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Assessing Provider Adherence to an Emergency Contraception Guideline

In

Reproductive Age Women

Amber E. Davis, DNP, RN

University of Kentucky

College of Nursing

Spring 2014

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Dedications

This capstone project is dedicated to the people who have supported, encouraged, and loved me through the last five years while I obtained my Doctor of Nursing Practice degree. I would first like to thank my husband, whose love, faith in my abilities, daily support, and words of encouragement have carried me through the many difficult days of this journey. I would also like to thank my parents and extended family for always believing in me and cheering me on to the finish line when the road got tough.

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Introduction to the DNP Practice Inquiry Project

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Unintended pregnancy has become a major public health issue worldwide and in the United States (US). In the 2008 National Survey of Family Growth (NSFG) conducted by the US Center for Disease Control and Prevention (CDC) found 3.4 million women, or 51% of women ages 15 to 44 reported experiencing an unintended pregnancy (Finer & Zolna, 2014). An unintended pregnancy is classified one that is mistimed (occurred sooner than expected) or unwanted (those not wanted then or at any time in the future). More than one-half, or 65%, of these pregnancies occur to women less than 18 years old, totaling approximately 1 million pregnancies in adolescents each year. Other vulnerable populations include females that are non-Hispanic black (constituting 25% of unintended pregnancies), 61% of all females with unintended pregnancies obtain less than a high school degree, and 50% live at or near poverty level (Chandra, Martinez, Mosher, Abma, & Jones, 2005).

Approximately one-half of all unintended pregnancies are due to contraceptive failure (Pollack & Daley, 2003), with all others related to improper contraception use, or failure to use contraception at all (Goldsmith, Kasehagen, Rosenberg, Sandoval, & Lapidus, 2008). The Guttmacher Institute (2013) reports that nearly half, or 40%, of all unintended pregnancies end in elective abortion, with African Americans most likely to choose this option. Women who decide to terminate their “unintended pregnancy face risks such as incomplete abortion, cervical or uterine trauma, infection, and anesthetic complications” (Pollack & Daley, 2003, p.11).

Subsequently, unintended pregnancies are associated with negative psychological, physical, social, and financial consequences for the mother, child, and

society (Devi, Shin, Kim, & Lo, 2009; Pollack & Daley, 2003). It is estimated that unintended pregnancies cost taxpayers \$12.5 billion in public expenditures in 2008 alone, with 65% of unintended births paid by public insurance programs (Dreweke, 2013). Women that experience an unintended birth are at greater risk for mortality, and their fetuses are at greater risk for exposure to alcohol, tobacco, and other toxins. Additionally, women experiencing unintended pregnancies may have delays initiating prenatal care, thereby increasing the risk for neural tube defects, premature delivery, and low birth weight infants, potentially causing long-term adverse health problems for the infant (Goldsmith et al., 2008). Furthermore, children of adolescents are at greater risk for abuse and neglect, poor cognitive development, school failure, and problematic behavior. Early childbearing in adolescents has been associated with lower educational and economic attainment, increased dependency on welfare, and decreased marital stability (Pollack & Daley, 2003).

The first manuscript in this capstone report is a literature review focusing on provider knowledge of emergency contraception (EC). This review examined nine articles that assessed provider knowledge of EC in a variety of settings and journals.

The second manuscript reviews a clinical practice guideline from the American Congress of Obstetricians and Gynecologists (ACOG) (2010) regarding EC. Postcoital methods of contraception to prevent unintended pregnancy, known as EC, have been available for years and available in many forms, but have not been frequently used by patients or encouraged by providers (Corbett, Mitchell, Taylor, & Kemppainen, 2006).

Types of EC, its mechanism of action, indications, administration, side effects, and barriers to use will be discussed.

The third manuscript in this capstone reports on a study completed in 2014 assessing provider adherence to ACOG's (2010) *Emergency Contraception* guideline of EC counseling to reproductive age women. A retrospective medical record review assessing EC discussion was conducted in a women's health practice. This was followed by a focus group with the clinic providers. The results of the study were presented, as well as a review of unintended pregnancy statistics and EC clinical practice guidelines. Finally, providers' perceptions of facilitators and barriers of EC discussion with patients were examined.

Determining Provider Knowledge of
Emergency Contraception in the United States:

A Literature Review

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Abstract

Purpose: In recent years, studies have shown an increasing incidence of unintended pregnancies. Emergency contraception (EC) is a valid and effective treatment for prevention of unintended pregnancies. However, this form of treatment is rarely offered or discussed with women by their providers. The purpose of this systematic review is to determine the knowledge level of EC among providers in the United States.

Data Sources: An electronic search was performed of published articles from 2000 to 2014 in CINAHL, PubMed, and EBSCOhost.

Implications for Practice: Providers in all practice areas should be prepared to discuss EC and counsel women at any health care visit, not just during wellness or annual exams, regarding appropriate EC use. Routine counseling and discussion of EC with all women at every visit may aid in an increased utilization of EC and a decrease in the rate of unintended pregnancies in the United States.

Conclusion: Healthcare providers are underutilizing and rarely discussing EC, an effective form of treatment to prevent an unintended pregnancy. Healthcare providers, pharmacists, and patients have knowledge deficits regarding appropriate EC use.

Determining Provider Knowledge of Emergency Contraception in the United States:

A Literature Review

Unintended pregnancy has been recognized as a significant health problem and was included in the Healthy People 2020 (US DHHS, 2013a) objectives by the United States (US) government. A National Survey of Family Growth (NSFG) conducted in 2008 by the US Center for Disease Control and Prevention (CDC) found that 3.4 million pregnancies, or 51% of all pregnancies, were unintended each year at a cost of \$12.5 billion annually (CDC, 2013; Dreweke, 2013). Healthy People 2020 family planning (FP) goals aim to “improve pregnancy planning and spacing, and prevent unintended pregnancy” (US DHHS, 2013a). Objective FP-1 aims to increase the proportion of intended pregnancies to 56% in the US by the year 2020. Objective FP-6 aims to increase the percentage of females who are at risk for unintended pregnancy and used contraception during their most recent intercourse by ten percent to a goal of 91.6%. Other goals include objective FP-2 which seeks to decrease the proportion of women who become pregnant despite using reversible contraception, FP-3 proposes an increase of the number of publicly funded clinics that maintain all FDA-approved methods of contraception, including emergency contraception (EC), goal FP-8 speaks to reducing adolescent pregnancy, and FP-12 goal focuses on increasing the number of young adults who have been formally counseled on reproductive issues by age 18, including contraception, by 2020 (US DHHS, 2013a). Table 1 illustrates Healthy People 2020 Family Planning goals related to EC (US DHHS, 2013a).

While many forms of EC are becoming increasingly available and accessible (Plan B One-Step [a brand of levonorgestrel] and generic levonorgestrel recently attained approval for over-the-counter sale), provider and patient EC knowledge has not increased (Hickey, 2009). With this nonprescription status, providers can directly impact EC use through patient education, as patients may be unaware of its increased accessibility (Shrader, Rodden, Carroll, & Peterson, 2010). Further, Chuang and Freund, (2005a) note that as “the primary care provider is often the patient’s first access to the health care system, all primary care providers should be well informed about EC” (p. 182). Unfortunately, several studies conducted to assess EC knowledge level of providers repeatedly demonstrated poor knowledge levels of EC and its use for unintended pregnancy (Miller, Plantz, Dowd, Mollen, Reed, Vaughn, & Gold, 2011; Shrader et al., 2010). This lack of knowledge has also been shown to affect provider attitudes and beliefs about EC, which ultimately decreases their counseling and provision of EC to patients (Miller et al., 2011).

Objective

The purpose of this systematic review is to determine the knowledge level of EC among providers in the US.

Systematic Approach

To examine the current literature regarding provider knowledge level of EC, several electronic databases were accessed including the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and EBSCOhost. Terms searched included “emergency contraception”, “provider”, “knowledge”, “contraception”, “family

planning counseling”, and “the morning-after pill”. Upon initial search, numerous articles were found regarding EC worldwide, including the US, Great Britain, Australia, France, Kenya, Turkey, China, and Brazil. Articles detailing pharmacist, patient, and nursing knowledge of EC, ease of access to EC, and EC education were also found (Table 2). No randomized control trials were found regarding assessment of provider knowledge levels. For the purpose of this review, only studies focusing on assessing provider knowledge level of EC, and those based within the US were included, as different cultures and religious beliefs regarding this sensitive subject may not be generalizable to behavior in this country. Nine articles were accepted for this review regarding provider knowledge. Study details are illustrated in Table 2.

Methods

This systematic review included current literature in which provider knowledge of EC was assessed. Nine research articles were reviewed regarding provider knowledge. The articles were retrieved from two journals which focused on contraception issues, one journal with a health education focus, two pediatric medicine journals, one journal dedicated to nurse practitioners, one journal associated with women’s health issues, one journal focusing on emergency medicine, and one journal geared towards family medicine.

Results

Description of Studies

The studies’ designs varied, with one study implementing qualitative grounded theory design (Akers, Gold, Borrero, Santucci, & Schwarz, 2010), one study using a

mixed-method design of a qualitative grounded theory assessment and a cross-sectional survey (Miller et al., 2011), two using a nonrandomized experimental pretest-posttest design (Chuang & Freund, 2005a; Colarossi, Billowitz, & Breitbart, 2010b), and five utilizing a cross-sectional descriptive design (Golden et al., 2012; Reed, Vaughn, & Pomerantz, 2012; Shrader et al., 2010; Wallace, Wu, Weinstein, Gorenflo, & Feters, 2004). Study sample sizes ranged from 48 (Akers et al., 2010) to 467 (Lee et al., 2012). Seven studies (Akers et al., 2010; Golden et al., 2001; Lee et al., 2012; Miller et al., 2011; Reed et al., 2012; Shrader et al., 2010; Wallace et al., 2004) assessed provider EC knowledge levels, as well as provider attitudes, beliefs, and previous experiences and prescribing practices of EC; while two studies assessed provider EC knowledge level and attitude changes following educational interventions (Chuang & Freund, 2005a; Colarossi et al., 2010b).

One study was conducted in Pennsylvania (Akers et al., 2010), one in Massachusetts (Chuang & Freund, 2005a), two in New York (Colarossi et al., 2010b; Golden et al., 2001), one in Ohio (Reed et al., 2012), one in South Carolina (Shrader et al., 2010), one in Michigan (Wallace et al., 2004), and two used a multiple sites method in medical centers and universities across the US (Lee et al., 2012; Miller et al., 2011).

Though all the studies focused on provider knowledge, the types of healthcare providers in each study varied. Eight studies included physicians (Akers et al., 2010; Chuang & Freund, 2005a; Colarossi et al., 2010b; Golden et al., 2001; Miller et al., 2011; Reed et al., 2012; Shrader et al., 2010; Wallace et al., 2004), four specified nurse practitioner or nurse practitioner student participants (Chuang & Freund, 2005a; Lee et

al., 2012; Miller et al., 2011; Reed et al., 2012), four included registered nurses (Akers et al., 2010; Miller et al., 2011; Reed et al., 2012; Wallace et al., 2004), and two included pharmacists (Akers et al., 2010; Shrader et al., 2010). Lastly, physician assistants (Chuang & Freund, 2005a), health educators (Colarossi et al., 2010b), social workers (Colarossi et al., 2010b), and adolescents (Reed et al., 2012) were each included in one study.

Three studies recruited participants from healthcare organizations (Chuang & Freund, 2005a; Miller et al., 2011; Shrader et al., 2010), two from professional organizations (Golden et al., 2001; Lee et al., 2012), one through campus and electronic mail (Wallace et al., 2004), one from a community organization (Colarossi et al., 2010b), one through workplace announcements (Akers et al., 2010), and one from an electronic invitation of participants who were included in a larger research study (Reed et al., 2012).

While five studies did not discuss exclusion criteria (Akers et al., 2010; Colarossi et al., 2010b; Miller et al., 2011; Reed et al., 2012; Wallace et al., 2004), one study excluded any participants that were not prescribers, those that were not primary care providers, or those that did not treat women (Chuang & Freund, 2005a). Another (Lee et al., 2012) only included nurse practitioner students, and Reed et al. (2012) excluded any adolescent that was non-English speaking, developmentally delayed, a trauma patient, or critically ill.

Reliability and Validity of Studies

All studies relied on self-report of EC knowledge and attitudes, either through interviews or written instruments, with a variety of instruments and tools utilized for assessment of the previously listed outcomes. All nine studies used descriptive statistics for demographic data, and all but three used a form of software for data analysis including SAS, SPSS, and ATLAS (Chuang & Freund, 2005a; Golden et al., 2001; Lee et al., 2012; Miller et al., 2011; Shrader et al., 2010; Wallace et al., 2004). Of the eight studies which employed quantitative research methods, six (Colarossi et al., 2010b; Golden et al., 2001; Lee et al., 2012; Miller et al., 2011; Shrader et al., 2010; Wallace et al., 2004) used a written survey developed by investigators based on previous research or research studies, and two did not mention the instrument that was used in their study (Chuang & Freund, 2005a; Reed et al., 2012).

Survey items included demographic data (Akers et al., 2010; Chuang & Freund, 2005a; Golden et al., 2001; Lee et al., 2012; Reed et al., 2012; Shrader et al., 2010; Wallace et al., 2004), EC knowledge (Chuang & Freund, 2005a; Colarossi et al., 2010b; Golden et al., 2001; Lee et al., 2012; Miller et al., 2011; Reed et al., 2012; Shrader et al., 2010; Wallace et al., 2004), beliefs and attitudes regarding EC (Chuang & Freund, 2005a; Colarossi et al., 2010b; Golden et al., 2001; Reed et al., 2012; Shrader et al., 2010; Wallace et al., 2004), EC practice patterns (Chuang & Freund, 2005a; Golden et al., 2001; Shrader et al., 2010; Wallace et al., 2004), provider clinical practice characteristics (Akers et al., 2010; Chuang & Freund, 2005a; Golden et al., 2001; Shrader et al., 2010), perceived barriers to EC use (Golden et al., 2001; Wallace et al., 2004), educational

content in professional degree programs (Lee et al., 2012), and open-ended questions for individual responses (Wallace et al., 2004).

When evaluating statistical methods used in these studies, seven of the quantitative studies conducted chi-square test of independence (Chuang & Freund, 2005a; Golden et al., 2001; Lee et al., 2012; Miller et al., 2011; Reed et al., 2012; Shrader et al., 2010; Wallace et al., 2004), three utilized t-tests (Chuang & Freund, 2005a; Lee et al., 2012; Wallace et al., 2004), two used the Wilcoxon signed-rank test to compare samples (Chuang & Freund, 2005a; Reed et al., 2012), two used Fisher's exact test (Reed et al., 2012; Shrader et al., 2010), two used analysis of covariance (ANCOVA) (Colarossi et al., 2010b; Lee et al., 2012), and one used the Mann Whitney U test to compare differences in responses between different provider types (Wallace et al., 2004).

Akers et al. (2010) conducted a qualitative assessment and Miller et al. (2011) conducted a mixed-methods study with qualitative focus groups and a written survey to assess EC knowledge levels. Both qualitative focus groups used a standardized semi-structured format developed by investigators based on current literature and sought to address perceived knowledge (Akers et al., 2010), self-efficacy (Akers et al., 2010), barriers and facilitators (Akers et al., 2010), and personal experiences and roles in EC counseling (Akers et al., 2010; Miller et al., 2011).

Findings

Lack of Provider EC Knowledge

Lack of Provider EC Counseling.

