Performance Enhancement of Primary Health Care in Andhra Pradesh: Findings from the Pilot

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Introduction

Performance enhancement techniques have been widely implemented in various sectors and industries to improve service delivery and process performance. Yet, there has been scarce application of these methods to public health settings, especially in a resourceconstrained setting like India. This could be due to lack of a set of evidence-based methods or scalable interventions for quality and performance enhancement. This report discusses a pilot intervention for performance enhancement in public health and describes a continuum of quality improvement methods for primary health centers in Andhra Pradesh, India. Highlighted in the report are a set of tools and techniques that have been developed from the field to ensure that the primary health centers consistently meet the health needs of the communities.

The government of Andhra Pradesh (A.P.) is committed to achieving a number of health targets by the year 2012, including reducing the current infant mortality rate, maternal mortality rate, and increasing the percentage of institutional deliveries, among others. Achieving these targets the A.P. government has embarked upon a reform programme called the Andhra Pradesh Health Sector Reform programme (APHSRP) that aims at improving access to quality health services especially to the poor and the underserved population. As part of the process, the government has realized that one of its challenges is to improve performance of the public health system, `especially at the primary care level.

Performance enhancement requires that strategies and actions at the most basic level of any organization are in synch with the goals of the organization. It requires that the front line staff is provided with feedback on their performance, including comparison of their performance with the benchmarks based on the management information system and make them responsible for change. It also requires a framework for team-based, customer-focused, problem-solving that is closest to where care is provided. This approach has been proven to facilitate gains in output and ultimately health outcome (Fung, 2008). The government of Andhra Pradesh implemented a pilot project on performance enhancement in primary care in Warangal District during 2009. The organizers of this project are Family Health International, the Harvard School of Public Health and the Foundation for Research in Health Systems.

Literature Review

Performance enhancement is commonly attempted with management information systems designed to provide feedback to individuals responsible for program performance as well as to their supervisors.

Report card as a tool for performance enhancement has been used in government health systems of both industrialized and developing countries. Research has documented that

public reporting of performance facilitates increase in transparency, ultimately leading to improved performance. Putting evidence on health services performance in the public domain has the potential to change the provider-patient dialogue, making it difficult for service provider to ignore problems. Performance rating also triggers quality improvement because providers usually want to be viewed favorably by their peers (McNamara 2006).

Wennberg (1977) documented that doctors, when shown that their practice deviated from that of their peers, change their decision-making to conform to the practice norm. A 1989 study in New York State reported wide variations in mortality rates from cardiac surgery from institution to institution. Following the publication of this report lower-rated hospitals responded by improving their cardiac surgery programs, leading to a substantial statewide reduction in mortality. Another study reported that quality improvement activities were least frequent in hospitals that did not report performance and most frequent among hospitals whose performance was publicly reported (McNamara 2006). Publicizing performance reports have acted as a guide to help patients select providers and to stimulated quality improvement among providers.

Report cards and the publication of results have also yielded positive results when used in resource-constrained environments (www.ihi.org). In Uganda, the "Yellow Star Program" measured performance against 35 indicators covering technical and interpersonal factors, infrastructure, management systems, infection prevention, health education, clinical skills and client services. Ratings were made available to the community; facilities receiving a 100% score for two consecutive quarters were awarded a yellow star, which was then posted prominently on the outside of each recognized facility. The evaluation of the program showed that the average scores increased from 47% for the first quarter to 65% for the second quarter (McNamara 2006).

A tool called the "Balanced Score Card" (BSC) has been used over recent years with positive results in war-torn Afghanistan, a difficult testing ground for any community-based initiative. In the past ten years, numerous health service organizations have used the BSC in much the same manner to improve their performance. In Andhra Pradesh also a pilot study was conducted in Visakhapatnam District to study the impact of social accountability on health system performance in which Community Scorecards (CSC) were used to assess the performance of two PHCs by linking service providers to community-based self-help groups to provide immediate feedback to service providers (Misra 2007).

Objectives

To design and pilot test Performance Enhancement (PE) Program for primary health care, using Peer Learning methods and Quality Management concepts. This program will empower front line service providers to take corrective actions; will improve PHC-medical officers' management capacity and will encourage clients/community to provide feedback and demand quality services.

Methodology

Government primary health care services are structured based on population norms. The lowest level health facility where doctors are posted is the Primary Health Center (PHC) for 30,000 population, with two medical officers, and a staff of male and female health workers, health educators, laboratory technicians and peons. PHC medical officers combine clinical duties with administrative responsibilities but have few financial powers. District Medical and Health Officer 's (DM&HO) office exercises control over PHC through information based on reported data, monthly staff meetings and field visits.

The pilot was implemented in ten PHC in Warangal district of Andhra Pradesh. The focus of this intervention was on primary health care and not on the hospital-based curative services. The goal was to strengthen monitoring, supervision, community participation for performance enhancement of PHC, using assessment tools like report cards and stakeholder assessments and community feedback to the providers.

PHC for the pilot were selected in consultation with the District Medical and Health Officer (DM&HO). Since Warangal has five sub divisions, two PHCs were selected from each subdivision; five of them were of 24X7 type (PHC with more staff, 30 beds and providing 24X7 service), and the other five were Day-PHC (PHC having one-two medical officers, providing services from 9 am to 5 pm and 4 beds for observation purpose but no in-patient service). The selected PHC are listed below.

Subdivision	PHC Name/Type	Est. Population
Narasempeth	Duggondi (24X7)	31381
	Keshavapur (Day)	18833
Warangal	Stn. Ghanpur (24X7)	45471
	Damera (Day)	28925
Mulugu	Shyampet (24X7)	47940
	Raiparthy(P) (Day)	63810
Mahaboobabad	Thorrur (24X7)	75482

Ten PHC selected for the Pilot

	Nekkonda	(Day)	34968
Jangaon	Palakurthy	(24X7)	62329
	Komalla	(Day)	48957

In the ten PHCs we tested effectiveness of four tools in terms of their impact on improving PHC performance. These tools were:

- 1. Performance Report Card
- 2. Peer Consultation meetings
- 3. Clients/community feedback on PHC performance
- 4. Performance Enhancement Group at PHC

This report describes these tools, their implementation in 10 pilot PHCs in Warangal districts of Andhra Pradesh and the impact on PHC performance.

