

Northwest Public Health

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Our Youth, Their Lives

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The Importance of Our Youth

I'm pleased to see an issue of *Northwest Public Health* devoted primarily to youth and the range of programs throughout our region designed to assist young people. Since our youth are the future—and choices made during adolescence can determine lifelong health—it's important to focus on the health and well-being of our young people and what works best to promote their healthy development.

Given the recently published statistics on obesity in children and youth, we have our work cut out for us. According to a report in late February from the University of Washington's Human Services Policy Center, close to a quarter of the state's children in the 8th, 10th, and 12th grades are overweight or obese. Nationally, childhood obesity rates have increased fivefold since the 1970s. The negative consequences of this trend—the risk of serious health problems such as heart disease and diabetes and their effect on our health care system—are daunting. A complex combination of genetic, social, environmental, and behavioral factors has led to our obesity epidemic yet also offers multiple avenues for intervention. And that's why research is so important.

Whether we are considering obesity, sexual behavior, substance abuse, poverty, violence, or any other of the myriad risk factors in the lives of youth, performing research and sharing best practices are key to reducing risks and promoting healthy development. In the University of Washington School of Public Health and Community Medicine, many of our faculty and students are committed to research on children and adolescents and to training the professionals who work in the field.

Our Maternal and Child Health (MCH) Program, for instance, focuses on understanding major maternal and child health problems and on strategies for preventing those conditions. The program prepares students for careers in maternal and child public health practice and is designed for individuals with clinical or public health experience who want to improve programs and policies that promote the health of children.

MCH also supports training programs such as Leadership Education in Adolescent Health, which provides interdisciplinary training to the next generation of leaders in maternal and child health—leaders who will influence and train clinicians, public policy and public health experts, researchers, and educators.

In addition to the work of MCH and a number of other centers and institutes affiliated with the School, the research interests of many individual faculty members focus on adolescent health. Here are but a few examples:

- Childhood precursors to adult disease and prevention of the major causes of death in the US through interventions in childhood and adolescence
- Social and behavioral risk factors for sexually transmitted infections
- Injury prevention in adolescent athletes
- Eating disorders in adolescents
- Obesity prevention
- Health issues of young women, including human papilloma virus, HIV prevention, and contraception
- Adolescent depression

Although the challenges are indeed numerous, through research and public health practice we are learning more effective strategies for reducing risk and promoting healthy development of our youth. The initiatives highlighted in this timely issue of *Northwest Public Health*, identify many of our culture's problems and point to opportunities for intervening and helping adolescents become healthier adults.

A handwritten signature in black ink that reads "Patricia W. Wahl". The signature is fluid and cursive, with the first name "Patricia" being more prominent than the last name "Wahl".

Patricia W. Wahl, Dean
UW School of Public Health
and Community Medicine



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Patricia W. Wahl, PhD, Dean
UW School of Public Health and
Community Medicine

Editor-in-Chief Aaron Katz
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Research Assistant Maggie Jones

The mission of the journal is to provide a forum for practitioners, teachers, researchers, and policy makers in public health to exchange ideas, describe innovations, and discuss current issues.

The School of Public Health logo, designed by Marvin Oliver, is a symbol of physical and mental well-being.

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Northwest Public Health
1107 NE 45th Street, Suite 400
Seattle, Washington 98105
206-685-2617, Fax 206-543-9345
nph@u.washington.edu

www.nwpublichealth.org

From the Editor



If “youth are our future,” we’re in trouble as a species.

According to the International Labor Organization, child-workers aged 5–17 number 218 million worldwide. UNICEF reports that 133 million children are orphans, 15 million due to AIDS alone (2005), 25 percent of all children suffer from being moderately or severely underweight (1999–2005), and 76 of every thousand children die before they reach age 5.

In the United States, nearly one in five children lives in poverty, according to the Annie E Casey Foundation (2005), one of the highest rates among rich countries. The foundation also estimates that more than one million US youth between 16 and 19 years old in 2005 were not in school and did not have a high school diploma and that 38 teenagers lose their lives every day to accidents, homicides, and suicides (2002).

Even closer to home, Washington State just released its 2006 Healthy Youth Survey (www.doh.wa.gov/EHSPHL/hys), and the picture is anything but pretty. Yes, cigarette smoking, binge drinking, and marijuana use have dropped among youth since the late 1990s, but according to the survey:

- Nearly one in four 10th graders reported being drunk in the past 30 days.
- One in five 12th graders and almost as many 10th graders said they were drunk or high *at school* in the past year—21 percent more 10th graders than two years ago.
- More youth surveyed reported carrying a gun, knife, or club to school, and fewer students said they felt safe at school.
- The percentage of 8th, 10th, and 12th graders who said they belong to a gang increased significantly.

According to our Viewpoint by Michael Males (p. 4), we’ve reacted to this picture of “unruly” youth by scapegoating them rather than using what we know to address the underlying causes these data manifest. And, as this issue of *Northwest Public Health* should reveal to you, we know quite a bit and can point to programs that work.

Ramowski and Nystrom (p. 6), Hample and Didrickson (p. 12), and Powell, Keifer, and Byrd (p. 22) make the important point that efforts to improve the health and well-being of youth must involve them as participants and resources, not just subjects. The ways we involve them, however, must take into account that the brain continues to change through adolescence and youth (Ramowski and Nystrom, p. 24).

Some health problems are unique to or at least important in youth and require special attention by those responsible for the well-being of young people. Visiting Pakistani scholar Mehmood (p. 10) and soon-to-be MPH graduate Jones (p. 8) describe homelessness among youth and suggest some avenues to address this complex situation. Stern (p. 16) notes the importance of close coordination between school activities and public health agencies for everything from immunizations to treatment services. Of very practical use, DeCastro (p. 14) and Eastgard (p. 18) give us guidelines for preventing and responding to cases of self-harm and suicide, respectively. Finally, Koutsky and Golden (p. 20) discuss the HPV vaccine to prevent cervical cancer, an issue hotly debated nowadays in both professional and public circles.

If youth are our future, we’ve got some work to do to secure that future, and I hope this issue of *Northwest Public Health* contributes a little to the effort.

Aaron Katz, Editor-in-Chief
Director, Packard-Gates Population Leadership Program

Youth: The New “Degenerate Race”?

Michael Males

Why does the United States remain an international public health pariah, suffering epidemics of homicide, gun violence, drug and alcohol abuse, AIDS, violent death, obesity, and similar ills that other wealthy Western nations (and many poorer nations) far better ameliorate? Both our persistent social problems and the widespread poverty underlying most (but not all) of them reflect an ugly tradition: officials and institutions exploiting America’s racial diversity to scapegoat powerless outgroups instead of implementing forceful, scientifically based health policies.

Confronted with massive, late-1800s scourges of opiate, cocaine, and alcohol abuse (typically in patent-medicine form) estimated to afflict 1 million white, middle-aged Americans, politicians, scientists, doctors, and the press incited public panics around lurid legends of Chinese immigrants’ opium dens and cocaine-crazed black men raping white women. Ignoring eruptions in upper-class drunken driving carnage after Prohibition’s repeal in 1933, officials launched a hysterical crusade against marijuana, vilifying Negroes, Hispanics, Filipinos, and other “degenerate races.” Movies, news media, and congressional hearings in the 1950s sensationalized dope-driven teen orgies blamed on immigrants and blacks corrupting white youth, especially girls.

Little has changed today. Explosions over the last 25 to 30 years in population-adjusted rates of felony arrest (up 80 percent), violent crime (up 50 percent), imprisonment (up 600 percent), illicit-drug death (up 300 percent), and obesity (up 80 percent) among supposedly staid, mostly white middle-agers are officially dismissed. Instead, authorities and interest groups wage increasingly strident campaigns against teens and drugs, youth violence, child obesity, and teenage sex, conveniently blamed on salacious pop-culture, media images, peer pressure, and risk-happy teenage brains.

Official scapegoating not only foments unwarranted fear of young people, it fails abysmally to improve health and safety.

The real doubling in violent crime rates among middle-aged women in the last 15 years has been ignored as dubious authors and reporters trumpet a fabricated violence eruption among teenage girls “gone wild.” Drug policy officials, silent on drug abuse hospitalization and death rates five times higher among middle-agers than

high school teens, concoct scare campaigns warning that doper kids are stealing their naive parents’ Xanax. And how long are experts and reporters going to hype vanishingly rare instances of youthful victimization by Internet predators and MySpace.com lurkers without mentioning the 1,000 children and teens murdered and 200,000 violently or sexually abused at home every year by parents and caretakers?

But, many might argue, risk-taking teens still need attention; what’s wrong with catching problems young? Nothing...as long as the fact that child and teenage risks are rooted in those of the adults around them is officially acknowledged and addressed. Stacks of studies and reams of data show the best predictors (by far) of teenage problems with drugs, drinking, smoking, violence, depression, obesity, and so on, are corresponding problems among adults of their families and communities, all strongly influenced by economic conditions.

Unfortunately, American officials don’t acknowledge that reality. Instead—even as countries with effective prevention policies focus on integrated solutions targeting health problems directly—American authorities still cast about like their nineteenth century forebears for powerless populations to blame. Now that minority groups have gained power sufficient to make stigmatizing them perilous, that means young people.