Wallace et al. (2004) found a lack of EC discussion with patients, with several studies (Akers et al., 2010; Golden et al., 2001; Lee et al., 2012; Miller et al., 2011; Reed et al., 2012) discussing possible causes such as a lack of provider knowledge and a lack of comfort discussing EC with their patients due to low knowledge levels. Providers also stated that they did not regularly prescribe EC (as was necessary prior to nonprescription status approval of EC) (Golden et al., 2011; Shrader et al., 2010; Wallace et al., 2004).

Lack of Provider EC Education.

Further, Lee et al. (2012) and Reed et al. (2012) noted that EC content is lacking in provider curricula, with Lee et al. (2012) observing that women's health nurse practitioner students had a better knowledge level of EC as compared to acute care and pediatric nurse practitioner students. Akers et al. (2010) also discovered that providers find it difficult to maintain a current knowledge level of EC with rapidly changing pharmacology and advances in technology.

Educational Interventions.

Many studies found provider misconceptions related to EC use, citing erroneous provider beliefs that increased access and use of EC by patients will facilitate decreased patient use of regular contraception and increased risky sexual behaviors (Chuang & Freund, 2005a; Golden et al., 2001; Miller et al., 2011; Reed et al., 2012; Shrader et al.,

2010; Wallace et al., 2004). Chuang and Freund (2005a) and Colarossi et al. (2010b) conducted educational programs for providers to provide accurate EC information and eliminate misconceptions, which impede proper EC counseling to patients. Following these educational offerings there was an increase in provider knowledge and improvement in provider attitudes regarding EC, an increase in advance provision of EC and routine counseling by the provider (Chuang & Freund, 2005a), as well as an increase in the willingness of the provider to prescribe EC to patients (Lee et al., 2012).

Failing to Remember EC Discussion

A second theme from the nine articles reviewed was the admission of the providers that EC discussion was often forgotten during contraceptive counseling, anticipatory guidance, or sick visits with reproductive age women, resulting in a lack of EC counseling (Wallace et al., 2004). It is important to note however, that most providers stated they are, in fact, willing to discuss EC, but that it is often forgotten when addressing the patient's other acute or chronic problems (Wallace et al., 2004). Akers et al. (2010) cited a lack of reminders to discuss EC within the healthcare system, such as reminders on exam forms or prompts within the electronic medical record, as one reason for neglecting to discuss EC with patients. Finally, providers also cited a lack of time for patient counseling as a cause for decreased EC discussion with patients (Akers et al., 2010; Miller et al., 2011).

Perceived Patient Responsibility

Multiple studies found that providers perceived initiation of EC discussion as the patient's responsibility (Akers et al., 2010; Lee et al., 2012; Miller et al., 2011; Shrader et

al., 2010). Furthermore, Akers et al. (2010) found that many providers used an informal classification system to determine which patients to counsel regarding the use of EC. Similarly, Miller et al. (2011) described a barrier of “social justice” in regards to EC counseling or provision. Social justice was described as a provider’s disapproval of EC use because of the provider’s personal belief that the patient should be punished for inadequately or failing to use contraception with consensual sexual activity, especially in adolescents (Miller et al., 2011).

Alternatively, patients, especially adolescents, often reported feeling uncomfortable in initiating discussion regarding EC (or regular contraception), as they feared a loss of confidentiality and privacy (Akers et al., 2010; Miller et al., 2011). Adolescents consistently reported fear of parental discovery of EC use through insurance notices or parental presence during consultation with providers (Akers et al., 2010; Miller et al., 2011). Additionally, many providers felt that patients, especially adolescents, lack perceived susceptibility to unintended pregnancy, lack perceived need for contraception, and lack interest in contraceptive options (Akers et al., 2010; Miller et al., 2011). Ultimately, providers stated they did not believe patients to desire contraceptive counseling, as patients generally preferred a contraceptive method based on prior use, or suggestions made by family, peers, or drug marketing campaigns; and that based on these reasons, patients were less willing to discuss all available or more effective, contraceptive options with providers (Akers et al., 2010).

Discussion

Limitations

The studies analyzed in this review discussed several limitations. Golden et al. (2001), Lee et al. (2012), and Shrader et al. (2010) identified a poor response rate, Chuang and Freund, (2005a) cited a small sample size and lack of a control group, and Lee et al. (2012) and Miller et al. (2011) recognized a lack of internal consistency and validity of instruments used as limitations in their studies. Additionally, several studies lacked generalizability of findings due to recall bias (Shrader et al., 2010; Wallace et al., 2004), selection bias (Golden et al., 2001; Miller et al., 2011; Reed et al., 2012), heterogeneous sample of different provider types (each profession may have their own norms not identified in this study) (Akers et al., 2010), or homogeneous samples of providers (Shrader et al., 2010; Wallace et al., 2004).

Recommendations

Implications for Practice

The American College of Obstetricians and Gynecologists (ACOG) (2010) has recommended that providers include a routine discussion of EC as part of contraceptive counseling in their clinical practice guideline entitled *Emergency Contraception*. The results of this literature review show that this recommendation is currently not being performed in clinical practice.

The evidence reviewed suggests a need for implementation of routine counseling regarding EC as a standard of practice and supports ACOG's recommendations (ACOG, 2010; Lee et al., 2012; Wallace et al., 2004). Akers et al.

(2010) suggests to facilitate regular EC and contraceptive counseling, providers should routinely ask patients about their current contraception method and use at every encounter. Furthermore, Golden et al. (2001) and Lee et al. (2012) propose including EC counseling as part of anticipatory guidance in adolescents, even before they become sexually active. Lastly, Akers et al. (2010) advocate for increased EC social marketing campaigns in an effort to reach all patients that may not regularly seek medical care and to encourage EC discussion with providers.

Additionally, several of these investigators recommend including reminders regarding EC counseling into the healthcare system. Wallace et al. (2004) encouraged the use of provider reminders on exam forms, as well as posters and pamphlets about EC through the clinic to facilitate discussion with patients. Akers et al. (2010) also suggested including routine prompts for EC counseling in electronic medical records.

An increase in EC education targeting providers and patients is clearly needed. Recommendations in these studies include an increased development and availability of EC continuing medical education (CME) opportunities (Akers et al., 2010), comprehensive training of providers regarding contraception and EC (Colarossi et al., 2010b; Shrader et al., 2010), and offering more EC educational programs and educational opportunities within the healthcare system to providers (Chuang & Freund, 2005a; Golden et al., 2001). Furthermore, Colarossi et al. (2010b) found that increased education to providers and nonprescribing healthcare workers (administrative assistants, nurses, and pharmacists) is another cost effective way to encourage EC use and discussion. Providers working in healthcare settings should encourage or provide grand

rounds regarding EC (Chuang & Freund, 2005a) and further education regarding social injustice related to EC when possible (Miller et al., 2011). Links to the most current EC information could also be included in electronic medical records for providers uncomfortable with their EC knowledge (Akers et al., 2010). Several studies found that an improvement and standardization of academic curriculum for providers regarding EC, contraceptive counseling, and contraceptive pharmacology is warranted (Akers et al., 2010; Chuang & Freund, 2005a; Lee et al., 2012; Miller et al., 2011; Shrader et al., 2010).

Implications for Future Research

Multi-site studies across many geographical locations to confirm findings of inadequate EC knowledge levels among healthcare providers have been suggested (Reed et al., 2012). Additionally, studies are needed which identify interventions that may be implemented to increase routine provider EC counseling (Akers et al., 2010; Wallace et al., 2004). Research should be interdisciplinary in nature to address EC issues in provider practice. Ethical considerations, provider educational needs, and development of creative techniques to counsel women regarding EC separate from traditional face-to-face methods should be investigated (Akers et al., 2010; Lee et al., 2012; Shrader et al., 2010).

To address the issue of inadequate EC content in academic curricula of provider programs, studies are warranted to explore current faculty knowledge of EC, as well as further qualitative studies to determine knowledge and attitudes of health care providers, including nurse practitioner faculty and students (Chuang & Freund, 2005a;

Lee et al., 2012). Future studies should also evaluate the impact of social justice in EC provision (Miller et al., 2011).

Conclusion

Future research and interventions are necessary to improve provider EC discussion with patients, in an effort to increase EC use. Findings from this literature review suggest that routine EC counseling is often omitted from routine anticipatory guidance (Akers et al., 2010; Golden et al., 2001; Lee et al., 2012; Miller et al., 2011; Reed et al., 2012; Wallace et al., 2004) and initiation of EC discussion is often perceived as the responsibility of the patient (Akers et al., 2010; Lee et al., 2012; Miller et al., 2011; Shrader et al., 2010). However, EC educational programs do increase frequency of provider EC counseling and provision to patients (Chuang & Freund, 2005a; Colarossi et al., 2010b). Reminder systems (Akers et al., 2010; Wallace et al., 2004), standardized EC curricula for providers (Akers et al., 2010; Chuang & Freund, 2005a; Lee et al., 2012; Miller et al., 2011; Shrader et al., 2010), and social media campaigns (Akers et al., 2010) are just a few ways to increase provider comfort in discussing EC, as well as overall provider knowledge.

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Table 1
Related Healthy People 2020 Family Planning Goals

| Healthy People 2020 Family Planning (FP) Goals | | | |
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| Goal | Objective | Baseline | Target |
| FP-1 | Increase intended pregnancies | 51% | 56% |
| FP-2 | Decrease number of pregnant females despite contraception use | 12.4% | 9.9% |
| FP-3 | Increase number of publicly funded clinics which maintain a supply of all FDA-approved contraceptives, including emergency contraception | 53.6% EC=79.7% | 67% EC=87.7% |
| FP-6 | Increase use of contraception during last intercourse in females at risk for pregnancy | 83.3% | 91.6% |
| FP-8 | Decrease adolescent pregnancy | <u>15-17 year olds:</u> 40.2/1,000 <u>18-19 year olds:</u> 117.7/1,000 | <u>15-17 year olds:</u> 36.2/1,000 <u>18-19 year olds:</u> 105.9/1,000 |
| FP-12 | Increase the number of adolescents formally counseled on contraception before 18 years of age | <u>Females:</u> 70.5% <u>Males:</u> 60.8% | <u>Females:</u> 77.6% <u>Males:</u> 66.9% |

Note. Objectives are adapted from *Healthy People 2020 Family Planning Objectives* as described by the US Department of Health and Human Services.

Table 2*Analysis of Studies Assessed in Literature Review*

| Unintended Pregnancies and Emergency Contraception | | | | | |
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| Reference | Design | Sample | Purpose | Findings | Implications |
| Chandra et al. (2005) | Single, cross-sectional, observational design | 7,643 females ages 15-44 living in US | To provide descriptive statistics related to fertility, family planning, and reproductive health of US women 15-44 years of age, based on Cycle 6 of the National Survey of Family Growth (NSFG) done in 2002. | <ul style="list-style-type: none"> • 61% of women aged 25-44 year olds with < high school degree & only 18% with college degrees reported an UP • 14% of births were unwanted (increased from 9%) & 21% were mistimed • Women with lower education, lower income, or who were Hispanic or non-Hispanic black, were < likely to use contraception with last intercourse | <ul style="list-style-type: none"> • High-risk groups continue to include those of lower education, socioeconomic status, non-Hispanic blacks, and Hispanics |
| Cheng et al. (2012) | Systematic review of RCTs and clinical trials | 100 trials with 55,666 female participants | To determine which EC method is the most effective, safe, and convenient to prevent unintended pregnancy. | <ul style="list-style-type: none"> • Women who used LNG within 72h after intercourse were significantly less likely to become pregnant • Effectiveness of ulipristal acetate (UPA) was not affected by administration time • One 1.5mg single dose of LNG was as effective as two 0.75mg doses 12-24h apart • EC that contains estrogen caused nausea/vomiting • LNG may cause an early menses and UPA more likely to delay menses • Copper IUD (Cu IUD) is only EC available also effective as long term contraception • Cu IUD>UPA>LNG>Yuzpe methods in effectiveness | <ul style="list-style-type: none"> • EC is safe and effective • LNG or UPA should be used as first-line EC • Cu IUD is preferred for EC if long-term contraception is desired |
| Devi et al. (2009) | Consensus of experts | N/A | To promote the health and wellness of women in every aspect of their lives. | <ul style="list-style-type: none"> • American Medical Women's Association (AMWA) supports the programs and services that educate girls and women about EC • 80% of teen pregnancies are unplanned, and 1/3 end in abortion • 75% births to women 20-44 were unplanned, 20% were aborted | <ul style="list-style-type: none"> • Healthcare providers are in a powerful position to provide compatible and compassionate interventions that address every female's individual needs |

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| | | | | <ul style="list-style-type: none"> • UPs carry a greater risk of maternal morbidity, fetuses may be exposed to alcohol or other toxins, causing mortality and morbidity • Substantial financial impact, direct medical costs=\$5 billion • Large number of UP demonstrate inefficiency of birth control despite widespread access • Abstinence is infrequently used • Despite abstinence sex education in schools teen birth rates rose in 2006; 1st time since 1991 | <ul style="list-style-type: none"> • Women need to be aware of the availability, indications, and accessibility of EC • Proper use of EC could prevent at least 75% of UP • EC is considered by the World Health Organization (WHO) to be one of the safest methods of contraception, though recurrent use is not recommended • AMWA believes that all women and girls should have full access to EC after unprotected sex, as UP often have significant effects on the mother, baby, and society |
| Finer et al. (2006) | Observational design | 10,847 women surveyed in 1995 & 7,643 surveyed in 2002 by the National Center of Health Statistics (NCHS) through the National Survey of Family Growth (NSFG) by the US government | To use newly available national data to examine trends in the rates of UP and related outcomes between 1994 and 2001, and to assess whether disparities between subgroups of women have grown or decreased. | <ul style="list-style-type: none"> • 1 in 20 American women have an UP each year • Women aged 18-24, of low-income, cohabitating, and minority (esp. black) are more likely to experience UP • These women have increased rates for abortion and unintended births • Cohabitating women use contraception similar to that of married women, but have higher incidence of sexual activity, and possible increased fecundity • Financially disadvantaged women are more likely than others to have unprotected sex with higher rates of method failure when used • Women are often ambivalent about whether a pregnancy was intended | <ul style="list-style-type: none"> • Cohabitating women and their partners would benefit from improved medical and social services regarding pregnancy planning • Further research is needed to determine the underlying factors that cause UP increases among women in poverty and other subgroups • Policy efforts to reduce UP should focus on improving access to contraceptives, especially for high-risk groups |

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| | | | | | <ul style="list-style-type: none"> • Providers should aim to help women plan pregnancies by appropriate and effective contraceptive methods • A reduction in barriers of more effective methods may prevent UP |
| Pollack & Daley (2003) | Expert opinion | N/A | To educate providers on need, use, side effects, availability, and barriers of EC. | <ul style="list-style-type: none"> • 50% of high school students have sex, 25% didn't use contraception with 1st intercourse • 27% of teens report pregnancy • UP associated with adverse medical, financial, psychological, and social consequences for teens, their families, and society • Teens more likely than adults to suffer adverse pregnancy outcomes (SGA, low/very low birth weight infants) • Children of teens are more likely than others to be at risk for poor health, school failure, poor cognitive development, and problematic behavior • Early childbearing is associated with lower educational and economic attainment, high welfare dependence, & more marital instability among teen parents • Teens who choose abortion face risks: incomplete abortions, cervical/uterine trauma, infection, & anesthetic complications • EC remains underutilized in the teen population • After EC education, teens & prescribers more likely to use/prescribe it • Adolescents perceive many barriers to EC use | <ul style="list-style-type: none"> • Lack of knowledge about timing and administration among prescribers limits counseling to high-risk patients • Attitudes about EC may influence prescribing practices by providers • Healthcare providers may use variety of practices to limit patient access to EC • National, regional, and local informational campaigns are one way to increase teen & provider awareness and knowledge of EC • NPs can play an essential role in improving teen EC access • Need for wide spread education for healthcare providers, should be completed as part of contraceptive counseling curriculum for clinicians • Healthcare providers should be encouraged to attend continuing education regarding EC |

