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Editorial

The main objective of the Regional Health Forum is the exchange of information and ideas on any aspect of public health. It is thus a platform where health professionals at all levels can express their views, observations and experiences rather than a scientific journal (although we do, of course, fully encourage submission of health research).

We are currently examining possibilities to make the RHF more interesting and interactive. Such possibilities could include increasing the frequency of RHF issues (e.g. bringing it out every quarter); wider participation of and dialogue among readers, and devoting RHF issues to interesting and stimulating themes. Please, therefore, do not hesitate to send us your fresh ideas and contributions (addressed to editor@searo.who.int) in the form of articles or essays. These may be published in our new "Letters to the Editor" page.

The next issue of the Forum will be devoted to the theme of World Health Day 2008 – Protecting health from climate change.

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Blinding trachoma

A forty-year battle against blinding trachoma in Myanmar

Tun Aung Kyaw* and U Ko Ko**

Abstract

The Trachoma Control Project (TCP) was established in Myanmar in 1964, after a roadside survey in 1962 reported that more than 80% of the persons examined were suffering from active trachoma which affected 57% of the blind in the surveyed area. The TCP project was planned jointly by the disease control division of the Department of Health and ophthalmic surgeons. The control methodology was based on the guidelines contained in WHO Technical Report Series 234 of 1962. The unique feature of Myanmar's TCP is the participation of ophthalmic surgeons in planning and implementation of the project. The technical achievements of surgery in the control project were so impressive that it became one of the strategies in controlling blinding trachoma. Launched in two regions and eleven townships in 1964 and integrated with the Basic Health Services sector according to the epidemiological situation, TCP entered into the maintenance phase in 1978. In 1978, the prevalence of trachoma was reduced to less than 15% in a majority of townships when the project expanded to become the Trachoma Control and Prevention of Blindness programme. The prevalence of trachoma, which in 1964 had 57% of blindness attributable to it, was reduced to 4% in 2004.

The trichiasis rate of 7.5% (1968–1972) was reduced to less than 1.0% in most districts in 2004. An important observation was that no new trichiasis cases were found in people up to 29 years of age in the districts surveyed showing that antibiotic intervention reduced the severity and scarring of conjunctiva and thus, less corneal blindness due to trachoma. The conclusion is that the Trachoma Control Programme launched in 1964 has been successfully implemented and epidemiologically, the disease has ceased to be a major public health problem since 1978. The Prevention of Blindness (PBL) programme is now carrying out the active surveillance of trachoma and providing remedial measures, as necessary.

Introduction

It has been known for centuries that trachoma was rife in the dry-zone areas of Myanmar and that people living there suffered from drooping of thick eye lids giving a ptotic

appearance and squinting of watery eyes due to trichiasis. Some people were seen with white eyes which actually were due to total leucoma of the cornea with very severe loss of vision.

Blinding trachoma was reported as a public health ophthalmological problem in Myanmar by Dr U Ko Gyi, an eminent ophthalmologist, in 1958.¹

In July 1962, a group of ophthalmologists led by Dr U Ko Gyi conducted a roadside survey in 22 villages of Meiktila, Mahlaing, Taungtha and Kyaukpadaung townships which were then commonly believed to be the centre of a trachoma-endemic area. This roadside

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survey, even though not labelled as such, was a quick method of field survey which became very prominent in the 1990s and which in 2000 was termed the Rapid Assessment Survey in Africa. In this roadside survey, more than 80% of the 3862 persons examined were found to have active trachoma which caused 57% of the blindness encountered there.² In a few exceptional townships, up to 85% of the population had trachoma.

Trachoma control project

The problem of blindness due to trachoma was so overwhelming that the Ministry of Health (MoH) decided to launch a project to control trachoma in 1964.³ The trachoma control project (TCP) was developed by the Directorate of Health Services (DHS) office, Division of Disease Control, with technical inputs from ophthalmologists of the eye hospital. The TCP in DHS office was under the Director of Disease Control assisted by a headquarters assistant (a medical officer) and administrative staff. In May 1964, the TCP started functioning with the assignment of two senior ophthalmologists, five volunteer medical officers and eight health assistants who formed the nucleus of the future fighting force against trachoma and its blinding sequelae. More than two months of training was provided on diagnosis and management of trachoma, trichiasis surgery, emergency eye care, common eye diseases and their management at the eye ward of the Yangon General Hospital. The group also attended lectures on health education and general administration.

The historic mission started with two ophthalmologists and five medical officers travelling to Chauk on 15 July 1964 with two light truckloads of medical supplies. Additional field training for nearly one month took place there, with members of the team

visiting surrounding health centres and villages examining trachoma cases and delivering eye care services under the auspices of the ophthalmologists. Thus, in 1964, the 40-year battle against trachoma started in Chauk.⁴

A regional office was established in Chauk and district trachoma offices were opened in Myingyan and Yenangyaung for Magwe district with an approximate population of 1.5 to 2 million. The activities carried out involved treating trachoma, performing trichiasis surgery and rendering basic ophthalmological services.

Later, three more regional offices at Meiktila, Kyaukse and Monywa and additional district trachoma teams were established till the project covered the whole of the trachoma-endemic central dry-zone area of Myanmar.

Methodology of trachoma control

The control measures for trachoma could be described as medical treatment with tetracycline eye ointment, surgical correction of trichiasis/entropion cases and health education for promotion of personal hygiene. The technical method and guidelines were based on WHO's Technical Report Series No 234 of 1962.⁵ Training in trichiasis surgery was provided to trachoma health assistants, nurses and auxiliary personnel.

The epidemiological survey results guided the implementation of the trachoma control activities. Townships with 30% or more of active trachoma rates were provided blanket mass treatment. Townships with rates below 30% and down to 15% were provided selective treatment and townships with under 15% active trachoma rates were examined and given treatment by basic health service personnel.⁸

Study of epidemiology of trachoma in Myanmar

An epidemiological study was carried out in early 1965 in Magway, Myingyan, Meiktila and Yamethin districts using a two-stage random sampling method. The number of people examined was 21 039, belonging to about 4000 households and representing about 1% of the total population depicting the socio-economic factors influencing the trachoma prevalence and blindness caused by it in detail. Extrapolation was made from these surveys and a control methodology was laid down as dictated by these findings. The planning and implementation of medical and surgical interventions and social infrastructure development have been carried out according to the prevailing epidemiological findings.⁶

Implementation of control programme

The SAFE strategy, which is the abbreviated form of surgery, antibiotics, facial cleanliness and environmental improvement, was adopted by WHO in 1996 jointly with nongovernmental organizations and national trachoma control projects to realize the Global Elimination of Trachoma by 2020 (GET 2020) goal⁷. The important elements of the SAFE strategy, particularly surgery and antibiotics, have been used in Myanmar since the establishment of TCP in 1964. Since the beginning, TCP has stressed personal hygiene in health education and improvement in water availability and access to sanitation facilities and environmental hygiene measures.⁸

Attack phase

Surgical intervention

In fact, in 1964, the TCP in Myanmar was the first of its kind project where ophthalmologists participated full time in the planning, training and implementation of field operations of

TCP. The rationality of using ophthalmic surgeons in a public health project like trachoma control has been questioned by some international organizations. But after witnessing the effectiveness of surgical services provided by TCP in Myanmar, it has generally been endorsed as one of the trachoma control strategies.

The Greyline split and splint technique was used to correct trichiasis/entropion cases. Operations have been performed by trained auxiliary TCP personnel in the villages since 1964. In the beginning, the cumulative total of trichiasis cases was very high and it was not unusual to perform more than 100 cases per village during a visit. Post-operative dressing was taken care of by either the project staff or by basic health service personnel. The onsite free surgical services, without the burden and cost of travel, free supply of antibiotics and painkillers eased the economic burden which the old and poor people had to face.

For severe and recurrent cases, the bilamellar tarsal rotation (BLT) is the most suitable surgical method. The initial training was given to the medical officers and health assistants by the originator of that surgical technique, Dr Mark Reacher, during his visit to Myanmar in 1993.

Over 170 000 trichiasis/entropion surgeries have been performed during the 40 years since the inception of TCP with a success rate of about 70%.⁸

Ophthalmic surgeons in the TCP regions take responsibility for training medical officers and other staff, supervise the field work and render surgical services for cataract and glaucoma cases referred by TCP field teams.

Antibiotic interventions

Townships with a trachoma prevalence of 30% and above were given blanket mass treatment with tetracycline eye ointment using two courses of B.D. x 5 days x 6 months with an interval of

six months. This is the most suitable treatment schedule especially for children who attend school for five days a week. In schools, volunteer village health workers and senior pupils could correctly and regularly apply eye ointment once before the beginning of school and once after the school. Trachoma, being a multi-cyclic disease, is more suitable for using an intermittent schedule of treatment. Blanket mass treatment has been provided to 11 463 villages with nearly 6.5 million people in Myanmar.^{8,9}

It is important to have a regular surveillance programme in the form of a model village eye health survey and rapid assessment programmes. It is necessary to treat all the household members if a child belonging to the family is found to be suffering from active trachoma.

Facial cleanliness

It is important to clean the eye and nasal discharge which contains the trachoma agent.^{10,11} Trachoma thrives in young children with dirty faces which, in turn, attract eye-seeking flies. Transmission of trachoma in young children usually occurs either through flies, fingers or fomites.

It is best to teach face-washing to children as early as possible. One should start doing so in preschool children at home and schoolchildren in primary classes. It is easy for children to form good habits while they are young. Text books for young children should contain health messages like "clean the face, brush the teeth."

The rapid assessment carried out in 2002 in Monywa, Shwebo and Sagaing districts where the prevalence of trachoma was higher than in other districts, revealed that 4.28%, 28.44% and 3.51% of children respectively had dirty faces. The situation since then has improved with repeated health education and increased water supply.

Environmental improvement

The scarcity of water inevitably leads to poor personal hygiene including poor facial cleanliness. It really needs tremendous efforts and money to ameliorate such a situation. The political will and generosity of the public and nongovernmental organizations, however, could improve it.

When trachoma control first started in 1964, cattle died due to drought and people travelled for miles to fetch a pot of water. Subsequently, the availability of water improved steadily through building dams and irrigation systems and various water supply projects by the government, UNICEF, individual donors, and international nongovernmental donor organizations who provided shallow and deep tubewells and riverwater pumping systems for villages along the Ayeyarwaddy river.

The provision of water supply improved, particularly in the dry zone in central Myanmar from 2000, through implementation of a ten-year plan to provide water supply to 8042 villages in the trachoma zone of upper Myanmar. This project has been one of the priority projects to promote the social infrastructure which has a tremendous impact on the control of trachoma. Altogether, 93% of the planned target was achieved by the end of December 2005. A total of 7467 out of 8042 villages were provided satisfactory water supply at a cost of 7235.47 million kyats, 5.6 million US dollars and 734.08 million yen.

Through such measures as improving sanitation, building of fly-proof latrines and using them, greening of the 13 districts in the dry zone and construction of dams and providing irrigation mostly in trachoma-endemic regions helped to fulfil the environmental improvement strategy to decrease transmission of this chronic eye disease by leaps and bounds. Cleanliness in houses, schools and villages is also important to reduce the trachoma vector's (*Musca sorbens*) fly population.⁸

More than 90% people in Meiktila spend more than 30 minutes on a roundtrip to collect water from sources such as wells and ponds. All those in Kyaukse and Myingyan districts live within 30 minutes of a water source.

Another environmental (E) factor with negative effects was the proximity of solid waste and animal pens to the houses. It was found that 93.5% households in Meiktila had pens near the houses, whereas only 3.5% in Kyaukse and 29.3% in Myingyan had pens near the houses. One important (E) factor surveyed was the presence and utilization of latrines in the study districts. The percentages of households without latrines were: Meiktila 2.3%; Myingyan 11.0%; and Kyaukse 10.1%.¹⁴

Consolidation phase

It was deemed necessary to have this phase before turning over the trachoma control medical intervention activities to the basic health services sector.¹²

The school eye health services and village eye health services including providing treatment to the affected children and their families are implemented by the TCP and PBL field teams. The school eye health activity covers a multitude of activities such as visual acuity assessment, case-finding and treatment of trachoma, tending corneal abrasion cases, referral of cataract, glaucoma and other eye diseases which are in need of ophthalmologist's attention to the secondary eye care centres and delivering eye health education.

Trichiasis case-finding and correction, other health promotive activities and primary eye care training for volunteer eye care workers usually take place during this phase.

Maintenance phase

When the prevalence of trachoma in a township falls below the 5% level, the

township is regarded to be in the maintenance phase. Passive case-finding and treatment are carried out for those who come to the rural health centres and sub-centres. Trichiasis surgery in this phase is still being performed by trained project personnel. Health assistants, lady health visitors, midwives, multipurpose health workers and traditional birth attendants are provided primary eye care training by the regional and district TC and PBL teams. Primary treatment and referral are performed by these trained persons.

Progress of the PBL project, 1978 onwards

The TCP progressed very well and, by 1978, the general prevalence rate of trachoma became low enough for TCP to be integrated into the general health service system. The follow-up of trachoma control was merged into the PBL programme. By 1998, the trachoma prevalence rate in all townships except in nine had fallen below 1%. After 40 years of strenuous battle against blinding trachoma, with policy support from the government and in collaboration with other ministries, especially education, social welfare, environmental health and irrigation, etc. and the wholehearted participation of the people, the prevalence of trachoma, the leading cause of blindness in Myanmar, was reduced to 4% from 57% found during the roadside survey of 1962.⁸

The average prevalence of active trachoma in 11 districts in the dry-zone area has been steadfastly reduced over the last 40 years. The districts and their respective prevalence rates in 2005 were: Pakokku 1.6%; Manadalay 1.5%; Minbu 1.2%; Magway 1.1%; Shwebo 0.9%; Meiktila 2.4%; Monwya 0.6%; Kyaukse 7.5%; Yamethin 0.4%; Myingyan 2.4%; and Sagaing 0.1%.⁸

Table: Prevalence of blinding trachoma as per the initial and subsequent re-surveys:
11 districts of dry zone

District	Initial year	TF/TI %	Resurvey year	TF/TI %	Resurvey year	TF/TI %
Myingyan	1965	78.18	1990	1.62	2004	10.9
Magway	1965	27.2	1991	5.4	2000	1.1
Meiktila	1965	31.9	1990	6.2	2004	2.4
Yamethin	1965	17.8	1991	3.8	2000	0.4
Kyaukse	1966	44.7	1992	14.9	2004	7.5
Mandalay	1966	20.6	1988	8.56	2004	1.5
Pakokku	1970	48.8	1991	4.5	2000	1.6
Sagaing	1970	54.1	1988	13.5	2004	0.1
Minbu	1971	24.8	1992	2.9	2000	1.2
Monywa	1973	38.1	1988	16.6	2004	0.6
Shwebo	1974	28.7	1990	11.9	2004	0.9

TF/TI = TF - Trachoma follicles } Active trachoma
TI - Trachoma intense

When the project first started in 1964, every household had children infected with trachoma and conjunctivitis. A majority of the old people suffered from trichiasis, conjunctivitis and blepharitis. It was a normal sight to see flies feasting on eye and nasal discharges.

Shwebo, Monywa and Sagaing districts during the continuing surveillance were found to have an active trachoma rate of more than 5% in 2003, but another round of tetracycline eye ointment treatment using B.D. x 6 weeks schedule markedly reduced the prevalence according to a house-to-house trachoma prevalence survey carried out in above three districts.

In Sagaing district, the prevalence was brought down to 0.1%, that in Monywa to 0.6% and in Shwebo to 0.9%. Trachoma control activities in those districts in future will be taken care of by the basic health services sector.

The prevalence rates of TF and/ or TI were found to be 2.4%, 10.9% and 7.5% respectively in Meiktila, Myingyan and Kyaukse.