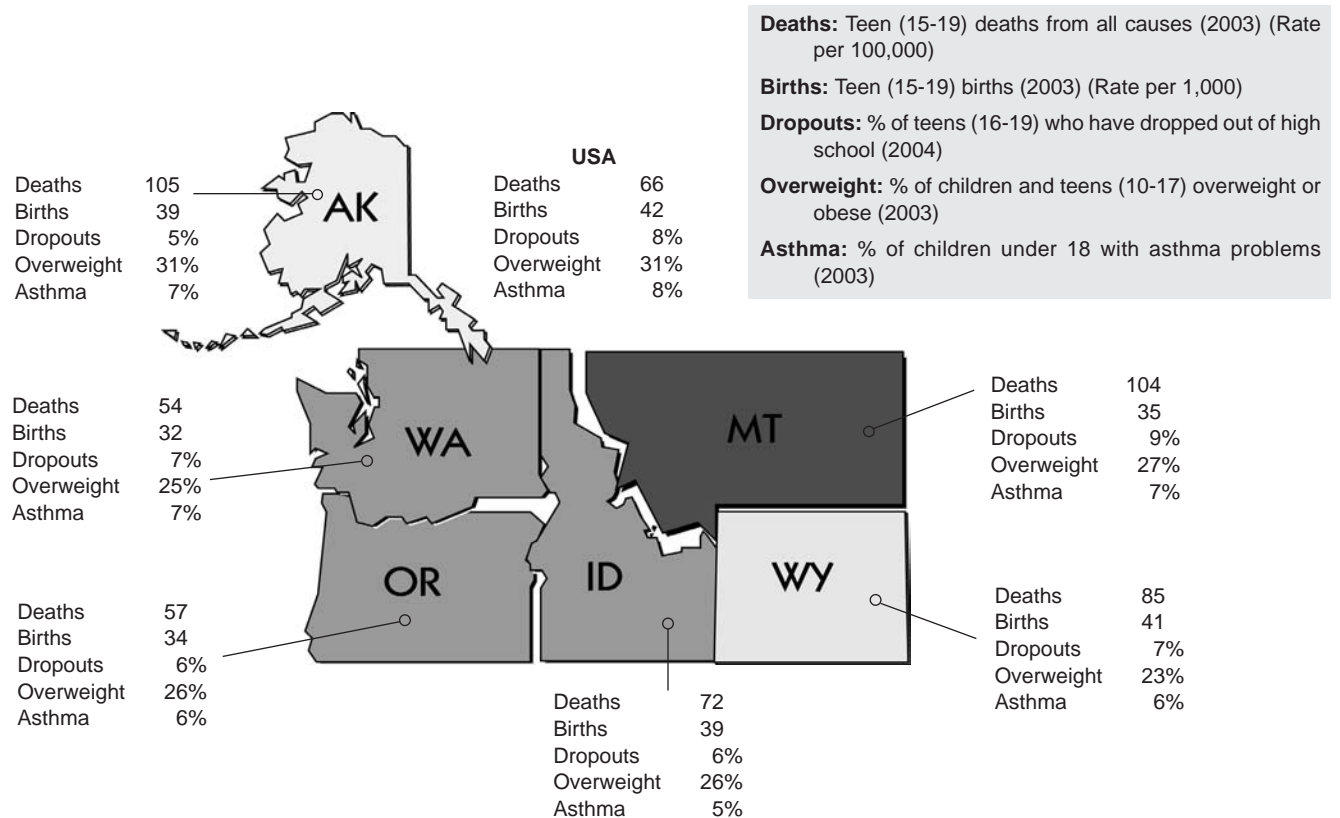
Official scapegoating not only foments unwarranted fear of young people, it fails abysmally to improve health and safety. Americans suffer appalling dangers for a supposedly modern society. The ineffectiveness of our health and prevention strategies, and our failure to recognize and reinforce the healthier trends emerging among more diverse younger populations, result directly from perpetuating century-old social and health policy dogmas maligning “inferior” populations.

The zeal to beat up on young people while flattering the powerful older generation’s health, morality, and wisdom also jeopardizes the United States’ transition to a tolerant, multicultural country. Europeans and Japanese have shown that healthy, low-risk societies can be forged in racial monocultures. America’s challenge is to show that diverse multicultures of the future can be even healthier still. ■

Author

Michael Males, PhD, is senior researcher for the Center on Juvenile and Criminal Justice, in San Francisco (<http://home.earthlink.net/~mmales>).

Northwest Youth: Selected Health Indicators



Source: Annie E Casey Foundation. *Kids Count*. www.aecf.org/kidscount/sld/profile.jsp.

Northwest Youth: Racial and Household Characteristics

	Alaska	Idaho	Montana	Oregon	Washington	Wyoming	USA
Population ages 10-19 (% of total population) est. 7/2005	16.9	14.9	13.7	13.5	13.5	13.8	14.1
Race & ethnicity (% of population 18 and under) (2004)							
White (non-Hispanic)	58	82	83	74	70	84	59
Black (non-Hispanic)	4	0	0	2	4	1	15
American Indian / Alaskan Native (non-Hispanic)	20	1	10	1	2	3	1
Asian (non-Hispanic)	4	1	1	3	6	0	4
2 or more racial groups (non-Hispanic)	8	2	2	4	5	2	2
Hispanic / Latino	7	13	4	15	13	9	19
Household characteristics (% of population 18 and under)							
Children without health insurance (2004)	11	12	16	12	8	12	12
Children in single parent families (2004)	30	23	27	29	30	27	31
Children in immigrant families (2002-2004)	10	11	3	16	19	5	20

Sources: Population and race: US Census. www.census.gov/popest/states/; household characteristics: Annie E Casey Foundation. *Kids Count*. www.aecf.org/kidscount/sld/profile.jsp.

Data researched and compiled by Maggie Jones

Valuing Youth Matters

Oregon's Action Research Project

Sarah K. Ramowski
Robert J. Nystrom

Alicia Lillie, a 17-year-old high school student, has just finished her final group presentation on the findings from surveying high school students about sex. Alicia and her fellow researchers devoted four months of weekly meetings, two days of spring break, and countless additional hours sitting through trainings, developing surveys, and analyzing data.

Their research project (Action Research) was a result of a pilot partnership between Oregon State and county health departments and high school students. The purpose was twofold: to gather valuable youth input into Oregon's new state plan on adolescent sexuality, and to encourage youth to gain additional skills in conducting research and advocating for themselves based on the research results.

In bringing together youth and adults as shared participants in a project, and promoting

youth as experts on their own opinions and attitudes, Action Research serves as an example of positive youth development in the world of public health. It gives youth first-hand experience that they actually are important and their opinions and knowledge do matter. As

Alicia said, "When the state says, 'Come tell me what you think...,'" she pauses. "They want to know what *I* think? I feel important, valued."

What is positive youth development?

Positive youth development (PYD) is a term used to describe empowering and promoting youths' confidence, competence, and resilience in ways that benefit both youth and the larger society. PYD theory recognizes that *all* youth have a vital stake in their own future and a pivotal role to play in working alongside adults to shape policies that affect them. Supporting PYD often requires a shift from viewing adolescents as troublemakers who

exhibit risky behavior to seeing youth as positive change agents, willing and able to contribute to society. PYD focuses on viewing youth as partners with providers, policy makers, and researchers and on developing their skills for meaningful participation. Ideally, organizations that serve youth should incorporate youth as decision-makers and equal participants, giving them the support necessary to succeed in those roles.

In Oregon, providers and policy makers in teen pregnancy prevention and adolescent sexual health are putting positive youth development principles into practice with high school students across the state through the Action Research project. Students from three geographic areas (Bend, Medford, and Portland) were trained as action researchers to answer a research question of their choosing related to adolescent sexual health. The goal was for these students to participate in the research and present their findings at public, community-wide forums in order to influence school officials, policy makers, and ultimately, the development of Oregon's Teen Pregnancy Prevention/Sexual Health State Plan.

The seed for Action Research was planted in 2005 when Oregon State Adolescent Health coordinator Robert Nystrom heard a conference presentation by the precocious Sarah Schulman, founder of Youth Infusion (www.youthinfusion.com), a youth-run organization that supported youth as participants and decision-makers in policy development. Nystrom contracted with Schulman to help Oregon figure out how to involve youth in a meaningful way in the development of its statewide adolescent sexual health plan. Schulman and Nystrom eventually selected the Action Research methodology and training curriculum to use with Oregon youth.

All three Oregon sites used a modified version of this curriculum to take their youth through the research process. Students learned about different research options (surveys, focus groups, etc.) and were trained to develop their own research question, carry out the research, and make recommendations based on the results.

PYD in action

In Gresham, a large suburban city just east of the Portland metropolitan area, Alicia was one of eight high school seniors who designed and administered almost 900 surveys to students from four area high schools to find out what they knew



Oregon Department of Human Services

Action Research students work on their survey on sexuality.

about sex and sexuality, what they thought they should know, what they had learned in their health education classes, and what they thought was missing from sex education in the classroom. After finding that their peers had some misconceptions about STDs and pregnancy prevention methods, the Portland-based action researchers went on to brainstorm how sex education in the classroom should change.

Alicia and her research partners presented their survey findings to a standing-room-only crowd of parents, health educators, school administrators, and state policy makers. Adults in the audience listened attentively as the students made three recommendations for enhancing Oregon's curriculum and its teachers' ability to connect with students on what can be an awkward subject.

- Health educators should provide more in-class games and activities that are engaging and fun.
- The topic of sex should be taught as a personal conversation, rather than an abstract issue.
- Health educators need to make "the uncomfortable, comfortable" in class.

To address this last issue, the team suggested sending health teachers to a professional development workshop where they work on learning more effective teaching techniques, successfully connecting with youth, and developing engaging hands-on activities that deal with sex and sexuality. The youth expressed their need for an open, comfortable environment that allows questions and discussion, and is not "parental."

After presenting their findings, students led or participated with adults in small group discussions. Adults were asked to connect the Action Researchers' findings with lessons from their own work to identify ways in which the state can promote positive sexual health for adolescents. This process has been repeated at community forums in all three Action Research sites.

Statewide planning and PYD

At the state level, Oregon is working to incorporate positive youth development into all relevant state policies and programs. The Oregon PYD Advisory Council was formed in 1999 based on a federal Health and Human Services grant awarded to the Oregon Commission on Children and Families in 1998 (renewed in 2003). It comprises state and local human services, public health and mental health staff, and employees of private youth-serving organizations. The council meets regularly with other state partners and has recommended that the state align all state policies to support positive youth development, expand K-12 policies that support service learning and community involvement, and provide PYD professional development opportunities to those who work with youth.

This past year, Oregon also became the first state to establish a positive youth development benchmark that measures PYD through the use of several questions on a statewide health risk behavior survey (the Oregon Healthy Teens survey) administered annually to 8th and 11th graders. Preliminary results from the first year confirm the importance of promoting PYD among youth. Youth that scored higher on a series of PYD questions (which measured five PYD elements of confidence, competence, and health status) were far less likely to report involvement in a wide variety of risk areas such as substance use, school failure, suicidal ideation, and violence.

Oregon is not the only Northwest state that is encouraging policy makers to use PYD

It is becoming clear that incorporating positive youth development into public health practice can greatly improve public health initiatives for the adolescent population.

principles. In Alaska, State Adolescent Health coordinator Becky Judd, on a one-year fellowship at the Forum for Youth Investment, developed a guidebook entitled "Incorporating Youth Development Principles into Adolescent Health Programs: A Guide for State-Level Practitioners and Policy Makers" (www.forumfyi.org/Files/AdolescentHealth.pdf). Judd provides specific suggestions and examples from other states for how PYD can be incorporated into five areas that most state adolescent health staff have influence over: commitment to adolescents, partnerships, programs/services, education/technical assistance, and data collection/surveillance.

All this work and energy at the state level aims to encourage adults to support, empower, and value youth in their work and to involve them more effectively in programs or interventions that serve them. It is becoming clear that incorporating positive youth development in public health practice can greatly improve public health initiatives for the adolescent population. Many types of research, curricula, and materials support such work, but in the end, success in working with youth may all boil down to one thing, according to Alicia Lillie, "Treat them with respect." ■

Authors

Sarah K. Ramowski, MSW, is an adolescent health policy and assessment specialist; Robert J. Nystrom, MA, is manager of Adolescent Health and Genetics. Both are in the Office of Family Health, Public Health, Oregon Department of Human Services.

Resources

Oregon Positive Youth Development program. www.oregon.gov/OCCF/Mission/Progs/progpy/miprogy.shtml.

