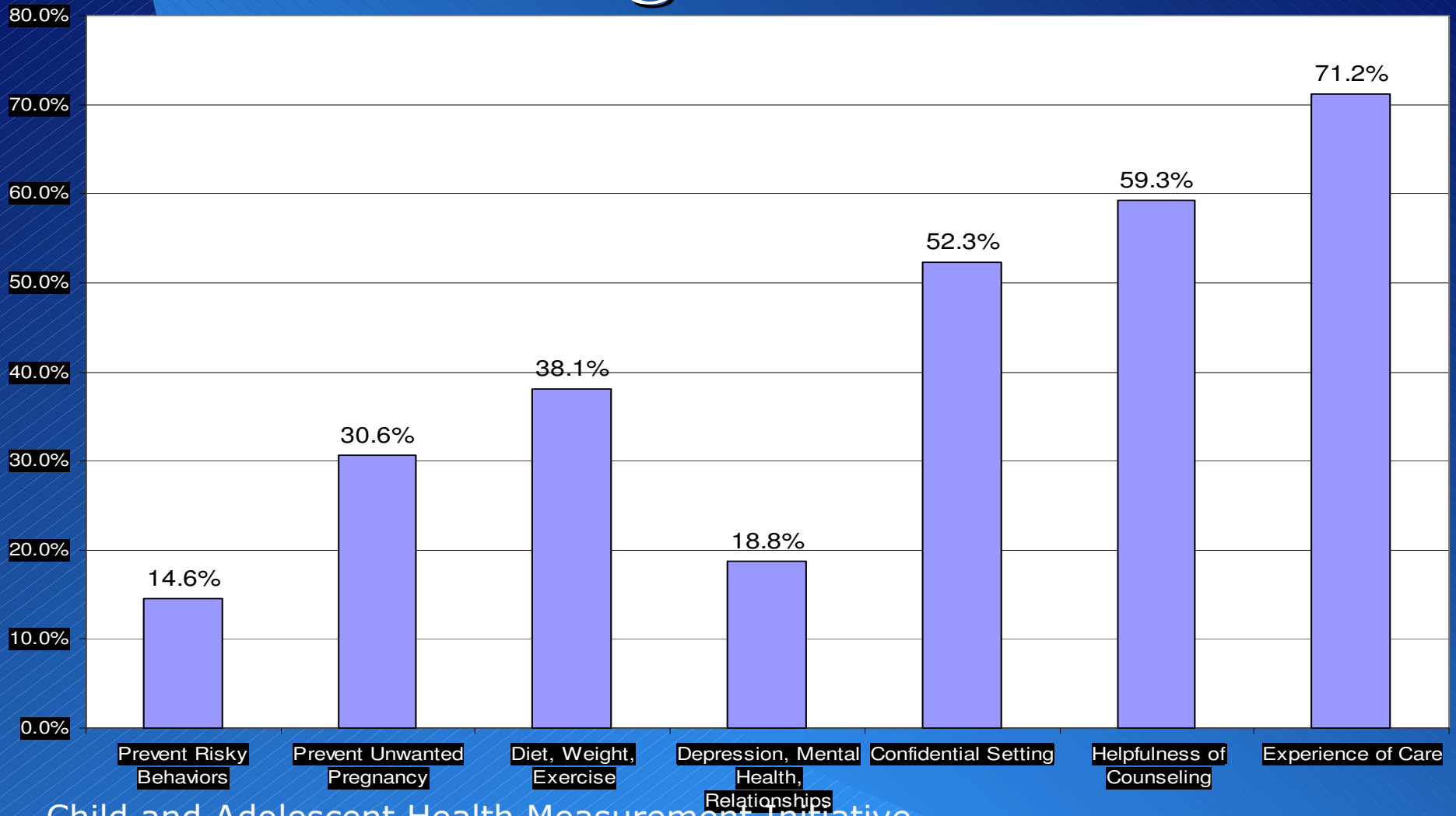
Receipt of Recommended Preventive Health Care Visits

Children who receive regular preventive care are less likely to have emergency visits and preventable hospitalizations. Three-quarters (77%) of U.S. children and adolescents received an annual preventive health visit at recommended ages, according to parent report in 1999. Adolescents were less likely to have a preventive care visit than younger children.



Source: Urban Institute/Child Trends, 1999 National Survey of America's Families (N=35,938), as reported by Yu et al. (2002). *Pediatric experts recommend an annual well-child visit at ages 3–6, 8, and 10–21 years; children ages 7 and 9 years were considered compliant with the recommendations whether or not they received a well-child visit. Data were not sufficient to calculate compliance with recommendations for children ages 0–2 years.

