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Role of Monitoring and Supervision to Improve Health Service Delivery in Basic Health Units of Punjab, Pakistan

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Abstract
Effective and efficient monitoring and evaluation system with a strong accountability mechanism have shown good results over the past few years in many countries of the world. Punjab has also successfully developed and implemented e-monitoring system by providing android phones to all district level health managers including Executive District Officer of Health (EDO), District Officer Health (DOH) and Deputy District Officer Health (DDOH). This e-monitoring system called as Health watch is being implemented successfully in all 36 districts of Punjab and real time data about availability of health facility staff, medicines and functional equipment and important service delivery indicators are being captured and reflected on a dashboard managed by Punjab Information Technology Board (PITB). In order to validate and verify the data collected by district level health managers, a second tier of monitoring and evaluation was introduced by hiring of 172 Monitoring Evaluation Assistants (MEAs) to monitor the primary health care facilities on the same dataset. The paper shows that field monitoring and validation of field monitoring through MEAs is bringing an improvement in service delivery indicators of Basic Health Units (BHUs). It also describes the process of e-monitoring for the improvement in health service delivery at BHUs. A real time data of all BHUs of 36 districts of Punjab has been taken into account. A quantitative comparison of Healthwatch data and MEAs data has been made to assess the situation of stock position of medicine, availability of functional equipments, staff absenteeism, and service delivery indicators. Subsequently evidence generated through the Healthwatch and MEAs data are used to develop appropriate strategies to address the bottlenecks. It has been shown that there is positive relationship between the results achieved and the resources used. This paper aims to provide a future course of action to strengthen the MEAs and Healthwatch data to be used for planning and policy making.
Keywords: Healthwatch, Basic Health Units, Monitoring Evaluation Assistants, Policy and Strategic Planning Unit.

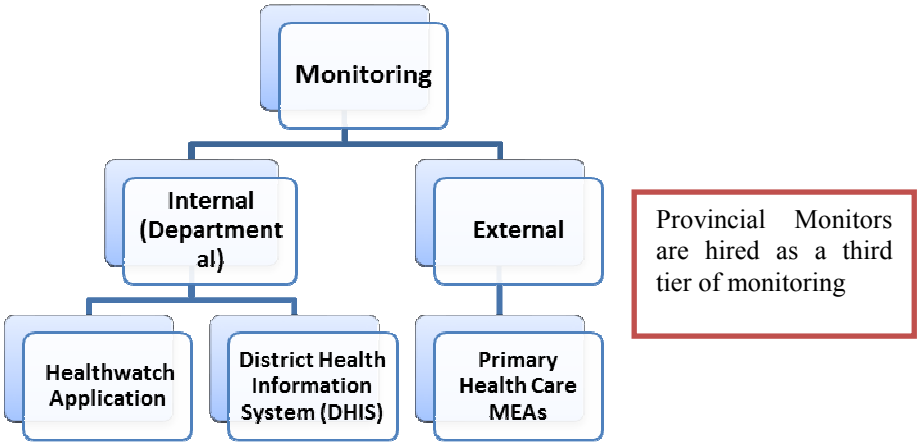
Introduction

Monitoring is the periodic collection and review of information on programme implementation, coverage and use for comparison with implementation plans. It identifies shortcomings before it is too late. Evaluation measures service's relevance, efficiency and effectiveness of plan. It measures whether and to what extent the programme's inputs and services are improving the quality of people's lives. Quality data within the health sector is crucial for monitoring and evaluation (M&E) of health program performance and for developing appropriate policies, plans, and strategies to ensure sound patient care.[1] There is a huge increase in international funding for health which also demands for statistics to track the record of health progress and performance accurately. It emphasizes to evaluate impact, and ensure accountability at institutional and country level. This type of financing mechanisms by major global donors requires result based performance. For this purpose, timely and reliable data is needed which is helpful for decision - making. Many developing countries are facing challenges in producing reliable data for regular tracking of progress in scaling - up health interventions and strengthening health systems.[2,3] Monitoring data could be used to better adapt strategies to local conditions, with the aim of increasing effectiveness. Most strategies demonstrate difficulty in predicting how effective a strategy will be in a particular setting so it is prudent to monitor any strategy enabling program managers to know about the effectiveness of the strategy.

