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LEAH interdisciplinary training program

Abstract: This article describes the Leadership Education in Adolescent Health (LEAH) interdisciplinary training program in the United States. The Maternal and Child Health Bureau authorized by legislation provides monies to train leaders in adolescent health through a competitive grant process. Currently, seven academic medical centers have funding to provide leadership in adolescent health (LEAH) training in five core disciplines: medicine, nursing, psychology, social work and nutrition. LEAH training programs both ensure high clinical competence in core disciplines serving adolescents and prepare trainees for leadership positions in adolescent health and public health care realms. Together, these programs trained almost 1000 long-term trainees across these five disciplines, and graduates from these programs are working in 45 of the 50 states within the United States. About 90% of these graduates are working with maternal and child/adolescent health populations, and almost all have held leadership positions in the areas of public health, advocacy, public policy, academic medical centers and/or clinical care settings.

Keywords: adolescent health; leadership; multidisciplinary; training program; United States.

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Introduction

Over 80 years ago, the United States (US) Congress enacted legislation authorizing the creation of the Maternal and Child Health Services programs. This legislation, labeled Title V, provided the foundation for assuring the health of mothers and children. The goals of Title V legislation, past and present, are to improve and ensure access to high quality health services for mothers, infants, children and

adolescents, especially those who are economically disadvantaged. Included in this population are those with special health care needs, such as the disabled and those with chronic illness (1).

Currently, Title V programs are administered by the Maternal and Child Health Bureau (MCHB), which is housed in the Health Resources and Services Administration (itself housed within the larger governmental organization, the US Department of Health and Human Services). The primary mission of the MCHB is to provide national leadership, in partnership with key stakeholders, to improve the physical and mental health, safety and well-being of maternal and child populations (1).

One important objective of the MCHB is to cultivate a cadre of leaders through education and training. In fact, it is the only US agency devoted to the mother and child populations and one of the only training programs using specific and directed educational activities to address the health needs of this population (1). Currently, several training programs exist and include Developmental-Behavioral Pediatrics, Maternal Child Health (MCH) Nutrition, MCH Pipeline, Leadership Education in Adolescent Health (LEAH), Pediatric Pulmonary Centers (PPC), Leadership Education in Neurodevelopmental Disabilities (LEND) and Schools of Public Health (SPH) (2, 3). Leadership development is an emphasis of all training programs and incorporates a focus in at least one of the following areas: academics, public health, public policy or clinical education. All training programs support the notion of interdisciplinary educational activities to ensure that trainees who graduate are equipped to effectively work with other professionals to holistically address the health needs of mothers and children (3).

The first funded training programs for adolescent health were created by the Children's Bureau in 1950 with the development of adolescent medicine fellowships for pediatricians in five states. Fellowship training was further expanded for physicians in 1967 with additional academic institutions offering post-graduate training programs. In 1994, the American Council for Graduate Medication Education (ACGME) officially established adolescent medicine as a subspecialty of pediatrics and internal medicine. Subsequently, family practice medicine was included as a group of physicians who could subspecialize in the clinical practice of adolescent medicine. Depending on the originating specialty, adolescent medicine fellowships for

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physicians involve an additional 2–3 years of post-graduate medical education in an approved training program. Today, 28 programs offer subspecialty training for pediatricians and internal medicine and family practice physicians in 16 locations across the US (2).

In tandem with the development of subspecialty clinical practice in adolescent medicine, US professional organizations began in the 1950s to advocate for the health and wellness of adolescents. Today, numerous organizations exist including the Society for Adolescent Health and Medicine (SAHM), the Section of Adolescent Health (SOAH) within the American Academy of Pediatrics (AAP) and the Society for Research on Adolescents (SRA). The Society for adolescent medicine (now, SAHM) was founded in 1968 and is a multidisciplinary organization with American and international members. The goals of SAHM are to improve the physical and psychological health of adolescents through various means including advocacy, research, health promotion and clinical care (4). SOAH was founded in 1978 as an educational and representative forum for pediatricians. Activities of SOAH aim to expand knowledge of adolescence in general pediatrics and include hosting educational programs for all AAP members (a major professional group for pediatricians in the US) and creating clinical policies and publications to guide best practices for adolescent health care (5). Finally, the Society for Research on Adolescence (SRA) was established in 1984 as an organization for researchers of adolescents focusing on global issues. International and multidisciplinary collaboration, professional research development and networking and supporting research on underrepresented groups of adolescents are all objectives SRA identifies as necessary to foster high scholarship on adolescence (6).

