

TAJIKISTAN HEALTH SERVICES IMPROVEMENT PROJECT

IMPACT EVALUATION OF A PERFORMANCE BASED FINANCING PROGRAM

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2 GLOSSARY

ANC	Antenatal Care (prenatal care)
ARI	Acute Respiratory Infection
CQI	Collaborative Quality Improvement
CRC	Citizens Report Card
DALY	Disability-Adjusted Life Years
DHS	Demographic and Health Survey
ECA	Europe and Central Asia
HRITF	Health Results Innovation Trust Fund
HSIP	Health Services Improvement Project
IE	Impact Evaluation
IPC	Infection Prevention and Control
IMCI	Integrated Management of Childhood Illness
IUD	Intrauterine device
LAM	Lactational Amenorrhea Method
MCH	Maternal and Child Health
MOH	Ministry of Health
NCD	Non-communicable Disease
NGO	Non-governmental Organization
OECD	Organization for Economic Cooperation and Development
ORS	Oral Rehydration Solution
ORT	Oral Rehydration Therapy
PBF	Performance-Based Financing
PHC	Primary Healthcare
PPP	Purchasing Power Parity
RBF	Results Based Financing
RHC	Rural Health Center
UNICEF	United Nations Children's Fund
USSR	Union of Soviet Socialist Republics
YLL	Years of Life Lost

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4 EXECUTIVE SUMMARY

1. This report summarizes **the impact of the performance based financing (PBF) component of the Health Services Improvement Project (HSIP) for Tajikistan**. The goal of HSIP is to contribute to the improvement of the coverage and quality of basic primary health care (PHC) services in rural health facilities in selected districts. HSIP supports PBF in Khatlon and Sughd regions, in eight districts. Performance-based financing in Tajikistan incentivizes the coverage and quality of family planning, antenatal and postnatal care, child vaccination and growth monitoring, and hypertension and blood pressure management. The focus on both maternal and child health (MCH) indicators and non-communicable disease in adults over-40 reflects the dual burden of disease in Tajikistan.
2. This impact analysis relies **on a difference-in-difference analysis** which compared the change in trends between the PBF facilities and control facilities. A baseline survey was conducted between November 2014 and July 2015, and fieldwork for the follow-up survey took place from April to July of 2018. The final analytical sample included 210 rural health centers, 139 health houses, and 4910 households at baseline and 5689 households at follow up.
3. Overall, we found many improvements in utilization and quality of care in both treatment and control districts over the study period.
4. **PBF is an efficient mechanism in improving readiness and quality of care**. The results of the evaluation suggest that PBF significantly improved many aspects of quality of care: availability of equipment and supplies, infrastructure, service availability and content of care.
5. The evaluation finds **large increases in infrastructure and equipment indicators**. Equipment availability had benefits beyond patient services, such as infection prevention and control and vaccine storage. Improvements were noted even for indicators which are a national priority, such as increasing the availability of water. The evaluation also reported an **improvement in the availability in most drugs and in provider competency**, measured through clinical vignettes.
6. The evaluation shows evidence the improvements in structural quality and provider knowledge also translated into **better content of care**, as measured by direct clinical observations. For example, providers in the PBF facilities are significantly more likely to perform key physical exams such as measure blood pressure of adult patients and measure the height and weight of children under 5.
7. **The effect of PBF on healthcare utilization is mixed**. While we find strong evidence of improved quality at the primary level and observe that the communities noticed the change, we find more moderate impacts on utilization of health services by the community. With respect to adult health, we find positive impact of 8 percentage points on the likelihood adults over 40 had their blood pressure measured by a health professional in the preceding year. With respect to maternal and child health services, we find a 14 percentage-point increase in the rate of women who received timely postnatal care. However, we do not find statistically significant impacts on timing and number of antenatal consultations, child growth monitoring or vaccination. We also do not find an impact on family planning coverage.
8. **We find no evidence of negative spillovers on unincentivized services**. We also found evidence for an increase in the proportion of adults who reported using RHC or HH services, and a corresponding reduction the proportion of community members who passed over local PHC in favor of urban health centers or hospitals.
9. **Benefits extended to health workers and community members**. PBF increased providers satisfaction. The population noticed the improvements in the facilities and reported better engagement between the facilities and communities.

10. **The results from the impact evaluation of PBF in Tajikistan are overall in line with the global evidence about PBF.** Indeed, in many countries, PBF reforms have had mixed results in increasing utilization, while often leading to better results for quality of care (see Kandpal 2017 for an overview). The quality of care impacts measured in Tajikistan are actually among the strongest in the portfolio of impact evaluations because they go beyond structural quality (infrastructure and equipment) and also include significant improvements in the content of care as measured by direct clinical observations with health providers more likely to perform specific examinations during the visit.
11. This evaluation of performance-based financing (PBF) in Tajikistan shows that supply-side incentives to health facilities and health providers are effective in improving the quality of the care, including the content of care, provided. However, it appears that those supply-side incentives are not always sufficient to reach target coverage rates among mothers and their young children and adult patients. **These results suggest that demand-side barriers might limit improvements in coverage.** It might therefore be useful to further explore the role financial and non-financial barriers play on the demand side. Further, it might be interesting to pilot and evaluate the use of demand-side incentives, alongside supply-side incentives, as an approach to increase child and adult health utilization and outcomes.
12. This study evaluates also the impacts of two other interventions, **collaborative quality improvement and citizen report cards**, using a randomized design. Collaborative Quality Improvement (CQI) assists facilities in establishing a quality improvement framework and flow charts for case management. Citizen's Score Cards (CRC) establish dialogue and expectations with catchment communities. The results of these interventions are presented separately from that of PBF for several reasons. First, while the PBF pilot started in 2015, these two interventions were only introduced in the end of 2016 and therefore had less time to impact outcomes. Second, much less resources were spent on the design, implementation and monitoring of these interventions. Third, these interventions are narrower in scope relative to the PBF. For these reasons, a direct comparison of PBF, CRC and CQI is not appropriate.
13. **For the Citizen Report Card intervention, no significant** impacts are found when compared to the control arm. When CRC was implemented jointly with PBF, outcomes are overall similar to those in the PBF only arm. The only difference was found with respect to satisfaction of adults over 40. Relative to those living in the catchment areas of PBF only RHCs, the adults in the CRC+PBF areas were more likely to report improvements with respect to the attitude of providers, collaboration between RHCs and communities, facility infrastructure and quality of health services.
14. In comparison to the comparison arm, **children in the Collaborative Quality Improvement arm were less likely to be underweight by 7 percentage points.** While the results do not show impacts of CQI on utilization of health services and on knowledge of providers, they indicate that providers in the CQI arm better perform growth monitoring tasks and are more likely to discuss nutrition in general during under-5 curative consultations.

5 BACKGROUND

5.1 Project Context

5.1.1 Country Context

15. **Tajikistan is a mountainous and landlocked former Soviet republic in Central Asia.** The 2017 population is an estimated 8.93 million persons.¹ About three-quarters of the country live in rural areas, and over a third are under the age of 14.² Tajikistan has seen significant advances since the conclusion of the civil war in 1997. Industrialization has driven high rates of economic growth over the past decade, and literacy rates are nearly 100%. However, the country remains the poorest among former USSR states, classified by World Bank as a low-income country.² Remittances constitute much of economic input, estimated to be the third highest in the world at 31.6%.² About 54.2% of the population falls below the \$3.20 (2011 PPP) International Poverty Line benchmark for lower-middle-income countries, with a poverty gap of 18.9%.²
16. There are four levels of administration, the republican (national), *oblast* (province), *rayon* (district), and *jamoat* (municipality). Climate and availability of arable land vary drastically between *oblasts*, changing with elevation. Geographic differences and difficult terrain compound inherited political forces resulting in significant regional disparities; particularly in basic transportation and utilities infrastructure. Water and reliable electricity are unavailable or obsolete in many parts of the country.

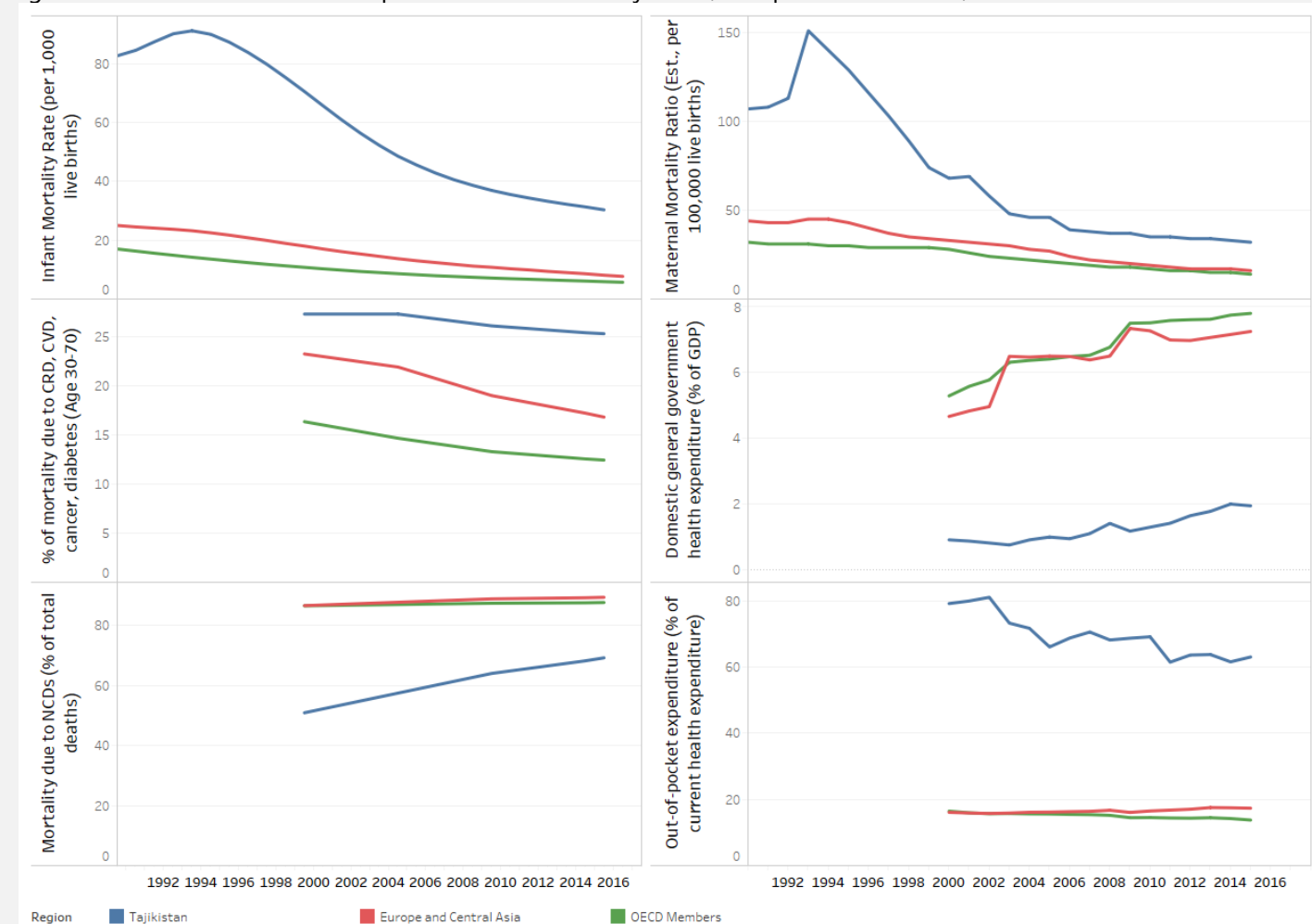
5.1.2 Health System and Outcomes

17. **The Tajik population is young and growing.** Life expectancy at birth has risen to 71.1 years, with a total fertility rate of 3.8.² Consistent progress has been made in reducing maternal and child mortality, though the Millennium Development Goals targets were not achieved and progress between districts is uneven. Combined with a decrease in morbidity of communicable disease, Tajikistan now faces a dual burden of chronic and infectious, nutritional, and maternal disease. Chronic disease burden in Tajikistan is growing, comprise 53% of Disability-Adjusted Life Years (DALYs).³ Cardiovascular diseases account for 20% of Years of Life Lost as of 2017, while maternal and neonatal conditions accounted for 16% of YLLs. Hypertension is poorly detected and managed in Tajikistan. As of 2012, 11% of the adult population reported having a heart check-up, and 42% a reported having a blood pressure test during the previous 12 months. Less than half (45%) of those with high blood pressure were aware of their status, and only 31% were prescribed treatment.
18. At 1.9%, public health expenditure on health is near the bottom of countries in the Europe and Central Asian (ECA) regional group.² Private out-of-pocket spending accounts for the majority (63%) of health outlays, and both informal and formal user fees are common.⁴ Public spending on subnational health service delivery is locally directed, adding to the uneven distribution of resources across oblasts.
19. **Tajikistan's health system is heavily centralized.** Health services are provided overwhelmingly within the public sector, focusing historically on hospital care and curative rather than preventative care.⁴ This model became unaffordable during the early years of Tajikistan's transition from the Soviet Republic; after independence informal out-of-pocket payments became customary.
20. **The structure of service delivery differs between urban and rural settings.** In urban areas, the rayon health centers provide the first level of health service, rayon hospitals deliver basic secondary care, and oblast and national hospitals can cater to specialized needs. Rural health centers (RHCs, subordinate to rayon health centers) provide basic secondary and primary care. RHCs may also manage 'health houses', which serve isolated or large kishlaks (villages) and jamoats (municipalities). Health houses offer basic medical care (vaccinations, prenatal care, immunizations, first aid) and medical referrals in remote areas. The level of service provided at the health house is matched against the available resources and infrastructure, and some basic services such as institutionalized delivery and hypertension

management are not offered universally. Staff at both health houses and RHCs spend a portion of their time supplementing clinic hours with home visits. Rural-urban and geopolitical disparities in care-seeking persist as coverage rates for key services are much lower in rural than in urban areas.

21. **Critical gaps persist in the quality of care.** Previous efforts to improve the financing, capacity and physical infrastructure at the Primary Health Care (PHC) level did not translate into sufficient improvements in quality of care. Supervision of PHC workers is irregular, and training is not performed systematically. In 2012 at the onset of this project, no Integrated Management of Childhood Illness (IMCI)-trained nurse worked in any of the 20 PHC facilities surveyed in the Sughd region. At least 60% of surveyed PHC facilities did not have the recommended supplies and equipment, and a significant proportion did not have essential antibiotics to treat common childhood illnesses.
22. **The Tajik population is inadequately covered by basic services such as nutrition counseling or family planning, especially in rural areas.** Only 63% of children under-5 years of age who had symptoms of acute respiratory infection (ARI) and 57% with fever were taken to an appropriate health care provider.⁵ Treatment for childhood diarrhea was sought from a health provider for 54 percent of the time. Six in ten of the children who had diarrhea were given fluids prepared from an oral rehydration solution (ORS) package. Coverage of antenatal care (ANC) is better. About 79 percent of pregnant women report they saw a health professional at least once for ANC (82.7% in urban areas and 77.7% in rural areas, Tajikistan DHS 2012). 87 percent of deliveries were assisted by a skilled provider, and 76.5 percent of all women delivered in a health facility (87.4% in urban areas and 73.6% in rural areas, Tajikistan DHS 2012). Though considerable progress has been made, Tajikistan has not yet achieved the targeted reductions in maternal and child mortality specified by MDGs 4 and 5 originally planned for 2015 (Figure 5-1). Infant mortality decreased from 72.9 deaths per 1,000 livebirths in 2000 to 30.3 in 2016, and the Children Under-five (CU5) mortality rate decreased from 91 to 34.6. Both remain higher than the target rates of 25 and 30, respectively.² Child mortality is driven by high rates of malnutrition, micronutrient deficiencies, and preventable illness. Prevalence of stunting in children under 5 is 26.8%, and acute infections are the leading cause of deaths in the post-neonatal period.² Acute respiratory illness (ARI), pneumonia, and acute diarrhea account for more than 50% of reported child deaths within the first year of life, a persistent pattern over the last eight years.⁶ Poor MCH outcomes are driven by systematic health sector issues, including substantial shortfalls in state funding, aging infrastructure, and outdated knowledge and skills among health workers. These barriers reduce access to and quality of care at all levels.⁷ Overall, among the two regions in which the evaluation was conducted, Sughd has health outcomes and utilizations above the national average (e.g. U5 mortality: 40, at least one ANC visit: 94.1%, in facility delivery: 93.3%, Tajikistan DHS 2012), while Khatlon is below the national average (e.g. U5 mortality: 61, at least one ANC visit: 66.8%, in facility delivery: 67.4%, Tajikistan DHS 2012).

Figure 5-1. Selected World Development Indicators for Tajikistan, Europe & Central Asia, and OECD members



Data from World Bank Microdata; World Indicators Database⁶
CVD – Cardiovascular disease; CRD – Chronic respiratory disease

5.2 Interventions

23. **The Tajikistan Health Services Improvement Project (HSIP) aims to improve coverage and quality of primary health care services with a focus on maternal and child health and non-communicable diseases.** In this project, multiple strategies for improvement are being implemented, including performance-based financing (PBF); collaborative quality improvement (CQI) tools and methods, Citizen Report Cards (CRC); and the corresponding combinations of these strategies. Project activities take place in primary health care facilities serving rural areas in selected districts in Khatlon and Sughd oblasts.

5.2.1 Performance-Based Financing

Overview

24. Performance-based financing is a health system reform aimed at increasing the quality and coverage of basic health services to attain universal health coverage.⁹ A comprehensive definition proposed by “performance-based financing is a supply-side reform package guided towards improved performance (defined as increased predefined services and improved quality measures) by using performance-based financial incentives for health providers (facilities and/or workers) through internal contracting and strengthening this with most or all of the following elements: a separation of functions (purchaser, provider, verifier), (spending) autonomy for the health facilities, strict monitoring and

verification of services, community involvement, result-based planning and accountability arrangements.”⁸ This definition reflects the variety in implementation and design as PBF interventions are adapted to country context. The common underlying mechanism is the provision of supply-side incentives by purchasing a set of specified health services, conditional on the quality of service provision.

25. The dual burden of MCH and NCDs in Tajikistan and poor service provision suggested, based on the emerging international evidence, that the use of PBF as a potentially powerful tool to improve primary health care (PHC) in Tajikistan. Although demand side activities to motivate the population to access PHC services were also considered, a feasibility assessment done in 2012 concluded that it was still too early to pilot such an approach in Tajikistan. As such the initial focus would be on supply side interventions, with possible inclusion of a demand side approach at a later stage.
26. The hypothesis is that supply-side pay for performance scheme which links facility payments and health worker performance bonuses to service outputs and quality of priority PHC services at facility level could:
 - Create incentives to improve the coverage and quality of priority PHC services
 - Motivate health workers to use their skills and knowledge to achieve results
 - Lower informal payments by increasing payments for health workers while increasing their accountability for results
 - Improve facility functioning by giving managers autonomy to use RBF resources to procure inputs needed to deliver health services
 - Increase resources for priority PHC services by supplementing funds and in-kind support facilities receive through the existing mechanisms and sources

Program Structure

27. Facilities receive financial incentives every quarter according to the volume of services delivered and an overall quality score. Providers reported that PBF payments were received in a timely manner. Quantity and quality are rewarded in combination to avoid unintended effects on provider behavior; quality payment is a proportion of quantity payment. The selected incentives deliberately emphasize preventative rather than curative services to avoid excessive or unwarranted service provision. All indicators are measured by health facilities using their registers and patient records, verified by district health teams and the State Health Activities Supervision Services (SHASS) agency. Quality of care is scored by a quality checklist, conducted during the SHASS visits. UNICEF conducted 7 rounds of additional external independent counter verification to confirm the reporting by the facilities, both in terms of quantity of services provided and in terms of quality of care assessment. A maximum of 70% of PBF payments to the facilities can be distributed as bonuses to clinical staff, with 30% allocated towards reinvestment in the facility. District health teams approve action plans developed by the facilities to approve these reinvestments.

Performance-based financing in Tajikistan incentivizes maternal and child health and hypertension services, and general quality of care. Following the midterm review of the project in 2017, the specific indicators were revised. The indicators of service quantity and the corresponding incentives, before and after the manual revision, are listed in

Table 5-1 Incentivized Services by Quantity and Quality

A: Incentivized services and quantity

	Before MTR: 2015-2016	After MTR: from 2017
Child	Fully vaccinate children <13 months	Same
Nutrition	Detection of malnourished children <5	Growth monitoring for children < 2
	Treatment of malnourished children <5 years	Improvement in the status of malnourished
Antenatal care	Initiation in first 12 weeks of pregnancy	Same
	At least 4 visits with the last one in the last 3	At least 4 visits with the last one within 2
Postnatal care	Consultation within 7 days after delivery	Postnatal home visit within 3 days after
Family planning	Women 15-49 using modern FP methods	New users of modern FP methods
		Old users receiving additional pills or injection
Hypertension	Detection for adults > 18 years	Same
	Treated hypertensive adults	Same

B: Quality Bonus Formula

Quality score	Quality bonus (% of quantity payment)	
	Before MTR: 2015-2016	After MTR: from 2017
90%+	150%	100%
85% - <90%	125%	90%
80% - <85%	100%	70%
75% - <80%	75%	50%
70% - <75%	50%	35%
65% - <70%	30%	20%
60% - <65%	20%	10%
55% - <60%	10%	5%
<55%	no bonus	no bonus

28. . Services targeting child health include the number of fully vaccinated children under age of 13 months, and growth monitoring and nutrition services for children under 5. Services targeting women included timeliness and quantity of

ANC visits, postnatal care visits, and contraceptive use. Hypertension services target increasing the number of diagnoses, and the number of hypertensive patients on treatment.

Table 5-1 Incentivized Services by Quantity and Quality

A: Incentivized services and quantity

	Before MTR: 2015-2016	After MTR: from 2017
Child	Fully vaccinate children <13 months	Same
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B: Quality Bonus Formula

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85% - <90%	125%	90%
80% - <85%	100%	70%
75% - <80%	75%	50%
70% - <75%	50%	35%
65% - <70%	30%	20%
60% - <65%	20%	10%
55% - <60%	10%	5%
<55%	no bonus	no bonus

29. also presents the formula used for calculating the incentive amounts based on the quality score. If the score falls below a certain threshold, a "fine" can be levied on the health facility. The quality score is determined by a quality check containing both clinical and non-clinical indicators. The quality checklist for the RHC contains 93 separate

indicators in ten categories. Health house checklists are a subset, containing 60 indicators in 8 categories, reflecting the reduced number of services provided. The category with indicators about laboratory services and non-communicable diseases are only relevant for RHCs. The quality checklist includes indicators directly related to the incentivized services but also includes quality indicators related to non-incentivized services such as diarrhea and ARI. Examples of Non-clinical items include items related to hygiene and cleanliness, an organization of patient files, HMIS records, stock of drugs and supplies, as well as (financial) management issues.

Table 5-1 Incentivized Services by Quantity and Quality

A: Incentivized services and quantity

	Before MTR: 2015-2016	After MTR: from 2017
Child	Fully vaccinate children <13 months	Same
Nutrition	Detection of malnourished children <5	Growth monitoring for children < 2
	Treatment of malnourished children <5 years	Improvement in the status of malnourished
Antenatal care	Initiation in first 12 weeks of pregnancy	Same
	At least 4 visits with the last one in the last 3	At least 4 visits with the last one within 2
Postnatal care	Consultation within 7 days after delivery	Postnatal home visit within 3 days after
Family planning	Women 15-49 using modern FP methods	New users of modern FP methods
		Old users receiving additional pills or injection
Hypertension	Detection for adults > 18 years	Same
	Treated hypertensive adults	Same

B: Quality Bonus Formula

Quality score	Quality bonus (% of quantity payment)	
	Before MTR: 2015-2016	After MTR: from 2017
90%+	150%	100%
85% - <90%	125%	90%
80% - <85%	100%	70%
75% - <80%	75%	50%
70% - <75%	50%	35%
65% - <70%	30%	20%
60% - <65%	20%	10%
55% - <60%	10%	5%
<55%	no bonus	no bonus

5.2.2 Collaborative Quality Improvement

30. **The Collaborative Quality Improvement intervention responds to concerns that performance incentives may not produce improvements if providers lack the necessary competencies, data, and knowledge.** CQI introduces and collaboratively creates a toolset aimed at defining, monitoring, and improving clinical care for services. In Tajikistan, CQI focused on child malnutrition, acute respiratory infections, and hypertension.
31. **The principal quality improvement tool is a flowsheet, used to track and remind clinicians of the recommended process for each visit.** Flowsheets were developed for monitoring hypertension and nutrition, managing pneumonia and diagnosing hypertension. Quality metrics were developed for each of these areas, including measuring the percentage of patients with blood pressure under control; a composite index of appropriate drug management (e.g. use of ACE inhibitors in diabetes); lifestyle; malnutrition (stunting, wasting, underweight); dietary habits (e.g. breastfeeding, introduction of complementary foods at age 6 months), and clinical interventions (e.g. vitamin supplementation). Indicators are tracked in a database, populated by the flowsheets. Reports allowed patient-level notifications such as identifying patients in poor control needing more intensive treatment, overdue for visits. Clinic staff were trained on how to submit monthly quality improvement plans. All tools were refined during extensive field testing.

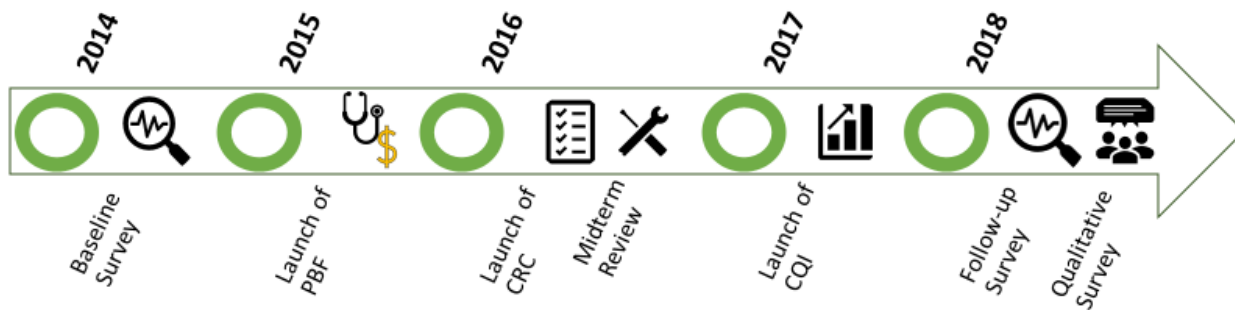
5.2.3 Citizen Score Cards

32. **The Citizen Report Card aims to strengthen the accountability of health facilities to their local constituents.** Within a wider suite of approaches, information and accountability interventions have emerged as potential policy solutions to improving the performance of public service providers.⁹ Scorecards are an active form of accountability as they involve meetings of citizens and providers to engage in the planning and supervision of local health care services and to facilitate interaction and priority-setting among local actors. The core functions of report cards are to aggregate and communicate information on health care outputs (quantity and quality) to track performance and enhancing accountability.
33. Report cards can improve health sector outcomes by informing patients as well as providers.¹⁰ First, by communicating standards of care to providers who may be unaware of their performance relative to their peers or clinical standards, report cards may intrinsically motivate some providers to increase their effort or learning and the quality of care they deliver. Second, where choice is available, report cards can enable patients to select higher quality providers. This can improve both the average quality of care received, as patients sort into better providers, and the absolute quality of care available, as providers respond to changes in patient demand by improving their quality ratings.¹¹ Reporting initiatives can also engage local stakeholders and providers even where there is little or no choice between providers, for instance by encouraging communities to demand improvements on particular aspects of service provision. Overall, health care report cards have been associated with better matching of providers and patients¹², lower mortality,¹³ and improvements in various process and outcome indicators,¹⁴ in a range of contexts.
34. In contrast to high income countries, where report cards are a well-established part of performance-based accountability systems, there are only a few documented reporting initiatives in low- and middle-income settings.¹⁵ Preliminary assessments suggest an overall improvement although the impacts for individual indicators are more mixed (MEASURE 2003). In a community-based monitoring program in Malawi, local organizations also used report cards to support participatory decision processes but generated priority areas and scoring for the report card through focus groups rather than surveys.¹⁶ A randomized experiment in Uganda used household and facility surveys to report on a curated list of measure such as quality of services, informal user fees, and utilization. Facilitators from local NGOs used participatory methods to disseminate the information during a series of meetings with community members and facility staff, with the aim of raising awareness, identifying common priorities and developing 'action plans' to effect improvements.¹⁴ The findings suggest this intervention stimulated community monitoring and provider effort,¹⁴ and led to improvements in utilization and health outcomes which persisted over four years.¹⁷ This research also suggests complementing participatory interventions with specific information about providers' performance may help communities identify problems which can be addressed by local action of users or health care workers.¹⁷

35. In the Tajikistan program, the Citizen Report Cards was introduced from September 2015 to 2018. Between September 2015 and May 2016, the intervention was developed, the meetings schedule and content were prepared and piloted and 2 facilitators were recruited. During the evaluation period, 3 rounds of meetings with the population and health staff were carried out. Meetings with the population were held without the presence of the health staff, in Jamoats. A total of 288 meetings were held reaching a population with 4900 participants. In addition, similar meetings were conducted separately with the health staff, for a total of 288 meetings with 1,440 attendants. Both meetings discussed the facility report card calculated based using first the baseline survey data (first rounds) and the data from the PBF program (subsequent rounds). After discussing the report card, both meetings focused on formulating action points for improvement that could be included in a joint action plan. The organization of meetings with the population and the invitation of participants in all districts was arranged with the support of Jamoats and Mahalla Committees in target villages. The necessary assistance in organizing meetings with the health staff in pilot and control RHCs was provided by the district PHC management– Managers of the District Health Centers.
36. Figure 5.2. below illustrates the timeline for the baseline and endline surveys as well as for the implementation of the three interventions.

Figure 5-2: Evaluation and intervention timeline

Timeline



6 METHODS AND DATA

6.1 Study Objectives

38. The policy objective of this Impact Evaluation (IE) is to build evidence on the impact of the performance-based financing (PBF) project in Tajikistan. More specifically, the IE would seek to ascertain: (i) the impact of the PBF model implemented in Tajikistan; and (ii) whether PBF is more effective if implemented in conjunction with additional low-cost interventions (Collaborative Quality Improvement (CQI), Citizen Report Cards (CRC)). The results from the IE will help to inform the Ministry of Health (MOH) on whether PBF should be scaled-up to additional primary health care (PHC) level institutions in other regions.
39. Since PBF, collaborative quality improvement, and citizen scorecards have never been implemented in large scale in Tajikistan; it is to be expected the results from the IE will be useful for designing national PHC policy in Tajikistan, and they will also contribute to the larger body of knowledge on these interventions.
40. Three primary research question focuses on the impact of the different intervention on coverage and quality of care:
 1. What are the effects of PBF on the coverage and quality of targeted health services?
 2. What are the effects of the CQI and CRC intervention on quality and coverage of health services relative to business-as-usual?
 3. What are the incremental effects of the CQI and CRC interventions when they are implemented in combination with PBF?
41. The main targeted outcomes the IE measures fall into three main groups: (a) PHC service coverage indicators specifically focusing on maternal and child health (MCH) and non-communicable disease (NCD), (b) quality of care indicators, and (c) selected health outcome indicators to be measured through anthropometry or tests. Although the project tries to improve maternal and child health outcomes, detecting such outcomes might require years and a very large sample. Therefore, as reflected in the research questions above, the IE will focus mostly on the intermediate outputs of the project, i.e., service coverage and quality, and equity, and may not have adequate power to detect statistically significant changes in health outcomes.

6.2 Study Design

6.2.1 Empirical Strategy

42. The IE employs both difference-in-difference and experimental approaches to identify the impact of the different combinations of interventions. Assignment to PBF was not random. Three districts in the Sughd region and four districts in the Khatlon region were selected to implement the program. The availability of functional facilities, basic medical equipment, and trained staff were pre-requisites for implementation of the PBF scheme in the project districts. All Rural Health Centers in these seven districts are covered by the program. Nine additional districts (two in Sughd and seven in Khatlon) were selected as control districts. The selection of control districts was guided by geographical proximity to treatment districts and similarity regarding the number of health facilities and doctors per capita. The districts were also selected so the number of RHCs in treatment and control groups in each region would be similar. The MOH reported that no new interventions were introduced since the launch of the program in the control districts and could not identify a major project targeting the same indicators.
43. A randomized evaluation design is used to answer primary research questions 2 and 3 evaluating the effects of the additional CRC and CQI interventions on outcomes when implemented by themselves or beside the PBF scheme.

Within the chosen 16 districts (treatment and control districts), of an RHCs were randomly assigned to implement Collaborative Quality Improvement, Citizen Score Cards, or neither of these two interventions. The blocked-by-district randomization seeks to ensure the different study groups are comparable regarding observed and unobserved characteristics which could affect treatment outcomes so average differences in outcome can be causally attributed. This process resulted in six study arms as presented in Table 6.1. Successful randomization would ensure a balanced sample between study groups 1, 2 and 3 and between study groups 4, 5 and 6 to facilitate causal inference. The randomization of the CQI and CRC intervention was blocked by the district. The difference between a regular cluster-randomized trial (CRT) and a blocked CRT lies in how the treatment units—the rural health centers in this case—are randomly allocated into the different study arms. In a regular CRT, health facilities would be randomly assigned into a study group independent of the region (or rayon) they belong to. In this blocked-by-district CRT, each district will have its randomization scheme.

44. Baseline balance for the randomized part of the evaluation was established and is further detailed in Appendix Table A10.4-1 through Table A10.4-10 and in the baseline report.¹⁸ Table 6.2 below report the baseline sample characteristics in the PBF and control districts and find few differences even though that comparison is not based on a random assignment.

45.

Table 6-1 Study Arms

#	Study Arm	Description
1	Treatment Group 1 (T1)	PBF only clusters*
2	Treatment Group 2 (T2)	PBF + Collaborative Quality Improvement clusters
3	Treatment Group 3 (T3)	PBF + Citizen Report Card clusters
4	Treatment Group 4 (T4)	Collaborative Quality Improvement clusters
5	Treatment Group 5 (T5)	Citizen Report Card clusters
C	Comparison Group (C)	Business-as-usual clusters

* A cluster is defined as a Rural Health Center (RHC) and its corresponding Health Houses (HHs). RHCs and HHs in PBF and comparison districts were randomly assigned to study groups.

Table 6.2 : Sample characteristics at baseline

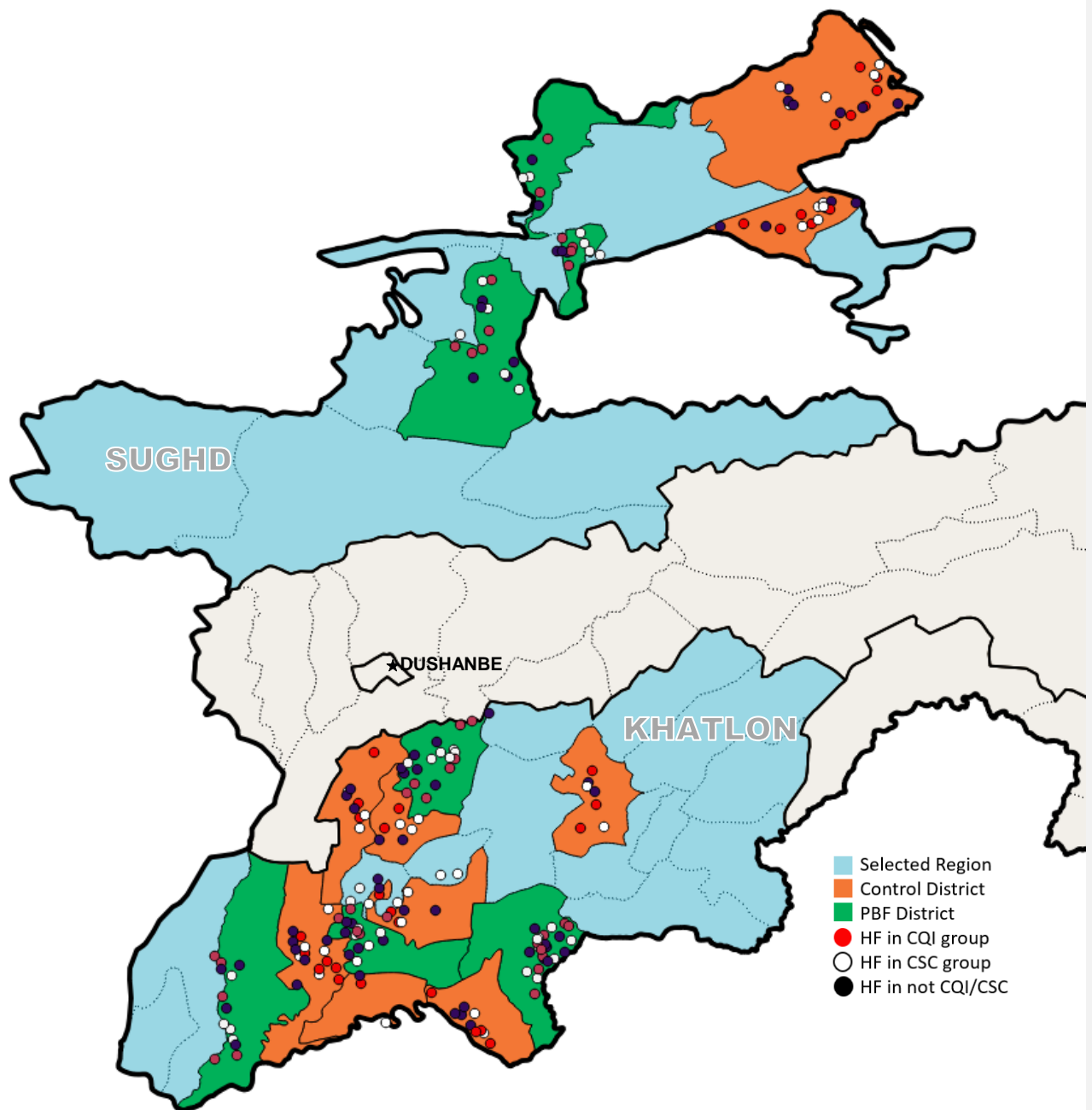
	Variable	Means by treatment group		p-value for testing difference between PBF and control ^a	N
		PBF	Control		
Rural Health Centers	Khatlon region	0.70	0.68	0.95	210
	Any affiliated health houses	0.69	0.77	0.44	210
	Number of health houses	1.60	2.49	0.08*	210
	Catchment population	5030	5612	0.57	201
	Number of physicians	1.56	1.34	0.72	210
	Number of midwives	1.03	1.10	0.72	210
	Number of nurses	3.98	3.42	0.65	210
	Laboratory	0.17	0.24	0.54	210
	Improved source of water	0.72	0.73	0.89	210
	Share of general equipment	0.74	0.83	0.24	210
	Share of essential drugs	0.26	0.29	0.75	210
Health Workers	Male	0.39	0.38	0.89	1045
	Age	42.63	42.34	0.83	1045
	Physician	0.23	0.22	0.90	1045
	Midwife	0.11	0.11	0.89	1045
	Nurse	0.45	0.39	0.38	1045
	Years of experience	18.63	18.07	0.68	1045
	Monthly income (in TJS)	634	670	0.24	1037
	Days absent in past month	0.34	0.69	0.12	1045
	Hours worked in past week	22.37	26.53	0.37	1045
	Patients seen in past day	3.83	8.14	0.004***	1044
Recently pregnant women	age	26.49	26.58	0.73	2829
	Lowest wealth quintile	0.19	0.15	0.56	2829
	Low wealth quintile	0.21	0.16	0.30	2829
	Middle wealth quintile	0.23	0.18	0.05*	2829
	High wealth quintile	0.19	0.22	0.45	2829
	Highest wealth quintile	0.19	0.29	0.26	2829
	At least secondary education	0.60	0.60	0.99	2829
	married	0.98	0.97	0.30	2829
	Number of children	2.38	2.27	0.23	2733
	Received any ANC	0.93	0.86	0.25	2829
	Timely ANC	0.74	0.68	0.30	2509
	At least 4 ANC visits	0.52	0.62	0.49	2826
	Received PNC	0.57	0.67	0.14	2829
Adults 40 years and above	Male	0.47	0.45	0.05*	5038
	Age	54.60	54.91	0.39	5038
	Lowest wealth quintile	0.22	0.14	0.28	5038
	Low wealth quintile	0.22	0.17	0.28	5038
	Middle wealth quintile	0.22	0.19	0.30	5038
	High wealth quintile	0.19	0.23	0.42	5038
	Highest wealth quintile	0.16	0.28	0.18	5038

At least secondary education	0.65	0.62	0.71	5038
Married	0.88	0.85	0.02**	5038
Blood pressure measured in past year	0.50	0.45	0.50	5038

Data from Baseline survey.

^a The tests are based on ordinary least square regressions with standard errors clustered at the district level.

Figure 6-1 Map Rural Health Centers and Project Areas in Western Tajikistan

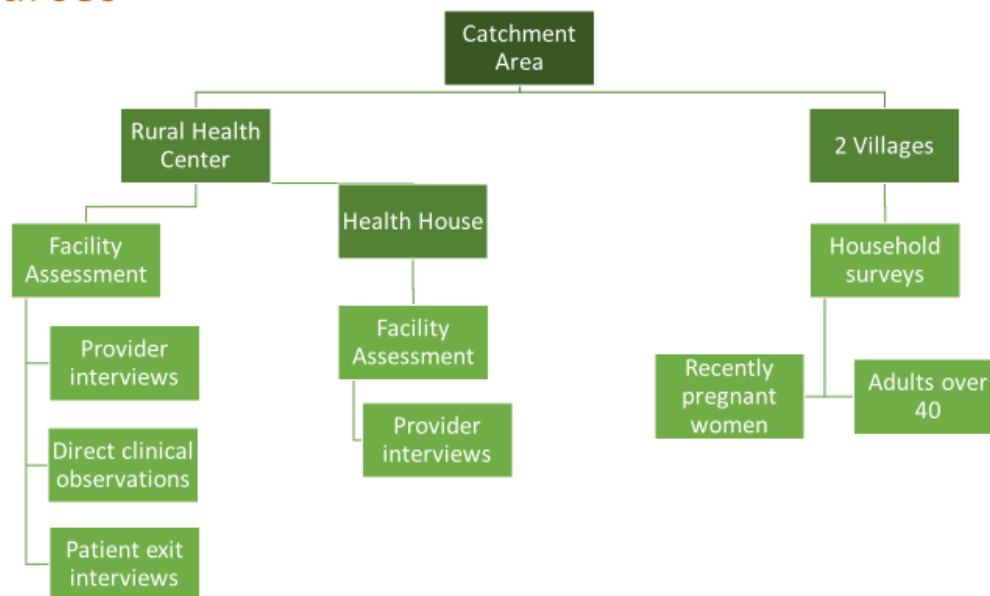


6.3 Data Sources and Tools

46. Outcomes in treatment and comparison groups were measured over time using a combination of health facility and household survey data. The goal of the facility-based survey was to measure multiple dimensions of quality of care and collect detailed information on key aspects of facility functioning. Household surveys were primarily used to measure health service coverage at the population level as well as select health outcome indicators measured through anthropometry or tests. The surveys also collected broader data on the health of the households, health-seeking behaviors and barriers to the use of health services.
47. The HRITF survey instruments were adapted to the Tajik context. Additional modules were developed to correspond to the project focus on NCD outcomes on top of the MCH outcomes. Representatives of the MoH, Zerkalo, and members of the WB team conducted several field visits to health facilities to inform the adaptation of the survey instruments. The instruments were pretested three times between August and October 2014, before the training of the field team. A consultant with public health and medical expertise was hired to develop the clinical instruments. Household questionnaires were translated into Tajik while health facility questionnaires were translated into Tajik and Russian.
48. The baseline survey of households, Rural Health Centers, and Health Houses was conducted from November 2014 to July 2015 to provide a baseline against which the impact of the project would be measured. A follow-up survey was conducted from March to July 2018 to measure outcomes after three years of project implementation¹. A local firm, Zerkalo, was selected through an international competitive procurement process to manage all aspects of the data collection. Figure 6.2. summarizes and illustrates how data collection was organized for the baseline and endline surveys. Identical instruments were used with few adjustments.

Figure 6-2: Data sources

Data sources



¹ Both baseline and endline household surveys were conducted in the second quarter of the year. As for the facility survey, the baseline survey was conducted in winter while the follow up was done in spring.

6.3.1 Facility-Based Surveys

49. Health Facility Assessment: A complete health facility survey was conducted in RHCs, whereas for health houses a shorter survey was implemented. The facility assessment module seeks to collect data on key aspects of facility functioning and structural aspects of quality of care. The respondent for this module were the individuals in charge of the health facility at the time when the survey team visits the health facility. The main themes to be covered by the facility assessment include:
- Facility staffing, including the staffing complement of the facility, staff on duty at the time of the survey team's visit and staff present at the time of the survey team's visit
 - Facility infrastructure and equipment
 - Availability of drugs, consumables, and supplies at the health facility
 - Supervision
 - Record keeping and reporting to the Health Management Information System
 - Service volumes
50. Health Worker Questionnaire: A random sample of 4 health workers was to be taken at each of the RHCs and HHs included in the sample. Eligible health workers include doctors, nurses, midwife/auxiliary midwife, and any other health worker providing MCH or NCD care. In facilities with less than four health workers on their staff roster, all eligible health workers were to be interviewed. The main themes to be covered by this module include roles, responsibilities, and characteristics of the interviewed health worker; Staff satisfaction and motivation; technical knowledge on MCH and NCDs. Knowledge was assessed by provider vignettes on MCH and NCD protocols and diagnosis.
51. Direct Observation of Patient-Provider Interactions: The goal of the direct observations is to assess adherence to protocols regarding Integrated Management of Childhood Illness (IMCI) and hypertension management. At each Rural Health Center, up to 15 children under-five and up to 15 adults over 40 years who are potential candidates for hypertension identification/management services were to be selected. A member of the survey team observed consultations using a structured format to note whether key desired actions were carried out. In the case of patients under five, the instrument focuses on whether IMCI protocols are followed. For adults over 40 years, the instrument focuses on whether MoH and international protocols are followed. The direct observations were implemented only in RHCs.
52. Patient Exit Interviews: The same set of patients who were selected for the direct observations of patient-provider interactions were also selected for exit interviews. If the patient is a child, the child's caregiver was interviewed. The exit interviews collected data on the patients' perceived quality of care and satisfaction with the care given. Additional information was collected on the socio-economic background and the general health of the patient. Like the direct observations, the exit interviews were only administered in RHCs.