For this purpose in Punjab province of Pakistan, the Punjab Health Sector Reforms Program (PHSRP) now known as Policy and Strategic Planning Unit (PSPU), with the technical assistance of International Growth Centre (IGC) team provided support to Directorate General Health Services (DGHS) and district health managers in strengthening the internal monitoring system of the Health Department. Initially the initiative was called as 'Monitoring of the Monitors', and this was piloted at Khanewal district. After piloting, it was up scaled to 18 districts and later rolled out in all districts of Punjab with the collaboration of Punjab Information Technology Board (PITB) under the new name of Health-Watch. Policy and Strategic Planning Unit is operating the program at the provincial level while overall responsibility for the implementation of Health- Watch at the district level lies with the EDOs health and focal persons nominated by EDO (H). Executive District Officer of Health (EDO), District Officer Health (DOH) and Deputy District Officer Health (DDOH) have to supervise, monitor and keep track record of the targets set by Health Department (HD) every month. They are provided with android phones to get real time data to ensure efficacy and efficiency of health services being provided at

the level of health facilities (HF). This initiative has improved the internal information transmission within the Health Department and has ensured timely and authentic recording of information. Information is being collected from all primary health care facilities namely Basic Health Units (BHU) and Rural Health Centers (RHC) and secondary health care facilities namely Tehsil Headquarter Hospital (THQ) and District Headquarter (DHQ) Hospital. The information is being captured on main indicators i.e., vacancy position, staff absenteeism, medicine stock outs, availability and functionality of equipment and availability of basic utilities and few service delivery indicators namely number of OPD patients and number of skilled birth deliveries at the health facilities. This paper presents a comparison of Health- Watch and MEAs data regarding above mentioned indicators. At the level of BHU.

Organogram of Monitoring at BHU level in Punjab Health Department



Monitoring and evaluation is very important to measure the performance. Quantitative and qualitative data is used to monitor progress towards targets, results - based funding, and evaluation of health programs. In order to achieve goals of providing essential health services at BHUs, it is important to have a strong monitoring and tracking system. Punjab has developed internal as well as external monitoring system for this purpose. Monitoring ensures interventions are implemented as planned, identifies specific problems as they arise, and allows continuous feedback.[4] Supervision enables that activities are carried out according to objectives of the intervention. Implementers use information generated to make necessary changes for greater effectiveness and efficiency. Monitoring progress and evaluating results are key functions to improve the performance of those responsible for implementing health services. Health officials and politicians visits of health facilities are not considered as monitoring; it is just courtesy calls when health facilities visited without clear plan of what is being monitored. Decision to monitor interventions, what is monitored, when and how must be part of program planning, and contained in the plan. It is suggested that monitoring of health intervention is important function of a health planner during implementation.[5]

