



1. Project Data

Project ID P167581	Project Name Andhra Pradesh HSSP	
Country India	Practice Area(Lead) Health, Nutrition & Population	
L/C/TF Number(s) IBRD-89450	Closing Date (Original) 30-Sep-2024	Total Project Cost (USD) 294,853,240.39
Bank Approval Date 15-May-2019	Closing Date (Actual) 31-Mar-2025	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	328,000,000.00	0.00
Revised Commitment	294,853,240.39	0.00
Actual	294,853,240.39	0.00

Prepared by Disha Zaidi	Reviewed by Judyth L. Twigg	ICR Review Coordinator Susan Ann Caceres	Group IEGHC (Unit 2)
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2. Project Objectives and Components

a. Objectives

According to the Loan Agreement, dated June 27, 2019, Schedule 1, the objectives of the project were “to improve the quality and responsiveness of Public Health Services and increase access of the population to an Expanded Package of Primary Health Services.” This Review will assess achievement of three objectives:

- Improve the quality of public health services
- Improve the responsiveness of public health services



- Increase access to an expanded package of primary health services

At project restructurings, some outcome indicators and targets were revised, in some cases entailing reduced ambition. However, in these cases, project achievement met or exceeded the original targets, and therefore a split rating methodology is not required.

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

20-Apr-2020

c. Will a split evaluation be undertaken?

No

d. Components

Component 1: Improve Quality of Care (Allocated: US\$87.1 million; Disbursed: US\$95.5 million) was to focus on improving the quality of care in public health facilities. It aimed to:

- Incentivize Community Health Centers (CHCs) and Primary Health Centers (PHCs) to meet state-level and National Quality Assurance Standards (NQAS) through certification. The NQAS are quality assurance standards of India's Ministry of Health and Family Welfare for public health facilities and measure quality in eight main areas: service provision, patient rights, inputs, support services, clinical care, infection control, quality management, and outcomes (PAD, p. 12). The component also included setting up a quality tracking dashboard, with quality improvement providers to be contracted for quality improvement and maintenance.
- Increase collaboration of CHCs using performance-based contracts with private providers by expanding performance-based contracting for core packages of services, and increase the percentage of CHCs using sanitation scores as a tracer indicator for performance-based contract management.
- Upgrade pharmaceutical stock-management systems at PHCs and CHCs to reduce drug stockouts.

Component 2: Improve Responsiveness of Public Health Services (Allocated: US\$87.5 million; Disbursed: US\$34.3 million) aimed at making public health services more user-friendly and responsive to patient feedback. It included:

- Development and rollout of an Integrated Online Patient Management System. This system would be a statewide digital system with unique patient IDs and electronic health records (EHR) accessible to patients and all public health facilities, enabling better diagnosis, treatment, referrals, and management.
- Empanelment of private pharmacies to improve and increase patients' access to medications, complementing the state-financed drugs distributed through government pharmacies. The



empaneled private pharmacies would be allowed to dispense state-financed non-communicable disease (NCD) medications for free, pending State Cabinet approval of the required policy.

- Support for patient experience measurement by developing and implementing an advanced system to capture and report patient experience data. Feedback would be reviewed quarterly at state and district levels, and improved patient experience scores would be a funding criterion. The patient-reported experience was to be analyzed and reviewed quarterly at the state and district levels (PAD, p. 14).

Component 3. Increase Access to an Expanded Package of Primary Health Services (Allocated: US\$152.6 million; Disbursed: US\$146.2 million) aimed to expand access to primary health services at PHCs and Subcenters (SCs) by adding NCD screening, risk stratification, and management in addition to strengthening maternal and child health (MCH) services (PAD, p. 14). This would be achieved through:

- Tele-consultation at electronic subcenters (e-SCs): The e-SC is a technology-based approach to facilitate NCD service provision at the SC level through contracted private sector providers, establishing a regional hub of private doctors for tele-consultations and increasing the number of e-SCs staffed by trained auxiliary nurse midwives (ANMs). E-SCs were to be equipped with vending machines to dispense drugs based on a doctor's prescription, diagnostic tools, and an integrated EHR system for patient management. They were to improve energy efficiency by using solar power as their main energy source (for centers that are off-grid). The e-SC model was to be evaluated through baseline and end-line studies.
- NCD screening and management at the SC or PHC: New protocols were to be introduced for hypertension and diabetes screening and care, training of staff, conducting of public awareness campaigns, and tracking of treatment and management of NCDs through EHR-linked systems. A STEPwise Approach to Surveillance (STEPS) survey would guide implementation.
- Cancer screening for women: Active screening for cervical, breast, and other cancers through SCs, PHCs, ANMs, and mobile medical units (MMUs). Communication materials would be displayed by hospital development committees, and community groups would help raise awareness on NCDs.
- Strengthening of MCH services: The percentage of pregnant women who receive full antenatal care coverage would be increased by including MCH indicators in e-SC service providers' performance contracts, and also through placement of a new cadre of trained mid-level providers at subcenters.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

The project was financed through the World Bank's investment project financing (IPF) instrument. Initially the project was planned as a Program-for-Results (PforR) operation, but due to instrument caps (ICR, p. 11), it was converted at the concept stage into an IPF with disbursement linked indicators (DLIs). This design ensured that reform priorities were supported through financial incentives tied to measurable results rather than expenditures. Although not formally a PforR, the government favored the DLI approach because it promoted accountability, faster decision-making, and interdepartmental commitment, and helped signal priority reforms in the state's health system. The hybrid design combined a strong results focus with the flexibility of an IPF, allowing for system strengthening, innovation, and course correction. DLIs were structured around key project results, supported by intermediate indicators to track outputs and progress, making the project effectively a "results-heavy IPF." Although the project was not a PforR, disbursements



were linked to the achievement of DLIs and were released upon verification that ensured predictable financing, while complying fully with IPF expenditure rules (source: project team).