Performance Report Card

Performance Report Card presented PHCs' quarterly performance on selected indicators and PHCs' functionality assessment carried out by PHC staff (medical officers, health workers and administrative staff) on selected dimensions, using a structured tool.

Selecting Performance Indicators

While selecting indicators for the Report Card, two principles were kept in mind namely, (i) the report should be concise and not go beyond one page and (ii) the required data are already being collected. The two obvious sources of such indicators were the National Rural Health Mission (NRHM) report being sent to Government of India every month, and the State's Form-B, which had many common data elements as the NRHM report but also others like the numbers of outpatient, inpatient and patient seen at 104 mobile units, which were not in the NRHM report.

We started the selection process with about 25 possible indicators to cover various public health programs. From the initial list, a few were dropped because data for them was not available with the health departments (i.e. number of children weighed, children malnourished, water samples tested, school children examined). Child nutrition data was with the Integrated Child Development Scheme (ICDS) program implemented by the Women& Child Welfare Department; water & sanitation data was with the Rural Development department and the DM&HO was not confident of getting them from these sister departments, notwithstanding of their health implications. Some other indicators were updated once in five years (i.e. contraceptive prevalence rate, households with sanitation and safe drinking water), hence could not be reviewed quarterly. After removing these indicators, we finalized the initial list of 15 indicators in consultation with district health officers (table 1). The list could be modified over time as deemed necessary.

	Table 1 Performance Indicators
	Patient Care
1	Number of outpatients/per day/medical officer
2	Number of outpatients seen at 104 /day
3	Number of inpatients per month/ per bed
4	Number of blood slides examined for malaria/ 100 outpatients
5	Number of pathology tests done/100 outpatients
	Mother Care
6	Number of pregnancies registered / 1000 population
7	Number of ANC provided 3 ANC visits and 100 IFA tablets
8	Percent institutional deliveries in the area
9	Number of deliveries at PHC building/month
10	Percent delivered women provided 2 postpartum visits by health worker
	Child Care
11	Number of children fully immunized / expected number children
	Family Planning and Reproductive Health
12	Number of sterilizations conducted / sterilization target
13	Number of spacing method acceptors/spacing method target
15	Number RTI/STI cases treated /per 100 women of reproductive ages

ANC= Antenatal Cases ; Fully Immunized – received BCG, 3 doses of DPT, 3 doses of Polio vaccine and Measles vaccine.

The Report Card showed comparison between PHC's performance and the "best" performance in the district and between actual and the expected performance, on each indicator. For example, if a PHC was expected to serve about 50 outpatients per day per doctor as a norm and the best observed performance of a PHC was 150 patients per day then PHC Report Card would show its own performance vis-à-vis the norm and vis-à-vis the best performer. The idea behind this comparison was to show to the PHC doctors the gap between his/her performance and the norm; and encourage him/her to aim for the "best performance".

PHC Functionality Domains

The second part of the report card contained PHC staff's assessment of PHC functionality. The functionality assessment tool contained four domains: (1) work environment, (2) infrastructure adequacy, (3) fund availability and (4) managerial control of medical officer. In each domain, five questions were listed to assess that domain. For example, under the work environment domain, questions listed were:

- Does the MO find his/her staff sincere and dependable?
- Does the department provide opportunities for skill development?
- Does the health department make him/her feel important?

- Does his/her opinion seem to matter in running the PHC?
- Does he/she feel that department recognizes good work?

The other three domains were similarly structured to which medical officers' responses were sought on the scale of 0-5 (**Table 2**)

Assessment Variables	Scale				
A: Work environment					
Sincerity and Dependability of staff	0	1	2	3 4	5
Opportunity to Upgrade Skills	0	1	2	3 4	5
Extent to which department makes me feel important	0	1	2	3 4	5
Extent to which my opinion matters in PHC management	0	1	2	3 4	5
Extent to which our good work is recognize	0	1	2	3 4	5
B: Infrastructure Status (observed)					
Adequacy of essential Staff availability	0	1	2	3 4	5
Adequacy of equipment in working condition	0	1	2	3 4	5
Availability of essential Facilities in PHC	0	1	2	3 4	5
Adequacy of space available for service delivery	0	1	2	3 4	5
Availability of benches and water etc for patients' use	0	1	2	3 4	5
C: Funds and Financial Powers					
Timely Payment for Phone/Electricity	0	1	2	3 4	5
Availability of essential drugs and equipment	0	1	2	3 4	5
Adequacy of funds available for Routine maintenance	0	1	2	3 4	5
Percentage backlog in JSY payments to beneficiaries	0	1	2	3 4	5
Ability of MO to decide the use of united funds	0	1	2	3 4	5
Domain D: Managerial Control					
MO's powers to discipline staff	0	1	2	3 4	5
MO's ability to ensure PHC staff's competency	0	1	2	3 4	5
Percent of PHC staff staying at the place of posting	0	1	2	3 4	5
Extent of MO's satisfaction with the PHC achievement	0	1	2	3 4	5
Extent to which MO feels respected in the Community	0	1	2	3 4	5

Table 2: Stakeholder Assessment of PHC Functionality

Peer Consultation Meetings

Peer consultation meetings were held quarterly to discuss the PHCs' Report Cards with the PHC-MO and to help them decide on what actions they would take if significant gaps were found between their achievements on any indicator compared to the "expected" or the "best" achievement. District health officer's role in these meetings was to listen to MOs' problems, to offer support for solutions they come up with but not to provide the solutions. These meetings were facilitated by the researchers whose responsibility was to make sure that all MOs got sufficient space to voice their concerns and problems and that they seek guidance

from each other, especially from the "high performers".

Prior to the meeting each MO received his/her report card to:

- Examine if the data presented in the Card was correct
- Identify indicators on which his/her PHC fell too short of the expected level
- Examine how well his/her PHC performed vis-à-vis the "Best" and why
- What actions he/she would need to take to enhance PHC's performance

The First Meeting

The first meeting of the 10 pilot PHC MOs was organized in July 2009. At this meeting, the researchers explained to MO the project design and its objectives and presented to them the baseline Report Card, based on the 2008-09 data and findings from PHC Functionality assessment that the researchers had carried out before initiating the project.

Examining their own report cards, medical officers first discussed the appropriateness of the indicators, correctness of the reported data, and the rational for the expected levels of performance against which their performance was being evaluated.

