

## Scaling-up a public health innovation: A comparative study of post-abortion care in Bolivia and Mexico

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### Abstract

Post-abortion care (PAC), an innovation for treating women with complications of unsafe abortion, has been introduced in public health systems around the world since the 1994 International Conference on Population and Development (ICPD). This article analyzes the process of scaling-up two of the three key elements of the original PAC model: providing prompt clinical treatment to women with abortion complications and offering post-abortion contraceptive counseling and methods in Bolivia and Mexico. The conceptual framework developed from this comparative analysis includes the environmental context for PAC scale-up; the major influences on start-up, expansion, and institutionalization of PAC; and the health, financial, and social impacts of institutionalization. Start-up in both Bolivia and Mexico was facilitated by innovative leaders or *catalyzers* who were committed to introducing PAC services into public health care settings, collaboration between international organizations and public health institutions, and financial resources. Important processes for successful PAC expansion included strengthening political commitment to PAC services through research, advocacy, and partnerships; improving health system capacity through training, supervision, and development of service guidelines; and facilitating health system access to essential technologies. Institutionalization of PAC has been more successful in Bolivia than Mexico, as measured by a series of proposed indicators. The positive health and financial impacts of PAC institutionalization have been partially measured in Bolivia and Mexico. Other hypotheses—that scaling-up PAC will significantly reduce maternal mortality and morbidity, decrease abortion-related stigma, and prepare the way for efforts to reform restrictive abortion laws and policies—have yet to be tested.

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### Introduction

Resources to achieve a wide range of challenging and ambitious health goals throughout the world are limited. Policy and key decision-makers, therefore, are drawn to successful interventions that can

be replicated on a large scale in a cost-effective manner. A public health innovation that appears to meet these criteria is post-abortion care (PAC). The PAC concept was developed in the early 1990s as a way to reduce maternal mortality and morbidity in countries where abortion laws are restrictive and women suffer disproportionately from the complications of unsafe abortion.<sup>1</sup> Global awareness and

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<sup>1</sup>A procedure for terminating an unwanted pregnancy, either by persons lacking the necessary skills, or in an environment lacking the minimal medical standards, or both (WHO, 1992).

support for PAC as a reproductive health intervention grew as a result of the International Conference on Population and Development (ICPD) in 1994.

Despite initiatives to implement PAC services post-ICPD, there has been little systematic documentation of PAC scale-up and its impact on women's lives, health services and systems, and society at-large (EngenderHealth & Ipas, 2001; Huntington & Nawar, 2003; USAID, 2004). The work presented in this article was prompted by the desire to begin to address this gap. The main objectives are to present a conceptual framework for PAC scale-up that is grounded in the experiences of two countries that have implemented significant PAC programs in their public health systems since ICPD—Bolivia and Mexico—and to assess the impact of PAC institutionalization through a series of selected health, financial and social indicators. The framework can help stakeholders aiming to implement and scale-up PAC services in different settings.

## Background

Despite evidence that making abortion services legal and accessible to women contributes to a decrease in maternal mortality (Jewkes & Rees, 2005; Meyer & Buescher, 1994; WHO, 2003), abortion continues to be legally restricted and inaccessible to women in many countries. Thus, unsafe abortion continues to be a serious public health problem. The World Health Organization estimates that approximately 19 million abortions performed each year are unsafe, resulting in roughly 68,000 women dying each year in the global south—or an estimated 13% of all maternal deaths globally (WHO, 2004).

PAC focuses on secondary prevention of maternal mortality, unwanted pregnancy and unsafe abortion. The three components of the original PAC model are (Greenslade, McKay, Wolf, & McLaurin, 1994):

- (1) *Prompt treatment* of women with complications of unsafe abortion using manual vacuum aspiration (MVA);
- (2) *Contraceptive counseling and methods* to help women achieve their reproductive intentions and avoid repeat unwanted pregnancies and abortions;
- (3) *Other reproductive health services*, offered on-site, or through referral, as needed by women.

The PAC model is a *package of interventions* that should be implemented as a whole (Westley & Eschen, 2000). Historically, virtually every public sector health system in the world has offered some minimal level of emergency care to women experiencing unsafe abortion complications, usually using sharp curettage (SC) as the method of uterine evacuation and typically with no linkages to other needed services. Studies and anecdotal evidence have exposed the poor quality of such care related, in large part, to abortion-related stigma. Examples include health facility staff chastising women for having aborted, denying care to women, reporting women who arrive with abortion complications to the police, and withholding the use of proper pain control during procedures to complete the abortion (HRW, 2005; McNaughton, Padilla, Hernández, de Hernández, & Ramírez, 2004; Solo, 2000).

Among the most important innovations in the PAC model is the use of vacuum aspiration (VA) (including MVA), the WHO-defined preferred technology for the treatment of incomplete abortion (1992, 2003). The PAC model also calls for changes in provider attitudes and practices so that women receive timely and humane treatment. PAC can be offered as an ambulatory service at all levels of care and can be provided by a range of cadres of health workers. Additionally, linking contraceptive and other reproductive health services with emergency services can work to meet women's full range of health needs. After almost a decade of experience, two elements have been added to the model: *general counseling* to respond to the full range of women's emotional and physical needs; and *community and service provider partnerships* to help mobilize resources for PAC and prevention of unsafe abortion (Corbett & Turner, 2003).

In this article, we dedicate most attention to the scale-up of the first two elements of the original PAC model of care, namely “emergency care” and “links to contraceptive services,” since these are the areas where most programmatic and operations research efforts have been focused. Thus, we recognize from the outset that when we refer to PAC in the following sections, we present a limited version of what ideally should be implemented.

## Methods

Analysis is based on case studies developed for each country by the authors, one of whom made site visits and conducted a total of 49 in-depth

interviews in Bolivia and Mexico with key health ministry and non-governmental organization (NGO) officials, health care providers, and advocates and researchers from a wide variety of organizations and institutions. Data also were drawn from organizational documents, especially project and trip reports from Ipas, an international NGO that has worked on initiatives to reduce abortion-related deaths and injuries since its founding in 1974. Other sources included journal articles, health service statistics, and policies and guidelines pertaining to each country.

Recurring themes that emerged from the data were identified and discussed among the co-authors, who also have in-depth experience with PAC research and programs in numerous countries. After successive iterations, themes were organized into the conceptual framework presented in Fig. 1, with its three key phases as well as the subcomponents of each phase. In the same way, the indicators of institutionalized PAC were defined. Thus, the framework and indicators are grounded in the data gathered from two scale-up countries as well as the analytic reflections of the co-authors.

