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What post-abortion care indicators don't measure: Global abortion politics and obstetric practice in Senegal

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Abstract

Since the early 1990s, post-abortion care (PAC) has been advocated as a harm reduction approach to maternal mortality and morbidity in countries with restrictive abortion laws. PAC indicators demonstrate that the intervention integrates safer uterine aspiration technology such as the Manual Vacuum Aspiration (MVA) syringe into obstetric practice and facilitates task-shifting from physicians to midwives. In other words, PAC not only saves women's lives, but more generally enhances the organization, quality, and cost-effectiveness of obstetric care. This article draws on my ethnography of Senegal's PAC program, conducted between 2010 and 2011, to illustrate how PAC indicators obscure the professional and technological complexities of treating abortion complications in contexts where abortion is illegal. Data collection methods include observation of PAC services and records at three hospitals; 66 in-depth interviews with health workers, government health officials, and NGO personnel; and a review of national and global PAC data. I show how anxieties about the capacity of the MVA to induce abortion have engendered practices and policies that compromise the quality and availability of care throughout the health system. I explore the multivalent power of MVA statistics in strategically conveying commitments to national and global maternal mortality reduction agendas while eliding profound gaps in access to and quality of care for low-income and rural women. I argue that PAC strategies, technologies, and indicators must be situated within a global framework of reproductive governance, in which safe abortion has been omitted from maternal and reproductive health care associated with reproductive rights. Ethnographic attention to daily obstetric practices challenges globally circulating narratives about PAC as an apolitical intervention, revealing not only how anxieties about abortion ironically suppress the very rates of MVA utilization that purportedly convey PAC quality, but also how they simultaneously give rise to and obscure obstetric violence against women.

Keywords

Senegal; Indicators; Abortion; Post-Abortion Care; Manual Vacuum Aspiration; Reproductive Technologies; Global Reproductive Governance; Obstetric Violence

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Introduction

During the early 1990s, the global health community identified post-abortion care (PAC) as an evidence-based technique for reducing mortality related to incomplete abortion (Corbett & Turner, 2003; Greenslade et al., 1994). PAC was included in the 1994 Programme of Action of the International Conference on Population and Development (ICPD), which identified reproductive health as a human right. PAC entails emergency treatment for complications of spontaneous or induced abortion, followed by contraceptive services. In countries like Senegal, where the law prohibits induced abortion under any circumstance, PAC offered a "harm reduction" approach to the public health problem of unsafe clandestine abortion (Erdman, 2011). Although it is difficult to statistically isolate PAC's contribution to declines in maternal mortality (Bullough et al., 2005), PAC yields alternative evidence of public health impact, including increased contraceptive uptake following treatment and increased access to services among rural women due to task-shifting of PAC services from physicians to mid-level providers (Huber et al., 2016).

The method of uterine evacuation is an important indicator of PAC quality. Since the inception of PAC, global maternal health experts have called for the substitution of sharp curettage with Manual Vacuum Aspiration (MVA) (Corbett & Turner, 2003; Greenslade et al., 1994), which consists of a hand-held plastic syringe device that aspirates the contents of the uterus through a plastic tube or cannula. MVA has been championed over sharp curettage because it can be performed with local rather than general anesthesia, poses fewer risks of uterine perforation, and requires shorter periods of patient hospitalization. Unlike sharp curettage, which is practiced by physicians in the operating theater, MVA can be used by midlevel providers in low-resource clinical settings. MVA, thus, is not only safer than sharp curettage, but also more cost-effective for patients and hospitals (Huber et al., 2016). The World Health Organization (WHO) no longer recognizes sharp curettage as a method of safe abortion care, promoting MVA instead (WHO, 2012).

Starting in 1997, the Senegalese Ministry of Health (MOH), in collaboration with several international non-governmental organizations (NGOs), the UN Population Fund (UNFPA), and the US Agency for International Development (USAID), introduced PAC through a series of research projects that demonstrated that these services could be decentralized from tertiary hospitals in large, regional capital cities to secondary hospitals in district towns, and that midwives could effectively use MVA to treat abortion complications. Each wave of research showed dramatic increases in the number of women receiving PAC and the proportion treated with MVA. The extension of MVA technology to district hospitals in rural zones has been heralded not only as West African success story for the global PAC model (Dieng et al., 2008; Diadhiou et al., 2008), but also a marker of the government's commitment to the ICPD's reproductive rights agenda (Suh 2018a; Suh 2018b).

During an ethnographic study of PAC conducted between 2010 and 2011, my conversations with Senegalese health workers revealed several misalignments between MVA policy and practice with critical implications for the availability, quality, and timeliness of care for women experiencing life-threatening complications of abortion. For example, Mme Diongue, a midwife at a primary health care clinic in a rural town, issued the following

complaint: “if you get a case of abortion that requires MVA, you have to evacuate the patient...it upsets me that I have to refer women to the district hospital.” Although Mme Diongue had received specialized training in MVA in 2006, her official appointment to a primary health care clinic - a facility prohibited by the MOH from offering MVA services - meant that she could not use this technology even when faced with a patient who was eligible for uterine aspiration. Her options would be to refer the patient to the nearest district or regional hospital, or treat the patient with digital evacuation, the only uterine evacuation method authorized in primary health care clinics. Digital evacuation involves the vaginal introduction of one or two fingers to remove “placental fragments or blood clots (p. 9.4)” (Coutin, 2017) from the uterus. Although the WHO does not recognize digital evacuation as a safe and effective method of abortion care (WHO, 2012), it has been documented in various African countries for patients with a gestational age exceeding 14 weeks and in facilities where there is no MVA or where there are no providers trained in MVA (Izugbara, Egesa, & Okelo, 2015; Kiemtoré et al., 2016). In Senegal, clinical protocols calling for the use of gloves and pain medication are not always observed, raising the risk of infection and increased patient discomfort (Population Council, 2007).

