



# Telemedicine Support for Maternal and Newborn Health

**2007-2019**



PROJECT IMPLEMENTATION OUTCOME  
FACT SHEET



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# INTERNATIONAL CONTRIBUTORS

# About Telemedicine Project

2007-2019

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## PROJECT NAME

Telemedicine Support for Maternal and Newborn Health  
(2007-2019)

## PROJECT GOAL

Maternal and newborn health is improved through the health technology innovation in Mongolia

## PROJECT DURATIONS

12 years (2007-2019)

## PROJECT TOTAL BUDGET

USD 7,100,181

Luxembourg Government: USD 5.0 M

UNFPA Mongolia: USD 1.6 M

Mongolian Government: USD 500 K (in kind)

## EXECUTING AGENCY

UNFPA Mongolia Country Office

## IMPLEMENTING PARTNERS

- Ministry of Health of Mongolia (MOH)
- National Center for Maternal and Child Health (NCMCH)
- Ulaanbaatar (UB) City Health Department
- National Center for Health Development
- Mongolian National University of Medical Sciences
- All 21 provincial hospitals, three maternity hospitals of UB and maternity wards of two remote UB districts

## PROJECT OBJECTIVES

- Establishing a nationwide network of consulting services
- Empowering physicians and specialists and sharing knowledge
- Creating a multi-disciplinary expert team consultation at the NCMCH

## DIRECT BENEFICIARIES

- Women of reproductive age
- Professionals working at the NCMCH and provincial and district hospitals, including midwives
- Patients, particularly pregnant women, mothers, newborn and young people

## PROJECT MAIN ACTIVITIES

### MoH

- Revision of existing guides in line with international standards
- Policy advocacy on quality Maternal and Child Health Care

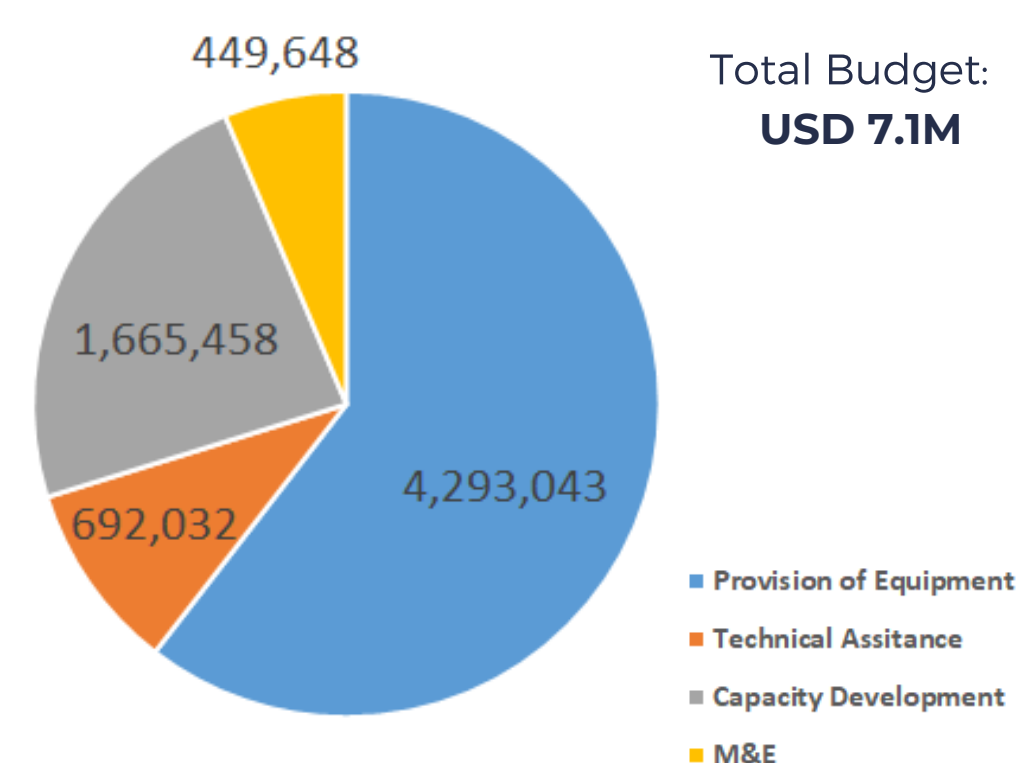
### Tertiary level of care - NCMCH

National Center of Excellence through introduction of international Best Practices

