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Commentary

The GEMMA Seminar: a graduate public health course on Global Elimination of Maternal Mortality from Abortion

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1. Introduction

Abortion is one of the most important public health issues in the United States. Yet, public health education has given it minimal attention despite the American Public Health Association's policy that "urges medical, nursing and public health schools, residency training programs and midwifery and physician assistant programs to develop and incorporate materials on the medical need, procedures, technology as well as the history and public health aspects of abortion into current curricula [1]. At least six public health texts provide public health perspectives on abortion, such as morbidity, mortality, case studies, legality, sex selection and post-abortion care [2–8], while a few have brief or no mention of abortion [9,10]. To our knowledge, no US-based school of public health offers a course focused solely on preventing unsafe abortion's contribution to maternal morbidity and mortality. We have developed, pilot tested and expanded a course specifically on abortion and its contribution to maternal mortality worldwide and will describe the course and its reception.

Some 215 million women worldwide desire protection from pregnancy but have limited or no access to contraception [11]. Annually, close to 50% of worldwide pregnancies are unintended, and of those, at least half end in abortion. In 2008, 21.6 million of the 55 million abortions performed were unsafe and led to 47,000 maternal deaths and hundreds of thousands of complications resulting in severe maternal morbidity [12]. Most unsafe abortions take place in developing countries and nearly all of the morbidity and mortality associated with them could be prevented if women have access to comprehensive family planning education and services, and safe abortion care [11].

Global unsafe abortion is a major public health issue [13], yet the major recognized US-based funders of reproductive health initiatives consistently limit their scope of work to post abortion care and contraception [13]. These approaches and decisions lead to missed opportunities to fully address the impact of providing and advocating for comprehensive, safe abortion care in high maternal mortality settings. Several nongovernmental organizations and European governments provide leadership in supporting research or providing comprehensive abortion care. Few US academic institutions have provided leadership in identifying approaches to preventing maternal death from abortion, for example, the University of California system, yet these schools remain the exception, not the norm.

2. The Global Elimination of Maternal Mortality from Abortion (GEMMA) Fund at Rollins School of Public Health, Emory University

In recognition of continuing high maternal mortality from abortion in many countries that is often neglected in safe motherhood campaigns, the Rollins School of Public Health (RSPH) at Emory University in Atlanta, Georgia established and endowed the GEMMA Fund in 2003 to support Emory graduate student research to prevent maternal deaths from abortion [14,15]. During 2009–11, the GEMMA Fund supported 20 graduate students' research in Mexico, Colombia, Paraguay, Zambia, Kenya, Ethiopia and India.

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Student research in India included a study examining access to medical termination of pregnancy that aimed to inform policy changes to expand access to abortion services, particularly in rural areas by allowing non-physician providers in non-governmental institutions to provide abortion care. In Colombia, two graduate students explored the relationship between unwanted pregnancy and induced abortion among indigenous women in the Amazon region. In Mexico City, two teams of four students each representing Emory University School of Public Health, School of Law and School of Theology collaborated with Mexico's National Pro-Choice Alliance to compile evidence-based recommendations for messaging to combat the stigma and isolation faced by women who have had or need an abortion in Mexico. Findings from several GEMMA-funded studies have been disseminated among host country policy makers and stakeholders and presented at scientific meetings. By addressing the controversial and often hidden topic of abortion, GEMMA Fund recipients embark on an academic journey that has the potential to create momentum to eliminate abortion-related deaths. Each year, about 15 graduate students express interest in GEMMA projects; faculty review their proposals and provide technical consultation to the best five to seven; the number selected depends on funds available. Students have shown great commitment and ingenuity in conducting GEMMA-related research.

3. The GEMMA Seminar

The robust graduate student response to GEMMA fund opportunities led three faculty to develop the GEMMA Seminar. During the first academic year (Spring 2010), we offered a 1-credit, half-semester course meeting 2 h a week. Through end of the course evaluations, students unanimously requested the Seminar be expanded to a 2 h per week, two-credit, full-semester course and the course was adapted to reflect this feedback for the spring of 2011. The course is housed in the Hubert Department of Global Health at RSPH. It is one of three core course options for the Reproductive Health and Population Studies concentration and an elective course available to all other students. The course aims for students to understand the role of unsafe abortion in global maternal mortality, to develop a well-informed project proposal that has the potential to make substantive progress towards the GEMMA Fund's mission and to become an informed advocate for eliminating maternal mortality from abortion. Students who elect to take this course acquire the knowledge required to participate effectively in a practical field experience directed toward the global elimination of maternal mortality from abortion.

