The Maternal and Child Health Model:

Promoting Quality Improvement through a Family Medicine Obstetrics Fellowship

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Abstract

In the United States, according to almost every measure, we do not have enough trained maternity care providers to meet the need. Family physicians are the logical choice to help provide that care, particularly in underserved settings. Advanced training through family medicine obstetrics fellowship programs has proven successful in preparing physicians to provide the full scope of maternity care. However, clinically-determined health outcomes are a function of the system of care and not simply the competency of an individual physician. It is reasonable to expect that better health outcomes can be achieved with a model that combines performance improvement processes with a community medicine-based approach to maternal and child health. In this paper, we describe an approach to family medicine obstetrics fellowship training that emphasizes this model, using a comprehensive academic curriculum featuring elements of quality improvement, peer review, evidence-based medicine, and resource management.

Introduction

Rationale for Obstetrics Training for Family Medicine Physicians

Should family physicians "do OB?" The rationale for continuing to include obstetrics (OB) in the scope of family medicine has been the subject of considerable debate. Advocates have argued that maternity care is an essential component among the services that family physicians should provide to the communities they practice in and that family physicians are the ideal providers of such care in non-metropolitan settings. On the other hand, opponents have asserted that OB lies outside of the core mission of family practice.[1-3] Decisive factors on an individual basis range from the original philosophical vision for family medicine all the way to contemporary concerns surrounding lifestyle, liability, competency, and the ubiquitous set of variables we commonly refer to as "turf." Though these challenges appear to be widespread, there are significant regional and institutional differences in their expression and in their impact on decision-making.

One can argue from a national perspective that family physicians absolutely should "do OB." In the U.S., according to almost every measure, we do not have enough trained maternity care providers to meet the need. The lack of access to providers is particularly worrisome in urban, underserved, and rural communities, where the shortage in OB/Gyn providers is just one part of the larger primary care workforce crisis.[4] A more detailed review of this can be found in a companion paper in this issue of the Journal, "Who Will Deliver Our Babies: Crisis in the Physician Workforce?" Meanwhile, compared to other developed countries, the U.S. has fallen behind in several key health indexes, including infant mortality, low birth weight, and life expectancy, and there is increasing evidence that the health disparities for the medically disenfranchised in the U.S. are largely responsible for this difference.[5-7] Further, most acknowledge that perinatal outcomes are largely based on a complex combination of biopsychosocial risk factors, which are not typically addressed under our current model of perinatal care.[8] The rationale for expanding the content of care to include these comprehensive concerns is described in the companion paper previously noted and is referred to as the maternal child health (MCH) model. The goal is to improve health outcomes by addressing those biopsychosocial risk factors, which often requires a comprehensive and, ideally, longstanding relationship with the mother, child, and family in a way that family physicians are uniquely qualified to achieve. However, to assume this comprehensive role for perinatal patients, it is essential that family physicians be equipped with the requisite clinical skills and knowledge. We describe the curricular components of a family medicine obstetrics fellowship that have been designed in response to this need.

Performance Improvement and Evidence-Based Medicine

Advanced training in family medicine obstetrics fellowship programs has proven successful in preparing physicians to provide the full scope of maternity care. However, there is growing recognition that clinically-determined health outcomes are a function of the system of care and not simply the competency of an individual physician. For instance, the estimated frequency of medical errors is alarming by anyone's standards. Add to this the inevitability that there will be poor outcomes, particularly in the field of OB, and one can appreciate the intent behind a heightened focus on hospital privileging, risk management, and the burden of protection against liability. These are among the more commonly cited reasons why family physicians choose to exclude OB from their practices. Avoiding the delivery room is an understandable reaction by a physician to what is commonly referred to as a crisis - and who can blame them? Yet, this approach does nothing to address the underlying problems and only further exacerbates the unmet needs.