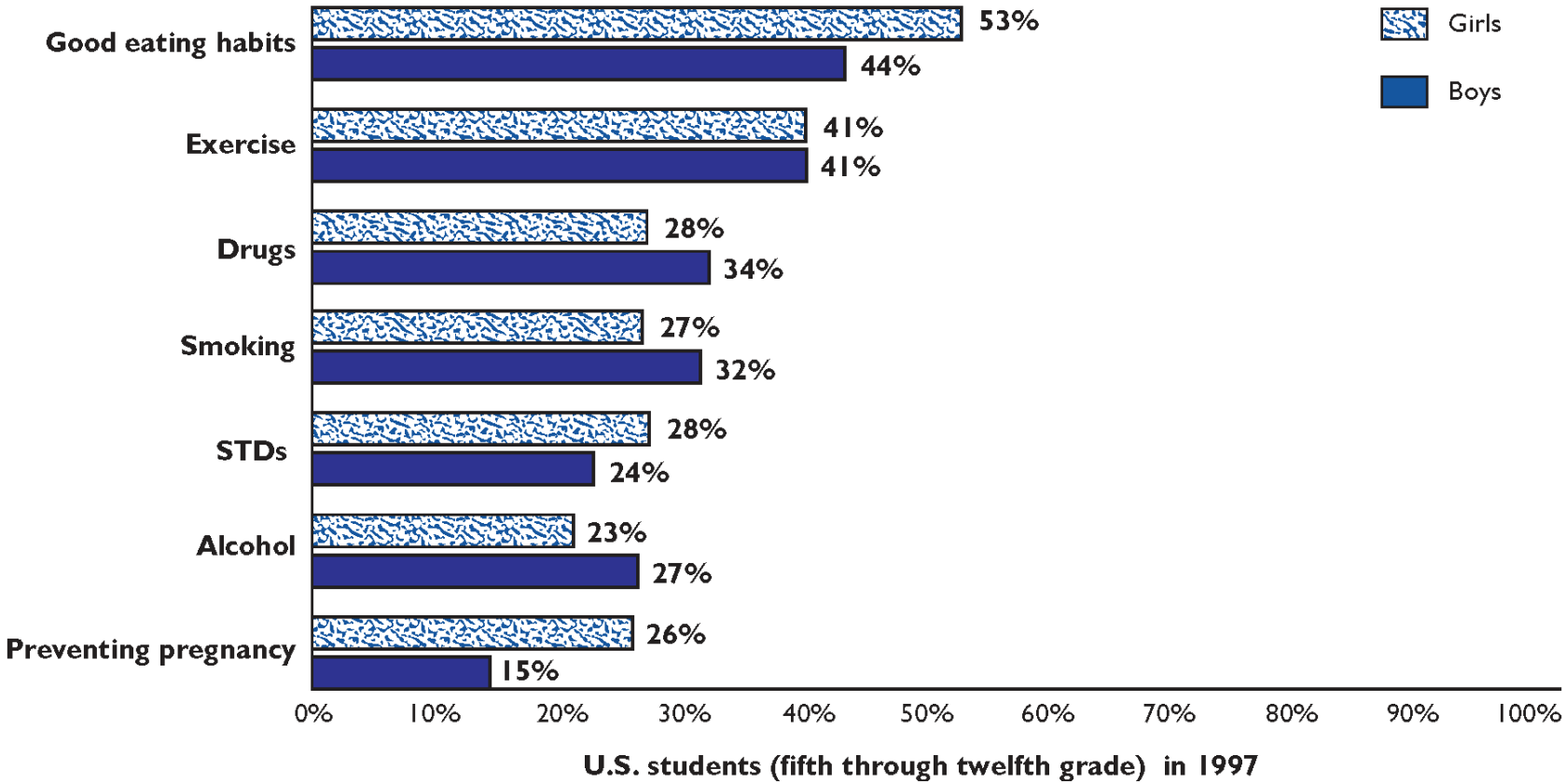
Quality Adolescent Preventive Care--Washington State



Child and Adolescent Health Measurement Initiative
http://dch.ohsuhealth.com/index.cfm?pageid=451&sectionID=133&open=148