### Secondary level of care - Provinces

21 Provincial hospitals - Improvement of local case management through capacity development

## BUDGET CATEGORIES (IN USD)



## Quick Facts

# 1923

Total Cases  
Consulted  
via Telemedicine

# 25

Number of  
credited  
E-Learning  
modules

# 24

Fully functional  
emergency obstetrics  
care (EMOC) drilling  
units and simulation  
laboratories

# 3

International  
Project  
Publications

# WINNER

of prestigious  
United Nations Public Service  
Award (UNPSA) in 2017

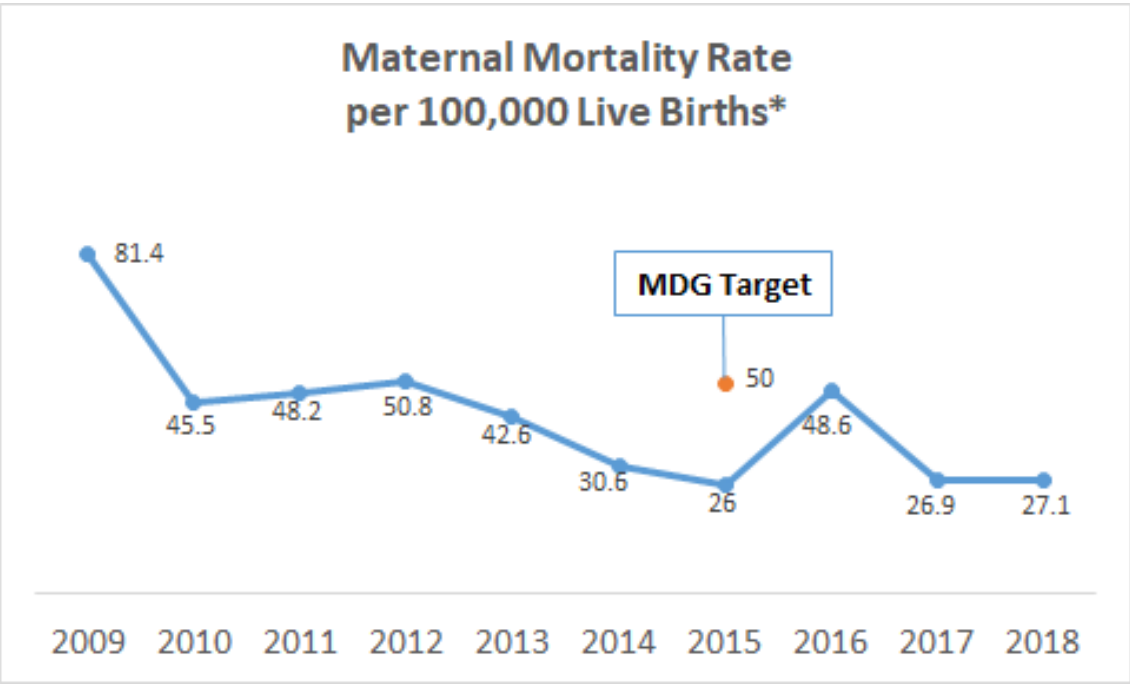


# Overall Impact

## NATIONAL HEALTH AND NATIONAL POLICY

### National Health

#### MATERNAL MORTALITY REDUCTION

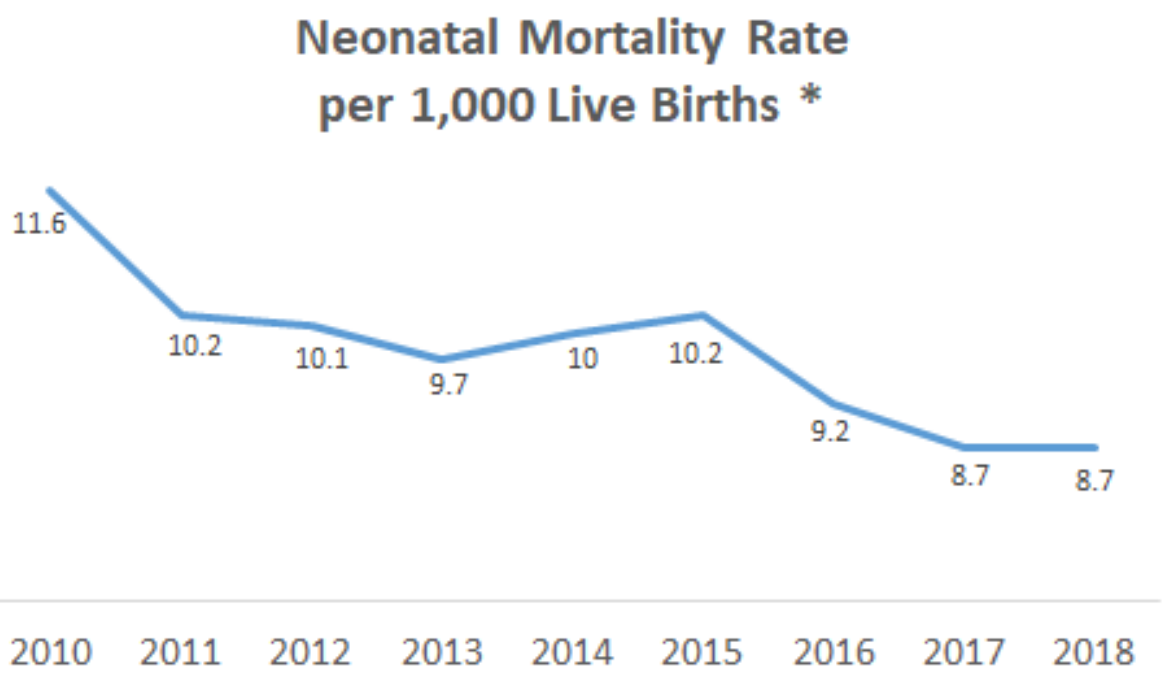


Project provided essential equipment, training of service providers and teleconsultation facility. These have all contributed to the reduction of maternal mortality in Mongolia.

