# Improving the Quality of Basic Health Care in Indonesia

This research was supported by the Ministry of Health of Indonesia, the World Bank, and the Quality Assurance Project of the U.S. Agency for International Development. Report prepared by Michael Bernhart, January 1995.

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## Objective

The objective of the pilot project conducted in two provinces of Indonesia was to design a quality improvement program for basic health care facilities. The program, once designed, would be the basis for a major quality improving effort to be supported by a loan from the World Bank. The objective was emphatically **not** to test competing theories of quality assurance. This disclaimer is made up front in anticipation of questions regarding the methodology employed.

## Methodology

Turning to that methodology, it was essentially an additive one. That is, inputs were added until the desired effect was achieved; careful track was kept of those inputs (within the limitations imposed by a far-flung field test) so that the researchers might determine what inputs were required in the field for an effective quality improving program. This design differs from more conventional social and medical science research in an important regard: in conventional research the intervention is usually fixed — it does not vary — so that questions regarding the effect of that intervention may be addressed. Variation is expected in the outcome of the research (the dependent variable). In our case, the intervention changed constantly as new inputs were made; what we hoped to maintain constant was the outcome: an improvement in service quality.

### Overview

Ten health centers participated in the research, five in East Java and five in Nusa Tenggara Barat (NTB). The East Java centers were typically larger than those in NTB and were headed by more senior physicians. A baseline survey of the quality of care in three basic health services —ante natal care, management of acute respiratory infections (ARI), and immunization — was conducted in May and June of 1994. The results of the survey were given to the senior staff of the health centers and the staffs were asked to prepare plans of action to address the deviations from standards.

The ten health centers were then divided into three groups; each group was given a different set of initial inputs in an effort to isolate the contribution of these inputs.

Two health centers were initially provided no more guidance than the results of the baseline survey; these were dubbed the "data feedback" centers.

In the second "treatment", district supervisors were trained to use checklists to observe service quality. The checklists were drawn from the baseline survey and were detailed standards for the three basic services plus diarrhoea man-

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agement and malaria care. Four health centers were intensively supervised using these checklists; this was the essence of the "supervision-based" approach to improving quality.

The senior staff of the last four health centers received 12 hours of training in basic problem solving and team management approaches; this became the "team-based" approach.

The distinctions between these three treatments became blurred as additional inputs were provided in an effort to achieve an impact on service quality; however, the starting point of these health centers became important in understanding what was ultimately achieved in each health facility.

During the four month life of the experiment the health centers were monitored by an individual called a "circuit rider". This term, borrowed from the American West of the 19th century, denoted a preacher who went from town to town, trying to sustain the faith of the people by his timely inputs of preaching, threats of eternal punishment, and promises of heavenly rewards; in so doing he had to contend with the full range of vices to which human flesh is prey. The circuit riders of our experiment had no less challenging a task. They had to remind health center staff of the existence of the experiment; they had to make timely inputs of informal training and advice; and they had to keep careful account of what was occurring in the clinics as well as their own inputs into each clinic.

The results were unexpectedly positive. Every clinic achieved remarkable improvements in compliance with quality standards. Prior to the experiment the service quality in the three health services was low: maternal risk was not assessed, ARI patients seemed to be treated in an almost random fashion, and vaccinations were plagued by non-sterile techniques. At the conclusion of the experiment these problems had been virtually eliminated. Further, several clinics had gone beyond compliance with standards to address more complex problems with service quality; these included areas as diverse as patient waiting time, service quality in other health services, patient education and cure effectiveness.

## The Quality Problem

The baseline study was comprised of three elements: First there was direct observation of health workers. Detailed standards that had been adapted from international sources and field tested extensively in Indonesia were the bases of the observation. Appendix C lists, in abbreviated form, the items covered by the three standards and should convey some sense of the level of detail. In each health center the researchers observed 25 cases for each standard (ANC, ARI, and vaccination). Health workers were then quizzed on their knowledge in each area. Finally, exiting patients were asked questions about their knowledge of the service which they had received. The results were sobering.

