

A Comparison of Midwifery Education and Scope of Practice in Sweden and United States

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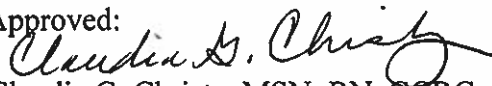
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### Abstract

United States has one of the highest maternal and newborn mortality rates in the developed world; in contrast these rates in Sweden are significantly lower. The purpose of this project was to compare midwifery education and scope of practice in Sweden and United States to determine how these factors affected maternal and newborn mortality rates. Sweden's mortality rates have decreased in the last few years and continue to improve for two reasons: 1) health care access in rural areas; and 2) midwives' autonomy and broad scope of practice. Through a literature review and four interviews with midwives, I found that the use of midwives increases health care access to the maternal and newborn population, decreases prenatal and birth health care costs, and decreases cesarean section rates, which ultimately leads to decreased mortality rates. These findings suggest midwives could address health care disparities and significantly improve outcomes of vulnerable populations such as infants and pregnant women.

*Keywords:* Swedish Midwifery, United States Midwifery, Mortality Rates

### **A Comparison of Midwifery Education and Scope of Practice in Sweden and United States**

The world health organization (WHO) defines midwives as health care professionals educated, trained and equipped to care for women during pregnancy, labor and delivery, postpartum and the newborn. The main responsibility of a midwife is to promote health and implement interventions that have been shown to be effective in preventing complications during pregnancy, labor and postpartum (World Health Organization, 2019). In United States there are three different midwifery credentials when referring to midwives which include certified nurse-midwife (CNM), certified midwife (CM) and certified professional midwife (CPM). The difference between the three different types of midwives lies on the education, type of setting and scope of practice. CNMs and CMs both require a bachelor's degree and graduate degree while CPMs do not, the latter requires a high school diploma and certification is based on competency skills. CNMs and CMs can attend births in different settings from hospitals, birth centers and homes depending on the state laws they are practicing in while CPMs usually attend births at homes or birth centers (American College of Nurse Midwives, 2017). In contrast in Sweden nurses with clinical experiences are the only ones who become certified nurse midwives. According to a 2019 Health Resources and Services Administration (HRSA) technical report, in 2015 United States ranked 48 out of 181 in maternal mortality and had 5.8 infant deaths per 1000 live births, which is one of the highest maternal and newborn mortality rates in the developed world (DHHS, 2019 p. 2, CIA, n.d., p. 1). According to American central intelligence agency's mortality rates library, Sweden has 4 maternal deaths per 100,000 births and 2.6 infant deaths per 1000 live births a year (CIA, n.d., p. 1). These statistics show that Sweden's maternal and infant mortality rates are significantly lower compared to United States. The purpose of this project is twofold. First to review literature discussing midwifery education and scope of practice in both

countries to understand how these affect maternal and newborn health care outcomes. And second to interview four midwives to gain their perspective on the matters discussed in this paper.

### **Literature Review**

In the United States, CNMs and CMs provide primary health care services for women in their teenage years and beyond menopause. Services consist of before, during and after pregnancy and care for newborns up to 28 days of life (Marzalik, Felthman, Jefferson & Pekin, 2018). Laws regulate practice and autonomy of midwives across the different states. For example, CMs are only licensed in 5 states while CNMs are licensed in all states with variations in autonomy and scope of practice (Marzalik et al., 2018). The following states do not require CNMs to be under the supervision of a physician while practicing Arkansas, Arizona, Colorado, Connecticut, Washington DC, Maryland, Maine, Minnesota, Hawaii, Iowa, Idaho, Montana, New Hampshire New Jersey, New Mexico, New York, North Dakota, Oregon, Rhode Island, Utah, Vermont, Washington and Wyoming (Yang, Attanasio & Kozhimannil, 2016, p. 263).

The following states, Kentucky, Michigan, Oklahoma, Tennessee, Texas and West Virginia require midwives to be under the supervision of physician when prescribing medications. The states of Arkansas, Delaware, Georgia, Illinois, Indiana, Missouri and South Dakota require midwives to have a contractual agreement with physicians for some practice. Alabama, Kansas, Louisiana, Mississippi, Ohio, Pennsylvania and Wisconsin require midwives to have contractual practice agreements with physician for all practice, in other words a collaborative practice. California, Florida, Massachusetts, North Carolina, Nebraska, Nevada, South Carolina and Virginia require midwives to be supervised, which means a physician must approve interventions in writing before they can be carried out (Yang et al., 2016, p. 263). The

scope of practice of CPMs is determined by the North American Registry of Midwives, state laws, regulations and based on midwives' knowledge, skills and experience. CPMs are limited to attending low-risk pregnancy/births and the newborn. The medications they can administer depend on the state and their practice, however their autonomy is outside of the hospital (Markzalik et al., 2018).