Issues Identified in the First Meeting

Incongruous Data: In case of two PHCs, the inpatient-outpatient data obtained from the DM&HO office did not match with what MOs had reported. One MO insisted that she was treating 60-70 outpatients per day but her Report Card showed "0" outpatients. How was that possible? Improving accuracy of data reporting became a priority problem at least for 2 PHCs.

Inappropriate Evaluation criteria: Other contentious issues were "bed utilization" and "number of deliveries conducted" at Day-PHCs. MOs from 5 Day-PHCs that worked from 9 am to 5 pm argued that they should not be evaluated on bed utilization since they were not expected to admit inpatients. Four beds provided in those PHC were for patient observation and not for inpatient care, including deliveries. After much discussion among themselves and with the DMHO about the government's policy of providing delivery services at each PHC, they agreed to accept a norm of 5 deliveries per month for 8-hour PHC and 25 deliveries per month for 24X7 PHC.

Inadequate Staff: One MO observed that my lab performance was low because there is no laboratory technician (LT) in the PHC; that indicator should be used only in PHCs that have LT is posted. This discussion helped the researchers to explain to MOs that the purpose of the Report Card was not to evaluate PHC but to identify areas where PHC functioning needed improvement and plan actions accordingly. If a PHC for example, is not able to undertake laboratory tests because LT is not in position, then expected actions is to appoint a LT on contract or train a health worker to undertake basic pathology tests.

Outcome of the first meeting

After such discussions, MOs selected the following actions for implementation in their respective PHCs:

- Increase the number of lab tests in the PHC, particularly number of malaria tests
- Improve communication with patients and spend more time interacting with them
- Regularly visit sub-centers to improve immunization and ANC registration rates
- Conduct at least 5 deliveries per month in the PHC
- Improve data recording at the DM&HO office

To assess the extent of mismatch between the data reported by PHC and recorded at the district level, researcher collected data on 15 performance indicators from the pilot PHCs and compared them with the data provided by the DMHO office. It showed only 43 percent match; 10 percent match on the clinical care data and 90 percent on MCH data (Table 3). This finding was presented in the second Peer-consultation meeting.

Indicator	No. of PHC where reported data matched
1. OPD Attendance	1 / 10
2. IP admissions	1/10
3. Malaria slides tested	6/10
4. Lab tests conducted	1/10
5. ANC registration	7/10
6. Early ANC Registration	6 /10
7. Total deliveries in PHC area	9/10
8. Institutional deliveries	8/10
9. Deliveries in Govt. institutions	8/10
10. Deliveries in the PHC	8/10
11. Conducted 2 PP visits	0/10
12. Full immunization (12- 23 months)	9/10
13. Sterilization acceptors	0/10
14. Spacing method acceptors	0/10
15. Treatment for RTI	4/10
Total matches (Max 150)	68/150
% Matches	43%

Table 3: Number of times PHC data matched with data from DMHO office (N=10)

The Second Meeting

In the second peer consulting meeting, eight out of ten district health program officers remained present compared to only two in the first meeting. Their presence helped the participants identify problems common to all PHCs.

Issues Identified in the Second Meeting

Exaggeration in Reported Performance: One of the issues the district level program officers brought up for discussion was that health workers often exaggerated the work done and MOs allowed them to do so. For example, while health workers reported 100 percent children fully immunized and 100 percent delivered women were visited during the post partum period, independent survey (DLHS-3) had shown only 43 percent children fully immunized and 68 percent delivered women had received post partum visit. Health workers rarely reported infant or maternal deaths and practically never reported epidemics outbreak. Those events were first reported in newspapers and by local leaders.

Lack of Community Involvement: District program officers brought up the problem of lack of community involvement in PHC functioning, as was envisaged under the NRHM. At the mention of community involvement there was a palpable hesitation among MO. They were reluctant to get involved with local leaders and their political agenda but were open to the idea of involving self help group leaders.

Non-functional Labs: Two doctors sought district program officer's guidance on how to make their laboratories functional. Though 7 out of 10 PHC had lab technicians their productivity was low because doctors were not holding them accountable, one of the district officers said. MOs were not using lab tests and when needed were referring patients to private laboratories.

Outcomes of the Second meeting:

Medical officers present at the meeting agreed on certain steps needed to improve quality of data:

- Health workers should get training in data recording and reporting
- Health workers' reports to be scrutinized
- supervisors should undertake concurrent evaluation to curb workers tendency to report exaggerated data
- Introduce a monthly report for laboratory technicians to increase their accountability

The Third Meeting

The third meeting was held in December 2009. Nine out of ten medical officers and eight district program officers were present at this meeting. Also the principal health secretary attended this meeting since he wanted to learn about the pilot - its usefulness and scalability. Focus of this meeting therefore was on informing the principal health secretary about actions taken and initial results obtained under the Pilot.

Action 1: Steps taken to improve quality of reported data and initial results

A two-member researcher team had visited all 10 pilot PHCs and met with functionaries who filled the Form- B and NRHM forms and to explain to them how important really this job was. At each place, the MO told them that the data they entered represented their PHC; any mistake they made reflected badly on their medical officer in front of district and state level officers. Therefore they must do this work carefully. Then the research team found out how well the functionaries understood the indicators and how well they maintained the required data. To help them understand the data flow, the research team created a chart showing definition of each indicator, who maintains the required data, where it is maintained and in what form. This tool proved valuable to identify specific gaps in data maintenance and reporting.

During this exercise the researchers found multitude of definitions of different indicators. They came across five definitions of "eligible couples sterilized' and found incorrect definitions being prevalent about 'outpatients', 'full ANC' and 'PP visits'. For example, when asked, what is meant by "conducted 2 PP visits" one supervisor replied "the mother who visits the PHC after her second child". No one knew the correct definition namely "mothers to whom worker had visited two times within 10 days of their delivery".

When the worker who was filling the report did not know what data to fill, he left them blank hoping that the supervisors to make the corrections. Health Supervisors were also not much better in their understanding so they passed on that responsibility to the medical officer. Most MO said they just signed the reports that their supervisors forwarded without checking anything. The research spent some time in creating:

The research team then spent some time at each PHC abstracting the correct data from various registers they maintained, explaining to the staff how to maintain a consolidated data registers to make their report writing easy. This process took about 4-5 hours at each PHC. This action however showed quick result in terms of completeness of data reporting from 77 percent in June to 93 percent in September, consistency between the data reported by PHC and that recorded at district improved from 43 to 59 percent over that period.