The estimated cost at appraisal was US\$3,440 million, consisting of US\$328 million as World Bank financing, and US\$3,112 million as counterpart funding (PAD, p. 2). At closing, total program expenditure was US\$882 million, as reported in interim unaudited financial reports provided by the project team, with the Bank disbursing US\$328 million. The remaining amount of US\$554 million was counterpart funding. The project cancelled US\$33.1 million in unspent funds (mainly funds being made available in Indian rupees due to exchange rate changes). There were also undisbursed funds in the amount of US\$5.73 million (ICR, p. 32).

Dates: The project was approved on May 15, 2019, and became effective on September 9, 2019. The project went through five restructurings. The original closing date of the project was September 30, 2024, extended to March 31, 2025 at the fourth (2024) restructuring.

1. The **first restructuring in April 2020** aligned the project with the newly elected State government's review of the state's Health Sector Strategy, which focused on strengthening the public health sector, reducing dependence on private providers, and converting SCs into Health and Wellness Centers (HWCs). Main changes included: (a) a greater focus on public-sector services and less on purchasing clinical and non-clinical services from the private sector; (b) modifying DLIs /disbursement linked results (DLRs) to emphasize quality of care in public facilities and streamlining of private sector engagement; (c) updating the results framework (project development objective/PDO indicators and intermediate results indicators/IRIs), and (d) adjusting implementation arrangements to match the reorganized Department of Health and Family Welfare and the establishment of a Project Coordination Cell.

Specifically, the first restructuring revised the original indicator on establishing a quality tracking dashboard covering PHC and CHC facilities, by removing the year 1 target for engaging Quality Assessment Service Providers covering all districts to reflect a new State strategy shift from private to government-led quality assessment (ICR, p. 21). This restructuring also added a new IRI on establishing a system for routine maintenance and repair for bio-medical equipment at the CHC level (ICR, p. 21), and dropped an indicator on "private pharmacies empaneled to dispense state-financed drugs to patients," reflecting the State strategy that reduced reliance on the private sector (ICR, p. 22), and revised the indicator on increase in the number of functional e-subcenters to "increase in the number of functional HWCs" to reflect the new policy on upgrading sub-centers to HWCs (ICR, p. 23).

2. A **second restructuring in June 2021** was a response to the Government of India's request to redirect existing World Bank funds to support the COVID-19 response. The restructuring reallocated US\$15 million from Components 1 and 2 and relevant DLIs, and created a new sub-component and disbursement category to enable the State government to purchase emergency medical equipment and supplies for COVID-19 treatment. Safeguards instruments were updated to cover these activities, and a "direct payment" provision was introduced.

3. The **third restructuring in December 2023** reflected the State's evolving health strategy. The restructuring included: (a) expanded service delivery quality to Area Hospitals (AHs), (b) refined patient feedback-related DLRs to prioritize data quality and require quarterly district reviews of feedback; (c) allowed the State's own population-based NCD survey data in place of the WHO STEPS protocol, and (d) shifted unused COVID-19 emergency funds to Component 1.



Specifically, the AHs were to be included with CHCs to provide core package of services since AHs were located at the sub-district level. This restructuring also dropped a requirement for patient anonymity when capturing the "average patient-reported experience score" (ICR, pp. 21-22). Other changes included lowering targets for indicators on "facilities that enable quality implementation."

4. The **fourth restructuring in September 2024** extended the project by six months to March 31, 2025, to allow completion of activities that were delayed due to COVID-19 and changes in AP's Health Strategy. The extension focused on achieving: (i) rollout of the integrated online patient management system in 1,400 facilities (DLR 4.1), (b), achievement of patient-experience DLRs (DLRs 5.2 a and b), and (c) completion of an endline evaluation of HWCs.

5. A **fifth restructuring in April 2025** cancelled US\$33.1 million in unspent funds arising mainly from exchange rate changes that drove increases in the amount of available rupees beyond the project borrowing threshold (designated in rupees).

3. Relevance of Objectives

Rationale

The objectives were highly relevant to the country's context and aligned with both the government's and the Bank's strategic priorities.

Sector and Country Context: India has made significant progress in reducing absolute poverty since the 2000s, with rates declining from 21.6 percent in 2011-12 to 13.4 percent in 2015 at the international poverty line (with 2011 purchasing power parity, US\$1.90 per person per day). Andhra Pradesh (AP), a State of 53.6 million people, with about 70 percent of its population living in rural areas, performs relatively well on national health metrics and has improved maternal and child health indicators such as maternal and infant mortality, antenatal care, and immunization (PAD, pp. 6-7). However, AP continued to face emerging and last-mile challenges. These included:

- a. *Rising burden of NCDs:* NCDs, as a share of the State's disease burden, grew from 31 percent in 1990 to 60 percent in 2016, while communicable, maternal, neonatal, and nutritional diseases declined.
- b. *Inequities in maternal and child health:* Significant district-level disparities existed in infant mortality, immunization coverage, and antenatal care (ANC) visits. For example, the 2015-2016 infant mortality rate ranged from 48 per 1,000 live births in Srikakulam to 25 per 1,000 live births in Krishna district. Levels of full immunization ranged from 77.7 percent in West Godavari district to 47.7 percent in Sri Potti Sriramulu Nellore (PAD, p. 7).
- c. *Low confidence in public health facilities:* Per the National Family Health Survey (NFHS-4, 2015-2016), poor quality of care, long wait times, inconvenient facility hours, and staff shortages contributed to low public sector utilization, with 64 percent of households avoiding government facilities.



The project aimed to address these health system challenges—limited readiness for NCDs, service inequities in MCH, and poor quality of care—by improving the quality and responsiveness of public health services and expanding access to a broader package of primary care.

