

## Use of performance indicators as tracers in evaluating the training curriculum of a field level health worker in Sri Lanka

<sup>1</sup>MW Gunthunga, <sup>2</sup>DN Fernando

### Abstract

#### Objectives

To identify deficiencies of training of Public Health Midwives using performance indicators as tracers.

#### Methodology

Performance of Public Health Midwives, a community level health worker in Sri Lanka, was assessed using multiple methods. Performance deficiencies were used as tracers to identify the relevant segments of the basic training curriculum. Analysis of the curriculum was done using pathway analysis.

#### Results

Areas of deficient performance were identified in maternal care, childcare, sterile procedure and in testing urine for albumin and sugar. Even though the relevant topics have been taught, they have been given low priority in evaluations.

#### Conclusions

It was revealed that an in-depth study of the process of teaching should be performed to decide the nature of curriculum revision required. It was recommended to offer an in-service training to the present Public Health Midwives.

#### Introduction

Periodic assessment of work performance of health personnel in community settings is useful in identifying measures required for improvement of quality of health services provided by these personnel (1). Revision of curricula of basic training to meet changing needs of communities as well as providing in-service training are methods by which such improvements could be made (2,3).

In Sri Lanka, the Public Health Midwife (PHM) is the main field level health worker responsible

for providing preventive and promotive health services with a focus on maternal and child health care. Each PHM works in a defined geographical area with a defined population of approximately 4000. Training of PHMs includes two components, a 12 month training programme in a nursing school and a 6 month training attached to a field-training centre. During the initial 12 months they are attached to an obstetric unit in a hospital for training in midwifery. All training institutions in the country follow a common curriculum and the final evaluation is a common examination.

This paper is based on the experience gained in using deficiencies in the performance of Public Health Midwives as tracers to identify relevant segments of the curriculum of their basic training.

#### Methodology

Field level work performance of a sample of PHMs was studied in relation to knowledge, attitudes and selected practices in the field and in clinics. Four methods of inquiry were used to make this assessment 1) self-assessment of competency in carrying out designated functions, 2) assessment of knowledge and attitudes using a self administered questionnaire, 3) interviewing a sample of recipients of care and 4) observation of the performance of clinic activities (4).

These deficiencies were used as tracers to identify the relevant segments of the curriculum that need to be considered for review, using the pathway analysis described by Sing and Bandaranayake (5). This analysis allows identification of the level at which the deficiency of training has taken place, whether it is in the inputs or in the process of training. Segments of the curriculum responsible for each deficient function were identified using the method described by Rotem and others (6).

The steps followed in this analysis were:

Step 1. Interviews with trainers to determine whether trainers had the intention to teach the topics responsible for deficient functions.

Step 2. Review of question papers to assess the frequency with which the topics related to identified areas have appeared in the examinations.

Step 3. Review of specific learning objectives of training to determine whether teaching of these topics were included as objectives.

<sup>1</sup> Senior Lecturer and

<sup>2</sup> Professor, and Head, Department of Community Medicine University of Colombo

Step 4. In order to determine the difficulties in answering questions at the examination, marks obtained by the candidates for each question had to be obtained. Aggregates of marks were available for the total paper and marks of individual questions were not available. Hence it was not possible to carry out this component of the pathway analysis.

#### **Sterile procedure**

Not using forceps to attach and detach the needle from the syringe

Not washing hands before giving injections

#### **Testing urine**

Not adding the correct amount of urine for Benedict's test

Table 1. Distribution of number of activities with deficient performance and corresponding segments of curriculum

Component	Number of activities with deficient performance	Segment of curriculum	
		Institutional training	Field training
Ante-natal care	6	Midwifery (Unit 5) Nursing Procedure (Unit 4)	Ante-natal care, Physical and lab examination
Neonatal care	4	Midwifery (Unit 6 & 7)	Natal care
Post-natal care	1	Midwifery (Unit 10)	Post-natal care
Family planning	3	Family planning (Unit 3)	Reproductive health
Child health	6		Acute respiratory infections, care of infant and pre-school child, immunisation
Child nutrition	2		Nutrition
Health education	2	Health education (Unit 4)	Health education

#### **Results**

The following deficiencies were identified:

##### **Maternal care**

Insufficient knowledge in natal care, postnatal care

Not instructing mothers how to use the provided vitamin, folic acid and iron tablets

##### **Childcare**

Insufficient knowledge in childcare

Not removing clothes when weighing children

Letting someone else record the weight on the Child Health Development Record

(CHDR) after weighing

Not enquiring about current illnesses when giving polio vaccine

Letting someone else make the entry on the CHDR after vaccination

Not boiling for the correct duration of time

Not recording results of the test immediately

Not adding acetic acid in testing for albumin

The segment of the curriculum where the relevant teaching was to take place was identified in relation to the activities with poor performance. Findings are presented in Table 1.