Counseling Adolescents on Healthy Behaviors

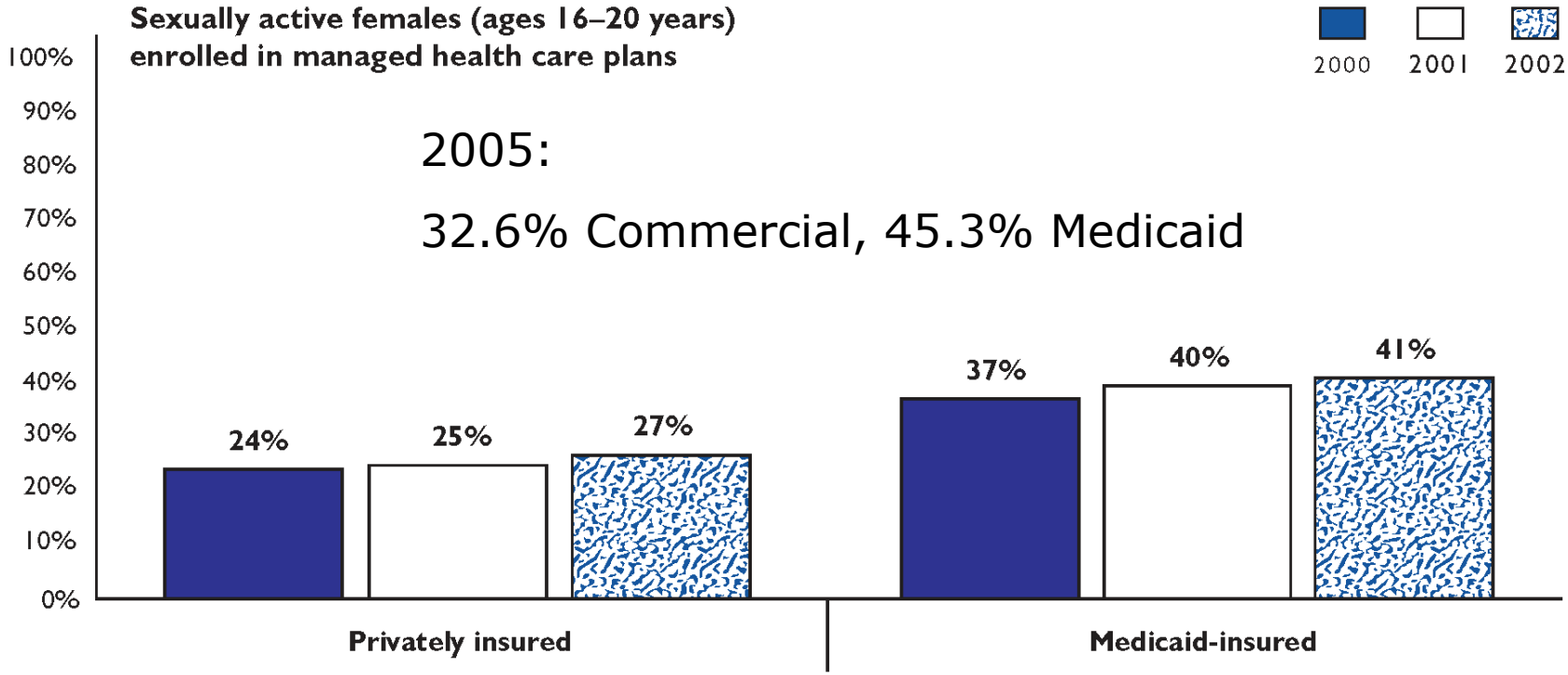
In 1997, less than one-half of adolescents reported that they had ever discussed most recommended health risk topics with their doctor or other health professional.



Source: 1997 Commonwealth Fund Survey of the Health of Adolescents (N=6,728), as reported by Ackard and Neumark-Sztainer (2001). Topics shown represent a subset of those included in the survey that matched the consensus of recommendations of national organizations for screening and/or counseling adolescents at the time of the survey (Elster 1998). "Good eating habits" represents the highest rate achieved for any of the topics included in the survey.

STD Screening for Adolescents: Chlamydia Infection

Chlamydia—a sexually transmitted genital infection—often goes undetected and can lead to infertility or problems in pregnancy if left untreated. Among sexually active adolescent females enrolled in managed care plans, less than three of 10 in private plans and four of 10 in Medicaid plans had been screened for chlamydia infection in the past year.



Source: National Committee for Quality Assurance, HEDIS (N=282 to 334 private plans and 85 to 100 Medicaid plans), as reported by the NCQA (2003a). Used and adapted with permission from the National Committee for Quality Assurance.