In 2000, the Institute of Medicine published a now infamous report asserting the need for healthcare institutions to take additional steps aimed squarely at improving the quality and safety of the medical care they provide.[9] The mechanism through which quality and safety are addressed at the system level falls under a rubric referred to as performance improvement (PI). Performance improvement has become the foundation for improving healthcare, to the extent that an exposure to PI is now a required component in many medical training programs. In this context, we can define PI as the coordinated effort among physicians, nurses, management, quality, risk, and medical trainees to maintain and improve the quality of both patient care and the teaching environment. In terms of process, PI encompasses a broad variety of activities including quality improvement (in response to an undesirable health outcome), peer review (episodic and ongoing), evidence-based medicine (best practices, care paths, guidelines, and protocols), and resource management (process improvements, utilization review).

From a conceptual basis, evidence-based medicine draws from all available information to find the best clinical practices, without the potential bias of tradition and anecdote. The clinical decisions arrived at through the use of evidence-based medicine are generally considered to be the most appropriate ones with regard to efficacy, safety and cost. While the benefits of using evidence-based medicine in clinical practice are compelling, implementing the process widely is not without challenge.[10] With regard to the needs in maternal child health, it would seem that the use of best practices and ongoing performance improvement, particularly in underserved communities, has the potential to impact health outcomes on several levels. Efforts at developing and implementing programs that follow this approach deserve further attention.

At the systems level, the work force needs in maternity care must be met in a way that promotes patient safety and improves persistently poor maternal and child health outcomes while efficiently utilizing healthcare resources – no small task. Each individual family medicine training program and its graduates are, of course, in the best position to choose how they will approach maternity care. Yet, at both the policy level and on the frontline in many locales, the need for obstetrics in family medicine seems to have become more of a necessity than an option. It is imperative that the institutional and educational barriers that hinder family physicians from providing the full scope of practice be addressed, particularly in the many underserved communities where the burden of poor outcomes falls disproportionately. There is a pressing need not only to train more family physicians in both routine and advanced obstetrical care, including operative delivery, but also to enhance the "family" in family medicine obstetrics by providing this training within the broader scope of comprehensive maternal and child health. We describe a model of post-residency training in family medicine obstetrics that is organized as a maternal child health fellowship program and designed in response to these very concerns. The Maternal and Child Health Fellowship is an effort to provide a structured and rigorous education in the customary clinical and procedural aspects of obstetrics for family medicine physicians, but within the context of a community and public health approach to the care of a mother and her children.

Advanced Training in Obstetrics for Family Medicine Physicians

Family Medicine Residency Obstetrics Training

In the U.S., residency programs in family medicine provide participants with a set of core skills in basic obstetrics. These skills typically include managing non-complicated pregnancies, performing vaginal deliveries, and recognizing and treating common intrapartum and postpartum problems. More advanced obstetric skills including the recognition and management of pregnancy complications and surgical procedures, such as postpartum tubal ligation and cesarean section delivery, are not expected to be covered in a standard family medicine residency, though we acknowledge the extent to which some residency programs provide this type of advanced training. The American Academy of Family Physicians (AAFP) recommends that family practice residents who plan to practice in underserved areas without readily available obstetric consultation obtain more complete and intensive training in these and other skills in order to be better equipped to serve the needs of their future patient populations.[11]

Obstetrics Fellowships for Family Medicine Physicians

Some family practice residency programs do, as we have noted, offer an enhanced emphasis on obstetrics as a required or optional part of their curriculum.[11,12] However, for most family physicians, these advanced skills are obtained in one of the many obstetric fellowship programs located across the country.[13] The AAFP lists 32 such fellowship programs whose pri-

mary focus is on the training of family physicians in advanced obstetrics.[14] These programs generally offer from one to six positions for graduates of ACGME-accredited family medicine residencies who then train under the supervision of, in most instances, OB/Gyn physicians. Until now, there has not been a certification or accreditation process for these fellowship programs, but they have nevertheless provided motivated family physicians with the skills and experience necessary to perform advanced obstetric procedures with outcomes comparable to those of OB/Gyn specialists.[15]

Unfortunately, policies and practices regarding privileges in obstetrics remain inconsistent from hospital to hospital, with some institutions electing to give privileges only to graduates of OB/Gyn residency programs, regardless of the skill, competency, and training of the family physician. Privileges to perform operative deliveries have gained particular notoriety in this regard. As with the granting of all privileges, the standard for operative delivery should be based on evidence of training and competency and not solely on board certification.[11] In the hospitals that do award privileges based on aptitude and experience, family medicine physicians with advanced obstetrics training are a valuable addition to the medical team and, as we have noted, are likely to become even more important in the coming years as the population of skilled physicians willing to provide that care decreases, especially in underserved areas.[3,15]

