SBHCs – Can They Cure Adolescents?

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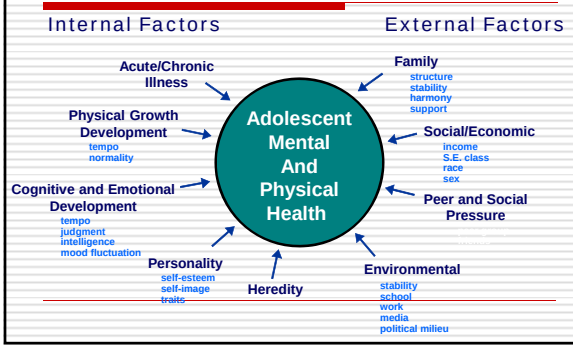
Factors Associated with Adolescent Mental and Physical Health



The Big Question

What places adolescents at risk for adverse physical and mental health events?

Why Is Adolescent Health Important?

What is the National Interest in Adolescent Health?

Caught in the Intersection of Biology and Culture

Health behaviors are established in youth and persist into adulthood.

In the United States Behaviors Responsible for the Major Health Problems

- Unintentional and intentional injuries
- Alcohol and drug abuse
- Sexual behaviors that cause:
  - STDs including HIV
  - Unintended pregnancies
- Tobacco use
- Inadequate physical activity
- Dietary patterns

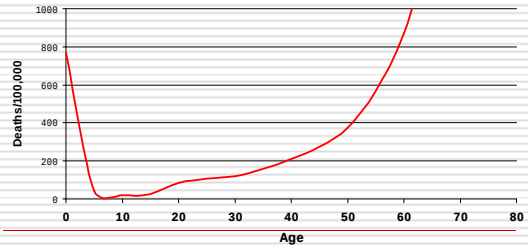
What is the role of SBHCs in improving adolescent health and decreasing morbidity and mortality?

In the United States in 2009, there were 21.5 million adolescents aged 15–19 years and 21.5 million aged 20–24 years.

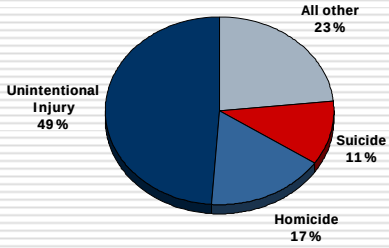
Adolescents and young adults (ages 15–24 years) constitute 14% of the U.S. population. Between 1990 and 2006, the population

10–24 years of age increased from 40.1 to 63.3 million.
In the next several decades, the proportion of racial and ethnic minority adolescents is expected to increase. It is projected that by 2040 the percentage of non-Hispanic whites will drop below 50% of the total adolescent population.

US Mortality Rate by Age

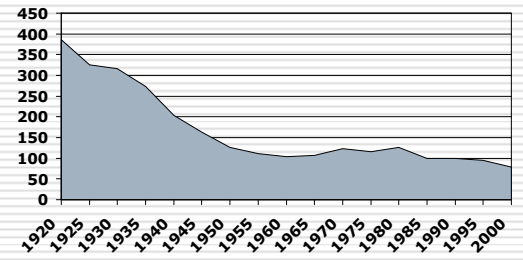


Current Mortality Ages 15-19 Years

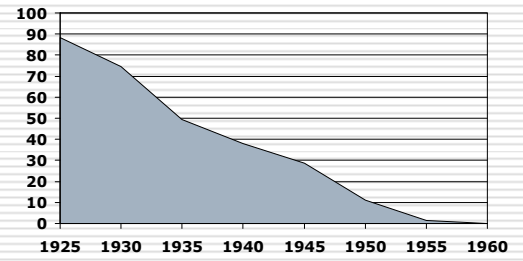


How Has Adolescent Health Changed Over The Past Century In The United States?