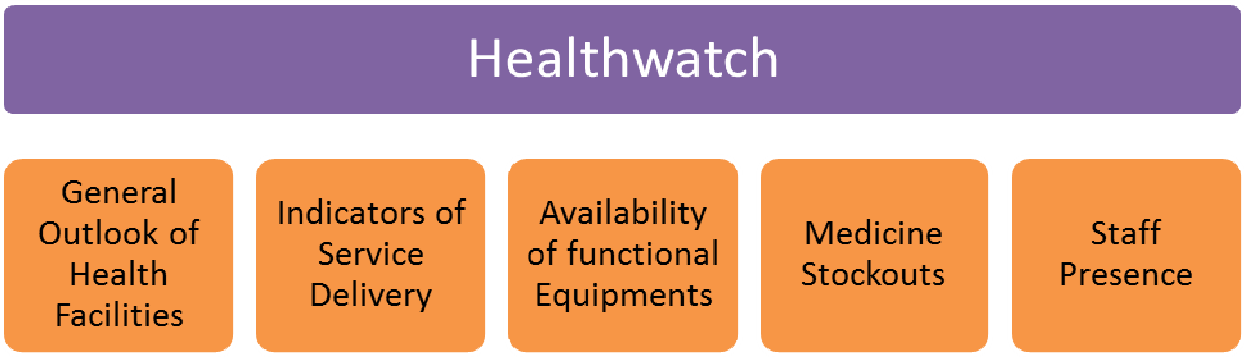
Healthwatch System in Punjab

The Punjab Health Department is doing utmost efforts to strengthen governance and accountability system to improve quality of service delivery. In 2012, Policy and Strategic Planning Unit (PSPU) initiated the 'Monitoring of Monitors' initiative. This was done by introducing a mobile phone based information management system that was piloted in one district, it was rolled out in eighteen (18) districts of the province in phase-1 and later on rolled out in remaining 18 districts of Punjab in phase-II in March 2014. Under this initiative, around 200 Android-based smartphones were provided to the district health supervisory staff i.e. EDOHs, DOHs and DDOHs who visit health care facilities and upload their monitoring reports via these android phones. Although these smart phones are not designed with health applications in mind but these phones are playing important role in generating information for example, a typical smart phone has accelerometers for detecting screen orientation, a microphone suitable for voice conversations, a camera for capturing images, and a GPS for displaying location.[6,7] These officers have been assigned task to monitor health facilities by visiting them personally collect and send information about the performances of Basic Health Units (BHUs), Rural Health Centers (RHCs) and Tehsil and District Headquarters (THQs and DHQs). This initiative has improved the internal information transmission within the Health Department on very important issues such as absenteeism, medicine stock outs, availability and functionality of equipment and quality of service delivery etc.

For the reporting purpose, a dashboard has been designed which can be accessed through internet. All DCOs, EDOHs, DOHs and DDOHs as well as provincial health managers have been provided login password to access this dashboard. The data submitted by district health mangers is depicted on the dash board. This

dashboard is used to view reports on different indicators of districts and province. This information helps district and provincial managers to take appropriate measures for improvement in different indicators and remove their deficiencies. This information helps in taking actions to improve health service delivery management, particularly at primary and secondary levels, leading to better health outcomes for the poor and disadvantaged in the province. The recognition of this program has been acknowledged by the Chief Minister of Punjab who gave Innovation Award to this program at the Governance Conference in 2012.

Figure: Healthwatch Mechanism

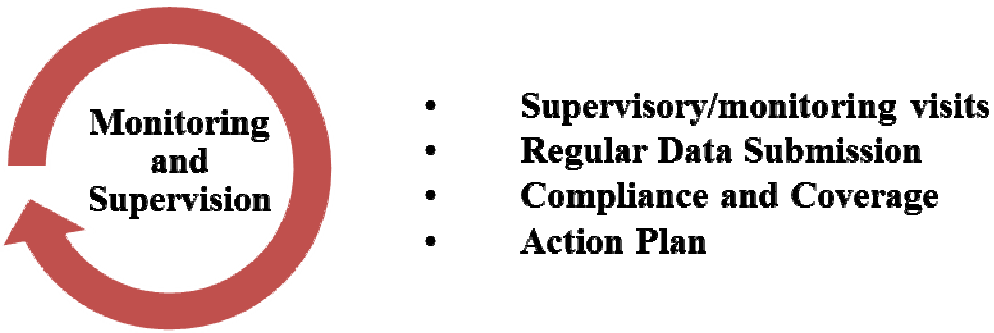


Responsibilities of Field Officers

	Monitoring and Supervision Indicators	Responsibilities	Frequency
1	Supervisory/monitoring visits	Visits of Health managers (EDOH, DOH and DDOH) out of total planned visits. (15 visits/ month by EDO, 20 visits/month by DOH, DDOH would visit all facilities of tehsil at least once in a month)	Monthly
2	Feedback Provided on Dashboard	Dashboard updating	Daily
3	Data Consistency	Monthly reports with consistency in assigned vs actual visits.	Monthly
4	Action Plan	Actions taken for improvement of different indicators	Monthly

The performance of field supervisors is measured on two indicators i.e., compliance and coverage. The compliance is observed against the number of visits assigned to each supervisor. For coverage purpose, it is desired that each health facility in the district must be visited by field supervisor at least once in a month. Suppose there are 10 facilities in an officer's jurisdiction and he is assigned a total of 10 visits. If he visits every single facility once, his compliance as well as his coverage will be 100%. If he visits only 1 facility 10 times during the month, his compliance will still be 100% but his coverage will be 10%. Similarly, suppose if the assigned visits are 20 and the facility count is still 10; if he visits each facility once (leading to a total of 10 visits), his compliance will be 50% but his coverage will be 100%. Field officers should strive for 100% compliance as well as the maximum possible coverage (which can be less than 100% only in cases where facility count exceeds the number of assigned visits)[8].

