

AMERICAN JOURNAL OF CLINICAL MEDICINE®

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SPECIAL ISSUE - FAMILY MEDICINE OBSTETRICS

SPRING 2009 • VOLUME SIX, NUMBER TWO

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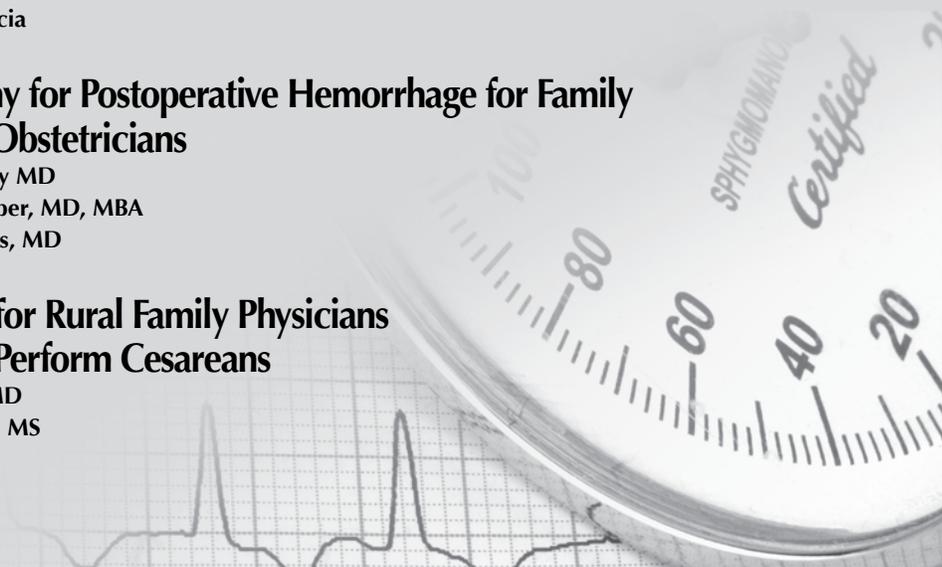
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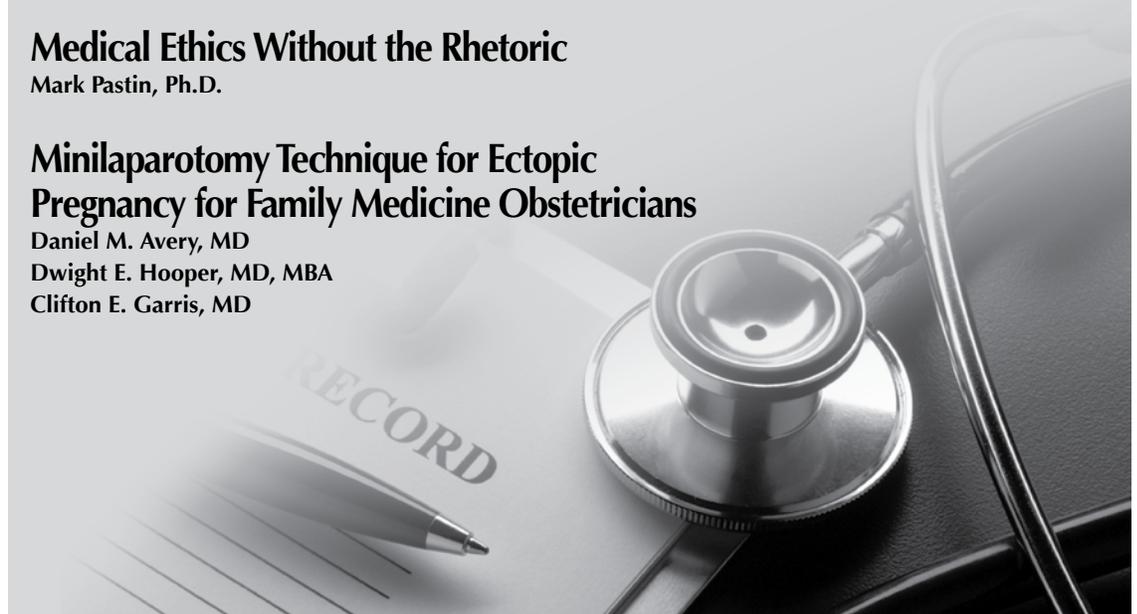
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With this issue we are proud to introduce our newly appointed Editor-in-Chief – Wm. MacMillan Rodney, M.D., FAAFP, FACEP. Dr. Rodney is Adjunct Professor of Family Medicine at Meharry Medical College and a member of the American Board of Family Medicine Obstetrics.

The Editorial Board is appreciative for the responses from our authors. We would also like to thank our peer reviewers, who remain anonymous. Be sure to read the series of articles on the Maternal and Child Health Model. Don't miss the response to Case One in "Medical Ethics Without the Rhetoric." Email your comments on Case Two to Dr. Mark Pastin.

Consider making your contribution to the Journal by submitting your articles and case studies. We welcome your commentaries to "Sounding Board," an open forum in which you can express your thoughts on a subject of interest to you and your colleagues, and to our Medical-Legal feature. Letters to the editor, commenting on published articles, or offering general comments or opinions, are also welcome. This Journal represents you – we welcome your input, your articles, essays, observations, poetry, and sound bites.

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Paul David Mozley, MD, FACOG, FACS, FAPA

Founder of Obstetrics Fellowships in the United States

Daniel M. Avery, MD



Dr. Paul David Mozley, MD, FACOG, FACS, FAPA, founded the Obstetrics Fellowships in the United States in 1980 at the University of Alabama School of Medicine in Tuscaloosa, Alabama, now the oldest Obstetrics Fellowship Training Program in the country. This program has been the model for other programs not only in the United States but internationally as well. Dr. Mozley is being

recognized as the founder of this subspecialty by the American Board of Family Medicine Obstetrics and the American Board of Physician Specialties.

Paul David Mozley was born in Decatur, Alabama in 1928. He completed a B.A. Degree at the University of Alabama in 1950. He then attended graduate school in Parasitology in 1950 at the University of Alabama and Abnormal Psychology at the University of Georgia in 1951. During 1951 Dr. Mozley served as a Research Serology Laboratory technician and Communicable Disease Investigator for the U.S. Department of Public Health in Georgia. Dr. Mozley completed an M.D. degree from the Medical College of Alabama in 1955, during which time he worked as a research assistant in the Department of Cellular Physiology. After completing a Rotating Surgery Internship at the National Naval Medical Center in Bethesda in 1956, he completed an OB/GYN Residency at the Naval Hospitals in Corona and San Diego, California, in 1959. Dr. Mozley completed a Psychiatry Residency at the National Naval Medical Center in Bethesda and U.S. Naval Hospital in Philadelphia in 1970.

Dr. Mozley's academic appointments are many, including Associate Professor of Psychiatry and Behavioral Sciences and of Obstetrics and Gynecology at Eastern Virginia Medi-

cal School in Norfolk, Virginia, as well as Interim Chair of Psychiatry and Behavioral Sciences there in 1976-1977. Dr. Mozley was promoted to Full Professor of Psychiatry and Behavioral Sciences with tenure at Eastern Virginia in 1977. He served as Professor with tenure and Director of Undergraduate Education at East Carolina University School of Medicine from 1979 to 1984. Dr. Mozley came to the University of Alabama School of Medicine as Chairman of Obstetrics and Gynecology in Tuscaloosa and Associate Chairman in Birmingham in 1984, a position he held until retirement from this institution in 1999. Dr. Mozley was Professor of Obstetrics and Gynecology and of Psychiatry. In 2000, he was awarded the rank of Professor Emeritus by the President of the University of Alabama. Dr. Mozley is Fellow of the American College of Obstetricians and Gynecologists, the American College of Surgeons, and the American Association of Psychiatrists.

In 1969, the American College of Obstetricians and Gynecologists awarded Dr. Mozley the Chairman's Award for Clinical Research for Outstanding Contributions to the Knowledge of OB/GYN. He was awarded the President of the United States Meritorious Service Award for Excellence both in 1973 and 1975. In 1975, he received the Surgeon General's Merit Award for Outstanding Service to the Medical Department in Recognition of a Distinguished Career in Service to his Country. He was advanced to Life Fellowship by the American College of Obstetricians and Gynecologists and the American Psychiatric Association in 1975. In 1999, Dr. Mozley received the Award of Excellence and appointment of Chairman Emeritus from DCH Regional Medical Center. Dr. Mozley is one of the few physicians to chair more than one academic department of a medical school.

Dr. Mozley has been very active nationally in the American College of Obstetricians and Gynecologists, serving as Program Chairman of the Annual Clinical Meetings and Founding Member of the American Society of Psychosomatic Medicine. Since retirement from the University of Alabama, Dr. Mozley has continued to practice surgical gy-

necology in Sylacauga, Fairhope, and Point Clear, Alabama, as well as supervise obstetrical care at Baldwin Clinic in Foley, Alabama, for Hispanic patients. Dr. Mozley's publications are extensive and his national presentations many. In 2005 he became one of the founding members of the Task Force on Certification of Family Medicine Physicians Practicing Obstetrics and a Founding Member, Question Writer, and Written and Oral Examiner of the American Board of Family Medicine Obstetrics in Tampa.

A gentleman, a scholar, an inventor, a visionary, a mentor, a colleague and a friend, it has been a pleasure to work with and know him. Truly my mentor for all time, Dr. Mozley has probably forgotten more than I ever learned! The fields

of Obstetrics and Gynecology, Psychiatry and Family Medicine Obstetrics will be forever indebted to this man, his work, and his devotion to others, especially the women and children of this State of Alabama.

Daniel M. Avery, MD, is Associate Professor and Chair, Department of Obstetrics & Gynecology at the University of Alabama School of Medicine.

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The History of Board Certification of Family Medicine Obstetricians

Daniel M. Avery, MD, FACOG, FACS

Abstract

The need for board certification of Family Medicine Obstetricians is antedated only by the development of Obstetrics Fellowship Training Programs themselves. Postgraduate Fellowship Training in Obstetrics for Family Medicine Physicians began in 1984 as a result of the dire need of obstetric healthcare providers in rural areas of this country. Attempts to recognize and certify these physicians have actually been a long-term task, dating back to the 1980s. This paper is a history of the attempts at board certification.

Introduction

Postgraduate Fellowship Training in Obstetrics was founded by Dr. Paul D. Mozley in 1984. Dr. Mozley, now Professor Emeritus, was Professor and Chair of Obstetrics and Gynecology at the University of Alabama School of Medicine in Tuscaloosa, Alabama.¹ Even in 1984, it was apparent to him that this country faced a dire shortage of obstetrical care providers that would persist. Rural Alabama, like many states, would not have the luxury of an obstetrician should something drastic not be done. The perinatal morbidity and mortality in Alabama was as low as any state in the Union.

Original Obstetrics Fellowships

Dr. Mozley came up with the idea of an Obstetrical Fellowship for Family Medicine Physicians who wanted to serve this terrific need. So, in 1984, the dream became a reality under his guidance and has continued in Tuscaloosa to the current time. Dr. Mozley has changed the face of rural healthcare in obstetrics in this state as well as in surrounding states. The field of Obstetrics in this country will always be indebted to this great man's dream, which became a reality. The numerical odds of training enough OB/GYNs to meet rural needs have not gotten better but only worse due to the diverse career pathways that graduating OB/GYN residents may choose today.²

Soon after, Obstetrics Fellowships were organized around the country. The next step was how do you authenticate their train-

ing and certify the graduates with board examinations beyond their certificate of completion of a fellowship? How would they compare with traditional OB/GYNs, their board certifications, credentialing, and privileging? Dr. Mozley worked with the American College of Obstetricians and Gynecologists in an attempt to establish training guidelines and a certifying examination to recognize these physicians.³

Attempt to Certify Fellows by Family Medicine Residencies

In 2000, Dr. Samuel Gaskins, Family Medicine Residency Director at the University of Alabama School of Medicine in Tuscaloosa approached the American Academy of Family Medicine and the American College of Obstetricians and Gynecologists about board certification for Family Medicine Obstetricians without success.⁴ Both organizations agreed that it was important, but a joint venture of the two was probably not possible. Both organizations were approached in 2003, without success again.

Two organizations giving examinations and conferring fellowship status had been accomplished by the American College of Obstetricians and Gynecologists and the American College of Surgeons. Both have given certifying examinations in gynecology for a number of years without problems. Many board certified Obstetrician/Gynecologists have taken the American College of Surgeons examination and have become Fellows of both the American College of Obstetricians and Gynecologists and the American College of Surgeons. So, it can be done. In fact, both authors completed certification in both without difficulty.

American Board of Medical Specialties

In 2005, the American Board of Medical Specialties was approached about the need for a board examination and certification of Family Medicine Obstetricians. The ABMS agreed that it was important, but that ABMS would not create any new board examinations for any new specialties. ABMS did agree that it was needed and should be done. The American Medical

Association, questioned about the problem, stated that they understood the necessity but did not give certifying examinations.

American Board of Physician Specialties

In 2005, the American Board of Physician Specialties was approached about a certifying examination in Family Medicine Obstetrics, and they were open to the idea. At the time they were pursuing several new specialties including Disaster Medicine and Hospital Medicine. The Obstetrics Fellowship at the University of Alabama School of Medicine in Tuscaloosa was asked to make a presentation to their board at their annual meeting in Naples, Florida. On June 22-24, 2005, a presentation on Board Certification of Obstetrics Fellowship trained Family Physicians was presented to the American Association of Physician Specialties. The presentation included the history of fellowships, how they began, and how many family physicians in this country were attending childbirth.⁵

Task Force for Certification of Family Physicians Practicing Obstetrics

The Association extended an offer to pursue certification. A Task Force for Certification of Family Physicians practicing Obstetrics was created from family physicians, family physicians practicing obstetrics, obstetrician/gynecologists, and obstetrics fellowship programs from around the country. The first task to be dealt with was to determine which of two possibilities was best: (1) add a certificate of added qualification in obstetrics to current family medicine board, or (2) create a completely new board of certification in obstetrics.⁶

Certificate of Added Qualification versus Board Certification

The Task Force was charged with determining if there was a need for certification and, if so, which would be best: board certification in obstetrics or a certificate of added qualification in obstetrics added to a family practice board. A random study was conducted of hospitals, credentialing committees, malpractice insurance carriers, and obstetrics fellowship program directors.⁷

Hospitals around the country were selected at random, and an administrative representative was interviewed by telephone. Hospitals ranged in size from 60 to 1,000 beds. They varied in type including private, county, state, federal, teaching, and Armed Forces. The majority of hospitals interviewed preferred board certification. All federal, state, teaching, and Armed Forces hospitals required board certification.

The administrative person in charge of credentialing was then interviewed regarding the necessity of board certification, a certificate of added qualification to family medicine boards, or no preference in certification. 90% preferred board certification. Most non-physicians had no concept of what the term "certificate of added qualification" meant.

Malpractice insurance carriers were selected by contacting state medical societies at random and inquiring about the major malpractice carriers in their state. Carriers were interviewed by telephone. All malpractice carriers contended that board certification was more important than an added qualification. Malpractice carriers were more definitive about board certification than hospitals. Carriers uniformly reported that board certification affects insurability more than rates.

The twenty-four obstetrics fellowships programs advertised on the American Academy of Family Practice web site were contacted by email about their preference of board certification versus a certificate of added qualification. Fifty percent responded, and those that did not were contacted again by email or telephone. Program directors were most concerned about which would hold more weight with teaching institutions, hospital credentialing committees, and malpractice insurance carriers. While many directors think that either would be a positive step in the right direction, half preferred a certificate of added qualification. Tables 1 and 2 list Fellowship Training Programs in the United States described on the AAFP web site.⁷

Table 1:
Obstetrics Fellowships Advertised on the AAFP web site⁷

PROGRAM	LOCATION	DIRECTOR
University of Alabama	Tuscaloosa	Daniel M. Avery
University of Alabama	Huntsville	Willie Chester
Santa Clara Valley	San Jose	Jennifer Domingo
Florida Hospital	Orlando	Mark Olsen
West Suburban	Oak Park	Alex Wu
Memorial Hospital	South Bend	Kelly Derbin
St. Elizabeth	Edgewood	Allana Oak
LSU Medical	Lafayette	Mark Stock
Lawrence	Lawrence	Bill Chun
Moses Cone	Greensboro	Arnold Grandees
Univ. of New Mexico	Albuquerque	Larry Leeman
University of Nevada	Las Vegas	Thomas Hunt
University of Rochester	Rochester	Steve Eisner
University Hospital	Cleveland	Al Cades
Memorial Hospital	Pawtucket	Richard Long
Spartanburg Family	Spartanburg	Iceman Simon
Family Medicine	Memphis	William Rodney
University of Tennessee	Memphis	Charles Couch
College of Medicine	Memphis	Carl Pean
Brackenridge	Austin	Michael Nix
Christ's Spoon Hospital	Corpus Christi	Jen Schroeder
University of Utah	Salt Lake City	Keith Harwood
Swedish Family Medicine	Seattle	Joseph Breuner
Family Medicine	Seattle	Heather Armstrong

Table 2: Part-Time Obstetrics Fellowships

PROGRAM	LOCATION	DIRECTOR
University of Alabama	Birmingham	John Hauth
University of S. Alabama	Mobile	Kathy Porter
University of Mississippi	Jackson	

Most physicians understand the difference between board certification versus a certificate of added qualification to a primary specialty board. Most non-physicians in this study had no idea what a certificate of added qualification is nor could they compare the two.

Task Force Decision for New Board of Certification

The Task Force then decided to pursue the establishment of a separate new board of certification. Dr. Elizabeth Lanoue was selected as the Family Medicine Co-Chair and Dr. Daniel M. Avery as the OB/GYN Co-Chair. The name, American Board of Family Practice Obstetrics, was selected. The first meeting of the Board was September 22-24, 2006. The Board met in Atlanta with the staff of the American Association of Physician Specialties including Mr. William Carbone, Chief Executive Officer and Dr. Stanley Kalisch, Director of Psychometrics.⁸

An organizational chart and agenda were discussed and approved. A mission statement was discussed and adopted. The primary impetus was board certification of Obstetrics Fellowship trained Family Medicine Obstetricians and grandfathering those family physicians who have been practicing obstetrics already, whether fellowship trained or not. Grandfathering will be limited to five years. Beyond the initial five years after an examination is offered, a physician will need to complete fellowship training to be board eligible.

The general process of establishing a medical specialty is described in Table 3. An area of interest must be identified separate from other specialties and a sufficient number of physicians who practice that specialty must be identified as well. Creation of a Board is a long-term task and also involves grandfathering physicians already practicing that specialty and recertifying those that take the initial examination. Decisions have to be made about written and oral examinations, case lists, and practical examinations. Practical examinations are competency based and can be live operations with the examiner scrubbed in or a videotape of the same. Simulators are a new method of testing competency and skill.

After the basic fund of knowledge for examination is established, training programs should be accredited to competently prepare trainees for examinations. After physicians pass the examination, creation of a specialty college or society usually follows, with the capacity to confer fellowship status and create categories of membership. When the Board Certification process and College or Society is established, application to the American Medical Association for membership follows. Ultimately, both the specialty and training programs want to

Table 3: Process of Certification and Specialty Recognition

Identification of physician specialty
Identification of physician providers
Creation of board of certification
Creation of grandfathering process
Creation of recertification process
Decision on written, oral, practical exams
Accreditation of training programs
Establishment of College or Society
Creation of fellowship granting process
Creation of classes of membership
Application to American Medical Association for membership
Request for recognition and membership in Accreditation Council for Graduate Medical Education

be accredited by the Accreditation Council for Graduate Medical Education.

The American Board of Family Practice Obstetrics was incorporated in 2006. The Task Force has worked very hard in defining the above process and writing questions. An Advisory Committee to direct the Board was selected in 2007. The first written examinations will be given in 2007.

Daniel M. Avery, MD, is Associate Professor and Chair, Department of Obstetrics & Gynecology at the University of Alabama School of Medicine.

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7. American Academy of Family Practice Web site, 2005.
8. Task Force Meeting for the Board Certification of Family Physicians Practicing Obstetrics, Atlanta, GA, Sept.22-24, 2006.

“Who Will Deliver our Babies?: Crisis in the Physician Workforce”

Mark Loafman, MD, MPH
Shivani Nanda, BS

Abstract

Recruitment, retention, and distribution of the primary care physician workforce remains one of the nation’s more complex and persistent problems. Obstetrics and gynecology has become particularly prone to workforce challenges in relationship to concerns surrounding professional liability, lifestyle, declining medical student interest, reductions in the numbers of OB-Gyn residency programs, and increasing sub-specialization by graduating residents. These trends are associated with inadequate access to maternal and reproductive care, especially in underserved communities. This is particularly concerning given the persistent disparities in maternal and child health (MCH) outcomes. Addressing these concerns will require an emphasis on innovative models for the provision of primary care services in general and maternity care in particular. The MCH model for Family Medicine OB Fellowship programs has been designed to provide advanced training in Obstetrics for family physicians using a family medicine approach to primary care for women and their children.

Introduction

Recruitment, retention, and distribution of the primary care physician workforce remains a complex and persistent problem and is especially significant among urban underserved and rural communities. Specifically, the field of obstetrics and gynecology has increasingly become prone to a shortage in its workforce. Reasons frequently cited by obstetricians for stopping or excluding maternity care from their practice include pressures surrounding professional liability and the impact on lifestyle. There is also an apparent decline in medical student interest to join the field and a decrease in the number of OB/Gyn residency programs.¹ Of those who do choose an OB residency, there is an increasing trend to sub-specialize, which for most means excluding primary and maternity care from their practice. The

decline in the number of physicians practicing obstetrics has a direct impact on the availability of adequate maternal and reproductive care for women. This is most evident among patients who are uninsured or underinsured and also for those in rural settings, regardless of their reimbursement status.

To address the growing concerns surrounding the provision of adequate care for women and children, particularly in the context of persistent disparities in maternal and child health (MCH) outcomes, alternative models for the provision of these services are called for. Adequately trained family physicians routinely provide the full spectrum of maternity care for women and are also the provider of primary care for their children and family.

The MCH model, as described here, is a Family Medicine OB Fellowship program designed to provide advanced obstetrics training in the context of family and community medicine. This model is particularly adept at recognizing and responding to the health-related conditions and circumstances prevalent in underserved urban and rural communities. The roughly 30 fellowship programs that are organized around the traditional family medicine OB training model have a track record of success. The MCH model described here is a variation on this theme, and one that appears to offer specific, additional benefits in addressing both the shortages in our health professions workforce and disparities in MCH outcomes.

Decline in Primary Care Physicians

Fewer individuals are choosing medicine as a career and, of those who do select health professions, even fewer are choosing primary care. Between 1998 and 2002, students matching into a residency program in family medicine declined substantially from 16.0% to 10.4%.² There are not enough primary care doctors to meet the current needs,³ let alone the numbers needed to provide access for the almost 50 million among us

who, it thankfully appears, may soon be joining the ranks of the “insured.” Market forces surrounding income and liability strongly encourage physicians to choose a specialty career over primary care and to then establish practices in areas that are already served.⁴ Meanwhile, those who are in primary care are becoming less willing or able to meet the needs in underserved communities. Governmental efforts to “redistribute” the primary care workforce in response to these market and lifestyle choices have relied largely upon loan repayment and, in a less direct way, enhanced funding to health centers and hospitals that serve the safety net.⁵ Despite these programs and incentives the primary care shortage appears to be getting worse.⁶

Like other primary care specialties, family medicine has attracted too few U.S. medical school graduates to meet the current healthcare needs.⁷ Factors reported as having influence on these trends include compensation, lifestyle, and perceptions related to prestige.⁸ Moreover, many of those who choose to specialize in family medicine either feel unprepared or are just not willing to provide routine maternity care, let alone the type of comprehensive perinatal care that is required if we are to address disparities in MCH outcomes. Many training programs struggle to provide adequate maternity care training, offering just two months of focused labor and delivery training, which is often limited due to a lack of adequate faculty supervision.⁹ This experience is generally under the supervision of OB/Gyn physicians and occurs in an environment that is often described as antagonistic, or even “hostile,” for the trainees. Family physicians who train under these circumstances rarely choose to include maternity care in their practices, and those who do are necessarily confined to the care of low-risk women.¹⁰

Meanwhile, the field of Obstetrics and Gynecology is facing its own challenges in responding to the trends and shortage in the workforce. Obstetrics and Gynecology is considered to be a primary care specialty based on the primary care reproductive health services that OB/Gyn physicians routinely provide for women. OB/Gyn training programs do include experience in general primary care for women.^{11,12} Most would agree, however, that the scope of practice in OB/Gyn is not comprehensive to the primary care needs of women. This point is emphasized not to detract from the important services provided by OB/Gyn physicians, but rather to illustrate that as a specialty they are not routinely prepared to, on their own, meet the comprehensive primary care needs for women. Meeting these needs will, therefore, require primary care providers in addition to those in OB/Gyn.

