Essential emergency surgical procedures in resource-limited facilities: a WHO workshop in Mongolia

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CLINICAL PROCEDURES, ESSENTIAL HEALTH TECHNOLOGIES

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Abstract

A WHO ‘Training of Trainers’ workshop on essential emergency surgical procedures was organised in collaboration with the Ministry of Health, Mongolia. The participants included doctors and nurses from the six selected aimags (provinces).

Facilitators of the workshop included experts from the Faculty of Health Science University, Mongolian Surgeon’s Association and Mongolian Association of Anaesthesiologists association with the swiss surgical team of the International College of Surgeons, Surgical Department of Nurse’s College, Trauma Orthopaedic Clinical Hospital, the Department of Quality Assurance of the Directorate of Medical Services, Ministry of Health. Facilitators from the Hospital University of Geneva, Geneva Foundation of Medical Education and Research, and the World Health Organization departments of Reproductive Health and Research (RHR) and Evidence and Information for Policy in Geneva, Switzerland participated via video link.

The workshop included lectures, discussions, role playing and ‘hands on’ basic skills training. Videoconference and e-learning sessions using the WHO e-learning tools were conducted at the Global Development Learning Centre.

The topics covered during this training workshop included team responsibility and organisation in a health care facility; patient safety; disaster planning; appropriate use of oxygen; management of bleeding, burns and trauma; basic anaesthetic and resuscitation techniques; prevention of HIV transmission; sterilisation of equipment; waste disposal; hygiene; record keeping, monitoring and evaluation of quality of care and checklists prior to surgery to assure that the correct patient gets the correct surgery on the correct side at the correct time.

Recommendations were made by the participants on the next steps after this training.

The World Health Organization in collaboration with the Ministry of Health (MoH), Mongolia held its first training of trainers workshop to improve the quality of emergency and essential surgical care at resource-limited health care facilities.

Situation analysis of health facilities needs an assessment of rural health facilities

In Mongolia 42.5% of the total population lives in rural soums. The differences in geographical and settlement conditions creates significant disparities in health needs between rural and urban populations. Poor conditions for meeting the minimum sanitary requirement, unsafe water and a severe continental climate, create an unfavourable environment that negatively influences the health of the rural population. Eighty-five percent of soums are located within a distance of more than 100km and the most remote households are located within a distance of 380 km from the soum hospitals. The timely delivery of health services is thus impeded.
The first point of contact between the population and the health system are the feldshers, (specialised nurses), who work in their own 'gers' (tent houses), and follow the nomadic community providing simple curative services and health education. The soum hospitals are the first level of fully operational health facilities with a doctor providing emergency curative services in poor resource settings. The aimag hospitals provide secondary care services with better equipment and specialist services in surgery and obstetrics. Tertiary care services with specialists and medical and nursing colleges are available in Ulaanbaatar city only. Rural areas are losing their health personnel as a result of an influx of doctors to urban areas. The lack of adequate infrastructure is one of the difficulties encountered in the provision of information, consultation and services to the population in remote areas.

There are few ambulances equipped with specialised equipment for emergency care and that are appropriate for transporting patients in the lying position. As a result, the quality of emergency services rendered to the population is adversely affected by the need to ensure preparedness of hospital ambulances and the continuous repair of the vehicles. A study in 2002 showed that only 47% of soum hospitals had equipment which is consistent with standards. Around 50% of the equipment utilised at soum hospitals was manufactured before 1990 and 25% of it is not utilised at all.

In 2003, surgical services were provided to 1.4% or 1,812 patients of soum hospitals; the majority of these cases (79.3%) were suffering from acute appendicitis. Cholecystitis, appendicitis, injuries, otitis media, glomerulonephritis, pneumonia, anaemia, liver cancer were some of the leading specific causes of inpatient morbidity in soum and intersoum hospitals in 2003. Socioeconomic phenomena, such as alcoholism and domestic violence, result in the high rate of unwanted pregnancies and abortion. Forty-one percent of maternal deaths occurred at soum and bagh levels. Ulaanbaatar city has the highest non-communicable morbidity in the country, which is related to domestic injuries (57.7%), violence (23%) and traffic injuries (14.4%).

One of the important measures taken by the Ministry of Health in 2003 in order to rationally provide secondary level health services was the reorganisation of soum hospitals into general hospitals.

The implementing agency of the Mongolian Government – the Directorate of Medical Services (DMS) is responsible for providing quality and accessible health care to the population by improving management and implementation of health services policy.
**Planning meeting**  
Prior to this training workshop, a visit was made by a team representing WHO, Geneva and the office of the WHO Representative in Mongolia, the Quality Assurance Department (MoH), to the teaching institutions in Ulaanbaatar, some aimags, intersoums, soums and baghs health care facilities in Tuv province.