Figure: Monitoring and Supervision Cycle



BHU INDICATOR	PARAMETERS
MO/WMO	MO/WMO posted, present, absent, on general duty, on leave.
Other Staff	Other staff, Computer operator, Dispenser, HT/MT, LHV, Mid-wife, SHNS: posting and absence.
Tablets	Number of tablets available in stock, (Amoxicillin, Antacid, Anti-Histamine, Chloroquine, Cotrimoxazole, Diclofenac, Iron/Folic, Metronidazole, Oral contraceptive pills).
Injections	Number of Injections available in stock (Adrenaline, Ampicillin, Anti-Histamine, Atropin, Dexamethasone, Diclofenac, Tetanus Toxoid).
Syrups	Number of syrups available in stock (Amoxicillin, Antihelminthic, Cotrimoxazole, Metronidazole, Paracetamol , Salbutamol)
Other Medicines/Medical Supplies	Number of medicine/medical supplies available in stock (Antiseptic solution (Bottles), Anti-Tuberculosis drugs, Bandages, Disposable syringes, I/V Infusions, ORS packets).
Non-Functional Equipment	Non-functional Equipment, Computer, Delivery table, Delivery set, Oxygen cylinder, Sucker: Percentage of facilities where these were not functional or not available.
OPD Cases / Day	OPD Cases / Day: Total number of OPD cases per day during the selected month.
Deliveries / Month	Delivery Cases / Month: Total number of delivery cases during the selected month.
Antenatal Cases / Day	ANC Cases / Day: Total number of ANC cases per day during the selected month.
Outlook	Outlook, Poor, Satisfactory, Good.
Displays	Displays: Catchment area map, General information, Population charts have been displayed.
Outreach	Outreach: Tour Plan has been displayed.
	Outreach: Tour Plan was verified by MO.

Third Part Evaluation by Monitoring and Evaluation Assistants (MEAs)

In order to have a transparent and unbiased monitoring and evaluation reports especially on staff attendance and medicine stocks, it was felt that there should be external monitoring of health facilities. To serve the purpose, team of 172 Monitoring and Evaluation Assistants (MEAs) is hired for monitoring of PHC (BHUs, RHCs) facilities in first phase and in second phase 22 more are hired for the monitoring of secondary health facilities (THQs, DHQs) by PSPU. They have been provided Tablet with installed applications of monitoring software. 172 clusters have been identified in all the districts of Punjab. Each MEA is assigned to visit the health facilities in a cluster assigned to him. The assigned clusters are rotated on monthly basis within each district[9]. MEAs also have to repeat visits of 10 percent of health facilities in a cluster monthly. They report through District Monitoring Officer (DMO) to the Policy and Strategic Planning Unit (PSPU), Health Department. Health Department / PSPU and road map team is using this data to:

- Verify Healthwatch data collected through field supervisors on android phones
- Identify areas where interventions are required to improve primary healthcare in the province.
- Verify data received from health managers through District Health Information System (DHIS)

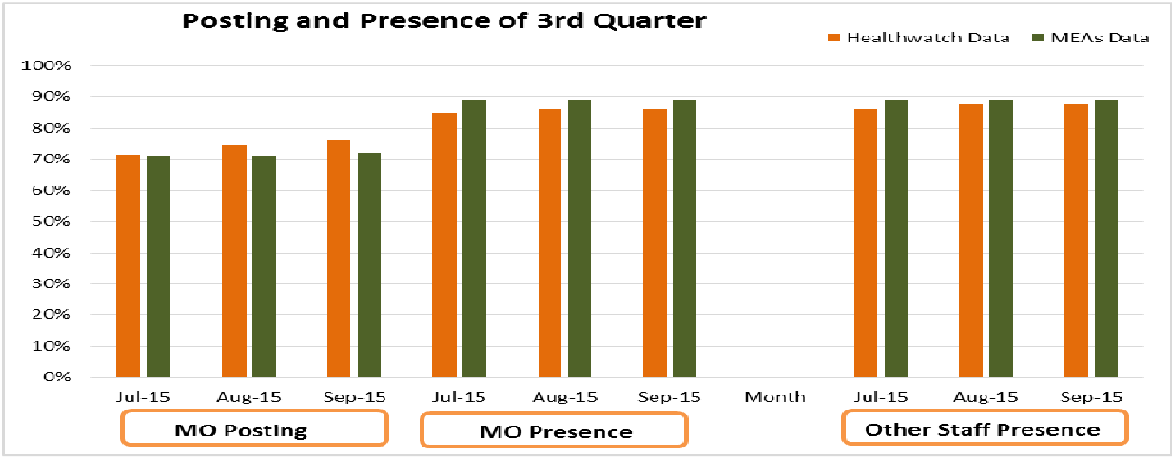
MEAs are uniquely positioned to effectively monitor and document the performance of health facility, the quality and reach of services. In order to strengthen service delivery system, MEAs need to improve their capacity to collect and analyze data, including strategic choices about which data to collect, and how to target and use the data effectively. Induction trainings was conducted at provincial level to enhance the capacity of MEAs, in addition to this on job training through provincial monitors is also being done. Five Provincial Monitoring Officers (PMO) have been hired to validate the data received through MEAs and work in close liaison with PSPU at provincial and with EDOs at the district level.