Trends in the practice patterns and career choices of Ob/Gyn physicians show that many have either stopped delivering babies or plan to stop in the near future. Several factors are associated with this persistent decline in the obstetrician workforce. The wane in career satisfaction experienced by some OB/Gyn physicians can lead to early retirement. Professional liability was most frequently cited as the major factor influencing career dissatisfaction among practicing OB/Gyn physicians.¹³ It appears as though the aging of the current physician workforce has exacerbated the decline in practicing obstetricians-gynecologists. As of 2007, over 50% of current OB/Gyn physicians

are over 50 years of age.¹⁴ The percentage of physicians practicing obstetrics has been shown to significantly decrease with age from 96% among physicians under age 35 to 34% among those aged 65 and over, thus contributing to the decline of these services.¹⁵ Of the OB/Gyn physicians who remain in practice, many have chosen to forego obstetrics from their practice due to its negative impact on lifestyle. A study by the University of Washington revealed that physicians practicing obstetrics were working more total professional hours, had more weekly outpatient visits, attended a greater number of deliveries per year, and spent a higher proportion of total hours in direct patient care than physicians who chose to stop obstetric practice.¹⁶

In addition, there has been a decrease in the number of OB/Gyn residency programs from 272 programs in 1995 to 252 in 2005.¹ Graduates from OB/Gyn residency programs are increasingly choosing to sub-specialize in areas such as endocrinology, oncology, and urology, thereby excluding maternity care from their practice. Between 1999 and 2002, this increase in the trend to sub-specialize in obstetrics and gynecology co-exists with a 20% decline in medical student interest in primary care obstetrics.²

Inadequate Access to Primary Care

The challenges surrounding recruitment, retention, and distribution of the primary care physician workforce are especially significant among urban underserved and rural communities. Along with the roughly 50 million Americans who are under or un-insured, there is an estimated 80 million among us who are considered “medically disenfranchised,” a term that has been applied to those who lack adequate access to a primary care physician. The scope of the problem is also apparent when one considers that more than 75% of the counties in America are now considered to be either complete or partial health professional shortage areas (HPSAs).¹⁷

A review of the literature over the past two decades shows a consistent and positive relationship between more primary care physicians and improved health outcomes.^{18,19} The much needed attention currently placed on expanding insurance coverage to many more people appears to presume that the lack of coverage is the only barrier. However, the lack of access to comprehensive primary care has been linked to the persistent disparities in health outcomes for underserved populations.²⁰

Maternal and Child Health

According to the World Health Organization, maternal and child health outcomes are among the most fundamental indicators used to assess the health status and health care infrastructure for communities and populations around the world. Better outcomes are associated with access to safe and effective health care and the availability of qualified health professionals. The literature consistently demonstrates a positive relationship between better maternal and child health outcomes and more primary care.²¹

The current approach generally places the care of women in the hands of clinicians who specialize in reproductive health and who are not prepared to provide the level of comprehensive primary care needed to meet the larger health needs.¹² Meanwhile, in many instances the level of pre-natal care provided in primary care settings is declining.²² More than any other aspect of primary care, maternity care is increasingly being viewed as unnecessary among the otherwise comprehensive scope of Family Medicine. Factors associated with this phenomenon that are pertinent to the rationale for an MCH Fellowship program include: limitations and obstacles in the training environment for Family Physicians, including the absence of role models in many settings; the lack of consensus among Family Medicine leaders regarding the role of Maternity Care in Family Medicine; and finally, the fallout from the emerging crisis in perinatal risk management and medical malpractice.

The increasing availability of specialists in Maternal-Fetal medicine has helped to meet the pregnancy-related medical needs for women in many urban settings. However, access to this care is not proportionate to population or disparity-based needs, nor does it completely replace the need for primary care. Certified nurse midwives (CNMW) are providing an increased role in maternity care for a growing number of women, though again, not in a way that is comprehensive to primary care. In addition, though CNMWs have many skills, they still routinely rely on physicians at times for medical treatment and operative procedures.

An appropriate health profession response to address the workforce needs in a way that will also truly impact the persistent health disparities is long overdue. Improving both access and outcomes will not only require more providers, but also something more than our current approach to care. Those who are most vulnerable need a patient-centered, evidenced-based, and comprehensive approach that is dynamic and responsive to public health goals.

Description of MCH model in Family Medicine

The specialty of Family Medicine has been applied successfully to address the needs of underserved urban and rural communities and is a viable alternative to the multi-specialty primary care model (Internal Medicine, Pediatrics and OB/Gyn). Adequately trained family physicians routinely provide the full spectrum of maternity care for women, while also providing primary care for their children and families. The advantages of having one provider who can care for the entire family across the life cycle has been well established.²³ Standards for what constitutes “adequate training” in maternity care have been well defined for family physicians in the area of routine obstetrics (AAFP and ACOG joint statement on curriculum). Competency with regard to the adequacy of this training is subsequently validated and confirmed by board certification in family medicine after successful completion of an accredited family medicine residency program. However, until now there has not been a similar, standardized path to define, verify, and confirm

the adequacy of training and competency for the many family physicians that have completed advanced training in family medicine obstetrics, either through one of the family medicine obstetric fellowship programs or their equivalency.

We also feel that it is important to clearly acknowledge that family medicine residency programs already prepare physicians to provide primary care across the life cycle, including all the areas mentioned here. Completion of a residency program and subsequent board certification in family medicine are all that is needed to practice family medicine, including in the areas of OB and pediatrics. Therefore, neither advanced training nor the related new board certification in family medicine obstetrics is intended to be, and should not be construed as, a necessary or required component of assessing competency or defining routine privileges for family physicians. Rather, fellowship programs and the new family medicine OB boards are in recognition of the advanced training, skill, and competencies necessary to provide an additional level of care and, in particular, that are required for more complicated pregnancies and operative deliveries.

The MCH Fellowship was developed specifically in response to workforce challenges in maternity care. The MCH model represents a subset of family medicine OB fellowship programs that uniquely includes a clinical service and training focus on neonatal care and pediatrics in addition to obstetrics. It should be noted that the lead author’s first exposure to the MCH training model came in 1990 through an innovative proposal by faculty at the Brown University Department of Family Medicine to combine obstetric and pediatric rotations for medical students in conjunction with a family medicine residency program (please see Acknowledgements). Though the proposal was not approved as an alternative rotation for students at that time, it did result in a parallel redesign of the family medicine residency inpatient service and, subsequently, the design and implementation of what appears to be the first MCH version of OB family medicine fellowships. After completing the program at Brown in 1992, the lead author worked with others to replicate the model in a health center (PCC Community Wellness) and its affiliated hospital and family medicine residency program in Chicago. Both of these MCH fellowship programs are still actively involved in training.

We describe here those aspects of the MCH Fellowship program that focus on perinatal workforce and outcomes as they have been developed at PCC. A brief overview of the curriculum is presented here to illustrate how the program is generally organized, mostly as it relates to inpatient care. Fellows are actively involved in a variety of MCH outpatient clinical services but which are outside the intended scope of this presentation. However, for those who may be interested, a more in-depth description of several aspects of the curriculum can be found in a companion paper in this issue of ACJM.

Developing Skill and Competency: The Clinical Curriculum

Obstetrics

According to the AAFP fellowship directory there are 32 OB fellowship programs designed to advance training in pregnancy care for family physicians. The length of fellowship training varies in these programs from three months to two years. Core procedural skills taught in the fellowships include cesarean delivery, postpartum tubal ligation, and dilation and curettage. Studies have found that graduates of such training programs are successful in obtaining cesarean delivery privileges and providing care to high-risk pregnancy patients in their practice.²⁴

With appropriate training obtained in a three-year family medicine residency (particularly one that emphasizes maternity care) and then further developed during fellowship training, the family medicine obstetrician is prepared to provide a level of maternity care consistent with that provided by an Ob/Gyn. Family medicine obstetrics is uniquely practiced as a part of comprehensive primary care, though clearly without the breadth in operative and clinical gynecology that is offered by specialists in Ob/gyn. As is true with all family medicine OB fellowship programs, the MCH model is focused on developing core competencies in prenatal care, labor and delivery, and operative obstetrics. These essential skills are augmented in the MCH fellowship by deliberately emphasizing the scope and breadth that define family medicine and, in this instance, especially those in maternal and child health.

The Newborn

Care of the newborn is an essential component in family medicine and, of course, MCH. The potential to encounter a sick or unstable infant, though uncommon, is present at every delivery and requires a predictable set of skills that must be developed and maintained. This is true for residents, fellows, and attending physicians alike. The tendency to avoid training and experience in high risk, low frequency occurrences, such as neonatal resuscitation, have been described elsewhere and must be discouraged and then replaced by developing a culture of competence that motivates those in training to see, do, and learn in a supervised setting.

For instance, neo-natal resuscitation (NRP) training and regularly held mock codes can be included in the duties and role of the fellows as part of the clinical and administrative process that already exists, or needs to be developed, at the hosting hospital. Interested faculty members and supervising community physicians should be encouraged and rewarded for taking a lead role. A similar, formal approach of active fellow participation can be followed for most any of the clinical scenarios encountered in the nursery, where the use of guidelines, care paths, and protocols can be enhanced. Goals for skill development by the fellows should be clearly stated, tracked, and documented as a requirement for progression within the program. Clarification of

roles and expectations should be established and monitored for all those who work directly with the fellows and clinical team, with respect to training, evaluation, clinical supervision, and documentation. There are mutual benefits to formally include many staff members as a part of the expanded “faculty.”

Though considerable attention to caring for the sick or potentially unstable neonate is warranted, there is also a need to encourage competency and emphasis on transitioning the neonate to home and the community. High priority MCH clinical scenarios and public health concerns deserve equal focus and should include skill development in areas such as risk factor surveillance, developmental screening, early intervention, and parenting.

Pediatrics

The MCH clinical teaching service naturally includes the infants we deliver, but also the entire spectrum of hospitalized children associated with our clinic and training programs. This includes newborns in special care, those who remain hospitalized after their mother is discharged (boarders), and also patients on the general pediatric ward. Fellows are understandably encouraged to prioritize their educational and clinical experiences in pediatrics on identified needs and goals. In addition to the standard clinical competencies for pediatrics, the curriculum also emphasizes community-based care, parenting support, and efforts to improve outcomes.

In family medicine we have the unique pleasure of first meeting a pediatric patient prior to birth in the context of a therapeutic relationship with its parent(s) and, ideally, future family. This affords the earliest possible opportunity for risk assessment and early intervention. Recognizing the profound social implications associated with perinatal disparities in underserved populations encourages us to take a robust approach to developmental screening and parenting along the entire pediatric continuum of care.

Mother Baby Care

Caring for mothers and their newborns has been described as one of the most enjoyable aspects of family medicine. However, family medicine trainees often rotate through Obstetrics/Gynecology when caring for the mother and through pediatrics when caring for the child. While this model has obvious advantages for other specialties, it essentially undermines one of the strengths in family medicine. The MCH model has been designed to foster continuity of care for both the mother and child. Newborns are admitted in the delivery room by the same physicians who attended labor and the birth.

Postpartum care for the mother is concurrent with that of the newborn. This approach affords many opportunities to coordinate care for mother and child, and combined follow-up visits are the norm. There are many evidence-based reasons to increase the frequency and expand the content of postpartum and neonatal care that are described elsewhere. Suffice it to say that the historical approach to a single, routine visit focused solely on gynecology at four to six weeks post-delivery is far from ad-

equate. We have found the use of specific chart tools for each of a few separate visits helps facilitate screening on psychosocial and medical concerns such as those during the early postpartum and newborn period.

Developing Skill and Competency: The Academic Curriculum

In addition to the clinical competencies addressed above, the list of competencies for MCH has grown to include a number of skills in non-procedural areas including evidence-based medicine, practice guidelines, performance improvement, quality assurance, and peer review. Thus, the MCH model incorporates the use of various routine and enhanced activities including indicator-based chart reviews, clinical case conferences, episodic and ongoing peer review, and interdisciplinary quality improvement committees as a means to address these “non-bedside” aspects of training. In addition, the completion of a scholarly project focused on translation or applied research is a core requirement of the MCH academic curriculum. An in-depth description of the academic curriculum included in the MCH model is the focus of a companion article included in this issue of the *American Journal of Clinical Medicine*.

Verification of Competency through Board Certification

In 2009 the American Board of Physician Specialties began offering a path to board certification in family medicine obstetrics as a means to verify training and competency for family physicians completing additional training in obstetrics. Eligibility for board certification in family medicine obstetrics requires successful completion of a recognized OB fellowship, such as the MCH program described herein, or the equivalency in training and practice experience. The latter eligibility component is in recognition of the fact that there is not yet a process to standardize or confirm accreditation of family medicine OB fellowship programs. The MCH training model as described herein satisfies the eligibility requirements for board certification in family medicine obstetrics and does so with an emphasis on a comprehensive, family medicine approach to women and children.

Conclusion

Workforce trends surrounding issues of liability, lifestyle, student and resident interest in obstetrics, and the role of training programs are significant factors in the challenges facing the provision of maternal care, especially in urban underserved and rural communities. Meanwhile, outcomes for maternal and child health indicators show persistent disparities, with differences most pronounced in these same underserved communities. Family physicians are uniquely able to help address the needs in both workforce and outcomes, though are hindered by a variety of barriers including training. The MCH model for Family Medicine OB Fellowship training has been designed specifically to address the needs by providing advanced train-

ing in obstetrics for family physicians, with a family and community medicine approach. Though continued innovation in program development and training along these lines should be encouraged, much can be gained by a process to standardize and externally validate both the training programs and their graduates. The new board certification in family medicine obstetrics offers a path for this validation and is solely focused on additional, advanced training and skill beyond that already provided for by accredited family medicine residency training programs and subsequent board certification in family medicine.

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Postpartum Depression (PPD)

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Abstract

Postpartum Depression (PPD) affects 10-15% of new mothers, but many cases of PPD remain undiagnosed. The term “Postpartum Depression” encompasses several mood disorders that follow childbirth and are discussed in this paper. Important developments in the study of PPD include its association with symptoms of anxiety and bipolar disorders in addition to those of depression.

Postpartum Depression (PPD) encompasses several mood disorders that follow childbirth. Postpartum depression (PPD) affects 10-15% of all new mothers, but may be as high as 35% in certain demographic groups.¹ One study found that 19.2% of new mothers were diagnosed with major or minor depression within the first three months postpartum, 7.1% specifically with major depression.² In another study of 214 women, 86 reported high levels of depressive symptoms (40.2%), but only 25 (11.7%) were actually diagnosed as being depressed.³ Another survey revealed that one-third of women scoring within a depressive range at eight months postpartum were still depressed 12-18 months later, but only 15% sought help or were referred to a mental health professional.⁴ PPD is underdiagnosed and remains the most common complication of childbirth and the most common perinatal psychiatric disorder, with women at greatest risk during their first postpartum year (45-65% of ever-depressed women).¹

Many cases of PPD may remain undiagnosed due to constraints such as time and concerns about the social acceptability of screening. But the majority of undiagnosed cases are probably due to the social stigma of being labeled an “unhappy mother,”⁵ not to mention the public image of PPD. Upon formal screening, many women scoring in a depressive range fully admit to being depressed, understanding that their symptoms are neither minor nor transient. But they reject the term “postpartum depression” because this implies to them that their feelings are *caused by their babies*.⁴ For these women, it is the stigma of PPD that causes shame, fear, embarrassment, and guilt.²

In addition to the stigma of mental illness, the societal portrayal of idealized motherhood adds even more strain to the emotionally taxed mother. Women attempt to hide their distress and struggle alone in fear of being labeled an unfit parent or, worse, having their baby taken from them. They may minimize their symptoms or attribute them to feeling overwhelmed by the demands of a new baby, lack of sleep, or difficult infant temperament. Some may deny “traditional” depressive symptoms in lieu of experiencing irritability and/or anxiety as their primary complaint. Even the most informed physicians may not attribute these feelings to PPD, assuming that they are due to the stress of newfound motherhood.⁶ To make matters worse, a woman’s risk of recurring PPD with subsequent children is estimated at 50-100%!⁷ These women continue to suffer, most in silence and bewilderment, about the pathology of their condition, a condition which is treatable and possibly even preventable.

Definitions and Distinctions

The term “postpartum depression” is an umbrella, which encompasses several mood disorders that follow childbirth. It is vital to distinguish between these, as each may require very different treatment or none at all. These mood disorders overlap in symptomology, but have unique, differentiating features:⁶

- **The “baby blues”** describes the most common mood disturbance in new mothers (50-80%), with an early onset, peaking at day five, and full resolution 10-14 days postpartum. Symptoms include emotional lability, frequent crying, anxiety, fatigue, insomnia, anger, sadness, and irritability. While considered “normal,” the blues can evolve into full-blown PPD if symptoms last longer than two weeks; indeed, it remains one of the strongest risk factors for PPD with 25% of women developing a more chronically depressive course.^{1,2,6} The key difference between the blues and PPD is the short time frame and the fact that the blues do *not* interfere with maternal role functioning, making the blues a self-limiting disorder that does not demand treatment.¹

- **Postpartum Panic Disorder** is diagnosed if the mother experiences panic attacks for the first time in her life. These are discrete periods of intense fear involving palpitations, sweating, shortness of breath, chest pain, dizziness, lightheadedness, numbness, fear of death, and feeling of unreality or losing control. Symptoms peak within ten minutes of onset.²
- **Postpartum Obsessive Compulsive Disorder (PPOCD)** is obsessive, unwanted thoughts with accompanying behaviors. It is important to note that women *recognize* their obsessions as their own thoughts and feelings and understand that follow-through would be wrong. They may even construct elaborate schemes to avoid situations in which thoughts might become actions (i.e., removing all the knives from the home), yet often act upon compulsive rituals (i.e., changing the baby even when dry).^{2,8}
- **Postpartum Post Traumatic Stress Disorder (PPPTSD)** is the result of birth trauma involving threatened or actual serious injury or death to the mother or her infant (5.6% of all postpartum women), resulting from feelings of powerlessness or ignored emotional needs during her tenure at the hospital. Symptoms may include nightmares, flashbacks, exaggerated startle response, anger, or difficulty sleeping and/or concentrating. Women may be so haunted by the pain and stress of their labor and delivery that they avoid driving anywhere near the hospital where they gave birth!²
- **Postpartum Psychosis (PPP)** is the most serious, but least common, of all postpartum mood disorders. Representing one to two per thousand deliveries and occurring within three months of delivery, it is associated with delusions, loss of touch with reality, auditory and visual hallucinations, extreme agitation, confusion, inability to eat or sleep, exhilaration, racing thoughts, rapid speech, rapid mood swings, paranoia, and suicidal and/or infanticidal ideations. PPP warrants immediate hospitalization and treatment.^{1,2,6} PPP is strongly associated with bipolar disorder and has a strong genetic concordance among bipolar sisters.¹ When contrasted with PPOCD, women suffering from PPP are *not* aware that their thoughts and feelings are their own and often act on their delusional inclinations, 5% of which result in infanticide and/or suicide.⁷ It is thought that delusional guilt about personal inability to care for or love the child precipitates “altruistic” infanticide, and 62% of mothers who kill their babies go on to commit suicide. Experts believe that infanticide is actually part of a larger suicidal scheme. Despite its severity, women diagnosed with and treated for PPP have a good prognosis and frequently achieve remission.¹

PPD is currently defined in accordance with the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for major depressive disorder of four or more of the following symptoms experienced nearly every day for at least two weeks: insomnia, hypersomnia, psychomotor agitation or retardation, fatigue, changes in appetite, feelings of worthlessness, guilt,

decreased concentration, and suicidality. The patient must also have either a depressed mood and/or loss of interest or pleasure in daily activities with episodes beginning within four weeks of delivery.^{1,2} Such parameter constraints would omit many women experiencing legitimate PPD symptoms within a much broader time frame. While 40-67% of PPD cases begin within the first 12 weeks postpartum, anywhere from 30-70% of mothers may experience depression for longer than one year!⁶ Clinicians, therefore, expand the postpartum period to a risk range of three months to two years.¹ In addition, milder cases of PPD, which may not fit all the criteria of the DSM-IV, are diagnosed as “depression not otherwise specified.”²

The Mechanism of PPD

The biological mechanism of PPD is believed to coincide with that of major depressive disorder. Depression in general is a disease of neuronal circuit integrity, which has been shown in studies by a reduction in brain volume of individuals diagnosed with major depressive disorder. Interestingly, the amount of volume loss correlates directly with the number of years of illness. Stress and depression act to reduce numerous brain proteins that promote neuronal growth and synapse formation, and antidepressant medications have been shown to increase these and other protective proteins, thereby reversing the mechanism of depression. These underlying neurobiological changes result from developmental interactions between genetic susceptibility and environmental factors (i.e., the psychosocial stresses accompanying motherhood) rather than a simple “chemical imbalance,” as previously believed. Specifically, the neurobiological effects of rapid postpartum hormone withdrawal predispose women with established risk factors to PPD.¹

An interesting distinction that makes PPD unique from other depressive disorders is that it is marked by a prominent anxiety component. This may be why so many cases of PPD are missed, as many clinicians use the Patient Health Questionnaire-2—which covers depressed mood and dysphoria, but not anxiety—as their primary screening technique.⁵ Indeed, 66% of depressed mothers have a co-morbid anxiety disorder and should be evaluated carefully by their physicians. It is important for the physician to distinguish these feelings of anxiety as pathological and not necessarily attributed to new-mother anxiety in general, so that treatment options will cover symptoms of anxiety as well as depression.^{5,6}

The stress of caring for a newborn or even the circumstances surrounding labor and delivery may precipitate the first symptoms of PPD,⁹ which has been described by nurse and PPD expert Cheryl Beck as a four-stage process: encountering terror, dying of self, struggling to survive, and regaining control. Encountering terror describes the horrifying anxiety, relentless obsessive thinking, and enveloping “fogginess” that women feel as PPD sets in. The dying of self is the disappearance of “normal self” that women experience as they go through the motions of caring for their infants, described as a “robotic” sense of “unreality.” A woman struggles to survive as she

attempts to improve the consequences of dying of self, seeking help from health care providers, praying for relief, or finding solace in support groups. Regaining control consists of periods of bad days interrupted by good days, until good days eventually outnumber the bad. Women may grieve during this phase for the lost time with their infants, fear recurrence, and, therefore, remain guarded about recovery.² While Beck's four-stage analysis is an accurate summary of the process of PPD, each woman's individual experiences should not be oversimplified. PPD is a systemic issue affecting a woman's functioning, her sense of well being, relationship with her infant and other family members, capacity for parenting, and sense of competence. As these aspects of her life become more demanding and begin to decline, the woman teeters on the brink of an emotional precipice, which has potentially grave consequences for her infant and other family members.⁶

The Effects of a Mother's PPD on Her Children

As the initial stressors related to labor, delivery, and bringing baby home give way to new triggers, infant temperament can exacerbate or minimize a new mother's PPD symptoms depending on sleep patterns, frequency of crying, being easy-going or demanding, and whether or not baby is socially reinforcing with smiles and coos.⁶ As the emotional toll of PPD mounts in the mother with increasing guilt, a sense of being overwhelmed by child care responsibilities, and fear of being unable to cope, she may give way to bursts of uncontrollable anger, show less affection to her baby, and be less responsive to his cries. These infants in turn tend to be fussier, more distant, and make fewer positive facial expressions and vocalizations.² Adverse effects on the child continue throughout the first year after birth, but PPD places children of all ages at risk for impaired cognitive and emotional development as well as psychopathology. There are multiple implications for infants of mothers with PPD, whose developing capacities for emotional regulation and healthy attachment relationships become compromised. These infants exhibit insecure attachments to their mothers (disorganized-disoriented), more negative, sober, flat affect, protest behaviors, regulation difficulties, and gaze aversion. They also exhibit decreased eye contact, vocalizations, activity levels, and environmental exploration. They are at risk for impaired language development and perform less well on cognitive tests at 18 months when compared to their peers of non-depressed mothers. Indeed, the effects of PPD are still evident in children at ages 4-5 years old.^{1,6,10}

Female infants appear more protected against deleterious effects of PPD than males. Boys with depressed mothers tend to be even more cognitively delayed than girls and display more outwardly violent behavior.² The rates of ADD and ADHD are much higher in boys than in girls. There is a correlation between boys with behavioral problems and mothers with PPD. A mother's sensitivity can greatly reduce the consequences of her depression on the child. If she is too emotionally impaired

to respond appropriately to her infant, the father (or other caregivers) can provide contingently responsive care and cognitive, emotional, and physical stimulation in order to mediate where the mother is temporarily lacking.⁶ PPD can be quickly treated and controlled. This makes it all the more crucial that it be identified as early as possible so as to reduce potentially negative outcomes, not just for the mother but for her developing infant as well.

