EMERGENCY MISCONCEPTIONS: EMERGENCY CONTRACEPTIVE SERVICES IN CHILDREN'S HOSPITAL EMERGENCY DEPARTMENTS

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Submitted to the Graduate Faculty of

the Graduate School of Public Health in partial fulfillment

of the requirements for the degree of

Master of Public Health

University of Pittsburgh

2005

UNIVERSITY OF PITTSBURGH

GRADUATE SCHOOL OF PUBLIC HEALTH

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Timely use of emergency contraception after all contraceptive failures could prevent up to 50% of all unintended pregnancies. In 2002, 85% of adolescents' pregnancies were unintended, resulting in almost 500,000 births and 235,000 abortions. Emergency contraceptive services may be especially useful to adolescents because of their erratic patterns of sexual behavior and contraceptive use. Providing these services during emergency department hospital visits is vitally important in helping adolescents to prevent unwanted pregnancies. This IRB-approved study aimed to expand upon current data in the literature by assessing the type and amount of emergency contraceptive services provided to adolescents in these hospital settings nationwide. Research included in this thesis represents a pilot study of thirty-two physicians who work in twenty-one children's hospital emergency departments across the United States. Telephone surveys were conducted with these physicians to assess the types of EC services available in their emergency departments and their attitudes regarding these services. Recommendations for undertaking a full-scale study of this same target population include improving response rates by modifying the survey administration protocol and increasing the number of contacts made with each physician.

Results indicate that children's hospital emergency department physicians are not meeting the current standard of care for emergency contraceptive counseling and prescribing

practices with adolescents. These results support the need for increased education and awareness for emergency department physicians in children's hospitals regarding emergency contraception and strategies to optimally communicate this information to their adolescent patients. The relevance of public health in this thesis is exemplified by the potential of the research to inform both the public health and medical communities about how emergency contraception is provided to female adolescents in children's hospital emergency departments. Comparison of results from both this pilot study and the full-scale study that will be based on this pilot study may lead to legislative and hospital policy change to improve the availability of emergency contraceptive services to adolescents, and hence to a reduction in the unintended pregnancy rate among adolescents.

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1. INTRODUCTION

Recent research has shown low but increasing levels of knowledge about the use of emergency contraception by both patients and health care providers.[1,2] Timely use of emergency contraception following all contraceptive failures could prevent up to fifty percent of unintended pregnancies.[3] Despite increasing knowledge regarding emergency contraception, adolescents in the United States had nearly 822,000 pregnancies in 2000.[4] Eighty-five percent of these pregnancies were unintended, resulting in nearly 489,000 births and 235,000 abortions. Emergency contraceptive services may be especially useful to adolescents because of their erratic patterns of sexual behavior and contraceptive use.[5] Providing emergency contraceptive services during emergency department visits is vitally important in helping adolescents to prevent unwanted pregnancies. However, in order for emergency contraception to be used effectively to prevent these unwanted pregnancies, adolescents need accurate and timely information on how it should be used in order to gain maximal effect.

Currently, no research exists that describes the provision of emergency contraceptive services specifically to adolescents in children's hospital emergency departments. This study aims to expand upon current data in the literature regarding general emergency contraceptive services in hospitals by assessing the type and amount of emergency contraceptive services provided to adolescents in these hospital settings on a national level. By determining the types of services available, the amount of information being provided, and the circumstances in which the services and information are being supplied, this research will help to inform the public health and medical communities about how emergency contraception is discussed with, and provided to, female adolescents in children's hospital emergency departments as well as provide recommendations for optimal emergency contraceptive services that should be made available to

adolescents in the children's hospital emergency department setting. A comparison of results from the hospitals in this study and from the physicians who work in them will contribute to efforts to change legislative and hospital policy that improve the availability of emergency contraceptive services to adolescents and, as a result, to a reduction in both the unintended pregnancy rate and the abortion rate among adolescents.

This thesis will (1) explore the literature on emergency contraception, with special attention to adolescents in a hospital emergency department setting; (2) describe the research conducted to ascertain emergency contraception prescribing protocols and practices for female adolescents at children's hospitals nationwide; (3) analyze collected data and draw conclusions based on results from the research; and (4) provide recommendations for further research as well as for the best practices of emergency contraceptive prescribing and discussion in United States children's hospital emergency departments. Based on the available research, I hypothesized that there would be few protocols in place for emergency contraceptive counseling with, and provision to, adolescents in the children's hospital emergency department setting. I posited that younger physicians, more recent medical school graduates, and physicians who worked in hospitals that were not located in the South would have more positive attitudes towards, and greater knowledge of, emergency contraception. I further postulated that female physicians, especially, would have a greater propensity towards discussing and providing emergency contraception due to a greater understanding of women's health issues and a connection attributed to being of the same gender.

Based on research obtained from a small pilot study, my data and analysis reveal that physicians who work in children's hospital emergency departments are not meeting the recommended standards of care for emergency contraceptive counseling and prescribing

practices with adolescents. The lack of established protocols for EC provision, especially in non-sexual assault circumstances, allows ED physicians to personally determine whether or not an adolescent warrants EC and creates an atmosphere in which demographic characteristics of a hospital drive decisions surrounding EC services for adolescents rather than established medical guidelines. Lessons learned from the administration of surveys for the pilot study and from the preliminary results obtained during the data collection will inform researchers about the best practices for continuing the study in a larger population.

2. BACKGROUND ON EMERGENCY CONTRACEPTION

2.1. HISTORY

Postcoital contraception research first appeared in the medical literature in the late 1960s and early 1970s when doctors used high doses of hormones present in oral contraceptive pills to prevent pregnancy by delaying ovulation or by inhibiting implantation of a fertilized egg in the endometrial lining of the uterus. Defined as any agent used as emergency treatment to prevent pregnancy after unprotected intercourse or contraceptive failure[6], emergency contraception (EC) falls in the middle of a continuum between regular pre-coital contraception and abortion. Because it does not prevent pregnancy before intercourse, EC cannot be classified as a regular, routinely used birth control method. Similarly, as EC does not end a pregnancy once it has started[*], EC cannot be termed an abortifacient. Therefore it falls into its own category and widespread controversy over how to appropriately educate about, prescribe, and use EC is due primarily to this unique categorization within the contraceptive world.

Historically, doctors have used both high doses of estrogens or estrogens and progestins (the Pill) and intrauterine devices (IUDs) as forms of post-coital contraception. In the late 1960s and early 1970s, high doses of estrogens in five-day courses within seventy-two hours after coitus were used to prevent implantation of a fertilized egg into the endometrial lining of the uterus.[7] Due to significant side effects of nausea, vomiting, and irregular bleeding, these forms of EC were superseded by a regimen developed and named after the Canadian obstetrician/gynecologist Albert Yuzpe, who recommended a hormonal combination of estrogen

[*]Pregnancy is defined by the National Institutes of Health/FDA and the American College of Obstetricians and Gynecologists as the implantation of a fertilized egg into the endometrial lining of the uterus.

and progestin-containing oral contraceptive pills initiated within seventy-two hours after coitus and repeated within twelve hours after the first dose to prevent pregnancy.[8] This regimen, known as the Yuzpe regimen, remained the gold standard among EC oral regimens until the late 1990s, when newer regimens featuring progestin-only hormones were developed and were shown to have greater efficacy and fewer side effects than the traditional combination regimens that include both progestin and estrogen.

In 1976, Lippes et al. demonstrated the effectiveness of inserting a copper IUD into a woman's uterus to prevent pregnancy up to five days following unprotected intercourse.[9] They determined that an IUD could be inserted on the specific day of a woman's menstrual cycle when she presents herself for treatment (within a certain timeframe) in order to prevent pregnancy. A bonus feature of the copper IUD used as postcoital contraception is that it can remain in place to act as an ongoing form of contraception. However, many physicians worried about the universality of using a copper IUD as a form of postcoital contraception due to concerns about using them in women at risk for sexually transmitted infections and the implication that the copper IUD must somehow interfere with implantation.[10] Use of the IUD and of high doses of regular oral contraceptives as EC continued throughout the 1980s and the 1990s, based on medical evidence that certain regimens were extremely effective at preventing pregnancy if taken within specific timeframes after episodes of unprotected intercourse.

Also known by the misnomer, "the morning-after pill," emergency contraceptive pills (ECPs) are currently available for use as a postcoital contraceptive in a number of different regimens. Combined ECPs are regular birth control pills that contain both estrogen and progestin, while progestin-only ECPs can be regular progestin-only birth control pills ("mini pills") that contain levonorgestrel or the EC dedicated product Plan B. The Food and Drug

Administration (FDA) has recognized nineteen brands of oral contraceptives (eighteen combined hormone pills and one progestin-only pill) for use as EC (see Table 1).[11]

Table 1: Twenty oral contraceptives that can currently be used as EC in the United States

Brand	Distributor	Ethinyl estradiol per dose (µg)	Levonorgestrel per dose (mg)
Ovrette	Wyeth-Ayerst	0	.75
Plan-B	Barr	0	.75
Alesse	Wyeth-Ayerst	100	.50
Aviane	Barr	100	.50
Cryselle	Barr	120	.60
Enpresse	Barr	120	.50
Lessina	Barr	100	.50
Levlen	Berlex	120	.60
Levlite	Berlex	100	.50
Levora	Watson	120	.60
Lo/Ovral	Wyeth-Ayerst	120	.60
Low-Ogestrel	Watson	120	.60
Nordette	Wyeth-Ayerst	120	.60
Ogestrel	Watson	100	.50
Ovral	Wyeth-Ayerst	100	.50
Portia	Barr	120	.60
Seasonale	Barr	120	.60
Tri-Levlen	Berlex	120	.50
Triphasil	Wyeth-Ayerst	120	.50
Trivora	Watson	120	.50

Adapted from Trussell et al. 2004

Of these oral contraceptives, only Preven (which is no longer manufactured) and Plan B were specifically designed and approved for use as EC by the FDA in 1998 and 1999 respectively.

Most scientific literature identifies Plan B (a progestin-only ECP) as the optimal choice for EC when available, based on high efficacy and low number and severity of side effects.[12]

The copper IUD is still a form of EC that is rarely used compared to ECPs due to physician concerns about possible complications in patients who are at risk for sexually transmitted infections. The copper IUD is extremely effective at preventing pregnancy after unprotected intercourse (estimated to be about 99% effective) and it can be inserted up to five days after unprotected intercourse with the possibility of being left in place for up to ten years as an ongoing form of contraception.[13] The high efficacy of the copper IUD in postcoital pregnancy prevention has led scientists to believe that it works by interfering with the implantation of a fertilized egg into the endometrial lining of the uterus.

2.2. MECHANISMS OF ACTION

Due to the controversy surrounding the issue of when conception begins, it is imperative for researchers to determine the actual mechanisms of action by which emergency contraceptive pills prevent pregnancy. Although pregnancy is medically defined as beginning when a fertilized egg implants into the endometrial lining of the uterus, both the medical community and the general public are wary of the moral backlash of relying on EC that primarily works by disrupting the biological course of a fertilized egg. Any interference with a fertilized egg after it has implanted in the uterus is considered abortion, while an intervention prior to this event is medically regarded as contraception. Despite some conservative viewpoints that any interference after an egg has been fertilized represents abortion, EC cannot stop a pregnancy once the egg has implanted. However, the proximity of what is medically defined as an abortion to what is one of EC's known mechanisms of action (interfering with implantation, which marks

pregnancy) creates uneasiness for some members of the public. Many people are much more comfortable with the idea that emergency contraceptive pills work by delaying or inhibiting ovulation as regular hormonal contraceptives do (such as Depo-Provera, the OrthoEvra patch, the NuvaRing, and oral contraceptive pills) because no fertilized egg is involved in this process about which to debate its viability.

Despite the desire and need to determine exactly how EC works, no single mechanism of action for ECPs has been identified in the scientific literature. Scientists hypothesize that there are several possible ways by which ECPs work to prevent pregnancy: by delaying ovulation, inhibiting ovulation, inhibiting fertilization, or inhibiting implantation of a fertilized egg. Several clinical studies demonstrate the capability of ECPs to inhibit or delay ovulation,[14,15,16,17] and recent research indicates that this is the most likely primary mechanism of action for ECPs.[18,19] Recent animal research shows even stronger evidence that levonorgestrel, a progestin found in several types of EC, does not prevent pregnancy by interfering with post-fertilization events.[20] Some studies have also shown histological or biochemical alterations in the endometrial lining of the uterus that make it difficult for the implantation of a fertilized egg.[21,22] These findings, however, are in contrast to a few studies that show no effects from the ECPs on the endometrial lining.[18,23,24] Finally, scientists have hypothesized that ECPs might affect the tubal transport of a sperm or egg, thicken cervical mucus to prevent sperm entry into the uterus, or directly inhibit the process of fertilization.[25,26,27] At this time, however, very little research exists to support these possible explanations for the mechanisms of ECP action.

2.3. TIMING

The FDA-approved time period for using ECPs is within seventy-two hours after unprotected intercourse. However, recent research demonstrates that the efficacy of ECPs in preventing pregnancy does not drop drastically after the seventy-two hour time window, and researchers have shown that ECPs may be just as effective at preventing pregnancy up to 120 hours after intercourse.[28,29,30] Two studies indicate that the sooner a patient begins an ECP regimen after an episode of unprotected intercourse, the greater the effectiveness at preventing pregnancy.[31,32] However, another more recent study finds no decrease in efficacy for ECPs started later within the seventy two hour timeframe.[33] Despite this difference in results, most health care providers recommend that patients initiate the first dose of an ECP as soon as possible after an episode of unprotected intercourse.