Another dimension of quality is authenticity of data. Since performance improvement can be expected only if the reported data was also authentic, the DMHO had asked the researchers to develop some tools to assess the authenticity of the reported data. The research team developed a beneficiary tracking system (BTS) by using concepts of Lot Quality Assessment (LQA). In LQA, service data is gathered independently from a small sample of beneficiaries and cross checked against the records maintained by health worker. Researchers interviewed Self-Help Group members who had delivered a baby in previous 3 months and traced their records in the workers' registers to compare mothers' responses with the recorded data for 6 services.

Beneficiary tracking was carried out in 10 PHCs in which 21 mothers and 17 infants were tracked. Out of 21 mothers, 2 were not in health worker's register. Of the 19 records found in the health workers records, data match was poor on number of IFA tablets received (1/19); number of PNC visits (4/19); and number of ANC visits (7/19).

The nature of mismatch was: women reported receiving 30 IFA tablets, records showed 90-100 (18/19 cases); when mothers said no PNC visits, record showed two PNC visits (15/19 cases); when women reported none or one ANC visit, records showed three visits (12/19 cases). Match was near perfect on number of tetanus injections received, place of delivery and whether women received incentive money provided under the Janani Suraksha Yojana (JSY). Out of 17 infants tracked, data on their full immunization matched for 12 infants (Table 4). None of the health workers qualified for data quality award!

Number of mothers tracked	19	Number of infants tracked	17
for service verification		service verification	
No of ANC Visit	7	BCG	16
No of TT	17	DPT	13
No of IFA Tablet	1	OPV	16
Place of Delivery	18	Measles	17
No of PNC visit	4	Vitamin A	17
JSY money received	19	Full immunization	12

Table 4: Extent of data match found through beneficiary tracking system

As a result of this assessment some PHC staff started correcting their mistakes and wanted formal training in filling the forms correctly. In some PHCs, staff members did not like their reports being audited; they started hiding their reports. Staff's response depended on how medical officers looked upon this pilot.

Action 2: Steps to bring accountability in laboratory functioning

From the 10 pilot PHCs, we collected data about laboratory staff, equipment, supplies and performance. The data showed seven out of ten PHCs had lab technicians funded through different programs, nine had microscopes, all had equipment to test urine but only one had equipment to do blood sugar test. District officers and PHC doctor agreed that they had sufficient resources to undertake six basic tests expected at PHC (Urine (albumin and sugar), Blood (Hb and sugar), Malaria, and TB).

Action 3: Design an appropriate tool and process for community involvement:

PHC MOs, in the second Peer-consultation meeting, had expressed support to the idea of collecting community feedback using self help groups (SHG). The tool had to be simple enough for SHG members to use and good enough to provide practical feedback to PHC-MO.

Issues Identified in the Third Meeting

The Principal Secretary expressed concern about the near 50 percent mismatch. Neither PHC-MOs nor district officers could explain why such a mismatch should occur. Was the difference because PHC staff was not sending correct data or because there were problems with data entry? Health secretary suggested that PHC should send data by email to avoid faulty data entry at district.

Regarding lab functioning, the data revealed (with which the District officers and PHC doctor also agreed) that most PHCs had sufficient resources to undertake six basic tests expected at PHC (Urine (albumin and sugar), Blood (Hb and sugar), Malaria, and TB) if

they insisted on improving this service because in addition to lab technicians even female health workers or their supervisors could carry out basic laboratory tests. The issue was lack of monitoring of lab technicians; they were not required to report their performance as other PHC functionaries were.

Community feedback tool (described later in the paper) had been developed and pilot tested in one PHC. Medical officers had found the results useful.

Outcomes of the Third Meeting

- Initiate a laboratory performance report to be sent by lab technician from each PHC
- District Malaria officer was designated as officer in-charge for reporting and improving of lab functioning
- Set-up quality enhancement group at PHC involving health staff and community members to take act on the community feedback.

The Fourth Meeting

The fourth meeting was held in June, 2010. Only six medical officers and eight district level program officers attended the meeting. The meeting was to discuss their experience with the pilot, the actions they took as a result, and changes in their performance that could directly or indirectly attributable to the pilot. They said that selecting a few key performance indicators and training PHC personnel had improved regularity and completeness of reporting. They found community feedback helped them to focus on some important actions like ensuring that women received JSY benefits on time.

Community Feedback

Involving community level structures

In the second peer-consultation meeting PHC-MO had agreed to pilot test community feedback and to involve community members in PHC activities. District administrators were interested in implementing social audit in the health department because it was working well for the National Rural Employment Guarantee (NREG) Scheme. The health department was not in favor of social audit for many good reasons.

The concept of getting client/community feedback was acceptable to health officers because it was incorporated in the NRHM but AP had not implemented it. Since MO were comfortable about working with women's SHG groups we decided to involve **Self Help Groups**,

known as Indira Kranti Patham (IKP) groups in Andhra Pradesh, in providing community feedback.

IKP is federated structure of self help groups. In each village there are about 10-20 self help groups (SHG) under one *samaikya*, depending on the size of the village. Each group has 15-20 members. At least one woman from each household is a member of SHG. Special attention is paid in forming SHG of the poorest of the poor women, known as *Nirupeda* Groups, to ensure that the poor are not left out. SHG are mainly focused on savings and credit for improving income of their members. SHG maintain good relation with PHCs, PHC doctors take SHG help to carry health messages to their members and to organize village level health activities. However, SHG members have limited time to devote to health related activities. They also have the reputation of being hard nosed about financial matters and do not hesitate to dismiss members for non-payment or delayed payments of dues.

The other village level structure we considered was Health and Sanitation Committee (VHSC), promoted under NRHM. VHSCs have been formed in all gram panchayat villages through a government order. Committees are headed by the Sarpanch, their members include mothers' groups, ANM and ASHA, and they receive grants of rupees 10,000/year from the government for undertaking community level health actions and community monitoring. This analysis suggested that both, VHSC and IKP should be involved in gathering and using community feedback. However, since the state government had not yet activated the VHSC, we decided to work with the IKP structure for community feedback until VHSC are functional.