HEDIS® 2005 Adolescent Immunization Status

	Commercial		Medicaid	
	Mean		**Mean**	
MMR Rate	76.8		71.2	
Hepatitis B Rate	66.9		60.6	
VZV Rate	55.8		46.3	
AIS - Combo 1 Rate	63.1		56.6	
AIS - Combo 2 Rate	46.9		37.5	

Adolescent immunization rates lag rates in early childhood.

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HEDIS® 2005-Annual Dental Visits

	Mean
4-6 Year Olds	46.3
7-10 Year Olds	48.1
11-14 Year Olds	43.6
15-18 Year Olds	37.5
19-21 Year Olds	28.7

Older teens and young adults are less likely to have an annual dental visit than younger children.

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HEDIS® 2005 Adolescent Well Visit

	Commercial		Medicaid	
	Mean		**Mean**	
AWC – Rate	38.3		39.3	

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Effective: Acute Care

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Effective: Chronic Care

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HEDIS® 2005 Medication Use for Asthma

	Commercial	Medicaid
	Mean	**Mean**
age 5 to 9	75.9	62.9
age 10 to 17	69.5	61.8
age 18 to 56	73.8	64.2
Rate-Combined	71.5	63.6

Adolescents in commercial health plans are less likely be on appropriate medication than both younger and older enrollees. Medicaid rates are generally lower, but do not differ by age

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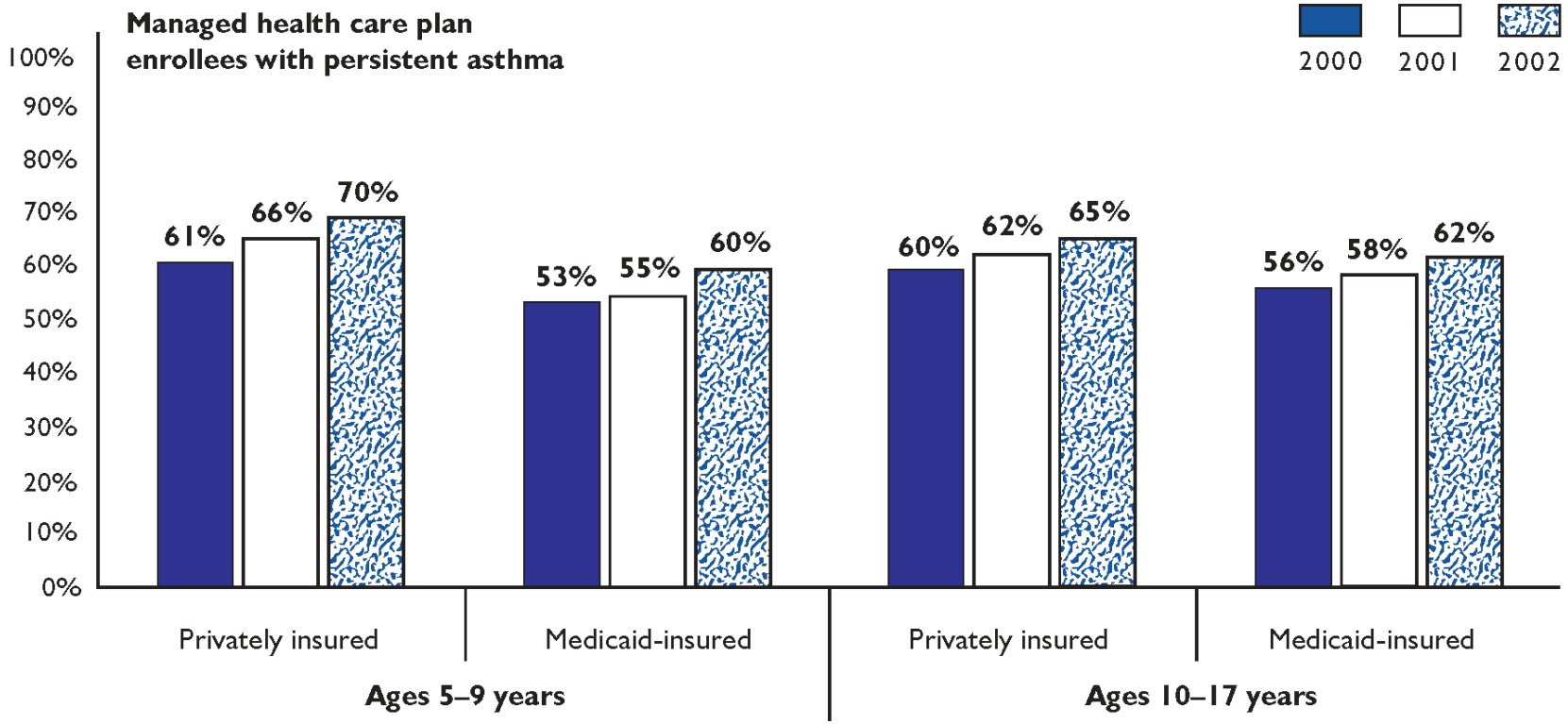
Prescription of Preventive Medication for Long-Term Asthma Control