Mme Diongue’s complaint suggests that Senegal’s PAC success story, as by told by increasing rates of MVA utilization since its introduction to the health system, omits critical details about what it means to seek and practice obstetric care in a context where induced abortion is altogether prohibited. Although MVA has been championed as the preferred PAC technology, it is also an abortifacient (Murphy, 2012; Suh, 2015), thereby complicating the procurement, distribution, and utilization of the device in countries with restrictive abortion laws throughout sub-Saharan Africa and Latin America. In Bolivia, physicians referred to MVA as the “saving women” device to deter the perception that they were promoting abortion in government hospitals (Rance, 2005). In Honduras and Malawi, MVA utilization has declined in some hospitals because of difficulties associated with procuring an abortifacient technology (Chinchilla, Flores, & Morales, 2014; Cook, de Kok, & Odland, 2017).

In this paper, I draw on critical studies of the quantification of global maternal health and feminist science and technology studies (STS) to situate gaps in access to and quality of PAC within the global landscape of discourses, policies, actors, programs, and indicators that aim to assess and ultimately regulate reproduction, or what anthropologists have called “reproductive governance” (Morgan & Roberts, 2012). First, I illustrate how global and national stakeholders’ anxieties about MVA’s capacity to terminate pregnancy have generated policies and informal practices at hospitals that restrict the utilization and circulation of the device, thereby lowering quality of care. More specifically, I show how MVA regulations contribute to the persistence of digital evacuation at all levels of the health system.

Second, I explore the multivalent power of MVA statistics by juxtaposing ethnographic findings from hospitals with a review of national and global PAC data that rarely recognize the practice of digital evacuation. In a global health arena where donors wish to see numbers “go up (p.200)” (Sullivan, 2017), MVA statistics matter a great deal in demonstrating commitments to national maternal mortality reduction goals and global treaties on

reproductive rights. Through this indicator, national and global PAC stakeholders "see exactly what they intend to see (p. 362)" (Biruk, 2012), even if these accounts are incongruent with the clinical realities of PAC for health workers and patients.

PAC strategies, technologies, and indicators must be situated within the global terrain of reproductive governance, in which safe abortion remains outside of the spectrum of maternal and reproductive health care associated with Safe Motherhood and reproductive rights (Suh 2018a; Suh 2018b). Ethnographic attention to daily PAC practices reveals not only how abortion politics ironically suppress the very rates of MVA utilization that purportedly convey the quality of PAC, but also how they simultaneously engender and obscure the systematic neglect of women's safety, comfort, and dignity, or what scholars define as "obstetric violence" (Heller, 2018; Zacher Dixon, 2015).

Research Methods

This article draws on findings from an ethnography of Senegal's PAC program conducted over 13 months between 2010 and 2011. Data collection methods included observation of PAC services, technologies, and records at three government hospitals; in-depth, semi-structured interviews with 66 health workers, MOH officials, and personnel from donor agencies and NGOs; a review of illegal abortion reported by the press during the fieldwork period; and a review of national and global abortion and PAC research from the early 1990s until the present. Research ethics approval was obtained from the Comite National d'Ethique pour la Recherche en Santé (CNRS) of the MOH and Columbia University.

I observed PAC services at three MOH facilities in three different regions: a regional hospital in the administrative capital of the first study region (Hospital 1), a district hospital in a rural district of the second study region (Hospital 2), and a district hospital in a peri-urban district of the third study region (Hospital 3). At each hospital, along with a research assistant, I shadowed health workers as they performed clinical, technological, and record-keeping duties related to PAC. We observed how health workers conducted these duties in specialized MVA rooms and the delivery room of the maternity ward. I documented my observations in a notebook and later typed these field notes into Word documents and coded them thematically with Atlas.ti software. We reviewed several years of PAC registers in the maternity ward and annual PAC statistics from hospital administration. For each case in the PAC register, we collected information on abortion type, method of uterine evacuation, and the health worker's professional status. We reviewed annual hospital reports for total numbers of abortions treated, abortion type, and method of uterine evacuation. I copied PAC data from PAC registers and annual hospital reports into a notebook and transferred them into Excel files to generate descriptive statistics.

I recruited interviewees through purposive and snowball sampling. Among the 36 health workers I interviewed, five were stationed in facilities where I did not observe PAC (a district hospital and a primary health care clinic in the first study region, and a regional hospital and two primary health care clinics in the second study region). Interviews were recorded manually or with a digital recorder, transcribed into French and English, and coded thematically using Atlas.ti. I use pseudonyms to protect the identities of study participants.

Additionally, I do not reveal the names or geographic locations of the three study hospitals, referring to them instead as Hospitals 1, 2, and 3.

Abortion and PAC Policies in Senegal

Senegal's penal code prohibits induced abortion under any circumstance. Consequently, women seek clandestine abortion services from trained health workers and lay practitioners and practice self-abortion. Although nearly 55% of Senegalese women who procure an induced abortion are estimated to experience complications, nearly 42% do not receive medical treatment. Low-income and rural women are even less likely to receive care: up to 41% of low-income rural women and 32% of low-income urban women with complications do not receive care (Sedgh et al., 2015). An estimated 32% of women in prisons have been prosecuted for induced abortion or infanticide (Iaccino, 2014). In 2014, a Task Force assembled by the Division de la Santé de la Reproduction of the MOH drafted a bill on safe abortion that used the language of the Maputo Protocol, ratified by Senegal in 2005, which calls for legal abortion in the case of rape, incest, or to preserve the life or health of the pregnant woman. Although the bill has been presented to the MOH and to the Committee for the Reform of the Criminal Code, to date no action has been taken to change the abortion law (Archer, Finden, & Pearson 2018).

As a signatory to the 1994 ICPD, the Senegalese government recognizes PAC as a legitimate package of obstetric services. Along with Burkina Faso, Senegal was one of the first countries in Francophone West Africa to pilot PAC in tertiary hospitals and extend it to district hospitals. The MOH authorized a pilot study between 1997 and 1998 in three large hospitals in the capital city, during which midwives were trained in MVA and to offer contraceptive counseling and method provision during and after treatment. By the end of the study, MVA accounted for over half (51%) of all PAC procedures; the average length of hospitalization declined by approximately 38 hours; and patient costs declined by about 8300 CFA (CEFOREP, 1998a).