The current treatment schedule for both combined ECPs and progestin-only ECPs is one dose within seventy two hours after unprotected intercourse, and a second dose twelve hours after the first dose. A recent clinical trial has shown that taking two doses of the progestin-only pills within the first seventy two hours is just as effective at preventing pregnancy as is taking them twelve hours apart without an increase in side effects like nausea or spotting.[34] Taking both doses at the same time is solely recommended for the progestin-only EC (like Plan B). The Yuzpe regimen should either be taken in the recommended two separate doses or, according to a recent study, one single dose could be used without a significant decrease in efficacy. These treatment schedules are applicable to both the dedicated EC products – Plan B and Preven – as well as the regular oral contraceptives cleared for use as emergency contraceptives (see Table 1 above).

2.4. SIDE EFFECTS

The most common side effects of EC are nausea and vomiting, although these are shown to be less severe in progestin-only regimens as compared to combined ECPs. Other side effects of EC include fatigue, breast tenderness, headaches, dizziness, abdominal pain, and irregular bleeding.[35] Although nausea occurs in about fifty percent of women who take the combined ECPs and twenty percent of them have vomiting, this can be prevented with anti-emetic medications taken one hour before swallowing the first dose of ECPs. Progestin-only regimens have been shown to have significantly fewer side effects, especially less nausea (23%) and decreased vomiting (6%). Some studies have reported incidences of ectopic pregnancies occurring after use of both the Yuzpe EC regimen and the newer progestin-only EC regimen, but these also show that the rates of ectopic pregnancies are very low, possibly even lower than a non-EC using population, and there is no increased risk for ectopic pregnancies associated with the progestin-only EC as compared to the Yuzpe regimen.[36,37,38] Another recent finding indicates that use of EC could increase the risk of pregnancy for women who have unprotected sex after having taken EC. This finding was based on a Chinese study which found that women who had unprotected intercourse after taking 10 mg of mifepristone as an EC had a twelve times greater risk of pregnancy compared with women who used contraception after taking the mifepristone EC.[39]

According to the World Health Organization, the only contraindication for EC is pregnancy, not because the EC regimen could harm the fetus, simply because EC is ineffective if the patient is already pregnant.[40] Several studies have shown that long-term use of regular oral contraceptives during a pregnancy has no teratogenic effects on the fetus; ECPs, taken over a shorter time course than regular birth control, are assumed to have similar non-effects on the

fetus.[41] However, no prospective studies specifically exploring the teratogenic effects of ECPs on a fetus have been conducted to date.

If combined ECPs are taken repeatedly within a month's time and this is done regularly, there is a slight possibility that contraindications associated with regular oral contraceptives could apply. Scientists speculate, however, that ECPs carry a very low risk of the contraindications associated with regular OC use due to the decreased exposure to hormones during which ECPs are taken. This is especially true for the progestin-only EC regimens. The World Health Organization states in its ECP service guidelines that "repeat use poses no health risks and should never be cited as a reason for denying women access to treatment."

2.5. EFFECTIVENESS

EC is difficult to study in terms of effectiveness, as there is no way of exactly determining whether a pregnancy would have occurred without using them. Despite this difficulty, scientists have estimated that use of the combined-hormone ECPs reduces pregnancy by seventy-five percent.[42] To illustrate, out of a sample of 100 women who have unprotected intercourse during the second or third week of their cycle, approximately eight women will become pregnant. If these 100 women who had unprotected sex used ECPs, approximately two of the women would have become pregnant, which would represent a seventy-five percent decrease due to the use of the ECPs. Effectiveness of EC varies with the prescribed regimen, the timing within the women's cycle that the episode of unprotected intercourse occurred, and when after this episode ECs are taken. The progestin-only ECPs seem to have a higher effectiveness than the combination ECPs, based on a clinical study that showed a fewer number of pregnancies with the progestin-only ECPs.

A recent review of the literature regarding repeat use of EC demonstrates that it is safe and effective for patients to use ECPs as many times as is necessary in order to prevent unwanted pregnancy.[43] There has been some discomfort in the medical community as well as in the general public with the idea that patients might "overuse" EC, stemming from the belief that frequent use of EC could be unsafe and irresponsible. On the contrary, when a patient recognizes that she could get pregnant due to either the failure of a regular contraceptive or unprotected intercourse and seeks EC to help prevent pregnancy, she should be considered as being more responsible for taking the initiative to seek out these services.

2.6. AVAILABILITY

Prompt access to EC is necessary in order to ensure that women can be successful in their goal of preventing an unwanted pregnancy and avoiding being confronted with the decision of whether to have an abortion. If used after all contraceptive failures, scientists estimate that EC could prevent fifty percent of unintended pregnancies and sixty to seventy percent of abortions annually. Obviously, this rate is dependent on how quickly a patient can access EC services. EC is currently available in the United States only by prescription. In 1998, Washington became the first state to grant women access to EC through pharmacies without first having to obtain a prescription from a doctor. Pharmacists screened patients based on collaborative doctor-approved protocols and dispensed EC to women who met specific criteria within these protocols. Five states including California, Alaska, Maine, New Mexico, and Hawaii, have followed Washington's lead, and now permit women of all ages to obtain EC through pharmacies with similar screening protocols. Most of these screening protocols incorporate questions that rule out

an established pregnancy, provide basic educational information about both emergency and regular contraception, and require patients to sign consent forms.[44]

Despite the seemingly obvious benefits of making EC more accessible to women by not requiring them to see a doctor, a 2005 study shows that the pharmacy screening process presents almost as much of an obstacle to obtaining EC as does requiring a doctor's prescription.[45] Conducting a randomized controlled trial of California women assigned to three different groups of access to EC (pharmacy access, advance provision of EC, or clinic access), Raine et al. found that women in the pharmacy access group were no more likely to use EC than women in the control clinic access group. They postulated that the pharmacy screening method for EC, while overcoming the obstacle of a doctor's visit, still represents a barrier for women to access EC with ease and privacy.

This study, as well as several other studies, also looked at the benefits of making EC available through advance provision. EC is an extremely effective and safe method by which to prevent pregnancy after intercourse, but the combination of the conflict surrounding its mechanism of action and the general lack of awareness about it by women and physicians makes it enormously underutilized. By improving access to and decreasing barriers to use of EC, advance provision by prescription or supply prior to an episode of unprotected intercourse puts post-coital contraceptive responsibility into the patient's hands. Studies from both the United States and the international community have proven that making EC available in advance increases its use and does so without decreasing usage rates of regular contraception,[46,47,48,49,50,,51] a point of concern for critics of advance provision. Similarly, having an advance supply or prescription of EC does not increase rates of STDs or sexual risk-taking behaviors.[43,45]

Although theoretically advance provision of EC seems to be the perfect solution to increasing women's access to EC, a qualitative evaluation of an advanced provision program in the United Kingdom found that (1) women rarely requested EC in advance due to worries about what the request implied about their morals, and (2) providers were reluctant to offer it to their patients for fear that it would send a contradictory sexual message.[52] This study demonstrates the need for more open communication between providers and their patients and to dispel the notion that requesting or obtaining EC represents sexual irresponsibility. Another study indicated that a possible negative effect of providing EC through advance provision could be a decrease in the use of regular, more effective contraception such as less consistent use of oral contraceptive pills.[53] These findings indicate a need for greater exploration of the ways in which advance provision of EC influence regular contraceptive use.

The FDA did not become directly involved in the dedicated EC area until 1998, when the agency approved the first contraceptives specifically developed for use as EC: Preven in 1998 and Plan B in 1999. On February 14, 2001, the Center for Reproductive Rights petitioned the FDA to make EC available to patients over the counter (OTC). OTC status for ECPs is widely supported within the scientific community and endorsed by many medical organizations such as the American Medical Association and the American College of Obstetricians and Gynecologists. In December 2003, an FDA advisory committee voted twenty-three to four in favor of reclassifying Plan B from prescription to over-the-counter status. An April 2004 editorial in the *New England Journal of Medicine* reiterated the scientific community's support to change Plan B's status from prescription-only to OTC, citing several reputable studies supporting the switch and encouraging the FDA to base its decisions on scientific data rather than political persuasions.[54]

Despite this overwhelming support from the scientific community as well as extensive evidence demonstrating the safety of Plan B as an OTC medication, the FDA denied the application for Plan B's OTC status on May 6, 2004, stating that there were not enough data regarding the behavioral effects of making EC available OTC to adolescents under the age of sixteen. This denial sparked great debate and emotion throughout the United States, as many people believed that the FDA's claims of "insufficient data" were merely excuses to draw attention away from the agency's reliance on political influence rather than scientific evidence. According to the Alan Guttmacher Institute, in 2000 EC prevented approximately 51,000 abortions[55]; this number could be dramatically increased if EC were made more accessible to the general population.

In January 2005, the FDA was supposed to vote again on whether to grant OTC status to Plan B, this time specifically indicated for ages sixteen and over. Adolescents under the age of sixteen would still have to obtain a prescription in order to access EC. Although an approval from the FDA on this dual status would represent an advancement towards making EC more accessible to users, critics of it fear that placing age restrictions on EC could actually present more barriers to accessibility. If this dual status is approved, it is unclear whether pharmacies will actually stock EC, where they will stock it within their pharmacies (behind the counter, on an open shelf, within the eyesight of the pharmacist), and how pharmacists will determine the user's age.[56] At this time, the FDA has not yet released its decision on whether to approve this dual status; its decision has been delayed indefinitely. Due to perceived negligence on the agency's part for delaying the decision regarding OTC status for Plan B, the Center for Reproductive Rights has filed a lawsuit against the FDA claiming that the FDA violated the Administrative Procedure Act and the United States Constitution.[57]

2.7. KNOWLEDGE, ATTITUDES, AND BELIEFS

More and more scientific studies are finding data that support the safety and efficacy of EC, and this information must be communicated to three subsets of the population in a timely fashion in order to minimize current barriers to EC. The subsets of the population that require knowledge about EC in order to increase awareness and improve utilization of these services are: (1) the general public, (2) health care providers, and (3) pharmacists. Without proper education about emergency contraceptive services within these three populations, and ample communication and coordination among providers, pharmacists, and patients concerning EC services, EC will remain an enormously effective but underutilized medical service.

The subset of the population that is most in need of knowledge regarding EC is the general public. A study conducted in 1984 that assessed knowledge about EC among college students who had induced abortions found that eighty-five percent of these students did not know about EC.[58] In 1997, researchers surveyed American men and women about EC and found that only thirty-six percent of respondents knew that "anything could be done" within a few days after unprotected intercourse to prevent pregnancy, and only one percent of women had reported ever using EC. However, recent research indicates that knowledge of, use of, and positive attitudes towards EC have increased from 1996 to 2002.[59] Despite this increased knowledge, excess of scientific research about EC, and public controversy over its possible switch to OTC status since these studies, new research continues to show that the majority of the general public remains misinformed about EC. A national survey conducted by the Kaiser Family Foundation in 2003 revealed that although two-thirds of women are aware of EC, only six percent of them report ever having used it.[60] Although this statistic indicates that awareness of EC is high in the United States, it does not necessarily reflect high levels of knowledge regarding appropriate use of EC. One study of a Colorado emergency department revealed that, although seventy-seven

percent of women had heard of EC as a method of preventing pregnancy after unprotected sex, twenty-five to fifty percent of these respondents did not have enough knowledge to use EC effectively.[61] In California, only thirty-eight percent of women across the state were able to correctly identify a method of EC, and this percentage was much lower for those who needed EC the most, women who are having intercourse but using no regular form of contraception.[62]

Another crucial population subset that needs improved knowledge of EC is the physician community. In order to appropriately provide emergency contraceptive services to their patients, providers must have a basic understanding of the mechanisms of action of EC, recommended timing, various types of EC that can be used to prevent pregnancy, and the effectiveness of different regimens. In a 1997 survey of physicians who had specific expertise in adolescent health, eighty percent prescribed EC to adolescents, but twelve percent thought that providing ECPs would encourage sexual risk-taking behavior, twenty-five percent thought that providing ECPs would discourage use of regular contraception, and twenty-nine percent thought that repeated use of ECPs posed a health risk to the adolescent. As stated above, studies have shown that none of these latter concerns are warranted in prescribing EC to adolescents. In a 2001 survey of pediatricians in the American Academy of Pediatrics, only about seventeen percent of them routinely counseled adolescent patients about the availability of EC, and the majority (over seventy percent) was unable to correctly identify any of the FDA-approved methods of EC or the recommended timing for its initiation.[63] Although a majority of family medicine providers in a Midwestern United States study conducted in 2004 was willing to prescribe EC, there was a noted discrepancy between their perceived and actual knowledge about EC.[64] These studies demonstrate the need for increased education campaigns for providers who come into contact

with adolescents, such as emergency department doctors, pediatricians, internists, family medicine providers, obstetricians/gynecologists, nurse practitioners, and nurses.