Maternal and Child Health Fellowships

Rationale

Despite the availability of advanced OB training, there are several factors that discourage family physicians from providing even routine obstetric care for the patients and communities they serve. First, the training environment in many programs is often described as limited at best and, not uncommonly, even hostile. This environment is undoubtedly exacerbated by the liability and risk management challenges that permeate every aspect of maternity care. All of this underlies the ongoing debate among leaders in the field of family medicine regarding the role of maternity care within the specialty.[16] Meanwhile, the disparities in perinatal outcomes persist and are, in fact, the most pronounced among the same underserved communities and populations that are often being served by family physicians.

To address the challenges in training and encourage family physicians to provide safe and effective maternity care, a variation on the OB fellowship programs has been developed around a Maternal and Child Health (MCH) model. In addition to core competencies, skills, and knowledge in advanced obstetrics, the MCH model includes a family and community medicine approach to care for women and children. The MCH model is, therefore, organized as a community-oriented family practice with a clinical and training focus on obstetrics, women's health, and care for the newborn and child.

History of the MCH Fellowship

In 1992, the lead author completed what appears to be the first MCH family medicine OB fellowship program. This training program was developed through visionary faculty leadership at the Brown University Department of Family Medicine (please see acknowledgements) and took place at the Memorial Hospital of Rhode Island and an affiliated network of community health centers (CHC). That training model was subsequently replicated in 1994 at the PCC Community Health Center and its affiliated community hospital in Chicago, Illinois (please see acknowledgments). Both of these fellowship programs remain active and, according to the AAFP fellowship directory, have been joined by two additional family medicine obstetrics fellowships with a stated focus on maternal and child health.[14]

Structure of the MCH Fellowship

The MCH model of family medicine fellowships can be summarized as a comprehensive approach to addressing the clinical and health-related needs of women and children with an emphasis on serving those most in need. This is accomplished by providing care in a comprehensive community setting with an array of integrated and coordinated services for women and their children and by developing or facilitating access to additional resources when needed. From a training perspective, it should be noted that the MCH model is consistent with all family practice OB fellowship programs in its intensive focus on labor and delivery and operative obstetrics, where skill and competency are essential, core components of any effort to ensure patient safety and improve perinatal outcomes. There is only one standard of care when it comes to labor and delivery, and the safest possible outcome must be the first priority.

Non-Procedural Competencies – Moving Towards an "Academic Curriculum"

However, the OB-related competencies needed to address poor perinatal outcomes have grown to include a number of skills in non-procedural areas including evidence-based medicine, practice guidelines, care paths, quality assurance, and peer review, which are collectively referred to as performance improvement (PI). Mastery of these competencies as they relate to MCH is accomplished, in large part, by formally integrating the fellows and faculty in the PI-related activities at the hospital and clinic. In addition to the standard committees and quality functions, fellows actively participate in other structured and PI-focused interdisciplinary activities including perinatal case management and care coordination, defining and implementing best practices, and MCH clinical program development. The structure and forum for this experience centers around standing committees, many of which are interdisciplinary, formal chart reviews based on various indicators, and regularly scheduled case conferences.

The process of quality improvement (QI) remains a core component for PI. Successful quality improvement has been shown

to be a dynamic process, requiring the full participation of not only the physicians and other caregivers directly related to an outcome but also the involvement of a multidisciplinary team that has the authority to examine the root causes and contributing factors to that outcome and to enact new practices and protocols that favor improved outcomes in the future.[17] process for effective quality improvement requires a commitment of time and resources and is dependent upon active physician participation. This can be encouraged by familiarity with the quality improvement process and knowledge of its importance in overall patient care. It is critical that the quality improvement initiative continues after the QI conference ends. Understanding the root causes of an incident is only helpful if it is followed by a process that effectively responds to identified opportunities for improvement. Implementing change on this level can be challenging and requires the development of specific skills and experience.