Alignment with Strategy: The project aligned with the Bank's FY18-FY25 Country Partnership Framework (CPF), specifically with Focus Area 3 on investing in human capital, and Objective 3.4, "to improve the quality of health service delivery and financing and access to quality health care." The project planned to advance three key CPF approaches: engaging a federal India, strengthening public health institutions, and supporting a Lighthouse India initiative (PAD, p. 10). As part of the Lighthouse India initiative, the Bank would facilitate knowledge sharing and peer-to-peer learning (CPF, p. 76) by analyzing, curating, and disseminating the country's knowledge internally between States as well as globally (CPF, p. 20). Specifically, the Bank was to support health system development in State-level projects in at least six states, ranging from lower to higher-income, with diverse health challenges, and share lessons learned across States and with the central government (CPF, p. 24).

The project also planned to leverage private sector expertise, particularly in technologies like telemedicine, to enhance and scale health service delivery (PAD, p. 10). Even though in 2020 the government strategy shifted toward reducing reliance on private sector providers, "tech-enabled and affordable coverage across wellness, nutrition, and care systems" remained relevant as part of the 2024 State Policy "Swarna Andhra@2047: Wealthy, Healthy, and Happy Andhra" (ICR, p. 4).

Rating

High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To improve the quality of public health services in Andhra Pradesh

Rationale

The theory of change underlying the first objective held that PHC and CHC facilities would be supported to achieve a minimum quality score for national certification through development of a quality tracking dashboard, performance-based contracts between CHCs and private service providers to support quality, and enhancements to the pharmaceutical stock management system that would improve logistics, inventory control, and standardized protocols for essential medicines. Certification of achievement of these national quality standards would signify improved quality of public health services. Specific interventions to that would improve quality of care included increased coverage by CHCs with a core package of services (x-rays, diagnostic lab tests, and others), digital tracking of high-risk pregnancies, and expansion of sick newborn care units (SNCUs).



Outputs and Intermediate Results

The project exceeded its target for State-level internal quality accreditation (IRI 1) with 768 facilities (46 CHCs and 722 PHCs) achieving accreditation under NQAS scoring above 70 percent, exceeding the target of 390 CHCs and PHCs. An additional 23 CHCs, 311 PHCs, 95 urban PHCs, and 1,081 HWCs were certified internally at the State level (ICR, p. 18) but not counted towards PDO results, as only facilities scoring above 70 percent in the internal assessment become eligible for external assessment by NQAS authorities; these internal certifications were therefore a preparatory step toward getting NQAS certification (source: project team). Also, HWCs function at the sub-center level (below PHCs) and typically serve populations of 3,000-5,000, rendering them outside the scope of this PDO indicator (as clarified by the project team).

The project also established a quality tracking dashboard (IRI2), rolled out to 100 PHCs and CHCs thereby meeting targets, with these facilities regularly submitting quality scores for at least two consecutive quarters. The dashboard helped the Directorate of Health and Family Welfare (DoHFW) rapidly identify and address quality gaps in collaboration with health facilities. Eventually, the tool's effectiveness gained national recognition and was later scaled up nationally as the SaQsham online portal, which was later adopted by the State as well (ICR. p. 4).

By project completion, 47 CHCs and all 18 AHs were delivering a core package of services, substantially meeting the target of 65 CHCs (IRI 3); no CHC could do so before (with a baseline of zero CHCs when the project started). This package included x-ray services, 41 diagnostic lab tests, and Comprehensive Emergency Obstetric and Neonatal Care (CEmONC) services. Along with digital tracking of high-risk pregnancies, expanded SNCUs, universal immunization, and national MCH programs, these improvements significantly increased access to quality services in close proximity to communities.

The share of CHCs achieving sanitation scores of at least 90 percent for at least six months increased from 80 percent at baseline to 99 percent, surpassing the target of 90 percent (IRI 4) (ICR, p. 5). Sanitation services was one of four services for which CHCs were required to use performance-based contracts with private service providers, alongside teleradiology/x-ray, laboratory diagnostics, and biomedical equipment maintenance. (PAD, p. 42).

The pharmaceutical stock management system at project start only showed existing stock levels and lacked advanced features like low-stock alerts (IRI 5). At the end of the project period, the enhanced pharmaceutical stock management system met targets by adding "smart" features that detected unusual usage, flagged for expiring or low-stock items, automated re-ordering, and identified nearby facilities for supply diversion. These improvements reduced stock outages, improved oversight, and lowered pharmacists' workload and time spent managing inventory (ICR, p. 5). The project also enabled the stock management system to provide quarterly pharmaceutical stock-status reports for PHCs and CHCs (ICR, p. 19).

The project helped establish a new system for routine maintenance and repair for bio-medical equipment at the CHC level (IRI 6). By project closure, of 14,847 non-functional items, 12,843 were repaired within six months and the rest decommissioned. Preventive maintenance and re-calibration reduced repair requests. An equipment database and dashboard were created to track status, costs, location, and repair history. A toll-free reporting line with a one-day response target and penalties for delays increased accountability. QR codes put on machines gave maintenance teams details before arrival, while trend analysis of faults across facilities and vendors supported better management decisions. A Service Level Agreement further



accelerated repairs. CHC staff training led to reduced breakdowns of equipment and less dependence on external technicians (ICR, p. 5).

Outcomes

From a baseline of zero, 526 CHCs and PHCs achieved certification under the NQAS, far exceeding the target of 198 CHCs and PHCs. Additional internal certifications included 9 district hospitals, 18 area hospitals, 133 urban PHCs, and 827 HWCs; per the project team, this additional information was provided to illustrate that the systemic improvements supported under the project also resulted in other achievements, with several other facility types obtaining certification, even though they were not counted as part of this indicator. Since 2020, AP has maintained the highest proportion of NQAS-certified public facilities, about twice that of the next highest-achieving State.