The final link in the chain of information about EC is the pharmacy and the retail pharmacist. The pharmacist's role is presently vital for patients because EC is currently available in the United States only by prescription. It is imperative for pharmacists to be informed about, and equipped with, emergency contraceptive services in order to provide these services for patients in a timely fashion. In the six states where patients can bypass their doctor and obtain EC through a pharmacy screening process (see AVAILABILITY section above), the pharmacist's role in providing EC is especially crucial. However, when researchers called pharmacies across Pennsylvania to determine availability and knowledge regarding ECPs, they learned that only thirty-five percent of pharmacies would be able to fill an ECP prescription that day and that the pharmacists themselves had relatively little knowledge of EC; thirteen percent labeled EC as an abortion method.[65] Similarly, researchers assessing availability of EC products in New Mexico pharmacies discovered that pharmacies were only able to supply EC products during eleven percent of the researchers' visits; this lack of EC availability poses a significant barrier to patients trying to access EC services in a timely fashion.[66] Many pharmacists across the country personally object to EC, and many states have applied to pharmacists their "conscientious objection" clauses, or "conscience clauses", policies that explicitly allow health professionals to refuse to provide some types of reproductive health services on moral or religious grounds.[67]

A literature review conducted in 2000 concluded that the media (newspapers, magazines, TV, radio) is a popular source of information for many people. Respondents stated that media was a more frequent source of information specifically concerning EC, more than health care

providers or schools.[68] However, media portrayals of EC seem to contribute to the public's confusion regarding EC. In a 2005 study, researchers conducted a content analysis of newspaper coverage of EC between 1992 and 2002 and found that approximately forty-four percent of all of the articles included at least one instance of confusion between EC and medical abortion.[69] Several other studies have shown that confusing EC and a medical abortion is the norm, rather than the exception. A Kaiser Family Foundation survey conducted in 2001 found that sixty-one percent of respondents stated that mifepristone (an abortifacient) was the same thing as "the morning-after pill."[70]

The confusion surrounding EC could be partly attributable to the interchangeable use of the phrases "morning after pill" and "emergency contraception" or to the fact that mifepristone has recently been used in some scientific studies as an emergency contraceptive. Mifepristone's popular name, "RU486," received much media attention when it first became available in the United States, which also could have led to confusion concerning the difference between the "medical abortion pill" and the "morning after pill." A medical abortion is an alternative to a surgical abortion and occurs when a patient takes medication orally (mifepristone or methotrexate followed by misoprostol) to stop a pregnancy once it has already occurred. This intervention after the implantation step significantly differs from the way that EC works to prevent pregnancy by interfering with pre-implantation steps in the pregnancy process. Despite this scientific difference, the general public continues to confuse ECPs and mifepristone.

2.8. SEXUAL ASSAULT AND EMERGENCY CONTRACEPTION

Availability of EC is especially important in cases where rape or sexual assault has occurred. In 2002, there were approximately 87,000 reported rapes in the United States resulting in

approximately 4,315 pregnancies.[71] Because these statistics only represent the number of rapes reported to authorities and do not include unreported rapes (estimated to be about seventy to eighty-five percent of all rapes)[72] or rapes of children under 12, it can be assumed that a significantly larger number of rapes and resulting pregnancies occurred. Although pregnancy occurs only in approximately five percent of rapes, these pregnancies can create extreme emotional trauma for women, and many end in abortion. Universal use of EC in sexual assault and rape treatments could prevent a considerable number of these pregnancies and abortions and alleviate some, though not all, of the mental suffering that these women experience.

Many women who are sexually assaulted or raped present to emergency departments (EDs) of hospitals across the country for treatment. The American College of Obstetricians and Gynecologists has recommended that all emergency facilities provide EC services to these women to prevent unwanted pregnancies.[73] Offering these services should be part of the protocol when treating a sexually assaulted patient, just as sexually transmitted disease prophylaxis and psychological support are available. To encourage more uniform care of sexual assault survivors, four states (New York, California, Washington, and New Mexico) have laws requiring hospitals to provide EC to sexual assault patients, and Illinois hospitals are mandated to either supply EC or refer sexual assault patients to a source where they can obtain it.[74] Several medical and advocacy organizations have praised these states for mandating that EC services become an integral part of sexual assault treatments in the hospital setting. In 2003, a bill titled the Compassionate Assistance for Rape Emergencies Act (HR 2527 or S 1564) was introduced into the United States Congress that would require hospitals to provide emergency contraceptives to women who are survivors of sexual assault. Failure to meet these requirements would result in withholding federal funds from the offending hospital. This bill was not enacted during the

2003-2004 term of Congress, and therefore it will most likely be proposed again during the current Congress term.

These steps towards greater availability of emergency contraceptive services were undermined by a recent publication of the National Protocol for Sexual Assault Medical Forensic Examination by the Office on Violence Against Women in the Department of Justice.[75] The protocol glaringly omitted EC as a recommended integral part of rape treatment protocol. By providing detailed instructions for sexually transmitted infection evaluation and treatment but only briefly mentioning that providers should "discuss treatment options [for pregnancy] with their patients, including reproductive health services" and never indicating EC as a possible treatment, the Department of Justice sends a clear message that prevention of possible pregnancies is not high on its list of priorities. Many scientific and advocacy organizations were outraged at the omission of pregnancy prevention services in sexual assault cases, and they wrote to the Department of Justice requesting that a revised protocol include this information. A national protocol recommending that emergency departments provide EC services would raise awareness of EC and significantly increase the availability of EC in hospitals nationwide.

Recent surveys of emergency facilities in states throughout the country have found that in eight of the eleven states studied, fewer than 40% of facilities dispense EC on-site to sexual assault patients.[76] In a study conducted in Pennsylvania, only 46% of the hospitals surveyed routinely offered and provided EC to sexual assault patients.[77] Emergency contraceptive services vary depending on the physician discussing or prescribing it, the location of the hospital (rural or urban), and hospital religious affiliations, among other factors. Another study of emergency department EC prescriptions and provision in hospitals across the country revealed that some Catholic hospitals have policies that prohibit the mere discussion of EC, and sexual

assault patients in some of these settings will only learn about the treatment if they specifically request information on EC.[78]

Research has shown that hospitals that have either SAFE (sexual assault forensic examiner) or SANE (sexual assault nurse examiner) programs in place are more likely than those that do not have the programs to have consistent and comprehensive protocols for handling sexual assault and for providing EC to a patient on-site.[79,76] Both SANE and SAFE staff members are trained to evaluate sexual assault patients in emergency departments; pregnancy prevention services with EC are included in this evaluation. Currently, there are approximately 420 SANE programs in hospitals across the country.[80] Not all children's hospitals have a SAFE or SANE program incorporated into their emergency services, which could affect the type of emergency contraceptive services that sexual assault patients receive when presenting at a children's hospital ED.

2.9. ADOLESCENTS AND EMERGENCY CONTRACEPTION

According to the American Academy of Pediatrics, adolescents are more likely to experience sexually violent crimes than any other age group.[81] Because adolescents are less likely to be using a regular form of birth control or to have knowledge about emergency contraceptive services, scientists speculate that rape-related pregnancies are higher among the adolescent population than the adult population.[82] Emergency contraceptive services may be especially useful to these sexual assault patients as well as general adolescent patients because of their inconsistent patterns of sexual behavior and contraceptive use. Providing emergency contraceptive services during ED hospital visits to adolescents may be vitally important in helping them to prevent unwanted pregnancies. In order for EC to be used effectively to prevent

unwanted pregnancies, however, adolescents need to be provided with accurate and timely information on how it should be used in order to gain maximal effect.

Studies have shown that teenagers in the United States lag behind European teenagers in their awareness of emergency contraception. A 1996 study conducted in Switzerland including over 4000 adolescents demonstrated that most sexually active adolescent females (89%) were aware of EC and 20% reported ever using it.[83] In Scotland, 98% of girls and 87% of boys aged 14 to 15 years had heard of EC in 1996,[84] while 81% of pregnant teenagers in England had heard of EC in 1996.[85] In contrast, a 1996 US telephone survey of over 1500 adolescents showed that only one-third (33%) of the adolescent women aged 12 –18 had ever heard of EC or "the morning after pill", and only 9% knew the correct time limits for its use.[86] A 1995 study of college-aged students who had convenient access to emergency contraceptive services through their student health service found a high level of basic awareness of EC, but a lack of specific knowledge about appropriate use and a desire for more comprehensive information on EC.[87] A small 1996 study of less than 150 females aged 13 to 20 years in Pennsylvania revealed that only 44% had heard of EC and only 4% reported ever using it.[88] A 1998 study conducted to assess inner-city teenagers awareness of EC found that only 30% of the sexually experienced adolescents had heard of EC, and 84% reported having no idea what steps could be taken to prevent pregnancy after unprotected intercourse.[89]

Following the FDA approval of Preven and Plan B for EC, there has been an increase in public education efforts and healthcare provider education campaigns on EC.[90,91,92] These seem to have prompted an increase in the public's awareness regarding EC. A 2002 national survey of adolescents showed that 52% of 15 to 17-year-olds in the United States had heard of EC or "morning after pills",[93] and a 2003 California study found that 55% of teens were aware that

there is something that a woman can do after intercourse to prevent pregnancy.[94] A 2002 longitudinal study following up the small 1996 study in Pennsylvania showed an increase of knowledge (from 44% to 73%) and use (from 4% to 13 %) by adolescents aged 13- 20 years.

Studies have also addressed issues related to accessing EC by adolescents. Although the Pennsylvania study showed that adolescents' perceived barriers to EC decreased from 1996 to 2002, cost of the medication and the clinic visit has become the primary perceived barrier to EC for adolescents. Advanced provision of EC to adolescents could be one option to overcome certain barriers to EC such as clinic costs, not knowing where to go to get a prescription for EC, and being embarrassed about receiving a pelvic exam. One study that explored how advanced provision of EC to adolescents affected their sexual behaviors concluded that providing EC to adolescents in advance does not increase instances of unprotected intercourse or less condom or hormonal use. These results must be communicated to adolescent health providers in order for them to understand and administer EC effectively for an adolescent population. However, in a survey conducted in 1997 of adolescent health experts, only sixty-seven percent prescribed EC and even then only a few times a year. A recent paper on the provision of EC to adolescents stipulates the position of the Society for Adolescent Medicine by setting guidelines for adolescent health providers on how to counsel adolescents about EC, provide EC, and disseminate information on EC to adolescents.

2.10. RESEARCH QUESTIONS AND HYPOTHESIS

Based on a comprehensive literature review, this thesis aims to answer several research questions regarding the emergency contraceptive services available for female adolescents in children's hospital emergency departments. These include:

(1) How often do children's hospital ED physicians counsel about and prescribe EC to female adolescents, and what are the circumstances in which these counseling sessions are conducted and/or these prescriptions are given?

(2) What are the most common methods, recommended time limits, and types of education provided when EC is prescribed to female adolescents in children's hospital EDs?

(3) What are the existing hospital and ED protocols for prescribing EC to female adolescents in children's hospital EDs, and are there any differences between these protocols and actual physician practices?

(4) What are children's hospital ED physicians' attitudes and beliefs regarding EC services for female adolescents in children's hospital EDs?

Based on the literature review, I hypothesized that most hospitals would have a written protocol for EC provision in sexual assault cases, but not for EC provision in cases unrelated to sexual assault. I expected that hospitals in which SANE programs existed would have more extensive protocols for how EC should be provided to adolescents in cases of sexual assault. Due to the nature of an emergency department setting, I posited that few physicians would prescribe EC for non-sexual assault patients. For the same reason, I expected that few children's hospital ED physicians would prescribe ongoing birth control methods or EC for future use. I hypothesized that certain physician characteristics, such as gender, age, year of medical school graduation, and type of residency completed, and hospital characteristics, such as a Catholic affiliation and regional location in the United States, would influence children's hospital ED physicians' attitudes and beliefs regarding EC provision. Based on results from previous studies reviewed in the BACKGROUND section, I speculated that being a female, graduating from medical school

after 1985, and working in a hospital that was not located in the South and which did not have a Catholic affiliation would be associated with more positive attitudes about, and higher knowledge of, EC provision in children's hospital EDs. Finally, I speculated that most physicians would not prescribe ongoing methods of birth control or EC for future use due to the nature of an emergency department setting.

3. METHODS

The research on which this thesis is based was conducted under the auspices of the University of Pittsburgh with help from the Children's Hospital of Pittsburgh Department of Emergency Medicine and Division of Adolescent Medicine. All study protocols, surveys, and letters were reviewed and approved in advance by the University of Pittsburgh Institutional Review Board (IRB) on October 16, 2004, and an amendment to the protocol was approved on January 21, 2005 (see Appendix A). All data collection took place between January and March of 2005.

3.1. SURVEY INSTRUMENT

A 45-item cross-sectional structured telephone interview was developed over the course of a three-month period during the summer of 2004 to assess physicians' EC prescribing and discussion practices in children's hospital EDs (see Appendix B). The questionnaire went through several revisions, and feedback from approximately ten health care professionals (physicians and nurse practitioners) who work in adolescent health care and physicians who work in children's hospital emergency departments was obtained. The final version of the survey was pilot tested on one ED physician, three adolescent medicine physicians, and three researchers to verify question clarity, readability, time required to administer the survey, and transitions between survey questions.

The survey is divided into four sections:

(1) eight questions on pregnancy testing patterns

(2) two questions about EC concerning sexual assault patients

(3) twenty-six questions about EC with regards to adolescents in a general sense

(4) nine questions regarding physician and hospital demographics.

Several questions included sub-questions based on the answer to the preceding questions (i.e. #11a depends on #11). All interviewers participated in a two-hour training session on survey administration in order to standardize their responses to participants' questions. In order to minimize differences between interviewers, the survey included written instructions for them to follow when administering the survey, such as reading transitions between sections and allowing the participant to come up with his or her own answer. Many of the questions also included directions to "skip" to future questions, depending on the participant's response. The survey took approximately fifteen minutes to administer by telephone.

The survey questions were primarily quantitative in nature; these either offered explicit multiple-choice answers or were open-ended with pre-determined answers that each interviewer selected based on the response. Many of the questions asked the respondents about their practices as well as the practices of anyone that they had ever supervised. Physicians under the supervision of the responding physician were mentioned in order for attendings, whose primary role was supervisory, to discuss practices that occurred in their presence. Three qualitative questions were included in the survey; these requested that the participant describe a hospital protocol for the interviewer to record on her data sheet. The decision to include both qualitative and quantitative questions in this study was based on the principal investigator's belief that the use of qualitative measures enhances the validity and reliability of quantitative measures. Side comments made by the participants that expounded on their answer choice were also recorded for potential use in qualitative data analysis. All questions referred to adolescents presenting in the emergency department of a children's hospital. For purposes of this study, the term "adolescent" was never explicitly defined, leaving it up to the participant to interpret what ages

he or she considered an adolescent to be. "Emergency contraception" was explicitly defined as "postcoital contraception" and "the morning-after pill." Each question included an area for the interviewer to mark "[participant] would not answer."

