Training leaders in Interprofessional Practices: A model of Co-production care for children with disabilities.

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Abstract

In the United States, health care reform and changing models of public and private insurance coverage have increased pressures on health care systems to be more efficient and produce better outcomes for people with disabilities while at the same time lowering health care costs. Children with neurodevelopmental disabilities are at high risk because this vulnerable population has myriad chronic health care needs that require long-term engagement with the medical system. Additionally, families of children with neurodevelopmental disabilities often require public funding assistance to access adequate health care or face an enormous burden of debt. The purpose of the MI-LEND program is to improve the health of infants, children and adolescents with disabilities in Michigan by training individuals from diverse disciplines to assume leadership roles in their respective fields and work across disciplines. The goal of this program is to train leaders who can advocate for the health care needs of these children and their families. Effective and streamlined models of interprofessional practice/co-production of care is an essential aspect of treatment that aims to help families navigate the current healthcare landscape. The multi-institutional collaboration of university health centers/medical schools focuses on teaching interprofessional and interdisciplinary practice and family centered care models as a means to improve the system of care for families of children with neurodevelopmental disabilities and prepare health care providers for a future of professional practice where co-production care is led by the family and coordinated services between many medical partners will be required. The interprofessional practice module of the MI-LEND curriculum creates a simulated clinical case and assigns multidisciplinary treatment team roles to the students, forcing them to adopt the role of an allied health care provider outside their discipline. Through this exercise, MI-LEND trainees must develop a knowledge base of their close allied professionals training credentials, basic work practices and treatment goals for a patient. They then act with this knowledge to develop a simulated care plan for the patient in collaboration with the other health care providers. The simulated treatment teams were also

asked to engage in discussions of policy development and advocacy within their discipline. In order to assess learning objectives related to this exercise, all MI-LEND trainees completed the Readiness for Interprofessional Learning (RIPLS) to assess their ability to engage in interprofessional practice before and after completion of the program this training module was presented. This paper will focus primarily on the process of using an in-vivo interdisciplinary practice training module as a potential tool for medical students and students in allied health care fields. The paper will also discuss the challenges related to teaching and measuring successful outcomes in interdisciplinary and co-treatment care.

Introduction

Children and youth with neurodevelopmental disabilities frequently require the services of many professionals from multiple disciplines to reach their optimal potential. These disciplines include medicine, education, behavioral health, dentistry, audiology, speech pathology, occupational and physical therapy, nutrition, social work, law and others. Coordinating the services of multiple professionals from multiple disciplines is challenging, time consuming and often impossible to accomplish. This task typically falls to the parent/guardian of the child – often at the expense of gainful employment, not to mention time dedicated to the parenting and other family responsibilities. Hospitals and health care providers struggle to support case coordination services as this type of service is often viewed as an expensive service that is not reimbursable. The overburdened public school system also struggles to coordinate with families and health care services for an individual child. As a result, care is fractionated and expensive with both duplications and gaps in care resulting in problem focused treatment of complaints, rather than integrated care. All told, the average health care costs for a child with an Autism Spectrum Disorder (ASD) or a neurodevelopmental disability is between 1 and 2 million dollars across the course of the life span even within this cumbersome and difficult navigate system [1]. Many people in United States are reliant on health insurance policies for financial assistance in order to pay for necessary medical treatments for their children [2]. There are current debates regarding healthcare reform within the United States that are looking toward increase co-production and multidisciplinary care and to adjust the types of financial reimbursement available for these types of co-produced services.

Significant shifts are needed with the current system of health care practice to allow for movement toward interdisciplinary care that is truly coordinated and family centered. Systemic change in health care practice is necessary as is a change in the knowledge, skills and attitudes of the professionals who work with children/youth with NDD. Professionals joining the workforce need to be skilled in providing interdisciplinary care, and yet traditional health care training within the United States is heavily discipline specific, without much interaction and exposure to related fields and treatment care teams. In addition, traditional models of higher level education in health care provide limited exposure to and education about national health care policy nor advocacy for health care reform. In order for family centered and interdisciplinary care models to be truly integrated within our current health care system, future health care providers need to master the knowledge base and skills required for interdisciplinary care of children and to advocate for policy changes that affect both financial reimbursement, access to care and care provision systems.