Identifying PPD: Who is at risk?

There is much discrepancy over which risk factors for PPD are better indicators than others. Socioeconomic status, race or ethnicity, education levels, the mother's level of self-esteem, her age, whether or not the pregnancy was planned, circumstances surrounding labor and delivery, problems with breastfeeding, and infant temperament all seem to be possible triggers, but much debate remains over how strongly they contribute. The most consistent risk factors include any prior history of depression, inadequate social support, poor quality of the mother's relationship with her partner, and life and child care stress.^{1,2,6,8,9} If a mother has a lower socioeconomic status, less education, or is especially young, she probably has less access to monetary resources. While her individual circumstances alone might not be considered strong risk factors, added up, her global situation could contribute to the life and child-care stress that is a major risk factor for PPD. This concept applies to all women potentially at risk for PPD, so it is vital that physicians assess their patients as individuals and not just symptomatic checklists. Pregnancy itself appears to be a time of decreased risk for new-onset mood disorders (perhaps because of a potentially protective effect of increased levels of thyroid hormone); but it is not necessarily protective against previously diagnosed depression, which is probably the biggest risk factor for later developing PPD.¹¹ Those women who do develop depression during pregnancy are also at high risk for developing PPD after the birth of their children.¹ Indeed, any history—individual or family—of depression is one of the greatest risk factors, with anywhere from 25-55% of mothers suffering from PPD reporting that their symptoms began during pregnancy.⁹

Identifying PPD: Who should screen and when?

It is estimated that at least 50% of PPD cases go unrecognized.¹⁰ When PPD is identified, it is most often the primary care provider who does so (41.3% of cases), followed by obstetricians (30.7%), then mental health providers (13.0%).⁹ While psychiatrists are probably better equipped to identify and treat PPD, women are more likely to seek help from their OB/GYN, primary care physicians,¹⁰ or even their children's pediatrician. The reasons for this discrepancy are likely multifactorial. A woman is already intimately familiar with the physicians she has been seeing for years and likely trusts them more.

Because women tend to seek help from these primary care physicians, it is imperative that they familiarize themselves with the symptoms, risk factors, and screening techniques of PPD. There are several screens available, the most widely used currently being the PHQ-2 questionnaire (covering depressive and dysphoric mood nearly every day for at least two weeks). While traditionally a “yes” or “no” questionnaire, responses to the PHQ-2 can be quantified to more accurately assess a woman’s mood. It can also be extended beyond the DSM-IV time frame of four weeks as defining the postpartum period. But even with these adaptations, there is a major flaw in the PHQ-2 when applied to PPD—it does not address the hallmark PPD symptom of anxiety. It is only 83% sensitive with a cutoff score ≥ 3 , and adapting it quantitatively and extending the time frame it covers has not been shown to benefit sensitivity.⁵ One of the most successful screening tools specifically for PPD is the Edinburgh Postpartum Depression Scale (EPDS), developed by Kendell et al in Edinburgh Scotland as the result of the first major research on PPD over 30 years ago.¹¹ It represents a 10-item questionnaire (scored 0-30) with varying levels of specificity and sensitivity, depending on where the cutoff score falls. Sensitivity increases with lower cutoff scores, but at the cost of specificity. For example, at a cutoff of 12, the EPDS has an 86% sensitivity and 78% specificity. One study showed that women with EPDS scores of 5-9 are *68 times more likely* to develop PPD than women with scores of 0-4 in the first five months postpartum. This has led to the proposal of campaigns to have physicians educate mothers, monitor symptoms, and possibly initiate treatment, if their scores are ≥ 9 . Currently, most clinics employing the EPDS use 10 as the cutoff score, which identifies more than 90% of women with PPD.¹ But regardless of where the cutoff score falls, the evidence supporting the use of the EPDS is incontrovertible. When used in a residency program in 2004, the EPDS increased detection of PPD from 6.3% of identified cases to 35.4%. Then, implemented into a community program as part of the same study, detection increased from 3.7% to 10.7%. While many cases remained undiagnosed, the EPDS vastly improved the outcome for those whom it did identify.¹⁰ The success of the EPDS is most likely due to its focus on psychological rather than somatic aspects of depression. It explores two distinct domains of negative affect—depression and anxiety. In fact, the EPDS-3 (a subset of the EPDS questions specifically addressing anxiety) has been shown to have an even better performance than the EPDS in its entirety! With a sensitivity of 95% and specificity of 98%, the EPDS-3 identified *16% more* mothers with PPD than the EPDS-10.⁵ In addition, the EPDS-3 is much faster to complete and lessens any time constraints on both physician and patient.

Because a woman’s history of depression is such a significant risk factor, the prenatal and early postpartum periods are probably the most ideal times to begin screening women for potential risk factors for PPD in order to intervene as early as possible. In one study, 54.2% of women with PPD reported that their symptoms actually began during pregnancy.^{6,9} It is recommended that the EPDS should be used within two to three days postpartum or at the first after-delivery pediatric visit. It should then be is-

sued again four to six weeks later during follow-up OB visits in order to distinguish the blues from true PPD. Screening could also be implemented during subsequent pediatric or primary care visits to ensure that EPDS scores continue on a downward trend. If scores remain ≥ 9 , symptoms can be addressed and treated by a primary care physician, OB/GYN, or pediatric care providers.^{6,9,10} EPDS is *not* a diagnostic tool but is to be used in conjunction with further evaluation.¹⁰ Such evaluation should continue beyond the six-week postpartum visit (at least through 12 weeks) with mothers determined to be at-risk, as mood episodes can be lengthy and psychological sequelae increase with the duration of depressive symptoms. These sequelae take a heavy toll on the woman’s functioning as well as the well being of her children,¹¹ as undetected PPD often develops into a more chronically depressive course. One study showed that two years later, 30.6% of women diagnosed with PPD at one month postpartum continued to score in the depressed range on the Beck Depression Inventory-II. Because of the chronicity of PPD and the impact it has on a woman and her entire family, anticipatory guidance about PPD risk factors, prevalence, and typical symptoms is recommended to alert women who have one or more risk factors to contact their health care providers if depression or anxiety symptoms appear and persist beyond two weeks postpartum.⁸ The sooner these women can be identified, the sooner treatment measures can be implemented to prevent PPD from worsening into a more severe, chronic course.

Treatment Options

The majority of PPD cases can be handled on an outpatient basis, but if suicidality or infant safety is a concern, hospitalization is automatically warranted. Outpatient treatments include two major studies of thought: psychotherapy, which has proven effective for mild to moderate depression, and pharmacotherapy, which has proven effective for moderate to severe PPD. Combined psycho- and pharmacotherapy is considered first-line treatment for non-psychotic, mild to severe PPD. For women with nutritional compromise, severe behavior withdrawal, psychosis, or suicidality, electroconvulsive therapy has proven safe and effective.¹ Many women for whom pharmacotherapy is recommended remain concerned about breastfeeding and the effects of antidepressants on their infants’ developing neurological systems. This is a legitimate concern due to the fact that, while the most current research indicates minimal to no immediate side effects in breastfeeding infants, there is no established research regarding the long-term effects of antidepressants on the rapidly developing brain and nervous system. And, while PPD is the most common mood disorder in new mothers, it is important to rule out or diagnose and treat other possible sources of depression (which treatment would not effect the baby, but may rather provide benefits), such as thyroiditis or vitamin B₁₂ deficiency. If a woman’s physician decides that traditional antidepressants are necessary and she is amenable to such treatment, breastfeeding babies should still be monitored for potential side effects, such as difficulty feeding, weight gain, and sleep or state changes.¹³

Because all antidepressant medications are secreted into breast milk, physicians should begin with the lowest effective dose and observe infant behavior for unlikely but potential side effects. The clinical recommendation for the administration of any antidepressant medication is immediately after breastfeeding and prior to the infant's sleep time to minimize exposure to peak drug concentrations.¹² Women who are sensitive to antidepressant side effects should be initiated at half the recommended dose for four days, then increased by small increments as tolerated until full remission is achieved. In general, women being treated for PPD with antidepressants, an acute response is achieved when symptoms are reduced by 50%. After an initial response of six to eight weeks, the same dose should be continued for a minimum of six months to prevent relapse.^{1,14} As with any medication taken by lactating mothers, the pediatrician's involvement is recommended with the administration of antidepressants. He or she can monitor the infant for potentially adverse effects, such as sedation, changes in sleep or feeding patterns, and irritability.¹²

If antidepressant medication is not an acceptable treatment option, several methods of psychotherapy have proven effective in treating PPD, including interpersonal, cognitive-behavioral, and group and family therapies. Women participating have displayed fewer symptoms and increased positive affect, sensitivity, and responsiveness toward their infants. Interpersonal and mother-infant therapy groups focusing on family relationships have proven especially effective in treating PPD. Treatment decreases social isolation and depressive symptoms, increases coping skills, improves interpersonal relationships, and teaches skills in preventing depression. For these reasons, psychotherapy is considered the first line of acute treatment and maintenance in breastfeeding mothers.^{1,6} Studies show that as few as six to ten sessions of interpersonal therapy (IPT conducted 8-18 weeks postpartum) focusing on role disputes, role transitions, interpersonal deficits, grief, and changing relationships—all entailed in new motherhood—are as equally effective at relieving depressive symptoms as chemical antidepressants and result in lower EPDS scores.^{1,8,14} The theory behind the success of IPT is that disruptions in relationships may be a major contributing factor to PPD. Treatment includes focusing on these relationships and deciding on specific problems and setting treatment goals. As Cheryl Beck described in the "dying of self" stage of PPD, many women feel as if their "normal self" disappears after the birth of their children.² Thus, exploring the role transitions that motherhood brings can help women come to terms with these changes and accept their new roles as part of their "new" normal self. Group therapy, which aims at increasing social support networks and decreasing social isolation through interactive processes, has also proven an effective treatment for PPD. Challenges have arisen, however, in recruiting adequate numbers of women, scheduling conflicts, reluctance to attend without infants, and shame, or embarrassment.⁸

Psychotherapy remains an attractive alternative to breastfeeding mothers. If significant psychosocial issues, interpersonal problems, or underlying personality disorders are present, it may need to be combined with pharmacotherapy in order to

fully resolve the mother's PPD and accompanying complications.⁸ It is also important for mental health providers to engage women's partners, as improving a mother's mental health also improves her partner's mental health. The optimal treatment for PPD should, therefore, be interdisciplinary, holistic, and family-centered in its approach. It should include education about the disorder, treatment options, and promotion of behaviors that improve mental and overall health, including adequate sleep, good nutrition, exercise, and limiting or avoiding alcohol and caffeine. Families may want to consider hiring household help, lengthening the time of maternity leave, or decreasing work hours if their budgets allow for it (although some women might find so much increased time alone with their infants isolating). Most importantly, treatment should be individualized for each woman and her family according to their circumstances. PPD creates problems for children from 1-18 years old and has a negative influence on the father's mental health, which emphasizes the need for a family perspective in treatment options.⁸ Physicians should assess the mother's level of emotional support, involve her family members with information and referrals, add to and enhance her social support system, and help the woman feel more connected with those who care about her. This will in turn decrease her level of bewilderment and helplessness⁶ and assist in the journey that is her recovery from PPD.

Conclusions: The future of PPD

Recent trials with hormone therapy have concluded that estradiol administration shows a significant reduction in depression scores during the first month postpartum. Clinical risks including deep venous thrombosis, endometrial hyperplasia, and inhibition of lactation preclude the recommendation of estrogen treatment until adequate evidence of safety and efficacy is proven.⁸ Prophylactic administration of progesterone has actually been shown to increase and worsen symptoms of depression when compared to placebo.^{1,14} Trials of T₄ in antibody-positive women have shown negative results, while an open-label study of treatment with omega-3 fatty acids has shown a significant positive response rate.¹² Alternative treatments have also been studied, such as bright light therapy, acupuncture, St. John's wort, exercise, and massage therapy.^{1,8}

What might be even more important than treatment trials is the campaign for screening and referral protocol, promoting awareness, and providing information to both physicians and their patients. Promoting awareness is probably the greatest tool available to reduce high rates of underdiagnosis and aid women in obtaining evaluation and treatment.⁶ One study showed that among women identified with and educated on PPD, 93.4% subsequently sought treatment.⁹ This finding strongly supports the need for routine screening and education. Some experts have even called for universal PPD screening being adopted as standard of care under the precept that unless symptoms are identified, referral and intervention obviously cannot occur.⁸

New Jersey recently became one of the first states to mandate PPD screening and education programs.¹¹ It is recommended that the EPDS be filled out in physicians' waiting rooms, scored by nurses or medical assistants, and the results reviewed by the medical provider. It has also been suggested that clinicians decrease the EPDS cutoff score in order to increase sensitivity, and refer women with higher scores to mental health providers for more comprehensive psychiatric evaluations.⁶ Pediatric clinics are especially attractive screening sites, whose setting is intended to detect depression rather than assess its severity.⁵ In a patient interview, one woman affected by PPD suggested putting up posters at pediatric clinics in big, bold letters, "Hey new moms! Are you sleeping when your baby sleeps?" due to insomnia being one of the most commonly experienced PPD symptom. While new mothers suffering from PPD may neglect their own health, most continue to bring their babies in for pediatric check-ups and vaccinations. It therefore seems only logical to incorporate key questions about maternal mood in the child health and safety questionnaire⁵.

Studies continue to examine the effectiveness of preventing PPD from ever happening in the first place, but the process seems to be an unfortunate catch-22 as test subjects are most often women who have already experienced PPD at some point. It is theorized that by identifying women at risk and providing support groups and parenting classes, physicians can prevent PPD, but more research is needed.¹ The most important thing physicians can do is make women more aware of PPD as a common occurrence, and assure them that experiencing depressive symptoms after giving birth does not make them "unfit" or "bad" parents. The stigma of mental illness must be reversed so that women can be more comfortable admitting to being diagnosed with and treated for PPD. Celebrities, such as Brooke Shields and Marie Osmond, have broken some of the initial barriers by coming forward with their personal stories and helping women know that they are not alone, nor are they anything less than loving mothers wanting desperately to provide the best care possible for their children, if they could only rise above the suffocating foggy of depression and anxiety. If PPD is to be quickly treated or even prevented, women cannot be afraid to step forward themselves and admit to feeling anything less than bliss upon becoming new mothers. It is up to us as physicians to also be willing to take that first step forward in our efforts to recognize and educate our patients in this most grave and common mood disorder.

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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 ef-

ficiently 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 “hand-off” 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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Prenatal Patients Not Delivered: Unplanned Events, Uncounted Services, and Risks

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Abstract

This study tabulated pregnancy-related services among prenatal patients, who did not deliver with the medical home. The null hypothesis stated that accounting bias should not significantly undercount services and revenue.

Subjects and Methods

The study tabulated women who, after being accepted for prenatal and delivery care, failed to deliver 2004-2006. Among 360 women undelivered women, uninsured (n=139; 39.4%) and Medicaid (n=208; 57.8%) patients predominated. Diagnostic ultrasound revenues in the office and liability insurance costs were counted to control for variables, which are not equal in all offices.

Results

The largest group of undelivered women failed to return without explanation (n=187; 51.9%). Some miscarried (n=46; 12.8%) and others were referred for development of higher risk (n=56; 15.6%). Some requested referral to another physician (n=71; 19.7%). The undelivered made 1092 office visits and received services for which the office collected \$172,181.

Conclusion

These data suggest that among 100 registered pregnancies in an urban family medicine office, 73 will deliver as planned, 14 will dropout, five will request transfer to another physician, four will develop a need for referral, and four will miscarry. A significant number of women increase their risk by failing to return or by failing to participate in recommended referral. Accounting bias unintentionally obscured substantial services and \$172,181 of revenue available for support of pregnancy-related overhead.

Introduction and Background

The pregnancy care (OB) curriculum in family medicine continues with many opinions, little data, and variable interest by family medicine programs.¹⁻⁴ The negative public health impact of unavailable maternity care⁵ is partly due to misperceptions among medical students, residents, and physicians.^{6,7} These groups continue to overestimate malpractice insurance costs,⁸ lifestyle interruptions,⁹ and lost sleep associated with deliveries.¹⁰ Prenatal care and emergency care are vital to rural health care, and much of this is provided by family physicians.^{11,12} Maintenance of these services has been supported by the Society of Teachers of Family Medicine, the American Academy of Family Physicians (AAFP), and others.¹³⁻¹⁵

Differences in opinion by faculty and administrators persist. Recently, faculty counseled medical students with "business plans" reporting the need to do 31 deliveries a year before a physician could break even (personal communication I. Patel MD and C. Dean MD January 2008). Another faculty in the index state distributed a spreadsheet with a negative forecast for the financial feasibility of including deliveries (written communication from K. Arnold, MD, August 2007). During interviews, a residency director did not encourage qualified faculty to obtain full OB privileges in the residency hospital (personal communication K. Stuckey Schrock, MD, February 2008).

This advice contradicts other data, suggesting that the "limited generalist" model of generic primary care restricts the ability of family physicians to fund overhead for clinical operations.¹⁶ Data from community physicians who deliver maternity care in a private practice may confirm or deny the negative impact of previously unreported biases and restrictions within the accounting systems of academic medical centers, hospital clinics, and federally qualified health centers (FQHC).

The “Prenatal Patients Not Delivered” project was designed to determine which patients were dropped or transferred from prenatal care, how many visits they made while pregnant, which services were rendered to them, how many were referred, how many stopped coming, and to tabulate prenatal services for undelivered patients. A priori the group set significance at revenue more than 20 percent of the “OB margin” for additional annual liability insurance costs. The study continued to track delivered patients¹⁰ and compared undelivered revenue to the totals.

Practice Setting

The index practice was bilingual English/Spanish. Yearly clinical volumes at the index practice 2004-2006 averaged 31 994 visits and 322 deliveries. The ethnic frequencies were 32% African-American, 54% Latino, 11 % Caucasian patients, and 3% other. The financial case mix was TennCare (Medicaid) 63%, uninsured 32%, and other insurance 5%. Five residency-trained family physicians saw patients and delivered babies in a rotating call schedule.

The index office was located in an urban area where prenatal care was available from over 50 other private physicians, three FQHCs, seven public hospital-affiliated clinics, a family medicine residency, an OB-Gyn residency, and the index practice. The community is a large metropolitan area with a population of over one million in the surrounding area. In the 2000 census, the city was described as 61% African-American, 34% Caucasian, and 3% Latino. Public hospital deliveries have been over 40% Latino during the study period. Four other hospitals offered delivery services.

Methods

A family medicine group identified all women who received at least one prenatal visit or pregnancy-related service in addition to a pregnancy test. The study distinguished services from pregnancies who delivered in the medical home versus those who delivered elsewhere. Diagnostic ultrasound revenues in the office and liability insurance costs were tabulated to control for variables, which are not equal in all offices. This study describes women who, after being accepted for prenatal and delivery care, changed providers, required referral, moved away, miscarried, or failed to return for unknown reasons.

The group maintained three databases. A prenatal database included standard demographic data including name, ethnicity, date of birth, medical record number, last menstrual period (LMP), expected due date (EDD), gravida (G), para (P), prenatal laboratory examinations, prenatal visits, and any history of obstetrical/newborn complications. A delivery database included date of delivery, hour of delivery, hours spent by the physician in the hospital, and delivery/newborn information. The third database was an electronic medical record system containing age, gender, ethnicity, payer characteristics, codes for each service billed, and net collections for all patients.

Costs for pregnancy-related liability insurance in the study state were tabulated annually after subtracting the baseline cost for family physicians repairing lacerations in the office.

Results

During the three-year study, there were 965 deliveries, 95,981 office visits, 2531 billed ultrasounds, and 360 women who did

Table 1: Yearly Outcomes Among Pregnancies Entering 2004, 2005, 2006

2004 -- 123 women undelivered and 349 deliveries; total = 472 entering the practice				
Delivered by FP	No Show	SAB	Refer for Risk	Requested transfer
74%	14 %	3.6 %	3.6 %	5.3 %
Among 123 undelivered	64 (52%)	17 (14%)	17 (14%)	25 (20%)
2005 --110 undelivered and 322 delivered; total = 432 entering the practice				
Delivered by FP	No Show	SAB	Refer for Risk	Requested transfer
75 %	12%	1.9%	5.3%	6.7%
Among 110 not delivered	50 (46%)	8 (7%)	23 (21%)	29 (26%)
2006 -- 127 undelivered and 294 delivered; total = 421 entering the practice				
Delivered by FP	No Show	SAB	Refer for Risk	Requested transfer
70%	17%	5%	3%	4%
Among 127 undelivered	73 (58%)	21 (17%)	16 (13%)	17 (13%)

The first row for each year depicts the percentages for all women who made at least one prenatal visit. The second row specifies the prenatal patients who did not deliver. The similarity of year to year frequencies suggests there is internal validity.

Table 2: Summary Outcomes Among 1325 Pregnancies Entering Prenatal Care 2004-2006

2004-2006 Subtotals 1325 Women Accepted for Prenatal Care and Delivery		
965 women delivered by FP	965/1325	73%
Women with lost pregnancy	46/1325	3.5%
Referred for high risk conditions after entry	56/1325	4.2%
Requested transfer to OB specialist	71/1325	5.4%
Dropped out without explanation and lost	187/1325	14.1%

These data suggest that among 100 registered pregnancies in an urban family medicine office, 73 will deliver as planned, 14 will dropout, five will request transfer to another physician, Four will develop a need for referral, and four will miscarry.

Table 3: Ethnic Distribution Among Uninsured and Medicaid Women 2004-2006

Uninsured women were predominantly Latino

Ethnic Correlations	Uninsured	TennCare (Medicaid)	Other	
African-American	4	118	8	= 130
Latino	136	29	14	= 179
Caucasian	2	56	4	= 62
Other	0	5	0	= 5

Latino women were much more likely to be uninsured. Among these undelivered women, ethnic groups included African-Americans 129 (35.8%), Latinos 165 (45.8%), Caucasians 61 (17.0%), and other (1.6%). Uninsured (n=139; 39.4%), and Medicaid (n=208; 57.8%) patients predominated.

not deliver. Among undelivered women, ethnic groups included African-Americans 129 (35.8%), Latinos 165 (45.8%), Caucasians 61 (17.0%), and other (1.6%). Over 97% of patients were either uninsured (n=139; 39.4%) or Medicaid (n=208; 57.8%).