This was followed by a WHO meeting in May 2004, in Ulaanbaatar, Mongolia for the policy makers and decisions makers, managers at the MoH, professional societies with the objective of introducing the WHO project on essential emergency surgical care at resource-limited health care facilities and the utility of the training tools in basic surgical care.

This meeting resulted in the identification of facilitators, partners and the development of a ‘Multidisciplinary Working Group’ (MWG). The MGW comprised surgeons, obstetricians, anaesthetists, doctors, nurses, public health specialists and members of professional bodies, the quality assurance department from MoH, and WHO/Mongolia.

The MWG deliberations resulted in:

- A project proposal to improve essential emergency surgical procedures, which was approved by the MoH, WHO country office, regional and head office.
- Selection of six aimags in Mongolia, to use as a model for capacity-building and strengthening basic skills training of health providers in the aimag, intersoum and soum hospitals, including bagh feldshers (see figure 1).
- Visit to the selected six aimags for needs assessment of the health facilities.
- Identification of facilitators, participants and the hands-on skills training in hospitals for the trainers workshop.
- Programme agenda for training of trainers.

**Objectives**  
The overall objective was capacity-building and strengthening of basic skills training in integrated management of essential emergency and surgical procedures at resource-limited health care facilities in Mongolia.

Specific objectives included:

- Training in the use of the ‘Integrated Management Package on Emergency and Essential Surgical Care’ including e-learning tools, training videos, WHO training manual *Surgical Care at the District Hospital* for education and existing training programmes.
- Plan the training programme to improve the knowledge and professional skills of health personnel in the six selected aimags, at aimag, soum, intersoum and bagh health facilities.

**Target audience – Master Trainers**  
There were 42 participants including policy makers from the Ministry of Health (Quality assurance, Directorate of Medical Services, nursing) and health providers (directors, managers, doctors, nursing in-charge) representing intersoums and soums hospitals from each of the six selected provinces: Byankhonkar, Bayan - Ulgi, Bulgan, Gundgobi, Kentii and Tuv aimags and Bor-Udar intersoum hospital of Khentii aimag.

Participants represented teaching hospitals, medical and nursing schools in Ulaanbaatar, the Health Science Medical University, Nursing school, the Center of Emergency Care, Trauma and Orthopedic Clinical Hospital, Maternal and Child Research Center, anesthesia, nurses and surgery associations of Mongolia, including doctors and chief of nursing from Ministry of Health and Directorate Medical Services of Mongolia.

Facilitators were specialists representing surgery, obstetrics, trauma, anaesthesia, orthopaedics, paediatric surgery, emergency services, disaster planning and surgical nursing.

These participants were trained to become trainers in building capacity in integrated management basic skills at aimag, intersoum and soum hospitals and implement the WHO comprehensive training manual *Surgical Care at the District Hospital* in the education programme in medical and nursing schools.

**Presentations on the situation analysis of six aimags health facilities**  
A team from the ‘Multidisciplinary Working Group’ visited the six selected aimags, a month prior to the trainers workshop. An assessment was done by the team with the directors of the hospitals, using the WHO needs assessment tools for monitoring and evaluation of emergency care at the health care facilities. Directors from the selected health facilities in each of the six aimags reached the following conclusions:

- Do not have a special room for emergency care in the all selected hospitals.
- Lack of equipment and instruments for emergency care in the admission department.
- Emergency care providers are not involved in a continuous training programme.
- Lack of specialised health personnel in the selected aimags and soums hospitals, which necessitates the emergency and surgical procedures being performed by non-specialised health personnel.

E-learning tools were pilot-tested for training and discussions with practical skills teaching done through video conference, facilitators including colleagues from WHO/RHR, WHO/EIP and partner organisations Hospital University Geneva and the Geneva Foundation of Medical Education and Research.”
Training workshop methodology
The workshop provided participants with the experience and tools for the implementation of effective education and training activities. The interactive learning methods were used to train participants with a focus that they will be able to adapt and apply a standardised format to their teaching programmes. Through hands-on training, group exercises, role play, the participants were able to simulate their future training activities.

This basic skills training of trainers workshop had several components with lectures, e-learning, working group discussions, role-play, and ‘hands-on basic skills training’. The teaching focussed on improving the quality of emergency and essential surgical care at resource-limited clinical settings. The trainers were trained to teach WHO integrated management basic skills in surgery, obstetrics, trauma, anaesthesia in their training and education programmes, in particular non-specialist doctors, nurses, technicians and paramedical staff.

Lectures and discussions
The topics covered in lectures and discussions included the following: team responsibility and organisation of health care facilities; patient safety; disaster planning; appropriate use of oxygen; management of bleeding; burns and trauma; basic anaesthetic and resuscitation techniques; prevention of nosocomial HIV transmission; sterilisation of equipment; waste disposal; hygiene; record keeping; monitoring and evaluation on quality of care, and well as checklists prior to surgery to assure that the correct patient gets the correct surgery on the correct side at the correct time.

