



## BACKGROUND

The USAID-funded Nepal Family Health Program (NFHP) II is supporting the Ministry of Health and Population of Nepal to strengthen its health system. Evidence-based decision making is required for health system strengthening of a country. The Health Management Information System (HMIS) systematically collects and provides such evidence on an ongoing basis. However, the HMIS data are rarely analyzed or used in program management and decision making, particularly at the district level after being collected and reported to higher authority.

The main objective of the HMIS is to monitor health services, evaluate progress towards targets, and support health activity planning and development of health policy guidelines. The current HMIS uses 38 forms for recording and reporting with recording of 1,131+ variables, and 125+ indicators are regularly monitored. Analysis and use of district-level service-data are essential to address programmatic gaps in areas that are disadvantaged in terms of geography/terrain, caste, education, and health indicators, but this aspect is not given priority by District (Public) Health Office (DPHO) staff. While the quality and comprehensiveness of HMIS data have increased over the past decade, this increase has not been matched by an equivalent increase in DPHO managers' ability and initiative to use data to improve system performance.

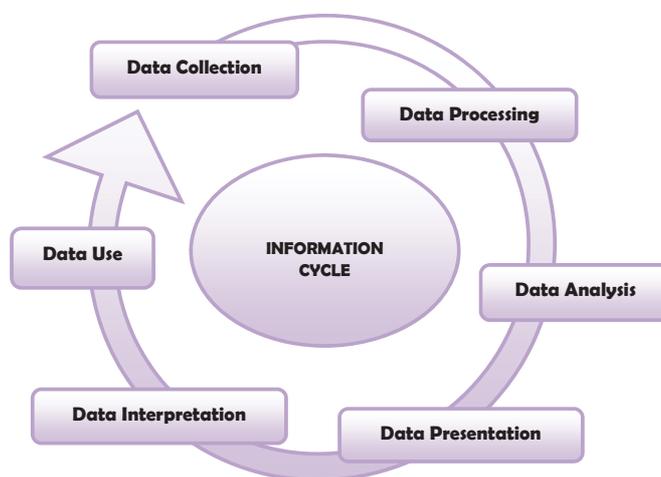
The Public Health Analytics (PHA) intervention, piloted by the National Health Training Center (NHTC) and Management Division (MD)/HMIS Section of the Department of Health Services (DoHS) with support from the NFHP II in 2 districts - Surkhet and Kanchanpur - intended to address programmatic gaps and lack of strategic use of data within the districts. This pilot effort sought to collaborate with DPHOs to develop processes and tools that can be used to strengthen the analysis, presentation, interpretation and use of disaggregated data in public health program management of Nepal to achieve improved outcomes.

## STRATEGIC APPROACH

The PHA intervention was designed with an **open-course** methodology, with the intention that participants would propose specific health problems in their district and work with NFHP II facilitators and team members to design the content of the course around using data to find appropriate solutions. The **Information cycle** was used as the guiding

framework, which comprises of data collection, processing, analysis, presentation, interpretation and use as its six steps (Figure 1). However, PHA focused only on the latter four steps of the cycle which also corresponds with the **What-Why-Confirm-Action** framework to help participants identify programmatic gaps, postulate causes of the gaps, search for existing data to support the identification of causal factors, consider the extent to which these data are trustworthy, and develop actions designed to verify and apply the data, and fix the problems.

Figure 1: Information Cycle-The Guiding Framework of PHA Intervention



Each participant's primary output for the intervention as envisaged earlier was a Breakthrough Project which later developed into a viable Action Plan, in which participants drew on course content and resources to identify public health problems in their work areas through the manipulation and analysis of quantitative data. Participants were expected to design, implement, and evaluate a programmatic response to the problems. Each participant worked with NFHP II mentors to choose a topic, develop analytical methodology, plan a response, and evaluate the intervention.