First Build Trust

Helping Homeless Youth



Participants in YouthCare's job training program learn how to brew espresso.

Maggie Jones

Estimates suggest that on any given night in Seattle between 500 and 1,000 young people are without a safe place to sleep. These youths range from age 12 to 24 and come from all cultural and socioeconomic backgrounds. Unlike homeless adults, youth are rarely on the streets because of personal economic hardships. More often they have identified the streets as a safer option than their homes. A study conducted in 2000 by the University of Washington found that of the youth entering shelters in King County, where Seattle is located, more than half of the respondents indicated that family conflict was a key reason they had left home. Often abuse or neglect was a source of this conflict, according to Michael Kabsich, program director at YouthCare, a Seattle service organization working with homeless youth. Other commonly cited underlying reasons for youth homelessness include difficulties placing youth in safe, quality foster care environments and the high cost of housing, especially in large cities such as Seattle.

Public health costs

Once on the street, young people are at high risk of becoming severely injured or ill from such things as assault, HIV/STIs, drug overdosing, and airborne illnesses. Without a support structure and means to access necessary resources, homeless youth are also more likely to become involved in high-risk behaviors, such as crime, sex work, and drugs. Aside from physical health risks, the stresses of street life, in addition to any childhood trauma, interfere with positive adolescent development, potentially resulting in long-term mental health issues, chronic homelessness, and addiction.

The societal and public health costs of not providing services to homeless youth are mostly long term. As youths become accustomed to street life, they are less likely to pursue education

or to start a career. This tendency, coupled with the increased likelihood that they will become injured, ill, or involved with high-risk behaviors, raises the potential for increased public costs in the form of incarceration, emergency hospital care, and welfare assistance. Because of the individual health risks of life on the street and of the long-term societal costs, early intervention is crucial for both homeless youth and society.

Serving youth

YouthCare, a Seattle nonprofit founded in 1974, was the first shelter for homeless youth in the western United States. To meet the needs of this vulnerable population, YouthCare offers a variety of services including street outreach, residential housing, and employment training. Kabsich conservatively estimates that YouthCare serves about 1,000 youths each year—about 800 through the Orion Center (its drop-in center), 200 through its housing programs, and 50 in its barista training and education program. Additionally, it makes 14,000 outreach contacts a year. The programs are funded through a combination of government support and private donations. YouthCare is the City of Seattle's biggest partner in providing services to homeless youth.

The comprehensive services provided by YouthCare are a major strength of the organization. Kabsich states, "When everything is internal, you have much more control over the referral process. For example, if we had only the drop-in center, we could refer kids to housing but couldn't be sure of the occupancy or the process for applying. This uncertainty could add barriers for the kids." Although it is difficult to measure the long-term effect of services provided to this transient population, Kabsich believes that "by offering diverse services, we can simplify the process for the kids and see them through the entire

Homelessness Defined

Homelessness for this population is defined as not having a consistent residence over the past 30 days or not being certain they can stay in their current residence for the next 30 days (for example, sleeping on a friend's couch).

continuum of services—from being homeless to having a job and finding an affordable apartment at a market price.”

To engage youth in these services, staff at YouthCare must work to build rapport and relationships with them. Kabsich notes “We have a small window of time to establish rapport with these kids.” Initially youth come to YouthCare because they hear about services. However, they continue to use the services only if they make a connection with the staff. The youths become invested in a program when they have a trusting relationship with staff, and they identify the environment as a safe place.

This relationship, although vital, is not always easy to cultivate. Homeless youth often associate adults with their negative experiences at home, leading to a distrust of all adults. Kabsich believes that “ultimately, to exit street life, the youth need to be able to connect with adults in a positive, healthy way.” He adds that this may be the *most* important skill for the youth to learn. At the Orion Center, Kabsich says, “Initially, we don’t ask the kids to trust us, but we let them know that we will work to earn their trust.” If staff successfully build rapport with a youth during the first visit, that youth is more likely to become invested in one of YouthCare’s programs.

Each of YouthCare’s programs has a different purpose, but overall, the nonprofit aims to establish rapport with homeless youth, stabilize their current situation, and help them move to the next step by identifying concrete goals—to help youth “work on their stuff.” Because youth are on the street for many different reasons and have different needs, this process is individualized through case management.

Since the services have an individual focus, YouthCare measures the organization’s success by the success of the individuals using their services. This entails reviewing the youths’ current situation and assessing what they have accomplished. For example, two months of sobriety for someone struggling with a methamphetamine addiction might be a huge success; but for an occasional user, it might be insignificant. Success is measured by individual progress and forward momentum.

In Seattle, Kabsich believes, “The biggest unmet need for homeless youth is the opportunity to develop marketable skills that will enable them to afford market-rate housing.” YouthCare addresses this need through its Youth Barista Training and Education Program. YouthCare focuses on barista training because, in Seattle, barista positions tend to be low-barrier jobs with frequent job openings. Although the barista program is successful, additional opportunities are needed for youth to develop marketable skills that will help them make a livable wage. In King County, to afford a

one-bedroom apartment, a person needs to make about \$12 an hour. Even if youths are working full time at a minimum wage job, they will be unable to afford independent housing. A livable wage is fundamental for young people to be able to afford housing and get off of the street.

Housing, education, and employment training services are crucial to help homeless youth transfer out of street life, but frontline emergency—or crisis intervention—services are still, arguably, the most important services to provide. Before youths can take advantage of the education and employment training, their situations first need to be stabilized. Crisis intervention services help stabilize youth and provide them the physical and emotional space to focus on long-term planning, such as finding housing and employment.

Implications for public health

In the past decades, the image of street youth has changed. As a result, outreach and programs for this population need to be marketed differently. Currently, in King County more than half of the youth entering shelters and accessing other services are white. However, homeless youth advocates stress that this does not mean that more white youth are homeless. Many young people from diverse ethnic and cultural backgrounds, although living in inadequate conditions (such as sleeping on a relative’s couch), do not identify as being homeless. When they walk into a drop-in center and see groups of primarily white youth who identify with street culture, they do not feel like they belong there and often feel an element of shame as a result of being categorized as homeless. Agencies serving the homeless youth population need to consider whom they are serving and whom they need to be serving and customize their outreach approaches and programs accordingly.

Regardless of whether homeless youth are on the street or couch-surfing, everyone working with this population needs to remember that we cannot shortcut relationship building. Building rapport takes time, but to successfully offer services to this vulnerable population, we must first build trusting relationships. ■

Selected Seattle Organizations Working with Homeless Youth

Catholic Community Services.
www.ccsww.org/aha/homeless.php

Mockingbird Society.
www.mockingbirdsociety.org

New Horizons Ministries.
www.nhmin.org

Peace for the Streets by Kids from the Streets.
www.psk.org

YouthCare.
www.youthcare.org

Author

Maggie Jones is an MPH candidate (2007) in the Community-Oriented Public Health Program at the UW School of Public Health and Community Medicine.

Resources

Background on Homeless Youth. Seattle Human Services Department.
www.seattle.gov/humanservices/fys/homelessyouth/default.htm.

Homeless Youth Fact Sheet. National Coalition for the Homeless (June 2006).
www.nationalhomeless.org/publications/facts/youth.pdf.

Sanchez RP, Waller MW, Greene JM. Who runs? A demographic profile of runaway youth in the United States. *Journal of Adolescent Health* 2006; 39:778–781.

The Lives and Health of Pakistani Street Children

Sadia Atta Mehmood

In Pakistan 1.2 million children and adolescents live on the street,

according to an estimate by the United Nations Children's Fund (UNICEF). In contrast to homeless youth in the United States, the major reason these children leave home is economic.

Although in the United States youth are generally not on the streets because of poverty (*see the article on homeless youth, page 8*), the health consequences of being on the street are similar in both countries since both Pakistani and US street youth are vulnerable to sexual abuse and subsequent health problems.

Pakistani street children

A study of Pakistani street children conducted by the Pakistan Voluntary Health and Nutrition Association (PAVHNA), a national non-governmental organization, reports that the most vulnerable group for leaving home are 10 to 12 year olds (54 percent), followed by 13 to 16 year olds (29 percent). Primary reasons mentioned for leaving home were poverty (26 percent), followed by influence of peers or friends (20 percent), and violence (17 percent).

The average family size in rural areas is six to seven members, and it is crucial for all members to work to supplement the family income and provide food. Children migrate alone or sometimes with their families from rural areas to urban areas looking for employment.

Employment opportunities for boys are limited due to their lack of education, skills, and training. Jobs are available only in the informal sector, where they work as apprentices in automobile workshops, vehicle cleaners at bus stands, bus or van conductors in the local



Pakistani street children in their work place.

Pakistan Voluntary Health and Nutrition Association (PAVHNA)

transport industry, massagers, garbage pickers, newspaper hawkers, shoe polishers, and tea stall workers. The majority of homeless children sleep in parks or on the pavement, in bus terminals, or before shops. They usually prefer to live in multi-age gangs for personal security.

More boys than girls live on the street because girls typically live in tent houses with their families in migrant slum communities. They work as beggars, scavengers, or flower sellers. Girls are also brought from rural areas to work as live-in domestic helpers or as commercial sex workers, living in brothels with other sex workers.

Sexual abuse and sexual health

Low status in society makes street children easy targets of emotional, physical, and sexual abuse. A participatory situation analysis, conducted by World Population Foundation with boys working in automobile workshops, shows that 57 percent of the respondents had been sexually abused. Of the abused children, 43 percent of them had been sexually abused by their employers and 13 percent by their peers.

Immaturity and dependence on their employers make both boys and girls highly vulnerable to sexual abuse and exploitation. They face pressure to please their employers or gang leaders, and in return, they get money and food. Before long they adopt prostitution as an occupation because they start making good money and are able to support their families. Eventually, they become exposed to various types of drugs, such as glue, solvents, marijuana, alcohol, and cigarettes with hashish. A study by Sahil, a national NGO working solely on child sexual abuse in Pakistan, indicates that child sexual abuse and drug addiction have a strong correlation, with 160 of 180 boys the study interviewed having been sexually abused and drug addicted. The boys said they used drugs for relief and to forget the agony of being victimized.

Street Children Defined

Children of the street consist of boys and girls who see the street as their home. They may still have some family ties or they may have completely broken ties with their families. They seek shelter, food, and a sense of family among their street companions and live on the streets. Often they have been abandoned by their parents, are orphans, or are runaways from neglectful or abusive families.

Children on the street include those who live at home, often in shacks, and sometimes even attend school, but are sent to the streets by parents or go of their own accord to supplement the family income. (*United Nations Economic and Social Commission for Asia and the Pacific, Human Resources Development, 2002*).

Unsafe sex makes both boys and girls highly vulnerable to sexually transmitted and reproductive tract infections. Unhygienic sanitary practices aggravate any infection. They do not have regular bathing habits, do not bathe after sex, and usually wear dirty clothes, which aggravates infections.

