



Editor's Choice

Barriers to Single-Dose Levonorgestrel-Only Emergency Contraception Access in Retail Pharmacies



Van (Mimi) Chau, BA^{a,*}, Carol A. Stamm, MD^{a,b,c},
 Laura Borgelt, Pharm D, FCCP, BCPS^d, Michelle Gaffaney, BA, MPAS, PA-C^a,
 Alia Moore, MD^a, Rachel Z. Blumhagen, MS^e, Leanne Rupp, MSW, LCSW^{b,c},
 Daniel Topp, MA^{b,c}, Christine Gilroy, MD, MSPH^{a,f}

^a Division of General Internal Medicine, University of Colorado School of Medicine, Aurora, Colorado

^b Department of Obstetrics and Gynecology, University of Colorado School of Medicine, Aurora, Colorado

^c Uptown Primary Care, Denver, Colorado

^d Departments of Clinical Pharmacy and Family Medicine, University of Colorado Skaggs School of Pharmacy and Pharmaceutical Science, Aurora, Colorado

^e Department of Biostatistics and Informatics, Colorado School of Public Health, Aurora, Colorado

^f Department of Pediatrics, University of Colorado School of Medicine, Aurora, Colorado

Article history: Received 26 November 2016; Received in revised form 16 March 2017; Accepted 20 March 2017

A B S T R A C T

Objectives: In February 2014, the Food and Drug Administration updated its regulations to make all single-dose levonorgestrel-only emergency contraception (LNG-EC) available over the counter. This study examines the availability and access to LNG-EC shortly after this policy change, and any additional barriers to obtaining LNG-EC in Colorado retail pharmacies.

Study Design: From June to July 2014, three female interviewers posing as women seeking LNG-EC conducted a telephone survey of all 633 Colorado retail pharmacies listed in *The Little Blue Book* (2014) phone directory. Completely accessible was defined as LNG-EC available on store shelves for purchase without presentation of an ID or prescription on the day of the call.

Results: Of 633 pharmacies analyzed, 85.0% (538/633) were in urban settings and 85.3% (540/633) were chain stores. Eighteen of 64 (28.1%) counties in Colorado did not have a pharmacy listed in the phone directory. Overall, 86.9% of pharmacies (550/633) had EC in stock on the day of contact but only 23.2% (147/633) of these had EC completely accessible. Of pharmacies with EC in stock, 41.6% (229/550) kept it behind the counter and 56.0% (308/550) required additional documentation to purchase. In stock and completely accessible rates were not different across rural, urban, and frontier geographic regions within the state ($p = .066$ and $p = .905$, respectively), but were significantly different across independent, chain, and 24-hour type stores ($p < .001$ and $p = .008$, respectively). In stock rates were 57.5% (42/73), 90.4% (488/540), and 100% (20/20) for independent, chain, and 24-hour stores respectively.

Conclusions: Rates of completely accessible LNG-EC are low in Colorado despite high rates of availability. Behind-the-counter status and proof-of-age requirements are identified as the main sources of access restriction in Colorado.

© 2017 Jacobs Institute of Women's Health. Published by Elsevier Inc.

Emergency contraception (EC) describes any contraceptive method that prevents pregnancy after unprotected or under-protected sexual intercourse (Trussell, Raymond, & Cleland, 2014; American College of Obstetricians and Gynecologists, 2010; World

Health Organization, 2012). Single-dose levonorgestrel-only (LNG) pills are currently the only forms of EC available over the counter (OTC) and include the brand name Plan-B One-Step and generic options such as Take Action. The most likely mechanism of action for these products is inhibition or delay of ovulation, and they are most effective if taken within 120 hours of sexual intercourse (Gemzell-Danielsson, Berger, & Lalitkumar, 2013).

In May 1999, the Food and Drug Administration (FDA) approved brand-name Plan B for women with a prescription (Office of Population Research, 2016). In August 2006, Plan B

Funding statement: This work was supported by the Leadership, Education, Advocacy, Development, and Scholarship (LEADS) Track at the University of Colorado School of Medicine; Aurora, Colorado.