Creating Community feedback tool

The role IKP was to: (i) Provide authentic Client Feedback on service quality; (ii) help identify problems affecting health status of community and (iii) mobilize community support to PHC in resolving those problems.

Researchers developed a simple tool to get SHG members feedback about quality and utilization of PHC services (Table 5). The tool was tested in poor women's SHG, called *Nirupeda* groups. Questions were administered during their routine monthly meetings held to update members' financial transactions such as savings, loans and repayments. Group leaders asked members to answer the following questions by raising hands. Feedback on maternal and child care services was obtained from SHG members, who had recently delivered a baby or had a one year old child. The tool was tried out in 12-15 *Nirupeda* (very Poor women's) SHG under each PHC, from 1563 women members of 141 *Nirupeda* groups. Their feedback was presented earlier in the paper as Table 5. Book keepers of the SHG were trained to collect the feedback, so they could repeat this exercise every quarter, with different SHG and present those findings.

Initially, researchers had included two more questions in the tool, asking women if they were aware of any maternal or infant death that had occurred in the village. To take care of the same event being reported by many groups, women were asked to give more

details about those deaths. In 141 groups interviewed we obtained information on 2 maternal deaths and 5 likely infant deaths (one of those could have been a stillbirth), which the health staff promptly dismissed as "not reliable information". Hence those questions were dropped from the final version of the tool.

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Questions	Responses
1. Number of members present in the meeting	1563
2. How many of them had family members not well in the	1544
past one month?	
3. How many of those unwell, took treatment?	1544
4. How many of them took treatment in government	339
hospital? (single option)	
5. How many took treatment took treatment from private?	742
6. How many took treatment from RMP in the village?	417
7. How many took treatment from PHC?	356
8. Those went to PHC, how many said they met the doctor?	270
9. How many reported the treatment as effective?	130
10. How many took services in 104 in the past three	130
months?	
11. How many complained about not getting clean drinking	35
water?	
12. How many complained that home surrounding was	52
dirty; many mosquitoes?	

 Table 5 Community Feedback obtained from 141 Nirupeda SHG

A few women who did not go to PHC said that a hospital in Warangal was easy to reach than the PHC. A few said they did not know when the doctor came and who he treated. A few more mentioned that PHC staff does not treat people well, no drinking water, place was not clean, too many patients during family planning camps but not enough space or beds for patients. Health secretary noted that 20 percent of those needing treatment come to PHC for treatment; possibly $2/3^{rd}$ of them find the doctor when they come to PHC and $1/3^{rd}$ find the treatment effective.

These feedbacks were presented in the peer group consultation meetings.

Performance Enhancement Group at PHC

At each PHC, PE group was formed to help PHC staff initiate "actions" identified based on the Report Card and the Client Feedback. PE group is a platform for involving community representatives in the PHC program, in a supportive and non-threatening role. PE Group included PHC staff (medical officer, supervisors and workers) and community representatives (members of IKP and VHSC, panchayat members, ANM, ASHA). Community representatives were selected from the categories of Mandal Samakya Leader, village Samakya Leader and VHSC women member.

MOs were initially reluctant to invite community members to PE meetings to be held at PHC. Some district officer did not support the idea of creating a new meeting. They suggested that instead of having PE meetings, PHC staff meeting should be held regularly. In that meeting they could discuss community's feedback and take actions.

The additional DMHO observed, "from the time ASHA meetings have started, PHC staff meetings have almost disappeared; we attend ASHA meetings but ignore the PHC staff meetings in which PHC performance, staff problems and health situation in the area can be discussed at length and actions taken". He requested the DMHO to revive the staff meetings; community members could add little value to PHC Performance, he opined. Fortunately, his was the minority view.

Most doctors felt good about receiving feedback and having women members in the PE groups. They hoped that if SHG members were sensitized about health matters they will put pressure on PHCs and gram panchayats to fulfill their respective responsibilities

To select community representatives to be invited to serve on the PE Committee, researchers visited each village to identify Mandal Samakya Leader, village Samakya Leader and VHSC women member and to tell them about their role in the PE committee if they were selected and were agreeable to serve on the committee. If they agreed, their names were given to the medical office to select from. The idea behind this exercise was to assure the PHC staff that they could chose members who they knew to be responsive and respectful of them and could keep out troublesome elements if they wished to.

Not all potential community representatives were interested in serving on this committee. Some demanded money to be a member of this committee. We selected only those who agreed to be in the committee even after knowing that it will be voluntary involvement to help PHC improve services.

Discussions at PE Group meeting

PE group meetings took place in nine out of ten Pilot PHCs. In one PHC, PE group was not formed because the medical officer was on un-official leave for a considerable amount of time, protesting the interference by rival political groups in the PHC functioning. This PHC

was particularly at risk of political interference as it was a tribal PHC, nearly 50 kilometers away from the district head quarter where state or district officers hardly ever visited and the medical officer belonged to the local tribal, living and working in the PHC, who also had political ambitions.

In the other nine PHCs PE group meetings were held. In all meetings, at least two district officers were present in addition to the researchers. Typically in each meeting, community feedback was read out and discussed. The differential views of community representatives and of PHC staff in one PE meeting is presented below:

Community: People do not come because the PHC staff does not treat them well. **PHC staff:** That is the impression people have. But if they interacted with us they will know that it is not true.

Community: PHC gives same type of medicines for all illnesses **PHC staff:** Many ailments are treated by the same set of medicines. In fact most people demand injections when it is not required. How do you know what should be given?

Community: Doctor is not available when we need them **PHC staff**: PHC works like any other government office, from 9 to 5. In addition, we have to attend meetings and other events that take us away from PHC for several days.

PHC usually has two medical officers therefore there is no reason why one of them should not be available everyday. One of the district officers suggested that the DM&HO should make sure that each PHC has a roster showing which doctor will be available, by date and time. That would fix responsibility of all doctors, not only of the in-charge medical officer. This meeting ended with the action plan:

- Orient SHG members about what services they should expect from the PHC
- PHC staff should behave and communicate respectfully with people
- Ensure that at least one doctor is available at PHC during OP timings
- Sensitize SHG members about the quality of medicines that the PHC provides to reduce their dependence on RMP

All PE group meetings were usually very lively. PHC staff learned to accept community views; community members tried to understand services at the PHC. They brought-up many complaints about the PHC. PHC staff used those opportunities to respond to them. For example, a community feedback showed many people have to buy water because the water is salty; PHC staff agreed with it and said that the water in the PHC was not fit for drinking. Panchayat leader, who was a PE Group member, stated that the water department tests water quality from many villages but sends no report on it. He agreed to seek report from the water supply department for his villages and then decide what to do, including putting up a water plant.