3.2. STUDY POPULATION

The study included US children's hospitals identified on a list of "freestanding children's hospitals" and "children's hospitals within a hospital" obtained from the National Association of Children's Hospitals (NACH) website, www.childrenshospitals.net, in July 2004. A total of seventy-nine hospitals was drawn from the website lists, three of which were excluded because they were Canadian hospitals. After excluding these three hospitals from the initial list, seventy-six hospitals remained in the study. From this list, one hospital was removed by request of the ED director who reported that there were no pediatric attendings in his ED. Another eight ED staff lists could not be obtained due to a lack of response from ED directors after two letters of requests and the unavailability of existing staff lists for these hospitals on the Internet. These removals from the children's hospital list left sixty-seven hospitals in the study. All physicians who worked in the EDs of these children's hospitals (or in the main ED of an adult hospital if children presented there as well) were included in the study. All current ED directors, attendings, fellows, and residents at each of these NACH hospitals were included in the physician sample.

The ED director of each of the children's hospitals included in the study was identified by either calling the ED and querying the staff member who answered or from the hospital's own website. Dr. Richard Saladino, the head of emergency medicine at the Children's Hospital of Pittsburgh (who helped with this study), sent a letter to each of these ED directors requesting that

they either fax or e-mail their most recent ED physician staff list with phone numbers to an investigator in this study (see Appendix C). If these directors did not send their physician staff list, an attempt was made to obtain an up-to-date listing from each of the hospitals' websites. If no such staff list could be found, a second letter was sent from Dr. Saladino to the other children's hospital emergency department directors repeating the initial request.

3.3. SAMPLE SIZE

Based on lists obtained from either the director of each hospital's emergency department or the respective hospital's website, 993 physicians made up the population of potential study subjects. Using a standard formula for sample size determination for a descriptive study[95], and assuming a response rate of approximately 60% of the physicians surveyed, it was estimated that a sample size of 333 physicians was needed. This sample size calculation assumed that approximately 75% of the physicians surveyed reported ever prescribing EC[96] and specifies a 95% confidence interval with a margin of error of +/- 6%.

In order to obtain a sample that was representative of a wide range of physician characteristics, as many as five physicians were selected from each hospital in the study. Depending on the number of physicians on each hospital's ED staff, either five physicians from each emergency department list were selected at equal intervals from that hospital's list or, if a staff listing included less than five physicians within the ED, all ED physicians in the ED were selected for the study sample. This selection process yielded a randomized final sample size of 305 ED physicians.

3.4. RECRUITMENT AND STUDY PROCEDURES

The physicians chosen from each children's hospital emergency department were invited to participate in the study through an introductory letter that was sent two to three weeks prior to conducting the telephone interview (see Appendix D). These individually addressed letters of introduction were either e-mailed or mailed to the randomly selected group of physicians and informed each potential participant of the purpose of the study, the expected time commitment involved in the telephone interview, and a description of the confidentiality, anonymity, and rights entitled to them as research participants. The letter also explained that the surveys were not meant to test the physicians' knowledge and that they could request a copy of the results if they so desired.

Either the Principal Investigator (the author) or a member of the two-person team of trained research assistants attempted to contact each study participant at least three times. These physicians were contacted by telephone through their emergency department, office phone, or pager number and asked, "[i]s this a good time to go ahead with this brief interview?" If the response was "yes", the interviewer assumed verbal consent and administered the survey at that time. If the response was "no", the interviewer attempted to schedule a convenient time to conduct the interview. If no one answered the telephone, the interviewer left a message describing her purpose and that she would call back at a later time. If the physician's e-mail could be obtained from whoever answered the phone or from the hospital's website, an e-mail reminding the physician about the study and requesting that he or she respond with convenient times to conduct the interview was sent. Interviewers made at least one attempt to contact each physician, with an average of three contact attempts made.

Confidentiality and anonymity were maintained by assigning each participant's response sheet a unique identifying number. A list linking each of the physicians to their corresponding

identifying number is currently stored in a locked file cabinet and will be destroyed upon completion of the study. The survey response sheets were only identified only by the number and not by the physician's name. In the final database, all of the survey identification numbers were deleted and all of the data were reported in summative form only.

A hospital demographic sheet was also filled out for each hospital (see Appendix E). This sheet included information about each hospital, such as the hospital location, size, ownership, and religious affiliation, and was obtained either from the websites of each hospital or from asking an ED staff member by telephone. This information was used to compare characteristics among the hospitals included in the study.

3.5. TRANSITION TO PILOT STUDY

The preceding information regarding the development of the survey instrument, the determination of the study population, the calculation of the sample size, and the description of the study procedures illustrates the ideal protocol that the researchers originally attempted to execute during the data collection period of January 2005 through March 2005. However, due to extreme ambitiousness on the part of the Principal Investigator, attrition of interviewers, and tremendous difficulty in contacting ED physicians, a significantly fewer number of interviews was conducted than originally projected. In light of these unforeseen circumstances, the scope of this thesis was revised to reflect the smaller number of interviews completed and to present the results from these interviews as a pilot study. Data analysis was performed on the pilot study of participants, and tentative conclusions were derived based on this smaller sample.

This pilot study will serve as a trial run for a research study that will include the originally determined sample size to clarify the effectiveness of the survey instrument in eliciting

desired information and to identify any problems with the current study protocol. Findings and recommendations from this pilot study will be presented as tentative conclusions based on a small sample size and will help to improve the original study by informing the researchers about best practices for continuing the original study beyond the purview of this thesis.

3.6. DATA ANALYSIS

Responses from all of the participants were entered into a single database using the Statistical Package for Social Sciences (SPSS) and coded according to answer choice. Frequencies, ranges, and extent of physician EC-prescribing and discussion practices were determined. No relationship between certain physician characteristics and their prescribing patterns and attitudes regarding emergency contraceptive services was assessed because of the small sample size. Any perceived associations between variables could be attributed to the small sample size and would not be able to be projected to the target population. Due to time limitations, responses regarding pregnancy-testing practices were omitted in the analysis for this thesis.

The responses to the open-ended questions underwent content analysis to determine categorical responses. Qualitative data described physician experiences with adolescents and EC, their respective hospital's protocols related to emergency contraceptive provision, their counseling and prescribing practices related to EC, and the ways by which EC is provided to female adolescents in the context of a sexual assault evaluation and after other identified episodes of unprotected intercourse. Additional qualitative data collected included side comments made by respondents and recorded by the interviewers at the time of the interview. Exploration of these comments offers insights into the personal attitudes and beliefs of certain physicians with regard to emergency contraception.

Primary outcome measures in this study were physician-reported rates and circumstances of EC counseling and prescription in both sexual assault and general circumstances. Frequencies of responses to the questions regarding EC counseling or prescribing practices were determined using SPSS, and significant results were selected to present in table form. Rates of EC prescribed in cases of sexual assault as compared to non-sexual assault situations were determined by asking "[a]pproximately what percent of all EC prescriptions provided…in the [ED] are prescribed because of sexual assault or rape?" Secondary outcome measures included: (1) existence and descriptions of hospital protocols for emergency contraceptive provision in both sexual assault and general circumstances; and (2) qualitative descriptions of physicians' attitudes and beliefs regarding emergency contraception.

4. RESULTS

As noted above, of the initial seventy-six children's hospitals selected from the NACH website, eight hospitals never responded after two attempts to contact the ED director for an ED physician list and one hospital's ED director requested removal from the study due to a lack of pediatric ED attendings. Interviewers contacted physicians from each of the sixty-seven remaining hospitals. Out of the 993 total ED physicians at these sixty-seven hospitals, 305 physicians were selected for inclusion in the study sample as previously discussed in the STUDY POPULATION section. Each of these 305 physicians was contacted at least once to participate in the study. Twenty-three of these physicians were no longer at their respective hospital as evidenced by returned letters of introduction or information from a colleague at that hospital, seven physicians refused to participate, and only thirty-two physicians at twenty-one hospitals were able to complete an interview. Results of the thirty-two completed interviews are included in this thesis.

4.1. PHYSICIAN CHARACTERISTICS

Demographic data from the physicians' responses regarding themselves and the hospitals in which they worked reflects a small sample of children's hospital ED physicians (Table 2). Participating physicians were between the ages of thirty and fifty years (87.6%), graduated from medical school before 1995 (87.5%), and worked as ED attendings (93.8%). Over half of the physicians were male (59.4%). Almost a third of the sample (28.1%) were the director or head of his or her emergency department. The majority of the physicians in the sample had completed a pediatrics residency program (75%), with some of them completing emergency medicine residencies (18.8%) or a combination of both (6.3%). Over 75% of the physicians had

completed a fellowship in either emergency medicine or pediatric emergency medicine. About 25% of the ED physicians saw patients in another setting outside of the emergency department, with descriptions of these other locations ranging from missionary work overseas to private clinics. The hospitals in which the ED physicians worked were distributed across the United States, with the highest concentration in the Southern and Midwestern regions (76.2%). Most of these hospitals did not have a sexual assault or SANE program in place (66.7%), and this status was determined solely by whether respondents mentioned having one of these programs in their ED. Similarly, most of the hospitals did not have a Catholic affiliation (81%), which was determined by information received from the respondent or from searching the hospital website for a religious affiliation.

Table 2: Percentage distribution of physicians and hospitals surveyed, by selected demographic characteristics, N = 32

Characteristic	%
Gender	
Male	59.4
Female	40.6
Age	
30 – 40 years	31.3
41 – 50 years	56.3
Over 50 years	12.5
Year of Medical School Graduation	
Before 1985	34.4
1985 – 1995	53.1
After 1995	12.5
Director of Emergency Department	
Yes	28.1
No	71.9
Physician Experience Level	
Attending	93.8
Fellow or resident	6.3
Type of Residency	
Pediatrics	75.0
Emergency Medicine	18.8
Other	6.3
Region	
Northeast	19.0
South	38.1
Midwest	38.1
West	4.8
Existing SANE or sexual assault program	
Yes	33.3
No	66.7
Catholic Affiliation	
Yes	19.0
No	81.0

4.2. PRIMARY OUTCOMES

4.2.1. Physician EC counseling practices for sexual assault and general situations

Nine questions in the survey specifically related to frequencies and types of counseling practices regarding EC. The responses to these questions have been condensed and presented to reflect the most important aspects of physician counseling practices in children's hospital EDs (Table 3).

When asked about the number of male and female adolescents that physicians saw in the ED in both a month and a year, the participants' responses ranged from 10 to 500 male or female adolescents in the past month and from 120 to 6000 male or female adolescents in the past year. Physicians were then asked to identify the number of times that they had discussed EC with females and males separately in the past month and in the past year. Most of the physicians discussed EC with female adolescents between five to twenty times in the past year. On the other hand, most of these physicians did not discuss EC with male adolescents in the past year, but, of those that did, most reported that they discussed it less than five times at the most.

Physicians were asked whether they would typically discuss EC in the following listed situations: any emergency department visit for a female adolescent; any emergency department visit for a male adolescent; if the adolescent reported ever being sexually active; if the adolescent had reported being sexually active in the past month; if the adolescent reported having had unprotected sex; if a pregnancy test was performed at the ED visit; if the adolescent was diagnosed with a sexually transmitted infection at the ED visit; if the visit was for a sexual assault evaluation; and if the adolescent asked about EC. All but one of the physicians reported that they would not typically discuss EC during any ED visit for a female patient, and all of the physicians stated that they would not typically discuss it during any ED visit for a male patient. Most of the physicians did not report usually discussing EC when an adolescent has reported ever being sexually active (only 12.5%), with more typically discussing it if the adolescent had been sexually active in the past month (25.0%), and still more reporting typically discussing EC if the adolescent reported having unprotected sex (46.9%). Based on the results that show only 25% of physicians discussing EC when conducting a pregnancy test on an adolescent, there does not appear to be a relationship between ordering a pregnancy test (which one might assume

means the physician is concerned about possible pregnancy) and discussing EC. Overwhelmingly, these physicians reported that they would typically discuss EC when the adolescent visits the ED for a sexual assault evaluation (96.9%) or if the adolescent specifically asks about EC (93.8%).

Most of the physicians in this sample report that both nurses (81.3%) and physicians (90.6%) are involved in the discussion of EC with adolescents when EC is prescribed in the ED. Some of them also indicate that a child advocacy professional might discuss EC with an adolescent (37.5%), and many of them report that someone else (a physician's assistant, a nurse practitioner, a pharmacist, or a social worker) might also discuss EC with adolescents in the ED (62.5%). About half of the physicians reported that written information about EC is also routinely provided to adolescents at the time of the EC prescription (53.1%).

When respondents were asked "[w]hich of the following topics do you or someone you are supervising routinely discuss when educating an adolescent about EC" and read a list of possible topics, the majority of respondents indicated that they discussed almost all of the possible topics. These topics included: what EC is, how EC works, indications for EC's use, how well EC works, safety of EC, common side effects of EC, time limits for using EC, where and how to get EC, other birth control information, that EC does not provide protection from sexually transmitted infections, and an option for describing other topics that they discuss about EC. Respondents had less of a consensus on two topics regarding routine discussion with adolescents: where and how to get EC and other birth control information.