6.3.2 Household Survey

53. The household survey is composed of three questionnaires: the main household questionnaire, a female and child questionnaire, and a questionnaire for adults over 40 years. The main household questionnaire was implemented in all households. According to the sampling strategy, separate samples were to be selected for household with a member recently pregnant and households with adults over 40.
54. Main household questionnaire: The main respondent for the household-level questionnaire is the head of household and spouse, although a few modules were administered to each member of the household. The respondent could ask for support from other household members on specific questions regarding the household. Both anthropometric and blood pressure measurements were conducted three times with each respondent. The household questionnaire focused on the following topics:

- Socio-demographic characteristics: household composition and the age, marital status, employment, and education level of all household members
- Income, transfers, assets, and housing
- Consumption of food and other items
- Migration of household members in and out of the country
- Mortality
- Utilization of health care
- Blood pressure measurements for all adults over 18 years

55. Women of Reproductive Age. The female questionnaire was administered to a female household member(s) 15-49 years old. The topics covered by the questionnaire were:

- General health status
- Pregnancy history, reproductive health, and utilization of family planning methods
- Antenatal, delivery and postnatal care received during recent pregnancies/births
- Vaccination of children under five years
- Anthropometric measures of the children under five years

56. Adult Over 40: The respondent(s) for this questionnaire are household members above the age of 40 years. The topics of focus for the questionnaire were:

- General health status
- Health-related behaviors such as physical activity, smoking and alcohol consumption
- Health care seeking
- High cholesterol and other health conditions

6.4 Statistical Analysis and Sampling

57. A difference-in-differences approach is used to evaluate the impacts of the PBF intervention on outcomes of interest. For the PBF-related outcomes, change over time in treatment groups 1-3 is compared to treatment groups 4,5 and the comparison group. The validity of this approach relies on the assumption that changes over time are not related to the PBF intervention, also known as parallel trends. We used the Tajikistan Demographic and Health Survey 2012 (TJDHS2012) data to assess the parallel trends assumption for the years 2008-2012. Using the data on pregnancies in different years, we created annual indicators for behaviors related to ANC visits, breastfeeding, and vaccinations. We tested whether we could reject parallel trends in the rates between project districts and the other districts within the same regions shown in Table 6-2. We failed to reject the parallel trend for any indicator. While it is reassuring we could not reject parallel trends in previous years, the identification of causal effects still relies on the assumption that trends, absent of our interventions, would remain the same during the years of the project implementation.

Table 6-2. Establishing Parallel Trends, Tajikistan, 2007-2012

Selected Indicators	# ²	DD	
		β^1	t
ANC Visits within 12 weeks	1163	-0.05	-0.68
4 or more ANC visits	1463	-0.05	-1.17
BCG vaccination date	2532	0.02	0.35
DPT 1 vaccination	2532	-0.01	-0.18
Polio 1 vaccination	2532	0.01	0.13
DPT 2 vaccination	2532	-0.03	-0.40
Polio 2 vaccination	2532	-0.02	-0.35
DPT 3 vaccination	2532	-0.02	-0.37
Polio 3 vaccination	2532	-0.01	-0.20
Measles vaccination	2532	-0.03	-0.50
Polio 0 vaccination	2532	-0.04	-0.59
Months of breastfeeding	628	-0.23	-0.31

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

Regressions use a difference in difference specification. Standard errors are adjusted for 158 clusters.

Data are taken from 2012 Demographic and Health Survey in Tajikistan and ?. To preserve the anonymity of respondents, the location of DHS clusters is randomly displaced up to 2 km in urban areas and 5 km in rural areas, with 1% of clusters displaces up to 10km. Some clusters may be misclassified between treatment and control if the displacement changes the district of the cluster, substantively altering the results of the analysis.

6.4.1 Sampling Framework

58. Table 6-3 presents the number of RHCs selected for the sample for each district. Of the 216 RHC selected for the sample (after randomly excluding some RHCs when the total was not divisible by three), 151 have subsidiary HHs. Forty-three HHs were selected of the sample in Sughd and 107 in Khatlon.
59. While some Rural Health Centers have one or more subsidiary Health Houses in their catchment areas, others do not have any. One Health House from each RHC with subsidiary HHs was to be included in the sample. The selection was random with each health house within a cluster having an identical probability of being chosen. Non-selected health houses were ranked to serve as replacements if the survey cannot be implemented in the selected HHs.

Table 6-3. Rural Health Center Selection by Region and District

	District (Rayon)	PBF Treatment / Control	# RHC	# RHC Included
SUGH D	Ganchi	PBF	15	15
	J. Rasulov	PBF	14	12
	Matcha	PBF	7	6
	Asht	Control	18	18
	Kanibadam	Control	16	15
KHATLON	J. Rumi	PBF	16	15
	Kabadiyan	PBF	16	15
	Farkhor	PBF	26	24
	Yavan	PBF	22	21
	Kumsangir	Control	9	9
	A. Jomi	Control	7	6
	Vakhsh	Control	14	12
	Jilikul	Control	15	15

Households

60. The evaluation relies on two samples of households. As the primary focus of the PBF intervention is on Maternal and Child Health (MCH) services, the main household sample is of households with women who experienced a recent pregnancy. This sample would not be appropriate to study the impact on the coverage of services related to Non-Communicable Diseases (NCD). Therefore, a second sample consists of households with individuals over the age of 40. The household samples are clustered according to the catchment area of each Rural Health Center (and its affiliated health houses).
61. To estimate the needed sample size of households per cluster for the households with recent pregnancies, the research team used data from a household survey collected by the Swiss Tropical and Public Health Institute in the project regions in 2012 for a study conducted to inform the design of the PBF project. The outcome chosen for this analysis is the completion of at least four antenatal consultations during pregnancy, one of the PDO levels results in indicators of the project. 65.5% of women reported at least four consultations during their last pregnancy. The intra-cluster correlation is 0.052 after controlling for rayon of residence. Assuming a t-test significance level of 0.05 and a power of 0.8, a sample of 20 households per cluster could detect an effect size of six percentage points in the diff-in-diff analysis comparing the PBF and control districts. Under the same set assumptions, the cluster size of 20 households per RHC would also allow detecting an effect of eight percentage points when employing the experimental design to compare the outcomes with and without the CRC and CQI interventions.
62. The resulting targeted primary household sample size is of 4,320 households, with twenty in each of the 216 clusters in the six study arms. To be eligible to be included in the household survey sample, households must have had at least one woman aged 15-49 years who has had a child in the preceding three years. The same villages were covered for both the baseline and followed up survey and eligibility was determined at each round by a listing exercise.
63. For budgetary reasons, the impact on NCD outcomes could only be measured in treatment group 1 (PBF only) and the control group. To estimate the needed sample size of households per cluster for these outcomes, we use nationally

representative data which includes blood pressure measurement. The outcome chosen for this analysis is an indicator of high blood pressure. The data show the prevalence of high blood pressure increases significantly between ages 30 and 40. Because of the relatively low number of individuals above the age of 40, these calculations are performed using the sample of individuals above the age of 30 and combine both men and women. About 40% of individuals in this age group have high blood pressure. The intra-cluster correlation is 0.03 after controlling for rayon of residence. Assuming a t-test significance level of 0.05 and power of 0.8, a sample size of 22 households per cluster will allow detection of nine percentage points reduction.

64. The resulting targeted sample size for the secondary household sample is 1,584 households, with 22 in each of 72 clusters in two of the six study arms. Eligibility for this sample is determined by an individual over the age of 40 in the household. Eligibility for the two samples is determined by a common listing of households in selected villages. Households which satisfy both eligibility criteria can be randomly selected to count towards the sample size requirements for both.
65. A two-stage cluster sampling methodology was employed to identify random samples. First, villages were randomly selected out of a list of the villages served by each facility. The list was obtained from the MoH. RHCs have either single or multiple villages in their catchment areas while HHs typically serve a single village. If an RHC has at least one affiliated HH, then two villages were selected. One village was directly served by the RHC while the other included in the sub-catchment area of the HH. In each village, 100 households were listed. If the village had over 100 households, a random walk method was used to select the target number. A short questionnaire was conducted at each household to determine households' eligibility for the two samples. From all eligible households, the target sample for each catchment area was selected. In catchment areas in which two villages were included in the sample, half of the households were to be selected from each village.

6.4.2 Empirical specification

66. The following difference-in-difference specification is used for estimating the impact of the PBF intervention on outcomes of interest:

$$y_{idt} = \beta_0 + \beta_1 * PBF_d + \beta_2 * Post_t + \beta_3 * PBF_d * Post_t + \gamma X_{idt} + \varepsilon_{idt}.$$

y_{idt} is the outcome for health facility/health provider/patient/household i in district d in period t . PBF_d takes value 1 if the observation belongs to a PBF district and zero otherwise. $Post_t$ takes value 1 if the observation is from the follow up survey and 0 if it is from the baseline survey. X_{idt} is a vector of control variables.

67. The model above compares outcomes in study arms T1, T2, and T3 to those in study arms T4, T5, and C. To evaluate the impacts of the combination of interventions as implemented in each study arms, we employ the following model:

$$y_{ict} = \beta_0 + \beta_1 * T1_c + \beta_2 * T2_c + \beta_3 * T3_c + \beta_4 * T4_c + \beta_5 * T5_c + \beta_7 * Post_t + \beta_8 * T1_c * Post_t + \beta_9 * T2_c * Post_t + \beta_{10} * T3_c * Post_t + \beta_{11} * T4_c * Post_t + \beta_{12} * T5_c * Post_t + \gamma X_{ict} + \gamma X_{idt} + \varepsilon_{ict}.$$

y_{ijst} is the outcome for health facility/health provider/patient/household i in cluster c in period t . As before, a cluster is defined by a rural health center and its affiliated health houses. $T1_d$, $T2_d$, $T3_d$, $T4_d$ and $T5_d$ are dummy variables which are equal to 1 when the cluster was assigned to one of the five study arms and zero otherwise. Clustering of standard errors remains as with the previous specification. The standard errors are clustered at the district level for health facility level outcomes and at the village level for outcomes at the household level. For outcomes related to health providers, patients and consultations, we add facility fixed effects.

Adjusting for small clusters

68. Standard errors are reported using two-way clustering by district and time, calculated using a wild-cluster bootstrap-t procedure with subsampling at the facility level.¹⁹ As the PBF treatment was assigned purposely at the district level,

clustering accounts for correlated errors between and within clusters and avoid over-rejection. Customary cluster-robust variance estimates using the T-distribution were not suitable, as the number of clusters is small (16) and cluster size varies, violating the assumption of asymptotic consistency. Standard-errors are corrected for the small sample by applying the wild cluster bootstrap in postestimation. Estimations of CQI/CRC impact are reported using standard method regressions as they were randomized at the RHC level. The main model was calculated using the `reghdfe` package, with bootstrap postestimation using `boottest`, both in STATA13/SE.

Covariates

69. Wealth indices were calculated separately for household and patient exit interviews. The wealth index estimates the living standard of the household or patients, relative to the living standard of the other households in the sample. In this study, the wealth index for households was calculated using self-reported data including consumer item ownership, amount and value owned land, the value of rentals, number and types of animals owned, household infrastructure, the source of water, heating, and electricity, and number household members per room. For patient exit surveys, the wealth index was calculated from asset and animal ownership, materials used for dwelling infrastructure, and a number of people living per room. The resulting index is calculated from the first component of principal component analysis, apportioned into quintiles. This method is also used by the Demographic and Health Survey; results will differ as the population in this survey is entirely rural.

6.5 Ethical clearance

70. The Committee on Ethics of the Ministry of Health and Social Protection reviewed the study design, fieldwork protocols, and the instruments and granted ethical clearance for the study on October 24th, 2014.

6.6 Description of Sample

71. This section summarizes selected characteristics of sampled populations in this study. The selected characteristics are also used as covariates in the regression analysis in Sections 7 and 8.
72. Table 6-4 below summarizes the catchment size in rural health centers by treatment arm, region, and change in the catchment size category since the baseline survey in 2013. Catchment size was calculated by the number given by the central statistical agency, as well as the facilities own headcount of persons within their catchment area. The headcount number was used unless it was abnormally low, in which case the number from the central statistical agency was used. The percentile was calculated using observations of rural health centers from both baseline and follow-up. The final percentage segmented into quintiles. We found no significant differences in the mean catchment size between treatment arms. Rural health centers in the Sughd region served catchment areas larger by approximately 15% percentile points on average. Compared to baseline measurements, catchment sizes increased, with the largest increase in the 41-60th quintile.

Table 6-4. RHC catchment size by Treatment Arm and Region, 2018

Table 6-4: RHC catchment size by Treatment Arm and Region, 2010											
% of RHCs by Background	Treatment Arm						Region		Total	Overall	Δ% from
Characteristics	Control	T1	T2	T3	T4	T5	Sughd	Khatlon	Number	Percent	Baseline
Percentile of Catchment Size											
1-20	17.1	23.5	8.3	22.2	14.7	14.3	3.1	22.8	35	16.7	(6.7)
21-40	14.3	14.7	22.2	22.2	14.7	17.1	10.8	20.7	37	17.6	(4.8)
41-60	28.6	17.6	30.6	11.1	20.6	31.4	12.3	28.3	49	23.3	6.7
61-80	22.9	20.6	22.2	16.7	26.5	17.1	35.4	14.5	44	21.0	1.9
81-100	17.1	23.5	16.7	27.8	23.5	20.0	38.5	13.8	45	21.4	2.9

Includes only RHCs which were sampled in both baseline and follow-up survey.

73. Table 6-5 shows the characteristics of clinicians in rural health centers based on the health worker roster at the time of follow-up. The table summarizes all clinicians currently working at the health facility, and not just those sampled for the health worker survey. Most health workers had at least a college-level education, with no major changes between treatment arm, region, or substantive change from baseline. The median clinicians have 20-30 years of experience and are aged 40-49, with little change since baseline. Most clinicians are female, with an increase of 6 points since baseline. Tables 6-7, 6-8 and 6-9 display similar statistics from the household survey focusing on household, women and children characteristics, respectively.

Table 6-5. RHC Health Worker characteristics by Treatment Arm and Region, 2018

	% of RHCs Clinicians by Background Characteristics	Treatment Arm						Region		Total Number	Overall Percent	Δ% from Baseline
		Control	T1	T2	T3	T4	T5	Sughd	Khatlon			
Endline	Level of Education											
	Secondary	0.8	0.3	0.6	5.3	0.3	-	0.6	1.6	23	1.1	0.8
	College	73.4	78.5	72.6	73.4	74.6	76.6	74.0	75.6	1,523	74.8	4.6
	PostGraduate	25.9	20.8	26.8	21.3	25.1	23.4	25.4	22.7	489	24.0	(5.4)
	None	-	0.3	-	-	-	-	-	0.1	1		
	Years of Experience											
	0-10	31.1	34.5	34.8	40.1	47.6	40.5	35.1	43.5	371	38.5	(12.6)
	20-30	52.4	43.4	40.0	40.8	41.7	43.7	45.4	41.5	422	43.8	11.4
	30+	16.5	22.1	25.2	19.0	10.7	15.8	19.5	15.0	170	17.7	1.2
	Health Worker Position											
	Doctor or medical office	15.0	19.5	23.4	20.3	16.0	14.6	23.4	12.8	364	17.9	8.8
	Clinical officer	3.4	0.7	0.9	0.3	2.4	0.8	1.1	1.9	31	1.5	(0.1)
	Hospital administrator	5.5	5.7	6.2	6.3	6.0	6.8	2.6	9.4	124	6.1	(3.5)
	Nurse	51.5	57.0	54.8	58.8	51.6	49.3	50.6	56.3	1,090	53.5	(11.7)
	Midwife	6.9	7.4	4.4	4.7	6.8	6.8	5.1	7.2	126	6.2	3.8
	OBGYN	1.8	0.7	0.3	-	1.6	2.0	1.7	0.6	23	1.1	1.1
	Nursing assistant	1.6	-	2.5	2.7	3.4	2.8	0.9	3.4	45	2.2	1.5
	Lab technologist	0.3	0.3	-	0.3	-	-	0.3	-	3	0.1	(0.8)
	Lab technician	2.6	1.7	1.9	1.3	1.6	2.5	3.3	0.8	40	2.0	0.3
	Feldsher	5.0	3.7	1.2	1.0	3.4	3.7	3.4	2.8	63	3.1	3.1
	Other clinical	6.3	3.4	4.4	4.3	7.3	10.7	7.7	4.9	127	6.2	(2.6)
	Health Worker Gender											
	Female	72.3	69.8	67.0	70.4	79.1	78.0	80.7	66.0	1,488	73.1	6.0
	Male	27.7	30.2	33.0	29.6	20.9	22.0	19.3	34.0	548	26.9	(6.0)
	Health Worker Age											
	20-29	19.3	22.5	20.9	22.6	25.1	19.4	17.0	25.9	440	21.6	2.4
	30-39	23.0	19.5	19.3	19.6	20.9	25.4	21.1	21.7	436	21.4	0.5
	40-49	32.2	25.8	24.3	31.2	29.8	31.0	34.5	24.3	595	29.2	(1.1)
	50-59	19.0	24.5	25.9	22.3	19.9	16.9	20.6	21.7	431	21.2	(0.8)
	60-69	6.3	7.0	8.4	3.3	3.9	6.8	6.4	5.5	121	5.9	(1.1)
	70+	0.3	0.7	1.2	1.0	0.3	0.6	0.3	0.9	13	0.6	0.2

Table 6-6. Household characteristics by Treatment Arm and Region, 2018

	% of household members by Background	Treatment Arm						Region		Total Number	Overall Percent	Δ% from Baseline
		Control	T1	T2	T3	T4	T5	Sughd	Khatlon			
Endline	Employment Status											
	Employed	12.7	15.1	13.7	14.2	11.1	12.1	14.7	12.7	5,620	13.3	(4.3)
	Labor-Migration	6.8	7.7	8.3	7.8	8.0	8.8	7.8	7.7	3,282	7.7	(4.0)
	No Answer	37.0	36.2	41.8	41.4	39.7	39.8	38.6	38.7	16,393	38.7	38.6
	Not seeking work	39.4	37.4	33.8	34.1	37.1	35.7	36.4	37.0	15,610	36.8	(23.9)
	Unemployed	4.0	3.6	2.4	2.5	4.2	3.6	2.5	3.9	1,490	3.5	(6.4)
	Percentile of Catchment Size											
	0-9	32.7	30.8	36.9	36.6	36.3	35.9	33.6	34.3	14,468	34.1	3.8
	10-19	12.4	13.9	10.0	10.6	9.9	10.4	8.1	12.9	4,947	11.7	(2.7)
	20-29	20.7	21.1	22.8	23.9	22.9	21.5	22.5	21.6	9,262	21.8	(1.8)
	30-39	11.6	11.4	12.2	11.4	11.5	12.7	11.7	11.8	4,980	11.7	(0.2)
	40-49	5.5	6.4	4.4	4.5	4.3	4.5	5.5	5.0	2,187	5.2	(0.5)
	50-59	9.5	9.5	8.4	7.5	8.6	8.4	10.8	8.1	3,746	8.8	0.5
	60-69	5.3	4.9	4.0	4.0	4.8	4.9	5.5	4.5	2,019	4.8	0.9
	70+	2.3	2.0	1.2	1.6	1.7	1.7	2.3	1.7	786	1.9	(0.1)
	Educational Level											
	College/PostGrad	6.6	7.8	6.3	6.9	6.7	6.3	8.3	6.3	2,903	6.8	0.2
	None	27.8	27.0	32.6	32.1	28.9	30.8	24.6	30.9	12,414	29.3	28.3
	No Answer	0.8	0.6	0.9	0.4	0.8	0.4	0.5	0.8	289	0.7	(25.8)
	Primary/Basic	27.1	21.7	20.8	21.8	25.5	24.8	21.7	24.7	10,146	23.9	1.7
	Secondary	37.7	42.9	39.3	38.8	38.1	37.7	44.9	37.2	16,643	39.3	(4.4)
	Marital Status											
	Divorced or Separated	4.5	3.7	2.8	3.3	3.6	4.0	4.2	3.6	1,605	3.8	(0.3)
	Married	45.5	46.5	46.8	45.6	46.2	45.2	49.1	44.8	19,476	45.9	(0.5)
	Not Listed	35.2	33.7	39.5	39.2	38.3	38.3	35.6	37.1	15,550	36.7	2.3
	Not Married	14.8	16.1	10.8	11.9	12.0	12.5	11.1	14.5	5,764	13.6	(1.5)
	Gender											
	Female	52.5	51.1	51.4	51.6	52.4	51.4	52.8	51.4	21,949	51.8	1.3
	Male	47.5	48.9	48.6	48.4	47.6	48.6	47.2	48.6	20,446	48.2	(1.3)
	Wealth Index of Household											
	1-20	15.1	21.7	20.2	19.4	14.0	15.3	5.8	21.9	7,480	17.6	1.5
	21-40	16.0	23.8	20.6	21.1	15.2	16.0	10.8	21.7	7,996	18.9	(0.2)
	41-60	20.0	21.0	17.8	21.2	19.9	19.3	14.9	21.8	8,480	20.0	(0.6)
	61-80	22.2	18.0	21.6	20.3	21.3	20.9	26.3	18.6	8,757	20.7	(1.0)
	81-100	26.8	15.6	19.9	17.9	29.6	28.5	42.1	16.0	9,681	22.8	0.3

Table 6-7. Characteristics of recently pregnant women by Treatment Arm and Region, 2018

% of pregnant women by Background Characteristics	Treatment Arm						Region		Total Number	Overall Percent	Δ% from Baseline
	Control	T1	T2	T3	T4	T5	Sughd	Khatlon			
Age of women											
15-19	12.1	12.2	12.9	12.7	14.5	13.9	8.8	14.6	815	13.0	13.0
20-24	35.4	32.0	35.2	34.7	37.6	32.4	36.9	33.7	2,162	34.6	(1.2)
25-29	31.7	33.3	32.0	33.5	29.1	32.4	33.3	31.5	1,998	32.0	(2.6)
35+	20.8	22.5	19.8	19.2	18.8	21.4	20.9	20.2	1,275	20.4	(9.2)
Parity											
0	0.7	0.6	0.7	0.7	1.1	1.4	0.8	0.9	63	0.8	0.7
1	22.9	22.0	22.9	22.5	23.3	21.9	17.5	24.5	1,686	22.6	(29.8)
2	20.0	19.2	18.1	18.1	19.6	17.4	20.5	18.1	1,399	18.8	7.5
3	21.0	20.7	21.8	22.3	20.3	21.5	25.1	19.8	1,586	21.3	9.2
4	17.0	17.5	19.2	17.7	18.6	17.3	23.1	15.9	1,332	17.9	8.1
5+	18.4	20.0	17.3	18.6	17.1	20.5	13.1	20.7	1,391	18.7	4.4
Gravidity											
1	20.9	20.5	20.4	20.5	21.3	20.7	15.1	22.8	1,545	20.7	(30.0)
2	19.4	17.7	16.9	17.8	18.8	17.1	20.0	17.2	1,341	18.0	7.0
3	21.1	19.6	23.2	22.6	21.4	20.5	25.0	20.1	1,596	21.4	8.7
4	16.7	18.8	19.2	18.1	17.9	18.3	23.2	16.2	1,351	18.1	7.9
5	9.8	10.7	10.6	10.4	8.3	9.8	5.6	11.6	740	9.9	1.7
6+	12.1	12.6	9.8	10.6	12.3	13.6	11.2	12.1	884	11.9	4.7
Employment Status											
Employed	9.1	12.0	12.0	14.8	6.9	8.1	9.8	10.6	776	10.4	2.8
Labor-Migration	0.4	0.4	0.4	0.2	0.4	0.7	0.9	0.3	32	0.4	0.2
No Answer	1.8	1.3	1.6	1.9	1.5	1.2	2.5	1.2	116	1.6	1.4
Not seeking work	88.5	85.6	85.7	82.7	90.3	89.2	86.4	87.3	6,492	87.1	(4.0)
Unemployed	0.3	0.7	0.3	0.3	1.0	0.7	0.3	0.6	41	0.5	(0.4)
Educational Level											
College/PostGrad	5.7	6.4	5.2	5.1	6.5	5.1	9.8	4.1	422	5.7	2.2
None	9.5	3.8	5.8	4.2	6.5	9.6	1.3	8.7	498	6.7	5.7
No Answer	0.4	0.9	0.7	0.2	0.6	0.3	0.1	0.6	37	0.5	(22.0)
Primary/Basic	25.0	22.8	21.2	23.8	22.2	22.3	14.4	26.1	1,710	22.9	2.5
Secondary	59.3	66.2	67.2	66.6	64.2	62.7	74.3	60.4	4,790	64.2	11.7
Marital Status											
Divorced or Separated	5.8	4.2	3.7	4.8	4.4	4.6	3.9	4.9	345	4.6	(0.5)
Married	76.0	77.7	79.4	79.4	76.3	77.8	77.5	77.8	5,793	77.7	2.9
Not Married	18.2	18.1	16.9	15.8	19.3	17.6	18.6	17.4	1,319	17.7	(2.4)
Lives with In-laws											
No	39.5	48.8	50.9	52.0	40.8	41.1	41.4	46.8	3,379	45.3	(1.3)
Yes	60.5	51.2	49.1	48.0	59.2	58.9	58.6	53.2	4,078	54.7	1.3
Wealth Index of Household											
1-20	12.2	21.0	19.5	18.5	12.2	14.2	6.3	19.7	1,199	16.1	(1.8)
21-40	15.3	24.6	20.5	20.1	14.3	16.4	11.7	20.9	1,372	18.4	(1.5)
41-60	19.9	21.8	16.9	20.5	20.1	19.8	13.3	22.3	1,478	19.8	(0.7)
61-80	22.8	16.4	22.4	21.2	22.3	21.5	26.0	19.4	1,580	21.2	1.0
81-100	29.9	16.2	20.7	19.7	31.0	28.1	42.7	17.7	1,828	24.5	3.0

Table 6-8. Characteristics of children by Treatment Arm and Region, 2018

	% of children by Background Characteristics	Treatment Arm						Region		Total Number	Overall Percent	Δ% from Baseline
		Control	T1	T2	T3	T4	T5	Sughd	Khatlon			
Endline	Age in months											
	0-11 months	22.2	22.4	27.4	26.7	27.4	26.4	27.3	23.9	2,603	24.9	4.2
	12-23 months	23.9	25.2	29.3	29.8	26.5	26.9	28.0	25.9	2,771	26.5	5.0
	24-60 months	53.9	52.4	43.2	43.5	46.1	46.7	44.7	50.2	5,099	48.7	(9.1)
	Gender											
	Female	50.6	49.9	48.6	48.8	49.8	49.8	50.0	49.6	5,209	49.7	(0.0)
	Male	49.4	50.1	51.4	51.2	50.2	50.2	50.0	50.4	5,264	50.3	0.0
	Wealth Index of Household											
	1-20	14.5	21.7	22.5	21.8	15.1	15.1	6.5	22.5	1,903	18.2	2.2
	21-40	16.2	24.4	19.8	21.6	14.5	16.6	10.8	21.9	1,976	18.9	0.8
	41-60	18.6	20.2	18.0	20.7	20.3	19.9	15.4	21.1	2,044	19.5	(1.2)
	61-80	23.0	17.9	20.7	19.4	21.7	19.8	26.0	18.6	2,154	20.6	(1.3)
	81-100	27.8	15.8	19.0	16.4	28.4	28.6	41.4	16.0	2,396	22.9	(0.6)

7 RESULTS OF PERFORMANCE-BASED FINANCING

This chapter focuses solely on the impact of the PBF intervention, ignoring for now the CQI and CRC interventions. We present results of the difference-in-difference analysis comparing trends in the PBF districts to those in the comparison districts.

7.1 Health Facilities, Health Workers, and Quality of Care

7.1.1 Facility Level Impacts

74. Results in this section are from the analysis of the facility assessment tools summarized in Section 6.3.1. Of 216 RHCs selected for the impact evaluation (Table 6-3), 210 were evaluated at both baseline and follow-up (Table 7-1). Six RHCs evaluated at baseline were ineligible for selection at follow-up due to closure or re-registration (either upgraded to a district health center or downgraded to health house). These six RHCs and their respective health house and household enumeration areas were replaced before the start of the follow-up survey. A total of 151 health houses were assessed at baseline, and 150 at follow-up. Eleven health houses were close or re-registered as RHCs. Our analyses treat RHCs and health houses as panel data, where it is assumed the observed facility is measured at both time points. Therefore, both the original units which have been replaced and the replacement are excluded in the subsequent difference-in-difference and cross-sectional analyses.

Table 7-1. Rural Health Facility and Health House Analytical Sample Size by Round

Round	#	Sample Size Groups	Treatment Arm						Total
			Control	T1	T2	T3	T4	T5	
Baseline	1	<u>Rural Health Centers</u> Selected	35	34	36	36	34	35	210
	7	<u>Health Houses</u> Selected	27	23	26	21	19	23	139
Follow-Up	1	<u>Rural Health Centers</u> Selected	35	34	36	36	34	35	210
	7	<u>Health Houses</u> Selected	27	23	26	21	19	23	139

Selected RHCs reflect only the rural health centers which were interviewed for both baseline and follow-up rounds. Underlines denote the name of the sample population as referred to in the narrative in this report.

Structural Quality and Infrastructure

Table 7-2. Impact of PBF on Structural Quality and Infrastructure

	Indicator	Baseline				Post-Treatment				Regression Resultst		
		Control		PBF		Control		PBF		#	β^1	p^2
		#	\bar{x}	#	\bar{x}	#	\bar{x}	#	\bar{x}			
Rural Health Center (1)	Infrastructure Score ³	104	-0.10	106	-0.67	104	0.18	106	0.59	420	0.97	.047**
	Piped water into plot	104	0.11	106	0.08	104	0.28	106	0.43	420	0.17	.076*
	Improved water source ⁴	104	0.73	106	0.72	104	0.73	106	0.89	420	0.17	.131
	Designated Reception area	104	0.85	106	0.81	104	0.87	106	0.97	420	0.14	.080*
	Heating in patient rooms	104	0.85	106	0.59	104	0.91	106	0.99	420	0.33	.081*
	Patient Toilets	104	0.88	106	0.80	104	0.92	106	0.92	420	0.07	.199
	Separate male and female toilets	104	0.59	106	0.36	104	0.63	106	0.68	420	0.28	.468
	Private consultation rooms	104	0.89	106	0.67	104	0.38	106	0.75	420	0.59	.046**
	Water in consultation rooms	104	0.36	106	0.27	104	0.70	106	0.75	420	0.13	.701
	Infection prevention and control score	104	-0.01	106	-0.40	104	-0.21	106	0.62	420	1.21	.072*
	Availability of a functional incinerator	104	0.96	106	0.86	104	0.86	106	0.97	420	0.22	.266
	Use of proper sterilization procedure ⁵	104	0.08	106	0.19	104	0.17	106	0.41	420	0.13	.121
	Use of proper decontamination procedure ⁶	104	0.19	106	0.19	104	0.25	106	0.42	420	0.17	.361
	Use of proper biowaste disposal method ⁷	104	0.86	106	0.58	104	0.58	106	0.85	420	0.54	.117
	Consultation rooms with proper sharps disposal	104	0.23	106	0.29	104	0.58	106	0.88	420	0.24	.078*
Health House (7)	Infrastructure Score ³	69	-0.34	70	-0.49	69	0.12	70	0.70	278	0.72	.005***
	Piped water into plot	69	0.01	70	0.03	69	0.17	70	0.27	278	0.08	.280
	Improved water source ⁴	69	0.51	70	0.70	69	0.78	70	0.74	278	-0.23	.743
	Designated Reception area	69	0.64	70	0.71	69	0.71	70	0.91	278	0.13	.031**
	Heating in patient rooms	69	0.67	70	0.49	69	0.84	70	0.97	278	0.31	.027**
	Patient Toilets	69	0.45	70	0.41	69	0.54	70	0.74	278	0.24	.077*
	Separate male and female toilets	69	0.14	70	0.10	69	0.13	70	0.20	278	0.11	.231
	Private consultation rooms	69	0.55	70	0.40	69	0.23	70	0.33	278	0.25	.458
	Water in consultation rooms	69	0.19	70	0.21	69	0.52	70	0.64	278	0.10	.513
	Infection prevention and control score	69	0.14	70	0.10	69	-0.20	70	-0.04	278	0.20	.680
	Availability of a functional incinerator	69	0.72	70	0.87	69	0.74	70	0.84	278	-0.04	.494
	Use of proper sterilization procedure ⁵	69	0.00	70	0.09	69	0.06	70	0.16	278	0.01	.339
	Use of proper decontamination procedure ⁶	69	0.17	70	0.23	69	0.42	70	0.37	278	-0.10	.813
	Use of proper biowaste disposal method ⁷	69	0.70	70	0.57	69	0.48	70	0.66	278	0.30	.283
	Consultation rooms with proper sharps disposal	69	0.12	70	0.09	69	0.52	70	0.79	278	0.29	.208

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

Samples for this table are (1) selected rural health centers and (7) health houses, as detailed further in Table 7-1

† Regressions are controlled for changes in catchment size.

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Factor scores for infrastructure and infection prevention control are the standardized first component of a Principal Component Analysis. Reference Appendix Table A10.2-1 and Table A10.2-2

⁴ Improved water sources include piped water, public taps, tube wells, protected dug wells, protected springs, rainwater, and bottled water

⁵ Proper sterilization procedure includes autoclaving, boiling, steam sterilization, chemical sterilization, and outsourcing

⁶ Proper decontamination procedure is scrubbing, or cleaning followed by use of a disinfectant

⁷ Proper biowaste disposal method includes burning or outsourcing

75. Table 7-2 indicates a strong positive impact of PBF on general infrastructure in both RHCs and HHs. Infrastructure improved by nearly a standard deviation in rural health facilities ($\beta=0.97$, $p=.047$) and health houses ($\beta=0.72$, $p=0.005$) based on an infrastructure score using the standardized first component of a principal component analysis of the elements listed in Table 7-2. RHCs in the PBF group evidenced positive impacts across all infrastructure indicators in Table 7-2. Within the elements of the composite score, we found statistically significant positive impacts of 17% percentage points increase in access to piped water ($p=0.076$), 14% percentage points increase in the presence of a reception area ($p=0.080$), 33 percentage points in heating in patient rooms ($p=0.076$), and 59 percentage points in the availability of private consultation rooms ($p=0.046$). In health houses, the impact was focused on patient comforts. Health houses in the PBF group had a positive impact of 31 percentage points in heating of patient rooms ($p=0.004$), and of 24 percentage points in the availability of patient toilets ($p=0.073$).
76. Infection prevention and control (IPC) scores were impacted by more than a standard deviation in the PBF group among RHCs, but no effect was found within health houses. The infection prevention and control (IPC) score were 1.2 standard deviations higher among rural health centers which received the PBF intervention. All component indicators

of the score trended towards positive impacts. PBF facilities had a statistically significant positive impact of 24 percentage points in the availability of containers for sharps and needles disposal in consultation rooms. We did not find any statistically significant impact of PBF on IPC indicators in health houses.

Equipment and Drugs

Table 7-3. Impact of PBF on Equipment Availability

	Indicator	Baseline				Post-Treatment				Regression Resultst		
		Control		PBF		Control		PBF		#	β^1	p^2
		#	\bar{x}	#	\bar{x}	#	\bar{x}	#	\bar{x}			
Rural Health Center (1)	Equipment Availability Score ³	104	-0.14	106	-0.57	104	0.01	106	0.69	420	1.11	.016**
	Availability of a laboratory											
	Centrifuge	104	0.13	106	0.11	104	0.18	106	0.19	420	0.03	.887
	Glucometer	104	0.13	106	0.02	104	0.04	106	0.13	420	0.20	.099*
	Hemoglobinometer	104	0.23	106	0.16	104	0.27	106	0.20	420	0.00	.396
	Microscope	104	0.23	106	0.15	104	0.25	106	0.20	420	0.02	.540
	Refrigerator for reagents	104	0.03	106	0.03	104	0.02	106	0.16	420	0.14	.040**
	Availability of vaccine cold storage											
	Cold Box	104	0.97	106	0.92	104	1.00	105	1.00	418	0.05	.904
	Ice Lined Refrigerator	104	0.87	106	0.91	104	0.87	105	1.00	418	0.10	.166
	Refrigerator	104	0.51	106	0.33	104	0.89	105	1.00	418	0.28	.105
	Vaccine Carrier	104	0.84	106	0.87	104	0.99	105	1.00	418	-0.02	.716
	Availability of drugs											
	Amoxicillin	104	0.24	106	0.28	104	0.36	106	0.92	420	0.52	.003***
	Paracetamol	104	0.38	106	0.30	104	0.88	106	1.00	420	0.21	.115
	Iron tablets	104	0.07	106	0.07	104	0.71	106	0.92	420	0.21	.216
	Oral Rehydration Serum	104	0.47	106	0.38	104	0.92	106	1.00	420	0.18	.402
Health House (7)	HIV test kits	104	0.25	106	0.11	104	0.04	106	0.47	420	0.57	.012**
	Pregnancy test kits	104	0.15	106	0.08	104	0.16	106	0.48	420	0.39	.144
	Rapid plasma reagin	104	0.00	106	0.01	104	0.01	106	0.03	420	0.01	.264
	Equipment Availability Score ³	69	-0.43	70	-0.64	69	0.09	70	0.97	278	1.10	.000***
	Availability of vaccine cold storage											
	Cold Box	68	0.96	70	0.83	66	0.97	69	1.00	268	0.14	.455
	Ice Lined Refrigerator	68	0.43	70	0.40	66	0.50	69	0.96	268	0.47	.001***
	Refrigerator	68	0.32	70	0.23	66	0.55	69	0.96	268	0.48	.000***
	Vaccine Carrier	68	0.82	70	0.77	66	0.95	69	1.00	268	0.09	.088*

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Samples for this table are (1) selected rural health centers and (7) health houses, as detailed further in Table 7-1

† Regressions are controlled for changes in catchment size

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

77. The PBF intervention had a strong positive impact on the availability of equipment at the primary-level facilities. To assess the impact on equipment availability, we created a principal component analysis index based on 23 equipment items. As seen in Table 7-3, the impact coefficients for this indicator are significant at 5% level for the samples of rural health centers and health houses. In Table A10.2-1 and Table A10.2-2 in the appendix, we present the regression coefficients for each equipment item and show they are all positive. At the rural health center and health house levels, eleven and five out of the 23 coefficients are statistically significant at least at the 10% level.
78. Regarding laboratory equipment at the RHCs, PBF significantly increased the availability of glucometers ($\beta=0.20$, $p=0.099$) and refrigerators for reagents ($\beta=0.14$, $p=0.040$). We do not find statistically significant impacts on the availability of centrifuges, hemoglobinometers or microscopes. We find a statistically significant impact on the availability of cold vaccine storage at the health houses but not in the rural health centers. For example, Health houses in the PBF districts were more likely to have an ice-lined refrigerator by 47 percentage points ($p < 0.001$) as a result of the intervention. It is important to note that availability of such equipment was universal in the PBF RHCs.

79. Table 7.3 also presents results on the availability of essential drugs and medical supplies at the RHC level. There has been an increase in the availability of most drugs in both treatment and control facilities. For example, the availability of iron increased from 7 percent overall to 71 percent of RHCs in control districts and 92 percent of PBF districts. The impact coefficients are positive for all seven items tested and statistically significant for two. The intervention increased the availability of amoxicillin and HIV test kits by 52 and 57 percentage points. These coefficients are significant at 99% and 95% levels.

Service Availability

Table 7-4. Impact of PBF on Service Availability

	Indicators	Baseline				Post-Treatment				Regression Results†		
		#	\bar{x}	#	\bar{x}	#	\bar{x}	#	\bar{x}	#	β^1	p^2
Rural Health Center (1)	Availability of laboratory services	104	0.24	106	0.17	104	0.27	106	0.20	420	0.00	.374
	Facilities providing postnatal services	104	0.99	106	1.00	104	1.00	106	1.00	420	-0.01	.566
	Prop. of growth monitoring services provided	104	0.88	106	0.77	90	0.98	96	0.99	372	0.11	.451
	Under-5 nutrition services provided	104	0.97	106	0.96	104	0.89	106	0.97	420	0.09	.160
	Facilities providing antenatal services	104	0.98	106	0.96	104	1.00	106	0.99	420	0.01	.338
	Facilities providing iron folate	104	0.64	106	0.52	104	0.97	105	1.00	418	0.14	.510
	Hypertension service provision	104	0.90	106	0.98	104	0.88	106	0.97	420	0.02	.731
	Prop. of diabetes services provided	104	0.66	106	0.60	104	0.58	106	0.84	420	0.32	.010**
Health House (7)	Facilities providing postnatal services	69	0.96	70	0.97	69	0.97	70	0.99	278	0.00	.549
	Prop. of growth monitoring services provided	69	0.65	70	0.62	69	0.74	70	0.96	278	0.24	.020**
	Under-5 nutrition services provided	69	0.93	70	0.93	69	0.86	70	0.97	278	0.12	.094*
	Facilities providing antenatal services	69	0.88	70	0.93	69	0.94	70	0.97	278	-0.02	.449
	Facilities providing iron folate	69	0.46	70	0.56	65	0.89	68	0.99	266	0.03	.040**
	Hypertension service provision	69	0.77	70	0.89	69	0.71	70	0.91	278	0.09	.191
	Prop. of diabetes services provided	69	0.39	70	0.39	69	0.44	70	0.66	278	0.21	.001***

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Samples for this table are (1) selected rural health centers and (7) health houses, as detailed further in Table 7-1

† Regressions are controlled for changes in catchment size

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

80. We see positive trends in service availability, punctuated by near 100% service availability at the time of follow-up. We note however that the introduction of PBF was coupled with training for the staff and this might have impacted the availability of services. Diabetes services were not universally provided at follow-up, providing the most room for differential growth. The proportion of diabetes services offered was higher in RHCs in the PBF group ($\beta=0.32$, $p=0.010$). The individual diabetes-related services are listed in Table A10.2.1 and Table A10.2-2 of the Appendix. PBF had a strong positive impact on several of these services including 24 percentage point increase in facilities which provided a patient card for diabetic patients, 20 percentage point increase in dispensary observation, 62 percentage point increase in the free distribution of diabetes drugs, 58 percentage point increase in glucometry services, and 27 percentage point increase in obesity prevention. No statistically significant change was identified in the provision of other curative or preventative services listed in Table 7-4.
81. In health houses, there were positive impacts on service availability of growth monitoring ($\beta=0.24$, $p=0.020$), under-5 nutrition ($\beta=0.12$, $p=0.094$), iron folate ($\beta=0.03$, $p=0.040$), and proportion of diabetes services ($\beta=0.21$, $p=0.001$).

Administration

Table 7-5. Impact of PBF on Administration and Management Indicators in the Last 1 Year

	Indicators	Baseline				Post-Treatment				Regression Results [†]		
		Control		PBF		Control		PBF		#	β^1	p^2
		#	\bar{x}	#	\bar{x}	#	\bar{x}	#	\bar{x}			
Rural Health Center (1)	External assessments of staff in last year	104	4.30	106	3.60	104	3.27	106	6.97	420	4.36	.020**
	External assessments of facilities in last year	104	4.38	106	5.92	104	2.73	106	4.37	420	0.05	.015**
	Internal assessments in last year	104	12.27	106	6.72	104	10.21	106	13.23	420	8.58	.160
	Facilities w/mechanism to obtain patient opinion	104	0.83	106	0.66	104	0.76	106	0.84	420	0.24	.515
	Staff meetings in the last 3 months	104	11.45	106	9.84	104	10.80	106	13.40	420	4.18	.488
	Positions currently filled	104	8.15	106	8.39	104	8.13	106	7.78	420	-0.64	.758
	Positions vacated in past year (staff attrition)	104	0.40	106	0.62	104	0.61	106	0.56	420	-0.26	.832
	Protocol and guideline availability score	104	-0.45	106	-0.58	104	0.04	106	0.98	420	1.08	.028**
Health House (7)	External assessments of staff in last year	69	2.71	70	3.77	69	3.99	70	5.84	278	0.80	.148
	External assessments of facilities in last year	69	2.78	70	3.60	69	2.29	70	3.69	278	0.58	.011**
	Internal assessments in last year	69	4.00	70	5.94	69	8.93	70	12.56	278	1.69	.294
	Facilities w/mechanism to obtain patient opinion	69	0.59	70	0.37	69	0.45	70	0.57	278	0.34	.318
	Positions currently filled	69	2.77	70	2.97	69	2.86	70	2.86	278	-0.20	.963
	Positions vacated in past year (staff attrition)	69	0.22	70	0.36	69	0.25	70	0.29	278	-0.10	.659
	Protocol and guideline availability score	69	-0.61	70	-0.45	69	-0.05	70	1.11	278	0.99	.000***

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Samples for this table are (1) selected rural health centers and (7) health houses, as detailed further in Table 7-1

[†] Regressions are controlled for changes in catchment size

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

82. The impact of PBF on the administration and management of rural health centers and health houses was limited to an increase in the number of external assessments and the availability of protocols and guidelines. Overall, the data did not provide strong evidence PBF affected internal administration of health facilities; we did not find statistically significant impacts on the number of annual internal assessments, retention of staff, or solicitation of patient feedback.