The MI-LEND program provides a model for interprofessional education of providers to promote models of interprofessional practice and co-production of care within the next group of

medical professionals and leaders in the care of children with neurodevelopmental disabilities. This program emphasizes multidisciplinary practices across medical professional and community care team members involved in the care of children with autism and neurodevelopmental disabilities and also family centered care. As a result, the MI-LEND model is in line to provide a model for the education of co-production of care between families and the health care team. Our preliminary data provides evidence that training specifically in interprofessional practice provides models, using simulated cases may provide a promising module for increasing the foundational knowledge and ability of healthcare providers to effectively use interprofessional practices in their careers.

Literature Review

ASD and Neurodevelopmental Disorders. The Centers for Disease Control and Prevention reports that the incidence of ASD has been growing 10-17% annually for the past decade. According to the Michigan Department of Education, youth with ASD numbered 1,200 in 1990 whereas in 2010, the number was 16,000 [3]. In the United States there is growing recognition of the health care needs for children with ASD and clinical programs have increased in number since that time, though families may have difficulty determining which services are evidence based and high quality. Children who have neurodevelopmental disabilities outside of the ASD spectrum often struggle more to access appropriate services. Specifically, in the state of Michigan children who have a qualifying diagnosis of ASD can access early intervention therapies, intensive speech and applied behavioral analysis programs (ABA) and specific programs targeted for improving social skills and interaction [4]. ABA and developmental social-pragmatic (DSP) therapies have become well established as an individual, comprehensive treatment approach that can be used in homes or combined in a classroom setting. ABA and DSP also show much promise for addressing more specific concerns including spoken communication, learning and classroom behaviors, as well as home based behavioral problems [5]. While high quality treatments have improved, children with ASD still face immense challenges with regard to managing the developmental, social and behavioral skills deficits in conjunction with the other health care needs of ASD. Children with ASD have higher rates of medical diagnoses (e.g. epilepsy, GI issues, visual and hearing impairments, intellectual disability, learning disabilities) and many other health conditions that can make early identification of ASD complicated [6]. The prevalence of other neurodevelopmental disabilities, not diagnosed as ASD (e.g. spina bifida, cerebral palsy) has received less attention in recent years; however, this group remains a stable population also in need of complex health care interventions that often have comorbid impairments (e.g. intellectual disability, ADHD, social skills deficits) and needs for therapeutic interventions (e.g. ABA and DSP therapies, occupational therapies, speech therapy) that are overlapping with the needs of children with ASD. Patients with neurodevelopmental disorders that include visual impairment and hearing impairment often have impairments in communication and social skill deficits that can be difficult to distinguish from a diagnosis of ASD, making proper diagnosis of ASD and treatment planning difficult [7]. There is a high need for professionals skilled in diagnosis and treatment of ASD within the context of other neurodevelopmental factors and medical conditions in order to navigate this complicated but heterogeneous group of people.

Barriers to Health Care. The health care system in the United States is fragmented, poorly coordinated and uneven. Health care is financed by the federal and state governments, private health insurance companies and individuals.

Financial barriers: Medicare and Medicaid are public health insurance programs. Medicare is a federal program that provides coverage for individuals 65 years and older and those with severe disabilities. It is not a major payer for children's health care. Medicaid is a state and federal program that provides coverage across the life span; eligibility is based on financial need. Eligibility criteria vary from state to state; most states cover children with family incomes significantly above the poverty level. Medicaid is a major payer for children's health care, for example, almost half of the children in Michigan are covered by Medicaid. Medicaid benefits vary from state to state, though the benefits for children are typically comprehensive because they are mandated by the federal government. Private insurance companies cover many children under their parent's policy. Benefits vary according to the family's policy; family obligation to "cost-share" through deductibles and co-pays also vary considerably depending on the individual policy. Challenges in navigating the health care system are compounded by the diversity of services covered and not covered. In Michigan, there was no specific private or public (Medicaid) insurance benefit to support ASD assessment or treatment until 2013 when Medicaid approved these treatments. Families with the private insurance still commonly struggle to access evidence-based therapies [1]. Families not only have to coordinate care between multiple professionals, they have to figure out what service and which professionals are covered by their insurance.