Overall, investments in improving quality health systems through accreditation, real-time dashboards, expanding the core package of services, skilled staff, emphasis on cleanliness and sanitation scores, regular repair and maintenance of equipment, and drug availability and tracking systems helped create pathways for stronger monitoring and improved patient care and facility standards.

Rating

High

OBJECTIVE 2

Objective

To improve the responsiveness of public health services in Andhra Pradesh

Rationale

The theory of change underlying this objective held that increased use of a patient management system, organizing quarterly review meetings on patient feedback through district quality committees, and developing a patient-focused system to measure and report on patient experience in a standardized and confidential manner would improve patient-reported experiences, indicative of improved responsiveness of public health services in the State.

Outputs and Intermediate Results

The project focused on patient feedback systems to identify ways to improve quality of care. This was done in various ways: patient feedback systems through tools like tablets, texts, and phone calls (IRI 2.3); quarterly district meetings to discuss feedback (IRI 2.4); operational integrated online patient management systems (IRI 2.1), and electronic medical records with patient access (IRI 2.2). A pilot tested three patient feedback methods: texted links, random phone calls, and facility-based tablets, with the tablets proving most effective. The tablet system was then implemented in 796 facilities, partially meeting the revised target of 1,000 facilities but falling short of the original goal of 1,400 facilities where the system for measuring and reporting on patient experience was supposed to be operational (IRI 2.3). During the third restructuring, the target shifted from 70 percent of districts organizing quarterly reviews to "establishing a standardized system for quarterly patient-feedback review meetings" (IRI 2.4). Review guidelines were issued and district meetings began in October 2024, but no data were provided on percentage of districts holding regular meetings. A



state-wide Integrated Patient Management System was developed and launched (IRI 2.1) in 1,042 facilities, streamlining outpatient, inpatient, pharmacy, and lab services while improving coordination and data-driven resource planning, but partially meeting the target of 1,400 facilities.

The project met its target of increasing patient access to electronic medical records (EMRs) (IRI 2.2) by six percent in teaching hospitals one year after system rollout. This indicator was seen as a proxy for improved patient engagement, transparency, and healthcare responsiveness, since EMRs enable real-time access to medical histories and support better clinical decision-making and continuity of care. Facilities using EMRs saw a 40 percent reduction in patient waiting times, as reported in the government's ICR (p. 6). Additionally, a new laboratory information management system (LIMS) sends digital lab reports directly to patients' mobile phones, eliminating the need for return visits to collect results.

Outcomes

Patient experience scoring was introduced as a new reform under the project. While *patient satisfaction* data—capturing patients' perceptions and feeling about care provided—had been gathered in the past, *patient experience* represented a metric that recorded what actually happened during the care process. Since this was the first time patient experience was being measured through the project, no baseline data were available. To establish a baseline, a pilot study was carried out in 100 PHCs, resulting in a score of 84.05 percent (as reported by the project team). The PDO indicator target was revised to a 5-percentage-point increase during the third restructuring on patient experience, with the project exceeding this target at a 6.06 percent increase from 100 PHCs and CHCs combined. Originally, the sampling requirement was for patient feedback of 5 percent of outpatients in CHCs and PHCs and 10 percent of outpatients in hospitals; this sampling requirement was reduced to 2 percent at the third restructuring, but it was still statistically significant (ICR, p. 6). Another revision replaced the requirement for a 5 percent increase in patient satisfaction scores (using the earlier metric, with a baseline from at least 50 CHCs and 100 PHCs) with a simpler target: having the patient-feedback system being operational in at least 100 CHCs and PHCs combined (ICR, p. 22).

Patient satisfaction was generally high, with waiting times being the main concern in a few facilities (ICR, p. 6). The ICR mission observed several examples of facilities acting on feedback: one bought more waiting room chairs and improved signage so that patients could navigate the facility more easily, while a CHC head began daily inspections of toilets after cleanliness complaints (ICR, p. 6).

Rating

Substantial

OBJECTIVE 3

Objective

To increase access of the population to an expanded package of primary health services

Rationale

The theory of change underlying this objective was that expanding functional e-subcenters, training mid-level service providers at subcenters, and increasing screening for hypertension, diabetes for the adult population, and cervical cancer screening for women above 30 at subcenters or PHC facilities would raise the number of



people diagnosed or identified as at risk. This would lead to an increase in patients diagnosed and at-risk of hypertension and diabetes at the subcenter or PHC, and also improve numbers of pregnant women who receive full ANC, thereby increasing access of the population to an expanded package of primary health services.

Outputs and Intermediate Results

The project exceeded the majority of the IRIs associated with this objective, with four out of five IRI targets achieved or surpassed. By project completion, 10,032 HWCs were fully functional, far exceeding both the revised target of 3,000 (the target was revised during the second restructuring) and the original target of 6,190 e-subcenters (IRI 3.1). All 10,032 HWCs were staffed with trained mid-level service providers (IRI 3.2), surpassing the target of 5,900 (original targets referred to subcenters later upgraded to HWCs). Screening coverage also exceeded expectations, with 74 percent of the adult population being screened and risk-stratified for hypertension and diabetes (IRI 3.3), above the 67 percent target. Results for screenings also surpassing gender-specific goals, with 70 percent for men screened (compared to a target of 35 percent) and 78 percent of women screened (compared to a target of 70 percent). In addition, 84 percent of women over age 30 were screened for cervical cancer at PHCs or HWCs (IRI 3.4), exceeding the 70 percent target.

The IRI on research and evaluation undertaken to support innovative approaches to delivery of primary health care was partially achieved (IRI 3.5). While a STEPs survey was not conducted, household NCD prevalence and risk surveys were completed and used to create unique health identifiers for most of the State's population. Pilot programs and rollouts were also systematically conducted for innovations under the project, including improvements to NCD survey methods. Although no end-line HWC survey was done, an evaluation was conducted for the Village Health Center (VHC)/MMU program (with costing), and cybersecurity was assessed for all digital health systems.

