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Article

Performance-based financing to increase utilization of maternal health services: Evidence from Burkina Faso☆

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ABSTRACT

Performance-based financing (PBF) programs are increasingly implemented in low and middle-income countries to improve health service quality and utilization. In April 2011, a PBF pilot program was launched in Boulsa, Leo and Titao districts in Burkina Faso with the objective of increasing the provision and quality of maternal health services. We evaluate the impact of this program using facility-level administrative data from the national health management information system (HMIS). Primary outcomes were the number of antenatal care visits, the proportion of antenatal care visits that occurred during the first trimester of pregnancy, the number of institutional deliveries and the number of postnatal care visits. To assess program impact we use a difference-in-differences approach, comparing changes in health service provision post-introduction with changes in matched comparison areas. All models were estimated using ordinary least squares (OLS) regression models with standard errors clustered at the facility level. On average, PBF facilities had 2.3 more antenatal care visits (95% CI [0.446–4.225]), 2.1 more deliveries (95% CI [0.034–4.069]) and 9.5 more postnatal care visits (95% CI [6.099, 12.903]) each month after the introduction of PBF. Compared to the service provision levels prior to the interventions, this implies a relative increase of 27.7 percent for ANC, of 9.2 percent for deliveries, and of 118.7 percent for postnatal care. Given the positive results observed during the pre-pilot period and the limited resources available in the health sector, the PBF program in Burkina Faso may be a low-cost, high impact intervention to improve maternal and child health.

1. Introduction

Reducing maternal and child mortality remains a priority of the international development community as demonstrated by the 2015 launch of the Global Strategy for Women's, Children's and Adolescents' Health (Kuruvilla et al., 2016). Despite recent increases in the use of maternal health services as well as recent improvements in maternal and child health, reaching targeted coverage for key health services such as deliveries or early antenatal care remains challenging in many countries (The World Health Organization & UNICEF, 2014; United Nations, 2014). According to the most recent Demographic and Health Survey data from Sub-Saharan Africa data, only 50% of women received the recommended four ANC visits per pregnancy, and 42% of children were not delivered at a health facility (ICF International, 2012). The situation is similar in rural Burkina Faso, where 69% of women did not receive four or more antenatal visits and almost 40% of women gave birth at home as of 2010 (ICF International, 2012).

The reasons for continued low maternal health service use are complex, but appear to include high user fees and poor quality of care in many settings (Hatt, Makinen, Madhavan, & Conlon, 2013; Nair et al., 2014). A wide-variety of programs have been introduced to address these barriers including interventions focused on changing demand (conditional-cash transfers, vouchers, user-fee exemptions, health insurance) and supply-side interventions (financing, targeted subsidies) (The AIDSTAR-Two Project, 2011). Performance-Based Financing (PBF) has been implemented in an increasingly large

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number of low- and middle income countries to strengthen health systems and increase service provision (The AIDSTAR-Two Project, 2011). PBF is a form of supply-side Results-Based Financing that uses fee-for-service contracts with a service quality component (Fritsche, Soeters, & Meessen, 2014). PBF aims to improve health service provision and quality by increasing staff motivation, reducing provider absenteeism, and increasing the financial independence of facilities, which can allow them to improve the quality of their services, and also potentially reduce users fees (The World Bank, 2012). Recent PBF programs have introduced additional demand-side interventions such as using household visits by health workers to stimulate demand, referrals by community health workers, and the removal of user and drug fees for the poor and vulnerable. While the term PBF first originated in Rwanda, early programs with some of the same tenets as PBF such as contracting and decentralization emerged in the 1990s in Zambia and Cambodia (Bossert, Chitah, & Bowser, 2003; Soeters & Griffiths, 2003). Since the mid-2000s, and in particular after the positive results from the Rwanda program (Basinga et al., 2010), there has been a rapid increase in the number of countries integrating performance-based financing into their health system. As of 2013, over 40 countries have either planned or begun to implement some form of PBF (Fritsche et al., 2014).