### Conceptual framework for PAC scale-up in public sector health care systems

Although no consensus definition of “scale-up” exists in the literature, there is general agreement among researchers and practitioners that scaling-up does not simply refer to increasing the number of service-delivery points in any given place (Westley & Eschen, 2000). Rather, it is an interactive process in which different stakeholders participate to ensure that innovations have a deep and broad-based impact and are sustainable over time (DeJong, 2001; Smith & Colvin, 2000). When innovations are scaled-up, relevant institutions and organizations are modified in strategic ways, a greater number and range of people benefit, policies are put into practice, and social change takes place (ExpandNet, 2005). With these perspectives in mind, this study defines the process of scaling-up PAC as *institutionalizing comprehensive and high-quality PAC in national health systems in order to improve women’s access to care and their reproductive health*.

“Institutionalization” refers to sustainable integration of PAC into existing health systems as part of their regular service delivery. The words “comprehensive” and “high-quality” emphasize the

whole package of care. At a minimum, high-quality PAC refers to use of the core technological innovation, vacuum aspiration, for uterine evacuation and linkages to post-abortion contraception. This definition also maintains a focus on the end goal of improving women’s reproductive health.

In a pattern likely to be typical of innovations in public health systems, PAC-related work in the two case studies unfolded through several main phases, involving diverse partners and initiatives from the outset.

### How did PAC scale-up take place?

In their conceptual framework, Cooley and Kohl (2006) suggest three typologies for scaling-up: *replication*, *collaboration*, and *expansion*. Both collaboration and expansion best describe the ways in which PAC scale-up has taken place in Bolivia and Mexico. Collaboration through formal partnerships and strategic alliances between international NGOs and public health sector institutions have facilitated the efficient use of scarce human and financial resources. Expansion refers to “taking a model to scale by increasing the scope of operations of the organization that originally developed and piloted it” (Cooley & Kohl, 2006, p. 11). The PAC concept was developed over the years by a multidisciplinary group of actors, including representatives from health systems and international NGOs from around the world, while piloting PAC has always taken place in public health institutions in different countries. Expansion has taken place strategically in the public health sector where high numbers of women can be reached, especially in countries where the private sector remains small and mainly serves those with relatively high incomes.

### The conceptual framework

In the following sections, we discuss the environmental contextual variables that affect PAC scale-up in public sector health care systems, followed by discussion of the start-up, expansion and institutionalization phases for each case study country. As observed by Greenberg (2006), the environmental context influences the success or failure of innovations and the pace at which they are adopted at each stage of scale-up.

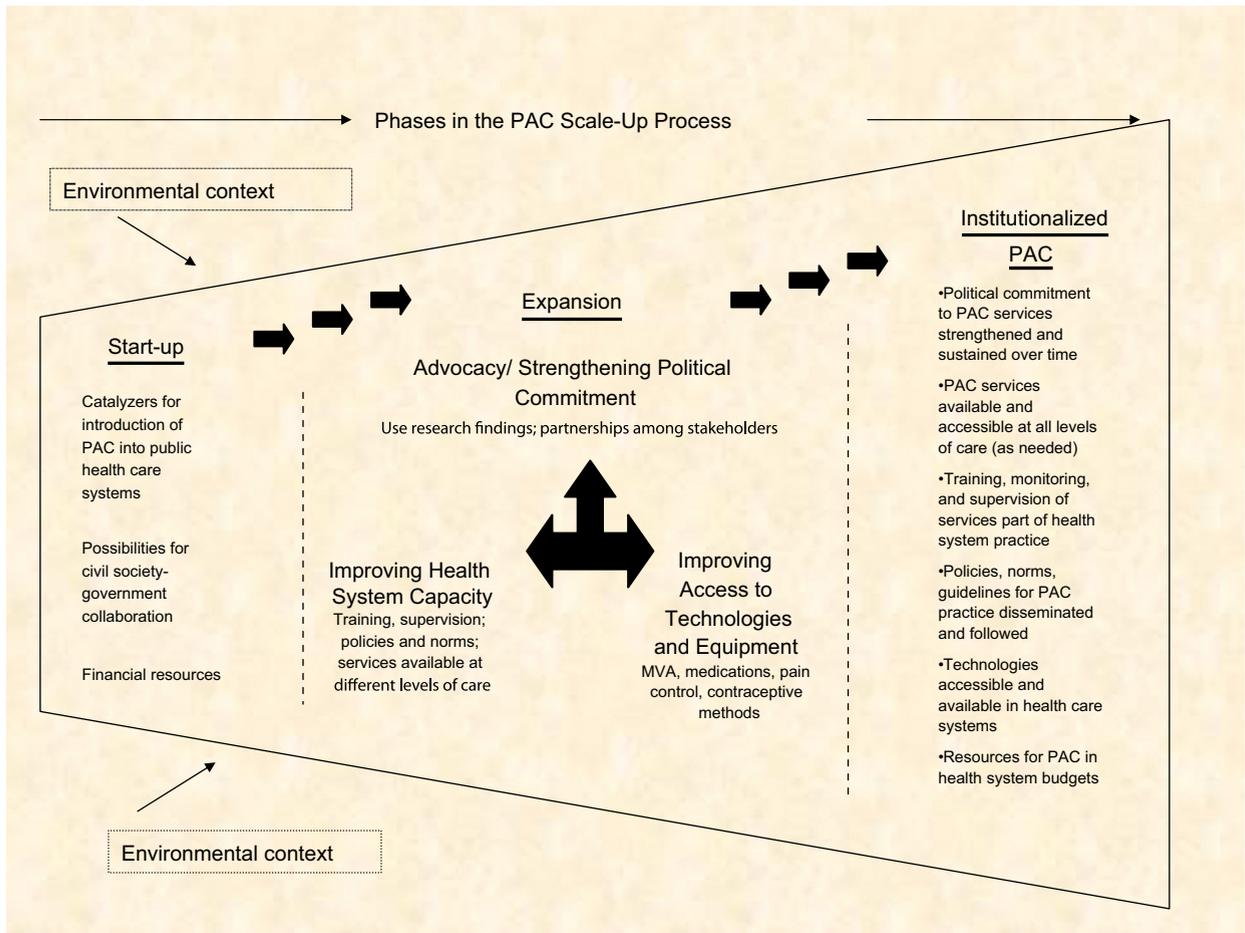


Fig. 1. Conceptual framework for PAC scale-up in public sector health care systems.