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| | | | | <ul style="list-style-type: none"> • In 1996 the American College of Obstetricians and Gynecologist published professional guidelines on the use of EC • Inexperience is a major reason pediatricians do not routinely prescribe EC | <ul style="list-style-type: none"> • Healthcare providers need to raise awareness and educate teens about EC • Counseling can begin at preadolescent with anticipatory guidance, discussing puberty, and offering health education materials • Private, confidential interviews are appropriate at adolescence, inquiring about knowledge, contraception use, and sexual activity • Providers should encourage teens to make healthy and responsible sexual decisions, and clarify EC is used for emergency situations only • Providers should advise follow up visit after EC provision to test for pregnancy or STDs • Information pamphlets on EC should be visibly displayed, office staff should be knowledgeable about EC, and advanced provision should be given when deemed necessary • Providers should advocate for their teen patients at local, state, and federal level for proper healthcare |
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| Trussell et al. (2004) | Expert opinion | N/A | To describe EC use, types, effectiveness, safety, side effects, MOA, ways to improve access, and cost effectiveness. | <ul style="list-style-type: none"> • 1/2 of all pregnancies in the US are unintended (3.0 million in 1994), highest rate of all industrialized nations • EC prevents pregnancy after unprotected sex, may significantly reduce the incidence of UPs • EC is especially important for 3.1 million women who do not use a regular contraception & are at risk for pregnancy • EC is available orally (combined & LNG) and Cu IUD • EC reduces risk of pregnancy by 75% • Effectiveness decreased significantly with treatment delay • EC effective up to 120 hours • Most common side effects: nausea and vomiting • Contraindications: pregnancy, migraines or h/o clots (though EC will NOT interrupt an existing pregnancy) • No teratogenic effects have been noted • EC works by delaying/inhibiting ovulation, inhibiting fertilization or implantation of a fertilized egg • EC nearly always cost effective • IUD for long-term contraception for 10 years • Average medical cost of unintended births is more than the average cost of all births • 51,000 abortions were averted by use of EC in 2000 in the US | <ul style="list-style-type: none"> • Physicians rarely & infrequently provide information about EC to women during routine visits • Very few women aware EC is available, safe, & effective • Continued use of EC instead of regular contraception is far less effective, irrational choice • Making EC more widely available has not shown women to increase high risk behaviors • Women who are most diligent about ongoing contraceptive use are those most likely to seek emergency treatment • Educating teens about EC does not increase their sexual activity levels or use of EC but increases their knowledge level of proper use • Toll-free hotlines available: Emergency Contraception Hotline (1-888-NOT-2-LATE) & Emergency Contraception Web site (http://not-2-late.com) • Service delivery innovations may help reduce number of UP |
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| | | | | | <ul style="list-style-type: none"> • Changing provider practice: primary and reproductive providers should routinely inform about EC before the need arises • Information provided to both women and men in a culturally sensitive manner during counseling through posters, brochures, audio, video, or wallet cards • Access would be enhanced if providers advertised EC services |
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Knowledge of Providers

| Reference | Design | Sample | Purpose | Findings | Implications |
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| Akers et al. (2010) | Single, qualitative, grounded theory design | 48 providers (physicians, pharmacists, and nurses) recruited from 4 academic and community-based primary care practices which provide comprehensive women's care, affiliated with the University of Pittsburgh Medical Center, divided into 8 focus groups | To explore opinions regarding barriers to contraceptive counseling among providers in primary care settings to improve delivery of contraceptive services by developing system-based strategies. | <ul style="list-style-type: none"> • Multiple challenges to provision of contraceptive counseling • Challenges occur at provider, perceived patient, and health system levels • No single approach to improving provision of contraceptive counseling services sufficient • Lack of reimbursement, patient refusal, and lack of time are reasons for not offering services • Providers overwhelmingly felt they had inadequate knowledge and skills to provide counseling. • Providers choose who to counsel on a case-by-case basis based on subjective assessment | <ul style="list-style-type: none"> • A variety of strategies are needed to effectively improve provision of services • Cost-effective solutions are necessary to assist providers (EMR systems with prompts and links to up-to-date information) • Developing standardized curricula in contraception counseling, adding contraceptive questions to providers certification exams, offering CME opportunities, and increasing availability of electronic counseling resources are needed |

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| | | | | | <ul style="list-style-type: none"> • Important to understand the barriers of patients and providers • More RCTs are needed for counseling interventions • Contraception counseling should be done with all women of reproductive age at every visit, regardless of presentation problem • Development of creative ways to provide contraceptive services outside of traditional face-to-face with physicians are warranted |
| Chuang & Freund (2005a) | Single, non randomized experimental pretest-posttest design | 56 primary care providers (MD, APRN, & PAs) at institutions throughout Massachusetts | To assess the effect of a single educational session about EC to primary care providers. | <ul style="list-style-type: none"> • One educational session increased the likelihood of providers to provide advance prescription of EC • Increased likelihood of routine EC counseling • Baseline knowledge was high and remained high after session • Adequate knowledge may not be main barrier to EC provision • Other barriers (attitudes and time constraints) may be more important • Advance provision increased 6 months after session | <ul style="list-style-type: none"> • Effort must be made by providers to educate their patients regarding EC to increase use and access • The American public is overall unaware of EC availability • Advance provision could increase EC use |

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| Colarossi et al. (2010b) | Single non randomized experimental pretest-posttest design | 223 training participants (health educators, health care providers, & social service providers) recruited from 10 different community organizations in Brooklyn, the Bronx, and Manhattan, NYC | To measure changes in knowledge and attitudes regarding EC after a 2.5 hour EC training program. | <ul style="list-style-type: none"> • Increased knowledge about the timing, efficacy, and safety of EC noted in posttest • More positive attitudes about providing EC in posttest • Social service providers (SSP) had least amount of knowledge prior to training, but same amount of knowledge as other two groups after • SSPs had least positive attitudes before and after training, but positive attitudes increased significantly after • Participants had the most negative attitudes about providing EC to adolescents, especially among SSP | <ul style="list-style-type: none"> • Suggests a brief training program can impact providers from many professions • SSPs may be an important new group to educate regarding EC, as they work with large numbers of high risk individuals (adolescents and immigrants) • SSPs may be an important link to high risk women, as they use the health care system less frequently • Increasing knowledge and attitudes among providers working with high risk patients is a cost effective way to increase public use of EC |
| Golden et al. (2001) | Single, cross-sectional descriptive design | 233 active members of the American Academy of Pediatrics of New York Chapter 2, District II (including Brooklyn, Queens, Nassau & Suffolk counties) in January 1999. | To survey the knowledge, attitudes, and opinions of practicing pediatricians regarding the use of EC in teenagers. As well as to increase awareness of the use of EC and to assess interest. | <ul style="list-style-type: none"> • 1/3 peds had prescribed EC in the past year • Concern based on religious morals was not a concern for prescribers • Many feel they lack knowledge and training to provide EC, but are interested in learning more • Female pediatricians were more likely to counsel teens at annual visits, had more concerns about making EC more available, and underuse of other contraceptive methods • Majority would not prescribe an advanced rx to teens (17% would) | <ul style="list-style-type: none"> • Peds can play an important role in promoting EC awareness to teens and need to be knowledgeable about the subject to discuss it when indicated • Suggests a discussion of EC as part of anticipatory guidance provided to teens, even before they are sexually active • Pediatricians need to keep informed of recent developments in EC |

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| | | | | <ul style="list-style-type: none"> • Almost 1/2 of pediatricians requested to prescribe EC would do so in case of rape/sexual assault (mostly in teens) | <ul style="list-style-type: none"> • Important for physicians who treat teens to be aware of EC for rape/sexual assault victims |
| Lee et al. (2012) | Single, cross-sectional survey, descriptive design web-based instrument | 467 nurse practitioner students in American Association of Colleges of Nursing (AACN) member schools in the United States | To determine EC knowledge level of nurse practitioner (NP) students and to investigate attitudes about EC that may influence prescribing practices. | <ul style="list-style-type: none"> • Students who had received formal EC content in their program of study demonstrated higher mean knowledge scores • NP students lacked knowledge regarding MOA & indications • Younger students, newer to nursing, and women's health NP students had increased knowledge • Attitudes and knowledge were closely related | <ul style="list-style-type: none"> • Providers need accurate, evidence-based knowledge regarding EC in order to appropriately educate patients and counsel women regarding EC • A need exists to educate all women at every encounter about EC • Anticipatory health counseling needs to be initiated by provider • EC may reduce unplanned pregnancies |
| Miller et al. (2011) | Qualitative, grounded theory design; survey used to evaluate EC knowledge | 85 health care providers (MDs, NPs, and RNs) within 12 focus groups in multiple pediatric emergency rooms across the United States | To describe the attitudes and beliefs of EC among healthcare providers; to determine the perceived role of the provider in providing EC. | <ul style="list-style-type: none"> • Most MDs and NPs supported EC use, but RNs were divided • Most RNs did not approve of EC when intercourse was consensual • MDs and NPs had high intention to prescribe, but this may not describe prescribing behavior • RNs supported refusal practices of EC; some stated punitive attitude towards adolescents in need of EC • Providers demonstrated poor knowledge about EC | <ul style="list-style-type: none"> • Education about social justice for healthcare providers is needed • Poor knowledge and misconceptions indicate a need for more education to providers • Geographic differences indicate need for further quantitative studies |
| Reed et al. (2012) | Single, cross-sectional descriptive design | 30 RNs & 36 MDs/NPs, 40 teens surveyed in a Midwestern, freestanding, urban pediatric emergency department | To evaluate knowledge level differences of EC between MDs/NPs, RNs, and teens. | <ul style="list-style-type: none"> • No difference found between RNs and MDs/NPs, teens and RNs, or teens and MDs/NPs • MDs more liberal in their EC attitudes • Increased age=more conservative response | <ul style="list-style-type: none"> • Teens lack awareness of EC availability and accessibility • Minority teens may feel helpless regarding EC • Knowledge was poor in all 3 groups |

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| | | | | | <ul style="list-style-type: none"> • Lack of education exists among all groups re: EC • May indicate a resistance to obtaining knowledge r/t values or misconceptions |
| Shrader et al. (2010) | Single, descriptive design | 182 community pharmacists precepting in College of Pharmacy at Medical University of South Carolina (MUSC) and family medicine MDs who precept in the MUSC Family Medicine Rural Clerkship or family medicine residency programs throughout South Carolina | To assess knowledge and attitudes about EC of both community physicians and pharmacists practicing in South Carolina who are also preceptors for the MUSC. | <ul style="list-style-type: none"> • Knowledge was poor and attitudes about misperceptions were high in both physicians and pharmacists, especially in community pharmacists • More pharmacists than physicians prescribed/dispensed EC • Many pharmacists had been practicing for 20 years or more, majority of physicians had been practicing <5 years | <ul style="list-style-type: none"> • Newer providers may be more aware of attitudinal concerns of and more knowledgeable of EC as taught in school • Providers with more experience may be self taught or from continuing education • Future education may need to be targeted to these specific groups, and warrants further investigation |
| Wallace et al. (2004) | Single, cross-sectional, descriptive design | 78 faculty, residents, and clinic RNs in a Midwestern department of family medicine at five affiliated clinics serving two rural areas, two suburban areas, and one urban area. | To survey faculty, residents, and nurses at a family medicine residency program with regard to their knowledge and attitudes toward EC, as well as identify barriers to use | <ul style="list-style-type: none"> • 74% had provided EC in the past, 9% would not consider prescribing at all • 96% were familiar with indications and 78% with protocols for providing EC • 63% familiar with correct timing • No significant difference in knowledge scores between residents and faculty, nurses had significantly less knowledge • 90% believed it was an appropriate topic to discuss at women's annual exams, 76% don't think about it | <ul style="list-style-type: none"> • Reminders on patient's charts or annual exam forms, posters and pamphlets can be placed in office to encourage women to ask their providers about EC during annual exams • Administrative and support staff need additional education, as they are often the first point of contact and can influence timeliness of EC administration |

| | | | | <ul style="list-style-type: none"> • More than 80% thought patient's lack of awareness and discomfort initiating EC discussion were barriers to increased use | <ul style="list-style-type: none"> • Nonprescribing providers such as nurses need a better working knowledge of EC, especially re: time constraints, as they can still refer to another provider |
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| Knowledge of Patients | | | | | |
| Reference | Design | Sample | Purpose | Findings | Implications |
| Ahern et al. (2010) | Single, cross-sectional descriptive design | 100 English-speaking females ages 14-19 recruited from Kapiolani Medical Center's Teen Clinic in Honolulu, HI | To describe the awareness of EC among adolescent females, identify factors associated with knowledge of EC, and describe prior use of EC among adolescent females. | <ul style="list-style-type: none"> • Lower rates of EC awareness in teens than previously found in adults, older teens know more • Those aware, 38% had previously used it • Population mean age of coitarche=14.7 & 95% had sex, 56% had unprotected sex in last 6 mos., 66% had been/currently was pregnant • School based resources important to this population • Population desired fact based reproductive health classes vs. scare tactics & abstinence education • Majority recognized risk of UP immediately after sex • EC acceptable among many races and ethnicities | <ul style="list-style-type: none"> • Knowledge and awareness of EC needs expansion in the high-risk adolescent group, despite race • When EC is utilized in this group, it is highly acceptable • EC is still beneficial to many women individually |
| Baldwin et al. (2008) | Single, cohort, correlational design | 11,392 female respondents to the California Health Interview Survey (CHIS) in 2003 via telephone | To examine the associations between EC awareness and use and demographic, social, economic, and geographical variables. | <ul style="list-style-type: none"> • 75.7% women & teens stated knowledge of EC (76.5% adults, 67.6% teens) • 4.0% of those knowledgeable had used EC in the prior year (3.6% of adults, 14.1% of teens) • Awareness was statistically associated with non-Latina white, higher income, US born, and English-speaking households • Use was statistically associated with young age, no usual care source, lower income, living in urban areas | <ul style="list-style-type: none"> • Improved utilization may include advanced provision • Broad acceptance of and need for EC noted • EC may act as an important pregnancy prevention for vulnerable populations • Future research should explore this while improving EC awareness to all who may benefit from use |