Table 3: Percentage of physician responses related to EC counseling, N = 32

Question	Yes	No	Unsure
Discussed EC in past year with			
Female adolescents	93.8	6.2	0.0
Male adolescents	28.1	71.9	0.0
Discussed EC if			
Adolescent was ever sexually active	12.5	81.3	6.3
Adolescent was sexually active in past month	25	68.8	6.3
Adolescent reports unprotected sex	46.9	53.1	0.0
Pregnancy test performed at ED visit	25.0	68.8	3.1
Adolescent diagnosed with sexually transmitted infection at visit	34.4	62.5	3.1
Visit is for sexual assault evaluation	96.9	3.1	0.0
Adolescent asks about EC	93.8	3.1	3.1
Adolescent educated about EC by			
Physician	90.6	9.4	0.0
Nurse	81.3	15.6	3.1
Child advocacy professional	37.5	56.3	6.3
Other	62.5	37.5	0.0
Written information about EC provided when it is prescribed	53.1	37.5	9.4
Adolescents educated about			
What EC is	93.8	6.3	0.0
How EC works	87.5	12.5	0.0
Indications for using EC	87.5	12.5	0.0
How well EC works	87.5	12.5	0.0
Safety	87.5	12.5	0.0
Common side effects of EC	90.6	9.4	0.0
Time limits for using EC	87.5	12.5	0.0
Where and how to get EC	59.4	34.4	6.3
Other birth control information	62.5	37.5	0.0
That EC does not protect against sexually transmitted infections	87.5	12.5	0.0

4.2.2. Physician EC prescribing practices for sexual assault and general situations

Eleven questions in the survey related to prescribing practices of children's hospital ED physicians. The responses to these questions have been condensed and presented to reflect the most significant aspects of physician prescribing practices in children's hospital EDs (Table 4). Interviewers first asked respondents whether they, or anyone they had ever supervised, had ever prescribed EC to a female adolescent in the ED. Only 4 of them (12.5%) had not. When asked about the number of times that they had prescribed EC to female adolescents in the past month, almost all said zero, one, or two times. In the past year, almost half of the physicians in the

sample (46.4%) reported prescribing EC five or less times, not much more than they reported prescribing in the past month. About a third of respondents indicated that they had prescribed EC between six and fifteen times in the past year (35.7%).

The majority of physicians (81.3%) was most familiar with using combination oral contraceptives as a form of EC and, of these, most named Ovral as the combination oral contraceptive that was available in their ED. Over half of the physicians (56.3%) also reported that Plan B was dispensed from their ED. A small, but significant, number also indicated that Preven was an EC method dispensed from their ED (12.5%), even though Preven is no longer manufactured. Interviewers asked physicians "[w]hat time limits from last intercourse do you or someone you are supervising use prescribing EC?" Just over half of the physicians reported a 72-hour (or three day) time limit from last intercourse for EC (56.3%), while about one-fifth stated that they used 48 hours (or two days) as an outside limit. Only two of the physicians in the sample (6.3%) reported using a 120-hour (or five day) limit and, notably, about 16% of the responding physicians were unsure of the time limits after last intercourse that they use for prescribing EC. Over half of the physicians in the sample (56.3%) stated that their hospital usually provided the entire course of EC medication onsite to patients, while almost all of the others indicated that the patient was provided with a prescription for either the entire course of EC medication or for the second dose. All of the physicians (except one who was unsure about the specifics regarding EC prescription in her ED) recommended a follow-up appointment with female adolescents who are prescribed EC and the corresponding recommended time frames ranged from a couple of days (37.5%) to about a week (37.5%) to between two and three weeks (21.9%).

Interviewers queried respondents regarding their prescription practices for ongoing methods of regular birth control and future use of EC. When asked how often they prescribe ongoing methods of birth control at the same time that they prescribe EC in the ED, over two-fifths of the physicians interviewed indicated that they rarely, sometimes, often, or always did so. The most common form of ongoing birth control that they mentioned prescribing was combination oral contraceptives (commonly referred to as the Pill). Interviewers then asked the physicians whether they had ever prescribed EC for future use; all of the physicians in the sample indicated that they never had.

Three questions in the survey specifically related to visits for sexual assault evaluations. When asked "[h]ow often do you offer female adolescents who have been sexually assaulted EC?" most respondents (84.4%) reported that they always offered it in these circumstances. Physicians who did not report always offering EC in sexual assault cases gave one or more of the following reasons: (1) patient has not yet reached menarche (n=2); (2) the sexual assault occurred more than 72 hours prior to the patient's presentation at the ED (n=3); (3) the physician does not trust the patient's account of her sexual history (n=1); (4) there is no protocol requiring provision of EC (n=3); (5) giving EC is against hospital protocol (n=1); (6) the patient does not want EC (n=4); (7) a patient's parent objects to EC (n=1); and (8) the physician has a personal objection to EC (n=1). Interviewers also asked physicians to approximate the percentage of all EC prescriptions that are written in instances of sexual assault. Almost half of the physicians (48.1%) reported that 100% of EC prescriptions are written for sexual assault circumstances. Most of the remaining physicians reported percentages somewhere between 50-99%. Finally, interviewers asked respondents whether they thought that their ED was more likely to provide EC if the adolescent was there for a sexual assault evaluation and about two-thirds of the

physicians indicated that their ED would be more likely to provide the EC medication onsite if the patient was a sexual assault case.

Table 4: Percentage of physician responses related to EC prescribing, N = 32

Question	Yes	No	Unsure
Prescribed EC in past year*			
≤5 times	46.4		
6-15 times	35.7		
>15 times	17.9		
Method of EC prescribed†			
Preven	12.5	71.9	15.6
Plan B	56.3	37.5	6.3
Combination oral contraceptives	81.3	15.6	3.1
Copper IUD (Paragard)	3.1	90.6	6.3
Time limits since last intercourse used for EC provision*			
<24 hours (1 day)	0.0		
25-48 hours (1-2 days)	21.9		
49-72 hours (2-3 days)	56.3		
73-120 hours (3-5 days)	6.3		
Unsure	15.6		
How EC is provided in ED*			
First dose onsite, prescription for second dose	9.4		
Prescription for entire course of EC	25.0		
Entire course of EC provided onsite	56.3		
Other	6.3		
Unsure	3.1		
Ever prescribed for future use			
Regular (ongoing) birth control methods	40.6	59.4	0.0
EC	0.0	100.0	0.0
EC offered in sexual assault cases*			
Always	84.4		
Not always	15.6		
Percentage of all EC prescriptions written for sexual assault cases*			
<50	7.4		
50-85	22.2		
86-99	22.2		
100	48.1		
EC medication more likely to be provided onsite if visit is for sexual assault	65.6	31.3	3.1

* 'No' and/or 'Unsure' were not answer options for these variables

† These totals exceed 100% because respondents could indicate more than one answer-choice

4.3. SECONDARY OUTCOMES

4.3.1. Hospital protocols for EC in sexual assault and general circumstances

Interviewers asked respondents about the existence of written protocols in their EDs regarding EC provision to patients in both sexual assault and general cases. Three-quarters (75%) of the physicians responded that there was a written protocol in their ED for providing EC to sexual assault patients. The rest of the sample replied that there was no such protocol in their ED or they were unsure whether it existed. The physicians who indicated that there was an existing protocol for EC provision in sexual assault cases interpreted the idea of "protocol" very differently and described them from a range of perspectives. Some of the physicians described medication protocols, some described entire sexual assault evaluation protocols with lengthy descriptions of STD prophylaxis, some described the different topics that they discussed with each sexual assault patient, and still others described checklists, rape paperwork, and lists for sexual assault cases that included a provision for offering EC. Four of the physicians specifically mentioned the involvement of the SANE program in their hospital protocol. Two of the physicians directly identified the parents' involvement in offering and accepting EC in a sexual assault situation. One ED physician described the protocol for EC provision in sexual assault cases as "not as systematic" as it should be, and another ED physician indicated that he was "unsure about the exact protocol because the SANE program works almost on autopilot so that there is minimal physician input necessary."

Compared to protocols for EC provision in sexual assault cases, very few physicians (12.5%) reported that their hospital had a written protocol for EC provision in general cases not related to sexual assault. These physicians described protocols in much the same way as they did for sexual assault cases. Many said that the protocols followed the same guidelines for providing EC in sexual assault cases, except that provision of EC in general cases could bypass all of the

sexual assault evaluation steps. Two physicians who indicated that there was no existing protocol for provision of EC in general cases expounded on reasons for such an absence. One of the physicians said that her hospital "has a written protocol for NOT providing it because we are expressly forbidden" while another expressed his confusion with the question of a protocol for EC provision in non-sexual assault circumstances:

> I don't understand. The term "emergency" implies only when a patient is in danger of getting pregnant… no way if not for sexual assault. If a patient says "tee hee, I had sex and might be pregnant", we would send her to a clinic [to obtain EC] because this does not constitute an emergency.

4.3.2. Physician attitudes and beliefs regarding EC in children's hospital EDs

During the interview, interviewers recorded side comments that physicians made in relation to a specific question or to provide a more in-depth description than was allowed by the close-ended nature of certain questions. These recorded side comments were all compiled into one spreadsheet and then examined for common themes. These comments reflect some of the attitudes and perceptions that children's hospital ED physicians have regarding adolescents, the ED setting, and EC.

Some of the side comments seemed to be a disclaimer for why the physicians did not (or could not) provide EC. One female physician who worked in a northeast children's hospital stated that EC was not always offered to sexual assault patients because of a "lack of doctors' knowledge to even think about it". Another female physician who worked in the ED of a southern Catholic hospital that had a SANE program in place exhibited a sense of frustration when she said that she "usually refers [patients] to a clinic that can prescribe [EC and regular birth control] because this is a Catholic hospital and it is difficult for us to do anything". A male physician who worked in a Midwestern Catholic hospital expressed similar frustrations with the

religious regulations placed on his practices when he stated that he "used to discuss [EC], but [he] is no longer allowed…[he] tries to refer to someone else who can discuss [EC]".

Several of the physicians revealed that they did not fully trust their patients' accounts of their sexual histories. The same female physician who was frustrated about the Catholic restrictions on providing contraception remarked that she "usually assumes that [she] is not getting the whole story" with regard to adolescents' accounts of their sexual activity. The male physician who worked in the Midwestern Catholic hospital who used to discuss EC said that "all patients are pregnant until proven otherwise" in response to a question about how much a patient's account of her sexual or menstrual history influences his decision to perform a pregnancy test. One male physician who recently graduated from medical school (in 2000) and was the director of the ED in the same Midwestern Catholic hospital ironically mused that there are "many immaculate conceptions in the downtown area" when asked the same question.

As reported above, when asked whether they had discussed EC in the past year with male adolescents, most physicians indicated that they had not. Several of the physicians seemed amused by this question, as noted by scoffs and slight laughs when it was asked. One physician justified his not having discussed EC in the past year with male adolescents by saying that "they don't need to know." One male physician who worked in a Midwestern hospital with a SANE program, however, described the nature of his discussions with males about EC as follows: "First, I ask males about the female cycle to see how much they know and assess the amount of sexual health knowledge that they have. I then discuss EC according to how much they know".

Some of the physicians discussed their beliefs or those of others with whom they worked regarding EC and the use of EC in certain circumstances. One male physician who worked in a southern hospital where he was the director of the SANE program remarked on the beliefs of the

SANE staff when he stated: "[t]hey are hesitant to give or administer EC to patients due to moral or religious objections." Another male physician who worked in another southern hospital with a SANE program (quoted above as being confused with the question regarding EC provision for non-sexual assault patients) was very clear about his stance on EC as shown by this remark:

> I always tell patients that no one knows precisely how EC works; some people believe that it is similar to abortion. This could be offensive. I make sure that the patient knows that it could interfere with implantation, and if the patient thinks that life begins with this step, then taking EC could be like having an abortion.

When this physician was asked whether he had ever prescribed EC for future use, he replied "No, and I never would".

Finally, it is noteworthy that in one of the southern hospitals that has a SANE program in place, one potential respondent was very emphatic and short with the interviewer in stating that he did not want to participate in the survey because he worked in a "Catholic institution and [he] is not allowed to do [EC]." When the interviewer repeatedly and explicitly stated that the survey covered various aspects of sexual health as well as EC topics, the respondent became very frustrated and hung up. Even though this respondent did not want to participate because of his belief that he would have nothing to share about his hospital's EC practices, another physician working in the same ED was able to complete the survey.

5. DISCUSSION

The information gathered in this pilot study sheds light on children's hospital ED physicians' practices, beliefs, and attitudes regarding emergency contraceptive services for female adolescents in both sexual assault and general circumstances. The Society for Adolescent Medicine has established certain guidelines for physicians to follow in the provision of emergency contraception to adolescents. Recommendations for providing EC to adolescents include:

(1) routine counseling about EC to both female and male adolescents during both reproductive and non-reproductive health related visits on the mechanisms of action, indications for use, efficacy, safety, common side effects, time limits for use, where and how to obtain EC, other birth control information, and that EC does not protect against STDs,

(2) inclusion of written information on EC to supplement the oral counseling,

(3) offering and/or providing EC to female adolescents who report an episode of unprotected intercourse in the past 120 hours,

(4) follow-up counseling visits two weeks following administration of EC to an adolescent, and

(5) offering an advance prescription or course of EC to adolescents.

Physicians are also encouraged to use progestin-only EC rather than combination EC (if available) based on the favorable balance of safety, side effects, and efficacy associated with the progestin-only regimens. The results from this pilot study indicate that many physicians who work with adolescents in children's hospital EDs are either unaware of, or reluctant to follow, these recommendations.

While most of the physicians included in this sample reported discussing EC during only a small fraction of the visits with female adolescents (between five and twenty discussions

during 120 to 6000 female adolescent patient contacts in the past year), the majority of them (71.9%) never discussed EC with male adolescents in the past year. These low numbers clearly do not coincide with the recommended EC counseling guidelines for adolescent health care providers, which may reflect a difference between an adolescent clinic setting and that of an ED. For this study, many ED physicians cited a shortage of time during both the administration of the survey and during their ED visits with patients. This hurried nature that is characteristic of an ED setting could deter physicians to initiate a lengthy discussion on reproductive health care with each patient that they are in contact with. The lack of EC discussion with males as compared to females is especially troubling because it illustrates the common misconception and reinforces societal customs that birth control is solely the responsibility of the female. It is important that both parties are provided with the necessary information regarding EC in order to use it effectively and timely in the event that it is needed.