LEAH training

Given the types of health problems common in adolescence, multidisciplinary care is especially important for this population. As described above, adolescent medicine fellowships exist for physician training; however, no specialized training for other professions existed until the founding of Leadership Education in Adolescent Health (LEAH) programs through MCHB. MCHB initiated its first grant announcement to support LEAH training in 1976. Consistent with the mission and goals of MCHB, this training was designed to be multidisciplinary and created needed formal training programs for the disciplines of medicine, nursing, nutrition, social work, and psychology

(disciplines considered to be key in ensuring the health and well-being of adolescents) (2).

LEAH training programs both ensure high clinical competence in core disciplines serving adolescents as well as prepare trainees for leadership positions in adolescent health and public health care realms. Training programs include clinical service and research training and development of health services for adolescents, including those with special health care needs. Every 5 years, any public or non-profit institution of higher learning has the opportunity to apply for LEAH funding, in response to a Funding Opportunity Announcement (FOA) released by the MCHB's Division of MCH Workforce Development. Applicants must prepare a complete application that provides 1) a detailed description of the need for training, 2) methodology of the training program (including specific goals and objectives), 3) design of the training program, 4) settings where training occurs, 5) populations to be served, 6) coordination with other training programs and other maternal child health state programs and 7) existing resources and capabilities of the organization applying for funding. Included in the application is the identification of a project director, faculty, existing training relationships/opportunities, a budget consistent with dollars available, evaluation methods to be used and potential regional and national impacts from training activities. All eligible grant applications are peer reviewed and rated by a panel based on the program elements and review criteria presented in the FOA. Currently, the MCHB funds seven LEAH programs.

As mentioned, five core disciplines must be included: medicine, nursing, nutrition, psychology and social work. In addition, trainees are one of three types: long-, medium- or short-term. These three categories are differentiated by the amount of time involved and dedicated to the adolescent health training experience. Long-term trainees must complete 300 h of LEAH leadership and didactic training as well as adolescent health field work. For physicians, this entails 2 or 3 years, which works in tandem with separate clinical requirements for ACGME subspecialty training in adolescent medicine. For long-term trainees in the other disciplines, training usually occurs over a 1-year period, and all are expected to be at least master's candidates. Long-term trainees of any discipline are expected to serve as models for other students and residents, as well as short- and medium-term trainees. Short- and medium-term trainees participate in LEAH training activities aside long-term trainees. Short-term trainees represent involvement in the training experiences for <40 contact hours, where medium-term trainees receive at least 40 but not more than 300 contact hours of LEAH training.

Training programs are designed to integrate biological, developmental, mental health, social, economic, educational and environmental issues within a public health framework. Whereas teaching and training experiences in each of these domains vary across specific programs, the LEAH program must ensure that the program trains leaders to work in the areas of research, teaching, clinical, policy and advocacy relative to adolescent health. Work must occur in systems charged with supporting the efforts of national and state-level maternal and child efforts.

The most recent competition of the LEAH Program occurred in Fiscal Year 2012. At that time, MCHB awarded seven LEAH grants, totaling approximately \$2.5 million each year. These seven grants have been awarded to medical schools and teaching hospitals across the US. All programs have the following components: prevention and care coordination; experiences in public health with state agencies; research methodology training; and skill development in communication, teaching and clinical care. All LEAH programs collaborate with State Title V (MCH) or other MCH programs, including direct service to a MCH agency, and have done so since funding was initiated. Programs also support training of MCH professionals, continuing education activities, technical assistance, product development and/or research.

These seven LEAH programs trained 934 interdisciplinary trainees between 1992 and 2011. Trainees have represented the disciplines of medicine (26%), nursing (20%), nutrition (17%), psychology (18%) and social work (16%); the remaining 3% were from other disciplines. Graduates from these programs are now in 45 states (see Figure 1). Looking at graduates from LEAH programs (in existence 1992–2011) 5 years after completion, 90% of graduates were working with MCH populations, and 94%

held leadership positions in the areas of public health, advocacy, public policy, academics medical centers and/or clinical care settings (7).

Faculty from these funded programs include physicians with board certification in adolescent medicine, nurses, psychologists, dieticians and social workers. Faculty are often considered national experts in adolescent health and medicine, which includes clinical services, research and policy. Faculty are responsible for oversight of all training activities relative to education, clinical competence, research and advocacy. In total, faculty and trainees from these seven programs gave approximately 1800 presentations on research, policy and clinical topics as well as providing over 950 continuing education projects in 2012 (8). LEAH faculty expertise on public policy, advocacy and clinical topics was instrumental in the Healthy People 2020 Adolescent Health Workgroup (the goal being to “improve the healthy development, health safety, and well-being of adolescents and young adults”) (9).