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| Chuang & Freund (2005b) | Single, cohort, prospective, descriptive review | 188 Women of reproductive age (18-44 yo), residents of Jamaica Plain, MA; recruited at public street locations frequented by local residents | To assess baseline knowledge of EC to inform the Massachusetts EC Network to design a community education campaign within Jamaica Plain, MA | <ul style="list-style-type: none"> • 82% had heard of EC • 39% knew it by prevented pregnancy • 48% knew timeframe use • 44% knew available by prescription (at the time) • 25% had discussed EC with their provider • 12% had received an advance Rx • Latina and African-Americans had decreased rates of knowledge of EC, access, and timing as compared to Caucasians | <ul style="list-style-type: none"> • Findings inform the need for increased EC education and provision into routine care • Increased education is needed to minorities • Increased education regarding administration timing, access, and knowledge is needed |
| Corbett et al. (2006) | Single, cross-sectional, descriptive design | 97 university students entering the lobby area of the university library in a southern coastal city | To examine knowledge, attitudes, and behaviors regarding EC in university men and women ages 18-21. | <ul style="list-style-type: none"> • 96% aware of EC, 71% aware prevented pregnancy • 87.6% did not differentiate between EC and RU-486 • Primary info source friends/relatives (35%) or providers (4%) • 40.8% would seek information from provider & 33.4% from community clinic • 67% considered UP a major problem • 66% perceived moderate to high amount of risk for UP, 73% of those thought EC was worthy to obtain, 44% of those willing to use EC were not embarrassed to obtain EC • All women who were not likely to choose EC, stated feeling embarrassed or judged to ask for it • 17.5% discussed EC previously with provider • 12.2% had previously taken EC, 67.1% would use it with contraceptive failure • Of those likely to use EC, 92.1% more likely to use it if already on hand, 20% of those unlikely to use EC were more likely to use if had it on hand • 46% men likely to recommend EC to a partner, none of the men had ever discussed EC with provider | <ul style="list-style-type: none"> • Primary health care providers need to discuss EC with both men and women • Access is limited to high risk individuals when they have not been educated on how to prevent unplanned pregnancy • Women are more likely to use EC if they perceive themselves to be a risk for UP, weren't embarrassed to ask for it, and had an advanced prescription |

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| Gee et al. (2007) | Single non randomized experimental pretest-posttest design | Local residential women of reproductive age frequenting public locations of Jamaica Plain, MA Pretest (5/2003) n=188 Posttest (5/2005) n=290 | To improve EC knowledge among reproductive aged women living in Jamaica Plain, MA through a public outreach campaign, targeting providers and consumers of EC | <ul style="list-style-type: none"> • After the campaign, significantly more women had knowledge of EC, discussed it with their providers, & received advanced prescription • Significant increase in knowledge in the Latino community • Significant increase in women hearing about EC from their providers. | <ul style="list-style-type: none"> • Efforts targeted at specific groups can be effective at decreasing knowledge disparities • Cultural competency awareness and respect for community concerns are effective at reducing knowledge disparities. • Efforts aimed at providers are effective, and providers still need to play active role in educating regarding EC |
| Goldsmith et al. (2008) | Single, correlational cross-sectional, retrospective design | 1,795 women randomly selected from a 2001 statewide, ongoing, population-based public health surveillance project called Oregon Pregnancy Risk Assessment Monitoring System (PRAMS) | To study unintended childbearing and to examine the relationship between unintended childbearing and knowledge of emergency contraception. | <ul style="list-style-type: none"> • 38% of respondents had UPs • 32% with UPs did not know about EC • 20% of those with intended pregnancies did not know about EC • Those with UP more likely young, uninsured, African-American, not married, low income, and <12 years of education • A significant association of UP and lack of knowledge of EC was noted | <ul style="list-style-type: none"> • Understanding which populations are at higher risk of UP is needed, as they are in greatest need of information regarding EC • Future research is needed to determine knowledge of EC level and UPs, especially before +urine pregnancy test (UPT), to decrease bias • May need different programs to aim at different population |
| Hickey (2009) | Single, exploratory, descriptive, cross-sectional design | 609 female college students from a private suburban university located in the Mid-Atlantic region of the United States aged 18-24 which responded to | To address the gap in the literature and examine female college students' knowledge, perceptions, and use of EC to collect pilot data. | <ul style="list-style-type: none"> • 81% sexually active within past year • 15% previously pregnant • 87% pregnancies unplanned, 62% UPs were terminated (spontaneously or electively) • 98% aware of EC, 54% for >3 years • 40% unsure of difference from RU-486 • 8% were informed of EC from provider, 40% from peers, 32% in school | <ul style="list-style-type: none"> • Health care providers need to educate women about EC, its efficacy, availability, safety, and proper use |

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| | | an email invitation while registered at the university during the fall 2007 semester | | <ul style="list-style-type: none"> • 90% would learn about via internet, 75% from provider, 62% from a clinic • 57% approve of EC, 28% approve sometimes, 96% approve with sexual assault, 82% approve with failed BC • 28% previously used EC • 62% more likely to use if provider educated them, 36% more likely to use it, if on hand • 60% would not use, don't believe they can obtain it, 72% hesitant of ASE | <ul style="list-style-type: none"> • Nursing in a unique position to increase awareness in all women of reproductive age in various settings by promoting discussions about sexual activity, contraceptive options, and UP risk |
| Johnson et al. (2010) | Single, ethnographic qualitative design | <p>Snowball sampling utilized for in-depth interviews and 4 focus groups of male and females ages 15-21, which was African-American and Hispanic at local youth-serving community-based agencies in NYC.</p> <p>Total n=47 In-depth interviews n=18 Focus groups n=29</p> | To assess general EC awareness and attitudes, factors associated with EC use, and perceived benefits and barriers associated with OTC sales of EC in order to develop marketing campaign & intervention aimed at urban youth of color in NYC. | <ul style="list-style-type: none"> • 75% experienced contraception failure without hormonal birth control use • Few recognized EC as an option for contraceptive failure • Commonly confused EC as RU-486, and that EC prevents STIs • After accurate info, most said they would use or recommend to a friend, and after sexual assault • Few had ever had a provider discuss EC with them, even when unprotected sex resulted in pregnancy • Most stated that they would not get an advance supply of EC, even though it was a good idea • Age restriction less of a barrier than cost, perceived lack of confidentiality, & lack of insurance • Few perceived pregnancy as a definitive outcome until positive UPT | <ul style="list-style-type: none"> • Ongoing need for education about EC is necessary • Advocates need to address monetary and confidentiality issues • Education of prospective benefits of EC necessary despite +UPT • Desire health info from peers • Need to focus on adolescent ambivalence of pregnancy • Information should include side effects and cost, as well as basic info • Should appeal to males in particular • Desire autonomy in health care via internet to educate themselves before seeking professional opinion |

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| | | | | | <ul style="list-style-type: none"> • Interventional research should focus on developing and evaluating effective social marketing campaigns and interventions aimed at youth, especially those at high risk for UP |
| Wilder et al. (2009) | Single, cross-sectional, correlational design | 154 female survivors of intimate partner violence (IPV) living in Oregon, 18-50 year olds without a tubal ligation or hysterectomy | To examine EC knowledge, awareness, perceptions, and prior use and identify predictors of EC use among a sample of survivors of IPV. | <ul style="list-style-type: none"> • Sample has higher incidence of UP and prior EC use but less incidence of elective abortion (EAB) than general population • Vulnerable population for UP • Lack of association between IPV survivors and race/ethnicity • Similar awareness and EC use as other populations, with lower rates of knowledge • Awareness not synonymous with knowledge | <ul style="list-style-type: none"> • Lay community members can be equipped with proper referral sources to reach those without traditional healthcare • Providers should assess/educate about knowledge/awareness of contraception/EC on every encounter with high risk patients |

Knowledge of Pharmacists

| Reference | Design | Sample | Purpose | Findings | Implications |
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| Borrego et al. (2006) | Single, cross-sectional, descriptive design | 523 registered pharmacists with the New Mexico State Board of Pharmacy residing in New Mexico | To describe New Mexico pharmacists' knowledge, attitudes, and beliefs toward prescribing of oral EC in their practices. | <ul style="list-style-type: none"> • Pharmacists' knowledge regarding prescribing EC was average • 1/3 confused EC with RU-486 • 40% would like to be certified/increase knowledge of EC • Pharmacists had overall positive attitudes towards EC • 30% oppose EC due to religious beliefs | <ul style="list-style-type: none"> • Factors such as education and practice environment must be addressed for more pharmacists to accept prescriptive authority and to meet the needs of women seeking nonprescription EC products |
| Ragland & West (2009) | Single, cross-sectional descriptive design | 301 University of Arkansas for Medical Sciences College of Pharmacy students enrolled in fall of 2006 | To describe Arkansas pharmacy students' knowledge of, attitudes toward, and behaviors concerning emergency contraception. | <ul style="list-style-type: none"> • 91% knew Plan B had been approved for nonprescription use for women >18 yo • 34% knew correct mechanism of action • 35% confused EC for RU-486 • 29% stated feeling uncomfortable with dispensing due to religious/moral reasons, 45% opposed this | <ul style="list-style-type: none"> • As pharmacies have become the point of access of EC for patients, it is crucial pharmacists are knowledgeable about this product. • Pharmacy students could benefit from additional training in EC |

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| | | | | <ul style="list-style-type: none"> • 26.7% felt competent instructing patients on appropriate use of EC | |
| Richman & Daley (2009) | Single, mixed methods (qualitative & quantitative), descriptive design | 47 deans of accredited schools of pharmacy in the United States and 21 3 rd and 4 th year PharmD students at all four accredited schools of Pharmacy in Florida | To assess US pharmacy school curricula for course content related to EC, and to understand how this content is perceived by pharmacy students. | <ul style="list-style-type: none"> • 87% stated their curricula included EC content, 100% stated that schools should include it • 91% students reported they had taken classes with EC content • 52% were either not sure if pharmacists were informed enough to dispense EC • 64% stated they wished there was more information they had learned about EC • Those students who have had EC in their curriculum, the majority stated it was brief • Even if the students knew the MOA, specific knowledge was limited • Refusal to dispense is a real problem in practice • Pharmacists believe it is their job to counsel patients | <ul style="list-style-type: none"> • A more thorough assessment of pharmacy school content is needed • Pharmacy school administrators and faculty should ensure adequate content is being taught in their programs • All health professionals, including pharmacists, need to stay current and educated • Pharmacists and providers need to examine their own biases and how those may impact their practice • Pharmacy school faculty and students could create a teaching module that will be most effective in teaching students about EC which could be carried over to other health professionals • All pharmacies need to implement policies when pharmacists refuse to dispense EC • Better continuing education opportunities needed |

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| <p>Sommers et al. (2001)</p> | <p>Single, cross-sectional, descriptive design</p> | <p>159 pharmacists who had completed a 3-hour ECP training program provided by WPSA and 27 prescribers who entered into ECP collaborative prescribing agreements with pharmacists as of 8/1/98 in Washington State</p> | <p>To evaluate consumer and provider satisfaction of the program in Washington State that encouraged collaborative prescribing agreements between community pharmacists and prescribers; and the characteristics of the EC service delivery.</p> | <ul style="list-style-type: none"> • All groups expressed a high level of satisfaction with the program and services provided • Some pharmacists encountered managerial resistance to dispensing EC • Consumers desired the pharmacist to more actively reinforce written information of EC • Chain pharmacists are significantly more satisfied with the EC program overall than independent pharmacists • Diversity of pharmacists illustrates that implementation of a program should not be limited to one practice model | <ul style="list-style-type: none"> • Others implementing an EC program may need to devise a presentation to pharmacy managers demonstrating the advantages of EC provision • Pharmacists need to be trained to relay necessary messages to consumers despite consumer embarrassment, anxiety, and distress • Pharmacists providing EC services in rural areas should be given extra support and resources • Pharmacists need to be familiar with what the law states with respect to parental inquiry |
| <p>Van Riper & Hellerstedt (2005)</p> | <p>Single, cross-sectional, descriptive design</p> | <p>501 pharmacists who live in South Dakota and registered with the South Dakota Board of Pharmacy who returned questionnaire by mail</p> | <p>To assess the dispensing practices of emergency contraception by South Dakota pharmacists, as well as their knowledge and attitudes about the practice.</p> | <ul style="list-style-type: none"> • 54% of pharmacists worked where EC was carried • 2/3 of these individuals dispensed it during the study • Knowledge of EC was low (37% didn't know it was similar to OCPs) • Pharmacists felt uncomfortable to counsel consumers on EC use/side effects | <ul style="list-style-type: none"> • South Dakota pharmacists must increase their knowledge and comfort level • One method is to review and strengthen curricula of pharmacy schools regarding EC • Programs using a variety of media are necessary to reach all levels of practicing pharmacists |

| Access to Emergency Contraception | | | | | |
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| Reference | Design | Sample | Purpose | Findings | Implications |
| Gold et al. (2004) | Single, randomized control trial design | 301 sexually active female adolescents, aged 15- 20, from a waiting room of an urban, hospital-based adolescent medicine clinic in a children's hospital in southwestern Pennsylvania between 6/97-10/01 | To assess whether adolescent women who were provided with advance emergency contraception would have riskier sexual behaviors. | <ul style="list-style-type: none"> • At 6 month f/u, significantly more advance provision participants were using condoms than those in control group • Participants more likely to use EC earlier with advance provision than control group without negatively impacting condom or hormonal contraception • Contraceptive behaviors similar between groups • Intervention group was significantly more likely to use EC | <ul style="list-style-type: none"> • There is no evidence in this study that adolescents with advance provision of EC will have more unprotected intercourse or less contraceptive use • There are no negative behavioral or health ramifications to making EC more available • Adolescent women who used EC, used it during it's most effective timeframe, within 12h after unprotected sex • Supports advance EC provision |
| Harper et al. (2005) | Single, randomized control trial design | 964 adolescents aged 16 and younger from a large randomized control trial in the United States recruited from 4 clinics in the San Francisco Bay Area from 2001 to 2003 | To examine whether young adolescents are any different in their response to increased access to EC from older adolescents and adult women. | <ul style="list-style-type: none"> • These adolescents were at higher risk of pregnancy than the adult participants due to differences in contraceptive use • Younger adolescents more likely to rely on condoms and to have unprotected intercourse • Adolescents were more likely to use less effective form of contraception and on a more intermittent basis • Adolescents were significantly more likely to use EC than adults • Behaviors did not become riskier with easier access to EC | <ul style="list-style-type: none"> • Evidence shows an importance of involving adolescents in increased regular contraceptive use • Important for this age group to have access to effective forms of routine contraception • Important to understand how contraceptive interventions may affect unwanted sex among adolescents • Physician supervision does not improve adherence to the regimen and young adults follow the regimen the best among all groups |

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| | | | | | <ul style="list-style-type: none"> • Easier access led to greater use but not to riskier sexual behaviors or use of routine contraception |
| Jackson et al. (2003) | Single, randomized control trial design | 370 postpartum women enrolled on the day of discharge after routine contraceptive counseling had been provided by medical staff | To examine the effect of advance provision of emergency contraception on contraceptive behaviors, emergency contraception use, and knowledge in a group of high-risk women over the course of a year. | <ul style="list-style-type: none"> • Increased use of EC in women given advance supply noted • Women were 6x more likely to use EC after unprotected sex if given advance supply • EC use limited by lack of recognition of pregnancy risk • No evidence of less effective contraceptive use with advance provision • Consistency of use and method selection for contraception improved after advanced provision of EC | <ul style="list-style-type: none"> • Education of EC should emphasize it's safety and mechanism of action, and not as abortifacient • There is a need for specific education regarding timing of EC use, as it affects efficacy • Much larger study with longer follow up times is required to assess unintended pregnancy rates with advanced provision of EC • Study supports feasibility and safety of advance provision of EC upon postpartum discharge from hospital • EC education should become a standard of care for postpartum women before hospital discharge |
| Raine et al. (2000) | Single, quasi experimental, alternating assignment control trial design | 263 women 16-24 years of age which spoke English or Spanish attending an affiliated, publicly funded, family planning clinic of the Department of Obstetrics, Gynecology, | To examine the effects of education and advance provision of emergency contraception on knowledge and use of the method, as well as on contraceptive behavior, in a culturally diverse group of adolescents and | <ul style="list-style-type: none"> • Women were significantly more likely to use EC if given advance provision • Advance provision was the strongest predictor of EC at follow up • Education alone may not be enough to increase use • Increased knowledge alone does not correlate with behavioral changes • Advance provision group had more specific knowledge and greater use of EC | <ul style="list-style-type: none"> • A larger scale, randomized intervention incorporating longer follow up and multiple doses of EC is needed to evaluate efficacy of reducing unintended pregnancies • Advance provision is a key component in increasing EC knowledge and use |