Although the MOH integrated PAC into national norms and protocols for maternal and reproductive health in 1998, it recognized the need to extend MVA beyond large hospitals in urban zones to district hospitals. Between 2000 and 2002, in collaboration with EngenderHealth, the MOH piloted PAC at 6 district hospitals in two regions. By the end of the study period, nearly 60% of PAC patients had been treated with MVA (EngenderHealth, 2003). In another PAC pilot project, conducted in collaboration with Management Sciences for Health (MSH) in 23 district hospitals in 5 regions between 2003 and 2006, the proportion of patients treated with MVA nearly doubled from 27% to 53% (Thiam, Suh, & Moreira, 2006).

Although these data convey the increasing availability of MVA at government hospitals, the legal status of abortion has complicated wider distribution and utilization of the device. In a country where abortion is prohibited under any circumstance, the capacity of the MVA syringe to terminate pregnancy raised concerns that it would be used inappropriately in government hospitals (Suh, 2015; Suh, 2018a). To ensure that MVA was restricted to the

treatment of abortion complications, the MOH implemented several strategies to regulate the distribution and utilization of MVA within the health system.

First, the MOH developed a circulation system for MVA separate from the Pharmacie Nationale d'Approvisionnement (Touré et al, 2012). At the time of my fieldwork, a reproductive health NGO headquartered in Dakar purchased MVA syringes from a global distributor. Hospitals in need of new MVA kits had to send a representative to Dakar, obtain a signature from one of two high-level officials within the MOH's Division de la Santé de la Reproduction, and then purchase the syringe from the NGO (approximately 25, 000 CFA at the time of my fieldwork). Challenges in integrating MVA into national medical supply systems have been documented in other countries with restrictive abortion laws, including Guatemala, Honduras, Bolivia, Guinea, Mexico, Niger, Malawi, Mali, and Burkina Faso (Billings et al., 2007; Chinchilla, Flores, & Morales, 2014; Dieng et al., 2008; Kestler et al., 2006; Cook, de Kok, & Odland, 2017).

Second, the MOH limited the integration of MVA training into national medical education curricula. Although physicians and midwives receive hands-on training in digital evacuation, MVA training remains theoretical in nature (Diadhiou et al., 2008). Physicians and midwives have received practical MVA training through special seminars funded by NGOs and on-the-job training (Thiam, Suh & Moreira, 2006).

Third, the MOH has restricted MVA utilization to doctors and midwives at regional hospitals (tertiary facilities in regional capital cities) and district hospitals (secondary facilities in district capital cities). Midwives and nurses at primary health care clinics in rural communities are required to use digital evacuation or refer women to the closest hospital for MVA (Touré et al, 2012) MOH officials explained that these restrictions were designed to prevent the abuse of MVA in primary health care clinics, where nurses and midwives treat patients without direct supervision by physicians.

Finally, to monitor MVA utilization in authorized facilities, the MOH disseminated PAC registers that require health workers to specify the method of uterine evacuation, along with information on abortion type. Data from PAC registers are calculated into trimesterly and annual statistics by administrative personnel. These statistics are then transmitted to district, regional, and national health authorities.

Theoretical Significance

Since the inception of the Safe Motherhood Initiative in 1987, the global community has articulated its commitment to reducing maternal death as a matter of human rights. Although the number of global maternal deaths has declined since the mid-1990s (Kassebaum, Bertozzi-Villa, & Coggeshall, 2014), considerable debate remains regarding how to accomplish this goal more effectively. The global field of maternal health has experienced difficulty in establishing "techniques of inventory and intervention (p. 11)" (Adams, 2016) for calculating the epidemiological scope of maternal death, and for determining which interventions "work (p. 57)" (Adams, 2013) in reducing maternal death (Storeng & Behague, 2014). Maternal health scientists have referred to these problems as part of the

"measurement trap" of maternal health (Graham & Campbell, 1992), in which the scarcity of data suppresses political will to invest in infrastructure, equipment, and human resources for maternal health care.

Maternal health scientists and advocates have struggled to respond to the quantification of global health, in which donor funding and support increasingly hinge upon the capacity to generate statistically accurate data on the impact and cost-effectiveness of health interventions. Where quasi-experimental research methodologies once produced acceptable evidence that an intervention "worked," now randomized controlled trials are necessary to show that improvements in health outcomes associated with an intervention are not due to chance (Adams, 2016). The Safe Motherhood Initiative, which initially conceptualized global disparities in maternal death as markers of gender, race, and class inequalities, and called for multi-sectoral approaches to maternal mortality reduction, has over time "narrowed" its evidence base of what works to highly targeted, pharmaceutical interventions such as Misoprostol for postpartum hemorrhage and magnesium sulphate for eclampsia (Storeng & Behague, 2014).

The SMI's shift from social justice to "evidence-based" advocacy goes hand in hand with what anthropologist Claire Wendland has termed a "fetishization (p. 74)" of maternal health statistics, in which metrics like the maternal mortality ratio (MMR) are "imbued (p. 75)" with power to represent neatly assembled facts about maternal health in any given country (Wendland, 2016). These facts signal compliance with national and global maternal mortality reduction goals and commitment to human rights discourses related to health (Merry, 2016). At the same time, the increasing imperative to generate statistically rigorous MMRs can obscure structural inequalities that render women in developing countries vulnerable to dying preventable deaths. Some maternal health experts have criticized the emphasis on MMRs, arguing that efforts should be directed instead to calculating process indicators that offer health experts in developing countries more localized and immediate representations of the availability and quality of health services (Storeng & Béhague, 2017).