The largest group of undelivered women failed to return without explanation (n=187; 51.9%). Some miscarried (n=46; 12.8%), and others were referred for development of higher risk (n=56; 15.6%). Some requested referral to another physician (n=71; 19.7%). The percentages varied little from year to year (Table 1), providing internal validity for the summary results (Table 2).

The average delivery age was 23.3 years with a range of ages 14-42 years. There was no statistically significant difference between the ages of women who delivered compared to those who did not deliver. The undelivered made 1092 office visits and received 295 ultrasound examinations for which the office collected \$172,181. Of this amount, ultrasound collected \$31,229. The uninsured patients were 96% Latino. Although undelivered women without insurance were common, Medicaid-sponsored women were the largest group among the undelivered (Table 3) (Table 4).

Among the 360 undelivered women, 295 ultrasound services included limited, complete, and transvaginal examinations. By comparison, 965 delivered women received 884 billed ultrasounds. The average ultrasound collection was \$105.86 for a total of \$31,229 among undelivered women. Collections for 965 delivered women were \$1,511,546 for an average collection of \$1566 per delivery. This did not include routine ultrasound or newborns.

Premium rates for \$1M/3M claims made for insurance were documented (Table 5). During the most expensive year 2006, family physicians in their first year of practice paid an addi-

tional \$3669 per year for coverage of vaginal deliveries. In the fifth year of practice the premium “matured” to a differential of \$10,712. Average deliveries needed for payment of additional insurance costs ranged from 2.3 in year one to 6.8 in year five.

Discussion

In addition to traditional delivery services, this paper introduces the idea of non-delivery services, income, and risk. Until 2004, when a patient failed to deliver with a Medicos physician, they were purged from the OB database and excluded from further evaluation. This created a “birth moment” bias which obscured services and risks associated with women who did not deliver with the index medical practice. Consultants have ignored these women while simultaneously reporting that revenues may be insufficient to support the additional overhead needed for pregnancy care.

These data suggest that among 100 registered pregnancies in an urban family medicine office, 73 will deliver as planned, 14 will dropout, five will request transfer to another physician, four will develop a need for referral, and four will miscarry. A significant number of women increase their risk by failing to return or by failing to participate in recommended referral. Accounting bias unintentionally obscured substantial services and \$172,181 of revenue available for support of pregnancy-related overhead. Revenue from undelivered women was sufficient to pay a large percentage of insurance overhead, and this was perceived to be significant.

Services provided to undelivered women added \$178.42 of previously unknown revenue for each woman delivered during three years, when almost 1000 women were delivered. Financially, this is a worst case scenario with over 95% of the women uninsured or Medicaid. In this study these services provided

sufficient income to cover the liability insurance differential for all prenatal and delivery services for each physician for each year in this state. The null hypothesis is rejected.

These data improve the financial benchmarking of prenatal care and deliveries in the medical specialty of Family Medicine.^{17,18} Faculty and other family physicians have stated that maternity care services have a negative financial impact on the ability to sustain an office, when costs for lost office visits was compared to revenue. The only published study indicates that this is not true, even when deducting “opportunity costs” for other visits and time out of the office.¹⁰ This study validates the data of that study, 2000-2003, with a larger number of deliveries. The collected revenue per delivery number of \$1566 is similar to the reported average delivery income of the 2000-2003 study (\$1575).¹⁰ This provides support for the consistency of the study method, and it challenges common cost-benefit analysis methodology, where physician reimbursement is pegged at global reimbursement through the CPT-4 code, 59400. This reimbursement code is triggered by the birth of the baby following at least seven prenatal visits.^{new 19}

Accounting practices can systematically shortchange family medicine. For example, after a year, corporate accounting reported no income from deliveries despite over 20 documented deliveries. Billers had been told that family medicine did not have privileges for OB, and that all delivery codes should be changed to “prenatal care only” codes. A previously published study from the same city providing service to the same level of patients demonstrated that university-collected income averaged \$1088 per delivery in 1997.¹⁶ Corporate billers remote from the department may not be as effective for primary care, unless there is direct oversight by the department itself.¹¹

Faculty may not receive accurate information on overhead from university accountants. Some faculty lack private maternity

care experience, and these faculty predominate in most teaching hospitals. Recently, a residency director in Tennessee suggested to his residents that revenue is unlikely to support delivery services in the region. His spreadsheet included projections based on Medicaid collections from standard CPT4 code 59400 associated with each delivery. The presentation did not include revenue from undelivered pregnancy-associated services and other ancillary services. Data from this study suggest that this methodology should be revised.

Poor tracking of undelivered women created other liabilities, which were previously unknown. Inaccurate addresses and phone numbers led to failed notification strategies among uninsured prenatal patients, who then would “drop in” to private and public hospitals, claiming to be the responsibility of family physicians in the home practice. Hospital OB staff were angry with “drop-in” patients and felt that the family physicians had abandoned their responsibilities. This created a dysfunctional exchange known to promote liability through dissatisfaction and adversarial relationships. Negative perceptions of family physicians by obstetricians and nurses contributed to negative experiences in training programs and private practice.^{20,21}

Reports describing uninsured patients as a drain on state health care dollars spotlighted these women as problem patients.^{22,23} Traditionally trained obstetricians and emergency medicine physicians expressed frustration over “illegal immigrants,” who did not speak English.^{24,25} Charges of “abandonment” were alleged for pregnancy drop-ins by women who made one visit and then never returned to the office. This caused even more tension between the family medicine group and obstetrical specialists, who were assigned to cover the “OB ER.” Although complete data were not possible, one third trimester fetal death and a uterine rupture was confirmed among the no show group. These previously uncounted events merit further study.

Table 4: No show behavior was substantial among all ethnic groups.

	No show	SAB	High Risk Transfer	Self Transfer
African-American (130)	61 (48.3%)	19 (14.7%)	21 (16.3%)	24 (18.6%)
Latino (179)	108 (61.1%)	23 (13.0%)	21 (11.9%)	25 (14.1%)
Caucasian (62)	27 (40.9%)	7 (0.6%)	16 (24.2%)	16 (24.2%)

Despite the availability of Medicaid among Caucasian and African-Americans, significant numbers did not show. Latino patients were most likely to not show, but not that much more than other ethnic groups. All ethnic groups had similar frequencies of seeking another delivery provider.

Table 5.: Liability Insurance Annual Premium Costs 2006

FP services	Year 1 Annual Cost	Year 5 Annual Cost
No surgeries, no OB, no Ortho, office practice	\$ 4,386	\$9,125
Minor invasive procedures (lacerations, IUD)	\$ 6,476	\$ 14,647
Obstetrics, no major surgeries (e.g., cesarean)	\$ 8,065	\$19,913
Obstetrics with cesareans, major surgery	\$11,780	\$29,289

These premiums represent coverage for \$1 million per incident or 43 million in aggregate per year. These are claims made policies which, in the study state, cost less as the physicians enter practice. The premiums “mature” reaching maximum levels in year 5. The added cost of deliveries is reflected by subtracting the base cost of level two activity from the OB cost of level 3 or 4.

Despite, introduction over 20 years ago, billable ultrasound services by family physicians remain unreachable for some faculty and a blind spot for accountants.^{26,27} Ultrasound services add value in the management of risk while providing additional income.²⁸ Since not all family physicians have initiated this service, the study controlled for ultrasound income in the undelivered group.

Medical liability insurance costs vary with overhead being higher in some states but lower in others. Marginal costs of medical liability insurance can be calculated by subtracting the base cost of insurance from the premium cost of insurance covering normal vaginal deliveries in a claims made policy covering \$1 million per occurrence or \$3 million per year aggregate. This is the required insurance in most communities. In this state, during the most expensive year 2006, starting family physicians paid an additional \$3669 per year for coverage of vaginal deliveries. In the fifth year of practice the premium "matured" to a differential of \$10712.²⁹ Regional variations and changing conditions in the insurance market could affect some of the conclusions described.

For this practice, five family physicians, some of whom were recent residency graduates, as a group paid approximately \$35,467 per year for the right to perform vaginal deliveries when compared to family physicians who performed minor invasive procedures in the office. Using a "worst case" scenario with no income from undelivered patients, the break-even number of yearly deliveries is 2.3 in year one and 6.8 in year five. In this study, ancillary income paid the entire difference before any delivery revenue was considered.

Some question the need to preserve pregnancy services within family medicine. For example, deliveries and prenatal care are not included as essential activities in the core definitions of primary care. Young physicians and faculty who have not experienced deliveries in a community hospital may exaggerate the perils of this practice style before they have actual data. These data may be helpful in designing realistic career expectations and job descriptions in support of community-based FP-OB services.

A weakness of this study is that it is localized to one urban community in one state. Liability overhead may be more prohibitive in other urban areas, and privileging issues may be prohibitive in others. These were beyond the scope of the current study.

Ancillary revenues associated with the provision of prenatal and delivery service should be considered by future investigators. It is another weakness of the study that revenue attributable to children's office visits and newborns have not been tabulated as a part of the revenue equation. However, revenue data in this paper are conservative and underestimate other revenues derived from maternity care. Revenues from other ancillary activities were not tabulated as a part of this paper and deserve further study.

Revenue from clinical services are increasingly essential to the health of the academic effort in Family Medicine.³⁰ By rediscov-

ering this "lost" revenue, communities can more accurately project the financial feasibility of providing prenatal, ultrasound, and delivery services. This study documented that these services, previously obscured by inaccurate accounting systems, provide additional financial support, which is substantial. Administrators should count all related activity, not just that which is triggered by the birth moment in the hospital.

This study is the first to describe the most frequently occurring reasons for failure to deliver with the original medical home, and it adds new dimensions to a dialogue which has persisted for over 20 years.^{31,32} A significant number of uninsured and Medicaid women increase their risk and that of the physicians by failing to return or by failing to participate in recommended referral.

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Laparotomy for Postoperative Hemorrhage for Family Medicine Obstetricians

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Abstract

Family Physicians trained in Obstetrics who perform cesarean sections, tubal ligations, and manage ectopic pregnancies surgically will eventually have the need to perform an emergency laparotomy for postoperative hemorrhage. A re-operation necessitates opening the original incision to visualize the area that is bleeding to repair it. The stability of the patient will dictate the need for expedient operative management. It is imperative to have blood available. If there is a physician or surgeon who can assist, it would be helpful. Preparation includes anticipation of most likely sites of bleeding. Since it is essentially the same operation as previously performed, a Family Physician should be credentialed and technically able to perform this operation.

Any physician who performs any type of laparotomy for any reason will eventually have the need to reopen an original incision to control postoperative hemorrhage. Most of the time a laparotomy to control postoperative hemorrhage is an emergency, after an initial attempt to stabilize the patient with transfusion first has not been successful. The stability of the patient will determine the need for expedient operative management. Usually it is an emergency because more conservative measures have failed. Once the need for re-operation is apparent, it is necessary to summon the operating room staff and anesthesia. They should be informed of the urgent need for re-operation.

Every effort to stabilize the patient medically needs to be performed prior to returning to the operating room. Any patient with active bleeding needs two large-bore intravenous lines. Transfusion should be in progress and additional blood being made available. Often small, rural hospitals have limitations on blood availability, and they may need to make arrangements for more blood to be delivered to them. Previously, state troopers transported blood from larger to smaller hospitals; this is rarely done today. It is possible that a single patient with any type of bleeding may exhaust the hospital's blood bank supply. The

unavailability of blood and blood products may prompt transferring the patient to another hospital. Active bleeding may also necessitate checking coagulation studies.

A Foley catheter is used to drain the urinary bladder. Prophylactic antibiotics are also given. A permit for emergency laparotomy and indicated procedures is obtained, if possible. If a general surgeon is available, it may be prudent to have his or her assistance. If not, another physician who operates in the abdomen, such as an OB/GYN, another family physician who has cesarean section privileges, or even one who does not, may be helpful. If one is operating on a patient for postoperative hemorrhage, one must assume that the abdomen will be full of blood. Preparation for the procedure must include evacuating that blood, so that visualization of the source of bleeding can be identified. The skin closing staples or subcuticular sutures are removed, any drains removed, and the sutures closing the fascia removed. At this point any accumulation of blood in the abdomen or pelvis will burst upon the peritoneum. Immediately evacuate the clots and blood to visualize the underlying structures. It is important to closely estimate the volume of blood and clots for replacement.

Preparation for re-operating on a patient for bleeding includes anticipation of most probable sources. The uterine incision at cesarean section, adnexa and meso-ovarium at tubal ligations, scar tissue, incision extensions, and hematomas comprise most obvious sources. Usually the surgeon will have some idea of the likely culprit. Thoughts about sources of bleeding will guide preparation of the operating staff of the need for suture and instruments. The site of bleeding is usually easier to identify within the first twenty-four hours postoperatively than later. Nothing is more discouraging than to reopen the abdomen and pelvis for bleeding after twenty-four hours, not to find the source. Generally, re-operations are easier sooner than later. However, this presents an issue of the "art of medicine" in some instances. Depending on the surgeon's preference, re-operation

may be sooner than with others. Unquestionably, if the patient is unstable, the sooner the better; however, not infrequently, given stability and time, the patient can avoid re-operation. It is not infrequent that, during re-exploration, a site of bleeding cannot be identified.

Usually it is possible to find the source of bleeding and repair it. Rarely is it necessary to perform a hysterectomy. Because of newer procedures, it is rare for anyone to have to ligate the hypogastric arteries. Sewing the uterus front wall to back wall with absorbable suture is a relatively new technique to control uterine lining bleeding. Hematomas can be isolated and oversewn. Active bleeding from isolated arteries can be clamped and ligated or oversewn. Retroperitoneal hematomas usually arise from bleeding from adnexal suturing. Copious irrigation of the pelvis after control of bleeding may confirm that active bleeding has stopped. Blood may have pooled in the upper abdomen as a result of massive bleeding before this procedure or from placing the patient in Trendelenburg position to visualize the pelvis. Placing the patient in reverse trendelenberg position may allow blood and clots from the upper abdomen to run down to the pelvis where they may be evacuated. After stability is achieved, a message to the family through the circulating nurse is invaluable.

When optimal control of bleeding is not possible or when the bleeding simply cannot be found, irrigate copiously in hopes of seeing where active bleeding is coming from. With continued uterine bleeding, O'Leary-O'Leary ligation of the uterine vessels above and below areas of bleeding may be helpful. Of the four major blood supplies to the uterus, the uterine vessels, and the ovarian vessels, three of the four may be ligated without compromising the vascular supply of the uterus. Consider clotting accelerating agents like Thrombostat or Surgicel® covering troublesome areas. The patient may need to be packed

with laparotomy packs and transferred to a higher level care for further exploration.

It may be advisable to place a drain in the pelvis as well as one above the fascia. The peritoneum, fascia, and skin are then closed. Drains are sewn in place in the skin. Hemodynamic stability should be ensured before leaving the operating room. Stability in the recovery room will dictate if the patient can return to the regular floor or if she needs to go to an intensive care bed.

It is important to reiterate a few key points. Get the patient as stable as possible before returning to the operating room. Have more blood available, two large-bore intravenous lines and a Foley catheter. Have a general surgeon help, if possible. Think about where the possible bleeding sites are located. Control bleeding as soon as possible. Communicate with the family. Most of the time a reoperation within the first twenty-four hours will elucidate the cause of bleeding.

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The Need for Rural Family Physicians Who Can Perform Cesareans

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Abstract

Rural areas are in need of maternity care services, including cesarean delivery. Multiple studies have linked lack of local obstetrical services with increased preterm delivery and infant mortality. Family physicians are the main providers of rural maternity care. With the paucity of non-family physician rural maternity care providers, it is essential that family physicians with caesarean capabilities be available to rural communities. Opportunities for family medicine cesarean training include residency, fellowship, and on-the-job training. The American Board of Family Medicine Obstetrics certification is a means to document competency.

Rural Needs

Women living and traveling in rural areas need rural hospitals to provide cesarean delivery services. The United States cesarean delivery rate is now over 30 percent.¹ Many indications are emergent. A woman who presents to a rural emergency room where fetal heart tones are found to be non-reassuring or a woman who presents with a breech baby and 6cm dilatation may lose her baby if she needs to be transported to a distant hospital because local cesarean services are not available. Approximately 1 million cesareans are performed in the US each year.² The need for cesarean delivery in rural areas is not a rare occurrence. Providing surgical care in rural hospitals “enhances patient convenience, provides needed revenue, and probably saves the lives of . . . patients with surgical emergencies who might die were such services not locally available.”³

A number of studies have demonstrated that lack of local maternity care services is tied with worse perinatal outcomes. A study in Washington state demonstrated that women in communities with a lower maternity care provider per birth ratio were less likely to deliver in their local community hospital and were more likely to have a complicated delivery, a premature delivery, and higher cost of neonatal care than women from communities where most patients delivered at their local hospital.⁴

A study in Florida found an association between increased infant mortality rates and decreased physician availability.⁵ The authors calculated that infant mortality increased by 2.3 percent when a community lost a family physician providing maternity care.⁵

In Alabama, decreased number of obstetrical providers in a county has been associated with an increased number of low birth-weight babies.⁶

An Indiana study found that two-thirds of counties needed more maternity care providers and ten counties had no health professionals to help deliver babies.⁷ The study concluded that “access to care for pregnant patients is a major problem in rural Indiana and hampers Indiana’s ability to reduce its current infant mortality rate.”⁷

A study of two similar rural hospitals in British Columbia found that the hospital which had cesarean delivery services had more local deliveries and a lower rate of preterm delivery than the hospital without cesarean capabilities.⁸ There were no differences in overall cesarean deliveries, instrumental deliveries, or adverse perinatal outcomes.⁸

Providers of rural care

Family physicians are often the sole providers of maternity care in rural areas. Because of patient volume and other issues, obstetricians/gynecologists are often unable and unwilling to practice outside of urban/suburban areas. Twenty percent of deliveries in the United States are attended by family physicians.⁹ In many rural areas, this figure reaches 100 percent.² In rural areas, 46 percent of family physicians practice obstetrics.¹⁰

A 2007 survey of 101 rural hospitals in Minnesota indicated that 76.2 percent continue to offer obstetrical services and 96.1 percent of these hospitals offer cesarean deliveries.¹¹ Family physicians perform cesareans at 39.2 of the rural hospitals offering cesarean deliveries.¹¹ In Minnesota communities with less than 10,000 people, 29.1 percent of hospitals have stopped

providing maternity care in the last 30 years. One of the six most common reasons cited for hospital closure was “increased family physician retirement and too few family physicians choosing to practice obstetrics.”¹¹ According to the Minnesota survey, there is a need for family physicians both to practice maternity care and to perform cesarean deliveries.

In Colorado, 92 percent of counties have family physicians and only 36 percent have obstetricians.¹² It is noted that the “practical reality is that a small hospital that cannot provide cesarean section service is highly unlikely to be able to provide perinatal care; in other words, the preservation of access to rural perinatal services often depends not only on family physicians who can provide care for ‘normal’ births, but also on the ability of some family physicians to perform operative delivery including cesarean section.”¹²

A study in Washington found that 75 percent of rural hospitals offer obstetrical services.¹³ In the Washington study, 61 percent of rural hospitals offering maternity care services had no obstetrician. In 77 percent of rural hospitals, family physicians performed the majority of cesareans, and in the other 23 percent family physicians performed 28 percent of cesareans.¹³

The percentage of family physicians with cesarean privileges varies regionally. The highest percentage is found in the East South Central and the lowest percentage in the Mid-Atlantic census tracts (Table 1).¹⁴ A Florida study found that family physicians are the most widely geographically distributed maternity care providers in the state.⁵

Training opportunities

Family physicians learn cesarean skills in a variety of manners including residency, fellowship, and on-the-job training. A 2008 survey of fellowship graduates found 66 percent had cesarean privileges with 44 percent practicing in rural areas and 88 percent in community hospitals.¹⁵ Cesarean privileging was more likely in rural areas (odds ratio 4.57; 95% confidence interval 1.53-13.62).¹⁵

Family medicine obstetrics and rural health fellowships are listed on the American Academy of Family Physicians (AAFP) website: <http://www.aafp.org/fellowships/>.

Over 50 family medicine residencies provide enough surgical experience for graduating residents to competently perform cesarean delivery.¹⁶ These programs tend to be unopposed community-based programs.

Unfortunately, many family medicine residencies do not inspire and prepare residents for including maternity care in their post-residency practice. While 70 to 80 percent of residents enter residency planning to include maternity care in their post-residency practice, 50 to 96 percent choose not to by the end of residency.¹⁷ On a brighter note, from 1993 to 2002, a 16 percent greater number of family medicine residents included maternity care in their post-residency practice.¹⁸ Residencies with four or more family medicine faculty attending deliv-

eries and residencies with ten or more deliveries per month produced more residents who included maternity care in their post-residency practice.¹⁸

On-the-job training is another option for learning cesarean skills. In some communities, general surgeons, family physicians, or obstetricians are interested and willing to provide on-the-job training to family physicians wanting to acquire cesarean skills. Through this apprenticeship model, family physicians would be given more and more responsibility until they were ready to apply to their institution for independent privileges. This may be more likely to occur in rural areas where needs are greater and those providing cesarean services have self-interest in training a colleague to share in call responsibilities.

Certification

A new certification in Family Medicine Obstetrics is available through the American Board of Physician Specialties.¹⁹ The American Board of Family Medicine Obstetrics certification process includes many prerequisites, a written exam, an oral exam, documentation of cases and letters of recommendation. The new certification should help ensure quality of care for patients, quality assurance for physicians and hospitals and a means for family physicians to document competency in high-risk management and surgical technique needed in many rural communities.

A joint AAFP/American College of Gynecologists and Obstetricians (ACOG) statement reads: “Privileges should be granted on the basis of education, experience and documented competence, not solely on the basis of board certification, fellowship in ACOG, membership in other organizations, or the physician’s rank or tenure.”²⁰ This statement is especially important in the provision of cesarean delivery services in rural areas.

Summary

Family medicine obstetrics can help meet the need for maternity care services in rural areas. Without family physicians with cesarean capabilities, many rural hospitals would not be able to provide any maternity care services. Closure of local hospitals has been linked to increased infant mortality. Training and certification of family physicians in cesarean delivery is important to rural perinatal health outcomes.

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Obstetric Emergencies

Daniel M. Avery, MD

Abstract

No specialty of medicine is more inundated with emergencies than obstetrics. This paper describes a number of the more common obstetric emergencies from a practical and rural practitioner standpoint. Obstetrics is unique in that there are two patients to consider and care for. This paper discusses basic emergency care, obstetric and fetal assessment, preterm labor, premature rupture of membranes, severe preeclampsia, eclampsia, prolapsed umbilical cord, antepartum hemorrhage, abortion with hemorrhagic shock, ectopic pregnancy with shock, acute abdominal pain during pregnancy, DIC, uterine inversion, postpartum hemorrhage, retained placenta, abdominal pregnancy, shoulder dystocia, amniotic fluid embolism, trauma, CPR during pregnancy, postmortem cesarean section, cesarean section with local or no anesthesia, and transport of the obstetric patient.¹

Introduction

In obstetrics there are two patients to care for instead of one, a mother and a baby or fetus. The management of one patient heavily affects the management of the other. Sometimes the decision has to be made to care for one patient at the expense of the other; i.e., care for the mother first. The second patient (the fetus) may be viable or not.

Basic Emergency Care

Basic care of the patient(s) includes the ABCs of resuscitation: airway, breathing, and circulation. The patient should be quickly assessed, as much history obtained as possible, and a quick physical examination performed. Are vital signs stable? Is the patient in shock? IV access should be obtained, and two large bore IVs placed, if there is active bleeding. Does the patient (and baby) need oxygen? What laboratory and radiographic studies are needed? How much blood does the blood bank have at this institution?

