

## The use of the Paediatric Standard Treatment Book by clinic and health centre staff

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### SUMMARY

The study assessed the self-reported frequency and quality of use of the Paediatric Standard Treatment Book by staff in urban clinics and rural health centres. 61 of the 88 nursing officers and 44 of the 89 community health workers in 9 urban and 4 rural health settings completed written questionnaires on their use of the Standard Treatment Book. The survey participants were also assessed on the management of three case scenarios of common clinical conditions. Whilst 69% of the participants reported daily use of the book, only 51% indicated that they always followed the guidelines. Performance in the case scenarios was poor. Although 87% made a correct diagnosis in the most straightforward case, only 38% indicated complete treatment and only 36% indicated complete and correct advice. In two more complex scenarios less than 30% of the participants made correct diagnoses and less than 10% indicated complete treatment and advice. 75% of the study group wanted inservice training on the use of the book; the majority of these said that doctors should give this training. 79% thought that the book could be improved. Many of the participants felt that more topics and more flow charts should be included. Whilst nursing officers and community health workers regard the Standard Treatment Book (STB) as important, many do not make optimal use of it. Knowledge of appropriate advice to give parents regarding their child's illness was particularly poor. Given the low scores of health workers on case scenarios involving children with more than one presenting problem, the use of the STB appears to be essential for management of most severely ill children presenting to health facilities in Papua New Guinea. Doctors, especially paediatricians, have an important role to play in stressing the importance of the book, in teaching health workers to use it correctly and in emphasizing an integrated approach to the management of sick children. The study incorporated an assessment of health facility infrastructure and equipment. All facilities needed maintenance work, and more than half had significant deficiencies in equipment and drug availability. Medical staff supervision and support of primary health staff is important and should include increasing and improving the use of the Standard Treatment Book. Such support should also aim to improve the working environment and health facility resources. This would substantially improve the service provided.

### Introduction

In many developing countries like Papua New Guinea, most people live in rural areas or in crowded urban and periurban settlements. Provision of health care is hampered by insufficient resources, such as shortages of drugs and equipment, of skilled staff and of

time. Accessibility to health facilities may be difficult, and those that have access to a hospital join a long queue to see an overworked and frustrated doctor who can allocate only a few minutes to each patient.

One of the solutions to the problem of lack of medical manpower is the use of paramedical

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personnel to carry out preventive, curative and promotive health programs. A key to the success of such a policy is the use of simple standard treatment regimens for the common problems which staff regularly encounter. Application of correct standard treatment regimens improves the quality of health care at primary health facilities and ensures that timely referral of sicker patients from health centres to hospitals occurs (1).

Papua New Guinea was at the forefront of the development of standard treatment regimens. In 1974 a national workshop attended by all the paediatricians in the country, paediatric trainees and paediatric nurse tutors reached a consensus for a national manual of Paediatric Standard Treatment. The result was the 1st edition of the Standard Treatment Book (STB). The 1st edition was a pocket-sized book of 50 pages covering 18 topics (2). The 7th edition of the book is now being printed. It is still a pocket book, but has been considerably expanded to cover 44 topics in 116 pages.

The 6th edition of the STB included a 10-Step Check List. This list was developed as part of the Child Survival Program in the early 1990s. It was designed to assist health workers to have an integrated approach to child care. The 10-step list provides guidelines not only for diagnosis and treatment of the child's presenting problem, but also prompts health workers to look for co-morbidities, and suggests advice on preventive health (such as immunizations). The 10 steps must be used in conjunction with the STB and are linked to it by references to the relevant sections of the book.

Standard treatment books are only of benefit if they are used, and previous studies in Papua New Guinea have highlighted that their availability does not necessarily equate with their appropriate use by primary health staff (3-6).

The main aim of the present study was to evaluate the current use of the Paediatric Standard Treatment Book by nurses and community health workers (CHWs) in urban clinics and rural health centres. A subsidiary aim was to assess health facility infrastructure, equipment and supplies.

## Methods

This semiquantitative cross-sectional survey was done between February and August 1999. It surveyed nursing staff working in 4 rural health centres in Central Province, 8 urban clinics in the National Capital District and the Children's Out-Patient Department of Port Moresby General Hospital. All staff working in these settings at the time one of us (LS) visited took part in the study. Three standardized questionnaires were used to collect data on:

- 1 Clinic infrastructure, manpower and medical supplies
- 2 The use of the Standard Treatment Book
- 3 The diagnosis, treatment and advice given in response to three clinical scenarios of varying complexity. The first was a child with uncomplicated malaria, the second a bottle-fed infant with diarrhoea and dehydration and the third a child with multiple problems including malnutrition, anaemia and scabies.