Ethnographies of maternal health care in developing countries reveal how maternal health statistics do much more than "account" for clinical care and health outcomes in hospitals. To the contrary, numbers - and the fashion in which they are assembled - can "elide clinical realities, compromise care, and hide some kinds of death (p. 99)" (Oni-Orisan 2016) as health workers, hospital managers, health officials, and politicians endeavor to demonstrate compliance with national and global goals for maternal mortality reduction. Deaths that happen while the pregnant woman is "in transit" may be omitted from hospital records to keep maternal mortality statistics low (Adams, 2005; Oni-Orisan, 2016). Declines in maternal mortality can be leveraged to attract additional donor funding to health programs and, in some cases, to re-elect regional or national politicians (Oni-Orisan, 2016; Wendland, 2016). Numbers are thus powerful in their ability to convey good governance, which is in turn rewarded through investment and contracts that keep programs afloat and people employed (Erikson, 2012).

Despite growing interest in the "techniques of inventory" in global maternal health, less attention has been directed to the clinical technologies that, through their application to or

withholding from patients' bodies, generate health statistics. Critical scholars of global health have used the term "magic bullet" to describe approaches to health problems that revolve around a narrowly-targeted drug or intervention with little attention to the larger context of implementation (Biehl, 2007; Cueto, 2013). Although magic bullet drugs or interventions may generate rigorous statistics, these numbers offer little insight into how these technologies are used (or not) in daily practice. In the field of maternal and reproductive health, scholars have critiqued donor-controlled, target-oriented approaches to family planning that fail to account for the social, political, and economic context of women's fertility decisions (Foley, 2007; Krause & De Zordo, 2012). More recently, medical anthropologists have challenged global narratives that portray surgical interventions as the solution to the problem of obstetric fistula, arguing not only that surgical outcomes are "ambiguous (p. 3)" but also that such interventions fail to address the underlying inequalities that give rise to fistula in the first place (Heller & Hannig, 2017).

Rising rates of MVA utilization say little about the contested origins of this device, and how its capacity to terminate pregnancy has complicated its integration into routine obstetric practice in countries with restrictive abortion laws. Feminist scholars of science and technology studies (STS) have demonstrated how reproductive technologies like the Intrauterine Device (IUD) were deployed to accomplish neo-colonial goals of population control in developing countries starting in the mid-twentieth century (Takeshita, 2012). The MVA syringe was included in the USAID's population control toolkit under the euphemism of "menstrual regulation." While European and American medical professionals and lay practitioners had been experimenting with suction devices for abortion since the mid-nineteenth century, the USAID's Office of Population endorsed a prototype that had been developed by Harvey Karman, a clandestine abortion provider in California during the 1960s. The MVA syringe was the perfect device to conduct menstrual regulation in developing countries because it could be used by midlevel professionals in low-resource clinical settings. In addition to distributing MVA through family planning networks, the USAID handed the syringe out directly to health workers during regional conferences (Murphy, 2012).

With the 1973 passage of the Helms Amendment, which prohibited the use of federal funds to "promote abortion as a form of family planning (Barot, 2013)," the USAID delegated MVA research, procurement, and distribution to family planning organizations. By the early 1990s, one of these organizations, Ipas, had distributed MVA in over 100 countries (Adams, 2018). The USAID has provided PAC support in the form of health worker training and supervision, program monitoring and evaluation, and policy advocacy in over 40 countries. Under the 1973 Helms Amendment, however, MVA's capacity to terminate pregnancy prohibits the USAID from procuring the device for the PAC programs that it supports (Curtis, 2008). The isolation of MVA from USAID procurement channels remains in place regardless of the status of the 1984 Mexico City Policy (also known as the Global Gag Rule), recently reinstated in 2017 by President Donald Trump, which prohibits the application of federal dollars to abortion-related services, advocacy, research, and referrals (Starrs, 2017). For many years following the introduction of the PAC model, organizations like Ipas donated initial supplies of MVA to Ministries of Health. In turn, health authorities, and at times, individual hospitals, have developed a variety of strategies to procure MVA

from global and national distributors (Billings et al., 2007; Chinchilla, Flores, & Morales, 2014; Dieng et al., 2008; Kestler et al., 2006).

Given that most mortality from unsafe abortion occurs in the global South, and in sub-Saharan Africa in particular (Faúndes & Shah, 2015; WHO, 2011), there is an urgent need to situate both "techniques of inventory" and "magic bullet" abortion technologies and interventions like PAC and MVA that generate statistics within global politics of maternal and reproductive health. In this article, I demonstrate how health professionals' negotiation of national and global abortion policies shapes the utilization of MVA technology in ways that compromise quality of care and, ironically, suppress the production of indicators that convey adherence to reproductive rights.

Findings

Table 1 displays the proportion of cases treated with MVA and digital evacuation at the three study hospitals between 2004 and 2010. Despite the preponderance of MVA at all three hospitals, a considerable proportion of PAC cases was treated with digital evacuation. In 2010, for example, digital evacuation accounted for between 13% and 37% of PAC cases. At the time of my fieldwork, MVA services at district hospitals cost about 5000 CFA, while digital evacuation cost about 3000 CFA. These estimates do not include the cost of other supplies such as gloves, antiseptic, supplies of intravenous solution, and pain medication that patients are required to purchase before receiving treatment.

PAC in Regional and District Hospitals

At Hospital 1, a tertiary regional hospital in the first study region, midwives were responsible for conducting uterine aspiration services around the clock. They conducted uterine aspiration, mostly electric vacuum aspiration (EVA) but sometimes MVA, in a separate room in the maternity ward, while digital evacuation occurred in the delivery room. EVA and MVA are equivalent in safety and effectiveness (WHO, 2012). Elsewhere, I explain why midwives at Hospital 1 routinely referred to and recorded EVA as MVA (Suh, 2015). Midwives attached plastic MVA cannulas to the single electric aspirator available in the maternity ward. Among the 8 midwives I interviewed at this hospital, three had received MVA training from an NGO seminar, and the rest were trained onsite in EVA.