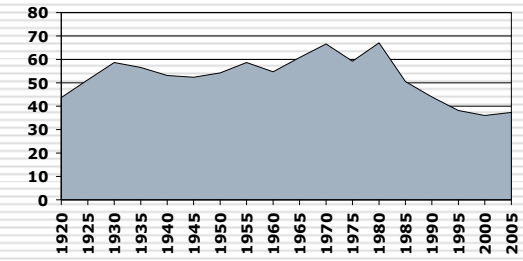
Mortality – All Causes
Ages 15-24
All Causes/100,000

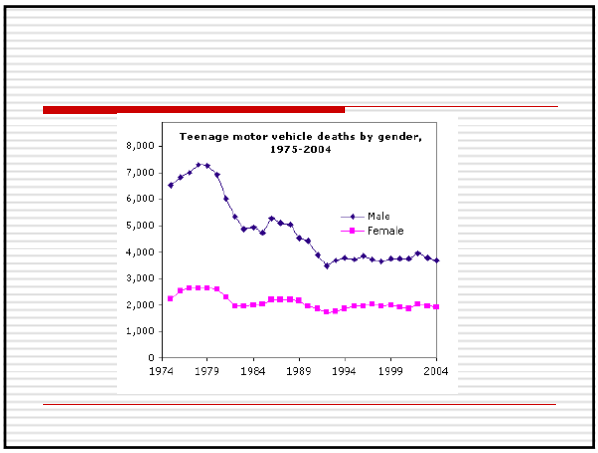


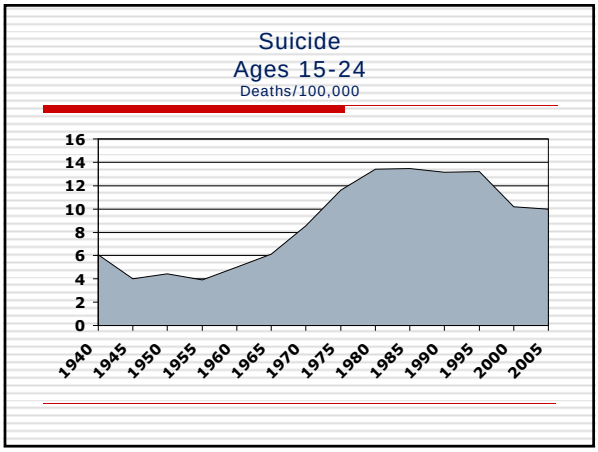
Tuberculosis
Ages 15-24
Deaths/100,000

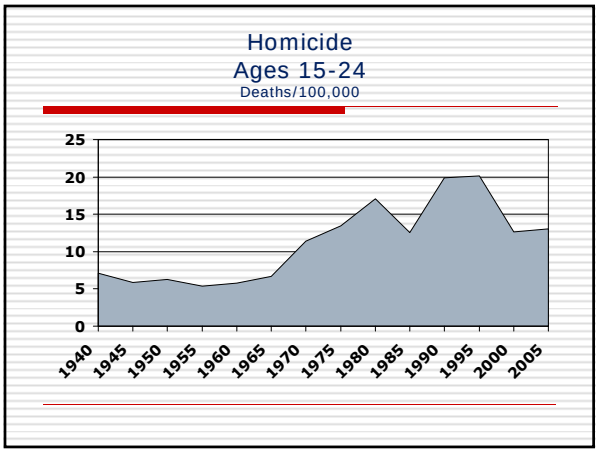


Accidents
Ages 15-24
Deaths/100,000




Teenage motor vehicle deaths by gender, 1975-2004
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1974
1979
1984
1989
1994
1999
2004
Male
Female


Suicide
Ages 15-24
Deaths/100,000
16
14
12
10
8
6
4
2
0
1940
1945
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005

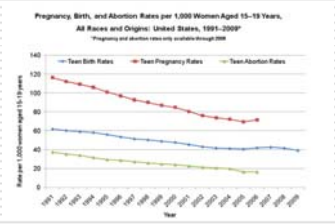

Homicide
Ages 15-24
Deaths/100,000
25
20
15
10
5
0
1940
1945
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005