Finally, the changing face of medical research suggests that completion of a scholarly project is beneficial for graduates and the communities that they go on to serve. Rapid advances in basic science research into increasingly prevalent chronic diseases require a targeted emphasis by translational researchers to bring these advances from "bench to bedside." The NIH notes, for instance, that conducting research with different patient populations will help the medical community to better understand how genes and environment affect disease. Health professionals involved in research endeavors will not only aid in the advancement of this understanding; they will also be in the unique position to be the first to apply advances in research to the communities they serve.[18] In our curriculum, an introductory exposure to these goals occurs in the form of a scholarly project that is translational in bringing best practices to underserved patient populations.

The compilation of non-procedural aspects of the curriculum is specifically intended to supplement the development of clinical skills through direct experience in using evidence-based medicine and patient-centered care to improve outcomes. Together, these activities are structured into an "academic curriculum" that provides additional experience in a value-added, cost-effective, and service-based learning model.

Program Overview

As mentioned above, residency programs in Family Medicine in the U.S. are expected to provide participants with a set of core skills in basic obstetrics. Fellowships in Family Medicine Obstetrics allow family physicians to gain additional experience in more advanced obstetric procedures. The MCH model provides this same advanced training in obstetrics and includes a focus on reducing disparities in perinatal outcomes for underserved populations with performance improvement processes in a community-based setting and with comprehensive, family-centered care. As a core principle, the clinical services for the mother and her children in this model are combined, when feasible, in all clinical settings and is consistent with the scope of family medicine. For instance, the newborn is admitted by the delivering providers in the delivery room immediately after birth as a coordinated component of care. Families are often seen in combined visits, when appropriate. Enhanced screening for psychosocial risk factors adds to the customary medical and obstetrical considerations in a formal process for individualized risk assessment and care coordination.

Procedural/Clinical Curriculum

Competency Requirements

The initial competency requirements for clinical practice as a fellow in the MCH program are essentially those attained in a family medicine residency program. Verification of successful completion of an approved residency program along with board certification in family medicine are minimum requirements. This affords entering fellows a route for hospital privileges as a BC/BE family physician, including those in obstetrics, and, along with the customary review of reference and document verification, attests to training and competence in normal labor and delivery as well as the recognition of abnormal labor and complications of delivery. The fellows are also eligible for privileges in general pediatrics, including care of newborns, and adult medicine. Fellows are encouraged to maintain and further develop the core family medicine skills obtained during their residency program.

Skill Development and Promotion

An appropriate level of direct faculty supervision is required and is provided whenever fellows are participating in care that exceeds, or that may appear to exceed, the scope encompassed by routine family medicine privileges. Fellows are supervised by an appropriately credentialed array of attending physicians including MCH family medicine faculty and non-fellowship trained family physicians, obstetricians, neonatologists, and pediatricians. It should be noted that an additional level of formative and hands-on supervision is provided for all fellows during all but the most routine components of their initial patient care experiences, both in the hospital and clinic, as would be appropriate for any new attending physician. Additional opportunities for teaching and training come from several other health professional disciplines including nursing, midwifery, behavioral health, quality and risk management, epidemiology and biostatistics, and administration.

This program's fellowship year is divided into quarters. Promotion to each subsequent quarter is intended to be dependent upon evidence that the participant has mastered a set of clinical skills, which are, at a minimum, sufficient to warrant an appropriate level of independence and eventually privileges for those skills and knowledge. As the program approaches completion, full privileges may be granted, based upon the recommendation of the program director, preceptors, and the chairperson of obstetrics, in accordance with all relevant policies and by-laws.

Academic Curriculum

As explained above, patient-centered and evidence-based performance improvement is an integral part of the MCH curriculum and is firmly grounded in the clinical practice. The academic setting in this case is the required and customary performance improvement venues inherent to hospital and community health center practice and is augmented by additional organized efforts in patient-centered care. Fellows work to develop knowledge and competencies in performance improvement by actively engaging in PI formats including various medical improvement functions and committees, department meetings, mortality and morbidity conferences, peer review (including review of all cesarean sections). In the context of underserved patient populations, a process for ongoing comprehensive case management and care coordination is also an important tool in performance improvement in which fellows take a lead role. These tools are the subject of increasing attention in terms of reducing error and lowering costs, and their relative merit in facilitating improvement has been fairly well established.