Despite national emphasis on reducing maternal mortality, assessment of maternal risk was rare. The average level of compliance for all ten puskesmas on maternal risk assessment was 7.8 percent.

The Ministry had recently distributed reminder cards for ARI management. One side of the laminated card showed how to identify chest retraction and the other presented the respiration rates by age for classification of pneumonia. What we found was that fewer than 40 percent of the patients seen for respiratory complaints were assessed for chest retraction and only ten percent were checked for respiration rate. The remainder of the assessment of ARI was no more reassuring and treatment of the ARI patients seemed to be on no consistent or empirical basis.

Vaccination technique was generally sound but there were too many disturbing instances of non-sterile technique.

Counseling was weak in all areas and this was further demonstrated by the inability of patients to provide correct answers to questions in the exit interviews. The appendices provide detail on the quality deficiencies that were uncovered.

The immediate conclusion of this research was to point up the futility of trying to improve clinical care with pronouncements of national priorities and job aids sent through usual channels. Obviously a more proactive approach is needed. The second conclusion is that the problems are found uniformly throughout the program. The omissions and errors in care were nearly the same in East Java as in NTB and there was little variation among the clinics.

## The Interventions

Initially there were three distinct interventions. Two clinics, one in each province, received only the results from the baseline survey as well as three hours assistance in preparing a plan of action. Four more clinics, two in each province, were supervised three times a month by district supervisors using checklists based on the performance standards. These same supervisors later visited the other clinics in the experiment to communicate the standards and distribute checklists for internal use by health center staff.

The last four clinics received 12 hours of training in problem solving and team processes. Those familiar with TQM training will regard this as an almost cursory effort since such training courses commonly last two weeks or more. However, the researchers were concerned about taking clinic staff away from their duties for an extended period and limited the formal training contact for that reason.

All of the clinics were then visited periodically by the researchers. The circuit rider visited each clinic approximately every ten days. An international research consultant visited each of the NTB clinics two or more times at the start of the experiment. And two national researchers made additional periodic visits to the

clinics. During the three-month life of the experiment a clinic received a dozen or more of these drop-in visits. The effect of this constant expression of interest was uncertain. It no doubt perplexed some clinic staff and was a source of concern for others.

## Clinic-level Activities

Within the health centers, a similar set of activities evolved to improve quality. The clinic director, a doctor, discussed the plan of action with other staff and a QA team was usually formed. Some of these teams functioned as true teams; in other instances their role was limited. The doctor then conducted informal training on the standards. This training was followed up by monitoring of the health workers, usually with the same checklists used by the supervisors. In most instances the health workers were also provided with new job aids to provide visual reminders of the standards. And in almost all clinics there were problems of resistance from one or more health workers. This resistance was overcome through persistent monitoring and direct supervision.

## The Results

Even the most optimistic expectations were surpassed by the results of the experiment. A second survey of clinical service quality was conducted in November 1994. The sample sizes were reduced to 12 observations for each service in a clinic; this is the minimum sample size consistent with LQAS (lot quality assurance sampling) methodology for the targets that had been set by the clinic staffs. The appendices show, in incremental detail, the improvements attained. In most areas compliance with standards reached or approached 100 percent. In all areas there was a marked improvement.

However the success story extends beyond adherence to standards. In several of the clinics the staff undertook more difficult problems. Some examples:

- Chloroquine resistant (p. falciparum) malaria is a growing problem in some areas of NTB. Prior to the experiment, a clinic in an endemic area had treated nearly all malaria patients based on clinical signs since the patients were unwilling to wait 90 minutes for the blood analysis to be completed; consequently nearly all patients were treated with chloroquine. This was obviously an unsatisfactory situation and the clinic staff initiated a program of aggressive counseling of patients to await the results of the slide examination. At the end of three months over 70 percent of malaria patients now wait for the slide results. Fears that the increased wait might depress utilization were unfounded as the visit rate has increased slightly. This change has contributed to a clear health impact as the incidence of p. falciparum malaria found in the clinic was 50 percent during December. These patients now receive effective treatment which is fansidar and primaquine.

