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New Academic Environmental Health Center Opens with a Medical Student Workshop on Writing Lead Grants

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Swetland Center

In the late 1950s, David and Mary Ann Swetland recognized that too little was known about the unintended health consequences of chemical, agricultural, and industrial products in our environment. Due to the paucity of medical science documenting these environmental health implications, David Swetland chose preventive medicine and environmental hazards as the focus of the chair endowed to Case Western Reserve University ("Case") by his late wife's estate. The Swetland Endowment took several forms since its inception in 1969, including the support of Professorships at the School of Medicine for Dr. Samuel Epstein and Dr. Herbert S. Rosenkranz. Last year, the Mary Ann Swetland Center for Environmental Health was established as an academic and clinical environmental medicine center. The Swetland Center brings new emphasis to environmental health at Case School of Medicine and affiliated hospitals throughout Cleveland, Ohio. The current focus of the Center is on environmental health problems of the Cleveland community, especially as they relate to toxic exposures of children and their families. Dr. Dorr G. Dearborn has been appointed as the Mary Ann Swetland Professor of Environmental Health Sciences and Director of the Center.

The Swetland Center vision has four major components relating to clinical care, research, public health, and medical education. The Center strives to recruit academically oriented physicians trained in environmental medicine who can provide medical care to families with environmental exposures and establish strong research programs. The Center will conduct clinical-based environmental research and will foster similar environmentally oriented efforts throughout local academic medical centers. Included in these expanding collaborations is a strengthened relationship with the local public health agencies. These research and prevention collaborations will address important local environmental problems including the built environment and indoor air quality. The final component of the Swetland Center vision relates to medical education. Though the Case School of Medicine curriculum has addressed environmental health issues in the past, systematic coverage and coordination were lacking. As part of ongoing reforms to the medical education curriculum, the Swetland Center is developing environmental health as a vertical theme throughout the education of medical students, residents, fellows, and academic/community physicians.

Medical Student Workshop on Lead

It was the Swetlands' hope that all graduating doctors would have an interest in and understanding of the impact of the environment on human health. In celebration of the opening of the Mary Ann Swetland Center for Environmental Health in early February of 2004, medical students participated in a novel experience and received a glimpse of what a future environmental health curriculum might offer. As part of their Introduction to Clinical Medicine (ICM) seminars, first and second year Case medical students participated in a Workshop on the Cleveland Lead Problem. This was the first time in recent memory that first and second year medical students came together for a common purpose. That purpose was to be creative about solutions to the Cleveland lead problem.

The workshop began with an introduction to the Swetland Center by Dr. Dearborn and the School of Medicine's Dean Ralph Horwitz. This was followed by a lecture from Dr. Bruce Lanphear giving an overview of the national lead problem, the health effects of lead, and various public health approaches to the lead problem. The local perspective on the epidemiology of Cleveland's lead poisoning burden was presented by Dr. Natalie Colabianchi, a Case epidemiologist. Though the past 15 years have witnessed a dramatic decline in children's average blood-lead levels, for many poor and minority children living in deteriorated housing, lead poisoning remains an epi-

demic. In 1998, the CDC surveyed 19 states for childhood lead poisoning rates, and Ohio had the second largest percentage of children with elevated blood lead levels. Within Ohio, Cuyahoga County (home to the city of Cleveland) had the largest rates. In Cleveland, about one child of every five who are tested is found to have lead poisoning based on the Center for Disease Control and Prevention cutoff of 10 µg/dl of blood. At blood lead levels above this cutoff, health effects include neurological damage, causing learning and behavioral disabilities. However, despite the established cutoff value of 10 µg/dl, there is evidence of significant damage to intellectual functioning at even lower blood-lead levels.[1]

The workshop next put a face to the problem of lead poisoning by having two senior medical students conduct an interview with a mother of several lead poisoned children. She spoke of her family's experience with the medical treatment for lead poisoning, the remediation necessary in her rented housing, and the paucity of support from her landlord. Next the students were charged with writing a two million dollar, two-year grant application addressing the lead problem in the Cleveland community. They broke into groups of seventeen first and second year medical students. Each group had its own clinical medicine preceptor from Case and environmental health preceptor from a local public health agencies or environmental health organization. Students were introduced to grant proposal-writing techniques and were responsible for creating a poster outlining their proposals. After a group work session of approximately two hours, the posters were presented at a luncheon attended by university and local public health leaders.