Developing and sustaining an educational program for teaching this set of skills can be more challenging and requires a different approach than that used for the customary procedural aspects of OB. To effectively educate trainees in these "newer" non-clinical competencies we have followed an "old" approach, sometimes referred to as the apprenticeship model, where trainees "learn by doing" under the watchful oversight of a mentor(s). This approach offers several advantages: 1) learning through hands-on experience increases knowledge retention and reduces errors in later performance; 2) teaching through real-world experience is more resource-efficient than are didactic models; 3) trainees will be equipped to implement and engage in performance-improving practices more comfortably in their future practices, having been engaged in real experience during the fellowship, and 4) the host program and the patients served are beneficiaries of the improvements that these activities generate.

The processes for providing ongoing and summative evaluation and feedback have been well described elsewhere. Implementing best practices for evaluation can be challenging in any setting, as is certainly the case in a community hospital and clinic. As is typical in evaluation and promotion for training at advanced levels, the criteria for success are based in large part on the compilation of a broad range of observations regarding professional and interpersonal skill development. As in the apprenticeship model, fellows receive frequent direct and indirect supervision and ongoing feedback. The degree to which this program succeeds in accomplishing its goals deserves further inquiry. As is typical in other advanced clinical training programs, the emphasis has been on satisfactory completion of requirements and subsequent success with both placement and privileging. The approach to training and educational tools used in this fellowship program to foster mastery of the program goals and literature describing their relative merits are described below.

Improvement Model

Evidence and anecdotes for the need to improve health care are now widespread.[9] In response, there has been an emerging and encouraging trend toward working across disciplines, with less hierarchy, to develop an integrated and patient-centered delivery system. In the model for improvement described by the Institute for Healthcare Improvement (IHI), this interdisciplinary care must be responsive to data, adaptable to change, and armed with best practices in a coordinated effort to provide care that is significantly safer and more cost effective than has been the norm.[19] Aspects of this approach can be found in interdisciplinary rounds, hospital-wide case conferences, root cause analysis,[20] case management and care coordination, utilization review and management, etc.

Joint Practice Committee

In the fellowship program described herein, the faculty and fellows sought membership on an existing "Joint Practice" Committee (JPC) that had been established at the hospital as a strategy toward interdisciplinary PI. This committee includes representation from all disciplines involved with MCH patient care including OB, family medicine, pediatrics, neonatology, nursing, MCH fellows, anesthesia, and quality and risk management. Through ongoing collaboration the committee's initial charter was expanded to include a wide array of patient safety and PI-related activities.

Among the more notable agenda items at the JPC is antenatal case review. This differs from the standard retrospective review of cases that are "pulled" after the fact, as based on a quality indicator. The antenatal case review is a formal process for prospective, interdisciplinary, and hospital-based review of potentially complex and high-risk antepartum patients who have not yet become a hospital case. This allows the clinical team to anticipate and prepare for clinical and social scenarios that might be more prone to error, lead to a poor outcome, or that may require additional, high risk or rarely used services. This process evolved from a simple effort to optimize the "handoff" between clinic and the hospital and is among the notable "lessons learned" from a national collaborative PI project in which our Health Centers and Hospital recently participated. This pilot project is described in a companion article in this issue of the Journal, "Improving Maternal and Child Health Outcomes: Family Medicine Obstetrics and the HRSA Perinatal Collaborative Project."

Department Meetings

Department meetings present another educational opportunity for fellows to gain from and contribute to a wide spectrum of administrative, political, and clinical concerns that find their way onto the agenda. Faculty mentors can "model" effective professional behaviors and modes of conduct for fellows in training and can also help fellows learn from any contradictory examples that may present. Intentionally including fellows as active participants in these meetings may enhance the degree to

which others embrace and adhere to the recommended, aforementioned approach to quality improvement and peer review. Similarly, fellows can bring an anticipated inquisitive approach and a "learner's perspective" that encourages receptiveness to new recommendations and can help facilitate change. By formalizing the fellow's role within the department structure, the administrative processes already in place for these meetings can be utilized to help support the educational agenda.