Only about two-thirds of children and adolescents with persistent asthma enrolled in managed care plans receive a prescription for a recommended medication to control their asthma and prevent asthma attacks. Performance improved sequentially over the past three years.



Received a prescription for an appropriate preventive medication for long-term asthma control

Source: National Committee for Quality Assurance, HEDIS (N= 242 to 285 private plans and 53 to 90 Medicaid plans), as reported by the NCQA (2003a). Used and adapted with permission from the National Committee for Quality Assurance.

Effectiveness: Chronic Care

Transition to Adult Care

Age, years	Doctor Has Talked About Changing Needs in Adulthood	Child Has Plan for Addressing Changing Needs	Doctors Discussed Shift to Adult Provider	% Meeting All3
13–15 years	49.8%	57.0%	36.3%*	12.9%*
16–17 years	50.2%	63.1%	51.2%*	19.5%*

Lotstein, Pediatrics 2005.

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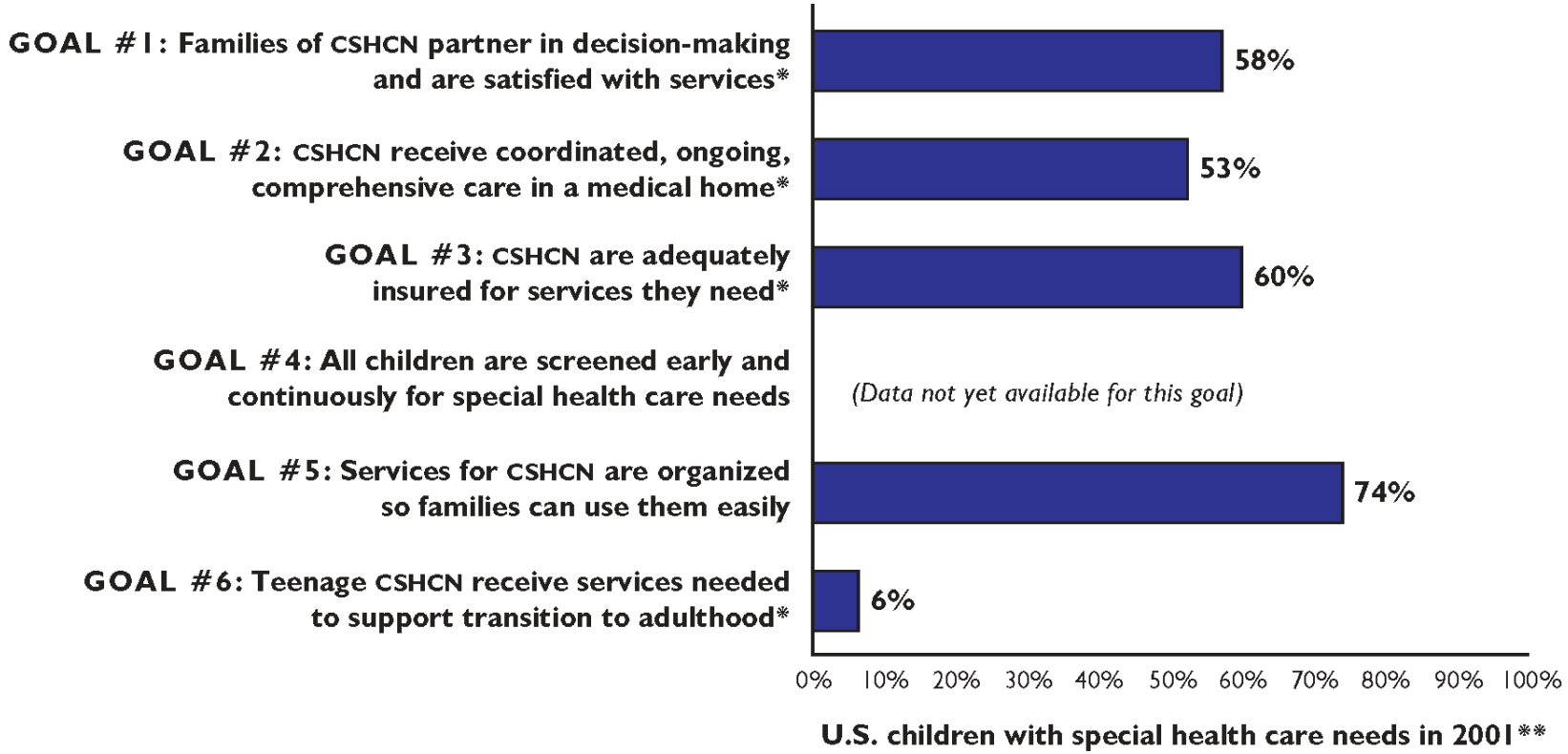
Progress Toward Implementing National Goals for Community-Based Systems of Services for Children with Special Health Care Needs

