Social Science & Medicine 179 (2017) 27–35

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Immediate and sustained effects of user fee exemption on healthcare utilization among children under five in Burkina Faso: A controlled interrupted time-series analysis

David Zombré [a, b, *], Manuela De Allegri [c], Valéry Ridde [a, b]

[a] University of Montreal Public Health Research Institute – IRSPUM, Canada
[b] School of Public Health, Montreal, Québec, Canada
[c] Institute of Public Health, Medical Faculty, Heidelberg University, Germany

ARTICLE INFO

Article history:
Received 29 June 2016
Received in revised form
13 February 2017
Accepted 16 February 2017
Available online 21 February 2017

Keywords:
Burkina Faso
User fees exemption
Child health services
Long-term effect
Contextual factors
Controlled interrupted time series
Quadratic trend

ABSTRACT

Background: Little is known about the long-term effects of user fee exemption policies on health care use in developing countries. We examined the association between user fee exemption and health care use among children under five in Burkina Faso. We also examined how factors related to characteristics of health facilities and their environment moderate this association.

Method: We used a multilevel controlled interrupted time-series design to examine the strength of effect and long term effects of user fee exemption policy on the rate of health service utilization in children under five between January 2004 and December 2014.

Results: The initiation of the intervention more than doubled the utilization rate with an immediate 132.596% increase in intervention facilities (IRR: 2.326; 95% CI: 1.980 to 2.672). The effect of the intervention was 32.766% higher in facilities with higher workforce density (IRR: 1.328; 95% CI (1.209–1.446)) and during the rainy season (IRR:1.2001; 95% CI: 1.0953–1.3149), but not significant in facilities with higher dispersed populations (IRR: 1.075; 95% CI: (0.942–1.207)). Although the intervention effect was substantially significant immediately following its inception, the pace of growth, while positive over a first phase, decelerated to stabilize itself three years and 7 months later before starting to decrease slowly towards the end of the study period.

Conclusion: This study provides additional evidence to support user fee exemption policies complemented by improvements in health care quality. Future work should include an assessment of the impact of user fee exemption on infant morbidity and mortality and better discuss factors that could explain the slowdown in this upward trend of utilization rates three and a half years after the intervention onset.

1. Introduction

Population-based studies suggest that improved access to health care has the potential to produce a significant reduction in under-five morbidity in developing countries (Rutherford et al., 2010), but this improvement can only occur when children actively (Yates, 2009) and promptly use health facilities. A wide range of factors affect access to health care in low-middle income countries (LMICs), with user fee identified as one of the greatest obstacles (Ridde, 2015). In Burkina Faso, over half of the population lives on less than 1 US dollar per day with a national average of 54–56% of children under five reported to use health services when ill (INSD & Macro, 2012), compared to 32% in the most deprived areas of the country (Ridde, Haddad and Heinmuller, 2013). Inequalities in morbidity and use of services according to socioeconomic status and place of residence persist across the country (INSD & Macro, 2012).

In an effort by the World Health Organization and the African Union to achieve the provision of universal coverage of primary health care (Yates, 2009), many African countries are attempting to remove financial obstacles to health services access (Ridde, 2015).

* Corresponding author. University of Montreal Public Health Research Institute, Pavillon 7101 avenue du Parc, C.P 6128 Succursale C, local 3224, Montréal, Québec, H3C 3J7, Canada.
E-mail address: david.zombre@umontreal.ca (D. Zombré).

http://dx.doi.org/10.1016/j.socscimed.2017.02.027
0277-9536/

The government of Burkina Faso has experimented with user fee exemption for women and children under-five since September 2008 (Ridde et al., 2013a,b). This pilot intervention was delivered within the context of a population health intervention research study; whereby complete user fee exemption was implemented in two out of four districts in the Sahel region.

Studies across several low-income countries have shown that, globally, user fee exemption is typically associated with an immediate increase in the use of maternal and child health care services (Bassani et al., 2013; Lagarde and Palmer, 2011; Ridde and Morestin, 2011). Most studies have analyzed the effect of free care policies on maternal outcomes such as assisted deliveries and caesarian sections. In particular, McKinnon et al. (2014) showed that user fee exemption was consistent with an increase of 3.1 facility-based deliveries per 100 live births and an estimated reduction of 2.9 neonatal deaths per 1000 births (McKinnon et al., 2014). In Ghana, following user fee exemption policies from 2005 to 2008 and a policy exempting pregnant women from paying the national Health insurance registration and premium fees, facility deliveries increased significantly over time (Dzakpasu et al., 2012). In Addition, Fournier et al. (2014) showed that the implementation of a free caesarian section policy increased the rate of caesarian section deliveries from 1.7 to 5.7% for Malian women living in cities without any significant change in trends among women living in villages (Fournier et al., 2014). With regard to children under five more specifically, free care was associated with an immediate increase of service use among children under five in Mali, with user attendance multiplied by 1.5 during the rainy season (Heinmüller et al., 2013). The effect was maintained in all facilities up to three years after the intervention onset (Heinmüller et al., 2013). In the case of Burkina Faso, two studies that have analyzed the effect of user fee exemption policy reported an increase in the use of health services among children under five (Druetz et al., 2015; Ridde et al., 2013a,b).