- The nurse in another clinic — sensitized to issues of quality by the implementation of standards — realized that non-sterile procedure was

being used for injections; needles and syringes were often re-used five times without sterilization. The simple corrective was to sterilize these needles and syringes which is now done.

• The same clinic had long suffered from high demand for unneeded injections. This was both time-consuming and absorbed supplies for a negligible health impact, but it was feared that if patients were denied these injections they would abandon the clinic in favor of other, less qualified, health care providers. The staff initiated a program of patient education and the number of trivial injections has been reduced to the point where over-use of syringes has been eliminated. Clinic utilization has not declined.

• As more complete examinations were performed, patient waiting times increased. In several clinics the staff responded to this problem. In two clinics improved seating facilities were provided. One clinic occupied the waiting patients with taped health education messages. Two clinics redistributed tasks among health workers to free a person to handle the greater demand. And one clinic divided up the examination tasks to speed patient flow through the clinic.

• A clinic discovered, as it applied the standards for counseling, that patients did not understand the messages. This discovery was followed by observation of the counseling session and, from this observation, changes were made. First, awareness of the problem encouraged health workers to be more directive and to probe for understanding. Second, where they could, health workers removed crying children from the room during the counseling of mothers. A third change, group counseling, will be implemented when a special room for the purpose has been prepared. The results are encouraging. As an example, nearly 100 percent of ARI patients now return for the two-day control visit when formerly the return rate was less than 25 percent.

## General Conclusions

It is always hazardous to generalize from any field study; however, the consistency of the findings and importance of the issues encourage such generalization:

1. Top level support is essential. Every text on quality reminds us that without top level support, quality improving efforts are doomed to failure. We found that some clinic directors moved rapidly ahead in their quality improving efforts; however others showed little or no inclination to get started. In the latter instances the appearance of senior officials in the clinics to make polite inquiry about the progress of the QA program had a galvanizing effect. One clinic director had openly refused to collaborate with the program; when, however, the two provincial health directors and the district health director (the three officials of greatest importance to the career of a clinic doctor) had made surprise visits

to the clinic to check on progress, the clinic director became an enthusiastic convert to the cause of quality.

2. Clinic staff need little external support to improve compliance with standards. Once motivated, staff develop a variety of ingenious ways to remind themselves of the standards.

3. Clinic staff find the presence of clear standards reassuring. The standards tell them exactly what is good care and they know that they are fulfilling their professional responsibility when they follow those standards. Not only did staff testify to this effect, but they also requested, and applied, standards for other health interventions (checklists for malaria and diarrhoea management were develped and distributed in response to their request).

4. Patients, with only limited explanations provided to them, recognize quality service. One clinic reported that patients expressed mild dissatisfaction with the slower pace of the more complete care. However, others reported that patients came to expect the higher standard of care and indicated their understanding of the complete procedures by anticipating the next step (e.g., removing child's shirt before being asked). No clinic reported a decline in utilization during the experiment; some registered slight increases.

5. Staff will often move beyond adherence with procedures to more complex quality problems. This occurred in three different ways:

a) Staff became sensitized to quality problems that they had previously ignored or been unaware of. The nurse who became concerned with needle and syringe sterilization is a case in point.

b) The implementation of standards may produce more complex problems. As an example, the implementation of the standard may require patient compliance (as in the malaria example above) which is typically a complex problem for staff to resolve.

c) The implementation of the standard may fail to yield the expected outcome. Staff may find that correct procedures do not produce the anticipated result so they have to go beyond the prescribed procedure. An example would be the counseling example.

6. Staff are quick to understand technical quality. The common first perception of health workers is that quality problems arise from a lack of resources. Their answer to quality problems is for their organization to give them more supplies, a better facility, advanced training, and so on. This resource-dependent mentality is quickly broken by a systematic observation of the service provided. While there was initial dismay — and scattered denial — at the results of the baseline survey, the health workers saw that the solution to most of the quality problems was in their own hands.

7. Quality can be improved. The dramatic quality improvements achieved in a short period of time is the most encouraging lesson to come out of this research. Patients who now come to these clinics are more likely to find a resolution of their health problems. These improvements in care were achieved without new buildings, new staff, more supplies, or formal training.