7.1.2 Health Workers

83. A total of 1,574 health workers were surveyed in the RHCs included in the analysis sample, 767 at baseline and 807 at follow-up. The average number of health workers fell slightly below the 4 per RHC target, as more remote RHCs did not have four staff members available. In health houses, the two staff per HH was achieved in the baseline sample but narrowly missed in the follow-up survey. Health workers who worked in both the rural health center and health house were treated as RHC employees.

Table 7-6. Rural Health Facility and Health House Analytical Sample Size by Round

Round	#	Sample Size Groups	Treatment Arm					
			Control	T1	T2	T3	T4	T5
Baseline	1	<u>Rural Health Centers</u> Selected	35	34	36	36	34	35
	2	<u>Health Workers</u> ; Health Staff Interviewed	132	120	136	131	123	125
	7	<u>Health Houses</u> Selected	27	23	26	21	19	23
	8	<u>Health Workers</u> ; Health Staff Interviewed	56	42	49	38	40	55
Follow-Up	1	<u>Rural Health Centers</u> Selected	35	34	36	36	34	35
	2	<u>Health Workers</u> ; Health Staff Interviewed	132	133	144	132	131	135
	7	<u>Health Houses</u> Selected	27	23	26	21	19	23
	8	<u>Health Workers</u> ; Health Staff Interviewed	51	41	48	37	37	45

Selected RHCs reflect only the rural health centers which were interviewed for both baseline and follow-up rounds. Underlines denote the name of the sample population as referred to in the narrative in this report.

Table 7-7. Impact of PBF on Health Workers

	Indicators	Baseline				Post-Treatment				Regression Results [†]		
		Control		PBF		Control		PBF		#	β^1	p^2
		#	\bar{x}	#	\bar{x}	#	\bar{x}	#	\bar{x}			
Rural Health Center (1)	Average monthly salary from all sources besides PBF	379	689.63	381	645.16	398	763.62	419	679.31	1577	-35.98	.034**
	Average monthly PBF incentive (most recent payment) ³	380	0.00	385	0.00	398	0.00	394	440.13	1557	445.31	.000***
	Average monthly PBF incentive (previous payment) ³	380	0.00	385	0.00	398	0.00	392	386.38	1555	391.17	.000***
	Health workers paid on time	380	0.81	385	0.78	398	0.90	419	0.94	1582	0.07	.324
	Health workers with a second job	380	0.08	385	0.11	398	0.18	419	0.20	1582	-0.02	.745
	WHO Well-Being Score ⁴	380	-0.19	385	-0.28	398	0.23	419	0.22	1582	0.09	.825
	Satisfaction Score ⁴	380	-0.27	385	-0.54	398	0.03	419	0.72	1582	0.99	.060*
	Personal Drive Score ⁴	380	-0.28	385	-0.30	398	0.33	419	0.22	1582	-0.08	.529
	Number of absences in past 30 days	380	0.67	385	0.42	398	0.62	419	0.49	1582	0.09	.695
	Number of hours worked in past 7 days	380	26.07	385	22.51	398	37.01	419	36.55	1582	3.06	.924
	Average number of patients seen in past day	380	8.47	385	4.03	398	6.61	419	7.37	1582	5.12	.236
Health House (7)	Average monthly salary from all sources besides PBF	148	620.03	129	604.87	133	617.74	126	649.18	536	26.56	.671
	Average monthly PBF incentive (most recent payment) ³	151	0.00	129	0.00	133	0.00	117	448.79	530	481.97	.000***
	Average monthly PBF incentive (previous payment) ³	151	0.00	129	0.00	133	0.00	117	414.11	530	454.28	.000***
	Prop. of health workers paid on time	151	0.77	129	0.84	133	0.86	126	0.94	539	0.03	.705
	Prop. of health workers with a second job	151	0.04	129	0.09	133	0.08	126	0.15	539	0.02	.400
	WHO Well-Being Score ⁴	151	-0.13	129	-0.38	133	0.32	126	0.21	539	0.19	.553
	Satisfaction Score ⁴	151	-0.25	129	-0.51	133	-0.02	126	0.85	539	1.16	.000***
	Average number of absences in past 30 days	151	0.74	129	0.10	133	0.41	126	0.45	539	0.79	.993
	Average number of hours worked in past 7 days	151	27.71	129	21.22	133	20.82	126	16.56	539	0.68	.054*
	Average number of patients seen in past day	151	7.25	129	3.25	133	5.26	126	5.64	539	4.08	.658

[†] Regressions are controlled for the province, position, gender, and whether the health worker was native to the district

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ The sample size for DD estimates includes both baseline and follow-up observations. Cross-sectional estimates use follow-up observations only.

⁴ The score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

84. The most recent incentive provided to RHC clinicians in the PBF group was 444.4 Somoni (~48USD) per month on average, an increase of nearly two-thirds over base salary. The increase in base salary was 33.6 Somoni (~3USD) per month lower in the PBF group compared to clinicians who did not receive an incentive. This decrease is less than 10% of the average monthly base salary and less than 5% of the average PBF incentive, and we do not believe it is indicative of a policy shift. In HHs, the most recent PBF incentive was an average of 448.8 Somoni (~50USD) per month, a 69.1% increase over base salary. No statistically significant change was identified in base salary among HHs in the PBF group. In both RHCs and HHs, there was no statistically significant impact of PBF on the timeliness of payments or proportion of health workers with a second job.
85. Satisfaction was higher in the PBF group by roughly a standard deviation in both RHCs ($\beta=0.98$, $p=0.065$) and HHs ($\beta=1.17$, $p=0.001$). The satisfaction score is the first component of a principal component analysis. Each component and the factor loadings are given in Table A10.2-3 and Table A10.2-4. The components which contributed to the increase in satisfaction at both the RHCs and HHs were largely related to the quality and quantity of medical supplies (equipment, medicines, and general goods), and the physical condition of the building. Satisfaction due to improved relationships with staff and management were universally high, and these components were not significantly impacted. Satisfaction due to salary is higher for providers in the PBF group, but the related coefficient is not statistically significant ($\beta=0.12$, $p=0.146$).

Table 7-8. Impact of PBF on performance on standardized clinical vignettes

	Indicator	Baseline				Post-Treatment				Regression Results†		
		Control		PBF		Control		PBF		#	β^1	p^2
		#	\bar{X}	#	\bar{X}	#	\bar{X}	#	\bar{X}			
Health Workers (8)	V1 Correct diagnosis; severe dehydration	535	0.40	482	0.24	536	0.43	542	0.54	2095	0.26	.017**
	Proportion of recommended history items recalled	535	0.42	482	0.44	536	0.44	542	0.55	2095	0.10	.071*
	Proportion of recommended exam procedures recalled	535	0.41	482	0.52	536	0.34	542	0.44	2095	-0.01	.925
	V2 Correct diagnosis; pneumonia	535	0.38	482	0.35	536	0.44	542	0.49	2095	0.04	.621
	Proportion of recommended history items recalled	535	0.37	482	0.42	536	0.37	542	0.51	2095	0.09	.117
	Proportion of recommended exam procedures recalled	535	0.29	482	0.35	536	0.24	542	0.34	2095	0.04	.036**
	V3 Correct diagnosis; severe infection	535	0.12	481	0.17	536	0.27	542	0.40	2094	0.06	.398
	Proportion of recommended history items recalled	535	0.44	482	0.56	536	0.53	542	0.66	2095	0.02	.033**
	Proportion of recommended exam procedures recalled	535	0.33	482	0.38	536	0.32	542	0.43	2095	0.06	.050*
	V4 Correct diagnosis; malnutrition/anemia	535	0.68	481	0.64	536	0.71	542	0.66	2094	0.00	.601
	Proportion of recommended history items recalled	535	0.44	482	0.47	536	0.45	542	0.57	2095	0.09	.156
	Proportion of recommended exam procedures recalled	535	0.26	482	0.32	536	0.17	542	0.24	2095	0.01	.028**
	V5 Correct range of cardiovascular risk selected (Moderate risk 10%-20%)	535	0.50	482	0.44	536	0.51	542	0.63	2095	0.20	.094*
	Proportion of recommended history items recalled	535	0.30	482	0.34	536	0.28	542	0.43	2095	0.12	.074*
	Proportion of recommended exam procedures recalled	535	0.37	482	0.37	536	0.28	542	0.42	2095	0.13	.014**
	V6 Correct range of cardiovascular risk selected (High risk 20%-30%)	535	0.30	482	0.23	536	0.34	542	0.52	2095	0.26	.015**
	Proportion of recommended history items recalled	535	0.34	482	0.39	536	0.32	542	0.46	2095	0.09	.095*
	Proportion of recommended exam procedures recalled	535	0.37	482	0.37	536	0.28	542	0.42	2095	0.14	.002***

History – Information solicited by the health worker from the patient to identify relevant past medical events which may impact clinical decisions, based on IMCI guidelines

Exam procedures – Steps of the physical examination of the patient, based on IMCI recommended guidelines

† Regressions are controlled for the individual (age) and household (number of household members, wealth index), and catchment level (catchment size, region) factors

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

86. Table 7-8 summarizes the proportion of clinicians who correctly diagnosed the standardized patient in each clinical vignette, and the factor score for the patient history and assessment. Each item of the clinical vignettes was scored as correctly selected, or incorrectly selected/not selected. Items were classified according to the World Health Organization Integrated Management of Childhood Illness (IMCI) and chronic disease guidelines. A higher positive score for the history and assessment section denotes the clinician was able to recall a higher proportion of the recommended history and physical assessment steps appropriate for the vignette. Factor results for each vignette are detailed in Table A10.2-8 through Table A10.2-13.
87. Overall, we find strong positive impacts of the project on provider knowledge. In all categories we find mostly positive coefficients which are mostly statistically significant. It is important to remember that the HSIP project involved retraining of providers in addition to the implementation of the PBF project. Results on providers competency, therefore, should be interpreted as an impact of the combination of training and financial incentives for performance.
88. We find a significant impact on the ability of clinicians in the PBF group to accurately assess cardiovascular risk and a general improvement in conducting histories and assessments for adult patients. PBF had impacts of 26 and 20 percentage points in the likelihood clinicians in the PBF group correctly diagnose and calculate the score of a high- and moderate- risk cardiovascular patients. For both categories of risk, providers in the PBF facilities performed better with respect to history taking and recommended exam procedures. All these coefficients are statistically significant at least at the 90% level.
89. Providers knowledge related to child illness was also positively impacted. As a result of the project, providers were more likely by 26 percentage point to correctly diagnose severe dehydration ($p=0.017$). Significant positive effects were also found with respect to providers history-taking for a hypothetical case of severe infection and to providers recommended examinations for children with pneumonia, severe infection and malnutrition.

7.1.3 Consultations

Table 7-9. Exit Interviews and Direct Observations Analytical Sample Size by Round

Round	#	Sample Size Groups	Treatment Arm						
			Control	T1	T2	T3	T4	T5	Total
Baseline	1	<u>Rural Health Centers</u> Selected	35	34	36	36	34	35	210
	3	<u>Adult DO</u> : Direct clinical observations of adults > 40	36	60	73	72	31	22	294
	4	<u>Child DO</u> : Direct clinical observation of children < 5	39	64	76	71	41	25	316
	5	<u>Adult Exit</u> : Exit Interviews for consultation of adults > 40	37	64	71	76	38	27	313
	6	<u>Child Exit</u> : Exit Interviews for consultation of children < 5	51	70	75	71	54	32	353
Follow-Up	1	<u>Rural Health Centers</u> Selected	35	34	36	36	34	35	210
	3	<u>Adult DO</u> : Direct clinical observations of adults > 40	255	300	360	345	180	180	1620
	4	<u>Child DO</u> : Direct clinical observation of children < 5	255	375	375	315	285	210	1815
	5	<u>Adult Exit</u> : Exit Interviews for consultation of adults > 40	540	540	540	540	525	540	3225
	6	<u>Child Exit</u> : Exit Interviews for consultation of children < 5	315	375	390	315	302	255	1952

Selected RHCs reflect only the rural health centers which were interviewed for both baseline and follow-up rounds. Underlines denote the name of the sample population as referred to in the narrative in this report.

90. Baseline samples for exit interviews of adult and child consultations and direct observations of adult and child consultations fell below the targeted size. Taking clinical observations as an example, data were available for a total of 260 observations in 103 facilities. We presume the limited window for interviewer teams to capture eligible exit interviews was compounded by a high prevalence of home visits due to the winter weather and contributed to the small sample size. These issues were addressed in the follow-up survey, both by increasing the window from one to three days and including home visits if the intended sample size is not projected to be reached based on the first day of evaluation. The following analysis uses follow-up data in a cross-sectional analysis for indicators in these sections.

Patient Experience

Table 7-10. Association between PBF and Patient Exit Interview Indicators

	Indicators	Post-Treatment				Regression Results [†]		
		Control		PBF		#	β^1	p^2
Adult Exit (5)	Patient satisfaction score ³	603	-0.21	1000	-0.10	1603	0.18	.723
	Average time spent in consultation (minutes)	610	11.90	1005	12.41	1615	0.81	.402
	Average waiting time (minutes)	558	7.94	992	4.88	1550	-2.94	.281
	Prop. of patients who had any non-travel cost	615	0.15	1005	0.05	1620	-0.09	.131
Child Exit (6)	Patient satisfaction score ³	731	-0.02	1063	-0.04	1794	0.02	.939
	Average time spent in consultation (minutes)	750	10.50	1065	12.73	1815	2.40	.104
	Average waiting time (minutes)	733	6.78	1056	5.52	1789	-1.07	.633
	Prop. of patients who had any non-travel cost	750	0.10	1065	0.05	1815	-0.03	.556

[†] Regressions are controlled for patient wealth, patient gender, and patient age, and attending health worker position, age, and gender

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

91. We found no significant association between PBF and overall patient satisfaction, cost, or travel time. Patient satisfaction was calculated as an index from a 9 point agree/disagree questionnaire. None of the individual indicators resulted in a statistically significant difference on rural health centers. The proportion of respondents satisfied was 88% or higher for all items. Conducting the exit interviews on the ground of the facilities might have impacted reported satisfaction. Detailed results on the satisfaction of exit interview respondents can be found in Table 10.2.5.

Clinical Consultations

Table 7-11. Association between PBF and Direct Observation Indicators in Rural Health Centers

	Indicators	Post-Treatment				Regression Results [†]		
		Control		PBF		#	β^1	p^2
		#	\bar{X}	#	\bar{X}	#		
Adult DO (3)	Proportion of core clinical history items asked	1605	0.33	1620	0.50	3225	0.17	.098*
	CVD risk score calculated	1605	0.37	1620	0.41	3225	0.03	.879
	CVD risk score properly calculated	601	0.02	664	0.16	1265	0.13	.321
	Proportion of core physical exam activities completed	1605	0.35	1620	0.47	3225	0.12	.057*
	Greeted the patient	1605	0.98	1620	0.99	3225	0.00	.893
	Clinician introduced themselves	1605	0.38	1620	0.59	3225	0.20	.337
	Average consultation time (minutes)	1603	12.83	1620	12.70	3223	-0.14	.910
Child DO (4)	Average consultation time (minutes)	851	12.41	1060	11.95	1911	-0.43	.820
	Asked patient's age	872	0.80	1080	0.80	1952	-0.01	.948
	Asked the patient's name	872	0.79	1080	0.97	1952	0.17	.033**
	Greeted the patient	872	1.00	1080	0.99	1952	-0.01	.537
	Clinician introduced themselves	872	0.27	1080	0.46	1952	0.21	.347
	Clinician washed their hands before starting the exam	872	0.64	1080	0.54	1952	-0.10	.600
	Clinicians who checked vaccination history	872	0.45	1080	0.46	1952	0.00	.981
	Measured weight and height of child	872	0.75	1080	0.92	1952	0.17	.028**
	Proportion of growth monitoring tasks completed	872	0.47	1080	0.59	1952	0.13	.290
	Proportion of core physical exam activities completed	872	0.24	1080	0.38	1952	0.14	.148

Proper cardiovascular risk calculation requires selecting the correct tables for age, smoking status, diabetes status, blood pressure, and gender

[†] Regressions are controlled for the province, patient gender, and patient age, and attending health worker position, age, and gender

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

92. Data collected through direct clinical observations show that providers in PBF districts provided higher quality of care in the adult consultations. Our hypothesis is that this improvement was driven the explicit incentives for quality. Recommended assessment and history procedures are based on WHO guidelines and best practices in the region, and scored "0" if not conducted, and "1" if conducted. Each element of the assessment and history were included in a principal component analysis, the details of which are reported in Table A10.2-6. The rate of clinical history items asked was higher by 17 percentage points and the proportion of core physical examinations was higher by 12 percentage points. Notably, the rates of blood pressure measurement and weighing of clients were higher by 18 and 31 percentage points.
93. The rate of consultations which included growth monitoring of children under 5 is higher by 17 percentage points in the PBF facilities ($p = .028$). Growth monitoring includes measurement of height and weight of the child, and comparison against growth charts. We find a statistically significance difference in the likelihood the patient asked the patient's name, but no such differences in other indicators.

7.2 Household

94. A total of 10,599 households were surveyed across 230 villages in 210 RHC catchment areas, 4910 at baseline and 5689 during follow-up covering 83,803 household members. Within the two targeted populations, 7048 women 15-49 years of age with a pregnancy in the past three years, and 17,583 adults 40 years or older were surveyed.
95. Table 7-13 through Table 7-16 report household level health indicators for adults, older adults, women with recent pregnancy, and children. Table 7-12 defines the sample sizes and definitions for each of these populations.

Table 7-12. Household Sample Sizes by Round

Round	#	Sample Size Groups	Treatment Arm						Total
			Control	T1	T2	T3	T4	T5	
Baseline	9	<u>Households</u> Selected	1042	1019	720	718	705	706	4910
	10	<u>All</u> : Total Household Members	8242	8259	6606	6701	6023	5969	41800
	11	<u>Adults</u> : Household members ≥18 years of age	4979	4972	3874	3930	3612	3548	24915
	12	<u>Older Adults</u> : Household members ≥ 40 years of age	1956	1877	1348	1375	1283	1289	9128
	13	<u>Women</u> : Women household members 15-49 years	4164	4079	3364	3387	3056	2981	21031
	14	<u>Women with recent pregnancy</u> : Women 15-49 years pregnant in the last 3 years	524	447	450	453	474	481	2829
	15	<u>Children</u> : Household members < 5 years of age	1469	1407	1387	1415	1282	1277	8237
Follow-Up	9	<u>Households</u> Selected	1441	1379	728	746	675	720	5689
	10	<u>All</u> : Total Household Members	11019	9732	5137	5359	5224	5532	42003
	11	<u>Adults</u> : Household members ≥18 years of age	6205	5512	2771	2881	2873	3032	23274
	12	<u>Older Adults</u> : Household members ≥ 40 years of age	2439	2154	900	916	995	1051	8455
	13	<u>Women</u> : Women household members 15-49 years	5789	4973	2642	2766	2744	2874	21788
	14	<u>Women with recent pregnancy</u> : Women 15-49 years pregnant in the last 3 years	751	696	715	715	663	709	4249
	15	<u>Children</u> : Household members < 5 years of age	2586	2086	1397	1433	1413	1459	10374

Selected RHCs reflect only the rural health centers which were interviewed for both baseline and follow-up rounds. Underlines denote the name of the sample population as referred to in the narrative in this report.

7.2.1 Health service delivery and outcomes for older adults

Table 7-13. Impact of PBF on health service delivery and outcomes for older adults

Indicators	Baseline				Post-Treatment				Regression Resultst		
	Control		PBF		Control		PBF		#	β^1	p^2
	#	\bar{X}	#	\bar{X}	#	\bar{X}	#	\bar{X}			
BP measured by a health worker in past year	2161	0.88	2438	0.88	3631	0.68	3195	0.76	11425	0.08	.051*
BP measured at the primary care level	2161	0.74	2438	0.74	3735	0.52	3295	0.63	11629	0.08	.185
Directly Observed Blood Pressure Ratings											
Normal Rating	2327	0.55	2661	0.63	2867	0.54	2467	0.57	10322	-0.06	.347
Normal	2327	0.38	2661	0.45	2867	0.33	2467	0.38	10322	-0.04	.055*
High Normal	2327	0.17	2661	0.18	2867	0.21	2467	0.19	10322	-0.03	.413
Elevated Rating	2327	0.45	2661	0.37	2867	0.46	2467	0.43	10322	0.06	.322
Mildly High	2327	0.22	2661	0.21	2867	0.26	2467	0.27	10322	0.03	.326
Moderately High	2327	0.11	2661	0.09	2867	0.13	2467	0.10	10322	-0.01	.082*
Severe	2327	0.12	2661	0.07	2867	0.07	2467	0.06	10322	0.04	.159
Prop. With self-reported high BP	3480	0.25	3640	0.26	4423	0.25	3897	0.32	15440	0.07	.030*
Prescribed medication for blood pressure	790	0.91	880	0.89	935	0.91	1133	0.93	3738	0.04	.066*
Taken prescribed medication in past 24 hours	717	0.76	786	0.68	854	0.72	1053	0.70	3410	0.04	.540
Recently changed behaviors to lower blood pressure	880	0.36	961	0.42	1092	0.50	1230	0.53	4163	-0.03	.471
Sought care for any service	1658	0.71	1493	0.68	1472	0.73	1359	0.79	5982	0.05	.041**
Used primary care services in past 2 years					3714	0.84	3693	0.90	7407	0.06	.093*

Blood Pressure Rating (mmHg): Normal: <130 systolic AND <85 diastolic; High Normal: 130-140 systolic OR 85-89 diastolic; Mildly High: 140-159 systolic OR 90-99 diastolic; Moderately High: 160-179 systolic OR 100-109 diastolic; Severely High: 180+ systolic OR 110+ diastolic

+ Regressions are controlled for the province, wealth index quintile, employment status, marital status, gender, and size of household

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

96. The PBF pilot had a positive impact on the rate of adults who reported to have their blood pressure measured in the preceding year ($\beta=0.08$, $p= .051$). However, we do not find a statistically significant impact on whether the measurement was performed at the primary care level (home visits, HHs or RHCs). Most blood pressures measurements continue to be at the RHC and during home visits. Together, home visits, rural health centers, and health houses account for 63% of the measurements in the PBF group and 52% of the control group, but the difference is not statistically significant.
97. In blood pressure measurements conducted by the survey teams, we did not find an impact of the PBF intervention on hypertension rate. However, we find a 7-percentage point impact on the likelihood adults self-reported to be hypertensive prior to the measurement ($p = 0.030$). Because there is no statistically significant impact on the hypertension rates between the intervention and control group, the increase in self-reported hypertension is likely to be due to increased utilization or measurement rather than a change in the underlying elevation in blood pressure in the PBF districts. Among hypertensive adults, PBF had a positive impact of 4 percentage points on the likelihood of having prescribed medication. Nevertheless, there is no significant impact on the likelihood of having taken the medication in the preceding 24 hours or on reported behavior change due to blood pressure.
98. We find an impact of five percentage points on the rate of adults over-40 who report use of any health service in the 12 months preceding the survey ($p=0.041$). In the follow-up survey, 90 percent of adults in the PBF districts reported receiving any health services at the primary care level in the preceding 2 in comparison to 84 percent in the control districts. The difference is statistically significant at the 90% level. These results suggest that the PBF intervention was successful in increasing utilization of health services at the primary level by adults.

7.2.2 Health service delivery and outcomes for recently pregnant women

Table 7-14. Impact of PBF on health service delivery and outcomes for recently pregnant women

Indicators	Baseline				Post-Treatment				Regression Results [†]		
	Control #	X	PBF #	X	Control #	X	PBF #	X	#	β^1	p ²
Proportion currently using any contraceptive method	1972	0.62	1842	0.69	2724	0.66	2568	0.62	9106	-0.08	.129
Proportion currently using any contraceptive method (not incl. LAM)	1297	0.42	1217	0.52	1834	0.50	1735	0.43	6083	-0.13	.266
Proportion currently using any modern method	1972	0.61	1842	0.68	2724	0.65	2568	0.61	9106	-0.07	.154
Proportion of women with an unmet need	1943	0.28	1819	0.24	2658	0.25	2506	0.30	8926	0.05	.102
Proportion of women with an unmet need (not incl. LAM)	1268	0.42	1194	0.36	1768	0.38	1673	0.45	5903	0.09	.198
Proportion of women who have an unmet need for spacing	1133	0.26	1056	0.23	1484	0.25	1363	0.31	5036	0.08	.279
Proportion of women with an unmet need for limiting	617	0.39	629	0.31	952	0.31	958	0.34	3156	0.07	.236
Proportion who have received ANC	1368	0.85	1266	0.94	2088	0.95	2109	0.97	6831	-0.04	.339
Number of ANC visits received	1368	4.25	1266	3.96	2088	4.94	2109	4.75	6831	0.05	.623
Proportion who started ANC in first trimester	1368	0.57	1266	0.69	2088	0.74	2109	0.75	6831	-0.11	.407
Proportion who attended at least 4 ANC visits	1368	0.61	1266	0.52	2088	0.72	2109	0.65	6831	-0.01	.396
Proportion who received ANC care from primary care	1181	0.65	1193	0.76	1993	0.69	2052	0.67	6419	-0.12	.992
Postnatal care											
Proportion who have received postnatal care within 3 days	1368	0.67	1266	0.57	2087	0.89	2107	0.93	6828	0.14	.025**
Received postnatal care at the primary care level	1181	0.65	1193	0.76	1993	0.69	2052	0.67	6419	-0.12	.990

LAM = Lactational Amenorrhea Method

[†] Regressions of PBF indicators for women with recent pregnancy are controlled for wealth index quintile, employment status, age, education, household size, and whether the women lives with a father-in-law or mother-in-law. Regressions child populations are controlled for wealth index quintile, age, household size, and gender.

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

99. There was no effect on contraceptive use as a result of the PBF intervention. Contraceptive use is measured among women with a recent pregnancy but not currently pregnant, and we expect the motivation to use contraception in our sample is not analogous to the general population of women in these districts. Particularly, the rate of lactation amenorrhea method (LAM), the delay of menstruation by exclusive breastfeeding, are overrepresented in our sample. As a result, the rates of contraceptive use in our sample are much higher than those reported by DHS. We do not find significant impacts on contraceptive use whether we remove women using LAM. We also do not find impact on use of modern methods of contraception (condom use, sterilization, IUDs, implants, oral pills, diaphragms, foam/jelly, and injectables).
100. Based on both the 2012 and 2017 DHS reports in Tajikistan, the most commonly used method for contraceptive use is IUDs, utilized by two-thirds of women using contraceptives and 29% of women of reproductive age. In our sample, LAM is the most commonly used contraceptive, accounting for 37.8% of recently pregnant women in 2018, IUDs is the second most utilized, accounting for 20.3%. To externally validate our findings within the general population, we ran a difference-in-difference specification using the 2012 and 2017 Demographic and Health Surveys; results are shown in **Error! Reference source not found.** These results also suggest no significant impacts on contraception use among women aged 15-49.
101. We find an impact of 14 percentage points in the rate of timely postnatal care (p=0.025). This impact was achieved on top of a strong overall increase in the rate of timely postnatal care. In the control districts, the rate increased from 67 to 89 percent between the baseline and follow up surveys. With respect to antenatal care, we do not find significant impacts on the timing or number of consultations. We do, however, find positive overall trends in the study areas. The rates of women with timely initiation of ANC and with at least four consultations are increasing.

7.2.3 Health service delivery and outcomes for children

Table 7-15. Impact of PBF on health service delivery and outcomes for children

	Indicators	Baseline				Post-Treatment				Regression Results [†]		
		Control		PBF		Control		PBF		#	β^1	p^2
		#	\bar{x}	#	\bar{x}	#	\bar{x}	#	\bar{x}			
Children (15)	Weight-for-age											
	Mean Z-score	2899	-0.38	3229	-0.42	3230	-0.55	2932	-0.52	12290	0.03	.997
	Percentage below -2 SD	2899	0.18	3229	0.18	3230	0.15	2932	0.15	12290	-0.01	.926
	Percentage below -3 SD	2899	0.09	3229	0.09	3230	0.06	2932	0.06	12290	-0.02	.576
	Weight-for-height											
	Mean Z-score	2577	0.26	2802	0.18	3047	0.14	2810	0.15	11236	0.15	.964
	Percentage below -2 SD	2597	0.13	2827	0.15	3111	0.12	2838	0.12	11373	-0.04	.723
	Percentage below -3 SD	2597	0.07	2827	0.08	3111	0.06	2838	0.06	11373	-0.02	.742
	Height-for-age											
	Mean Z-score	3053	-1.20	3381	-1.11	3133	-1.02	2893	-1.00	12460	-0.20	.901
	Percentage below -2 SD	3198	0.28	3579	0.28	3133	0.29	2893	0.29	12803	0.03	.461
	Percentage below -3 SD	3198	0.13	3579	0.14	3133	0.15	2893	0.13	12803	-0.01	.228
	Growth monitoring received in the	3198	0.09	3579	0.19	3368	0.23	3020	0.32	13165	-0.04	.595
	Vaccinations for children aged 12-23 months ³											
	Received all basic vaccinations	991	0.88	972	0.85	1148	0.82	1170	0.86	4281	0.07	.301
	DPT 1	906	0.97	802	0.97	1055	0.92	1072	0.93	3835	0.01	.580
	DPT 2	853	0.96	760	0.96	980	0.89	958	0.91	3551	0.02	.530
	DPT 3	790	0.95	694	0.95	876	0.87	850	0.89	3210	0.02	.636
	Oral Poliovirus 0 ⁴	910	0.92	833	0.88	962	0.91	996	0.91	3701	0.05	.518
	Oral Poliovirus 1	944	0.92	907	0.88	1065	0.87	1114	0.90	4030	0.06	.042**
	Oral Poliovirus 2	885	0.90	842	0.87	953	0.84	984	0.87	3664	0.07	.134
	Oral Poliovirus 3	706	0.87	706	0.83	721	0.77	695	0.81	2828	0.10	.257
	Any basic vaccinations ⁵	991	0.93	972	0.89	1148	0.93	1170	0.94	4281	0.04	.612
	Vaccinations for children aged 24-35 months ³											
	Received all basic vaccinations	783	0.87	846	0.80	491	0.77	365	0.80	2485	0.08	.632
	MMR	753	0.89	774	0.80	477	0.78	340	0.80	2344	0.10	.699
	Any basic vaccinations ⁶	783	0.94	846	0.89	491	0.92	365	0.94	2485	0.05	.267
	Vaccinated at the primary care level					3162	0.89	2980	0.93	6142	0.04	.189

[†] Regressions are controlled for province, wealth index quintile, employment status, marital status, gender, and size of household

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

Observation with extreme z-scores below -6 and above 6 are removed before analysis as they are biologically implausible

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection

³ Vaccination was determined from either the immunization card or reported by the mother.

⁴ Polio vaccination given at birth

⁵ Includes BCG, three doses of DPT, and three doses of OPV excluding doses given at birth

⁶ Includes BCG, three doses of DPT, one dose of MMR, and three doses of OPV excluding doses given at birth

102. Standardized weight-for-age, weight-for-height, and height-for-age were calculated using the WHO child growth STATA package. The resulting z-scores compares each child to the world population, accounting for gender and age. A z-score of 0 implies the child falls directly on the global mean of all children of the same gender and age or height, whereas a z-score of 1 or -1 implies the child is one standard deviation from the mean. Standard deviations are used as benchmarks; children below two standard deviations of weight-for-age are considered wasted, and below three standard deviations is severely wasted. Children below two standard deviations of height-for-age are considered stunted, whereas children below three standard deviations are considered severely stunted. PBF had no significant impact on anthropometric outcomes for children aged 0-60 months. Approximately 15% of children are underweight based on weight-for-age, 12% are underweight based on weight-for-height, and 29% are stunted based on height-for-age.

103. We do not find significant impact on the rate of children under 5 who had their weight and height measured in the preceding 6 months nor on vaccination coverage. We do measure an overall increase in the rate of growth monitoring between baseline and follow-up. The rate of children 12-23 month with all basic vaccinations, however, was high at baseline and has not statistically change.

7.2.4 Satisfaction with health services

Table 7-16. Impact of PBF on Community Perceptions towards Health Facility

	Indicators	Baseline		Post-Treatment				Regression Results†				
		Control #	\bar{x}	PBF #	\bar{x}	Control #	\bar{x}	PBF #	\bar{x}	#	β^1	p^2
	Proportion familiar with the primary care facility serving the community					1875	0.94	1994	0.96	3869	0.01	.647
	Overall Satisfaction Score					1675	-0.01	1739	0.07	3414	0.10	.369
	The facility staff works closely with the community on health matters					1662	0.96	1768	0.98	3430	0.02	.088*
	The staff at the facility is competent					1723	0.97	1815	0.99	3538	0.02	.051*
	The facility has the equipment needed to provide high quality health services					1572	0.87	1501	0.86	3073	0.01	.905
	The is in good physical state to provide high quality health services					1590	0.89	1616	0.94	3206	0.06	.194
	The facility staff listens to the opinions of the community					1668	0.97	1739	0.99	3407	0.02	.080*
	The staff at the facility is welcoming and respectful					1769	0.99	1878	0.99	3647	0.00	.509
	Improved attitude of health workers					1402	0.97	1563	0.98	2965	0.02	.123
	Improved collaboration between community and health facility					1375	0.97	1518	0.99	2893	0.02	.136
	Improved health facility infrastructure					1279	0.94	1333	0.95	2612	0.02	.656
	Improved quality of health services					1392	0.96	1569	0.99	2961	0.03	.167
Older Adults (12)	Proportion familiar with the primary care facility serving the community					1818	0.73	1714	0.78	3532	0.04	.383
	Overall Satisfaction Score					1455	-0.14	1353	0.06	2808	0.18	.019**
	The facility staff works closely with the community on health matters					1424	0.95	1355	0.98	2779	0.02	.015**
	The staff at the facility is competent					1473	0.96	1400	0.99	2873	0.03	.000***
	The facility has the equipment needed to provide high quality health services					1326	0.86	1191	0.86	2517	-0.01	.839
	The is in good physical state to provide high quality health services					1329	0.88	1255	0.93	2584	0.05	.296
	The facility staff listens to the opinions of the community					1423	0.96	1342	0.98	2765	0.02	.007***
	The staff at the facility is welcoming and respectful					1539	0.97	1430	0.99	2969	0.01	.068*
	Improved attitude of health workers					1202	0.95	1242	0.98	2444	0.03	.124
	Improved collaboration between community and health facility					1179	0.96	1208	0.99	2387	0.02	.013**
	Improved health facility infrastructure					1106	0.92	1098	0.97	2204	0.04	.256
	Improved quality of health services					1180	0.95	1246	0.98	2426	0.03	.169

† Regressions are controlled for the province, wealth index quintile, employment status, marital status, gender, and size of household

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

105. A series of ten questions about satisfaction with health services, staff interaction, and community relationships were asked to women with recent pregnancy and adults over 40. For each statement, given in Table 7-16, the respondents answered "Agree," "Disagree," "Neutral," or "Do Not Know." We calculated a binary indicator for satisfaction, where one if the respondent agreed, and 0 if the respondent was neutral or disagreed. Responses of "Don't Know" were removed before analysis. As the module was employed at follow up only, cross-section results are reported in Table 7.2.4.
106. Overall satisfaction is very high and for most categories more than 95 percent of respondent report positive satisfaction. Although there is little variation in reported satisfaction, we find significantly higher satisfaction in the PBF districts with respect to competency of staff and engagement of the primary facilities with the communities. Adults above 40 were also significantly more likely to agree that the staff is welcoming and respectful. When asked about changes over the last three years, adults in the PBF districts were also significantly more likely to report improved collaboration between the community and health facilities.

8 RESULTS OF CQI AND CRC INTERVENTIONS

In this chapter, we present results on the impacts of the CQI and CRC interventions. In comparison to the PBF program, these interventions are narrower in scope and are expected to have direct impacts on fewer outcomes. It was narrower in scope on many aspects. One of them is the shorter implementation period (see timeline in figure 5.2.). In addition, less resources were devoted to the CQI/CRC interventions as PBF is a full health system reform involving all levels from the health centers to district, province and national bodies. For example, the indicators included in the quality checklist covered almost all aspects of health center activities., Similarly, we do not expect the CQI intervention to impact facility infrastructure and we do not expect the CRC intervention to affect competency of provider. .For transparency, we present below results for all indicators included in the analysis presented in the previous chapter. However, the discussion is briefer. Because the interventions were implemented at the RHC level, we do not show results for the HHs in this chapter.

There are two reference groups for the analyses in this section. The CQI, CQI+PBF, CRC, and CRC+PBF arms are compared to the control arm, which provides point estimates of the absolute impact of each intervention. The CQI+PBF and CRC+PBF arms are also compared against the PBF arms to determine if the combined intervention resulted in any additional impact over PBF alone.

8.1 Health Facility, Health Workers, and Quality of Care

8.1.1 Facility Level Impacts

Structural Quality and Infrastructure

Table 8-1. CQI and CRC impact on Structural Quality and Infrastructure

Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
		β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
				β	p	β	p			β	p	β	p
Infrastructure Score ³	420	0.01	.977	0.90	.002***	-0.14	.637	0.06	.830	1.05	.000***	0.00	.988
Piped water into plot	420	-0.12	.388	0.14	.287	0.02	.872	-0.08	.566	0.07	.574	-0.05	.734
Improved water source ⁴	420	-0.23	.111	0.02	.879	-0.14	.338	-0.03	.838	0.09	.516	-0.07	.641
Designated Reception area	420	-0.03	.802	0.09	.438	0.03	.820	-0.17	.121	0.09	.440	0.02	.822
Heating in patient rooms	420	0.08	.479	0.33	.004***	-0.14	.243	0.10	.371	0.38	.001***	-0.08	.480
Patient Toilets	420	0.06	.594	0.05	.628	-0.06	.552	0.05	.632	0.17	.117	0.05	.629
Separate male and female toilets	420	0.08	.624	0.36	.023**	0.13	.401	0.00	.989	0.33	.040**	0.10	.528
Private consultation rooms	420	0.15	.314	0.63	.000***	-0.05	.749	0.11	.461	0.73	.000***	0.05	.736
Water in consultation rooms	420	-0.08	.589	0.12	.441	-0.09	.546	0.16	.302	0.13	.405	-0.08	.588
Infection prevention and control score	420	0.24	.453	1.18	.000***	-0.28	.368	0.29	.355	1.53	.000***	0.07	.812
Availability of a functional incinerator	420	0.03	.783	0.16	.077*	-0.10	.279	-0.01	.928	0.25	.006***	-0.01	.939
Use of proper sterilization procedure ⁵	420	0.03	.802	0.10	.432	-0.14	.288	-0.09	.466	-0.03	.819	-0.27	.039**
Use of proper decontamination procedure ⁶	420	-0.08	.575	0.13	.377	0.06	.663	0.02	.915	0.25	.083*	0.19	.198
Use of proper biowaste disposal method ⁷	420	0.18	.210	0.59	.000***	-0.06	.661	0.25	.086*	0.81	.000***	0.15	.297
Consultation rooms with proper sharps disposal	420	-0.03	.836	0.28	.056*	0.04	.778	0.10	.473	0.29	.045**	0.05	.707

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

Samples for this table are (1) selected rural health centers and (7) health houses, as detailed further in Table 7-1

† Regressions are controlled for changes in catchment size.

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² No clustering is applied to standard errors, as CQI and CRC were randomly allocated between PBF and control arms.

³ Factor scores for infrastructure and infection prevention control are the standardized first component of a Principal Component Analysis. Reference Appendix Table A10.2-1 and Table A10.2-2

⁴ Improved water sources include piped water, public taps, tube wells, protected dug wells, protected springs, rain water, and bottled water

⁵ Proper sterilization procedure includes autoclaving, boiling, steam sterilization, chemical sterilization, and outsourcing

⁶ Proper decontamination procedure is scrubbing, or cleaning followed by use of a disinfectant

⁷ Proper biowaste disposal method includes burning or outsourcing

107. There is little evidence to support a positive impact of CQI or CRC interventions on infrastructure development in primary health care facilities. In rural health centers there was no statistically significant difference in the infrastructure score between CQI or CRC and the Control arm, or between CQI+PBF and CRC+PBF and the PBF only arm. Similarly, the infection prevention and control score was not significantly impacted by either CQI or CRC interventions.

Equipment and Drugs

Table 8-2. CQI and CRC impact on Equipment Availability

	Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
			β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
					β	p	β	p			β	p	β	p
Rural Health Center (1)	Equipment Availability Score ³	420	0.17	.491	1.10	.000***	-0.31	.199	0.13	.593	1.13	.000***	-0.28	.243
	Availability of a laboratory													
	Centrifuge	420	-0.01	.918	-0.02	.834	-0.13	.244	0.12	.281	0.10	.374	-0.01	.938
	Glucometer	420	-0.04	.605	0.19	.024**	-0.09	.294	0.10	.220	0.18	.031**	-0.10	.249
	Hemoglobinometer	420	-0.10	.373	-0.08	.465	-0.07	.554	0.00	.990	-0.02	.847	-0.01	.953
	Microscope	420	-0.08	.505	-0.06	.612	-0.10	.392	0.00	.974	0.00	.979	-0.04	.742
	Refrigerator for reagents	420	0.02	.797	0.10	.166	-0.12	.104	0.02	.812	0.13	.092*	-0.10	.183
	Availability of vaccine cold storage													
	Cold Box	419	0.06	.298	0.06	.264	-0.03	.635	0.02	.645	0.08	.123	0.00	.957
	Ice Lined Refrigerator	419	0.03	.726	0.02	.833	-0.16	.095*	-0.03	.724	0.09	.334	-0.09	.352
	Refrigerator	419	-0.08	.558	0.19	.128	-0.08	.509	0.02	.884	0.32	.011**	0.04	.730
	Vaccine Carrier	419	-0.02	.805	-0.07	.423	0.07	.404	-0.20	.017**	-0.09	.310	0.05	.531
	Availability of drugs													
	Amoxicillin	420	0.15	.287	0.72	.000***	0.01	.913	0.37	.008***	0.67	.000***	-0.04	.786
	Paracetamol	420	-0.04	.773	0.25	.044**	0.03	.834	0.14	.266	0.25	.049**	0.02	.871
	Iron tablets	420	0.13	.238	0.21	.056*	-0.07	.518	0.08	.459	0.37	.001***	0.09	.406
	Oral Rehydration Serum	420	0.05	.704	0.14	.253	-0.08	.521	0.02	.881	0.22	.078*	0.00	.978
	HIV test kits	420	0.10	.437	0.56	.000***	-0.05	.727	0.10	.458	0.75	.000***	0.15	.241
	Pregnancy test kits	420	0.20	.131	0.45	.001***	-0.04	.767	0.18	.179	0.61	.000***	0.12	.371
	Rapid plasma reagin	420	0.03	.470	0.03	.456	0.03	.416	0.00	.925	0.02	.508	0.03	.463

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

Samples for this table are (1) selected rural health centers and (7) health houses, as detailed further in Table 7-1

† Regressions are controlled for changes in catchment size

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

108. We did not identify a statistically significant impact due to CRC or CQI on the basic equipment availability in rural health centers or health houses. In the control arm, there was no statistically significant change in the equipment score between the baseline and follow-up surveys due to a secular trend in the control arm ($\beta=0.05$, $p=.765$). There was also no change in the availability of laboratory equipment due to CRC or CQI interventions. With respect to availability of cold storage for vaccines, a couple of coefficients are statistically significant but we find no overall consistent trends. The change in drug availability trended positive for the CRC and CRC+PBF arms, with a statistically significant coefficient for amoxicillin in the CRC group relative to the control ($\beta=0.37$, $p=.008$). Availability of ORS and paracetamol were near universal at the time of follow-up (Table A10.4-2) for all arms.

Service Availability

Table 8-3. CQI and CRC impact on Service Availability

Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
		β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
				β	p	β	p			β	p	β	p
Rural Health Center (1)													
Availability of laboratory services	420	-0.11	.367	-0.11	.323	-0.10	.404	-0.03	.777	-0.02	.834	-0.01	.950
Facilities providing postnatal services	420	0.00	.941	0.00	.937	0.00	.878	0.03	.080*	0.00	.920	0.00	.980
Prop. of growth monitoring services provided	396	-0.03	.537	0.09	.072*	-0.09	.065*	0.03	.518	0.11	.037**	-0.08	.131
Under-5 nutrition services provided	420	-0.12	.106	0.00	.989	0.00	.978	-0.20	.006***	-0.06	.419	-0.06	.430
Facilities providing antenatal services	420	0.02	.575	0.00	.949	-0.02	.617	0.03	.537	0.05	.241	0.03	.548
Facilities providing iron folate	419	0.19	.110	0.03	.764	-0.32	.005***	0.02	.839	0.27	.018**	-0.09	.458
Hypertension service provision	420	-0.07	.397	0.01	.936	0.02	.833	-0.04	.666	-0.04	.650	-0.03	.750
Prop. of diabetes services provided	420	-0.04	.540	0.30	.000***	-0.06	.373	-0.02	.774	0.26	.000***	-0.10	.139

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

Samples for this table are (1) selected rural health centers and (7) health houses, as detailed further in Table 7-1

† Regressions are controlled for changes in catchment size

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

109. Postnatal, antenatal, growth monitoring and iron folate service provision was near universal among rural health centers at the time of the follow-up survey (Table A10.4-3). Therefore, significant coefficients with respect to these services represent differences in baseline levels rather than impacts of the program. With respect of hypertension and diabetes-related services, coverage is not universal, and we do not estimate a significant impact of neither the CQI nor the CRC interventions.