The majority of physicians in this sample seemed to cover the recommended EC topics during their EC counseling with adolescents. Two exceptions to this statement are (1) where and how to get EC and (2) other birth control information. Fewer physicians reported that they discussed these topics during their counseling sessions as compared to the other EC topics. Some of the physicians felt there was no reason to tell adolescents where and how to get EC because it was being provided to them at the hospital. By omitting accurate information on where and how to obtain EC, providers are placing their own judgments on their adolescent patients and possibly preventing them from independently accessing EC services in the future. Two physicians said that they had never discussed ongoing birth control methods with a sexual assault patient (the only patients with whom they ever discuss EC) because they wanted to be sensitive to the circumstances of a rape or sexual assault. On the contrary, this ED encounter between a

patient and her provider represents an excellent opportunity to educate adolescents about both regular forms of birth control as well as EC in order to make informed decisions for future sexual health. Supplementing the counseling sessions with written materials on EC helps to reinforce the oral information being provided in them to adolescents. Unfortunately, only about half of the physicians in this sample reported that they routinely provided written information at the time of EC discussion and prescription. Some of them were unsure about whether a nurse or other educator (like a child advocacy professional or a pharmacist) provided these materials to the adolescent, which heightens the need for increased communication among all healthcare practitioners involved with the education and provision of EC with adolescents.

Although progestin-only EC regimens (either the EC-dedicated product Plan B or the "mini-pill" Ovrette) are the optimal choices for an EC method, just over half of the physicians in this sample reported that these products are dispensed from their ED (56.3%). Of those that did not respond "Yes" to whether Plan B was dispensed from their ED, many of them had never heard of it. This is an alarming response to what should be a familiar medication to the general medical community, considering that it was approved for use by the FDA six years ago. Most of the physicians were much more familiar with the use of combination oral contraceptives, especially Ovral, for EC use. While these methods are effective as EC, they increase the likelihood that patients will experience undesirable side effects, side effects that could potentially be avoided (or at least decreased) with the use of progestin-only regimens. Children's hospital ED physicians seem to need further education on the types of EC available as well as the benefits of using progestin-only regimens over combination ones for EC.

The FDA approved time limit for EC administration after unprotected intercourse is 72 hours. Just over half of the physicians in this sample (56.3%) cited this 72-hour timeframe for

prescribing EC to adolescents in their ED. A small percentage (21.9%) indicated that they used 48 hours as a maximal time limit from last intercourse at which to provide EC to adolescents, and another small percentage was unsure about the time limits for EC provision. This misinformation regarding time limits of EC is unacceptable in situations in which an adolescent who could still benefit from EC might be denied the medication due to a physician's mistaken belief that she was past the appropriate time limits. As previously discussed, recent studies demonstrate the effectiveness of EC provision up to 120 hours after intercourse and the Society for Adolescent Medicine as well as the American College of Obstetricians and Gynecologists clearly support this extended time limit for EC. Only two of the ED physicians included in this sample identified this window for provision of EC. Patients desiring to prevent a possible pregnancy after an episode of unprotected intercourse could benefit immensely from increased physician awareness regarding recent research findings on EC time limits.

Appropriate provision of EC to adolescents includes providing the medication onsite, if possible. Just over half of the respondents in this sample (56.3%) indicated that an entire course of EC medication is provided onsite to patients. This leaves a remaining portion of physicians who are either unaware of how their hospital provides EC to patients (noteworthy in itself!) or of the potential barriers that teenagers face in accessing a time-sensitive prescription such as EC. The majority of physicians (65.6%) also indicated that EC was more likely to be provided onsite if a patient was in the ED for a sexual assault. Writing a prescription for either the entire course of EC medication or for the second dose places unnecessary obstacles for the patient to overcome (whether she needs EC for sexual assault or general circumstances) in order to access EC in a timely manner. Not all pharmacies carry EC or are easily accessible to patients (especially in rural areas), and some pharmacists may refuse to fill a patient's prescription for

EC. When they incorporate a prescription into their provision of EC to adolescents, some of the physicians in this sample seem to be forgetting that not all patients have the resources to overcome these hurdles and that EC is a time-sensitive medication.

Contrary to my hypothesis, a significant portion of the physicians (although not the majority) prescribed ongoing methods of birth control at the same time that they prescribed EC to adolescent patients (40.6%). Regardless of the hurried nature of an ED visit which I alluded to previously and the minimal patient contact that is also characteristic of an ED, several of the ED physicians found time to discuss and prescribe ongoing forms of birth control. Some of these physicians described in great detail which methods they prescribe and how they refer patients to either Planned Parenthood or their regular health provider to follow-up with regular birth control. Despite some of the physicians' willingness to prescribe these ongoing methods in the ED setting, none of them reported ever prescribing EC for future use. This discrepancy between future prescribing patterns for regular birth control and EC illustrates that children's hospital ED physicians obviously perceive the benefits and applications of the two very differently. Recommended as a basic guideline for EC provision to adolescents, prescribing EC in advance would help to place reproductive responsibility in the patient's hands and would circumvent access barriers for adolescents in future instances of unprotected intercourse or contraceptive failure.

A 2002 survey of emergency department practitioners attending an emergency medicine conference explored their practices regarding EC and found that more respondents would prescribe EC after sexual assault than in cases of consensual sex.[97] This finding coincides with the results of this pilot study, as demonstrated by the high percentages of all EC prescriptions associated with sexual assault. When asked about particular situations in which they would

discuss EC with adolescents, the overwhelming majority of physicians indicated that they would discuss it in cases of sexual assault, and fewer reported that they would discuss it for other circumstances. However, contrary to recommendations from both the Society for Adolescent Medicine and the American College of Obstetricians and Gynecologists, not all physicians would always offer EC in cases of sexual assault. This withholding of important information has ramifications for patients in all circumstances, but especially for sexual assault patients. Having just experienced a life-traumatizing event, sexual assault patients who present to EDs seeking appropriate and value-free medical care are done a disservice when their physicians cite reasons for imposing restrictions on offering the option of receiving EC.

A lack of protocol in instances where sexual assault is not indicated most likely influences the small percentages of EC prescription described for these circumstances. As compared to the existence of a protocol for EC provision in sexual assault cases (several of these associated with the existence of a SANE or other sexual assault program), very few physicians in this sample reported that there was a written protocol to describe EC provision in cases not related to sexual assault. A written protocol would potentially increase the knowledge of these ED physicians regarding EC information and ensure consistent EC provision to all adolescents within an appropriate timeframe and in an appropriate manner. Existence of a written protocol for EC provision would also minimize the influences of a physician's personal beliefs on whether he or she would offer and prescribe EC to adolescents.

Based on comments made during their interviews, several physicians obviously had strong feelings about EC and how to appropriately provide it to adolescents. Although the small sample size prevents any determinations of association between certain physician characteristics and their comments, some of the physicians who worked in either a Catholic or a southern

hospital, or both, seemed to have the most resistance to EC provision, especially in non-sexual assault circumstances. Interestingly, even though one potential respondent reported that his Catholic hospital could not provide EC because of its religious affiliation, *Catholic Directive No. 36* states:

> A female who has been raped should be able to defend herself against a potential conception from the sexual assault. If, after appropriate testing, there is no evidence that conception has occurred already, she may be treated with medications that would prevent ovulation…It is not permissible, however, to initiate or to recommend treatments that have as their purpose or direct effect the removal, destruction, or interference with the implantation of a fertilized ovum.

As previously discussed, EC is thought to prevent pregnancy in several ways, with the primary mechanism of action believed to be delaying of ovulation. Based on comments made by a few of the physicians in this sample, confusion remains in the medical and research communities regarding the mechanisms of action of EC. The ambiguity around the exact mechanism of action for EC as well as within the Catholic *Directives* leaves room for individual interpretation of each physician and at each hospital. Existence of SANE programs and establishment of a national protocol for EC administration to sexual assault patients in ED settings would help to decrease this ambiguity.

5.1. LIMITATIONS

This pilot study had several limitations, most resulting from the low response rate of physicians contacted to participate in the study. The low response rate associated with these results does not affect the internal validity of the data; instead, it diminishes the ability to generalize the results to a larger population of children's hospital ED physicians. However, a recent review of the literature on physicians' responses to surveys revealed that responding and nonresponding physicians have similar characteristics and, as a group, are more homogeneous regarding

knowledge, training, attitudes, and behavior than the general population.[98] This finding could support an argument for postulating about the population of children's hospital ED physicians based on the results obtained from this study.

In addition, the children's hospitals in this study do not constitute a representative cross-section of those in the United States. Some hospitals included in this pilot study were over-sampled because more than one physician working there participated in the study. Likewise, the distribution of hospitals included in this study across the United States (8 in the Midwest, 8 in the south, 4 in the northeast, and 1 in the west) was not representative of the actual children's hospital distribution across the country. The proportion of hospitals with SANE programs and those with Catholic affiliations in this sample also did not reflect the actual presence of these hospital characteristics on the national level.

Furthermore, because ED physicians who are more familiar with EC counseling and prescribing practices with adolescents may be more likely to participate in a survey than those with less knowledge or interest in the topic, these findings may be biased toward a higher reporting of EC counseling and prescription than is actually the case in most children's hospitals. Physicians were assured that their knowledge base was not being tested at the beginning of each interview. Regardless of this fact, however, many of the physicians in this sample may have based their answers on a perception that the researchers expected certain behaviors related to EC counseling and prescription and may have adjusted their responses accordingly. On the other hand, it is also likely that a particular physician's personal beliefs regarding EC will influence his or her choice to even participate in a study about the topic. I postulate that physicians who are subject to strict protocols for providing EC only in cases of sexual assault, or who never provide

EC in any situation, would be more hesitant to participate in this study after receiving an introductory letter indicating the subject matter involved.

Another limitation associated with the study design is regarding the quantitative and qualitative mixed-methods approach. There is a chance that the closed-ended nature of the quantitative questions restricted the responding physicians in their answers and did not appropriately allow them to divulge the depth of their knowledge on any given topic. In addition, it is possible that by listing possible answer options to some of the survey questions, I may have prompted physicians to indicate a response that they might not otherwise have made. This is a limitation of any research that uses close-ended answer choices to obtain participant responses. On the other hand, the qualitative side comments made by some of the physicians and recorded by the interviewer were arbitrary remarks that the responder did not know were being incorporated into the survey and perhaps disproportionately reflected those physicians who had stronger beliefs about EC.

It is obviously difficult to contact ED physicians due to the unpredictable nature of the environment in which they work. They are also challenging to schedule an appointment for an interview with because many of the physicians do not have an answering service, are not able to forecast when they will be free to participate in an interview, and often are interrupted by an emergency while in the middle of an interview. Additionally, many of the physicians work night shifts and weekend shifts, hours that are not optimal for an interviewer to conduct a survey. These obstacles to conducting interviews with ED physicians call for an overhaul of the research methods.

5.2. IMPLICATIONS FOR FUTURE RESEARCH

Conducting this pilot study has been an instructive process from which to make recommendations for the continuation of the larger original study. Several modifications to the study protocol should be made in order to increase the likelihood of physician response. A possible adaptation is to adjust the survey so that it could be administered either by mail or by e-mail. This adjustment would involve a revision of some of the survey questions, especially the open-ended questions, to make it easier for a participant to answer the questions with speed and ease. Although the long-held opinion on survey administration is that telephone surveys acquire better response rates than mailed surveys[99,100,95] one recent review of the literature found that the response rates were comparable for mail and telephone survey administration when the sample population consisted of physicians. Surveys sent by e-mail also carry the possibility of increasing physician response rates, and such e-mail surveys have the added benefit of requiring less effort to return a survey than a mailed survey. The physicians who had e-mail addresses that were easily accessible were sent the introductory letter via e-mail in this pilot sample. However, due to the low response rate observed with this method in the preliminary pilot study, I am hesitant to recommend e-mail as the primary means for contacting the physicians and administering the survey. This means of survey administration would also exclude ED physicians who did not have an e-mail address, which is a sizable portion of the main sample.

Another viable option for increasing response rates would be to simply increase the persistence in contacting the physicians. Interviewers must understand that ED physicians have a highly unpredictable schedule and be prepared to contact each individual several times before completing an interview. If an emergency department administration secretary can be reached to help schedule an interview time, this is a preferable option to simply leaving a message on a physician's answering system. The interviewer should also try to obtain a pager number at

which to contact the physician in order to increase the likelihood of contact. Finally, if only an answering service is available to take a message, the interviewer should leave her name, a brief description of the survey, a phone number at which to be reached, and a statement saying that she will call back in a few days to try to make contact.

The original study aimed to give an overview of emergency contraceptive services for adolescents in children's hospital EDs across the country. Ideally, it would strengthen the results to obtain several perspectives of EC services at each hospital. However, as seen in this pilot sample, these ED physicians are quite difficult to contact. Therefore, in conducting the full study in the future, it will be necessary to obtain at least one physician's perspective from each hospital. The optimal contact person at each hospital would be the ED director, because this individual might be more likely to have administrative hours during which he or she could be contacted. The ED director is also the most likely physician to know the types of protocols in place in his or her ED and to have a secretary to help schedule the interview.

Implications of this research include support for the establishment of comprehensive guidelines for EC counseling and prescribing services for adolescents in children's hospital EDs. The results indicate that ED physicians in children's hospitals need significantly more education on EC, especially on the results of recent research studies, and on how to communicate this information to their adolescent patients. This research maintains the need for a continuation of the original full-scale study in order to clarify the preliminary conclusions made in this thesis.