The first questionnaire was answered by the officer in charge of the facility. The following two questionnaires were answered in a classroom situation by each staff member following thorough explanation. No prior mention was made as to whether or not to use the STB during the clinical scenario questionnaire, but if participants asked they were told the book could be used. The case scenarios were assessed as correct, incomplete or incorrect in the areas of diagnosis, treatment and advice, based on the information in the STB.

Data were entered into the Epi Info 6 program. Differences between the performance of nursing officers and CHWs in the case scenario questionnaire were analyzed using the  $\chi^2$  test. A p value of  $<0.05$  was considered statistically significant.

## Results

Of the 231 staff employed in the 13 health facilities in the study, 88 (38%) were nursing officers (NOs) and 89 (39%) community health

workers (CHWs). 61 (69%) of the NOs and 45 (51%) of the CHWs took part in the study.

10 of the 13 officers-in-charge (OICs) surveyed were nursing officers and 3 were health extension officers.

**Clinic facilities**

The state of the clinic infrastructure, equipment and drugs is summarized in Table 1. All facilities were in need of infrastructure maintenance. In some cases major work was required. Toilets were blocked in 5 and electrical faults were reported at 8 of the 13 sites. All facilities had weighing scales: 12 had foot scales, 11 beam balance and 9 spring scales. In 2 facilities the fridge was nonfunctional. An auroscope was available at only 4 facilities, a stethoscope at 5, and a respiratory timer at 6. The majority of clinics were either short of some drugs or had experienced shortages in the previous 3 months. Drugs currently or recently not available included paracetamol (in 11 health facilities), amoxycillin tablets (in 9) and paraldehyde (in 7).

The following Standard Treatment Books

were available: Paediatric Standard Treatment Book (in 12 facilities), Obstetrics and Gynaecology (in 10), Family Planning (in 11) and Adult Medicine (in 9).

A total of 36,019 attendances were recorded for all the clinics during the month before the study, with 1627 of them being for antenatal care. The OICs of 8 of the clinics felt that they had too few staff to deal properly with the number of patients seen.

Whilst 89 staff had attended inservice training away from their place of work in the previous year, only 4 of the clinics had held on-site inservice training.

63 visits had been made by medical officers to 9 clinics in the previous year, but these had been predominantly project orientated, with little clinical supervision. 19 visits had been made by administrative staff to 10 clinics during the same period.

**Knowledge and use of Standard Treatment Book by health workers**

Details of the responses to the questionnaire on knowledge and use of the STB by health

**TABLE 1**

INFRASTRUCTURE, EQUIPMENT AND DRUG SUPPLIES IN 13 CLINIC FACILITIES

	No		No
<b>Infrastructure</b>			
Broken/missing louvres	13	Electrical faults	8
Torn fly wire	11	Doors without locks	6
Leaking water taps	9	Blocked toilets	5
Inadequate furniture	9		
<b>Equipment</b>			
No auroscopes	9	No fetoscope	3
No stethoscopes	8	Nonfunctional fridge	2
No respiratory timer	7	No scales	0
Inadequate surgical instruments	5		
<b>Drug Shortage</b>			
Paracetamol suspension	11	Amoxycillin tablets/capsules	9
Primaquine tablets	11	Paraldehyde	7

**TABLE 2**

USE OF STANDARD TREATMENT BOOK BY HEALTH WORKERS

	Total N=106 %	
Know about the book	102	96
Know book is for all health workers	105	99
Have been issued with the book	100	94
Have book with them	93	88
Know how to use the book	104	98
Find it easy to use	99	93
Use book - every day	73	69
- most days	16	15
- some days	17	16
Use book - for all conditions	82	77
- for common conditions	20	19
- for uncommon conditions	3	3
Follow guidelines always	54	51
sometimes	50	47
Use book - to check drug doses	97	92
- to help with diagnosis	82	77
- to follow correct management	96	91

workers are summarized in Table 2. Almost all knew about the book, knew that it was intended for use by all health workers and had been issued with a copy. 93 (88%) had the book with them. Almost all indicated that they knew how to use the book and the vast majority indicated that they found it easy to use. 69% indicated that they used the book daily and 77% indicated that they used the book for all conditions. However, only 51% indicated that they always followed the guidelines. 92% indicated use of the book for checking drug doses, 77% for help with diagnosis and 91% in order to follow correct management.

Reported reasons for not using the book included: confidence in management without the book, taking too much time, too busy, too many steps to follow, ashamed to use the book in front of patients and finding it hard to use.

**The 10-Step Check List**

The reported use of the 10-Step Check List by health workers is summarized in Table 3. 90% of the participants knew about the list, but almost half thought it took too much time to use. Although three-quarters said they found it easy to use only 25% indicated that they used it for every patient.