* Correspondence to: Van (Mimi) Chau, BA, University of Colorado School of Medicine, 13001 E 17th Place, Aurora, CO 80045. Phone: 303-886-6458.

E-mail address: van.t.chau@ucdenver.edu (V.(Mimi) Chau).

became available OTC for consumers aged 18 years and older, although those aged 17 years and younger still needed a prescription to purchase. In 2009, the age restriction dropped to 17 years of age, and finally in June 2013, Plan B One-Step became available OTC without an age restriction. In February 2014, generic LNG-EC was approved for OTC use, effectively making all single-dose LNG-EC products potentially accessible for anyone to purchase without proof of age or prescription (Butler, 2013).

However, accessibility barriers such as high cost (Cleveland, 2013; American College of Obstetricians and Gynecologists, 2012), low pharmacy stock rates (Chuang and Shank, 2006; Samson et al., 2012), and geographic distance to a pharmacy (NARAL, 2010) may still exist. The primary aim of this survey was to identify and quantify the barriers to access encountered by female consumers purchasing LNG-EC in Colorado retail pharmacies, including distance to pharmacies, identification requirements, and behind-the-counter status.

Methods

Three researchers, posing as women seeking LNG-EC, completed a telephone survey of Colorado retail pharmacies from June to July 2014. Pharmacy contact information was obtained from a phone directory titled *The Little Blue Book 2014* (Sharecare, 2014). Pharmacies voluntarily list their information in this reference guide, which is predominantly used by physicians for referrals. Although comprehensive, it does not represent a complete list of all pharmacies in Colorado. The analyzed sample size only included operating retail pharmacies serving the general public; compounding, inpatient, psychiatric, and permanently closed pharmacies were excluded. Pharmacies were categorized in two ways: by pharmacy type (chain, independent, or 24-hour store) and location (urban, rural, or frontier county). Chain pharmacies are those belonging to a public corporation, and share a centralized brand. Independent pharmacies comprise stores that are locally and privately owned. Twenty-four-hour pharmacies were all part of chain companies and open at all hours. Geographic county categorizations were applied using definitions provided by the Colorado State Office of Rural Health (Colorado Health Institute, 2014). Urban counties comprise areas with a core metropolitan area of 10,000 people or more, rural counties are those without a metropolitan core, and frontier counties are defined as having six or fewer persons per square mile.

The structured survey script contained an introduction about a woman seeking LNG-EC. The researcher asked about the role of the pharmacy employee and was allowed to make assumptions about his or her gender. Further questions included availability of LNG-EC on the day of the call (in stock status), location of product (on shelf or behind the pharmacy counter), availability of generic products, cost, and the need for additional documentation to purchase (proof of age and/or prescription). When the pharmacy did not have LNG-EC in stock, questions about alternative venues to obtain LNG-EC, ability to order the product, cost, whether or not the store typically carried LNG-EC, and where it was normally stocked within the store (shelf or behind pharmacy counter) were asked.

In stock was defined as having LNG-EC available for purchase on the day of contact. Completely accessible was defined as LNG-EC being in stock, on the shelf, and available for purchase without additional documentation. Researchers called pharmacies as many times as necessary to contact a pharmacy employee. If an employee hung up before the survey could be completed,

the encounter was categorized as unable to assess. In these instances, pharmacies did not receive a call back. If calls were dropped owing to poor cellular reception or if the research assistant forgot to ask a question before ending the call, the pharmacy received a call back. All surveys that included the in stock variable were included in the analysis, regardless of which additional variables were addressed. All calls were made on two cellular phones purchased for the study that were not linked to any institution. Personal identities of the callers and research intentions were not disclosed.