Fieldwork at Hospital 1 illustrated how shortages in aspiration material intersected with midwives' training backgrounds in ways that exposed women to digital evacuation who would otherwise have been eligible for MVA. Mme Gassama, for example, revealed that she'd never used the MVA syringe. She did not find this unusual as midwives "always use the (electric) aspirator here." The head midwife, Mme Mbaye, explained that midwives used EVA because it was "faster" than MVA. She went on to reveal, however, that most midwives "haven't even tried the syringe," and that "only doctors use it because they were trained."

Despite midwives' familiarity with EVA, they acknowledged significant challenges in the daily utilization of this material. First, there was the problem of quantity. "There should be more than one aspirator," said Mme Mbaye. "Right now, we have one that we use both for newborns and for aspiration." Second, the lack of additional aspirators compromised the

quality of the sole device in use. “The aspirator doesn’t work all the time,” said Mme Gassama. “In fact, it often doesn’t work. It was already here when I started working at the hospital.”

In addition to a malfunctioning aspirator, midwives contended with an inadequate number of cannulas. “We have the essentials,” said Mme Coly, “but if we had more it would be better. We need more cannulas and more sizes.” Mme Gassama concurred, saying: “Sometimes you can’t find the size you need, so you have to let the head midwife know. Possibly they were displaced, or left in some water during cleaning.” Mme Ndour explained how “problems with the shortage in material” directly affected patient care:

> In general, the cannulas, it’s really the smallest ones that are used most frequently. There are different sizes. If you receive, for example, three people at the same time, it’s certain that with the third person, you’ll have problems. She will stay a long time, because you have to sterilize the material before using it with the third woman.

During an interview with Mme Koulibaly, one of the supervisory midwives at Hospital 1, she unlocked her closet and showed me a brand new MVA syringe with an accompanying set of cannulas and a bag with heavily used and broken cannulas. When I asked her why she kept the dysfunctional cannulas, she explained that simply “throwing them away” could facilitate illicit utilization of the material for “other purposes.”

While the single aspirator and the handful of smaller cannulas are either broken, missing, or being sterilized, women experience delays in receiving EVA that may result in treatment with digital evacuation. In the same way that midwives find EVA faster than MVA because it is electrically powered (Suh 2015), they may prefer digital evacuation over EVA because it does not require manipulation of technology. Mme Mbodji, a midwife at Hospital 3, smiled as she showed me her hands, and said, “well, for digital evacuation, we have our fingers.”

Although the district hospital in the first study region was authorized to offer MVA services, Mme Kanté, the head midwife, was trained only in digital evacuation. She explained that she provided this service in situations where the patient’s cervix was open enough to introduce her fingers to the uterus. Otherwise, she referred women to Hospital 1 for EVA. Some of these patients, however, might have been treated with digital evacuation because of delays related to sterilization or the malfunctioning aspirator. If Mme Kanté at the district hospital were trained in MVA, and the hospital equipped with the device, she could have provided this service.

At Hospital 2, a small district hospital where midwives performed both MVA and digital evacuation in the three-bed delivery room, three out of the four midwives I interviewed had received MVA training in a seminar. Yet, problems with MVA equipment contributed to the persistence of digital evacuation in this facility. Similar to Hospital 1, where only one electric aspirator was available, only one MVA kit was available for several shifts of midwives. Midwives complained about the state of the syringe, which was used so frequently that it required medical tape to hold the head in place and lubrication with Vitamin E oil to facilitate the movement of the plunger in and out of the barrel. One

midwife, Mme Sakho, expressed frustration over the deteriorated state of the MVA syringe, arguing that the facility could afford to replace the device more frequently given the cost of treatment. “The syringe should be used for 25 patients,” she said. “But we don’t respect that here. We charge patients 10,000 for aspiration. With two patients, we could pay for a new syringe. I don’t know why they don’t replace them more often.”

Although the official shelf life of the MVA syringe is estimated at 25 cases, PAC experts believe that with careful use it can last up to 100 performances (Hudgins & Abernathy, 2008). Dr. Diatta, the head gynecologist at Hospital 1, concurred with this position when he said: “There’s a rhythm to the utilization of the material. If it’s someone experienced, they can make it last for a long time.” In just two months of observation at Hospital 2, however, the sole MVA syringe in circulation was used during 74 procedures (Suh, 2015). Dr. Sylla, the head gynecologist at Hospital 2, explained that while she had additional syringes in her office, she preferred to leave only one in circulation that would be replaced as needed. “The material shouldn’t be available to everyone,” she said. By restricting the circulation of the device, she aimed to ensure that it was used only for PAC and not abortion. In contrast, research in Pakistan shows that concerns about the expense of regularly replacing MVA may discourage health workers from using the device. In some hospitals, health workers preferred to practice sharp curettage because the material did not require replacement as frequently, even though in the long run MVA is less costly for hospitals (Zaidi et al 2014).

The state of the sole syringe in circulation suggested that patients at Hospital 2 were regularly exposed to a deteriorated syringe. Additionally, the lack of alternative syringes increased the likelihood that women would experience delays as the syringe and its cannulas were being sterilized. In such situations, midwives might have resorted to digital evacuation to ensure that patients received timely treatment. Even in a facility where a considerable number of midwives had received on-site and specialized MVA training, the limited availability of the technology meant that digital evacuation continued to be used.

At Hospital 3, a large district hospital, physicians rather than midwives provided the bulk of MVA services in a separate MVA room, while midwives practiced digital evacuation in the delivery room. Mme Sène, the head midwife, offered several reasons for this division of labor:

> Many of the midwives in the delivery room are not trained in MVA... In addition, with the burden of work that we have in the delivery room, we wouldn’t be able to leave and go to the MVA room. This is also a training center with a lot of doctors in training. There are many of them to do MVA.