Access to services: Even when cost is not a barrier to treatment, it can be difficult for families to find well-qualified, evidence-based services. Reports have indicated that in Michigan children with ASD/DD found that less than 50% of children received a developmental screening to assess for neurodevelopmental disorders and it is common for families to wait longer than 4-6 month for developmental assessments important to diagnose ASD [4]. These delays are problematic as the most effective treatments for ASD occur at early ages, meaning that long waits may significantly affect long-term outcomes due to missing this important developmental period. Moreover, Michigan has many rural and remote communities where local treatments are not available and families would be required to drive 2 or more hours with a child who has a disability.

Public education is an important arm of care for children with ASD and neurodevelopmental disorders. The public education system is mandated to provide a free, quality education to children regardless of their educational needs; however, schools struggle to meet the high care needs of these children within the school system. Children with ASD and neurodevelopmental disabilities often have co-occurring intellectual and learning disabilities that require individualized curriculum, extensive behavioral plans and the need for individualized care providers in the classroom. Schools within the US are also required to assist in long-term planning for adolescents with developmental disabilities who are approaching young adulthood. These people include special education teachers, paraprofessionals, school psychologists, social workers, nurses and education specialists who understand the health care and educational needs of these children. Unfortunately, educational policies also vary state to state and there is little consistency between the manner in which specific educational placements and services are utilized. An analysis of the types of placements for children diagnosed with ASD in the United States found that the state a student lived in was an important factor found to guide placement and service provision was state of residence above and beyond diagnosis, educational needs or level of disability. While funding in the state did not appear to directly influence disparities

across states, the presence or absence of certain services in that state did appear to play a significant role in placement [8].

Privately owned and community based services can help to cover the needs of children with neurodevelopmental disabilities that are not found within the medical or school systems. These services often include before and after school care for children, in-home respite and behavioral management services. Community non-profit programs also provide important advocacy services that can help educate parents about available financial programs, clinical care or legal rights that they can use to better advocate for the needs of children with neurodevelopmental disabilities. There remains a gap in services though in that community organizations are not systematically connected to either medical or educational settings, again placing the burden on parents to advocate, organize and direct the health care of their child across multiple institutions. In a survey conducted with parents in the state of Michigan, 48% of parents indicated a need for better coordination and collaboration among families, schools, and service providers [4].

Models for Improving Health Care Provision. The state of Michigan in their state plan has identified the need to improve case coordination and recommended that health care is provided as a partnership with families, including partnering with families on decision making [4]. Patient Centered Care was defined by the Institute of Medicine a "providing care that is respectful of, and responsive to, individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions." This approach is promoted as a way to better manage resources, make decisions, coordinate and integrate care and educate patients. These approaches also include involvement of family, friends and community as well as emotional support and information [9]. A systematic review of person-centered planning for individuals reported extremely limited presence of truly person centered approaches, though moderate effectiveness at promoting positive outcomes in people with neurodevelopmental disabilities where these programs exist [10]. While recognition of the importance of person-centered care is improving, much needs to be done to allow for truly patient center models of care to develop.

Interprofessional education (IPE) is an established educational method to enhance comprehensive health care, it has been shown to decrease medical errors, and facilitate collaborative teams with shared decision-making and leadership [11]. IPE allows for unravelling complex medical and intervention histories, determining social and environmental support needs, and setting priorities. Core competencies for interprofessional education developed by an expert panel identified that in addition to patient centered care, truly interprofessional education includes a relationship focus, process oriented learning, activity based learning, integrated learning paradigms and approaches that are applicable across professions. This movement began in the 1970's as a response to concerns about the need to create a high quality and cost-effective system of care that addressed patient needs by drawing on the full expertise of health professionals. This requires communication between the health care team, as well as coordination with families. While medical and health care programs continue to strive to meet the demands of integrated care, these programs remain the minority, rather than a staple of medical education. A systematic review of interprofessional education (IPE) conducted with nursing students and medical residents indicated that readiness for IPE varies during medical school based on factors that include previous exposure to team work, high urgency of patient need and proximity to other professionals within the interprofessional context, whereas emphasizing one's own professional knowledge and stereotyped views of other professionals

created barriers to interpersonal learning and skills development [12]. Similarly, a review of health and social care professional's attitude toward IPE that included allied health professionals found that allied health professionals were generally more receptive to IPE than physician groups, but that prior experience and comfort with one's role in IPE was important in determining perceptions and attitudes [13]. In both cases a need for more research and program development was identified.