Midwifery education in the United States varies depending on the type of credentials such as CNM, CM or CPM and all three differ in theoretical and clinical requirements. United States offers 40 educational programs that are responsible for educating and training CNMs. Out of those programs only 2 educate and train CNMs and CMs together. Most of the programs involve an undergraduate and graduate program. In the case of CNMs, the student is required to have a Bachelor of Science in nursing, gain a Registered Nurse license and practicing for at least one year before applying to the graduate program. The CM does not require an undergraduate degree in nursing; however, the degree must have certain foundation classes that will apply to midwifery school. American Midwifery Certification Board certifies both CNMs and CMs. All educational programs for CNMs and CPMs are accredited by Accreditation Commission for Midwifery Education. CNM's and CM's clinical education includes laboratory simulations and clinical hours covering "10 preconception visits, 15 antepartum visits, 20 labor management experiences and births, 20 newborn assessments and early postpartum visits, 15 postpartum visits, 10 breastfeeding visits, 20 family planning visits and 40 gynecologist and primary care visits" (Markzalik et al., 2018, p. 10).

The North American Registry of Midwives (NARM) requires CPMs to have a high school diploma and completion a Portfolio Evaluation Process (PEP) which shows clinical experience and skills related to midwifery. All CPMs must pass the NARM written exam which

is prepared by experienced and verified CPMs and must have outside of hospital birth experience. CPMs are mentored and trained by a NARM Registered preceptor who supervises and approves learning and clinical skills. Clinical training lasts “2 years and includes 55 births, 110 prenatal exams, 40 newborns exams, 50 postpartum exams, 5 home births and assistance in 2 planned hospital births. Additionally, in 2020 CPMs will need to have accredited midwifery education which can be accomplished by completing the NARM Midwifery Bridge Certificate composed of 50 clinical hours of midwifery competencies” (Marzalik et al., 2018, p. 10).

Swedish midwifery education consists of a 3-year bachelor in nursing undergraduate program followed by 1 year of clinical practice as a registered nurse and 1.5 years in a graduate program centered in theory, research and clinical practice. (Schytt, Waldenström & Marshall, 2011) Education has evolved over time considering the technological developments taking place in the hospital settings and management of pregnancy and birth complications that lead to a stronger focus on medical interventions. There are 11 colleges offering midwifery programs that require 30 weeks of clinical practice in different maternity units, 20 weeks of theory and 10 weeks dedicated to research and thesis development. (Schytt, Waldenström & Marshall, 2011) Midwifery clinical practice includes providing women’s health services such as gynecology, sexual education, menopause and contraception prescriptions. Midwifery practice is autonomous and is governed by the same laws and regulations across all Sweden and as long as antenatal, prenatal and postpartum care for women is free of medical complications (Schytt, Waldenström & Marshall, 2011). The results from a nationwide survey across all Sweden showed that most midwives were satisfied with their training and felt prepared to manage labor and delivery and capable of identifying abnormal findings complications (Schytt, Waldenström & Marshall, 2011). Interestingly the same midwives reflected on their clinical education and recognized that more

time should be invested in the management of medical complications, emergency situations and intrapartum care complications (Schytt, Waldenström & Marshall, 2011).

Swedish midwives' role includes meeting most women's primary care needs. This practice is widely used and respected by society and the medical field. Maternity care in Sweden is funded by the government and every person with citizenship or legal residency has the right to access maternity care for free. Midwives are supported by the universal healthcare system and the strong societal believes in midwifery role; they are geographically and evenly distributed throughout the country serving urban and rural areas (Hildingsson et al., 2016). The results from a study conducted in 1996 found that Sweden has more small labor units as the population can be scattered throughout the rural areas, these units did not always have a doctor on call, didn't have computerize clinical records and tended to avoid complicated births (Ragnar, Tydén, & Olsson, 2003). The midwives in larger units had better chances to attend complex and emergency births which provided great experiences for them as well as the students in training (Ragnar, Tydén & Olsson, 2003). Swedish midwives exercise great responsibility and value their autonomy but this has not been enough and in the past few decades there has been increased shortage and attrition rates (Hildingson & Fenwick, 2015). Although there are personal factors contributing to this phenomenon the main factors are work related, specifically births have shifted from community setting to hospitals, increased use of technology and medicalization of in Sweden.