Outcomes

The project exceeded targets on both outcome indicators. The share of patients diagnosed with or at-risk of hypertension who were managed according to protocol at subcenters or PHCs rose by 2.6 percentage points (from 71.4 percent in May 2023 to 74.0 percent in September 2024), surpassing the target of an increase above baseline value by 2 percentage points. Diabetes management also improved, rising by two percentage points from 67.7 percent to 69.7 percent over the same period, meeting the targeted increase of two percentage points. By comparison, national-level data show that nationally only 37 percent of people with hypertension are diagnosed and about 30 percent initiate treatment, and that 75 percent of diabetics are diagnosed with 59 percent on medication. (The State did not have specific data on the proportion of patients diagnosed with, or at risk of, hypertension and diabetes who were managed per the protocol before 2023, and therefore the project relied on National Family Health Survey-5 [2019-21] data for the baseline for this indicator.)

The upwardly revised target for ensuring that at least 90 percent of pregnant women in all project districts of the State receive full antenatal care, which was defined as a minimum of four ANC visits, one tetanus toxoid injection, and 100 days of iron supplementation, was achieved, as all 26 districts surpassed the 90 percent coverage threshold (the ANC coverage target was increased from the original 72 percent to 90 percent, and the total number of districts in the State changed during implementation as new districts were created, changing the number of target districts from 11 to 26). Andhra Pradesh was also one of only four States



where ANC registrations increased during the COVID-19 lockdown in 2020 and pandemic surge in 2021, directed by strong outreach and communication efforts, in contrast to national declines elsewhere.

Rating
Substantial

OVERALL EFFICACY

Rationale

The project met or exceeded all PDO targets, exceeded most IRI targets, and significantly improved the quality, responsiveness, and reach of primary health services in AP. With achievement of one objective rated High and two rated Substantial, overall efficacy is rated Substantial.

Overall Efficacy Rating

Substantial

5. Efficiency

The economic and fiscal analysis in the PAD (pp. 82-84) suggested that the project would improve equitable access to healthcare and enhance efficiency in health outcomes, drawing on World Health Organization guidelines on thresholds for acceptable costs per disability-adjusted life year (DALY) averted, confirming that NCD screening and management interventions are cost-effective. Further, the PAD included an efficiency analysis referencing findings from the *Lancet Global Health Commission on High-quality Health Systems in the Sustainable Development Goals Era* (PAD, p. 82) that support the project's emphasis on improving quality of care as a more significant determinant of mortality reduction than access alone, indicating that the project had selected a cost-effective way to enhance health outcomes. This analysis noted that 60 percent of deaths from conditions amenable to health care are attributable to poor-quality care, while the remainder result from non-use of the health system. Further, this efficiency analysis emphasized that strengthening primary care quality in AP can also reduce inefficiencies by shifting treatable cases away from higher-level facilities or hospitals that can be treated in primary care. The efficiency analysis in the PAD therefore suggested that a focus on quality of care will enable the State to make more effective use of available resources.

On cost-effectiveness, the PAD relies on global evidence showing that key NCD interventions such as blood pressure management, cardiovascular risk treatment, early breast cancer treatment, and cervical cancer screenings have very low costs per DALY averted. As a result, all targeted NCD interventions are considered highly cost-effective for AP (PAD, p. 83).

The cost-benefit analysis in the PAD translated the project's health gains into monetary value by measuring the cost per DALY saved relative to per capita gross domestic product (GDP), showing the project to be cost



effective. Based on annual project spending of US\$559 million and a per capita GDP of US\$1,932 in AP (2016), the project would need to achieve an average of about 289,000 DALYs saved annually to break even. With an estimated 6,190 e-subcenters generating more than 70 million outpatient contacts annually, each contact would need to yield only 0.004 DALYs saved for the project to break even (PAD, p. 83).

The ICR (p. 8) referenced the PAD's cost-benefit analysis and concurred that the project would save additional DALYs by expanding access to care and improving NCD screening and treatment (ICR, p. 8). The ICR noted that while there is insufficient data to directly estimate the DALYs saved by the project, strong evidence indicates that the benefits in DALYs gained exceeded accepted cost-effectiveness thresholds, citing the NCD 2.0 survey of Andhra Pradesh, and data from the Sample Registration System. The NCD 2.0 survey identified over 1 million people with hypertension and nearly 0.6 million with diabetes (many in both groups), which was about 10 percent of the population, highlighting major gains from early detection and management. As part of the NCD 2.0 survey, screening also reached 8.5 million women for breast and cervical cancer, with later rounds detecting malignant and pre-malignant cases that were referred for treatment. These early detection and care improvements, supported by project investments in the Family Doctor Program (FDP), EMR, and quality upgrades to facilities across AP, likely extended healthy life years for many patients, and likely met the project's cost-effectiveness break-even threshold.

Data from the Sample Registration System showed that improvements in maternal and infant care in AP, including high-risk pregnancy follow-up and more births in well-equipped facilities, significantly reduced maternal, infant, and neonatal mortality (reflected in reduced maternal, infant, and neo-natal mortality rates between 2017-2023), implying substantial DALY gains. The ICR indicated that DALYs were also gained as a result of increased access to care in underserved areas and higher patient use of improved public health facilities. While not a formal economic analysis, these benefits suggested that the project was cost-effective, especially given the higher 2025 per capita GDP of US\$3,154, which sets a higher threshold for comparison of project costs (ICR, p. 8).