Part of the “burden of work” Mme Sène refers to, however, may be related to the hospital’s MVA policies about who could use MVA, when, and where. Mme Ndir, a midwife, explained that a previous head gynecologist had forbidden midwives-even those trained in MVA- to use the device, because he suspected that some might engage in illicit abortion practices. She recalled that he had told the midwives in the delivery room that he did not “trust” all of them. Additionally, Hospital 3 restricted MVA services to weekdays between 9 am and 4 pm, when senior physicians were making their rounds and actively supervising medical residents. This time restriction aimed to keep MVA, in Mme Sène’s words,

"secure": to ensure that the MVA syringe was used only for PAC and not illegal abortion. Along with the division of uterine evacuation labor between physicians and midwives, however, this policy also increased the likelihood that women seeking care on weekends or weeknights would receive either digital evacuation or sharp curettage.

The restriction of MVA to physicians during weekdays limited the number of cases that could be treated each day, despite the considerable number of doctors trained in MVA. Mme Mbodji, a midwife at Hospital 3, said:

> We have a huge coverage zone. Sometimes we have to send a woman away because there are many other patients, from other zones. And the woman may even be from our zone! If we have 8 patients for MVA, we may have to send one away, or tell her to come back the next day.

Additionally, the state of the woman's cervix determined whether the woman received MVA or digital evacuation, or whether she received treatment all. "Sometimes," Mme. Mbodji explained, "women are sent away because the cervix is not open enough for MVA."

Delays in treatment also occurred when midwives and physicians did not agree on whether a case should be treated with MVA or digital evacuation. One afternoon, after conducting MVA procedures on two patients, Dr. Thiam experienced difficulty inserting the smallest cannula into the cervix of the third patient. He told my research assistant and I that the cervix was closed, and that he couldn't do the procedure. "If the midwives in the delivery room encounter a woman with a closed cervix," Dr. Thiam explained, "they're supposed to consult with the head doctor of the shift before sending her to get MVA." About five minutes later, he tried to reinsert the cannula, to little avail. Dr. Thiam removed the cannula and the speculum and told the woman to return to the delivery room. When we asked the midwife (who had accompanied the patient to the MVA room earlier) about the case later in the afternoon, she explained that this particular doctor was always complaining about the cervix being closed "so that he didn't have to do the work." A few days later, Dr. Thiam used the largest size cannula to conduct an MVA procedure on another patient. "The midwives should have treated this case with digital evacuation," he told us, not only because the patient's cervix was sufficiently dilated, but also "because there's not much blood."

PAC in Primary Health Care Clinics

Of the three midwives I interviewed at primary health care clinics in the first and second study regions, two (Mme Kouyaté and Mme Diongue) had received specialized MVA training at a seminar and one (Mme Seck) had been trained only in digital evacuation. They explained that if the cervix was open and the abortion was "imminent," they practiced digital evacuation. If the woman's cervix was closed, they referred the patient to the closest hospital for MVA. If women arrived at a primary health care clinic in what Mme Kouyaté referred to as "bad shape"-unconscious or hemorrhaging- midwives evacuated them immediately to the hospital. If they suspected that the patient had procured an illegal abortion, they also referred her immediately to the closest hospital.

All three midwives expressed frustration with referrals. They often went to great lengths to help patients and their families secure transportation to the nearest hospital, a process that frequently led to delays in care. “Not being able to treat these cases, having to refer them, is a real problem,” said Mme Seck. “We have to use bush taxis, which is hard, especially at night. You can call the number they give you but it’s not in service or you get voicemail. So we have to wait until we find some form of transportation.” A recent survey of PAC facilities in Senegal estimated that between 2007 and 2015, only 50% of primary health care clinics had a vehicle (supplied with fuel) for evacuation, and only 30% had the means to communicate with a referral facility (Owalabi, Biddlecom, & Whitehead, 2018). Midwives recognized that the additional financial burden posed by referrals, beyond the cost of reaching the primary health care clinic, could result in delays in care. Mme Camara, a district health official in the second study region, explained:

> Some will stay at home. They won’t come because they don’t have the means to travel. If a woman is told she has to go all the way to the district hospital, she may wait two or three days before going, and that’s plenty of time to become infected.

For the two midwives trained and experienced in MVA, the MOH’s MVA policy was particularly frustrating, and they argued in favor of extending MVA to primary health care clinics. Mme Kouyaté, who worked at a primary health care clinic in the same study region as Hospital 1, had previously provided MVA while posted at the same district hospital in the first study region as Mme Kanté. “Here, I don’t have the material, so I refer,” Mme Kouyaté said. “I received an MVA kit during training, and I used it at the district hospital. But when I left the district hospital to come here, I left the MVA kit there.”

Several midwives believed that authorizing primary health care clinics to use MVA would ease the PAC caseload at district and regional hospitals, where patients may end up being treated with digital evacuation anyway. “The hospitals are overcrowded, they receive many cases,” said Mme Kanté at the district hospital in the first study region. “The primary health care clinics are more accessible to the population. Midwives in these facilities should be trained in MVA.” Mme Mbodji at Hospital 3 also favored this approach. “It would be good if they practiced MVA in the primary health care clinics,” she said. “It would relieve the workload here.”

Certainly, midwives recognized that extending MVA services to primary health care clinics would require upgrading not only health workers’ skills, but also the technical environment of these facilities. MVA services required ultrasound machines, material for sterilization, and access to a blood supply in case of hemorrhage. Mme Seck explained:

> Treating complications with MVA is hard. If the patient needs a blood transfusion, we have no blood, we can’t do it. It’s good for midwives to be trained in MVA, but it has to be accompanied with infrastructure and equipment. We’re so far away from the hospital here.

While many of the MOH officials I interviewed agreed that the technical environment of primary health care clinics precluded the extension of MVA to these facilities, misalignments between health workers’ training and deployment and gaps in the availability and quality of aspiration material limited the provision of MVA even at facilities authorized

to provide MVA services. One of the physicians at Hospital 3, Dr. Sarr, explained that at his district hospital in a southeastern region of the country, “they only had digital evacuation,” because “the technical capacity was not sufficient” to practice MVA or EVA. Like Mme Kanté at the district hospital in the first study region, midwives at his facility referred patients to the regional hospital for aspiration.