Administration

Table 8-4. CQI and CRC impact on Administration and Management

Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
		β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
				β	p	β	p			β	p	β	p
Rural Health Center (1)													
External assessments of staff in last year	420	1.15	.496	5.51	.001***	1.13	.503	-0.08	.961	4.21	.012**	-0.18	.916
External assessments of facilities in last year	420	-0.63	.557	0.04	.966	0.91	.394	-0.21	.844	0.08	.936	0.95	.372
Internal assessments in last year	420	3.34	.410	13.46	.001***	5.30	.189	2.18	.588	9.10	.023**	0.94	.815
Facilities w/mechanism to obtain patient opi	420	0.19	.179	0.20	.148	-0.05	.740	-0.14	.307	0.32	.022**	0.07	.612
Staff meetings in the last 3 months	420	-3.63	.283	5.47	.101	2.48	.461	4.37	.193	4.81	.149	1.83	.586
Positions currently filled	420	-1.72	.264	-2.34	.123	-1.15	.452	-1.55	.309	-1.75	.249	-0.56	.714
Positions vacated in past year (staff attrition	420	0.10	.822	0.14	.747	0.10	.816	0.53	.208	-0.35	.400	-0.39	.356
Protocol and guideline availability score	420	-0.03	.915	0.96	.000***	-0.19	.461	-0.03	.893	1.07	.000***	-0.07	.767

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

Samples for this table are (1) selected rural health centers and (7) health houses, as detailed further in Table 7-1

† Regressions are controlled for changes in catchment size

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

110. As expected, there was no statistically significant impact on administrative indicators as a result of CQI and CRC interventions. Results for the arms jointly implementing the PBF program and CQI or CRC interventions are not statistically different from those for the PBF arm.

8.2 Health Worker

Health Worker Salary and Satisfaction

Table 8-5. CQI and CRC impact on Health Workers

Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
		β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
				β	p	β	p			β	p	β	p
Rural Health Center (1)													
Average monthly salary from all sources besides PBF	1577	-16.33	.657	-38.74	.214	35.33	.249	-22.90	.564	-22.61	.518	51.46	.137
Average monthly PBF incentive (most recent payment) ³	1557		.935	448.43	.000***	39.25	.524		.582	465.12	.000***	55.94	.237
Average monthly PBF incentive (previous payment) ³	1555		.988	389.42	.000***	14.03	.835		.761	397.01	.000***	21.63	.707
Health workers paid on time	1582	0.04	.628	0.04	.669	-0.02	.848	-0.07	.388	0.07	.410	0.02	.840
Health workers with a second job	1582	-0.02	.734	0.04	.521	0.11	.110	-0.01	.932	-0.04	.565	0.03	.732
WHO Well-Being Score ⁴	1582	-0.11	.568	-0.16	.460	-0.36	.081*	-0.15	.458	-0.10	.620	-0.30	.106
Satisfaction Score ⁴	1582	0.16	.420	0.94	.000***	-0.07	.675	-0.09	.606	0.94	.000***	-0.07	.704
Personal Drive Score ⁴	1582	0.09	.732	-0.12	.660	-0.09	.669	-0.08	.736	-0.14	.548	-0.12	.526
Number of absences in past 30 days	1582	-0.14	.662	0.13	.620	-0.07	.715	-0.28	.460	-0.39	.289	-0.60	.060*
Number of hours worked in past 7 days	1582	-4.23	.281	2.54	.491	3.02	.473	1.16	.752	4.33	.218	4.81	.236
Average number of patients seen in past day	1582	0.52	.694	6.42	.000***	0.25	.725	1.53	.176	5.53	.000***	-0.63	.426

† Regressions are controlled for the province, education level, length of work history at the facility, position, gender, and whether the health worker was native to the district

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ The sample size for DD estimates includes both baseline and follow-up observations. Cross-sectional estimates use follow-up observations only.

⁴ The score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

111. We do not find significant impacts of the CQI and CRC interventions on outcomes related to health worker income and satisfaction. When these interventions are implemented jointly with PBF, outcomes are not significantly different from outcomes for the PBF only arm. Health workers in the PBF+CQI arm scored lower on the WHO well-being score in comparison to providers in the PBF only arm. However, we do not find statistically significant differences with respect to satisfaction and personal drive. We therefore cannot confidently conclude that the health workers in the PBF+CQI arm are worse off.

Health Worker Knowledge

Table 8-6. CQI and CRC impact on performance on standardized clinical vignettes

	Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
			β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
					β	p	β	p			β	p	β	p
Health Workers (8)	V1 Correct diagnosis; severe dehydration	2095	0.05	.544	0.21	.017**	-0.15	.090*	-0.03	.710	0.25	.008***	-0.11	.227
	Proportion of recommended history items recalled	2095	-0.02	.560	0.08	.024**	-0.02	.690	0.00	.967	0.09	.017**	0.00	.941
	Proportion of recommended exam procedures recalled	2095	0.02	.537	-0.02	.550	-0.03	.439	0.00	.963	0.01	.754	0.00	.974
	V2 Correct diagnosis; pneumonia	2095	0.03	.700	0.12	.181	0.06	.494	0.08	.343	0.13	.157	0.07	.419
	Proportion of recommended history items recalled	2095	-0.05	.212	0.06	.120	-0.02	.667	-0.02	.486	0.04	.311	-0.04	.433
	Proportion of recommended exam procedures recalled	2095	-0.01	.703	0.03	.310	-0.03	.478	0.01	.744	0.02	.628	-0.05	.266
	V3 Correct diagnosis; severe infection	2094	-0.03	.710	-0.02	.793	-0.12	.223	-0.05	.546	0.08	.363	-0.01	.916
	Proportion of recommended history items recalled	2095	-0.02	.756	0.00	.972	-0.01	.785	-0.03	.530	-0.02	.727	-0.03	.574
	Proportion of recommended exam procedures recalled	2095	0.03	.364	0.07	.060*	-0.02	.661	0.04	.189	0.09	.016**	0.00	.984
	V4 Correct diagnosis; malnutrition/anemia	2094	0.06	.458	0.01	.870	0.01	.908	-0.01	.887	0.02	.853	0.01	.887
	Proportion of recommended history items recalled	2095	-0.01	.743	0.09	.028**	-0.02	.643	0.01	.741	0.06	.153	-0.05	.350
	Proportion of recommended exam procedures recalled	2095	0.00	.851	0.01	.621	0.00	.898	0.02	.388	0.04	.186	0.02	.591
	V5 Correct range of cardiovascular risk selected (Moderate risk 1)	2095	0.09	.340	0.27	.002***	-0.09	.351	0.12	.216	0.18	.063*	-0.17	.085*
	Proportion of recommended history items recalled	2095	0.01	.664	0.12	.003***	-0.02	.758	0.00	.944	0.11	.015**	-0.03	.609
	Proportion of recommended exam procedures recalled	2095	0.00	.931	0.15	.000***	0.01	.889	0.01	.836	0.11	.003***	-0.03	.471
	V6 Correct range of cardiovascular risk selected (High risk 20%-3)	2095	0.00	.977	0.28	.000***	-0.04	.590	0.06	.464	0.25	.003***	-0.07	.403
	Proportion of recommended history items recalled	2095	0.01	.782	0.08	.030**	-0.02	.696	0.00	.882	0.09	.022**	-0.01	.876
	Proportion of recommended exam procedures recalled	2095	0.03	.507	0.20	.000***	0.05	.190	0.03	.450	0.13	.001***	-0.01	.763

* Regressions are controlled for the individual (age) and household (number of household members, wealth index), and catchment level (catchment size, region) factors

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

112. Analysis of the clinical vignettes data results in no evidence that CQI or CRC interventions improved general knowledge on case management of priority child and adult conditions among RHC clinicians. When comparing the arms jointly implementing these interventions together with PBF we only find two statistically significant coefficients at the 90% level. We therefore conclude that the knowledge of providers in these arms is not different from that of providers in the PBF only arm.
113. It is important to note that the clinical vignettes included in the survey were not designed based on the flowsheets used in the CQI intervention. The flowsheets were designed after the baseline survey. We present in the appendix the individual indicators collected in the vignette modules. Also when examining the results for the disaggregated indicators, we do not find that providers were more likely to mention actions highlighted in the CQI flowsheets.

8.2.1 Consultations

Patient Experience

Table 8-7. CQI and CRC impact on Patient Exit Interview Indicators

	Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
			β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
					β	p	β	p			β	p	β	p
Adult Exit (5)	Patient satisfaction score ³	1589	0.20	.171	0.19	.236	-0.18	.118	-0.05	.803	0.20	.215	-0.17	.175
	Average time spent in consultation (minutes)	1601	-0.22	.806	0.21	.764	0.06	.937	-1.43	.069*	2.00	.019**	1.85	.043**
	Average waiting time (minutes)	1536	1.00	.634	-2.50	.101	-0.09	.911	0.24	.909	-1.53	.327	0.88	.397
	Prop. of patients who had any non-travel cost	1606	0.02	.768	-0.10	.115	0.01	.757	-0.04	.563	-0.05	.495	0.06	.107
Child Exit (6)	Patient satisfaction score ³	1774	0.18	.278	0.02	.933	-0.16	.360	-0.04	.813	0.12	.504	-0.05	.751
	Average time spent in consultation (minutes)	1795	0.42	.577	1.98	.015**	-0.33	.667	-1.50	.066*	3.44	.004***	1.13	.340
	Average waiting time (minutes)	1771	-1.57	.380	-2.60	.111	-1.52	.166	-0.94	.605	-1.52	.357	-0.44	.739
	Prop. of patients who had any non-travel cost	1795	-0.04	.370	-0.06	.094*	-0.01	.762	-0.06	.174	-0.06	.103	-0.01	.805

† Regressions are controlled for patient wealth, patient gender, and patient age, and attending health worker position, age, and gender

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

114. Baseline exit interviews had a limited sample size and coverage and are omitted from analysis. As CQI and CRC interventions are randomized, the results presented in Table 8-7 are still interpreted as impact estimates. We did not identify a statistically significant impact of CRC and CQI on the satisfaction score for child or adult consultations, and the impact on components of satisfaction are mixed (Table 8-7). The proportion of patients who reported to be satisfied with the various elements of their care were above 80% in all arms, limited the ability to identify a statistically significant change. The satisfaction score is calculated by principal component analysis, and the factor weights and components are reported in Table 10.3.5. Among these components, we see a 4-percentage point increase in satisfaction with overall quality of services among adults consultations, and a 5 percentage point increase in satisfaction among health workers explaining medical conditions for child consultations in the CQI group compared to control. CQI+PBF consultations resulted in a slight negative impact satisfaction scores than PBF only, statistically significant for components including health facility cleanliness, explaining conditions, overall service quality, and hours of operation. There were no statistically significant differences between the CRC and control groups, though the CRC+PBF group had a negative impact of perception of service quality by 5 percentage points.
115. We find small impacts identified on consultation time, however, they are not clinically relevant.

Clinical Consultation

Table 8-8. CQI and CRC impact on Direct Observation Indicators

	Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
			β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
Adult DO (3)	Proportion of core clinical history items asked	3108	0.00	.993	0.14	.000***	-0.03	.487	0.00	.893	0.16	.000***	-0.01	.862
	CVD risk score calculated	3108	-0.05	.558	-0.05	.571	-0.05	.550	-0.06	.478	-0.07	.395	-0.08	.402
	CVD risk score properly calculated	1187	0.01	.560	0.03	.629	-0.11	.242	0.12	.124	0.16	.085*	0.02	.837
	Proportion of core physical exam activities completed	3108	0.00	.845	0.09	.000***	-0.04	.162	0.00	.878	0.13	.000***	0.00	.984
	Greeted the patient	3108	-0.01	.347	-0.01	.177	0.00	.943	-0.01	.374	-0.01	.621	0.01	.693
	Clinician introduced themselves	3108	-0.10	.125	0.14	.072*	-0.08	.398	-0.03	.673	0.14	.083*	-0.08	.440
	Average consultation time (minutes)	3106	0.91	.539	-1.22	.251	-0.76	.589	-0.95	.369	-0.03	.979	0.42	.781
Child DO (4)	Average consultation time (minutes)	561	3.93	.401	-0.59	.711	0.58	.755	-1.38	.381	-0.80	.640	0.37	.856
	Asked patient's age	568	0.06	.681	-0.19	.235	-0.18	.089*	0.06	.660	-0.02	.848	-0.01	.863
	Asked the patient's name	568	0.02	.921	0.15	.158	-0.01	.819	-0.05	.782	0.21	.059*	0.05	.438
	Greeted the patient	568	0.01	.643	0.01	.603	0.01	.524	0.02	.296	-0.01	.843	-0.01	.559
	Clinician introduced themselves	568	0.12	.039**	0.10	.145	-0.01	.902	0.09	.398	0.04	.358	-0.06	.480
	Clinician washed their hands before starting the exam	568	-0.07	.724	-0.27	.124	-0.11	.520	0.09	.618	-0.48	.004***	-0.33	.093*
	Clinicians who checked vaccination history	568	0.13	.183	-0.03	.838	0.05	.696	0.07	.618	-0.08	.517	0.00	.994
	Measured weight and height of child	568	0.14	.112	0.18	.029**	-0.03	.600	-0.01	.959	0.25	.002***	0.05	.255
	Proportion of growth monitoring tasks completed	568	0.08	.201	0.09	.384	0.01	.969	-0.09	.321	0.00	.983	-0.09	.580
	Proportion of core physical exam activities completed	568	0.13	.016**	0.04	.365	-0.03	.529	-0.05	.406	0.13	.022**	0.05	.470

Proper cardiovascular risk calculation requires selecting the correct tables for age, smoking status, diabetes status, blood pressure, and gender

† Regressions are controlled for the province, patient gender, and patient age, and attending health worker position, age, and gender

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

³ Score derived from the standardized first component of a principal component analysis. Expanded factor results are shown in appendix

116. There was no significant impact of CRC or CQI on the quality of older adult consultations. Cardiovascular risk score was calculated in 39.2% of consultations, with the highest percentage in the PBF arm (47.2%) and the lowest in the CRC arm (33.3%). Notably, in the control and CRC groups we did not observe any consultations where the clinician was able to correctly calculate the cardiovascular risk score. The most common reasons for improper calculation of the CVD risk score across arms were choosing the incorrect risk table according to smoking status, and the incorrect cell in relation to the patient's systolic blood pressure.
117. Clinicians in the CQI group completed a higher the proportion of recommended physical examination activities ($\beta=0.13$, $p=.016$) during consultations with children under five years of age compared to the control group. Specifically, providers were more likely to look for edema ($\beta=0.06$, $p=.017$), observe mouth ulcer ($\beta=0.32$, $p=.002$), pinch skin ($\beta=0.25$, $p=.067$), and measure temperature ($\beta=0.19$, $p=.069$). Pinching of the skin and looking for edema are two action mention in the CQI flowsheet. The disaggregated indicators in the appendix show that providers in the CQI arm were more likely to measure height correctly, to calibrate the scale before measuring weight and to record height and weight in the patients' medical cards. There was also a 12% increase in the proportion of clinicians who introduced themselves ($\beta=0.12$, $p=.039$) compared to the control. There was no corresponding differences identified between the CQI+PBF group and the PBF group.

8.3 Household

8.3.1 Health service delivery and outcomes for older adults

Table 8-9. CQI and CRC impact on health service delivery and outcomes for older adults

Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
		β	P	Ref: Control		Ref: PBF		β	P	Ref: Control		Ref: PBF	
				β	P	β	P			β	P	β	P
BP measured by a health worker in past year	11425	0.00	.987	0.06	.030**	-0.05	.146	0.00	.932	0.07	.034**	-0.04	.288
BP measured at the primary care level	11629	-0.03	.562	0.12	.002***	0.03	.452	0.00	.973	0.07	.123	-0.02	.765
Directly Observed Blood Pressure Ratings													
Normal Rating	10322	-0.01	.758	-0.05	.233	0.00	.906	0.03	.462	-0.02	.731	0.04	.306
Normal	10322	-0.02	.719	-0.01	.759	0.04	.332	0.02	.552	0.02	.716	0.07	.115
High Normal	10322	0.00	.950	-0.04	.176	-0.04	.251	0.01	.730	-0.03	.281	-0.03	.381
Elevated Rating	10322	0.01	.758	0.05	.233	0.00	.906	-0.03	.462	0.02	.731	-0.04	.306
Mildly High	10322	0.01	.781	0.03	.296	-0.02	.570	0.02	.492	0.00	.939	-0.04	.135
Moderately High	10322	0.02	.431	-0.02	.497	0.01	.815	-0.06	.011**	-0.02	.415	0.00	.838
Severe	10322	-0.01	.627	0.04	.131	0.01	.749	0.00	.964	0.03	.297	0.00	.869
Prop. With self-reported high BP	15440	-0.07	.040**	-0.02	.507	-0.07	.030**	-0.07	.042**	0.03	.460	-0.03	.484
Prescribed medication for blood pressure	3738	0.05	.165	0.07	.024**	0.01	.725	0.01	.657	0.02	.603	-0.04	.160
Taken prescribed medication in past 24 hours	3410	0.03	.664	0.01	.884	-0.07	.269	0.01	.911	0.12	.084*	0.04	.486
Recently changed behaviors to lower blood pressure	4163	0.05	.436	0.02	.764	0.05	.558	-0.02	.751	-0.11	.114	-0.09	.191

Blood Pressure Rating (mmHg): Normal: <130 systolic AND <85 diastolic; High Normal: 130-140 systolic OR 85-89 diastolic; Mildly High: 140-159 systolic OR 90-99 diastolic; Moderately High: 160-179 systolic OR 100-109 diastolic; Severely High: 180+ systolic OR 110+ diastolic

† Regressions are controlled for the province, wealth index quintile, employment status, marital status, gender, and size of household

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

118. We do not find that CQI or CRC affected the coverage of blood pressure measurement or the prevalence of hypertension. The proportion of older adults with clinician-diagnosed blood pressure is lower by seven percentage points in the CQI (β=-0.07, p=.040) and CSC arms (β=-0.07, p=.042) compared to control, as well as seven percentage points lower in the CQI+PBF group (β=-0.07, p=.030) compared to the control group. Since the intervention did not affect measurement of blood pressure or hypertension rates, we are unable to interpret these findings.

8.3.2 Health service delivery and outcomes for recently pregnant women

Table 8-10. CQI and CRC impact on health service delivery and outcomes for recently pregnant women

Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
		β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
				β	p	β	p			β	p	β	p
Proportion currently using any contraceptive method	9106	0.06	.139	-0.07	.123	0.01	.892	0.03	.480	-0.07	.203	0.01	.823
Proportion currently using any contraceptive method (not incl. LAM)	6083	0.09	.073*	-0.10	.048**	-0.01	.889	0.02	.656	-0.13	.015**	-0.04	.524
Proportion currently using any modern method	9106	0.06	.131	-0.07	.145	0.00	.941	0.03	.463	-0.05	.324	0.02	.708
Proportion of women with an unmet need	8926	-0.04	.389	0.06	.166	0.00	.973	-0.02	.631	0.07	.142	0.00	.926
Proportion of women with an unmet need (not incl. LAM)	5903	-0.06	.318	0.09	.130	0.01	.867	-0.01	.826	0.13	.027**	0.05	.384
Proportion of women who an unmet need for spacing	5036	-0.08	.153	0.10	.077*	0.07	.235	-0.01	.898	0.08	.155	0.05	.398
Proportion of women with an unmet need for limiting	3156	0.02	.732	0.02	.764	-0.11	.137	-0.05	.440	0.06	.436	-0.07	.361
Proportion who have received ANC	7075	-0.06	.169	-0.11	.007***	-0.03	.263	-0.03	.562	-0.08	.063*	0.00	.956
Number of ANC visits received	7075	-0.08	.825	-0.14	.723	0.00	.992	-0.24	.577	0.32	.418	0.46	.226
Proportion who started ANC in first trimester	7075	-0.08	.165	-0.18	.002***	-0.04	.481	-0.03	.662	-0.11	.051*	0.03	.540
Proportion who attended at least 4 ANC visits	7075	0.01	.891	-0.04	.673	0.00	.999	-0.01	.856	0.11	.167	0.15	.084*
Proportion who received ANC care from primary care	6642	-0.03	.696	-0.08	.277	0.01	.889	0.04	.610	-0.14	.071*	-0.05	.481
Postnatal care	7075	-0.02	.771	0.11	.098*	0.01	.870	0.01	.906	0.16	.015**	0.06	.364
Proportion who have received postnatal care within 3 days	7071	0.04	.365	0.18	.000***	-0.03	.595	-0.02	.537	0.09	.057*	-0.12	.025**
Received postnatal care at the primary care level	6642	-0.03	.696	-0.08	.277	0.01	.889	0.04	.610	-0.14	.071*	-0.05	.481

LAM = Lactational Amenorrhea Method

† Regressions of PBF indicators for women with recent pregnancy are controlled for wealth index quintile, employment status, age, education, household size, and whether the women live with a father-in-law or mother-in-law. Regressions child populations are controlled for wealth index quintile, age, household size, and gender.

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

119. Overall, we do not see a clear impact of CSC and CQI on the utilization of maternal services. We estimate both negative and positive coefficients which are mostly not statistically significant. We estimate a positive impact of CQI on contraception use in the CQI group relative to the control while in the CQI+PBF group the coefficient is negative. Given that family planning was not a focus of the CQI intervention and we don't find impact on use of modern family planning methods, we cannot conclude confidently that the interventions caused these trends. Results for the groups jointly implementing the CQI or CRC jointly with PBF are generally not significantly different from those for the group implementing PBF only. Relative to the PBF only arm, the CRC+PBF arm higher coefficient for 4 or more ANC visits and a lower coefficient on timely postnatal care.

8.3.3 Health service delivery and outcomes for children

Table 8-11. CQI and CRC impact on health service delivery and outcomes for children

	Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
			β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
					β	p	β	p			β	p	β	p
Children (15)	Weight-for-age													
	Mean Z-score	12290	0.25	.116	0.13	.382	0.03	.851	0.07	.619	0.13	.355	0.03	.840
	Percentage below -2 SD	12290	-0.07	.010***	-0.04	.125	-0.03	.155	0.00	.914	-0.03	.213	-0.03	.265
	Percentage below -3 SD	12290	-0.01	.607	-0.02	.192	-0.02	.278	0.01	.801	-0.01	.489	-0.01	.649
	Weight-for-height													
	Mean Z-score	11236	0.13	.445	0.26	.144	0.11	.571	0.14	.469	0.22	.193	0.07	.696
	Percentage below -2 SD	11373	-0.04	.167	-0.07	.005***	-0.03	.334	-0.03	.374	-0.04	.083*	0.00	.922
	Percentage below -3 SD	11373	-0.01	.459	-0.04	.039**	-0.02	.289	-0.01	.496	-0.03	.139	-0.01	.641
	Height-for-age													
	Mean Z-score	12460	0.28	.114	-0.17	.309	-0.08	.593	0.10	.617	0.09	.632	0.18	.295
	Percentage below -2 SD	12803	-0.02	.588	0.04	.236	0.02	.513	-0.01	.772	-0.01	.740	-0.03	.372
	Percentage below -3 SD	12803	-0.01	.705	-0.01	.697	-0.01	.759	0.00	.912	-0.03	.376	-0.02	.386
	Growth monitoring received in the past 6 months	13165	0.05	.308	-0.05	.346	-0.08	.210	0.03	.468	0.01	.873	-0.02	.756
	Vaccinations for children aged 12-23 months ³													
	Received all basic vaccinations	4281	-0.03	.536	0.10	.018**	0.06	.201	0.04	.371	0.08	.120	0.03	.516
	DPT 1	3835	0.01	.727	0.04	.081*	0.05	.062*	-0.01	.694	-0.01	.748	-0.01	.871
	DPT 2	3551	0.00	.981	0.06	.042**	0.06	.050*	-0.01	.843	-0.01	.794	-0.01	.796
	DPT 3	3210	0.00	.971	0.07	.058*	0.09	.017**	-0.03	.460	-0.01	.811	0.01	.765
	Oral Poliovirus 0 ⁴	3701	-0.03	.311	0.04	.292	-0.01	.868	0.06	.137	0.06	.150	0.01	.769
	Oral Poliovirus 1	4030	-0.04	.279	0.06	.142	0.02	.667	0.05	.289	0.07	.106	0.03	.535
	Oral Poliovirus 2	3664	-0.06	.166	0.07	.175	0.05	.393	0.04	.376	0.06	.192	0.05	.420
	Oral Poliovirus 3	2828	-0.07	.270	0.12	.084*	0.11	.155	0.05	.469	0.09	.214	0.08	.313
	Any basic vaccinations ⁵	4281	-0.01	.694	0.04	.218	-0.01	.755	0.07	.026**	0.07	.057*	0.02	.647
	Vaccinations for children aged 24-35 months ³													
	Received all basic vaccinations	2485	-0.03	.641	0.04	.623	-0.10	.129	-0.07	.369	0.00	.982	-0.14	.077*
	MMR	2344	-0.05	.430	0.04	.607	-0.11	.157	-0.06	.437	0.01	.909	-0.14	.099*
	Any basic vaccinations ⁶	2485	-0.06	.101	0.01	.859	-0.02	.767	-0.05	.271	0.03	.468	0.01	.834
	Vaccinated at the primary care level	6142	0.03	.339	0.05	.079*	-0.01	.645	0.02	.642	0.06	.059*	-0.01	.760

† Regressions are controlled for the province, wealth index quintile, employment status, marital status, gender, and size of household

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection

³ Vaccination was determined from either the immunization card or reported by the mother.

⁴ Polio vaccination given at birth

⁵ Includes BCG, three doses of DPT, and three doses of OPV excluding doses given at birth

⁶ Includes BCG, three doses of DPT, one dose of MMR, and three doses of OPV excluding doses given at birth

Observation with extreme z-scores below -6 and above six are removed before analysis as they are biologically implausible

120. Children under five years of age in the CQI group were less likely to be underweight ($\beta=-0.07$, $p=.010$) by seven percentage points ($p=0.010$) and on average had higher weight ($\beta=0.25$, $p=.116$), though this was not a statistically significant difference. We did not identify any impact of CRC on anthropometric measures, though all CQI and CRC arms trended towards positive anthropometric outcomes. In the CQI+PBF group, there was a 10-percentage point impact in the proportion of children aged 12-23 months who received all basic vaccinations compared to control ($\beta=0.10$, $p=.018$), and 6 percentage points more than the PBF-only group though the difference was not significant at the 10% level ($\beta=0.06$, $p=.201$). Children aged 12-23 months in the CQI+PBF group also had higher rates of vaccinations for the DPT sequence compared to both control and PBF. Children aged 12-23 months in the CSC-group had a 7% increase in receiving at least one basic vaccination compared to control ($\beta=0.07$, $p=.057$). The difference was also 7% in the CSC+PBF group, 2% more than the PBF group though the difference was not significant ($\beta=0.02$, $p=.647$). These improvements did not persist in children aged 24-35 months.

8.3.4 Satisfaction with health services

Table 8-12. CQI and CRC impact on Community Perceptions towards Health Facility

	Indicator	#	CQI		CQI+PBF				CRC Only		CRC+PBF			
			β	P	Ref: Control		Ref: PBF		β	P	Ref: Control		Ref: PBF	
					β	P	β	P			β	P	β	P
Women with recent pregnancy (14)	Proportion familiar with the RHC/HH serving the community	5076	0.04	.180	-0.01	.705	-0.01	.645	0.02	.464	0.02	.557	0.01	.672
	Overall Satisfaction Score	4157	0.07	.470	0.21	.006***	0.06	.327	0.03	.788	0.13	.110	-0.02	.757
	The facility staff works closely with the community on health matters	4153	0.01	.427	0.03	.018**	0.00	.999	0.01	.387	0.03	.029**	0.00	.880
	The staff at the facility is competent	4286	0.01	.675	0.03	.001***	0.01	.244	0.00	.813	0.03	.003***	0.01	.415
	The facility has the equipment needed to provide high quality health services	3693	0.00	.918	0.02	.649	-0.01	.814	0.00	.890	-0.01	.810	-0.04	.381
	The is in good physical state to provide high quality health services	3887	0.00	.908	0.06	.009***	0.01	.682	0.00	.948	0.04	.167	-0.01	.561
	The facility staff listens to the opinions of the community	4127	-0.01	.380	0.01	.014**	0.00	.639	-0.01	.276	0.01	.073*	0.00	.849
	The staff at the facility is welcoming and respectful	4419	0.00	.772	0.01	.153	0.00	.928	0.00	.888	0.01	.084*	0.00	.636
	Improved attitude of health workers over last 3 years	3609	0.01	.439	0.03	.027**	0.00	.600	-0.01	.707	0.02	.045**	0.00	.873
	Improved collaboration between community and health facility over last 3 years	3525	-0.01	.707	0.02	.073*	0.00	.956	0.00	.990	0.02	.042**	0.00	.814
	Improved health facility infrastructure over last 3 years	3196	-0.01	.702	0.02	.284	0.00	.982	0.00	.838	0.02	.246	0.00	.976
	Improved quality of health services over last 3 years	3590	-0.02	.366	0.03	.024**	0.00	.537	0.01	.615	0.03	.061*	0.00	.958
	Invited to a community meeting with RHC/HH	4142	0.00	.971	0.05	.413	-0.01	.854	0.02	.765	0.11	.074*	0.05	.485
	Attended a community meeting with RHC/HH	1732	0.00	.948	0.00	.947	0.07	.328	0.05	.356	-0.05	.506	0.03	.672
	Prop. who felt action was taken in response to community meeting	1407	-0.01	.814	0.07	.113	-0.01	.737	0.05	.238	0.06	.193	-0.02	.482
Older Adults (12)	Proportion familiar with the RHC/HH serving the community	3647	0.06	.088*	0.07	.094*	0.03	.497	0.04	.328	0.08	.181	0.04	.513
	Overall Satisfaction Score	2915	-0.10	.620	0.17	.205	0.01	.939	-0.03	.846	0.25	.012**	0.09	.347
	The facility staff works closely with the community on health matters	2880	-0.04	.257	0.02	.168	0.00	.890	0.00	.951	0.03	.027**	0.01	.469
	The staff at the facility is competent	2978	-0.01	.782	0.02	.171	-0.01	.512	-0.01	.529	0.03	.017**	0.00	.789
	The facility has the equipment needed to provide high quality health services	2611	-0.02	.712	-0.03	.602	0.00	.928	-0.04	.414	0.04	.494	0.06	.319
	The is in good physical state to provide high quality health services	2681	-0.03	.501	0.05	.127	0.02	.552	-0.07	.120	0.07	.132	0.03	.437
	The facility staff listens to the opinions of the community	2869	-0.02	.537	-0.01	.804	-0.03	.292	0.00	.922	0.02	.072*	0.00	.710
	The staff at the facility is welcoming and respectful	3078	0.00	.899	0.01	.429	0.00	.902	-0.03	.254	0.02	.111	0.01	.409
	Improved attitude of health workers over last 3 years	2534	0.01	.852	-0.02	.576	-0.05	.098*	0.01	.774	0.05	.000***	0.02	.003***
	Improved collaboration between community and health facility over last 3 years	2473	0.00	.974	0.00	.935	-0.02	.375	-0.02	.474	0.04	.000***	0.01	.010***
	Improved health facility infrastructure over last 3 years	2287	-0.03	.564	0.02	.526	-0.02	.455	0.04	.240	0.07	.016**	0.03	.229
	Improved quality of health services over last 3 years	2514	0.00	.911	0.02	.436	-0.01	.636	0.02	.446	0.05	.000***	0.02	.002***
	Invited to a community meeting with RHC/HH	2943	0.00	.992	0.15	.028**	0.07	.306	0.05	.351	0.30	.009***	0.22	.057*
	Attended a community meeting with RHC/HH	1060	0.09	.276	-0.03	.700	-0.02	.788	0.03	.669	0.10	.064*	0.11	.047**
	Prop. who felt action was taken in response to community meeting	906	-0.07	.474	-0.02	.802	0.00	.949	-0.15	.058*	0.08	.027**	0.09	.023**

† Regressions are controlled for the province, wealth index quintile, employment status, marital status, gender, and size of household

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

† Data are reported using the difference-in-difference specification. If no baseline data are available, the β from a cross-sectional is reported

121. Among recently pregnant women, there was no discernable impacts of CQI and CRC interventions on satisfaction with health services, though overall satisfaction trended positive for CQI, CQI+PBF, and CSC arms. As with the PBF outcomes shown the in the previous section, the lack of variation in reported satisfaction in RHCs restricts the ability to identify a statistically significant outcome. All facets of satisfaction with facility services apart from equipment and infrastructure had at least a 90% satisfaction level among recently pregnant women at the time of the follow-up survey.
122. Among older adults, we find higher satisfaction in the CRC+PBF arm, both when compared to the control arm as well as when compared to PBF-only arm. In particular, the adults were more likely to notice improvements in attitude of health workers, collaboration with the community, and quality of care. In the CRC+PBF arm, adults were more likely to report that actions were taken in response to community meetings. Interestingly, when CRC was implemented without PBF, adults were less likely to report positive results of community meetings in comparison to the control arm.

9 DISCUSSION

The impact evaluation shows evidence of strong impacts of the HSIP project on many dimensions of quality of care. The PBF intervention significantly increased availability of equipment and supplies at the primary health centers. It had positive effects on infrastructure and measures of infection prevention and control, such as availability of boxes for sharps and needles. As a result of the program, health facilities increased the types of services they offer, especially at the health house level. We also find positive impacts on provider competency, measured through clinical vignettes. Most importantly, we find evidence that the improvements in structural quality and provider knowledge also translated into better content of care. For example, providers in the PBF facilities are significantly more likely to perform key physical exams such as measure blood pressure of adult patients and measure the height and weight of children under 5.

The PBF pilot had positive impacts on health providers. Their income increased by about two thirds thanks to performance bonuses. In addition, providers reported higher satisfaction. Satisfaction with respect to the quantity and quality of equipment and medicine and the physical condition of the facilities were especially impacted.

We also find suggestive evidence that the population's perceptions of the primary health centers have improved. During the follow-up survey, individuals living in PBF districts reported significantly higher perceived competency of providers and that the facilities work closely with the community. Adults over 40 also reported that the collaboration between the facilities and communities improved during the three years of project implementation.

While we find strong evidence of improved quality at the primary level and observe that the communities noticed the change, we find more moderate impacts on utilization of health services by the community. With respect to adult health, we find positive impact of 8 percentage points on the likelihood adults over 40 had their blood pressure measured by a health professional in the preceding year. With respect to maternal and child health services, we find a 14 percentage-point increase in the rate of women who received timely postnatal care. However, we do not find statistically significant impacts on timing and number of antenatal consultations, child growth monitoring or vaccination. We also do not find an impact on family planning coverage, but it must be stressed that our sample of recently pregnant women is not optimal for measuring this outcome. For all targeted services, we do not find the PBF program impacting whether individuals receive the services at the primary level, where providers received financial incentives, or at higher levels such as district health centers or hospitals.

What drove the positive results at the facility level? First, providers might have simply responded to the financial incentives by exerting more effort to improve quality and engage with the communities. Second, the program ensured that resources reached the rural facilities and facilities decided how to invest the 30% of the PBF bonuses in their infrastructure. Third, providers were better paid and more satisfied with respect to their working conditions, which might have motivated them. Fourth, the program introduced a multi-layered system of supervision and verification. Facilities were not only monitored more closely, but the PBF tools and the work on the action plans might have provided guidance towards better performance. Lastly, many providers were retrained in the context of the HSIP program. Some of the improvements, especially with respect to clinical quality, might be directly linked to these trainings.

Why do we not see stronger impacts on utilization? One explanation could be that the PBF pilot covered only primary health facilities. While the quality of these facilities improved, they still offer a narrower package of services relative to higher level facilities. For example, only about a fifth of RHCs offer laboratory services. Pharmacies are often located near the higher-level facilities in areas with higher population density, which means that patient might have to anyway travel outside their localities. About a third of our sample used higher level facilities for receiving ANC and the rate did not significantly change between baseline and follow-up. It could be that while the quality of HHs and RHCs improved, the choice of going to a higher-level facility is still more attractive for many. Another explanation may be that behavioral change might take time to materialize and that with more time, utilization of the rural primary health facilities will increase. It is important to note that for some of the indicators, the overall coverage was already high in baseline. Close to 90% of

women received ANC and the same rate of children aged 12-23 months received all basic vaccinations. With respect to some indicators, we find overall positive trends even if we do not find impact of the PBF pilot when we compare with the control districts. Between the baseline and follow-up surveys, the rate of women in the control districts that received any antenatal consultation increased from 85% to 95%. The rate of women who initiated their ANC during the first trimester increased from 57% to 74%.

We find no evidence of negative spillovers on unincentivized services. The facility-based survey collected data on service utilization reported in the facility registers, including on services not covered by the program such as curative care consultations for children and adults. There is no significant impact of PBF on the volume of these services in the three months preceding the survey. We note though that quality of data reported by the facilities might be impacted by the PBF intervention and therefore this evidence should be interpreted as suggestive. We do find, however, a positive impact of 5 percentage points on the rate of adults over 40 who reported to receive any medical care. Adults in the PBF districts are also more likely, by 6 percentage points, to report receiving any service at the primary level in the preceding two years. This suggests that there might have been positive spillovers on unincentivized services.

The results from the impact evaluation of PBF in Tajikistan are overall in line with the global evidence about PBF. Indeed, in many countries, PBF reforms have had mixed results in increasing utilization, while often leading to better results for quality of care (see Kandpal 2017 for an overview). The quality of care impacts measured in Tajikistan are among the strongest in the portfolio of impact evaluations because they go beyond structural quality (infrastructure and equipment) and also include significant improvements in the content of care as measured by direct clinical observations with health providers more likely to perform specific examinations during the visit.

This study evaluates also the impacts of two other interventions, collaborative quality improvement and citizen report card. We separate our discussion of these interventions from that of PBF for several reasons. First, while the PBF pilot started in 2015, these two interventions were only introduced in the end of 2016 and therefore had less time to impact outcomes. Second, much less resources were spent on the design, implementation and monitoring of these interventions. Third, these interventions are narrower in scope relative to the PBF. For these reasons, a direct comparison of PBF, CRC and CQI is not appropriate.

For the CRC intervention, we find no significant impacts when compared to the control arm. When CRC was implemented jointly with PBF, outcomes are overall similar to those in the PBF only arm. The only difference was found with respect to satisfaction of adults over 40. Relative to those living in the catchment areas of PBF only RHCs, the adults in the CRC+PBF areas were more likely to report improvements with respect to the attitude of providers, collaboration between RHCs and communities, facility infrastructure and quality of health services.

In comparison to the comparison arm, children in the CQI arm were less likely to be underweight by 7 percentage points. Although we do not find impacts of CQI on utilization of health services and on general knowledge of providers, we do find that providers in the CQI arm better performed growth monitoring tasks and were more likely to perform other tasks highlighted in the CQI flowsheets such as checking for anemia and swelling and discussing child feeding. The reduction in rate of underweight children was driven by the Khatlon region and was measured in the summer, when diarrhea is common. These results might therefore be more related to temporary fluctuations in weight in children with diarrhea rather than to long term underweight. Nevertheless, these results suggest that CQI is a promising low-cost intervention for the Tajik context.

10 APPENDICES

10.1 Sample Summary

Table 10-1. Size of sampled population by treatment arm, Tajikistan, 2015 & 2018

Round	#	Sample Size Groups	Treatment Arm						Total
			Control	T1	T2	T3	T4	T5	
Baseline	1	<u>Rural Health Centers</u> Selected	35	34	36	36	34	35	210
	2	<u>Health Workers</u> : Health Staff Interviewed	132	120	136	131	123	125	767
	3	<u>Adult DO</u> : Direct clinical observations of adults > 40	36	60	73	72	31	22	294
	4	<u>Child DO</u> : Direct clinical observation of children < 5	39	64	76	71	41	25	316
	5	<u>Adult Exit</u> : Exit Interviews for consultation of adults > 40	37	64	71	76	38	27	313
	6	<u>Child Exit</u> : Exit Interviews for consultation of children < 5	51	70	75	71	54	32	353
	7	<u>Health Houses</u> Selected	27	23	26	21	19	23	139
	8	<u>Health Workers</u> : Health Staff Interviewed	56	42	49	38	40	55	280
	9	<u>Households</u> Selected	1042	1019	720	718	705	706	4910
	10	<u>All</u> : Total Household Members	8242	8259	6606	6701	6023	5969	41800
	11	<u>Adults</u> : Household members ≥18 years of age	4979	4972	3874	3930	3612	3548	24915
	12	<u>Older Adults</u> : Household members ≥ 40 years of age	1956	1877	1348	1375	1283	1289	9128
	13	<u>Women</u> : Women household members 15-49 years	4164	4079	3364	3387	3056	2981	21031
	14	<u>Women with recent pregnancy</u> : Women 15-49 years pregnant in the last 3 years	524	447	450	453	474	481	2829
	15	<u>Children</u> : Household members < 5 years of age	1469	1407	1387	1415	1282	1277	8237
Follow-Up	1	<u>Rural Health Centers</u> Selected	35	34	36	36	34	35	210
	2	<u>Health Workers</u> : Health Staff Interviewed	132	133	144	132	131	135	807
	3	<u>Adult DO</u> : Direct clinical observations of adults > 40	255	300	360	345	180	180	1620
	4	<u>Child DO</u> : Direct clinical observation of children < 5	255	375	375	315	285	210	1815
	5	<u>Adult Exit</u> : Exit Interviews for consultation of adults > 40	540	540	540	540	525	540	3225
	6	<u>Child Exit</u> : Exit Interviews for consultation of children < 5	315	375	390	315	302	255	1952
	7	<u>Health Houses</u> Selected	27	23	26	21	19	23	139
	8	<u>Health Workers</u> : Health Staff Interviewed	51	41	48	37	37	45	259
	9	<u>Households</u> Selected	1441	1379	728	746	675	720	5689
	10	<u>All</u> : Total Household Members	11019	9732	5137	5359	5224	5532	42003
	11	<u>Adults</u> : Household members ≥18 years of age	6205	5512	2771	2881	2873	3032	23274
	12	<u>Older Adults</u> : Household members ≥ 40 years of age	2439	2154	900	916	995	1051	8455
	13	<u>Women</u> : Women household members 15-49 years	5789	4973	2642	2766	2744	2874	21788
	14	<u>Women with recent pregnancy</u> : Women 15-49 years pregnant in the last 3 years	751	696	715	715	663	709	4249
	15	<u>Children</u> : Household members < 5 years of age	2586	2086	1397	1433	1413	1459	10374

Includes only RHCs which were sampled in both baseline and follow-up survey.

10.2 Disaggregated Indicators of PBF Impact

Selected indicators in the impact tables of the main report represent the aggregation of multiple elements. Aggregation was conducted in two ways, for elements with an underlying latent factor, survey data of multiple correlated elements were summarized using an unrotated principal component analysis. The first component of the factor was extracted and standardized (mean of 0 with standard deviation of 1) and assumed to summarize the overarching 'score' for the category of indicators. For process indicators, we reported the crude average of elements. The following tables present the detailed results of these analysis, including the component correlations of each element, and an element by element regression with PBF impact.