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| | | and Reproductive Sciences of San Francisco General Hospital from 6/98-11/98 | high-risk women who attend a publicly funded family planning clinic in San Francisco. | <ul style="list-style-type: none"> • Significantly more women at follow up reported less effective contraception use | |
| Raymond et al. (2007) | Systematic review of correlational, and randomized and non-randomized control trials | 23 articles of any design that yielded primary data comparing effects of interventions or programs with different levels of access to EC pills. | To systematically review data on effects of increased emergency contraceptive pills on pregnancy rates and use of the pills. | <ul style="list-style-type: none"> • Studies were performed in 10 countries between 1998-2006 • 10 randomized and 4 cohort prospectively allocated women to increased access intervention group or to a control group with individual follow up • 9 studies did not assign participants to intervention/control groups, instead conducted population-level statistics of interventions • None of the studies found clinically or statistically significant differences in pregnancy or abortion rates • Substantially higher proportion of intervention group used EC, and of increased promptness to use EC | <ul style="list-style-type: none"> • Further research needed to inform funding agencies, family planning program managers, policy makers, and women in making decisions about spending limited resources on EC • Poor access is not the only barrier to use, many women fail to use even with advanced provision • Development and evaluation of strategies to overcome barriers and maximize EC use is imperative • More precise estimates of EC efficacy are desired • Improved awareness of and access to EC is appropriate and desirable • More rigorous research is needed to confirm that users of EC are more likely to adopt a more effective contraception |

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| Walsh & Frezieres (2006) | Single, randomized control trial design | 1,130 15-45 year old women who were not pregnant or seeking pregnancy visiting a community clinic in California between 10/03-10/04 and fluent in English or Spanish | To test the impact of providing EC in advance of need within a large study population of ethnically diverse family planning clients of community clinics throughout California. | <ul style="list-style-type: none"> Advanced provision participants were more likely to have used EC at follow up More women in the advance EC group took their first pill within 12h of intercourse Women <19 yo were twice as likely to use EC than those >24 yo EC use was most frequent among Asians Participants generally had positive attitudes towards EC, especially the younger groups Respondents >24 yo were less likely to know how and where to obtain EC | <ul style="list-style-type: none"> Advance provision of EC increases use without increasing risk taking behavior Study fails to demonstrate that advance provision correlates to a decrease in UP Suggests that EC is used more by participants who have already attempted to protect themselves than by those who made no effort at all Health educators and clinicians may be more effective in increasing EC use if patients understood the risks of pregnancy outweigh those of taking EC |
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Emergency Contraception Education

| Reference | Design | Sample | Purpose | Findings | Implications |
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| Colarossi et al. (2010a) | Single, qualitative, descriptive design | 22 Mexican (born in Mexico) and 30 Caribbean (from English speaking Caribbean countries) women ages 20 to 49 recruited from community-based organizations (CBO) in Brooklyn, NY and 12 staff from six different CBOs in Brooklyn | To describe the exploratory research process of message development and testing with Mexican and Anglophone Caribbean women in New York City. | <ul style="list-style-type: none"> Both groups of women demonstrated lack of knowledge about EC, concerns about its safety, and confusion as an abortifacient Health care barriers for immigrants, including understanding of the US health care system and language use, were identified Caribbean women showed more distrust of the health care system and expressed influence of myths of preventing pregnancy Mexican women stressed the importance of doing what was right for their families CBO staff demonstrated a similar lack of knowledge and some negative attitudes about use before education | <ul style="list-style-type: none"> The presence of community-held norms and concern about safety of EC was reflected in the Caribbean's created poster Mexican poster was aimed more towards family planning Clarification is needed to all groups regarding how EC works, where it is provided, and what it is Additional focus groups outside of NYC are needed to make findings more generalizable |

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| | | | | | <ul style="list-style-type: none"> • Construction of culturally relevant health materials for immigrant populations is desired over translation of English materials • Processes need to be reevaluated as immigration patterns/health needs change over time • Evaluation research is needed to evaluate media impact on EC use and behavior change among the targeted population |
| Moos et al. (2003) | Systematic review of correlational, observational and randomized control trials design | 74 articles published after 1984, set in a US clinical setting, and of either cohort, experimental, or cross-sectional design | To identify all research on counseling approaches in a clinical setting targeted toward prevention of UP, including abstinence counseling. | <ul style="list-style-type: none"> • No robust evidence exists to determine effective counseling approaches for changing knowledge, attitudes, or behaviors • Numerous factors influence knowledge and adherence of contraception • Knowledge of men may affect contraceptive practice and may cause sexually active young men to use more effective contraception • Correct user knowledge of contraception did not correlate to correct use • Complexity of factors influence behavior • Statistically significant factors affecting adherence of contraception include health-related problems from contraception, personal estimate of likelihood of pregnancy, and ability to recognize options when pregnancy occurs | <ul style="list-style-type: none"> • There are numerous cultural influences on contraception • Little is known regarding the determinants of contraceptive use and delay of contraception among adolescents • More research is needed before strong conclusions may be made regarding the effects of community interventions on UP • Studies are needed that address men, women >35 years old, and couples experiencing unintended pregnancies • Further research needed in form of RCTs to determine approaches for assessment, education, and counseling about EC |

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| | | | | | <ul style="list-style-type: none">• Several contemporary models of behavior change have not adequately been tested related to contraception• Complex cultural, social, psychological, physiological, and economic factors vary the pattern of contraceptive use• Many of the factors leading to UPs have little to do with clinical interactions and more to do with personal and environmental variables |
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Emergency Contraception:
A Clinical Practice Guideline Analysis

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Abstract

Purpose: To analyze the 2010 emergency contraception (EC) guideline published in the United States.

Data Sources: American Congress of Obstetricians and Gynecologists (ACOG) Practice Bulletin Number 112 *Emergency Contraception*, literature review articles, clinical studies

Implications for Practice: All women of reproductive age should be educated regarding EC. A one-time dose of 1.5mg of levonorgestrel is recommended as first-line EC, an alternative option of combined estrogen-progestin oral contraceptives, and the preference of the copper intrauterine device when long-term contraception is also desired. EC should be provided as soon as possible, or up to 5 days, following unprotected or inadequately protected intercourse if pregnancy is not desired, without clinical exam, and despite any comorbid conditions that prevent usual combined hormonal contraception use.

Conclusion: Recommendations, implications of practice, and the need for further research are briefly discussed within the guideline based on relevant and current evidence. Barriers to provider EC discussion exist, such as the erroneous provider assumption that EC use will encourage risky sexual behaviors, as well as a lack of EC knowledge in providers and patients. This guideline is in need of revision, as new forms of and accesses to EC have changed significantly since publication of this guideline in 2010.

Key words: emergency contraception; intrauterine device; Plan B; unintended pregnancy

Emergency Contraception: A Clinical Practice Guideline Analysis

The clinical practice guideline reviewed for this analysis was *Emergency Contraception* developed by the American College of Obstetricians and Gynecologists (ACOG). This guideline was originally developed in December 2005, and revised and republished in May 2010 as Practice Bulletin Number 112 (ACOG, 2010).

Scope and Purpose

Fifty-one percent, or 3.4 million women experience an unintended pregnancy each year (Chandra, Martinez, Mosher, Abma, & Jones, 2005). About one-half of these pregnancies are due to improper use or lack of contraception with sexual intercourse (Goldsmith, Kasehagen, Rosenberg, Sandoval, & Lapidus, 2008). Additionally, adolescents are at high risk for pregnancy due to high fertility and low rates of contraceptive use. If adolescents do not use contraception, they have a 90% chance of becoming pregnant in one year (Lindberg, 2003).

Postcoital methods of contraception, or emergency contraception (EC), have been available for years, but have not been used by patients nor encouraged by providers (Corbett, Mitchell, Taylor, & Kemppainen, 2006). "EC is defined as the use of a drug or device, as an emergency measure to prevent pregnancy after unprotected intercourse. From this definition it follows that methods of emergency contraception are used after coitus but before pregnancy occurs, and that they are intended as back-up for occasional use rather than as a regular form of contraception (Van Look, 1993)" (Cheng, Che, & Gulmezoglu, 2012, p. 5). EC includes several types of pharmaceuticals, such as Plan B (1.5mg levonorgestrel), Ella (30mg ulipristal acetate), and the Yuzpe

regimen (50mcg ethinyl estradiol and 250mcg levonorgestrel in two doses twelve hours apart). Additionally, intrauterine devices may be used for EC; the copper-T device may be left in place for regular contraception for up to ten years (Cheng et al., 2012). EC works by inhibiting or delaying ovulation through alteration of the luteinizing hormone surge, and may inhibit implantation of a fertilized egg by causing hormonal changes resulting in alterations to the endometrium, and will not harm an established pregnancy. EC has been found to be up to 70-99% effective depending on the type used and the time frame of administration following failure of contraception during intercourse (Pollack & Daley, 2003). As recently as 2013, the US Food and Drug Administration (FDA) approved the sale of Plan B One-Step, a brand of levonorgestrel, to over-the-counter status without age restriction. Further, on February 25, 2014, the FDA increased the availability of EC again by also approving generic levonorgestrel sale over-the-counter without age restriction (Frizell, 2014).

The objective of this guideline is to discuss EC methods approved by the FDA, and those most often used in practice. These include progestin-only and combined oral contraceptives, as well as the copper intrauterine device; ulipristal acetate is not mentioned in this clinical practice guideline as FDA approval was not received until August of 2013, which was after the publication of this guideline. This guideline discusses mechanism of action, appropriateness of use, timing, effectiveness, safety, side effects, and barriers to use of EC (ACOG, 2010). Follow up care, EC effects on established pregnancy, and long-term contraception after EC use are also reviewed (ACOG, 2010).

Stakeholder Involvement

ACOG (2010) was the only professional group involved in the development and publishing of this guideline and this may have limited the scope and thoroughness. The ACOG Committee on Practice Bulletins-Gynecology developed this Practice Bulletin with assistance from E. Raymond, M.D. and A. Pradhan, M.D. It states their Executive Board creates, abolishes, and determines the overall function of ACOG committees.

Appointments to ACOG committees are made for one year and may be continued for a total of three years. The majority of committee members are Fellows and Junior Fellows, but some committees may have representatives from other organizations when appropriate; however, no other organization involvement was noted within the guideline (ACOG, 2010). Several other organizations that focus on women's health issues could have been involved in the development of the guideline such as the Association of Reproductive Health Professionals (ARHP), a multidisciplinary association of professionals that provides reproductive health services and education, conducts research, and influences reproductive health policy (ARHP, 2012a), the National Association of Certified Professional Midwives, the American Academy of Family Physicians, and the American Academy of Nurse Practitioners.

Rigor of Development

The ACOG committee performed a systematic review of the literature accessing "the MEDLINE database, the Cochrane Library, and the American College of Obstetricians and Gynecologists' own internal resources and documents to locate relevant articles published between January 1985 and January 2010" (ACOG, 2010, p.

1109). Neither specific search terms, nor information detailing the internal resources used were discussed within the guideline methods. The literature search performed by the committee was limited to articles published in English, with preference given to articles reporting original research results, but also included review articles and commentaries. “Abstracts of research presented at symposiums and scientific conferences were not considered adequate for inclusion in this document” (ACOG, 2010, p. 1109). “Guidelines published by organizations or institutions, such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were assessed located by reviewing bibliographies of identified articles” (ACOG, 2010, p 1109). Finally, obstetrician-gynecologists’ expert opinions were used when research did not exist (ACOG, 2010).

The studies reviewed by the ACOG committee were evaluated for quality based on the U.S. Preventive Services Task Force grading methods, with grades I-III assigned to each article. Grade I describes evidence obtained from at least one randomized control trial (RCT), II-1 for evidence from one RCT without randomization, II-2 for evidence from cohort or case-controlled studies, II-3 for evidence from multiple time series with/without intervention, and III for expert opinion, descriptive studies, or expert committees reports (ACOG, 2010). ACOG’s (2010) recommendations were based on the highest level of evidence within each study and graded as level A (good and consistent evidence), B (limited or inconsistent evidence), or C (consensus and expert opinion). The majority of the recommendations set forth by the ACOG committee were based on expert consensus of obstetrician-gynecologists, but several recommendations were

assigned based on scientific evidence from rigorous studies as well (ACOG, 2010). Recommendations were based on all levels of evidence with the majority of the research being a level C, which is consensus or expert opinion. There were 4 grade A, 3 grade B, and 7 grade C studies or expert opinion included in the final guideline. The guideline encourages the development of RCTs for future research as very few RCTs have been performed pertaining to EC. Procedures used to update this guideline were not discussed, nor was there a statement regarding future updates of this guideline included within the document (ACOG, 2010).

Clarity and Presentation

The recommendations suggested by ACOG (2010) for EC are clear and concise, easily identifiable, and divided by level of recommendation. The guideline clearly states levonorgestrel should be used as first-line EC treatment. Alternative management options suggested include combined estrogen-progestin oral contraceptives and the copper IUD for women desiring emergency as well as long-term birth control (ACOG, 2010). ACOG (2010) also clearly states the differences in administration times, efficacy, and advantages of all of the treatment types of EC discussed.

Level A recommendations include the first-line use of levonorgestrel, rather than estrogen-progestin regimen, due to increased efficacy and decreased association with nausea and vomiting (ACOG, 2010). Additionally, ACOG (2010) notes that two 0.75mg doses of levonorgestrel are as equally effective if taken 12 or 24 hours apart, as well as when taken as a single 1.5mg dose. Finally, an antiemetic may be taken one hour prior

to administration of the estrogen-progestin regimen to reduce nausea and vomiting incidence (ACOG, 2010).

Level B recommendations suggest treatment with EC to be initiated as soon as possible after unprotected or inadequately protected sexual intercourse to provide maximum efficacy. EC should be provided to patients who request it for up to 5 days following unprotected intercourse (ACOG, 2010). Furthermore, ACOG (2010) clarifies that clinical examination and pregnancy testing are not necessary prior to EC provision.

Level C recommendations encourage offering EC to all women who have had unprotected sex that do not desire pregnancy, offering EC to women with contraindications to conventional oral contraceptives, and the preferential use of the copper IUD for EC when women also desire long-acting contraception (ACOG, 2010). Further, ACOG (2010) suggests that EC may be used more than once within the same menstrual cycle. To maximize effectiveness women should be educated about EC and provided information regarding long-term contraceptives when EC is requested. Finally, clinical evaluation is necessary for women who have used EC and experienced delayed menses by one week, lower abdominal pain, or persistent irregular bleeding (ACOG, 2010).