### *Environmental context*

Both Mexico and Bolivia have restrictive abortion laws. Together with abortion-related stigma, legal abortion services generally are inaccessible and unsafe abortion is made more likely. In this context, PAC is a politically palatable way to address the issue of abortion, distancing health systems from the controversy regarding safe abortion services and the exercise of women's reproductive rights (Rance, 2005). In some cases it may even retard initiatives to develop preventive interventions such as the provision of safe abortion. However, in the absence of political support for safe abortion, or until such support can be mobilized, providing comprehensive PAC services is a public health and human rights imperative.

The cost of providing PAC services is high for both Mexican and Bolivian public health systems. An estimated 515 million pesos (US\$50 million) was

spent on caring for women with abortion complications in Mexico's public sector in 2003, one of the highest expenditures among reproductive health care services (Avila, Cahuana, & Pérez, 2005). Studies in Bolivia have estimated the cost of care per PAC patient to hospitals to be an average of US\$71 when sharp curettage is used for uterine evacuation and \$30 when MVA is used (Billings, Del Pozo, & Arévalo, 2001). From 2000 to 2003, a total of 41,278 (16,186 with MVA and 25,092 with SC) women received PAC care in hospitals and health centers in nine Departments (Del Pozo, Morales, Del Barco, & Cornejo, 2005), resulting in an overall cost of over US\$2,200,000. Part of this cost is absorbed by Bolivia's national health insurance plan for maternal-child health services (Seguro Universal Materno Infantil, SUMI). Based on anecdotal evidence, misoprostol use by women is increasing, which is likely to result in less severe complications and further reductions in costs over time.

Health sector reform in both countries has led to decentralization of health care systems, presenting challenges to NGO–health sector partnerships. Mexico's advanced decentralization process has made negotiating with a variety of health systems, at different levels and state-by-state, expensive and time-consuming for NGOs throughout the history of PAC. Bolivia also has been undergoing intensive decentralization. In contrast to Mexico, collaboration with the central level Ministry of Health (MOH) from the outset of PAC programming resulted in positive advances. Follow-up at the departmental level to scale-up and sustain services has produced excellent results.

Table 1, which summarizes key demographic and abortion-related data for Bolivia and Mexico, clearly demonstrates key differences between the two countries with respect to population size, fertility, contraceptive use, overall maternal mortality, number of abortions, and maternal mortality due to unsafe abortion. In Bolivia, where maternal mortality is high and unsafe abortion a major contributor to such mortality, PAC is an obvious imperative, whereas arguments to strengthen or even maintain funding and political commitment to PAC programs in countries such as Mexico are more difficult, given competing health issues. Post-abortion family planning service delivery is challenging in Bolivia, where use of modern contraceptive methods is low and family planning programs are relatively new. In Mexico, contraceptive use is well established and supported by a strong national family planning program. However, contraceptive availability tends to be limited to permanent

methods and IUDs, offering women and their partners few options.

### The start-up phase—pre-1994

For PAC to “start-up” in public sector health services, policymakers and program managers need to be convinced that the innovation under discussion is a worthwhile investment (Cooley & Kohl, 2006; Shiffman, 2003). As conceptualized in Fig. 1, *catalyzers for the introduction of PAC* into public health care systems were strong, persuasive, and strategically positioned in both Bolivia and Mexico. These ‘catalyzers’ were poised to bring the issue of unsafe abortion and proposals for addressing it to national attention.

Programmatic efforts in Mexico to improve care offered to women with abortion complications were initiated in the late 1980s in the state of Michoacán by international NGOs and two of the three major health institutions, namely the Ministry of Health (SSa) and the Mexican Institute of Social Security (IMSS). Interventions focused on training physicians to use MVA to treat incomplete abortion and nurses to provide support to women and physicians, and process the instruments, and provide post-abortion contraceptive services.

In 1989, for the first time in Bolivia, reproductive health was recognized as distinct from maternal health and a national reproductive health program was created by the MOH. In that same year, key stakeholders in the MOH and the Episcopal Conference organized a public seminar on abortion, the conclusions of which supported the introduction

Table 1  
Demographic and abortion-related data for Bolivia and Mexico<sup>a</sup>

Country	Population (in millions)	Total Fertility Rate (TFR)	Married women aged 15–49 using modern contraceptive methods (%)	Maternal mortality ratio (MMR)/per 100,000 live births	Estimated annual number of abortions	Estimated maternal deaths caused by unsafe abortion (%)
Bolivia	8.9	3.8	27	390–416 <sup>b</sup> 229 <sup>c</sup>	30,000–67,000	25
Mexico	107.0	2.6	60	83	196,000–850,000	8

<sup>a</sup>Population and TFR: PRB, 2005; Contraceptive prevalence (Bolivia and Mexico): UNFPA, 2005; Maternal mortality ratio (Mexico): UNFPA, 2005; Estimated annual number of abortions: Bolivia: CRLP, 2001; Daulaire, Leidl, Mackin, Murphy, & Stark, 2002; Mexico: CONAPO, 2000; Daulaire et al., 2002; Percentage of maternal deaths caused by unsafe abortion: Bolivia: UNAP, 2001; Mexico: SSA, 1997.

<sup>b</sup>Direct method estimate, 1989–1994 (DHS Bolivia, 1994).

<sup>c</sup>Direct method estimate, 1998–2003 (DHS Bolivia, 2003).

of contraceptive services into public sector health services. With this event, notes one NGO activist, “the stage was set through awareness-raising and very careful, slow, cautious negotiation calling attention to maternal mortality.” Actual PAC interventions did not begin until post-ICPD in the late 1990s.

*Possibilities for NGO-government collaboration* were important to PAC start-up in both countries. International NGOs had access to resources needed to initiate PAC research, training, and programs. They developed materials, donated MVA instruments, and offered skills in training, research, and policy development to public sector institutions. At the same time, governments (and quasi-governmental entities like the IMSS) manage large public sector health institutions that reach significant percentages of both countries’ populations. Implementation of PAC as a new model of care in large institutions legitimized the model as effective and worthy of investment.

*Financial resources* to support PAC investments were essential through each stage of scale-up. Private foundations and the US Agency for International Development (USAID) played important roles in PAC scale-up in Mexico, providing both funding and visionary leadership for the start-up and expansion phases. Mexico’s health systems also invested early on during the PAC start-up and expansion stages, thereby claiming the projects and initiatives as their own. In Bolivia, bilateral donors, most importantly the USAID and the UK’s Department for International Development (DFID), provided funds to international NGOs and the MOH to step-up PAC implementation subsequent to commitments made at ICPD. USAID policy, however, prevented programs supported with USAID funds from purchasing the MVA equipment needed to implement new PAC services. Private donors and innovative marketing strategies were important to making the instruments available in health services in both Mexico and Bolivia.