10.2.1 PBF Impact on and Factor Scores for Rural Health Center

Table A10.2-1: PBF Impact and Factor Scores for Rural Health Centers

		Baseline				Post-Treatment				Regression Results [†]		
Indicator	Factor	#	X	#	PBF X	#	X	#	PBF X	#	β'	p ^c
Infrastructure Score												
Piped water into plot	0.30	104	0.11	106	0.08	104	0.28	106	0.43	420	0.18	.182
Improved water source ³	0.20	104	0.73	106	0.72	104	0.73	106	0.89	420	0.17	.188
Reception area	0.34	104	0.85	106	0.81	104	0.87	106	0.97	420	0.14	.117
Heating in patient rooms	0.38	104	0.85	106	0.59	104	0.91	106	0.99	420	0.33	.076*
Patient Toilets	0.44	104	0.88	106	0.80	104	0.92	106	0.92	420	0.08	.300
Separate male and female toilets	0.51	104	0.59	106	0.36	104	0.63	106	0.68	420	0.28	.022**
Private consultation rooms	0.15	104	0.89	106	0.67	104	0.38	106	0.75	420	0.59	.000**
Water in patient rooms	0.38	104	0.36	106	0.27	104	0.70	106	0.75	420	0.12	.483
Infection prevention and control score												
Availability of a functional incinerator	0.42	104	0.23	106	0.29	104	0.58	106	0.88	420	0.24	.043**
Use of proper sterilization procedure ⁴	0.63	104	0.96	106	0.86	104	0.86	106	0.97	420	0.22	.012**
Use of proper decontamination procedure ⁵	0.22	104	0.08	106	0.19	104	0.17	106	0.41	420	0.12	.426
Use of proper biowaste disposal method ⁶	-0.13	104	0.19	106	0.19	104	0.25	106	0.42	420	0.17	.325
Consultation rooms with proper sharps disposal	0.60	104	0.86	106	0.58	104	0.58	106	0.85	420	0.54	.017**
Equipment Availability												
Adult weight scale	0.20	104	0.79	106	0.77	104	0.85	106	0.99	420	0.16	.101
Ambubag	0.19	104	0.06	106	0.00	104	0.17	106	0.16	420	0.05	.672
Antiseptic	0.22	104	0.58	106	0.38	104	0.93	106	0.96	420	0.23	.159
Blood Pressure Cuff	0.20	104	0.92	106	0.77	104	0.96	106	1.00	420	0.19	.116
Catheter	0.29	104	0.35	106	0.29	104	0.38	106	0.59	420	0.27	.127
Child weight scale	0.15	104	0.91	106	0.86	104	0.93	106	1.00	420	0.12	.049**
Clock	0.21	104	0.69	106	0.54	104	0.57	106	0.72	420	0.30	.077*
Dripstand	0.20	104	0.56	106	0.39	104	0.52	106	0.75	420	0.40	.044**
Exambed	0.11	104	0.82	106	0.78	104	0.31	106	0.58	420	0.31	.144
Fetoscope	0.14	104	0.93	106	0.80	104	0.57	106	0.63	420	0.19	.431
Flashlight	0.29	104	0.17	106	0.13	104	0.25	106	0.72	420	0.51	.001**
Height measurement tool	0.15	104	0.94	106	0.85	104	0.92	106	0.98	420	0.15	.096*
Minor surgical equipment	0.23	104	0.10	106	0.14	104	0.16	106	0.30	420	0.09	.267
ORT Corner	0.19	104	0.71	106	0.66	104	0.88	106	0.93	420	0.10	.638
Otoscope	0.27	104	0.48	106	0.39	104	0.42	106	0.74	420	0.41	.016**
Oxygen tank	0.19	104	0.03	106	0.00	104	0.00	106	0.11	420	0.14	.106
Stethoscope	0.21	104	0.86	106	0.75	104	0.95	106	0.99	420	0.14	.260
Stretcher	0.25	104	0.30	106	0.20	104	0.34	106	0.40	420	0.16	.235
Suction cup	0.23	104	0.09	106	0.05	104	0.06	106	0.21	420	0.19	.054*
Tape measurer	0.21	104	0.79	106	0.80	104	0.88	106	0.98	420	0.10	.338
Thermometer	0.20	104	0.93	106	0.81	104	0.98	106	1.00	420	0.14	.190
Vision chart	0.23	104	0.25	106	0.11	104	0.17	106	0.23	420	0.19	.094*
Wheelchair	-0.08	104	0.84	106	0.78	104	0.15	106	0.09	420	-0.01	.947
Protocol Availability Score												
National protocol for reducing unsafe abortion morbidity/mortality	0.23	104	0.36	106	0.34	104	0.56	106	0.80	420	0.26	.405
Detecting and reporting adverse drug or vaccine reaction	0.16	104	0.37	106	0.51	104	0.66	106	0.89	420	0.09	.571
Antenatal Care National Standards	0.21	104	0.60	106	0.52	104	0.90	106	0.97	420	0.14	.420
National Protocol for diarrhea diagnosis and treatment (not part of IMCI)	0.23	104	0.74	106	0.70	104	0.85	106	1.00	420	0.20	.221
National protocol for drug procurement	0.22	104	0.03	106	0.11	104	0.15	106	0.88	420	0.64	.000**
Patient education materials (Information and Education Campaign materials)	0.16	104	0.88	106	0.79	104	0.92	106	0.99	420	0.16	.096*
National list for essential drugs	0.21	104	0.51	106	0.39	104	0.73	106	0.96	420	0.36	.015**
National protocol for reproductive health/family planning	0.23	104	0.64	106	0.64	104	0.89	106	1.00	420	0.11	.419
Graphs for growth monitoring	0.21	104	0.60	106	0.46	104	0.80	106	0.93	420	0.27	.104
National HIV testing and counseling guidelines	0.21	104	0.60	106	0.68	104	0.64	106	0.89	420	0.16	.309
Health Management Information System (HMIS) Data	0.25	104	0.16	106	0.22	104	0.31	106	0.85	420	0.49	.031**
Health Management Information System (HMIS) guidelines	0.25	104	0.22	106	0.25	104	0.38	106	0.86	420	0.44	.051*
Integrated Management of Childhood Illness (IMCI) chart booklet or wall chart	0.20	104	0.67	106	0.58	104	0.83	106	0.96	420	0.23	.228
Procedures Manual for Infection Prevention and Control	0.21	104	0.56	106	0.50	104	0.51	106	0.86	420	0.41	.006**
Labor and Delivery Care	0.21	104	0.30	106	0.28	104	0.53	106	0.81	420	0.29	.233
National Protocol for malaria diagnosis and treatment (not part of IMCI)	0.19	104	0.61	106	0.51	104	0.46	106	0.80	420	0.44	.004**
National health strategy	0.22	104	0.33	106	0.29	104	0.46	106	0.77	420	0.35	.073*
Newborn Care National Standards	0.25	104	0.48	106	0.35	104	0.64	106	0.88	420	0.36	.084*
Post-Partum Care National Standards	0.26	104	0.49	106	0.35	104	0.71	106	0.89	420	0.32	.122
Management of Sexually Transmitted Infections (STI) guidelines	0.21	104	0.64	106	0.54	104	0.59	106	0.84	420	0.36	.043**
National protocol for tuberculosis diagnosis and treatment	0.17	104	0.59	106	0.58	104	0.49	106	0.85	420	0.37	.003**
National protocol for child vaccination	0.16	104	0.87	106	0.91	104	0.96	106	1.00	420	0.00	.994
Diabetes Service Provision												
Establishing a patient card		104	0.73	106	0.67	104	0.79	106	0.97	420	0.24	.045**
Dispensary observation		104	0.80	106	0.80	104	0.76	106	0.97	420	0.20	.020**
Free distribution of diabetes drugs		104	0.13	106	0.05	104	0.05	106	0.58	420	0.62	.001**
Glucometry		104	0.37	106	0.19	104	0.17	106	0.58	420	0.58	.001**
Healthy nutrition		104	0.97	106	0.96	104	0.96	106	0.99	420	0.04	.516
Obesity Prevention		104	0.96	106	0.91	104	0.73	106	0.94	420	0.27	.052*
Growth Monitoring Service Provision												
BMI Measurement		104	0.87	106	0.77	90	0.96	96	1.00	396	0.14	.266
Height Measurement		104	0.98	106	0.92	90	0.99	96	1.00	396	0.08	.084*
Hypertrophy Measurement		104	0.96	106	0.94	90	0.94	96	0.97	396	0.05	.449
Hypotropy Measurement		104	0.93	106	0.87	90	0.99	96	1.00	396	0.08	.266
Weight Measuremnet		104	0.63	106	0.36	90	1.00	96	1.00	396	0.28	.151

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

[†] Data are reported using the difference-in-difference specification.

[‡] Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.2.2 PBF Impact on Disaggregated Indicators for Health Houses

Table A10.2-2: PBF Impact and Factor Scores for Health Houses

Indicator	Factor	Baseline		Post-Treatment		Regression						
		#	\bar{x}	#	\bar{x}	#	β^1	p^2				
Infrastructure Score												
Piped water into plot	0.32	69	0.01	70	0.03	69	0.17	70	0.27	278	0.08	.439
Improved water source ³	0.10	69	0.51	70	0.70	69	0.78	70	0.74	278	-0.23	.131
Reception area	0.30	69	0.64	70	0.71	69	0.71	70	0.91	278	0.13	.241
Heating in patient rooms	0.41	69	0.67	70	0.49	69	0.84	70	0.97	278	0.31	.004**
Patient Toilets	0.47	69	0.45	70	0.41	69	0.54	70	0.74	278	0.24	.184
Separate male and female toilets	0.44	69	0.14	70	0.10	69	0.13	70	0.20	278	0.11	.127
Private consultation rooms	0.22	69	0.55	70	0.40	69	0.23	70	0.33	278	0.25	.073*
Water in patient rooms	0.40	69	0.19	70	0.21	69	0.52	70	0.64	278	0.10	.565
Infection prevention and control score												
Consultation rooms with proper sharps disposal	-0.09	69	0.12	70	0.09	69	0.52	70	0.79	278	0.29	.142
Availability of a functional incinerator	0.64	69	0.72	70	0.87	69	0.74	70	0.84	278	-0.04	.716
Use of proper sterilization procedure ⁴	-0.40	69	0.00	70	0.09	69	0.06	70	0.16	278	0.01	.890
Use of proper biowaste disposal method ⁴	0.64	69	0.70	70	0.57	69	0.48	70	0.66	278	0.30	.129
Use of proper decontamination procedure ⁵	-0.05	69	0.17	70	0.23	69	0.42	70	0.37	278	-0.10	.734
Equipment Availability Score												
Adult weight scale	0.30	69	0.51	70	0.41	69	0.55	70	0.96	278	0.50	.005**
Ambubag	0.14	69	0.00	70	0.00	69	0.06	70	0.10	278	0.04	.524
Antiseptic	0.29	69	0.45	70	0.23	69	0.86	70	0.96	278	0.32	.055*
Blood Pressure Cuff	0.28	69	0.90	70	0.73	69	0.97	70	1.00	278	0.20	.133
Catheter	0.23	69	0.10	70	0.13	69	0.17	70	0.24	278	0.04	.598
Child weight scale	0.29	69	0.71	70	0.61	69	0.81	70	0.99	278	0.27	.013**
Clock	0.18	69	0.30	70	0.30	69	0.25	70	0.50	278	0.26	.116
Dripstand	0.21	69	0.14	70	0.19	69	0.22	70	0.56	278	0.30	.126
Exambed	-0.03	69	0.67	70	0.70	69	0.03	70	0.20	278	0.14	.237
Fetoscope	0.05	69	0.88	70	0.81	69	0.52	70	0.50	278	0.05	.807
Flashlight	0.28	69	0.01	70	0.07	69	0.12	70	0.56	278	0.38	.000**
Height measurement tool	0.26	69	0.72	70	0.70	69	0.70	70	0.97	278	0.30	.012**
Minor surgical equipment	0.05	69	0.01	70	0.01	69	0.00	70	0.04	278	0.04	.187
ORT Corner	0.24	69	0.17	70	0.37	69	0.51	70	0.83	278	0.12	.360
Otoscope	0.10	69	0.03	70	0.09	69	0.01	70	0.11	278	0.04	.432
Oxygen tank	0.14	69	0.00	70	0.00	69	0.00	70	0.04	278	0.04	.156
Stethoscope	0.31	69	0.70	70	0.56	69	0.87	70	0.99	278	0.25	.102
Stretcher	0.11	69	0.04	70	0.03	69	0.06	70	0.10	278	0.06	.223
Suction cup	0.13	69	0.00	70	0.00	69	0.01	70	0.03	278	0.01	.539
Tape measurer	0.27	69	0.68	70	0.69	69	0.75	70	0.94	278	0.18	.253
Thermometer	0.27	69	0.90	70	0.83	69	0.99	70	1.00	278	0.08	.417
Vision chart	0.09	69	0.01	70	0.01	69	0.04	70	0.04	278	0.00	.991
Wheelchair	-0.02	69	0.33	70	0.36	69	0.06	70	0.04	278	-0.04	.783
Protocol Availability Score												
National protocol for reducing unsafe abortion morbidity/mortality	0.22	69	0.12	70	0.14	69	0.38	70	0.66	278	0.25	.159
Detecting and reporting adverse drug or vaccine reaction	0.19	69	0.22	70	0.27	69	0.52	70	0.86	278	0.28	.064*
Antenatal Care National Standards	0.22	69	0.28	70	0.36	69	0.71	70	0.91	278	0.12	.279
National Protocol for diarrhea diagnosis and treatment	0.24	69	0.42	70	0.41	69	0.55	70	0.91	278	0.37	.063*
National protocol for drug procurement materials)	0.22	69	0.00	70	0.07	69	0.14	70	0.89	278	0.67	.000**
National list for essential drugs	0.15	69	0.65	70	0.70	69	0.86	70	0.91	278	0.01	.941
National protocol for reproductive health/family planning	0.20	69	0.23	70	0.21	69	0.43	70	0.90	278	0.48	.003**
Graphs for growth monitoring	0.24	69	0.35	70	0.37	69	0.67	70	0.96	278	0.27	.186
National HIV testing and counseling guidelines	0.22	69	0.30	70	0.33	69	0.54	70	0.87	278	0.31	.041**
Health Management Information System (HMIS) Data	0.18	69	0.32	70	0.51	69	0.38	70	0.64	278	0.07	.722
Health Management Information System (HMIS) guidelines	0.25	69	0.04	70	0.16	69	0.19	70	0.63	278	0.33	.058*
Integrated Management of Childhood Illness	0.25	69	0.06	70	0.20	69	0.20	70	0.73	278	0.38	.053*
Procedures Manual for Infection Prevention and Control	0.20	69	0.49	70	0.46	69	0.74	70	0.87	278	0.17	.470
Labor and Delivery Care	0.21	69	0.36	70	0.31	69	0.28	70	0.74	278	0.52	.006**
National Protocol for malaria diagnosis and treatment	0.22	69	0.06	70	0.23	69	0.42	70	0.63	278	0.04	.872
National health strategy	0.18	69	0.33	70	0.31	69	0.20	70	0.57	278	0.39	.016**
Newborn Care National Standards	0.21	69	0.12	70	0.09	69	0.28	70	0.56	278	0.31	.156
Post-Partum Care National Standards	0.24	69	0.17	70	0.27	69	0.39	70	0.71	278	0.23	.323
Management of Sexually Transmitted Infections (STI) guidelines	0.24	69	0.26	70	0.30	69	0.38	70	0.70	278	0.28	.234
National protocol for tuberculosis diagnosis and treatment	0.22	69	0.32	70	0.36	69	0.35	70	0.66	278	0.27	.209
National protocol for child vaccination	0.18	69	0.36	70	0.26	69	0.23	70	0.59	278	0.46	.030**
Diabetes Service Provision												
Establishing a patient card	0.19	69	0.41	70	0.27	69	0.52	70	0.96	278	0.57	.015**
Dispensary observation	0.69	69	0.48	70	0.53	69	0.52	70	0.86	278	0.29	.030**
Free distribution of diabetes drugs	0.69	69	0.01	70	0.06	69	0.00	70	0.23	278	0.19	.036**
Glucometry	0.69	69	0.00	70	0.00	69	0.03	70	0.09	278	0.06	.176
Healthy nutrition	0.69	69	0.74	70	0.81	69	0.96	70	1.00	278	-0.03	.815
Obesity Prevention	0.69	69	0.70	70	0.69	69	0.64	70	0.83	278	0.20	.273
Growth Monitoring Service Provision												
BMI Measurement	0.69	69	0.57	70	0.44	69	0.65	70	0.90	278	0.37	.012**
Height Measurement	0.69	69	0.88	70	0.79	69	0.88	70	1.00	278	0.21	.022**
Hypertrophy Measurement	0.69	69	0.78	70	0.80	69	0.71	70	0.97	278	0.24	.113
Hypotropy Measurement	0.69	69	0.71	70	0.76	69	0.78	70	0.97	278	0.14	.307
Weight Measuremnet	0.69	69	0.29	70	0.31	69	0.70	70	0.94	278	0.22	.235

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.2.3 PBF Impact on Disaggregated Indicators for RHC Health Workers

Table A10.2-3: PBF Impact on Disaggregated Indicators for RHC Health Workers

Indicator	Factor	Baseline		Post-Treatment		Regression Results†						
		#	\bar{X}	#	\bar{X}	#	β^1	p ²				
Factor Scores for WHO Well-Being Index												
In the past 2 weeks, I have felt cheerful and in good spirits	0.45	380	0.69	385	0.70	398	0.87	419	0.88	1582	0.00	.985
In the past 2 weeks, I have felt calm and relaxed...	0.48	380	0.68	385	0.60	398	0.80	419	0.83	1582	0.11	.132
In the past 2 weeks, I have felt active and vigorous...	0.37	380	0.84	385	0.81	398	0.89	419	0.88	1582	0.01	.877
In the past 2 weeks, I woke up feeling fresh and rested...	0.46	380	0.67	385	0.65	398	0.83	419	0.77	1582	-0.03	.663
In the past 2 weeks, my daily life has been filled with things that interest me....	0.46	380	0.70	385	0.68	398	0.80	419	0.82	1582	0.04	.577
Factor Scores for Satisfaction												
Working relationships with other facility staff	0.12	380	0.96	385	0.94	398	0.96	419	0.96	1582	0.02	.203
Working relationships with District/ Ministry of Health staff	0.15	380	0.91	385	0.90	398	0.89	419	0.89	1582	0.01	.810
Working relationships with Management staff within the health facility	0.12	380	0.94	385	0.95	398	0.95	419	0.92	1582	-0.04	.095*
Quality of the management of the health facility by the management staff within the health facility	0.18	380	0.89	385	0.85	398	0.89	419	0.90	1582	0.06	.338
Quantity of medicine available in the health facility	0.34	380	0.20	385	0.23	398	0.32	419	0.72	1582	0.37	.000**
Quality of medicine available in the health facility	0.32	380	0.39	385	0.40	398	0.50	419	0.82	1582	0.30	.047**
Quantity of equipment in the health facility	0.40	380	0.22	385	0.13	398	0.24	419	0.43	1582	0.28	.001**
Quality and physical condition of equipment in the health facility	0.40	380	0.29	385	0.18	398	0.29	419	0.46	1582	0.28	.010**
Availability of other supplies in the health facility (compresses, etc.; office supplies)	0.34	380	0.10	385	0.08	398	0.16	419	0.41	1582	0.28	.029**
The physical condition of the health facility building	0.30	380	0.42	385	0.28	398	0.38	419	0.47	1582	0.24	.022**
Your ability to provide high quality of care given the current working conditions in the facility	0.26	380	0.67	385	0.69	398	0.70	419	0.84	1582	0.12	.209
Your salary	0.26	380	0.12	385	0.08	398	0.19	419	0.27	1582	0.12	.140
Overall, how satisfied are you with your job?	0.22	380	0.69	385	0.65	398	0.84	419	0.89	1582	0.09	.198
Factor Scores for Personal Drive (Likert Responses)												
Staff willingly share their expertise with other members.	0.22	380	0.60	385	0.64	398	0.81	419	0.84	1582	-0.01	.927
When disagreements occur among staff, they try to act like peacemakers to resolve the situation themselves.	0.23	380	0.81	385	0.77	398	0.91	419	0.92	1582	0.05	.581
Staff willingly give their time to help each other out when someone falls behind or has difficulties with work.	0.22	380	0.92	385	0.91	398	0.97	419	0.96	1582	0.00	.981
Staff talk to each other before taking an action that might affect them.	0.24	380	0.86	385	0.89	398	0.97	419	0.95	1582	-0.04	.441
Staff take steps to prevent problems arising between them.	0.23	380	0.78	385	0.81	398	0.92	419	0.92	1582	-0.02	.765
Staff focus on what is wrong rather than the positive side.	0.08	380	0.30	385	0.41	398	0.40	419	0.24	1582	-0.27	.047**
Staff spend their time chatting amongst themselves about things that are not related to work.	0.03	380	0.13	385	0.14	398	0.26	419	0.12	1582	-0.14	.157
Staff spend time complaining about work-related issues.	0.10	380	0.54	385	0.46	398	0.61	419	0.42	1582	-0.11	.181
My job allows me freedom in how I organize my work and the methods and approaches to use.	0.19	380	0.74	385	0.75	398	0.85	419	0.84	1582	-0.03	.765
I am given enough authority by my supervisors to do my job well.	0.23	380	0.81	385	0.87	398	0.93	419	0.91	1582	-0.08	.349
It is important for me that the community recognizes my work as a professional.	0.22	380	0.96	385	0.94	398	0.98	419	0.96	1582	0.00	1.000
It is important for me that my peers recognize my work as a professional.	0.23	380	0.94	385	0.92	398	0.98	419	0.97	1582	0.01	.886
Changes in the facility are easy to adjust to.	0.22	380	0.61	385	0.66	398	0.83	419	0.87	1582	0.00	.982
Rapid changes are [NOT] difficult to cope with.	0.18	380	0.49	385	0.48	398	0.81	419	0.72	1582	-0.08	.464
Changes bring opportunities to make improvements in the facility.	0.22	380	0.74	385	0.71	398	0.90	419	0.84	1582	-0.02	.794
My job makes me feel good about myself.	0.23	380	0.92	385	0.89	398	0.95	419	0.96	1582	0.05	.254
I am proud of the work I'm doing in this facility.	0.31	380	0.92	385	0.90	398	0.97	419	0.96	1582	0.01	.839
I am proud to be working for this health facility.	0.30	380	0.89	385	0.91	398	0.97	419	0.96	1582	-0.03	.603
I am glad that I am working for this facility rather than in other facilities in the country.	0.23	380	0.87	385	0.89	398	0.94	419	0.94	1582	-0.02	.624
I would [NOT] prefer to work somewhere else than in this facility.	-0.02	380	0.11	385	0.14	398	0.19	419	0.15	1582	-0.06	.394
This health facility inspires me to do my very best on the job.	0.26	380	0.92	385	0.88	398	0.98	419	0.95	1582	0.00	.923
I complete my tasks efficiently and effectively.	0.20	380	0.97	385	0.94	398	0.99	419	0.99	1582	0.03	.483

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

[†] Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.2.4 PBF Impact on Disaggregated Indicators for HH Health Workers

Table A10.2-4: PBF Impact on Disaggregated Indicators for HH Health Worker Satisfaction

Indicator	Factor	Baseline				Post-Treatment				Regression Results†		
		Control		PBF		Control		PBF		#	β¹	p²
		#	̄x	#	̄x	#	̄x	#	̄x			
Factor Scores for WHO Well-Being Index												
In the past 2 weeks, I have felt cheerful and in	0.46	151	0.65	129	0.66	133	0.87	126	0.90	539	0.01	.833
In the past 2 weeks, I have felt calm and	0.49	151	0.68	129	0.58	133	0.83	126	0.81	539	0.09	.316
In the past 2 weeks, I have felt active and	0.42	151	0.85	129	0.73	133	0.93	126	0.89	539	0.08	.292
In the past 2 weeks, I woke up feeling fresh	0.45	151	0.70	129	0.60	133	0.83	126	0.71	539	-0.02	.808
In the past 2 weeks, my daily life has been	0.41	151	0.70	129	0.64	133	0.77	126	0.76	539	0.04	.533
Factor Scores for Satisfaction												
Working relationships with other facility staff	0.10	151	0.97	129	0.96	133	0.98	126	0.96	539	-0.01	.823
Working relationships with District/ Ministry	0.14	151	0.93	129	0.92	133	0.88	126	0.90	539	0.04	.492
Working relationships with Management	0.19	151	0.97	129	0.97	133	0.94	126	0.94	539	0.01	.856
Quality of the management of the health	0.22	151	0.89	129	0.90	133	0.89	126	0.84	539	-0.06	.211
Quantity of medicine available in the health	0.35	151	0.22	129	0.20	133	0.27	126	0.77	539	0.51	.000**
Quality of medicine available in the health	0.36	151	0.48	129	0.47	133	0.45	126	0.81	539	0.36	.021**
Quantity of equipment in the health facility	0.38	151	0.16	129	0.08	133	0.17	126	0.46	539	0.36	.029**
Quality and physical condition of equipment	0.39	151	0.21	129	0.12	133	0.25	126	0.53	539	0.38	.007**
Availability of other supplies in the health	0.31	151	0.11	129	0.03	133	0.06	126	0.39	539	0.39	.007**
The physical condition of the health facility	0.30	151	0.30	129	0.23	133	0.31	126	0.49	539	0.25	.004**
Your ability to provide high quality of care	0.20	151	0.69	129	0.66	133	0.68	126	0.85	539	0.19	.150
Your salary	0.22	151	0.13	129	0.04	133	0.21	126	0.25	539	0.12	.239
Overall, how satisfied are you with your job?	0.25	151	0.69	129	0.66	133	0.82	126	0.90	539	0.10	.312

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

[†] Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.2.5 PBF Impact on Disaggregated Indicators for Exit Interviews

Table A10.2-5: PBF Impact on Disaggregated Indicators for Patient Satisfaction

Indicator	Factor Loading	Post-Treatment		Regression	
		Contro # \bar{X}	PBF # \bar{X}	# β^1	p^2
Factor Scores for patient satisfaction (dichotomized)					
It is convenient to travel from your house to the health facility.	-0.04	614 0.85	1002 0.84	1602 -0.05	.775
The health facility is clean.	0.34	615 0.87	1005 0.97	1606 0.11	.192
The health staff are courteous and respectful.	0.40	615 0.92	1005 0.95	1606 0.05	.587
The health workers did a good job of explaining your condition.	0.36	615 0.94	1005 0.95	1606 0.02	.625
The amount of time you spent waiting to be seen by a health provider was reasonable.	0.35	610 0.91	1005 0.94	1601 0.04	.604
You had enough privacy during your visit.	0.30	613 0.93	1003 0.88	1602 -0.02	.614
The health worker spent a sufficient amount of time with you.	0.37	613 0.93	1005 0.94	1604 0.03	.785
The hours the facility is open are adequate to meet your needs.	0.35	615 0.93	1005 0.94	1606 0.03	.613
The overall quality of services provided was satisfactory.	0.36	609 0.90	1005 0.93	1600 0.05	.552
Factor Scores for patient satisfaction (dichotomized)					
It is convenient to travel from your house to the health facility.	-0.02	750 0.94	1064 0.91	1794 -0.03	.625
The health facility is clean.	0.26	749 0.90	1065 0.94	1794 0.04	.401
The health staff are courteous and respectful.	0.39	750 0.94	1065 0.93	1795 0.00	.959
The health workers did a good job of explaining your condition.	0.33	750 0.96	1065 0.94	1795 0.00	.914
The amount of time you spent waiting to be seen by a health provider was reasonable.	0.38	744 0.94	1065 0.94	1789 0.01	.899
You had enough privacy during your visit.	0.36	741 0.93	1064 0.90	1785 -0.02	.794
The health worker spent a sufficient amount of time with you.	0.38	750 0.94	1065 0.94	1795 0.01	.900
The hours the facility is open are adequate to meet your needs.	0.34	750 0.94	1065 0.95	1795 0.02	.640
The overall quality of services provided was satisfactory.	0.35	746 0.95	1065 0.94	1791 0.00	.927

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.2.6 PBF Impact on Disaggregated Indicators for Direct Observation

Table A10.2-6: PBF Impact on Disaggregated Indicators for Direct Observation of Adult Consultations

Indicator	Post-Treatment				Regression Results†		
	Control		PBF		#	β ¹	p ²
#	\bar{x}	#	\bar{x}				
Clinical history and Assessment Items							
Lifestyle and physical activity	1605	0.21	1620	0.51	3108	0.27	.070*
Age	1605	0.80	1620	0.82	3108	0.00	.981
Alcohol intake, quantity, and frequency	1605	0.07	1620	0.18	3108	0.10	.018**
Measured blood pressure	1605	0.78	1620	0.84	3108	0.07	.580
Chest pain	1605	0.34	1620	0.48	3108	0.10	.343
Diabetes status	1605	0.32	1620	0.56	3108	0.22	.129
Food intake and diet	1605	0.50	1620	0.69	3108	0.18	.208
Family history of heart disease and stroke	1605	0.15	1620	0.47	3108	0.30	.083*
Anti hypertensive therapy	1605	0.45	1620	0.64	3108	0.17	.350
Kidney disease status	1605	0.16	1620	0.35	3108	0.18	.127
Medicine use	1605	0.24	1620	0.37	3108	0.11	.307
Nausea	1605	0.41	1620	0.59	3108	0.22	.175
Oliguria	1605	0.07	1620	0.18	3108	0.09	.302
Smoking status	1605	0.07	1620	0.18	3108	0.10	.031**
Symptom onset time	1605	0.53	1620	0.63	3108	0.08	.434
Symptoms	1605	0.79	1620	0.82	3108	0.00	.971
Vision problems	1605	0.15	1620	0.40	3108	0.24	.156
Vomiting	1605	0.25	1620	0.45	3108	0.22	.123
Measured weight	1605	0.18	1620	0.47	3108	0.24	.123
Weight gain or loss	1605	0.14	1620	0.36	3108	0.19	.122
Steps in calculation of cardiovascular risk							
Selected appropriate chart based on diab	601	0.25	664	0.58	1187	0.24	.423
Selected appropriate chart based on age	601	0.19	664	0.46	1187	0.28	.174
Selected appropriate risk box	601	0.11	664	0.36	1187	0.17	.340
Selected appropriate chart based on gen	601	0.23	664	0.53	1187	0.27	.235
Selected appropriate chart based on smo	601	0.07	664	0.25	1187	0.10	.308
Examination procedures							
Blood sample taken	1605	0.01	1620	0.04	3108	0.03	.155
Blood pressure measured	1605	0.85	1620	0.94	3108	0.10	.185
Blood pressure measured while arm at le	1605	0.43	1620	0.49	3108	0.05	.773
Blood pressure measured while sitting or	1605	0.57	1620	0.70	3108	0.15	.196
Total blood cholestrol measured	1605	0.05	1620	0.09	3108	0.03	.624
Examined hands for edema	1605	0.22	1620	0.36	3108	0.13	.162
Assessed pulse	1605	0.69	1620	0.86	3108	0.16	.090*
Took a urine sample	1605	0.02	1620	0.04	3108	0.02	.716
Weighed the client	1605	0.31	1620	0.71	3108	0.37	.025**

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

[†] Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.2-7: PBF Impact on Disaggregated Indicators for Direct Observation of Child Consultations

Indicator	Post-Treatment				Regression Results [†]		
	Control		PBF		#	β^1	p^c
	#	X	#	X			
Clinical history and Assessment Items							
Examined ability to drink or breastfeed	872	0.17	1080	0.36	568	-0.01	.954
Observed on difficulty in breathing	872	0.30	1080	0.43	568	-0.04	.766
Observed ears	872	0.33	1080	0.28	568	-0.11	.402
Performed auscultation	872	0.14	1080	0.31	568	0.09	.422
Look for edema of both feet	872	0.06	1080	0.11	568	0.04	.290
Examined on eye infection	872	0.09	1080	0.24	568	0.00	.985
Check for lethargy or unconsciousness	872	0.02	1080	0.18	568	0.06	.012**
Observed Mouth ulcers	872	0.21	1080	0.24	568	-0.10	.583
Examined radial pulse	872	0.12	1080	0.54	568	0.55	.006**
Examined skin (pinch)	872	0.58	1080	0.71	568	0.08	.694
Observed Stridor	872	0.11	1080	0.31	568	-0.04	.884
Measured temperature	872	0.84	1080	0.95	568	0.05	.512
Check for visible severe wasting	872	0.10	1080	0.23	568	-0.06	.910
Growth Monitoring							
Calculated Body Mass Index of a child	872	0.25	1080	0.33	568	0.07	.574
Measured height correctly	872	0.68	1080	0.78	568	0.10	.571
Recoded height in the medical card of the patient	872	0.57	1080	0.66	568	-0.14	.745
Recorded Height on the Growth Monitoring Chart	872	0.34	1080	0.56	568	0.19	.440
Weighted a child	872	0.23	1080	0.28	568	0.08	.548
Calibrated Scale	872	0.70	1080	0.80	568	0.15	.514
Recorded weight in the patient's medical card	872	0.61	1080	0.68	568	-0.17	.664
Recorded weight on the Growth Monitoring Chart	872	0.36	1080	0.60	568	0.17	.507

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ ¹ Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.2.7 PBF Impact on Disaggregated Indicators for Clinical Vignettes

Table A10.2-8: PBF Impact on Disaggregated Indicators for CV-1

Indicator	Baseline				Post-Treatment				Regression Results [†]		
	Control		PBF		Control		PBF		#	β^1	p^2
History Items											
Ask mother's name	535	0.18	482	0.27	536	0.43	542	0.46	2095	-0.06	.777
Ask child's name	535	0.46	482	0.55	536	0.55	542	0.77	2095	0.14	.505
Ask patient chief complaint	535	0.73	482	0.84	536	0.72	542	0.84	2095	0.00	.965
Asked about any difficulty in feeding	535	0.42	482	0.41	536	0.42	542	0.49	2095	0.07	.417
Ask if child has had fits and spasms	535	0.15	482	0.09	536	0.16	542	0.32	2095	0.23	.083*
Measure child temperature	535	0.18	482	0.17	536	0.13	542	0.30	2095	0.18	.080*
Ask if child has had fast or difficult breathing	535	0.63	482	0.66	536	0.57	542	0.68	2095	0.08	.505
Ask if child has had diarrhea	535	0.60	482	0.55	536	0.50	542	0.54	2095	0.09	.468
Examination Items											
Ask if child has vomitnig	535	0.69	482	0.87	536	0.52	542	0.56	2095	-0.14	.198
Measure height and weight	535	0.28	482	0.40	536	0.54	542	0.85	2095	0.20	.270
Measure temperature	535	0.91	482	0.95	536	0.87	542	0.95	2095	0.04	.181
Check breathing	535	0.09	482	0.19	536	0.20	542	0.43	2095	0.12	.225
Observe mucous membranes	535	0.49	482	0.57	536	0.03	542	0.10	2095	-0.01	.898
Look for rash	535	0.48	482	0.58	536	0.26	542	0.24	2095	-0.12	.335
Assess if child is lethargic or unconscious	535	0.23	482	0.37	536	0.21	542	0.23	2095	-0.10	.440
Assess big fontanel	535	0.11	482	0.20	536	0.08	542	0.13	2095	-0.04	.677

Level of Significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

[†] Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.2-9: PBF Impact on Disaggregated Indicators for CV-2

Indicator	Baseline				Post-Treatment				Regression Results [†]		
	Control		PBF		Control		PBF		#	β^1	p^2
History Items											
Ask mother's name	535	0.17	482	0.26	536	0.42	542	0.43	2095	-0.08	.629
Ask mother child's name	535	0.45	482	0.54	536	0.50	542	0.77	2095	0.19	.321
Ask the mother what is a child's problem	535	0.66	482	0.84	536	0.67	542	0.77	2095	-0.08	.430
Ask whether a child had measles within last 3 months	535	0.04	482	0.07	536	0.05	542	0.23	2095	0.15	.056*
Ask whether a child cough	535	0.50	482	0.52	536	0.33	542	0.53	2095	0.18	.100
Ask whether a child vomiting	535	0.51	482	0.50	536	0.45	542	0.51	2095	0.06	.667
Ask whether a child had convulsions	535	0.24	482	0.22	536	0.20	542	0.33	2095	0.16	.177
Examination Items											
Measure weight and height	535	0.32	482	0.42	536	0.57	542	0.84	2095	0.18	.305
Measure temperature	535	0.92	482	0.90	536	0.91	542	0.94	2095	0.05	.125
Check z-scores for height and weight on growth chart	535	0.14	482	0.35	536	0.19	542	0.26	2095	-0.13	.278
Observe if child is convulsing	535	0.19	482	0.15	536	0.09	542	0.20	2095	0.15	.220
Count the breath in one minute	535	0.33	482	0.42	536	0.18	542	0.29	2095	0.01	.930
Look and feel for stiff neck	535	0.05	482	0.11	536	0.05	542	0.13	2095	0.02	.888
Look for runny nose	535	0.20	482	0.27	536	0.19	542	0.24	2095	-0.02	.865
Look for rash	535	0.42	482	0.49	536	0.13	542	0.23	2095	0.03	.692
Look for red eyes	535	0.21	482	0.29	536	0.14	542	0.20	2095	-0.02	.864
Observe chest indrawing	535	0.11	482	0.13	536	0.07	542	0.16	2095	0.07	.505
Look and listen for stridor and wheezing	535	0.30	482	0.27	536	0.16	542	0.21	2095	0.08	.421

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

[†] Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.2-10: PBF Impact on Disaggregated Indicators for CV-3

Indicator	Baseline				Post-Treatment				Regression Results [†]		
	Control		PBF		Control		PBF		#	β^1	p^2
	#	\bar{x}	#	\bar{x}	#	\bar{x}	#	\bar{x}			
History Items											
Ask mother's name	535	0.17	482	0.28	536	0.42	542	0.44	2095	-0.09	.617
Ask mother child's name	535	0.46	482	0.53	536	0.52	542	0.75	2095	0.18	.333
Ask the mother what is a child's problem	535	0.69	482	0.86	536	0.65	542	0.78	2095	-0.05	.616
Examination Items											
Measure weight and height	535	0.43	482	0.45	536	0.66	542	0.85	2095	0.18	.285
Measure temperature	535	0.87	482	0.93	536	0.86	542	0.93	2095	0.02	.674
Count the breath in one minute	535	0.38	482	0.41	536	0.25	542	0.44	2095	0.15	.350
Look for chest indrawing	535	0.11	482	0.16	536	0.11	542	0.24	2095	0.08	.402
Look for nasal flaring	535	0.22	482	0.28	536	0.20	542	0.32	2095	0.05	.742
Look and feel for grunting	535	0.20	482	0.22	536	0.20	542	0.33	2095	0.11	.388
Look and feel for bulging fontanelle	535	0.29	482	0.32	536	0.34	542	0.39	2095	0.03	.803
Look for pus draining from the ear	535	0.21	482	0.26	536	0.18	542	0.27	2095	0.03	.734
Look at umbilicus on redness and pus	535	0.41	482	0.41	536	0.34	542	0.37	2095	0.04	.770
Look for pustules on the skin	535	0.47	482	0.56	536	0.19	542	0.33	2095	0.05	.577
See whether an infant is lethargic or unconscious	535	0.12	482	0.26	536	0.15	542	0.25	2095	-0.04	.797
Assess young infant's movement	535	0.18	482	0.27	536	0.33	542	0.44	2095	0.01	.942

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

[†] Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.2-11: PBF Impact on Disaggregated Indicators for CV-4

Indicator	Baseline				Post-Treatment				Regression Results [†]		
	Control		PBF		Control		PBF		#	β^1	p^2
History Items											
Ask mother's name	535	0.19	482	0.31	536	0.44	542	0.44	2095	-0.12	.454
Ask mother child's name	535	0.48	482	0.58	536	0.55	542	0.80	2095	0.16	.401
Ask about age of the child	535	0.55	482	0.54	536	0.55	542	0.77	2095	0.24	.114
Ask the mother what is a child's problem	535	0.66	482	0.79	536	0.60	542	0.71	2095	-0.02	.864
Ask whether the child vomits	535	0.54	482	0.55	536	0.59	542	0.54	2095	-0.05	.672
Ask whether a child has fits or spasms (convulsion)	535	0.12	482	0.15	536	0.18	542	0.34	2095	0.14	.312
Ask whether a child has cough or difficult breathing	535	0.37	482	0.29	536	0.21	542	0.42	2095	0.28	.015**
Will ask whether a child has a diarrhea	535	0.56	482	0.54	536	0.52	542	0.53	2095	0.04	.680
Examination Items											
Measure weight and height	535	0.40	482	0.48	536	0.54	542	0.82	2095	0.21	.155
Measure temperature	535	0.92	482	0.94	536	0.73	542	0.77	2095	0.02	.784
Check whether a child can drink or breastfeed	535	0.30	482	0.42	536	0.09	542	0.17	2095	-0.04	.642
Look whether the child is letargic or uncountious	535	0.11	482	0.28	536	0.14	542	0.18	2095	-0.12	.312
Count the breath in one minute	535	0.37	482	0.39	536	0.14	542	0.20	2095	0.03	.787
Look for chest indrawing	535	0.08	482	0.12	536	0.04	542	0.07	2095	-0.01	.921
Look and listen for stridor or wheezing	535	0.27	482	0.23	536	0.09	542	0.15	2095	0.10	.161
Will look and feel for odema on both feet	535	0.03	482	0.16	536	0.02	542	0.08	2095	-0.08	.396
Check skin and palms of a child on palmar pallor	535	0.40	482	0.37	536	0.07	542	0.16	2095	0.13	.097*
Assess child feeding	535	0.12	482	0.16	536	0.04	542	0.10	2095	0.03	.702
Blood test	535	0.06	482	0.17	536	0.07	542	0.11	2095	-0.06	.477
Test on worms	535	0.03	482	0.08	536	0.03	542	0.08	2095	0.00	.959

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

[†] Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.2-12: PBF Impact on Disaggregated Indicators for CV-5

Indicator	Baseline				Post-Treatment				Regression Resultst		
	Control		PBF		Control		PBF		#	β^1	p^2
History Items											
Ask how old is a patient	535	0.50	482	0.66	536	0.64	542	0.77	2095	-0.03	.826
Ask to describe in more detail problems	535	0.58	482	0.63	536	0.48	542	0.58	2095	0.05	.618
Ask whether it is for the first time when such symptoms are presented	535	0.53	482	0.67	536	0.44	542	0.55	2095	-0.03	.768
Ask whether he feels nausea	535	0.39	482	0.37	536	0.32	542	0.47	2095	0.18	.110
Ask whether he vomited	535	0.33	482	0.27	536	0.43	542	0.45	2095	0.09	.590
Ask about oliguria or about problems with kidney	535	0.19	482	0.14	536	0.10	542	0.30	2095	0.25	.024**
Ask about vision problems during the headache	535	0.30	482	0.38	536	0.12	542	0.31	2095	0.10	.363
Ask about whether he has chest pain	535	0.18	482	0.16	536	0.19	542	0.33	2095	0.16	.162
Ask smoking status	535	0.30	482	0.32	536	0.50	542	0.69	2095	0.17	.378
Ask about alcohol intake	535	0.33	482	0.30	536	0.50	542	0.68	2095	0.21	.293
Ask family history of premature coronary heart disease or stroke	535	0.21	482	0.23	536	0.11	542	0.30	2095	0.17	.096*
Ask whether the patient has diabetes	535	0.11	482	0.13	536	0.07	542	0.27	2095	0.19	.121
Ask about lifestyle /physical activity	535	0.14	482	0.17	536	0.13	542	0.25	2095	0.08	.458
Ask about food intake	535	0.52	482	0.69	536	0.32	542	0.49	2095	0.00	.978
Ask about weight gain/loss	535	0.10	482	0.08	536	0.10	542	0.32	2095	0.25	.088*
Ask whether he is already on antihypertensive therapy or other medication	535	0.13	482	0.18	536	0.05	542	0.13	2095	0.04	.462
Examination Items											
Measure blood pressure	535	0.96	482	0.98	536	0.79	542	0.88	2095	0.06	.467
Assess his weight and height	535	0.22	482	0.20	536	0.31	542	0.72	2095	0.43	.002**
Assess pulse	535	0.53	482	0.53	536	0.44	542	0.64	2095	0.19	.109
A urine sample for estimation of the albumin: creatinine ratio and testi	535	0.14	482	0.13	536	0.02	542	0.07	2095	0.07	.546
A blood sample to measure plasma glucose, electrolytes, creatinine, esti	535	0.17	482	0.17	536	0.03	542	0.07	2095	0.04	.721
12-lead electrocardiography	535	0.19	482	0.23	536	0.11	542	0.15	2095	0.00	.977

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.2-13: PBF Impact on Disaggregated Indicators for CV-6

Indicator	Baseline				Post-Treatment				Regression Results [†]		
	#	\bar{x}	#	\bar{x}	#	\bar{x}	#	\bar{x}	#	β^1	p^2
History Items											
Ask how old is a patient	535	0.52	482	0.69	536	0.65	542	0.78	2095	-0.04	.810
Ask to describe in more detail problems	535	0.58	482	0.62	536	0.47	542	0.57	2095	0.05	.600
Ask whether it is for the first time when such symptoms are presented	535	0.56	482	0.60	536	0.42	542	0.54	2095	0.08	.459
Ask whether he feels nausea	535	0.41	482	0.43	536	0.35	542	0.45	2095	0.09	.422
Ask whether he vomited	535	0.36	482	0.32	536	0.45	542	0.43	2095	0.03	.885
Ask about oliguria and about the problem of kidney	535	0.19	482	0.15	536	0.12	542	0.33	2095	0.25	.046**
Ask about vision problems during the headache	535	0.31	482	0.37	536	0.13	542	0.33	2095	0.14	.205
Ask about whether he has chest pain	535	0.20	482	0.13	536	0.22	542	0.34	2095	0.19	.077*
Ask smoking status	535	0.39	482	0.46	536	0.61	542	0.77	2095	0.10	.560
Ask about alcohol intake	535	0.44	482	0.45	536	0.59	542	0.76	2095	0.16	.363
Ask family history of premature coronary heart disease or stroke	535	0.21	482	0.27	536	0.16	542	0.32	2095	0.09	.286
Ask whether the patient has diabetes	535	0.10	482	0.17	536	0.09	542	0.32	2095	0.16	.143
Ask about lifestyle /physical activity	535	0.18	482	0.26	536	0.17	542	0.31	2095	0.06	.644
Ask about food intake	535	0.51	482	0.67	536	0.33	542	0.47	2095	-0.03	.797
Ask whether he is already on antihypertensive therapy or other medication	535	0.14	482	0.19	536	0.06	542	0.13	2095	0.01	.898
Examination Items											
Assess his weight	535	0.27	482	0.24	536	0.34	542	0.74	2095	0.43	.003**
Assess pulse	535	0.56	482	0.52	536	0.47	542	0.68	2095	0.25	.042**
Measure blood pressure	535	0.94	482	0.93	536	0.75	542	0.85	2095	0.11	.182
A urine sample for estimation of the albumin: creatinine ratio and test	535	0.12	482	0.11	536	0.01	542	0.06	2095	0.06	.537
A blood sample to measure plasma glucose, electrolytes, creatinine, etc	535	0.14	482	0.19	536	0.01	542	0.07	2095	0.01	.920
12-lead electrocardiography	535	0.19	482	0.23	536	0.11	542	0.13	2095	-0.01	.943

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

[†] Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.3Disaggregated Indicators for CQI/CRC Impact

Survey data of multiple correlated elements were summarized using an unrotated principal component analysis. The first component of the factor was extracted and standardized (mean of 0 with standard deviation of 1) and assumed to summarize the overarching 'score' for the category of indicators. The following tables present the detailed results of these analysis, including the component correlations of each element, and an element by element regression with CQI/CRC impact.

