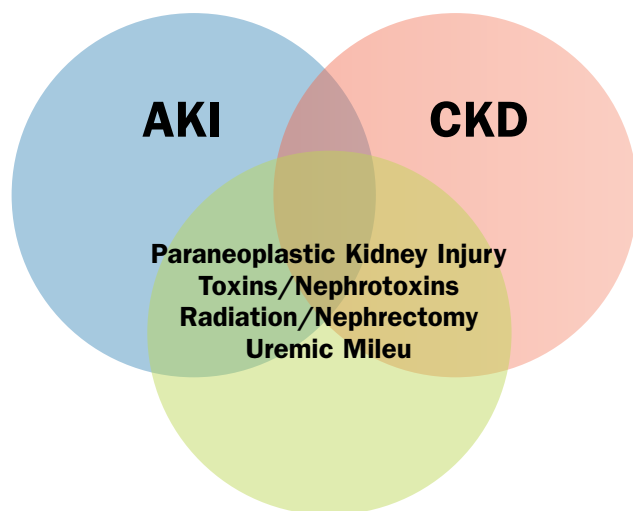


Figure 1. Cancer, AKI, and CKD are linked by various exposures and pathways



Abbreviations: AKI, acute kidney injury; CKD, chronic kidney disease; ESRD, end stage renal disease

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Youth Program Focuses on Kidneys for Healthier Outcomes

By Cheryl Neal, MD, and Susan Bagby, MD

The MIKE program (Multicultural Integrated Kidney Education) is working to change Oregon's burden of chronic metabolic diseases. The Portland-based nonprofit offers youth sequential, applied learning activities that connect health science education with leadership skills and community service. As youth develop the knowledge, tools, and motivation to make educated decisions to prevent chronic disease personally, they begin to influence their peers, families, and neighbors to create a healthy future.

MIKE was created in 2000 in memory of Mike Hartnett, MD, the first nephrologist trained at what is now Oregon Health & Science University (OHSU). The program's innovative focus on the kidney provides youth with a unique scaffold for learning human anatomy, organ functions, chronic disease prevention, and best practices for increasing healthy behaviors.

MIKE advisor Randall Jenkins, MD, a Portland pediatric nephrologist at OHSU, sees firsthand how chronic diseases increasingly impact greater numbers of younger children. "In the 1990s when I started in Oregon, only one child with hypertension related to weight was in my practice," Jenkins said. "Now I see one child every week or two." Dr. Jenkins' practice is also seeing more Latino and African American children devastated by chronic diseases earlier in life. "It's related to lifestyle, eating, and physical activity," he said.

MIKE embeds a focus on prevention of kidney failure and youth development into school settings that serve low-resource neighborhoods, engaging very-low to moderate income, racially and ethnically diverse youth to become their own best advocates for health. About 77% of the youth participating in MIKE identify within commu-

nities of color, populations more likely to experience kidney failure.

MIKE partners with multiple higher education and healthcare institutions in the area to recruit and train diverse mentors, many of whom are pursuing professions in healthcare. MIKE mentors—of whom more than 50% come from communities of color—include first and second year medical students at OHSU School of Medicine, nursing degree program students with the University of Portland and Linfield School of Nursing, graduate students from Pacific University's School of Professional Psychology, and public health students at Portland State University. MIKE staff meet each week in a teacher-managed classroom to deploy the mentors, who serve as positive role models for small teams of youth during at least one entire academic semester, introducing, applying, and reinforcing steps to inspire healthy behaviors.

One youth participating in MIKE's afterschool program at Liberty High School in Hillsboro, Oregon, discovered that more than half of his immediate family members have been diagnosed with diabetes, hypertension, cancer, high cholesterol and/or obesity. Engaging in this type of exercise is part of MIKE's introduction process and provides context for youth to understand the impact of chronic diseases.

"What I learned from interviewing my aunt is that we actually do have kidney problems in our family," said another youth. "We also have diabetes on both sides of the family."

MIKE youth and mentors gain far more than experiential training and service delivery skills from the program. MIKE's health science education program combines the six fundamental building blocks of project-based learning: authenticity, ac-

ademic rigor, adult connections, active exploration, application, and assessment. As youth progress, they work in groups with their mentor to create a health leadership project; by presenting their new knowledge to peers, family, and community members, MIKE youth advance health literacy and health equity in communities at high risk of poor health outcomes.

"I never realized that death from kidney failure was more prevalent than death from breast cancer," said Scott Hillesheim after his first week mentoring with MIKE at the high school. Hillesheim, a program manager at Kaiser Westside Medical Center, volunteers as a mentor at Liberty High School. "Now my goal is to spread much more kidney education and to take preventive measures for not only myself, but for my family and the youth I mentor."

Health career options

As part of its vision for health, MIKE promotes health career options. MIKE mentors guide youth through a variety of hands-on, health-focused experiences, exposing them to professional content experts who lead hands-on blood pressure clinics, guide construction of a makeshift kidney from household materials, and prepare youth for a visit to a dialysis clinic.

Youth list the dialysis clinic visit as one of the most compelling experiences with MIKE. Participants tour the facility, then talk with individuals undergoing dialysis, providing a personal lens that helps illustrate the impact of kidney failure in society.

There is broad scientific agreement that two factors drive the epidemic of chronic metabolic diseases: Poor nutrition (undernutrition or high-calorie malnutrition) in early life (in the womb and during early

childhood); and unhealthy lifestyles in postnatal life (inadequate nutrition, sedentary lifestyles, and risky behaviors). Because high-calorie malnutrition in the womb (maternal obesity/gestational diabetes) leads to childhood onset of obesity/diabetes, which then typically persists as young women enter reproductive years, the vulnerability of their offspring to chronic disease becomes self-perpetuating across generations.

Thus the health practices of youth today will determine the health of their future pregnancies and the resilience of their babies to postnatal environmental stressors. This resilience applies not only to physical and metabolic health, but also to the cognitive, mental, and behavioral health that determines societal success.

By equipping teens with the skills, knowledge, and motivation they need to advocate for health within their academic and social communities, MIKE begins to disrupt the intergenerational health outcomes that increasingly generate high healthcare costs, add to the burden of socio-economic disparities, and widen gaps in academic and workforce achievements.

By preparing youth with the means and motivation to resist these stressors, MIKE helps them move toward healthier outcomes for themselves and their future families. For ways to help and for more information about MIKE, visit www.mike-program.org.

Cheryl Neal, MD, is founder and volunteer executive director of the MIKE Program. Susan Bagby, MD, is a professor of medicine at Oregon Health & Science University (OHSU), and is chair of the Community Education and Outreach Committee of the OHSU Bob and Charlee Moore Institute for Nutrition and Wellness.