Appendix A

## Pre-post Results of Standards Compliance

| | NTB | | | East Java | | |
|---|---|---|---|---|---|---|
| | Baseline | Follow-up | Change | Baseline | Follow-up | Change |
| ANC | 45% | 86.6% | +41.6 | 66.9% | 96.4% | +29.5 |
| Vacc | 59.3 | 86.4 | +27.1 | 73.7 | 95.6 | +21.9 |
| ARI | 45.0 | 81.1 | +36.1 | 38.75 | 90.95 | +52.2 |

**Percent of times standard complied with by health service**

| | Baseline | Follow-up | Change |
|---|---|---|---|
| History taking | 41.5% | 92 % | +50.5 |
| Physical exam | 56.1 | 90.3 | +34.2 |
| Treatment | 74.4 | 83.1 | +8.7 |
| Counseling | 33.5 | 83.1 | +49.6 |
| Patient knowledge | 31.1 | 74.1 | +43.0 |
| Health worker knowledge | 74.8 | 98.2 | +23.4 |

**Percent of times standard complied with by clinical activity**

Appendix B

## Pre-post Results of Standards Compliance by Clinical Activity and Health Intervention

| | NTB | | | East Java | | |
|---|---|---|---|---|---|---|
| | Baseline | Follow-up | Change | Baseline | Follow-up | Change |
| **History Taking** | | | | | | |
| ANC | 38.6% | 84.6% | +46.0 | 52.8% | 97.3% | +44.5 |
| ARI | 31.1 | 88.4 | +57.3 | 50.4 | 97.1 | +46.7 |
| Total | 34.9% | 86.5% | +51.7 | 51.6% | 97.2% | +45.6 |
| **Physical Exam** | | | | | | |
| ANC | 66.3% | 92.3% | +26.0 | 92.2% | 99.7% | +7.5 |
| ARI | 28.3 | 71.5 | +43.2 | 37.4 | 97.6 | +60.2 |
| Total | 47.3% | 81.9% | +34.6 | 64.8% | 98.7% | +33.9 |
| **Treatment** | | | | | | |
| ANC | 74.4% | 98.0% | +23.6 | 95.0% | 99.6% | +4.6 |
| Vaccination | 75.4 | 96.7 | +21.3 | 89.5 | 99.7 | +10.2 |
| ARI | 73.6 | 88.1 | +14.5 | 38.1 | 86.4 | +48.3 |
| Total | 74.5% | 94.3% | +19.8 | 74.2% | 95.2% | +21.0 |
| **Counseling** | | | | | | |
| ANC | 52.0% | 89.0% | +37.0 | 67.8% | 93.2% | +25.4 |
| Vaccination | 25.6 | 68.7 | +43.1 | 36.9 | 91.2 | +54.3 |
| ARI | 13.8 | 71.0 | +57.2 | 4.7 | 85.3 | +80.6 |
| Total | 30.5% | 76.2% | +45.8 | 36.5% | 89.9% | +53.4 |
| **Patient Knowledge** | | | | | | |
| ANC | 42.5% | 73.3% | +30.8 | 65.8% | 84.5% | +18.7 |
| Vaccination | 25.7 | 63.7 | +38.0 | 59.3 | 83.7 | +24.4 |
| ARI | 48.3 | 65.0 | +16.7 | 49.8 | 74.5 | +24.7 |
| Total | 38.8% | 67.3% | +28.5 | 58.3% | 80.9% | +22.6 |
| **Health Worker Knowledge** | | | | | | |
| Vaccination | 69.4% | 94.0% | +24.6 | 90.6% | 100% | +9.4 |
| ARI | 69.3 | 98.5 | +29.2 | 69.8 | 100 | +30.2 |
| Total | 69.4% | 96.3% | +26.9 | 80.2% | 100% | +19.8 |