10.3.1 CQI/CRC Impact on Disaggregated Indicators for Rural Health Center

Table A10.3-1: CQI/CRC Impact on Disaggregated Indicators for Rural Health Centers

Indicator	Factor	CQI		CQI+PBF		CRC Only		CRC+PBF					
		β	p	Ref: Control		Ref: PBF		Ref: Control		Ref: PBF			
				β	p	β	p	β	p	β	p		
Infrastructure Score													
Piped water into plot	0.30	-0.12	.420	0.14	.437	0.02	.904	-0.08	.493	0.07	.650	-0.05	.728
Improved water source ³	0.20	-0.23	.152	0.02	.859	-0.14	.204	-0.03	.853	0.09	.498	-0.07	.398
Reception area	0.34	-0.03	.723	0.09	.456	0.03	.786	-0.17	.037**	0.09	.443	0.02	.295
Heating in patient rooms	0.38	0.08	.248	0.33	.071*	-0.14	.021**	0.10	.337	0.38	.044**	-0.08	.121
Patient Toilets	0.44	0.06	.310	0.05	.629	-0.06	.399	0.05	.524	0.17	.144	0.05	.636
Separate male and female toilets	0.51	0.08	.571	0.36	.003***	0.13	.340	0.00	.981	0.33	.017**	0.10	.406
Private consultation rooms	0.15	0.15	.143	0.63	.000***	-0.05	.569	0.11	.177	0.73	.000***	0.05	.552
Water in patient rooms	0.38	-0.08	.524	0.12	.637	-0.09	.594	0.16	.267	0.13	.554	-0.08	.532
Infection prevention and control score													
Consultation rooms with proper sharps disposal	0.42	-0.03	.625	0.28	.056*	0.04	.704	0.10	.275	0.29	.015**	0.05	.230
Availability of a functional incinerator	0.63	0.03	.794	0.16	.184	-0.10	.133	-0.01	.925	0.25	.089*	-0.01	.941
Use of proper sterilization procedure ⁴	0.22	0.03	.784	0.10	.608	-0.14	.218	-0.09	.515	-0.03	.843	-0.27	.028**
Use of proper decontamination procedure ⁵	-0.13	-0.08	.257	0.13	.500	0.06	.479	0.02	.815	0.25	.225	0.19	.109
Use of proper biowaste disposal method ⁶	0.60	0.18	.144	0.59	.016**	-0.06	.622	0.25	.000***	0.81	.001***	0.15	.382
Equipment Availability													
Adult weight scale	0.20	-0.03	.704	0.14	.245	-0.01	.838	-0.07	.513	0.11	.340	-0.04	.211
Ambubag	0.19	0.23	.001***	0.20	.135	0.00	.954	0.12	.171	0.09	.082*	-0.12	.317
Antiseptic	0.22	0.04	.723	0.27	.119	0.12	.183	0.00	.995	0.29	.079*	0.13	.099*
Blood Pressure Cuff	0.20	-0.08	.199	0.02	.717	-0.19	.056*	-0.06	.324	0.20	.114	-0.02	.827
Catheter	0.29	0.02	.922	0.25	.158	-0.11	.432	0.13	.379	0.35	.068*	-0.02	.871
Child weight scale	0.15	0.14	.162	0.11	.099*	-0.15	.006***	0.08	.408	0.22	.022**	-0.04	.122
Clock	0.21	-0.07	.279	0.10	.550	-0.30	.009***	-0.08	.463	0.27	.070*	-0.12	.131
Dripstand	0.20	0.01	.954	0.37	.050*	-0.11	.326	-0.17	.155	0.21	.176	-0.27	.030**
Exambed	0.11	0.23	.054*	0.47	.005***	-0.06	.753	0.19	.238	0.36	.072*	-0.16	.305
Fetoscope	0.14	-0.19	.066*	0.10	.689	-0.12	.270	-0.06	.366	0.02	.928	-0.20	.004***
Flashlight	0.29	-0.01	.930	0.64	.000***	0.09	.237	0.05	.605	0.38	.035**	-0.17	.093*
Height measurement tool	0.15	0.02	.834	0.11	.328	-0.09	.277	0.00	.991	0.16	.283	-0.04	.745
Minor surgical equipment	0.23	-0.01	.924	0.13	.255	0.02	.860	0.02	.873	0.04	.553	-0.06	.531
ORT Corner	0.19	0.00	.950	0.02	.911	-0.16	.058*	-0.10	.121	0.02	.920	-0.16	.069*
Otoscope	0.27	0.17	.215	0.42	.034**	-0.16	.238	0.08	.349	0.47	.056*	-0.11	.625
Oxygen tank	0.19	-0.03	.236	0.20	.112	0.05	.204	0.03	.279	0.08	.098*	-0.06	.295
Stethoscope	0.21	-0.06	.385	0.08	.483	-0.01	.842	0.00	.972	0.19	.076*	0.10	.294
Stretcher	0.25	0.08	.263	0.15	.411	-0.11	.144	0.09	.166	0.24	.073*	-0.01	.935
Suction cup	0.23	0.05	.481	0.14	.203	-0.12	.324	0.03	.619	0.25	.012**	-0.01	.939
Tape measurer	0.21	0.21	.189	0.17	.109	0.00	.782	0.06	.605	0.20	.073*	0.02	.500
Thermometer	0.20	-0.05	.658	0.13	.322	-0.05	.033**	0.03	.376	0.09	.325	-0.10	.239
Vision chart	0.23	0.05	.477	0.23	.084*	0.08	.521	0.05	.457	0.31	.016**	0.17	.395
Wheelchair	-0.08	-0.11	.415	-0.11	.536	0.03	.828	-0.15	.092*	-0.04	.796	0.10	.123
Protocol Availability Score													
National protocol for reducing unsafe abortion morbidity/mortality	0.23	-0.17	.262	0.01	.978	-0.23	.030**	-0.18	.052*	0.18	.473	-0.06	.536
Detecting and reporting adverse drug or vaccine reaction	0.16	0.18	.316	0.12	.507	-0.26	.111	0.19	.144	0.14	.545	-0.24	.206
Antenatal Care National Standards	0.21	-0.02	.821	0.16	.330	0.06	.485	0.09	.411	0.24	.221	0.14	.196
National Protocol for diarrhea diagnosis and treatment	0.23	0.02	.802	0.12	.391	-0.17	.213	0.03	.815	0.24	.185	-0.05	.774
National protocol for drug procurement	0.22	0.15	.006***	0.75	.000***	-0.10	.261	0.24	.034**	0.70	.000***	-0.16	.021**
Patient education materials (Information and Education Campaign	0.16	-0.09	.403	0.08	.448	-0.09	.486	0.03	.581	0.17	.101	-0.01	.922
National list for essential drugs	0.21	-0.05	.778	0.31	.077*	-0.14	.090*	0.03	.867	0.30	.097*	-0.15	.330
National protocol for reproductive health/family planning	0.23	0.09	.524	0.20	.183	0.09	.517	0.06	.560	0.16	.349	0.04	.705
Graphs for growth monitoring	0.21	0.00	.993	0.18	.353	0.03	.791	-0.18	.246	0.29	.078*	0.15	.276
National HIV testing and counseling guidelines	0.21	-0.16	.278	0.06	.731	-0.04	.750	-0.15	.084*	0.01	.956	-0.09	.500
Health Management Information System (HMIS) Data	0.25	0.06	.678	0.41	.058*	-0.12	.160	-0.15	.330	0.44	.030**	-0.09	.022**
Health Management Information System (HMIS) guidelines	0.25	0.05	.722	0.38	.029**	-0.05	.711	-0.09	.541	0.45	.019**	0.02	.812
Integrated Management of Childhood Illness (IMCI) chart booklet	0.20	-0.02	.911	0.18	.392	0.05	.570	-0.12	.366	0.23	.314	0.10	.232
Procedures Manual for Infection Prevention and Control	0.21	-0.12	.323	0.40	.085*	0.14	.584	-0.11	.389	0.32	.107	0.06	.704
Labor and Delivery Care	0.21	-0.06	.722	0.23	.408	0.03	.864	-0.04	.660	0.34	.196	0.14	.525
National Protocol for malaria diagnosis and treatment	0.19	0.06	.624	0.58	.001***	0.05	.682	0.16	.153	0.43	.048**	-0.10	.667
National health strategy	0.22	0.26	.010**	0.55	.050**	0.20	.234	0.21	.269	0.62	.004***	0.27	.001***
Newborn Care National Standards	0.25	-0.09	.570	0.16	.539	-0.19	.291	-0.12	.421	0.38	.126	0.02	.888
Post-Partum Care National Standards	0.26	-0.23	.219	0.07	.779	-0.21	.097*	-0.15	.330	0.24	.238	-0.03	.840
Management of Sexually Transmitted Infections (STI) guidelines	0.21	-0.13	.371	0.35	.071*	0.04	.755	-0.06	.783	0.24	.320	-0.07	.721
National protocol for tuberculosis diagnosis and treatment	0.17	0.01	.939	0.42	.008***	-0.12	.623	0.10	.488	0.27	.013**	-0.27	.111
National protocol for child vaccination	0.16	0.11	.190	0.09	.259	-0.02	.860	0.09	.317	0.00	.956	-0.12	.329
Diabetes Service Provision													
Establishing a patient card	-0.06	.548		0.18	.132	-0.14	.162	0.05	.220	0.22	.074*	-0.10	.063*
Dispensary observation	-0.01	.886		0.22	.008***	-0.03	.629	0.06	.301	0.18	.108	-0.07	.641
Free distribution of diabetes drugs	0.06	.255		0.72	.000***	0.13	.281	-0.06	.491	0.54	.000***	-0.05	.626
Glucometry	-0.02	.887		0.45	.010**	-0.30	.016**	0.01	.921	0.55	.014**	-0.20	.174
Healthy nutrition	-0.12	.093*		0.00	.992	0.00	.941	-0.08	.184	-0.09	.210	-0.09	.128
Obesity Prevention	-0.10	.139		0.23	.128	0.00	.962	-0.08	.147	0.17	.190	-0.06	.109
Growth Monitoring Service Provision													
BMI Measurement	-0.02	.639		0.15	.245	-0.04	.512	0.06	.485	0.12	.381	-0.07	.412
Height Measurement	-0.06	.159		0.00	.920	-0.09	.152	0.00	.994	0.08	.288	-0.01	.758
Hypertrophy Measurement	0.03	.539		0.03	.560	-0.16	.098*	0.03	.715	-0.02	.803	-0.21	.039**
Hypotropy Measurement	-0.01	.905		0.05	.263	-0.12	.049**	0.08	.168	0.08	.295	-0.10	.211
Weight Measurement	-0.10	.381		0.21	.255	-0.05	.537	0.00	.980	0.27	.204	0.01	.890

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.3.2 CQI/CRC Impact on Disaggregated Indicators for Health Houses

Table A10.3-2: CQI/CRC Impact on Disaggregated Indicators for Health Houses

		CQI		CQI+PBF				CRC Only		CRC+PBF			
Indicator	Factor	β	p	β	p	β	p	β	p	β	p	β	p
Infrastructure Score													
Piped water into plot	0.32	-0.15	.337	0.01	.949	0.01	.952	-0.17	.187	-0.07	.690	-0.07	.640
Improved water source ³	0.10	-0.12	.328	-0.33	.053*	0.04	.734	-0.07	.512	-0.14	.312	0.23	.061*
Reception area	0.30	0.08	.577	-0.11	.462	-0.39	.000***	-0.07	.735	0.26	.119	-0.01	.915
Heating in patient rooms	0.41	-0.12	.350	0.13	.444	-0.06	.679	-0.38	.008***	0.14	.397	-0.05	.783
Patient Toilets	0.47	-0.08	.699	0.16	.404	0.04	.801	-0.23	.070*	0.15	.399	0.03	.846
Separate male and female toilets	0.44	0.04	.759	0.15	.186	-0.02	.881	0.04	.689	0.08	.394	-0.08	.150
Private consultation rooms	0.22	-0.38	.068*	-0.04	.822	-0.19	.508	-0.20	.200	0.15	.341	0.00	1.000
Water in patient rooms	0.40	0.19	.314	-0.06	.713	-0.34	.000***	-0.16	.103	0.10	.603	-0.18	.222
Infection prevention and control score													
Consultation rooms with proper sharps disposal	-0.09	0.23	.070*	0.36	.059*	-0.13	.222	0.14	.428	0.37	.180	-0.12	.480
Availability of a functional incinerator	0.64	-0.20	.189	-0.11	.475	0.04	.738	-0.24	.054*	-0.29	.062*	-0.14	.104
Use of proper sterilization procedure ⁴	-0.40	-0.07	.138	-0.07	.625	-0.13	.301	0.01	.850	0.02	.852	-0.04	.684
Use of proper biowaste disposal method ⁶	0.64	-0.33	.076*	0.19	.427	0.15	.002***	-0.27	.065*	0.13	.507	0.10	.661
Use of proper decontamination procedure ⁵	-0.05	0.12	.373	-0.07	.829	-0.05	.737	0.20	.038**	0.09	.787	0.11	.423
Equipment Availability Score													
Adult weight scale	0.30	0.07	.485	0.58	.010**	0.09	.600	-0.04	.741	0.44	.018**	-0.05	.810
Ambubag	0.14	-0.15	.008***	-0.11	.095*	-0.09	.265	-0.15	.008***	-0.01	.955	0.01	.915
Antiseptic	0.29	0.15	.235	0.55	.002***	0.12	.175	0.43	.011**	0.54	.006***	0.11	.274
Blood Pressure Cuff	0.28	0.11	.263	0.38	.026**	0.17	.003***	0.13	.234	0.19	.165	-0.03	.877
Catheter	0.23	0.12	.057*	0.04	.555	0.03	.666	0.01	.456	0.20	.167	0.19	.124
Child weight scale	0.29	0.21	.117	0.38	.071*	-0.09	.614	0.13	.158	0.24	.208	-0.24	.095*
Clock	0.18	-0.05	.737	0.26	.168	-0.19	.200	0.20	.002***	0.21	.291	-0.25	.312
Dripstand	0.21	-0.10	.491	0.20	.331	0.00	.993	-0.15	.103	0.28	.212	0.08	.690
Exambed	-0.03	-0.27	.009***	0.02	.902	0.11	.385	-0.13	.184	0.14	.382	0.23	.129
Fotoscope	0.05	0.05	.646	0.02	.918	-0.13	.207	-0.02	.874	-0.01	.955	-0.16	.305
Flashlight	0.28	0.08	.403	0.39	.014**	0.16	.298	0.01	.809	0.64	.000***	0.41	.004***
Height measurement tool	0.26	0.16	.271	0.30	.089*	-0.16	.343	0.11	.529	0.40	.055*	-0.06	.811
Minor surgical equipment	0.05	0.00	1.000	0.00	1.000	-0.04	.569	-0.04	.324	0.05	.282	0.00	.953
ORT Corner	0.24	-0.05	.738	0.20	.330	0.07	.689	0.26	.171	0.26	.266	0.13	.577
Otoscope	0.10	0.00	1.000	-0.08	.301	-0.12	.336	-0.04	.299	0.14	.172	0.10	.531
Oxygen tank	0.14	0.00	1.000	0.00	1.000	-0.09	.310	0.00	1.000	0.05	.282	-0.04	.712
Stethoscope	0.31	-0.08	.455	0.28	.094*	0.16	.039**	0.03	.849	0.34	.071*	0.22	.172
Stretcher	0.11	0.05	.338	0.00		-0.13	.154	0.00	1.000	0.10	.088*	-0.04	.618
Suction cup	0.13	0.05	.309	0.04	.301	-0.01	.933	0.00	1.000	0.00	1.000	-0.04	.310
Tape measurer	0.27	0.08	.635	0.27	.202	0.17	.286	-0.07	.591	0.16	.455	0.06	.720
Thermometer	0.27	0.07	.523	0.12	.374	-0.06	.206	0.09	.342	0.11	.326	-0.07	.623
Vision chart	0.09	-0.04	.293	0.00	.978	-0.05	.615	0.01	.914	-0.08	.156	-0.13	.129
Wheelchair	-0.02	-0.06	.655	-0.09	.651	-0.04	.794	0.00	.989	-0.03	.909	0.02	.920
Protocol Availability Score													
morbidity/mortality	0.22	-0.61	.000***	-0.06	.809	-0.07	.699	-0.38	.010**	-0.08	.645	-0.09	.667
Detecting and reporting adverse drug or vaccine reaction	0.19	0.04	.803	0.21	.244	-0.07	.578	-0.12	.118	0.29	.165	0.01	.939
Antenatal Care National Standards	0.22	-0.15	.433	-0.06	.755	-0.02	.843	-0.13	.389	0.24	.204	0.28	.038**
National Protocol for diarrhea diagnosis and treatment	0.24	0.08	.724	0.35	.223	0.15	.372	-0.23	.188	0.39	.224	0.18	.447
National protocol for drug procurement	0.22	-0.01	.944	0.70	.000***	-0.02	.587	0.11	.376	0.70	.000***	-0.02	.852
Campaign materials)	0.15	-0.09	.352	-0.18	.325	-0.10	.606	-0.21	.070*	0.04	.822	0.12	.347
National list for essential drugs	0.20	0.16	.176	0.62	.001***	-0.34	.001***	0.48	.000***	0.48	.005***	-0.48	.000***
National protocol for reproductive health/family planning	0.24	-0.20	.184	0.21	.183	0.01	.968	-0.10	.561	0.12	.469	-0.08	.618
Graphs for growth monitoring	0.22	-0.01	.944	0.28	.128	-0.07	.723	0.04	.766	0.35	.015**	0.01	.973
National HIV testing and counseling guidelines	0.18	0.11	.575	0.08	.760	-0.18	.520	0.09	.610	0.05	.861	-0.21	.209
Health Management Information System (HMIS) Data	0.25	0.06	.568	0.31	.064*	0.07	.732	-0.06	.534	0.42	.011**	0.18	.215
Health Management Information System (HMIS) guidelines booklet or wall chart	0.20	0.12	.525	0.24	.360	-0.14	.364	0.20	.233	0.19	.526	-0.19	.378
Procedures Manual for Infection Prevention and Control	0.21	-0.05	.748	0.38	.193	-0.05	.848	-0.22	.222	0.48	.058*	0.04	.752
Labor and Delivery Care	0.22	-0.06	.569	-0.02	.938	0.16	.479	-0.31	.059*	-0.05	.844	0.12	.224
National Protocol for malaria diagnosis and treatment	0.18	-0.07	.289	0.15	.457	-0.28	.168	-0.22	.093*	0.32	.036**	-0.11	.238
National health strategy	0.21	-0.19	.024**	0.39	.047**	0.23	.239	0.08	.465	0.29	.254	0.13	.419
Newborn Care National Standards	0.24	0.00	.986	0.24	.399	0.15	.137	-0.13	.404	0.22	.414	0.13	.253
Post-Partum Care National Standards	0.24	-0.01	.978	0.43	.150	0.23	.283	0.02	.919	0.22	.400	0.03	.896
Management of Sexually Transmitted Infections (STI) guidelines	0.22	0.05	.689	0.19	.433	-0.20	.311	0.04	.786	0.33	.220	-0.06	.659
National protocol for tuberculosis diagnosis and treatment	0.18	0.06	.603	0.46	.041**	0.09	.723	-0.11	.317	0.49	.021**	0.12	.609
National protocol for child vaccination	0.19	-0.24	.112	-0.03	.863	0.05	.499	-0.17	.127	0.04	.777	0.12	.196
Diabetes Service Provision													
Establishing a patient card		-0.30	.112	0.32	.116	-0.08	.530	-0.30	.001***	0.47	.014**	0.07	.650
Dispensary observation		-0.13	.424	0.23	.068*	0.00	.986	0.01	.925	0.31	.021**	0.08	.735
Free distribution of diabetes drugs		-0.05	.309	0.15	.180	-0.06	.650	0.00		0.14	.092*	-0.07	.429
Glucometry		0.05	.309	0.08	.323	0.03	.714	0.04	.299	0.14	.058*	0.10	.322
Healthy nutrition		-0.10	.269	-0.14	.358	-0.06	.406	-0.04	.672	0.03	.866	0.11	.091*
Obesity Prevention		-0.11	.433	0.04	.840	-0.09	.511	-0.09	.432	0.29	.108	0.16	.077*
Growth Monitoring Service Provision													
BMI Measurement		-0.07	.597	0.43	.041**	0.07	.589	0.10	.484	0.35	.096*	-0.01	.961
Height Measurement		-0.07	.562	0.16	.319	0.10	.422	-0.16	.259	0.21	.187	0.16	.118
Hypertrophy Measurement		-0.08	.476	0.19	.279	-0.19	.096*	0.07	.559	0.17	.294	-0.21	.152
Hypotropy Measurement		-0.29	.051*	-0.03	.859	-0.15	.180	-0.10	.484	0.01	.973	-0.11	.433
Weight Measuremet		0.10	.053*	0.25	.207	-0.04	.806	0.02	.847	0.25	.199	-0.03	.739

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.3.3 CQI/CRC Impact on Disaggregated Indicators for RHC Health Workers

Table A10.3-3: CQI/CRC Impact on Disaggregated Indicators for RHC Health Workers

		CQI		CQI+PBF				CRC Only		CRC+PBF			
Indicator	Factor	β	p	Ref: Control		Ref: PBF				Ref: Control		Ref: PBF	
		β	p	β	p	β	p	β	p	β	p	β	p
Factor Scores for WHO Well-Being Index													
In the past 2 weeks, I have felt cheerful and in good spirits	0.45	-0.09	.084*	-0.07	.457	-0.07	.179	-0.06	.390	-0.07	.438	-0.07	.481
In the past 2 weeks, I have felt calm and relaxed...	0.48	-0.01	.816	0.08	.402	-0.06	.440	-0.06	.387	0.04	.657	-0.10	.361
In the past 2 weeks, I have felt active and vigorous...	0.37	-0.08	.111	-0.09	.229	-0.12	.286	-0.09	.019**	-0.06	.273	-0.09	.252
In the past 2 weeks, I woke up feeling fresh and rested...	0.46	-0.02	.861	-0.10	.391	-0.12	.193	-0.05	.378	-0.07	.514	-0.09	.274
In the past 2 weeks, my daily life has been filled with things that interest me....	0.46	0.03	.759	-0.01	.894	-0.15	.049**	0.03	.323	0.05	.533	-0.10	.345
Factor Scores for Satisfaction													
Working relationships with other facility staff	0.12	0.01	.805	-0.01	.759	-0.08	.050**	0.00	.901	0.03	.493	-0.04	.286
Working relationships with District/ Ministry of Health staff	0.15	0.04	.615	0.00	.969	-0.02	.698	0.04	.560	0.07	.177	0.05	.314
Working relationships with Management staff within the health facility	0.12	0.03	.351	-0.03	.327	0.01	.891	0.00	.899	-0.03	.417	0.01	.703
Quality of the management of the health facility by the management staff within the health facility	0.18	0.04	.255	0.04	.594	-0.04	.523	0.00	.994	0.10	.231	0.02	.578
Quantity of medicine available in the health facility	0.34	0.07	.419	0.40	.001***	-0.03	.322	0.10	.178	0.43	.000***	-0.01	.889
Quality of medicine available in the health facility	0.32	0.07	.341	0.34	.041**	-0.01	.949	0.06	.396	0.35	.006***	0.00	.974
Quantity of equipment in the health facility	0.40	0.00	.984	0.19	.028**	-0.09	.055*	-0.04	.510	0.32	.008***	0.03	.707
Quality and physical condition of equipment in the health facility	0.40	0.00	.996	0.27	.007***	0.03	.478	-0.03	.515	0.30	.020**	0.07	.110
Availability of other supplies in the health facility (compresses, etc.; office supplies)	0.34	0.01	.907	0.25	.016**	-0.07	.181	-0.03	.691	0.26	.051*	-0.06	.491
The physical condition of the health facility building	0.30	0.06	.648	0.27	.012**	0.02	.839	-0.02	.890	0.26	.003***	0.02	.893
Your ability to provide high quality of care given the current working conditions in the facility	0.26	-0.03	.627	0.17	.161	0.18	.149	-0.14	.106	0.03	.816	0.04	.754
Your salary	0.26	0.02	.787	0.11	.248	-0.02	.706	-0.04	.359	0.11	.239	-0.02	.759
Overall, how satisfied are you with your job?	0.22	0.04	.422	0.09	.284	0.09	.193	-0.16	.033**	0.06	.300	0.07	.210
Factor Scores for Personal Drive (Likert Responses)													
Staff willingly share their expertise with other members.	0.22	0.02	.669	0.04	.774	-0.03	.702	0.11	.129	-0.02	.888	-0.09	.194
When disagreements occur among staff, they try to act like peacemakers to resolve the situation themselves.	0.23	0.04	.556	0.03	.729	-0.05	.362	-0.04	.458	0.04	.705	-0.04	.530
Staff willingly give their time to help each other out when someone falls behind or has difficulties with work.	0.22	0.01	.737	0.01	.879	-0.01	.792	0.03	.564	0.02	.761	0.00	.983
Staff talk to each other before taking an action that might affect them.	0.24	-0.02	.703	-0.07	.376	-0.08	.233	0.08	.169	0.00	.953	-0.02	.738
Staff take steps to prevent problems arising between them.	0.23	-0.02	.708	-0.03	.733	-0.05	.415	0.02	.815	-0.05	.592	-0.07	.224
Staff focus on what is wrong rather than the positive side.	0.08	-0.01	.928	-0.27	.081*	-0.06	.528	0.13	.073*	-0.21	.193	0.01	.946
Staff spend their time chatting amongst themselves about things that are not related to work.	0.03	0.06	.370	-0.10	.296	-0.02	.509	0.16	.021**	-0.03	.694	0.04	.304
Staff spend time complaining about work-related issues.	0.10	-0.04	.407	-0.13	.116	-0.02	.779	-0.01	.899	-0.14	.148	-0.03	.465
My job allows me freedom in how I organize my work and the methods and approaches to use.	0.19	0.07	.044**	-0.05	.665	-0.07	.347	-0.05	.532	-0.04	.673	-0.07	.372
I am given enough authority by my supervisors to do my job well.	0.23	0.03	.475	-0.06	.489	-0.03	.626	0.01	.892	-0.09	.347	-0.06	.021**
It is important for me that the community recognizes my work as a professional.	0.22	0.00	.736	0.03	.675	0.05	.264	-0.03	.389	-0.03	.299	-0.01	.648
It is important for me that my peers recognize my work as a professional.	0.23	-0.03	.483	-0.01	.904	0.03	.505	-0.03	.068*	-0.01	.913	0.03	.400
Changes in the facility are easy to adjust to.	0.22	0.02	.817	-0.01	.947	0.00	.965	-0.02	.855	0.01	.927	0.02	.721
Rapid changes are [NOT] difficult to cope with.	0.18	0.16	.009***	0.01	.936	0.03	.573	0.04	.694	-0.05	.604	-0.03	.736
Changes bring opportunities to make improvements in the facility.	0.22	-0.02	.770	-0.03	.808	0.04	.340	-0.04	.653	-0.02	.855	0.05	.414
My job makes me feel good about myself.	0.23	0.03	.441	0.05	.440	-0.06	.101	0.02	.658	0.04	.415	-0.07	.227
I am proud of the work I'm doing in this facility.	0.31	0.01	.746	-0.01	.939	-0.03	.459	-0.06	.144	-0.03	.615	-0.05	.167
I am proud to be working for this health facility.	0.30	0.04	.199	-0.05	.484	-0.04	.158	-0.05	.253	-0.04	.591	-0.03	.464
I am glad that I am working for this facility rather than in other facilities in the country.	0.23	0.02	.658	-0.06	.272	-0.08	.001***	-0.02	.527	-0.02	.711	-0.04	.161
I would [NOT] prefer to work somewhere else than in this facility.	-0.02	-0.04	.600	-0.06	.396	0.09	.028**	0.02	.725	-0.01	.849	0.13	.065*
This health facility inspires me to do my very best on the job.	0.26	-0.04	.495	-0.02	.732	0.04	.427	-0.07	.259	-0.03	.736	0.03	.633
I complete my tasks efficiently and effectively.	0.20	0.02	.675	0.04	.373	0.03	.293	-0.01	.699	0.04	.430	0.03	.346

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.3.4 CQI/CRC Impact on Disaggregated Indicators for HH Health Workers

Table A10.3-4: CQI/CRC Impact on Disaggregated Indicators for HH Health Worker Satisfaction

Indicator	Factor	CQI		CQI+PBF				CRC Only		CRC+PBF			
		β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
				β	p	β	p			β	p	β	p
Factor Scores for WHO Well-Being Index													
In the past 2 weeks, I have felt cheerful and in good	0.46	-0.02	.881	-0.08	.631	-0.06	.760	-0.03	.816	0.12	.216	0.14	.082*
In the past 2 weeks, I have felt calm and relaxed...	0.49	0.09	.528	0.03	.806	-0.15	.318	0.00	.973	0.17	.201	-0.01	.936
In the past 2 weeks, I have felt active and vigorous...	0.42	-0.06	.448	0.08	.597	0.09	.654	-0.03	.436	0.10	.280	0.12	.390
In the past 2 weeks, I woke up feeling fresh and	0.45	-0.04	.724	0.11	.330	0.17	.116	0.09	.318	-0.11	.533	-0.05	.752
In the past 2 weeks, my daily life has been filled with	0.41	0.05	.767	0.27	.095*	0.23	.091*	0.24	.212	0.09	.590	0.05	.781
Factor Scores for Satisfaction													
Working relationships with other facility staff	0.10	0.01	.818	-0.02	.653	0.05	.335	-0.04	.323	0.04	.479	0.11	.084*
Working relationships with District/ Ministry of	0.14	0.12	.225	0.19	.095*	0.10	.329	0.16	.024**	0.11	.257	0.03	.803
Working relationships with Management staff within	0.19	0.02	.650	0.02	.618	0.06	.249	-0.02	.641	0.04	.555	0.08	.375
Quality of the management of the health facility by	0.22	-0.01	.918	-0.05	.691	0.09	.619	-0.04	.705	-0.06	.553	0.08	.552
Quantity of medicine available in the health facility	0.35	0.02	.864	0.71	.000***	0.37	.062*	0.05	.538	0.52	.001***	0.18	.369
Quality of medicine available in the health facility	0.36	-0.06	.677	0.44	.006***	0.14	.370	0.02	.858	0.31	.023**	0.01	.925
Quantity of equipment in the health facility	0.38	-0.04	.742	0.32	.070*	-0.11	.453	0.08	.313	0.41	.001***	-0.02	.871
Quality and physical condition of equipment in the	0.39	0.09	.357	0.27	.100*	-0.22	.001***	0.02	.819	0.53	.002***	0.04	.649
Availability of other supplies in the health facility	0.31	-0.09	.144	0.37	.004***	-0.07	.474	0.07	.423	0.37	.012**	-0.07	.536
The physical condition of the health facility building	0.30	0.01	.944	0.16	.240	-0.20	.121	-0.07	.694	0.21	.132	-0.15	.202
Your ability to provide high quality of care given the	0.20	0.26	.103	0.32	.081*	0.01	.874	0.13	.441	0.30	.067*	0.00	.964
Your salary	0.22	-0.04	.730	0.05	.654	-0.13	.204	0.07	.486	0.21	.091*	0.03	.780
Overall, how satisfied are you with your job?	0.25	-0.01	.866	0.23	.039**	0.23	.068*	0.00	.997	0.02	.889	0.01	.905

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.3.5 CQI/CRC Impact on Disaggregated Indicators for Exit Interviews

Table A10.3-5: CQI/CRC Impact on Disaggregated Indicators for Patient Satisfaction

Indicator	Factor	CQI		CQI+PBF				CRC Only		CRC+PBF			
		β	P	Ref: Control		Ref: PBF		β	P	Ref: Control		Ref: PBF	
				β	P	β	P			β	P	β	P
Factor Scores for patient satisfaction (dichotomized)													
It is convenient to travel from your house to the health facility.	-0.04	0.03	.568	-0.06	.599	-0.10	.101	0.05	.316	-0.05	.676	-0.10	.228
The health facility is clean.	0.34	0.05	.240	0.12	.215	-0.03	.014**	0.04	.448	0.14	.112	-0.01	.692
The health staff are courteous and respectful.	0.40	0.03	.313	0.04	.539	-0.05	.246	-0.03	.364	0.04	.448	-0.04	.287
The health workers did a good job of explaining your condition.	0.36	0.02	.569	0.02	.615	-0.03	.097*	-0.04	.218	0.00	.939	-0.05	.119
The amount of time you spent waiting to be seen by a health provider was reasonable.	0.35	0.06	.144	0.05	.336	-0.02	.618	-0.03	.336	0.02	.767	-0.05	.324
You had enough privacy during your visit.	0.30	0.05	.294	-0.02	.763	-0.04	.442	0.04	.325	0.01	.873	-0.01	.711
The health worker spent a sufficient amount of time with you.	0.37	0.03	.363	0.04	.354	0.00	.923	0.02	.568	0.04	.368	0.00	.750
The hours the facility is open are adequate to meet your needs.	0.35	0.05	.174	0.04	.465	-0.04	.071*	-0.01	.809	0.02	.772	-0.06	.140
The overall quality of services provided was satisfactory.	0.36	0.04	.012**	0.02	.641	-0.07	.015**	-0.05	.187	0.04	.384	-0.05	.087*
Factor Scores for patient satisfaction (dichotomized)													
It is convenient to travel from your house to the health facility.	-0.02	0.01	.581	-0.05	.408	-0.07	.045**	0.02	.514	-0.03	.515	-0.05	.035**
The health facility is clean.	0.26	0.04	.354	0.06	.341	-0.02	.493	-0.01	.881	0.02	.736	-0.05	.454
The health staff are courteous and respectful.	0.39	0.03	.262	-0.01	.892	-0.04	.154	0.00	.938	0.01	.774	-0.02	.545
The health workers did a good job of explaining your condition.	0.33	0.05	.022**	0.02	.567	0.00	.979	0.01	.634	0.04	.220	0.02	.488
The amount of time you spent waiting to be seen by a health provider was reasonable.	0.38	0.01	.808	-0.02	.690	-0.02	.050**	-0.01	.589	0.02	.523	0.02	.631
You had enough privacy during your visit.	0.36	0.04	.386	0.01	.907	0.02	.276	0.00	.896	0.01	.855	0.03	.427
The health worker spent a sufficient amount of time with you.	0.38	0.00	.949	-0.02	.581	-0.02	.055*	-0.02	.386	0.02	.473	0.02	.551
The hours the facility is open are adequate to meet your needs.	0.34	0.04	.319	0.03	.557	-0.02	.056*	0.00	.954	0.02	.570	-0.03	.459
The overall quality of services provided was satisfactory.	0.35	0.03	.172	-0.02	.611	-0.07	.008***	-0.01	.570	0.00	.974	-0.05	.227

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.3.6 CQI/CRC Impact on Disaggregated Indicators for Direct Observation

Table A10.3-6: CQI/CRC Impact on Disaggregated Indicators for Direct Observation of Adult Consultations

Indicator	CQI		CQI+PBF				CRC Only		CRC+PBF			
	β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
			β	p	β	p			β	p	β	p
Clinical history and Assessment Items												
Lifestyle and physical activity	-0.01	.860	0.24	.026**	-0.04	.131	0.00	.999	0.28	.028**	-0.01	.898
Age	-0.04	.604	-0.01	.863	0.00	.926	-0.06	.111	-0.07	.526	-0.06	.253
Alcohol intake, quantity, and frequency	-0.01	.452	0.09	.025**	-0.03	.049**	0.01	.412	0.10	.020**	-0.02	.521
Measured blood pressure	0.04	.110	0.06	.545	-0.07	.005***	0.03	.265	0.09	.480	-0.05	.111
Chest pain	0.00	.976	0.10	.213	-0.07	.059*	0.06	.460	0.10	.350	-0.07	.346
Diabetes status	0.02	.622	0.22	.058*	-0.03	.199	0.02	.637	0.23	.083*	-0.02	.679
Food intake and diet	0.08	.102	0.26	.036**	0.07	.092*	0.07	.343	0.23	.060*	0.04	.394
Family history of heart disease and stroke	-0.05	.190	0.26	.030**	-0.06	.076*	0.04	.255	0.31	.020**	-0.01	.715
Anti hypertensive therapy	0.04	.300	0.17	.269	0.00	.946	-0.02	.595	0.19	.224	0.02	.668
Kidney disease status	0.03	.350	0.16	.103	-0.03	.645	0.01	.787	0.22	.034**	0.02	.778
Medicine use	0.01	.715	0.11	.166	-0.08	.036**	0.06	.131	0.11	.273	-0.08	.207
Nausea	0.00	.977	0.18	.173	0.00	.944	-0.06	.300	0.25	.093*	0.07	.241
Oliguria	0.02	.646	0.08	.144	0.00	.980	0.00	.922	0.11	.199	0.04	.357
Smoking status	0.00	.999	0.09	.024**	-0.04	.047**	0.02	.233	0.10	.008***	-0.03	.201
Symptom onset time	-0.08	.284	0.02	.826	-0.05	.307	0.00	.898	0.08	.496	0.01	.903
Symptoms	0.05	.358	-0.04	.562	-0.05	.403	-0.02	.507	0.05	.565	0.04	.489
Vision problems	-0.01	.593	0.20	.052*	-0.09	.024**	0.03	.431	0.25	.072*	-0.04	.095*
Vomiting	-0.04	.319	0.13	.255	-0.05	.314	-0.09	.036**	0.23	.101	0.05	.423
Measured weight	-0.03	.600	0.23	.043**	-0.01	.610	0.00	.962	0.21	.159	-0.04	.556
Weight gain or loss	-0.02	.572	0.17	.072*	-0.04	.332	0.00	.997	0.17	.176	-0.04	.392
Steps in calculation of cardiovascular risk												
Selected appropriate chart based on diabetes	0.04	.396	0.23	.294	-0.08	.062*	0.02	.799	0.22	.338	-0.10	.166
Selected appropriate chart based on age	0.03	.182	0.34	.032**	0.02	.753	0.09	.220	0.29	.031**	-0.02	.817
Selected appropriate risk box	-0.01	.890	0.23	.135	0.08	.338	0.07	.293	0.20	.038**	0.05	.565
Selected appropriate chart based on gender	0.00	.989	0.33	.072*	0.04	.535	0.09	.182	0.27	.078*	-0.01	.885
Selected appropriate chart based on smoking	0.00	.923	0.08	.272	-0.07	.171	0.13	.180	0.21	.003***	0.07	.248
Examination procedures												
Blood sample taken	-0.01	.425	0.01	.442	-0.02	.314	0.00	.856	0.02	.141	-0.01	.546
Blood pressure measured	-0.03	.422	0.07	.270	-0.02	.366	0.02	.559	0.13	.027**	0.04	.252
Blood pressure measured while arm at level	0.05	.030**	0.02	.859	-0.01	.860	-0.08	.030**	0.07	.691	0.03	.362
Blood pressure measured while sitting or laying	0.00	.939	0.02	.863	-0.13	.000***	-0.15	.029**	0.15	.139	0.00	.952
Total blood cholesterol measured	-0.03	.091*	-0.01	.771	-0.06	.073*	0.01	.791	0.01	.816	-0.04	.098*
Examined hands for edema	0.03	.580	0.11	.089*	-0.04	.297	0.05	.043**	0.20	.046**	0.04	.469
Assessed pulse	-0.01	.872	0.16	.057*	-0.03	.428	0.06	.181	0.17	.141	-0.02	.822
Took a urine sample	-0.02	.301	0.01	.822	0.00	.775	-0.01	.663	0.01	.586	0.01	.506
Weighed the client	0.06	.416	0.41	.000***	-0.03	.639	0.07	.444	0.38	.008***	-0.06	.158

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.3-7: CQI/CRC Impact on Disaggregated Indicators for Direct Observation of Child Consultations

Indicator	CQI		CQI+PBF				CRC Only		CRC+PBF			
	β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
	β	p	β	p	β	p	β	p	β	p	β	p
Clinical history and Assessment Items												
Examined ability to drink or breastfeed	0.10	.343	-0.07	.463	0.03	.691	-0.15	.316	0.13	.414	0.23	.175
Observed on difficulty in breathing	0.10	.317	-0.11	.125	-0.10	.179	-0.09	.380	0.08	.469	0.10	.020**
Observed ears	0.15	.593	-0.04	.769	-0.02	.777	-0.08	.655	-0.18	.170	-0.16	.065*
Performed auscultation	-0.07	.549	0.07	.399	-0.04	.551	-0.12	.394	-0.10	.326	-0.21	.034**
Look for edema of both feet	0.06	.017**	0.03	.066*	-0.08	.200	-0.02	.446	0.05	.190	-0.06	.133
Examined on eye infection	0.12	.274	-0.01	.928	0.10	.373	-0.17	.252	0.07	.460	0.17	.174
Check for lethargy or unconsciousness (try t	0.01	.514	0.03	.099*	-0.05	.166	-0.05	.132	0.06	.197	-0.03	.109
Observed Mouth ulcers	0.32	.002***	-0.05	.498	0.02	.816	-0.15	.403	0.06	.544	0.13	.244
Examined radial pulse	0.05	.479	0.57	.000***	-0.01	.941	0.09	.214	0.66	.001***	0.07	.372
Examined skin (pinch)	0.25	.067*	0.00	.993	-0.24	.141	-0.03	.852	0.34	.102	0.11	.174
Observed Stridor	0.19	.231	-0.05	.458	-0.06	.349	-0.02	.752	0.18	.255	0.17	.838
Measured temperature	0.19	.069*	0.14	.125	-0.04	.257	0.14	.011**	0.19	.089*	0.01	.097*
Check for visible severe wasting	0.22	.205	-0.02	.808	0.02	.642	-0.03	.637	0.12	.202	0.15	.244
Growth Monitoring												
Calculated Body Mass Index of a child	-0.06	.151	0.04	.718	-0.05	.473	-0.17	.081*	-0.17	.091*	-0.26	.000***
Measured height correctly	0.22	.079*	0.10	.394	-0.12	.372	0.01	.915	0.28	.038**	0.06	.676
Recoded height in the medical card of the p	0.24	.006***	0.01	.967	0.10	.562	-0.05	.794	-0.12	.673	-0.04	.674
Recorded Height on the Growth Monitoring	-0.06	.384	0.24	.295	0.15	.277	-0.12	.372	0.03	.900	-0.06	.508
Weighted a child	0.00	.910	0.09	.295	-0.16	.191	-0.01	.863	-0.10	.014**	-0.35	.062*
Calibrated Scale	0.22	.082*	0.12	.374	-0.11	.382	-0.16	.456	0.25	.078*	0.03	.813
Recorded weight in the patient's medical ca	0.17	.016**	-0.07	.709	0.10	.553	-0.11	.556	-0.19	.515	-0.02	.770
Recorded weight on the Growth Monitoring	-0.05	.325	0.21	.355	0.15	.277	-0.15	.293	0.00	.990	-0.06	.519

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.3.7 CQI/CRC Impact on Disaggregated Indicators for Clinical Vignettes

Table A10.3-8: CQI/CRC Impact on Disaggregated Indicators for CV-1

Indicator	CQI		CQI+PBF				CRC Only		CRC+PBF			
	β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
	β	p	β	p	β	p	β	p	β	p	β	p
History Items												
Ask mother's name	0.02	.806	-0.13	.466	-0.14	.172	-0.04	.355	-0.07	.692	-0.08	.242
Ask child's name	0.06	.468	0.18	.397	0.01	.917	0.03	.462	0.15	.391	-0.01	.840
Ask patient chief complaint	0.01	.822	0.03	.746	0.06	.126	0.03	.657	0.05	.621	0.08	.144
Asked about any difficulty in feeding	0.04	.576	0.11	.308	0.05	.402	0.04	.526	0.11	.179	0.05	.586
Ask if child has had fits and spasms	-0.10	.019**	0.23	.098*	0.07	.120	0.00	.971	0.20	.092*	0.05	.334
Measure child temperature	0.01	.866	0.12	.195	-0.06	.170	-0.04	.413	0.20	.044**	0.01	.826
Ask if child has had fast or difficult breathing	-0.14	.133	0.02	.849	-0.05	.493	0.00	.965	0.02	.896	-0.05	.500
Ask if child has had diarrhea	-0.06	.555	0.04	.656	-0.07	.185	0.00	.984	0.05	.714	-0.06	.615
Examination Items												
Ask if child has vomitnig	-0.08	.126	-0.19	.107	-0.03	.536	-0.05	.380	-0.21	.081*	-0.05	.222
Measure height and weight	0.01	.833	0.19	.239	0.02	.712	-0.11	.030**	0.15	.340	-0.01	.719
Measure temperature	0.05	.099*	0.04	.305	0.00	.956	-0.04	.234	0.04	.297	-0.01	.809
Check breathing	0.04	.367	0.10	.430	0.00	1.000	0.02	.598	0.23	.012**	0.12	.158
Observe mucous membranes	0.02	.634	-0.04	.708	-0.12	.005***	0.02	.692	-0.04	.738	-0.12	.135
Look for rash	0.16	.069*	-0.09	.447	-0.06	.033**	0.16	.169	0.08	.586	0.11	.204
Assess if child is lethargic or unconscious	-0.09	.029**	-0.18	.235	-0.04	.239	-0.04	.439	-0.12	.342	0.03	.747
Assess big fontanel	0.04	.582	0.01	.917	0.00	.941	0.05	.277	-0.05	.447	-0.06	.074*

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.

² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.3-9: CQI/CRC Impact on Disaggregated Indicators for CV-2

Indicator	CQI		CQI+PBF				CRC Only		CRC+PBF			
			Ref: Control		Ref: PBF				Ref: Control		Ref: PBF	
	β	p	β	p	β	p	β	p	β	p	β	p
History Items												
Ask mother's name	-0.05	.631	-0.15	.382	-0.12	.108	-0.05	.471	-0.14	.428	-0.11	.084*
Ask mother child's name	-0.04	.723	0.22	.244	0.07	.513	-0.05	.184	0.11	.498	-0.04	.562
Ask the mother what is a child's problem	-0.03	.684	-0.12	.273	0.04	.545	-0.05	.487	-0.06	.563	0.09	.110
Ask whether a child had measles within last 3 months	0.02	.634	0.16	.028**	0.00	.994	0.03	.162	0.18	.044**	0.02	.659
Ask whether a child cough	-0.04	.580	0.17	.095*	-0.08	.278	-0.01	.929	0.09	.526	-0.16	.139
Ask whether a child vomiting	-0.04	.333	0.03	.785	-0.05	.410	0.00	.988	0.04	.825	-0.04	.657
Ask whether a child had convulsions	-0.15	.003***	0.10	.421	-0.01	.901	-0.04	.515	0.08	.586	-0.03	.642
Examination Items												
Measure weight and height	0.05	.495	0.24	.149	0.08	.217	0.00	.977	0.17	.279	0.01	.909
Measure temperature	0.07	.032**	0.10	.043**	-0.01	.862	0.01	.725	0.02	.649	-0.09	.103
Check z-scores for height and weight on growth chart	-0.10	.070*	-0.18	.199	-0.04	.579	0.00	.949	-0.16	.183	-0.03	.795
Observe if child is convulsing	-0.07	.240	0.07	.623	-0.07	.278	-0.04	.368	0.14	.120	0.00	.965
Count the breath in one minute	0.11	.044**	0.05	.700	-0.11	.008***	0.03	.655	-0.04	.775	-0.20	.025**
Look and feel for stiff neck	0.03	.515	0.03	.625	-0.01	.686	0.02	.440	0.03	.679	-0.02	.692
Look for runny nose	0.07	.258	0.05	.700	0.01	.877	0.08	.000***	0.00	.969	-0.05	.415
Look for rash	-0.04	.388	-0.05	.558	-0.12	.017**	-0.04	.603	0.02	.884	-0.05	.572
Look for red eyes	-0.08	.165	-0.04	.703	0.02	.714	0.00	.995	-0.03	.754	0.02	.722
Observe chest indrawing	-0.07	.147	0.02	.752	-0.02	.668	-0.02	.746	0.06	.492	0.02	.414
Look and listen for stridor and wheezing	-0.13	.021**	0.08	.366	-0.03	.507	0.04	.460	-0.02	.868	-0.14	.206

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.3-10: CQI/CRC Impact on Disaggregated Indicators for CV-3

Indicator	CQI		CQI+PBF				CRC Only		CRC+PBF			
	β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
			β	p	β	p			β	p	β	p
History Items												
Ask mother's name	-0.11	.181	-0.22	.230	-0.14	.010**	-0.08	.164	-0.13	.452	-0.05	.539
Ask mother child's name	0.00	.989	0.25	.237	0.11	.285	-0.08	.223	0.06	.770	-0.09	.197
Ask the mother what is a child's problem	0.05	.277	-0.04	.753	-0.01	.789	0.06	.375	0.02	.850	0.04	.104
Examination Items												
Measure weight and height	-0.04	.415	0.10	.556	-0.09	.037**	-0.06	.290	0.15	.391	-0.05	.311
Measure temperature	-0.06	.344	0.00	.984	0.04	.499	-0.03	.609	0.01	.885	0.04	.186
Count the breath in one minute	0.03	.630	0.18	.229	-0.05	.456	0.00	.996	0.09	.532	-0.13	.020**
Look for chest indrawing	0.11	.000***	0.12	.270	-0.02	.833	0.09	.001***	0.18	.100*	0.05	.603
Look for nasal flaring	0.07	.376	0.12	.452	0.00	.987	0.11	.084*	0.09	.577	-0.03	.609
Look and feel for grunting	0.01	.929	0.14	.277	0.05	.212	-0.03	.510	0.08	.563	-0.01	.852
Look and feel for bulging fontanelle	0.09	.238	0.04	.713	-0.05	.416	0.11	.042**	0.14	.314	0.05	.638
Look for pus draining from the ear	-0.01	.851	0.01	.949	-0.08	.222	0.14	.052*	0.15	.183	0.06	.343
Look at umbilicus on redness and pus	0.13	.110	0.11	.466	0.00	.980	0.05	.478	0.08	.577	-0.02	.756
Look for pustules on the skin	0.00	.968	0.00	.962	-0.09	.084*	0.07	.286	0.14	.309	0.04	.649
See whether an infant is lethargic or unconscious	-0.02	.668	-0.05	.707	-0.01	.846	-0.02	.783	-0.05	.726	0.00	.987
Assess young infant's movement	0.05	.275	0.07	.615	0.06	.322	0.04	.164	0.02	.859	0.01	.904

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.3-11: CQI/CRC Impact on Disaggregated Indicators for CV-4

Indicator	CQI		CQI+ PBF				CRC Only		CRC+ PBF			
	β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
			β	p	β	p			β	p	β	p
History Items												
Ask mother's name	-0.02	.840	-0.16	.372	-0.09	.177	-0.03	.667	-0.17	.349	-0.10	.230
Ask mother child's name	0.07	.459	0.24	.255	0.05	.572	0.04	.557	0.13	.485	-0.06	.193
Ask about age of the child	0.06	.107	0.32	.079*	0.14	.111	-0.04	.631	0.22	.148	0.03	.596
Ask the mother what is a child's problem	0.01	.912	0.01	.925	0.04	.300	0.04	.483	0.01	.933	0.04	.388
Ask whether the child vomits	-0.04	.477	-0.12	.289	-0.06	.076*	-0.09	.291	-0.09	.547	-0.03	.713
Ask whether a child has fits or spasms (convulsion)	-0.06	.187	0.08	.605	-0.08	.361	0.00	.980	0.12	.343	-0.04	.518
Ask whether a child has cough or difficult breathing	-0.03	.423	0.27	.000***	-0.05	.469	0.06	.158	0.29	.045**	-0.03	.629
Will ask whether a child has a diarrhea	-0.09	.071*	0.04	.659	-0.11	.178	0.10	.313	-0.03	.721	-0.18	.070*
Examination Items												
Measure weight and height	0.03	.720	0.21	.197	0.08	.185	-0.07	.136	0.23	.142	0.09	.081*
Measure temperature	0.04	.539	0.05	.477	0.02	.692	-0.01	.914	-0.01	.819	-0.04	.148
Check whether a child can drink or breastfeed	-0.08	.219	-0.04	.637	0.12	.082*	-0.01	.797	0.01	.940	0.17	.030**
Look whether the child is letargic or uncontentious	-0.05	.253	-0.19	.187	-0.07	.308	0.03	.619	-0.07	.585	0.05	.483
Count the breath in one minute	0.04	.544	0.05	.662	-0.07	.207	0.03	.644	0.01	.945	-0.11	.142
Look for chest indrawing	0.03	.398	0.04	.709	0.01	.883	0.07	.063*	0.01	.911	-0.02	.493
Look and listen for stridor or wheezing	-0.01	.870	0.11	.131	-0.01	.876	0.04	.459	0.09	.242	-0.03	.530
Will look and feel for odema on both feet	-0.01	.579	-0.06	.510	0.00	1.000	0.04	.088*	-0.07	.402	-0.01	.895
Check skin and palms of a child on palmar pallor	0.02	.649	0.08	.261	-0.07	.093*	0.03	.608	0.20	.027**	0.05	.358
Assess child feeding	-0.03	.417	0.03	.762	-0.01	.877	0.06	.114	0.06	.369	0.02	.366
Blood test	0.00	.958	-0.09	.368	-0.04	.583	0.02	.721	-0.01	.906	0.04	.221
Test on worms	-0.03	.246	-0.02	.807	-0.02	.703	0.02	.413	0.03	.646	0.03	.277

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.3-12: CQI/CRC Impact on Disaggregated Indicators for CV-5

Indicator	CQI		CQI+PBF				CRC Only		CRC+PBF			
	β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
	β	p	β	p	β	p	β	p	β	p	β	p
History Items												
Ask how old is a patient	0.06	.367	0.00	.997	-0.02	.728	0.03	.714	-0.03	.812	-0.06	.455
Ask to describe in more detail problems	-0.02	.848	0.04	.704	0.04	.243	-0.06	.414	0.02	.900	0.01	.758
Ask whether it is for the first time when such symptoms are presented	-0.05	.471	-0.02	.869	0.04	.729	0.01	.920	-0.05	.595	0.01	.941
Ask whether he feels nausea	0.03	.590	0.20	.048**	-0.03	.741	0.07	.141	0.22	.086*	-0.01	.866
Ask whether he vomited	-0.03	.502	0.03	.819	-0.04	.436	-0.10	.097*	0.03	.862	-0.04	.537
Ask about oliguria or about problems with kidney	-0.07	.195	0.24	.026**	0.06	.303	-0.01	.760	0.24	.044**	0.07	.168
Ask about vision problems during the headache	-0.02	.697	0.11	.299	0.05	.278	-0.02	.638	0.10	.417	0.04	.543
Ask about whether he has chest pain	-0.12	.031**	0.11	.313	-0.01	.812	-0.01	.749	0.11	.340	-0.02	.827
Ask smoking status	0.21	.008***	0.16	.408	-0.14	.095*	0.05	.372	0.30	.110	0.00	.969
Ask about alcohol intake	0.22	.005***	0.24	.187	-0.07	.168	0.01	.842	0.30	.128	-0.01	.882
Ask family history of premature coronary heart disease or stroke	0.00	.931	0.16	.073*	0.00	.952	0.00	.984	0.20	.031**	0.04	.563
Ask whether the patient has diabetes	0.01	.797	0.25	.011**	0.03	.286	0.03	.370	0.13	.287	-0.10	.012**
Ask about lifestyle /physical activity	0.07	.226	0.14	.131	-0.05	.051*	0.06	.077*	0.05	.708	-0.13	.053*
Ask about food intake	-0.07	.522	-0.03	.767	-0.07	.436	-0.04	.685	-0.12	.231	-0.16	.000***
Ask about weight gain/loss	-0.04	.338	0.24	.032**	0.00	1.000	0.01	.883	0.23	.150	-0.01	.842
Ask whether he is already on antihypertensive therapy or other medication	0.03	.510	0.06	.223	-0.03	.097*	0.02	.604	0.03	.615	-0.06	.323
Examination Items												
Measure blood pressure	0.00	.890	0.09	.289	0.00	.970	0.03	.344	0.05	.574	-0.04	.388
Assess his weight and height	0.06	.043**	0.45	.002***	-0.01	.906	-0.02	.759	0.41	.006***	-0.05	.529
Assess pulse	-0.10	.032**	0.18	.100*	0.02	.703	-0.08	.199	0.07	.640	-0.09	.372
A urine sample for estimation of the albumin: creatinine ratio and test	0.02	.708	0.09	.336	0.00	.985	0.05	.255	0.09	.317	0.00	.985
A blood sample to measure plasma glucose, electrolytes, creatinine, esti	0.01	.800	0.06	.500	0.03	.501	0.03	.313	0.07	.425	0.04	.202
12-lead electrocardiography	0.02	.790	0.03	.763	-0.01	.800	0.03	.546	0.00	.963	-0.04	.521

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

Table A10.3-13: CQI/CRC Impact on Disaggregated Indicators for CV-6

Indicator	CQI		CQI+PBF				CRC Only		CRC+PBF			
	β	p	Ref: Control		Ref: PBF		β	p	Ref: Control		Ref: PBF	
	β	p	β	p	β	p	β	p	β	p	β	p
History Items												
Ask how old is a patient	0.07	.368	-0.03	.847	-0.01	.901	-0.05	.587	-0.04	.819	-0.02	.799
Ask to describe in more detail problems	-0.08	.364	-0.02	.819	0.02	.714	-0.14	.020**	0.00	.986	0.04	.571
Ask whether it is for the first time when such symptoms are presented	0.07	.273	0.24	.023**	0.15	.118	0.12	.201	0.09	.451	0.01	.872
Ask whether he feels nausea	-0.03	.645	0.08	.464	-0.03	.621	-0.01	.874	0.03	.764	-0.08	.128
Ask whether he vomited	0.09	.124	0.09	.544	0.01	.851	0.05	.378	0.03	.813	-0.05	.197
Ask about oliguria and about the problem of kidney	-0.04	.381	0.24	.076*	0.00	.946	0.05	.254	0.28	.016**	0.03	.310
Ask about vision problems during the headache	-0.06	.269	0.08	.466	-0.04	.436	-0.06	.318	0.13	.327	0.01	.909
Ask about whether he has chest pain	0.05	.392	0.16	.110	-0.01	.835	-0.05	.426	0.24	.036**	0.07	.213
Ask smoking status	0.10	.062*	0.05	.794	-0.12	.389	0.01	.929	0.19	.320	0.02	.873
Ask about alcohol intake	0.07	.195	0.09	.604	-0.09	.431	-0.06	.280	0.21	.282	0.02	.878
Ask family history of premature coronary heart disease or stroke	-0.02	.750	0.05	.559	-0.04	.582	-0.01	.851	0.12	.226	0.03	.668
Ask whether the patient has diabetes	-0.02	.726	0.18	.069*	-0.02	.201	0.01	.753	0.10	.321	-0.10	.066*
Ask about lifestyle /physical activity	0.03	.607	0.07	.566	-0.03	.668	0.04	.454	0.07	.572	-0.03	.525
Ask about food intake	-0.11	.164	-0.03	.796	0.04	.723	0.01	.910	-0.07	.568	0.01	.936
Ask whether he is already on antihypertensive therapy or other medicatio	0.00	.878	-0.02	.661	-0.09	.038**	0.02	.470	-0.01	.920	-0.08	.192
Examination Items												
Assess his weight	0.14	.008***	0.53	.000***	0.07	.166	0.03	.410	0.45	.002***	-0.02	.692
Assess pulse	-0.02	.737	0.29	.044**	0.03	.673	-0.03	.791	0.14	.368	-0.12	.189
Measure blood pressure	0.01	.812	0.15	.111	0.05	.420	0.03	.487	0.12	.179	0.01	.877
A urine sample for estimation of the albumin: creatinine ratio and testi	0.00	.975	0.07	.406	0.00	.958	0.05	.168	0.08	.284	0.01	.785
A blood sample to measure plasma glucose, electrolytes, creatinine, esti	-0.01	.758	0.02	.754	0.04	.308	0.02	.481	0.03	.708	0.05	.050**
12-lead electrocardiography	0.04	.467	0.11	.189	0.12	.001***	0.06	.121	-0.02	.868	0.00	.944

Level of Significance: *p<0.10; **p<0.05; ***p<0.01

¹ Data are reported using the difference-in-difference specification.² Standard errors are recalculated using the wild cluster bootstrap subsampled at the facility and round to correct for over-rejection.

10.4 Indicator Means by Treatment Arm

Table A10.4-1: Infrastructure Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand			Balance						
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC	
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p
Baseline	Rural Health Center (1)	Infrastructure Score ³	35	-0.02	0.14	34	-0.62	0.17	36	-0.55	0.19	36	-0.84	0.17	34	-0.04	0.16	35	-0.24	0.15	210	-0.39	0.07	0.13	.384	-0.23	.107
		Piped water into plot	35	0.11	0.05	34	0.12	0.06	36	0.08	0.05	36	0.06	0.04	34	0.18	0.07	35	0.03	0.03	210	0.10	0.02	0.05	.281	-0.08	.031**
		Improved water source ⁴	35	0.71	0.08	34	0.68	0.08	36	0.78	0.07	36	0.69	0.08	34	0.76	0.07	35	0.71	0.08	210	0.72	0.03	0.07	.263	-0.03	.655
		Designated Reception area	35	0.80	0.07	34	0.85	0.06	36	0.75	0.07	36	0.83	0.06	34	0.82	0.07	35	0.91	0.05	210	0.83	0.03	-0.06	.268	0.07	.196
		Heating in patient rooms	35	0.91	0.05	34	0.53	0.09	36	0.64	0.08	36	0.61	0.08	34	0.79	0.07	35	0.83	0.06	210	0.72	0.03	-0.01	.914	0.00	.987
		Patient Toilets	35	0.94	0.04	34	0.85	0.06	36	0.86	0.06	36	0.69	0.08	34	0.88	0.06	35	0.83	0.06	210	0.84	0.03	0.04	.405	-0.12	.032**
		Separate male and female toilets	35	0.63	0.08	34	0.41	0.09	36	0.39	0.08	36	0.28	0.08	34	0.62	0.08	35	0.51	0.09	210	0.47	0.03	0.04	.560	-0.12	.108
		Private consultation rooms	35	0.89	0.05	34	0.65	0.08	36	0.75	0.07	36	0.61	0.08	34	0.91	0.05	35	0.89	0.05	210	0.78	0.03	0.07	.220	-0.05	.403
		Water in consultation rooms	35	0.31	0.08	34	0.24	0.07	36	0.31	0.08	36	0.28	0.08	34	0.44	0.09	35	0.31	0.08	210	0.31	0.03	0.09	.219	-0.03	.679
		Infection prevention and control score	35	-0.04	0.11	34	-0.47	0.22	36	-0.23	0.16	36	-0.51	0.18	34	0.10	0.10	35	-0.10	0.09	210	-0.21	0.06	0.21	.094*	-0.15	.258
		Availability of a functional incinerator	35	0.94	0.04	34	0.82	0.07	36	0.92	0.05	36	0.83	0.06	34	0.97	0.03	35	0.97	0.03	210	0.91	0.02	0.05	.193	-0.01	.775
		Use of proper sterilization procedure ⁵	35	0.03	0.03	34	0.09	0.05	36	0.14	0.06	36	0.33	0.08	34	0.06	0.04	35	0.14	0.06	210	0.13	0.02	-0.05	.290	0.16	.005***
		Use of proper decontamination procedure ⁶	35	0.17	0.06	34	0.26	0.08	36	0.17	0.06	36	0.14	0.06	34	0.26	0.08	35	0.14	0.06	210	0.19	0.03	0.04	.546	-0.07	.169
		Use of proper biowaste disposal method ⁷	35	0.89	0.05	34	0.56	0.09	36	0.69	0.08	36	0.50	0.08	34	0.91	0.05	35	0.77	0.07	210	0.72	0.03	0.12	.053*	-0.13	.059*
		Consultation rooms with proper sharps disposa	35	0.23	0.07	34	0.38	0.08	36	0.25	0.07	36	0.25	0.07	34	0.29	0.08	35	0.17	0.06	210	0.26	0.03	0.01	.826	-0.08	.219
Follow-Up	Rural Health Center (1)	Infrastructure Score ³	35	0.21	0.15	34	0.68	0.11	36	0.64	0.13	36	0.45	0.13	34	0.23	0.12	35	0.11	0.17	210	0.39	0.06				
		Piped water into plot	35	0.34	0.08	34	0.47	0.09	36	0.47	0.08	36	0.36	0.08	34	0.29	0.08	35	0.20	0.07	210	0.36	0.03				
		Improved water source ⁴	35	0.80	0.07	34	0.91	0.05	36	0.89	0.05	36	0.86	0.06	34	0.62	0.08	35	0.77	0.07	210	0.81	0.03				
		Designated Reception area	35	0.89	0.05	34	1.00	0.00	36	0.92	0.05	36	1.00	0.00	34	0.88	0.06	35	0.83	0.06	210	0.92	0.02				
		Heating in patient rooms	35	0.91	0.05	34	1.00	0.00	36	0.97	0.03	36	1.00	0.00	34	0.88	0.06	35	0.94	0.04	210	0.95	0.01				
		Patient Toilets	35	0.94	0.04	34	0.97	0.03	36	0.92	0.05	36	0.86	0.06	34	0.94	0.04	35	0.89	0.05	210	0.92	0.02				
		Separate male and female toilets	35	0.63	0.08	34	0.65	0.08	36	0.78	0.07	36	0.61	0.08	34	0.71	0.08	35	0.54	0.09	210	0.65	0.03				
		Private consultation rooms	35	0.29	0.08	34	0.74	0.08	36	0.78	0.07	36	0.75	0.07	34	0.47	0.09	35	0.40	0.08	210	0.57	0.03				
		Water in consultation rooms	35	0.63	0.08	34	0.76	0.07	36	0.75	0.07	36	0.72	0.08	34	0.68	0.08	35	0.80	0.07	210	0.72	0.03				
		Infection prevention and control score	35	-0.43	0.22	34	0.62	0.12	36	0.58	0.10	36	0.65	0.13	34	-0.03	0.19	35	-0.17	0.19	210	0.21	0.07				
		Availability of a functional incinerator	35	0.83	0.06	34	0.97	0.03	36	0.97	0.03	36	0.97	0.03	34	0.88	0.06	35	0.86	0.06	210	0.91	0.02				
		Use of proper sterilization procedure ⁵	35	0.14	0.06	34	0.44	0.09	36	0.36	0.08	36	0.42	0.08	34	0.21	0.07	35	0.17	0.06	210	0.29	0.03				
		Use of proper decontamination procedure ⁶	35	0.26	0.07	34	0.41	0.09	36	0.36	0.08	36	0.47	0.08	34	0.26	0.08	35	0.23	0.07	210	0.33	0.03				
		Use of proper biowaste disposal method ⁷	35	0.46	0.09	34	0.79	0.07	36	0.86	0.06	36	0.89	0.05	34	0.68	0.08	35	0.60	0.08	210	0.71	0.03				
		Consultation rooms with proper sharps disposa	35	0.54	0.09	34	0.94	0.04	36	0.83	0.06	36	0.86	0.06	34	0.59	0.09	35	0.60	0.08	210	0.73	0.03				

Table A10.4-2: Equipment Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand			Balance						
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC	
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p
Baseline	Rural Health Center (1)	Equipment Availability Score ³	35	-0.06	0.17	34	-0.67	0.18	36	-0.39	0.14	36	-0.65	0.15	34	-0.22	0.18	35	-0.14	0.15	210	-0.36	0.07	0.07	.601	-0.07	.622
		Availability of laboratory equipment																									
		Centrifuge	35	0.20	0.07	34	0.15	0.06	36	0.17	0.06	36	0.03	0.03	34	0.15	0.06	35	0.06	0.04	210	0.12	0.02	0.05	.328	-0.12	.002***
		Glucometer	35	0.14	0.06	34	0.03	0.03	36	0.03	0.03	36	0.00	0.00	34	0.18	0.07	35	0.06	0.04	210	0.07	0.02	0.04	.298	-0.07	.040**
		Hemoglobinometer	35	0.29	0.08	34	0.21	0.07	36	0.17	0.06	36	0.11	0.05	34	0.26	0.08	35	0.14	0.06	210	0.20	0.03	0.03	.631	-0.10	.054*
		Microscope	35	0.29	0.08	34	0.18	0.07	36	0.17	0.06	36	0.11	0.05	34	0.24	0.07	35	0.17	0.06	210	0.19	0.03	0.01	.807	-0.07	.169
		Refrigerator for reagents	35	0.06	0.04	34	0.03	0.03	36	0.03	0.03	36	0.03	0.03	34	0.03	0.03	35	0.00	0.00	210	0.03	0.01	0.00	#####	-0.02	.303
		Availability of vaccine cold storage																									
		Cold Box	35	1.00	0.00	34	0.91	0.05	36	0.94	0.04	36	0.92	0.05	34	0.94	0.04	35	0.97	0.03	210	0.95	0.02	-0.01	.831	-0.01	.857
		Ice Lined Refrigerator	35	0.89	0.05	34	0.82	0.07	36	0.97	0.03	36	0.92	0.05	34	0.82	0.07	35	0.89	0.05	210	0.89	0.02	0.02	.638	0.02	.600
		Refrigerator	35	0.51	0.09	34	0.32	0.08	36	0.39	0.08	36	0.28	0.08	34	0.56	0.09	35	0.46	0.09	210	0.42	0.03	0.08	.282	-0.08	.265
		Vaccine Carrier	35	0.77	0.07	34	0.91	0.05	36	0.83	0.06	36	0.86	0.06	34	0.79	0.07	35	0.94	0.04	210	0.85	0.02	-0.06	.297	0.07	.124
		Availability of drugs																									
		Amoxicillin	35	0.31	0.08	34	0.32	0.08	36	0.25	0.07	36	0.28	0.08	34	0.26	0.08	35	0.14	0.06	210	0.26	0.03	-0.01	.912	-0.08	.219
		Paracetmol	35	0.37	0.08	34	0.32	0.08	36	0.28	0.08	36	0.31	0.08	34	0.47	0.09	35	0.31	0.08	210	0.34	0.03	0.04	.543	-0.05	.469
		Iron tablets	35	0.11	0.05	34	0.06	0.04	36	0.11	0.05	36	0.03	0.03	34	0.06	0.04	35	0.03	0.03	210	0.07	0.02	0.03	.464	-0.06	.062*
		Oral Rehydration Serum	35	0.49	0.09	34	0.35	0.08	36	0.42	0.08	36	0.36	0.08	34	0.44	0.09	35	0.49	0.09	210	0.42	0.03	0.01	.922	0.00	.979
		HIV test kits	35	0.29	0.08	34	0.15	0.06	36	0.19	0.07	36	0.00	0.00	34	0.24	0.07	35	0.23	0.07	210	0.18	0.03	0.05	.393	-0.10	.046**
		Pregnancy test kids	35	0.23	0.07	34	0.09	0.05	36	0.11	0.05	36	0.03	0.03	34	0.15	0.06	35	0.09	0.05	210	0.11	0.02	0.02	.656	-0.09	.032**
		Rapid plasma reagin	35	0.00	0.00	34	0.03	0.03	36	0.00	0.00	36	0.00	0.00	34	0.00	0.00	35	0.00	0.00	210	0.00	0.00	-0.01	.319	-0.01	.319
Follow-Up	Rural Health Center (1)	Equipment Availability Score ³	35	-0.03	0.11	34	0.81	0.15	36	0.75	0.14	36	0.53	0.14	34	0.01	0.15	35	0.05	0.14	210	0.36	0.06				
		Availability of laboratory equipment																									
		Centrifuge	35	0.20	0.07	34	0.26	0.08	36	0.17	0.06	36	0.14	0.06	34	0.15	0.06	35	0.20	0.07	210	0.19	0.03				
		Glucometer	35	0.03	0.03	34	0.21	0.07	36	0.11	0.05	36	0.08	0.05	34	0.03	0.03	35	0.06	0.04	210	0.09	0.02				
		Hemoglobinometer	35	0.34	0.08	34	0.26	0.08	36	0.17	0.06	36	0.17	0.06	34	0.24	0.07	35	0.23	0.07	210	0.23	0.03				
		Microscope	35	0.31	0.08	34	0.26	0.08	36	0.17	0.06	36	0.17	0.06	34	0.21	0.07	35	0.23	0.07	210	0.22	0.03				
		Refrigerator for reagents	35	0.03	0.03	34	0.24	0.07	36	0.11	0.05	36	0.14	0.06	34	0.03	0.03	35	0.00	0.00	210	0.09	0.02				
		Availability of vaccine cold storage																									
		Cold Box	35	1.00	0.00	33	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	1.00	0.00	35	1.00	0.00	209	1.00	0.00				
		Ice Lined Refrigerator	35	0.89	0.05	33	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	0.85	0.06	35	0.86	0.06	209	0.93	0.02				
		Refrigerator	35	0.91	0.05	33	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	0.88	0.06	35	0.89	0.05	209	0.95	0.02				
		Vaccine Carrier	35	1.00	0.00	33	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	1.00	0.00	35	0.97	0.03	209	1.00	0.00				
		Availability of drugs																									
		Amoxicillin	35	0.26	0.07	34	0.97	0.03	36	0.92	0.05	36	0.89	0.05	34	0.35	0.08	35	0.46	0.09	210	0.64	0.03				
		Paracetamol	35	0.83	0.06	34	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	0.88	0.06	35	0.91	0.05	210	0.94	0.02				
		Iron tablets	35	0.69	0.08	34	0.91	0.05	36	0.89	0.05	36	0.97	0.03	34	0.76	0.07	35	0.69	0.08	210	0.82	0.03				
		Oral Rehydration Serum	35	0.91	0.05	34	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	0.91	0.05	35	0.94	0.04	210	0.96	0.01				
		HIV test kits	35	0.00	0.00	34	0.47	0.09	36	0.47	0.08	36	0.47	0.08	34	0.06	0.04	35	0.06	0.04	210	0.26	0.03				
		Pregnancy test kids	35	0.11	0.05	34	0.47	0.09	36	0.44	0.08	36	0.53	0.08	34	0.24	0.07	35	0.14	0.06	210	0.32	0.03				
		Rapid plasma reagin	35	0.00	0.00	34	0.03	0.03	36	0.03	0.03	36	0.03	0.03	34	0.03	0.03	35	0.00	0.00	210	0.02	0.01				

Table A10.4-3: Health Facility Service Availability Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand			Balance						
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC	
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p
Baseline	Rural Health Center (1)	Availability of laboratory services	35	0.29	0.08	34	0.21	0.07	36	0.19	0.07	36	0.11	0.05	34	0.26	0.08	35	0.17	0.06	210	0.20	0.03	0.04	.556	-0.10	.081*
		Facilities providing postnatal services	35	1.00	0.00	34	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	1.00	0.00	35	0.97	0.03	210	1.00	0.00	0.01	.319	-0.01	.317
		Prop. of growth monitoring services provided	35	0.87	0.03	34	0.72	0.04	36	0.81	0.03	36	0.78	0.03	34	0.91	0.02	35	0.85	0.03	210	0.82	0.01	0.05	.070*	-0.01	.635
		Under-5 nutrition services provided	35	0.94	0.04	34	0.97	0.03	36	0.94	0.04	36	0.97	0.03	34	0.97	0.03	35	1.00	0.00	210	0.97	0.01	-0.01	.612	0.03	.194
		Facilities providing antenatal services	35	1.00	0.00	34	0.94	0.04	36	1.00	0.00	36	0.94	0.04	34	0.97	0.03	35	0.97	0.03	210	0.97	0.01	0.02	.314	-0.02	.445
		Facilities providing iron folate	35	0.69	0.08	34	0.38	0.08	36	0.69	0.08	36	0.47	0.08	34	0.53	0.09	35	0.71	0.08	210	0.58	0.03	0.05	.488	0.02	.825
		Hypertension service provision	35	0.89	0.05	34	1.00	0.00	36	0.97	0.03	36	0.97	0.03	34	0.88	0.06	35	0.94	0.04	210	0.94	0.02	-0.02	.553	0.02	.481
		Prop. of diabetes services provided	35	0.67	0.04	34	0.59	0.03	36	0.61	0.03	36	0.59	0.03	34	0.67	0.04	35	0.64	0.04	210	0.63	0.01	0.02	.591	-0.02	.508
Follow-Up	Rural Health Center (1)	Availability of laboratory services	35	0.34	0.08	34	0.26	0.08	36	0.17	0.06	36	0.17	0.06	34	0.24	0.07	35	0.23	0.07	210	0.23	0.03				
		Facilities providing postnatal services	35	1.00	0.00	34	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	1.00	0.00	35	1.00	0.00	210	1.00	0.00				
		Prop. of growth monitoring services provided	30	0.97	0.01	33	1.00	0.00	33	0.99	0.01	30	0.99	0.01	29	0.97	0.03	31	0.98	0.01	186	0.98	0.01				
		Under-5 nutrition services provided	35	0.97	0.03	34	1.00	0.00	36	0.97	0.03	36	0.94	0.04	34	0.88	0.06	35	0.83	0.06	210	0.93	0.02				
		Facilities providing antenatal services	35	1.00	0.00	34	0.97	0.03	36	1.00	0.00	36	1.00	0.00	34	1.00	0.00	35	1.00	0.00	210	1.00	0.00				
		Facilities providing iron folate	35	0.94	0.04	33	1.00	0.00	36	1.00	0.00	36	1.00	0.00	34	0.97	0.03	35	1.00	0.00	209	0.99	0.01				
		Hypertension service provision	35	0.89	0.05	34	1.00	0.00	36	0.97	0.03	36	0.94	0.04	34	0.82	0.07	35	0.91	0.05	210	0.92	0.02				
		Prop. of diabetes services provided	35	0.60	0.04	34	0.88	0.02	36	0.84	0.03	36	0.79	0.03	34	0.57	0.04	35	0.56	0.03	210	0.71	0.02				

Table A10.4-4: Administration Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand			Balance						
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC	
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p
Baseline	Rural Health Center (1)	External assessments of staff in last year	35	4.51	0.78	34	4.41	0.72	36	3.31	0.62	36	3.14	0.60	34	4.00	0.61	35	4.37	0.94	210	3.95	0.29	-0.46	.431	-0.30	.642
		External assessments of facilities in last year	35	4.09	0.39	34	6.71	1.03	36	5.50	0.60	36	5.61	0.72	34	4.82	0.59	35	4.23	0.46	210	5.16	0.27	0.02	.969	-0.34	.539
		Internal assessments in last year	35	12.17	2.67	34	6.82	0.86	36	6.83	0.79	36	6.50	0.89	34	11.56	2.54	35	13.06	2.88	210	9.47	0.82	-0.51	.764	0.40	.825
		Facilities w/mechanism to obtain patient opinion	35	0.80	0.07	34	0.68	0.08	36	0.72	0.08	36	0.58	0.08	34	0.76	0.07	35	0.91	0.05	210	0.74	0.03	0.00	1.000	0.01	.932
		Staff meetings in the last 3 months	35	11.83	1.96	34	10.18	0.58	36	9.67	0.65	36	9.69	0.60	34	13.03	2.08	35	9.54	1.30	210	10.64	0.55	0.99	.424	-1.54	.134
		Positions currently filled	35	7.94	0.86	34	7.88	1.04	36	9.33	1.38	36	7.92	0.82	34	8.38	0.95	35	8.14	1.00	210	8.27	0.42	0.90	.348	-0.37	.661
		Positions vacated in past year (staff attrition)	35	0.46	0.13	34	0.65	0.21	36	0.42	0.15	36	0.81	0.28	34	0.50	0.12	35	0.26	0.07	210	0.51	0.07	-0.09	.533	0.03	.853
		Protocol and guideline availability score	35	-0.40	0.17	34	-0.62	0.16	36	-0.48	0.15	36	-0.65	0.13	34	-0.56	0.17	35	-0.40	0.17	210	-0.52	0.06	0.00	.996	-0.01	.931
Follow-Up	Rural Health Center (1)	External assessments of staff in last year	35	3.14	0.42	34	7.50	1.49	36	7.31	1.37	36	6.14	0.74	34	3.85	0.59	35	2.83	0.38	210	5.14	0.40				
		External assessments of facilities in last year	35	2.74	0.21	34	4.47	0.48	36	4.28	0.42	36	4.36	0.48	34	2.82	0.23	35	2.63	0.28	210	3.56	0.16				
		Internal assessments in last year	35	8.31	1.43	34	11.18	1.42	36	16.53	2.77	36	11.86	1.71	34	11.09	1.96	35	11.26	2.40	210	11.73	0.83				
		Facilities w/mechanism to obtain patient opinion	35	0.71	0.08	34	0.85	0.06	36	0.83	0.06	36	0.83	0.06	34	0.88	0.06	35	0.69	0.08	210	0.80	0.03				
		Staff meetings in the last 3 months	35	10.77	2.03	34	12.21	1.52	36	14.39	2.19	36	13.53	2.02	34	8.44	0.94	35	13.11	2.51	210	12.11	0.80				
		Positions currently filled	35	8.69	1.04	34	7.79	0.86	36	8.19	0.89	36	7.36	0.74	34	7.76	0.92	35	7.91	0.96	210	7.95	0.37				
		Positions vacated in past year (staff attrition)	35	0.43	0.18	34	0.68	0.41	36	0.56	0.15	36	0.44	0.13	34	0.59	0.23	35	0.80	0.25	210	0.58	0.10				
		Protocol and guideline availability score	35	0.10	0.10	34	1.05	0.06	36	0.97	0.08	36	0.94	0.08	34	-0.07	0.15	35	0.08	0.12	210	0.52	0.05				

Table A10.4-5: Health Worker Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand			Balance						
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC	
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p
Baseline	Rural Health Center (1)	Average monthly salary from all sources besides PBF	131	677.23	20.94	119	658.91	20.49	133	665.57	20.29	129	611.43	20.57	123	706.72	22.82	125	685.81	18.83	760	667.33	8.49	27.15	.212	-28.99	.169
		Average monthly PBF incentive (most recent payment) ³	132	0.00	0.00	120	0.00	0.00	134	0.00	0.00	131	0.00	0.00	123	0.00	0.00	125	0.00	0.00	765	0.00	0.00	0.00	1.000	0.00	1.000
		Average monthly PBF incentive (previous payment) ³	132	0.00	0.00	120	0.00	0.00	134	0.00	0.00	131	0.00	0.00	123	0.00	0.00	125	0.00	0.00	765	0.00	0.00	0.00	1.000	0.00	1.000
		Health workers paid on time	132	0.80	0.03	120	0.80	0.04	134	0.79	0.04	131	0.76	0.04	123	0.79	0.04	125	0.84	0.03	765	0.80	0.01	-0.01	.867	0.00	.982
		Health workers with a second job	132	0.09	0.03	120	0.14	0.03	134	0.08	0.02	131	0.11	0.03	123	0.06	0.02	125	0.08	0.02	765	0.09	0.01	-0.04	.098*	0.01	.831
		WHO Well-Being Score ⁴	132	-0.28	0.10	120	-0.48	0.10	134	-0.19	0.08	131	-0.20	0.09	123	-0.12	0.09	125	-0.16	0.09	765	-0.24	0.04	0.12	.217	0.08	.415
		Satisfaction Score ⁴	132	-0.34	0.07	120	-0.53	0.08	134	-0.57	0.08	131	-0.51	0.08	123	-0.26	0.09	125	-0.22	0.08	765	-0.41	0.03	-0.02	.829	0.06	.550
		Personal Drive Score ⁴	132	-0.35	0.11	120	-0.40	0.12	134	-0.29	0.11	131	-0.23	0.10	123	-0.30	0.11	125	-0.18	0.09	765	-0.29	0.04	0.00	.983	0.13	.274
		Number of absences in past 30 days	132	0.56	0.15	120	0.21	0.05	134	0.37	0.13	131	0.68	0.32	123	0.73	0.22	125	0.71	0.29	765	0.54	0.09	0.00	.980	0.23	.310
		Number of hours worked in past 7 days	132	26.38	1.21	120	22.48	1.49	134	22.46	1.40	131	22.58	1.67	123	28.25	1.35	125	23.58	1.24	765	24.27	0.58	1.44	.379	-1.81	.261
Average number of patients seen in past day	132	9.21	0.81	120	3.67	0.22	134	4.16	0.23	131	4.24	0.21	123	8.90	0.78	125	7.26	0.56	765	6.24	0.23	0.29	.695	-0.79	.211		
Baseline	Health House (7)	Average monthly salary from all sources besides PBF	55	620.78	27.69	42	570.43	33.69	49	606.51	28.46	38	640.82	31.40	39	623.15	33.40	54	617.02	25.09	277	612.97	12.05	1.34	.959	20.78	.391
		Average monthly PBF incentive (most recent payment) ³	56	0.00	0.00	42	0.00	0.00	49	0.00	0.00	38	0.00	0.00	40	0.00	0.00	55	0.00	0.00	280	0.00	0.00	0.00	1.000	0.00	1.000
		Average monthly PBF incentive (previous payment) ³	56	0.00	0.00	42	0.00	0.00	49	0.00	0.00	38	0.00	0.00	40	0.00	0.00	55	0.00	0.00	280	0.00	0.00	0.00	1.000	0.00	1.000
		Prop. of health workers paid on time	56	0.77	0.06	42	0.86	0.05	49	0.82	0.06	38	0.84	0.06	40	0.70	0.07	55	0.82	0.05	280	0.80	0.02	-0.05	.509	0.04	.555
		Prop. of health workers with a second job	56	0.02	0.02	42	0.14	0.05	49	0.08	0.04	38	0.03	0.03	40	0.10	0.05	55	0.02	0.02	280	0.06	0.01	0.04	.272	-0.06	.030**
		WHO Well-Being Score ⁴	56	-0.05	0.14	42	0.03	0.15	49	-0.48	0.16	38	-0.71	0.21	40	-0.17	0.18	55	-0.18	0.13	280	-0.25	0.07	-0.14	.381	-0.22	.152
		Satisfaction Score ⁴	56	-0.29	0.12	42	-0.45	0.11	49	-0.53	0.11	38	-0.56	0.12	40	-0.10	0.14	55	-0.31	0.11	280	-0.37	0.05	0.05	.751	-0.06	.652
		Average number of absences in past 30 days	56	0.32	0.11	42	0.05	0.03	49	0.14	0.07	38	0.11	0.08	40	1.40	0.67	55	0.69	0.44	280	0.45	0.13	0.38	.249	0.01	.980
		Average number of hours worked in past 7 days	56	27.43	2.05	42	18.45	2.15	49	23.10	2.28	38	21.84	2.72	40	28.48	2.25	55	27.44	2.01	280	24.72	0.93	1.17	.630	0.65	.792
		Average number of patients seen in past day	56	7.43	0.74	42	3.40	0.23	49	3.00	0.28	38	3.39	0.34	40	6.78	0.62	55	7.42	0.62	280	5.41	0.25	-1.04	.090*	0.55	.429
Follow-Up	Rural Health Center (1)	Average monthly salary from all sources besides PBF	132	765.77	24.31	133	668.38	21.65	144	706.60	19.51	142	661.86	19.69	131	767.77	25.49	135	750.44	22.22	817	719.22	9.13				
		Average monthly PBF incentive (most recent payment) ³	132	0.00	0.00	129	411.77	33.99	133	446.60	41.47	132	461.33	34.28	131	0.00	0.00	135	0.00	0.00	792	218.96	13.14				
		Average monthly PBF incentive (previous payment) ³	132	0.00	0.00	128	377.13	46.15	133	388.08	36.43	131	393.69	31.42	131	0.00	0.00	135	0.00	0.00	790	191.72	12.93				
		Health workers paid on time	132	0.89	0.03	133	0.96	0.02	144	0.93	0.02	142	0.93	0.02	131	0.93	0.02	135	0.86	0.03	817	0.92	0.01				
		Health workers with a second job	132	0.19	0.03	133	0.19	0.03	144	0.24	0.04	142	0.18	0.03	131	0.15	0.03	135	0.19	0.03	817	0.19	0.01				
		WHO Well-Being Score ⁴	132	0.21	0.08	133	0.25	0.07	144	0.19	0.08	142	0.23	0.08	131	0.27	0.07	135	0.19	0.08	817	0.22	0.03				
		Satisfaction Score ⁴	132	-0.06	0.08	133	0.77	0.06	144	0.66	0.06	142	0.72	0.07	131	0.19	0.08	135	-0.04	0.09	817	0.38	0.03				
		Personal Drive Score ⁴	132	0.24	0.06	133	0.21	0.07	144	0.21	0.06	142	0.24	0.05	131	0.39	0.05	135	0.35	0.05	817	0.27	0.02				
		Number of absences in past 30 days	132	0.66	0.15	133	0.51	0.09	144	0.58	0.09	142	0.38	0.06	131	0.68	0.11	135	0.52	0.08	817	0.55	0.04				
		Number of hours worked in past 7 days	132	38.39	1.66	133	34.03	1.58	144	36.85	1.52	142	38.61	1.54	131	36.19	1.68	135	36.96	1.65	817	36.86	0.65				
Average number of patients seen in past day	132	6.66	0.54	133	7.18	0.41	144	7.94	0.53	142	6.96	0.41	131	6.89	0.53	135	6.33	0.44	817	7.00	0.20						
Follow-Up	Health House (7)	Average monthly salary from all sources besides PBF	51	590.00	26.32	41	606.66	34.08	48	651.75	34.05	37	692.97	42.43	37	639.76	40.89	45	631.09	32.99	259	633.04	14.13				
		Average monthly PBF incentive (most recent payment) ³	51	0.00	0.00	37	582.76	131.30	43	391.33	47.33	37	381.59	66.46	37	0.00	0.00	45	0.00	0.00	250	210.03	27.30				
		Average monthly PBF incentive (previous payment) ³	51	0.00	0.00	37	576.86	126.86	43	383.65	56.43	37	286.77	43.10	37	0.00	0.00	45	0.00	0.00	250	193.80	25.96				
		Prop. of health workers paid on time	51	0.82	0.05	41	0.93	0.04	48	0.96	0.03	37	0.92	0.05	37	0.92	0.05	45	0.84	0.05	259	0.90	0.02				
		Prop. of health workers with a second job	51	0.10	0.04	41	0.12	0.05	48	0.13	0.05	37	0.22	0.07	37	0.05	0.04	45	0.07	0.04	259	0.11	0.02				
		WHO Well-Being Score ⁴	51	0.35	0.10	41	0.46	0.10	48	0.18	0.13	37	-0.03	0.14	37	0.24	0.13	45	0.36	0.14	259	0.27	0.05				
		Satisfaction Score ⁴	51	-0.16	0.15	41	0.90	0.14	48	0.83	0.11	37	0.81	0.15	37	0.14	0.15	45	0.00	0.15	259	0.40	0.06				
		Average number of absences in past 30 days	51	0.47	0.17	41	0.27	0.08	48	0.27	0.09	37	0.89	0.42	37	0.41	0.15	45	0.36	0.12	259	0.43	0.08				
		Average number of hours worked in past 7 days	51	18.37	1.87	41	15.95	1.83	48	15.98	1.77	37	18.00	1.97	37	22.00	2.22	45	22.62	2.05	259	18.75	0.81				
		Average number of patients seen in past day	51	4.55	0.56	41	5.54	0.46	48	5.33	0.48	37	6.16	0.58	37	6.49	1.00	45	5.07	0.62	259	5.45	0.25				

Table A10.4-6: Exit Interview Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand					
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total		
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE
Endline	Adult Exit (5)	Patient satisfaction score ³	248	-0.32	0.07	297	-0.01	0.04	358	-0.19	0.04	345	-0.08	0.04	178	-0.06	0.05	177	-0.20	0.07	1603	-0.14	0.02
		Average time spent in consultation (minutes)	251	12.19	0.32	300	11.91	0.27	360	11.67	0.23	345	13.62	0.25	180	12.33	0.50	179	11.08	0.38	1615	12.22	0.13
		Average waiting time (minutes)	221	7.59	0.58	295	4.77	0.32	353	4.45	0.22	344	5.42	0.26	174	8.89	0.83	163	7.42	0.72	1550	5.98	0.18
		Prop. of patients who had any non-travel cost	255	0.15	0.02	300	0.03	0.01	360	0.05	0.01	345	0.08	0.01	180	0.19	0.03	180	0.11	0.02	1620	0.09	0.01
	Child Exit (6)	Patient satisfaction score ³	246	-0.14	0.08	373	-0.03	0.05	375	-0.14	0.06	315	0.06	0.05	280	0.10	0.06	205	-0.05	0.08	1794	-0.03	0.03
		Average time spent in consultation (minutes)	255	10.79	0.33	375	12.49	0.24	375	12.06	0.25	315	13.79	0.35	285	10.89	0.34	210	9.60	0.29	1815	11.80	0.13
		Average waiting time (minutes)	251	7.60	0.61	375	6.21	0.48	375	4.77	0.22	306	5.57	0.32	282	6.14	0.55	200	6.66	0.53	1789	6.03	0.18
		Prop. of patients who had any non-travel cost	255	0.13	0.02	375	0.06	0.01	375	0.05	0.01	315	0.05	0.01	285	0.08	0.02	210	0.08	0.02	1815	0.07	0.01