There has been a decline in maternal mortality rates among western and developed countries mainly attributed to education and development of technology and the access to maternal health care has improved over time. It is evident that both Sweden and United States are constantly working towards provision of safe and quality improved care however the approach each has differs in laws governing practice, social mindset about birth and the type of

health care systems. According to an American Journal of Public Health, Sweden's maternal mortality rate was only one third of United States' maternal mortality rate and this accomplishment was ascribed to midwives' education, high competency skills, autonomy, broad scope of practice and their ability to attend births at home or in the community setting (Högberg, 2004). Sweden was able to achieve this goal by diligently collecting statistics of maternal and newborn health outcomes and developing a plan to improve these rates. At the national level Sweden implemented training programs to improve midwives and physician's knowledge and skills and reformed laws that legally authorized midwives to use forceps, sharp tools, placental removal and delivery of breech presentations. These changes made it possible for midwives to become highly trained, have autonomy and work in a complementary relationship with doctors. It was not easy to develop this type of relationship as there were many disagreements on approaching birth as a natural instead of medical event (Högberg, 2004). This maternity care intervention was successful in meeting the needs of citizens who lived in rural areas and greatly improved the health outcomes of both mother and newborns, this could be a reason why midwives have had a big impact in equity of care for all.

In the United States maternity care access is limited due to the lack of universal health care, socioeconomic factors and the shortage of physicians in the rural areas. Midwives have different options to obtain credentials and although midwifery education can be high quality the laws governing scope of practice pose restrictions on education and training. Obstetricians and gynecologists dominate the medical field and have focused on abnormal, emergency and medical approaches. It is not surprising they approach birth as a pathology because most Americans have chronic health problems. The model of care in America is a sick care model instead of illness prevention and health promotion model and although CMNs and CMs practice in hospitals their



services have limitations making physicians the ideal provider. An article from the American Journal of Obstetrics focused on reviewing randomized trials offering evidence for labor and delivery management to find which are the best interventions that correspond with the most effective and safest care. This literature review concluded that from a clinical stand point healthy woman carrying a fetus in vertex position have best outcomes giving birth at hospitals specially when admission is delayed and a doula is used (Berghella, Baxter, & Chauhan, 2008).

### **Methods**

A search on midwifery literature in United States and Sweden was conducted through CINAHL, PubMed and Embase databases. In the beginning the search was limited to peer-reviewed publications, academic journals and articles published between 2013 and 2018. In PubMed database the search terms used were “United States” and “midwifery” or “United States” and “midwifery/education” or “midwifery/history” this yielded 47 articles that included the key words in the abstract, title or mesh term. Since the search was limited to only 47 results a different strategy was to use the same terms and these did not have to be included in both abstract and title, instead search terms that were included in either abstract or title or the body of article were accepted, this strategy yielded 366 results. CINAHL data based was used and the search terms used were “AB Sweden” and “AB Midwifery” and “MH midwifery” and “AB Sweden” yielding 48 and 50 results respectively, this search was limited to articles published between 2013 and 2018. PubMed and CINAHL yielded sufficient search results for midwifery literature within United States however Swedish midwifery literature was limited therefore Embase database was used since its published content is mainly from European countries. The UNC health science librarian suggested to use Embase database after consultation with her about strategies to increase search results for Swedish midwifery. The search terms used were

“midwife: title, abstract” or “midwifery education: title, abstract” and “Sweden: title, abstract,” this approach yielded 159 results complementing previous searches. It was ineffective when terms Sweden and United States were used in the same search, this led to the use of them separately.

Other articles included in the literature review were used for background and historical information, changes and development of midwifery practice and education throughout the years. The selection of articles for literature review included those exploring most current midwifery education and scope of practice in Sweden and United States. Also, articles addressing access to maternity care, maternal and newborn mortality rate and interventions improving maternal and newborn health outcomes in Sweden and United States. Once selected, they were reviewed and an annotated bibliography was developed with the purpose of evaluating the relevance and quality of each article. The annotated bibliography highlighted how each article contributed to the comparison of midwifery education and scope of practice between United States and Sweden and possible interventions to improve maternal and newborn mortality rates.