### Expansion, 1994 to the present

Progress in expanding the PAC model in public sector health systems is influenced by three inter-related factors: strengthening political commitment and advocacy, improving health system capacity, and improving access to technologies and equipment (Fig. 1).

### *Strengthening political commitment*

The strategic use of research processes and results and strengthening partnerships among stakeholders were among the most effective tools used to strengthen political commitment to PAC in Bolivia and Mexico.

Research played a key role in PAC expansion in Bolivia, helping to develop strong arguments and legitimize actions by different stakeholders. Findings from studies requested by the MOH from 1994 through 1998 indicated a high degree of interest among health care providers and policymakers in introducing MVA into the public health system (Córdova, 1997). Studies also showed that the average cost of existing service delivery was relatively high, presenting challenges to the sustainability of services that under the Basic Health Insurance plan (*Seguro Básico de Salud, SBS*) were to be offered free of charge to women (Friedman, De la Quintana, Jové, & King, 1999). Research recommendations also highlighted ways in which the quality of care provided to women with abortion complications needed to be improved (Rance, 1997). South–south interchange among Bolivian and Peruvian hospital directors and MOH officials in 1999 helped to garner political commitment and prepared the way for launching a two-year operations research project in three major Bolivian hospitals. Results demonstrated ways of improving the quality and decreasing the cost of delivering comprehensive PAC services (Billings et al., 2001).

As in Bolivia, research conducted in Mexico by key stakeholders, including hospital directors, heads of reproductive health programs, physicians and nurses, and a wide array of NGOs, has been used to advocate for improving policies and practice. Study results demonstrated how providing care on an ambulatory basis with MVA could lower health service costs (Brambila, Langer, García-Barrios, & Heimbürger, 1999; Johnson, Benson, Bradley, & Rábago Ordoñez, 1993) as well as the positive impact of implementing comprehensive PAC services on contraceptive acceptance and women’s evaluation of quality of care (Billings, Fuentes Velásquez, & Pérez-Cuevas, 2003; Langer, Heimbürger, García, & Winikoff, 2002). In addition, published data from Mexican government institutions such as the MOH and the National Population Council (CONAPO) gave the problem of maternal mortality due to unsafe abortion visibility in the early years of PAC initiatives.

In 1998, Bolivian stakeholders created the Inter-institutional Coordinating Committee for Post-abortion Care (CICAPA) as a principal strategy for strengthening partnerships among stakeholders so that PAC scale-up would take place more smoothly and effectively. The MOH was among the 29 members representing a range of groups that worked to create norms and training materials to guide national level PAC efforts. In contrast, in Mexico a coordinated body of stakeholders to help guide and sustain PAC implementation was never formed. Thus, ongoing communication among public sector institutions and NGOs was weak to non-existent.

Stakeholders interviewed in Bolivia emphasized the importance of obtaining government buy-in to prepare the way for expansion of services. Part of this process was changing the name of the intervention from “post-abortion care-PAC” to HPME (*atencion a las hemorragias de la primera mitad del embarazo*), or “care for hemorrhage during the first half of pregnancy,” in part to thwart any efforts by conservative forces to undermine the program. Renaming PAC was one way that partners addressed the high level of abortion-related stigma, keeping the debate away from abortion itself and directed toward actions to “save women’s lives.” In Mexico, by contrast, the term “PAC” continued to be used and, overall, has been strategically useful.

### *Improving health system capacity*

PAC work in Bolivia initially focused on public sector MOH services, which provide care to approximately 30% of the population. Gradually, work extended to collaboration with the social security system, covering 27% of the population, and, to a limited degree, with the private sector. Within six years of initiating the PAC model, services that were offered solely within tertiary level hospitals were introduced into secondary and primary level health care facilities.

In Mexico, PAC scale-up processes involved three major public sector health institutions that serve different populations. The IMSS, the country’s largest system that provides health and social services to employees in the private sector, as well as their families, who comprise approximately 45% of the population. The IMSS also manages a smaller program, IMSS Oportunidades (Op), that provides care to uninsured people living in rural areas of 17 Mexican states, while the SSA offers services to the uninsured Mexican population in both urban and

rural areas. Together, the SSA and IMSS Oportunidades cover approximately 49% of the Mexican population. Other social security systems cover select groups, such as state workers, and private insurance is used by a small segment of the population.

In-service training of health care personnel in the PAC model has been the mainstay activity in both case study countries. In Bolivia, training in PAC has been provided through technical assistance from international NGOs working in different geographic areas of Bolivia, using funding from different external sources, mainly DFID and USAID, respectively. In Mexico, each health care institution has funded its own internal PAC training program, with some technical and financial assistance from international organizations. In the past five years, fewer resources have been channeled toward ongoing training of health care providers.

Institutionalizing PAC skills requires that medical education itself be transformed. Thus, during the past decade, increasing efforts and resources from PAC proponents have been directed to pre-service training of medical and nursing students and incorporating PAC into teaching hospitals where interns are trained. Bolivia has experienced success with this strategy. By August 2006, PAC was included as required content in six medical and six nursing schools throughout the country. In Mexico such content remains optional.

Post-training follow-up and supervision are major challenges to the maintenance of provider skills and the sustainability of services. While supervision is explicitly included in Bolivia’s MOH program, it continues to be carried out and largely funded by international NGOs. Supervision of PAC is not systematically part of the work of health institutions in Mexico. Both countries struggle to find best practices and cost-effective ways to ensure sustained behavior change in health services.

Progressive policies and norms guiding the delivery of PAC services have been published and disseminated in Bolivia and, to a lesser extent, in Mexico. In Mexico, PAC is included in the SSA’s Technical Guidelines for the Prevention, Diagnosis and Management of Obstetric Hemorrhage, in which MVA is indicated as the preferred technology for the treatment of incomplete abortion, as well as other types of abortion (SSA, 2000). No mention, however, is made of the importance of post-abortion contraceptive services. In contrast, Bolivia’s national norms are comprehensive (UNAP, 2001) and the most recent update in 2006

contains information about how to implement the five elements of the expanded PAC model.