## OBJECTIVES

The objectives of the PHA intervention were that after the completion of a full cycle, participants will have enhanced their abilities to:

- Use readily available data to analyze various aspects of health system performance and prioritize key problems within the system to strengthen it;
- Analyze the ways health care delivery system and

community-level factors contribute to the problems, as well as how they can best be mobilized to address health needs, within the context of system needs identified in the district;

- Identify pragmatic programmatic responses to problems that have been identified;
- Develop plans to monitor and evaluate the progress of programmatic initiatives using available and appropriate data collection systems.

## ACTIVITIES AND METHODOLOGY

Surkhet and Kanchanpur districts were selected to participate in the pilot PHA intervention after carrying out a Performance Need Assessments (PNA) in five districts in eastern and western Nepal. The PNA assessed a variety of performance factors that had shaped the design of the intervention including participants’ skills and knowledge, job expectations, performance feedback, environment, and motivation. This information was used to design the PHA course, develop curricula, conduct workshops, and sponsor participants. Health Facility (HF)-level service data were available in these two districts for disaggregated analysis. The intervention focused on four programs: Expanded Program on Immunization (EPI), child health, safe motherhood and family planning. Five persons from each DPHO were involved in the intervention, including the DPHOs, Statistical/Computer Assistant, and the concerned supervisors of the four programs.

The intervention had 4 phases, which took place over a period of more than a year (August 2010-September 2011). The phases are (i) pre-course work, (ii) an intensive workshop (5+2 days), (iii) worksite-based problem application, and (iv) a culminating workshop. In the first phase, participants analyzed data from their own district guided by an analysis template that was provided by workshop organizers. The second phase comprised a 5-day foundation workshop and a 2-day follow-on workshop which included intensive analysis, interpretation, and problem identification based on data and preparation and finalization of the action-plan based on problems identified using the performance improvement approach. In the third phase participants returned to their worksites while continuing to work on their Action Plans for about a six-month period. In the fourth phase participants presented their action plans, received feedback and criticism by their peers in a 2-day culminating workshop. Refer to Table 1.

## RESULTS

<i>Phase</i>	<i>Description</i>
<b>Phase 1:</b> Pre-course preparation	Participants prepare for course by completing pre-course readings and exercises, strengthening their abilities to use required computer programs, and proposing alternate topics for their Breakthrough Project cum Action Plan
<b>Phase 2:</b> Intensive classroom-based	5+2 days module during which participants build up analytical and other technical skills, strengthen their abilities to develop and deliver effective presentations, and finalize topic selection for their Action Plan.
<b>Phase 3:</b> Worksite-based problem application	Six months period during which participants return to their worksites and work on their Action Plans while performing regular duties. Participants will be in regular contact with their course mentors during this phase.
<b>Phase 4:</b> Intensive classroom-based	Culminating two-day module during which participants present their projects and critique presentations of other participants.

After the foundation workshop, district teams were able to use a variety of analytical techniques to identify programmatic gaps in different areas. Participants were able to analyze intra and inter variability by programs and by VDCs and were able to develop action plans to target the VDCs and the program components that needed intensive support and the other VDCs and components that needed support only for maintenance.

**Inter-program variability:** The participating districts analyzed data of four programs and prioritized them. Table 2 presents the methodology developed by Kanchanpur where they compared achievements of selected indicators with national data and scored the programs. They categorized programs as “Good”, “Satisfactory” and “Poor” by referring it with green, yellow and red colors respectively. Acute Respiratory Infection (ARI) control and EPI programs scored the least points (2) reflecting that