All data were collected and recorded on paper, managed using the REDCap electronic data capture tool (Harris, Taylor, Payne, Gonzalez, & Conde, 2009) and verified by an additional research assistant for accuracy. The protocol was approved by the Colorado Multiple Institutional Review Board.

Rates of in stock, completely accessible, availability of generics, and additional documentation requirements were summarized with frequency and percent, and compared by geographic region and pharmacy type using χ^2 tests with Fisher's exact testing when asymptotic assumptions were not met. The analysis was conducted using SAS/STAT Software (SAS Institute, Cary, NC).

An a priori power calculation was performed using the assumption that 90% of the pharmacies in *The Little Blue Book* (2014; $n = 621$) were included in the sample and were distributed as 85% chain, 10% independent, and 5% 24-hour type. Assuming a type I error rate of 0.05 and the proportion of chain pharmacies with EC in stock is 50%, the analysis has 80% power to detect a difference of 18.4% between chain and independent pharmacies and a 24.9% difference between chain and 24-hour pharmacies. Given the distribution of pharmacies across geographic regions is comparable to that of pharmacy types (~85% urban, ~10% rural, and ~5% frontier), the analysis is also powered to detect the same differences between in stock proportions for urban versus nonurban areas. Power calculations were performed using G*Power Version 3.1.9.2 (Faul, Erdfelder, Lang, & Buchner, 2007).

Qualitative data, including pharmacy comments regarding access and researcher comments on customer service quality, were also recorded but not analyzed for this article.

Results

Of 690 pharmacies identified in Colorado, 633 (91.7%) were surveyed. Of those excluded pharmacies, 39 of 57 (68.4%) were permanently closed and 18 of 57 (31.6%) were either compounding, psychiatric-only, or hospital-based pharmacies. There were 18 of 64 Colorado counties (28.1%) that did not have a pharmacy listed in the phone book. At 17 of 633 pharmacies (2.6%), employees indicated the status of LNG-EC stock, but hung up before the survey could be completed.

Of the pharmacies included in the analysis, 85.0% (538/633) were in urban areas and 85.3% (540/633) were chain stores. Ninety-five pharmacies (14.5%; 95/655) were found in rural and frontier areas. Of the pharmacies in these areas, 21 (22.1%; 21/95) were independent stores. Most employees answering the phones were pharmacy technicians (59.1%; 374/633) and women (70.9%; 449/633; Table 1).

Most pharmacies (86.9%; 550/633) carried LNG-EC on the day of contact (i.e., in stock; Table 1). In stock rates were 57.5% (42/73), 90.4% (488/540), and 100% (20/20) for independent, chain, and 24-hour stores, respectively ($p < .001$). In stock rates were 85.9% (462/538), 94.9% (75/79), and 81.3% (13/16) for urban,

Table 1
Pharmacy Demographics of Survey Sample (n = 633)

	n (%)
Geographic region	
Urban	538 (84.99)
Rural	79 (12.48)
Frontier	16 (2.53)
Pharmacy type	
Independent	73 (11.53)
Chain	540 (85.31)
24-hour	20 (3.16)
Pharmacy employee	
Pharmacist	223 (35.23)
Pharmacy technician	374 (59.08)
Other	7 (1.11)
Unable to assess	29 (4.58)
Gender of person answering the phone	
Man	184 (29.07)
Woman	449 (70.93)
In stock	
Yes	550 (86.89)
No	83 (13.11)
Complete access	
Yes	147 (23.22)
No	486 (76.78)

rural, and frontier counties, respectively ($p = .066$; [Table 2](#)). In stock rates were found to be significantly different across pharmacy types, but not geographic region.

Overall, the complete access rate was 23.2% (147/633; [Table 1](#)). Differences in complete access rates were statistically significant among pharmacy types ($p = .008$), but not geographic location ($p = .905$; [Table 2](#)). Among 550 pharmacies that had LNG-EC in stock, 58.4% (321/550) kept the product behind the pharmacy counter ([Table 3](#)).