The Bolivian MOH has put into place the SUMI. Among other services, the plan covers the cost of treatment of incomplete abortion and post-abortion contraception that women and their families would have paid. At the same time, Mexico's SSa, which serves the most vulnerable, does not provide such coverage and thus, out-of-pocket expenses for women and their families can be significant.

In both countries, PAC services continue to be concentrated at secondary and tertiary level hospitals, most often in urban areas, presenting access problems for many women and resulting in higher than necessary costs for both women and health systems. Efforts to extend services to primary-level facilities are underway in Bolivia. As of 2003, PAC services were offered in nine departments: 8 tertiary level hospitals, 53 secondary level hospitals, and 57 primary level health centers. The MOH has made a commitment to continue such service extension (Del Pozo et al., 2005). In Mexico, IMSS Oportunidades implemented PAC programming in its 68 secondary-level rural hospitals and is undertaking a pilot project to train health assistants working in primary-level rural medical units (UMRs) in the state of Chiapas. Progress has been slow due to the constant rotation of medical residents and the challenges of adequately training personnel in facilities where annual caseloads tend to be small. In contrast, no work has been done to establish PAC services in the thousands of primary level Family Medicine Units (UMFs) of the IMSS, which might better serve employed urban-based populations, or in primary level clinics of the SSa that could reach the uninsured population.

#### *Improving access to technologies and equipment*

Technologies and equipment needed to provide quality PAC services include MVA instruments, medications for adequate pain control, and contraceptives. Among these and other technologies, sustainable supply of MVA instruments often poses the greatest challenge in scaling-up PAC programs. Typically, MVA instruments were donated in the start-up phase of PAC programs. Institutionalizing sustainable access to MVA, however, requires knowledge of how procurement and logistics systems work in each national setting.

MVA instruments are officially registered in Bolivia and Mexico, and local commercial medical

equipment distributors supply MVA. Yet budgetary limitations and decentralization often hinder procurement. As one administrator from the Mexican SSa noted, "I am a fan of decentralization in terms of programming and monitoring and evaluation, but purchasing of medicines and instruments should be centralized. You get better prices for large quantities. There is lack of capacity throughout the system in terms of procurement—it is asking people to be experts in international commerce." MVA distribution may also be inhibited because of the stigma associated with abortion. In Bolivia, one respondent noted that "it is difficult to have a commercial distributor because of the controversial nature of the kits—people see them as a way to obtain an abortion." Despite this challenge, tertiary and secondary level sites in Bolivia have been purchasing MVA through a commercial distributor since 2003 and in Mexico for almost a decade.

Overall, ensuring the availability of MVA instruments in health systems is challenging. In Mexico, due in part to uneven political commitment, the use of MVA has varied widely from institution to institution: from 2001 to 2003, MVA was used to treat 57% of all women with incomplete abortions attended in IMSS Oportunidades rural hospitals (Conapo, 2003) while only 15% of all women treated in SSa hospitals with more than 30 beds in 2001–2004 received services using MVA (Quezada, Billings, & Gallo, 2005). In contrast, in Bolivia, PAC program records register a significant increase in the use of MVA from 2000 to 2003, from 12% to 44% of all eligible women being treated with this technology (Del Pozo et al., 2005).

Misoprostol use for various obstetric and gynecological uses has increased in Latin America during the past decade. The medication is broadly available and accessible to health care providers and women, although its purchase price in pharmacies has increased exponentially during the past five years. Misoprostol is recommended by a group of experts for the treatment of incomplete abortion for uterine size less than or equal to 12 weeks gestation (Reproductive Health Technologies Project & Gynuity Health Projects, 2004). Greater availability and use of technologies such as misoprostol may facilitate PAC scale-up in the future.

#### **Institutionalization of scaled-up PAC services**

Indicators of institutionalized PAC are outlined in Fig. 1 and in Table 2 we present an institutionalization

Table 2  
PAC institutionalization index: Bolivia and Mexico

Indicator	Bolivia	Mexico
Political commitment to PAC services strengthened and sustained over time	Strong MOH support (central and departmental levels) and inter-institutional partnerships [3]	Medium MOH, IMSS support; growing support in other institutions; weak inter-institutional partnerships [2]
PAC services available and accessible at all levels of care	Advances made in primary, secondary, and tertiary levels of public health sector. MOH commitment to expand services [3]	Services concentrated in tertiary and secondary level hospitals. Small investments made by IMSS Op in primary level facilities. [1]
Training, monitoring, and supervision of services part of health system practice	Incorporated but funded by external sources [2]	Incorporated but weakened over past 5 years [1]
Policies, norms, guidelines for PAC practice disseminated and followed	Comprehensive PAC outlined; disseminated nationally, advances made toward compliance [3]	Unique to each institution; national level focused on use of MVA but not followed extensively [2]
Technologies accessible and available in health care systems	MVA distributors available; purchasing mechanisms difficult; registered in country [2]	MVA distributors available; purchasing mechanisms difficult; registered in country [2]
Resources dedicated to PAC in health system budgets	Through national health insurance (SUMI) [3]	Varies from institution to institution; IMSS high and meets needs, SSa low, not meeting all needs [2]
TOTAL COUNTRY/TOTAL POSSIBLE	16/18	10/18

Level of commitment or availability: 1 = low; 2 = average; 3 = high.

index for Bolivia and Mexico. Bolivia has made significant strides towards institutionalizing PAC in public sector health services while Mexico must increase its efforts in several areas and across institutions to maintain advances made over the years. This same set of indicators and scoring system can be used by stakeholders in other settings to assess which components are strongest and which need to be strengthened as programs work toward PAC institutionalization.

When institutionalization of the PAC model is achieved, we can measure impact with a series of health, financial, and social indicators (Fig. 2). These indicators are consistent with the goal that a scaled-up health innovation does not just increase the number of people served but also results in broad-based health benefits and social change.