In order to accomplish the course objectives, we designed a syllabus that approaches the complex subject of unsafe abortion from several different angles and uses several learning styles. The course includes sessions that address abortion and maternal mortality measurement and surveillance introduces clinical aspects surrounding medical and surgical abortion, incorporates in-depth study of countries that have had changes in abortion policies and discusses the effects these have had on reproductive health and societies and exercises in values clarification training around abortion and biological and religious perspectives on the development of human life. Students learn the technical aspects of comprehensive safe abortion care, including integration of family planning services. The faculty members are physicians and have great field experience globally in the arenas of abortion, family planning and/or maternal mortality. Two of the faculty members are also epidemiologists who have worked with the Centers for Disease Control and Prevention in the capacity of researchers and leaders in abortion surveillance and mortality. The course ends with each student's presentation of their final project: research proposals addressing some aspect of unsafe abortion mortality elimination. Details of the course organization and syllabus are presented below.

The GEMMA Seminar has generated strong interest and enthusiasm among students, with an average of 22 students per semester. The participants represent a diverse group of students, health care professionals, former, current and future abortion providers from all over the world who bring a wide range of perspectives and experiences to the class: physicians who have spent years providing abortion procedures along the Thai/Burmese border in highly restricted abortion settings, Pakistani midwives who have provided post-abortion care services within the confines of Pakistani law, medical, nursing, public health, law and ethics students, men and women of diverse nationalities, cultures and ethnic groups.

3.1. Course content

3.1.1. Measurement

Students are offered two 2-h sessions on measurement of and research methods employed to study abortion and maternal mortality. The first session defines abortion, discusses the complexity of classifying abortion procedures as safe or unsafe and introduces the most widely used abortion indicators together with global and regional trends in abortion practice. We describe direct and indirect estimation methods, and advantages and limitations of the different methods. We present Bongaarts' proximal determinants of fertility model [16] and the residual method for indirectly estimating abortion and then discuss how extremely sensitive the method is to inaccurate data on contraception, marriage and postpartum infecundability patterns in a country/setting and show the effect of small percentage changes in these indicators on estimating the abortion index [17]. During this session, we compare survey techniques for estimating abortion through face-to-face interviews (e.g., preceding birth technique, anonymous third party reporting, confidants' method), self-administered questionnaires, audio computer-assisted self-interviews and the random response technique.

We developed a class exercise to demonstrate how the latter technique is used, and we discuss the assigned readings that provide an illustrative comparison of this survey technique relative to the other three mentioned above [18].

While the first abortion surveillance and measurement session is presented early in the course, the second session comes after students have learned various aspects of practice and clinical abortion procedures, abortion research and policy and are better able to grasp new concepts related to unsafe abortion estimation and maternal mortality. We use a 2006 study that estimates hospitalization rates from induced abortion complications in 13 developing countries to illustrate the use of hospital data and of different data collection methodologies to estimate the magnitude of unsafe abortion [19]. We next discuss maternal mortality measurement issues, and compare two sets of 2008 maternal mortality estimates — one set produced by UN agencies [20], and the other by Hogan et al. [21]. Another assigned reading is used to compare maternal mortality levels and assess how the risk of death varies by pregnancy outcome between the study and the comparison area in Matlab, Bangladesh [22]. This particular paper provides an opportunity for students to use the data in the paper and practice calculation of maternal mortality indicators (maternal mortality ratio, rate, risk and lifetime risk of maternal death) by pregnancy outcomes. In addition, this paper familiarizes students with the Matlab site; one of the best and oldest demographic surveillance sites in the world [22].

3.1.2. Case studies

Abortion policies, legal issues, medical practices, cultural and religious issues and activism programs are core components of the course content. We use country case studies highlighting different degrees of abortion legalization, and the successes and failures of these countries in preventing abortion-related complications and mortality. Case studies presented focus on issues of measurement, policy, advocacy, community, cultural and religious support for and barriers to provision of safe abortion. Small group work, with students and faculty, exploring the impact of changes in abortion policies on reproductive health, women, families and societies is carried out, and substantial discussion of strategies to overcome these social norms when they are perceived as barriers is undertaken. The required readings for each class are chosen from scientific literature, advocacy papers, textbooks, as well as religious and cultural writings.

Bangladesh, Romania and the United States are highlighted as markedly different countries politically, economically and from the perspective of fertility, which have all essentially eliminated mortality from abortion through policy changes, government and societal involvement [22]. Ethiopia, Nicaragua, Mexico City, South Africa and Tanzania are included as countries/states with relatively recent changes in abortion policies, and the impact of these policies is reviewed and discussed in detail [23–27]. Several other countries' abortion-related histories are presented to expose students to a breadth of global experiences and facilitate their understanding of the role of abortion policies and of the relationships between abortion and family planning, and between access to safe abortion and maternal mortality [28–30].