Comparison of data collected from BHUs through Health-Watch and MEAs of July-Sep, 2015

MO Posting		
Month	**Health Watch Data**	**MEAs Data**
Jul-15	72%	71%
Aug-15	74%	71%
Sep-15	76%	72%
Average	**74%**	**71%**

MO Presence		
Month	**Health Watch Data**	**MEAs Data**
Jul-15	85%	89%
Aug-15	86%	89%
Sep-15	86%	89%
Average	**86%**	**89%**

Other Staff Presence		
Month	**Health Watch Data**	**MEAs Data**
Jul-15	86%	89%
Aug-15	88%	89%
Sep-15	88%	89%
Average	**87%**	**89%**



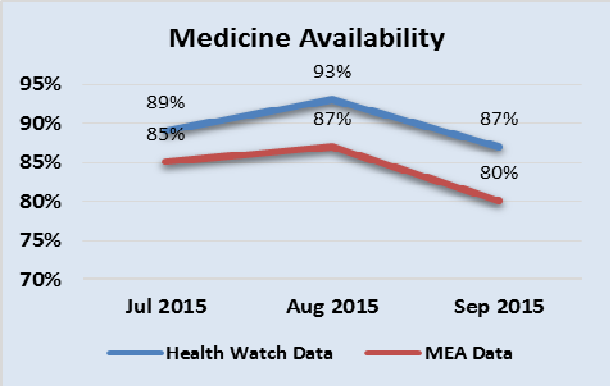
Comparison of Healthwatch and MEAs has been made for third quarter of 2015 as before July 2015 attendance was marked as Present / Absent / On leave only but now same parameters are measured by both agencies i.e. On General Duty, Official Duty, Authorized Leave, Unauthorized leave are also marked. For other staff earlier only presence was recorded but now number of staff posted is also recorded. Presence / postings real time data's average is calculated. Graph shows that internal and external agencies reporting almost same presence and posting trend.

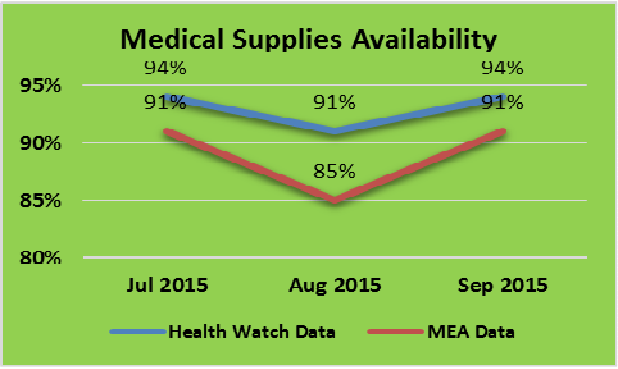
Medicines Availability Based on Previous Month's Consumption		
Month	**Health Watch Data**	**MEA Data**
Jul-15	89%	85%
Aug-15	93%	87%
Sep-15	87%	80%
Average	**90%**	**84%**

Medical Supplies Availability Based on Previous Month's Consumption		
Month	**Health Watch Data**	**MEA Data**
Jul-15	94%	91%
Aug-15	91%	85%
Sep-15	94%	91%
Average	**93%**	**89%**