6. CONCLUSIONS

Based on the results of this small pilot study, it is clear that these physicians are not meeting the recommended standard of care for EC provision to adolescents in children's hospital ED settings. Children's hospital ED physicians seem to have limited experience with EC counseling and prescribing, especially in non-sexual assault circumstances. Confusion remains on appropriate time limits for EC provision, the mechanism of action of EC, and the benefits of providing EC in advance. Few physicians are aware of recent research that has shown progestin-only regimens of EC to be preferable over combination regimens and increased time limits since last intercourse in which EC remains effective at preventing pregnancy.

Once the original study based on the recommendations provided from this pilot study is concluded, researchers will be able to clarify key observations made in this thesis. Relationships and associations between physician characteristics and their responses to survey questions will provide further insight into physicians' behaviors, attitudes, and beliefs surrounding EC provision to adolescents in children's hospitals EDs. These results will inform the public health and medical communities on current EC counseling and provision practices with adolescents in children's hospitals. Assuming that the full-scale study confirms the tentative findings of this pilot study, this research supports the establishment of comprehensive guidelines on appropriate EC counseling and provision practices with adolescents in children's hospital ED settings. Universal guidelines will increase awareness and accurate knowledge of EC and ensure consistency in care across diverse physician and hospital characteristics.

APPENDIX A

IRB APPROVAL FORMS

University of Pittsburgh
Institutional Review Board

Exempt and Expedited Reviews
Christopher M. Ryan, Ph.D., Vice Chair

3500 Fifth Avenue
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Pittsburgh, PA 15213
Phone: 412.383.1480
Fax: 412.383.1146
e-mail: irbexempt@msx.upmc.edu

TO: Megan Kavanaugh

FROM: Christopher M. Ryan, Ph.D., Vice Chair

DATE: 15. October 2004

PROTOCOL: Emergency Contraceptive Prescribing Patterns in Emergency Departments of Children's Hospitals

IRB Number: 0410013

The above-referenced protocol has been reviewed by the University of Pittsburgh Institutional Review Board. Based on the information provided in the IRB protocol, this project meets all the necessary criteria for an exemption, and is hereby designated as "exempt" under section 45 CFR 46.101(b)(2).

The regulations of the University of Pittsburgh IRB require that exempt protocols be re-reviewed every three years. If you wish to continue the research after that time, a new application must be submitted.

- If any modifications are made to this project, please submit an 'exempt modification' form to the IRB.
- Please advise the IRB when your project has been completed so that it may be officially terminated in the IRB database.
- This research study may be audited by the University of Pittsburgh Research Conduct and Compliance Office.

Approval Date: 15. October, 2004
Renewal Date: 15. October, 2007

University of Pittsburgh
Institutional Review Board

Exempt and Expedited Reviews
Christopher M. Ryan, Ph.D., Vice Chair

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TO: Megan Kavanaugh

FROM: Christopher M. Ryan, Ph.D., Vice Chair

DATE: January 21, 2005

PROTOCOL: Emergency Contraceptive Prescribing Patterns in Emergency Departments of Children's Hospitals

IRB Number: 0410013

The Institutional Review Board reviewed the recent modifications to your protocol and find them acceptable for expedited review. These changes, noted in your submission of January 10, 2005, are approved.

- Please advise the IRB when your project has been completed so that it may be officially terminated in the IRB database.
- This research study may be audited by the University of Pittsburgh Research Conduct and Compliance Office.

Approval Date: January 21, 2005

CR:ky

APPENDIX B

EMERGENCY CONTRACEPTION USE IN CHILDREN'S HOSPITAL EMERGENCY DEPARTMENTS SURVEY

Instructions to interviewers: Read aloud all text in **bold** font. Text in *italics* should not be read aloud unless instructed otherwise.

Hello Dr. _____. My name is _____ and I am calling from the University of Pittsburgh to interview you about reproductive health care and emergency contraceptive prescribing in your emergency department. We sent you a letter describing the interview a few weeks ago. Is this a good time to go ahead with the interview? *If interviewee says "No" say* **"when can I call you back to do this brief 10 minute interview?"** *and reschedule another time, recording what happened in the log. If says "Yes" go on by saying:* **This interview should take about 10 minutes of your time. The questions are not designed to test your knowledge. Rather, we are interested in your practices and experiences. Please answer each question keeping this in mind and also feel comfortable to decline to answer any questions you wish. Most of the questions are multiple choice. For these, I will read you the answer choices. Unless I say otherwise, please tell me the ONE response that best represents your answer. All questions in this survey refer to female adolescents who are seen in your emergency department unless otherwise stated. Thank you for agreeing to participate in this telephone interview.**

We will begin with a series of questions on general practices for assessing pregnancy.

1. Is there a written protocol in your emergency department for assessing pregnancy in female adolescents? *(don't read "yes" or "no" – check respondent's answer)*
___*Yes*
___*No → (if no, skip to #2)*
___*Unsure → (if unsure, skip to #2)*
___*Would not answer*

1a. *If yes*, **please describe this protocol**:
_____
_____
_____
_____
_____
_____
_____
_____

2. Which of the following factors determine whether you or someone you are supervising does a pregnancy test on a female adolescent? Please answer "yes" or "no" as I read each choice. (*circle answer*)

Whether the adolescent is post-menarchal	*Yes*	*No*	*Unsure*
The reason for the ED visit	*Yes*	*No*	*Unsure*
The date of the adolescent's last menstrual period	*Yes*	*No*	*Unsure*
Whether the adolescent has ever had sex	*Yes*	*No*	*Unsure*
How long ago the adolescent last had sex	*Yes*	*No*	*Unsure*
If the adolescent reports symptoms of pregnancy	*Yes*	*No*	*Unsure*
If the adolescent requests a pregnancy test	*Yes*	*No*	*Unsure*
At the discretion of health care provider	*Yes*	*No*	*Unsure*
Any others? _____	*Yes*	*No*	*Unsure*

Would not answer

3. How often are female adolescents screened for pregnancy during <u>non-reproductive health related visits</u> to the emergency department such as a visit for a fractured leg or a sore throat? Would you say they are screened… (*check answer*)
___Always
___Often
___Sometimes
___Rarely

___Never
___*Would not answer*

4. How often are female adolescents screened for pregnancy <u>during reproductive health related visits</u> such as a visit for vaginal discharge, menstrual irregularities, or symptoms of a urinary tract infection? Would you say they are screened… (*check answer*)
___Always
___Often
___Sometimes
___Rarely
___Never
___*Would not answer*

5. How do you usually assess for pregnancy in female adolescents in the emergency department? *(open ended – check each method that respondent indicates)*
_____*By sexual history*
_____*By menstrual history*
_____*By urine pregnancy test*
_____*By serum or blood pregnancy test*
_____*Other:_____*
_____*Unsure*
_____*Would not answer*

6. In your opinion, how important is the patient's history (i.e. sexual and menstrual) in driving your decision to do a pregnancy test? Would you say it is … *(check answer)*
____Very important
____Somewhat important
____A little important
____Not important at all
____*Unsure*
____*Would not answer*

7. Which of the following parts of the patient's history do you or someone you are supervising <u>routinely</u> ask before doing a pregnancy test? Please answer "yes" or "no" to each question that you routinely ask. *(circle answer)*

When was your last menstrual period?	*Yes*	*No*	*Unsure*
Was the timing and flow of your last period normal?	*Yes*	*No*	*Unsure*
Have you ever had sexual intercourse?	*Yes*	*No*	*Unsure*
For sexually active adolescents:			
When did you last have sexual intercourse?	*Yes*	*No*	*Unsure*
When was the last time you had unprotected sex?	*Yes*	*No*	*Unsure*
Are you having any symptoms of pregnancy like nausea, vomiting, breast tenderness or fatigue?	*Yes*	*No*	*Unsure*
Other_____	*Yes*	*No*	*Unsure*

Would not answer

8. When a pregnancy test is done in your emergency department, how often do you tell the adolescent that the test is being done <u>before</u> she is asked to give urine or blood for the test? *(check answer)*
___Always
___Often
___Sometimes
___Rarely
___Never
___ *Would not answer*

Now I am going to ask you some questions specifically related to emergency contraception. Emergency contraception is sometimes referred to as postcoital contraception or "The Morning After Pill." These questions relate to female adolescents who are seen in your emergency department for evaluations and treatment related to sexual assault or rape.

9. Is there a written protocol in your emergency department for providing emergency contraception to female adolescents who have been sexually assaulted? *(don't read "yes" or "no" – check respondent's answer)*
___*Yes*
___*No*

___*Unsure*
___ *Would not answer*

9a. *If yes*, **please describe this protocol**:

_____
_____
_____
_____

10. **How often do you <u>offer</u> female adolescents who have been sexually assaulted emergency contraception? Would you say it is…..** *(circle answer)*

___Always → *(if always, skip 10a)*
___Often
___Sometimes
___Rarely
___Never
___ *Would not answer*

10a. (*if not always*) **Which of these are reasons why you would <u>not</u> <u>always</u> offer emergency contraception to a female adolescent who has been sexually assaulted? Please say "yes" or "no" to each reason that I read.**
(circle answer)

Patient has not yet reached menarche	*Yes*	*No*	*Unsure*
Timing of assault occurred during the adolescent's menstrual period	*Yes*	*No*	*Unsure*
Adolescent is already taking another birth control method	*Yes*	*No*	*Unsure*
Assault occurred more than 72 hours ago	*Yes*	*No*	*Unsure*
Do not trust the patient's account of sexual history	*Yes*	*No*	*Unsure*
There is no protocol requiring provision of emergency contraception	*Yes*	*No*	*Unsure*
Giving emergency contraception is against hospital protocol	*Yes*	*No*	*Unsure*
Patient does not want emergency contraception	*Yes*	*No*	*Unsure*
Parent objects to patient receiving emergency contraception	*Yes*	*No*	*Unsure*
Physician's personal objection to emergency contraception	*Yes*	*No*	*Unsure*
Other_____	*Yes*	*No*	*Unsure*

Would not answer

Now I am going to ask you some questions related to emergency contraception in a general sense. These questions relate to female adolescents who are seen in your emergency department for <u>any reason</u> – not just for sexual assault or rape evaluations.

11. Is there a written protocol at your emergency department for providing emergency contraception to female adolescents who are seen in your emergency department for visits NOT related to sexual assault?
(don't read "yes" or "no" – check respondent's answer)
___*Yes*
___*No*
___*Unsure*
___ *Would not answer*

11a. *If yes*, **please describe this protocol**:

_____
_____
_____
_____
_____
_____

12. In the past <u>month</u>, approximately how many <u>female</u> adolescents have you or someone you supervised seen in the emergency department? *(open-ended – record # of patients that respondent indicates)*

_____

13. **How many times have you or someone you are supervising <u>discussed</u> emergency contraception in the past <u>month</u> with <u>female</u> adolescents?** *(open-ended – record # of times that respondent indicates. If respondent does not know, suggest ranges)*

___ # times
___*None*
___*1-2 times*
___*3-5 times*
___*6-10 times*

___*Over 10 times*
___ *Would not answer*

14. In the past <u>year</u>, approximately how many <u>female</u> adolescents have you or someone you supervised seen in the emergency department? *(open-ended – record # of patients that respondent indicates)*

_____

15. In the past <u>year</u>, how many times have you or someone you are supervising <u>discussed</u> emergency contraception with <u>female</u> adolescents? *(open-ended – record # of times that respondent indicates. If respondent does not know, suggest ranges)*

___ **# times**
___*None*
___*1-2 times*
___*3-5 times*
___*6-10 times*
___*11-20 times*
___*Over 20 times*
___ *Would not answer*

16. In the past <u>month</u>, approximately how many <u>male</u> adolescents have you or someone you supervised seen in the emergency department? *(open-ended – record # of patients that respondent indicates)*

_____

17. How many times have you or someone you are supervising <u>discussed</u> emergency contraception in the past <u>month</u> with <u>male</u> adolescents? *(open-ended – record # of times that respondent indicates. If respondent does not know, suggest ranges)*
___ **# times**
___*None*
___*1-2 times*
___*3-5 times*
___*6-10 times*
___*Over 10 times*
___ *Would not answer*

18. In the past <u>year</u>, approximately how many <u>male</u> adolescents have you or someone you supervised seen in the emergency department? *(open-ended – record # of patients that respondent indicates)*

_____

19. In the past <u>year</u>, how many times have you or someone you are supervising <u>discussed</u> emergency contraception with <u>male</u> adolescents? *(open-ended – record # of times that respondent indicates. If respondent does not know, suggest ranges)*

___ **# times**
___*None*
___*1-2 times*
___*3-5 times*
___*6-10 times*
___*11-20 times*
___*Over 20 times*
___ *Would not answer*

20. Now I am going to read you a list of situations in which you or someone you are supervising might typically <u>discuss</u> emergency contraception. Please say "yes" or "no" to whether you <u>usually</u> discuss emergency contraception in each of the following situations. *(circle answer)*

Any emergency department visit for a <u>female</u> adolescent	*Yes*	*No*	*Unsure*
Any emergency department visit for a <u>male</u> adolescent	*Yes*	*No*	*Unsure*
Adolescent reports <u>ever</u> being sexually active	*Yes*	*No*	*Unsure*
Adolescent reports being sexually active in the <u>past month</u>	*Yes*	*No*	*Unsure*
Adolescent reports having unprotected sex	*Yes*	*No*	*Unsure*
A pregnancy test is performed at the Emergency Department visit	*Yes*	*No*	*Unsure*
Adolescent is diagnosed with sexually transmitted infection at visit	*Yes*	*No*	*Unsure*
Visit is for a sexual assault evaluation	*Yes*	*No*	*Unsure*
Adolescent asks about emergency contraception	*Yes*	*No*	*Unsure*
Other situations?_____	*Yes*	*No*	*Unsure*