Generic brands of LNG-EC were carried by more than one-half of the pharmacies (60.9%; 335/550). Chain and 24-hour stores had a significantly higher proportion of generics available than independent stores ($p = .010$). Differences in availabilities of generics among geographic counties were not statistically significant ($p = .897$; [Table 4](#)).

Additional documentation was required by 56.0% of pharmacies (308/550) to purchase LNG-EC ([Table 3](#)). The most common form of required documentation was proof of age. Seventeen years old was the most frequently cited age requirement for purchase (range, 11–21). There was no difference between pharmacy type ($p = .733$) or geographic county ($p = .765$) in asking for additional documentation to purchase ([Table 4](#)).

Of the 456 pharmacies that provided cost of brand-name LNG-EC (Plan-B), the mean cost was \$49.11 (95% confidence interval, \$48.69–\$49.53). Of the 317 pharmacies that provided cost

Table 2
In Stock and Complete Access Rates of Emergency Contraception by Pharmacy and County Type

	Independent (n = 73)	Chain (n = 540)	24-hour (n = 20)	p Value
In stock	42 (57.53)	488 (90.37)	20 (100.0)	<.001
Complete access	7 (9.59)	137 (25.37)	3 (15.00)	.008
	Urban (n = 538)	Rural (n = 79)	Frontier (n = 16)	p Value
In stock	462 (85.87)	75 (94.94)	13 (81.25)	.066
Complete access	126 (23.42)	18 (22.78)	3 (18.75)	.905

Table 3
Characteristics of Pharmacies with Emergency Contraception in Stock (n = 550)

	Yes, n (%)	No, n (%)	I Don't Know/ Unable to Assess, n (%)
Is it on the shelf to pick up now?	321 (58.36)	229 (41.63)	—
Do you have a generic?	335 (60.91)	196 (35.64)	19 (3.45)
Will I need to bring anything with me to get it, like my ID?	308 (56.00)	231 (42.00)	11 (2.00)

for any brand of generic LNG-EC, the mean cost was \$40.51 (95% confidence interval, \$39.76–\$41.26).

Among the 83 pharmacies that did not have LNG-EC on the day of the call, 41.0% (34/83) did not typically carry it. Independent stores were most likely not to carry LNG-EC (74.1%; 23/31). Typical stocking rates differed statistically among independent and chain stores ($p < .001$), but not by geographic counties ($p = .521$). Most stores (94.0%; 78/83) were willing to suggest another location in which to obtain LNG-EC. These alternative suggestions were usually nearby pharmacies. Staff in 54.0% of pharmacies (45/83) could order LNG-EC with an average wait time of 1.68 days (range, 0.5–7.0; $n = 41$) for the drug to arrive in the store.

Discussion

Overall, the in stock and complete access rates were similar among all geographic areas of Colorado. Differences in LNG-EC accessibility are most apparent among pharmacy types. Both in stock and complete accessibility rates show statistically significant differences among all pharmacy types. Independent stores were the least likely to have LNG-EC in stock and completely accessible. Because all pharmacy types required additional documentation to purchase LNG-EC at similar frequencies, the

Table 4
Distribution of Generic Availability by Pharmacy Type for Pharmacies with EC in Stock (n = 550)

	Independent (n = 42)	Chain (n = 488)	24-hour (n = 20)	p Value
Do you have a generic?				
Yes	19 (45.24)	296 (60.66)	20 (100.00)	.0010*
No	23 (54.76)	173 (35.45)	-	
I don't know	-	9 (1.84)	-	
Unable to assess	-	10 (2.05)	-	
Will I need to bring anything with me to get it, like my ID?				
Yes	24 (57.14)	270 (55.33)	14 (70.00)	.7331*
No	17 (40.48)	208 (42.62)	6 (30.00)	
Unable to assess	1 (2.38)	10 (2.05)	-	
	Urban (n = 462)	Rural (n = 75)	Frontier (n = 13)	p Value
Do you have a generic?				
Yes	283 (61.26)	45 (60.00)	7 (53.85)	.8968*
No	163 (35.28)	27 (36.00)	6 (46.15)	
I don't know	7 (1.52)	2 (2.67)	-	
Unable to assess	9 (1.95)	1 (1.33)	-	
Will I need to bring anything with me to get it, like my ID?				
Yes	257 (55.63)	44 (58.67)	7 (53.85)	.7650*
No	194 (41.99)	31 (41.33)	6 (46.15)	
Unable to assess	11 (2.38)	-	-	