Adolescent Sexuality

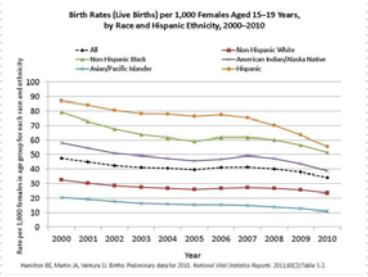
Impact of Sexual Behaviors

- 757,000 pregnancies occur each year among women aged 15 – 19 years
- 9.1 million cases of sexually transmitted diseases occur each year among persons aged 15 – 24 years
- An estimated 5,089 cases of HIV/AIDS occur each year among persons aged 15 – 24 years

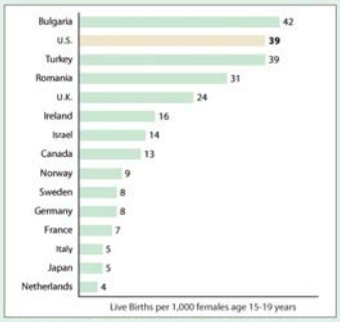
Pregnancy, Birth, and Abortion Rates per 1000 Women Aged 15-19, 1991-2009



Birth Rates per 1000 Women Aged 15-19, by Race and Hispanic Ethnicity



U.S. Teen births highest of all industrialized countries



Sources – International data: United Nations Demographic Yearbook 2008 Table 10. Available from http://unstats.un.org/unsd/demographic/products/dyb/dyb2008.htm
U.S. data: Hamilton BE, Mar tin JA, Ventura SJ. Births: Preliminary data for 2010. National vital statistics reports; vol 59 no 3. Hyattsville, MD: National Center for Health Statistics, 2010.

Sexually Transmitted Infections

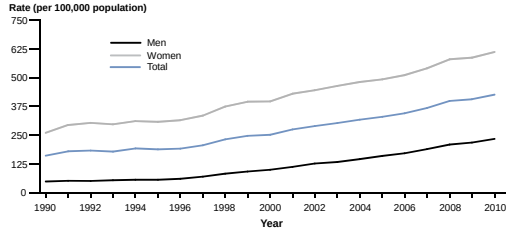
Impact of HPV and Related Disease in Adolescents and Young Adults

- Cervical and vaginal HPV infections are the most common sexually transmitted infections in sexually active adolescents and young adults in the US.
- An estimated 6.2 million sexually active men and women in the US become infected with HPV each year.
  - 74% of these infections are estimated to occur in 15- to 24-year-olds.
  - Lifetime risk for sexually active men and women is at least 50%.
- Estimated lifetime risk of developing genital warts ~10%

Cervical Cancer Is the First Identified Cancer Solely Attributed to an Infectious Agent

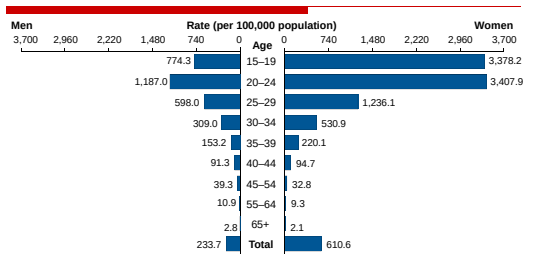
- United States:
  - Annual incidence of Cervical Cancer: ~10,000 cases per year
  - ~10 women die each day of cervical cancer
- Worldwide:
  - Second most common cause of cancer death in women
  - Annual incidence: ~500,000 cases per year
  - ~240,000 deaths each year