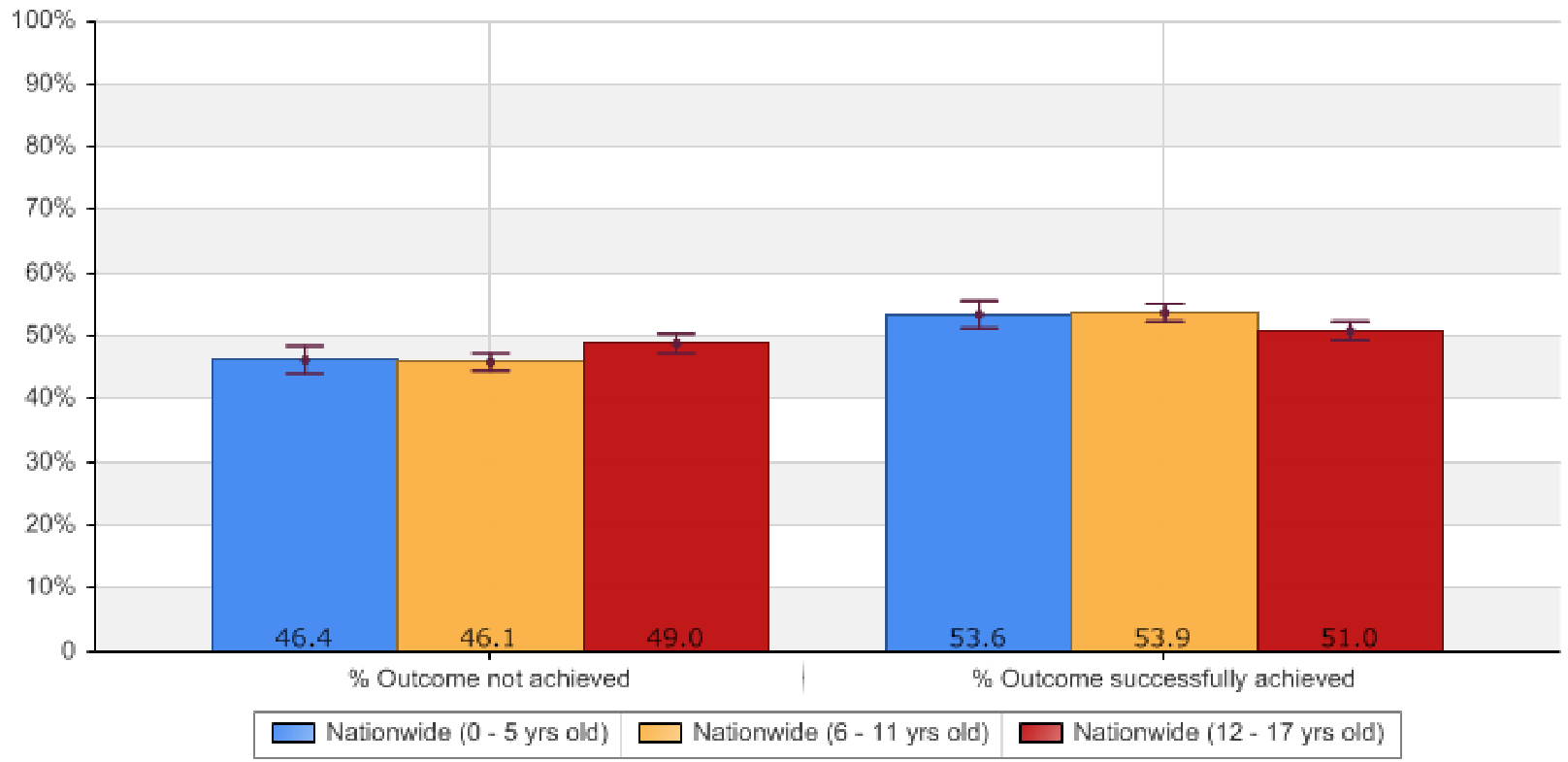
Among six goals identified by the Maternal and Child Health Bureau to promote the health and well-being of children with special health care needs (CSHCN), four were achieved by one-half to three-quarters of CSHCN, according to parent report in 2001. Very few teens received all the services needed to help them make a successful transition to adulthood.