Appendix C

## Pre-post Results of Standards Compliance by Activity

The first column describes the activity in abbreviated form. For example, the first item is "Review the OB record of the client." The second column is the percentage of compliance with that standard during the baseline survey in NTB. The third column is the observed level of compliance during the follow-up survey and the "change" column (fourth) is the simple difference in percentage points between the two surveys. The final three columns repeat these data for East Java.

| | NTB | | | East Java | | |
|---|---|---|---|---|---|---|
| Activity | Baseline | Follow-up | Change | Baseline | Follow-up | Change |
| **Ante natal care** | | | | | | |
| Total observations, ANC | 124 | 60 | | 125 | 60 | |
| Reproductive history | | | | | | |
| Review OB record | 87% | 95% | +8 | 91% | 100% | +9 |
| Update age | 95 | 100 | +5 | 100 | 100 | 0 |
| Last delivery | 83 | 98 | +15 | 100 | 100 | 0 |
| # prev. pregs. | 95 | 100 | +5 | 100 | 100 | 0 |
| Baby's condition | 69 | 67 | -2 | 94 | 100 | +6 |
| Prev. complications | 26 | 63 | +37 | 81 | 97 | +16 |
| Vomiting | 29 | 80 | +51 | 86 | 100 | +14 |
| Risk factors | | | | | | |
| Spotting | 14 | 62 | +48 | 17 | 97 | +80 |
| Diabetes | 1 | 87 | +86 | 18 | 100 | +82 |
| Lung disease | 1 | 92 | +91 | 36 | 100 | +64 |
| Cardiovascular problems | 2 | 93 | +91 | 35 | 100 | +65 |
| Liver problems | 4 | 90 | +86 | 32 | 100 | +68 |
| Kidney problems | 2 | 90 | +88 | 31 | 100 | +69 |
| Malaria history | 2 | 93 | +91 | n/a | n/a | |
| Current medications | 29 | 50 | +21 | 12 | 83 | +71 |
| Smoking | 0 | 90 | +90 | 6 | 90 | +84 |
| Alcohol | 1 | 88 | +87 | 6 | 90 | +84 |
| Preventive measures | | | | | | |
| TT immunization | 87 | 100 | +13 | 92 | 98 | +6 |
| Malaria prophylaxis | 65 | 90 | +25 | n/a | n/a | |
| Delivery plans | 44 | 93 | +49 | 70 | 100 | +30 |
| Who will deliver | 0 | 43 | +43 | 70 | 98 | +28 |
| Explain value HW delivery | 19 | 93 | +74 | 48 | 100 | +52 |
| Explain danger signs | 10 | 85 | +75 | 42 | 98 | +56 |
| Go to HC or hosp in emerg. | 15 | 88 | +73 | 40 | 100 | +60 |
| Physical examination | | | | | | |
| Measure height and weight | 85 | 97 | +12 | 100 | 100 | 0 |
| Blood pressure | 100 | 100 | 0 | 99 | 100 | +1 |
| Pulse | 28 | 82 | +54 | 99 | 100 | +1 |
| Measure fundus | 99 | 100 | +1 | 100 | 100 | 0 |
| Check for edema | 26 | 80 | +54 | 61 | 100 | +39 |
| Calculate due date | 60 | 95 | +35 | 94 | 98 | +4 |
| Preventive care given | | | | | | |
| TT | 99 | 98 | -1 | 96 | 98 | +2 |
| Kept vaccine in thermos | 64 | 100 | +36 | 99 | 100 | +1 |
| Iron tablet | 94 | 100 | +6 | 94 | 100 | +6 |
| Explain how take iron | 94 | 100 | +6 | 91 | 100 | +9 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Gave malaria prophylaxis | 21 | 92 | +71 | n/a | n/a | |
| Counseling | | | | | | |
| Explain importance of ANC | 35 | 97 | +62 | 64 | 93 | +29 |
| Wt. gain during pregnancy | 77 | 95 | +18 | 90 | 100 | +10 |
| Diet | 64 | 92 | +28 | 68 | 90 | +22 |
| Where and when next visit | 83 | 97 | +14 | 96 | 100 | +4 |
| Ask if any questions | 1 | 64 | +63 | 21 | 83 | +62 |
| Exit Interview | | | | | | |
| TT explained | 37 | 85 | +48 | 45 | 72 | +27 |
| Plan to have HW at delivery | 40 | 65 | +25 | 77 | 85 | +8 |
| Knows danger signs | 8 | 48 | +40 | 46 | 83 | +37 |
| Knows date next ANC visit | 85 | 95 | +10 | 95 | 98 | +3 |