Michigan Leaders in Education in Neurodevelopmental Disorders Program

History of the program. Leadership in Education in Neurodevelopmental Disorders (LEND) programs are interdisciplinary leadership training programs federally funded through Maternal Child Health Bureau within the United States of America Health Resources and Services Administration (HRSA). These grants have been used to establish a network of care across the United States focused on providing interdisciplinary training to enhance the clinical expertise and leadership skills of professionals dedicated to caring for children with neurodevelopmental and other related disabilities, including autism. Specifically, LEND programs work to educate health care professionals from a wide variety of disciplines to increase awareness of Autism Spectrum Disorders (ASDs); reduce barriers to screening and diagnosis for children with ASD's and other neurodevelopmental disorders; promote the use of evidence-based interventions for these individuals; and train professionals to use valid screening tools to both diagnose and rule out ASDs and other developmental disabilities. As a part of this mission, LEND programs work to improve the health of children with neurodevelopmental disabilities and autism spectrum disorders. LEND programs are embedded within universities, often in collaboration with community organizations. LEND programs exist in 44 states providing services across most of the United States [14]. Explicitly stated within the curriculum of LEND programs is that person-centered, interdisciplinary care is essential to the long-term health and well-being of these children. As a result, the LEND programs provide a network of healthcare providers across disciplines committed to working together to promote health for children and youth with ASD and other neurodevelopmental disabilities, recognizing that the child themselves and the parents are essential members in a coproduction care team.

MI-LEND. The Michigan LEND program is a recently developed collaboration across 7 major Universities within Michigan. Housed primarily at Wayne State University in the Developmental Disabilities Institute, with collaborations across Michigan State University, University of Michigan –Ann Arbor, University of Michigan - Dearborn, Western Michigan University and Central Michigan University. Trainees from each of these Universities apply and are enrolled in curriculum designed to improve the health of infants, children and adolescents who have, or at risk for developing, neurodevelopmental and other related disabilities including ASD through a comprehensive interdisciplinary program of education, consultation, and technical assistance.

The primary goals of the MI-LEND program are to expand interdisciplinary leadership training opportunities by increasing the number of professionals and family members who are prepared to work together to address the complex needs of those with neurodevelopmental and other related disabilities, including autism. Additional goals include expanding interdisciplinary training in diagnosis and treatment; enhancing the clinical expertise; and building the leadership skills of practicing professionals working with those who have complex neurodevelopmental

disabilities including autism. Another major focus of the MI-LEND program is to better incorporate family centered care by weaving in the perspectives of family members and individuals with neurodevelopmental disabilities into every level of the program including curriculum development, module delivery and program evaluation.

In order to accomplish these goals, the MI-LEND program has adopted a curriculum that focuses on providing skills to enhance **L**eadership, **I**nterdisciplinary, **F**amily-Centered practice and **E**quity (L.I.F.E) Participants completed a 14-week curriculum that focused each module on elements of diagnosis and clinical care of NDD and ASD; systems in place to address needs of youth; principles of family centered care, interdisciplinary practice and home and community based care; hearing and hearing loss in ND populations. Each module also touched on the L.I.F.E. principles above to ensure comprehensive exposure to these foundational elements of the program. Each participant was assigned a mentor who provided resources and also helped to coordinate clinical and community based experiences. Fellows were required to completed a total of 300 curriculum hours distributed evenly between didactic content, clinical experiences and community based experiences, with some flexibility to tailor their own learning needs. Interwoven throughout the curriculum was a focus on family-centered and IPE modules for care. For the purposes of this paper, we would like to focus on the IPE modules as this module intensively worked to help trainees recognize the manner in which treating children with disabilities is inherently a "coproduction" service involving not only the child, their family and the primary physician, but also teachers, ABA therapists, speech pathologists, psychologists, audiologists and rehabilitation engineers as care team members.