Source: National Center for Health Statistics, 2001 National Survey of Children with Special Health Care Needs (N=38,866 households), as reported by the CDC (2003d).

*See Chart 3:7 for components of these goals. **Ages 0–17 years for Goals #1–5 and ages 13–17 years for Goal #6.

Chronic Care: CYSHCN with Medical Homes



Child and Adolescent Health Measurement Initiative (2005). *National Survey of Children' with Special Health Care Needs*, Data Resource Center on Child and Adolescent Health website. Retrieved mm/dd/yy from www.cshcndata.org

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Effective: Chronic Care/Mental Health

- Among children with asthma 12-18 followed in primary care:
  - 33% with anxiety or depressive disorders and
  - 45% with major depression recognized within a year
  - Of those with major depression:
    - 1/5 received appropriate medication
    - 1/6 received appropriate follow up/therapy
      - Katon, Medical Care, 2006
- California Public Mental Health Clinics
  - Clinical standards reasonably well met
  - System standards (e.g., connect with community resources) poorly met
      - Zima, JAACAP, 2005.

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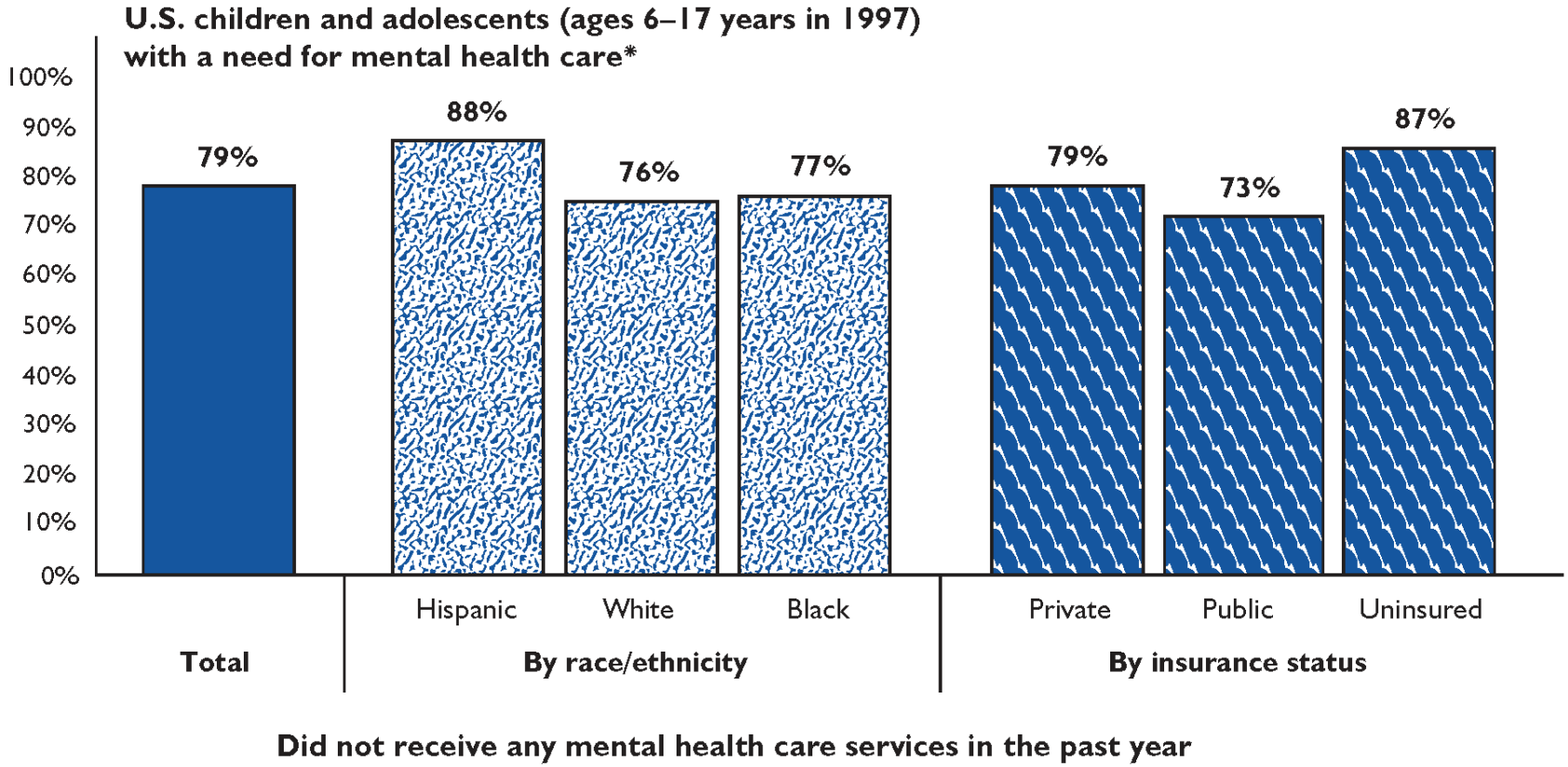
Unmet Need for Mental Health Care