| Vaccination | Baseline | Follow-up | Change | Baseline | Follow-up | Change |
|---|---|---|---|---|---|---|
| Total observations, vacc. | 125 | 60 | | 125 | 60 | |
| Reviewed health record | 98% | 100% | +2 | 79% | 100% | +21 |
| Recomm. vacc even if sick | 89 | 100 | +11 | 100 | 83 | -17 |
| Technique | | | | | | |
| Sterilizer kept covered | 78 | 100 | +22 | 71 | 98 | +27 |
| Used sterile needle | 98 | 100 | +2 | 94 | 100 | +6 |
| Used sterile syringe | 98 | 100 | +2 | 82 | 100 | +18 |
| Needle attached properly | 62 | 81 | +19 | 96 | 98 | +2 |
| Load syringe w/o contamin | 52 | 100 | +48 | 86 | 100 | +14 |
| Vaccine on ice and closed | 56 | 100 | +44 | 94 | 100 | +6 |
| Covered the thermos | 62 | 100 | +38 | 87 | 100 | +13 |
| Prepared injection site | 98 | 100 | +2 | 96 | 100 | +4 |
| Apply vaccine to right level | 90 | 98 | +8 | 89 | 100 | +11 |
| Used good syringe | 83 | 100 | +17 | 99 | 100 | +1 |
| Is needle good | 70 | 88 | +18 | 100 | 100 | 0 |
| Sterilizer good | 89 | 100 | +11 | 98 | 100 | +2 |
| Properly dispose of syringe and needle | 44 | 90 | +46 | 72 | 100 | +28 |
| Documentation | | | | | | |
| Record on patient's card | 98 | 100 | +2 | 100 | 100 | 0 |
| Record on clinic's card | 98 | 100 | +2 | 99 | 100 | +1 |
| Counseling | | | | | | |
| Told pt. which vaccine | 19 | 93 | +74 | 85 | 93 | +8 |
| Told side effects | 50 | 93 | +43 | 49 | 100 | +51 |
| For BCG, told scab | 23 | 57 | +34 | 17 | 100 | +83 |
| Where to go if reaction | 21 | 55 | +34 | 16 | 96 | +80 |
| Import. to complete series | 2 | 62 | +60 | 12 | 87 | +75 |
| If DPT3, remind measles | 39 | 69 | +30 | 61 | 92 | +31 |
| Explain sick child can vacc. | 41 | 78 | +37 | 39 | 83 | +44 |
| Tell when next visit | 35 | 76 | +41 | 53 | 100 | +47 |
| Ask if any questions | 0 | 35 | +35 | 0 | 70 | +70 |
| Exit interview | | | | | | |
| Knows what vacc. received | 18 | 67 | +49 | 70 | 88 | +18 |
| Knows when next visit | 36 | 64 | +28 | 68 | 98 | +30 |
| Says another health service was promoted | 23 | 60 | +37 | 40 | 65 | +25 |
| HW interview | | | | | | |
| Knows correct age for BCG | 58 | 90 | +32 | 93 | 100 | +7 |
| Knows correct age for DPT | 58 | 100 | +42 | 100 | 100 | 0 |
| Knows measles age | 100 | 100 | 0 | 100 | 100 | 0 |
| Knows correct polio age | 63 | 100 | +37 | 100 | 100 | 0 |
| Knows vacc. ill child | 68 | 80 | +12 | 60 | 100 | +40 |