Community representative on their part appreciated doctors for the services they provided and offered help to create positive image of PHC in their areas. District officers who attended these meetings wanted PHC doctors to ensure that community representatives attended PE group meetings in adequate numbers so that their voice does not get ignored.

Outcome of the Pilot

At the end of the pilot, we assessed the change in key performance indicators between the base year (2008-09) and (2009-10) using the district's data base and in the PHC functionality scores using the data collected by the researchers at the beginning of the Pilot (May 2009) and at the end (May 2010). Since the pilot period was short we did not expect to see sizable performance improvements. We in fact expected some indicators like ANC visits, PP visits, and full immunization to decline because of data quality monitoring, which was borne out in the evaluation of the pilot.

CHART 1: PERFORMANCE INDICATORS Comparison with year 2008-2009 & 2009-2010





We however expected to see some improvement PHC functionality, especially on dimensions that PHC doctors had some control on. Chart 2 showed slight improvements in all domains except in fund availability and usage.



Funds availability and usage

fund available for timely payment

of JSY

routine and

mobility

4.5

3.5

3

2

1.5

0.5

timely payments

of bills

availability of

drugs and equipment



4.5

3.5

3

2.5

1.5

0.5

filled sanction

posts

equipment in

working

condition



facilities

available at

facility

rooms availbale

and being used

for diff services

items for

patients use

Infrastructure

endline

Lower score on fund availability was because PHCs had not received funds for routine maintenance and most PHC reported a backlog of JSY money to be paid to beneficiaries. Both those conditions indicated district level management capacities and not shortages of

baseline

endline

MO able to

decide for the

use of PHC untied funds funds at the program level. Delays in sending fund utilization certificates to the state usually resulted in delays in fund release from the state. PHC doctor had little control over those actions. One of pilot doctor reported that though he submits utilization certificates promptly, he does not get funds because of others who do not. District officers should exercise more control over PHC doctors who do not comply. Items on which PHC had some control, showed improvement in the end evaluation.

Summary and Discussion

The experience of the pilot was positive. The researchers had managed to develop simple instruments, using the available data that captured the essence of PHC functioning. The pilot succeeded in bringing together the main stakeholders of the Primary Health Care namely, the administrators, the service providers and the clients/community on one platform to discuss and resolve issues that affected PHC performance.

Many of the positive improvements showed between base year and the end, were due to attention paid to reporting (Outpatient attendance, deliveries at PHC) and some were due to actions taken by medical officers like visiting subcenters and improving supervision of the field level activities (children fully immunized and simulteneously given vit A). Medical officers self assessment showed improvement in repair of equipment and felt that they received more respect from community as some of them were interacting more with patients and community members.

The performance report showed no change in lab tests done as percentage of outpatients but number of outpatients showed increase, hence the volume of work handled by labs had improved in PHCs where doctors felt responsible for laboratory services.

The apparant negative ternds in malaria slides examined, in ANC 3 visits and in PP visits seemed to be an indication of improved accuracy. In the base year, all PHCs had reported unlikely performance of "100 percent" for ANC and Post partum visits. Realizing that those were mistakes, some MO had warned the heath workers against false reporting because they could be caught through the beneficiary tracking system.

The impact evaluation of this pilot using household survey in the experiemntal PHCs from Warangal district and control PHCs from neighboring district of Nalagonda had found that:

- Provider perceptions of PHC performance in Warangal improved between baseline and endline, particularly those related to quality of work environment and infrastructures status.
- Patient perceptions of effectiveness of treatment received at PHCs (both Warangal and Naagonda) generally decreased between baseline and endline, which was

consistent with decline in availability of medicines and supplies, a higher percentage of Warangal respondents indicated that the PHC was the first instance of treatment when they or their family members became ill (Andrew Mitchell, 2010).

Report cards benefitted where PHC medical officers were inclined to take the Report cards and community feedback seriously. In this pilot, 5 MO seemed self motivated to use the feedback to make some improvements; 3 of them attributed their motivation enrol for post graduate studies, where their performance might help. The other 2 attributed to stimulation they derived from group discussion and interation with experts. The remaining half did not seem motivated enough, perhaps because there was no pressure from above for them to participate, but they extended courtsey and coooperation to the research team.

This pilot used concepts from "performance management" and "quality improvement, combined with community feedback that created environment for double-loop learning, meaning when performance fell short of the expected, MOs were not admonished "for not trying hard enough" (single loop learning). They were encouraged to seek soltions to correct the situation by correcting norms, policies and procedures that seemed to affect their performance (Argyris, 1978).

For example, when Day-PHC were shown as not meeting the norms for deliveries at PHC, medical officers argued that the norm was incorrect. They should not be expected to conduct deliveries at PHC which does not work 24X7. They were able to negotiate those norms through discussion. When MO reported not having electricity for non-payment of electricity bills on time, the responsibility for bill payment was shifted to the district so that PHC did not have to suffer consequences of delayed payments. Similarly, when many women reported that they had not received incentive payment (JSY), DMHO came up with a solution of channeling the incentive funds though health centers and hospitals and not through female health workers who do not have the capacity to submit accounts timely.

Health secretary who attended the peer-consultation meeting, recognized the potential in having a group of doctors available to explain "why" certain policies / procedures were failing in the field, to help bring system-wide changes. He wanted the pilot doctors to tell him where the government was failing them; were they wasting too much of their time in meetings and administration; how well were the Hospital Development Committees working and if any changes were needed in them. "I want their views supported by data and evidence, not their opinions" was his message on the PE pilot.

A large amount of data is routinely collected in districts for monitoring. PHCs are responsible for 21 reporting forms and are maintaining as many registers. Health worker consolidate data into monthly reports and sent upwards to district and state levels as aggregate numbers of antenatal visits made, tetanus toxoid injections given, iron folic acid tablets given etc.