#### ACHIEVING 2015 MDG

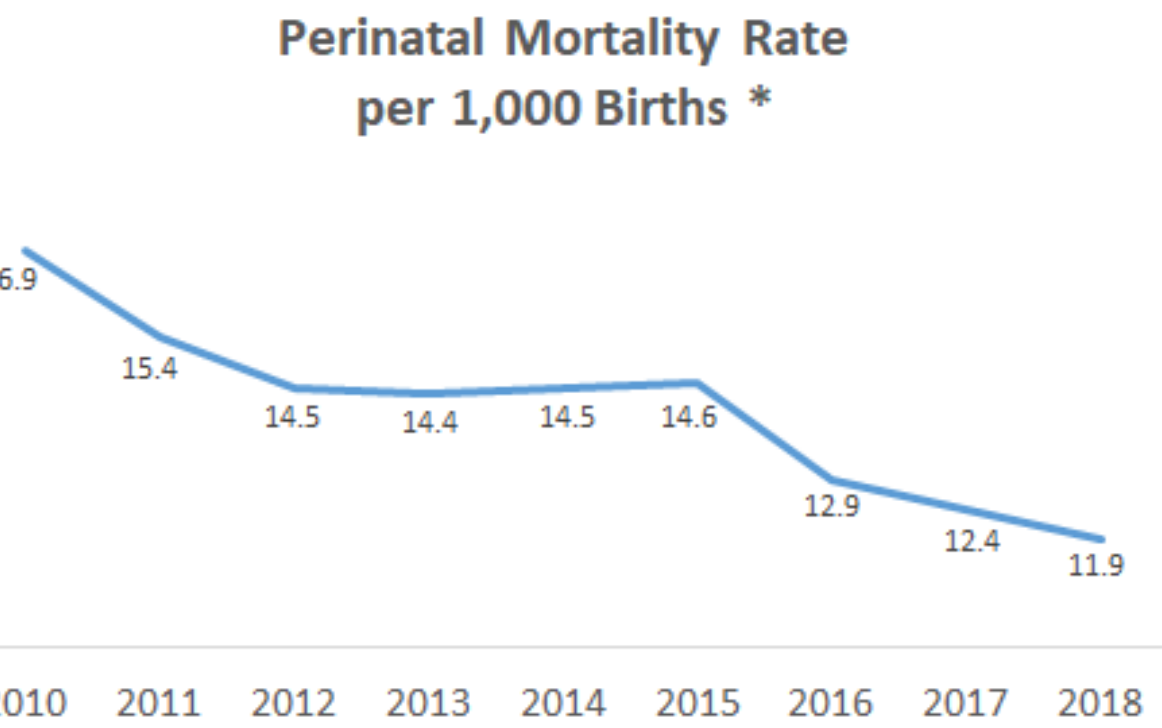
Mongolia is one of 9 countries in the world that achieved 2015 MDG (Millennium Development Goal) target of reducing maternal mortality ratio by 75% compared to baseline.

#### NEONATAL MORTALITY REDUCTION



One of the components of the project was improving the capacity to provide quality services for newborn. With implementation of new technical guidelines and training of new-born experts, it contributed to the reduction of neonatal mortality rate.

#### PERINATAL MORTALITY REDUCTION



Improved case management and diagnostic services in pregnancy at local and tertiary level hospitals contributed to reduction of perinatal mortality rate.

### National Policy

National policies were introduced and/or modified to ensure the sustainability of the Telemedicine Project.



#### TELECONSULTATION REGULATION

NCMCH and MoH introduced new regulations to support the MnObstetrics software and emergency teleconsultation network. The regulations provide protection of patient information as well as encouraging communication between medical professionals at central and peripheral levels.

The format of documentation of teleconsultations has been approved by Health Minister's order (A385, 2019), which has to be attached to the clinical record of a patient.



#### REVISION OF MIDWIFE JOB DESCRIPTION

In accordance with International Confederation of Midwives, new midwife Job Description has been prepared that strengthens the independence of midwives and their collaborative role with obstetricians.

The scope of midwifery practices has been expanded to include reproductive health care, such as providing contraceptives and examining for early detection of STIs, and cervical and breast cancer. The role of midwife in helping adolescents was also emphasized.



#### DISTANCE LEARNING

NCMCH became a distance learning center for midwifery and obstetrical services. NCMCH is responsible for ensuring smooth coordination of e-learning courses, while Center for Health Development integrates them into the Continuous Medical Education system and provides online credit to those who participate in online classes.

\*National Center for Health Development

Icons by Gregory Montigny, Creative Stall, Souvik Bhattacharjee, and icon 54 from Noun Project



# Capacity Building

FACILITY UPGRADE WITH NEW TECHNOLOGY  
AND NEW TRAINING METHODOLOGY

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## FACILITY UPGRADE WITH NEW TECHNOLOGY

### ULTRASOUND WITH DOPPLER STUDY

helps make correct  
evaluation of fetal growth.



### CARDIOTOCOGRAPHY (CTG), INTRAPARTUM CONTINUOUS MONITORING SYSTEM

improves intrapartum case management and  
early detection of fetal and maternal distress  
during labor.