Table 2: Methodology developed by DPHO, Kanchanpur to rank programs

Indicators	National 2065/066	District 2066-067	Result	Total marks obtained	Average Marks
<b>Expanded Program on Immunization</b>					
DPT-HB-Hib 3/Polio 3	81.0%	76.0%	<span style="color:red">■</span>	2	2
Drop out (DPT1 Vs DPT3)	2.0%	6.0%	<span style="color:red">■</span>	2	
<b>Nutrition Program</b>					
New growth monitoring	45.0%	36.0%	<span style="color:red">■</span>	2	3.5
Malnourished children	5.0%	4.0%	<span style="color:red">■</span>	5	
<b>ARI Control Program</b>					
Pneumonia	31.0	39.0	<span style="color:red">■</span>	2	2
Severe pneumonia	0.6%	1.0%	<span style="color:red">■</span>	2	
<b>Control of Diarrhoeal Diseases Program</b>					
Some Dehydration	14%	3%	<span style="color:green">■</span>	5	5
Severe Dehydration	0.60%	0.00%	<span style="color:green">■</span>	5	
<b>Safe Motherhood Program</b>					
First ANC visit	67.0%	74.0%	<span style="color:green">■</span>	5	3.5
4 ANC visits	56.0%	35.0%	<span style="color:red">■</span>	2	

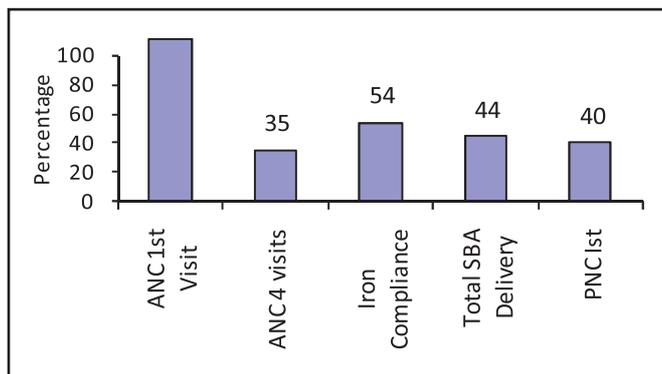
Legend

■ Good-3 points    ■ Satisfactory-3 points    ■ Poor-2 points

these programs need greater attention. Similarly, Control of Diarrhoeal Disease (CDD) program received maximum points (5) showing that it needs relatively less support.

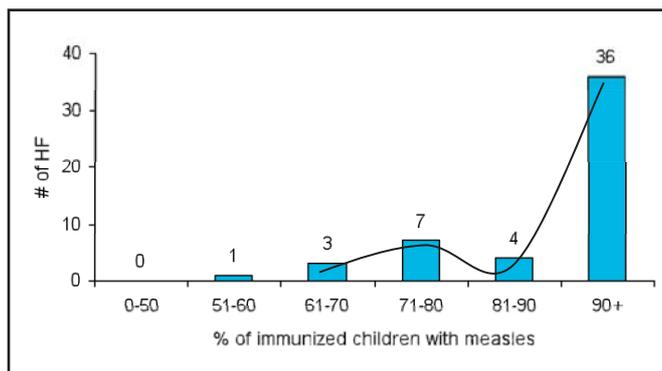
**Intra-Program Variability:** Figure 2 depicts variability among the components of the safe motherhood program. ANC first visit was above 100% while 4 ANC was only about one-third, iron compliance was 54% and SBA delivery and PNC first were below one-half showing declines in service utilization from the pregnancy to post-partum periods. Such analysis and interpretation showed program components that needed intensive support.

**Figure 2: Variability in safe motherhood components of Kanchanpur District**



**HF/VDC Variability:** Figure 3 shows variability analysis in Measles coverage by the health facilities of Surkhet district. In the figure, 11 HF's have coverage below 80% - these are the HF's that need programmatic focus while the remaining 40 HF's only need maintenance support.

**Figure 3: Variability in Measles Coverage by health facilities in Surkhet District**



The above analyses helped to develop action plans for each district covering the four programs and its priority components and HF's. These action plans were implemented by mobilizing the funds that were mostly available with the DPHOs.