Would not answer

21. **Have you or someone you were supervising <u>ever</u> <u>prescribed</u> emergency contraception to a female adolescent in the emergency department?** *(don't read "yes" or "no" – check respondent's answer)*
___*Yes*
___*No* →*(if No, skip to # 25)*
___*Unsure*
___ *Would not answer*

22. <u>Approximately</u> what percent of all emergency contraception prescriptions provided by you or people you are supervising in the emergency department are prescribed because of sexual assault or rape? (*open ended – record percentage that respondent indicates*) _____ %

23. **In the past <u>month</u>, how many times have you or someone you were supervising <u>prescribed</u> emergency contraception to female adolescents?** *(open-ended – record # of times that respondent indicates. If respondent does not know, suggest ranges)*
___ # times
___*None*
___*1-2 times*
___*3-5 times*
___*6-10 times*
___*Over 10 times*
___*Unsure*
___*Would not answer*

24. **In the past <u>year</u>, how many times have you or someone you were supervising <u>prescribed</u> emergency contraception to female adolescents?** *(open-ended – record # of times that respondent indicates. If respondent does not know, suggest ranges)*

___ # times
___*None*
___*1-2 times*
___*3-5 times*
___*6-10 times*
___*11-20 times*
___*Over 20 times*
___*Unsure*
___ *Would not answer*

→**25. When emergency contraception is prescribed in your emergency department, how are adolescents educated about it?** *(open ended – check each method that respondent indicates)*
___*One-on-one counseling*
___*Written information (brochure, pamphlet)*
___*Video*
___*Other*_____
___*Unsure*
___ *Would not answer*

26. When emergency contraception is prescribed, is specific written information about it routinely provided? *(don't read "yes" or "no" – check respondent's answer)*
___*Yes*
___*No*
___*Unsure*
___ *Would not answer*

27. When emergency contraception is prescribed in your emergency department, who educates the adolescent about it? Say "yes" or "no" for each person that might educate the adolescent. *(circle answer)*

A Physician	*Yes*	*No*	*Unsure*
A Physician's assistant	*Yes*	*No*	*Unsure*
A Nurse practitioner	*Yes*	*No*	*Unsure*
A Nurse	*Yes*	*No*	*Unsure*
A Child advocacy professional	*Yes*	*No*	*Unsure*
A Pharmacist	*Yes*	*No*	*Unsure*
Any others? _____	*Yes*	*No*	*Unsure*

No one, patient is given written information about it *Yes* *No* *Unsure*
Would not answer

28. **There are a number of topics that one could discuss when educating an adolescent about emergency contraception. Please tell me which of the following topics you or someone you are supervising routinely discuss by saying "yes" or "no" after each topic that I read.** *(circle answer)*

What emergency contraception is	*Yes*	*No*	*Unsure*
How emergency contraception works	*Yes*	*No*	*Unsure*
Indications for use	*Yes*	*No*	*Unsure*
How well emergency contraception works	*Yes*	*No*	*Unsure*
Safety	*Yes*	*No*	*Unsure*
Common side effects	*Yes*	*No*	*Unsure*
Time limits for use	*Yes*	*No*	*Unsure*
Where and how to get emergency contraception	*Yes*	*No*	*Unsure*
Other birth control information	*Yes*	*No*	*Unsure*
That it does not provide protection from STDs	*Yes*	*No*	*Unsure*
Other topics: _____	*Yes*	*No*	*Unsure*
None of these topics	*Yes*	*No*	*Unsure*

I never prescribe emergency contraception for adolescents
Would not answer

29. How often do you or someone you are supervising discuss future plans for contraception with female adolescents when providing emergency contraception? Would you say it is … *(circle answer)*

___Always
___Often
___Sometimes
___Rarely
___Never → (if never, skip to #31)
___*I never prescribe emergency contraception*
___ Would not answer

29a. **Which contraceptive methods are most commonly discussed?** *(open ended – check each method that respondent indicates)*

____ Abstinence
____Condoms
____ Spermicide
____Combination oral contraceptives (the Pill)
____Depo-Provera shots
____Ortho-Evra patch
___Nuva ring
___IUD
___Other_____

30. How often do you or someone you are supervising prescribe ongoing contraceptive methods to a female adolescent at the same time that you prescribe emergency contraception?

___Always
___Often
___Sometimes
___Rarely
___Never → (if never, skip to #31)
___*Would not answer*

30a. *If more than never, say* **What is usually prescribed?** *(open ended – check each method that respondent indicates)*

____ Abstinence
____Condoms
____ Spermicide
____Combination oral contraceptives (the Pill)
____Depo-Provera shots
____Ortho-Evra patch
___Nuva ring
___IUD
___Other_____

30b. Is providing a prescription for an ongoing contraceptive method part of an ED or hospital protocol? *(don't read "yes" or "no" – check respondent's answer)*
___*Yes*
___*No*
___*Unsure*
___ *Would not answer*

31. Is follow-up care recommended to female adolescents who are prescribed emergency contraception? *(don't read "yes" or "no" – check respondent's answer)*
___*Yes*
___*No → (if no, skip to #32)*
___*Unsure → (if unsure, skip to #32)*
___ *Would not answer*

31a. *If yes, say* **What time frame for follow up do you usually recommend?** *(open ended – check time frame that respondent indicates)*
___ *If patient's period is late*
___*Less than a week*
___*1-2 weeks*
___*2.1-3 weeks*
___*3.1-4 weeks*
___*Over 4 weeks*
___*Other*_____
___ *I never prescribe EC*

32. What time limits from last intercourse do you or someone you are supervising use when prescribing emergency contraception? *(open ended – check time limits that respondent indicates)*
___*None*
___*24 hours or less (1 day)*
___*25 to 48 hours (2 days)*
___*49 to 72 hours (3 days)*
___*73 to 120 hours (5 days)*
___*121 to168 hours (7 days)*
___*Unsure*
___ *Would not answer*

33. Have you or someone you were supervising ever prescribed emergency contraception for future use?
(don't read "yes" or "no" – check respondent's answer)
___*Yes*
___*No → (if no, skip to #30)*
___*Unsure →(if unsure, skip to #30)*
___ *Would not answer*

33a. If yes, say **In the past <u>month</u>, how many times have you prescribed emergency contraception for future use?** *(open-ended – record # of times that respondent indicates. If respondent does not know, suggest ranges)*
___ # times
___ *None*
___*1-2 times*
___*3-5 times*
___*6-10 times*
___*Over 10 times*
___*Unsure*

33b. **How about in the past <u>year</u>?** *(open-ended – record # of times that respondent indicates. If respondent does not know, suggest ranges)*
___ # times
___ *None*
___*1-2 times*
___*3-5 times*
___*6-10 times*
___*Over 10 times*
___*Unsure*

34. Which methods of emergency contraception are dispensed from your emergency department? Please answer "yes" or "no" as I read each possible method. *(circle answer)*

Preven	*Yes*	*No*	*Unsure*
Plan B	*Yes*	*No*	*Unsure*
Combination oral contraceptives	*Yes*	*No*	*Unsure*
→ *(If yes),* **which one (s)?_____**			
Copper IUD (Paragard)	*Yes*	*No*	*Unsure*
Any others? _____	*Yes*	*No*	*Unsure*

Would not answer

35. Which of the following <u>best</u> describes how your hospital <u>usually</u> provides emergency contraception? Would you say that the ….. *(check answer)*

_____Patient is given first dose of the medication in the emergency department and a prescription for the second dose
____Patient is given a <u>prescription</u> for the entire course of emergency contraception
____Patient is given entire course of medication <u>on-site</u> in the emergency department
____Other_____
____Hospital does not provide emergency contraception
____*Unsure*
___ *Would not answer*

36. Is your emergency department more or less likely to provide emergency contraception <u>onsite</u> if the adolescent is there for a sexual assault evaluation. Would you say it is… *(circle answer)*

____More likely she will get emergency contraception onsite
____Less likely she will get emergency contraception onsite
____The reason for the visit does not make a difference
____ *Would not answer*

Finally, I would like to finish the interview with a few demographic questions about you and the hospital in which you work.

37. Are you currently a resident or fellow?
____ *Yes* → (*If yes),* **which one?_____**
____*No*

37a. (*If yes),* **what year are you in your residency or fellowship**?
_____

38. What type of residency are you currently in or did you complete? (*open ended- check respondent's answer)*
____ *Pediatrics*
____*Pediatrics Emergency Medicine*
____*Emergency Medicine*
____ *Internal Medicine*
____ *Family Medicine*
____ *Other:* _____

39. Are you fellowship trained?
___*Yes* → (*If yes),* **in what?_____**
___*No*

40. Are you board certified in…
___Pediatrics
___Emergency medicine
___Pediatric emergency medicine
___Family practice
___Other:_____

41. Are you currently the director of your emergency department?
___*Yes*
___*No*

42. In what year were you born?_____

43. What year did you graduate from medical school?_____

44. Do you see patients in any setting other than the Emergency Department?
___*Yes → (If yes),* **where else do you see patients**?_____
___*No*

Thank you for your participation in this survey.

45. *Gender of interviewee based on name and voice (check answer)*
___*Male*
___*Female*

APPENDIX C

LETTER TO CHILDREN'S HOSPITAL EMERGENCY DEPARTMENT HEADS

DIVISION OF EMERGENCY MEDICINE
412-692-7692
412-692-7464 (Fax)

Richard A. Saladino, MD
Division Chief
Medical Director

January 17, 2005

Dear Dr. _____,

My colleagues in the Division of Adolescent Medicine at the Children's Hospital of Pittsburgh will be conducting a telephone survey of physicians who practice in emergency departments of pediatric hospitals. The survey focuses on adolescent reproductive health.

I have offered to help this research group identify an up-to-date list of emergency medicine physicians in your pediatric emergency department; this list will be used to select a random sample of emergency medicine physicians for the survey.

I am quite hopeful that you will help us in this regard. At your earliest convenience, please fax or e-mail your most current list of emergency physicians who work in your department to Dr. Melanie A. Gold in the Division of Adolescent Medicine. Please include a telephone number that she can call to schedule interviews. Dr. Gold's fax number is (412) 683-4635 and her email address is magold@pitt.edu. *The list will be kept confidential* and will only be used for the purposes of identifying the random sample of physicians to be called to inquire about participation in the telephone survey.

Thank you in advance for helping my colleagues with this important study regarding adolescent reproductive health in the emergency department setting.

Sincerely,

Richard A. Saladino, M.D.
Chief, Division of Pediatric Emergency Medicine
Children's Hospital of Pittsburgh
University of Pittsburgh School of Medicine
412-692-7692

APPENDIX D

INTRODUCTORY LETTER TO STUDY PARTICIPANTS

Dear Doctor _____

We invite you to participate in a telephone interview about adolescent reproductive health care in emergency departments. We are particularly interested in your perspectives on emergency contraception prescribing protocols and practices for female adolescents seen in your hospital emergency department. This survey is being conducted by two students; one in public health and the other in medical school at the University of Pittsburgh under the supervision of Melanie A. Gold, D.O., Director of Family Planning and Adolescent Medicine Research at the Children's Hospital of Pittsburgh. Your participation in this study will help to inform the public health and medical communities about emergency contraceptive prescribing patterns for female adolescents seen in children's hospital emergency departments. We have selected you to participate in this interview because you work in an emergency department of a children's hospital. Your name was selected at random.

Your participation in this interview is entirely voluntary. We will be calling you in the next few weeks to schedule an interview that should take 15 minutes or less. To assure confidentiality and anonymity, your interview responses will be assigned a unique identifying number. Once data collection is complete, the code number list will be destroyed, and all data will be reported in summative form only.

We appreciate your time and willingness to share your expertise. If you would like a copy of the publication describing our interview results, please send us an e-mail with your address and the subject line "request results." If you have any questions regarding this survey, please feel free to contact us at 412-860-6880 or by e-mail mlc27@pitt.edu. If you have any questions regarding your rights as a research participant, you may contact the Institutional Review Board at the University of Pittsburgh at 412-383-1480.

In order to expedite the interview process, you are encouraged to **hit the reply button** to respond to this e-mail with **dates**, **times**, and a **phone number** at which it is most convenient to contact you. In order to accommodate your variable schedule, we can also conduct these interviews at nights and on the weekends.

Thank you for your time. We will be in touch with you shortly.

Sincerely,

Megan Kavanaugh
Second-year student
University of Pittsburgh Graduate School of Public Health

APPENDIX E

HOSPITAL DEMOGRAPHIC SHEET

1. Hospital Name:
2. Hospital Location (city and state):
3. Number of beds in hospital:
4. Hospital ownership (choose one):
   -Public (circle which): City County State Federal
   -Private for-profit
   -Private non-profit
   -Don't know
   -Other
5. Religious affiliation (choose one):
   -None
   -Catholic
   -Protestant
   -Jewish
   -Don't know
   -Other
6. Hospital community (choose one):
   -Metropolitan
   -Non-metropolitan
   -Don't know
   -Other
7. Number of ED visits annually:
8. Number of ED visits by female patients ages 12 to 21 :
9. Upper age limit for female patients admitted to ED:

*10. Number of ED visits by female patients ages 12 to 21 for sexual assault:

*11. Existence of sexual assault specialist/coordinator (circle answer): .....yes
.....no
.....unsure

12. Categorization of ED (chose one):
   -Trauma Center Level 1
   -Trauma Center Level 2
   -Trauma Center Level 3
   -Psychiatric
   -Specialty (non-psych)
   -Don't know
   -Other:

* may need to obtain this data from ED information at each hospital

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