Strong mentorship is a fundamental principal used in all LEAH training programs. MCH leadership competencies include mentorship because data demonstrate it to have a positive relationship with both scholarship productivity and career advancement (10). As faculty at LEAH programs hold considerable experience and expertise in adolescent health and medicine, mentorship is an effective means for both leadership training and fostering high competence in the areas of clinical care, advocacy and research. Mentorship occurs at the trainee’s home institution, but also occurs with faculty outside of the trainee’s institution. To formally evaluate the value of mentorship, a mentoring program was offered at the annual meeting of SAHM in 2011 (11). Adolescent health senior faculty were matched with fellows and junior faculty cross institutionally and according to faculty expertise and fellow areas of study. Participants (mentors and mentees) were surveyed during the following 2 years on the value of the mentorship program. A formal mentoring framework for mentoring and career development was used: Developmental Networks. Developmental Networks emphasize personal relationships and, in previous studies, the use of Developmental Networks has been found to lead to positive outcomes by providing a structured program (12). Mentees found this program helped them stay involved in research scholarship after graduation, with some continuing to work with their mentor after the conclusion of the survey period. In addition, a number of mentees in this program reported that they continued to use their mentor to assist them in writing for the US National Institute of Health (NIH) to augment their training through a grant program called



Figure 1: LEAH programs and graduate placement as of 2011 (8).

career development applications (<http://grants.nih.gov/training/careerdevelopmentawards.htm>). Mentees also reported having benefited in developing careers in the leadership areas of teaching, public health and care of the underserved. Mentors and mentees reported high satisfaction with this program, which additionally demonstrated that MCH leadership competencies can be implemented beyond individual MCH programs (i.e., non-LEAH programs).

As adolescents continue to have significant unmet health needs, there is a continued need for research and scholarship (1). Training in research methodologies as well as quality improvement strategies are important components of LEAH training (1). Thus, LEAH programs serve a critical role in supplying education and related activities on various adolescent health and medicine topics for trainees. The most recent data on the scholarship activities of these seven funded LEAH programs reported that in 2012, 309 peer-reviewed articles, 21 book chapters, 1 book and 171 internet resources were published (13, 14). These publications included clinical guidelines and quality improvement projects, including development of STD treatment guidelines and a statewide plan for chlamydia screening (8).

While LEAH training aims to balance post-graduate course work, clinical competence and research activities, a recent study found only 18% of LEAH physician graduates were in academic positions with over 50% of their time devoted to research. Student debt burdens among physicians as well as students from other disciplines have dramatically increased. Thus, clinical opportunities, especially for physicians, make working in clinical settings more desirable because of debt accumulated during education and training periods. Additionally, US governmental funding sources have become more restricted and subsequently more competitive in recent years. Formal recommendations exist to address this challenge with LEAH programs implemental in several of these recommendations. Ways in which LEAH programs can improve the number of researchers committed to adolescent health topics include expanding formal collaborations between federal and institutional programs and advocating for support for attendance and participation in national meetings (allowing trainees to network, establish mentoring relationships and collaborate in research projects) (15).

Innovation in adolescent health has also been a hallmark of LEAH programs. Emerging recognition of adolescence as a unique period in the Life Course Perspective (LCP) framework of MCH training is a new focus of all current funded LEAH training programs (16). The LCP has traditionally been a guide for MCH training programs,

however, with a focus on infancy and childhood and less attention on adolescence. Recognition of the effects that an individual's life experiences, stage of life, environment and disparities on health are core concepts of the LCP, areas with obvious relevance for adolescence. The past focus of the LCP on infant and child developmental periods has been successful in improving health outcomes demonstrating that recognizing adolescence in the LCP model could have an impact on important causes of adolescent mortality like obesity, injury and mental illness. Incorporating adolescence into the LCP also allows a more complete approach to understanding disease across an individual's lifespan. LEAH programs have a history of collaboration with both non-LEAH MCH training programs and non-MCH training programs, making LEAH programs ideal for expanding the LCP to include adolescence.