Trichiasis (TT) 2004-2005

The re-surveys also included the study of prevalence and age and sex distribution of trichiasis. Trichiasis is the root cause of corneal blindness and the results reflect the evidence of effective control activities carried out through all those years and the social factors that influence the natural course of the disease. The medical interventions had reduced the severity and intensity of the disease so that follicular formation with cicatrisation of conjunctiva leading to trichiasis was prevented. The other outcome expected was the reduction of damage to the cornea and prevention of corneal blindness.

The trichiasis rates were 7.5% in 1968-1972, and 5.1% in the 1974 survey. The present study showed the rates to be 0.24% in Sagaing, 1.39 % in Monywa and 0.32 % in Shwebo district. The rate was 0.3% in Meiktila, 0.5% in Myingyan and 0.3% in Kyaukse.⁸

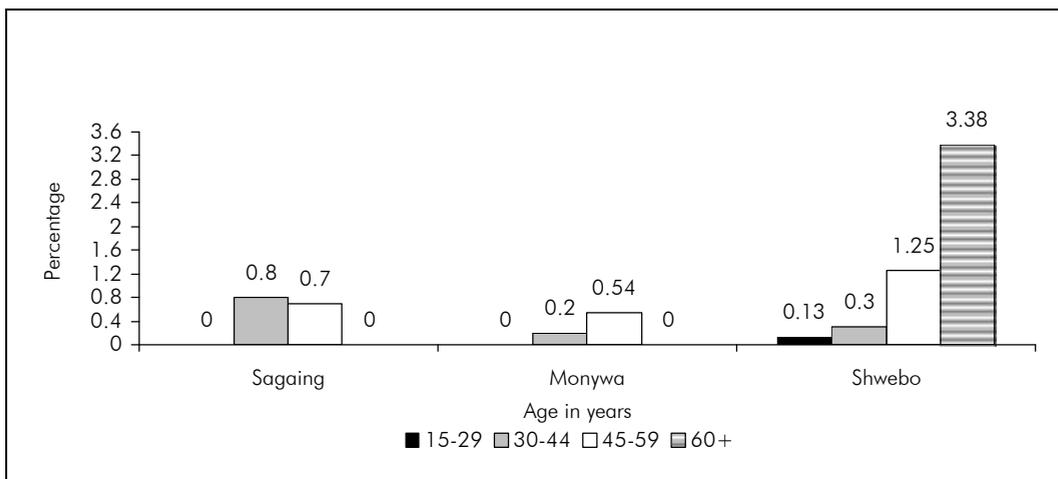
Age and trichiasis

In Sagaing and Monywa districts, there were no trichiasis cases among people up to 29 years of age and only 0.13% of cases were

found in Shwebo. It could be inferred that the mass treatment programmes with tetracycline eye ointment, started in Sagaing in 1970 and Monywa in 1973, have successfully reduced the severe cicatrization of conjunctiva leading to trichiasis. The prevalence of trichiasis in the

60+ age group was 1.88% in Monywa and 3.38% in Shwebo and 0.0% in Sagaing. These cases could be those who suffered from severe trachoma infection and scarring before the control programmes were instituted and those who refused surgical services.

*Figure: Trachoma control and prevention of blindness
Prevalence of trichiasis (TT) by age: Sagaing, Monywa and Shwebo districts: 2004-2005*



Sex and trichiasis

All the district surgery results showed more females suffered from trichiasis than males which were the usual findings in other countries too. The respective trichiasis rates for males in Sagaing, Monywa and Shwebo were 0.44%, 0.26% and 0.49% while in females they were 0.48%, 0.61% and 1.8% respectively.

In Shwebo district the preponderance of trichiasis among females was three times that for males and in Monywa district, it was twice as much. It seems that these findings support what is universally believed i.e. more females suffer from trachoma and more severely so.

Discussion

The model village eye health survey and services carried out regularly in the 1990s indicated that Kyaukse, Sagaing, Monywa and

Shwebo had trachoma prevalence rates of more than 10%. Children with signs of active trachoma were given treatment by basic health staff and TC and PBL project personnel. Active case-finding through such activities as school eye health examinations and regular visits to villages for general eye care services made it possible to identify the children with trachoma. The active trachoma rate among children below 10 years in Sagaing, Monywa and Shwebo was 0.1%, 0.6% and 0.9% respectively. The control of trachoma needs continuous surveillance and permanent field teams. The formation of PBL teams with ophthalmologists and field staff rendering community and clinical ophthalmological services is essential for various eye care services especially for people at the grass-roots level. Trichiasis repair surgery carried out in villages avoids travelling costs, saves time and inconvenience and attracts patients, showing the need for such services.

Earlier, highly desirable and positive steps were taken in 1978. This included the expansion of the single disease control project of trachoma to a multifunctional PBL programme. Another step was the integration with other disease control projects and basic health services infrastructure. A majority of single project workers were turned into multipurpose health workers after giving them appropriate training at divisional, district and township levels. The project activities were expanded to other states and divisions and the data collected on blindness, conjunctivitis and trichiasis are now reported through the townships to the central department of Planning and Statistics which, in turn, feeds the relevant data back to the special disease projects.

It became possible for the TC/PBL Project to deploy teams to other states and divisions. Deploying staff from less problematic areas, a regional TC and PBL team was established in Bago and a district team in Taungoo. Moreover, TC/PBL health assistants were attached to the state and division health offices and are now carrying out school eye health services. These activities have taken place under the 1990 National Health Plan and subsequent plans included the formation of PBL teams for all the divisions and districts in view of the fact that the human resource development sector is increasing the number of ophthalmologists according to Vision 2020 requirements.⁸

Dr T.G. Evans et al. estimated that more than 200 000 cases of visual impairment have been prevented by non-surgical interventions and a total of almost three million Handicap Adjusted Life Years (HALYs) have been saved by non-surgical interventions and 170 000 HALYs saved by surgical intervention¹³.

Essentially a socioeconomic-related disease, trachoma is linked with poverty which, in turn, creates poor personal and environmental hygiene, lack of water and sanitation facilities and inadequate medical and surgical services. The combination of these social illnesses lead to dire consequences such as trichiasis and corneal blindness.

Though there is a need for focused and strong action in the initial phase of the control programme in highly endemic areas, it is definitely not practical and effective to have a vertical, single-disease control project for an unlimited period. The experience in Myanmar has shown that integration with basic health services is essential when the prevalence of trachoma is reduced to less than 5%. Even then, continuous surveillance, search for new active cases and treatment of active cases is still necessary. To carry this out, the single disease (trachoma) programme has been turned into a combination of clinical and community ophthalmological services units called District Prevention of Blindness Teams (DPB Teams) under the PBL programme in Myanmar. The district trachoma teams which were established in 1964 have been transformed to DPB teams in phases since 1978. The medical officers of district trachoma teams were replaced with ophthalmologists but the health assistants and some of the field workers continued to be attached to DPB teams to carry out community ophthalmological functions such as active participation in school eye health services, village eye health services, opening outreach clinics and performing trichiasis surgery in the villages. The DPB team leader also visits one village a month to give health talks on SAFE strategy and to undertake village eye health services and carry out cataract, glaucoma and other surgeries. As these clinical and field activities in combination have been successfully carried out, attempts have been made to attach one health and one field worker to the district eye units to carry out school eye health services.

It is obvious that public health ophthalmological training is necessary for district ophthalmologists to be able to perform community ophthalmological functions. These encompass the clinical and community eye care delivery services as well as the surveillance of major blinding diseases including trachoma, cataract, glaucoma, refractive error and, in short, Vision 2020 service targets.⁸

The PBL programme has observed that since 1978, though the national epidemiological situation is satisfactory (average rate of 5% active trachoma.), there are pockets of townships with higher rates. These pockets have been tackled steadily. In 2000 and 2001 it was noted that 19 townships in three districts have high endemicity and, with the support of WHO/HQ, intensive treatment was given in these areas, with good results. In 2004, the TT rate in these districts was 0.02 in Sagaing, 0.10 in Monywa and 0.62 in Shwebo. The continuous evaluation of the trachoma situation in Sagaing, Monywa and Shwebo districts and implementation of the topical tetracycline eye ointment treatment programme whenever and wherever necessary, has helped in reducing the prevalence and severity of the disease. The built-in, continuous monitoring and evaluation system indicated that, in 2004, Meiktila, Myingyan and Kyaukse districts had active trachoma rates of 2.4%, 10.9% and 7.5% respectively. Though the prevalence of trachoma has been reduced considerably compared to the situation in 1964, additional measures are necessary to further decrease it to 5% or less which is the elimination level.¹⁴

Sustainability of low endemicity of trachoma means increased efforts to promote facial hygiene, increase the availability of water for schools and villages, build more fly-proof latrines away from houses, and educate the villagers to keep the home and village clean.

The prevalence of infective trachoma is now being reduced to less than 1% in the under-10-years age group in most of the endemic areas in Myanmar. If active surveillance activities are diligently carried out and if corrective measures are undertaken promptly the resurgence of this blinding eye disease will be prevented. In addition to topical tetracycline ointment which has been the standard medicine since the beginning of the TCP, endeavours are being made to

introduce oral azithromycine in the TCP, whenever and wherever feasible.

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Blood donation

Effect of applied muscle tension on blood donation experience

Jaisy Mathai*, Reghu V**, Sulochana PV*, Kandaswamy U*, Mettinamma R* and Sathyabhama S**

Abstract

The decision to donate blood depends on many factors. Unpleasant reactions are a major deterrent to repeat donations. Applied muscle tension (AMT), a behavioural intervention, was analysed in this study for its effect on donor reactions and donation experience.

Donors for the study were selected through systematic random sampling and divided into study and control groups. After registration for blood donation, both groups marked the standardized pre-donation "anxiety" and "trait" scores. The study group practised AMT during blood donation whereas the control group underwent blood donation without AMT. During donation, donors were observed for nervousness and untoward reactions resulting in slowing down of blood flow. Post-donation, donors again marked the "anxiety" and "trait" scales and rated a questionnaire relating to subjective reactions, venepuncture pain and response to AMT.

No significant difference in donor characteristics was observed between study and control groups. The post-donation heart rate was low in the study group indicating relaxation provided by AMT ($p=0.04$). There was a highly significant difference with regard to donor reactions between the control and study groups ($p=0.001$). "First-time" donors had more reactions than repeat donors ($p=0.02$). Of repeat donors, 65.2% found AMT useful in relieving anxiety.

AMT was found to be a useful technique in reducing donor reactions and providing a positive donation experience.

Key words: Donor reactions, applied muscle tension, donation experience.

Introduction

Blood is seen as a life force and a symbol of life itself. Human blood is in constant demand and blood donors are vital for a blood centre. Only 39.5% of blood is donated voluntarily in Kerala, India, the rest being replacement donations, with a national average of 45.2%.¹ Maintaining a safe blood supply is therefore a priority for public health. Blood donor decision-making was analysed through this study to

understand the process better and thereby increase donation efficiency and retention of donor pool. The decision to donate is motivated by a host of factors. It is well known that during blood donation, some subjects experience stress reactions which are higher in "first-time" donors than in experienced donors. It is caused by a neurophysiological response to blood loss but is aggravated most often by psychological factors. The psychological component is evident in prospective donors who faint at the mere sight of blood or due to fear of the needle, anticipation of pain and unexplained fear of losing a vital body fluid. Anxiety is a transitory emotional state or condition characterized by a subjective feeling of tension and apprehension with

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enhanced autonomic nervous system activity resulting in reduction in heart rate and blood pressure. The occurrence of unpleasant physical reactions during the donation process is believed to be a major impediment to retain donors. J A Piliavin affirms that first and second donations are critical to the individual becoming a long-term donor.² Piliavin's view was confirmed by others^{3,4} who found that deferrals at the first or second donation resulted in loss of donors. They stressed the need to provide outstanding customer service and good experience, particularly for "first-time" donors. Getting the first-time donor back for a second donation was the key to successful donor recruitment.⁵ Reactions occurring during or immediately after donation can hamper the likelihood of the next donation. While it has been estimated that vasovagal reactions occur in about 4% of all blood donations, it varies considerably between different groups of people.^{6,7} Milder vasovagal reactions, such as fainting, light-headedness and dizziness are significantly more common.^{8,9} Even mild symptoms such as these have been associated with decreased intention to donate.^{10,11} Hence, it is important that donors are well cared for, and donation made a pleasant experience so that they return for future donations, ensuring an adequate and stable blood supply.

Anxiety has direct emotional consequences and affects central neural activity to stimulate peripheral vasodilatation. Recent evidence suggests that efforts to decrease donor anxiety can result in a significant reduction in negative donation experience.^{8,9} AMT, a behavioural interventional technique was used to facilitate donation from individuals with blood phobia and reduce donor reactions. The aim of the exercise was to study the effect of AMT on donor reactions and donation experience, as well as donors' attitude towards the AMT technique.

Materials and methods

Participants in the study were donors at the Blood Bank of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala, India. They were between the age of 18-50 years with a minimum weight of 50 kg and included both "first-time" and repeat replacement donors. The study was designed on the experimental method. Fifty blood donors each for a study and control group were selected through systematic sampling from a donor population of 500. Blood donors donating at the blood centre comprised a representative sample of the donor profile in the state of Kerala. Ethical clearance for the study was obtained from the institute. Each participant was assigned one of the following groups after informed consent – an "AMT" study group and a "no treatment" control group. AMT involves repeated contraction of major muscle groups of the arms and legs while breathing steadily. It is induced by squeezing rubber balls held in both hands and pressing the feet upwards and downwards against resistance, causing tension of muscles. Participants were required to fill a donor registration card-cum-questionnaire concerning demographic details and medical history. Donors were asked to read the "state trait" and "state anxiety" test¹² consisting of 30 statements each in the "anxiety" and "trait" inventory. It was a self-administered test given individually in which the donors were required to mark their response as to how they felt specifically at the time of the test (state "anxiety") and to indicate how they felt generally (state "trait"). Subjects responded to each item of both scales by rating themselves on a three-point scale as always(1), sometimes(2) and never(3). After a brief health check-up, the selected donors proceeded for donation. The control group underwent a typical blood collection process. Participants in the study group practised AMT as demonstrated to them by the medical officer for approximately 15 minutes from the start of blood collection till they were asked to get up from the donation chair. The emphasis

was on repeated tensing of the muscles. During blood collection, donors were watched for any untoward reactions. Donors in both groups rated their response to a post-donation questionnaire (Annex). The first two questions were on pain at insertion of needle and experience of subjective feeling of physiologic reactions to blood donation. Questions 3 to 5 were on AMT which the control group did not rate. Both groups indicated their response to "state trait" and "state anxiety" post-donation as well. The nurse recorded the heart rate and blood pressure once again for both groups.

Statistical treatment of data

Demographic data like age, sex, weight of donor, first or repeat-donor status, occupation, and volume of blood collected were noted at the time of donation. For statistical purpose, each variable was grouped into categories. A post-donation questionnaire for assessing pain on insertion of needle was administered on a five-point scale ranging from 'very painful' to 'not at all painful.' The questionnaire on donor's subjective experience of reactions was administered on a three-point scale as 'yes', 'doubtful' and 'no'. Question 3 on 'how useful was the AMT technique in making your donation an anxiety-free experience' was administered on a five-point scale ranging from 'very useful' to 'not at all useful.' Similarly, question 4 on 'AMT's usefulness in future donations' was administered on a five-point scale ranging from 'very surely' to 'not at all sure.' Question 5 on 'whether donor will recommend AMT to friends' was also administered on a five-point scale ranging from 'definitely recommend' to 'not at all recommend.' Data obtained as above were fed into a computer with the Statistical Package for Social Sciences (SPSS) and analysed using the SPSS Windows programme. Statistical comparison of percentages (proportions) was done using Chi-square and means of selected variables, with analysis of variance (ANOVA). For two-category variables, Fisher's "exact test" was

used to assess the statistical significance. A p value of 0.05 or less was considered for statistical significance.