METHODOLOGY AND DATA

Interprofessional Practice in MI-LEND

MI-LEND structure and expectations. One of the goals of the MI-LEND program was to demonstrate applying interprofessional practice skills as leaders in NDD by engaging in interprofessional teams. The program used simulated case conference and didactics presented in face to face and webinar formats to foster discussion about collaborative approaches to patient-centered care, interdisciplinary conflicts and professional ethics. The ultimate impact was on caring for the whole person, the community and to advocate for policy changes. IPE active learning opportunities in the MI-LEND program allowed for real world scenarios to help trainees integrate learned knowledge and skills and prepare them for practice in a complex and rapidly changing healthcare system.

Experiential teaching of interprofessional communication. The authors used role playing to demonstrate team work at the first session. All fellows and faculty were engaged in a face to face exercise demonstrating the manner in which co-produced services require teamwork. The exercise required them to build a paper chain and varied instructions to demonstrate barriers to successful working in teams. For example, during one task the directions for the paper change produced a situation where directions were not clear and helped demonstrate the importance of shared vocabulary and communication within team practice.

Another exercise used a webinar format, where participants were all remote, but convened via an online format for a simulated virtual team meeting. Fellows were provided limited information on a case and were assigned professional roles other than their day to day roles. They were asked to come up with a plan of care as a multidisciplinary team, operating

outside their area of practice. This required fellows to not only take time to learn the treatment options but what qualifications were needed to recommend the plans of care from another discipline's perspective.

Assessment of MI-LEND curriculum. Students were asked to complete a knowledge rating form assessing student readiness for interprofessional learning at the beginning and the end of the LEND curriculum. In addition, standard feedback questions were asked at the end of all LEND modules to obtain basic student feedback regarding the effectiveness of each module at increasing their knowledge base, and the instructional effectiveness of each module.

Readiness for Interprofessional Learning Scale (RIPLS). The widely applied RIPLS instrument includes 19 items on a likert scale of 5, with 5 being the highest score. RIPLS instrument measures IPE readiness and attitudes in three categories, (a) teamwork and collaboration (Items 1-9), (b) professional identity (Items 10-16), and (c) responsibilities in IPE (Items 17-19). Most RIPLS items are written as positive statements, but Items 10-12 & 11-19 are negative statements. For negative statements, the responses were reversed for consistency in further statistical analyses.

ANALYSIS AND DISCUSSION

Analysis. *RIPLS outcomes.* Overall, all of the 9 MI-LEND trainees demonstrated a high level of readiness for IPE, with means above 4 (out of 5) consistently in the self-reported RIPLS surveys, both before and after their MI-LEND training experience. MI-LEND trainees were generally favorable to IPE, appreciating the opportunities for collaborative leadership that IPE requires, and were positive to learning, to communicating and to solving problems through IPE. More specifically, the consistent RIPLS results indicate that MI-LEND trainees had positive perceptions towards teamwork and collaboration, and they valued collaborative learning and respect colleagues and fellow trainees with diverse backgrounds (RIPLS items 1-9). They demonstrated a good understanding of professional identities (RIPLS 10-16), and roles and responsibilities, as well as a wide range of practical skills required in IPE (RIPLS items 17-19). A paired-sample t-test was conducted to compare trainees' readiness for IPE, before and after MIL-LEND training in 6 months, as measured by RIPLS surveys. There was no statistically significant difference in the RIPLS results overall, or by each of the 19 item, which is not surprising given the ceiling effect of high scores in the pre-test. However, further examinations of the RIPLS results by category revealed that MI-LEND trainees have improved their readiness for IPE with a deeper understanding of professional identity, as measured by the total scores of Items 10-16 ($p=.02$), and have developed more positive attitudes towards IPE after the 6 months of MI-LEND training.