Finally, students are challenged to examine the value of policy analysis in evaluating the battle for legal abortion [31].

We invite abortion and maternal mortality researchers and leaders of key organizations engaged in interventions to reduce the burden of unsafe abortion to present their work in specific community, cultural and religious contexts that may contribute to the continuation of unsafe abortion practices or to the improvement in abortion policies and access. In addition, we invite graduate students who received GEMMA awards to share their research experiences.

3.2. Life's beginnings

We dedicate a full 2-h class session to addressing the perplexing question of "When does human life begin?" The discussion is initiated by presenting selected students' written responses to required readings and engaging the class in an open roundtable format to explore the complexities of the question of life's beginnings. The required readings include scientific papers and texts [32–35], historical [36] and religious texts [37–43] , as well as commentaries and opinion pieces [44–46]. The scope of the readings is intentionally broad in order to expose students to the myriad angles from which this question is approached: Does life begin with fertilization? Implantation? Quickening? Birth? Adulthood? We have found great diversity in students' beliefs around this topic and have been impressed with their openness as many of them explore this question for the first time. Given that policies and attitudes toward abortion are affected in part by responses to these questions, this segment of our course is critical to the development of our students as future leaders in abortion advocacy, policy, provision, and politics. The feedback we have received regarding this piece of the course has been positive, with several students describing it as "*the most valuable 2 hours of the semester*".

4. Values clarification work

Mid-semester, students participate in a Values Clarification and Transformation (VCAT) session in order to explore their own values around abortion and to learn to conduct VCAT sessions in preparation for their GEMMA-related research and other activities. The Ipas VCAT toolkit is used as a framework for the class, and is adapted and abbreviated in order to accommodate class time constraints [47,48]. Family planning experts and abortion providers are invited to participate in this class session and share their personal reflections and professional experiences around abortion work through the lens of values clarification.

The session is purposefully placed midway through the semester after class sessions addressing clinical content and

discussions surrounding beginnings of life in order to allow students exposure to different aspects of abortion practice and research. Feedback from students, however, has prompted us to consider a two-part VCAT series, with the first on the first day of class, and the second at the class midpoint or its end. The VCAT session inspired students to hold separate VCAT seminars for those in the Emory community interested in exploring values around abortion, with selected self-identified students as trainers. The student-led seminar was robustly attended and well received. Of note, several students have also gone on to lead VCAT seminars in countries in which they are conducting GEMMA-related research or programming.

4.1. Course evaluation

Students are evaluated based on several factors. This is a participatory class of 20–25 students who are expected to fully engage in the discussion, in both small and large groups, of issues raised by readings and lecturers. Required course assignments include weekly individual postings to the discussion board based on the readings, an individual briefing paper providing a country- or region–specific description of abortion morbidity and mortality, context of abortion policy and legality, challenges faced and success stories toward elimination of unsafe abortion in that country/region, and the development and presentation of a group research or intervention proposal that describes a project that could have significant contribution to GEMMA's mission.

In parallel, students evaluate the course and faculty after each course session as well as at the end of the semester. Most student recommendations are incorporated into the following year GEMMA Seminar.

5. Comment

The GEMMA Seminar is a unique course offered at Rollins School of Public Health, Emory University, that helps graduate students understand the contribution of unsafe abortion to maternal mortality worldwide and learn ways to reduce its burden. Given the global rise in unsafe abortion over the past decade, this course and its mission are relevant and timely, and its impact imperative to reversing this trend [49]. The course has been offered for 2 academic years, and evolved from a one-credit, half-semester seminar to a two-credit full semester course in response to student demand for a more comprehensive course. However, the course size is relatively small, and it is offered one semester per year.

The final course assignment is a realistic, useable research proposal intended to be carried out by students either as their summer practicum or later in their career. However, the course has merit in that 20–25 students finish the course each year with a solid understanding of why elimination of global maternal mortality from abortion should be a priority worldwide. Students leave the course with a set of tools that equips them to pursue their public health careers in a knowledgeable, impactful way.

In order to increase its potential impact, the course could be offered twice a year to accommodate more Emory University graduate students. More importantly, the course could be replicated at other schools of public health that have a department focused on global health or solely a reproductive health track. Ideally, this could be done in universities with schools of medicine that also offer fellowships in family planning in order to facilitate identification of faculty members who can adequately lead the course. Thus, the GEMMA Seminar has the potential to develop into a core course at select public health schools across the globe, putting the realities of unsafe abortion, related mortality, and the practical solutions to resolving these issues into the center of public health education for future leaders in the field.

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