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Experiences and Lessons Learned from Pay-for-Reporting Schemes in Public Health Supply Chains

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Workers take inventory of medical supplies.

One common application of performance-based financing in supply chains is a pay-for-reporting scheme. To identify lessons learned for the broader public-sector supply chain community, this technical brief examines four examples of these schemes in Tanzania, Zambia, Nicaragua, and Rwanda.

JUNE 2014

This publication was produced for review by the U.S. Agency for International Development. It was prepared by the USAID | DELIVER PROJECT, Task Order 4.

U.S. Agency for International Development
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Introduction

In recent years, evidence has increasingly shown the effectiveness of performance-based incentives (PBI) in improving the global delivery of healthcare service. Although the improvements have been seen primarily in high-income country settings, examples of successful PBI interventions are beginning to emerge in low- and middle-income countries. Despite the evidence showing the usefulness of PBI in commercial-sector supply chains, limited examples have been seen in public-sector health supply chains to motivate improved performance. This brief describes the available experiences of pay-for-reporting schemes in public-sector health supply chains in four countries: Tanzania, Nicaragua, Rwanda, and Zambia.

Applications of PBI to Improve Data Visibility

Pay-for-reporting schemes are intended to be an incentive to motivate downstream workers in the supply chain to improve timeliness, quality, and accuracy of reports for the upstream levels. By selecting a specific action to measure, recognize, and reward, pay-for-reporting schemes signal to health workers the importance of a particular function. These schemes are one application of PBI that can be used to improve the reporting function in supply chain management.

In a logistics system, reporting provides critical information on (1) the current stock levels of supplies, (2) the rate of consumption for these supplies, and (3) the losses and adjustments made to these supplies (USAID | DELIVER PROJECT 2011). Accurate and timely reporting of these data points is critical if logistics managers are to make informed decisions; ultimately, their decisions help supplies flow smoothly through the supply chain.

Table 1. Country Experiences with Pay-for-Reporting Schemes

Country	Scheme Components
Tanzania—SMS for Life **2009–2010**	**Objective:** To bring up-to-date visibility of antimalarials to the Tanzanian public-health sector with the potential to reduce or eliminate stockouts for five drugs—four dosage forms of artemisinin-based combination therapy (ACTs) and quinine injectable—using a pilot sample of health facilities in three key target districts. Incentive: Give airtime credit incentive of 1,500 Tanzanian shillings—the standard top-up amount in the area—to all mobile phones that submitted a stock-level short message service (SMS). **Monitoring and Evaluation:** The project team monitored the pilot in two ways: (1) Remote monitoring included a daily review of the online information available through the web application, and (2) the team made surveillance visits to 116 out of the 129 pilot health facilities for the duration of the pilot. They registered physical stock counts and matched them against the most recent data entered in the SMS for Life application. They also checked the global positioning system (GPS) for the health facilities and they answered questions from the health workers, as well as collected their feedback. The team spent more than 370 man-days on the ground supporting the pilot. **Results:** The average weekly response rate during the 21 weeks, across all three pilot districts, was 95 percent; it never dropped below 93 percent. Data accuracy was measured at 94 percent; the overall on-time response rate across the three districts was 93 percent.
Nicaragua—Improving the quality of logistics information in Nicaragua **2011–2013**	**Objective:** The supply chain was the focus of the program, with the specific objectives of improving (1) the logistics management information system (LMIS), (2) how stock status was measured, and (3) the availability of drugs. Incentive: High-scoring units received small amounts of computer and other equipment, worth approximately U.S.$500. Three units received awards each quarter. Winning units were also named in a supply chain performance national bulletin published by the ministry; their staff can receive additional training. **Monitoring and Evaluation:** The *División General de Insumos Médicos* (DGIM), the national supply chain division of the Ministry of Health (MOH), measured the performance and scoring during each quarter. Monitoring combines a review of information from the automated system, a document review, and site visits by a team comprising both the MOH and USAID | DELIVER PROJECT staff. A regional- and central-level team from the MOH verified the results. **Results:** (1) In general, the average score for the 28 health units evaluated was 82.96 out of a possible 100. The median score was 86.5 and the maximum/lowest scores were 100/43. (2) The average score for the 11 hospitals was 89.54 out of a possible 100. The median score was 88 and the maximum/lowest scores were 100/63. (3) The average score for the 17 health centers was 78.71 out of a possible 100. The median score was 81 and the maximum/lowest scores were 98/43.
Rwanda—Incentives for community Supply Chain Improvements **2012–2013**	**Objective:** Promote product availability with community health workers (CHWs), recordkeeping, and flow of data for decisionmaking at the district- and lower-levels. Incentive: CHWs received monetary incentives through their community cooperatives if they achieved certain supply chain (SC) performance goals. **Monitoring and Evaluation:** Project staff were expected to go on verification visits with district staff to evaluate health center (HC) steering committee reports and to provide feedback prior to paying incentives; however, in practice, these MOH verification visits did not happen regularly, so it was impossible to conduct them as often as planned. **Results:** The Incentives for community Supply Chain Improvements (IcSCI) intervention led to improvements in three main indicators, across the three districts where it was implemented. Two of these indicators were related to reporting; (1) the percentage of CHWs with stock cards increased when the physical inventory matched the stock card balance, and (2) an increased percentage of cell coordinators had accurate resupply