Other methods used in this project included the following. The identified articles were used to develop questions for a semi-structured guided interview. The questions were formulated after literature review and were aimed to explore midwives’ perception about midwifery practice and education and how these impacted health outcomes. Additionally, the idea of a semi-structure interview was inspired and adopted from a focus group study discussed in one of the articles (Larsson, Aldegarmann & Aarts, 2009).

An application was submitted to the UNC Office of Human Research Ethics/Institutional Review Board to request project and interview questions’ evaluation and approval. The IRB determined

the project was not considered subject human research. The Questions submitted to the IRB are listed here.

### **Questions**

How well do you think midwifery education prepare you for the midwife role?

What kind of ongoing education is required?

As a practicing midwife what is your scope of practice and what are the limitations?

What changes and health outcomes have you seen as a practicing midwife in your country?

Describe your view of the differences between labor and delivery led by midwives and physicians.

How does the role of midwife has impacted delivery of maternal and newborn health care?

What do you think can be done to change the impact of midwives in public health?

What advice do you have for a future midwife?

### **Interviews**

Midwives were recruited through networking with individuals from the university and religious organizations for Sweden and networking with faculty members from the School of Nursing at UNC. The goal was to interview two Swedish midwives and two American midwives. Initial contact with all midwives was either through email or Facebook messenger and once interviews were scheduled, they were conducted through phone calls using personal cellphone or video calls through Facebook messenger. Once the midwives were informed through email about the purpose of the interview and they agreed to be interviewed, they were provided with 8 questions and this was a measure taken considering English was a second language for Swedish midwives. Participants were informed that the questions and project had been reviewed and approved by the IRB and participation was voluntary and they could withdraw at any time.

The first Swedish midwife was recommended by faculty members from the school of health and welfare at Jonkoping University in Sweden who provided midwives' email. The midwife agreed to do interview face to face, however due to her availability it was not possible while in Sweden., To overcome this obstacle a Skype videocall meeting was proposed but she declined. The second midwife was introduced via Facebook by a nurse from a religious organization and the interview was conducted through videocall feature on Facebook messenger. The first midwife from United States was interviewed through a phone call, the second midwife was going to be interviewed in person however the day before, she cancelled the meeting and sent an email answering all 8 questions and the third midwife was interviewed through a phone call. There was a fourth midwife who agreed to interviewed in person, due to illness meeting was cancelled and rescheduled for a phone call interview that was missed. The interviews conducted through the phone or videocall lasted between 60 to 80 minutes, below are the highlights of each interview and all names are kept anonymous, country and number are given to identify each midwife. A summary of all the interviews is detailed below.

### **Midwife 1**

The first midwife interviewed was from Sweden and shared her responses to the semi-structured interview during a videocall. Her education consisted of 3-year nursing program, 1-2 years of clinical experience as a registered nurse, 18 months in graduate midwifery program including theory and clinical practice of 15 weeks in a delivery floor, divided into 5- 7 weeks periods each semester. During clinical midwifery student provided prenatal care to 100 pregnant women during seven and half weeks and attended 50 births under the supervision of a preceptor midwife is required to graduate. Continuing education includes taking an exam every 18 months to continue working in labor and delivery floors and using fetal heart rate monitoring.

Breastfeeding/lactation consultant, acupuncture to manage pain, assisted birth (vacuum and forceps) training and caring for women afraid of birth process are the certificates midwives are expected to obtain as they develop and grow in their profession. The first two years new midwives mostly attend normal and low risk births and have a mentor, this allows midwives to become competent and confident in their skills. Midwifery practice is completely autonomous and the supervision from a physician is not required unless labor and delivery process become abnormal for the newborn or the mother. Midwives with special training can deliver premature babies as young as 27 weeks old under the physical presence of physician and they can perform peritoneal repair after lacerations that did not compromise the rectum. Midwives assume complete responsibility of women's health, maternity and newborn care and have prescription privileges (interviewee 1, personal communication, March 02, 2019).