Mortality and Morbidity Conferences

Mortality and morbidity (M&M) conferences and case reviews are commonly used for quality surveillance and PI and may already be a formal component of the hospital's regional perinatal network or affiliation. M&M provides a process for peer review on a variety of predetermined indicators and ideally takes place in an interdisciplinary and blame-free environment that unites the health care team to identify opportunities for improvement. Research on the effectiveness of M&M is limited; however, it has been shown that reviewing adverse events with an interdisciplinary team and performing case review with experts can improve both individual and team performance.[21,22] In addition to the standard or required clinical indicators for review (mortality, ICU, and NICU transfer, etc.), additional indicators may be included on either a standing or temporary basis to address identified needs or specific concerns. Our fellows review each case in advance, prepare a formal case summary, review relevant literature, and subsequently present the case at the M&M conference.

Cesarean Section Review

Developing skill and competencies in performing cesarean sections is vitally important for participants in our fellowship program. The number of times a physician has performed a procedure, such as a cesarean section, is a commonly used benchmark to determine whether or not a physician has mastered that procedure. However, it has been clearly shown that the number of times a procedure has been performed does not, in and of itself, demonstrate that it is being performed competently. The American Academy of Family Physicians (AAFP) has stated that additional educational tools should be used to determine whether or not a physician should be credentialed in cesarean sections. The AAFP suggests that the outcomes of the procedure should be well documented and reviewed.[13] In addition, knowledge and skill surrounding the indications, timing, informed consent, and all the related decision-making for cesarean section are also essential and are not necessarily gained by performing the procedure. For instance, identifying patterns of adverse outcomes have been shown to help obstetricians develop practices to reduce the occurrence of such outcomes.[23,24] A formal process for peer review of all cesarean sections that actively relies on the fellows has assisted in developing these non-procedural skills while also providing a forum for department-wide PI.

Graduate medical education curricula already in existence attest to the potential of cesarean section review to promote good clinical outcomes. Peer review of cesarean sections was an integral part of a family medicine curriculum described by Heider, et.al. With the help of this and other aspects of the curriculum, clinical outcomes for cesarean sections in the described program were equivalent or superior to those found in the general obstetrical literature.[25] In our program, a simple review form is used to standardize the process. It should be noted that this review focuses exclusively on the indication for cesarean section as it relates to documentation and on the system of care provided in terms of expectations for timing. If the review suggests a need for provider- or systems-related QI, then the case is referred accordingly. This ensures adherence with the protections surrounding the quality assurance process and affords confidentiality and due respect to physicians, patients, and staff.

Comprehensive Case Management

A comprehensive case management approach is used to assist in the care of patients in the MCH model. There is considerable evidence to suggest that psychosocial stressors are causally linked to the persistent disparities observed in perinatal outcomes. We have implemented the use of an enhanced screening tool to identify possible risks in this regard. The rationale for this approach is described in detail in a companion paper in this issue of the Journal, "Addressing Psychosocial Determinants of Poor Birth Outcomes: Enhanced Screening in Family Medicine Obstetrics." The combination of a myriad of biomedical and psychosocial factors comes together to form individual risk for each prenatal patient. A formal and regular process for case management and care coordination with a multidisciplinary team is used to organize a comprehensive plan of care for each patient. On-site behavioral health staff share care with physicians in an integrated approach. Outreach to pregnant women to facilitate prenatal care when adherence is challenged is organized and tracked. Community outreach workers, who are available through an ongoing and supported national service initiative, are trained and available to assist in overcoming barriers and to provide needed support.

Evidence-Based Medicine

The principles of evidence-based medicine are incorporated in the practice-based curriculum so that our fellows are better prepared to utilize these methods throughout their careers. Fellows gain experience in evidence-based medicine through such activities as the development of "best practice guidelines." These guidelines help to standardize the method of care for certain clinical scenarios, where an opportunity or area for improvement has been identified. By including the expectation to implement these guidelines, fellows gain valuable experience in performance improvement at the systems level by actually performing improvement projects that add real value. This process has been very helpful to learners who appreciate knowledge and consistent instruction on a single "best" practice as they are developing new skills.