Students' Grant Ideas

There were several different themes behind the groups' proposals to address the lead problem in Cleveland. A few proposals concentrated on using the grant money to clean up problem houses in Cleveland- the "hot houses" of highest lead risk. Groups varied, however, as to how they would identify these problems homes. Some proposed working with local health departments and using existing data on lead toxicity incidence. Others wanted to canvass problem neighborhoods, going door to door to check for peeling paint and other lead hazards. Still others proposed screening and targeting all rental-housing units of a certain age. One group thought that in-home daycare centers would be a good entry point for lead risk interventions. Several groups wanted to perform prospective randomized controlled trials testing the cost-effectiveness of different abatement strategies such as regular cleaning, interim control, window replacement, dust cleanup, ground cover, exterior siding, and paint stabilization. Most groups included a formal education element in their proposals to teach high-risk populations about the dangers of lead exposure and the best methods of prevention. One group thought that the ideal method of educating the public would be through community outreach and specifically through community centers, local businesses, churches, and local community leaders. Another common theme was the realization that current lead screening emphasizes secondary prevention (post-exposure) rather than primary prevention. Many groups proposed earlier intervention through the identification of pregnant women in high risk housing, followed by lead education for expectant mothers, home inspections, and home remediation prior to the birth of the child. One particular group carried this idea further by suggesting the creation of a safe housing list for pregnant women and families living in high-risk housing. Several groups took a more administrative and policy-oriented stance emphasizing the responsibility of property owners for lead-free housing and a greater role for local government. Several groups wanted to use the grant money to lobby for new lead laws. Many suggested tax credits for responsible landlords, subsidized abatement, low interest property improvement loans, community lists of lead-free properties, mandatory inspections and lead-free certification for property owners, mandatory disclosure of inspection results, proper remediation to certification standards, financial incentives for property owners, and stricter lead screening rules. One group even proposed mobilizing medical students as a work force for lobbying, fundraising, and educating. A particular aim was to lobby Medicaid to link recertification of programs to improved lead screening rates. Finally, one group proposed the creation of a lead abatement decision analysis algorithm to coordinate the assessment of environmental risk factors with the appropriate intervention. This would include the compilation of a comprehensive database of lead levels in neighborhood environmental samples such as soil, water, and dust that would allow for the identification of high-risk areas. A scoring system, taking into account the number and age of children at risk in a particular environment, would be linked to intervention protocols.

Environmental Health in the Future

Through these mock grant proposals, Case medical students demonstrated several creative ideas to help resolve Cleveland's lead problem. They utilized primary, secondary, and tertiary prevention themes in the context of academic and public health approaches to an important environmental health problem. This

was done while learning about research proposal-writing techniques. Out of the workshop came a fresh perspective from medical students that may be useful in future efforts to combat this enduring public health and environmental problem. The workshop also introduced issues of environmental health and problem solving to our future doctors. Through the medical student Workshop on the Cleveland Lead Problem, the Mary Ann Swetland Center for Environmental Health has begun its challenge of uniting academic medicine, environmental health, public health, and research. Its groundbreaking adventure into medical education curriculum reform places it at the forefront of the integration of the environmental – health interface into traditional medicine. The students' excitement for and participation in this workshop project provide early feedback that environmental health education will be embraced. To keep up with the evolving face of medicine, twenty first century medical education must address the unprecedented changes to our physical, social, and societal environments that impact human health and wellbeing.

References

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