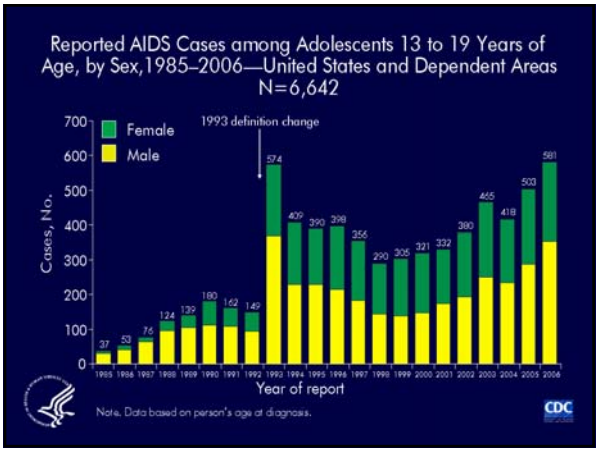
Chlamydia—Rates by Sex, United States, 1990–2010



NOTE: As of January 2000, all 50 states and the District of Columbia have regulations that require the reporting of chlamydia cases.

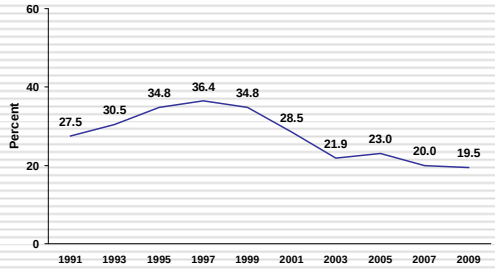
Chlamydia—Rates by Age and Sex, United States, 2010





Substance Use

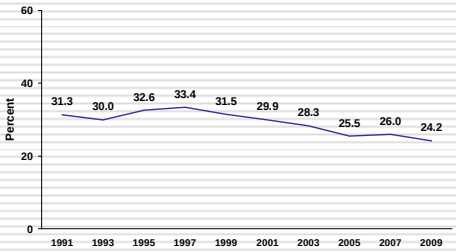
Percentage of High School Students Who Reported Current Cigarette Use,* 1991 – 2009



* Smoked cigarettes on at least 1 day during the 30 days before the survey.

National Youth Risk Behavior Surveys, 1991 – 2009

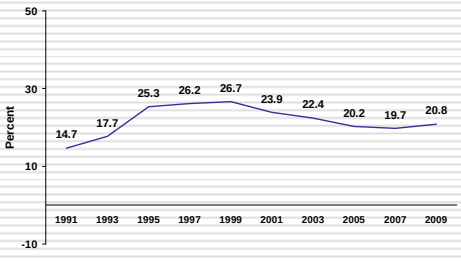
Percentage of High School Students Who Reported Episodic Heavy Drinking,* 1991 – 2009



* Had 5 or more drinks of alcohol in a row within a couple of hours on at least 1 day during the 30 days before the survey.

National Youth Risk Behavior Surveys, 1991 – 2009

Percentage of High School Students Who Reported Current Marijuana Use,* 1991 – 2009

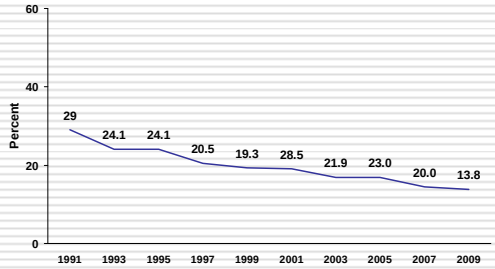


* Used marijuana one or more times during the 30 days before the survey.

National Youth Risk Behavior Surveys, 1991 – 2009

Depression and Suicide

Percentage of High School Students Who Reported Seriously Considering Attempting Suicide 1991 – 2009



* Smoked cigarettes on at least 1 day during the 30 days before the survey.

National Youth Risk Behavior Surveys, 1991 – 2009

Youth Suicide

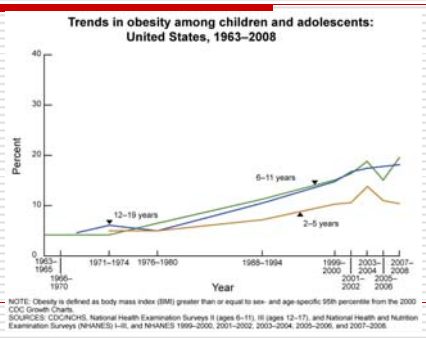
Suicide (i.e., taking one's own life) is a serious public health problem that affects even young people. For youth between the ages of 10 and 24, suicide is the third leading cause of death. It results in approximately 4400 lives lost each year. The top three methods used in suicides of young people include firearm (46%), suffocation (37%), and poisoning (8%).