Substantial project efficiency was also suggested by a December 2023 evaluation of the project in three districts where the MMUs regularly visit village health centers. It found meaningful gains in service coverage, health outcomes, and estimated costs. Coverage for diabetes and hypertension nearly doubled, with control rates rising sharply. The share of diabetes patients with blood sugar within normal range increased from 19 to 63 percent, and patients with hypertension with blood pressure within normal range rose from 36 to 63 percent (ICR, p. 8). The evaluation also showed that maternal and child health services and outcomes improved, including full ANC care services (increasing from 51 to 71 percent), high-risk pregnancy follow-up (risen from 9 to 52 percent), sick neonate referrals (increasing from 4-5 percent to 17 percent), underweight child follow-up (increased from 2 to 13 percent of all under-fives), and anemia reduction in pregnant women (reduced from 37 to 23 percent). Average physician consultation costs were well below national PHC averages. The evaluation concluded that the program strategically and efficiently used existing staff and resources, integrating screening, outreach, and facility upgrades to achieve significant improvements in access and health outcomes (ICR, p. 8).

The ICR further argued that the project's design was efficient based on the importance of improved quality of care (citing the *Lancet Global Health Commission Study* cited in the PAD) and referring to global evidence (from the Disease Control Priorities Project) that NCD screening and management exceed WHO thresholds for effective spending. Other design features highlighted for efficiency in project design included: a *new facial recognition system for health staff* to log in and out of each work shift, which reduced absenteeism and led to cost reductions associated with paying salaries to absentee staff; a *smart drug supply management system* that delivered value by reducing waste from expired drugs, enabling just-in-time ordering, and minimizing stock-



outs; and institution of an *equipment maintenance contract*, about 4 percent of equipment purchase cost, that was cost effective given the benefits of reliable, functional equipment.

In terms of implementation efficiency, the ICR (p. 9) suggested the following:

- The state of AP was recognized for good practice in rapidly and effectively rolling out digital health IDs and medical records, with systems designed to be interoperable and compliant with national standards, avoiding inefficiencies related to incompatible and/or non-interoperable platforms.
- The project's digitized, dashboard-driven approach provided real-time project progress data, allowing managers and the Technical Support Unit to track progress, identify issues, and assess whether solutions were effective.
- A Family Doctor Program improved use of medical staff by having PHC medical officers alternate between facility duties and MMU outreach, leading to increased patient contacts.
- The state addressed staff shortages through innovative recruitment measures for addressing vacancies, including a zero-vacancy policy, flexible recruitment approvals, reserve doctor pools, targeted incentives for remote areas, accelerated promotions, and multi-skilling with role reorientation to strengthen workforce availability.
- The Independent Verification Agency cost was just under US\$0.75 million, which was 0.25 percent of the total project cost and low compared to similar projects.

However, the project did face delays and other challenges that negatively affected implementation efficiency (ICR, pp. 10-11). These included:

- Two changes in State government, soon after approval and a year before closing, that caused delays as priorities were reassessed and the project restructured. The main adjustment was the strategy moving away from reliance on private providers toward strengthening public sector facilities, leading to slower implementation in the early phase.
- Procurement delays were experienced due to lengthy public procurement procedures, leading to delays in project implementation (but not cost increases) (ICR, pp. 10,11).
- The rollout of the government's National Digital Health Mission in 2020 required AP to align its digital health systems with national standards and portability requirements. Related design changes and coordination with the national agency caused implementation delays. Consequently, baseline patient feedback was eventually collected only in early 2024, after efforts for quality, access, and responsiveness improvements were already underway (like improvements in waiting times, drug and test availability etc.), likely understating subsequent gains in patient satisfaction.
- Constraints in procuring agencies for STEP surveys, as differences between the two agencies that carried out the STEPS survey and the AP government led the State to replace these surveys with a shorter, lower-cost annual NCD survey covering all households. In addition, weak response to the tender prevented completion of a HWC endline assessment before project closure.

Efficiency Rating

Substantial



a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

With High relevance, Substantial overall efficacy, and Substantial efficiency, the project's Outcome rating is Satisfactory, reflecting only minor shortcomings in the project's preparation, implementation, and results.

a. **Outcome Rating**
Satisfactory

7. Risk to Development Outcome

At project completion, the risk to development outcomes was mostly low, given the State's commitment to continuous improvements, continued funding, and ownership of project reforms, supporting sustainability of most outcomes and achievements. The project helped lay the foundation for AP's long-term vision of universal, technology-enabled, and affordable healthcare, as set out in the 2024 *Swarna Andhra@2047* State Policy on "Wealthy, Healthy, and Happy Andhra," which outlines a road map for transforming the state's healthcare system over the next 25 years (ICR, p. 4). However, there is some risk in newer systems supporting project-financed patient feedback mechanisms not being fully sustained or used due to limited provider buy-in and patient engagement (ICR, p. 14).

8. Assessment of Bank Performance

a. Quality-at-Entry

The PDO reflected AP's needs by targeting improved quality and responsiveness of public health services and increasing access to an expanded package of primary health services, especially for rising NCD burdens. The project drew on World Bank experience in India and global best practices in NCD management, quality improvement, telemedicine, and digital health systems (ICR, p. 4). Project design drew specifically on the World Bank's global experience as well as experience from similar health



interventions in India, such the Uttar Pradesh Health Systems Strengthening Project (P100304, 2011-2019, US\$129.3 million) and the Karnataka Health System Development and Reform Project (P071160, 2006-2017, US\$213.5 million). The project emphasized quality improvement through simplified accreditation (such as NQAS), selective use of private sector contracting, and strong information systems, including for patient feedback, that would help improve service delivery to support patient-centered and high-quality care. The project also incorporated experience in NCD management from low- and middle-income countries, which showed that long-term care for NCDs can be delivered equitably through primary health care systems. The project used a total risk screening approach for NCDs, where tools enable early detection of a common set of diseases for those visiting a PHC. It adopted cost-effective screening methods and emphasized not only detection but also effective management of individuals identified as at risk (PAD, pp. 20-21). At design, gender considerations were emphasized by focusing on improved antenatal and maternal care and enhanced screening and treatment for breast and cervical cancer s (ICR, p. 14).