Student feedback. At the end of the total LEND curriculum, all 9 students met for a full day feedback session. Students in general reported above 81% satisfaction with the didactic curriculum as a whole. This IPE module was also rated as having knowledgeable presenters by all students and rated by 83% of respondents as having an effective teaching style for the purpose of the webinar. Of note, this was on the lower end of satisfaction ratings when compared with other modules in the MI-LEND curriculum. In contrast, 100% of the trainees reported increased knowledge as a result of this module which represents a strong positive response, stronger than most of the other modules. Similarly, trainees rated themselves as satisfied with the knowledge they obtained from this module, again at 100%. It is also important to recognize that not all trainees rated every module making direct comparisons between modules difficult.

Discussion. Initial feedback collected from students suggests a high level of openness to the simulated learning modules conducted as part of the MI-LEND curriculum and a generally high level of satisfaction with the knowledge learned in this part of the MI-LEND program. Our population of students represented a group of engaged learners who were developmentally ready to engage in IPE practice skills at the outset of the curriculum, a positive prognostic finding for Similar to what has been reported in the literature previously, this group was comprised of allied health professionals more than medical professionals, though medical students within this program also demonstrated an openness to interprofessional practice and a recognition of the roles of other providers and their own role. Given the high pre-curriculum readiness of these scores, global improvement in the readiness is not likely to be achievable at a statistical level due to psychometric reasons. The subscale analyses reflecting significant improvement in deeper understanding of professional identity and increased positive attitudes towards IPE speak strongly to the success of an immersive program that provides didactic content, discussion and simulated IPE experiences in moving receptive learners toward leadership in the field of multidisciplinary care. As always, there are several challenges to conducting outcome research and effective evaluation of programs teaching interprofessional practices.

Limitations. The goals of the MI-LEND program was to work toward improved outcomes for children with neurodevelopmental disabilities by training healthcare providers from multiple different professions with a focus on family centered care and interprofessional models of health care provision. As a new program, many practical limitations exist. First, long-term outcome data directly examining the impact for children and families within the MI-LEND program is not yet available. Another limitation of this program is related to the youth of the program and that it is the first year of the grant cycle. As a result, the implementation of the curriculum and clinical experiences happened within a condensed period of time, limiting opportunities for more in-depth collaboration between trainees within the program. Interprofessional practice models are based on mutual understanding and respect for the roles of all team members and, thus, true IPP develops with experiential learning and web based, virtual simulation was a challenging setting in which to foster interprofessional skills, resulting in slightly lower satisfaction (though still positive scores) from our students. It is also important to recognize that these challenges of condensed time schedules and virtual meeting spaces also mimic modern health care practices and, thus, may be a difficult but necessary and important way to continue to teach interprofessional skills. It is likely that these are precisely the skills which will be needed by our future care providers.

A third limitation of this first year of program implementation was fewer opportunities to gather higher level feedback about not just readiness for IPE learning, but mastery of the competencies important for interprofessional practice. We had anticipated that our MI-LEND trainees may present initially at a lower level of readiness and this initial data provides feedback that readiness measurement in addition to mastery of skills will be essential to determine the effectiveness of the teaching module in promoting leadership readiness, not just learning readiness. Over time it will also be important to understand which IPE exercises best increase trainee's knowledge base and comfort participating in interprofessional and family centered care roles, as we only received global program feedback and webinar feedback during this current year.

Another important challenge to recognize is the inherent inaccuracy of self-report of competence, particularly in content areas that require skill assessment rather than knowledge

base. For many professionals, confidence in ability and readiness are higher at lower levels of knowledge, and confidence ratings will decrease as knowledge base increases. In this way it is possible that a subjective rating like the RIPLS with questions pulling for perceived knowledge regarding others roles and responsibilities may actually decrease as students develop greater recognition of the professions with whom they collaborate.

Future directions. In future years of the MI-LEND program it will be helpful to evaluate didactic modules and interdisciplinary and interprofessional experiences for content knowledge as well as satisfaction to determine the best ways to train future health care leaders in co-production methods of care provision. Given the variable feedback regarding the effective of the webinar modality, it is likely that IPE learning occurs most effectively within the context of face to face and experiential interactions, as opposed to a didactic module. In future years we plan to increase face-to-face simulated IPE opportunities, that also incorporate families directly, in addition to virtual models.