### NEO-NATAL INCUBATORS

increases survival of premature  
babies by keeping them in a  
controlled environment for  
observation and care.



### NASAL CPAP

encourages fetal  
respiratory recovery, with  
minimal invasion.

### REPRODUCTIVE MEDICINE UNIT

It is the first public advanced reproductive  
medicine center to assist women who need  
infertility treatment, particularly those who  
cannot afford high-cost private services.

### MINIMALLY INVASIVE SURGERY SET

allows doctors to operate with endoscopes  
which provokes less pain and faster recoveries.



### DIAGNOSTIC AND TESTING KIT

With the diagnostic  
and testing kit for  
biomedical engineers,  
the hospitals can now  
maintain maternal  
and child health  
equipment.

## NEW TRAINING METHODOLOGY

### HANDS-ON SURGICAL SKILL TRAINING

was provided to city and rural  
doctors to improve their skills on  
gynecological and obstetrics  
surgeries. Many rural doctors can  
now perform major surgeries, even  
those in isolated rural hospitals. As  
a result, referrals to tertiary level  
hospitals were significantly  
reduced, allowing patients to  
receive quality care in their  
provinces.

### SIMULATION TRAINING

improves hands-on skills, clinical  
decision making skills, case  
management skills, and team  
management skills in emergency  
situations, by setting up an artificial  
environment that mimics real  
clinical scenarios. This training is  
now provided at 22 drilling units  
and 2 advanced simulation centers.

### DISTANCE LEARNING (E-LEARNING) PLATFORM

allows rural doctors and midwives to  
improve their medical knowledge  
without having to travel for required  
trainings. Newly adopted distance learning  
regulations provide online credits or  
Continuous Medical Education points to  
those who finish each course. A number of modules for midwives and  
obstetricians as well as a mobile  
application version "M-Health" are now  
available.