Country	Scheme Components
	worksheets. After the IcSCI intervention, an increase was noted in one district that had a comparatively lower percentage of cell coordinators with complete resupply worksheets.
Zambia—No Report, No Imprest	**Objective:** To increase facility-level monthly reporting rates. Incentive: The existing monthly operating expenses (Zambian Kwacha 300.00 to 400.00 or approximately U.S.$70.00)—called the *Imprest*—are awarded only after the facility's monthly report is received. **Monitoring and Evaluation:** The District Health Office (DHO) maintains a tracking tool that is updated whenever a facility sends in a report. The national logistics system also requires that a copy of the report be filed at the DHO when the reports are submitted. By looking at the DHO tracking tool and verifying the actual copies of the preventing mother-to-child transmission (PMTCT) Drug Report and Issue Voucher (PDRIV) (reports) filed at the DHO, the actual number of facilities that report can be determined. **Results:** Since the initiative began, reporting rates have increased to 84 percent; in several months, it reached 100 percent in the 26 PMTCT-only facilities in Chibombo district.

In **Tanzania**, the SMS for Life pilot was a public-private initiative established with the Roll Back Malaria Partnership, IBM, Vodafone, and the Republic of Tanzania MOH. The pilot addressed reporting at public-sector health facilities; the objective was to use up-to-date visibility for antimalarials to reduce or eliminate stockouts for five medicines. The pilot was rolled out in three districts, covering 129 health facilities and 226 villages, with a total population of more than 1.2 million people. A weekly airtime credit of 1,500 Tanzanian shillings—the usual top-up amount in the area—was awarded to all mobile phones that submitted a stock-level SMS message on time. This incentive was awarded solely on the timeliness of reports–although monitoring and validation was also done on the quality of the reports.

The pilot staff conducted remote monitoring, which included a daily review of the online information available through the web application, as well as surveillance visits to 116 out of the 129 pilot health facilities to register physical stock counts and to match them against the most recent data entered in the SMS for Life application. These follow-up visits were important for the healthcare workers' perception of the project and its significance (Barrington, Wereko-Brobby, and Ziegler 2010).

"These follow-up visits were important for the healthcare workers' perception of the project and its significance."

The average response rate over the 21 weeks, across all three pilot districts, was 95 percent; it never dropped below 93 percent and it had a data accuracy rate of 94 percent. The average usage of the system, per user group, was more than once per day; and the overall on-time response rate across the three districts was 93 percent (Barrington, Wereko-Brobby, and Ziegler 2010).