Treatment facilities are also not available to them. As a result, they normally consult uncertified practitioners who cannot treat them due to a lack of knowledge. In some cases, these practitioners also abuse them sexually. Peers are the main source of information about sex and sexuality, and most of them have poor access to accurate information.

Most street youth have lost both hope and desire to escape their current situation. Yet, they are well aware that sex work and living in abusive relationships hurts them, and they suffer low self-esteem and feel shame and guilt from being dishonored.

Interventions

Since Pakistan is an Islamic country, in the past the government assumed that Pakistani society was immune to problems of sexual abuse and exploitation. However as a result of work by the National Commission on Child Welfare and Development, in consultation with non-governmental organizations and other stakeholders, the government has begun to recognize the problem of sexual abuse. It recently approved a National Plan of Action (NPA) for children that was developed in conjunction with the Convention of Rights of Children and Millennium Development Goals (MGDs) for 2015. National goals and objectives were set in the areas of child health, education, HIV/AIDS, protection, and sexual abuse and exploitation. However the document is silent on resource allocation for the implementation of plan.

The NPA addresses sexual abuse and exploitation through four program components: prevention, protection, recovery, and monitoring.

Prevention emphasizes efforts to raise awareness of sexual abuse and exploitation issues, to advocate for change, and to mobilize communities to develop a vigilant support system against child sexual abuse and exploitation. For instance, national organizations in Pakistan, such as Sahil and the Pakistan Pediatric Association, are developing educational materials including storybooks for children, posters, messages painted on local buses, and street theater. They also have a strong media program that includes national TV, radio, and print media. Interventions such as online counseling services for children, crisis centers, healing programs for child survivors, and legal aid services to survivors are mostly directed toward school-based children.

A major role these organizations have played is highlighting the issues of high-risk street youth and bringing them to the attention of the Pakistan government. Sahil has also encouraged journalists to adopt a less sensationalized and more positive style for reporting sexual abuse cases in national newspapers, and encouraged lawyers to use respectful language when presenting sexual abuse cases in court.

Protection includes reviewing existing legislation and developing new laws relating to child protection, training law enforcement personnel including police, court officials, public attorneys, lawyers, and social welfare officers, and conducting a public campaign about laws concerning the issue.

Recovery and rehabilitation focuses on service delivery. It includes counseling as part of rehabilitation services, training of psychologists, doctors, and councilors, establishing multi-disciplinary child sexual abuse committees in major hospitals across the country, and publicizing the services available to survivors of sexual abuse and exploitation.

Government and national level non-governmental organizations, in collaboration with UNICEF, other United Nations programs, and the National AIDS Control Program Pakistan, have set up drop-in centers in major cities to provide a range of services for street children.

Monitoring. The monitoring plan links the objectives of the three other components to strategic activities and their expected outcomes.

Lessons to be learned

Lack of reproductive health services for homeless youth is a major dilemma in Pakistan. These young people will never escape the vicious cycle of poverty until and unless we initiate a collective struggle in Pakistan and globally to advocate for the fulfillment of children's fundamental rights to protection and good mental, emotional, sexual, and physical health.

Whether street children live in developed countries such as the United States or in developing countries such as Pakistan, their common suffering and low social status deprive them of their fundamental rights. For the economic development and prosperity of any country, it is necessary to address this high-risk, marginalized segment of society. If we really believe that our children are our future, then we cannot move forward unless we help them become healthy and protected citizens. ■

Snapshot of Pakistan

Pakistan's population is 150.6 million; 65 percent live in rural areas, and 35 percent live in urban areas; 40 million (26 percent) are adolescents and youth. Pakistan ranks second among the countries of the world in number of out-of-school children; of the 6.5 million out-of-school children, 80 percent were never enrolled, 10 percent dropped out, and the rest went to school at a later age. The population below the poverty level is 24 percent; 67 percent live on less than \$2 a day. Approximately 3.6 million children under the age of 15 are working; 47 percent of the male population and 34 percent of the female population start work before the age of 15.

Author

Sadia Atta Mehmood, MSW and Diploma in Public Administration from Peshawar University in Pakistan, is a Packard-Gates Population Leadership Fellow at the University of Washington.

Strong Heart, Body, Mind, and Spirit

Building Resilience and Facilitating Recovery in Native Youth

Cheri Hample
Anita Didrickson

Alaska Native youth face serious challenges with substance abuse and juvenile delinquency. Many factors contribute to the problem, including geographic isolation, lack of economic opportunities, availability of drugs and alcohol, family alcohol and drug use and abuse, disinterest in school, and early initiation of use.

Data from the 2003 Alaska Youth Risk Behavior Survey (YRBS) indicate nearly 40 percent of high school students had a least one drink of alcohol in the past 30 days, with 27 percent reporting binge drinking. After alcohol, marijuana is the most common drug used by Alaska youth; 4 percent report current use.

Analysis of the Alaska juvenile justice system population shows a disproportionate number of Alaska Natives. The most current data, from 2000, indicate that the Alaska Division of Juvenile Justice received one delinquency report for every 17 Caucasian youths but one report for every 7 Alaska Native youths. Alaska Native youths are also overrepresented in Against Person and Drug/Alcohol charges as well as among youth on probation.

To resist substance abuse and behavior problems, youth need internal and external strengths or assets. External assets include community support, empowerment, boundaries, high parent/teacher expectations, and constructive use of time. Youth also need internal assets such as commitment to learning, positive values, social competencies, and positive identity. By strengthening their assets, youth are better able to resist substance abuse and behavior problems.

Behavioral health programs

Substance abuse prevention and treatment infrastructure can be limited in parts of Alaska. Many communities have limited or no law



SouthEast Alaska Regional Health Consortium

Raven's Way students hike into the forest for a wilderness experience.

enforcement, minimal access to mental health and substance abuse services, and often no access to networking with other communities.

SouthEast Alaska Regional Health Consortium (SEARHC) a nonprofit tribal health care organization (www.searhc.org), provides comprehensive health services to Tlingit, Haida, Tsimshian, and other Native people of Southeast Alaska. The organization offers a continuum of care for youth, ranging from Behavioral Health Prevention (BHP) programs in local communities, to the Raven's Way (Yéil Jeeyáx) Adolescent Residential Treatment Program for substance abuse and co-occurring disorders.

The Behavioral Health Prevention Department focuses on early intervention and prevention to build assets and resiliency in youth. Community-based prevention specialists work with youth on life skills, promoting bonding and attachment and assisting youth in learning and embracing healthy beliefs and standards. The prevention specialists also collaborate with other SEARHC departments and community-based organizations (tribal, social services, coalitions, and schools) to provide prevention services.

The BHP Department has projects and staff in four Southeast Alaska communities: Angoon, Kake, Klukwan, and Haines.

Angoon (population 481; 170 children aged 5–19), located on Admiralty Island, is home to the Xóotsnoowú Tlingit tribe. Efforts focus on promoting reading as a protective factor and on providing healthy, substance-free community and youth activities that incorporate a prevention message. A flashlight walk, for example, is a creative activity that allows youth to “find their way” as they encounter barriers to healthy behavior. A new BHP project, based in the high school, involves youth writing and announcing substance abuse prevention messages over the local

Citizens Band (CB) radio with plans also to use the local public access television station.

Kake (population 663; 153 children aged 5–19), located on Kupreanof Island, is a traditional Tlingit community. A community-based prevention specialist works closely with the Kake school and teaches a life skills curriculum in grades 1 to 12. The Kake Healing Heart Coalition collaborates with SEARHC to provide community-based substance-free activities with a prevention message, such as the annual week-long Kake culture camp. Kake is also the site for Across Ages, a mentoring program that trains adult mentors who in turn support youth through role modeling, advocating, nurturing, and providing academic help.

Klukwan (population 119; 41 children aged 5–19), located on the Chilkat River, is a traditional Tlingit village. A prevention specialist provides services and programs in the school and the community. Efforts are based in traditional Tlingit culture and include a community service group for elders, Tlingit language and subsistence camps, and a culturally based life skills curriculum for elementary and middle school students.

Haines (population 1,562; 304 children aged 5–19) is the home of the Chilkoot tribe. The prevention specialist works closely with local schools to provide Protecting You/Protecting Me, a best practice alcohol use prevention curriculum for grades 1 to 5. The Haines specialist also provides training and education related to Fetal Alcohol Spectrum Disorder. The BHP Department is collaborating with the Haines Voices Project, which includes the Haines Library and Lynn Canal Broadcasting (KHNS-FM), to use story telling, music, and art to increase drug and alcohol education and awareness in the community.

Building assets through residential treatment

Youth who do develop significant substance abuse problems may be referred to the Raven's Way (Yéil Jeeyáx) Residential Treatment Program located in Sitka.

Raven's Way is nationally recognized as a model treatment program for youth. Established in 1989, Raven's Way is accredited by the Commission for the Accreditation of Rehabilitation Facilities, licensed by the state Office of Children's Services, and certified by the state Division of Behavioral Health. As part of the Sitka School District, its students receive academic credit for participation.

The staff of more than 20 includes a licensed psychologist, licensed therapists, certified substance abuse counselors, wilderness expedition specialists, administrative support staff, intake and follow-up specialists, and a certified teacher.

A cohort of 10 students participates in each 40-day course. Building assets is a core value of the Raven's Way approach and is consistent with Native values of wellness and recovery. Teamwork and leadership are developed through shared living in a coed, family-style residence, cooperative games, and ropes course activities. During the 14- to 20-day wilderness expedition, students hike or kayak and have a three-day solo wilderness experience. Cultural activities include talking circles, sweat lodge, pouch-making, drumming, and drum-making. The program has four phases.

- **Phase One** (in Sitka): Orientation and assessment, basic skills development (relationship, group, and wilderness skills), detoxification.
- **Phase Two** (on Biorka Island): Developing mastery, deeper work begins, emotional and group issues surface.
- **Phase Three** (wilderness expedition): Intense work on all levels, wilderness expedition, solo.

Indicators of Program Graduates' Success

Indicator	Percent of graduates after treatment
30 hours a week or more of productive activity (school, work, volunteer, or subsistence)	61
Improved legal status	68
Improved relationships	81
Improved support for sobriety	90
Improved sense of connectedness or spirituality	70

- **Phase Four** (in Sitka): Closure and preparation for life after treatment, aftercare planning, graduation.

The medicine wheel is the model for developing strength in all areas of life. Students strengthen their bodies through being alcohol and drug free, morning runs, hiking, kayaking, sound nutrition (no caffeine, little sugar or fat), and regular sleep. They strengthen their minds through participation in school, planning, problem solving, treatment homework, and reading. They strengthen their hearts through group, individual, and family counseling, small group feedback, close relationship development, talking circles, and storytelling. Finally, students strengthen their spirits through prayer or moments of silence, sweat lodge, talking circles, drumming, and the pouch ceremony.