Obstetric Assessment

Did anyone come with the patient? Is the patient conscious? Are there signs of external trauma? Is there active bleeding? Is the patient in pain? Is the patient in labor? How far along is

the pregnancy? Most patients receiving prenatal care can tell their due date, if conscious. If not, does the patient look term or preterm? Are there fetal heart tones? A bedside ultrasound, if available, can provide gestational age, viability, if the pregnancy is alive, presentation, placental localization, number of fetuses, etc. If there is only one fetus, measuring the fundal height should correspond to weeks of gestation.¹

Fetal Assessment

If the pregnancy is viable, can the patient and baby be cared for at this institution or does the patient need to be transferred to a higher level of care? Are obstetric services available at all at this institution? What is the availability of someone to care for the baby if it needs to be delivered? Are there pediatricians and a nursery or neonatologists and a high-risk nursery available? Is anesthesia available? Does the patient need tocolysis, Betamethasone, or Group B Strep prophylaxis? Can the baby be monitored?

Preterm Labor and Delivery

The number one obstetrical problem worldwide is preterm labor and delivery. Preterm delivery is defined as delivery before 37 weeks gestation. No other single problem costs healthcare systems worldwide more healthcare dollars. Preterm deliveries comprise about 10% of all deliveries but comprise 85% of neonatal morbidity and mortality. Preterm labor demands an aggressive approach to stop labor, determine the cause, and prevent delivery. An effort should be made to determine the cause, although 50% of the time the etiology is not determined.

Preterm labor is treated with tocolysis, usually Magnesium sulfate or terbutaline. If the gestation is less than 34 weeks, Betamethasone is given to accelerate lung maturity should the tocolysis fail. Prophylaxis for Group B Strep is given. The decision should be made if the patient is stable and needs to be transferred to a higher level of care or because no obstetrics services are available. Often the decision will need to be made as to stabilize and transfer the patient or stabilize and deliver the patient, then transfer mother and baby. Pregnant women in labor should be transferred by ambulance or helicopter, depending on the availability and weather.

If the patient is in labor, a labor and delivery nurse should accompany the patient in the ambulance. If delivery is imminent or likely en route, the obstetrician or a physician capable of performing a vaginal delivery should ride with the patient. For helicopter transports, there is usually not room for a physician or even a nurse to accompany the patient. Most helicopter transports will be equipped with a physician and nurse capable of managing a vaginal delivery aboard.

Sometimes delivery is imminent in an institution in which there are no obstetric services at all. A physician capable of performing a vaginal delivery and a nurse should accompany the patient in transport. Today, most tertiary and quaternary institutions will not accept the transfer of a pregnant laboring patient without both physician accompanying the patient and the patient signing a waiver of liability to the accepting institution. Many accepting institutions require that the patient be stable prior to transfer.

Contraindications to tocolysis include cardiac disease, severe fetal anomalies, hyperthyroidism, severe migraine headache, uncontrolled diabetes, advanced cervical dilatation and fetal distress.¹ Fetal distress should be managed prior to transfer, if at all possible. Prophylactic tocolysis is often used during transfer, if not contraindicated, to minimize the risk of delivery en route.¹

Premature Rupture of Membranes

Premature rupture of membranes is a second important obstetric emergency. Fluid coming from the vagina is ruptured membranes until proven otherwise. The diagnosis is made by sterile speculum examination with nitrazine, pooling, ferning and/or ultrasound estimation of amniotic fluid volume. Amniocentesis with instillation of methylene blue may also be used to make the diagnosis. At sterile speculum examination, dilatation of the cervix should be noted. A closed cervix as opposed to a completely dilated cervix with impending delivery will affect management.

Is delivery imminent? What is the presenting part? Is the fetus viable? What is the gestational age? Ultrasound can be used to answer these questions. Much the same as preterm labor, can this patient be cared for in this institution or does she need to be transferred? Will she need to be delivered and stabilized first, then transferred?

Severe Preeclampsia

Severe preeclampsia is also an obstetric emergency demanding immediate treatment. A systolic blood pressure of 160 mm Hg or diastolic of 110 mm Hg needs immediate intervention. The diagnosis of severe PIH is also made by proteinuria of 5 grams on a 24-hour collection or +3 on a dipstick of a random specimen. Oliguria of <500 cc urine output over 24 hours, any CNS symptoms, pulmonary edema or cyanosis, impaired liver function tests, low platelets, intrauterine growth restriction, or right upper quadrant abdominal pain also confirm the diagnosis.¹

The cure for severe preeclampsia is delivery, regardless of gestational age. Magnesium sulfate is used to prevent seizures, hydralazine to control blood pressure after the loading dose of magnesium, and Lasix reserved for pulmonary edema. Diuretics are used only for pulmonary edema and congestive failure, due to their increased risk of precipitating a pulmonary embolus. A vaginal delivery is hoped for, and cesarean section is used for failed inductions, malpresentations, or worsening blood pressures.²

Magnesium is continued for at least 24 hours postpartum and often 48 hours. Preeclampsia can develop up to two weeks postpartum. Therapeutic levels of magnesium are in the 4-6 range with levels obtained every six hours usually. If the creatinine is 1.3 or above, reduce the magnesium infusion rate by 50%.² The higher the infusion rate of magnesium, the more frequently magnesium levels are checked.

Eclampsia

Eclampsia is generalized seizures occurring usually with preeclampsia. They are antepartum 50% of the time and 91% occur after 28 weeks. The differential diagnosis includes epilepsy, uncontrolled hypertension, lupus, intracranial hemorrhage, brain tumors, aneurysms, ITP, Metabolic Disorders, Cerebral Vasculitis, Cavernous Vein Thrombosis, Postdural Puncture, CVA, and inadvertent vascular injection of anesthetic used for epidural anesthesia.² The latter is usually accompanied by a metallic taste, an aura, and "strange feeling" before seizing.

Cerebral imaging is not always necessary unless there are focal changes, the seizures recurrent, deterioration of the patient's condition, or the need to exclude other etiologies.² Usually the cure is delivery, and it should not be withheld for Betamethasone. Avoid diuretics unless there is pulmonary edema. Restrict fluids to reduce the incidence of cerebral edema. The treatment is magnesium sulfate. If the patient is on magnesium and seizing, then more magnesium is needed. Rarely, is a second line anticonvulsant needed. Hydralazine and labetalol are used to treat blood pressure. Nitroglycerine may be necessary postpartum. Systolic blood pressures > 160 mm Hg and diastolic > 110 mm Hg increase the likelihood of stroke.

Prolapsed Umbilical Cord

A prolapsed umbilical cord is an obstetric emergency in which compression of the umbilical cord can have fatal results if not relieved quickly. If the membranes are not ruptured, a cord presentation, as it is called, is a disaster waiting to happen. Compression of the cord by the presenting part compresses umbilical vessels, causing hypoxia. The diagnosis is made by fetal heart rate tracing and vaginal examination. While a prolapsed cord can occur spontaneously, most often it occurs after artificial rupture of membranes from a high station before the head is engaged. Basically, the loose umbilical cord is washed out of the vagina with the flow of amniotic fluid and the effect of gravity. While most obstetricians have at one time or another

tried replacing the cord into the uterus, it is not successful. It is important to know if the baby is alive, gestation age if viable, and if there are anomalies.¹

The cord compression is relieved by elevating the fetal head vaginally while preparing for cesarean section. Elevation may be assisted by placing the mother in deep Trendelenburg position or knee-chest. An operative vaginal delivery may be considered if the cervix is completely dilated and the head is low in the pelvis.

Antepartum Hemorrhage

Antepartum hemorrhage is the newer term applied to what used to be called third trimester bleeding. By definition, antepartum hemorrhage is bleeding during the second half of pregnancy. Other definitions include bleeding after viability, often after 24 weeks. The most common cause of mild bleeding is sexual intercourse and is usually self-limited. Significant causes of bleeding include placenta previa, placental abruption, vasa previa, and uterine rupture.

Vasa previa is presentation of umbilical vessels lacking Wharton's Jelly below the presenting part. Rupture of a vessel causes bleeding from the baby. Placental abruption is premature separation of the placenta due to bleeding, characterized by significant pain, uterine tetany and shock, with or without external bleeding. Placenta previa is characterized by painless bleeding from the placenta covering the cervix. Cesarean section is usually the required method of delivery. Bleeding may occur in conjunction with uterine rupture from a previous cesarean section or uterine surgery, such as a myomectomy. Uterine rupture is characterized by a fetal heart rate abnormality.

The degree of vaginal bleeding or the fetal heart rate abnormality will dictate the delivery, regardless of gestational age. Ultrasound is helpful making the diagnosis. If ultrasound is unavailable, a double set-up in the operating room may be helpful.

Abortion With Hemorrhagic Shock

Abortion with hemorrhagic shock may occur with any type of abortion: complete, incomplete, septic, induced or missed. Fortunately, illegal abortions have been reduced with Roe vs. Wade. A patient presenting with hemorrhagic shock from an abortion needs a quick clinical assessment, two large-bore IV lines, a complete blood count, coagulation studies, and a type and cross-match for blood. Rhogam will need to be given for Rh negative patients. A pelvic exam should reveal uterine size, lacerations, cervical dilatation, and the degree of active bleeding. An ultrasound should reveal any retained products of conception. Patients with septic abortions are at high risk for disseminated intravascular coagulation, acute renal failure, and adult respiratory distress syndrome.

An empty uterus can be managed with pitocin, methergine, antibiotics, massage, and blood transfusion with correction of any clotting abnormalities. Retained products of conception will

require dilatation and curettage and occasionally evacuation of the uterus with dilatation and evacuation. The uterus is soft during pregnancy and very easy to perforate. Uterine perforation should be a consideration in a patient with significant bleeding who has already had a dilatation and curettage. For a patient with a septic abortion, triple antibiotics should be given.

Ectopic Pregnancy with Shock

An ectopic pregnancy with shock demands expedient surgical management, not medical or conservative. A patient with a positive pregnancy test and abdominal or pelvic pain is an ectopic pregnancy until proven otherwise. Abdominal ultrasound should visualize the site of a pregnancy in a normal size patient at a level of 5,000 to 6,000 mIU. A transvaginal ultrasound should be able to identify a pregnancy at a level of 1200-1500 mIU. A patient with an ectopic pregnancy in shock needs a complete blood count, quantitative Beta HCG, coagulation studies, and a type and cross-match for blood. Two large bore IV lines should be placed. If the patient is Rh negative, she will require Rhogam.

Acute Abdominal Pain During Pregnancy

Anything causing pain in a woman not pregnant can also cause pain during pregnancy. The number one cause of abdominal pain during pregnancy is uterine contractions due to labor. Other causes include acute appendicitis, ruptured liver, ruptured spleen, acute cholecystitis, pyelonephritis, ovarian torsion, trauma, placental abruption, uterine rupture, small bowel obstruction, infarcted fibroid, round ligament pain, renal stone, ureteral obstruction due to an enlarging uterus, ruptured aneurysm, and pelvic abscess. Management depends on the diagnosis. Practitioners should bear in mind that any abdominal or pelvic surgery will almost always cause uterine contractions. For this reason, exploratory laparotomy after 35 weeks gestation should include a cesarean delivery.

Disseminated Intravascular Coagulation

Disseminated Intravascular Coagulation, or DIC, is a consumptive coagulopathy due to some cause including preeclampsia, eclampsia, massive blood loss, abruption, intrauterine fetal demise, septic abortion, amniotic fluid embolism, ruptured uterus, hypovolemic shock, massive blood transfusion, sepsis, gestational trophoblastic disease, or saline abortion.¹ There is massive bleeding from multiple sites including IV sites, incisions, uterus and mucous membranes. PT, PTT, and Bleeding Time are prolonged. Platelets and fibrinogen are low. FSP and FDP are elevated. There is hemolysis with hemoglobinuria and elevated LDH.

Management involves correcting the inciting cause and treating empirically with crystalloid and colloid, fresh whole blood, if available, packed red blood cells, oxygen, fresh frozen plasma for every 2-3 units of packed cells and platelets. Cryoprecipitate may also be given when the fibrinogen < 100. One unit

of platelets will raise the platelet count 5,000-10,000. Usually give a 12 pack of platelets prior to operating to raise the platelet count above 100,000. PCV should be kept above 30 and urine output 30-60 cc/hr. CVP should be monitored.

Uterine Inversion

Uterine inversion appears as a hemorrhagic mass at the introitus after pulling on the umbilical cord to remove the placenta. Massive bleeding, shock, and pain follow. Inversion is associated with too much traction on the cord, fundal pressure, a short cord, or too rapid removal of the placenta. Manual replacement should be attempted immediately before the development of a cervical ring and edema. Manual replacement may require halothane anesthesia or tocolysis followed by pitocin. Surgical treatment with hysterectomy may be required in difficult cases.

Postpartum Hemorrhage

Postpartum hemorrhage is defined as blood loss > 500 cc for a vaginal delivery or >1,000 cc for a cesarean section. Causes include uterine atony, retained placenta, fibroids, prolonged labor, multiple gestation, infection, ruptured uterus, precipitate labor, full bladder, or DIC. Treatment involves vaginal exploration, exploration of the uterus, pitocin, methergine, bimanual compression, Hemabate, IV fluids, D&C, uterine packing, hypogastric artery ligation, O'Leary-O'Leary ligation of uterine arteries, uterine compression sutures, or cesarean hysterectomy.

Retained Placenta

A placenta is not retained until after 30 minutes. A retained placenta may be due to atony or a constriction ring, such that it is hard to get out. Retention may be due to an abnormally adherent placenta due to a defective decidua in which the placenta will not come out. Manual removal may require piecemeal removal under anesthesia but usually requires a hysterectomy. If the placenta is left to slough, it will usually cause bleeding and infection. The only situation in which the placenta is left undelivered is in an abdominal pregnancy, and the cord is tied off with absorbable suture.

Abdominal Pregnancy

An abdominal pregnancy is rare, usually occurring only once in a practitioner's career. Abdominal pregnancies arise from a ruptured ectopic pregnancy with reimplantation on another organ, usually the bowel or other abdominal viscera. In an average size woman the fetal parts can be felt "unusually well." These pregnancies may go to term but never go into labor because they are not inside the uterus. They are occasionally diagnosed at attempted cesarean section for failed induction nearing post-dates. All abdominal pregnancies must be delivered by laparotomy. ***An abdominal pregnancy is the only type of pregnancy in which the placenta is left undelivered.*** The umbilical cord is tied off with absorbable suture. Current thought is that placental resorption can be accelerated with postpartum Methotrexate.

Shoulder Dystocia

The greatest fear in obstetrics is a shoulder dystocia. The second greatest fear is massive hemorrhage. Immediate retraction of the head after it is delivered with inability to deliver the shoulders is the classical description of a shoulder dystocia. The first thing to do is get help! The second is to stay calm. Although numerous maneuvers have been described to relieve shoulder dystocias, McRobert's Position, suprapubic pressure, and a generous episiotomy will relieve most.

McRobert's Position involves hyperflexing the thighs against the mother's abdominal wall, which increases the AP diameter of the pelvis and gives more room laterally. A generous episiotomy is also helpful. An episiotomy, as described in older texts, is usually not necessary. Newer trained obstetricians are reluctant to cut an episiotomy early. Whether this is for fear of cosmetics or a difficult repair, neither is justified. Suprapubic pressure involves identifying the anterior shoulder and pushing it laterally; there is no room to simply push directly posteriorly.

Delivery of the posterior arm, Wood's Corkscrew Maneuver, Gaskin's Maneuver, and many other procedures have been described. The Zavanelli Maneuver involves replacing the head into the pelvis and performing a cesarean section. This is easier said than done, because elevating the head is difficult, and it must be held in that position until delivered from above at cesarean section. The Avery Modification of the Zavanelli Maneuver involves elevating the head and internal version to a breech presentation, so that a breech extraction can be performed from above.³ This reduces the pressure required to keep the head elevated, but at the same time prevents the presenting part from falling back into the pelvis.

If the delivery is too slow, hypoxia and brain injury may occur. If the delivery is too fast, maternal or fetal injury may occur, such as Erb's Palsy. Develop a plan that works for you, practice, rehearse, drill, and anticipate. Personally follow up injuries, communicate with your patient, document comprehensively.²

Amniotic Fluid Embolism

Amniotic fluid embolism is a rare, but highly fatal, obstetric emergency with an estimated mortality of 70-90%.¹ The usual scenario is respiratory distress, then collapse after pushing or immediately after delivery. Amniotic fluid gains entry into the circulatory system and causes acute pulmonary vascular obstruction and hypertension, cor pulmonale, left ventricular failure, hypotension, shock, hypoxia, cyanosis, coma, and DIC.¹ Pulmonary thromboemboli and air emboli produce the same picture.

Treatment consists of cardiopulmonary resuscitation, mechanical ventilation, Dopamine, steroids, correction of acidosis, blood transfusion, and blood component therapy to correct DIC.¹ If the mother is undelivered, a decision must be made as to whether the baby can be delivered. If an epidural anesthesia is in place and working, it may be used to perform an emergency cesarean section to save the child. Otherwise, general anesthesia would be needed to perform a cesarean section. Because of DIC and time

requirements, regional anesthesia would be contraindicated. If the mother cannot be saved and the baby is still alive or has been alive within the last four minutes, a postmortem cesarean section may be performed at bedside with gloves and a knife. The baby will need resuscitating almost always.¹

Trauma During Pregnancy

Pregnant women are exposed to the same trauma as the rest of society. The treatment is the same as for non-pregnant women. Treatment should never be withheld because a woman is pregnant. Treatment involves two patients, not one; one of these, the baby, may be viable or not. Whatever is best for the mother is best for the baby. *Care for the mother first, then the baby.* If the mother dies, the baby will die without intervention. Fetal compromise is usually manifested within four hours, accounting for the prolonged observation of pregnant women subjected to trauma.¹

Because the abdomen can be shielded, radiographs to delineate trauma should be performed. Tetanus prophylaxis should be administered. Appropriate antibiotics should be used, avoiding sulfa, tetracycline, and chloamphenicol.¹ If the mother was the automobile driver, always consider a placental abruption. If vaginal bleeding is present, an Apt Test may tell if it is fetal in origin. If the patient is Rh negative, Rhogam must be administered after the appropriate dose is determined by a Kleihauer-Betke Test to quantify the amount of fetal blood in the maternal circulation. MAST trousers are rarely used today, but, if used on a pregnant woman, only inflate the legs. Assess the baby and determine gestational age and viability. A bedside ultrasound is very helpful.¹

Cardiopulmonary Resuscitation During Pregnancy

Cardiopulmonary resuscitation may be required during pregnancy. Ventilation can be difficult. Trendelenburg position makes ventilation even harder. Because of the risk of regurgitation and aspiration from increased abdominal pressure and a relaxed gastroesophageal sphincter, early endotracheal intubation should be considered. External chest compression should occur at a 15 degree left lateral decubitus angle to avoid aorto-caval compression.¹ Chest compression should also occur higher at midsternum.¹

Postmortem Cesarean Section

Postmortem cesarean section dates back to antiquity, when, as history has it, expired pregnant women were delivered by incising the abdomen to deliver a viable baby in hopes that it would be a male to serve as a soldier. From a practical standpoint, a fetus can exist inside the womb without maternal circulation and oxygenation only for a short period of time, currently thought to be four minutes. There are no reports of good results after ten minutes. When the time is unknown, results are usually not good. Often, it is best not to pursue delivery if the time is prolonged, although obstetricians always want to be heroic.

A postmortem cesarean section should never distract from maternal resuscitation. Viability and gestational age should be determined before embarking on a cesarean section. Viability may be determined by ultrasound, Doppler, or fetoscope. Should the baby be delivered, there needs to be someone to care for the baby. Evacuating the uterus may improve resuscitation efforts. Evacuating the uterus may also help resuscitation and hemodynamics in resuscitating a pregnant patient with pulseless electrical activity. The delivery is accomplished by taking a knife and opening the abdomen with a midline incision, and then opening the uterus with a midline classical cesarean section incision. The baby is delivered, airway suctioned clear, cord clamped, baby resuscitated, APGARs determined, and time of birth recorded. At this point, CPR should be stopped, time of death recorded, and abdominal skin incision closed for the funeral home or coroner/medical examiner's office.

The usual scenario is CPR in progress with life-ending injuries, massive head trauma, or decapitation with fetal viability documented by fetal heart tones, Doppler or fetoscope or documentation of the same within a few minutes. It is rare for a baby to survive maternal cardiac arrest longer than 10 minutes; the standard is four minutes.

Cesarean Section Under Local Anesthesia

On rare occasions, it may be necessary to perform an emergency cesarean section under local anesthesia. Almost always, this occurs when anesthesia services are not available. "Field block" anesthesia is performed by infiltrating the skin, incising it, infiltrating the subcutaneous tissue, incising it, etc., until the peritoneum is entered. The peritoneum is the most painful layer to incise, followed by the uterus. Once the baby is delivered, sedation can be accomplished with narcotics, if anesthesia is still not available. Closure can then be performed. It is time consuming to perform a field block, and only infiltrated tissue can be cut.

Cesarean Section Without Anesthesia

Only on rare occasion, it may be necessary to consider a cesarean section without any form of anesthesia. When anesthesia is not available and time to accomplish the delivery will not allow field block anesthesia, cesarean section without any form of anesthesia may be offered to the mother. A motivated mother can tolerate incredible pain as a function of maternal instinct to save her baby. There must be permission from the mother with a clear explanation and expectation of survival of the baby. Without permission and informed consent, this procedure could easily be construed as battery.

Transport of the Obstetric Patient

An obstetric patient should be transported in the left lateral decubitus position, except for loading into an ambulance or helicopter in which the position is unstable. A paramedic or emergency medical technician should ride with the patient. If delivery is

a remote possibility, a labor and delivery nurse should accompany the patient. If delivery is imminent or patient unstable, transport imperative, and baby viable, an obstetrician or other physician capable of performing a vaginal delivery should accompany the patient.

A physician must accompany the patient if delivery is imminent or the patient unstable!

Sufficient equipment to perform a vaginal delivery should be available including IV fluids, pain medication, pitocin, methergine and oxygen. Checking fetal heart tones during transport is usually not helpful, other than to document that the baby is still alive. If there are decelerations or arrest of fetal heart tones, intervention by cesarean section is not possible in the back of an ambulance.

Transport of an obstetric patient in a helicopter usually has a patient weight limit. Most helicopter transports have their own crew. There is not room for an obstetrician, hospital staff, or family to ride with the patient. Helicopter transport is a quick way to transport any patient but is limited by weather conditions.

Conclusion

Most babies are delivered without complication. Many obstetric emergencies can arise and any practitioner who delivers babies needs to know how to manage these. Some emergencies arise frequently such as preterm labor, postpartum hemorrhage, and preeclampsia. Some only occur rarely such as amniotic fluid embolism, uterine inversion, and abdominal pregnancy.

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Medical Poetry

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AIDS

Cowering indoors, erect, seized by shame
 Overzealous libido, intransigent beast, unable to tame
 Night beckons: life a flickering, autumnal flame
 Delightful ecstasy, fleeting, useless to lay blame
 Of youth once fed, now a flower withered, lame
 Motionless, revolver spins, calmly taking aim.

Hypertension

Pain-stricken, full of dread
 Racing heart, slowed, then sped
 Anxiety, overcome by, heavier than lead
 Zzz's, seized by, in this hospital bed
 Obstinate, heeded not what the doctor said
 Smoking, gluttony I chose instead
 No hope left! Forlorn, guilt-ridden, soon I'll be.....

Diabetes

Mind about to burst
 Endless, agonizing thirst
 Type I, Type II: equally cursed
 Fought with needle first
 Optimistic, with insulin nursed
 Relentless pain unrehearsed
 Mind about to burst
 Intense, agonizing thirst
 Nearer, nearer comes the Hearst.

Obesity

Earth's black gold, chocolate, source of boundless delight
 Xtacy, dazzling pallet, with every radiant bite
 Ecstasy to the lips, engorges the hips, pants suddenly tight
 Rapture of lips, enlarging hips with no respite
 Chocolate: a devil in many forms: dull, glazed, bright
 Instant gratification yielding mounds of cellulite
 Spirit fierce, cellulite clings with rage and might
 Everywhere tires spare, exercise an angel, eradicates this blight.