The project attributes two probable factors for this result: (1) the health workers were trained on the time period for reporting, and they were told that missing responses would be sent to the DMO—an implied negative consequence for non-reporting, and (2) this was the period when health workers would receive a credit incentive. However, because a baseline was not conducted, and the intervention did not include a control group, it is impossible to determine how much impact the credit incentive had on improving the timeliness of reporting and how much could be attributed to training or the fear of negative consequences for late reporters or non-reporters.

Improving the quality of logistics information in **Nicaragua**, was a two-year project, with annual funding of approximately $4,000. The supply chain was the focus of the program, with the specific objectives of improving (1) the LMIS, (2) how stock status was measured, and (3) the availability of drugs. The program

focused on accurate and timely reporting by the individual health facilities and by the administrative units responsible for analyzing and using the information for supply chain management and improvement—*Sistema Local de Atención Integral en Salud* (SILAIS).

Each quarter, three high-scoring units received small awards of computer and other equipment worth approximately $500, which were selected from a list of items developed by the central MOH. The ministry named and recognized the winning units in their national bulletin on supply chain performance; staff were also eligible to receive additional training. The national supply chain division of the MOH monitored, measured, and scored the results quarterly. This process combined a review of information from the automated system, a document review, and site visits by a team comprising both the MOH and USAID | DELIVER PROJECT staff. A regional- and central-level team from the MOH verified the results.

Scores from the evaluation were computed as follows:

1. In general, the average score for the 28 health units evaluated was 82.96 out of a possible 100. The median score was 86.5 and the highest/lowest scores were 100/43.
2. The average score for the 11 hospitals was 89.54 out of a possible 100. The median score was 88 and the highest/lowest scores were 100/63.
3. The average score for the 17 health centers was 78.71 out of a possible 100. The median score was 81 and the highest/lowest scores were 98/43.

Table 2. Evaluation Scores

Health Facility	Average Score	Median Score	Highest/Lowest Scores
28 Health units	82.96/100	86.5	100/43
11 Hospitals	89.54/100	88	100/63
17 Health centers	78.71/100	81	98/43

In **Rwanda**, more than 30,000 CHWs manage lifesaving medicines and other health products for children. To incentivize timely and complete reporting to increase data visibility and, therefore, improve the resupply process, Incentives for community Supply Chain Improvements (IcSCI) was piloted in three districts. It includes 44 health centers; 218 cell coordinators (CCs), who are primarily responsible for collecting and reporting logistics data and ensuring supplies reach all CHWs in their cells; and approximately 3,600 CHWs. The program was modeled on the existing national community-based performance-based financing (cPBF) scheme that was developed to motivate CHWs to improve their supply chain performance. The program also offers monetary incentives to CHWs and CCs through their community cooperatives, which are based on the quarterly performance level of certain supply chain tasks. The CCs were responsible for reporting logistics data.

A local evaluation partner in Rwanda conducted a midline evaluation one year after the IcSCI intervention started. To compare community-level product availability data, as well as other key logistics indicators from baseline to midline, the same regions and districts sampled for the baseline were visited for the midline. The evaluation goal was to show the impact of the IcSCI intervention on improving SC performance at the community level against a group of four baseline, but non-intervention (comparison), districts.

Midline results showed that the IcSCI intervention improved in three main indicators, across all three districts. The two reporting-related indicators showed an increase in the percentage of CHWs with stock cards that matched the physical inventory stock card balance (see figure 1), and an increase in the percentage of cell coordinators with accurate resupply worksheets (see figure 2). One district that had a comparatively lower percentage of CCs with complete resupply worksheets improved this measure after the IcSCI intervention.

Figure 1. Percentage of CHWs with Stock Cards that Matched the Physical Inventory Stock Card Balance.