From 1989 through 2006, a total of 982 youth participated in the Raven's Way treatment program. Admissions represent 134 Alaska communities; 85 percent were Alaska Native/American Indian.

Data strongly support the effectiveness of the Raven's Way approach. Of those youth admitted from 1989 through June 2006, 82 percent completed the program. During this same period, 90 percent of the 236 youth contacted one year after discharge reported using less or no alcohol, and 89 percent reported using less or no drugs than before treatment. (*See box for other indicators of program success.*)

The SouthEast Alaska Regional Health Consortium and its programs are strongly committed to helping youth acquire the skills and resources they need to have a strong heart, strong body, strong mind, and strong spirit. Building assets, "Alaskan style" helps youth generate the resilience they need to prepare for the future. As an anonymous Alaskan once said, "Like a dream catcher, assets are the supporting threads in a young person's life that can keep away harm and invite goodness. Whatever it is you want from young people, you must give them." ■

Authors

Cheri Hamble, MPH, MSW, is program coordinator of SEARHC's Behavioral Health Prevention Department (cheri.hamble@searhc.org); Anita Didrickson, PhD, is program coordinator of Raven's Way (anita.didrickson@searhc.org).

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Cutting ^{through} the Myths of Deliberate Self-Harm

Robin DeCastro

To avoid discovery of her painful secret, 16-year-old Shannon has hidden her arms for the past two years beneath long sleeves pulled over her wrists even in the hottest weather. Those around her brushed off the oddity of her dress as a teenage fad and her reluctance to participate in physical education or go swimming as embarrassment or modesty. Her secret was revealed when her math teacher caught a glimpse of lacerations, healing wounds and scars on her wrists and forearms. Immediately alarmed, he questioned her about the nature of her wounds and asked that she show him her arms. Pulling her sleeves down further, she refused and told him it was just some cat scratches. Fearing for her safety and not knowing what to do, he sent her to the office hoping that someone would be able to help.

Adolescents, such as Shannon, who deliberately self harm *can* be helped when their behavior is discovered, but often the negative attitudes of the helping adults compound rather than alleviate the pain these youth feel.

Extent of self-harming behavior

Deliberate self-harm (DSH), also referred to as self-injury, self-mutilation, para-suicide, or cutting, is the intentional destruction of one's own body tissue without suicidal intent. Superficial DSH is the predominant form with cutting or carving of the skin and underlying tissues. Razor blades, scissor edges, pins, or sharp glass are employed to cut arms, wrists, ankles, and lower legs along with other hidden sites including the armpits, abdomen, inner thighs, feet, and tissue below the breasts. Sometimes DSH appears as single or multiple superficial, well-defined scars configured in a pattern, design, symbol, word, or as a single line repeatedly injured. DSH also includes burning, scratching, hair-pulling, poisoning, bruising, and breaking of bones. The behavior typically begins during adolescence and seems to peak between 16 and 25 years of age.

Once a phenomenon thought to occur predominantly in psychiatric in-patients and developmentally disabled individuals, DSH is now recognized in the general population with increasing incidence and prevalence. A review of literature conducted by Cornell University's Research Program on self-injurious behavior

in adolescents and young adults indicated that between 4 and 38 percent of adolescents are engaging in some form of self-harm behavior in the United States. The variability of incidence and prevalence rates is related to the successful concealment of DSH for extensive periods of time without the adolescent exhibiting behavior indicative of psychiatric illness or impaired coping. Limited research, the private nature of the act, and failure to recognize self-harm behavior also interfere with accurate estimates of incidence and prevalence.

Although DSH is not in itself suicidal behavior, youth engaging in DSH are more likely to contemplate suicide and engage in behaviors resulting in unintentional death and severe injury. According to Olfson et al., approximately 225 emergency department visits out of 100,000 are related to DSH. Countless encounters are experienced by primary care physicians, nurses, school personnel, and counselors.

Realities and myths of self-harm

Research by Reece and Rodam, Hawton, and Evans identifies self-harm as a coping mechanism used to provide relief from psychological pain. The use of DSH is not an attempt to gain attention but a conscious decision made in order to release emotional stress and communicate anger, pain, and distress to others while providing relief from intense feelings of distress, anxiety, and depersonalization. Just as a person in a state of extreme anger might feel an overwhelming compulsion to throw something or slam a door, individuals prone to DSH find their psychological pain so unbearable that they inflict physical pain on themselves as a form of temporary release.

Psychiatric illnesses including clinical depression, obsessive compulsive disorder, anxiety disorder, and border-line personality disorder may accompany deliberate self-harm behaviors but many adolescents who self-harm have no such symptoms and are outgoing, high-achieving, and likable.

Systematic reviews of literature conducted by Yip and Webb indicate that adolescents who are prone to self-injury often have high levels of anxiety, impulsivity, poor self-esteem, inability to regulate their emotions, hypersensitivity to rejection, and chronic anger with a tendency to

suppress their feelings. DSH individuals do not see themselves as skilled at coping or maintaining control over their life. They tend to focus on the present and are unable to communicate their pain or concerns in a way that is socially acceptable.

Associated risk factors include depression, exposure to violence, childhood physical or sexual abuse, parental divorce, and emotionally unavailable parents in conjunction with feelings of rejection, self-hatred, separation anxiety, and guilt.

Hostile care adds to problem

Mishandling by those who initially contact self-harming youth may cause further self-injury and attempts to hide self-harm. Those who do not personally experience or understand a maladaptive behavior such as DSH, often attribute moral fault or manipulation to the form of expression used by deliberate self-harmers. This moralistic attitude is one of the single greatest impediments to the recognition and treatment of DSH.

After an occurrence of self-injury, those engaging in DSH are often reluctant to access the health care system due to reports or experiences of inadequate, judgmental, humiliating, or hostile care. The literature on DSH, for example, includes reports of health care providers suturing self-inflicted wounds without the use of anesthesia in order to punish the individual for the behavior.

Various researchers have found that health care providers' responses can be related to their feelings of frustration, pessimism, lack of empathy, personal inadequacy, and helplessness directly resulting from their attitude toward DSH.

Health care providers tend to have greater sympathy and willingness to help self-harming individuals when the self-harm is precipitated by uncontrollable events, such as the death of a family member or close friend. In contrast, providers tend to have less optimism and willingness to help youth who have a controllable precipitant such as school or work difficulties or who are identified as more likely to repeat the behavior. Providers who experience a sense of helplessness to alter the outcome and reoccurrence of the repetitive self-harm behavior often assume that regardless of their interventions the adolescent will continue to self-harm, making any attempt to provide therapeutic care pointless.

Supportive intervention can help

Shannon was lucky. When she reported to the office, she was directed to the school nurse, who recognized the signs of DSH. The nurse asked Shannon about her injuries, and reluctantly, Shannon exposed her lower arms revealing multiple superficial lacerations and clusters of scars. Shannon acknowledged that her injuries were self-inflicted and a way to express her anger,

pain, and frustration. Without judgment, shock, or chastisement, the nurse began the process of parental notification and referral to providers specializing in the diagnosis and treatment of DSH, all the time emphasizing, in an honest, open, and attentive manner, the need to maintain Shannon's safety.

With increasing incidence and prevalence of DSH among adolescents, providers should be alert for behavioral signs consistent with DSH. These signs include excessive dress, resistance to exposure of skin, and the presence of cuts, scars, and clusters of scars on unexposed areas.

The need to focus on the individual's safety and appropriate referral should be balanced by the need to develop a positive and trusting relationship that will discourage further attempts by the adolescent to hide or deny the self-harm behavior. Providers can begin to establish a trusting relationship by actively listening to the concerns and emotional responses of the self-harming adolescent. Providers' active listening offers an opportunity for these troubled adolescents to express their emotional pain verbally, and allows

Mishandling by those who initially contact self-harming youth may cause further self-injury and attempts to hide self-harm.

providers to avoid shocked, shaming, punitive, or overly sympathetic responses.

When providing care to DSH adolescents, health care providers can experience significant difficulties as a result of pervasive misperceptions, the lack of established guidelines, and inadequate assessment and interventions. Steps should be taken by providers to recognize the behavioral signs, provide care in a nonjudgmental manner, maintain safety, and refer to agencies or individuals qualified in the treatment of DSH.

Because health care providers are often the initial contact when the behavior is discovered, they have a unique opportunity to provide care and intervention with the goal of preventing unintentional suicide, injury, and life-long difficulties with social functioning and coping mechanisms for the self-harming adolescent. ■

Author

Robin DeCastro is an MSN candidate (2008) in the University of Wyoming Psychiatric Mental Health Nurse Practitioner Program.

Resources

Cornell Research Program on Self-Injurious Behavior in Adolescents and Young Adults. www.crpsib.com.

Self Abuse Finally Ends Alternatives Program. www.selfinjury.com.

Find citations and more resources related to this article at www.nwpublichealth.org.

Public Health's Interest in Schools

Coordinating School Health

Lori Stern

Since public education has existed, parents and educators have been concerned about protecting the health of children in schools. Throughout the history of school health, public health concerns have affected the services schools provide. From “sanitary inspections” to provision of school lunches and immunizations to prevent communicable disease, public health has worked with schools to ensure that children at school were healthy and ready to learn.

The past almost 200 years of school health have resulted in a legacy of programs that many have come to expect will be provided in schools, including immunization requirements for school attendance, school meals, school nurses, and medical care for children with disabilities. Gains in programming and support for health in schools have been made, but too often health-related programs are subject to budget cuts, community controversy, and the shifts in priorities within public education.

Accountability and funding clash

Education's focus on accountability is driven by the federal No Child Left Behind (NCLB) act. This law requires schools to show yearly progress in test scores on reading, writing, math, and science. In addition, schools must demonstrate a reduction in drop-out rates and educational gains for all students. Schools now must disaggregate their attendance, drop-out, and testing data to demonstrate that gaps in academic achievement are closing. Many in and out of education have criticized NCLB for its governmental interference, lack of adequate funding, and standardized test focus, but accountability in public education is here to stay.

In too many school districts across the country, academic accountability and budget shortfalls are forcing difficult choices between funding school health or more academics, leaving school leaders challenged to justify, for example, a school nurse when district math scores are lower than the federal requirements dictate. Students, however, clearly need both health and academics.



Public health campaigns of the late nineteenth century brought resources to schools to prevent communicable diseases and combat hunger. In the twenty-first century, there seems to be less room for the collaboration between these two systems, which both struggle for adequate funding, a struggle that often pits the two sectors against each other.

Health and education must recognize that the very students who are affected by the achievement gap are the same children who experience health disparities. A clear link exists between education level and health status. The Healthy People 2010 report calls for increasing graduation rates in recognition of this link. Early twentieth century progressive reformers understood the link between health, education, and national economic vitality. The twenty-first century poses the challenge of making the link again, amidst the new political context of academic accountability in public education. The necessity of meeting the basic physical and social-emotional needs of students to keep them engaged and successful in school needs to be restated and understood in direct relation to meeting the academic needs of each child.