Application

Several barriers to EC use are discussed in this guideline. Healthcare providers are poorly informed regarding EC, as it has been shown they lack knowledge regarding available methods of EC, appropriate timing of EC administration, and that a gynecological exam is unnecessary for EC use. (Golden et al., 2001). Additionally

providers lack EC awareness, including EC availability and cost, which has resulted in a reluctance to offer or suggest EC for use to patients (ACOG, 2010). A second barrier of decreased availability has now been minimized, as a generic version and one brand of levonorgestrel (Plan B One-Step) received approval for unrestricted sale on the shelf by the FDA (ACOG, 2010; Frizell, 2014; FDA, 2013). The guideline also suggests the need for further research to evaluate barriers to EC use, specifically in certain populations, so that appropriate policy interventions may be created and implemented (ACOG, 2010). Lastly, one concern, but not a barrier to EC use, found in the literature was providers' assumption that irresponsible sexual behavior may be encouraged if EC is made more readily available, and therefore may increase unintended pregnancies. However, several RCTs reviewed for this guideline development investigated this concern and found it to be unfounded and unsupported (ACOG, 2010). Cost implications of EC use and the possible reduction of unintended pregnancies were not addressed within the guideline.

Committee Opinion 542: *Access to Emergency Contraception* released by ACOG in 2012 also focuses on barriers to EC access and use. Barriers to EC access discussed in this committee opinion include misconceptions about EC, financial resources and EC insurance coverage, lack of EC education for patients and providers, lack of accessible facilities that dispense EC, and the refusal of some pharmacies to stock EC (ACOG, 2012). Two barriers, lack of available facilities and pharmacies that dispense EC, have been removed since publication of this committee opinion, through the attainment of over-the-counter sale approval for Plan B One-Step and generic levonorgestrel at pharmacies

nationwide. Common EC misconceptions reviewed include beliefs that EC is an abortifacient, increased EC availability promotes risky sexual behaviors and rates of unintended pregnancy, and the health risk associated with repeated EC use. Each of these misconceptions have been shown to be unfounded through review of available research studies (ACOG, 2012).

Theoretical Framework

The Health Belief Model (HBM) helps to explain change and maintenance of health-related behaviors and guides providers' interventions to change patient perceptions of EC and improve EC utilization by patients. The HBM uses several concepts to predict why patients will initiate prevention, screening, or treatment of an illness or health problem. Concepts include susceptibility, severity, benefit and barriers to a behavior, cues to action, and self-efficacy. Perceived susceptibility is defined as a person's belief of the likelihood of obtaining a disease or condition. The construct of perceived severity encompasses the feelings a patient has about the seriousness of contracting an illness. The significance of leaving the illness untreated, and the medical evaluations and clinical consequences of such, defines perceived severity. The combination of perceived susceptibility and perceived severity is defined as perceived threat (Glanz, Rimer, & Viswanath, 2008).

Even if perceived susceptibility is acknowledged, a patient's behavior change will be influenced by perceived benefits of various necessary actions to reduce the disease threat. Additionally, other non-health-related perceptions, such as financial gain or family member approval, may guide behavioral decision-making. Therefore, even if an

individual perceives threat, a behavioral health change may not occur unless the patient perceives the change as beneficial in reducing the threat (Glanz et al., 2008).

Perceived barriers are obstacles to changing health behaviors of patients. Bodily or environmental events, or media publicity, may trigger a cue to action. These cues potentiate and cause the patient to take action to change health behaviors. Lastly, self-efficacy explains the patient's conviction that they may successfully implement the health behavior change required to produce desired results (Glanz et al., 2008).

The HBM is an excellent choice for providers to use when offering EC to women who have experienced contraception failure, inadequate contraception, or a lack of contraception with sexual intercourse. Perceived susceptibility is of utmost importance in this health issue, as it is imperative to understand why women may or may not believe they are susceptible to pregnancy if contraception is not used or used improperly. Perceived severity must be evaluated to determine the woman's feelings about the seriousness of experiencing an unintended pregnancy, especially those at the highest risk.

Informing sexually active females at routine appointments about EC is essential to increase the patient's knowledge of EC benefits, and in altering their perceived benefit of preventing unintended pregnancy (ACOG, 2012; Chuang & Freund, 2005; Gee, Delli-Bovi, & Chuang, 2007). Patient education should be a fundamental part of the provider's role when treating women of reproductive age (Gee et al., 2007; Hickey, 2009; Johnson, Nshom, Nye, & Cohall, 2010; Wilder et al., 2009), as all women in this age group with the ability of becoming pregnant are at risk for unintended pregnancy,

regardless of sexual orientation or stated sexual activity status. Recognizing the patient's perceived barriers to contraception use, such as not currently being sexually active, is vital in shaping patient education, screening processes, and in offering EC to those at risk. Cues to action can prompt a patient to seek contraceptive counseling and should be aimed to all women of reproductive age and ability. These may include increased EC advertising, social media campaigns, information in primary care offices, as well as increasing provider education, which can lead to increased EC promotion to patients (ACOG, 2012). Patient self-efficacy must be championed by providers with patient encouragement and support regarding her capabilities of preventing pregnancy, especially in emergency or untimely situations.

Recommendations

A similar clinical practice guideline titled *Emergency Contraception*, from the Faculty of Sexual & Reproductive Healthcare of the Royal College of Obstetricians and Gynecologists of England was also reviewed (FSRH) (2012). Comparisons of recommendations between the ACOG (2010) and FSRH (2012) guidelines are illustrated in Table 3. A major difference noted in this guideline is the inclusion of a level A recommendation regarding the use of ulipristal acetate (UPA), brand name Ella. UPA has demonstrated efficacy for 120 hours, and is the only oral EC agent licensed for use between 72 and 120 hours (FSRH, 2012). ACOG (2010) did not include UPA as a recommended treatment option within their guideline, nor mention it as an approved EC agent. Additionally, FSRH (2012) notes that levonorgestrel has demonstrated efficacy for 96 hours, but use beyond 72 hours is outside of the product license. Unlike

ACOG's (2010) recommendation, FSRH (2012) suggest that women should be advised that a copper IUD is the only EC method that will not be affected by liver enzyme-inducing drugs.

FSRH's (2012) guideline includes two level B recommendations, listed as level C under the ACOG (2010) guideline. These include the use of copper IUD for up to 5 days for EC and the counseling of women that oral EC does not prevent contraception for subsequent unprotected sexual intercourse following administration (FSRH, 2012).

Differences in FSRH's (2012) level C recommendations includes counseling patients to use an additional method of contraception for 7 days following levonorgestrel administration with hormonal contraception; encouraging women taking liver enzyme-inducing drugs that decline the copper IUD, to use levonorgestrel 3 mg (twice the U.S. recommended dose) as soon as possible within 120 hours; and discouraging UPA use during or within 28 days of taking liver enzyme-inducing drugs or medications that increase gastric pH, as it may reduce the efficacy of UPA. Lastly, FSRH (2012) recommends offering HIV and sexually transmitted infection (STI) testing to women requesting EC, as these women may be at increased risk for STI, with some studies reporting an incidence of 9.1% of chlamydial infection in women presenting for EC.

The FSRH (2012) clinical practice guideline also includes several "good practice points" (p. 2). A complete list of these can be found in the guideline, but important points include the necessity of discussing EC with all patients, prescribing a "quick start" of contraception when EC is used, the need for additional contraceptive precautions

when using hormonal contraception following the use of UPA for 14 days, advising patients to seek medical treatment if vomiting occurs two hours after EC use, and the inability to use UPA more than once per menstrual cycle (FSRH, 2012).

The emergency contraception guideline put forth by FSRH (2012) is the most thorough, complete, and clear clinical practice guideline for emergency contraception use and education. The use of oral or intrauterine EC is based on scientific evidence of efficacy and safety to prevent unintended pregnancies when used appropriately. Additionally, no adverse outcomes have been noted from women who have used oral EC, including any harm to an existing pregnancy (FSRH, 2012). FSRH's (2012) guideline is comprehensive in providing guidance to the provider on the importance of educating patients about EC, outlining the indications, efficacy, and frequency of use for levonorgestrel, combined estrogen-progestin, ulipristal acetate, and intrauterine device methods. Medications altering efficacy of several methods are discussed (FSRH, 2012). Also, the recommendations are grouped by common patient questions with easily identifiable level of recommendation in the margins, instead of by level of recommendation, as is true with the ACOG (2010) guideline. The summary of recommendations is similarly organized with clear and easy to identify recommendation levels. The guideline also includes an easy-to-read graph for timing of IUD insertion (FSRH, 2012). Further, the FSRH (2012) clinical practice guideline contains eleven "good practice points" (p. 2) for recommendations that are not supported by evidence, but rather based on expert opinion of a multidisciplinary group. Interestingly, the guideline also includes "auditable outcomes" (p. 18), and a tool to assess EC knowledge of

providers (FSRH, 2012). The guideline includes a list of all committee members, their affiliations, and any conflicts of interest, steps involved in the development of the guideline, as well as a projected date for guideline revision in 2014 (FSRH, 2012).

Conclusion

Two emergency contraception clinical practice guidelines were discussed in this review, ACOG (2010) and FSRH (2012). The FSRH (2012) *Emergency Contraception* clinical practice guideline provides the most thorough evaluation of current available evidence. Clinicians should utilize this guideline to provide care and counseling to patients in an effort to reduce unintended pregnancies when contraception fails or is inadequate. Increasing the use of emergency contraception is an important step in decreasing the rate of unintended pregnancy.

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Table 3*Comparison of Emergency Contraceptive Guideline Recommendations*

| ACOG (2010) | FSRH (2012) |
|--|---|
| Level A Recommendations | |
| <ul style="list-style-type: none"> Levonorgestrel (LNG) is more effective than combined estrogen-progestin EC, with less nausea and vomiting | <ul style="list-style-type: none"> Ulipristal acetate (UPA) is effective for up to 120 hours and should be offered to all women who request EC during this time; it is the only EC licensed between 72 and 120 hours |
| <ul style="list-style-type: none"> Two doses of 0.75mg LNG are equally effective taken 12-24 hours apart | <ul style="list-style-type: none"> LNG is effective up to 96 hours, efficacy unknown between 96 and 120 hours; use beyond 72 hours is out of product license |
| <ul style="list-style-type: none"> One-time dose 1.5mg LNG as effective as 2 separate doses taken 12 hours apart | <ul style="list-style-type: none"> For women using liver enzyme-inducing medications, Copper IUD (Cu IUD) is the only form of EC unaffected by these medications |
| <ul style="list-style-type: none"> Antiemetic can be provided one hour prior to first dose of combined estrogen-progestin EC to reduce nausea | |
| Level B Recommendations | |
| <ul style="list-style-type: none"> EC treatment should begin as soon as possible following UPSI to maximize efficacy | <ul style="list-style-type: none"> Offer all women Cu IUD after unprotected sexual intercourse (UPSI) for up to 120 hours or within 5 days of ovulation, due to low failure rate |
| <ul style="list-style-type: none"> EC should be made available for up to 5 days following UPSI | <ul style="list-style-type: none"> Educate women that oral EC does not provide protection from subsequent UPSI, and must use contraception or abstinence to avoid pregnancy |
| <ul style="list-style-type: none"> Clinical exam is unnecessary prior to EC use or provision | |
| Level C Recommendations | |
| <ul style="list-style-type: none"> EC should be made available to women with UPSI who do not desire pregnancy | <ul style="list-style-type: none"> The Cu IUD can be inserted up to 120 hours after UPSI or within 5 days of earliest expected day of ovulation |
| <ul style="list-style-type: none"> EC should be provided to women with contraindications to regular OCPs | <ul style="list-style-type: none"> Additional precautions should be used for 7 days for women using LNG and hormonal regular contraception |
| <ul style="list-style-type: none"> Clinical evaluation is warranted for menses are delayed >1 week, persistent irregular bleeding, or lower abdominal pain | <ul style="list-style-type: none"> 3mg LNG should be administered within 120 hours of UPSI for women using liver enzyme-inducing (including post-exposure HIV prophylaxis) and are not eligible for Cu IUD |
| <ul style="list-style-type: none"> Education regarding long-term contraception should be provided when EC is requested | <ul style="list-style-type: none"> UPA is not advised for women taking liver enzyme-inducing medications, or within 28 days of use |

| | |
|---|--|
| <ul style="list-style-type: none"> • Cu IUD is appropriate for EC when long-term contraception is desired | <ul style="list-style-type: none"> • UPA is not advised for women taking medications that increase gastric pH (antacids, H2 blockers, PPI) |
| <ul style="list-style-type: none"> • EC may be used more than once, including within same menstrual cycle | <ul style="list-style-type: none"> • LNG can be used more than one time per cycle |
| <ul style="list-style-type: none"> • Women should be educated about EC availability to increase EC effectiveness | <ul style="list-style-type: none"> • Women presenting for EC should be offered STI and HIV testing |
| Good Practice Points | |
| | <ul style="list-style-type: none"> • Providers should discuss individual need for EC and inform women about efficacy, adverse effects, eligibility, and need for further contraceptive precautions |
| | <ul style="list-style-type: none"> • If a method of EC is unavailable, referral should be made to fulfill a women’s desired method |
| | <ul style="list-style-type: none"> • IUD should be placed at first visit, but if not possible, oral EC may be provided until placement can be completed |
| | <ul style="list-style-type: none"> • If long-term contraception is desired, the “quick start” method of OCPs or implant may be administered, as well as informing/advising patient to have pregnancy test \geq 3 weeks |
| | <ul style="list-style-type: none"> • Progestin-only injectables should be avoided after EC, unless other methods are not available or acceptable for patient, until pregnancy can be excluded; if provided a pregnancy test should be completed in > 3 weeks |
| | <ul style="list-style-type: none"> • Women should use additional precautions for 14 days when UPA and hormonal contraceptives are used together |
| | <ul style="list-style-type: none"> • Women should seek medical advice is vomiting occurs within 2 hours of LNG or 3 hours of UPA; Repeat dose or Cu IUD may be given if appropriate |
| | <ul style="list-style-type: none"> • UPA is not recommended more than once per cycle or >120 hours after UPSI |
| | <ul style="list-style-type: none"> • Women should be educated regarding menstrual irregularities; if the patient is unsure of menstruation, a pregnancy test should be take a pregnancy test > 3 weeks after UPSI |

| | |
|--|---|
| | <ul style="list-style-type: none">• Prophylactic antibiotics for chlamydia should be provided when STI infection high with IUD placed for IUD |
| | <ul style="list-style-type: none">• Providers should inform women about EC and advance supply may be given |

Assessing Provider Adherence to Emergency Contraception Counseling Guidelines

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Abstract

Purpose: To determine current provider adherence to the 2010 ACOG Emergency Contraception (EC) guidelines, specifically by assessing provider EC counseling with patients at well-woman annual exam visits or during contraceptive counseling visits. A second aim of this study is to identify provider facilitators and barriers of EC discussion with patients.

Methods: Using a retrospective design, 90 medical records of patients presenting to a university clinic within the previous year were reviewed for the discussion of EC during annual exams or contraceptive counseling. Forty-five medical records were reviewed prior to implementation of the Ambulatory Electronic Health Record (AEHR) and forty-five medical records were reviewed after implementation of AEHR, which provided prompts for emergency contraception discussion. Following data collection, a focus group was conducted with the clinic providers to discuss study results, the 2010 ACOG EC guidelines, as well as facilitators and barriers that may encourage or prevent EC counseling in practice.

Results: There was no documentation of EC counseling for reproductive aged women in either paper or electronic medical records. The provider focus group demonstrated minimal knowledge of EC, as well as no knowledge of the EC guideline or the recommendation of counseling all women of reproductive age about EC.