The health impact of institutionalizing PAC services has been partially documented in Bolivia, Mexico and other countries throughout the world. Services have been shown to be effective in increasing the acceptance of contraceptive methods post-abortion, including desired methods, in Bolivia (Billings et al., 2001; González & Loayza, 2005) and Mexico (Billings et al., 2003; Langer et al., 2002), as well as a number of other countries in other regions (Billings & Benson, 2005; Huntington & Piet-Pelon, 1999; Solo, Billings, Aloo-Obunga, Ominde, & Makumi, 1999). PAC programs have been shown

to be effective in decreasing repeat unwanted pregnancies and abortions in Zimbabwe (Johnson, Ndhlovu, Farr, & Chipato, 2002), but no such research has been undertaken to date in either Bolivia or Mexico. Unfortunately, the contribution of PAC toward decreasing maternal mortality and morbidity due to unsafe abortion has not been measured in any country, reflecting the methodological challenges and high costs of doing so (Bullough et al., 2005). We can say, however, that abortion related mortality in Mexico has remained constant from 1990 to 2004 (INEGI, 1990–2004), despite significant inputs into PAC services. In Bolivia, on the other hand, overall maternal mortality has fallen significantly, and the National Coordinator of the Program for Non-Pregnant Women<sup>2</sup> of the Ministry of Health, reflected in a personal interview in 2006 that “...With much satisfaction, we see that MVA has reduced maternal mortality for all causes of hemorrhage. I think MVA should be available at all levels and all health services.” Studies are needed to document further the presumed links between PAC services and maternal mortality decline in Bolivia.

Financial impact indicators have been measured to varying degrees in the case study countries and

<sup>2</sup>The title in Spanish is Responsable Nacional del Programa Mujer no Gestante.

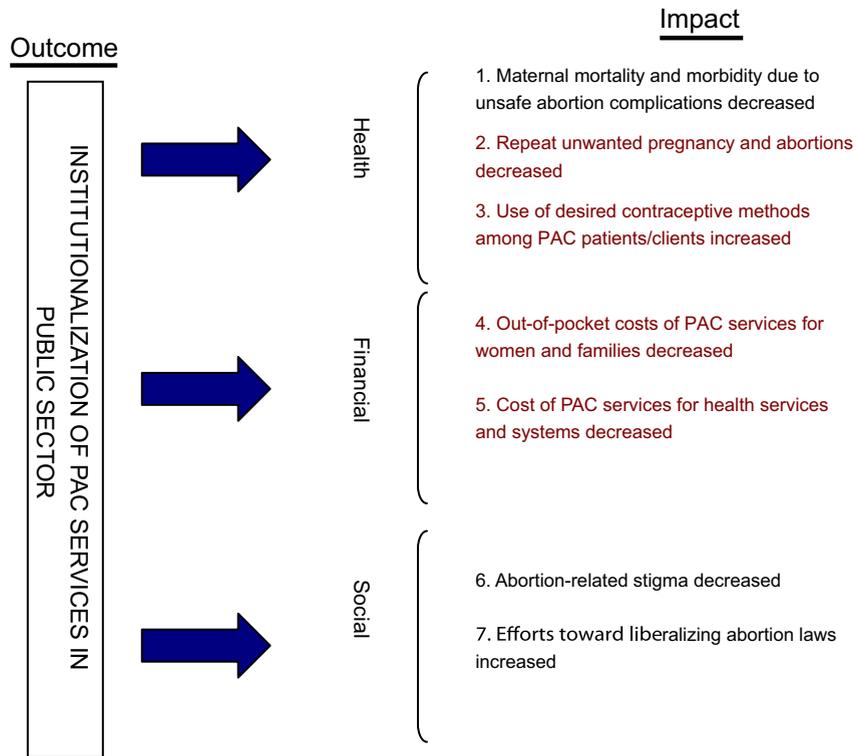


Fig. 2. Expected impact of institutionalizing PAC services in public sector health care systems.

worldwide. The most thorough documentation over time has been in the area of costs to health systems and services. Studies in Bolivia (Billings et al., 2001; Del Pozo et al., 2005), Mexico (Brambila et al., 1999; Johnson et al., 1993), and other countries such as Peru and Honduras (Benson, Huapaya, Abernathy, & King, 1998; Billings & Benson, 2005) show consistently that implementing PAC as an ambulatory, rather than in-hospital service, incurs significantly lower costs to health services overall and per-patient. Fewer studies have examined out-of-pocket costs to women and their families, but consistently show that good PAC service provision has the potential to lower such costs (Billings & Benson, 2005), thereby helping to make services more accessible to women.

Social impact indicators are the least documented of the three impact categories. The main hypothesis is that effective PAC programs, fully incorporated into health systems and supported by communities and civil society, will lead to a decrease in abortion-related stigma, as people come to better understand the multitude of causes and consequences of unwanted pregnancy and unsafe abortion. Anecdotal and experiential evidence points to this

happening in both Bolivia and Mexico, although to varying degrees. While abortion continues to be highly stigmatized and stigmatizing to those who both offer and experience it, PAC has opened new ways of discussing and addressing the issue of *unsafe* abortion. That significant resources have been dedicated to policy and programmatic efforts in both case study countries supports this assertion. The importance of providing women with abortion complications with some level of quality care has become increasingly recognized in civil society and put into practice among health care professionals over time.

It is unlikely, however, that either Bolivia or Mexico will act in the near future to completely remove legal restrictions on abortion at national levels and offer safe and legal services to all women who request and need them, resulting in fewer women needing PAC services. In both countries, the existing penal codes at federal or state levels define a series of "exceptions" to the law, situations in which women can terminate their pregnancies without suffering legal sanctions. Abortion in the case of pregnancy resulting from rape is among these exceptions in both Bolivia and Mexico. However,

to date, abortion services for women suffering sexual violence remain unavailable in Bolivia and are scarce in Mexico, mainly existing in Mexico City (Sanhueza, 2005). Whether, over time, PAC programs stimulate attitudinal changes and create networks that ultimately feed into movements to remove legal restrictions on abortion remains an important unanswered question.

### Lessons learned and conclusions

PAC meets the basic criteria for scalability (Cooley & Kohl, 2006; Gericke, Kurowski, Ranson, & Mills, 2005; Simmons & Shiffman, 2002): PAC is cost-effective, simple and replicable. It is credible and relevant for addressing a persistent public health problem in a politically acceptable manner and is compatible with existing legal frameworks and conservative societal norms related to abortion. Introducing the first two elements of the PAC model improves services that often already exist in some form. The model has clear indicators of success and demonstrable impact. Nevertheless, institutionalizing PAC is not without its challenges, because it competes with hundreds of other priorities and programs being addressed at any one time within health systems.

The conceptual framework (Fig. 1), empirically derived from the Bolivia and Mexico case studies, summarizes the core processes that need to be developed, fostered, and put in place for successful PAC scale-up. It also illustrates the human and financial investments that need to be made if PAC is to be institutionalized and sustainable. The framework can be used both to guide and assess PAC scale-up processes in different settings.