What is coordinated school health?

In 1987, the concept of coordinated school health was introduced in an article by Allensworth and Kolbe in a special issue of the *Journal of School Health*. This new vision of school health included a variety of structures, systems, programs, and activities that many schools provided. The eight-component coordinated school health model went beyond health education, P.E., and school nursing to include food services, counseling and social support services, healthy school environments, parent and community involvement, and even school employee wellness. (See box for descriptions of the components.)

These components, taken as a whole, create a system to address the identified national health concerns for youth: sedentary lifestyles, poor nutrition, injury and violence, tobacco use,

substance use, and sexual risk taking. In addition, these components are also able to manage many of the chronic conditions that affect a student's ability to attend and learn in school, such as asthma, diabetes, food allergies, mental health issues, and dental caries.

The broad scope and content included in these eight areas requires input from schools, district offices, and their community members and organizations. Thus schools and communities can and should work together to avoid both gaps in services and duplication of efforts and create a system that is truly coordinated and collaborative.

Putting the system to work

Through a joint research project titled "Making the Connection," the Society of State Directors of Health, Physical Education, and Recreation and the Association of State and Territorial Health Officers (ASTHO) found ample proof that the components of the coordinated school health system demonstrate a positive effect on student academic performance. However implementing such a comprehensive approach takes intention and effort.

In the Northwest, schools and districts in Oregon and Washington have participated in school health leadership training to implement the coordinated school health approach. Eisenhower Middle School, a participating middle school north of Seattle, focused, for example, on the components of coordinated school health, prioritizing health along with school improvement efforts. The school's principal, Dr. David Jones, points to fewer incidents of harassment, intimidation, and bullying, three times as many students eating the school lunch, and improving scores on the Washington Assessment of Student Learning after the school implemented a coordinated school health program. Dr. Jones believes that "promoting a safe, healthy environment increases every student's opportunities for academic success."

Lawmakers often include schools in their attempts to increase access to health care and other social supports that children and families may receive. School, they argue, is where children spend most of their time. A number of school health policy solutions are easily connected and contained within the coordinated school health framework. These include anti-bullying and safety policies, implementation of school-based or school-linked clinics, establishment of common school nutrition standards, graduation requirements that include health and physical education, and support for capital resources and funds for schools to address indoor air quality and other health-related facilities issues.

Twenty-two states have mandated through either law or rule that schools adopt a coordinated

Coordinated School Health Program Components

Health Education: Sequential, comprehensive, age-appropriate classroom instruction that includes the physical, mental, and social aspects of health and develops health knowledge and skills.

Physical Education: Planned and sequential instruction to promote lifelong physical activity and fitness.

Nutrition Services: The provision of nutritious, affordable meals served in a pleasant environment that encourages healthy eating behaviors.

Health Services: Management and treatment of acute and chronic conditions of students through the provision of preventive services, education, emergency care, and documentation of individual student health needs.

Counseling and Social Support Services: Activities that focus on the psychological, social, and emotional supports for students, their families, and school staff. Also includes prevention and intervention specialists working on substance abuse prevention and other factors that put students at risk.

Healthy School Environment: The physical and social-emotional climate in a school, including facilities as well as policies on student and employee safety.

Family and Community Involvement: Partnerships with parents and community members to address student health and learning.

School Employee Wellness: Focused health assessments, activities, and benefits provided to staff for the purpose of maintaining their health and well-being, enabling them to be role models for students.

approach to school health through the formation of either state or local school district health advisory councils. Many of these policies include forming a multi-agency, interdisciplinary health advisory council to monitor school health education, health services, nutrition and physical activities, and other school health-related programs. School health advisory councils provide the infrastructure to link the variety of health issues that affect school performance, while giving lawmakers a point of contact with districts on the status of implementation of key school health policies.

As NCLB continues to hold schools and districts accountable for academic achievement, many of the early gains made in test scores are beginning to level off. School health advocates point to this plateau in test scores as evidence that a myopic focus on academic and cognitive outcomes, ignoring students' physical and mental health needs, is resulting in stalled academic progress. Coordinated school health provides a framework to bring public health and education together, through comprehensive policies and programs, to give all children the chance to be healthy and successful learners. ■

Author

Lori Stern, MA Ed, is manager of the Coordinated School Health Initiative at the Washington State Department of Health.

Resource

Healthy Schools-Successful Student; Coordinated School Health in Washington.
www.healthyschoolswa.org.

Keeping Kids Alive

Preventing Youth Suicides

Sue Eastgard

On the weekend of Martin Luther King's holiday, Trevor Simpson drove north to the Tulalip Indian Reservation from his home in Edmonds, Washington. He went alone; he went without others knowing where he was going or why. In the quiet of the night, Trevor hung himself with the battery cable of his car.

Trevor was a popular student at Edmonds-Woodway High School. He was intelligent, earning a 3.9 grade point average. He was an athlete, playing wide receiver for the school's football team and coaching his younger brother's basketball team. He was adored by his parents and extended family. Why he took his life is still a mystery.

Frequently, depressed teens exhibit clues about their thoughts of suicide. Trevor, for example, asked his friend, Monica, the day before he died, "If you were going to kill yourself, how would you do it?" In hindsight we can see that Trevor probably was trying to talk about suicide but, unfortunately, Monica did not know that talking about suicide was a warning sign. Trevor also gave his favorite baseball cap to his friend, Jason, indicating that he was going to get another one. Jason admired Trevor's hat and was pleased to accept it as a sign of friendship. Had Jason known that giving away prized possessions was another warning sign, he could have reacted differently.

Other clues to watch for include a preoccupation with death, a hopeless mood, increased drug and alcohol use, and a change in normal activities. Prior suicidal behavior is also an important factor, as past behavior influences present and future behavior.

Suicide among youth

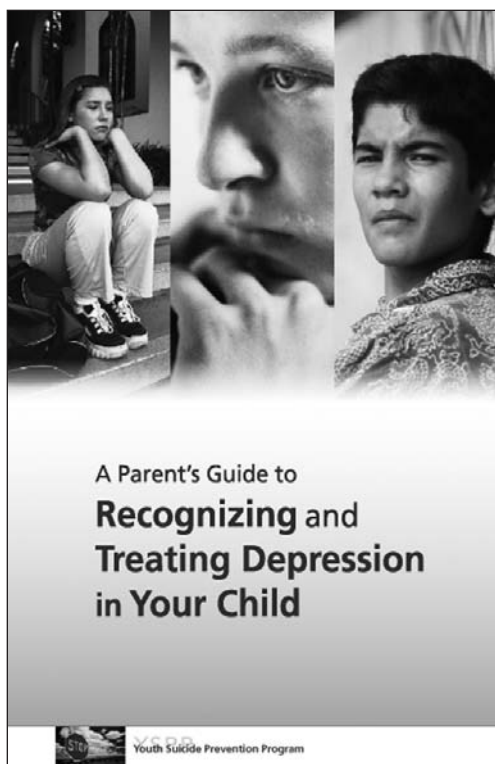
In 2003, the Centers for Disease Control and Prevention (CDC) reported that 4,232 youth (10 to 24 years of age) completed suicides in the US. Many, many more young people made suicide attempts that resulted in emergency room visits and hospitalizations. Boys and young men are much more likely to end their lives by suicide; girls and young women make more attempts. Among ethnic groups Native American young people have the highest rates of suicide.

Depression is a significant component of most suicidal deaths. Depression is a chemical imbalance—you can be born with it or you can develop it as a result of situational crises. Depression in children and adolescents looks different than it does on adults. Irritability, anxiety, hyper-sensitivity to criticism, and physical complaints are common symptoms of depression for young people. Unfortunately many depressed teens do not get diagnosed or do not receive adequate treatment.

Youth suicide prevention program

Following Trevor's suicide in 1992, his parents began advocating for resources that could help prevent other young people from dying. Their efforts resulted in funding from the Washington State legislature for a suicide prevention program. The University of Washington School of Nursing served as the sub-contractor, implementing prevention services for several years. In 2001 the program incorporated as a private, not-for-profit organization, Youth Suicide Prevention Program (YSPP), with continued support from the state, as well as funding from contributions, corporate gifts, fund-raising, and training fees. YSPP (www.yspp.org) supports school-based awareness programs, facilitates education and training for teachers, parents, social service providers, and health care practitioners, and provides technical assistance to communities interested in initiating local prevention efforts.

YSPP delivers educational presentations on identifying the warning signs and intervention strategies to parents, teachers, coaches, and mentors. In middle and high schools across the state, YSPP-trained student prevention teams facilitate peer training about depression and how to help a friend who may be at risk of suicide.



Youth Suicide Prevention Program brochure

YSPP also holds formal training on suicide assessment and intervention for professional caregivers and works with coalitions to plan and implement local suicide prevention efforts. Often these coalitions organize when a young person has already died, although sometimes it takes multiple suicides before communities take any action. When school or community groups do contact YSPP, they typically want training and help in raising awareness about the issue. Their goal is always to prevent other young people from dying.

Sometimes even ad hoc groups get organized and begin to mobilize further school or community efforts. In late 2002 and early 2003, for example two high school students from Poulsbo (in Kitsap County), Washington, died by suicide. In response community members gathered together and organized North Kitsap Life is Valuable (LIV). The group, comprising school staff, local health district staff, parents, and advocates, is building a safety net for the children and teens of their community. It has helped the school district develop a crisis response plan, secured funding for training, and hosted parent education nights on depression and suicide prevention.

Fear and stigma continue to permeate the topic of suicide. The media are hesitant to report suicides for fear of causing more deaths, so the public does not know the scope of the problem, the warning signs, or resources for help. Mental illness, depression, and suicide are not mandated topics in public education, so some students never learn how to help themselves or their friends. (*See box for tips on helping suicidal teens.*) Cultural and moral attitudes about suicide can also make educating about prevention more difficult. For instance, some believe that suicide is sinful, selfish, or just plain wrong. In spite of these obstacles, programs do get delivered, and students, parents, educators, and community members show up in large numbers at presentations on preventing youth suicides.

Challenge of sustaining efforts

As with many public health programs, sustaining prevention efforts is a significant challenge, especially if a school or community has not experienced further suicides. Given all the other demands on schools and the stigma and taboo around suicide, it is difficult for schools, communities, and ad hoc groups to maintain the focus on prevention education.

Ad hoc community groups and coalitions, in particular, may find it helpful to conduct a periodic review of the activities they've attempted and their success or failure. In reviewing their activities, groups need to reflect on the rewards and benefits that they have experienced in the

How to Help When a Teen Might Be Suicidal

When we hear or see tell-tale signs of suicide, it is important to intervene.

Show that you care. Don't be afraid to ask how they are doing. Listen to their feelings and avoid giving advice or demanding that they "get over it." It is important to try to understand their frustrations, their worries, their problems. Suicidal teens typically do not want to die; they want to find a solution to their problems.

