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Using provider performance incentives to increase HIV testing and counseling services in Rwanda

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ABSTRACT

Paying for performance provides financial rewards to medical care providers for improvements in performance measured by utilization and quality of care indicators. In 2006, Rwanda began a pay for performance scheme to improve health services delivery, including HIV/AIDS services. Using a prospective quasi-experimental design, this study examines the scheme's impact on individual and couples HIV testing. We find a positive impact of pay for performance on HIV testing among married individuals (10.2 percentage points increase). Paying for performance also increased testing by both partners by 14.7 percentage point among discordant couples in which only one of the partners is an AIDS patient.

1. Introduction

HIV testing and counseling (HTC) is a gateway to improving prevention and care efforts, and has become a core strategy for decreasing HIV transmission and incidence (Glick, 2005). There have been calls to devote more resources to couple HTC since HIV transmission is high in discordant couples, i.e. couples in which only one of the partners is infected by HIV/AIDS, especially if the infected partner either does not know his or her status or has not revealed it to the uninfected partner (Padian et al., 1993). Recent evidence demonstrates that antiretroviral treatment (ART) of HIV+ individuals is very effective in preventing transmission of the HIV virus within couples (Cohen et al., 2011; Dodd et al., 2010; El-Sadr et al., 2010; Wagner et al., 2010).

As a result, HTC couple testing, especially among discordant couples, has become a key component of prevention programs in generalized epidemic countries (Allen et al., 2003). Despite the promise of HTC and the large amount of development assistance for HIV/AIDS, HTC uptake has only recently seen modest improvements (United Nations, 2011). Moreover, there are few documented successful experiences of HTC programs reaching couples (Padian et al., 1993; Painter, 2001).[2]

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[2] An important exception is from Thornton (2008) who demonstrated that cash value vouchers doubled the percentage of individuals who obtained their HIV test results, given that they had been tested.

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A promising, yet largely untested, intervention to increase testing is to pay health providers for increasing participation in HTC through provider-initiated testing (PIT). This is part of the more general pay-for-performance (P4P) movement that gives financial rewards at the facility and/or provider levels to improve performance measured by specific utilization and quality of care indicators. P4P is now being piloted or scaled up in about 40 low- and middle-income countries[3] (Eichler and Levine, 2009; Meessen et al., 2011).

This paper evaluates the impact of Rwanda's national P4P scheme on individual and couple HTC. Building on the lessons from pilot experiences in a few provinces, Rwanda initiated in 2006 a national P4P scheme at the health facility level to improve health services delivery, including HIV/AIDS services. We use data from a prospective impact evaluation we nested into the national scale-up of P4P in Rwanda, producing evidence from an impact evaluation at scale with more external validity than closely monitored pilot experiments. The Rwanda P4P scheme provided larger payment for couple HTC than for individual HTC, allowing us to explicitly test whether supply-side incentives are an effective intervention to increase couple HTC and in particular for discordant couples among whom the risk of HIV transmission is higher.

An important aspect of our study is the identification of the effects of incentives in a budget neutral environment. In other words, we test whether the government is able to purchase more services for the same amount of money through incentive contracts than through fixed budgets. This is important because if P4P achieves its results just from increased government spending, then the same results could be achieved from a simple increase in budget without incurring the administrative costs associated with implementing the incentive scheme. In order to identify the incentive effects in a budget neutral setting we hold constant total government P4P payments by increasing the traditional input-based budgets of the comparison group by the average amount of incentive payments to treatment facilities. As a result, the average amount paid to facilities in the treatment group is equal to the average amount paid to comparison facilities.[4]

Our results show a positive impact of P4P on the probability of individuals having ever been tested. Indeed, when disaggregated by couple status we find that individuals living in a couple drive all of the results. There is no effect on single individuals even when we condition on being sexually active. However, there is a positive and statistically significant impact of 10.2 percentage points for individuals in couples, which amounts to a 14.5% increase over the control group testing rate. The impact of P4P on couple testing is particularly strong among discordant couples (i.e. one partner is confirmed HIV+ and the other is not), encouraging the partners of identified HIV patients to come for HTC. These results are consistent with the fact that the Rwanda P4P strongly encouraged couple and partner testing, paying US$0.92 per new individual tested for HIV and US$4.59 per couple/partner jointly tested. For couple/partner testing, it was not necessary for both partners to come together for testing: either the partners come together for HIV testing, or one comes after the other during the same reporting period.