Results

Both the study and control groups were comparable in terms of the demographic variables. The maximum number of donors were 20-29 years of age (65%). Both study and control groups were comparable with regard to education, with a majority of donors having only school-level education. In both groups, 64% donors were labourers while office staff and professionals constituted a minority. While 17% donors were unemployed, 70% weighed more than 60 kg. There was no significant difference in systolic blood pressure (BP) between the two groups at the pre-donation stage. Pre-donation diastolic BP was comparable in both groups with a majority having a BP of less than 80 mmHg. Seventy per cent of donors in the study group and 54% in the control group had normal post-donation systolic BP (100-119 mmHg). There was a significant variation in pre-donation heart rate among the two groups. Increase in heart rate in donors who formed the study sample indicated anxiety of being part of a study group ($p=0.008$). The post-donation heart rate was lower in the study group as compared with the control group (Fig. 1) indicating relaxation provided by AMT in that group ($p=0.05$). Mean values for pre-donation systolic and diastolic BP were comparable in the study and

Fig. 1: Pre- and post-donation heart rate

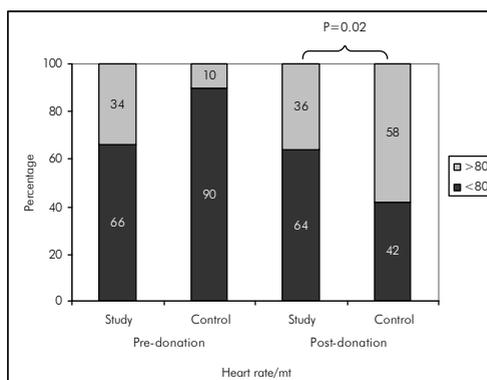
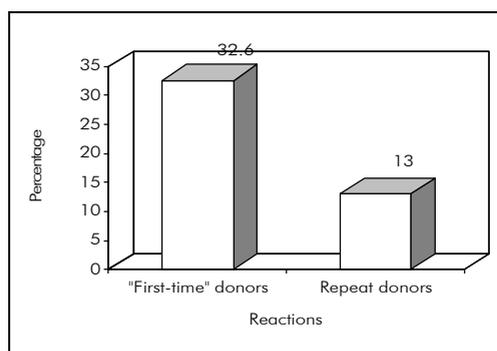


Fig. 2: Reactions in "first-time" and repeat donors



control groups. There was a significant difference between mean values of pre-donation heart rate in the study and control groups with no significance at post-donation (Table 1). Though not significant, donors in the control group with reactions showed a higher level of post-anxiety and trait scores than the study group. There was no association between age and reactions. Reactions were more when pre-donation heart rate was <80/mt though not statistically significant. The post-donation heart rate had a significant association with reactions ($p=0.02$). Donation status and reactions showed a significant association (Fig. 2) when "first-time" donors were compared with repeat donors. There was a highly significant difference with regard to donor reactions (Table 1) between the study and control groups ($p < 0.001$). All cases of reactions (22) were observed in the control

group. These reactions constituted vasovagal reactions and other symptoms reported by donors (Table 2). There was no association of volume of blood collected with reactions in "first-time" and repeat donors. Donors were observed for nervousness, sweating, pallor, slowing of blood flow and impending vasovagal attacks during blood collection and post-donation phase under controlled conditions. The nurse observed slowing of blood flow in three donors each in the study and control groups; in the control group, this resulted in vasovagal reaction in one donor. All other collections could be completed as per the set volume. Nervousness was observed in 30% donors in the control group as against none in the study group.

In both groups, painful response to venepuncture was similar (66-70%). The control group expressed a response frequency of 36% in subjective feeling of reactions whereas it was "nil" in the case of the study group. The usefulness of AMT for an anxiety-free blood donation experience and its use in subsequent donations was recorded as 56% and 48% respectively, with 50% being positive about recommending the technique to others. While 65.2% of repeat donors (with two and more donations) had a positive donation experience, 60.9% of them were positive about using the AMT technique in subsequent donations and recommending it to their friends/blood donors.

Table 1: Pre- and post-donation, blood pressure, heart rate and reactions

Group	Sample size		Systolic BP		Diastolic BP		Heart rate		Reactions* (%)
			Pre-	Post-	Pre-	Post-	Pre-	Post-	
Study	50	Mean	124.48	117.64	80.72	76.04	80.92	78.52	Nil
		+ SD	12.787	12.066	8.119	8.894	8.497	10.582	
Control	50	Mean	122.88	118.00	78.28	77.40	75.92	79.88	44
		+ SD	10.956	12.758	8.041	7.508	6.074	9.991	
Total	100	Mean	123.68	117.82	79.50	76.72	78.42	79.20	22
		+ SD	11.874	12.355	8.132	8.217	7.766	10.261	
		p value	0.053	0.885	0.134	0.411	0.001	0.510	0.001

* Vasovagal and subjective reactions during and post-blood donation

Table 2: Characteristics of donors and reactions

		Number (N)	Reactions: N (%)
Age (years)	18-20	6	2 (33.3)
	20-29	65	15 (23.1)
	30-39	26	5 (19.2)
	40-49	3	Nil
Body weight	50-60 kg	30	5 (16.7)
	>60 kg	70	17 (24.3)
Blood volume collected	350 ml	34	8 (23.5)
	450 ml	66	14 (21.2)
Systolic BP (mmHg) (Pre-donation)	100-119	58	12 (20.7)
	120-150	42	10 (23.8)
Diastolic BP (mmHg) (Pre-donation)	<80	72	16 (22.2)
	>80	28	6 (21.4)
Systolic BP (mmHg) (Post-donation)	100-119	62	9 (14.5)
	120-150	38	13 (34.2)
Diastolic BP (mmHg) (Post-donation)	<80	83	17 (20.5)
	>80	17	5 (29.4)
Heart rate/mt (Pre-donation)	60-80	78	20 (25.6)
	80-100	22	2 (9.1)
Heart rate/mt (Post-donation)	60-80	53	7 (13.2)
	80-100	47	15 (31.9)
Donation status	"First-time"	46	15 (32.6)
	Repeat	54	7 (13.0)
Group	Experimental	50	Nil
	Control	50	22 (44.0)

Discussion

Research has revealed that a number of factors are responsible for the decreased number of donations, one of the strongest being donor reaction. It has been well said that with blood donation "first is worst". If the first donation is done efficiently, the donor may well be on the road to becoming a "next-time" donor.¹³ A donor's perception about physical well-being during and/or after donation is the strongest predictor of an intention to return, whereas a negative experience leads to reduced willingness to donate.¹⁴⁻¹⁷ Getting the donor experience right in the first donation retains donors.¹⁸

There were no significant differences between groups in the study in pre-donation characteristics like age, level of education, occupational status and body weight, etc. Donors weighing >60 kg and representing a blood collection of 450 ml had more reactions than those representing 350 ml collection and with a body weight between 50-60 kg. This could be due to the larger number of "first-time" donors in the former category and could be attributed to stress induced by fear of blood donation. It is suggested therefore that blood collection from the young, "first-time" donors should be of lower volume, irrespective of their body weight as even a mild reaction can lead to

donor attrition. The study group which practised AMT reported "nil" reactions as compared to the control group. The donor status had a significant association with donor reactions in "first-time" than repeat, more experienced donors. It has been reported that blood donation induces moderate stress, as evident from increased cortisol levels and heart rate at first donation which is secondary to the emotional rather than physical factors that occur during a never-experienced event.¹⁹ Though not statistically significant, more reactions were reported among donors between 20-29 years of age. As age advances, donor reactions are less due to haemodynamic stability.²⁰ Young, "first-time" subjects have lower baroreceptor sensitivity when subjected to psychological or physical stress. The observation that donors with lower pre-donation heart rate of <80/mt had more reactions is also suggested by other studies.^{21,22} Lack of effect of AMT on post-donation BP could be due to the fact that these measures were obtained later when donors had rested in the refreshment area.

AMT is reported to reduce blood donor reactions and allows highly anxious donors to proceed with donation and provides a positive donation experience. Though the mechanism for the transition from pre-syncope to syncope phase is not well understood, a majority of donors are able to compensate for the blood loss. The central thalamic pathways play a part through the effects of emotions and hyperventilation.²³ The most current theory of vasovagal syncope is that it is largely dependant on the donor's peripheral baroreceptor sensitivity, which is influenced by age, emotional stress and hypertension.^{24,25} The mechanism of AMT's apparent effect on blood donation experience is unclear. Several hypotheses have been proposed based on available literature.²⁶⁻²⁹ Its main effect springs from maintenance of blood pressure due to repetitive muscle tensing. The benefit of AMT might also result from an increase in venous blood returning to the heart and from cardiac output produced by tensing of leg muscles,

offsetting the effects of hypovolaemia induced by blood donation. Further, AMT might psychologically produce distraction from stress during phlebotomy. The increased cerebral blood flow produced by muscle tension prevents fainting in donors who are blood-phobic. One or more of these factors could have contributed to the beneficial effect of AMT in our study.

Adverse reactions after blood donation based on solicited information are more common than previously thought. Donors' subjective reaction to blood donation can be used to predict donor reaction.^{22,11} Post-donation response to the questionnaire through an interview schedule is a good tool for defining a blood donor's experience and will help the blood collection facility to evaluate and potentially improve blood donor safety and comfort. Over one third of donors in the control group experienced adverse effects of blood donation as against none in the study group, thereby highlighting the beneficial effect of AMT in relieving anxiety. The "first-time" donors were not able to comment on their AMT experience unlike repeat donors. Donation experience improved substantially in repeat donors (with two and more donations) compared to "first-time" donors. The benefit of AMT as an interventional technique to facilitate blood donation is evident from the study. AMT can be performed routinely during blood donation as it is a simple and easy procedure. It can lower donor reactions and help donors to relax. A donor's personality trait, anxiety level, the atmosphere of the blood bank collection area, a warm and friendly approach of staff with a personal touch, all contribute to making donors feel at ease while donating. Collection staff who quickly recognize "first-time" nervous donors will be able to encourage subsequent donations. The positive effect experienced by blood donors can make blood donation less frightening and perhaps even be an incentive for a donor's "return" behaviour. In the Indian context, this will have a positive impact as repeat, regular voluntary donation is still in the take-off phase.

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Health laboratories

Current status and roadmap for improvement of quality system in health laboratories

Panadda Silva*

Abstract

Countries in WHO's South-East Asia (SEA) Region are at different stages of integrating quality into the functioning of their laboratories. The quality system in health laboratories in seven South-East Asian countries was compared by national experts from these countries with the quality system in regional and peripheral laboratories in Thailand with the help of the WHO Collaborating Centre on Strengthening of Quality System in Laboratories. The major deficiencies that were observed pertained to lack of national policy, awareness and commitment; national standards; inadequate financial resources and trained human resources; weak infrastructure of laboratories; and poor documentation. Country-specific roadmaps were developed to address important issues. The paper presents a roadmap which can be made use of by nationals, WHO and other agencies in pooling their resources to improve the quality of laboratory results in Member countries of the SEA Region.

Introduction

The World Health Organization (WHO) has been promoting quality of laboratory results to support both public health and clinical support services.¹ A functional quality system integrated into laboratory services is fundamental to achieving reliable laboratory results. In spite of several activities undertaken by WHO in the recent past including provision of technical guidelines, training and technical support through consultants, the quality systems continue to be at varying stages of development in different countries leading to ambiguous laboratory results in several instances. Developing countries also find it difficult to match the exacting standards set by the international community viz. the International Standards Organization (ISO).

During the 1990s, Thailand faced problems similar to those being encountered today in other countries in the Region. However, Thailand overcame these problems through networking and step-wise approaches which have been documented in a WHO publication.² In order for other countries to have a first-hand experience of the Thai model at all levels of health-care services, a visit by their national experts was organized in October 2006. The study documented here was undertaken during that visit in which participants were also briefed on the development and implementation of quality systems, as well as on national and international standards being maintained by medical laboratories in Thailand.

Material and methods

Fourteen participants from seven countries (two each from Bangladesh, Bhutan, India, Indonesia, Maldives, Nepal and Sri Lanka) along with five experts from Thailand visited three medical laboratories in Thailand with

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fully operational quality systems and standards. These laboratories were located in hospitals in different regions and provinces, and covered both peripheral and community levels. The national experts represented policy-makers as well as senior health laboratory professionals.

Using a standardized questionnaire (Annex), and on the basis of interviews with staff of laboratories visited, the participants compared the status of quality systems being practised by laboratories in Thailand with that of laboratories in their respective countries. The important elements (aimed at assessing the quality system) that featured in the questionnaire were: type of facility; safety and risk management; documentation; document control and archiving; internal quality control;

external quality assessment; reporting system; personnel training; and internal audit and management review. The objective was to identify problems and deficiencies in the implementation of a quality system. These observations were discussed and a country-specific roadmap was developed for each country.

Results

The results obtained through questionnaires received from countries have been summarized in the table below. A brief description of the major constraints experienced in these countries (as perceived by national representatives) and a possible roadmap to overcome these, are given below:

Table: The status of quality systems being maintained by laboratories in seven countries as compared to that of laboratories in Thailand

Parameter	Thailand	Bangladesh	Bhutan	India	Indonesia	Maldives	Nepal	Sri Lanka
National awareness as reflected in national policy and allocation of resources	+	-	-	-	-	-	-	+
National standards available and implemented	+	-	-	-	+	-	-	-
Technical infrastructure for laboratories available at all levels of health care	+	+	+	+	+	+	+	+
Adequate number of trained human resources in place	+	-	-	-	-	-	-	-
Safety and risk-management systems available	+	-	+	+	-	-	-	-
Documentation [especially standard operating procedures (SOP)/work instructions] for testing procedures	+	-	+/-	+/-	+/-	+/-	-	+/-
Internal quality control procedure	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-
External quality assessment scheme or proficiency-testing participation	+	-	+	+	+	+	+	+
Adequate numbers of trained personnel	+	-	-	-	-	-	-	-
Internal audit/management review	+	-	-	-	-	-	-	-

Bangladesh

The major problems in implementation of a quality system identified in Bangladesh included: lack of required infrastructure; absence of a national standard; non-existence of a centre for coordination such as the Bureau of Laboratory Quality and Standards in Thailand; inadequate financial allocation; lack of awareness on the part of personnel regarding quality system; and absence of a policy on strengthening of health laboratories.

It was agreed that the roadmap should focus on the urgent need to build national consensus on formulating national laboratory policy; the need for quality assurance; designation of a national centre for designing and implementing a quality assurance programme including national standards; and establishment of a mechanism for accreditation of laboratories.

Bhutan

Bhutan has an adequate infrastructure in clinical laboratory support services but lacks a comprehensive calibration mechanism and continuous supply of critical reagents. Issues pertaining to safety and risk management need to be addressed. The number of trained staff who are aware of a quality system is limited. Moreover, standard operating procedures (SOP) are being followed for only some procedures. The constraints are related to limitations of all kinds of resources such as finance, infrastructure, personnel and equipment. The major problems faced include lack of adequate space for laboratory services; non-standardization of laboratory services; inadequate financial resources; and lack of expertise and know-how regarding a laboratory's quality system.

Bhutan has a plan to develop its own national standards in order to standardize its laboratories using quality systems and ensuring greater participation in external

quality assessment schemes. A laboratory information system (LIS) is also being developed.

India

Though wide differences were noted in quality systems being maintained in laboratories in India, most components of a quality system were being implemented and available in laboratories in big hospitals. Only the finer elements of a quality system such as internal audit and management review were not yet being implemented. Several small-hospital laboratories, however, lacked every element of a quality system.

The major obstacles in implementing a quality system in India were the difficulty of changing the working culture, and lack of leadership, commitment and a facilitative environment.

The plan to move ahead includes development of national standards, advocacy and sensitization of policy-makers. It is also planned to identify a national focal point for laboratories responsible for developing a policy on laboratories, strengthening internal quality control, expanding external quality assessment schemes, forging a network of laboratories and establishing a mechanism for accreditation of health laboratories.

Indonesia

Most laboratories in Indonesia have implemented all elements of a quality system. Areas that were considered weak during the study included external quality assessment; equipment calibration and reagent management. Improvements also need to be effected in promoting coordination between and among various institutes.