Ask the question. If you suspect a young people may be at risk of suicide, it is important to ask directly and calmly, "Are you thinking about harming yourself, about dying?" This question will not plant the idea of suicide. It will actually give permission—if the thoughts are present—to talk about them. Giving permission to talk about suicide can relieve pressure; not talking about suicide can leave the adolescent feeling even more alone.

Get help. If the answer to the question about suicide is *yes*, or if you are concerned that it is, then it is time to get help. Help might mean calling a hotline or talking to a school counselor, coach, or favorite teacher. It is important not to leave the suicidal youth alone.

process of implementation, while also addressing identified challenges.

Long-term change related to suicide prevention is most likely going to require legislative mandates, policies, and professional standards. Such standards could require, for example, that mental health counselors, social workers, and psychologists obtain a specific number of hours of training in suicide assessment and intervention in order to renew their licenses. Education policies could require, for example, that mental illness, depression, and suicide prevention be taught to every ninth grader in the public education system.

Building on the success of school-based health clinics, perhaps we should advocate that funding also be appropriated for mental health therapists who work in the school building to assess and intervene with at-risk students. At the very least, every public school could be required to have a written crisis plan that includes responding to suicidal behaviors—not just students who died by suicide—and that faculty and staff members know the contents of the plan and their role in preventing suicide.

Sustainability is an important challenge for all public health prevention programs, not just for those focused on preventing suicide. But, for students like Trevor Simpson, finding ways to sustain suicide prevention programs is a matter of life and death. ■

Author

Sue Eastgard, MSW, is director of the Youth Suicide Prevention Program of Washington.

Resources

Suicide Prevention Resource Center. www.sprc.org.

Suicide Prevention Action Network USA. www.spanusa.org.

Vaccinating Girls for HPV

A New Horizon of Hope for Cancer Prevention



Clare McLean

Priscilla McElhose, ARNP, health care specialist at the University of Washington Hall Health Primary Care Center Women's Clinic, with her daughter Katherine, who had just received her third and final HPV vaccination.

Laura A. Koutsky
Matthew R. Golden

Every 14 days, a woman in this country dies of cervical cancer. Other cancers take more lives, but cervical cancer kills at a relatively young age (57 years versus 72 years for other cancers). As a result, the average woman dying of cervical cancer in the US loses more than 26 years of potential life. Among the major causes of mortality in the US, only violent deaths and HIV are associated with similarly high average numbers of years of life lost. Women with lower incomes and education are more likely than other women in the US to die from cervical cancer because they have less access to screening, diagnostic, and treatment services. Cervical cancer is even more of a burden in lower-income nations, where it is the number one or two cause of female cancer death.

HPV-cancer connection

Virtually all cases of cervical cancer are caused by human papillomavirus (HPV), a sexually transmitted viral infection that is frequently acquired in late adolescence or early adulthood. In fact, HPV is so common and communicable that many young women are infected with HPV by their first and only sex partner. Routine Pap testing has reduced the overall rate of invasive cervical cancer in this country by 75 percent during the last 40 years, but the rate of cervical adenocarcinoma, which typically occurs in an area of the cervix that is more difficult to sample for Pap testing, has risen. Furthermore, every year thousands of primarily reproductive-aged women require colposcopy, biopsy, and treatment procedures for a precancerous cervical lesion. Treatment is usually effective, but more frequent Pap testing is recommended for years afterwards, and treated women are at increased risk for cervical stenosis and for premature rupture of membranes and preterm labor during pregnancy. The same HPV types that cause cervical cancer, also cause

vaginal and vulvar cancer in women, penile cancer in men, and anal and oral cancer in both men and women. Other types of HPV cause genital warts and recurrent respiratory papillomatosis (RRP), which are not lethal conditions, but are difficult to clear and sometimes cause more serious secondary consequences. In rare instances, genital warts can cause locally invasive tumors and obstruction of the birth canal, and RRP, which usually requires repeated treatments, can cause life-long vocal pattern changes.

The new vaccine

A new vaccine prevents infection with four clinically important types of HPV: two types that cause 70 percent of cervical cancers (HPV-16 and HPV-18) and two that cause 90 percent of genital warts and cases of recurrent respiratory papillomatosis (HPV-6 and HPV-11). Because this vaccine does not prevent infection with all cancer-causing HPV types and will not clear existing infections, recommendations for Pap screening will remain the same. However, as vaccination becomes more widespread, fewer women will develop Pap test abnormalities that require diagnostic and treatment procedures for precancerous cervical lesions and invasive cancer. Whether boys and young men will benefit from vaccination is not yet known, although it is possible that vaccinating them could have indirect health benefits for women and girls. Results of studies of male adolescents and young men are expected by early 2008.

As with other commonly used vaccines, such as polio, measles, and hepatitis B, the HPV vaccine is preventative, not therapeutic. For this reason, vaccination will offer the most protection if administered before sexual debut or shortly thereafter. According to data from the 2002 National Survey of Family Growth, 40 percent of 16-year-old and 70 percent of 18-year-old

females in the US report having had at least one sex partner. These statistics prompted the Advisory Committee on Immunization Practices (ACIP), American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), American College of Obstetrics and Gynecologists (ACOG), and the American Cancer Society (ACS) to recommend routine vaccination of 11- to 12-year-old females (and as early as age 9) with catch-up vaccinations through age 18 (ACS) or through age 26 (ACIP, AAP, AAFP, and ACOG). The vaccine is included in the federal Vaccine for Children program, which provides recommended vaccines to states for children and adolescents less than 19 years of age who are Medicaid eligible, uninsured, under-insured, Alaska Native, or American Indian. (Washington State, however, is a "universal coverage" state, which means the state government uses a combination of federal and state funds to provide vaccine to all eligible children and adolescents less than 19 years of age, regardless of private insurance coverage.)

Barriers to vaccine use

Cost and limited access are two barriers that must be addressed in order to realize the full potential of the vaccine. At \$288 to \$360 for the three-dose regimen, the vaccine is expensive relative to most other childhood vaccines.

In December 2006, Washington State Governor Christine Gregoire proposed funding for about 143,000 doses of the HPV vaccine. If approved by the legislature, this allotment would provide three doses of vaccine for more than 50 percent of all 11- to 12-year-old females, or about 14 percent of the estimated 336,000 females 11 to 18 years old in the state. The Centers for Disease Control and Prevention estimates that only 25–36 percent of the recommended age group will be vaccinated in the first year of licensure, which ends in June of 2007. Vaccines are most effective from a public health perspective when coverage of the target population is high (at least 80 percent), but it typically takes at least a few years after licensure for vaccine coverage to reach this level.

Vaccination requirements for school entry have been shown to improve immunization rates, due in part to reducing the opportunity for passive omission by parents and physicians. Unfortunately, laws governing vaccination prior to school entry may generate concerns about loss of parental/guardian autonomy. Washington State, as many other states, has no compulsory school-entry mandates for vaccines. Parents or legal guardians can decline to vaccinate their children based on medical, religious, or personal reasons. Opting out of vaccination is so simple in Washington State that exemption rates for childhood vaccines have been increasing, putting children at risk for serious illness due to vaccine-

HPV Vaccine in the US: Potential Annual Effect

HPV- Related Disease	Estimated Annual Morbidity Prior to HPV Vaccines	Vaccine Preventable HPV 6-, 11-, 16-, or 18- Related Morbidity
Invasive cervical cancer	11,150	7,800 (~70%)
Vulvar, vaginal, penile, and anal cancers	11,560	5,780 (~50%)
Head and neck cancers	34,000	3,400 (~10%)
Recurrent Respiratory papillomatosis (RRP)	1,000	800 (~80%)
Precancerous cervical lesions (CIN 2/3, AIS)	500,000	250,000 (~50%)
Genital warts	500,000	450,000 (~90%)

Sources: American Cancer Society, 2007; Chesson HW, *Persp Repro Health*, 2004; Saslow D, *CA Cancer*, 2007.

preventable infections. Arresting the trend toward larger numbers of parents refusing immunization is a genuine public health challenge that is not limited to HPV vaccine.

Beyond ensuring widespread use of the HPV vaccine, the primary outstanding issue is the duration of vaccine-induced protection. Girls and young women in the research studies were followed for only up to five years after the first dose. No evidence of waning immunity or decreased efficacy for prevention of infection or persistent shedding of virus has been found during five years of follow-up. The possibility of HPV developing mutations that would allow it to escape from vaccine-induced protection is unlikely; the HPV genome is very stable with mutational changes occurring at frequencies similar to those of the human genome. Also, an antigen challenge of the HPV vaccine was shown to stimulate a response that is characteristic of vaccines, such as the hepatitis B vaccine, that provide long-lasting protection. Considered together, these findings suggest that HPV vaccine-induced protection could be durable. However, until there is longer follow-up of vaccinated females, the need for boosters cannot be ruled out.

The HPV vaccine has a good safety profile and high efficacy for preventing HPV6/11/16/18-related precancerous lesions of the uterine cervix, vagina, and external genitalia in female adolescents who have not been infected with one or more of the four targeted HPV types. As with other new vaccines, parents, health care providers, and policy makers should continue to educate themselves about this vaccine. ■

Authors

Laura A. Koutsky, PhD, MSPH, is a professor in the Department of Epidemiology, UW School of Public Health and Community Medicine. Matthew R. Golden, MPH, MD, is associate professor of medicine, in the Center for AIDS and STD/Allergy and Infectious Diseases, at Harborview Medical Center, Seattle, Washington.

Field Research with Hispanic Interns

Priming the Public Health Workforce Pipeline



Idaho Partnership for Hispanic Health

Intern field researchers: *Back row:* Angela Rios, Amber Messa, Miguel Sanchez, Guillermo Caldera; *Middle row:* Fabiola Tereul-Matheu, Evelyn Baldeon, Larry Olivera, Alma Navarrete, Liliana Rodriguez; *Front row:* Rebeca Pacheco, Paloma Lira, Maria Torres.

Linda Powell
Matthew Keifer
Sam Byrd

When Evelyn Baldeon knocked on the door to do her first interview of a Hispanic resident, she felt nervous. Evelyn was one of 15 summer interns working with the Idaho Partnership for Hispanic Health. It took courage for this quiet and reserved Hispanic social work graduate to approach a randomly selected house and ask the residents to participate in a lengthy survey. By the end of her three-month internship, though, Evelyn had overcome her shyness and learned to confidently interview Hispanic adults. At the same time, she helped make a major contribution to the Partnership's health research efforts.

Shortage of diverse workers

According to a 2003 survey by the Association of State and Territorial Health Officials (ASTHO), the most difficult challenge facing state and local public health agencies is ensuring a qualified workforce. The ASTHO survey found that the average age of a public health worker is 47, public health retirement rates may be as high as 45 percent in the coming years, and current job vacancy rates are as high as 20 percent in some states.