Deaths from youth suicide are only part of the problem. More young people survive suicide attempts than actually die. A nationwide survey of youth in grades 9-12 in public and private schools in the United States (U.S.) found that 15% of students reported seriously considering suicide, 11% reported creating a plan, and 7% reporting trying to take their own life in the 12 months preceding the survey. Each year, approximately 149,000 youth between the ages of 10 and 24 receive medical care for self-inflicted injuries at Emergency Departments across the U.S.

Suicide affects all youth, but some groups are at higher risk than others. Boys are more likely than girls to die from suicide. Of the reported suicides in the 10 to 24 age group, 84% of the deaths were males and 16% were females. Girls, however, are more likely to report attempting suicide than boys. Cultural variations in suicide rates also exist, with Native American/Alaskan Native and Hispanic youth having the highest rates of suicide-related fatalities. A nationwide survey of youth in grades 9-12 in public and private schools in the U.S. found Hispanic youth were more likely to report attempting suicide than their black and white, non-Hispanic peers.

Nutrition

Obesity in Children and Adolescents
(BMI > 95%)



Prevalence of Obesity by Race/Ethnicity
1988-1994 and 2007-2008

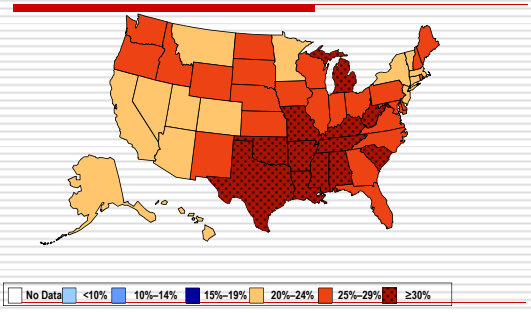
Boys

- 11.6% to 16.7% among Whites
- 10.7% to 19.8% among Blacks
- 14.1% to 26.8% among Mexican-Americans

Girls

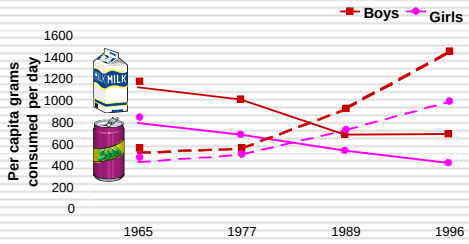
- 8.9% to 14.5% among Whites
- From 16.3% to 29.2% among Blacks
- From 13.4% to 17.4% among Mexican-Americans

Obesity Trends* Among U.S. Adults 2010



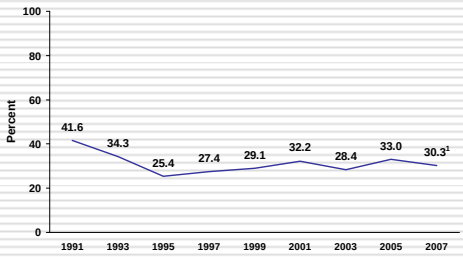
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

Beverage Intake Among Adolescents Aged 11-18



SOURCE: Cavadini C et al. Arch Dis Child 2000;83:18-24 (based on USDA surveys)

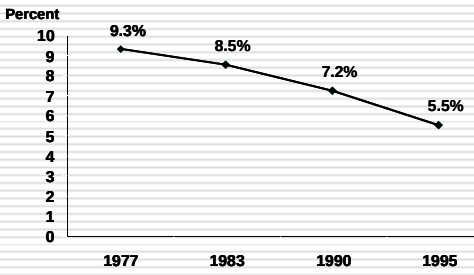
Percentage of High School Students Who Attended Physical Education Classes Daily,* 1991 – 2007



* 5 days in an average week when they were in school.
[1] Decreased 1991-1995, no change 1995-2007, p < .05