Participants discussed the applicability of the WHO integrated management package in emergency and essential surgical care to become a part of the teaching curriculum for medical and nursing students, non-specialist doctors, nurses, technicians and paramedical staff, trauma, obstetrics, surgery, anaesthesia and emergency services.

E-learning and video conferencing
The video conference and e-learning sessions, supported by the World Bank included lectures, presentations, discussions and training using mannequins and video link. The topics included resuscitation, trauma and bleeding. Participants used the WHO integrated basic skills training tools (e-learning and training manual Surgical Care at District Hospital) and discussed the relevance of its contents on guiding day-to-day clinical practice and in training of health personnel at all levels of care.

E-learning tools were pilot-tested for training and discussions with practical skills teaching done through video conference, facilitators including colleagues from WHO/RHR, WHO/EIP and partner organisations Hospital University Geneva and the Geneva Foundation of Medical Education and Research.

Participants were trained in using the training tools in the teaching of basic skills to health providers and in the implementation of best practice protocols for behaviour change at resource limited clinical settings.

Practical skills teaching on patient safety best practices, basic life support, intravenous access and maintenance, airway management for resuscitation and safe use of equipment (oxygen, airways), management of postpartum bleeding, discussions on interesting case studies, access to guidelines, journals and useful links for training were done through video conference. The WHO Integrated Management Package of Essential Emergency Surgical Care (an e-Learning pilot version, based on the WHO manual Surgical Care at District Hospital) was demonstrated. The participants were trained in the use of these tools for the implementation of good practice. There was agreement on the relevance of its contents on guiding day-to-day practice and it was felt that these would be a useful resource for re-enforcement and further enhancement of the training of health care providers.

‘Hands on’ training in hospital
Part of the training sessions were conducted at the hospital, for ‘hands on training’ on essential emergency procedures and equipment to manage trauma, prevention of HIV transmission, disaster planning, basic life support, anaesthetic equipment, hand hygiene, transportation of the critically ill, splint and plaster application and first aid. The facilitators from the University Hospital included the Mongolian Association of Surgeons linked to International College of Surgeons (Swiss team). The trainers were trained in the standard WHO best practice protocols with ‘hands-on basic skills training’ in hand washing, basic life support, safety of anaesthesia techniques, trauma, hygiene, universal precautions and prevention of HIV transmission using blood conservation, anaesthetic and surgical techniques, treatment of anaemia, since at soum and intersoums and some aimags hospitals there is no access to safe blood.

Working group discussions and action plan
The participants, divided into six working groups representing the six aimags, with one facilitator from the Health Science University Hospital, in Ulaanbaatar, developed an action plan for capacity-building of health facilities linked to their aimags. The following was developed by the working groups to improve the existing emergency and surgical care in the six identified aimags:

- Conduct training on emergency and surgical care for service providers (doctors, nurses and midwives).
- Provide basic emergency essential equipment, instruments and drugs.
- Implement the WHO best practice intervention protocols and standards on emergency and essential surgical care.
- The WHO training manual Surgical Care at the District Hospital to be translated into Mongolian, printed and distributed for the emergency and surgical care providers at aimag, soum and intersoum hospitals.
- The trainers will organise local training sessions in each of the six selected aimags using the WHO training tools.
Multidisciplinary approach for training at aimag, soum, intersoum hospitals
The working group decided on the relevant topics at various levels of care for resuscitation, surgery, trauma, obstetrics and anaesthesia to be covered for training of all health personnel at aimag, soum, intersoum and health care facilities:

- Team management in trauma and disasters.
- Assessment, emergency care and transportation of a critically ill, injured patient.
- Basic life support, cardio-pulmonary resuscitation, management of shock and care of an unconscious patient.
- Oxygen therapy and maintenance of equipment.
- Venous cut down, how to find a vein, intravenous fluid therapy, fluid balance.
- Blood conservation techniques, blood type and cross match.
- Using and monitoring of the essential emergency equipment.
- Psychotherapy.
- Regional anaesthesia, prevention of complications during anaesthesia, preoperative checklist.
- Early diagnosis of anaemia, respiratory diseases prior to surgery.
- Prevention and treatment of postoperative complications.
- Early diagnoses and primary care of acute surgical diseases, abscess.
- Diagnosis and emergency care of bleeding.
- Sterilisation of instruments.
- Hand washing techniques, wearing of gloves, disinfection, cleaning of the surgical site.
- Splint and cast application, skeletal traction, immobilisation of fractures, dislocation.
- Management of open fractures, injury of soft tissue and open fracture.
- Hip disorders, dysplasia and congenital dislocation of the hip, and talipes equinovarus.
- Burns, freezing and snake bites.
- Guidelines of surgical procedures in the soum and intersoum.
- Early diagnosis of complications in pregnancy.
- Management of preeclampsia, normal labour, third stage of labour, vaginal bleeding.
- Perinetomy, repair tears of cervix and vagina after delivery.
- Record keeping.