Despite its brief history with PAC, Bolivia has successfully scaled-up programs to a national level and at all levels of care. Including scale-up from the outset as part of the plans of donors, the MOH, and collaborating organizations helped to create a foundation for ongoing evaluation, training, updating of norms and guidelines, and technology acquisition over time. CICAPA has served as an important group that coordinates communication and strategy development among stakeholders from different sectors. In contrast, efforts in Mexico have been ongoing but without the coordinated collaboration among stakeholders taking place in Bolivia. NGO–government collaboration is complex, given multiple large health systems, some of which are highly decentralized, as well as the

absence of a coordinating body to facilitate communication, share lessons learned, and develop effective strategies. Incorporating PAC into national level health programs that cover most or all of the costs of services for the poorest women is also important to success. The SUMI in Bolivia reaches this goal, while the emerging *Seguro Popular* in Mexico has the opportunity to take this innovative step.

Ultimately, health policymakers must weigh the relative costs and benefits of scaling-up PAC services against the alternatives of providing safe elective abortion services to women—the most direct and surest pathway to reducing abortion-related maternal mortality and morbidity.

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### References

- Avila, L., Cahuana, L., & Pérez, R. (2005). *Cuentas nacionales en salud reproductiva y equidad de género*. México, D.F./Cuernavaca: Secretaría de Salud/Instituto Nacional de Salud Pública.
- Benson, J., Huapaya, V., Abernathy, M., & King, T. D. N. (1998). *Improving quality and lowering costs in an integrated post-abortion care model in Peru: Final report*. Lima, Peru: The Population Council and Ipas.
- Billings, D. L., & Benson, J. (2005). Post-abortion care in Latin America: A summary of a decade of operations research. *Health Policy and Planning*, 20(3), 158–166.
- Billings, D. L., Del Pozo, E., & Arévalo, H. (2001). *Testing a model for the delivery of post-abortion care in the Bolivian public health system: Final report*. Carrboro, NC: Ipas, Population Council.
- Billings, D. L., Fuentes Velásquez, J., & Pérez-Cuevas, R. (2003). Comparing the quality of three models of post-abortion care models in public hospitals in Mexico City. *International Family Planning Perspectives*, 29(3), 112–120.
- Brambila, C., Langer, A., Garcia-Barrios, C., & Heimburger, A. (1999). Estimating costs of post-abortion services at Dr. Aurelio Valdivieso general hospital, Oaxaca, Mexico. In D. Huntington, & N. J. Piet-Pelon (Eds.), *Post-abortion care: Lessons from operations research*. New York: Population Council.

- Bullough, C., Meda, N., Makowiecka, K., Ronsmans, C., Echadi, E. L., & Hussein, J. (2005). Current strategies for the reduction of maternal mortality. *BJOG: An International Journal of Obstetrics and Gynaecology*, 112, 1180–1188.
- Centro Legal para Derechos Reproductivos y Políticas Públicas (CRLP). (2001). *Oficina Jurídica para la Mujer*. 2001. Derechos reproductivos de la mujer en Bolivia: un informe sombra. Cochabamba, Bolivia: CRLP.
- Consejo Nacional de Población. (2000). *Cuadernos de salud reproductiva*. República Mexicana, México: CONAPO.
- Consejo Nacional de Población. (2003). *Informe de ejecución 2001–2003 del Programa Nacional de Población, 2001–2006*. México, DF: CONAPO.
- Cooley, L., & Kohl, R. (2006). *Scaling up—from vision to large-scale change. A management framework for practitioners*. Washington, DC: Management Systems International (MSI).
- Corbett, M. R., & Turner, K. L. (2003). Essential elements of post-abortion care: Origins, evolution and future directions. *International Family Planning Perspectives*, 29(3), 106–111.
- Córdova, J. (1997). *Actitudes y opiniones sobre la tecnología Aspiración Manual Endouterina (AMEU). Estudio realizado con autoridades y proveedores de salud en servicios públicos de La Paz, Cochabamba y Sucre*. La Paz, Bolivia: Ipas and MSPS.
- Daulaire, N., Leidl, P., Mackin, L., Murphy, C., & Stark, L. (2002). *Promises to keep: The toll of unwanted pregnancies on women's lives in the developing world*. Washington, DC: Global Health Council.
- DeJong, J. (2001). *A question of scale? The challenge of expanding the impact of non-governmental organisations' HIV/AIDS efforts in developing countries*. Horizons Project. Washington, DC: Population Council.
- Del Pozo, E., Morales, M., Del Barco, J., & Cornejo, C. (2005). La experiencia en Bolivia de la atención post aborto. In D. Billings (Ed.), *Investigaciones en acción: Atención post-aborto en cuatro países de América Latina*. Chapel Hill, NC: Ipas <<http://www.ipas.org/english/publications/post-abortion-care.asp>>.
- Demographic and Health Surveys (DHS). (1994). Bolivia 1994 Final Report. Available at: <[http://www.measuredhs.com/pubs/pub\\_details.cfm?ID=99&ctry\\_id=2&SrchTp=available](http://www.measuredhs.com/pubs/pub_details.cfm?ID=99&ctry_id=2&SrchTp=available)> Accessed 1 October 2006.
- Demographic and Health Surveys (DHS). (2003). Bolivia 2003 Final Report. Available at: <[http://www.measuredhs.com/pubs/pub\\_details.cfm?ID=485&ctry\\_id=2&SrchTp=ctry](http://www.measuredhs.com/pubs/pub_details.cfm?ID=485&ctry_id=2&SrchTp=ctry)> Accessed 1 October 2006.
- EngenderHealth & Ipas. (2001). *Taking post-abortion care services to scale: Quality, access, and sustainability. Report of an international workshop held in Mombasa, Kenya, May 15–18, 2000*. New York: EngenderHealth and Ipas.
- ExpandNet. (2005). Available at: <<http://expandnet.net/about.htm>> accessed 10 December 2005.
- Friedman, A., De la Quintana, C., Jové, G., & King, T. D. N. (1999). *An assessment of post-abortion care (PAC) services in the Bolivian public health system: A report of research findings to the Ministry of Health and Social Welfare*. Carrboro, NC: Ipas.
- Gericke, C. A., Kurowski, C., Ranson, M. K., & Mills, A. (2005). Intervention complexity—A conceptual framework to inform priority-setting in health. *Bulletin of the World Health Organization*, 83, 285–293.
- González, F., & Loayza, M. (2005). *Operations research to improve post-abortion care (PAC) services in three public hospitals, Bolivia*. Final Report. La Paz, Bolivia: The Population Council. Available at: <[http://www.popcouncil.org/pdfs/frontiers/FR\\_FinalReports/Bolivia\\_PAC.pdf](http://www.popcouncil.org/pdfs/frontiers/FR_FinalReports/Bolivia_PAC.pdf)> accessed 8 October 2006.
- Greenberg, M. (2006). The diffusion of public health innovations: Editorial. *American Journal of Public Health*, 96(2), 209–210.
- Greenslade, F. C., McKay, H., Wolf, M., & McLaurin, K. (1994). Post-abortion care: A women's health initiative to combat unsafe abortion. *Advances in abortion care* (Vol. 4, pp. 1–4). Carrboro, NC: Ipas.
- Human Rights Watch (HRW). (2005). Decisions denied women's access to contraceptives and abortion in Argentina (Vol. 17, No. 1 (B)). New York: HRW <<http://hrw.org/reports/2005/argentina0605/>>.
- Huntington, D., & Nawar, L. (2003). Moving from research to program: The Egyptian post-abortion care initiative. *International Family Planning Perspectives*, 29(3), 121–125.
- Huntington, D., & Piet-Pelon, N. J. (Eds.). (1999). *Post-abortion care: Lessons from operations research*. New York: Population Council.
- INEGI. (1990–2004). Bases de mortalidad de la población de México, 1990–2004. Unpublished analysis by Gerardo Polo.
- Jewkes, R., & Rees, H. (2005). Dramatic decline in abortion mortality due to the choice on termination of pregnancy act. *South Africa Medical Journal*, 95(4), 250.
- Johnson, B. R., Benson, J., Bradley, J., & Rábago Ordoñez, A. (1993). Costs and resource utilization for the treatment of incomplete abortion in Kenya and Mexico. *Social Science & Medicine*, 36, 1443–1453.
- Johnson, B. R., Ndhlovu, S., Farr, S. L., & Chipato, T. (2002). Reducing unplanned pregnancy and abortion in Zimbabwe through post-abortion contraception. *Studies in Family Planning*, 33(2), 195–202.
- Langer, A., Heimbürger, A., García, C., & Winikoff, B. (2002). Improving post-abortion care in a public hospital in Mexico. In N. Haberland, & D. Measham (Eds.), *Responding to Cairo: Case studies of changing practice in reproductive health and family planning*. New York: Population Council.
- McNaughton, H. L., Padilla, K., Hernández, E., de Hernández, P., & Ramirez, P. (2004). *Entre la espada y la pared: el secreto profesional y la atención post aborto*. Managua, Nicaragua: Ipas Centroamérica.
- Meyer, R. E., & Buescher, P. A. (1994). Maternal mortality related to induced abortion in North Carolina: A historical study. *Family Planning Perspectives*, 26(4), 179–180, 191.
- Population Reference Bureau (PRB). (2005). *World population data sheet*. Washington, DC: PRB.
- Quezada, S., Billings, D. L., & Gallo, M. (2005). Atención a mujeres con aborto incompleto atendidas en los hospitales de la SSa (Mexico): 2002–2003. Presented at the II Reunión de investigación sobre embarazo no deseado y aborto inseguro. Desafíos de salud pública en América Latina y el Caribe, México, D.F., agosto 17 al 19, 2005.
- Rance, S. (1997). Discursos médicos en torno al aborto: Estudios de caso en contextos hospitalarios de los sistemas de salud pública y seguridad social. Unpublished research project report. La Paz, Bolivia, Ipas/Secretaría Nacional de Salud/DFID.
- Rance, S. (2005). Abortion discourse in Bolivian hospital contexts: doctors' repertoire conflicts and the saving women device. *Sociology of Health and Illness*, 27(2), 188–214.
- Reproductive Health Technologies Project & Gynuity Health Projects. (2004). Consensus statement: Instructions for use—Misoprostol for treatment of incomplete abortion and