Among children and adolescents with mental health problems severe enough to indicate a clinical need for mental health evaluation, four of five had not received any mental health services during the past year, according to parent report in 1997. Children of Hispanic ethnicity and those without insurance were more likely to have an unmet need for care.



Source: Urban Institute/Child Trends, 1997 National Survey of America's Families (N=21,824), as reported by Kataoka et al. (2002). *Need for mental health care was defined by researchers based on parent-reported child behavior (see technical appendix for methodology).

Effective Care:

- Prevention: Youth receive care, but not the right kind—not tailored to their needs, assets and vulnerabilities.
- Acute care: Measures are needed—trauma, mental health, obstetric
- Chronic Care:
  - Transition to adult weak
  - Appropriate medications improved, but still concerning
  - Mental health quality poor: recognition, rx.
  - Better care and knowledge needed re: obesity and its complications

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How do these differ across systems?

- Given limited data overall, hard to say how differs by systems:

  Hint that while commercial plan performance may be overall better than Medicaid, that adolescents may fare relatively worse.

  Different types of care received in different systems
  - Mental health, reproductive health more in school systems
  - Traditional medical care in practices, CHC's.

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What research is needed?

- Measures of acute care, mental health, obstetric
- Understanding of specific safety risks, inpatient and ambulatory
- Timeliness
- Impact of systems

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How can we improve?

- Leadership
  - Vision: Adolescents' needs critical to address
  - Coalition (cross sector), Measures
- Participation of youth
- Results:
  - Projects that produce results, that are aligned with overall goals
- Technique:
  - Improvement methods, care model, more rapid learning
- Tools
  - Information technology
- Environment
  - Financial access, confidentiality
  - Financial instruments to account for long term impact
  - Cross sectoral programs/policies

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Areas of Focus

- Mental Health:
  - Primary Care
  - Specialty Care
- Transition for Children with Special Health Care Needs
- Effective Preventive Services
- Obesity

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Footnotes to Safety Table

[1] Per 100 admissions
[2] Kaushal et al, JAMA 2001
[3] Relative to adults in adult care settings, medication errors for children occurred at a similar rate (5.7 vs. 5.3 per 100 orders)
[4] Medication error with potential for causing harm
[5] Per 100 admissions
[6] Relative to adults in adult care settings, potential ADE's for children are much more common (1.1 vs. 0.35 per 100 orders)
[7] Woods et al., Pediatrics, 2005 (Colorado/Utah)
[8] Adverse event=injury caused by medical management and led to prolonged stay or disability at discharge. Figure is rate per 100 admissions
[9] An adverse event "where there was enough information currently available to have avoided the vent using currently accepted practice.
[10] Based on diagnosis codes indicating events with clear patient safety concerns. PSI indicators here are for: laceration; perforation; postoperative infection; transfusion reaction; foreign bode left; infection; iatrogenic conditions; wound disruption; miscellaneous misadventures; obstetrical misadventures. Birth trauma is the largest pediatric PSI, and is excluded from this.
[11] Age categories here are 0-1 m; 1m-12 m; omitted 2-4; 5-9; 10-14/15-18. These are all Odds Ratios, indicating relative risk by age.
[12] Later report of final PSI indicators and 2000 data set did not report on adolescent data
[13] Slonim et al., Pediatrics, 2003
[14] Based on specific ICD-9 Codes indicating medical error; per 100 admissions; 1997 data.