The problems created by the public health workforce shortage are aggravated by the lack of racial and ethnic diversity in the public health workforce. The Institute of Medicine pointed out the need for greater diversity in the health workforce in its 2004 report *In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce*. It stated, "Increasing racial and ethnic diversity among health professionals is important because evidence indicates that diversity

is associated with improved access to care for racial and ethnic minority patients, greater patient choice and satisfaction, and better educational experiences for health profession students, among many other benefits." The need to replace the retiring workforce and the need for the new workforce to reflect the diverse US population challenge the public health community to find creative ways to attract new professionals.

One approach to addressing the challenges of both workforce shortage and workforce diversity is developing internships for young people. Summer public health research programs, such as the one in which Evelyn participated, for example, show significant potential for recruiting minority students into public health.

Summer work for Hispanic youth

The Idaho Partnership for Hispanic Health is a program of the Mountain States Group, Inc., a private, nonprofit corporation whose mission is to promote citizen and community leadership in improving health and human services and provide high quality direct services for diverse populations. Funding comes through a grant from the National Center on Minority Health and Health Disparities, within the National Institutes of Health, to identify key health concerns in Idaho's Hispanic community and develop and test interventions to determine what works to address Hispanic health disparities. The Partnership has three phases.

Phase 1. Develop a partnership structure through the formation of a community advisory board that is representative of area Hispanics.

Phase 2. Address two research questions:

What are the most significant health problems experienced by Idaho Hispanics from the perspective of Idaho Hispanics themselves? and What are the primary factors contributing to these health problems?

Phase 3. Implement an intervention to address one of the priority health issues identified through Partnership's the research.

The Partnership is staffed by core team representatives from the Mountain States Group, the University of Washington Pacific Northwest Agricultural Safety and Health Center (the research partner), Boise State University Department of Nursing (the clinical partner), Dr. James Blackman (medical advisor), and community partners Centro de Comunidad y Justicia (CCJ) and the Idaho Commission on Hispanic Affairs. The Partnership's Community Advisory Board consists of 18 members from seven counties in southwest Idaho and represents various sectors including business, education, health, agriculture, social services, youth, and seniors. More than 80 percent of the advisory board's members are Hispanic.

Once the Community Advisory Board was identified and oriented, Partnership staff developed several survey instruments, one for gathering quantitative information from a random sample of Hispanic adults in the area and two qualitative surveys for the focus group and key informant interviews. The quantitative survey questions focused on identifying Hispanic perceptions about health care access, the prevalence of self-reported health conditions, perception of health status, and self-reported health behaviors.

In early May 2006, the Partnership recruited 15 Hispanic or bilingual college students (13 Hispanic and 2 non-Hispanic bilingual) to work over the summer as field researchers or assistants. Partnership staff developed a training program that incorporated Human Subject Research Education certification. The ten training modules covered the survey process and survey questions, random sampling processes, interviewing techniques, and data collection techniques, as well as interview role playing and practice in the community.

In addition to this training, staff from CCJ led skill-building sessions to help the students work together in culturally appropriate and respectful ways. CCJ staff also led the field research effort, providing supervision to the field researchers during the entire process. The seven two-student teams traveled throughout southwestern Idaho interviewing randomly selected Hispanic adults to determine their perceptions about health care access issues and to quantify health care use patterns, preventive health practices, and existing health status problems. By the end of their summer internship, the 15 interns had interviewed 519 people. (*See box for selected survey results.*)

The research project gathered a wealth of data (available at www2.state.id.us/icha/iphh/ by mid 2007) on Idaho's Hispanic population and, at the same time, provided the experience of a life-time to these young Hispanic students.

At the end of the data collection phase of the project, Partnership staff hosted a celebration and recognition barbecue for the field researchers and their families, Community Advisory Board members, and the core team representatives.

Summer internship results

In their exit interviews, a majority of these young Hispanic students expressed an enhanced interest in health and research as a result of their summer experience. An unexpected benefit for nonprofit organizations and state agencies was the opportunity to employ bilingual and culturally proficient individuals as full-time staff members. One of the field researchers went on to become a high school teacher, and another is working with the Department of Health and Welfare. A third field researcher continued as an intern with CCJ and has helped to revive a statewide Hispanic Collegiate Organization that includes Latino student representatives from every public and private college and university in Idaho. The summer experience of a fourth intern, Amber Messa, sparked her interest in health research and led her to take a job with a community health clinic as a farmworker outreach associate. "Now I have an idea firsthand," Amber said, "about what is going on and what is lacking in the system."

As for Evelyn Baldeon, within two weeks of completing the research project, she accepted a job with Casey Family Programs (in Boise, Idaho) as a case manager working with Spanish-speaking kinship families or relative caregivers.

Summer internship programs such as the Idaho Partnership project can effectively engage young Hispanic community members in public health research. The students' experiences can ignite their enthusiasm and made new career options visible to them. Although not the specific purpose of the project, early impressions suggest that incorporating community youth in public health research activities may also help increase the supply of engaged and interested students to fill the growing diversity and workforce needs of the health professions. ■

Survey Highlights

- 519 adult Hispanics interviewed (320 women, 199 men)
- 75% Spanish is primary language
- 40% don't read English
- 49% don't write English
- Average years in US: 20
- 62% no medical insurance
- 73% no dental insurance
- Health condition of most concern: Diabetes

Authors

Linda Powell, MS, CPT, is project director with the Mountain States Group, Inc. Matthew Keifer, MD, MPH, is an associate professor in the Department of Environmental and Occupational Health Sciences, UW School of Public Health and Community Medicine. Sam Byrd is director of Centro de Comunidad y Justicia.

The Changing Adolescent Brain

Sarah K. Ramowski
Robert J. Nystrom

The idea that the teenage years are full of change and growth is not new to public health professionals, teachers, parents, or teens themselves, for that matter. Adolescence is often a time of encountering new freedoms and new situations. Many professionals in the political and health care fields still debate just how much responsibility teens should be given and at what age. Over the past few years, strong research has emerged that documents the enormous changes to the brain in the years between childhood and adulthood. The more difficult issue is how to apply this research when creating and implementing sound public health policy that affects adolescents. The degree to which adolescents may be limited by normal brain development processes may be a factor in weighing appropriate policy decisions.

Understanding adolescent brain development is crucial to building programs for teens that allow them to have new experiences and make mistakes in low-risk environments. Programs such as Oregon's Action Research project (*see page 6*) provide a positive forum for teens to learn, acquire new skills, grow, participate in policy making and program designs that affect them, and feel respected in their independence, all under an appropriate level of adult support. Previously, it was thought that most brain development was complete by adolescence and that teenagers' brains were as fully matured as adult brains. As the result of increasingly sophisticated research and imaging abilities, we now know this is not the case. Just as teens' bodies are maturing and their social skills are expanding, their cognitive centers are also in flux.

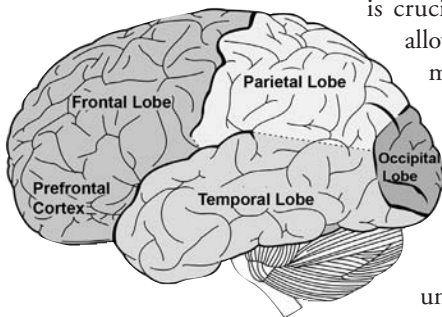
During adolescence, the brain adopts a "use-it-or-lose-it" pruning system, resulting in a decreasing number of connections among brain cells even as the speed of these connections increases. Major changes are also underway in the prefrontal cortex (PFC), known as the executive planner of the brain. The PFC is responsible for weighing risks and benefits, strategic thinking, and impulse control. Throughout adolescence, the PFC is refining its wiring to become more

sophisticated. Studies demonstrate that the PFC is among the last parts of the brain to fully develop, in many cases not maturing until well into the third decade of life. Unused branches are sloughed off, and other pathways are refined. As this construction phase progresses, synapses that normally go through the PFC in an adult brain are instead re-directed to the amygdala, known as the emotional center of the brain. When this happens, the response is rooted in emotion—fight, flight, freeze, freak out—rather than rationality. The amygdala can also misinterpret others' facial emotions, perceiving fear or nervousness as anger or hostility.

All these processes can alter the ability of adolescents to harness their decision-making abilities, making them more vulnerable to risk-taking and impulsive behaviors. As a parent, when you sometimes feel your son or daughter is over-reacting or misinterpreting, you have likely met their developing brain in action.

The adolescent brain is especially sensitive to the effects of dopamine, a chemical neurotransmitter that is activated by substance use, exposure to high-intensity media, and gambling, as well as food and sex. When drugs and alcohol are introduced in adolescence, the brain's natural supply of dopamine can be decreased, making teens more vulnerable to addiction. It is still not known how much of brain development is influenced by environment vs. genetics, but some evidence suggests that constructive learning experiences can positively shape teen cognitive development.

As research results have emerged, some public health professionals have voiced concern that the results will be used to squelch teen independence or rights in areas such as reproductive health and health care decisions. Public health policy and science provide us with a few key responses to that concern. First, brain development, as an isolated issue, should be just one of several factors considered when designing good programs and policies. Second, it is important to recognize that successful brain development relies on exercising this organ. From a use-it-or-lose-it perspective of refining maturing brain connections, it would be most productive for caring adults to provide meaningful opportunities for adolescents to exercise brain functions that require analytical, decision-making, and valuing skills, to help teens demonstrate their real and valuable role in making good decisions and advocating for their health. ■



Authors

Sarah K. Ramowski, MSW, is an adolescent health policy and assessment specialist; Robert J. Nystrom, MA, is manager of the Adolescent Health and Genetics Section. Both are in the Office of Family Health, Public Health Division, Oregon Department of Human Services.

Northwest Public Health Online

Web Specials

- Social and Emotional Needs of Children with Diabetes: A Checklist for Schools
- Annotated Resources on Public Health Issues of Adolescents
- Cross-Border Public Health Efforts

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www.nwpublichealth.org

Announcements

A Course for Public Health Nurses

Introduction to Logic Models and Performance Management.

May 17, 2007, 1/2 day. Spokane, Washington.

Follow-up online sessions: May 24 & 31, 2007
(Archived session available online.)

Instructor: Betty Bekemeier

Information: nwcphp@u.washington.edu

Future of Public Health Leadership in the NW

Three-part lecture series on broad themes in public health leadership.

June 7, Noon PST. Speaker: Louis Rowitz

July, TBA

August 15, Noon PST. Speaker: Jeremy Sappington

Information: nwcphp@u.washington.edu

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The School's emphasis is on strong academic programs in the public health disciplines and extensive multidisciplinary collaboration. The combination of discipline-oriented academic programs, strong interdisciplinary research, and community-based public health activities provides a setting for faculty and students to apply in-depth expertise to important public health problems.

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School of Public Health and Community Medicine

University of Washington, Box 354809
Seattle, Washington 98195-4809

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