Anxiety

Palpitations, bracing, expression stern
 Raging tempest, immobilizing me at every turn
 Open eyes, frozen stare, for control I yearn
 Zealous flames choke my veins in familiar pattern
 Abandoned by lifeless body, in vain, synapses burn
 Ceasing, Prozac rescue, normal functions return

Improving Maternal and Child Health Outcomes: Family Medicine Obstetrics and the HRSA Perinatal Collaborative Project

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Abstract

Maternal and child healthcare is experiencing great challenges, as many physicians are becoming increasingly reluctant to serve high-risk populations. From 2004 to 2006, the Health Resources and Services Administration (HRSA) led a quality improvement effort known as the Perinatal and Patient Safety Pilot Collaborative (PPSPC) to improve perinatal patient safety and reduce the ethnic disparities in low birth weight and infant mortality, focused on the historically under-served and high-risk populations. Constructing individualized health plans require recognition that pregnancy and childbirth are an important part of a continuum of life experiences. A myriad of events and circumstances both prior and subsequent to pregnancy are invariably linked to the eventual outcome for women and their children. Improving efficiency and effectiveness of care requires greater communication among different providers and the various community networks. Greater effort and emphasis must be placed on recruiting and retaining the health profession's workforce and training future family physicians as skilled in providing the full spectrum of maternal child healthcare.

Introduction

Maternal and child health is a field of care that is experiencing great challenges. There has been a declining interest in recent years in primary care specialties among medical school graduates in the United States. Statistics show that the number of physicians choosing primary care is not concordant with the needs of the general population.¹ Furthermore, an increasing number of family physician graduates have chosen not to practice obstetrics over the past decade.^{2,3} The trend among obstetrician/gynecologists is also moving away from providing maternity care, due in part to the reluctance of providers to deal with high-risk patients. The lack of perinatal care, combined with the shortage of health professionals in a majority of regions in the United States, has resulted in a large discrepancy between need and availability of

physicians providing perinatal and maternal care to at-risk, underserved, or rural communities.⁴ The result is a crisis in maternal and child healthcare in communities most in need of care, as discussed in detail in the companion article, "Who Will Deliver Our Babies: Crisis in the Physician Workforce."

The disparities between need and availability of perinatal and maternal care have been associated with similar disparities in health outcomes among high-risk communities. Significant differences exist in perinatal outcomes between women in rural and urban areas.⁵ The infant mortality rate among non-Hispanic black mothers is more than three times the rate for non-Hispanic white mothers.⁶ Furthermore, the disparity in infant mortality rates between African-Americans and Caucasians has not only persisted but increased in recent history and is not expected to diminish in the near future.^{7,8} Similar disparities in perinatal health outcomes exist among mothers of divergent income and educational statuses.⁹ Recent research has suggested that a lack of adequate healthcare provision is to blame for the disparities in perinatal health outcomes.¹⁰ Improvements in perinatal outcomes realized thus far have occurred primarily at Level 3 facilities.¹¹ The lack of availability of appropriate healthcare services in at-risk communities and for high-risk mothers has led to a major divide in the maternal and child health outcomes for patients in underserved and at-risk areas.

Issues of practicality prevent all patients in need of perinatal services from receiving specialized care by an obstetrician/gynecologist. Furthermore, the importance of continuity and follow-up care for both mother and child places family medicine physicians at a unique position to provide the most appropriate care for at-risk mothers.¹² Given the lack of adequate care in rural and otherwise underserved areas, family medicine physicians can fill an important need by providing both maternal and newborn health services, a task that cannot be recited by obstetricians or nurse-midwives alone. A discussion of the Family Medicine Obstetrics Fellowship is discussed in the companion article, "The Maternal and Child Health Model:

Promoting Quality Improvement through a Family Medicine Obstetrics Fellowship.”

The HRSA Perinatal Collaborative Pilot Project

Over a two-year period ending in 2006 the Health Resources and Services Administration (HRSA) led a national quality improvement effort known as the Perinatal and Patient Safety Pilot Collaborative (PPSPC). This pilot project focused on strategies to improve perinatal patient safety in general and, more specifically, to reduce the racial and ethnic disparities in low birth weight and infant mortality. In this pilot project the Maternal and Child Health Bureau (MCHB), the HIV/AIDS Bureau (HAB), the Bureau of Primary Health Care (BPHC) (three bureaus within HRSA) as well as the HRSA Office of Rural Health Policy (ORHP) collaborated with the Office of Minority Health in the Office of the Secretary of the Department of Health and Human Services (DHHS) to sponsor a new community of practice that followed the approach for improvement developed through the Health Disparities Collaboratives (HDC) that have been widely disseminated among the nation’s federally qualified Community Health Centers (CHC).^{13,14,15} The HDC targeted conditions including diabetes, cardiovascular disease, depression, asthma and cancer that are known to disproportionately affect minority and historically underserved populations. The quality improvement model as developed in the HDC combined Ed Wagner’s Chronic Care Model developed at the McColl Institute,¹⁶ the Improvement Model developed by Associates in Process Improvement; and the Breakthrough Collaborative developed by the Institute for Healthcare Improvement (IHI) and have been written at length elsewhere.^{17,18,19,20}

The Perinatal and Patient Safety Pilot Collaborative (PPSPC), as with the other HDC collaboratives, was initially developed with the assistance of recognized national leaders in both healthcare improvement and the specific clinical conditions. In prior HDC projects this role was fulfilled by the Institute for Healthcare Improvement (IHI), and in the PPSPC it was carried out by leaders from the National Institute for Child Healthcare Quality (NICHQ). HRSA and NICHQ assembled a faculty with expertise in the subject matter and then recruited five CHCs. The CHCs were selected based on factors including experience serving the target population, an infrastructure for performance improvement, and prior experience with the HDC models. In addition, a priority was to include communities focused on improving the rate of outcomes of African-American Infant Mortality, which was worsening in the national trend lines. The lead author served as Chief Medical Officer for one of the five CHCs, PCC Community Wellness Center in Chicago, Illinois, and worked closely with the Faculty, NICHQ, and HRSA team throughout the pilot project.

One of the main reasons PCC Community Wellness Center was selected as a site for the PPSPC is the community which it serves. Austin, an overwhelmingly African-American community located on the western border of Chicago, is the largest ur-

ban Chicago community. Like many inner-city communities, it contains a large, underserved healthcare population. Compared with the greater Chicago area, Austin suffers from higher rates of infant mortality, teen births, and low birth weight neonates. The academic linkage PCC has to OB training programs was also a decisive factor.

This paper describes the “lessons learned” in three specific content areas of the Perinatal and Patient Safety Pilot Collaborative (PPSPC) that are of particular relevance to the field of Family Medicine Obstetrics and does not represent a detailed analysis and review of the PPSPC in its entirety. It is imperative to note that the three content areas are offered in support of the standard and customary clinical approach to perinatal care, which form the foundation for patient safety and risk management, and are in no way intended to represent an alternative or deviation from those standards.

The first content area arises from the recognition that pregnancy and childbirth are an important part of a continuum of life experiences and that a myriad of events and circumstances, both prior to pregnancy and subsequently, are invariably linked to the eventual outcome for women and their children (see Figure 1). This has been referred to as the “life course perspective” and is well described by Michael Lu and others.²¹ We know, for instance, that the traditional tools to assess and stratify for clinical risk factors during pregnancy fail to predict poor outcome more than half of the time. Including attention to the life course perspective in terms of the organization and content of perinatal care requires a more comprehensive approach than has been the norm. Environmental, social, psychological, and educational factors can be at least as important to the pregnancy outcome as are the customary medical and genetic conditions we appropriately and routinely screen for and attempt to address. Nowhere is this more apparent, it seems, than in the very populations which continue to suffer the worst perinatal outcomes – poor outcomes that persist despite increasing availability of “world class” institutions, providers, and technology. Inherent in a comprehensive perinatal model is a thoughtful and patient-centered coordination of care for the mother and her child. Support for both the psychological and physical well-being of the mother is thought to favorably impact the health of the child. A detailed discussion of the psychosocial factors affecting maternal health can be found in the companion article, “Addressing Psychosocial Determinants in Poor Birth Outcomes: Enhanced Screening in Family Medicine Obstetrics.”

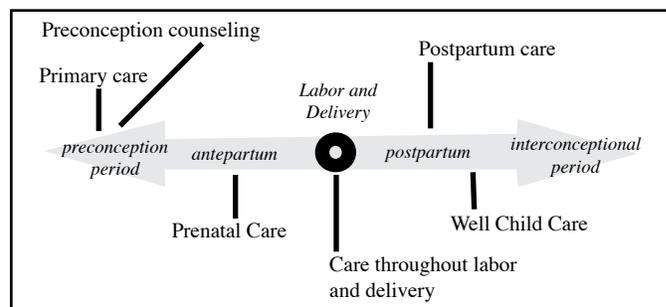


Figure 1: Life Course Perspective

The second content area involves the process for communication among and between different providers and the various sources of care for perinatal patients. In our setting this includes the community health center sites, the affiliated community hospital, the emergency department at our hospital and others in the area, referrals to several different regional medical centers, as well as various community resources and service agencies. Sharing appropriate information among these sources through established protocols can be essential to providing optimal care for those most in need.²² For the past several decades family physicians across the country have been extraordinary in attending their patients through the entirety of pregnancy, labor and delivery, and subsequent care for mother and child. However, for many reasons the call to fulfill this expectation is answered by fewer and fewer. In many settings, including ours, continuity of care is severely challenged by shared call schedules, busy clinics, and competing personal and professional obligations, such that the care of a patient cannot be dependent upon the memory of the primary provider. Though promising and much anticipated, access to a shared electronic health record across the breadth of providers and agencies as described above is far from a reality. The combination of various paper and electronic forms of health information for our patients are securely and separately stored by each organization and shared with caution, under penalty of law, which can easily become a barrier to comprehensive, patient-centered care.

The third content area involves aspects of the workforce as it relates to perinatal care. At our program this involves the training of future family physicians as skilled in providing the full spectrum of maternal child healthcare as described herein. We are facing physician shortages, particularly in rural and at-risk urban communities, at a time when the need for comprehensive, evidence-based and patient-centered primary care has never been greater. In communities that lack access to Obstetricians, either due to physician shortages or restrictions based on financial indicators, Family Medicine physicians must be able to provide care for both routine and complicated perinatal patients. This skill set includes diagnosing and treating medical and psychosocial conditions for perinatal women and children as well as operative delivery.

Perinatal Care: Before, During, and After Birth

The Perinatal and Patient Safety Pilot Collaborative (PPSPC), as it has been applied in our setting, is based on a Family Medicine model of care that focuses comprehensively on improving maternal and child health outcomes in underserved communities. The clinical programs are staffed primarily by Family Medicine physicians, including many with Maternal Child Health/Obstetrics (MCH/OB) fellowship training, but also includes Obstetricians, Pediatricians, Psychiatrists, Nurse Practitioners, and Social Workers. The range of faculty and providers works collaboratively to provide evidence-based comprehensive care.

One of the foundations of the collaborative care model is providing care at the earliest possible stage. Even before concep-

tion, maternal counseling provides the necessary preparation for the perinatal period. PCC and its partners emphasize the importance of individualized care as well as ongoing and prospective care management. Furthermore, active patient participation, coupled with a proactive healthcare team, and the setting of patient self-management goals result in increased adherence to a healthcare plan that, ideally, patients help to develop. In many inner-city communities, the rates of crime, such as violence and illicit drugs, can be high. Many opportunities exist for healthcare providers to advocate for a safe and healthy environment for the mother during the antepartum period, as shown in Figure 2. The mother's mental and physical health is extremely influential on the health of the child. Therefore, healthcare providers must be trained to identify high-risk lifestyle behaviors, stressors, and health misconceptions, and provide the most supportive environment possible to rectify behavior that might endanger maternal and child health. Preconception and prenatal periods are opportunities for education, when the physician and other staff can provide important maternal health resources and information and can reinforce the importance of identifying and reducing the cause or impact of stress.

During the delivery period, Family Medicine physicians trained in maternal child health or obstetrics can provide both routine and specialized care. The primary care physician, with diverse knowledge and experience, can continue to provide through the pediatric postnatal and maternal postpartum continuum.

Building Teamwork: Communication and Systems Development

The collaborative model improves communication between the patients and the various providers, locations, and agencies. This requires commitment and participation from the administration and clinical leaders across all sites and in partnership with community agencies. The perinatal care model frames the health network in context of the community. Open lines of communication and community networking allow physicians to call upon local resources to improve the mother's social, legal, and spiritual support system. Since electronic health medical records are not yet widespread, community providers and healthcare institutions must be able to efficiently streamline and share health information. For example, "red folders" were created through a combined effort between the hospital and clinic to identify high-risk, unattached patients presenting for urgent care. Several process improvements arose from this initiative including the initiation of prenatal care and risk assessment at the acute care visit, intensive outreach to connect the patient to a medical home, and a mechanism to alert providers and staff regarding the need to share information and enhance efforts at care coordination.

Community networking and continued social support for the mother and child form a firm foundation from which challenges and disruptions in mental and physical health can be addressed. For example, the postpartum period can be a time of significant stress for both the mother and child and can be further complicated by psychosocial challenges and depressive symptoms.

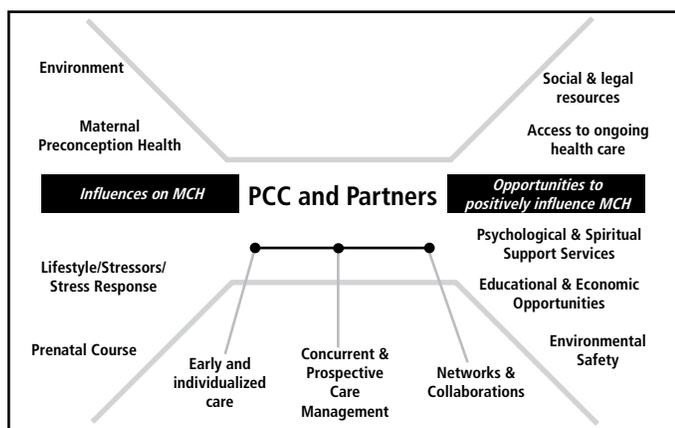


Figure 2: Opportunities to positively influence MCH.

Enhanced efforts to identify depression are indicated and should be done so in connection with ongoing surveillance to identify factors which may be causing difficulty, but which might not be detected on depression-specific screening alone. These factors may include financial burdens, emotional stress, physical exhaustion, and other determinants.

The integrated referral system allows for better diagnostics of patients. Furthermore, integration of information among sites allows for the outreach to those most at risk. To improve outcomes, service and delivery must be integrated. Standardization and development of protocols and processes across the clinics and institutions facilitate more reliable communication. Ideally, processes and protocols developed at community clinics are integrated into the larger institutions and hospitals. Practice tools are also developed, and all physicians and healthcare providers have access to “best practice” knowledge, algorithms, simulations, and drills.

Looking to the Future: Improving Physician Training

The collaborative offers benefits to both medical centers and community clinics by deliberately integrating the community clinics and training programs, in this case a Family Medicine residency and a Family Medicine Obstetrics fellowship program. Students and residents are directly exposed to high-risk communities and receive training and mentoring from experienced physicians. While providing much valued maternal child healthcare to the underserved community, the physician-in-training is gaining valuable individualized primary care experiences that would be difficult to obtain at an academic medical center. With the assistance of protocols and guidelines, residents and fellows are taught to incorporate decision support into their practice and receive training based on what has been shown to be most effective and efficient in the delivery of care. Hospitals and medical centers benefit from data collection and experiences gained from the community centers as well as access to strong primary care training for medical students and residents. Direct exposure to the tremendously rewarding aspects of providing this type of primary care to high-risk populations helps to increase enrollment and retention of students and residents in primary care and, in particular, family medicine.²³

Conclusion

Important Lessons from the Perinatal Collaborative

Several lessons from the changes brought about by the PPSPC process proved to be important in improving maternal child health outcomes. Front-loaded care, or a complete screening at a patient’s first visit, is important in identifying the needs of the patient and to help develop an early individualized care plan. Prenatal sessions with social workers and family physicians are now clustered to improve efficiency; which also allows the social worker to be more available to the high-risk population. Also, diagnosing psychosocial stressors and depression are important in identifying the most common risk factors that are barriers to improved health. In terms of outreach, the collaboration among community clinics is essential to identifying those most at risk and efficiently delivering the care where needed.

The separate content areas of the perinatal collaborative are closely linked. For example, an important development resulting from the PPSPC has been the linkage between the hospital and clinic in caring for high-risk unattached patients by initiating screening and prenatal care at the acute visit (comprehensive care content area) that then led to the use of dedicated charts, “red folders,” in an effort to connect patients with a medical home (communication content area). In addition, the associated improvements in outreach and tracking have been spread to other settings and have resulted in greater ability to outreach other high-risk patients.

The MCH model as described here was initiated in the mid 1990s in the Austin neighborhood of Chicago and has continued with steady expansion since. In 1999, according to birth statistics, the Austin neighborhood had an incidence of 140 of 1000 live births classified as low birth weight, and 39 of 1000 live births classified as very low birth weight. In 2004 these same measures showed modest improvement in that 101 of 1000 births were classified as low birth weight, and 9 of 1000 births were classified as very low birth weight. During this time period the clinical services and programs described here were the source of care for approximately half of all MCH patients in the Austin community.

With continued implementation of the family medicine MCH care model through the PPSPC pilot project there was a significant increase in the percentage of patients reached in terms of psychosocial assessments, depression screenings, and nutrition education. In addition, while the total number of patient deliveries at PCC increased, there was a decrease in the number of preterm deliveries from 2006 to 2007. These data are purely observational and are presented as reassurance rather than validation, in that it reveals generally favorable trends over time. Targeted and prospective research is needed to analyze the various models and components of care that are associated with improved outcomes.

By developing collaboration between community health clinics, hospitals, medical centers, and the resources of the local community, and by refining and expanding standardized perinatal health services, care can best be delivered to those most in need. Furthermore, the collaborative helped to improve the training of future physicians by having primary care residents and fellows work directly with underserved patients and collaborate with attendings, nurses, and social workers across the health system.

Despite the ongoing challenges, maternal child health can be vastly improved by recognizing the importance of delivering quality and patient-centered care throughout the perinatal period, implementation of collaboration among clinics, institutions, and communities, and the parallel enrollment and retention of skilled family physicians. With more effective and more efficient maternal child healthcare delivery, there is hope that disparities can be significantly reduced.

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LATE/ON-SITE REGISTRATION • ALL REGISTRATIONS AFTER JUNE 12, 2009 *ONLY CREDIT CARD PAYMENTS ACCEPTED*****

Late/On-Site Registration \$1780 x _____ (# attending) = \$ _____

PHYSICIAN REGISTRATION SUBTOTAL _____

SPOUSE/GUEST/CHILDREN REGISTRATION (Includes breakfasts, Welcome Reception, President's Reception & Awards Dinner, and official name badge. **Lunches are not included.**)

SPOUSE/GUEST/CHILDREN OVER AGE 12 \$425 x _____ (# attending) = _____

Name of Spouse/Guest/Child: _____

Name of Spouse/Guest/Child: _____

CHILDREN UNDER AGE 12 REGISTRATION (Includes breakfasts, Welcome Reception, and official name badge.)

CHILDREN UNDER 12 \$0 x _____ (# attending) = \$0

Name of Child: _____ Age: _____

Name of Child: _____ Age: _____

SPOUSE/GUEST/CHILDREN REGISTRATION SUBTOTAL _____

ADDITIONAL TICKETS

WELCOME RECEPTION \$125 x _____ (# attending) = _____

Name of Spouse/Guest/Child: _____ Name of Spouse/Guest/Child: _____

PRESIDENT'S AWARDS DINNER \$125 x _____ (# attending) = _____

Name of Spouse/Guest/Child: _____

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I AM WILLING TO DONATE BLOOD.

GRAND TOTAL _____

*All registrations after June 12, 2009, including on-site, must be paid in full prior to admission to any AAPS activities. *Due to the preparations required prior to the Annual Meeting and the guarantees that AAPS must provide to the hotel in advance, AAPS strongly encourages you to register for the meeting and reserve your hotel rooms early.*

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MEDICAL - LEGAL

Review of Emergency Medical Treatment & Active Labor Act (EMTALA)

Daniel M. Avery, MD

The Emergency Medical Treatment and Active Labor Act (EMTALA), often called the “anti-dumping law,” was passed by Congress to prevent patients from being refused treatment or being transferred to another hospital when they are unstable. This paper summarizes the basic concepts of EMTALA and is taken directly from the EMTALA website and the EMTALA Section of the American College of Emergency Physicians (ACEP) website. It discusses appropriate medical screening, women in active labor, components of an appropriate transfer, obligations of hospitals and physicians, and penalties. The salient points are outlined below.

The Emergency Medical Treatment and Active Labor Act (EMTALA), occasionally referred to as “the Cobra Law,” was enacted by Congress in 1986 as part of the Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1985.^{1,2} This statute governs how a patient may be refused treatment or transferred from one hospital to another when he or she is in an unstable medical condition. It is also known as the “anti-dumping law.”² The purpose of the statute is to prevent hospitals from rejecting patients, refusing to treat them, and transferring patients to indigent hospitals.²

Patients presenting at emergency rooms must be given an appropriate medical screening examination to determine if that patient is suffering from an emergency medical condition. Pregnant women presenting in labor must be admitted and treated until the baby and placenta are delivered, unless a transfer under the statute is appropriate.¹ A physician or nurse practitioner, qualified by the hospital bylaws, must perform the screening examination. Sometimes the determination that an emergency medical condition exists must be made quickly as information is available but may be subject to review later., It is very difficult to deliver a patient at term in advanced labor without capabilities for obstetrics and even more worrisome when the impending delivery is premature.

The determination of whether a woman is in labor falls under the auspices of an emergency medical condition. Consideration as to whether there is adequate time to effect a transfer to another hospital before the delivery or whether the transfer may pose a threat to the health or safety of the woman or her unborn child are essential.¹ This also considers the fact that the course of labor can be unpredictable and a precipitous delivery may occur.¹ **It is very difficult to determine precisely when it is too late for a safe transfer and is usually done as part of professional judgment.¹**

The following constitutes an appropriate transfer before stabilization has occurred:¹

- Patient has been treated and stabilized as far as possible.
- Patient needs treatment at the receiving facility and the medical risks of transfer are outweighed by the medical benefits of transfer.
- Weighing process is certified in writing by a physician.
- Receiving hospital accepts transfer and has facilities for treatment.
- Medical records accompany patient.
- Transfer is effected by qualified personnel and transportation equipment.¹

The certification must state the risks and benefits of transfer. The certification must be signed by the transferring physician. A patient may request transfer to another hospital, but it must be an appropriate transfer.¹

The EMTALA provisions only apply to hospitals, and they bear the brunt of the loss if liability is found.¹ A hospital, however, may seek a claim for reimbursement from a physician who has incurred the liability for the hospital.¹

Obligations of Physicians

There are certain provisions which pertain to physicians and are listed below:¹

- Penalty for failing to respond to an emergency when the physician is assigned as the on-call physician.
- Falsifying a certification for transfer.
- Violation of specialty hospital obligations.¹

The penalty for these adds exclusion from the Medicare Provider program. If the physician fails to diagnose an emergency medical condition, EMTALA generally does not apply to the case, but the physician may be at risk for a professional negligence claim.¹ If the screening for an emergency medical condition is insufficient, the physician may be in violation of EMTALA.¹

Obligations of Hospitals

There are obligations for hospitals listed below:¹

- Hospitals with specialized capabilities or facilities may not refuse to accept a patient in transfer if it has the capacity to treat the patient.
- Receiving hospital is obligated to accept the patient if it has the capacity to treat the patient, even if only for overcrowding or lack of personnel at the transferring hospital.
- The receiving hospital does not have to be the closest hospital if it has the capabilities to treat the patient.
- Duty of reporting a patient transferred who was not stable (called the “snitch rule”) carries with it the risk of disqualification from the Medicare Provider program.
- Transferring hospital must insure that patient be accompanied by “qualified personnel and transportation equipment.”¹ This has been interpreted to mean the hospital sending its own employees. There is one case in which qualified personnel was interpreted to mean a physician capable of performing a cesarean section. Unfortunately, the court did not explain how a physician would perform a cesarean section in an ambulance.