* Fisher's exact test as asymptotic assumptions were not met.

complete accessibility rate in independent stores is lowered further because the product is kept behind the counter. In effect, one is more likely to find EC behind the pharmacy counter as well as be required to present an ID in an independent pharmacy.

The paucity of pharmacies in rural areas presents a barrier to access for women in these regions. Not only are there fewer pharmacies to choose from in rural areas, there is also a greater proportion of independent pharmacies with lower in stock and complete access rates. Access in rural and frontier areas is also limited by distance between pharmacies. Other than Gilpin County, all 18 counties with no pharmacy listed in *The Little Blue Book* (2014) were rural and frontier counties.

The additional reported documentation requirement, especially proof of age, presents another barrier. From 2006 to 2014, the age cutoff for purchasing LNG-EC products changed four different times before the restrictions were lifted completely. The variation in age restrictions reported by pharmacy staff in this study highlights both the confusion related to LNG-EC's convoluted history and the potential productivity of educating pharmacies.

Internal pharmacy policies and education may partly explain the overall low EC accessibility rates. Even though this study was conducted shortly after the regulations changed, delays in updating store policies or lag in information dissemination may explain the variability in knowledge among pharmacy staff about FDA regulations and requirements.

Priced at an average of \$50 for the brand-name LNG-EC, the cost of the product may be a barrier to many women. Although the generic option, which averages \$40, provides a less expensive option, it can still be cost prohibitive for some. Chain and 24-hour stores were significantly more likely to offer a generic option than independent stores.

Finally, LNG-EC is a time-sensitive drug. In cases where stores did not have LNG-EC in stock on the day of call, an average wait time of 1.5 days can result in an increased risk for pregnancy. Some studies have demonstrated that the risk of pregnancy is reduced by 95% if LNG-EC is taken within 24 hours of unprotected intercourse, but only by 88% if the drug is taken within 5 days (Trussell et al., 2014). Moving LNG-EC to an OTC product should have improved consumers' ability to access the product in its period of greatest effectiveness, yet inadequate pharmacy stocking is a barrier to timely use.

Limitations

Although the intent of the study is to survey as many Colorado pharmacies as possible, a major limitation is the sampling frame. *The Little Blue Book* was chosen because it was an inexpensive and well-organized guidebook that can represent the breadth of pharmacies available to a typical consumer in the community. *The Little Blue Book* requires organizations to voluntarily list and update their contact information. Although there is no fee to be included in this resource, it may limit listings of independent stores that may not be aware of the directory. Perhaps as a result, our sample size is overwhelmingly composed of chain stores. A report by the National Community Pharmacists Association estimates that out of the 67,000 pharmacies in the United States, approximately 22,000, or 33%, are independent (National Community Pharmacists Association, 2015). Our sample demonstrates a 12% prevalence. It is hard to ascertain whether Colorado has fewer independent stores, or whether our sample excluded independent stores that did not appear in *The*

Little Blue Book. Nonetheless, the overall finding in our study shows that availability of EC is high in all types of stores.

Except Gilpin County, which is considered urban, all of the other 17 counties not represented in our sample are rural or frontier. Although it is difficult to confirm, we believe these areas of sparse population correlate with a true scarcity of retail pharmacies. However, this does not entail a lack of medical services in these areas. The Colorado Rural Health Center offers numerous critical access hospitals and rural health clinics throughout the state (Colorado Rural Health Center, 2016). Of the 17 counties, six of them host hospitals and four have at least one clinic. All of these facilities provide reproductive health services, including LNG-EC.