Table A10.4-7: Direct Observation Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand Total		
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only		
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE
Follow-Up	Adult DO (3)	Proportion of core clinical history items asked	540	0.33	0.01	540	0.51	0.01	540	0.49	0.01	540	0.50	0.01	525	0.33	0.01	540	0.33	0.01
		CVD risk score calculated	540	0.42	0.02	540	0.47	0.02	540	0.40	0.02	540	0.36	0.02	525	0.37	0.02	540	0.33	0.02
		CVD risk score properly calculated	227	0.00	0.00	255	0.17	0.02	215	0.09	0.02	194	0.23	0.03	194	0.00	0.00	180	0.07	0.02
		Proportion of core physical exam activities completed	540	0.35	0.01	540	0.49	0.01	540	0.45	0.01	540	0.48	0.01	525	0.35	0.01	540	0.35	0.01
		Greeted the patient	540	0.99	0.00	540	0.99	0.00	540	0.98	0.01	540	0.99	0.01	525	0.98	0.01	540	0.98	0.01
		Clinician introduced themselves	540	0.40	0.02	540	0.62	0.02	540	0.56	0.02	540	0.59	0.02	525	0.35	0.02	540	0.40	0.02
		Average consultation time (minutes)	539	12.88	0.85	540	13.04	1.05	540	12.16	0.25	540	12.90	0.35	524	13.61	1.24	540	12.04	0.34
	Child DO (4)	Average consultation time (minutes)	310	13.11	1.24	369	12.24	0.56	383	11.61	0.36	308	12.03	0.55	293	12.87	1.14	248	11.01	0.72
		Asked patient's age	315	0.79	0.02	375	0.82	0.02	390	0.79	0.02	315	0.79	0.02	302	0.80	0.02	255	0.82	0.02
		Asked the patient's name	315	0.83	0.02	375	0.98	0.01	390	0.95	0.01	315	0.97	0.01	302	0.77	0.02	255	0.76	0.03
		Greeted the patient	315	0.99	0.00	375	0.99	0.01	390	0.99	0.01	315	0.99	0.01	302	0.99	0.00	255	1.00	0.00
		Clinician introduced themselves	315	0.30	0.03	375	0.57	0.03	390	0.44	0.03	315	0.37	0.03	302	0.27	0.03	255	0.21	0.03
		Clinician washed their hands before starting the exam	315	0.66	0.03	375	0.64	0.02	390	0.53	0.03	315	0.42	0.03	302	0.59	0.03	255	0.68	0.03
		Clinicians who checked vaccination history	315	0.48	0.03	375	0.51	0.03	390	0.42	0.02	315	0.45	0.03	302	0.45	0.03	255	0.41	0.03
		Measured weight and height of child	315	0.77	0.02	375	0.91	0.01	390	0.92	0.01	315	0.92	0.02	302	0.84	0.02	255	0.63	0.03
		Proportion of growth monitoring tasks completed	315	0.48	0.02	375	0.61	0.02	390	0.59	0.02	315	0.56	0.02	302	0.53	0.02	255	0.39	0.02
		Proportion of core physical exam activities completed	315	0.26	0.01	375	0.41	0.01	390	0.35	0.01	315	0.37	0.01	302	0.24	0.01	255	0.20	0.01

Table A10.4-8: Clinical Vignette Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand			Balance							
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC		
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p	
Health Workers (8)	V1	Correct diagnosis; severe dehydration	186	0.42	0.04	159	0.23	0.03	168	0.26	0.03	155	0.25	0.03	164	0.43	0.04	185	0.34	0.03	1017	0.32	0.01	0.03	.494	-0.04	.302	
		Proportion of recommended history items recalled	186	0.42	0.02	159	0.44	0.02	168	0.46	0.02	155	0.43	0.01	164	0.44	0.02	185	0.40	0.02	1017	0.43	0.01	0.03	.104	-0.02	.211	
		Proportion of recommended exam procedures recalled	186	0.41	0.01	159	0.51	0.01	168	0.54	0.02	155	0.50	0.02	164	0.42	0.02	185	0.41	0.01	1017	0.46	0.01	0.03	.156	-0.02	.301	
	V2	Correct diagnosis; pneumonia	186	0.39	0.04	159	0.40	0.04	168	0.33	0.04	155	0.34	0.04	164	0.36	0.04	185	0.38	0.04	1017	0.37	0.02	-0.03	.374	0.00	.940	
		Proportion of recommended history items recalled	186	0.36	0.02	159	0.41	0.01	168	0.42	0.02	155	0.43	0.02	164	0.39	0.02	185	0.35	0.02	1017	0.39	0.01	0.02	.271	-0.01	.623	
		Proportion of recommended exam procedures recalled	186	0.28	0.01	159	0.33	0.01	168	0.36	0.01	155	0.35	0.01	164	0.31	0.02	185	0.28	0.01	1017	0.32	0.01	0.03	.099*	-0.01	.554	
	V3	Correct diagnosis; severe infection	186	0.13	0.02	158	0.16	0.03	168	0.22	0.03	155	0.14	0.03	164	0.11	0.02	185	0.12	0.02	1016	0.15	0.01	0.03	.355	-0.02	.418	
		Proportion of recommended history items recalled	186	0.45	0.02	159	0.55	0.02	168	0.55	0.02	155	0.58	0.02	164	0.45	0.03	185	0.42	0.02	1017	0.49	0.01	0.01	.804	0.00	.896	
		Proportion of recommended exam procedures recalled	186	0.33	0.01	159	0.36	0.01	168	0.39	0.02	155	0.38	0.02	164	0.33	0.02	185	0.31	0.01	1017	0.35	0.01	0.02	.347	-0.01	.455	
	V4	Correct diagnosis; malnutrition/anemia	186	0.69	0.03	158	0.66	0.04	168	0.66	0.04	155	0.60	0.04	164	0.70	0.04	185	0.65	0.04	1016	0.66	0.01	0.03	.507	-0.05	.193	
		Proportion of recommended history items recalled	186	0.45	0.02	159	0.43	0.01	168	0.49	0.01	155	0.48	0.02	164	0.45	0.02	185	0.42	0.02	1017	0.45	0.01	0.03	.171	-0.01	.543	
		Proportion of recommended exam procedures recalled	186	0.26	0.01	159	0.31	0.01	168	0.34	0.01	155	0.30	0.01	164	0.27	0.01	185	0.24	0.01	1017	0.28	0.01	0.03	.039**	-0.03	.060*	
	V5	Correct range of cardiovascular risk selected (Moderate risk 10%	186	0.53	0.04	159	0.40	0.04	168	0.44	0.04	155	0.47	0.04	164	0.51	0.04	185	0.45	0.04	1017	0.47	0.02	0.01	.863	-0.01	.824	
		Proportion of recommended history items recalled	186	0.30	0.02	159	0.32	0.01	168	0.34	0.01	155	0.35	0.01	164	0.31	0.02	185	0.29	0.02	1017	0.32	0.01	0.01	.531	0.00	.980	
		Proportion of recommended exam procedures recalled	186	0.38	0.02	159	0.35	0.02	168	0.38	0.02	155	0.38	0.02	164	0.36	0.02	185	0.37	0.02	1017	0.37	0.01	0.00	.920	0.01	.807	
	V6	Correct range of cardiovascular risk selected (High risk 20%-30%	186	0.31	0.03	159	0.23	0.03	168	0.21	0.03	155	0.25	0.03	164	0.32	0.04	185	0.27	0.03	1017	0.27	0.01	0.00	.944	-0.01	.726	
		Proportion of recommended history items recalled	186	0.34	0.02	159	0.38	0.02	168	0.39	0.02	155	0.39	0.01	164	0.35	0.02	185	0.33	0.02	1017	0.36	0.01	0.01	.589	0.00	.887	
		Proportion of recommended exam procedures recalled	186	0.37	0.02	159	0.36	0.02	168	0.36	0.02	155	0.39	0.02	164	0.37	0.02	185	0.36	0.02	1017	0.37	0.01	0.00	.949	0.01	.787	
	Health Workers (8)	V1	Correct diagnosis; severe dehydration	183	0.44	0.04	171	0.61	0.04	192	0.51	0.04	179	0.51	0.04	168	0.51	0.04	185	0.34	0.03	1078	0.49	0.02				
			Proportion of recommended history items recalled	183	0.44	0.01	171	0.55	0.02	192	0.56	0.02	179	0.54	0.02	168	0.44	0.02	185	0.43	0.02	1078	0.49	0.01				
			Proportion of recommended exam procedures recalled	183	0.33	0.01	171	0.44	0.02	192	0.44	0.02	179	0.43	0.02	168	0.35	0.01	185	0.34	0.01	1078	0.39	0.01				
		V2	Correct diagnosis; pneumonia	183	0.41	0.04	171	0.49	0.04	192	0.47	0.04	179	0.50	0.04	168	0.42	0.04	185	0.50	0.04	1078	0.46	0.02				
			Proportion of recommended history items recalled	183	0.39	0.02	171	0.52	0.02	192	0.51	0.02	179	0.50	0.02	168	0.37	0.02	185	0.36	0.02	1078	0.44	0.01				
			Proportion of recommended exam procedures recalled	183	0.23	0.01	171	0.35	0.02	192	0.35	0.02	179	0.31	0.02	168	0.25	0.01	185	0.25	0.01	1078	0.29	0.01				
V3		Correct diagnosis; severe infection	183	0.30	0.03	171	0.43	0.04	192	0.38	0.04	179	0.40	0.04	168	0.26	0.03	185	0.25	0.03	1078	0.34	0.01					
		Proportion of recommended history items recalled	183	0.55	0.03	171	0.66	0.02	192	0.65	0.02	179	0.66	0.02	168	0.54	0.02	185	0.50	0.03	1078	0.59	0.01					
		Proportion of recommended exam procedures recalled	183	0.30	0.01	171	0.43	0.02	192	0.43	0.02	179	0.43	0.02	168	0.33	0.01	185	0.32	0.02	1078	0.37	0.01					
V4		Correct diagnosis; malnutrition/anemia	183	0.71	0.03	171	0.67	0.04	192	0.68	0.03	179	0.63	0.04	168	0.76	0.03	185	0.66	0.03	1078	0.68	0.01					
		Proportion of recommended history items recalled	183	0.46	0.02	171	0.56	0.02	192	0.60	0.02	179	0.55	0.02	168	0.45	0.02	185	0.45	0.02	1078	0.51	0.01					
		Proportion of recommended exam procedures recalled	183	0.16	0.01	171	0.23	0.01	192	0.26	0.01	179	0.23	0.01	168	0.17	0.01	185	0.17	0.01	1078	0.20	0.01					
V5		Correct range of cardiovascular risk selected (Moderate risk 10%	183	0.47	0.04	171	0.68	0.04	192	0.64	0.03	179	0.58	0.04	168	0.53	0.04	185	0.54	0.04	1078	0.57	0.02					
		Proportion of recommended history items recalled	183	0.27	0.01	171	0.43	0.02	192	0.44	0.02	179	0.43	0.02	168	0.30	0.01	185	0.28	0.01	1078	0.36	0.01					
		Proportion of recommended exam procedures recalled	183	0.28	0.02	171	0.41	0.02	192	0.44	0.02	179	0.40	0.02	168	0.27	0.02	185	0.29	0.02	1078	0.35	0.01					
V6		Correct range of cardiovascular risk selected (High risk 20%-30%	183	0.32	0.03	171	0.57	0.04	192	0.51	0.04	179	0.50	0.04	168	0.33	0.04	185	0.36	0.04	1078	0.43	0.02					
		Proportion of recommended history items recalled	183	0.32	0.01	171	0.46	0.02	192	0.45	0.02	179	0.46	0.02	168	0.33	0.02	185	0.32	0.02	1078	0.39	0.01					
		Proportion of recommended exam procedures recalled	183	0.26	0.01	171	0.40	0.02	192	0.46	0.02	179	0.41	0.02	168	0.29	0.02	185	0.29	0.02	1078	0.35	0.01					

Table A10.4-9: Older Adult Health Indicator Means by Treatment Arms

Population	Round	Indicator	By Treatment Arm															Grand			Balance						
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC	
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p
Older Adults (12)	Baseline	BP measured by a health worker in past year	880	0.88	0.01	973	0.85	0.01	727	0.88	0.01	738	0.90	0.01	639	0.88	0.01	642	0.87	0.01	4599	0.88	0.00	0.01	.716	0.02	####
		BP measured at the primary care level	880	0.72	0.02	973	0.74	0.01	727	0.72	0.02	738	0.78	0.02	639	0.76	0.02	642	0.73	0.02	4599	0.74	0.01	0.00	.892	0.02	####
		Directly Observed Blood Pressure Ratings																									
		Normal Rating	990	0.40	0.02	1082	0.49	0.02	789	0.43	0.02	790	0.42	0.02	668	0.37	0.02	669	0.36	0.02	4988	0.42	0.01	-0.02	.294	-0.03	####
		Normal	990	0.17	0.01	1082	0.17	0.01	789	0.19	0.01	790	0.19	0.01	668	0.18	0.01	669	0.16	0.01	4988	0.18	0.01	0.01	.380	0.00	####
		High Normal	990	0.22	0.01	1082	0.19	0.01	789	0.20	0.01	790	0.23	0.02	668	0.23	0.02	669	0.20	0.02	4988	0.21	0.01	0.00	.769	0.01	####
		Elevated Rating	990	0.10	0.01	1082	0.09	0.01	789	0.10	0.01	790	0.07	0.01	668	0.09	0.01	669	0.15	0.01	4988	0.10	0.00	0.00	.967	0.01	####
		Mildly High	990	0.11	0.01	1082	0.07	0.01	789	0.07	0.01	790	0.07	0.01	668	0.13	0.01	669	0.12	0.01	4988	0.09	0.00	0.01	.519	0.01	####
		Moderately High	990	0.57	0.02	1082	0.65	0.01	789	0.62	0.02	790	0.62	0.02	668	0.55	0.02	669	0.52	0.02	4988	0.59	0.01	-0.01	.607	-0.03	####
		Severe	990	0.43	0.02	1082	0.35	0.01	789	0.38	0.02	790	0.38	0.02	668	0.45	0.02	669	0.48	0.02	4988	0.41	0.01	0.01	.607	0.03	####
		Prop. With self-reported high BP	1524	0.22	0.01	1480	0.25	0.01	1091	0.29	0.01	1069	0.27	0.01	969	0.28	0.01	987	0.27	0.01	7120	0.26	0.01	0.04	.011**	0.01	####
		Prescribed medication for blood pressure	307	0.92	0.02	324	0.89	0.02	291	0.89	0.02	265	0.90	0.02	251	0.90	0.02	232	0.90	0.02	1670	0.90	0.01	-0.01	.650	0.00	####
		Taken prescribed medication in past 24 hours	283	0.78	0.02	288	0.70	0.03	260	0.69	0.03	238	0.66	0.03	225	0.75	0.03	209	0.73	0.03	1503	0.72	0.01	0.00	.936	-0.03	####
		Recently changed behaviors to lower blood pressure	342	0.35	0.03	363	0.44	0.03	312	0.38	0.03	286	0.44	0.03	275	0.32	0.03	263	0.40	0.03	1841	0.39	0.01	-0.06	.070*	0.05	####
	Endline	BP measured by a health worker in past year	1956	0.69	0.01	1749	0.77	0.01	704	0.74	0.02	742	0.77	0.02	813	0.67	0.02	862	0.68	0.02	6826	0.72	0.01				
		BP measured at the primary care level	2020	0.52	0.01	1803	0.62	0.01	726	0.63	0.02	766	0.63	0.02	834	0.52	0.02	881	0.53	0.02	7030	0.57	0.01				
		Directly Observed Blood Pressure Ratings																									
		Normal Rating	1637	0.54	0.01	1465	0.56	0.01	487	0.56	0.02	515	0.60	0.02	585	0.51	0.02	645	0.55	0.02	5334	0.55	0.01				
		Normal	1637	0.34	0.01	1465	0.37	0.01	487	0.38	0.02	515	0.40	0.02	585	0.29	0.02	645	0.34	0.02	5334	0.35	0.01				
		High Normal	1637	0.21	0.01	1465	0.20	0.01	487	0.18	0.02	515	0.20	0.02	585	0.22	0.02	645	0.20	0.02	5334	0.20	0.01				
		Elevated Rating	1637	0.46	0.01	1465	0.44	0.01	487	0.44	0.02	515	0.40	0.02	585	0.49	0.02	645	0.45	0.02	5334	0.45	0.01				
		Mildly High	1637	0.26	0.01	1465	0.28	0.01	487	0.26	0.02	515	0.26	0.02	585	0.27	0.02	645	0.25	0.02	5334	0.26	0.01				
		Moderately High	1637	0.13	0.01	1465	0.10	0.01	487	0.11	0.01	515	0.08	0.01	585	0.14	0.01	645	0.12	0.01	5334	0.12	0.00				
		Severe	1637	0.07	0.01	1465	0.06	0.01	487	0.07	0.01	515	0.06	0.01	585	0.08	0.01	645	0.08	0.01	5334	0.07	0.00				
		Prop. With self-reported high BP	2401	0.26	0.01	2136	0.33	0.01	877	0.28	0.02	884	0.31	0.02	986	0.24	0.01	1036	0.22	0.01	8320	0.28	0.00				
		Prescribed medication for blood pressure	534	0.91	0.01	655	0.93	0.01	218	0.95	0.01	260	0.90	0.02	201	0.94	0.02	200	0.90	0.02	2068	0.92	0.01				
		Taken prescribed medication in past 24 hours	486	0.73	0.02	611	0.72	0.02	208	0.63	0.03	234	0.73	0.03	188	0.72	0.03	180	0.68	0.03	1907	0.71	0.01				
		Recently changed behaviors to lower blood pressure	630	0.49	0.02	706	0.56	0.02	247	0.54	0.03	277	0.46	0.03	232	0.53	0.03	230	0.51	0.03	2322	0.52	0.01				

Table A10.4-10: Maternal Health Indicator Means by Treatment Arm

Population	Round	Indicator	By Treatment Arm															Grand			Balance							
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC		
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p	
Women with recent pregnancy (14)	Baseline	Proportion currently using any contraceptive method	790	0.62	0.02	664	0.68	0.02	581	0.68	0.02	597	0.70	0.02	565	0.61	0.02	617	0.62	0.02	3814	0.65	0.01	-0.01	.724	0.01	.549	
		Proportion currently using any contraceptive method (not incl. modern method)	524	0.43	0.02	435	0.51	0.02	374	0.51	0.03	408	0.56	0.02	363	0.39	0.03	410	0.43	0.02	2514	0.47	0.01	-0.03	.343	0.04	.215	
		Proportion currently using any modern method	790	0.62	0.02	664	0.67	0.02	581	0.67	0.02	597	0.69	0.02	565	0.61	0.02	617	0.62	0.02	3814	0.65	0.01	-0.01	.752	0.01	.677	
		Proportion of women with an unmet need	778	0.28	0.02	657	0.26	0.02	575	0.24	0.02	587	0.21	0.02	556	0.29	0.02	609	0.26	0.02	3762	0.26	0.01	0.01	.654	-0.03	.139	
		Proportion of women with an unmet need (not incl. LAM)	512	0.42	0.02	428	0.40	0.02	368	0.38	0.03	398	0.31	0.02	354	0.46	0.03	402	0.40	0.02	2462	0.40	0.01	0.03	.345	-0.06	.047**	
		Proportion of women who an unmet need for spacing	434	0.26	0.02	358	0.25	0.02	361	0.22	0.02	337	0.21	0.02	350	0.32	0.02	349	0.22	0.02	2189	0.25	0.01	0.03	.238	-0.05	.046**	
		Proportion of women with an unmet need for limiting	270	0.39	0.03	262	0.31	0.03	169	0.36	0.04	198	0.28	0.03	154	0.33	0.04	193	0.43	0.04	1246	0.35	0.01	-0.01	.814	0.01	.874	
		Proportion who have received ANC	524	0.84	0.02	447	0.91	0.01	450	0.96	0.01	453	0.93	0.01	474	0.90	0.01	481	0.84	0.02	2829	0.89	0.01	0.05	.020**	-0.02	.494	
		Number of ANC visits received	524	4.14	0.12	447	4.07	0.13	450	4.20	0.13	453	3.61	0.12	474	4.48	0.11	481	4.32	0.14	2829	4.14	0.05	0.30	.218	-0.25	.325	
		Proportion who started ANC in first trimester	524	0.55	0.02	447	0.68	0.02	450	0.74	0.02	453	0.65	0.02	474	0.65	0.02	481	0.54	0.02	2829	0.63	0.01	0.09	.014**	-0.06	.134	
		Proportion who attended at least 4 ANC visits	524	0.59	0.02	447	0.55	0.02	450	0.58	0.02	453	0.43	0.02	474	0.64	0.02	481	0.62	0.02	2829	0.57	0.01	0.06	.199	-0.06	.159	
		Proportion who received ANC care from primary care	442	0.62	0.02	413	0.74	0.02	432	0.75	0.02	421	0.79	0.02	431	0.71	0.02	411	0.64	0.02	2550	0.71	0.01	0.03	.406	0.01	.737	
		Postnatal care	Proportion who have received postnatal care within 3 days	524	0.66	0.02	447	0.52	0.02	450	0.56	0.02	453	0.64	0.02	474	0.66	0.02	481	0.69	0.02	2829	0.62	0.01	-0.02	.492	0.06	.032**
			Received postnatal care at the primary care level	442	0.62	0.02	413	0.74	0.02	432	0.75	0.02	421	0.79	0.02	431	0.71	0.02	411	0.64	0.02	2550	0.71	0.01	0.03	.406	0.01	.737
	Follow-Up	Proportion currently using any contraceptive method	1001	0.64	0.02	827	0.60	0.02	868	0.61	0.02	873	0.64	0.02	835	0.67	0.02	888	0.67	0.02	5292	0.64	0.01					
		Proportion currently using any contraceptive method (not incl. modern method)	680	0.47	0.02	568	0.42	0.02	589	0.42	0.02	578	0.45	0.02	558	0.51	0.02	596	0.51	0.02	3569	0.47	0.01					
		Proportion currently using any modern method	1001	0.63	0.02	827	0.60	0.02	868	0.60	0.02	873	0.63	0.02	835	0.66	0.02	888	0.66	0.02	5292	0.63	0.01					
		Proportion of women with an unmet need	970	0.26	0.01	807	0.31	0.02	853	0.31	0.02	846	0.28	0.02	824	0.25	0.02	864	0.24	0.01	5164	0.27	0.01					
		Proportion of women with an unmet need (not incl. LAM)	649	0.39	0.02	548	0.46	0.02	574	0.46	0.02	551	0.43	0.02	547	0.38	0.02	572	0.36	0.02	3441	0.41	0.01					
		Proportion of women who an unmet need for spacing	543	0.26	0.02	440	0.30	0.02	455	0.33	0.02	468	0.31	0.02	461	0.25	0.02	480	0.23	0.02	2847	0.28	0.01					
		Proportion of women with an unmet need for limiting	339	0.32	0.03	311	0.38	0.03	328	0.34	0.03	319	0.29	0.03	303	0.30	0.03	310	0.31	0.03	1910	0.33	0.01					
		Proportion who have received ANC	751	0.96	0.01	696	0.96	0.01	715	0.98	0.01	715	0.98	0.01	663	0.96	0.01	709	0.94	0.01	4249	0.96	0.00					
		Number of ANC visits received	751	4.92	0.12	696	4.69	0.10	715	4.77	0.09	715	4.75	0.10	663	5.10	0.10	709	4.80	0.10	4249	4.84	0.04					
		Proportion who started ANC in first trimester	751	0.76	0.02	696	0.75	0.02	715	0.76	0.02	715	0.75	0.02	663	0.76	0.02	709	0.72	0.02	4249	0.75	0.01					
		Proportion who attended at least 4 ANC visits	751	0.71	0.02	696	0.63	0.02	715	0.65	0.02	715	0.67	0.02	663	0.75	0.02	709	0.71	0.02	4249	0.68	0.01					
		Proportion who received ANC care from primary care	725	0.63	0.02	670	0.67	0.02	699	0.67	0.02	699	0.67	0.02	636	0.70	0.02	665	0.71	0.02	4094	0.67	0.01					
		Postnatal care	Proportion who have received postnatal care within 3 days	751	0.88	0.01	695	0.93	0.01	715	0.94	0.01	714	0.93	0.01	662	0.90	0.01	708	0.89	0.01	4245	0.91	0.00				
			Received postnatal care at the primary care level	725	0.63	0.02	670	0.67	0.02	699	0.67	0.02	699	0.67	0.02	636	0.70	0.02	665	0.71	0.02	4094	0.67	0.01				

Table A10.4-11: Child Health Indicator Means by Treatment Arm

Population	Round	Indicator	By Treatment Arm															Grand			Balance						
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only			Total			CQI		CSC	
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	β	p	β	p
Children (15)	Baseline	Weight-for-age																									
		Mean Z-score	1083	-0.34	0.06	1051	-0.49	0.06	1089	-0.38	0.06	1089	-0.40	0.06	893	-0.41	0.07	923	-0.39	0.06	6128	-0.40	0.03	0.01	.850	0.01	.861
		Percentage below -2 SD	1083	0.18	0.01	1051	0.18	0.01	1089	0.19	0.01	1089	0.18	0.01	893	0.19	0.01	923	0.16	0.01	6128	0.18	0.00	0.01	.301	-0.01	.247
		Percentage below -3 SD	1083	0.09	0.01	1051	0.09	0.01	1089	0.09	0.01	1089	0.09	0.01	893	0.08	0.01	923	0.08	0.01	6128	0.09	0.00	0.00	.909	0.00	.730
		Weight-for-height																									
		Mean Z-score	961	0.31	0.07	929	0.16	0.07	929	0.20	0.07	944	0.19	0.07	787	0.27	0.07	829	0.19	0.07	5379	0.22	0.03	0.02	.827	-0.04	.585
		Percentage below -2 SD	968	0.12	0.01	938	0.15	0.01	937	0.15	0.01	952	0.14	0.01	795	0.12	0.01	834	0.14	0.01	5424	0.14	0.00	0.00	.989	0.00	.739
		Percentage below -3 SD	968	0.07	0.01	938	0.08	0.01	937	0.08	0.01	952	0.08	0.01	795	0.06	0.01	834	0.08	0.01	5424	0.08	0.00	0.00	.847	0.00	.700
		Height-for-age																									
		Mean Z-score	1140	-1.16	0.05	1108	-1.10	0.06	1126	-1.01	0.06	1147	-1.21	0.06	945	-1.23	0.06	968	-1.22	0.06	6434	-1.15	0.02	0.06	.433	-0.09	.252
		Percentage below -2 SD	1195	0.28	0.01	1173	0.28	0.01	1198	0.26	0.01	1208	0.31	0.01	991	0.28	0.01	1012	0.29	0.01	6777	0.28	0.01	-0.02	.123	0.03	.110
		Percentage below -3 SD	1195	0.13	0.01	1173	0.14	0.01	1198	0.12	0.01	1208	0.15	0.01	991	0.13	0.01	1012	0.14	0.01	6777	0.13	0.00	-0.01	.274	0.02	.226
		Growth monitoring received in the past 6 months	1195	0.09	0.01	1173	0.19	0.01	1198	0.20	0.01	1208	0.18	0.01	991	0.09	0.01	1012	0.09	0.01	6777	0.14	0.00	0.01	.694	0.00	.889
		Vaccinations for children aged 12-23 months ³																									
		Received all basic vaccinations	361	0.90	0.02	327	0.87	0.02	335	0.85	0.02	310	0.84	0.02	332	0.90	0.02	298	0.85	0.02	1963	0.87	0.01	0.01	.667	-0.03	.170
		DPT 1	340	0.96	0.01	268	0.97	0.01	287	0.96	0.01	247	0.97	0.01	307	0.97	0.01	259	0.97	0.01	1708	0.97	0.00	0.00	.650	0.00	.728
		DPT 2	314	0.95	0.01	254	0.97	0.01	269	0.96	0.01	237	0.96	0.01	292	0.96	0.01	247	0.97	0.01	1613	0.96	0.00	0.00	.739	0.00	.680
		DPT 3	284	0.94	0.01	237	0.97	0.01	245	0.93	0.02	212	0.96	0.01	273	0.96	0.01	233	0.97	0.01	1484	0.95	0.01	-0.01	.475	0.01	.271
		Oral Poliovirus 0 ⁴	322	0.94	0.01	273	0.87	0.02	291	0.89	0.02	269	0.86	0.02	304	0.93	0.01	284	0.87	0.02	1743	0.90	0.01	0.02	.251	-0.04	.091*
		Oral Poliovirus 1	340	0.94	0.01	309	0.88	0.02	303	0.90	0.02	295	0.87	0.02	315	0.93	0.01	289	0.87	0.02	1851	0.90	0.01	0.02	.261	-0.04	.093*
		Oral Poliovirus 2	317	0.92	0.01	287	0.87	0.02	282	0.88	0.02	273	0.86	0.02	300	0.93	0.02	268	0.85	0.02	1727	0.89	0.01	0.02	.346	-0.05	.095*
		Oral Poliovirus 3	250	0.88	0.02	241	0.85	0.02	237	0.84	0.02	228	0.81	0.03	239	0.90	0.02	217	0.82	0.03	1412	0.85	0.01	0.03	.341	-0.06	.097*
		Any basic vaccinations ⁵	361	0.96	0.01	327	0.89	0.02	335	0.91	0.02	310	0.88	0.02	332	0.94	0.01	298	0.88	0.02	1963	0.91	0.01	0.02	.285	-0.05	.047**
		Vaccinations for children aged 24-35 months ³																									
		Received all basic vaccinations	266	0.85	0.02	252	0.78	0.03	299	0.82	0.02	295	0.81	0.02	239	0.90	0.02	278	0.86	0.02	1629	0.83	0.01	0.03	.258	0.00	.969
		MMR	255	0.87	0.02	225	0.77	0.03	282	0.83	0.02	267	0.81	0.02	230	0.92	0.02	268	0.87	0.02	1527	0.84	0.01	0.04	.181	-0.01	.758
		Any basic vaccinations ⁶	266	0.92	0.02	252	0.90	0.02	299	0.90	0.02	295	0.87	0.02	239	0.96	0.01	278	0.93	0.02	1629	0.91	0.01	0.02	.345	-0.02	.312
	Follow-Up	Weight-for-age																									
		Mean Z-score	1188	-0.61	0.05	961	-0.57	0.05	997	-0.49	0.05	974	-0.50	0.05	991	-0.43	0.05	1051	-0.59	0.05	6162	-0.54	0.02				
		Percentage below -2 SD	1188	0.17	0.01	961	0.16	0.01	997	0.14	0.01	974	0.14	0.01	991	0.11	0.01	1051	0.16	0.01	6162	0.15	0.00				
Percentage below -3 SD		1188	0.07	0.01	961	0.06	0.01	997	0.05	0.01	974	0.06	0.01	991	0.05	0.01	1051	0.07	0.01	6162	0.06	0.00					
Weight-for-height																											
Mean Z-score		1116	0.11	0.06	920	0.08	0.06	962	0.20	0.06	928	0.15	0.06	945	0.21	0.06	986	0.12	0.06	5857	0.14	0.02					
Percentage below -2 SD		1139	0.13	0.01	933	0.13	0.01	971	0.10	0.01	934	0.13	0.01	957	0.10	0.01	1015	0.13	0.01	5949	0.12	0.00					
Percentage below -3 SD		1139	0.07	0.01	933	0.07	0.01	971	0.05	0.01	934	0.06	0.01	957	0.05	0.01	1015	0.06	0.01	5949	0.06	0.00					
Height-for-age																											
Mean Z-score		1147	-1.09	0.06	944	-1.01	0.06	981	-1.03	0.06	968	-0.96	0.06	980	-0.90	0.06	1006	-1.06	0.07	6026	-1.01	0.03					
Percentage below -2 SD		1147	0.29	0.01	944	0.29	0.01	981	0.30	0.01	968	0.29	0.01	980	0.27	0.01	1006	0.30	0.01	6026	0.29	0.01					
Percentage below -3 SD		1147	0.14	0.01	944	0.14	0.01	981	0.13	0.01	968	0.13	0.01	980	0.14	0.01	1006	0.16	0.01	6026	0.14	0.00					
Growth monitoring received in the past 6 months		1233	0.21	0.01	996	0.36	0.02	1028	0.27	0.01	996	0.32	0.01	1047	0.25	0.01	1088	0.24	0.01	6388	0.27	0.01					
Vaccinations for children aged 12-23 months ³																											
Received all basic vaccinations		414	0.83	0.02	385	0.84	0.02	389	0.88	0.02	396	0.85	0.02	364	0.80	0.02	370	0.82	0.02	2318	0.84	0.01					
DPT 1		383	0.92	0.01	349	0.92	0.01	358	0.96	0.01	365	0.92	0.01	327	0.93	0.01	345	0.91	0.02	2127	0.93	0.01					
DPT 2		351	0.89	0.02	320	0.91	0.02	311	0.95	0.01	327	0.89	0.02	310	0.90	0.02	319	0.90	0.02	1938	0.90	0.01					
DPT 3		311	0.86	0.02	281	0.87	0.02	277	0.92	0.02	292	0.87	0.02	281	0.88	0.02	284	0.87	0.02	1726	0.88	0.01					
Oral Poliovirus 0 ⁴		330	0.93	0.01	333	0.90	0.02	324	0.92	0.02	339	0.92	0.01	321	0.88	0.02	311	0.91	0.02	1958	0.91	0.01					
Oral Poliovirus 1		386	0.89	0.02	366	0.88	0.02	367	0.91	0.01	381	0.90	0.02	336	0.85	0.02	343	0.87	0.02	2179	0.89	0.01					
Oral Poliovirus 2		338	0.88	0.02	319	0.84	0.02	330	0.89	0.02	335	0.87	0.02	305	0.81	0.02	310	0.84	0.02	1937	0.86	0.01					
Oral Poliovirus 3		250	0.80	0.03	222	0.76	0.03	247	0.85	0.02	226	0.81	0.03	236	0.73	0.03	235	0.77	0.03	1416	0.79	0.01					
Any basic vaccinations ⁵		414	0.95	0.01	385	0.93	0.01	389	0.94	0.01	396	0.94	0.01	364	0.91	0.01	370	0.94	0.01	2318	0.94	0.01					
Vaccinations for children aged 24-35 months ³																											
Received all basic vaccinations	195	0.78	0.03	121	0.85	0.03	123	0.80	0.04	121	0.74	0.04	153	0.80	0.03	143	0.73	0.04	856	0.78	0.01						
MMR	189	0.80	0.03	113	0.85	0.03	115	0.81	0.04	112	0.75	0.04	146	0.79	0.03	142	0.75	0.04	817	0.79	0.01						
Any basic vaccinations ⁶	195	0.95	0.02	121	0.95	0.02	123	0.93	0.02	121	0.93	0.02	153	0.92	0.02	143	0.90	0.02	856	0.93	0.01						
Place of last vaccination	1136	0.88	0.01	964	0.93	0.01	1004	0.93	0.01	1012	0.93	0.01	997														

Table A10.4-12: Satisfaction with health services Indicator Means by Treatment Arm

Round	Population	Indicator	By Treatment Arm															Grand Total		
			T0: Comparison			T1: PBF Only			T2: PBF + CQI			T3: PBF + CSC			T4: CQI Only			T5: CSC Only		
			#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE	#	Mean	SE
Follow-Up	Women with recent pregnancy (14)	Proportion familiar with the RHC/HH serving the community	904	0.87	0.01	875	0.87	0.01	849	0.87	0.01	874	0.89	0.01	770	0.90	0.01	804	0.89	0.01
		Overall Satisfaction Score	747	-0.06	0.04	695	0.07	0.03	666	0.14	0.03	719	0.06	0.03	657	0.03	0.04	673	-0.03	0.04
		The facility staff works closely with the community on health matters	723	0.95	0.01	697	0.98	0.01	692	0.98	0.00	719	0.98	0.01	651	0.96	0.01	671	0.96	0.01
		The staff at the facility is competent	755	0.96	0.01	718	0.98	0.00	697	0.99	0.00	739	0.99	0.00	680	0.97	0.01	697	0.97	0.01
		The facility has the equipment needed to provide high quality health services	693	0.87	0.01	582	0.90	0.01	570	0.88	0.01	585	0.85	0.01	632	0.87	0.01	631	0.87	0.01
		The is in good physical state to provide high quality health services	699	0.90	0.01	636	0.95	0.01	629	0.95	0.01	650	0.94	0.01	632	0.90	0.01	641	0.90	0.01
		The facility staff listens to the opinions of the community	723	0.98	0.01	685	0.99	0.00	675	0.99	0.00	719	0.99	0.00	657	0.97	0.01	668	0.97	0.01
		The staff at the facility is welcoming and respectful	771	0.98	0.00	752	0.99	0.00	719	0.99	0.00	759	0.99	0.00	699	0.99	0.00	719	0.98	0.00
		Improved attitude of health workers	611	0.96	0.01	632	0.98	0.00	620	0.99	0.00	627	0.99	0.00	553	0.97	0.01	566	0.96	0.01
		Improved collaboration between community and health facility	611	0.97	0.01	610	0.99	0.00	598	0.99	0.00	620	0.99	0.00	529	0.96	0.01	557	0.97	0.01
		Improved health facility infrastructure	561	0.94	0.01	559	0.96	0.01	530	0.96	0.01	508	0.96	0.01	522	0.93	0.01	516	0.95	0.01
		Improved quality of health services	611	0.96	0.01	625	0.99	0.00	628	0.99	0.00	632	0.99	0.00	542	0.94	0.01	552	0.97	0.01
		Invited to a community meeting with RHC/HH	743	0.39	0.02	691	0.44	0.02	672	0.43	0.02	693	0.49	0.02	662	0.38	0.02	681	0.40	0.02
		Attended a community meeting with RHC/HH	284	0.71	0.03	300	0.67	0.03	285	0.72	0.03	340	0.69	0.03	250	0.73	0.03	273	0.78	0.03
		Prop. who felt action was taken in response to community meeting	234	0.83	0.02	239	0.92	0.02	225	0.91	0.02	262	0.91	0.02	206	0.83	0.03	241	0.89	0.02
	Older Adults (12)	Proportion familiar with the RHC/HH serving the community	1615	0.72	0.01	1505	0.77	0.01	108	0.88	0.03	160	0.86	0.03	121	0.87	0.03	138	0.85	0.03
		Overall Satisfaction Score	1290	-0.14	0.03	1179	0.04	0.03	90	0.09	0.11	139	0.11	0.07	105	-0.23	0.15	112	-0.12	0.11
		The facility staff works closely with the community on health matters	1257	0.95	0.01	1179	0.97	0.00	91	0.98	0.02	136	0.99	0.01	107	0.92	0.03	110	0.95	0.02
		The staff at the facility is competent	1302	0.96	0.01	1222	0.99	0.00	93	0.99	0.01	139	0.99	0.01	105	0.96	0.02	117	0.96	0.02
		The facility has the equipment needed to provide high quality health services	1167	0.86	0.01	1062	0.85	0.01	76	0.87	0.04	101	0.92	0.03	97	0.85	0.04	108	0.84	0.04
		The is in good physical state to provide high quality health services	1168	0.88	0.01	1106	0.93	0.01	87	0.95	0.02	110	0.95	0.02	101	0.85	0.04	109	0.83	0.04
		The facility staff listens to the opinions of the community	1257	0.96	0.01	1165	0.98	0.00	92	0.96	0.02	138	0.99	0.01	106	0.94	0.02	111	0.96	0.02
		The staff at the facility is welcoming and respectful	1361	0.98	0.00	1248	0.99	0.00	96	0.99	0.01	141	0.99	0.01	109	0.97	0.02	123	0.95	0.02
		Improved attitude of health workers	1074	0.95	0.01	1073	0.98	0.00	88	0.93	0.03	126	1.00	0.00	83	0.95	0.02	90	0.96	0.02
		Improved collaboration between community and health facility	1055	0.96	0.01	1044	0.99	0.00	83	0.96	0.02	125	1.00	0.00	80	0.96	0.02	86	0.94	0.03
		Improved health facility infrastructure	986	0.92	0.01	970	0.97	0.01	67	0.94	0.03	102	0.98	0.01	83	0.88	0.04	79	0.95	0.02
		Improved quality of health services	1056	0.94	0.01	1078	0.98	0.00	84	0.96	0.02	130	1.00	0.00	81	0.95	0.02	85	0.96	0.02
		Invited to a community meeting with RHC/HH	1309	0.32	0.01	1194	0.38	0.01	93	0.45	0.05	135	0.61	0.04	99	0.31	0.05	113	0.35	0.04
		Attended a community meeting with RHC/HH	421	0.73	0.02	446	0.71	0.02	42	0.74	0.07	83	0.82	0.04	31	0.84	0.07	37	0.78	0.07
		Prop. who felt action was taken in response to community meeting	358	0.87	0.02	376	0.85	0.02	34	0.85	0.06	76	0.95	0.03	28	0.79	0.08	34	0.74	0.08

11 REFERENCES

1. Government of Tajikistan. Agency on statistics under the President of the Republic of Tajikistan / Agency on statistics under President of the Republic of Tajikistan. Key Indicators. <https://www.stat.tj/en/>. Published 2018. Accessed November 12, 2018.
2. The World Bank. World Development Indicators. 2018. <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>. Accessed August 30, 2018.
3. Institute for Health Metrics and Evaluation. Global Burden of Disease Country Profile: Tajikistan. Global Burden of Disease. <http://www.healthdata.org/tajikistan>. Published 2018. Accessed December 11, 2018.
4. Khodjamurodov G, Rechel B. *Tajikistan Health System Review*. Vol 12.; 2010. http://www.euro.who.int/__data/assets/pdf_file/0009/119691/E94243.pdf. Accessed November 12, 2018.
5. *Quality of Child Health Services in Tajikistan*.; 2011. doi:62870-TJ.
6. The World Bank. *World Bank Development Indicators*.; 2014. <http://data.worldbank.org/indicator>.
7. *UNICEF Annual Report Tajikistan*.; 2016. https://www.unicef.org/about/annualreport/files/Tajikistan_2016_COAR.pdf. Accessed November 12, 2018.
8. Renmans D, Holvoet N, Orach CG, Criel B. Opening the “black box” of performance-based financing in low- and lower middle-income countries: A review of the literature. *Health Policy Plan*. 2016;31(9):1297-1309. doi:10.1093/heapol/czw045.
9. Ringold D, Holla A, Koziol M, Srinivasan S. *Citizens and Service Delivery: Assessing the Use of Social Accountability Approaches in Human Development*. Washington DC; 2012. <http://documents.worldbank.org/curated/en/426741468331758042/pdf/657450PUB0EPI1065724B09780821389805.pdf>. Accessed November 13, 2018.
10. McGee R, Gaventa J, Barrett G, Calland R. Transparency and Accountability Initiatives Report. 2010:1-55. www.transparency-initiative.org5CnCopyright.
11. Kolstad BJT. American Economic Association Information and Quality When Motivation is Intrinsic: Evidence from Surgeon Report Cards Author (s): Jonathan T . Kolstad Source: The American Economic Review , Vol . 103 , No . 7 (DECEMBER 2013), pp . 2875-2910 Publish. 2016;103(7):2875-2910. doi:10.1103/PhysRevLett.92.210403.
12. Dranove D, Kessler D, McClellan M, Satterthwaite M. Is More Information Better? The Effects of “Report Cards” on Health Care Providers. *J Polit Econ*. 2003;111(3):555-588. doi:10.1086/374180.
13. Cutler D, Huckman R, Landrum MB. *The Role of Information in Medical Markets: An Analysis of Publicly Reported Outcomes in Cardiac Surgery*.; 2004.
14. Björkman M, Svensson J. Power to the People: Evidence from a Randomized Field Experiment on Community-Based Monitoring in Uganda Author (s): Martina Björkman and Jakob Svensson Published by: Oxford University Press Stable URL: <http://www.jstor.org/stable/40506242> Accessed: Q J Econ. 2009;124(2):735-769. doi:10.4137/EBO.S10189.Received.

15. McIntyre D, Rogers L, Heier EJ. *Overview, History, and Objectives of Performance Measurement*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4194707/pdf/hcfr-22-3-007.pdf>. Accessed November 13, 2018.
16. Wild L, Harris D. The Political Economy of Community Scorecards in Malawi November 2011. *Odi*. 2011;44(November):1-40.
17. Nyqvist MB, de Walque D, Svensson J. Experimental evidence on the long-run impact of community-based monitoring. *Am Econ J Appl Econ*. 2017;9(1):33-69. doi:10.1257/app.20150027.
18. Arur A, Walldorf J, Walque D de, Shapira G. *Baseline Study for the Impact Evaluation of a Performance Based Financing (PBF) Pilot in Tajikistan*. Washington, D.C.; 2017.
19. Cameron AC, Gelbach JB, Miller DL. Bootstrap-Based Improvements for Inference with Clustered Errors Author (s): A . Colin Cameron , Jonah B . Gelbach and Douglas L . Miller Source : The Review of Economics and Statistics , Vol . 90 , No . 3 (Aug . , 2008), pp . 414-427 Published by: Th. 2016;90(3):414-427.