The study perceived that a national centre could play a pivotal role in coordinating activities for quality systems, training human resources and organizing

external quality assessment schemes. Disseminating the benefits of a quality system to all laboratory staff should act as a motivational factor. It would also be useful to improve internal quality controls and develop laboratory networks at the provincial level to be coordinated by the national centre.

Maldives

Maldives has most of the elements of a quality system in place in all levels of health laboratories. Nevertheless, the lack of national policy and standards is a major obstacle in the implementation of a quality system. The other problems noted were insufficient numbers of trained personnel; weak documentation; inadequate space; and limited know-how regarding some of the quality elements such as internal audit, external quality assessment schemes and management review.

Maldives has initiated the process of developing its future plans for the health sector wherein laboratories would be given priority as an important support service.

Nepal

The process to develop a quality system for health laboratories in Nepal needs to be started. This can also be considered a welcome opportunity for Nepal as it is easier to start from the beginning. The main obstacle noted by the study was the lack of policy support which resulted in a lower priority for resources being allocated for the purpose of establishing quality systems in laboratories. Currently, Nepal suffers from limited financial resources, scarcity of trained personnel and non-availability of proper equipment for its laboratory network.

Though the country is organizing several external quality assessment schemes, their expansion would require a large number of

trained and efficient technical staff, and easy availability of quality reagents and equipment.

Sri Lanka

As with Nepal, Sri Lanka too is at the starting stage of implementing quality systems. It is the only country which has drafted a national laboratory policy. A few external quality assessment schemes are operational in the country. Sri Lanka's main obstacle is the rapid turnover of laboratory personnel. Participants were well aware of the importance of establishing a quality system in laboratories and had initiated plans for implementation of most elements of a quality system.

In addition to drafting a national laboratory policy, the authorities in Sri Lanka are also addressing other related issues such as shortage of personnel (by increasing the intake of laboratory consultants and staff); development of SOP and equipment database for all laboratories; continuous periodic calibration of equipment; and internal auditing.

Discussion

Developing countries have established laboratory infrastructure at all levels of health-care delivery services. It has taken them considerable time and resources to do this. The next logical step in this sequence of events is to consolidate the infrastructure and assure the quality of products. Several issues need to be addressed to ensure that laboratory results are consistently reliable. The international standards (ISO 15189) provide a framework to achieve these objectives. However, given the existing infrastructure and resources in developing countries it may not be feasible for them to meet international standards in the immediate future. The ideal approach therefore will be to establish national standards which may not be as rigid as international standards but can be used as

a means to strengthen the quality system and set achievable targets for laboratories. Thailand adopted this approach and was able to substantially improve its laboratory services during the last decade.

The starting point for the Thai model was the setting up of a national standard which conformed to the important elements of the international standard, ISO 15189 and involved all stakeholders and professional personnel concerned at the planning stage. The critical step was to get policy support from the ministerial level in the shape of a written formal declaration. The next step was the formulation of a steering committee comprising representatives of all stakeholders which was to be responsible for any decision-making regarding implementation of the national standard. A small additional budget was provided by the Ministry of Public Health to facilitate these activities. The standards, both national and international, were converted into checklists and each of the detailed elements was assigned a score of one if the laboratories were able to implement that particular element. A total of 100 scores for the national standard and 243 scores for the international standard were established.

Networking of laboratories was undertaken in each region according to the suitability of different areas. Local personnel involved in laboratories also assisted in this process. The scores for standards were divided into three levels to make them measurable indicators. While allocating the budget for the network each year, laboratories were also given targets, which if they were able to achieve, would enable them to gain one "step-up" regarding budgetary allocation. Also, a detailed report of the progress was to be submitted by them twice a year. Based on these measurable indicators, the administrative and budget bureaus were willing to support the network and monitor its progress every year. This

model has been highly successful not only in producing tangible results but also in producing intangible outcomes such as the positive binding of laboratory personnel at both network and national levels.²

Several problems being faced in WHO's South-East Asian Region in the development of quality systems in health laboratories are common to most countries.³ These include lack of top-level policy as well as prioritizing of resources for the network's activities. In fact, though a quality system needs much less resources for its implementation, the policy regarding it needs to be clear and acceptable by all stakeholders. It is necessary to have an institution that can coordinate such activities. However, instead of establishing a new organization for this purpose, additional responsibility could be assigned to existing organizations in countries.

India and Indonesia have a large number of laboratories and a decentralized system of governance. It is therefore critical to harmonize and implement quality systems throughout these countries possibly by using the Thai model. This will save resources, as well as increase the participation of all partners.

Among all other countries, Maldives seems to have a good potential to implement quality systems as it is small and has available resources. The lack of experience and know-how can be made up by financial assistance from the international community, especially WHO.

For others, both WHO and countries should accord priority to quality in health laboratories, ensure a step-wise approach and provide impetus to external quality assessment schemes; knowledge and know-how regarding equipment calibrations; and strengthening of internal quality control and documentation systems. All inputs must be measurable while outputs and outcomes should be sustainable.

International agencies including WHO can provide vital advocacy and technical support to their Member States to strengthen quality laboratory services. This support can play a critical role in improving health care to patients, as well as in ensuring enhanced regional capacity to respond effectively to the challenge of emerging infectious diseases, thereby contributing to international health security.

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ANNEX

Checklist to compare laboratories

No	Category	Applicable (A)	Not Applicable (NA)	Comment
1.	Facility in the laboratory			
	(i) Specimen receiving area and procedure	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	(ii) Accommodation and environmental conditions	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	(iii) Number and type of the laboratory equipment at			
	– OPD Laboratory	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– Clinical microbiology laboratory	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– Blood banking laboratory	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– Clinical chemistry laboratory	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– Clinical microscopy laboratory	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– Clinical serology laboratory	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– Haematology laboratory	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– Community laboratory	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	

No	Category	Applicable (A)	Not Applicable (NA)	Comment
	(iv) Laboratory equipment calibration	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	(v) Testing of reagents' management i.e. list of approved vendors, stock card, stock room or stock condition	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
2.	Safety and risk management (overall demonstration) – policy and procedure on safety and risk management i.e. HBV vaccination policy for laboratory personnel, universal precautions	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– procedure for specimen disposal	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– procedure for disposal of used glassware and contaminated needles and syringes	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
3.	Documentation – SOP/WI for testing procedure	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– SOP/WI for reporting results	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
4.	Document control/document archiving	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
5.	Internal quality control procedure	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
6.	External Quality Assessment Scheme or proficiency-testing participation	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
7.	Reporting – Conventional (write down the result in Request Form and submit to physician)	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
	– Laboratory Information System (LIS) or equivalent	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
8.	Personnel training	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	
9.	Internal audit/management review	<input type="checkbox"/> A1 <input type="checkbox"/> A2	<input type="checkbox"/> NA1 <input type="checkbox"/> NA2 <input type="checkbox"/> NA3	

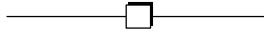
Which is the major task and priority for implementing the quality system in your laboratory?
.....

Which is the major obstacle for implementing the quality system in your laboratory?
.....

Additional comments
.....
.....
.....

Recorded by Country

- A1 Laboratory already has or implements that category.
- A2 Laboratory does not have or implement the category yet but there is a possibility of planning to set it up in the near future.
- NA1 Laboratory does not need that category.
- NA2 Laboratory needs it but it is hard to set up.
- NA3 The demonstration dose does not meet your country's standards or your laboratory 's policy.



Domestic violence and women's health in Maldives

Emma Fulu*

Abstract

This paper briefly outlines some of the initial findings from the Maldives Study on Women's Health and Life Experiences, which was based on the methodology developed for the WHO Multi-country Study on Women's Health and Domestic Violence against Women. The Maldives Study, conducted by the Ministry of Gender and Family shows conclusively for the first time that, as in the rest of the world, women of Maldives face various forms of domestic violence. We see that current and previous experiences of domestic violence are associated with a wide range of physical, mental and reproductive health problems among women. For example, women who have experienced violence are significantly more likely to have health problems, emotional distress and thoughts of suicide. In addition, women who have experienced violence, particularly during pregnancy, are significantly more likely to report miscarriages, still births and abortions. Research shows that women living with violence visit health services more frequently than non-abused women and as such, health professionals can play a crucial role in detecting, referring and caring for women living with violence.

*"I feel very good after this survey. Earlier, things were unspoken but now I feel relieved after talking about them."*¹

In September 2006, after almost three years of preparation, the Ministry of Gender and Family, Maldives completed the data collection phase of the first-ever nationally representative quantitative survey conducted on violence against women. The methods for the study were based on those developed for the World Health Organization's (WHO) Multi-country Study on Women's Health and Domestic Violence against Women², utilizing

the same questionnaire, training and field procedures and ethical standards. The Study was adapted to the Maldivian context through stakeholder consultations and formative qualitative research, including in-depth interviews, "focus-group" discussion and an institutional review. WHO provided technical assistance and the United Nations Population Fund (UNFPA) and the United Nations Children's Fund (UNICEF) provided funding for the research.

This paper outlines briefly some of the initial findings from the Maldives Study on Women's Health and Life Experiences,

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¹Quote from a respondent of the Maldives Study on Women's Health and Life Experiences

²WHO initiated the development of the Multi-country Study on Women's Health and Domestic Violence against Women in 1997 in response to the Beijing Platform for Action which recommended promotion of "research and data collection on the prevalence of

different forms of violence against women". After conducting the study in 10 countries with more than 24 000 women, WHO published its initial results in 2005.

focusing on associations between partner violence and health outcomes.³

Methodology and sampling

The Maldives Study on Women's Health and Life Experiences consisted of a cross-sectional population-based household survey of women aged 15-49 years, conducted across the whole country.⁴ The overall sample size was 2582 households which included 1862 households in the atolls, 575 households in Malè, and an additional 145 households in tsunami-affected islands.⁵ The sample size represented 6% of all households in Maldives and 5% of the female population aged 15-49 years. Structured face-to-face interviews were conducted in private with only one woman per household, selected randomly from all eligible

³ The study examined various forms of violence against women including partner violence, non-partner violence and childhood sexual abuse. In addition to getting estimates of prevalence rates and examining health outcomes the study objectives also included: consequences of partner violence on different aspects of women's lives; risks and protective factors regarding partner violence, and strategies used by women who experience partner violence. A further analysis of the data is currently being undertaken and a full report on the findings will be published in early 2007.

⁴ For the purpose of stratification, the whole country was divided into five development regions for the first domain (atolls), and stratum 6 represented the second domain, Malè (the capital island). The primary sampling units (PSUs) were individual islands, the selection of which was based on probability proportional to size (PPS). The selection of ultimate sampling units (USUs), households, was done using simple random sampling (SRS) based on the 2006 census data.

⁵ The survey was initially planned for early 2005. However, after the Indian Ocean tsunami struck Maldives in December 2004, it was postponed until 2006. Given the internationally recognized connection between disaster situations and increase in domestic violence and sexual abuse, the study team decided that the questionnaire and the sample should be slightly modified to enable measurement of associations between the tsunami and violence against women. Therefore specific questions were developed and included in the questionnaire that would be administered in areas that were severely affected by the tsunami. This information was to be analysed and included in the final report.

women in the household. Thirty-five interviewers were trained during a two-week period, immediately preceding the field work.^[1]

Response rate

Despite initial concerns about possible low rates of response due to the sensitive nature of the questions⁶, an extremely high response rate was achieved: 98.8% at the household level and 93.1% at the individual level.⁷ In fact, women expressed sincere gratitude that they had been given the opportunity to speak about such issues, often for the first time in their lives. For example, one woman said, "for the first time I realized that there were people who would listen to and help people like me. I am very glad."

When asked at the end of the interview whether discussing these things had made them feel better, worse or no different, 50% women reported that they felt better, 46.8% reported that they felt no different and only 3.2% reported that talking about these things had made them feel worse. In fact, in the case of the group of women who actually reported physical or "sexual partner" violence, it was found that an even higher proportion of women reported feeling better (66.3%) or the same (27.4%) after the interview. This was an interesting finding because it dispelled the notion that domestic violence is a private, family matter that women do not want to talk about. Rather it was found that women want to, and benefit from sharing their experiences when requested to do so in a kind and respectful manner, and in a confidential setting. This is consistent with results obtained through WHO studies conducted in most other sites.^[1]

⁶ To adjust for a possible reduction of the actual sample size due to non-response, the sample size was inflated by a 1/5 proportion.

⁷ The household response rate was calculated as the number of completed interviews divided by the number of households sampled, not including empty or destroyed houses. The individual response rate was calculated as the number of completed interviews divided by the number of households with eligible women.

Partner violence

"I was having my periods but he (husband) wanted to have sex. I told him and he hit me so hard in the mouth that six of my teeth became loose. I started to bleed as my lips were badly cut. He abused me the next night, and the night after."^[2]

The survey explored various types of "intimate-partner" violence, including acts of

physical, sexual and emotional abuse by the current or former "intimate partner", whether married or not. A range of behaviour-specific questions related to each type of violence were asked. For the purpose of analysis, the questions on physical violence were divided into two categories which aimed at judging whether the violence was 'moderate' or 'severe', with the distinction between 'moderate' and 'severe' violence being based on the likelihood of physical injury.

Figure 1: Percentage of women aged 15-49 years, who have ever been in a relationship, reporting different types of "intimate-partner" violence

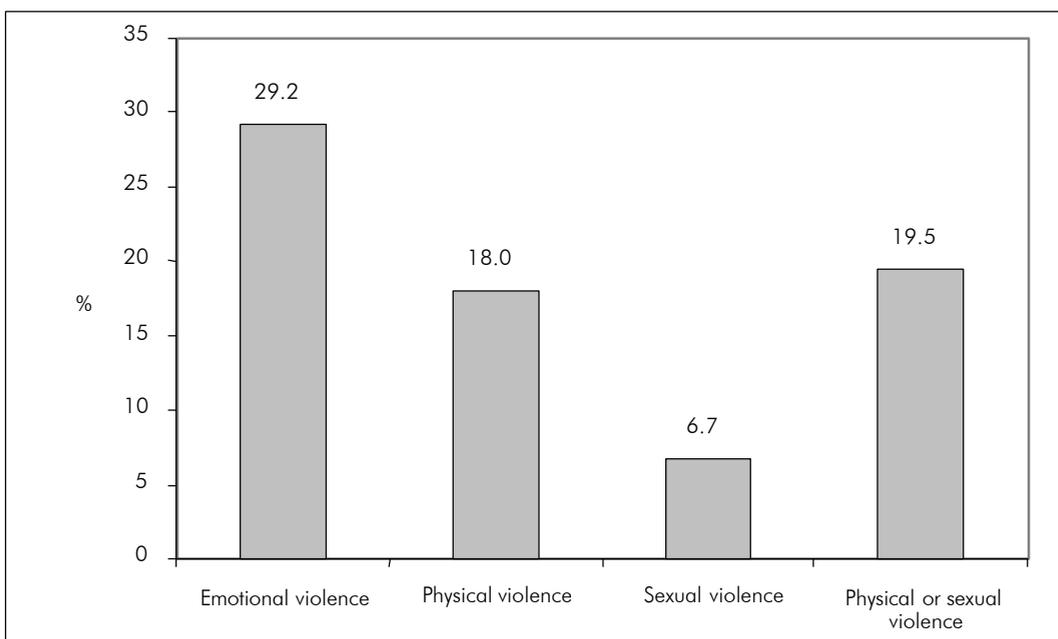


Figure 1 shows estimates of prevalence rates of different forms of "intimate-partner" violence (as defined by a woman's experience of at least one act of a specific type of violence, at least once in her life), for the country as a whole.⁸

- Reports of (at least one act of) emotional abuse were the highest at 29.2%, followed by physical violence by an "intimate" partner (18%);
- Of those reporting physical violence, 39% reported experiencing only 'moderate' violence, while 61% reported experiencing 'severe' forms of violence such as being punched, kicked, choked or having a weapon used against them;

⁸ The percentage for "intimate-partner" violence is calculated as a proportion of women aged 15-49 years, who have ever been in an intimate relationship, whether married or just 'dating'.