Penalties for Violation

Penalties for violation are listed below:¹

- Civil money penalty of up to \$50,000 per violation; if the hospital has fewer than 100 beds, the maximum penalty is \$25,000 per violation.¹
- Civil money penalty to physician for certifying that the benefits of transfer outweighed the risks when it did not.¹
- Civil money penalty to physician for misrepresenting the patient’s condition.¹
- Penalty to physician and/or hospital for on-call physician failing or refusing to appear after being called.¹

- Hospital may have its Medicare Provider agreement revoked. This is called the “Medicare death penalty”¹

Civil Liability With Claims Under EMTALA

There is also civil liability under EMTALA:¹

- Hospital may be held liable to an injured person in a civil action for damages.¹
- Hospital may be held liable to another hospital in a civil action for financial loss suffered by second hospital.¹
- Medical insurer may recover from the transferring hospital money paid on behalf of the patient.¹
- Claims for medical malpractice may occur in addition to EMTALA.¹
- Compliance with the standard of care does not necessarily mean compliance with EMTALA.¹

Special Situations Under EMTALA

There are no official staffing requirements imposed by EMTALA.¹ Physicians are not required by EMTALA to serve on a call schedule. There is a penalty for a physician who fails to respond to an emergency when he is designated the on-call physician. Traditionally, any specialty that has three or more physicians in that specialty is required to offer 24-hour call coverage. Full-time coverage is not expected if there are less than three physicians in a specialty without violating EMTALA.¹ Physicians may take call at more than one hospital, and they can direct an emergency department to send patients to where they are.¹ If the patient has to wait a long time, the hospital runs the risk that the patient may leave, raising the claim that an initial assessment was not done.¹

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Addressing Psychosocial Determinants of Poor Birth Outcomes: Enhanced Screening in Family Medicine Obstetrics

Mark T. Loafman, MD, MPH

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Abstract

Maternal stress is correlated with premature delivery and lower birth rate, both of which are leading causes of infant mortality. Early detection of maternal stressors should be of utmost importance, especially in communities affected by high rates of infant mortality. However, in-depth screening for these risk factors is not a part of routine prenatal care. Missing thus far is a comprehensive psychosocial screening tool that can be used in a supportive setting by skilled providers. As part of the Perinatal Patient Safety Collaborative Pilot Project, a preliminary screening tool was developed and implemented to identify many of the psychosocial risk factors implicated in poor pregnancy outcomes. This approach to screening attempts to address many of the challenges and concerns that have been identified with existing assessments and the current approach to perinatal care, all of which would benefit from focused research.

Introduction

Low birth weight and infant mortality are more prevalent in the United States than in most of its industrialized peers. Attempts to gain a better understanding of the biomedical factors that cause or contribute to these undesirable outcomes have borne little fruit, nor have our efforts at treatment and prevention. We do know that the burden of suffering does not fall equally on all women and children, but rather affects racial and ethnic minorities at several times the background rate. There is considerable evidence to suggest that the volume controls, or epigenes, for the genetic link to poor birth outcomes are essentially switched on and off, or dialed up or down, by factors including psychosocial distress.

The association between maternal stress, preterm birth, and lower birth weight is well established in the literature.¹⁻⁵ Pre-

mature delivery and low birth weight are two leading causes of infant mortality.⁶⁻⁷ In addition, it has been suggested that the fetal and early postnatal environment can have effects that extend well into the adulthood of the offspring by permanently altering the hypothalamo-pituitary-adrenal axis of the fetus through prolonged exposure to glucocorticoids.⁸ Maternal stress can have both immediate and long-lasting impacts on the fetus in terms of birth outcome, gestational length, fetal neurodevelopment, brain and organ morphology, and even behavioral problems and academic achievement.⁹ Therefore, the early detection of maternal stressors should be of the upmost importance if our goal is to reduce infant morbidity and mortality and subsequent, potentially lifelong impairment and disability.

In light of the evidence, health professionals need to be in collaboration with expectant mothers, as well as those contemplating a pregnancy, to recognize psychosocial risk factors and intervene with an effective stress management plan. In fact, from a public health perspective, the relative risk and prevalence of low birth weight and infant mortality is such that our emphasis on screening for and “treating” psychosocial risk factors should be just as robust as any other aspect of preconception and perinatal care. However, to realize this goal, we need comprehensive screening tools and accessible, cost-effective interventions for psychosocial risk factors.

Psychosocial Determinants of Maternal Stress

Research has consistently demonstrated a correlation between maternal stress and various psychosocial factors. The psychosocial determinants implicated in maternal stress thus far include depression, finances and intimate partner violence, catastrophic events, and pregnancy-specific stressors such as relationship strains, anxiety over body changes, and inability to cope with

Figure 1: The Edinburgh Post-Partum Depression Scale

Instructions for users

1. The mother is asked to underline the response which comes closest to how she has been feeling in the previous 7 days.
2. All ten items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others.
4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.
5. The EPDS may be used at 6-8 weeks to screen postnatal women. The child health clinic, postnatal check-up, or a home visit may provide suitable opportunities for its completion.

EDINBURGH POST NATAL DEPRESSION SCALE (EPDS)

J. L. Cox, J. M. Holden, R. Sagovsky
Department of Psychiatry, University of Edinburgh

Name: _____

Address: _____

Baby's age: _____

As you have recently had a baby, we would like to know how you are feeling. Please UNDERLINE the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today. Here is an example, already completed.

I have felt happy:

Yes, all the time

Yes most of the time

No, not very often

No, not at all

This would mean: "I have felt happy most of the time" during the past week. Please complete the other questions in the same way.

In the past 7 days:

1. I have been able to laugh and see the funny side of things

As much as I always could

Not quite so much now

Definitely not so much now

Not at all

2. I have looked forward with enjoyment to things

As much as I ever did

Rather less than I used to

Definitely less than I used to

Hardly at all

*** 3. I have blamed myself unnecessarily when things went wrong**

Yes, most of the time

Yes, some of the time

Not very often

No, never

4. I have been anxious or worried for no good reason

No, not at all

Hardly ever

Yes, sometimes

Yes, very often

*** 5. I have felt scared or panicky for no very good reason**

Yes, quite a lot

Yes, sometimes

No, not much

No, not at all

*** 6. Things have been getting on top of me**

Yes, most of the time I haven't been able to cope at all

Yes, sometimes I haven't been coping as well as usual

No, most of the time I have coped quite well

No, I have been coping as well as ever

*** 7. I have been so unhappy that I have had difficulty sleeping**

Yes, most of the time

Yes, sometimes

Not very often

No, not at all

*** 8. I have felt sad or miserable**

Yes, most of the time

Yes, quite often

Not very often

No, not at all

*** 9. I have been so unhappy that I have been crying**

Yes, most of the time

Yes, quite often

Only occasionally

No, never

***10. The thought of harming myself has occurred to me**

Yes, quite often

Sometimes

Hardly ever

Never

Response categories are scored 0, 1, 2, and 3 according to increased severity of the symptom. Items marked with an asterisk are reverse scored (i.e., 3, 2, 1, and 0). The total score is calculated by adding together the scores for each of the ten items. Users may reproduce the scale without further permission providing they respect copyright (which remains with the British Journal of Psychiatry) by quoting the names of the authors, the title, and the source of the paper in all reproduced copies.

the physical symptoms of pregnancy.¹⁰⁻¹³ In addition, observational and anecdotal experience suggests that factors like the “wantedness” of a pregnancy and the general perception of the expectant mother’s own childhood are significant indicators. It has also been suggested that clinicians need to focus on chronic, pre-pregnancy life stressors in addition to events occurring throughout the perinatal period. Long-term elevated levels of stress hormones including cortisol have been shown to generate an “allostatic load” that can significantly alter the body’s physiological responses to stress such that the normal adaptive responses are in a refractory state.¹⁴ Examples of ongoing, chronic life stressors, including experience and perceptions of racism, persistently low socioeconomic status, and exposure to violence, have recently been proposed as causal to the persistent disparities in infant mortality among various races.

Infant mortality rates are particularly troubling in the African-American community. The rate of pregnancies ending in low birth weight (less than 2.5 kilograms) is roughly twice as high in African-American populations in comparison to Caucasian populations; rates of extremely low birth weight (less than 1.5 kilograms) are almost three times as high, and the rates of infant mortality are twice as high.¹⁵ There appear to be specific psychosocial factors that play an especially important role in African-American populations. For instance, focus groups with African-American women have identified compelling perceptions surrounding persistent racism, previous unsatisfying clinical experiences, lack of knowledge about pregnancy symptoms, and lack of social support as factors that contribute significantly to maternal stress and inhibit African-American women from seeking prenatal care.¹⁶⁻¹⁷ Michael Lu and Neal Halfon examine the situation in another manner by proposing the life-course perspective for thinking about racial disparities in infant mortality rates. Their life-course model is a synthesis of two existing models: the aforementioned allostatic-load model and the early programming model, in which experiences in critical periods early in the life of the mother, as early as when the mother herself was a fetus, affect reproductive potential years later.¹⁸ Within the life-course perspective, there are sensitive periods of rapid decline in reproductive potential interspersed within a larger gradual decline due to increased allostatic load. Lu and Halfon hypothesize that African-American women start out with lower reproductive potential due to intergenerational effects and throughout the course of their lives are exposed to more risks than women of other races.

Screening for At-Risk Pregnancies

Despite the overwhelming evidence that links psychosocial risk factors to low birth weight and infant mortality, screening for these risk factors is not a routine part of prenatal care. The content of prenatal care has been increasingly reliant on technological advances involving the use of radiographic and serum biochemical measures focused on detecting genetic anomalies and malformations. The conditions these methodologies attempt to detect are significant and certainly warrant our attention. However, serum markers and radiologic evaluations do not allow the physician to identify potentially preventable adverse outcomes.

Therefore, there is a clear and present need for comprehensive screening tools that allow clinicians to detect the presence of psychosocial risk factors that are associated with poor perinatal outcomes. Of note, there has been considerable and much needed attention given to screening for postpartum depression and, to a lesser extent, depression among women in the antepartum period. This effort has raised awareness of the need for enhanced clinical skill, treatment, and supportive services for depressive disorders in the context of maternity care.

Currently, the Edinburgh Post-Partum Depression Scale (EPDS) and the Patient Health Questionnaire-9 (PHQ-9) are the major psychosocial assessments used by clinicians. The EPDS was developed in 1987 as a “10-item self-report scale” to specifically screen for post-natal depression (Figure 1).¹⁹ The PHQ-9 is also self-administered but differs from the EPDS in that it both screens for depression and can measure its severity (Figure 2).²⁰ These tests have been extensively validated as useful screens for depression, with the EPDS focusing on the postpartum timeframe and the PHQ-9 focusing on a more general population.²¹⁻²³ Both screening tools have value. In the practice we describe, the PHQ-9 has been incorporated at several points along the continuum of care. However, the utility of the EPDS and the PHQ-9 is limited by their exclusive focus on depression and also by their reliance on an impersonal, self-reporting approach to assessment. Other methods or chart tools are used to screen for recognized social and psychological risk factors such as the use of tobacco, alcohol, or illicit substances. It is noteworthy that the clinician’s approach to screening for conditions such as these can significantly impact the sensitivity. Missing from the content of perinatal care thus far is a comprehensive psychosocial screening tool that can be deployed in a supportive setting by skilled providers in an effort to increase the sensitivity.

Inherent in the usefulness of any screening test is the availability of acceptable, affordable, and effective interventions or treatment. It is necessary to identify and address problems as early as possible in order to maximize the health of both the mother and the fetus. There is both evidence and experience to support interventions such as case management, care coordination, cognitive behavioral therapy, supportive counseling, integrated behavioral health, facilitating success with self management goals, community nursing, and lay outreach. There are three common ways to implement these interventions, although we advocate the integrated approach. First, the physician can refer the patient to an external healthcare professional, such as a psychologist or counselor, who might be more equipped to deal with the issue that has been identified. The major disadvantage to an external referral is the low compliance rate. The extra effort and time required to attend additional appointments and unfamiliarity with the provider and site are among the deterrents for many patients. However, if physicians generate close relationships and contacts with area agencies and follow up to ensure that their patients are receiving the necessary care, the referral model can become more effective. Co-location, a situation in which various healthcare professionals share the same physical office space, is the second option. This can be better

Figure 2: Patient Health Questionnaire-9 (PHQ-9)

Over the last two weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
(For office coding: Total Score ____ = ____ + ____ + ____)				

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?			
Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

From the Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD PHQ). The PHQ was developed by Drs. Robert L. Spitzer, Janet BW Williams, Kurt Kroenke, and colleagues. For research information, contact Dr. Spitzer at rls8@columbia.edu. PRIME-MD is a trademark of Pfizer Inc. Copyright 1999 Pfizer Inc. All rights reserved. Reproduced with permission.

than an external referral because the social worker or counselor is physically on site and is therefore more accessible to the patient. However, it is still essentially a referral, and the patient may still fail to adhere in the transition from the physician.

The ideal choice, therefore, is an integrated approach in which physicians, counselors, and other health care professionals are partnered in the same practice. Within such a context, the healthcare professionals are more familiar with each other, are more likely to collaborate and communicate, and have a better capacity to help the patient transition across the different modes of care. There is considerable literature in support of this model for integrated behavioral health. It has become customary for clinicians, particularly those in family medicine, to

advocate for the use of interventions and services such as these and to be inclined to prescribe or recommend them when indicated. There is considerable need for further research and development around effective interventions for psychosocial risk factors. We contend, however, that there is already sufficient knowledge and experience with the use of integrated behavioral health, care coordination, and use of service agencies through referral to warrant their use for identified risk factors.

Comprehensive Perinatal Psychosocial Screening

In response to the needs and opportunities identified above, an approach has been developed to help to identify psychosocial

Figure 3: The PCC Stress Screening Form

Your answers to these questions will be kept confidential, like the rest of your medical information. We want to help you and your developing baby to be as healthy as possible. Studies have shown that too much stress can negatively affect a mother's health and a baby's development during pregnancy. We want to help you with any psychosocial issues that you identify as stressful. Please complete the questions below.

Date _____

About You

1. What is your address?

2. What is the best phone number to reach you at most of the time?

Alternate contact number?

3. Who do you live with?

4. What type of home do you live in?

- Apartment
 House
 Other _____

5. Over the past year, have you moved two or more times? no ___ yes ___

6. What is your race? (may check more than one)

- Black / African American
 White
 Asian
 Hawaiian / Pacific Islander
 Native American / Alaska Native
 Other
 I prefer not to answer

7. Hispanic ethnicity? (please check one)

- I am Hispanic
 I am not Hispanic
 I prefer not to answer

8. What is your primary language?

9. What is the highest level of education you have completed?

- Less than high school
 Some high school
 Finished high school
 Some college
 Finished college
 Graduate studies or beyond

10. What is your occupation? _____

11. What is your religion, if any? _____

12. What is your marital status?

- Single
 Married
 Divorced
 Other

13. What type of insurance do you have?

Do you receive any public assistance?

About Your Pregnancy

14. What best describes this pregnancy?

- I was trying to become pregnant.
 I was not trying to become pregnant.
 This pregnancy is not wanted.

15. Who is the father of your baby?

How supportive is he of you and the pregnancy?

Other than the father of the baby, who is supportive to you?

16. Are there things that you constantly worry about? no ___ yes ___

If so, what _____

17. Do you have fears that something terrible is about to happen? no ___ yes ___

If so, what _____

18. Do you or any members of your household go to bed hungry? no ___ yes ___

If so, how often? _____

19. Before you knew you were pregnant, did you drink alcohol? no ___ yes ___

If so, please describe how much and how often _____

Have you had alcohol during this pregnancy? no ___ yes ___

If so, please describe how much and how often _____

20. Before you knew you were pregnant, did you ever use recreational drugs? no ___ yes ___

If so, what _____

Have you used drugs during this pregnancy? no ___ yes ___

If so, what _____

21. Does your partner have a problem with alcohol or drugs? no ___ yes ___

Has either of your parents had a problem with alcohol or drugs? no ___ yes ___

22. Have you or your parents ever been involved with DCFS? no ___ yes ___

23. Which best describes your smoking status:

- I have never smoked or have smoked fewer than 100 cigarettes in my lifetime.
 I stopped smoking before I found out I was pregnant, and I am not smoking now.
 I stopped smoking after I found out I was pregnant, and I am not smoking now.
 I smoke some now, but I have cut down the number of cigarettes I smoke since I found out I was pregnant.
 I smoke regularly now, about the same as before I found out I was pregnant.

24. Within the last year, have you been hit, slapped, kicked, shoved, strangled, forced to have sex, called names or profanities, or otherwise been hurt by someone? no ___ yes ___

If yes, when and by whom? _____

25. Are you or have you been raped, sexually abused, or assaulted? no ___ yes ___

If yes, when and by whom? _____

26. Over the past year:

- a. have you felt unsafe where you live?
no ___ yes ___
b. experienced a high stress level? no ___ yes ___
c. had problems keeping appointments?
no ___ yes ___
d. had problems getting transport to appointment?
no ___ yes ___

27. How would you describe your childhood?

28. Has anything happened to make you worry about yourself or your baby? no ___ yes ___

If yes, what? _____

29. If you have had any of these or other problems, have you received any assistance or counseling? no ___ yes ___

If yes, what? _____

Your provider is willing to discuss any problems you may be having.

Provider follow-up: PHQ/EPDS Score _____

Provider Signature _____

Date _____

Patient Name _____

DOB _____

risk factors in a large, urban, and underserved maternal/child population which obtains care in a network of community health centers (CHC) in Chicago, Illinois. In 2005, the PCC Community Wellness Center joined four other CHCs in the Perinatal Patient Safety Collaborative Pilot Project in an effort to reduce disparities in MCH outcomes. This was supported by an Inter-Agency-Agreement between the Health Resources Services Administration (HRSA) and the Office of Minority Health, US Department of Health and Human Services. This included in-kind contributions from HRSA for the infrastructure of the internet-based Knowledge Gateway for sharing of insights and data as well as the in-kind contribution of staff time, travel, and activity of Dr. Ahmed Calvo and other HRSA staff. It is important to note that information in this manuscript cannot be construed to represent the opinions of the federal government or any of its agencies. A more detailed review of this pilot project can be found in a companion paper in this issue of the *American Journal of Clinical Medicine*, "Improving Maternal and Child Health Outcomes: Family Medicine Obstetrics and the HRSA Perinatal Collaborative Project." Among the "lessons learned" from the perinatal pilot was a realization that a better screening tool was needed but did not exist.

Through the collaborative process an identified need emerged for a psychosocial screening tool that looked at behavioral health beyond an isolated focus on postpartum depression. Specifically, the goal was to assess overall social risk in broader terms than the customary "yes or no" inquiries regarding exposure to violence, the use of addictive substances, and level of education attained. This requires the use of an assessment tool in an effort to identify many of the psychosocial risk factors implicated in poor pregnancy outcomes including race, socioeconomic status, anxiety levels, use of tobacco/drugs/alcohol, intimate partner violence, and attitude towards childhood. A draft of a psychosocial screening tool that encompasses these risk factors is included as Figure 3.

The screening tool presented here was developed in collaboration with the PPSCP expert faculty panel and was drawn from a variety of published and unpublished evidence-based sources. For example, the 5A Tool Kit from the American College of Obstetricians and Gynecologists (ACOG) was thought to be useful pertaining to smoking cessation in pregnancy, and the Case Management assessment tools from the Illinois Department of Human Services (IDHS) appeared most appropriate among options for questions regarding intimate partner violence. Some of the questions and focus areas have evolved in various permutations over the course of several years and were selected because of their relevance to known determinants of risk and based on their particular utility for our patient population.

The dimensions of psychosocial stress are sensitive, complex, and influenced by culture, age, and geography. Performing a competent assessment of psychosocial risk factors requires more than a simple checklist and, as is the case with most other aspects of the clinical encounter, is best done in collaboration with an engaged patient. This approach allows the clinical team to gain a more accurate understanding of the patient's

life course and experiences and to identify more individualized risks and recommendations. Inherent in this approach is the need to perform the screening in a supportive setting where patients feel comfortable discussing sensitive issues, and where a therapeutic response to identified concerns and needs can be arranged. This is an ideal application for the emerging model of Integrated Behavioral Health.²⁴

The clinic system described here provides care for a population that includes approximately 1,200 births each year and a clinical staff that is mostly family physicians, many of whom have advanced MCH OB fellowship training. The family medicine clinical team is significantly enhanced by a variety of health care disciplines including those in behavioral health and community outreach. Funding for the staff and enhanced programs is derived from the usual blend of clinical encounters and program grants. It should be noted that, while a large and diverse care team has many advantages, it is also clear that even the smallest sites can be successful in identifying and managing the broader range of psychosocial risk factors. A detailed description of specific interventions, internal support services, referral, and outreach strategies are beyond the intended scope of this paper but can be described as those generally directed toward indicators surrounding adherence, coordination of care, inadequate resources, interpersonal relationships and family discord, anxiety and depressive disorders, unwanted pregnancy, challenges with housing and shelter, alcohol/drug/tobacco use, domestic violence, sexual assault, and availability of assistance programs.

Conclusion

There is currently a disconnect between the importance of psychosocial factors in influencing pregnancy outcomes, validated through extensive research, and the availability of comprehensive psychosocial screening tools. This presents a barrier to the timely identification of maternal stressors and may be a contributor to the overreliance on technology and biochemical tests. As should be the case with any screening effort, a variety of factors must be considered when developing and implementing such tools in order to optimize their utility and efficiency. Priority should be directed toward identifying the most important psychosocial factors, asking all of the relevant questions to obtain a more comprehensive patient picture, training the clinical staff to competently perform the psychosocial assessments that are developed, and keeping the patient informed and involved in the recommendations and treatment plan. At the same time, it is necessary to recognize the importance of usability and acceptance with respect to topics covered, questionnaire length, wording and language, cultural beliefs and expectations, and respect for patient privacy.

The Perinatal Psychosocial Screening Questionnaire described here attempts to address many of the challenges and concerns that have been identified with existing tools and the current approach to perinatal care. We should emphasize that this is a work in progress with ongoing development and has not been formally validated. Focused research will be required to assess

its effectiveness and ability to be extrapolated to the general population. However, screening methods such as this can, and should, be adapted to the specific clinical setting and patient population for which it is intended to be used. In the meantime, we hope that this focus on developing an individualized, affordable, and non-invasive process for screening can help identify at-risk pregnancies and lead to risk stratification and interventions that will ultimately minimize adverse pregnancy outcomes, especially in populations that are disproportionately affected by infant mortality.

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Cesarean Hysterectomy for Family Medicine Physicians Practicing Obstetrics

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Abstract

Cesarean hysterectomy is an uncommonly performed, but life-saving operation, usually for massive hemorrhage. One of the criticisms of family medicine physicians practicing obstetrics is that they are not trained in cesarean hysterectomy should the occasion arise. Unfortunately, newly graduated OB/GYN physicians, likely, have rarely performed a cesarean hysterectomy either. Even seasoned OB/GYNs may not have performed the procedure for quite some time. This paper describes a straightforward approach to cesarean hysterectomy that family medicine physicians practicing obstetrics or newly graduated OB/GYN physicians can perform. Following this description is a case report of a cesarean section hysterectomy performed by an obstetrics fellowship trained family medicine physician with a general surgeon for a ruptured uterus in a rural hospital without a labor and delivery unit or nursery. Both mother and baby survived.