Other limitations include the study's cross-sectional methodology, because it only provides a snapshot within an evolving landscape. In addition, only phone responses provided by pharmacy staff were analyzed; it was not feasible to physically verify the presence of LNG-EC in each of the stores. Because we often spoke to one or two representatives in each pharmacy, it is possible that the information provided during the survey would vary depending on who answered the phone, especially if there is no clear policy regarding access to LNG-EC. In addition, as LNG-EC is moved OTC, it may also be possible for a staff member to report that the drug was available without knowing whether or not it is truly on the store shelf.

Implications for Practice and/or Policy

Single-dose LNG-EC should be easily available for purchase, yet our research identified numerous barriers to access within pharmacies. Of these, the ID requirement and behind-the-counter status of LNG-EC seem the most far reaching. These restrictions not only affect adolescents, who may not have identification, but they affect all individuals who may find interacting with a store employee about his or her reproductive health embarrassing. The psychological discomfort can lead to delays or avoidance of purchasing a product with clearly proven effectiveness.

These barriers, in themselves, present challenges to individuals, but can also compound in ways that further inhibit access. For instance, a woman in a rural area may need transportation to get to a pharmacy, but EC may be out of stock, or she may have forgotten her ID, or perhaps she does not have an ID. All of these points coalesce to potentially prevent consumers from obtaining the health care they need.

Future direction should focus on increasing complete accessibility rates in Colorado by understanding why pharmacies continue to report outdated regulatory policies and pursuing government policies that improve LNG-EC access at the consumer level. Further, this study highlights numerous opportunities for pharmacy staff education, especially regarding citing incorrect age restrictions. Environmental changes, such as package labeling, and increased public awareness of LNG-EC access (Cleland, Bass, Doci & Foster, 2016) may further improve accessibility rates.

Conclusions

Although federal policy restrictions on LNG-EC have been removed, this study demonstrates that retail pharmacy-level policies can still create tangible hindrances in obtaining appropriate health care. It is important to note that no other FDA-approved OTC drug is regulated in the same manner as

LNG-EC. Despite high rates of in stock LNG-EC, keeping the product behind the counter and requiring proof of age documentation for purchase are the main sources of the reported low completely accessible rates in Colorado retail pharmacies.