- miscarriage. Expert Meeting on Misoprostol, June 9, 2004. New York, NY.
- Sanhueza, P. (2005). Atención al aborto legal: El caso del Distrito Federal. In C. Elu Mdel, & E. Santos Pruneda (Eds.), *A lo largo del camino*. Mexico City: Comité Promotor por una Maternidad sin Riesgos (CPMSR).
- Secretaría de Salud (SSA). (1997). *Mortalidad*. México: SSA.
- Secretaría de Salud (SSA). (2000). *Lineamiento técnico para la prevención y manejo de la hemorragia obstétrica*. México, DF: SSA, Dirección General de Salud Reproductiva.
- Shiffman, J. (2003). Generating political will for safe motherhood in Indonesia. *Social Science & Medicine*, 56, 1197–1207.
- Simmons, R., & Shiffman, J. (2002). *Scaling up reproductive health service innovations: A conceptual framework*. Paper prepared for the Bellagio conference: From pilot projects to policies and programs, March 21–April 5, 2003.
- Smith, J., & Colvin, C. (2000). *Getting to scale in young adults reproductive health programs*. Focus Tool Series, Number 3. FOCUS on Young Adults.
- Solo, J. (2000). Easing the pain: Pain management in the treatment of incomplete abortion. *Reproductive Health Matters*, 8(15), 45–51.
- Solo, J., Billings, D. L., Aloo-Obunga, C., Ominde, A., & Makumi, M. (1999). Creating linkages between incomplete abortion treatment and family planning services in Kenya. *Studies in Family Planning*, 30(1), 17–27.
- Unidad Nacional de Atención a las Personas (UNAP). (2001). *Manual de normas y procedimientos técnicos para el manejo de las hemorragias de la primera mitad del embarazo*. La Paz, Bolivia: Ipas y el Ministerio de Salud y Previsión Social.
- UNFPA State of World Population. (2005). <<http://www.unfpa.org/swp/2005/english/indicators/index.htm>> Accessed 31 January 2006.
- USAID. (2004). *Issues in post-abortion care: Scaling-up services in Francophone Africa*. Washington, DC: USAID, AED.
- Westley, E., & Eschen, A. (2000). *Lessons in moving reproductive health innovations to scale: From pilot to program*. New York: AVSC International.
- World Health Organization (WHO). (1992). *The prevention and management of unsafe abortion*. Geneva: World Health Organization.
- World Health Organization (WHO). (2003). *Safe abortion: Technical and policy guidance for health systems*. Geneva: World Health Organization.
- World Health Organization (WHO). (2004). *Unsafe abortion—global and regional estimates of the incidence of unsafe abortion and associated mortality in 2000* (4th ed). Geneva: World Health Organization.