- Only 6.7% women reported experiencing some form of sexual violence by an “intimate” partner;
- There was considerable overlap between physical and sexual violence by “intimate” partners. That is, in the case of 92% women who reported physical and/or sexual violence, incidents reported related either to physical violence only or physical violence accompanied with sexual violence.

Injuries as a result of domestic violence

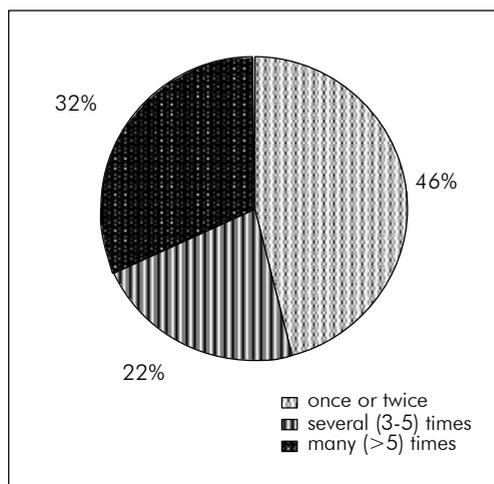
“Even though he is aggressive and keeps beating me mercilessly, our neighbours never try to stop him. They just stay there and watch the commotion. Had I got any help from them, my injuries would be less severe.”⁹

Women who reported “intimate-partner” violence were asked whether their partners’ acts had resulted in injuries. The frequency and types of injuries, as well as the use of health services were also explored.

Of women who had experienced physical or sexual violence by their partners, 35.5% reported having been injured at least once. Out of those, 36% reported having been injured in the past 12 months. According to Figure 2, the majority of women reported having been injured once or twice, although a significant proportion (32%) reported having been injured many times. It is noteworthy that of women who reported injuries, half had experienced ‘severe’ injuries, such as gashes, fractures, broken bones or internal injuries. Ten per cent reported moderate injuries and 37%

reported mild injuries.¹⁰ Of those who reported having been injured by an “intimate” partner, 13.3% reported that they had “lost consciousness” because of a violent incident.

Figure 2: Frequency of injuries caused by violence of partners



Violence by partners and women’s health

All women were asked whether they considered their general health to be excellent, good, fair, poor or very poor. They were also asked whether they had experienced any symptoms during the four weeks prior to the interview, such as any problem while walking; pain; memory loss; dizziness and vaginal discharge. Although it is not possible in a cross-sectional survey to demonstrate the causality between violence and health problems, the findings give an indication of the different forms of association between the two.

⁹ Quote from a respondent of the Maldives Study on Women’s Health and Life Experiences.

¹⁰ Mild = cuts, punctures, bites, scratches, abrasions, bruises. Moderate = sprains, dislocations, burns. Severe = penetrating injuries, deep cuts, gashes, broken eardrum, eye injuries, fractures, broken bones, broken teeth, internal injuries.

Table 1: Percentage of women (who have had a relationship) who reported selected symptoms of ill-health, according to their experiences of physical and/or sexual violence by their partners

	Never experienced violence by partner		Experienced physical and/or sexual violence by partner	
	Number	%	Number	%
Poor/very poor general health	104	7.5	45	13.4
Problems while walking	167	12.0	55	16.3
Difficulties in performing activities	165	11.8	72	21.4
Pain (recent)	436	31.3	167	49.6
Problems with memory	138	9.9	63	18.8
Dizziness (recent)	368	26.4	123	36.5
Vaginal discharge	167	12.0	53	15.7
Total	1545	110.9	578	171.7

Table 1 shows that there were consistent differences for all symptoms of ill-health at the bivariate level, between women who reported experiences of violence by an “intimate” partner and those who did not. For example, 13.4% women who had experienced domestic violence reported poor or very poor health compared with only 7.5% women who had not experienced violence. Similarly, 18.8% women who had experienced domestic violence reported problems with memory compared with only 9.9% women who had not experienced violence.

The Maldives Study on Women’s Health and Life Experiences also showed that 46% women who had experienced violence had visited a health care professional in the past four weeks compared with only 33% women who had not experienced violence. It was also found that, of the women who received health care for their injuries, more than half (54%) did not tell the health worker the real cause of their injuries. In addition, of those who reported needing health care for an injury, a staggering 33% (that is 1 in 3) never received health care, while only 11% always received health care when they needed it.

Violence and mental health

The status of mental health was assessed using a self-reporting questionnaire comprising 20 questions (SRQ-20) developed by WHO as a screening tool for emotional distress, which has been validated in a wide range of settings. The questionnaire asks respondents whether, within the four weeks prior to the interview, they have experienced a series of symptoms associated with emotional distress, such as crying, tiredness, and thoughts of ending life. The number of items that women respond to as “yes” are added up for a possible maximum score of 20, where 0 represents the lowest level of emotional distress and 20 represents the highest.

Table 2: Mean SRQ scores for emotional distress among women who have been in a relationship, according to their experiences of physical and/or sexual violence by an “intimate” partner

Type of violence (by a partner) experienced	Mean	Number
No violence	3.6	1393
Only sexual	6.3	26
Only physical	5.5	221
Both sexual and physical	7.9	90
Total	4.1	1730

Table 2 shows that the mean SRQ scores for women who experienced domestic violence were significantly higher than for non-abused women, indicating higher levels of emotional distress. The Spearman's Rho coefficient of 0.229 ($p < 0.01$) indicates a significant correlation between domestic violence and emotional distress.

Women were also asked whether they had ever had suicidal thoughts. Of the women who had experienced violence by a partner, 18.7% reported having had thoughts of suicide, compared with only 7.1% women who had never experienced such violence. The study indicates that women who have experienced domestic violence are two-and-a-half times more likely to have suicidal thoughts than women who have not experienced violence.

Violence and reproductive health

"He (my husband) tied me up "face down" on a bed with a woven rope. I was eight months pregnant then...I had to stay like that for four hours. When he untied me, my hands and feet were swollen and cut. My stomach hurt really badly because I was tied "face down"...I cried. I had a stillborn child and the midwife told me that it was probably due to the violent act of my husband."¹¹

In Maldives, 6.3% women, who have ever been pregnant, reported having been physically abused during at least one pregnancy. Of those, 41.4% were punched or kicked in the abdomen. In almost all cases (97.7%) the woman was beaten by the father of the child. In 39.5% cases the beating started during pregnancy, while 17.3% women reported that it got worse during pregnancy.

Table 3 shows that women who had experienced violence by their partners,

¹¹ Quote from a respondent of the Maldives Study on Women's Health and Life Experiences.

particularly during pregnancy, were significantly more likely to report miscarriages, stillbirths and children who had died. For example, 36.6% women who had been beaten while pregnant experienced a miscarriage compared with only 21.9% of women who had not been beaten. Similarly, 9.5% women who had been abused reported a stillbirth compared with only 5.5% of non-abused women. Furthermore, 24.7% women who had experienced violence by their partners had had a child who had died compared with only 17.5% women who had not experienced such violence.

Discussion

Although the rates of reported domestic violence in Maldives are less than in most other countries that took part in the WHO Multi-country Study on Women's Health and Domestic Violence¹², it is still clearly a serious issue that affects a significant proportion of the population.

The Maldives Study on Women's Health and Life Experiences shows that current and previous experiences of domestic violence are associated with a wide range of physical, mental and reproductive health problems among women. Women who have experienced violence are significantly more likely to have health problems, emotional distress and thoughts of suicide. This is consistent with the experiences of other countries who undertook the WHO multi-country study, as well as other studies from around the world that show that women who are physically abused often also have a host of less-defined somatic complaints, including chronic headaches, abdominal and pelvic pains, and muscle aches.^[3,9] Similarly, in all

¹² Only Japan reported lower rates of domestic violence than Maldives. However, it is important to note that many of the countries that undertook this research reported extremely high rates of violence by partners (as high as 61%).

Table 3: Percentage of women (who have been through pregnancy) having had a miscarriage, stillbirth or child who died; their experiences of violence by their partners

	Ever experienced sexual or physical violence by partner				Beaten while pregnant			
	No		Yes		No		yes	
	Number	%	Number	%	Number	%	Number	%
Ever had a miscarriage	213	20.9%	88	29.7%	268	21.9%	30	36.6%
Ever had a stillborn child	56	5.5%	28	9.5%	74	6.0%	10	*
Ever had a child who died	179	17.5%	73	24.7%	234	19.1%	18	*

* percentage based on fewer than 20 respondents suppressed

of the other sites where the WHO study was undertaken, the mean SRQ score (indicating the level of emotional distress) for women who had experienced abuse was significantly higher than for non-abused women^[5]. This is consistent with other research which shows that recurrent abuse can erode women’s resilience and place them at risk of psychological problems such as fear, anxiety, fatigue, sleeping and eating disturbances, depression and post-traumatic stress disorder.^[3] Links have also been found in other countries between physical abuse and higher rates of psychiatric treatment, attempted suicide, and alcohol dependence.^[4]

The Maldives Study shows that women who have experienced violence, particularly during pregnancy, are significantly more likely to report miscarriages, still births and abortions. Similarly, studies conducted in the United States of America indicate that women battered during pregnancy run twice the risk of miscarriage, and have four times the risk of having a low-birth-weight baby than women who are not beaten.^[3] In a number of other countries, physical abuse has also been found to be associated with higher rates of abortion, miscarriages, stillbirths and delayed entry into prenatal care.^[6-8]

These findings, as well as experiences of other countries who undertook this research, suggest that violence is not only a significant health problem because of the direct injuries it

involves, but also because it indirectly impacts on a number of health outcomes.^[5] It is particularly noteworthy that the survey found an association between recent experiences of ill-health (within the last four weeks) and lifetime experiences of violence by a partner. This suggests that the impact of violence may last long after the actual violence has ended.

We know that in Maldives (as in other countries) women living with violence visit health services more frequently than non-abused women.^[9] Thus, health professionals in Maldives are treating victims of domestic violence all the time, even if they are not aware of it. As such, they can play a crucial role in detecting, referring and caring for women living with violence. But first, domestic violence must be recognized as a serious public health issue in Maldives and an environment must be created where women feel safe enough to first seek health care for violence-related problems, and then reveal the true nature of their medical history. Only then can interventions by health providers mitigate both the short- and long-term health effects of violence against women and their families.

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Feasibility study on establishing Maternity Waiting Homes in remote areas of Nepal

Shrestha SD*, Rajendra PK** and Shrestha N***

Abstract

The lack of access to obstetric services is one of the main causes of the high incidence of maternal and newborn deaths in Nepal. In Zambia and Zimbabwe better maternal and newborn outcomes were found among women who stayed in Maternity Waiting Homes (MWHs) during delivery. However, in Nepal, out of the 27 available MWHs not a single one has been utilized by pregnant women. To operationalize these MWHs a survey was conducted by the Family Health Division, Department of Health Services.

The objective of the study was to ascertain the views of expectant mothers, communities, service providers and managers on the concept of MWHs and its applicability in Nepal.

This cross-sectional study was conducted in two lowland districts. A total of 18 expectant women and 14 Hospital Support Committee (HSC) members were interviewed. A total of 28 focus group discussions were conducted – 14 with community members and 14 with peripheral health workers and chairpersons of management committees of health institutions.

Both communities and health workers were aware of the direct and contextual pregnancy and childbirth-related problems but were ignorant about the availability of MWHs. To promote utilization of the MWHs, decision-makers in the family should be motivated to accompany pregnant women to MWHs; stay at MWHs should be cost-free; the homes should be equipped with the basic minimum facilities; and good-quality health services should be ensured.

Establishing MWHs in remote district hospitals in collaboration with communities could be a viable option for creating a continuum of obstetric care for rural Nepali women.

Key words: maternity waiting home, maternal/perinatal mortality.

Introduction

Nepal's population of 23.2 million lives in three ecological zones – the mountains, hills and plains – and speaks 92 different languages.¹ Nepal has one of the highest maternal mortality rates (MMR) in the South-East Asia Region: 539 maternal deaths per 100 000 live births. Nearly 6000 women die

every year, with 70% of them dying due to direct obstetric causes. Almost half the deaths are due to postpartum haemorrhage, followed by obstructed labour (16%), eclampsia-related (14%), and puerperal sepsis (11.8%); the rest are from abortion, antepartum haemorrhage and ectopic pregnancy.² These deaths could be prevented if women had access to emergency obstetric care services. However, the utilization of emergency obstetric care services in Nepal is as low as 5%, reflecting a huge unmet need.³ According to the latest data (2005–2006), only 23.4% deliveries were attended to by

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health workers, with only 13.5% of them in institutions.⁴ Furthermore, the current conflict in Nepal hinders pregnant women's access to emergency obstetric care services during curfews and national strikes.⁵

With a view to encourage utilization of maternity services in hospitals, the Ministry of Health and Population with financial support of UNFPA constructed Maternity Waiting Homes (MWHs) in 27 district hospitals in Nepal. An MWH is 12.85m long and 8.35m wide with cemented floor and half-brick walls that are lined up with a wiremesh up to a metallic roof. The structure is divided into separate dormitories for females and males (husbands/male relatives). It has two toilets and an outdoor cooking area at opposite ends. Both categories of dormitories are equipped with lockers for storing personal items. Cement slabs are provided for accommodating beddings. The idea behind this simple design was that people could bring their own beddings, utensils and foodstuff and use the facilities. However, none of the MWHs was found to be operational.

As studies conducted in Zambia and Zimbabwe had indicated better maternal and perinatal outcomes among high-risk pregnancies involving a stay at an MWH,⁶⁻⁹ the Family Health Division, Nepal, conducted this study to elucidate reasons for the poor utilization of MWHs in Nepal, and thereby develop an effective plan of action to make them operative.

Materials and methods

The study was a cross-sectional and mixed-methods one conducted in two lowland districts of Nepal, namely Dang and Kapilavastu. Data were collected from 25 November 2005 to 1 December 2005 by the survey team comprising personnel from the respective district health offices and the United Nations Population Fund (UNFPA).

Sampling and data collection

Quantitative data were collected through individual interviews with 18 pregnant women admitted to district hospitals. The "sister in-charge" at hospitals administered the semi-structured interview questionnaires which mainly focused on the women's perception of the need for MWHs, their willingness to use them and their knowledge about existing MWHs. The survey team collected data from 16 Hospital Support Committee (HSC) members using a semi-structured interview questionnaire. Before each interview, the objectives of the study were clarified and verbal consent obtained from the interviewees.

Qualitative data were collected through focus group discussions (FGDs) in seven randomly selected peripheral health institutions (PHI): four sub-health posts, two health posts, and one primary health-care centre (PHCC). In each district the FGDs were conducted using the guidelines prepared for this purpose. At each health institution two FGDs were conducted; one with health workers and the chairperson of the management committee of health institutions and the other with community members. The FGDs focused on understanding the issues related to pregnancy and birth, the need for an MWH and views of the interviewees on how to create demand for MWHs. The site and participants for community FGDs were selected by consulting the secretary/informal leader of the Village Development Committee (VDC). Participants of FGDs numbered 10–12 men and women from different socioeconomic backgrounds, including marginalized groups, pregnant women and their husbands and female community health volunteers (FCHVs), traditional birth attendants (TBAs), members of mothers' groups and women leaders. A tape recorder was used to record the group discussions and the survey teams prepared written notes every day of the FGD findings. A total of 28 FGDs were conducted in the two districts – 14 with communities and 14 with

staff of PHIs and chairpersons of management committees of health institutions.

Data analysis

The interview questionnaire sheets were scrutinized for inconsistencies and open-ended answers were read, categorized and coded. Data were entered into the Windows Statistical Package for Social Sciences (SPSS-version 11) and percentage analysis was conducted. The tape-recorded FDGs were transcribed, translated into English and entered into a computer. Data were analysed according to pre-set themes, while some emerging themes were also identified.