These results show that incentive payments are an effective means of increasing participation in HTC. They are especially important for Sub-Saharan Africa, where nearly 80% of HIV-infected adults are unaware of their HIV status and over 90% do not know whether their partners are infected (World Health Organization, 2009). With only 12% of the global population, Sub-Saharan Africa is home to 68% of all people living with HIV.[5]

Our findings contribute to the limited but growing evidence base that paying health facilities for performance is a feasible and effective method for improving health system performance in low- and middle-income countries. Our work contributes to the general literature on P4P in medical care, as it is the first to examine the impact of P4P incentives on HIV related services.[6] More importantly, the role of incentives in P4P is key. Because the comparison facilities' regular budgets were increased by an amount equal to the P4P payment to the treatment group, we were able to isolate the P4P incentive effect from the resource effect.

Our work also contributes to the relatively small literature on the effects of paying medical care providers for performance in developing countries.[7] There are four well-identified and related evaluations in other low- and middle-income countries. Hospital-based physicians in the Philippines who received extra bonus pay based in part on knowledge of appropriate clinical procedures reported increases in clinical knowledge (Peabody et al., 2011). In Indonesia, performance incentives to villages for improvements in health outcomes led to an increase in labor supply from health providers (Olken et al., 2012). Miller et al. (2012) found that bonus payments to schools significantly reduced anemia among students in China. Finally, using the same identification strategy as this study – but a different sample of health facilities and households with recent births, Basinga et al. (2011) found in Rwanda that P4P had significant positive impact on institutional deliveries and preventive care visits by young children, and improved quality of prenatal care, but found no effect on the number of prenatal care visits or on immunization rates. A follow-on study also reported large impacts on child health outcomes and provider productivity (Gertler and Vermeersch, 2012).

The remainder of the paper is organized as follows. Section 2 describes the context of the health sector in Rwanda and the P4P intervention evaluated. In Section 4, we present our data and we describe our identification strategy. Section 6 presents our results while Section 7 concludes.

2. The health sector in Rwanda and the P4P intervention

In 2005, HIV prevalence for adults in Rwanda was estimated at 3% (Institut National de la Statistique du Rwanda (INSR) and ORC Macro, 2006). The Government of Rwanda (GoR) decided to address the HIV epidemic by not only aggressively scaling up HIV services nationwide, but also utilizing the planned national P4P model to target HIV preventive services, i.e. HTC, PIT, prevention of

[3] See www.rbfhealth.org for an updated list of countries together with a description of programs.

[4] While total government spending is held constant in that average facility budgets are equal between the treatment and control group, the distribution of facility budgets is not necessarily held constant. One would expect a higher variance in the treatment group as the more capable facilities obtain higher P4P payments in the treatment group than in the control group and the less capable facilities would obtain smaller increases in the treatment group than in the control group. Hence, an individual facility's budget is not being held constant and therefore we cannot interpret the estimates as a pure compensated incentive effect for an individual facility.

[5] In 2011 an estimated 34 million people were living with HIV worldwide, the number of AIDS-related deaths was 1.7 million and there were 2.5 million new HIV infections (UNAIDS, 2012).

[6] See Witter et al. (2011) for a recent systematic review of health care performance incentives in low- and middle-income countries. Most of the literature that they cite do not have control groups and estimate the impact of P4P as jumps in time trends of the amount of services providers by treatment facilities.

[7] There is, however, a growing literature on P4P for medical care in the U.S. and other high-income countries with mixed results. See Alshamsan et al. (2010), Scott et al. (2011), Van Herck et al. (2010).