## **Midwife 2**

The second midwife was from the United States and was interviewed by phone and provided answers for all questions. Her education consisted of a bachelor of science in nursing, 1 year of clinical experience as a registered nurse. Midwifery graduate program for 18 months that included clinical hours attending at least 20 births and continuing education obtained through online modules that award credits. The midwife has 40 years of experience and practices part-time in North Carolina which legally allows her to provide prenatal and gynecological care, labor and delivery care and birth management to patients categorized as low risk. Overall midwifery practice under the supervision of a physician assistant who has approved her interventions in writing and is not always physically present. The midwife believes education prepared her well for the role and believes births attended by midwives have improved outcomes as cesarean section rates are lower, induction decreases, there is less laceration/tear of

perineum and less use of epidurals. These outcomes are a result of preparation and holistic model approach which encourages the physiologic process of birth as normal. Midwives have a family centered approach, addresses physical, mental, emotional and spiritual needs, let human body manage the process and are not quick to implement medical interventions. There is an increase number of CNMs all over the country and they are most needed in rural areas since it could allow opportunities for women to access maternity and women's health care when physicians are not available in the area. Currently the concern for midwives is to have the ability of providing care without the need of physician assistant's approval as this can increase access to many; in contrast the medical perspective is safe care (interviewee 2, personal communication, March 12, 2019).

### **Midwife 3.**

The third midwife was from the United States, she was not available in person or on the phone and answered all questions through an email. Her education consisted of a bachelor of science in nursing, several years of clinical experience as a registered and 18 months of midwifery school. Clinical training included a total of 786 hours with 365 hours during the last semester assuming different roles such as taking calls, attending births, rounding at the hospital or providing services at the clinic. Continuing education includes maintaining registered nurse license, credit hours completed through the American Midwifery Certification Board, 20 contact hours and completion of specific modules every 5 years. CNMs and CMs provide primary health care for women from adolescence and after menopause, the services include primary and gynecology care, pregnancy, childbirth and postpartum care, newborn care is provided until 28 days old and sexually transmitted infections in women's male partners. In United States midwife services are being misused due to restriction in midwifery practice. Midwives do not view

pregnancy as abnormal, instead they guide and educate women from the perspective that is a normal process. They are trained to identify abnormal findings during labor and delivery, their model of care focuses on in contrast the medical model is focused on abnormalities and spends less time with women during the labor and birth process. In the state of North Carolina, the passage of the Nurse Practice Act could enable advanced practice registered nurse (APRN) to extend health care in places lacking pediatricians and gynecologist/obstetrician services (interviewee 3, personal communication, March 16, 2019).

#### **Midwife 4**

The fourth midwife was interviewed by phone and answered all questions. Her education and credentials include, licensed registered nurse, certified nurse midwife, Lamaze certified childbirth educator, international board-certified lactation consultant and most recently doctor of nursing practice. Continuing education includes recertifications, continuing education hours, specific midwifery modules from the American Midwifery Certification Board. Her scope of practice as a CNM includes all reproductive health care of women throughout all life, from menarche until the end of life. Services she can provide include contraceptives prescription, pap smears, hormone therapy, pregnancy, labor, birth and postpartum care and newborn care during the first 3 weeks of life. Additional training is required to perform ultrasounds and assist with cesarean sections. Nurse midwifery care is associated with improved health outcomes for pregnancy and childbirth. However, midwives are not seen as primary care providers, they only currently attend less than 10% of births in the health care system which is centered on physician care. CNMs struggle with autonomy in some states and the requirement of a contractual agreement with a physician creates a barrier for them to open their own practice clinic. Midwives focus on promoting relationships with patients, educating them, empowering women

about their own bodies and its model is centered on a perspective that birth is an important life event and more than a physical condition. In some northern European countries, the midwifery model is the base line model. If this was implemented in the United States it has the potential to improve maternal and newborn mortality rates, reduced health care cost and number of cesareans. The public needs more education about midwifery and positive outcomes associated with it. The impact of midwives could be changed by educating the public, especially women about midwifery role and education and decentralizing power in the medical field so it is not dominated by physicians. Education can start at a young age, for example, it could be implemented in schools' curriculums, teaching students about midwives and their role and their model of care. This can inform the consumer and slowly change the mindset of society about pregnancy and child birth (interviewee 4, personal communication, March 21, 2019).