Profile of a LEAH program: Indiana University

The LEAH program at Indiana University was begun in 1992 and continues through the date of this publication. Since initiation of funding, 130 long-term trainees have completed training in adolescent health and medicine in the disciplines of medicine, nursing, psychology, nutrition, social work, sociology and public health. Additionally, over 1200 additional learners have received adolescent health and medicine leadership education either as a short- or medium-term trainee. Faculty are multidisciplinary and all housed together in the Section of adolescent medicine within the Department of Pediatrics at Indiana University School of Medicine. Clinical training sites have included an eating disorder outpatient program, hospital-based ambulatory clinics, and inpatient services at a large tertiary care pediatric hospital. In addition, trainees have experienced rotations through community primary care clinics, school-based health clinics and a juvenile detention center for youth in central Indiana. When training sites are clinically oriented, their focus is on interdisciplinary care. For example, medicine, social work and psychology fellows affording care to patients in the adolescent diabetes center work in tandem with dietician trainees who provide education to patients.

The Indiana program provides clinical and research training, as well as experiences in public health and advocacy. As described above, clinical training takes place at numerous interdisciplinary clinics seeing youth from all backgrounds and socioeconomic strata in Indiana. In these clinics, family-centered, community-based,

culturally competent, coordinated interdisciplinary health care is taught and modeled. Research training includes formal coursework as well as mentorship by faculty. For medicine trainees, post-graduate coursework is supported as part of the ACGME fellowship training program and often involves completing a post-graduate degree such as a Master's in Public Health, Master's in Clinical Research or Masters in Ethics. Also as part of the ACGME fellowship, medicine fellows are expected to complete an independent project during their LEAH fellowship. Trainees from other disciplines have similar scholarship requirements but vary depending on their particular expertise and past training experiences.

Indiana utilizes principles of an adult-learning model for training. This model acknowledges that adult learners are autonomous and have accumulated life experiences and knowledge. It emphasizes active, self-directed learning, flexibility and individuation. The Indiana curriculum is competency-based and implemented in an interdisciplinary environment with the goal of preparing trainees early in their leadership trajectory for positions at national, regional and local levels in public health, health planning and administrative agencies, large health service delivery systems and academic institutions. Leadership competencies are explicitly addressed in an annual training course in leadership development; this program represents a partnership between other MCH programs at Indiana (LEND, Leadership Education in MCH Nutrition and the Department of Public Health in the Indiana University School of Medicine (IUSOM)) and the Indiana University School of Medicine Office of Professional Affairs and Development. This course employs both Kouzes and Posner's five leadership practices (modeling, inspiring a shared vision, supportive challenging and enabling and encouraging others) as well as MCH Leadership Competencies (17). Skills obtained from this course are then reinforced in weekly LEAH seminars (described below).

A centerpiece of the IU LEAH program is the weekly 2–3 h seminar attended by all fellows and faculty. Topics covered are interdisciplinary and include guest speakers, research presentations, patient case presentations and review of fundamental principles such as ethics or research principles. The LEAH program has been a venue for community projects; two projects were collaborations with the state run Indiana Coalition to Improve Adolescent Health in a web project and working with a local school to produce a youth initiative health video.

Historically, all Indiana LEAH trainees have been active in presenting their scientific findings at the annual SAHM meeting. Past projects presented at SAHM have included the topics of juvenile justice, human papillomavirus, sexual

behaviors and other high-risk behaviors of adolescence and diabetes. Public health and advocacy experiences have included working with the state health commission on adolescent health, serving as board members for community organizations advocating for adolescents and participating in community health fairs.

Graduates from the Indiana program have gone forward to hold leadership positions in academic institutions as well as public health and advocacy organizations. Recent graduates have served as directors for clinical services at networks of school-based health clinics or community health clinics (both serving underserved populations), held teaching faculty positions at major academic institutions and continued innovative research on the health of teens. Graduates have demonstrated advocacy for a range of adolescent issues including obesity, youth involved in the juvenile justice system, mental health and reproductive health.

Adolescence is a critical developmental period in the lifespan, and adolescents have unique health needs that are different from those of both children and adults. In the US, adolescents have high rates of specific health problems, such as injuries, sexually transmitted infections and mental health disorders. Preventable mortalities and morbidities from these problems create a need for specially trained providers to care for adolescents to maximize their health and well-being. Monies for training leaders in adolescent health and medicine are critical to ensure the health and wellness of this vulnerable population. The IU LEAH training project is committed to demonstrating the ability to 1) prepare a knowledgeable, skillful, culturally competent workforce possessing the attitudes needed to meet the unique needs of adolescents and their families; 2) develop effective MCH leaders through interdisciplinary training; 3) generate, translate and integrate new knowledge that enhances MCH training, informs policy and improves health outcomes; and 4) sustain support for MCH training through collaboration and leverage of MCH resources to secure additional federal and local funding.

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