A somewhat controversial Cochrane review published in 2012 analyzed nine studies on PBF, and concluded that the existing evidence base was too weak to draw any general conclusions (Meessen, 2012; Witter, Fretheim, Kessy, & Lindahl, 2012). More recent PBF programs have generally incorporated more rigorous evaluation designs and several randomized or quasi-experimental studies published since 2010 have increased the quality of available evidence considerably. While a study conducted in the Democratic Republic of the Congo found no effect of PBF on health service utilization (Huillery and Seban, 2014), studies conducted in Rwanda, the Philippines and Tanzania found that PBF increased several, but not all, of the health services examined in these studies (Basinga et al., 2010; Binyaruka et al., 2015; Peabody et al., 2014). Three studies conducted in Burundi found mixed results with findings differing between studies (Bonfrer et al., 2014; Bonfrer, Van de Poel, & Van Doorslaer, 2014; Falisse, Ndayishimiye, Kamenyero, & Bossuyt, 2014). While two of the three studies from Burundi found an increase in institutional deliveries and antenatal care, none of the three studies found an increase in vaccinations and only one of the two studies that examined contraception found an increase in this outcome. Three studies from the Philippines, Haiti and Cambodia found positive results for all health services they examined though one of these studies focused exclusively on institutional deliveries (Gertler & Giovagnoli, 2014; Ir et al., 2015; Zeng, Cros, Wright, & Shepard, 2013). Most of these studies focus on maternal and child health service use and few examine health outcomes or quality of the health services provided.

In this paper we examine the effect of a pilot project that introduced Performance-Based Financing from 2011 to 2013 in Burkina Faso. We focus on provision of maternal health services as a key strategy to improve maternal and child health outcomes in the country and globally (Jones et al., 2003; Rosenfield, Maine, & Freedman, 2006).

2. Methods

2.1. Study setting

Burkina Faso remains one of the poorest countries in the world, with maternal mortality rates of 400 per 100,000 live births and under-5 mortality rate of 96 per 1000 live births in 2013 (UNICEF, 2013). The health system in Burkina Faso is divided into three levels of care. At the highest level, regional hospitals (Centre Hospitalier Regional – CHR) exist in each of 11 of the 13 regions in Burkina Faso (Direction Generale Ministere de la Sante Burkina Faso, 2014). Below the regional level, Burkina Faso is divided into 63 health districts. In 2012 there were a total of 2495 district level primary care facilities (Centres de Santé et de Promotion Sociale – CSPS), and CSPS staffed with physicians (Centre Medical – CM). Secondary care facilities or district hospitals (Centre médical avec antenne chirurgicale – CMA) exist in each health district as well.

2.2. Study design

The PBF pilot began in Boulsa, Leo and Titao health districts in April 2011. We use a difference-in-differences design to assess the impact of the PBF program on the provision of essential maternal health services. The three intervention districts were chosen in 2010 by the Ministry of Health (MoH) for the PBF program; these districts were selected based on their health indicators for priority services, their poverty level, their distance from Ouagadougou (< 300 km), and their health system characteristics (having a functioning district hospital and having between 15 and 30 primary health care centers). The study area includes three regions in Burkina Faso: North (Titao), Center-North (Boulsa), and Center-West (Leo). For each intervention health district we selected a comparison health district in the same region with comparable health, health system and socio-economic characteristics.

2.3. The intervention package

Before PBF, health facilities in Burkina Faso were financed primarily through funding provided from the Ministry of Health for specific health care resources outlined in annual health facility action plans, and from revenue generated from user fees and drug sales (Robyn et al., 2014). The pilot program changed the previous financing system by defining a package of key health services to be targeted at contracted primary- (CSPS, CM) and secondary-level (CMA) health facilities, and issuing payments based on quantity and quality for these services. Health facilities included in the pilot signed contracts with the central level of the Ministry of Health to provide these packages of services. A checklist which included items such as how well patient documentation was completed, the availability of health supplies equipment, and essential medicines, and adherence to national standards defining quality of care was used to create a quality score. The total payment was determined by multiplying the quality score by the number of each service provided, the payment amount associated with the service, and a measure of health facility characteristics.

The program approach evaluated in the pilot did not include some recommended elements of performance-based-financing including demand side incentives, independent management of the PBF program administration, an increase in health facility autonomy and the introduction of improved management tools. As of 2014, the PBF program approach changed to incorporate several additional design elements that are aligned with PBF guiding principles and best practices such as demand-side incentives and social marketing through household visits (Ministere de la Sante Burkina Faso, 2013). In this paper we evaluate the early PBF program approach in Burkina Faso. Appendix 1 lists the services and their prices for the primary and secondary levels of care. A description of the methods used to determine individual provider payments is provided in Appendix 2.

2.4. Study population

A total of 186 health facilities were included in the study: 168 primary health care centers (Centres de Santé et de Promotion Sociale – CSPS), 5 (Centre médical avec antenne chirurgicale), 2 (Centre Medical – CM), and 10 dispensaries (Fig. 1).

2.5. Data

All data used for this analysis were obtained from the health management information system (HMIS) of Burkina Faso. The HMIS