The use of PHA skills/techniques was not just limited to the action plans and the four program areas. Surkhet combined

HMIS training with data verification meetings to identify performance gaps and made health facility-specific action plans. In both the districts PHA skills/techniques were used in analyzing performance gaps to allocate human resources in the needy areas where caseload were higher or health workers' absenteeism was prevalent. Kanchanpur used it as part of their disease control program for TB case-finding and also in expanding EPI clinics in the VDCs with large populations and low coverage. Overall, PHA skills were used in different existing forums to improve data quality. After phase four of the workshop, the district teams have been using PHA skills as part of their routine activities which have helped to institutionalize PHA concepts in these districts. In fact, elements of PHA such as data analysis, interpretation, and use seem to be implicit in the routine district health system, which is becoming explicit after PHA intervention. Participants in the PHA course demonstrated the use of analytical techniques for micro-planning of various programs in the district.

The PHA participants have worked to transfer the PHA skills and techniques to their subordinates in the districts and below in different forums such as data verification, and review workshops. The health facilities in-charge were encouraged to analyze their health facility data and make simple action plans (detailing program gaps, action(s) to be taken, the point person and a timeline) on the basis of data analysis in the workshop. District managers believe that this exercise encouraged health facility staff to internalize their own data and program. There remains much variety in quality of data and performance across VDCs, even in districts that are at or above national level. One test of how well the participants internalized the lessons of the PHA course will be whether VDC data quality and performance change.

## LESSONS LEARNED

- Participants had difficulty analyzing problems in their districts using an open course model. When facilitators began to provide more guidance, and make the course more structured, participants responded positively.
- Program focal persons of DPHOs rarely regard data analysis as part of their job; rather, they tend to see it as the role of a statistics officer. Many focal persons lack strong skills in data analysis and avoid the use or manipulation of data for program management. In order to have successful uptake of PHA methodologies, it will be necessary to build a culture around data analysis and motivate people to use it regularly.
- It is important to emphasize the role of data analysis in ongoing activities in the different health areas and how it can improve program performance.
- More thought should be given on ways/techniques to communicate and present data so that different audiences will understand it.

- Continuous follow-up is needed from technical partners to ensure that the action plans are implemented. During the pilot intervention, NFHP II staff had to make several follow-up visits to the participants to keep the process moving forward.
- The technical capacity of the district-based NFHP II staff appeared to be important. When NFHP II staff were able to make regular follow-up visits to convey how the course tools and approaches should be used, action plans were more likely to be refined and implemented. Without such support, it might not have worked as well.

## CHALLENGES

- Some participants lacked the statistical and computer skills to do basic data analysis and interpretation, and many expressed a desire for capacity building in this area. This may be beyond the scope of a course like this.
- It was difficult for participants to go from problem identification to designing a solution to implement it.
- There is limited data at the district level. There is often no evidence available to support plausible causes for program performance gaps, which can make it difficult to identify and verify the root causes of problems.
- During the PNA and course design process, it was difficult to ascertain from district officials which specific needs the course should address. Officials tended to focus more on data quality than on analysis and use. It became clear over the course of the PHA intervention that it was trying to do something that was neither intuitive nor easy for district-level public health personnel in Nepal.

## CONCLUSIONS

The disaggregation of service data is helpful for addressing various programmatic gaps to strengthen the district health systems. This type of intervention is useful to move away from blanket program implementation and towards an evidence-driven, need-based approach, and for implementing focused programs in low-performing health facilities or program areas and remote and deprived areas. However, the challenges of enabling government public health officials to make the jump and move in this direction should not be underestimated. Further experimentation with different models of the intervention design is required if this intervention approach is to succeed.

## RECOMMENDATIONS

- Future PHA workshops should have more than one statistical/computer assistant available to answer questions, as the level of technical support needed by the participants may be quite high.
- Turning some of the plans into actions quickly, in order to demonstrate results, may help keep participants motivated between phases of the PHA, rather than getting too busy with other tasks and responsibilities.
- The PHA course design may have been a bit too advanced; a simpler, prescriptive course may be more manageable for participants.

PHA participants showed high demand for capacity building in basic data analysis and statistical skills. The NHTC and MD and NFHP II should explore options for meeting this need, for example through the development of additional training workshops.



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