Multivalent PAC Statistics and the Disappearance of Digital Evacuation

Table 1 shows not only that digital evacuation accounted for an important part of PAC service provision, but also that health workers at the three study hospitals carefully documented this practice alongside MVA. Annual hospital statistics, derived from PAC registers in the maternity ward, calculated the total number of cases treated with MVA, digital evacuation, and sharp curettage. Yet, MOH officials frequently omitted this method from data collection instruments and their reflections on the indicators that mattered most in evaluating the impact of PAC. For example, when I asked Mme Dioussé, the regional coordinator for reproductive health in the first study region, if I could review some regional PAC statistics, she shared an Excel spreadsheet that displayed data from 2008 to 2010. While the table included statistics on the total number of women treated, the total treated with MVA, and the total who received contraceptive services, the column for the number treated with digital evacuation was empty. Mme Niang, an official in the MOH’s Division de la Santé de la Reproduction, omitted the proportion of cases treated with digital evacuation from her list of process indicators for evaluating PAC: the total number of cases treated and the proportion treated by MVA. Similarly, Dr Keïta, an official in the Division de la Santé de la Reproduction, expressed interest only in the proportion treated with MVA and who received family planning counseling.

Reports of early operations research documented the persistence of digital evacuation despite the introduction of MVA. The first study, conducted between 1997 and 1998 in three maternity hospitals in Dakar in collaboration with the Population Council and JHPIEGO (an affiliate of Johns Hopkins University), showed that while over half of patients had been treated with MVA, digital evacuation continued to account for a quarter of cases (CEFOREP, 1998a). During a study conducted in collaboration with EngenderHealth, from August 2001 to September 2002 in 6 district hospitals in two regions, 57% of clients eligible for MVA (under 14 weeks of gestation) received this service, but 32% of MVA-eligible clients received digital evacuation. Among all PAC patients during this period, over half (52%) were treated with digital evacuation (EngenderHealth, 2003). These early reports suggested that difficulties in procuring MVA and a lack of trained providers contributed to the persistence of digital evacuation.

By the mid-2000s, however, data on digital evacuation featured less prominently in reports of PAC research. An evaluation of the largest PAC operations research project in 23 health districts between 2003 and 2006, conducted in collaboration with Management Sciences for Health, reported the proportion of patients treated with MVA during the intervention, but did not include the proportion treated with digital evacuation (Thiam, Suh, & Moreira, 2006). Another evaluation of the Management Sciences for Health intervention, conducted by the Population Council in 7 district hospitals and two regional hospitals between January and

June of 2006, expressed “surprise” that between 23 and 28% of cases were treated with digital evacuation (Population Council, 2007).

While reports of operations research acknowledged the practice of digital evacuation in Senegal, global reports and evaluations have omitted digital evacuation altogether from reviews of PAC evidence. Publications in 1994 and 2003 on the clinical and programmatic aspects of PAC advocate for the substitution of sharp curettage with EVA or MVA, but do not mention digital evacuation (Corbett & Turner, 2003; Greenslade et al., 1994). A technical brief on the USAID-supported decentralization of PAC in Senegal and Tanzania states that with trained and supervised personnel and available supplies, MVA can be “successfully provided (p. 2)” in health centers (Curtis, 2008). The brief does not mention digital evacuation in Senegalese health facilities. Two policy briefs released in 2014 by the USAID-supported Evidence to Action for Strengthened Reproductive Health project share data on the total number of patients receiving treatment and contraceptive services at two regional hospitals in Senegal between 2008 and 2012 (E2A, 2014; Fikree, Mugore, & Forrester, 2014). Although the reports mention the need to improve the distribution of MVA kits, they do not acknowledge other forms of uterine evacuation in use at health facilities.

In 2016, a group of PAC experts published a review of “20 years” of global PAC evidence (Huber et al., 2016). The article shows that MVA and Misoprostol are safer, less painful, and more cost-effective than sharp curettage. Although they include data on the decentralization of PAC in Senegal, there is no mention of the persistence of digital evacuation. In fact, digital evacuation never appears in this review of global PAC evidence.

In 2018, *The Lancet Global Health* published an assessment of PAC services between 2007 and 2017 in primary- and referral-level facilities in 10 developing countries. The study found significant gaps in health systems’ capacity to offer basic and comprehensive PAC. For example, in 7 out of the 10 countries, less than 10% of primary-level facilities could offer basic PAC, including uterine evacuation (Owalabi, Biddlecom, & Whitehead 2018). Senegal was included in this study and demonstrated admirable indicators with respect to uterine evacuation: 84% of primary care facilities and 86% of referral-level facilities reported the capacity to conduct uterine evacuation. These process indicators, however, do not distinguish between the types of uterine evacuation techniques practiced at these facilities: MVA, sharp curettage, or digital evacuation.

Discussion

Concerns about the possibility of MVA abuse have given rise to formal and informal policies that constrain the distribution and utilization of the device, thereby compromising the quality and affordability of care. These policies withhold MVA from women seeking care at the lowest level of the health system; impose the cost of referral between primary health care clinics and district and regional hospitals on patients and their families; expose women to deteriorated MVA syringes; generate delays in MVA treatment that range from several hours to days; and increase the likelihood of treatment with digital evacuation at facilities authorized to use MVA. Digital evacuation may be practiced without pain medication and takes place in the delivery room, which in many health facilities offers little privacy in a

context where women seek discretion in matters related to abortion, pregnancy, and delivery (Foley, 2007; Jaffré & Olivier de Sardan, 2003).