National Youth Risk Behavior Surveys, 1991 – 2007

Percentage of All Trips Made From Home by Walking



Source: National Personal Transportation Survey, 1995

Academic Achievement in the US

Organization for Economic Co-operation and Development (OECD)

2009 Programme for International Student Assessment – test scores

#	Reading – Overall		Mathematics		Science	
1	China: Shanghai	556	China: Shanghai	600	China: Shanghai	575
2	Korea	539	Singapore	562	Finland	554
3	Finland	536	Hong Kong	555	Hong Kong	549
4	Hong Kong	533	Korea	546	Singapore	542
5	Singapore	526	Chinese taipei	543	Japan	539
6	Canada	524	Finland	541	Korea	538
7	New Zealand	521	Liechtenstein	536	New Zealand	532
8	Japan	520	Switzerland	534	Canada	529
9	Australia	515	Japan	529	Estonia	528
10	Netherlands	508	Canada	527	Australia	527
11	Belgium	506	Netherlands	526	Netherlands	522
12	Norway	503	China: Macao	525	Chinese taipei	520
13	Estonia	501	New Zealand	519	Liechtenstein	520
14	Switzerland	501	Belgium	515	Germany	520
15	Iceland	500	Australia	514	Switzerland	517
16	Poland	500	Germany	513	United Kingdom	514
17	United States	500	Estonia	512	Slovenia	512
18	Liechtenstein	499	Iceland	507	China: Macao	511
19	Germany	497	Denmark	503	Poland	508
20	Sweden	497	Slovenia	501	Ireland	508
21	France	496	Norway	498	Belgium	507
22	Ireland	496	France	497	Hungary	503
23	Chinese taipei	495	Slovak Republic	497	United States	502
					PISA average :	501
24	Denmark	495	Austria	496	Norway	500
			PISA average :	496		
25	Hungary	494	Poland	495	Czech Republic	500
26	United Kingdom	494	Sweden	494	Denmark	499
	PISA average :	493				
	Reading – Overall		Mathematics		Science	
27	Portugal	489	Czech Republic	493	France	498
28	China: Macao	487	United Kingdom	492	Iceland	496
29	Italy	486	Hungary	490	Sweden	495
30	Latvia	484	Luxembourg	489	Austria	494
31	Greece	483	United States	487	Latvia	494
32	Slovenia	483	Ireland	487	Portugal	493
33	Spain	481	Portugal	487	Lithuania	491
34	Czech Republic	478	Italy	483	Slovak Republic	490

Academic Achievement in the US

- International surveys show that the performance gap between the most- and least-proficient students in the United States is among the highest of all OECD countries.
- Despite the myth that other countries achieve only because they have small, homogenous student populations, data shows that many countries' schools successfully assimilate immigrant or high-poverty populations that are proportionately larger than those in the United States.
- Moreover, the rapidly growing minority populations that represent a disproportionate share of America's lowest-achieving students are projected to make up more than half of the U.S. population by 2050

References
http://www.all4ed.org/files/IntlComp_FactSheet.pdf

Kirsch, I., H. Braun, K. Yamamoto, and A. Sum. 2007. America's perfect storm: Three forces changing our nation's future. Princeton, NJ: Educational Testing Service.
Organisation for Economic Co-operation and Development [OECD]. 2007. PISA 2006: Science competencies for tomorrow's world. Paris.

U.S. Department of Education. National Center for Education Statistics. 2007. Highlights from PISA 2006: Performance of U.S. 15-year-old students in science and mathematics literacy in an international context (NCES 2008–016). Washington, DC.

Academic Achievement in the US

Scientific Literacy

- One quarter (24.4 percent) of U.S. fifteen-year-olds do not reach the baseline level of science achievement. This is the level at which students begin to demonstrate the science competencies that will enable them to use science and technology in life situations

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Academic Achievement in the US

Mathematics Literacy

- Over one quarter (28.1 percent) of American fifteen-year-olds performed below the baseline level of mathematics proficiency at which students begin to demonstrate the kind of skills that enable them to use mathematics actively in daily life.