Monitoring and evaluation (M&E) design had positive elements. All PDO-level indicators and most IRIs were linked to DLIs and DLRs for disbursement, making accurate data collection crucial. The project provided support for streamlined online systems and dashboards to ensure timely, up-to-date data (ICR, p. 12). There was a clear theory of change governing each objective, and IRIs helped track outcomes through both qualitative and quantitative indicators. However, two of the four outcome indicators did not have baseline data. The fact that it took until the later years of the project to collect these data indicates that a clear plan was not in place at the time of project design. As noted by the ICR the patient experience feedback mechanism had to be developed: "if this data collection had started earlier, AP might have gained useful patient perspectives on quality, access, and responsiveness, and been able to compare patient reactions, experiences, and satisfaction levels from before and after changes were implemented" (ICR, p. 15).

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

The project was well supervised, with the core team based in Delhi and AP, providing consistent implementation support. The project team carried out about two technical missions each quarter, and fortnightly reviews in the final year helped address challenges. Technical assistance provided by the Bank included comprehensive assessments of digital health systems and data governance, at the request of the State government. The team also supported evaluations of Village Health Centers and MMUs, development of operational guidelines for the Family Doctor Program, reviews of Public Finance Management Service operations, advisory support on cybersecurity, assistance with the State Health Agency's transition to a health insurance model, and the use of health diagnostics to help policymakers identify priority areas.

However, the project faced early disruptions after three years of implementation, due to changes in the AP State government and the COVID-19 pandemic, resulting in low disbursement and slow progress toward some targets. A subsequent mid-term review led to project restructuring, a streamlined design, and strengthened monitoring to identify and address challenges. Technical collaboration with the AP project team was intensified, with the DoHFW assigning clear accountability for individual components to three



directorates, and World Bank task team members managing activities aligned with their expertise. Regular monthly meetings supported progress tracking, problem solving, and maintained momentum. Within a year, most PDO targets were achieved and disbursements increased, while the World Bank team maintained close oversight by delaying an upgrade of the implementation progress rating from Moderately Satisfactory to Satisfactory until the end of the project period (ICR, p. 15). Supervision was well received by the Borrower, and the team earned an award for effective implementation and outstanding support (ICR, p. 14).

Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

The state's DoHFW led project M&E through its Strategic Planning and Innovations Unit (SPIU). The SPIU drew information from multiple existing and new data sources using an integrated dashboard, and the project's results framework relied on data from this dashboard (PAD, p. 23). IRIs and DLIs were both qualitative and quantitative, in line with the project being an IPF. All PDO-level indicators and most IRIs were linked to DLIs and DLRs for disbursement (ICR, p. 12). The SPIU contracted with a third-party Independent Verification Agency (IVA) to verify achievement of the majority of disbursement-linked indicators. The IVA was familiar with the public health system of India and had the capacity to measure both process indicators and indicators on provider capacity and service delivery improvements through data review and field verification. The SPIU was responsible for compiling data on the DLIs for the IVA and the Bank (PAD, p. 23). However, it is important to note that two of the four outcome indicators did not have baseline data (see Section 8a).

M&E plans included a STEPS survey on NCDs and an evaluation of the e-SC model, both of which were linked to project DLRs and were to be coordinated and implemented by the SPIU. The STEPS survey was to assess NCD risks, prevalence, service use, and disease management to better target screening and care. The e-SC model evaluation was to work with a third-party organization to conduct baseline and end-line evaluations to generate lessons useful to many other states in India, as well as to other countries facing workforce constraints in retaining doctors in remote areas, task shifting to nurses and community health workers (PAD, p. 23).

b. M&E Implementation

The AP DoHFW used existing governance and management structures to lead project implementation. Oversight was provided by the DoHFW Executive Committee, chaired by the Principal Secretary. The



SPIU, reporting to the Principal Secretary, managed day-to-day operations, with the Principal Secretary serving as Project Director and the SPIU Director as Project Coordinator (PAD, p. 21).

Overall, the project's M&E implementation covered many dimensions, ensuring that all PDOs and most IRIs were linked to DLIs and DLRs to trigger disbursement, making rigorous data collection and verification critical. Investments were made in online data input systems and dashboards that increased transparency and facilitated analysis, along with provision of extensive training and user-friendly guides. NCD surveys, though not standard STEPS surveys, covered and screened the entire adult population of the State, built capacity, and informed program monitoring and implementation by generating useful data on NCDs. While the planned e-subcenter evaluation was not conducted, evaluations were carried out for Village Health Center visits by MMUs, public health spending (Public Financial Management Study), and governance and cybersecurity of all digital data systems. Pilot initiatives were also evaluated, with findings used to make adjustments before roll-out (ICR, p. 12).

c. M&E Utilization

M&E findings were widely accessible to stakeholders, through dashboards and often in real-time, and used to guide project implementation. Project information was shared extensively with other States and national authorities (ICR, p. 55). M&E data were actively used to guide project decisions and improvements, enabled by extensive digitization and development of data dashboards. For example, a baseline assessment's findings led to expanded cervical cancer screening, while the Public Financial Management Study led to the development of a smart drug management system that tracked actual drug use at each facility and alerted pharmacists before drugs expired, eventually leading to reduced waste, stock-outs, and costs. Pilot assessments were used to refine system design and implementation. The quality dashboard helped target support to underperforming areas and promote cross-facility learning. Patient data were used to generate lists of people to be seen by the mobile medical team outreach and follow up for high-risk and chronic patients. These data also supported policy analysis, such as assessing the feasibility and cost impact of providing free NCD diagnostics (ICR, p. 52).

The NCD survey data for all adults was linked to individual health identifiers, allowing each HWC to identify and track people at risk within its catchment area. ANMs used these lists to mobilize patients to be seen by the visiting medical team, and for counseling, testing, treatment, or referral, while dashboards allowed data to be viewed at the State, district, and facility levels (ICR, p. 53).