References

- American College of Obstetricians and Gynecologists. (2010). *Emergency contraception, practice bulletin no 112*. Available: <http://www.acog.org/download.do?filename=/clinical%20practice%20bulletins/112.pdf>. Accessed: November 22, 2016.
- American College of Obstetricians and Gynecologists. (2012). *Access to emergency contraception, committee opinion no 542*. Available: <http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/Access-to-Emergency-Contraception>. Accessed: November 22, 2016.
- Butler, A. (2013). *Plan B One Step without age restrictions: What the move really means for access*. Advanced Reporting. Available: <https://advancedreportingfall13.wordpress.com/tag/plan-b/>. Accessed: July 14, 2014.
- Cleland, K. (2013). *The cost of emergency contraception: Results from a nationwide survey*. American Society for Emergency Contraception. Available: <http://americansocietyforec.org/uploads/3/2/7/0/3270267/asecpricingreport.pdf>. Accessed: November 22, 2016.
- Cleland, K., Bass, J., Doci, F., & Foster, A. (2016). *Access to emergency contraception in the over-the-counter era*. *Women's Health Issues*, 6, 622–627.
- Chuang, C. H., & Shank, L. D. (2006). *Availability of emergency contraception at rural and urban pharmacies in Pennsylvania*. *Contraception*, 73(4), 382–385.
- Colorado Health Institute. (2014). *County health profiles*. Available: <http://www.coloradohealthinstitute.org/data-repository/county>. Accessed: July 10, 2014.
- Colorado Rural Health Center. (2016). *Colorado: Rural health facilities within county designations, 2016*. State Office of Rural Health. Colorado Rural Health Center, Aurora, CO.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). *G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences*. *Behavior Research Methods*, 39, 175–191.
- Gemzell-Danielsson, K., Berger, C., & Lalitkumar, P. G. L. (2013). *Emergency contraception: Mechanisms of action*. *Contraception*, 87(3), 300–308.
- Harris, P., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). *Research electronic data capture (REDCap): A metadata-driven methodology and workflow process for providing translational research informatics support*. *Journal of Biomedical Informatics*, 42(2), 377–381.
- Office of Population Research. (2016). *History of Plan B OTC*. Available: <http://ec.princeton.edu/pills/planbhistory.html>. Accessed: November 22, 2016.
- NARAL. (2010). *Fact sheet: Emergency contraception accessibility in Colorado*. Available: <http://www.preventionfirstcolorado.org/uploads/ECBrief2010.pdf>. Accessed: July 14, 2014.
- National Community Pharmacists Association. (2015). *NCPA digest: Adherence, diversified revenue critical for community pharmacies*. Available: <http://www.ncpanet.org/newsroom/news-releases/news-releases--2015/2015/10/13/ncpa-digest-adherence-diversified-revenue-critical-for-community-pharmacies>. Accessed: March 16, 2017.
- Samson, F. D., Loren, R., Downing, N., Schroepel, S., Kelly, P. J., & Ramaswamy, M. (2012). *Availability of emergency contraception in rural and urban pharmacies in Kansas*. *Journal of Rural Health*, 29(1), 113–118.
- Sharecare 2014. *The Little Blue Book*, Atlanta, GA, 2014.
- Trussell, J., Raymond, E. G., & Cleland, K. (2014). *Emergency contraception: A last chance to prevent unintended pregnancy*. *Contemporary Readings in Law and Social Justice*, 6(2), 7–38.
- World Health Organization. (2012). *Emergency contraception, fact sheet no 244*. Available: www.who.int/mediacentre/factsheets/fs244/en/index.html. Accessed: November 22, 2016.

Author Descriptions

Van (Mimi) Chau, BA, is a fourth-year medical student at the University of Colorado. She will match into pediatrics and has a special interest in contraception access and women's reproductive rights.

Carol A. Stamm, MD, is an obstetrician gynecologist who researches contraception and contraception access. She is affiliated with the University of Colorado School of Medicine, Department of Internal Medicine.

Laura Borgelt, Pharm D, FCCP, BCPS, is the Associate Dean of Administration and Operations and Professor in the Departments of Clinical Pharmacy and Family Medicine at University of Colorado Anschutz Medical Campus. Her teaching, practice, and research focuses on patient safety and women's health.

Michelle Gaffaney, BA, MPAS, PA-C, is a Physician Assistant at Denver Health Hospital. Her areas of focus are substance abuse and adolescent health. She was a PA student at the University of Colorado while working on this research.

Alia Moore, MD, is a general internist and primary care research fellow at the University of Colorado Anschutz Medical Campus. She is interested in reproductive health access both in the community and in correctional populations.

Rachel Z. Blumhagen, MS, is a Graduate Research Assistant in Biostatistics at National Jewish Health. Her research areas are in statistical genomics. She was with the Colorado Biostatistics Consortium at the University of Colorado Denver while working on this project.

Leanne Rupp, MSW, LCSW is a Licensed Clinical Social Worker at Uptown Primary Care. Her practice focuses on depression management and quality improvement, health care reform, women's health, and managing high-acuity patient populations.

Daniel Topp, MA, is an Electronic Medical Record Data Analyst with HealthONE. At the time of the project, he was the Data Manager and Research Coordinator for projects with the Internal Medicine Department.

Christine Gilroy, MD, MSPH, is Senior Medical Director of BrightHealth, and is an adolescent medicine specialist affiliated with The Children's Hospital. She is involved in health care research and policy.