References
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Academic Achievement in the US

Problem Solving

- In 2003, the U.S. ranked 24th of 29 OECD countries in problem solving, and the average score of 477 fell well below the OECD average of 500.
- Half of American students fell below the threshold of problem-solving skills considered necessary to meet emerging workforce demands.

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Academic Achievement in the US

Equity in Achievement

- The United States has an average number of students who perform at the highest proficiency levels, but a much larger proportion who perform at the lowest levels.
- The United States is the only member country to have relatively high proportions of both top and bottom performers. Although American white students' average science score of 523 ranked above the OECD average, Hispanic American (439), American Indian and Native Alaskan (436), and African American (409) students all fell far below.
- These groups scored similarly to the national averages of Turkey and Mexico, the two lowest-performing OECD member countries. The difference between the science scores of two students of different socioeconomic backgrounds is higher in the United States than in almost any other country.

References
http://www.all4ed.org/files/IntlComp_FactSheet.pdf

Kirsch, I., H. Braun, K. Yamamoto, and A. Sum. 2007. America's perfect storm: Three forces changing our nation's future. Princeton, NJ: Educational Testing Service.
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As we look to the future, what should the strategies be to further Adolescent Health?

What should be the role of:

Public Health
Clinical Medicine
School Health
Science and Technology
Education
Economics
Legislation

Where do SBHCs fit into the matrix?

Prevention

- Primary Prevention: Preventing the occurrence of disease or injury
- Secondary Prevention: Early detection and intervention
- Tertiary Prevention: Minimizing the effects of disease and disability

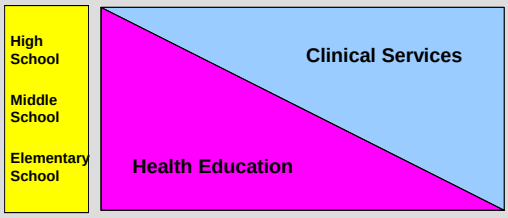
Prevention Matrix

	Primary	Secondary	Tertiary
Medical			
Educational			
Legal			
Environmental			
Economic			
Social			
Cultural			
Religious			
Technological			

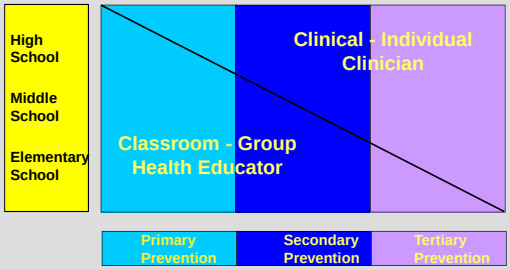
The Attraction of the Schools

- Operationalizing prevention
- Go where the kids are

School-Based Clinics
Health Education and Clinical Services



School-Based Clinic Health Education



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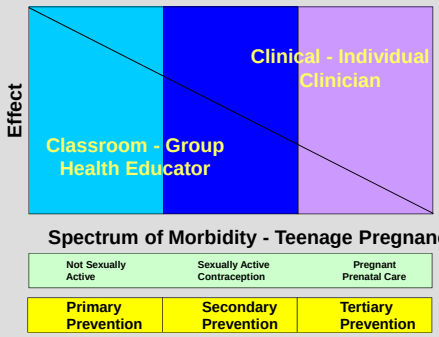

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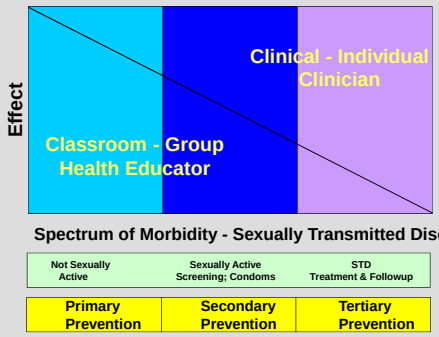

Questions