Medicine and medical supplies availability has been observed for one month

A "stock out" is defined as physically having no stock of a medicine which was required for patient use in that facility. A "stock shortage" was defined as having less stock of a medicine available in the facility than required for patients. In Health-Watch data it was found that the present stock of medicines was being recorded while in MEAs data present stock and previous month's consumption both were being recorded. For calculation of sufficient stock present for a medicine the average previous month's consumption of each medicine is calculated and compared with the data of each respective medicine in Health-Watch and MEAs data. If a BHU has less stock than the average consumption of previous month then BHU is considered as stock out for that medicine. Here we have taken medicine availability for 18 essential medicine at BHU level. The medicines and medical supplies compared are; Cotrimoxazole Erythromycin, Amoxicillin Ampicillin Augmentin Cotrimoxazole, Metronidazole, Diclofenac Paracetamol, Diclofenac ibuprofen, Chloroquine Artemether Lumefentrine, Chloroquine, Salbutamol, Antihelminthic_AlbendazoleMebendazole, I_V_Infusions, Dexamethasone Hydrocortisone, Iron Folic acid, Cephradine, Cotrimoxazole Ofloxacin Ciprofloxacin Erythromycin, Ampicillin Amoxicillin Gentamycin Ceftriaxone, Diclofenac Paracetamol ibuprofen Mefenemic acid, Bandages, Disposable syringes, Cotton roll, Suture, Disposable gloves, IV Branula, IV Set, Antiseptic solution bottles. Medicine & supplies percentage is recorded on the basis of average district consumption or last month consumption of that medicine. If a BHU is not having that stock according to this criteria is considered as stock out. It was recommended to include previous month's consumption in Health-watch data for calculation of stock out. Indicators to measure common services are frequently different, meaning many data are likely incomparable among the various tools. The main reason for difference in medicine availability is due to difference in days of visit of Health Manager and MEA to a Basic Health Unit.





Program officers, and district health managers, acknowledged the contribution of district M&E officers in helping improve data quality, management, and reporting. Improvements in data quality included accuracy, timeliness, validity, and completeness. Introduction of data audits and standardization of data collection tools contribute to the perceived improvements in accuracy and completeness of reporting. The development of tools to track the submission of reports from facilities and feedback given to facilities helped improve timeliness and reporting.

Discussion

Evidence based decision making is a very effective management approach to be used for need based planning and decision making and also for judicious allocation of resources. It would only be possible if reliable and consistent data is available. Strengthening of Health system needs reliable, accurate and comparable data sources to identify bottlenecks and gaps in coverage and quality of health services and qquality of health service can be improved a lot by taking appropriate actions timely if any gaps are highlighted through reliable data. The monitoring and evaluation of the health system focuses on how inputs contribute to outputs i.e., ensuring availability and presence of health human resources and health services delivery contribute to improve the utilization of health facilities and coverage of health services and subsequently their impact on relevant health indicators e.g. morbidity and mortality[10,11].

Previously health department did not use data for planning and decision making being captured through DHIS and other MISs due to lack of trust in its accuracy but now for the first time in history the data obtained through MEAs is being used very regularly and Chief Minister himself after every two months take stock take using the MEAS data to assess the performance and identify problems to be addressed immediately. The demand for having quality data and the interest in health information systems has increased due to the need towards attainment of the Sustainable Development Goals (SDGs) and other global health initiatives.

There is need to take all proactive measures to ensure validity and accuracy of data like

training/refresher courses of the Health managers and MEAs should be a regular feature of the program. Capacity-building efforts enhance the significance of MEAs, data quality (timeliness, completeness, reliability, validity, and accuracy), and data analysis. Similarly there is need to resolve all IT related problems like software application problems in the phones/tablets, internet problems and others to ensure uninterrupted collection of data. Problems like transport, communication infrastructure challenges should also be solved to execute their duties effectively MEAs are hired on short-term contracts, which create job insecurity and due to this their performance is not up to the mark.

In order to improve the health service delivery at the level of health facility, it is mandatory to allocate sufficient budget and resources to address the gaps identified through Health-Watch and MEAs data. It would be good if all DCOs/EDOs should prepare an action plan on the basis of Health-Watch and MEAs data to rectify the bottlenecks and gaps as identified through the data.

Necessary supports may be in terms of extra budget and technical support for the implementation of service delivery needs to be provided on an urgent basis. At this point in time, focus is more on inputs and supply side initiatives, there is need to review and revise the entire monitoring system to capture quality related and demand side indicators as well. Perception of the community to assess the quality of service delivery should also be captured by inclusion of few indicators in the software[12].

Recommendations for Improvement

- There is need to compare the data obtained through Health-Watch and MEAs on regular (monthly) basis and address the gaps immediately if found any between two of them on an urgent basis as this would enhance the credibility of data and its further use for planning and decision making.
- All DCOs/EDOs should prepare an action plan on the basis of Health-Watch and MEAs data to rectify the bottlenecks and gaps as identified through the data at district level and share with the Health department on monthly basis.
- Provincial health department, PSPU, Health roadmap and PMOs should regularly review the district level action plan and take action accordingly to address bottlenecks.
- Community perception and needs should also be captured through Health-watch and MEAs data to hear their voice to be used for planning and decision making.

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