The State of AP also made significant efforts to strengthen health data use, including by partnering with universities and research agencies, integrating data across sectors, and avoiding duplication. Children's health data were shared with education authorities for targeted programs such as sickle cell anemia screening, and tools are used to support prevention and analysis (ICR, p. 54).

M&E Quality Rating

Substantial

10. Other Issues



a. Safeguards

The project triggered three safeguard policies: Environmental Assessment (OP/BP 4.01), Indigenous Peoples (OP/BP 4.10), and Physical Cultural Resources (OP/BP 4.11). The project was classified as Category B, since it did not have significant environmental or social impacts and no new large-scale construction, with only minor upgrades within existing health facilities. World Bank Environmental, Health, and Safety Guidelines were to apply in all service contracts for biomedical waste management and sanitation. The presence of Scheduled Tribes in the project area triggered the Indigenous Peoples policy (PAD, p. 28). The Physical Cultural Resources (OP/BP 4.11) policy was triggered because civil works could potentially affect physical cultural resources (ICR, p. 13).

An Environmental and Social Management Framework (ESMF) was prepared to address potential environmental and social risks, including a Tribal Development Plan in line with OP 4.10. It outlined mitigation measures, institutional arrangements for environmental and social safeguards management, mapping of existing systems for grievance redressal and feedback mechanisms, and beneficiary engagement both at the State and health facility levels (PAD, p. 28). The ESMF also incorporated screening measures to prevent impacts and established chance-find procedures in case any new resources were discovered to address the Physical Cultural Resources policy (ICR, p. 13). After consultation with stakeholders at the district and State levels, the final version of the ESMF was publicly disclosed in-country on the AP Health Department website and on the World Bank's InfoShop in February 2019 (PAD, p. 30).

The ICR reports that the project complied with environmental and social safeguard requirements through minor repairs and renovations associated with health facility upgrades, and by establishing a well-publicized and widely used Grievance Redress Mechanism for the government of AP. Citizens could register grievances against any government department via a toll-free number or online platform, and the DoHFW provided data on the number of complaints received and addressed (ICR, p. 13).

b. Fiduciary Compliance

Financial Management: Financial management (FM) was led by the SPIU, staffed by officers from the State Finance Department who ensured compliance with accounting, payment, reporting, and audit requirements (PAD, p. 27). At appraisal, a fiduciary systems assessment was carried out to evaluate and review state systems for budgeting, funds flow, payment, accounting, and auditing. This assessment provided reasonable assurance that funds would be used for their intended purposes in line with principles of economy, efficiency, transparency, and accountability. Program funds flowed through health directorate budget lines, with payments made by the Treasury following standard State government procedures (PAD, p. 27). Bank financing was disbursed against verified achievement of results using Eligible Expenditures. The Eligible Expenditures Program (EEP) included salaries of district office, PHC, and SC staff, as well as support staff. The project used the State government's existing audit systems, annually sharing the Comptroller and Auditor General's audit and Accountant General reports on health spending, on agreed budget lines with the World Bank (PAD, p. 27).

At project completion, it was noted that the government of AP provided planned counterpart financing through regular DoHFW budgets. The project's FM performance was rated satisfactory through implementation, and risk remained moderate throughout. Audits confirmed expenditures through the



state’s Annual Finance Accounts, although some Interim Unaudited Financial Reports were delayed, and fund shortfalls faced by the government also caused payment delays in 2022 (ICR, p. 13). It was noted that existing financial reporting arrangements eased the administrative workload for the project team, as interim financial reports from State treasuries and annual audited statements from state finance accounts issued by the Accountant General were fully aligned with State systems, eliminating the need for separate and additional reporting (ICR, p. 11).

Procurement: At appraisal and based on the EEP, the project did not intend to directly finance procurement of goods, works, or services (consultancy or non-consultancy services). Any procurements under the project not reimbursed by the Loan would be carried out by AP government using country systems, ensuring quality, timeliness, compatibility with project elements, and economic and financial viability. Given the existing procurement capacity of the State and the definition of the EEP, procurement risk was rated low at appraisal (PAD, p. 28).

At project completion, project performance on procurement was rated moderately satisfactory due to a few critical project-related procurement delays, and procurement risk was assessed as substantial. However, since the project disbursed funds based on results rather than directly funding specific inputs or activities, it actually did not directly undertake any procurement (ICR, p. 13).

c. Unintended impacts (Positive or Negative)

None reported.

d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	
Bank Performance	Satisfactory	Satisfactory	
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

12. Lessons



The ICR (pp. 15-16) included several lessons and recommendations, including the following lessons re-stated by IEG:

- **Removing state-level bureaucratic barriers enables more effective and innovative recruitment and retention strategies.** Adopting a zero-vacancy policy (that the state strived for), supported by digitized staff attendance systems, can reduce absenteeism and improve workforce accountability. Further, streamlining advertising and hiring processes, offering retention incentives, and implementing targeted staffing approaches such as recruiting couples to serve in underserved areas and providing higher-than-usual compensation for remote postings can significantly improve the ability to attract healthcare providers with scarce skills.
- **Early planning and rollout are crucial for innovative Patient Experience Feedback (PEF) systems.** Designing, testing, and implementing PEF mechanisms often takes longer than anticipated, and delayed initiation can limit their effectiveness. Starting patient feedback data collection earlier in a project enables capturing of baseline data on quality, access, and responsiveness, allowing for effective measurement of changes and patient satisfaction at project completion.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR was internally consistent and evidence-based, providing a good overview of both successes and shortcomings of the project. It provided detailed information on the various restructurings. Lessons were insightful and likely to be useful for other State-level health project in India. Overall, the ICR was clear, concise, and consistent with guidelines. It helpfully cited, where appropriate, additional studies undertaken for the project, such as the evaluation of the Family Doctor Program conducted in 2023.

- a. **Quality of ICR Rating**
Substantial