### **Discussion**

The maternal and newborn mortality rate is affected by different factors such as the design of health care systems, access to care, midwifery scope of practice, education, regulations and laws governing all of these. Reforming the health care system requires rapid changes and can take a long time however small changes such as changing the laws ruling midwifery practice could be the beginning of that process. In Sweden the cohesive and universal health care system has made the role of midwives and their interventions to decrease maternal mortality a feasible process. The United States is one of the countries with the greatest health care spending yet the outcomes do not match the resources invested, this is evident when evaluating healthcare outcomes. A rapid systematic review (Casey et al., 2017) of 86 articles that explored how advanced nurse and midwife practitioners are underused despite evidence suggesting they could meet primary care needs and decrease its cost. The roles of midwives can improve the access to



primary health care specially in the rural areas because they are willing to expand their scope of practice however, the review revealed conflict in the evidence about the cost and services they can provide. In addition, there is not enough literature isolating the relationship between midwifery services, the costs and health outcomes therefore more research is needed to identify their roles and the impact midwifery interventions pose on the population.

Improving access to primary health care must be addressed from different angles to ensure the change happens sooner than later. This can be done by the implementation of new curriculums in nursing schools, reforming and implementing laws that govern and grant full practice to nurse practitioners and CNMs in all 50 states. These actions can address physician shortages, some of the cost of accessing primary health care and also decrease the maternal and newborn mortality. Sweden reformed the laws to expand midwifery practice and at the same time incorporated additional midwifery training that prepared midwives to deliver breech presentations and placenta, use of forceps or vacuum during assisted births and neonatal resuscitation. The same approach could potentially work in the United States, highly trained and skilled midwives could alleviate the concerns medical professionals have about safe maternity and newborn care. A review article found that overall midwifery care yielded similar or improved health outcomes compared to physicians and its model can potentially meet the needs of women in low socioeconomic status and marginalized groups (McRae, Muhajarine, Stoll, Mayhew, Vedam, Mpofu & Janssen, 2016).

The impact midwives could have in the United States goes beyond decreasing maternal and newborn mortality because they could act as primary health care providers for women of all ages and could reach rural areas. Expansion of practice will need to be the same across all states if the goal is equality and massive impact in health care access and decreased costs. Tackling

women's health can have a domino effect because if women have access to primary care, chronic illnesses can be prevented or well managed and this in turn will affect maternal mortality rate and newborn mortality rates. The more financial and educational resources are invested in primary care the less financial resources will be invested in sick care, which could lead to improved quality of life and economy. Granting midwives full scope of practice and the role of primary care providers is a serious and demanding process that will require significant financial resources in the beginning, this can be a barrier to even consider this approach. A suggestion could be to select the states where midwives have more restrictions in their practice to evaluate the health outcomes and note the benefits of this intervention. In a statistical analysis on the effects of varied degrees of autonomy given to Certified-Nurse Midwives in the United States, a positive correlation between complete autonomy and positive patient outcomes among other factors was found. It compared data from each state throughout each phase of pregnancy as well as different levels of midwife-physician agreements (Yang et al., 2016).

The United States' population is approximately 329 million people while Sweden is around 12 million people, this is another factor that can make the transition harder. Sweden does not house as many people and is not as diverse as the United States, making it easier for society to adopt and adapt to health care reforms. The hierarchical systems in Sweden are not as rigid and the power in the medical field focuses on equality and collaborative work while in the United States certain professions dominate more than others. The literature review and key points from interviews suggest that midwives have been and are a critical asset in health care improvement, this is evident as mortality rates decreased once midwifery education and practice were given a greater purpose in women's health and primary care.

### **Conclusion**

The increased maternal and newborn mortality rate must be addressed, the goal should be to improve rates or prevent them from rising. This matter is of national interest and requires immediate action. One out of four hospital visits are attributed to pregnancy and child birth. In the hospital setting 90% of births are attended by a physician and midwives take care of the rest; physician's interventions are usually more expensive and invasive than midwives' interventions (Altman, Murphy, Fitzgerald, Andersen, & Daratha, 2017). This increases the cost of childbirth, it automatically poses a challenge for women of low socioeconomic status and becomes a financial burden for the health care system. Based on the literature review and interviews conducted, midwives in the United States can provide safe, inexpensive and high-quality care to women who are considered to have low-risk pregnancy. These women do not require the type of care provided by physicians who are more likely to use invasive labor and delivery interventions increasing the cost for patients, hospital stay and risk for postpartum complications. The evidence found suggests and supports the importance and need of expanding the scope of practice of midwives to meet the primary care needs and to provide cost effective care to low-risk pregnant women by reducing the use of medical labor and delivery interventions. The decline in maternal mortality in Sweden has been a result of the appropriate use of midwives, expansion of their practice and education.

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