Introduction

Cesarean hysterectomy is a life-saving skill rarely required of those who practice obstetrics. One criticism, perhaps unfair, of family medicine physicians practicing obstetrics today is that they have not been trained in cesarean hysterectomy since the need could possibly arise for uncontrollable hemorrhage. Few graduates of OB/GYN residencies performed a cesarean hysterectomy during training either. Only those who have practiced obstetrics for years have had the occasion to perform a significant number of cesarean hysterectomies.

Minilaparotomies for the management of ectopic pregnancies and laparotomies for postoperative hemorrhage after cesarean section have been taught by our fellowship for the last several years. The techniques have been described elsewhere by two of the authors. We postulate that family medicine physicians can also perform cesarean hysterectomies when needed. This paper describes a straightforward technique that a family medicine physician practicing obstetrics or even a newly graduated obste-

trician/gynecologist can use. Use of this procedure can be life-saving to control massive hemorrhage after a cesarean section or even after a vaginal delivery when there is no other alternative.

History of Cesarean Hysterectomy

The first cesarean hysterectomy performed in the United States was by H.R. Storer in Boston; unfortunately, it was unsuccessful, and the patient expired on postpartum day three.¹ Edward Porro is credited with the first successful cesarean hysterectomy in this country in 1876.¹ For years the procedure had Dr. Porro's name attached to it, being referred to the Porro Hysterectomy.¹ "Cesarean hysterectomy is by definition a life-saving procedure performed to control hemorrhage," according to Nichols.² During the training of one of the authors in the late 1970s and early 1980s, cesarean hysterectomy was performed for sterilization, but is now done for this indication. Over time, more techniques to control bleeding and conserve the uterus have been developed. Considerably fewer cesarean hysterectomies are performed today.

The Operation Itself

A cesarean hysterectomy is very different from a non-pregnant hysterectomy. It is uncommonly performed, and when it is, it is under emergency, life-threatening conditions that are stressful to everyone involved. The uterus is very enlarged, the tissues are very friable, uterine vessels are very enlarged, and there is no vaginal prep.² Because of the vessel size, most pedicles must be double-tied.³ It is a last resort and infrequent procedure.² The procedure uses the same principles as an abdominal hysterectomy in the non-pregnant state.¹ Most of the morbidity is related to the reason the procedure is usually done – hemorrhage.³ The incidence of the procedure is 1 in 950 to 1 in 1850 deliveries.⁴ Approximately 90% of women undergoing a cesarean hysterectomy will need a transfusion.⁴ In inexperienced hands subtotal hysterectomy (supracervical) is prefer-

able if it controls bleeding, because intraoperative bleeding and urologic injuries are less.^{2,3} With the increase in the number of women who have had a cesarean section, there is a concomitant increase in the number of cesarean sections that are technically difficult, those with a plentiful scar tissue, previas, accretae, ruptured uteruses, and hemorrhage requiring a cesarean hysterectomy.¹ Most cesarean hysterectomies are unplanned today after more conservative measures have failed.¹

Preparation for the Procedure

Usually when the decision is made to perform a cesarean hysterectomy, all conservative efforts have been employed to control massive hemorrhage. If logistically feasible and it does not detract from clinical management during this emergent circumstance, informed consent from the patient, if not under general anesthesia, or the patient's family should be obtained. The anesthesia personnel and entire operative team should be made aware that a life-threatening emergency now exists requiring an emergency hysterectomy. Anesthesia personnel will determine the need for additional anesthesia, availability of blood and blood products, whether blood has already been given or not. Additional large bore intravenous lines, arterial or central lines may be needed. The blood bank needs to know that more blood may be needed. Usually for a cesarean hysterectomy, it is prudent to have four units of packed red cells ready and an order to "stay ahead two units." Fresh frozen plasma is usually needed for every two or three units of packed cells. All efforts to stabilize the patient before beginning the hysterectomy should be made: note that this will usually cause more blood loss. All clinicians must remain aware of current blood loss and urine output. A broad-spectrum second generation cephalosporin should be given for prophylaxis.⁵ Our institution follows the recommendations of Dr. William Andrews at the University of Alabama in Birmingham Medical Center and adds 500 milligrams of azithromycin to cover facultative organisms.⁶ If the cesarean section incision is insufficient, it should be extended laterally if Pfannenstiel or superiorly if vertical. A Pfannenstiel incision may be converted to a Maylard incision in which the rectus muscles are divided, taking care to ligate the inferior epigastric arteries immediately beneath the rectus sheath. While cosmesis is diminished, adding a median vertical incision to the pre-existing transverse incision (creating an anchor-like incision) should not be delayed if operative exposure is not optimal to control bleeding.

It is crucial to accept that this unexpected change in plans requires seeking and accepting whatever help is in the patient's best interest. Even the assistance of a colleague with no more experience than oneself is invaluable. An OB/GYN who has done many cesarean sections is the best help available, and it may be prudent to let him be the surgeon and you the assistant. Accept that at this juncture, you are physically and emotionally exhausted. An OB/GYN, family medicine obstetrician who does cesarean sections, general or vascular surgeon, urologist, GYN oncologist, anesthesiologist, surgeon's assistant, experienced nurse, surgical assistant or physician who is willing to help are welcomed. I

have had the help of an emergency medical technician in a rural hospital when there was no one else to assist.

Instruments

Most operating suites that perform cesarean sections have available a hysterectomy tray. If not, at least four Heaney, Heaney-Ballentine or Zeppelin Hysterectomy clamps, multiple Kelley clamps, two Oschner clamps, many 0 or 1 Vicryl or chromic sutures, a self-retaining retractor such as an O'Connor-O'Sullivan or Balfour Retractor and many lap packs will be necessary. Adequate suction and Bovie electrocautery are also needed, if not already on the operative field. If not already done for this case, consideration should be given to making such a pack immediately available later.

Overall Vision of the Operation

Elevate the uterus from the abdomen and hold it with a moist lap pack with one hand. It is usually about one-third the size it was before delivering the baby. Usually a bladder flap has been made and a low transverse incision has been made in the lower uterine segment. The sides of the uterus containing the broad ligament need to be clamped and cut away from the uterus to free it. At the bottom of the uterus, the uterine vessels need to be clamped and cut, and the uterus needs to be amputated from the cervix. If visualization of the uterus is impossible due to massive bleeding, the aorta may be compressed by placing a moist lap just above the bifurcation and pressing posteriorly against the vertebral column. The anesthesiologist should be informed of compression of the aorta to manage the change in blood pressures. Keep in mind that the objective is hemostasis, not treatment, of cervical pathology as is sometimes the indication for non-obstetrical hysterectomy. As such, once hemostasis has been achieved, leaving the cervix intact will shorten operating time and likely reduce blood loss and risk of complications.

Procedure

Start by placing two clamps side by side on either side of the uterus at the top of the broad ligament, called the utero-ovarian ligament. This is something to hold to and support the uterus, and it greatly decreases the blood flow to the uterus from the ovarian arteries. Medial should be a Kelley and lateral a Heaney, Heaney-Ballentine, or Zeppelin clamp. The round ligaments should be clamped with an Oschner or hysterectomy clamp, divided, suture-ligated with 0 or 1 Vicryl or 0 or 1 chromic sutures, left long and clamped with a Kelley clamp. The anterior leaf of the broad ligament should be extended downward and join the bladder flap peritoneum. To decrease blood flow from the uterine arteries, perform O'Leary-O'Leary ligations bilaterally of the uterine arteries as far down on the uterus as possible. This is done by placing the suture through the broad ligament lateral to the uterine vessels, into the myometrium posteriorly, then coming out of the myometrium anteriorly medial to the vessels. Tie them down to ligate the vessels, or clamp the vessels at the uterine incision.

The idea is to double clamp every time on the broad ligament, cutting between the clamps. The medial Kelley prevents back-flow bleeding from the uterus, and these are left on until the uterus is removed. The lateral hysterectomy clamps hold tissue that is Heaney stitched with Vicryl or chromic suture. Divide the tissue between the clamps with scissors or a knife then suture-ligate the tissue by placing the needle of the suture through the end of the incision and wrap in around the clamp and again place the needle through the middle of the tissue and tie it down while the assistant gently releases the clamp. Most authorities recommend double-tying pedicles.² Repeat this procedure contralaterally, alternating this process down to the lower uterine segment. Cross clamp the uterine vessels at a 90 degree angle, suture-ligate and double tie. Using a hysterectomy clamp, clamp successively across the uterus from each side. Clamp, cut, stitch, and tie. Amputate the uterus and place a moist lap over the cervical stump for the assistant to hold pressure. Back up, sit down, and take a breath. Let the assistant hold pressure for five minutes. Insert a self-retaining retractor, if not already done, and pack the bowel out of the operative field to observe for bleeding.

Slowly remove the pack and observe for any bleeding. Significant bleeding from the lower uterine segment will require either oversewing or removal of more tissue if there are tears or remaining placenta. The pelvis is inspected and irrigated. The lower segment can be closed with running or interrupted Vicryl or chromic suture. Typical sites of bleeding include the cervical stump, the broad ligament, the utero-ovarian ligament, and the ligation of the uterine vessels. Identification of the ureters is important, if they can be located. They are very close to the cervix.

Table 1: Percentage of family physicians with cesarean privileges by census division

Census Division	States	% of FPs with cesarean privileges
New England	CT, ME, MA, NH, RI, VT	2.4
Mid Atlantic	NJ, NY, PA	0.0
East North Central	IL, IN, MI, OH, WI	8.0
West North Central	IA, KS, MN, MO, NE, ND, SD	13.1
South Atlantic	DE, DC, FL, GA, MD, NC, SC, VA, WV	2.3
East South Central	AL, KY, MS, TN	18.5
West South Central	AR, LA, OK, TX	12.2
Mountain	AZ, CO, ID, MT, NV, NM, UT, WY	4.0
Pacific	AK, CA, HI, OR, WA	6.2
Total		7.3

Closing the Abdomen

If no significant bleeding is apparent, begin closing the abdominal incision and skin. Inform the patient, if she is awake, and the family. Remove instruments, packs, and retractors. A nasogastric tube may be necessary. If oozing is apparent, drains may be appropriate. Check the status of the patient, stability of the vital signs and urine output, and clarity (lack of which may suggest a ureteral injury). The fascia may be closed with running Vicryl or PDS suture. The skin can be closed with skin staples. Affirm closing instrument and pack counts. Select appropriate laboratory studies for the Post Anesthetic Care Unit, including hematocrit, coagulation studies, and electrolytes. Beware that the blood loss and replacement may result in disseminated intravascular coagulation and its complications or hemostasis that may be incomplete and postoperative bleeding may become brisk.

Case Report

A 30-year old female at an estimated 36 weeks gestational age who had previously delivered by classical cesarean section presented by ambulance to a rural 20-bed hospital with an acute abdomen, decreased level of consciousness, hemorrhagic shock, and non-reassuring fetal heart tones. No functioning labor and delivery unit was present. The patient was seen by a family medicine obstetrician with the working diagnosis of a ruptured uterus and hemorrhagic shock. Informed consent was obtained from the husband for an emergency cesarean section by the family medicine obstetrician and a general surgeon and whatever procedures were necessary to save the mother and baby's life.

On arrival in the operating room, the patient became unresponsive and fetal heart tones were lost. The nurse anesthetist had not arrived yet, so the procedure was begun with local anesthesia. Lidocaine was used to inject the previous abdominal scar and then the fascia which were incised. The nurse anesthetist arrived and quickly instituted general anesthesia. Upon opening the fascia and peritoneum, the baby was freely floating in the abdominal cavity, which was full of blood. The baby was delivered, suctioned, cord clamped, and passed to the nursery personnel for resuscitation. The APGARs were 2 and 4. The baby weighed 2637 grams. The placenta was delivered.

The uterus was ruptured from the top of the fundus down to the lower uterine segment. An Oschner Clamp was placed across the round and broad ligaments on either side of the uterus. Each bite was clamped, cut, and tied with #1 Vicryl suture. This was repeated down to the lower uterine segment. Hemostasis was achieved. Oschner Clamps were placed across the lower uterine segment and the uterus amputated. The lower uterine segment was closed with #1 Vicryl suture. Hemostasis was good. The family medicine obstetrician joined the nursery staff to help stabilize the baby, while the general surgeon closed the abdomen. The fascia was closed with #1 Vicryl and skin closed with skin staples. The patient tolerated the procedure well. The estimated blood loss was 1800 cc. The only six units of incompatible blood from the blood bank were transfused during

the procedure. Sponge and needle counts were correct. Urine output was good. After the patient was recovered, she and the baby were transported to a tertiary care center by helicopter. The mother and baby both did well.

Discussion

Cesarean hysterectomy is an uncommon but, when needed, life-saving obstetrics operation that any experienced family medicine obstetrician can perform. Graduating OB/GYN Residents like Family Medicine Obstetrics Fellows get minimal, if any, experience in learning this procedure during training. However, with experience operating on the uterus and managing bleeding, Family Medicine Obstetricians can perform this procedure in a life-threatening emergency. Exposure to operative techniques and instruments for non-pregnant hysterectomies during postgraduate training can be helpful.

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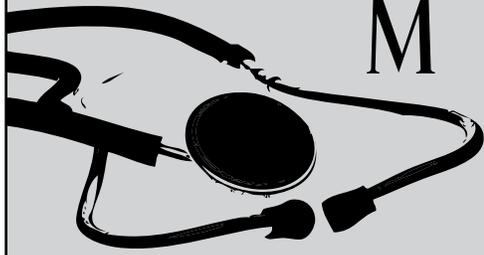


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MEDICAL ETHICS WITHOUT THE RHETORIC



Mark Pastin, Ph.D.

The cases presented here involve real physicians and patients. Unlike the cases in medical ethics textbooks, these cases seldom involve cloning, bizarre treatments or stem cell research. We focus on cases common to the practice of medicine in a variety of contexts.

The majority of cases is circumstantially unique and requires the viewpoints of the practitioners and patients involved. For this reason, I am soliciting your input on the cases discussed here at council@aol.com. Reader perspectives along with my own viewpoint are published in the issue following each case presentation. Of course, we are also interested in cases that readers wish to submit for consideration.

CASE TWO OUT OF PRACTICE?

You are a member of a surgical group practice. You are attending a medical school class reunion and one of your classmates asks you if Dr. Y still practices. You are shocked by the question as you see no reason why Dr. Y, who is a member of your group, would not be practicing. Your classmate tells you that Dr. Y confided in him almost a decade ago that he had Hepatitis C and was considering leaving medicine. That is about the time that Dr. Y joined your practice. When you return from the reunion, you confront Dr. Y, who admits that he has had Hepatitis C for at least a decade, but offers in his defense that he has not infected anyone. You and your other partners wonder what to do. One option is to notify patients who have had contact with Dr. Y and, perhaps, the state medical board. Another option is to ask him to leave the practice without notifying patients unless there is a reason to suspect that they were infected. A third option is to allow Dr. Y to continue as a member of the group while restricting his scope of practice. All the group members worry about patient safety and legal liability. What is the best option?

This is an actual case presented to me for advice. Of course, there could be any number of extenuating circumstances and additional details. But please address the case on the basis of the information provided as best you can. There will be an analysis of this case along with a new case in the next issue.

Your input is requested. Email your responses to: mpastin@healthethicstrust.com

CASE ONE ANALYSIS

The following analysis of our last case, which involved a parental request to describe a minor's abortion as a D&C, was presented by a reader of this feature:

The parents' wishes should not be honored. Coding should always follow established coding guidelines. The parents could request an amendment to their daughter's record, but in this case that request should be denied. It is easy to imagine this child in 10-20 years with a medical condition that might be directly related to the abortion. Any physician at that time would need to know about the abortion to give good care. Given the child's age and the circumstances involved, it may be possible to specially protect this record. If the record is paper, the Director of Medical Records could file it in his/her "legal" file. If the record were ever requested, it would take more effort to retrieve it, and the abortion notes could be put in a separate envelope marked confidential to the attention of the receiving physician only. If the record is electronic, it could have some sort of "flag" identifying it as "sensitive." The fact that the family is Catholic is not relevant to the care she should receive or the way it is subsequently coded. If the child decides to run for President someday, this part of her record would not need to be disclosed; it would not be relevant to her fitness for office (in my mind, anyway).

Minilaparotomy Technique for Ectopic Pregnancy for Family Medicine Obstetricians

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Abstract

Family Medicine physicians trained in obstetrics have become particularly invaluable in areas, such as rural communities, where a physician practicing solely obstetrics and gynecology is fiscally impractical. In such communities, often the general surgeons are reluctant to manage any pregnancy complication, including ectopic pregnancy, leaving the Family Physician trained in obstetrics the only physician capable of aiding such unstable patients. Ectopic pregnancy is a life-threatening obstetric emergency demanding accurate diagnosis and expedient treatment. Obstetrics fellowship programs in the United States have heretofore not taught surgical management of ectopic pregnancy. Obstetrics fellows can be taught a fairly simple minilaparotomy technique for surgical treatment of these emergencies. Physician credentialing is also discussed.

Obstetrics fellowship training for Family Medicine physicians who want to deliver babies continues to increase nationwide. Originally, Family Medicine residencies included Obstetrics as part of their curricula but also had obstetrics tracks for house staff who anticipated practicing obstetrics as part of their practice after residency training. After six months of obstetrics, an upper-level resident could apply for cesarean section privileges and become a junior obstetrics attending with staff OB/GYN backup. Because of decreased numbers of obstetrics patients in teaching programs, the current trend since 1985 has been to do a fellowship year of obstetrics if a family physician planned to practice obstetrics.

There are twenty-five recognized Obstetrics Fellowships in this country and an additional number of part-time training programs, none of which are accredited. Most programs teach routine obstetrics, instrumental delivery, cesarean section, tubal ligation, prenatal care, ultrasound, suction curettage, cryotherapy, cervical conization, and office gynecology. The real deficit in training programs universally is the inattention to instruction in surgical management of ectopic pregnancy. This paper de-

scribes a minilaparotomy technique for surgical management of ectopic pregnancy that is very similar to an open minilaparotomy bilateral tubal ligation. Family physicians routinely perform tubal ligations at the time of cesarean section, immediately postpartum by an infraumbilical incision and interval or postpartum tubal ligation by a minilaparotomy approach. The uterus and tubes are identified. The tubes are grasped and ligated by some means. Then the abdomen is closed.

The stability of the patient will determine the need for expedient management. A patient in shock from blood loss anemia will mandate immediate intervention, while a hemodynamically stable patient, not in much pain, will not. Medical management not described in this paper may even be an option, if the patient meets certain standard criteria. The availability of an operating room, staff, and anesthesia are also necessary. A Foley catheter must also be placed to drain the urinary bladder. It is left in place during the procedure and removed the day after surgery. General anesthesia is utilized not only for the urgency of the procedure but also because regional anesthesia can cause hypotension. Prophylactic antibiotics are given. If the patient is in shock and/or has a low hematocrit, begin transfusion preoperatively, if possible.

Make an incision no larger than necessary, accomplished by initially making the smallest possible incision, and later extending it, if necessary. The choice of incision is influenced by many factors including previous incision, body habitus, cosmetics, hemodynamic stability, and patient's weight and size. A minilaparotomy technique described by Rock and Jones is utilized.¹ A small five centimeter Pfannenstiel ("Bikini") incision just above the symphysis with pubic hair clipped works well. When the pubic hair grows out, it will usually cover the healed scar. The skin is incised down to the dermis where electrocautery is then used to take the incision down to the fascia. The fascia is then divided horizontally and laterally with electrocautery or Mayo or Cooley scissors. The upper portion of the fascia is grasped

with two Oschner Clamps and dissected from the underlying rectus muscles by both blunt and sharp dissection. Bleeders are controlled with electrocautery. The lower portion of the fascia is also dissected down to the symphysis. The midline between the rectus muscles is identified and the posterior sheath divided. The peritoneal cavity is entered either sharply or bluntly. The incision is extended both upward and downward.

The pelvis is immediately explored and mobility of the uterus determined. A single figure-of-eight suture of dissolvable suture, usually 2-0 Vicryl®, is placed superficially in the fundus of the uterus to elevate it. Free blood and clots are removed with the use of a pool suction device, which minimizes trauma to delicate structures, such as the intestine. Adequate visualization is essential. Immediately clamp active bleeding sites with Kelly, Heaney-Ballentine, or Zeppelin Hysterectomy Clamps to stop bleeding. A moist, tagged laparotomy pack is placed behind the uterus to elevate it and expose the fallopian tubes. Additional packs may be used to pack the intestines out of the operative field. Any small self-retaining retractor, such as an O'Conner-O'Sullivan Retractor, may be used for visualization. Alternatively, hand-held retractors, such as Deavor, Richardson, or Herrington Retractors, may be used.

A tubal pregnancy looks like a bulge in the fallopian tube. It may be ruptured or unruptured. Above clamps are used to clamp beneath the tube in the mesosalpinx and the segment of involved tube excised. This is usually a larger segment of tube than that removed at tubal ligation. Dissolvable suture, such as Vicryl®, is used to suture the tissue below the clamps. Sutures are often transfixed and may require oversewing to control bleeding. Many techniques for surgical management of ectopic pregnancy have been described. While excision of the portion of tube containing the pregnancy is the simplest, a salpingostomy and excision of the pregnancy may not be much more technically challenging and arguably advantageous in preserving fertility of the remaining tube. Using a fine needle electrocautery, the antimesenteric border of the unruptured tube is incised, and the pregnancy carefully plucked out. Bleeding is controlled and the opened tube is left open to close by second intention. Copious irrigation and diligent hemostasis is important here. The risk of persistence of gestational tissue and recurrence of the ectopic pregnancy is increased with salpingostomy and excision. To reduce this risk, postoperative Methotrexate may be given.

At this point, ask the circulating nurse and the anesthetist to give an estimate of blood loss, based on the blood in the suction canister and soiled laparotomy packs. Irrigation of the pelvis is then performed to make sure that there is no active bleeding. Remove any clots present and, if there is no active bleeding, remove tagged laparotomy packs and self-retaining retractor. Make sure the surgical instrument and pack counts are correct. Do not remove the uterine fundus figure-of-eight stay suture but cut the suture above the knot. Cover the pelvic contents and intestine with omentum, if possible, and close the peritoneum with running dissolvable suture. Loosely approximate the rectus muscles with suture. Make sure the tissues are dry. Close the fascia with running Vicryl® or PDS suture. If there

is a lot of oozing or the panniculus adiposus is thick, place a drain above the fascia and suture it in place in the skin. Usually this is unnecessary. The skin can be closed with staples or subcuticular sutures.

If there has been a substantial blood loss, obtain a hematocrit in the recovery room. Otherwise, check a postoperative hematocrit in four hours. With massive bleeding, coagulation studies may also be necessary. Anticipate some oozing and decrease in hematocrit from intravenous fluid hemodilution. If the hematocrit drops precipitously or the patient develops signs of internal bleeding, transfuse and re-explore the abdomen in the operating room. Most patients can be discharged home within 48 hours.

A discussion of a new surgical technique would not be complete without a discussion of physician credentialing. Obstetrics Fellowship Programs have not taught surgical management of ectopic pregnancies until now. Whether during official training or afterwards, adequate numbers of proctored procedures are essential to obtain privileges in any hospital today. Privileges for cesarean section presume that a physician should be able to perform a laparotomy on the same patient earlier in pregnancy. A physician should be able to be credentialed to do both.

There are a few points worth reiterating. Make an incision no larger than necessary; it can always be extended. Evacuate blood and clots from the abdomen and pelvis so that visualization is optimal. Control active bleeding; it is better to achieve hemostasis now rather than later. Irrigate well before closing. Clots left in the abdominal cavity may be a focus for infection or adhesions and subsequent bowel obstruction. If there is any suspicion that trophoblastic tissue may be left inside, give the patient postoperative Methotrexate. Most patients will do well with this technique. The importance of a Family Physician trained in obstetrics to be able to manage ectopic pregnancies surgically cannot be overstated.

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