Research and Scholarship in Performance Improvement

Finally, completion of a scholarly project is an important part of this MCH curriculum. Many residency and fellowship programs include a research component. Completion of a basic science or clinical research project is a way in which a resident or fellow can contribute to medical advances. Exposure to research during graduate medical training is an important experience for physicians who pursue a career in academic medicine following their training.[26] Physicians who have completed scholarly projects as part of their graduate medical education have described it as a valuable educational experience.[27] It has been argued that having a mentor with his or her own experience in research as well as having sufficient time to complete a scholarly project, are important to a successful research experience for a physician in training.[26]

However, pursuing traditional research projects can be difficult, especially in a program such as ours where training time is brief and few of the program's participants are headed for research-based careers. The changing shape of medical research suggests that a scholarly project focused on translational or applied research would be beneficial both to the participants in our program and to the communities which they serve. Including a scholarly project component in the MCH fellowship has the potential to make an impact on the subsequent care they provide at both the individual patient and systems level. In support of these considerations fellows' projects typically focus on performance improvement and program development. The ACGME has endorsed performance improvement as an important practice for physicians in training. For almost twenty years, health professions educators have sought to include performance improvement principles into their curricula. Recent work has suggested that experiential learning and participation in performance improvement projects will help physicians in training to learn these valuable principles.[28]

Conclusion

The rationale for continuing to include obstetrics (OB) in the scope of family medicine has been the subject of considerable ongoing debate. However, there is clearly a need for more physicians with skills in obstetrics, particularly in underserved areas and populations where poor outcomes persist for many women and children. Such populations have a significant need for more access to comprehensive care. Across the health care spectrum, there are calls for safer and more cost effective care. Skill and competency in developing and leading performance improvement efforts are becoming essential elements to the practice of medicine.

The Maternal and Child Health (MCH) model for advanced training in family medicine obstetrics has been developed to address concerns regarding the delivery of maternity, perinatal, and family-centered care, particularly in underserved communities. In addition to rigorous attention to core competencies in clinical obstetrics, this approach focuses on the care of the mother and her children in a community-medicine model and includes an evidence-based and integrated consideration of psychosocial risks and supportive interventions.

The MCH fellowship described here takes advantage of several practical educational tools. The clinical curriculum prepares physicians to apply the MCH model for the care of mothers and their children. With few exceptions, graduates have been able to obtain full obstetrics privileges in clinical settings ranging from rural to urban locations, from rural critical access hospitals to major academic medical centers, and in a variety of global health settings. An academic curriculum in which fellows "learn by doing" trains participants in the practice of performance improvement. Active participation in interdisciplinary PI committees, department meetings, mortality and morbidity conferences, case review (including cesarean section review), and completion of a scholarly project, all are valuable educational experiences for MCH fellows. By training participants in the MCH model with an academic curriculum that promotes performance improvement, this program builds on the traditional model for training family physicians in obstetrics. Graduates are better prepared to provide comprehensive, patient-centered and family-focused care to mothers and their children. Further inquiry should be directed toward the utility of this approach in terms of practice characteristics, subsequent use of PI skills, and the impact on patients served.