The privileging of MVA's "security" over quality of care must be situated within politics of gender, abortion, and evidence in the global field of maternal and reproductive health. Although PAC is less cost-effective for women and health systems than offering safe abortion (Henshaw et al., 2008; Parmar et al., 2015; Vlassoff et al., 2014), PAC rather than safe abortion has been incorporated into global treaties for maternal mortality reduction and reproductive rights since 1994 (Suh 2018a; Suh, 2018b). It represents an "ambiguous consensus (p. 951)" (Storeng & Ouattara, 2014) in which global and national health stakeholders may be reluctant to revise abortion laws and incorporate abortion technology into funding policies and medical supply systems, but are purportedly committed to the survival of women who have resorted to unsafe abortion to terminate unwanted pregnancy (Suh, 2018b). Throughout multiple scales of reproductive health practice and intervention - from the hospital to national and global policy - women's reproductive needs and safety are subordinated to the political rationales of national and global stakeholders, which, although grounded in the language of reproductive rights, may not always adhere to epidemiological evidence about the relationship between legal abortion and maternal mortality (Faúndes & Shah, 2015) or about the financial burden posed by PAC on hospitals, health systems, and patients.

Critical scholars of global health have documented how the pressure to generate statistics on impact and cost-effectiveness - and health workers' obligations to supply these numbers to the MOH, international NGOs and donors - may outweigh the professional acts and responsibilities of caregiving itself and generate inaccurate accounts of care (McKay 2012; Melberg et al., 2018; Oni-Orisan 2016). In Senegal, health workers carefully documented the method of uterine evacuation conducted on each PAC patient. Digital evacuation appeared consistently throughout PAC registers in the hospitals where I conducted research because it remained an essential part of the obstetric toolkit in situations where health workers had not received MVA training, where they faced high patient caseloads, and where they lacked access to an adequate supply of functional MVA material.

By omitting health workers' inscriptions of digital evacuation from evaluations and reports of PAC, however, national and global stakeholders generate profoundly incomplete accounts of what it means to provide and experience PAC throughout the health system. The invisibility of digital evacuation must be situated within a global landscape of reproductive health governance, in which some indicators are privileged over others as objective portrayals of maternal health (Merry 2016; Wendland 2016), and in which donors increasingly privilege the development of ever more sophisticated estimates of maternal mortality over health systems strengthening (Storeng & Béhague 2017). The imperative to demonstrate rising PAC indicators is revealed by a recent Commentary in *The Lancet Global Health* that cites recently documented gaps in PAC provision around the world (Owalabi, Biddlecom, & Whitehead 2018) as evidence of "missed opportunities in women's health (p. e12)" and urges policymakers to "increase the provision (p. e12)" of PAC (Temmermans 2018).

My fieldwork suggests that failing to account for digital evacuation, especially when health workers rigorously document this practice, represents a "missed opportunity" not only to generate regional and national evaluations of PAC that could lead to more effective MVA policies, but also to contribute to global discussions around the quality of abortion care. Even during the early stages of PAC, stakeholders acknowledged the limitations of equating MVA use with quality of care. For example, a study conducted in Mexico City during the late 1990s found that women did not consistently rate PAC delivered via MVA higher than PAC delivered via sharp curettage (Billings, Velásquez, & Pérez-Cuevas, 2003). More recently, although there is considerable variation in what constitutes quality abortion care, there is growing recognition of the need to move beyond process indicators of technical skills and clinical environment to incorporate patients' expectations and desires related to wait time, pain management, and empathetic and respectful treatment by health workers (Dennis, Blanchard, & Bessenaar, 2017; McLemore et al., 2014).

The proportion of PAC patients treated with MVA could be higher if the syringe were procurable through the Pharmacie Nationale d'Approvisionnement, if practical MVA training were integrated into standard curricula for health workers, and if primary health care clinics were authorized and equipped to provide these services. Nevertheless, MVA statistics accomplish important political goals in a complex global landscape of reproductive politics. Elsewhere, I have shown how health workers systematically disguise suspected cases of induced abortion as miscarriage in medical records to protect their patients and themselves from police investigations at the hospital (Suh 2014). In a context where abortion is altogether prohibited and USAID funding policies prohibit abortion research and advocacy, health officials and NGO personnel have deployed these data to define PAC as the clinical management of miscarriage among presumably expectant mothers, thereby aligning PAC with the global Safe Motherhood campaign (Suh 2018a; Suh 2018b). While hospital data on abortion type have allowed PAC stakeholders to pragmatically define *what* PAC does, and to *whom*, MVA data have quantified *how* PAC accomplishes these goals by counting the number of times the technology has been used on the bodies of PAC patients.

Conclusion

Troublingly, the metrics that matter most in displaying commitments to rights-based care say very little about how women actually experience PAC, if they are able to reach a health facility. Every year, nearly 7 million women are treated for complications of unsafe abortion in hospitals in developing countries (Singh & Maddow-Zimet, 2016). Along with the financial costs Senegalese women pay for PAC services, including transportation, gloves, pain medication, antiseptic, blood supplies, and hospitalization, their bodies bear the cost of restrictive abortion laws through exposure to less effective methods of uterine evacuation and dysfunctional equipment, delays in care, and humiliation and harassment when health workers are suspicious of illegal abortion. While MVA metrics have bolstered PAC's legitimacy as a Safe Motherhood intervention, they elide its imbrication with obstetric violence.

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Research Highlights

- Illustrates how restrictive abortion laws reduce the quality of post-abortion care
- Shows how post-abortion care indicators obscure gaps in access to and quality of care
- Demonstrates why less safe and effective obstetric techniques persist in hospitals
- Identifies policies and practices that constrain the use of manual vacuum aspiration
- Locates Senegal’s post-abortion care program in global reproductive health politics

Table 1:

Proportion of PAC cases treated with MVA or Digital Evacuation (DE) in Three Hospitals, 2004-2010.

	Hospital 1		Hospital 2		Hospital 3	
	MVA* (%)	DE (%)	MVA (%)	DE (%)	MVA (%)	DE (%)
2004	N/A**	N/A	35	20	N/A	N/A
2005	N/A	N/A	29	42	N/A	N/A
2006	52	20	41	51	52	31
2007	70	31	44	65	59	24
2008	66	31	53	48	65	26
2009	64	26	62	38	71	21
2010	49	37	77	26	64	13

* Hospital 1 routinely referred to and recorded EVA as MVA.

** N/A: data were unavailable from hospital administration.