Results

Perspectives of pregnant women regarding MWHs

By age: 13 out of 18 (72%) respondents were less than 24 years old. By social group: 10 were high-caste Hindus, four were lower-caste Hindus and the rest were Muslims. Most of them came to the hospital either on the same or one to two days prior to their expected delivery date (EDD), while some came 5–10 days before the EDD. None of the respondents knew of the existence of MWHs in the hospital premises. However, they expressed their willingness to stay in MWHs (Table).

Perspective of Hospital Support Committee Members on MWHs

The majority of HSCMs (12 out of 14) interviewed were aware that there were MWHs in the hospital premises. Most of them (11) cited lack of minimum facilities as the reason for non-use of these MWHs. The other reasons stated by the Kapilavastu HSCMs were low patient load, long distances from hospital and unavailability of caesarian services in the district hospital.

Table: Findings of interviews with women admitted to the Maternity Unit, 2005

Variables	Total (N=18)
1. Accompanied Mother-in-law Husband Others	10 6 2
2. Meals from Hotel Others	15 3
3. Preferred place for waiting prior to delivery Near the hospital Home	11 4
4. Readiness to stay in an MWH Yes	10
5. Knowledge regarding MWH's existence No	18
6. Willingness to stay for next delivery Yes	12

Almost all (12) HSCMs stated that MWHs should be managed by the MWH Management Committee comprising a hospital superintendent, a nursing in-charge, an NGO and women social workers. They also suggested that a nominal charge of 14 to 20 cents (Nepalese rupees 10-15) per day be levied for use of MWH, and that staff be recruited for regular cleaning of MWHs.

Findings of FDGs (held with pregnant women, and community and health workers) on MWHs

The box shows that both the community as well as health providers were aware of the direct birth-related and contextual problems. Moreover, they had knowledge of women who were prone to suffer from these problems. However, all of them reported ignorance of the existence of MWHs in the district hospital. An important aspect regarding MWHs was highlighted by a skilled birth attendant (SBA) at a PHCC who said,

"sometimes two or three women come for delivery at the same time. But as we have only one 'delivery bed' we vacate it by discharging the woman who may have already delivered

in a hurry, and put another woman on the 'delivery bed'. I think, if an MWH is available, we can keep the woman for an adequate length of time before delivery."

Box: Perception of communities and health workers regarding complications in deliveries, and vulnerable groups particularly in need of MWHs

Variables	Community	Peripheral-level health workers
Knowledge about complications (danger signs) in pregnancy	Birth-related: Nausea, vomiting, swelling of lower limbs, convulsions, bleeding, fainting, pain (abdomen), prolonged labour pains, still-birth and uterus prolapse	Birth-related: pregnancy-induced hypertension, oedema of lower limb, haemorrhage (ante/postpartum), long labour pain, coming to PHCC when critical, poor personal hygiene, conflict in family, malnutrition.
Constraints to seeking/accessing health care	<ul style="list-style-type: none"> – lack of money for transportation – lack of money for medical service – family members (mainly mothers-in-law) consider 2-3 days labour pain as normal (compel women to bear pain) – go to hospital if a caesarian is needed, otherwise prefer home delivery 	<ul style="list-style-type: none"> – lack of transportation – poverty – condition of roads
Vulnerable groups	<ul style="list-style-type: none"> – married early/have many pregnancies/many babies – not visiting ANCs – poor, uneducated women – socioeconomically poor groups, e.g. Muslims, chamars (shoe-makers), dhobis (washermen), and pasi (untouchable) women. 	<ul style="list-style-type: none"> – women with many children/early marriages, – poor – short-statured women

All three groups suggested that MWHs should be equipped with items such as beds and blankets, utensils, heaters, telephones, stoves, fans and mosquito coils, as well as with basic facilities like water and canteen. They emphasized that provision must be made for a separate room for family members. The justification provided was that "after delivery the mother feels weak and needs to recuperate on the same bed. So it is important that there is place for the family members to stay." Some participants mentioned that the "well-to-do will eat better food whereas the poor will eat cheap food". The FDGs conducted with community members revealed conditions that can facilitate the utilization of MWHs if family members especially the mother-in-law are allowed to stay with expectant mothers.

Another condition that was revealed related to the availability of quality safer-motherhood services. Emphasis was also placed on regular check-ups of patients by doctors and nurses of MWHs. Another issue raised related to treating the rich and the poor alike. Regarding this, a mother-in-law stated, "What is the use of bringing expectant mothers to the hospital when there are no beds for them and they have to sleep on the cold cemented floor? When I requested for a doctor to check my daughter-in-law who was in severe pain, the health worker scolded me and said that he had to take care of all patients and not her daughter-in-law alone!".

The common modes of transport among the poor were bullock carts, stretchers, cycles and local buses (during the day). The rich, however, used private vehicles. The

consequences of delays occurring due to strikes were narrated by an FCHV as "Mrs A had delivered a baby after prolonged labour pains. As a result, she suffered heavy bleeding. Since there was no telephone connection in the village the husband was sent off on a bicycle to call for an ambulance while Mrs A was carried on a local stretcher to a hospital. When she had reached half way, the ambulance arrived. They tried to transfer her to the ambulance but she was already dead".

Different interpersonal and mass communication methods were identified in FGDs to encourage expectant mothers and family members to utilize MWHs. Firstly, mothers/fathers-in-law and husbands should be made aware of the "danger signs, risks at delivery and maternal mortality" by orienting them through street plays, and TV and radio messages, as well as through dissemination of messages during festivals. Secondly, the information regarding availability of MWHs should be included in the patients' EPI cards. Moreover, such information should be shared during immunization sessions and group meetings of mothers, and during trainings, seminars and workshops. Lastly, such information should be disseminated through school health programmes, issuing circulars to all peripheral health facilities and using public notice boards.

Discussions

The limitation of the study was the small sample size. Only pregnant women admitted to maternity units were interviewed. Therefore, the findings may not be representative of all pregnant women.

The study found that both community members and health workers were aware of birth-related problems, constraints to access to health care, and vulnerable groups. Pregnant women were willing to stay at an MWH but they did not know about its existence nearby. The study findings therefore highlight the need for information

dissemination and promotional activities to increase the utilization of MWHs. Family members should be motivated to accompany pregnant women to these facilities by ensuring that they can stay free of charge and by providing quality medical care. Also, MWHs should be equipped with the basic minimum facilities. The existing design of MWH needs to be modified for it to adapt to local needs. It was found that mothers-in-law play a crucial role in making obstetric care accessible to pregnant women. This indicates that mothers-in-law are among the key partners that should be involved in planning of an MWH operationalization process in the Nepalese context.

The study also showed that responsibility for management of an MWH should be fixed on the MWH management committee. The HSCM opined that a nominal fee should be charged, while community members felt that "user" fees were a constraint to MWH utilization and that these services should be made available for free. In view of the fact that free-of-cost MWHs are available elsewhere in the world⁶ and that costs of accessing obstetric services are a major factor for rural women in Nepal, we have to consider this reality.¹⁰ In the context of decentralization and devolution of health services' management responsibility, including the operational costs of MWHs in the annual workplans of VDC could be an option¹¹ in order to get the necessary budget allocated to run the MWHs.

Five times more (15) pregnant women enrolled in Dang district, which has about the same population as Kapilavastu. This indicated that numerous factors needed to be considered prior to establishing an MWH in a given setting to ensure optimum enrolment of delivery cases and utilization of MWHs. The first factor related to the proximity of a district hospital to a higher-level hospital nearby. For example, pregnant women in the northern part of Kapilavastu directly visit the regional hospital situated there instead of travelling to the district hospital situated farther away. The

second factor is the availability of quality safe-motherhood services. In Dang, a trained gynaecologist was posted at the hospital throughout the study period while in Kapilavastu, the hospital had only a general practitioner.¹²

In 2005, the Government of Nepal announced a provision of fixed transportation costs (up to two deliveries) to women needing to travel to health facilities for delivery. In cases of emergency, the limit of "up to two" deliveries was waived to overcome the barrier of cost for accessing safe-motherhood services.¹³ The latest data of 2005-2006 show that the number of deliveries in health institutions in the mountain belt nearly doubled to 4% from the previous 2.6%.¹⁴ The study, therefore, indicated that establishing an MWH could be a solution to the problem of deliveries and cases requiring postpartum services since most HPs and SHPs lacked separate delivery and recovery rooms.

A study in Bali, Indonesia, found the maternal mortality rate to be nearly five times higher in mountain areas compared with that in the plains.¹⁴ The true magnitude of maternal mortality in Nepal is still not very clearly known. However, the great disparity in maternal and infant mortality rates pertaining to mountain areas and the plains does indicate that the Indonesian scenario may also be true for Nepal.¹⁵ In Nepal, people inhabiting the hills and mountains do not have access to good roads. In an emergency, therefore, many women have to be transported in a basket on the back of a porter to the main road before they can get motorized transportation to a hospital.

It is concluded that establishing an MWH in district hospitals with community participation, along with strengthening of safe-motherhood services could ensure the continuum of maternal and neonatal health care for women residing in hard-to-reach areas of Nepal.¹⁶

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Operationalization of the community needs assessment approach under the Reproductive and Child Health Programme at subcentre level in north India

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Abstract

The family welfare programme in India underwent a paradigm shift with the introduction of the Target Free Approach (1996), later renamed as Community Needs Assessment Approach (1997). The objective of the study was to ascertain the nature and extent of community consultation undertaken and database utilized by health workers for preparation of subcentre actionplans.

The study revealed that community needs assessment had not taken off in the true spirit. Community consultation for assessing the felt needs was not being carried out effectively. A needs assessment was carried out involving 21.7% *sarpanchs* (village headmen), 43.3% traditional birth attendants and 33.3% schoolteachers. Home visits to priority women clients covered 15% and 21% (in the last six months) women with infants and with children between one and three years old respectively. The information generated by health workers was not being put to use effectively for prioritizing high-risk clients and planning work schedules.

It was also observed that health workers were not fully equipped to prepare actionplans. Thus, they needed to be imparted greater skill-based training for preparation of actionplans under the Community Needs Assessment Approach (CNAA). They also needed to establish enhanced contacts with priority clients and community partners. Also, the management information system needed to be simplified to make it user-friendly for health workers.

Key words: Community Needs Assessment Approach (CNAA); Reproductive and Child Health (RCH) Programme, subcentre.

Introduction

India's family welfare programme launched in 1951 has undergone many changes to meet the varied demands over the years.¹ At different times the programme has been expanded to integrate various services, as was done in the 1970s through the multi-

purpose workers scheme. In recent years, in order to focus on the critical range of services for the health of women and children, the programme has been expanded to include elements of new schemes such as Child Survival and Safe Motherhood (CSSM) and later the Reproductive and Child Health (RCH)²⁻⁴ Programme.

In April 1996, the Ministry of Health and Family Welfare (MoH&FW), Government of India (GoI), replaced method-specific family planning targets with what was initially called the Target Free Approach (TFA).⁵⁻⁶ The main aim of TFA was to shift the focus to clients'

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needs and to improve the quality of services. The TFA was misinterpreted at the operational level in some states as “no target means no work”. To avoid this misconception, the TFA was renamed in 1997 as the “Community Needs Assessment Approach”.⁷

Developing the subcentre actionplan is the most important phase of the CNAA. It should be based on the assessed community needs for RCH and family planning services as reported by eligible couples (married couples with females between 15–45 years of age) themselves during the “eligible couple” surveys. Such an exercise will later help in identifying couples who need services by name. Indirect measures/rates should not be employed to estimate the felt needs of services. The basic tenet of an RCH needs assessment is to recognize/identify eligible clients, delineate their felt needs, register and categorize them in order of priority and meet their needs through an organized programme of RCH services at the local level ensuring “coverage” of all clients with provision of quality services to their full satisfaction. The second tenet of needs assessment is to consult the community leaders, village functionaries like *anganwadi workers*, school teachers, *gram sevikas* and indigenous practitioners to solicit their support, assess needs and prepare the subcentre actionplans accordingly.⁸⁻¹¹

Realizing the importance of this new endeavour in overall planning, it was considered worthwhile to conduct an operational research study and document various practices which were being followed for the formulation of a subcentre actionplan. The article attempts to determine the extent of both community consultation undertaken by health workers for needs assessment and the usage of data generated by the health information system in the formulation of a subcentre actionplan.

Material and methods

Of the 20 districts in the state of Haryana in north India which constituted the sampling frame, Rohtak was selected through purposive sampling. In the area of primary health care, Rohtak has five community health centres (CHC), 30 primary health centres (PHC) and 113 subcentres providing comprehensive reproductive and child health services to the assigned population.

The study was conducted from May 2003 to November 2003. A sample of 30 subcentres was selected for the study. Of the 113 subcentres in Rohtak, 41 met the eligibility criteria for a functional subcentre, which were:

- (1) Having both males and females multi-purpose health workers in position; and
- (2) Multipurpose health workers (female) [MPHW(F)], also known as Auxilliary Nurse Midwives, ANMs) working in that subcentre continuously since 1996–1997.

Of the 41 functional subcentres which were chosen through purposive sampling, 30 were selected through stratified random sampling for carrying out the present study with equal representation from each of the five community development blocks.

The study design was cross-sectional. The degree of community/client consultation undertaken by the subcentre team was assessed by interviewing (in each subcentre area) one village headman (*sarpanch*); four *panchayat* committee members (two males and two females); four *Mahila Swasthya Sangh* (MSS – a women’s group constituted to disseminate information, education and communication/behaviour change communication (IEC/BCC) messages) members; two members from the Scheduled Castes (SC) community and two non-SC members; one

traditional birth attendant, one village *chowkidar*/watchman (a village-level functionary entrusted with the job of birth and death registration), two *anganwadi* workers (AWWs) (village-level workers under the Integrated Child Development Project to provide child-care services aimed at improving nutritional status, reducing morbidity/mortality and providing non-formal pre-school education); four primary schoolteachers (two males and two females); and five women clients from economically weaker sections (two women with an infant each, and three women with children in the 1–3-year age group). Thus, the total study participants included 30 *sarpanchs*, 120 *panchayat* members, 150 women clients, 60 *anganwadi* workers, 30 trained birth attendants, 120 MSS members, 30 village *chowkidars*, 120 primary schoolteachers and 30 MPHWS(F). Data were collected on pre-tested semi-structured schedules.

The *panchayat* committee members (males and females), birth attendants, AWWs, schoolteachers and *chowkidar* were chosen through random sampling after obtaining a list of all these categories of functionaries from respective ANMs. Of five women clients belonging to an economically weaker section, two women having infants and three having children between 1–3 years of age were selected in each subcentre area. These clients were selected through systematic random sampling after preparing a sampling frame of women from economically weaker sections and belonging to the aforementioned categories. The household survey and birth registers of the subcentre were used to prepare the sampling frame.

The data used by the subcentre health team to assess the community needs in respect of RCH were collected through observations, interviews and review of various records maintained at the subcentre level. An

inventory of all records (registers, records and reports) was prepared, indicating whether the records were complete and updated as well as the extent to which they had been used for assessing the RCH needs.

The annual actionplans of the subcentre were reviewed in detail to capture the basis for determining the workload and specific needs of adolescent girls, pregnant women, lactating women, eligible couples, non-pregnant and non-lactating women, schoolchildren and young children (under the age of five years). Lastly, focus group discussions were held with health workers for an in-depth knowledge of their perceptions regarding data management and data utilization for action.

Results

Eleven (36.7%) MPHWS(F) applied formulae on demographic indicators to estimate their workload for family planning services or simply scaled up their previous year's performance by 5%-10%. Despite the fact that 29 (96.7%) MPHWS(F) had undergone RCH training at district headquarters, 19 (63.3%) did not have the required knowledge and expertise to prepare an actionplan to estimate the contraception workload. These MPHWS(F) sought the help of multipurpose health supervisors [(MPHS(F)] and the Medical Officer to calculate their respective workload using appropriate formulae.