**TABLE 3**

USE OF 10-STEP CHECK LIST BY HEALTH WORKERS

	Total N=106 %	
Know about 10-Step Check List	95	90
Think it takes too much time	50	47
Find it easy to use	80	75
Use it on all patients	27	25

**Views about the STB and its use**

80 (75%) of those participating indicated that they would like inservice training to be given on the use of the STB and 75% of these respondents thought that this should be given by doctors. 79% felt that future editions should be improved and a number of suggestions were made. 68% thought more topics should be added and 78% would like more flow charts.

**Responses to case scenarios**

The analysis of correct responses to the three case scenarios is shown in Table 4. In the most straightforward scenario of a child with uncomplicated malaria 87% of the sample indicated a correct diagnosis but only 38% indicated complete treatment and only 36% indicated correct advice. The correct diagnosis was made by less than 30% of the health workers surveyed in the two more complicated scenarios. In these cases the performance in relation to treatment and advice was poor. In the majority of responses, the treatment and advice was incomplete rather than wrong. Wrong treatment was indicated by 7%, 4% and 6% of the group in the three scenarios and wrong advice indicated by 8%, 4% and 6%

TABLE 4

## CORRECT RESPONSES TO CASE SCENARIOS

Case scenario	NO		CHW		Total	
	(N=61)	%	(N=44)	%	(N=105)	%
Uncomplicated malaria						
diagnosis	54	89	37	84	91	87
treatment	27	44	13	30	40	38
advice	30*	49	8*	18	38	36
Bottle-fed baby with diarrhoea and dehydration						
diagnosis	17	28	10	23	27	26
treatment	5	8	1	2	6	6
advice	5	8	2	5	7	7
Multiple problems including malnutrition, anaemia and scabies						
diagnosis	24**	39	6**	14	30	29
treatment	2	3	3	7	5	5
advice	1	2	0	0	1	1

NO = nursing officer

CHW = community health worker

\* p=0.002

\*\* p=0.008

respectively. Nursing officers performed better than CHWs, scoring significantly better in the diagnosis of the most complicated of the three scenarios and in the advice given in the simplest one (Table 4).

### Discussion

Nursing officers and community health workers based in the outpatient departments of clinics and health centres are usually the first point of contact with the health service for the majority of the population. It is important therefore that these workers are competent in the diagnosis and management of the common illnesses of children. It is also essential that the facilities in which the health workers operate are in a reasonable state of maintenance and that equipment, drugs and guidelines are available to them. We assessed the state of the health centre and clinic facilities because it was felt that there might well be an association between the state of the facilities and the health workers' performance. The survey results

showed that there were problems in the buildings or equipment of all health facilities. In 5 centres the toilets were blocked, hardly a good advertisement for a health facility. It was encouraging that all the clinics had scales of some sort and that the majority of these were suitable for weighing children. Conversely, auroscopes, stethoscopes and respiratory timers were available in less than half and in 2 clinics (15%) the fridge was nonfunctional. Shortage of drugs was a major problem, with more than half of the clinics reporting current or recent shortage of amoxycillin, which is the first-line standard antibiotic for the treatment of pneumonia and other commonly presenting infections.

The large majority of the health workers surveyed knew about the STB, were familiar with its use and had been issued with a copy. The fact that 88% had it with them at the time of the study visit attests to the health workers' regard for the book. More than 90% of those surveyed indicated that they used the book for

checking drug doses and for help with following correct management, whilst three-quarters indicated they used it to help make a diagnosis. It would perhaps be anticipated that with the very heavy workload in most of the clinics, the STB would be in everyday use. It was thus disappointing that only two-thirds of those surveyed indicated that they used the book every day and only half indicated that they always followed the book's guidelines.

The survey results indicate that the intended use of the 10-Step Check List in all children does not occur. Whilst most health workers were aware of the 10-Step Check List in the front of the STB, almost half thought it took too much time and only 25% indicated that they used it for all patients. The study did not examine completeness of usage of the list.

The methods used in this study for assessing case management bear scrutiny. Other methods such as observation and exit interviews and review of records have been used in other studies, but all methods have their limitations. Whatever the limitations of this questionnaire method, the results obtained were clearly disappointing. We had considered whether or not to instruct participants, before administering the questionnaires, to use the STB to answer the case scenarios. We decided against giving such instruction and almost all the respondents answered without reference to the book. This part of the study was therefore an assessment of the respondent's knowledge on the diagnosis and management of commonly presenting child health problems. The results indicated that in a straightforward situation (the child with uncomplicated malaria) diagnosis was reasonable, but that in the more complex presentations involving multiple problems in an individual child, approximately two-thirds of respondents made incomplete diagnoses. 55% of those surveyed indicated incomplete treatment for the simple case and 90% indicated incomplete treatment for the more complex cases. Similar deficiencies were found in relation to advice (56% for the simple and 89% and 93% for the more complex). This suggests that the level of knowledge of the health workers was likely to be insufficient for satisfactory management of many sick children without the use of the book.