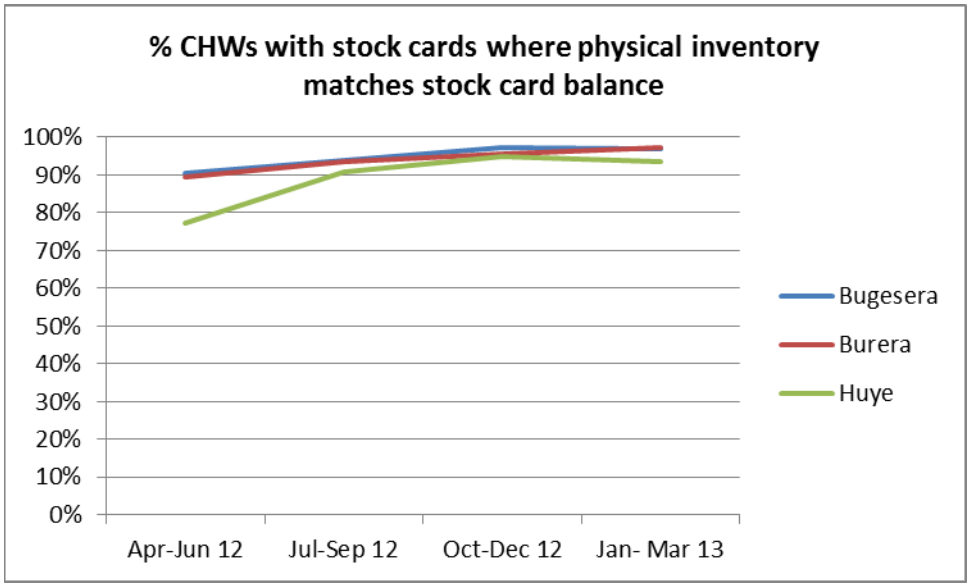
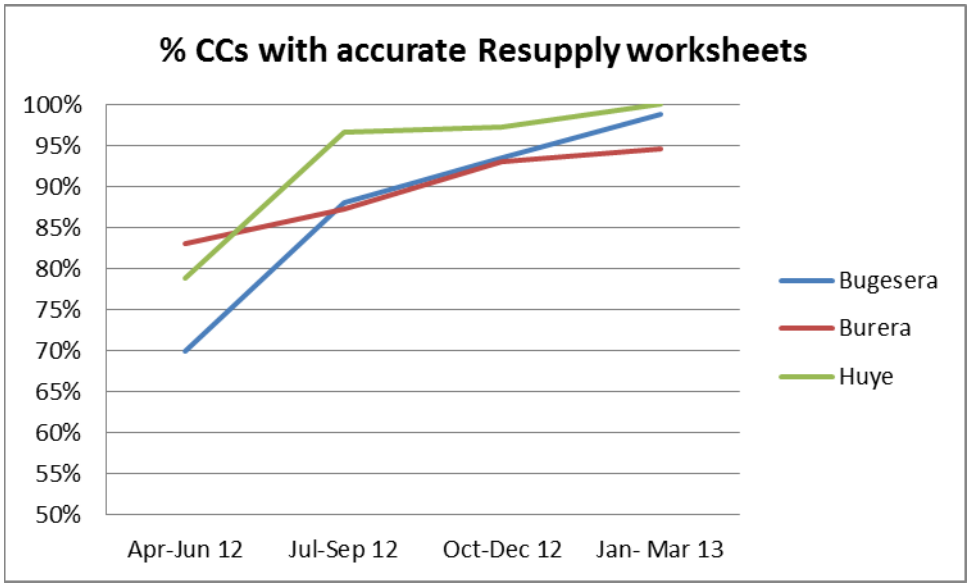


Figure 2. Percentage of Cell Coordinators with Accurate Resupply Worksheets



In **Zambia**, preventing PMTCT facilities receive Imprest-funding for regular operations, which the facility collects from the DHO. While interest in receiving the Imprest is high, the same level of interest has not always been seen in reporting. To increase the reporting rate, the district medical officer in the Chibombo district implemented the "No Report, No Imprest," conditioning disbursement of the monthly Imprest on receipt of the facility's report.

> Disbursement of the monthly operating budget, or Imprest, depends on the receipt of the facility's report.