The data utilized for computing the contraception workload predominantly comprised eligible couples and data from the Child Information Register (83.3%). It was encouraging to observe that the Eligible Couples and Child Information (ECCR) register was being maintained at all subcentres. The register was updated every year in March/April during the survey. Sixty-seven per cent MPHWS(F) updated the register regularly on a monthly basis by

recording data pertaining to new marriages/deaths/women crossing 45 years. Eligible couples were classified from the ECCR, by age, by 83% MPHWS(F).

The Maternal and Child Health Care (MCH) register was utilized for identifying needs for tetanus immunization among pregnant women; iron-folic acid prophylaxis; postnatal care (PNC); and safe delivery by 100%, 83.3%, 56.7% and 40% MPHWS(F) respectively.

A careful observation of records maintained at subcentres revealed that adequate numbers of high-risk cases (as against expected numbers based on the demographic profile) among antenatal women, deliveries, postnatal care for sick newborns and anaemic pregnant women were prioritized respectively by 13.3%, 20%, 3.3% and 46.7% MPHWS(F) only.

Data for identifying reproductive tract infection/sexually transmitted infection (RTI/STI) cases and their treatment, and for meeting the needs of adolescents were found to be inadequate. The identification of RTI/STI cases was limited to a week-long Family Health Awareness Campaign (FHAC) held annually. Services were being provided in a "campaign" mode to the masses, with the campaign being linked to a district/urban level. There was no provision of services for RTI/STI treatment at the PHC level. Also, the ANMs did not make any subsequent or regular effort to track cases and provide them with appropriate counselling and treatment. Nearly 43% ANMs maintained a record of these cases in a separate register, while the rest used "guess figures" for filling in the actionplan. Furthermore, the data to identify needs of children for vitamin A prophylaxis were lacking.

The available data were seldom used by workers for planning of work schedules, outreach sessions or home visits to contact eligible couples and pregnant and lactating women. Also, workplans were not data-based.

Focus group discussions with health workers revealed that "...they felt overburdened with the volume of data which they had to maintain and report". Furthermore, much of the data generated by health workers was *not perceived to be of much use*. They preferred to have fewer registers and training on how to interpret and use the data. They also *felt inequipped to understand the complexities of the process of formulating a subcentre actionplan*.

Only 3 (10%) *sarpanchs* (village headmen/headwomen) were contacted on four or more occasions during the last six months, which reflected the meager number of *sarpanchs* who seemed to have been adequately contacted quantitatively (i.e. at least once a month). The majority (43%) of female *sarpanchs* were contacted thrice during the past six months. (Table 1)

Opinions were solicited from only 26.7% *sarpanchs* (Table 2) on the health needs and problems of women/children in their respective villages. The situation was even more distressing in the case of male *sarpanchs*, of whom only 22% were consulted on the aforementioned subject in contrast to 43% of female *sarpanchs*. It was also found that the exercise of needs assessment was undertaken much more comprehensively in villages headed by female *sarpanchs*. The MPHWS(F) discussed their work schedules and availability of drugs/equipment, and the spectrum of services at the subcentre with only 3.3%, 20% and 36.7% *sarpanchs* respectively.

Table 1: Frequency of meetings held by MPHWS(F) with community partners

Community Partners	Total	Number of meetings (%)				
		0	1	2	3	>= 4
<i>Sarpanchs*</i>						
Males	23	2(8.7)	4(17.4)	9(39.1)	6(26.1)	2(8.7)
Females	7	0	1(14.2)	2(28.6)	3(42.9)	1(14.3)
Total	30	2(6.7)	5(16.7)	11(36.6)	9(30)	3(10)
<i>Panchayat members*</i>						
Males	60	28(46.7)	13(21.7)	8(13.3)	7(11.7)	4(6.6)
Females	60	22(36.7)	19(31.7)	12(20)	6(10)	1(1.6)
Total	120	50(41.7)	32(16.7)	20(16.7)	13(10.8)	5(4.1)
<i>Anganwadi workers**</i>	60	0	0	6(10)	10(33.3)	37(61.7)
Traditional birth attendants**	30	5(16.7)	4(13.3)	7(23.3)	1(3.3)	4(13.3)
Village chowkidars*	30	15(50)	13(43.3)	1(3.3)	24(20)	0
Primary Schoolteachers*	120	0	36(30)	52(43.3)	24(20)	8(6.7)

*Meetings held during the last six months

** Meetings held during the last month

Table 2: Needs assessment (involving community partners) performed by health workers

Community Partners	Total (n)	Opinion sought on health needs and problems (%)
<i>Sarpanchs</i>		
Males	23	5(21.7)
Females	7	3(42.8)
Total	30	8(26.7)
<i>Panchayat members</i>		
Males	60	7(11.7)
Females	60	27(45)
Total	120	34(28.3)
Traditional birth attendants	30	13(43.3)
Schoolteachers	120	40(33.3)

Almost 97% *sarpanchs* complained of the virtual nonresident status of MPHWS(F) in the village which led to difficulty in provision of intranatal care to pregnant women.

Only 9 (15%) and 19 (21%) women with infants and children aged between 1-3 years, respectively, reported that they had been visited twice or more during the last six months (Table 3).

Table 3: Frequency of contact with women beneficiaries

Contacts ⁻	Home visits by MPHWS(F)		Visits by client to subcentre	
	Women with infants (n=60)	Women with children 1-3 years of age (n=90)	Women with infants (n=60)	Women with children 1-3 years of age (n=90)
0	41(68.3)	47(52.2)	3(5)	9(10)
1	10(16.7)	24(26.6)	5(8.4)	25(27.8)
2	5(8.4)	12(13.3)	28(46.7)	37(41.1)
3	2(3.3)	6(6.7)	21(35)	15(16.7)
>=4	2(3.3)	1(1.2)	3(5)	4(4.4)

⁻ Contacts made during the last six months.

Table 4: Nature of consultation provided by MPHWS(F) to women with infants

Consultation on	Women with infants (%) (n=60)	
	Yes	No
Expected date of delivery	11 (18.3)	49 (81.7)
Need for antenatal check-up	11 (18.3)	49 (81.7)
Danger signs/symptoms during pregnancy	5 (8.4)	55 (91.6)
Nutritional needs during pregnancy	24 (26.7)	36 (73.7)
Immunization needs during pregnancy	21 (35)	39 (65)
Need for iron-folic tablets	44 (73.3)	16 (26.7)
Place of delivery	13 (21.7)	47 (78.3)
Initiation of breastfeeding and exclusive breastfeeding	15 (39.5)	45 (61.5)
Postnatal care needs	6 (10)	54 (90)
Growth monitoring of children	28 (46.7)	32 (53.3)
Spacing between this and the next birth	7 (11.7)	53 (88.3)
Contraceptive needs	7 (11.7)	53 (88.3)
Any support material provided	0	60 (100)

Effective provision of postnatal care was limited to only 10% of women who were visited by the MPHWS(F) at home during the postnatal period (Table 4).

The nature of help provided by an AWW to an MPHWS(F) showed the degree of interdependence of the health and ICDS departments to improve each other's performance. The identification and enlistment of beneficiaries for routine immunization and

intensified pulse polio immunization (IPPI) campaigns by AWWs was a universal phenomenon as observed in the study. All AWWs helped the MPHWS(F) in updating their records of births and deaths and in identifying and registering antenatal cases.

Thirteen (43.3%) TBAs were consulted on the health needs and problems of women/children (Table 2). Of these, 30.8% were consulted to identify/register antenatal

women/births/postnatal women, high-risk pregnancies, difficult deliveries and enlist beneficiaries for immunization from each of these categories. Nearly 69% TBAs were consulted to identify beneficiaries of family planning methods – this was a healthy sign and should be taken a step further.

Contacts with schoolteachers were universally used to enlist beneficiaries for DT immunization and administration thereof. Furthermore, health check-ups were performed in which weight, height, general examination and screening for refractive errors were undertaken.

However, the precious opportunity to visit schools was not gainfully utilized to disseminate messages on health and hygiene, and to inculcate healthy lifestyles, as this question was responded to affirmatively by only 16.7% teachers.

Findings and conclusions

The findings of the present study regarding computation of contraception workload for preparation of actionplans were similar to those of case studies undertaken in other states of India.¹²⁻¹⁵

Only 15% and 21% women with infants and children aged between 1-3 years respectively were visited twice or more at their homes during the past six months, i.e. they were likely to have been visited once in each quarter. Similar results have been revealed by the National Family Health Survey – II (Haryana) and the Rapid RCH Survey conducted in Rohtak district.^{16,17}

The present study reveals that contacts of MPHWF with women beneficiaries and community partners is quite low. There is thus a need to involve the community in decision-making and providing it ownership. This can be achieved by making the performance of MPHWFs accountable. A beginning can be made by delegating administrative and financial powers, as well as the power of

resource mobilization for rural health centres to the elected representatives of the people – the *panchayats*. The 73rd and 74th Amendments to the Constitution of India are steps in this direction. It should be left to the *panchayats* to select MPHWFs for their respective villages from among the locally trained MPHWFs/staff nurses. Subcentres should report on the performance of MPHWFs to *panchayats*. Also, contacts with the community and its partners should be increased so as to assess their felt needs.

In spite of the training received, the ANMs were not able to perform the needs assessment in the true sense. Neither were they able to utilize locally available data to validate the findings of the area survey. Hence there is an imperative need to re-train the cadre of health personnel. Medical officers and supervisors should be trained too. They should take the lead and, in turn, train health workers (on a continuous basis) working under them. Furthermore, in-service training and continuing education should be provided to health workers on the vital issue of needs assessment. The subject of CNAA should be included in the basic training of health workers; this is lacking at present. Peer group education can also be resorted to with the more experienced MPHWFs guiding and helping their colleagues, with the monthly sector-wise meetings serving as an ideal forum.

Health workers should prepare realistic work schedules and adhere to them religiously. Moreover, their work schedules should be shared with AAWs, TBAs and MSS and *panchayat* members. Integrated functional linkages should be provided for infrastructure, human resources, services, records and training among health workers, AAWs and TBAs at the village level. Though exemplified in routine immunization activities and special campaigns like IPPI, the benefits of integration should be replicated in all areas of services delivery to enhance its coverage and quality.

ANMs find the process of preparation of an action plan tough. Hence, it needs to be simplified. They should be relieved of the tasks of calculating rates and applying formulae; these tasks should be left for supervisors. Also, they should be encouraged to keep a regular track of their beneficiaries by tracking pregnancies and births, etc. assisted by them. This way they can use their "own real data". The ANMs should be supported in their work by MPHWs(M). They should support ANMs in activities related to immunization, arranging for supplies and logistics, record-keeping, organizing opinion leaders' camps and maintaining regular contacts with *panchayats* – areas in which ANMs falter due to social reasons.

The focus of the study was limited to consultation on RCH services. The other priority problems of rural settings, especially from the viewpoint of PRIs, were beyond the scope of the present study, which limited itself to the most critical level of implementation, i.e. the subcentre. A subcentre is intrinsically linked with the primary health centre and community health centre, both of which are support systems for continuing education, planning, monitoring, supervision and evaluation of health activities, as well as inter-sectoral coordination.

Further research is needed on the feasibility of replication of best practices, as has been achieved quite successfully in Kerala, India, through decentralization and devolution of powers to *panchayati raj* institutions and their involvement in village-level health programme planning, implementation and monitoring.

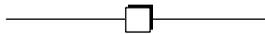
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Notes and News

First Line of Defence against Health Risks

Epidemic-prone diseases, climate change, environmental degradation and disasters, both man-made and natural, hold the potential to threaten global health security. Addressing the media on the World Health Day 2007 theme, "International Health Security", Dr Samlee Plianbangchang, Regional Director, WHO South-East Asia Region, emphasized the urgent need to "build the first line of defence against health risks".

Dr Samlee added, "The World Health Day slogan, 'Invest in health, build a safer future' is a call to governments, international organizations, and business and civil society to prepare and respond to health dangers. The World Health Day is an occasion not only to consider lurking threats but also to focus on health challenges ahead and work collectively to meet them."

The growing complexity of health threats in today's globalized world makes it vital to adopt a multi-sectoral approach to acute health risks. Sudden shocks to health from old and emerging diseases as well as humanitarian emergencies cannot be tackled by the health sector alone. A strong collaboration among developed and developing countries, increased information-sharing, and strengthening of public health systems and surveillance can help meet health challenges.

The Region is also prone to natural disasters. Some countries in the Region have to deal with cyclones and monsoon floods.

Making safe drinking water available, preventing diarrhoea and arresting the spread of malaria and HIV infection are some of the health challenges in the Region that need to be addressed. Dr Samlee highlighted the need for investments, big and small, in human health.

The Regional Director also reiterated WHO's commitment to work closely with all stakeholders to address the threats to international health security.

Sixtieth World Health Assembly

Director-General stresses need to build "health legacy" for women and the people of Africa

The Sixtieth World Health Assembly (WHA), the supreme decision-making body of WHO, opened on 14 May 2007 in Geneva with an optimistic assessment of the global health scene from the new Director-General, Dr Margaret Chan, and a call for global health leaders to build a "health legacy" for women and the people of Africa.

In an upbeat assessment of the importance of health and health policy in the world Dr Chan said: "Health is now seen as a key area of engagement for foreign policy. Health has become an attractive focus for corporate social responsibility."

More than 2400 delegates from WHO's 193 Member States, nongovernmental organizations and other observer bodies attended the 10-day conclave, which wrapped up its session on 23 May 2007 after reaching

last-minute agreements on two key resolutions on Pandemic Influenza Preparedness and Public Health, Innovation and Intellectual Property Rights. The Assembly approved the largest-ever budget for the Organization and adopted a record number of resolutions on public health issues and on the technical and administrative work of WHO.

Dr Chan outlined her six-point agenda for WHO: health development; health security; strengthening health systems; using evidence to define strategies and measure results; managing partnerships to get the best results in countries, and improving the performance of the Organization.

The Director-General then addressed the threat of a pandemic of influenza and enumerated the efforts that she is personally making to resolve some of the issues linked to preparing for a pandemic. Among other issues, she highlighted agreements to transfer technology to vaccine manufacturers in the developing world, work on establishing a stockpile of H5N1 vaccine and advance procurement mechanisms for pandemic vaccine.

The Public Health Initiative website

The Public Health Initiative (PHI) website and its Virtual Resource Centre (VRC) were launched recently. Welcoming the launch, the Regional Director, Dr Samlee Plianbangchang said, "The PHI website and its VRC will provide new opportunities for bilateral or multilateral training, between and within countries in our Region. The website will facilitate networking at international and local levels and document progress in public health policies and practices. The VRC will improve the accessibility of applied, updated and quality learning materials on public health with contextual, competency-based materials. Over the last seven years, following the Calcutta Declaration in November 1999, a strong emphasis has been placed on public health

education and training in the Region. This, however, has not been supported by sufficient commitment by governmental and nongovernmental organizations to raise the standards of public health leadership and performance."

The Regional Director observed that in order to contribute to the expansion and improvement of training and education, the VRC offers access to competency-based materials in field epidemiology. The Regional Office plans to increase access to, and exchange of, other materials in public health management and leadership, advocacy and communication and public health legislation. Twinning arrangements with distance-learning institutions and various institutional-strengthening initiatives are under way in different countries. The South-East Asia Public Health Education Institutions Network will also be instrumental in furthering the objectives of the VRC.

The Regional Director concluded, "Only a public health perspective with a clear community orientation can meet the needs of countries in a rapidly changing and globalized environment. Once public health is placed firmly on the national and local community's agendas, only then will collective action for sustained population-wide improvement in health be possible. I hope the launch of this VRC will take us closer to our objective."

Dr Samlee honoured

The Regional Director, Dr Samlee Plianbangchang, received an honorary doctoral degree in public health from the Chulalongkorn University, Bangkok on 12 July 2007 in recognition of the excellent work done by him in health development in the South-East Asia Region. Her Royal Highness, Princess Maha Chakri Sirindhorn presented the degree to the Regional Director in the presence of a select gathering at the Graduation Convocation Ceremony held at the university.