Monthly meetings of PHC doctors are held at the district level ostensibly to discuss problems and provide guidance, but they end-up discussing submission of reports and whether the targets were met or not. Nearly 10 days of staff time goes in to preparing reports for these meetings. At the regular monthly meetings, medical officers rarely reported their problems because they believed the district authorities were not interested in hearing their problems. "Usually we get blamed for the problems they report" MO often said.

In the PE consultations meetings problems were discussed, they got more attention and some solution. This difference could be because of:

(i) the setting of the peer-consultation meetings, *The setting* of the peer-consultation meeting was - a group 12-15 doctors, seating around a table along with district program officers, discussing all aspects of their performance. The setting of a typical monthly medical officers meetings was 60-70 doctors sitting in a large hall with poor acoustics; district officers reading out performance reports and government letters from a dais, giving little scope for discussion or questions.

(ii) the evidence being presented for problem identification *The evidence* presented in the peer-consultation was performance reports, community feedback and functionality assessment by PHC doctors which together could create an attention-grabbing "case". For example, when community members reported "doctors not available" in the PHC that had five doctors posted, the issue got attention. Then came the analysis that there was no fixed roaster for all doctors; there was no room for the doctor on night duty to stay; the in-charge medical officers was expected to ensure round the clock posting of doctors but had no power to make them comply with his order. After knowing those issues, the DMHO acted. He created roasters for all medical officers, making each one of them responsible.

(iii) presence of facilitators to ensure rational discussion between the medical officers and district officers around the problem. *Facilitation* of proceedings was the most important difference between the routine review meetings and the PE pilot. Researchers played the facilitation role of seeing that medical officers and community presented their cases, that no officer dominated the proceedings and that no issue was dismissed without proper discussion or reaching some resolution. This was a very important role that only a respected and competent outsider can play.

The Performance enhancement pilot project in Warangal combined concepts from "performance management" and "quality improvement" initiatives implemented around the world. Performance management is commonly implemented with management information systems designed to provide feedback to individuals responsible for program performance as well as their supervisors.

When doctors from Day-PHC for example, argued that they should not be asked to conduct deliveries at PHC (at least not as many) as at the 24X7 PHCs, they could negotiate those norms through discussion. When many medical officers reported not being able to pay electricity bills on time, the responsibility for bill payment was shifted to the district; PHC did not have to suffer consequences of delayed payments. Similarly, when many women through community feedback inform that they had not received incentive payment (JSY), DMHO inquired into the reasons and came up with a solution that implied changing the prevailing fund flow arrangements. Health secretary who attended the third peer-consultation meeting quickly recognized the potential in having a group of doctors explain to the government "why" certain policies / procedures were failing in the field, which would help him bring system-wide changes in the program. He told the researchers, "I want this group of pilot doctors tell me where the government failing them. Are we wasting too much of their time in meetings and administration? How well is "104" service or Hospital Development Committees working? Is any change needed in them? But we want those views supported by data and evidence, not as opinions".

A large amount of data is routinely collected for monitoring. PHCs are responsible for 21 reporting forms and maintaining as many registers. Health worker consolidate data into monthly reports and sent upwards to district and state levels as aggregate numbers of antenatal visits made, tetanus toxoid injections given, iron folic acid tablets given etc.

PHC doctors' meetings are held each month at the district level ostensibly to discuss problems and seek guidance, but they end up being about submission of reports and the targets being met. Nearly 10 days of staff time goes in to preparing reports for these meetings. The pilot demonstrated that these meetings could be used for coordinating work, mutual learning and two-way communication. At the regular monthly meetings, medical officers rarely reported their problems because they believed the district authorities were not interested in hearing their problems or more likely to blame them for the problems than help them.

However, problems discussed in peer consultation meetings got more attention and some solution. This difference could be because of: (i) **the meeting setting**, (ii) **evidence presented** and (iii) **presence of facilitators** to facilitate rational discussion around the problem.

The setting of the peer-consultation meeting was - a group 12-15 doctors, seating around a table along with district program officers, discussing all aspects of their performance. The setting of a typical monthly medical officers meetings is 60-70 doctors sitting in a

large hall with poor acoustics; district officers reading out performance reports or government circulars from a dais, giving little scope for discussion or questions.

The evidence, based on the Report Card and the community feedback together usually created attention-grabbing "case". For example, when community members reported that "doctors are not available" in a PHC that had five doctors posted, the issue caught attention of the DM&HO. The discussion brought out the real issues like there was no fixed roaster for doctors; there was no room for doctors on night duty to stay; the incharge medical officers had no powers to order them to be present on duty. The solution suggested was: DM&HO should create a duty roaster for all MO and hold each of them responsible for the duty hours.

The Facilitation of peer consultation meetings was a very important difference between the routine review meetings of MOs and the PE pilot. Researchers played the facilitation role of seeing that medical officers and community members could present their views without fear of being snubbed, that no officer dominated the proceedings and that no issue was dismissed without proper discussion or reaching some resolution. This was a very important role that only a competent "outsider" could play.

The state government is interested in up-scaling the pilot to the entire district and to the state, if the up-scaling is satisfactory. The up-scale will answer the question: How well can we replicate the three pre-requites mentioned above on a large scale? What incentives might be needed to sustain MOs' enthusiasm for performance enhancement? Is the initiative sustainable in the government setting?

In summary, the experience of the pilot was positive. The researchers had managed to develop simple instruments, using the available data that captured the essence of PHC functioning. The pilot succeeded in bringing together the main stakeholders of the Primary Health Care namely, the administrators, the service providers and the clients/community on one platform to discuss and resolve issues that affected PHC performance. The state government is interested in up-scaling the pilot to the entire district and if feasible, to the state if the up-scaling can satisfactorily answer the questions: can we replicate the three pre-requites of the performance enhancement initiative in a government setting?