To receive their monthly Imprest, facilities must submit their PMTCT Drug Report and Issue Voucher (PDRIV). This is not a national program; but it is an initiative being implemented at a district level (Chibombo district in the central province)—it affects 26 PMTCT-only facilities, all of them are remote.

The DHO maintains a tracking tool that is updated whenever a facility sends a report. The national logistics system also requires that a copy of the report be filed at the DHO when the reports are submitted. By looking at the DHO tracking tool and verifying it with the actual copies of the PDRIV (reports) filed at the DHO, it is possible to determine the actual number of facilities that report. Since the initiative began, results show that the average monthly reporting rate to the DHO stands at 84 percent, in some months reaching 100 percent in these facilities.

Evaluation Results/Lessons Learned

Pay-for-reporting schemes must be supported by proper monitoring tools and verification processes. Ideally, monitoring tools and the verification processes should be visible to everyone involved in the scheme, including the payee. In Nicaragua, the minister created information dashboards to show how regions were performing. The results were then shared in *situation rooms*—which are gatherings of health providers to discuss health issues; and, where supply chain concepts were introduced, with the PBI program and the dashboard. In addition to the computer and equipment awards, the information dashboards and the resulting supportive supervision and feedback appeared to be motivating factors for improving the health facilities' performance.

Similarly, in Tanzania, the surveillance visits at health facilities where the physical stock counts were registered and matched against the most recent data entered in the SMS for Life application, were important for the healthcare workers' perception of the project and its significance.

Supply chain incentives should be affordable but sufficient to motivate health workers to improve their behavior. One criticism of PBI is that they are expensive to implement and sustain, but as shown in Zambia, basing payment of facility operational costs on receiving the facility's report, involved no other funding outside the existing monthly operating budget; but, it was effective in motivating workers to improve their performance. It was also a clear signal that the action being measured was a strategically important one.

To draw conclusions on how much incentives drive improvement in performance, baseline information must be collected. In Tanzania, where a baseline was not done, it was difficult to determine how much the credit drove a timely response rate and how much was attributable to the effect of the training on the health workers' performance.

Schemes need to be a type that the ministry can propagate. At the outset, pay-for-reporting schemes must consider what will be required for the ministry to move forward. In Nicaragua, although the results indicated the awards improved reporting performance, the MOH could not maintain the scheme. In

Nicaragua, the Inter-American Development Bank (IADB) has moved this initiative forward and they are working with the ministry to scale up the scheme.

Conclusion

By linking performance to rewards as a tool to strengthen the performance of critical logistics functions—for example, reporting—PBI can effectively address the visibility of data and other gaps in public health supply chains. Pay-for-reporting schemes must keep in mind the local contexts and must be designed with affordable, yet motivational, incentives that will improve specific and measurable actions. Without robust monitoring and verification components that can reliably and accurately measure performance, pay-for-reporting schemes may not be able to provide the rigorous evidence needed to support scaling-up promising practices. The experiences from the country examples in this brief suggest that by recognizing and rewarding good performers, pay-for-reporting schemes can motivate timelier and higher quality reporting that will lead to increased visibility of critical data needed to manage the supply chain.

For More Information

The authors collected standardized information from each supply chain example and we collated the information in a common template that highlights the amount and source of funding, duration and scope of the PBF scheme, supply chain–specific indicators, evaluation strategy and results, and other items. For more information, see the USAID | DELIVER PROJECT website (http://deliver.jsi.com/dhome/whatwedo/commsecurity/csfinancing/csperfbasedfinancing).

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This brief was prepared for the USAID | DELIVER PROJECT by a team that includes Ellie Bahirai, James Rosen, and Brian Serumaga.

The authors' views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.

USAID | DELIVER PROJECT

John Snow, Inc.

1616 Fort Myer Drive, 16th Floor

Arlington, VA 22209 USA

Phone: 703-528-7474

Fax: 703-528-7480

Email: askdeliver@jsi.com

Internet: deliver.jsi.com