Given that most evaluations were conducted early, within three years after the policy change (Hatt et al., 2014; Lagarde and Palmer, 2011), the important research question regarding the long-term effect of this intervention on access to health services and on health outcomes among children under five remains relatively unexplored (Bassani et al., 2013). Indeed, the lack of appropriate data and weaknesses of research designs have led most studies to be limited to the analysis of linear short-term effects (Ridde and Morestin, 2011; Yates, 2009) and few have accounted for long-term trends and confounding factors (Dzakpasu et al., 2013; Lagarde and Palmer, 2008) or effect modifiers, which mainly include factors related to characteristics of health facilities and their environment that may interact with and alter the effect of the intervention (Hatt et al., 2014; Victora et al., 2005). In the context of Africa and particularly in Burkina Faso, the need for strong evidence supporting the scaling up of pilot exemption policies through the formulation of public policies is urgent (Ridde, 2015), especially considering the Government of Burkina Faso has decided to implement a nationwide exemption policy starting April 2016.

This study examines the strength of effect and long term effects of user fee exemption policy on the rate of health service utilization by children under five years of age in rural health facilities in Burkina Faso. In addition, it explores whether contextual and health service factors moderate the association between user fee exemption and health service utilization for children under five.

2. Methods

2.1. Study settings

The study was conducted in the northern region of Burkina Faso, where two out of four rural districts (Fig. 1) began to implement user fee exemption in 2008. The region has 1,160,000 inhabitants, mostly consisting of herders and farmers, with similar demographics among the districts (Ridde et al., 2013a,b). Starting in September 2008, regional health authorities from districts of Dori (313,497 inhabitants, 23 primary health care facilities (PHC)) and Sebba (191,810 inhabitants, 13 PHC) abolished user fees and implemented a user fee abolition policy for child health services. In contrast, districts of Gorom (237,000 inhabitants, 18 PHC) and Djibo (415,776 inhabitants, 32 PHC) maintained standard user fees where patients had to pay $0.20 for consultations, treatments (drug costs were determined according to prescriptions), and a daily fee of US$0.60 in case of hospitalization within the health facility.

2.2. Intervention (user fee exemption policy)

The intervention aimed to improve access to health care for children under five by removing any direct payment at point of service for consultations, medications and hospitalizations for children under five, indigents, and pregnant women (Ridde et al., 2013a,b). Concurrently, quality of service delivery was improved through training, endowments of medical equipment, and permanent staff support. The intervention was funded by the Humanitarian Aid Service of the European Commission and implemented by the NGO Help (Ridde et al., 2013a,b). Health facilities offered free care and were reimbursed monthly by the Ministry of Health depending on their activity level. The intervention was integrated within the health system. Therefore, in our study, we assessed the effect of the overall policy and programmatic changes that combine user fee exemption with quality of care improvement, rather than the single effect of user fee exemption.

2.3. Study design

This evaluation builds upon an initial study performed in one intervention district (Dori) and in a neighboring non-intervention district (Djibo) with an observation window covering a 56-month pre-intervention period and a 12-month intervention period (Ridde et al., 2013a,b). Our study extends this prior work to include two additional districts, one intervention and one non-intervention district, along with 6 additional years of observation. This permitted the assessment of both immediate and sustained effects up to 6-year (75 months) post-implementation in all intervention facilities ($n = 34$) compared to the facilities without intervention ($n = 51$), as well as potential effect modification from health services and contextual factors. We used a multilevel controlled interrupted time-series design to examine the monthly level and overall trend in the rate of health service utilization in children under five between January 2004 and December 2014. All facilities from the two neighboring districts not targeted by the intervention were included as the comparison group.

2.4. Data sources

Our study relied on two data sources:

2.4.1. National health information system (NHIS) data

We collected retrospective (from January 2004 to August 2008) and prospective data (from September 2008 to December 2014) from NHIS to form a reliable continuous time-series. This included for facilities in the study both data on monthly counts of curative consultations for children under five and estimates of the relevant population (children under five) in the respective catchment area. Data quality and completeness were assessed through each district office the first week of each month and audited by the Direction of Health Statistics at the Ministry of Health. 17 facilities that were