Conclusion: There was no discussion of EC during clinic visits. Barriers identified by providers included a lack of provider knowledge, a language barrier with Hispanic patients, and EC cost, especially for the most at-risk populations. Facilitators identified

included developing reminder systems to discuss EC with patients, such as using electronic prompts, utilizing an EC fact sheet, and placing EC posters throughout the clinic. Results were disseminated to clinic providers in an attempt to increase awareness, improve compliance to evidence-based guidelines, and improve outcomes, with the hope of reducing the number of unintended pregnancies.

Assessing Provider Adherence to Emergency Contraception Counseling Guidelines

The Centers of Disease Control and Prevention (CDC) (2014) estimated that 51%, or 3.4 million, of pregnancies in 2008 were unintended. An unintended pregnancy (UP) is a pregnancy that is mistimed or unwanted, and has been found to place the mother and child at an increased risk for negative psychological, physical, social, and financial consequences (Devi, Shin, Kim, & Lo, 2009; Pollack & Daley, 2003). Consequences of unintended pregnancy include increased rates of elective abortion, delays in prenatal care, increased risks for mortality and morbidity for both mother and child, and abuse and neglect (Goldsmith, Kasehagen, Sandoval & Lapidus, 2008; Guttmacher Institute, 2013; Pollack & Daley, 2003). These unintended pregnancies cost American taxpayers \$12.5 billion in 2008 alone, with 65% of unintended births paid for by public insurance programs (Dreweke, 2013).

Background

Approximately one-half of all UPs are due to contraceptive failure (Pollack & Daley, 2003), with all others related to improper contraception use or failure to use contraception (Goldsmith et al., 2008). One study found that greater than 4 out of 10 women use their contraception incorrectly or inconsistently the month they conceive an unintended pregnancy (Lee, Ahonen, Apling, & Bork, 2010). Postcoital methods of contraception to prevent UPs have been available for years by prescription, and approved for over-the-counter sale in the United States (US) in June 2013, but have not been frequently utilized by patients or providers. These methods are generally referred to as emergency contraception (EC) and are available in many forms, including oral

levonorgestrel (Corbett, Mitchell, Taylor, & Kemppainen, 2006). Oral levonorgestrel, also known as Plan B One-Step, prevents pregnancy by inhibiting or delaying ovulation, and will not harm an established pregnancy. It has been found to be 74% to 85% effective based on the time frame of post-coital administration (Lindberg, 2003; Pollack & Daley, 2003).

Devi et al. (2009) noted that the World Health Organization (WHO) considers EC to be one of the safest methods of contraception, and the Faculty of Sexual and Reproductive Healthcare (FSRH) (2012) states that no condition contraindicates the short-term use of oral levonorgestrel for EC, even in women that are unable to use regular combined hormonal contraception. In 2010 the American College of Obstetricians and Gynecologists (ACOG) released Practice Bulletin Number 112 entitled *Emergency Contraception*, an evidence-based practice guideline which discusses provider EC use, encourages provider discussion of EC with patients, and identifies oral levonorgestrel as the first-line EC treatment (ACOG, 2010). Further, to support and encourage increased EC use, ACOG released Committee Opinion Number 542 entitled *Access to Emergency Contraception* in November 2012. This ACOG (2012) committee opinion discussed barriers to EC access (including common misconceptions, financial, educational, practice, and pharmacy barriers), special populations in which acquiring EC may be difficult (adolescents, immigrants, non-English speaking women, or victims of sexual assault), and reiteration of EC recommendations. Additionally, ACOG (2012) encouraged the removal of age-restricted access and over-the-counter sale approval for EC, supported an increase in media campaigns clarifying that EC is not an abortifacient,

encouraged insurers to include EC coverage on health care plans, and supported increased education to both patients and providers regarding appropriate use of EC.

Unfortunately, research demonstrates that healthcare providers lack awareness and knowledge regarding EC use and rarely discuss EC with their patients on a regular basis (Corbett et al., 2006; Chuang & Freund, 2005b; Golden et al., 2001; Johnson, Nshom, Nye, & Cohall, 2010; Hickey, 2009; Wallace, Wu, Weinstein, Gorenflo, & Fetters, 2004). Furthermore, as EC is becoming increasingly more available and accessible, patient knowledge regarding EC has not increased, especially in the most at-risk populations (Hickey, 2009).

Purpose

The purpose of this study was to determine provider adherence to the 2010 ACOG EC guideline, specifically by assessing discussion of EC with patients during the annual health maintenance visit or during contraceptive counseling visits. A second aim was to conduct a provider focus group to identify facilitators and barriers for providers in discussing emergency contraception with their patients.

Methods

Design

A retrospective medical record review was completed in January 2014 to assess documentation of provider EC discussion. Medical records were chosen using systematic sampling. Following data collection, a focus group was held with the clinic providers to discuss study results, the 2010 ACOG EC guideline, as well as facilitators and

barrier that may encourage or prevent EC discussion in practice. An EC Fact Sheet developed by the primary investigator (Figure 1) was also given to the providers.

Study Population

This study was completed in a primary care practice for women located in an urban, university setting which also manages women's health and gynecological issues. The practice consists of physicians and nurse practitioners that provide primary care for women ranging in age from 16 to 100 years.

A list of 1,120 medical record numbers was obtained and a systematically selected sample of 45 paper patient medical records (15 per provider) from August 1, 2012 to February 28, 2013 was selected. In March 2013, the Ambulatory Electronic Health Record (AEHR) was introduced to the clinic. As part of the AEHR, a prompt was included under the counseling section to remind providers to include EC when discussing contraception. Additionally, a systematically selected sample of 45 electronic medical records (15 per provider) from June 1, 2013 to August 31, 2013 was reviewed for EC discussion, as well as to evaluate if a visual prompt in the AEHR increased initiation of EC discussion. The months of March, April, and May of 2013 were purposely not included for review, as the AEHR was implemented March 5, 2013, to allow a period of time for the providers to become comfortable and familiar with documentation in the AEHR. All data collected during the review were stored using REDCap¹ (Harris et al., 2009), a secure, password-protected, web-based application.

¹ The project described was supported by the National Center for Research Resources and the National Center for Advancing Translational Sciences, National Institutes of Health, through Grant 8UL1TR000117-02. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

Inclusion criteria consisted of women who were provided care by one of the three clinic physicians for annual health maintenance or contraceptive counseling visits (ICD-9 codes any V25, V70.0, or V72.3) and were between the ages of 18 and 50 years.

Exclusion criteria included women who were no longer at risk for pregnancy, including those with previous bilateral tubal ligation, hysterectomy, or who had reached menopause.

Documentation of provider discussion of EC was assessed in each medical record, both in the narrative section of the medical record and in the EC check box (when applicable in AEHR records). Additional data collected included age, sexual activity status, and current contraception method used.

Following the retrospective medical record review, a focus group of the providers in the clinic in which the medical records were reviewed was conducted on February 13, 2014 and lasted approximately 60 minutes. A sample of four female providers were invited to the focus group via electronic mail, with addresses provided by the clinic director. Participation was voluntary, no personal identifying or demographic data was recorded, and a doctoral student in the College of Nursing Doctorate of Nursing Practice program recorded responses during the focus group. Responses from the focus group were stored in REDCap, a secure online data collection tool. Questions and topics (Figure 2) addressed in the focus group included provider knowledge of EC, the 2010 ACOG EC guideline, as well as facilitators and barriers to routine provider discussion of EC with patients.

Human Subject and Research Approval Procedures

Approval for the completion of this study was obtained from the university Institutional Review Board (IRB) prior to data collection. Patient consent was waived in compliance with IRB regulations, as the data collection was retrospective without patient identifiers and consent could not be reasonably obtained in this instance. Provider consent was obtained by the primary investigator prior to the focus group presentation.

Data Analysis

Results from the retrospective medical record review were analyzed using Statistical Analysis System (SAS) 9.3 software. Descriptive statistics including frequencies were used to assess age, sexual activity status, current contraception used, and provider EC discussion. Results from the provider focus group were reviewed and analyzed in a qualitative manner.

Results

Retrospective Medical Record Review

Saturation was attained when 15 paper and 15 electronic medical records for each of the three clinic providers were reviewed. Of the 90 medical records (45 paper and 45 electronic) reviewed, the mean patient age was 34.6 years, with patients ranging in age from 18 to 49 years old. Forty-nine percent of patients were sexually active, 14% stated they were not, and 37% of medical records did not have documentation regarding sexual activity status (Figure 3). In reviewing the patients' current contraception method used, oral contraceptives were used most frequently (33%), 11%

of women used a barrier method, 8% had an intrauterine device (IUD), 6% reported using injectable contraception (such as Depo-Provera), 3% used the NuvaRing, 1% stated their partner had undergone a vasectomy, 1% stated they were currently abstinent, and none of the medical records listed implantable, patch, or emergency contraceptives as contraception methods (Figure 4). Further, 9% of the medical records noted that contraception was not currently being employed and 38% of records were missing documentation of current contraception method. Of the 56 medical records with current contraception method documentation, 14% denied currently using a regular contraception method, 73% noted one form, 11% noted two forms used concurrently, and 2% listed three forms of current contraception. Finally, and most importantly, provider EC discussion was not documented in any of the 90 medical records, neither in the narrative section nor in the EC check box, when applicable in electronic records.

Provider Focus Group

Of the four providers invited to the focus group, only two attended, a 50% response rate. The two providers that did attend indicated that they did not know the appropriate administration timing, efficacy rates, cost, or accessibility of EC. They both also stated that they do not routinely discuss EC with their patients, with one provider stating “I had a good opportunity once to discuss EC with a patient and I clicked the ‘counseled about EC’ box”. The other stated, “I think it hasn’t been on our radar. I remember to say all these certain things, and it hasn’t been one of those things”. Additionally, one provider stated in regards to routinely discussing EC with patients, “I haven’t, but I will. I haven’t really thought about it to be honest with you. I’ve written

prescriptions when people specifically ask for it, but that's all. I've never initiated a conversation about it".

One of the biggest concerns for these providers that arose in the discussion was the issue of EC cost. One provider stated, "The cost could be a problem, especially for teens". The other provider offered one suggestion of placing Plan B One-Step coupons in the patient rooms to provide to patients with financial strain, as well as including cost options on the EC Fact Sheet (Figure 1) that was provided. One provider suggested, "Why couldn't we just have it [Plan B] here, even if we just bought 20 boxes of it. Then if you have someone who doesn't have the money, then we can just give it to her to use? Especially for women who have been a victim of an assault, because they have so much other stuff going on, maybe we could just give it to them".

Both providers did not believe that increased access to EC would encourage adolescent sexual intercourse without condoms or birth control, with one provider stating, "No, they are just going to have sex anyways". Additionally, both providers felt that EC was safe to use for teens and adults, they felt comfortable discussing it with their patients, and both knew how patients could obtain EC for use.

In discussing facilitators for routine discussion of EC, both providers agreed that having the EC Fact Sheet (Figure 1) that was provided to them in the room as a reminder and for patient use was beneficial. The providers also agreed that placing posters in prominent places throughout the clinic, such as in bathrooms and above exam tables, could assist in facilitating patient inquiry and initiating discussion. Lastly, in discussing barriers to provider discussion, one provider stated that language barriers in the

Hispanic population, patient misconceptions that EC is the same as the abortion pill, and not remembering to include it in routine anticipatory guidance were the most common barriers to EC discussion with patients. The providers requested the EC Fact Sheet (Figure 1) be translated into Spanish to address one aspect of the language barrier. Additionally, to address the barrier of patient misconception of mechanism of action, the providers felt using the EC Fact Sheet (Figure 1) on a regular basis could help educate patients. Finally, one provider suggested employing the EC Fact Sheet (Figure 1) in clinics that treat women with medications contraindicated in pregnancy, such as those in the rheumatology practice, as many of these patients are seen in the study clinic for primary care.

Discussion

Unintended pregnancy is preventable and has a significant societal and economical impact in the US. Despite proven efficacy and recent FDA approval for over-the-counter sale for Plan B One-Step and generic levonorgestrel, EC continues to be infrequently used and underutilized in the US (Wallace et al., 2004). To address this, ACOG (2010) has published a clinical practice guideline to inform providers of the appropriate use of EC and to support routine EC discussion with patients.

“Women who have more information about EC are more likely to use it; and those who do not know about EC are more likely to have an unintended pregnancy” (Colarossi, Billowitz, & Breitbart, 2010, p. 175). Further, Chuang and Freund (2005) note that “since the primary care provider is often a patient’s first access to the health care system, all primary care providers should be well informed about EC” (p. 182).

Chuang and Freund (2005) also maintain that “since the American public is largely unaware that there is a contraceptive that can be used after intercourse, efforts by providers to educate their patients are important in an attempt to increase access to this method” (p. 186). Golden et al. (2001) suggest that EC discussion should be “part of the anticipatory guidance provided to teenagers, even before they become sexually active” (p. 290). Lee et al. (2010) state that if primary care providers do not include or limit EC evidence-based anticipatory guidance, valuable opportunities may be wasted in an effort to decrease unintended pregnancies.

Providers evaluated in this study were found to have similar EC discussion rates with their patients as those in previously conducted research. There was no evidence found that providers in this clinic discussed EC with patients during the medical record review. Also, providers were not consistent in documenting patient sexual activity status or the patient’s current form of contraception. Furthermore, EC discussion was not documented even in instances when the patient stated they were not using any form of regular contraception, a high-risk population for an unintended pregnancy. Lastly, these study results indicate the visual prompt of an EC check box did not improve routine EC discussion by the provider.

The provider focus group illustrated that these providers were not knowledgeable regarding EC options, cost, and efficacy; or the current socioeconomic burden of unintended pregnancy in the US. Alternatively, the providers were able to appropriately identify that EC is safe for teens and adults, a gynecological exam is unnecessary for EC administration, and felt comfortable discussing EC with patients.

The greatest concern expressed by these providers regarding EC during this focus group was cost, especially for the most at-risk populations. The providers were concerned that those women at the highest risk (teens, low-income, and poorly educated women) may have difficulty affording the medication and desired more information regarding discounts, coupons, or maintaining a clinic supply to dispense as needed. Likewise, the providers were interested in developing mechanisms within the clinic environment and workflow to increase the clinic providers' awareness to discuss EC on a routine basis. It was also discussed that the providers offer routine anticipatory guidance and that EC is not regularly included. However, the providers felt that reminders within the clinic workflow may increase facilitation of EC discussion into practice. Suggestions raised by providers included placing the provided EC Fact Sheet (Figure 1) in patient rooms for physician reminder and patient provision and EC posters in clinic restrooms and exam rooms to initiate discussion or encourage patient inquiry. In addition, providers desired maintaining a supply of EC in office for provision to patients when cost or access to EC was an issue. The providers suggested translating the provided EC Fact Sheet (Figure 1) into Spanish for their Hispanic patient population and providing the EC Fact Sheet (Figure 1) to other clinics where EC anticipatory guidance would be especially beneficial. Finally, the providers requested the investigator develop a list of local pharmacies and their cost for available levonorgestrel methods of EC, for provision to patients as a reference (Table 4).

Limitations

The main limitation to this study was sample size. Due to a very small sample size in both the retrospective medical record review and provider focus group, these findings were not statistically significant or generalizable to other programs or settings. Second, the group of providers sampled (Caucasian female women's health physicians) lacked diversity, and their responses and documentation may be biased due to solely working with women. A more heterogeneous group of providers (nurse practitioners, physicians, physician assistants, nurses) with a mixture of gender, ethnicity, and practice specialties may have provided different outcomes and viewpoints. Third, as the provider focus group was qualitative in nature, it allowed for identification of facilitators, barriers, and general themes, but it did not allow for the barriers to be ranked in order of importance or significance. Fourth, providers may have discussed EC more times than identified, but may have failed to document these instances in the medical record, leading the primary investigator to believe that EC was not discussed. Ultimately, only provider perspectives were considered in the focus group, and patients may perceive different facilitators and barriers to EC discussion with providers.