One of the principal goals of the MI LEND is to ensure integration of family-centered perspectives into every level of the program including curriculum development, training, and program evaluation. The program is built on the foundation of family centered approach to health care and health equity. Each of the academic partners proposed clinical experiences as well as collaborated with the Family Center in Michigan to offer opportunity for the trainees to participate in care conferences where the family members were a part of the team. Family members are part of the leadership team and have presented modules online and during face to face meetings with trainees. These sessions were highly rated by our trainees and will continue to be an integral part of our curriculum. Sessions focused on "Improving Parent Engagement in Treatment", "Caring for the Caregiver", and " a Case Study." These sessions scored a 66.67% and 16.67% agreement that trainees knowledge and skills were enhanced. Furthermore, the practical suggestions were found to be most helpful. The case study made the session more interactive.

In the 2017 training each trainee will have three specific home visits with a family with a child or children with disabilities. Two will be in the homes and one will be virtual i.e., phone or skype. The goals are:

- To provide home-visit experience for with
- To understand the medical needs, home-life and family dynamics of these families
- To increase trainees' confidence, comfort and empathy in working with this population
- To build trust between the family and health care community.

We will be using the Jefferson Scale of Physician Empathy adapted for health profession students (JSE-HPS) to assess trust per and post visit [15]. The challenge we see is the families being open to allowing the trainees to come to their homes, this model was used in one of urban programs and we were able to get families to agree but some of our trainees might not work in small towns.

Ultimately, the goal is to build a community overtime of young professionals across disciplines who are committed to practice using family centered and interprofessional models of care, possess leadership skills that can be used to write policy, develop programs and serve patients and their families, as well as evaluate the current systems in place for children with neurodevelopmental disabilities. In reality, substantive changes in United States healthcare will not occur in a few years, but will require a culture shift in the manner in which patients engage

with the system, how providers are reimbursed for services and a shift in the center or “home” of health care from the hospital to the family of a child. These changes will need to occur at the level of policy and administration in order to allow for large scale changes in clinical practice and community efforts. The goal of MI-LEND at essence is to help the lives of children with neurodevelopmental disabilities by empowering and equipping the next generation of leaders with the tools to effect and carry forth the changes necessary to support co-production models including interprofessional practice and family-centered care essential for this population.

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Requested Responses:

1) How do you see the coproduction in your arena and, looking ahead, how would you envisage coproduction developing?

One of the principal goals of the MI LEND is to ensure integration of family-centered perspectives into every level of the program including curriculum development, training, and program evaluation. The program is built on the foundation of family centered approach to health care and health equity. Each of the academic partners proposed clinical experiences as well as collaborated with the Family Center in Michigan to offer opportunity for the trainees to participate in care conferences where the family members were a part of the team. Family members are part of the leadership team and have presented modules online and during face to face meetings with trainees. These session were highly rated by our trainees and will continue to be an integral part of our curriculum. Sessions focused on “Improving Parent Engagement in Treatment", "Caring for the Caregiver", and " a Case Study" These session scored a 66.67% and 16.67% agreement that trainees knowledge and skills were enhanced. Furthermore the practical suggestions were found to be most helpful. The case study made the session more interactive.

2) How would you assess the opportunities offered by this relational mode of producing care?

In the 2017 training each trainee will have three specific home visits with a family with a child or children with disabilities. Two will be in the homes and one will be virtual i.e., phone or skype. The goals are:

- To provide home-visit experience for with
- To understand the medical needs, home-life and family dynamics of these families
- To increase trainees confidence, comfort and empathy in working with this population
- To build trust between the family and health care community.

We will be using the Jefferson Scale of Physician Empathy adapted for health profession students (JSE-HPS) to assess trust per and post visit.

3) What challenges does co-producing care present to participants in the process?

The challenge we see is the families being open to allowing the trainees to come to their homes, this model was used in one of urban programs and we were able to get families to agree but some of our trainees might not work in small towns.