Special award for tobacco control

The Regional Director, Dr Samlee Plianbangchang, presented the WHO Director-General's Special Award for Leadership in Global Tobacco Control to Union Minister of Health and Family Welfare, Government of India, Dr Anbumani Ramadoss on 20 July 2007. Speaking at the award presentation ceremony, Dr Samlee said "Receiving the Director-General's Special Award is a fitting and natural recognition of the commitment, dedication, unrelenting efforts and visionary leadership of his Excellency in advancing the tobacco control agenda in India."

Dr Ramadoss's efforts to ban smoking scenes in films and on TV, as well as his promotion of a ban on smoking in public places, were praised by the Regional Director. The Minister's effort to introduce graphic warning labels on bidi and smokeless tobacco products would serve as a unique example for many countries in the Region and beyond.

The Regional Director reiterated WHO's technical support to the tobacco control programme and implementation in India of the WHO Framework Convention on Tobacco Control.

The Minister was also presented with a plaque and a citation by the Regional Director in appreciation of his outstanding contributions and stewardship for tobacco control in India and beyond.

Sixtieth Session of the Regional Committee

The Sixtieth Session of WHO's Regional Committee for South-East Asia was held in Thimphu, Bhutan from 31 August to 3 September 2007. The Regional Committee noted with satisfaction the progress achieved in implementation of WHO's collaborative programmes and activities in the Region. The Director-General, Dr Margaret Chan,

addressed the business session of the Committee.

The Committee took several important decisions during the session, which would be viewed "as the session where regional solidarity and togetherness were further strengthened", according to the Regional Director, Dr Samlee Plianbangchang.

Member countries of the South-East Asia Region account for approximately 25% of the world population. However, they bear 40% of the world's disease burden. The Region also has the largest number of children missed by immunization, and the highest number of deaths from measles, and from complications of pregnancy and childbirth.

The Committee adopted a resolution to establish the South-East Asia Regional Health Emergency Fund (SEARHEF). The Region is vulnerable to natural and man-made emergencies which impact human health, and account for 58% of deaths due to disasters worldwide. This Fund will provide financial support to Member countries in the first three months after the onset of an emergency. The Fund is not meant to finance bulk relief, recovery and reconstruction and rehabilitation efforts which are funded by established mechanisms like Flash Appeals, Consolidated Appeals Process (CAP) and Central Emergency Response Fund (CERF). It will build a corpus from within countries and by raising voluntary contributions. During the session, Thailand announced its decision to contribute US\$ 100 000 for the Fund.

The Committee deliberated on several priority issues for the Region including: (i) Nutrition and food safety; (ii) Scaling up prevention and control of chronic noncommunicable diseases; (iii) TB control; (iv) Revised malaria control strategy; (v) Avian and pandemic influenza preparedness; (vi) Public health, innovation and intellectual property rights; and (vii) WHO and reforms of the UN system.

“Revitalizing Primary Health” was chosen as the subject for the Technical Discussions to be held in 2008.

The session concluded with a call for continued solidarity and joint endeavours for health development by Member countries.

The Regional Committee decided that its Sixty-first session will be held at the Regional Office, New Delhi, during the week beginning 8 September 2008.

Twenty-fifth Health Ministers' Meeting

The Twenty-fifth Meeting of Health Ministers of Member countries of the South-East Asia Region was held in Thimphu, Bhutan from 31 August to 1 September 2007. Health ministers from 11 Member States of the Region adopted the “Thimphu Declaration on International Health Security in the South-East Asia Region”. The Declaration recognizes natural and man-made health emergencies, emerging infectious diseases and climate change as threats to international health security.

The Declaration focuses on commitment to the International Health Regulations (IHR) (2005) and systematic emergency preparedness and response. It supports the establishment of the South-East Asia Regional Health Emergency Fund. It also calls on countries to develop national mitigation and adaptation plans to address the health impact of global warming and climate change.

Addressing the Health Ministers, Regional Director Dr Samlee Plianbangchang said that the avian influenza outbreaks in the Region had exposed the vulnerability of countries to cross-border disease outbreaks. Underlining the significance of the Thimphu Declaration, Dr Samlee said that it elaborated the threats posed to human health either by climate change or other international and interrelated factors and the need for regional solidarity to meet those threats.

The WHO Director-General, Dr Margaret Chan, recognized the commitment of Member countries of the Region to poverty reduction and said, “Your commitment shows great political courage in the face of a challenge magnified many times in this most populous region in the world”. Dr Chan also commended Bhutan’s commitment to Gross National Happiness as the best measure of true progress in development. She said that this objective was closely aligned with the comprehensive definition of health set out in WHO’s Constitution.

World Rabies Day

The Regional Director, Dr Samlee Plianbangchang, addressed the inaugural session of the World Rabies Day commemorative event held at the Regional Office in New Delhi on 7 September 2007.

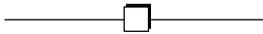
In his inaugural address, the Regional Director welcomed the participants to the World Rabies Day event, saying: “Rabies is an ancient disease but we are yet to eliminate it in order for it not to be a public health problem. Cost-effective tools for elimination of rabies and modalities for use of these tools are available. Yet, rabies is still an important public health problem in developing countries, including those of the WHO South-East Asia (SEA) Region. Human rabies accounts for about 55 000 global deaths each year. More than 99% of all human deaths due to rabies occur in developing countries.”

“Political commitment is an important prerequisite for the elimination of rabies. There is also a need for nationally coordinated programmes and activities in which all stakeholders actively play their roles. Communities are to be closely involved in rabies control activities. The abundance of street dogs in metropolitan areas of countries of the South-East Asia Region is a growing problem. Dogs are prolific breeders. The high

turnover of the canine population is a real challenge to achieve desirable rabies vaccination coverage. Local authorities and community-based organizations will have to play a greater role in animal birth control and welfare," the Regional Director informed.

A comprehensive, multisectoral national control programme is needed for the

elimination of rabies. Beginning this year, World Rabies Day will be organized on 8 September each year to promote political commitment and create awareness among the population at risk. WHO and OIE (Organization for Animal Health) are the co-sponsors of this initiative," the Regional Director concluded.



Publications Corner

Adolescent health at a glance in the South-East Asia Region, 2007

2007, 133 pages

The WHO Regional Office for South-East Asia has produced factsheets on the state of adolescent health in all 11 Member countries of the Region. These factsheets have been prepared by undertaking a review of available published national data obtained from national demographic health surveys, reproductive health surveys, behavioural surveys and large studies, wherever available. The factsheets focus on a gamut of issues including demographic information, adolescent sexual and reproductive health issues, nutritional status, HIV/AIDS, substance abuse, violence, injuries and accidents. The information in the factsheets will be useful for programme managers, policy-makers and researchers, and help in advocating for investing in adolescent health as part of the public health programme for national development.

In addition to that on adolescents (10-19 years), important information on young people (10-24 years) is also included. There are gaps related to the availability of age- and sex-disaggregated data. In view of the importance of adolescent health, the national surveys should focus on disaggregating data by age, sex and marital status and include key indicators on coverage of health services for adolescents.

Young people and HIV/AIDS – Situation in South-East Asia

2007, 66 pages

The publication is a compilation by WHO's Regional Office for South-East Asia of

factsheets on young people and HIV/AIDS in all the 11 Member countries of the Region. It has been prepared by undertaking a review of available published national data obtained from national demographic health surveys, reproductive health surveys, behavioural surveys and large studies wherever available. It is a comprehensive report on the extent of vulnerability of young people to HIV and STIs and programmes and initiatives being undertaken in Member countries to halt the spread of HIV/AIDS.

The information in the factsheets will be useful for programme managers, policy-makers and researchers, and help in advocating for investing in young people as part of the HIV/AIDS awareness campaign.

Young People's Health in Context. Health Behaviour in Schoolaged Children

International Report from the 2001/2002 Survey EURO
Nonserial Publication; Currie, C.,
Roberts, C., Morgan, A., Smith, R., Settertobulte, W.,
Samdal, O., Barnekow Rasmussen,
ISBN-13 9789289043724; ISBN-10 9289043724;
Order Number 43400050
Price CHF 60.00/ US\$ 54.00;
Developing countries: CHF 30.00

The Health Behaviour in Schoolaged Children (HBSC) study provides a unique insight into the health and behaviour of young people. The report on the 2001-2002 survey gives information about a much-neglected segment of society, but one that has the greatest potential to benefit from policies and health initiatives based on sound research and information. The quality and value of the information offered are high, so this international report should reach all key people

who have an interest in or are responsible for promoting young people's health.

Gender and Rights in Reproductive and Maternal Health: Manual for a Learning Workshop

WPRO Nonserial Publication;
ISBN-13 9789290612407; ISBN-10 9290612401
Order Number 15200104;
Price CHF 10.00 / US\$ 9.00;
Developing countries: CHF 7.00

It is crucially important to increase the awareness on gender equality to provide analytical and practical tools for health programme managers and others in order to address gender and reproductive rights. Moreover, it is vital to ensure the participation of both men and women in these efforts.

This manual is intended for use in facilitating a six-day workshop on gender and rights in reproductive and maternal health for health managers, policy-makers and others with responsibilities in reproductive health. Other stakeholders working on advocacy and policy and programme change in reproductive health, such as nongovernmental organizations and international partners, may also find it useful. Although designed as a stand-alone course, it could be integrated with pre- or in-service programmes on health systems, rights and gender.

From relief to recovery: The WHO tsunami operation

ISBN 978-92-9022-243-9
2007, 207 pages

Six Member countries of the WHO South-East Asia Region bore the brunt of the tsunami of December 2004. WHO coordinated global efforts to address post-disaster health consequences. The relief and recovery operations that followed have set the benchmark for emergency preparedness and response in the Region. This publication documents WHO's operations in the six countries and highlights issues of coordination, capacity building and gap-filling.

11 health questions about the 11 SEAR countries

ISBN 978-92-9022-247-7
2007, 318 pages

The 11 Member countries of the WHO South-East Asia Region are home to approximately one quarter of all humanity and share almost 30% of the global disease burden. For almost 60 years the WHO Regional Office for South-East Asia has been working with its Member countries and partners in a very fruitful collaboration that has heralded some remarkable achievements in improving the health of the people of the Region. This book draws on several common epidemiological, geographical and health development factors and provides an extremely handy and user-friendly mini-profile of the health status of each country of this Region.

Each chapter, with different colours being used to earmark the sections involving different countries, provides a wealth of information about the health situation in the Member countries, incorporating key population statistics and summaries of current developments in health and their health systems policies. While 11 frequently asked questions and comprehensive topics about the health situation and health development have been listed, indicators and other health information using the most recent data reflect the situation accurately and meticulously till 2006.

The book should help policy-makers in Member countries to review and analyse their core data and information and encourage them to monitor the health status and health systems performance at national and sub-national levels.

WHO Expert Committee on Specifications for Pharmaceutical Preparations; Forty-first Report

Technical Report Series, No 943
ISBN-13 9789241209434 ISBN-10 9241209437
Order Number 11000943
Price CHF 30.00/US\$ 27.00
Developing countries: CHF 21.00

The Expert Committee on Specifications for Pharmaceutical Preparations reviews

developments in the quality assurance of medicines and provides advice and recommendations to help combat problems caused by counterfeit and substandard medicines. In this respect, it coordinates activities that lead to the adoption of recommendations and provides tools to assure the quality of medicines and the materials from which they are prepared. The Committee is involved in developing quality control specifications and International Chemical Reference Substances, focusing on essential medicines and on medicines for which no international quality requirements are publicly available but which are used to treat large numbers of people.

Promoting Safety of Medicines for Children

Nonserial Publication:

ISBN-13 9789241563437;

ISBN-10 9241563435

Order Number 11500705

Price CHF 20.00 / US\$ 18.00;

Developing countries: CHF 14.00

Monitoring the safety of medicine use in children is of paramount importance since, during the clinical development of medicines, only limited data on this aspect are generated through clinical trials. Use of medicines outside the specifications described in the licence (e.g. in terms of formulation, indications, contraindications or age) constitutes off-label and off-licence use and these are a major area of concern.

These guidelines are intended to improve awareness of medicine safety issues among everyone who has an interest in the safety of medicines in children and to provide guidance on effective systems for monitoring medicine safety in the paediatric population. This book will be of interest to all health care professionals, medicine regulatory authorities, pharmacovigilance centres, academia, the pharmaceutical industry and policy-makers.

Alcohol use and abuse: What you should know

ISBN 9290222751

2006, 19 pages

Alcohol intake among the youth usually begins as an experimentation that is often initiated by peer groups. School friends often form the first group in which alcohol consumption is initiated. It may also occur within the family, and at social gatherings on special occasions such as birthdays or marriages where alcohol is served. This document provides adolescents with brief, succinct and clear information on the harmful consequences of alcohol use and abuse. It also addresses some myths and facts about alcohol consumption. The information, in very readable and user-friendly form, is based on extensive feedback from adolescents across a wide spectrum.

Neglected Diseases: A Human Rights Analysis

Special Topics in Social, Economic and Behavioural Research
Report Series, No. 6

Nonserial Publication

Hunt, P., Stewart, R., Mesquita, J., Oldring, L.

ISBN-13 9789241563420;

ISBN-10 9241563427;

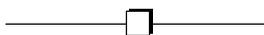
Order Number 11500704

Price CHF 20.00 / US\$ 18.00;

Developing countries: CHF 14.00

This report is the result of collaboration between the Special Programme for Research and Training in Tropical Diseases (TDR), the Office of the United Nations High Commissioner for Human Rights (OHCHR) team and the United Nations Special Rapporteur on the right of everyone to the highest attainable standard of health.

This report aims to introduce and explore some of these connections. Having established the linkages, the next challenge will be for all parties collaboratively to identify the practical implications of applying human rights to the design, implementation, monitoring and evaluation of policies, programmes and projects for neglected diseases.



Guidelines for Contributors

THE Regional Health Forum seeks to inform and to act as a platform for debate by health personnel including policy-makers, health administrators, health educators and health communicators.

Contributions on current events, issues, theories and activities in all aspects of health development are welcome. Contributions should be original and contain something of interest to those engaged in health policy and practice, some lesson to be learned, some idea, something that worked, something that didn't work, in fact anything that needs to be communicated and discussed on a broader scale. Articles, essays, notes, news and views across the spectrum of health development will be published.

Every year, the April issue of the Forum is dedicated to the World Health Day theme of the year. Readers may send contributions relating to the theme for inclusion in the special issue.

Papers for submission should be forwarded to the Editor, Regional Health Forum, World Health Organization, Regional Office for South-East Asia, World Health House, Indraprastha Estate, Mahatma Gandhi Road, New Delhi 110002, India (E-mail address: editor@searo.who.int).

Contributions should:

- be in English;
- be written in an anecdotal, informal, lively and readable style (so that sophisticated technologies, for example, may be easily understood);
- be in MS Word and sent on-line to editor@searo.who.int
- not normally exceed 3 000 words with an abstract (approx. 250 words) and a maximum of 30 references.

Letters to the editor should normally be between 500-1000 words with a maximum of six references.

Responsibility of the Authors

Authors are responsible for:

- ensuring that their contributions contain accurate data and references (and are requested to check the accuracy of both before submission);
- obtaining permission to use copyrighted material (if used). The letter granting such permission should be attached to the manuscript when submitted;
- obtaining permission from appropriate governmental authorities if the contribution pertains to a government programme/project and contains material/statistics/data derived from government sources;
- ensuring that all abbreviations (if used) are explained;

- giving their full names, the name and address of their institutions, and an exact description of their posts;
- declaring sources of funding for the work undertaken, and
- disclosing at the time of submission, information on financial conflict of interest that may influence the manuscript. They may also choose to declare other interests that could influence the results of the study or the conclusions of the manuscript. Such information will be held in confidence while the paper is under review, and if the article is accepted for publication the editors will usually discuss with the authors the manner in which such information is to be communicated to the reader.

Tables and Illustrations

- The use of tables and illustrations should be restricted to those that clarify points in the text.
- All illustrations and tables should be numbered consecutively and should be lightly marked on the back with the figure number, and the author's name indicated.
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