Appendix 1

PHC Report Card

	PHC: *** Type: 8-Hour PHC No. beds = 4 Popula				n : 26,630
	Performance Indicators	PHC performance	Best performance	District average	Diff (Ave- PHC)
	Patient Care				
1	Average outpatients / per day/MO	120	220	75	45
2	OP seen in 104 / Per day	9	35	25	16
3	No. inpatients / month/ bed	5	20	20	15
4	% Blood slides examined for malaria/ Total OP	1	36	10	9
5	% lab test done / Clinic OP	1	16	15	14
	Mother Care				
6	Number ANC Registration /per 1000 population	23	28	22	1
7	% ANC received 3 ANC visits (or 100 IFA tablets)	100	100	95	5
8	% Institutional Deliveries	100	100	80	20
9	Number of deliveries at the PHC / month	0	16	5	5
10	% Delivered women received two PP visits	100	100	75	25
	Child Care				
11	% Children fully immunized / Ch. 12-23 mo	68	131	90	22
12	% Children received Vitamin A dose/ Ch. 12-23 mo	68	131	90	22
	Family Planning & RH				
13	% Sterilization / Sterilization target	6	14	5	1
14	% spacing methods acceptors / Spacing method target	11	23	10	1
15	% of RTI/STI Cases treated / per 100 EC	4	6	10	6

aru

Assessment Variables	Max	РНС	%
	score	score	Score
A: PHC work environment	25		
Sincere and Dependable staff	5		
Opportunity to Upgrade Skills	5		
Department makes me feel important	5		
My opinion matters in running the PHC	5		
Good Work is recognize	5		
B: Infrastructure Status (observed)	25		
Essential Staff Posted and Present	5		
Equipment in Working Condition	5		
Essential Facilities Available in PHC	5		
Adequate space/rooms available for service	5		
delivery			
Facilities available for Patients use	5		
C: Funds and Financial Powers	25		
Timely Payment for Phone/Electricity	5		
Availability of essential drugs and equipment	5		
Adequate funds for Routine maintenance	5		
No backlog in the payments to JSY			
beneficiaries?			
Power to Decide use of united funds	5		
Domain D: Managerial Control	25		
Power to Discipline Staff	5		
Ability to ensure staff competency	5		
Staff Staying at the Place of Posting	5		
Satisfied with the PHC achievement	5		
Receive respect from Community	5		
Total	100		

PHC Status Assessment

Community Feedback Form

- Name of the PHC
- Name of the village
- Name of the samakhya Name of the group •
- •
- Date of meeting
- Number of members present in the meeting
 Name of person who collected feedback

How many of your family members have been unwell in	
the past three months?	
How many of your family members who were unwell took	
treatment?	
How many took treatment in government hospital?	
How many took treatment took it in private?	
How many took treatment from RMP?	
How many took treatment in PHC?	
Those who took treatment from PHC	
How many were able to meet the doctor?	
How many found the treatment effective?	
Other basic health issues	
How many took services in 104 in the past three months?	
How many of you get safe clean drinking water?	
How many of you feel that your surrounding is clean, free	
from garbage and mosquitoes?	
Maternal deaths	
In the past one year have any of you heard of a death of a	
woman in your village due to pregnancy, childbirth or due	
to post-partum complications?	
If Yes: Describe – name, husband's name, circumstances	
of death	

Child deaths

In the past one year how many of you have heard of a	
death of an infant (0-1 year) in your village?	
If yes: Describe each death – mother's name, father's	
name, circumstances of death	

Community Feedback form (Maternal care services) Details of maternal care services received by SHG members /family

Name of the PHC Name of the samakhya Name of the group Date of meeting

Sr.	1	2	3	4	5
Name of the woman					
Number of ANC visits					
Number of TT					
Number of IFA taken					
Used 108?					
Place of delivery					
Delivery outcome					
If hospital delivery, number of days in hospital					
Birth weight of the baby					
Number of PP visits					
Received JSY money					

Community Feedback form (Child care services) Details of child care services received by children (1-2 years) in SHG members families in the past three months

Name of mother			
DOB			
Has been given			
Immunization card?			
BCG			
Number of DPT injections			
Number of polio doses			
Measles vaccine			
Number of Vitamin A doses			

References

Afghanistan Ministry of Public Health, John Hopkins University & IIHMR, "Afghanistan Health Sector Balanced Scorecard National and Provincial Results 2006" <<u>http://www.moph.gov.af/hmis-reports/BSC-reports/BSC-2006-report/</u>>

Andrew Mitchell, Thomas Bossert, Ajay Mahal, "Warangal District Performance Enhancement in Primary Health Care Project, Impact Evaluation Report, Harvard School of Public Health, 2010

Argyris, Chris, Schom Donald, (1978) "Organizational learning: a theory of action perspective, chapter 1, pp 20, Addison-Wesley Publishing company.

Berwick, Donald M., "Lessons from Developing Nations on Improving Health Care, British Medical Journal, May 8, 2004, pp. 1124 – 1129.

Franco, Marquez, Ethier, Balsara and Isenhower, "Results of Collaborative Improvement: Effects on Health Outcomes and Compliance with Evidence-Based Standards in 27 Applications in 12 Countries", A Report from The Health Care Improvement Project, University Research Co, for the U.S. Agency for International Development, November, 2009.

Fung, Lim et al., "Systematic Review: The Evidence That Publishing Patient Care Performance Data Improves Quality of Care", <u>Annals of Internal Medicine</u>, Jan 15, 2008, 148 (2), pp. 111-123.

Government of Andhra Pradesh. "AP Human Development Report 2007." <<u>http://www.aponline.gov.in/Apportal/HumanDevelopmentReport2007/APHDR_2007_Chapter7.pdf</u>>

McNamara, Peggy, "Provider-Specific Report Cards: A Tool for Health Sector Accountability in Developing Countries", <u>Health Policy and Planning</u>, 2006, 21(2), pp.101-109.

Misra et al., "Case Study 1: Andhra Pradesh, India, Improving Health Services Through Community Scorecards", Social Accountability Series, The World Bank, August, 2007. <u>http://siteresources.worldbank.org/INTSOCACCDEMSIDEGOV/Resources/Case1Andhr</u> <u>aPradeshSAcCSCealthAugust2007.pdf</u>

Peters, David et al., "A Balanced Scorecard for Health Services in Afghanistan", <u>Bulletin</u> of the World Health Organization, February, 2007, 85(2), pp. 146-151.

Schneider et al., "Use of Public Performance Reports", <u>The Journal of the American</u> <u>Medical Association</u>, May, 27, 1998, 279 (20), pp.1638-1642

Wennberg, Blowers, Parker and Gittlesohn, "Changes in Tonsilectomy Rates Associated with Feedback and Review, <u>Pediatrics</u>, June 1977, 59 (6), pp. 821 – 826.