Support from the following organisations will be sought:
- Ministry of Health, WHO, Asian Development Bank, UNFPA, Directorate of Medical Services, Maternal and Child Research Center, Health Science Medical University, First General Hospital, Trauma-Orthopedical Clinic Hospital, Emergency Medical Centre Professional Associations (surgery, orthopaedic, paediatric, anaesthesiology obstetrics and gynaecology, nursing, trauma, Disaster Management).

The following training materials will be used:
- Integrated Management Package on Emergency and Essential Surgical Care (WHO E-learning tools).
- Surgical care at the district hospital WHO 2003 Mongolian edition.
- Clinical Guideline on Reproductive Health Care (UNFPA, 2000).
- Newborn management (WHO, 2004).
- Essential Trauma Care Guidelines WHO 2004.
- Training modules.
- Surgical equipments.
- Equipment and instruments for intensive care.
- Training video.
- TV, flipchart, markers, LCD (Powerpoint presentation)

Recommendations
The following recommendations were made on the concluding day of the workshop:

Participants
Participants agreed to undertake the following actions after the workshop:
1. Share the workshop report with the recommendations to sensitize:
   - professional associations and the scientific society;
   - education and training institutions/libraries;
   - NGOs and other relevant organisations;
   - potential funding agencies.
2. Act as focal points and facilitators in organising training workshops to promote emergency and essential surgical care for health personnel for aimag, intersoum and soum health facilities.
3. Facilitate the dissemination of recommendations and WHO learning materials, on essential surgical care, in conjunction with appropriate institutions and organisations.
4. Assist in the establishment of a system for the monitoring and evaluation of emergency and essential surgical care.

National health authorities
Participants recommended that Ministries of Health/national health authorities should:
1. Support the development of national policies and guidelines on essential emergency and surgical care.
2. Promote the integration of essential emergency and surgical care services into undergraduate and postgraduate programmes in medical, nursing and paramedical schools.
3. Establish and promote education and training in emergency procedures and equipment for surgery, obstetrics and anaesthesia.

WHO
Participants recommended that the World Health
Organization should:
1. Support Ministry of Health, Mongolia in the implementation of national policies, guidelines and plans to link the essential emergency and surgical care projects with disaster planning, HIV, trauma, maternal and child health projects.
2. Make WHO training manual *Surgical Care at the District Hospital* and other training materials adapted to needs of Mongolia to facilitate their wider use.
3. Support the Ministry of Health in national initiatives to promote emergency and essential surgical care.
4. Support professional associations involvement in promoting essential surgical skills.
5. Plan and implement follow-up activities.

**Partnerships**
Participants found that the role of partnership is essential in supporting national initiatives to promote essential emergency and surgical care through training and education of health personnel in the prevention of HIV transmission and other infectious agents through:
1. Implementation of best practice guidelines and education.
2. Training in the use of universal precautions.
3. Reduce unnecessary blood transfusions particularly in essential emergency and surgical procedures – in particular trauma and pregnancy related complications through the following:
   - reducing blood loss using surgical and anaesthetic techniques;
   - assessment and treatment of anaemia;
   - use of intravenous fluids.

**Evaluation and follow up**
At the end of the training workshop an evaluation was done, using the WHO training workshop evaluation tool (translated in Mongolian). The participants scored their opinions and gave comments on the training contents, presentations, training tools (training manual *Surgical Care at the District Hospital*, e-learning tools, best practice protocols), duration and their confidence to teach basic skills following this training workshop. The average mean score was 4.83 on a scale of 1 to 5.

A decision was made that monitoring and evaluation to assess the impact of the trainers workshop at each of the six aimag will be organised by the ‘Multidisciplinary Working Group’, six months following this training workshop, using the WHO needs assessment tools.

**Conclusions**
In the closing session, the Ms Gandhi, the Minister of Health, was pleased that the e-learning was introduced in this training workshop and emphasised the need for training in basic skills to manage trauma and pregnancy-related complications, as the incidence of road traffic injury, post operative complications, burns in children, falls from horseback and frostbites was rising in Mongolia.

Considering the difficulties in resources, geographical situation, long distances for referrals in between soum, intersoums and aimag hospitals, the participants reiterated that this project has enormous potential to fulfill the need of training health providers in the management of emergency procedures in trauma, pregnancy-related complications and anaesthesia.