Implications for Practice

Previous research has illustrated decreased provider knowledge and routine discussion of EC with patients (Chuang & Freund, 2005b; Colarossi et al., 2010; Golden et al., 2001; Lee et al., 2010; Miller et al., 2011; Reed et al., 2012; Shrader et al., 2010; Wallace et al., 2004). This retrospective medical record review and provider focus group similarly demonstrated an absence of routine EC provider discussion. Therefore, this

study illustrates the necessity of encouraging all providers to routinely discuss EC with their patients at all healthcare visits, not just when contraception is sought. Routine anticipatory guidance of all reproductive age women should always include a discussion of EC.

Increased provider education regarding EC is needed, as this is a major barrier to educating patients about EC. Not only should educational curricula include more information regarding EC, but providers should be encouraged to attend continuing education opportunities regarding EC, including mechanism of action, access, efficacy, administration, safety, and cost.

Reinforcing thorough documentation in the clinic setting is paramount. Both sexual activity status and current contraception methods were not consistently documented in reviewed medical records for those patients, which presented for annual health maintenance exams or contraceptive counseling, highlighting areas for provider improvement. Providers should include documentation of patient treatment plans, which includes patient education that occurred during the healthcare visit. Prompts for these items and EC counseling exist in the current electronic medical record used by the providers and thorough documentation may potentially aid in improved patient care.

Future research should be directed at possible interventions for increasing provider knowledge, decreasing barriers, and use of facilitators, which may improve routine EC discussion by providers (Wallace et al., 2004). Additionally, a quality improvement project could include a subsequent medical record review within the same

clinic to assess the effectiveness of the provider focus group regarding unintended pregnancy and EC that was conducted in this study.

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Figure 1
EC Fact Sheet

Emergency Contraception Fact Sheet
(levonorgestrel methods)

What is EC?

EC is a safe, effective birth control that can prevent pregnancy after unprotected intercourse or when contraception fails. EC is 1 pill that contains 1.5mg levonorgestrel, a higher dose of the same hormone used in many regular birth control pills. Plan B One-Step is available to anyone of any age over-the-counter. It is sometimes called “the morning after pill”. EC is also available labeled as Next Choice and in generic forms behind the counter without prescription for those 17 years and older, and with a prescription for those less than 17.

How does EC work?

EC works before pregnancy begins by preventing or delaying ovulation (the release of the egg into the uterus). It will **NOT** protect you for sexually transmitted infections, HIV, or AIDS. It will **NOT** work if you are already pregnant, and it is **NOT** harmful if you are already pregnant.

When should I take EC?

You should **ALWAYS** take EC **as soon as possible after unprotected sex**. EC can work up to 5 days after unprotected sex, but is more effective the sooner it is taken. EC does not have to be taken in the morning. There are several forms of EC and if the type you use has 2 pills, they should be taken at the same time.

Is EC the same as the abortion pill?

No. EC will **NOT** work if you are already pregnant. The abortion pill is called mifepristone or RU486 and works differently than EC.

How well does EC work?

EC works very well in preventing pregnancy when used properly. EC can be 74% to 85% effective depending on how quickly after unprotected sex it is taken.

0–72 hours: frequency of pregnancies (per 1000 women)²

Estimated figure

With no intervention
55 in a thousand

With levonorgestrel
22 in a thousand

With ellaOne
14 in a thousand

Adapted from Glasier AF *et al.*,
a 2010 Lancet analysis.²



What are the side effects of EC?

Nausea and vomiting are the most common side effects of EC. Headache, dizziness, abdominal cramping, irregular bleeding, breast tenderness, and fatigue are other side effects that may occur. Your provider may be able to prescribe medicines for you to take before you take EC to help with these side effects. There are no serious side effects associated with EC. **If you throw up after taking the pills, call your provider or pharmacist.**

How do I get EC?

Plan B One-Step is available over-the-counter for anyone who needs it. This means you no longer need a prescription for EC, regardless of age. Because this is a new ruling, it may still be kept behind the counter, but all you need to do is ask the pharmacist for it. You do not need to visit your provider or have parental consent to get EC from the pharmacist.

Do I need to do anything after I take EC?

You may start your next period sooner and it may be heavier than expected after taking EC. You should talk to your provider about more effective birth control that fits your lifestyle for future use. **You need to take a pregnancy test and make an appointment with your provider, if you don't get your period within a month.**

****GIVE THIS SHEET TO YOUR PHARMACIST****



I need Emergency
Contraception

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Figure 2

Focus Group Questions

1. Are you aware of the current 2010 ACOG EC guideline?
2. Do you routinely discuss EC with your patients?
3. Do you know the appropriate timing of EC administration?
4. Are you aware of EC efficacy rates when used appropriately?
5. Are you aware that EC will not harm an existing pregnancy?
6. Do you know how your patients can obtain EC?
7. Are you aware of the cost of EC?
8. Are you aware that a gynecological exam is unnecessary prior to EC administration?
9. Do you believe that increased access to EC will encourage adolescent sexual intercourse without condoms or birth control?
10. Do you believe EC is safe for teens and adults?
11. Do you feel comfortable discussing EC with your patients?
12. What barriers do you believe inhibit your discussion about EC with your patients?
13. What facilitators do you believe encourage your discussion about EC with your patients?

Figure 3
Sexual Activity Status

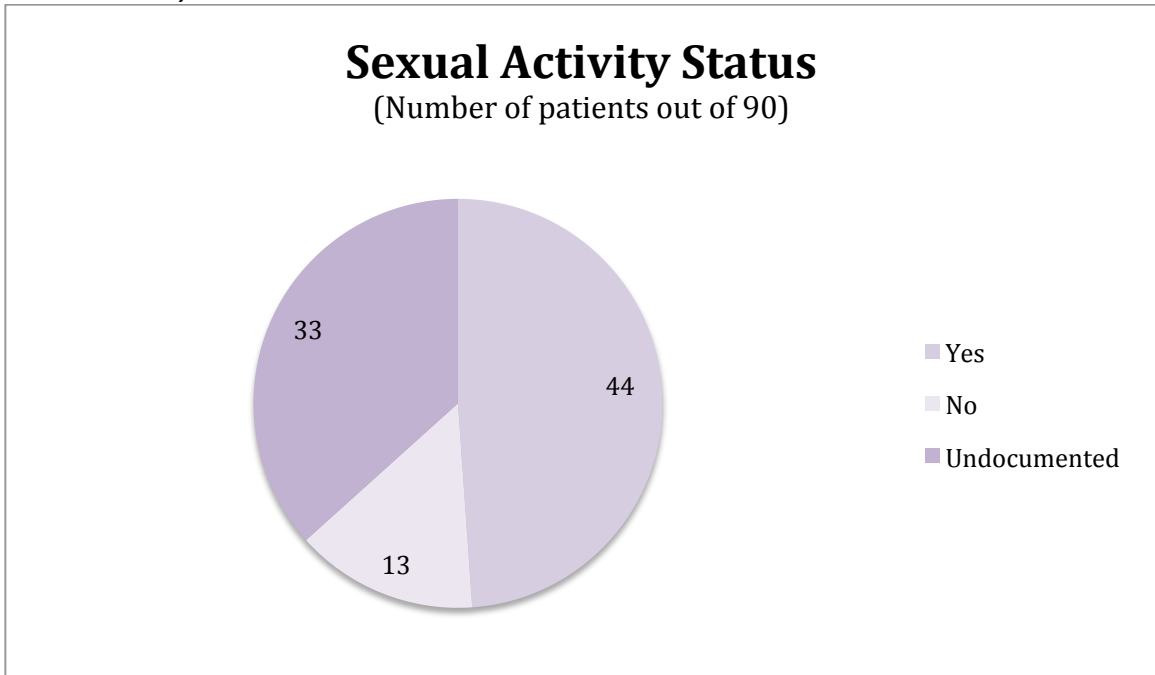


Figure 4
Current Contraception Used

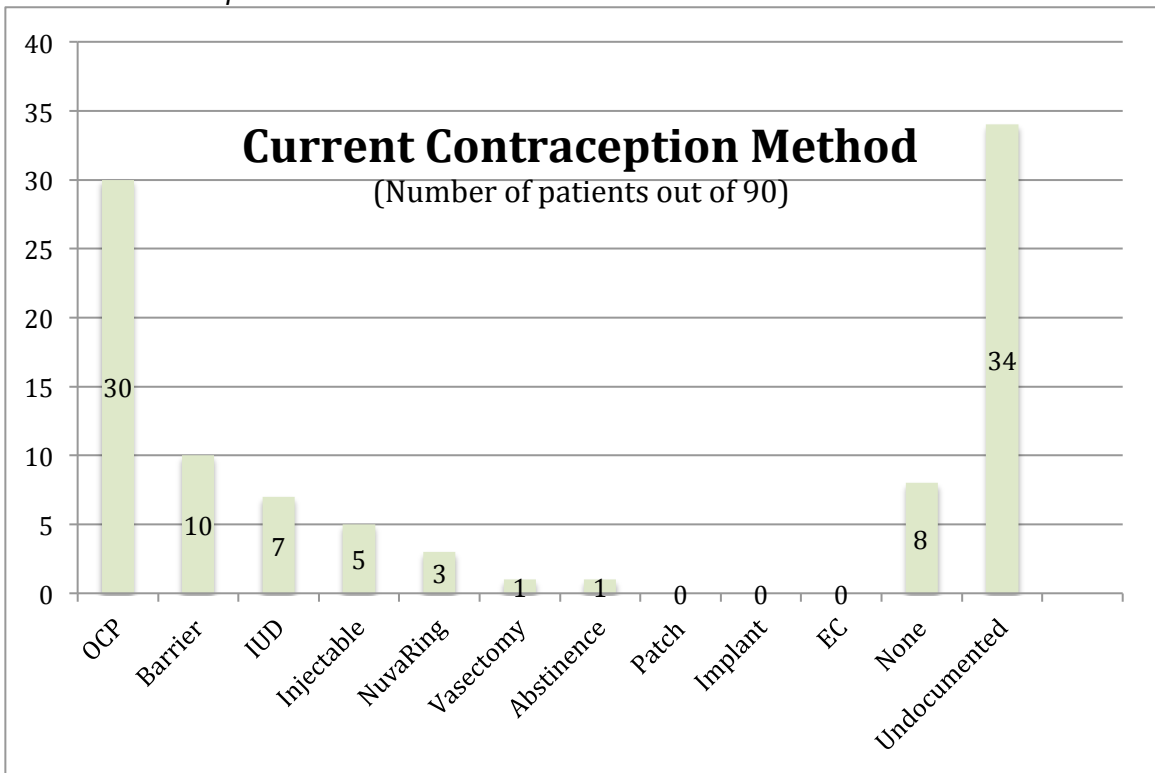


Table 4
Cost of Emergency Contraception

Cost of Emergency Contraception
 Lexington, KY
 (Updated April 22, 2014)

| | Plan B One-Step | | Generic levonorgestrel | |
|---------------------------|-----------------|--------------|------------------------|--------------|
| | Cash Price | Coupon Price | Cash Price | Coupon Price |
| CVS | \$49.99 | \$41.09 | \$39.99 | \$19.93 |
| Kroger | \$37.09 | \$38.25 | \$40.00 | \$29.55 |
| Rite-Aid | \$49.99 | \$43.05 | \$39.99 | \$22.12 |
| Walgreens | \$47.00 | \$41.34 | \$39.99 | \$19.47 |
| Wal-Mart/Sam's | \$46.00 | \$39.33 | \$37.48 | \$28.05 |
| | | | | |
| | Cash Price | With Rx | Cash Price | With Rx |
| UK Clinic Pharmacy | \$43.75 | \$18.00 | N/A | N/A |
| UK Student Health | \$25.01 | N/A | N/A | N/A |

Discussion and Conclusion to DNP Practice Inquiry Project

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Approximately half of all pregnancies occurring in the United States each year are unintended. These pregnancies are correlated with increased psychosocial, economical, and emotional costs to women and society. Emergency contraception (EC) is a cost-effective and safe method of preventing unintended pregnancy, but patients infrequently use EC due to low knowledge levels of EC indications, safety, availability, effectiveness, and cost. Healthcare providers can play a pivotal role in increasing patient utilization of EC by implementing routine EC counseling with their patients into their regular practice.

The first manuscript, a systematic review of nine studies, demonstrated healthcare providers have been found to have a low knowledge levels and poor attitudes regarding EC. Providers with the least amount of knowledge were also less likely to express positive attitudes towards EC or discuss EC with their patients during routine or annual visits. The American College of Obstetricians and Gynecologists (ACOG) recommends routine EC counseling to all women at risk of an unintended pregnancy in their 2010 *Emergency Contraception* clinical practice guideline. This review indicates that EC knowledge is directly correlated to EC discussion with patients, and subsequently patient knowledge, access, and use of EC.

The second manuscript analyzed the recommendations from the previously mentioned 2010 ACOG *Emergency Contraception* clinical practice guideline. The guideline suggests that providers should educate all women about EC, and encourages the use of levonorgestrel as a first-line intervention to prevent an unintended pregnancy with contraceptive failure or inadequacy. A similar evidence-based guideline by the

Faculty of Sexual and Reproductive Healthcare (2012), *Emergency contraception: Clinical Effectiveness Unit*, was also reviewed and compared to ACOG's (2012) EC guideline. Though both are valid, evidence-based guidelines that advise and direct patient care and counseling regarding EC, the FSRH (2012) guideline was found to be a more thorough, comprehensive, and current guideline, and should be used by clinicians to guide their practice of EC use and consultation.

The final manuscript described the results of a descriptive study, comprised of a retrospective medical record review and provider focus group, which assessed provider EC counseling practices, as well as facilitators and barriers to routine EC discussion with patients at a primary care clinic in a university setting. Results from the retrospective medical record review revealed that providers were not discussing EC with their patients. The focus group discussed a need for implementation of provider reminders to counsel patients about EC, such as the EC Fact Sheet developed by the investigator (Figure 1) or EC posters and pamphlets placed throughout the clinic environment to encourage and facilitate EC discussion with patients. The providers also requested the investigator to develop a list of local pharmacies and their cost for available levonorgestrel methods of EC, for provision to patients as a reference (Table 4). Another strategy identified by providers included involving other clinics within their healthcare system in EC education and reminder systems, especially those clinics who treat women who use teratogenic medications on a regular basis. Finally, the providers suggested maintaining an office supply of EC for patient provision for women in need of EC who cannot reasonably attain it for use. Barriers identified to routine EC discussion included low knowledge

levels and providers failing to remember to include EC in anticipatory guidance.

Ultimately, the results of this study indicate that increased EC awareness and education is needed for providers to improve EC discussion with patients, and in turn, potentially impact unintended pregnancy rates.

Further research should be conducted nationwide to confirm and address knowledge levels in providers, as well as ethical issues (such as social justice), educational needs, and alternative methods in communicating EC information to patients. Finally, improvements in EC curricula and content in provider programs is essential in improving provider EC practices. Meeting the Healthy People 2020 Family Planning goals of increasing intended pregnancies to a rate of 56% is attainable through an improvement of provider awareness and knowledge regarding EC and the prevention of unintended pregnancies.

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