In practice, many, if not most, children

presenting to health workers have more than one problem. Whilst their visit may be precipitated by a single acute symptom such as cough or fever, a high proportion have other conditions, including malnutrition, inadequate immunization, anaemia or scabies. The mothers too may have problems. The two more complicated case scenarios used in this study represent problems frequently seen in primary health facilities. Performance on these complicated scenarios was extremely poor. This would seem to indicate that although health workers are reasonably good at arriving at a straightforward single diagnosis, many are very poor at assessing the overall health status of the child and his or her family and providing comprehensive care and advice. Nursing officers in the present study performed better than CHWs for some, but not all areas and were still poor at providing advice where the child had more than one problem.

The results of the study are not, perhaps, particularly surprising. In 1979, Lennox drew attention to standard treatments being a 'must but a myth' (3). In 1987 Bouten reported that treatment practices by health centre and aid post workers were often incorrect. Inappropriate or insufficient drugs were prescribed with doses being more often based on recall than on the use of the standard treatment book (4). In 1991 a study of the practice of aid post orderlies in the Tari region reported that drug doses prescribed were often incorrect, treatment principles were rarely explained and preventive health issues rarely tackled (5). A survey of health workers' clinical practice reported in 1995 found that paediatric drug doses were checked against the treatment book in only 11% of cases and against other available drug charts in 4% (6).

Originally, as its title suggests, the Paediatric STB was intended for use by nurses, health extension officers and doctors. Separate guidelines were used by the front-line rural health workers, the aid post orderlies (7). The introduction of CHW training, however, resulted in an increased demand for the STB and it is now accepted that CHWs also should have and should use the book.

79% of the respondents in this survey felt that the STB could be improved and the majority felt that more topics should be

included and more flow charts incorporated. Some of the topics suggested have already been incorporated in the 7th edition of the STB.

In a review of what was known about the health services in Papua New Guinea Thomason pointed out that many of the deficiencies are amenable to improvement through simple and inexpensive means, but require sustained commitment (8). Key components to improvement of clinical case management are the ongoing provision of aids such as the STB and the 10-Step Check List. Supervision of health centre and clinic staff by medical staff is essential but must be seen in terms not only of reviewing patients, but also of ongoing teaching and support for colleagues. Regular medical officer visits to health centres and clinics have a beneficial effect on staff morale and, if properly directed, may result in improvements in areas other than clinical management, such as building maintenance and equipment.

Successive waves of decentralization of health care have led to distancing of the hospitals, with their medical staff, from community health services. Hospitals are now under the control of hospital boards and primary health facilities under the management control of separate Provincial Health Boards and Provincial Health Offices. There is an urgent need to bridge the gap between hospital and community services and to facilitate the involvement of paediatricians and other medical officers in health centre and clinic practice.

The findings of this study indicate that the content and methods of teaching child health for all health workers must be reexamined. The study supports the need for an integrated approach to child health; but we need to find

effective ways to teach it and we need to have the knowledge retention and performance of health workers formally assessed more often.

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#### REFERENCES

- 1 **Biddulph J.** Standard treatment regimes - a personal account of Papua New Guinea experience. *Trop Doct* 1989;19:126-130.
- 2 **Papua New Guinea Department of Health.** Standard Treatment for Common Illnesses of Children in Papua New Guinea: A Manual for Nurses, Health Extension Officers and Doctors. Port Moresby: Department of Health, 1974.
- 3 **Lennox CE.** Standard treatments - a must but a myth. *PNG Med J* 1979;22:140-144.
- 4 **Bouten M.** Mission health services. In: Heywood P, Hudson B, eds. Rural Health Services in Papua New Guinea. Papua New Guinea Department of Health Monograph No 5. Port Moresby: Department of Health, 1987:32-35.
- 5 **Rogers S, Paija S, Embiap J, Pust RE.** Management of common potentially serious paediatric illnesses by aid post orderlies at Tari, Southern Highlands Province. *PNG Med J* 1991;34:122-128.
- 6 **Freeman P, Beracochea E, Edwards K, Dickson R.** The clinical diagnosis and treatment of important childhood diseases in rural Papua New Guinea. *PNG Med J* 1995;38:95-105.
- 7 **Edwards K.** Diagnosis and Treatment of Common Childhood Illness for APOs. Wewak: Christian Books Melanesia Inc, 1982.
- 8 **Thomason J.** Quality of health services in Papua New Guinea: what do we know? *PNG Med J* 1993;36:90-98.