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References

1. Nesbitt, T. S. (2002). "Obstetrics in family medicine: can it survive?" J Am Board Fam Pract 15(1): 77-9.
2. Rodney, W. M., R. G. Hahn, et al. (2004). "Advanced procedures in family medicine: the cutting edge or the lunatic fringe?" J Fam Pract 53(3): 209-12.
3. Manahan, B. (2002). "Obstetrics in family practice." J Am Board Fam Pract 15(3): 256-7.
4. Nesbitt, T. S. (1996). "Rural Maternity Care: New Models of Access." Birth 23(3): 161-165.
5. U.S. Department of Health and Human Services. Healthy People 2010: Understanding and Improving Health. 2nd ed. Washington, DC: U.S. Government Printing Office; 2000. November. Available: http://www.healthypeople.gov/Document/html/uih/uih_2.htm#goals. Accessed: 5 February 2009.
6. United Nations, Department of Economic and Social Affairs, Population Division (2007). World Population Prospects: The 2006 Revision, Highlights, Working Paper No. ESA/P/WP.202.
7. United Nations Children's Fund and World Health Organization, "Low Birthweight: Country, regional and global estimates," UNICEF, New York, 2004.
8. Reichman, N. E., J. O. T. (2003). "Effects of Psychosocial Risk Factors and Prenatal Interventions on Birth Weight: Evidence From New Jersey's HealthStart Program." Perspectives on Sexual and Reproductive Health 35(3): 130-137.
9. Kohn, L. T., J. M. Corrigan, et al. (2000). To Err Is Human: Building a Safer Health System, The National Academies Press.
10. Weinert, C. R. and H. J. Mann (2008). "The science of implementation: changing the practice of critical care." Curr Opin Crit Care 14(4): 460-5.
11. AAFP/ACOG (1998). "AAFP--ACOG joint statement of cooperative practice and hospital privileges. American Academy of Family Physicians. American College of Obstetricians and Gynecologists." Am Fam Physician 58(1): 277-8.
12. Eidson-Ton, W. S., J. Nuovo, et al. (2005). "An enhanced obstetrics track for a family practice residency program: results from the first 6 years." J Am Board Fam Pract 18(3): 223-8.
13. AAFP. (2003). "Cesarean Delivery in Family Medicine (Position Paper)."
14. AAFP. (2008). "Fellowship Directory for Family Physicians." Retrieved February 1, 2009, from http://www.aafp.org/fellowships/obstet.html.
15. Deutchman, M. E., D. Sills, et al. (1995). "Perinatal outcomes: a comparison between family physicians and obstetricians." J Am Board Fam Pract 8(6): 440-7.
16. Martin, J. C., R. F. Avant, et al. (2004). "The Future of Family Medicine: a collaborative project of the family medicine community." Ann Fam Med 2 Suppl 1: S3-32.
17. S. Silow-Carroll, T. A., and J. A. Meyer (2007). "Hospital Quality Improvement: Strategies and Lessons From U.S. Hospitals." The Commonwealth Fund 54.
18. Zerhouni, E. (2005). "US Biomedical Research: Basic, Translational, and Clinical Sciences," JAMA 294(11): 1352-1358.
19. Institute for Healthcare Improvement (2009). "Improvement." http://www.ihi.org/IHI/Topics/Improvement/. Accessed on 2/6/09.
20. Percarpi, K., Watts, B., and Weeks, W. (2008) "The effectiveness of root cause analysis: what does the literature tell us?" Jt Comm J Qual Patient Saf 34(7): 391-8.
21. Azar B. (1994). "Walk a mile in my shoes-or at least try them on." APA Monitor 23: 1-3.
22. Gaba DM. (1994) "Human error in dynamic medical domains." In: MS Bogner, editor. *Human Error in Medicine.* Hillsdale: Lawrence Erlbaum; 1994: 225-254.
23. Pearlman MD. (2006). "Patient safety in obstertrics and gynecology: an agenda for the future." Obstet Gynecol 108(5):1266-71.
24. Grobman WA. (2006). "Patient safety in obstetrics and gynecology: the call to arms." Obstet Gynecol 2006;108(5):1058–9.
25. Heider, A., Neely, B., and Bell, L. (2006). "Cesarean Delivery Results in a Family Medicine Residency Using a Specific Training Model." Family Medicine 38(2): 103-9.
26. Whitcomb, M. and Walter, D. (2008) "Research Training in Six Selected Internal Medicine Fellowship Programs." Annals of Internal Medicine. 133(10): 800-807.
27. Rivera, J., Levine, R., and Wright, S. (2005). "Brief report: Completing a Scholarly Project During Residency Training." Journal of General Internal Medicine 20(4): 366-369.
28. Morrison, L. and Headrick, L. (2008). "Teaching residents about practice-based learning and improvement." Jt Comm J Qual Patient Saf 34(8): 453-9.