As step 1 of the analysis, the officers in charge of the training of PHMs were interviewed. Their intention of including the relevant topics in the curriculum was assessed. The trainers intended to include all selected topics except for training on communication methods (e.g. how to instruct mothers to take prescribed medicines properly) and in performing an episiotomy.

Step 2 of the analysis required assessment of the frequency with which the selected topics have appeared in evaluations. Question papers used in the examinations held during the previous five years were studied to assess the frequency with which questions related to the selected topics

were included. There were eight subject areas in which questions never appeared in the examinations reviewed. These areas included: testing urine for albumin and sugar; making the decision that a mother in labour can deliver normally, identifying risk factors of children in the home environment, acute respiratory tract infections, child care -weighing infants and preschool children, immunization with polio vaccine and health education talks. As shown in Table 2, questions on anaemia in pregnancy have appeared 4 times and on Intra Uterine

activities with poor performance, were taught during training.

**Evaluation of relevant sections of the curriculum:**

This step completes the pathway analysis and enables identification of areas for intervention.

Even though non-availability of examination marks in sufficient detail did not let pathway analysis to be conducted in a comprehensive manner, available evidence points to the need for

Table 2. Distribution of questions related to activities of deficient performance in 5 examinations

Component	No. of activities with poor performance	No. of activities tested	No. of questions based on activities (as a % of total number of questions)
Ante Natal Care	6	4 (66.7)	8 (14.6)
Natal Care	4	3 (75.0)	3 (5.5)
Post Natal Care	1	0 (0.0)	0 (0.0)
Family Planning	3	3 (100.0)	8 (14.6)
Child Care	6	2 (33.3)	3 (5.5)
Child nutrition	3	3 (100.0)	4 (7.3)
Health Education	1	1 (100.0)	1(100)

Contraceptive Devices and oral contraceptive pills have appeared 3 times each. There were no questions on postnatal care.

Questions related to 2 out of the 6 child care activities with poor performance appeared in the examinations. There were no questions related to post natal care. Though these activities were not included in the evaluations during the previous five years, perusal of the objectives revealed that these have been included in the specific objectives of the curriculum.

Although the aggregates were available it was not possible to trace the marks for individual questions. Hence, exploring the difficulties experienced by trainees in different components of training was not possible.

Step 4 was to determine whether all selected topics have been actually taught. Interviews held with 25 Public Health Midwives qualified during the previous five years indicated that all segments in the curriculum, corresponding to the

a detailed review of the nature of teaching.

**Discussion**

Use of deficiencies of performance as tracers makes it possible to single out segments of a curriculum that require review. Such a precision in tracing helps to rectify only those components of teaching without interrupting the others that are functioning well, thus making revisions of curricula more feasible.

The study indicated that the curriculum included the contents relevant to all areas identified with deficient performance. However, the frequency of evaluating these segments was low. Evaluations have been considered as a tool for enhancing learning. The need for using varied approaches in evaluations have also been highlighted (7,8). The low priority given to identified segments of the curriculum is indicated by the low frequency of these appearing in the evaluations.

Findings up to the Step 4 of pathway analysis indicated the need for an in depth study of the teaching methods and learning experiences, time allocation, availability of teaching materials and other details related to the implementation of the curriculum including the suitability of teachers in terms of qualifications, knowledge, attitudes and skills.

Such assessment will provide information on what improvements should be made to the curriculum of the basic training of future PHMs.

Knowledge and skills of health care workers can be improved through continuing education programmes (9). Due consideration needs to be given to the development of an appropriate continuing education programme for this important category of health workers in Sri Lanka.

#### Reference

1. Hall TL, Mejia A. *Health manpower planning*. World Health Organization Geneva: 1978.
2. Government of Sri Lanka. *Report of the presidential task force on formulation of a national health policy for Sri Lanka*. Sessional paper No 11- 1993. Colombo:
3. Coles CR, Grant JG. Curriculum evaluation in medical and health care evaluation. *Medical Education* 1985; 19: 405-22.
4. Gunathunga, W, Fernando DN. Assessment of community maternal care performance of public health midwives of a province in Sri Lanka: A multi-method approach. *Southeast Asian Journal of Tropical Medicine and Public Health* 2000; 31 (2): 310-318.
5. Bandaranayake RC, Singh PJ. Using tracers to link health services to training through evaluation, *Medical Education* 1993; 27: 509-17.
6. Rotem A, Ewan CE, Bandaranayake RC. How to review a curriculum using a pathway analysis of learning difficulties, *Medical Teacher* 1983; 5: 94-5.
7. McGahie, WC, Miller EG, Sajid AW. Telder, TV. *Competency based curriculum development in medical education: An introduction*. WHO, Geneva: 1978. pp 11-18.
8. Zeitz, PS, Harrison LH, Lopez M, Cornale G. Community health worker competency in managing acute respiratory infections of children

in Bolivia. *Bulletin of Pan American Health Organization* 1993; 27 (2):

9. WHO. *Systems of continuing education: priority to district health personnel*. Technical Report Series, WHO, Geneva 1990: 803, pp5-7.