| Acute Respiratory Infections | Baseline | Follow up | Change | Baseline | Follow-up | Change |
|---|---|---|---|---|---|---|
| Total observations, ARI | 127 | 60 | | 125 | 60 | |
| History | | | | | | |
| Asked age of patient | 98% | 100% | +2 | 99% | 100% | +1 |
| Coughing? | 98 | 100 | +2 | 94 | 100 | +6 |
| Duration of cough | 83 | 100 | +17 | 83 | 100 | +17 |
| Child conscious? | 3 | 90 | +87 | 98 | 100 | +2 |
| Able to drink | 17 | 90 | +73 | 7 | 98 | +91 |
| History of resp. problems? | 13 | 83 | +70 | 9 | 92 | +83 |
| Family history of ARI/TB? | 0 | 77 | +77 | 1 | 97 | +96 |
| Current medications? | 17 | 67 | +50 | 12 | 90 | +78 |
| Physical exam | | | | | | |
| General status | 38 | 88 | +50 | 27 | 100 | +73 |
| Respiration rate | 16 | 83 | +67 | 4 | 97 | +93 |
| Temperature | 86 | 97 | +11 | 40 | 98 | +58 |
| Chest indrawing | 35 | 83 | +48 | 44 | 100 | +56 |
| Stridor/wheeze | 24 | 80 | +56 | 44 | 97 | +53 |
| Auscultate chest | 20 | 30 | +10 | 92 | 100 | +8 |
| Exam. throat for discharge | 5 | 53 | +48 | 40 | 97 | +57 |
| Exam. neck glands | 2 | 58 | +56 | 8 | 92 | +84 |
| Classify and treat | | | | | | |
| Classify child | 68 | 90 | +22 | 16 | 97 | +81 |
| Give antibiotic for pneum. | 87 | 80 | -7 | 93 | 100 | +7 |
| Not give antib. for cold | 44 | 83 | +39 | 32 | 98 | +66 |
| Medicine for fever | 98 | 93 | -5 | 78 | 98 | +20 |
| Refer severe pneumonia | 100 | 100 | 0 | n/a | n/a | |
| Injection | 100 | 100 | 0 | 20 | 5 | -15 |
| Injection done correctly | 84 | 100 | +16 | 70 | 100 | +30 |
| Referred complications | 29 | 47 | +18 | 0 | 80 | +80 |
| Gave correct drug | 59 | 90 | +31 | 7 | 100 | +93 |
| Prescribed right dosage | 67 | 98 | +31 | 27 | 100 | +73 |
| Counseling | | | | | | |
| How administer antibiotic | 52 | 84 | +32 | 1 | 80 | +79 |
| Import. complete treatment | 8 | 87 | +79 | 5 | 100 | +95 |
| How to clear blocked nose | 0 | 61 | +61 | 2 | 75 | +73 |
| When to stop medicine | 1 | 67 | +66 | 2 | 98 | +96 |
| Give food, fluids, breast | 26 | 78 | +52 | 1 | 97 | +96 |
| Maintain neutral temp. | 5 | 82 | +77 | 9 | 97 | +88 |
| Tell 3 signs mod/sev. ALRI | 0 | 55 | +55 | 2 | 83 | +81 |
| Return if child worsens | 32 | 82 | +50 | 18 | 98 | +80 |
| Any questions? | 0 | 43 | +43 | 2 | 40 | +38 |
| Exit interview | | | | | | |
| Knows how to treat child | 46 | 70 | +24 | 30 | 70 | +40 |
| Knows signs to return | 31 | 37 | +6 | 36 | 65 | +29 |
| How to admin. medicine | 93 | 90 | -3 | 95 | 93 | -2 |
| When stop medicine | 23 | 63 | +40 | 38 | 70 | +32 |
| HW knowledge | | | | | | |
| Signs/symptoms pneumonia | 83 | 100 | +17 | 81 | 100 | +19 |
| Difference cold, pneumonia. | 83 | 100 | +17 | 75 | 100 | +25 |
| Diff. pneu. and sev. pneu. | 44 | 100 | +56 | 38 | 100 | +62 |
| When give antibiotic | 89 | 91 | +2 | 75 | 100 | +25 |
| Home treat cold, pneu. | 28 | 100 | +72 | 50 | 100 | +50 |
| When refer to hospital | 89 | 100 | +11 | 100 | 100 | 0 |