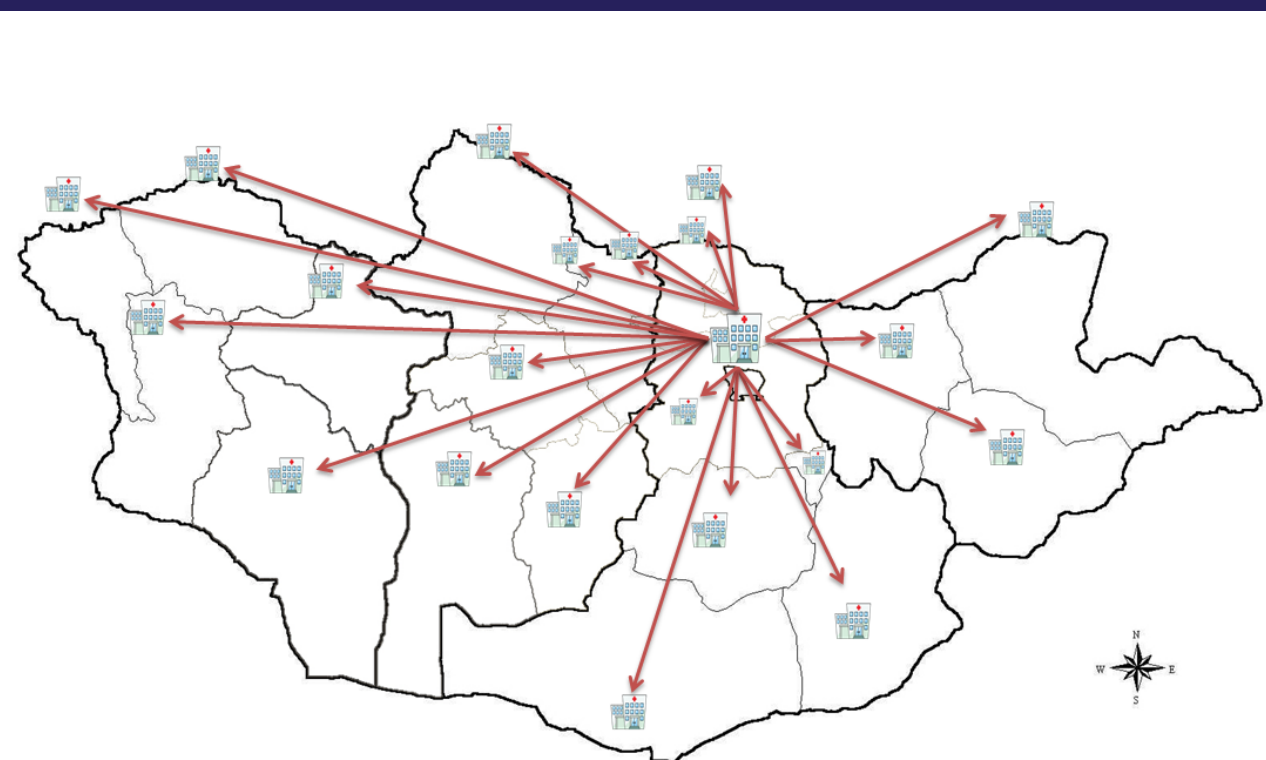


# Capacity Building

## INTRODUCTION OF TELE-CONSULTATION SYSTEM AND NEW SERVICES

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### TELE-CONSULTATION SYSTEM



Telemedicine Project established tele-consultation system which allows the rural doctors and the expert team at NCMCH to work as a team. As of now all 21 provincial hospitals and capital city of Ulaanbaatar are connected. Via telecommunication technology, Ulaanbaatar experts can see patients in remote area and provide specialist advice to those who seek second opinion on the case management.



**MnObstetrics**

#### MN OBSTETRICS

MN Obstetrics is a main teleconsultation platform with 3 principal applications: [1] case upload for consultation to seek 2nd opinion from expert team [2] real time teleconference, and [3] reporting.

#### EMERGENCY TELECONSULTATION NETWORK

To support MN Obstetrics platform, emergency tele-consultation network was created between rural hospitals and NCMCH. Now the network is available in the total of 25 hospitals. With high definition camera installed in each consultation room, the system allows patients to get involved in the discussion and doctors to closely observe the patients and their medical records.

#### TEAM SPIRIT

By establishing teleconsultation system, Telemedicine Project created stronger professional network. Communication and teamwork between the expert team and rural hospitals is greatly improved. The patients are directly benefiting from the enhanced team spirit. Since patient data and information is more easily shared and discussed, when the patients are referred to the NCMCH, the experts are more prepared to receive them and take prompt actions.



Telemedicine Project received the prestigious United Nations Public Service Award (UNPSA) garnering 1st place in the category of "Innovation and Excellence in Delivering Health Services." This was the first UNPSA any UNFPA office won in the past 15 years.

### NEW SERVICES

#### MATERNAL FETAL MEDICINE

By training eight Mongolian doctors under internationally recognized curriculum, Telemedicine Project raised medical experts in maternal fetal medicine and contributed to improving the quality of fetal diagnosis.

Around **40%** of high risk pregnant women are screened for fetal abnormalities.

#### MINIMALLY INVASIVE SURGERY

Doctors at regional hospitals can now perform endoscopic surgeries. They improve patient satisfaction and reduces patients' pain, hospital stay, and chances of complications.

Around **30%** of surgeries now use minimally invasive techniques.

#### ADVANCED REPRODUCTIVE MEDICINE (ARM)

ARM unit provides infertility treatment to women, particularly those who cannot afford private clinic treatment. The first-ever public reproductive medicine unit in the country.

**8000** Visits Per Year  
**250** Infertility treatment cycle  
**26.5%** Biochemical pregnancy rate  
**21.06%** Take home baby rate

#### IMPROVED CARE FOR PREMATURE BABIES

With the improved care at Intensive Care Units, the chances of survival of premature babies has greatly increased.

The survival rate of low birth weight babies (under 1.4 kg) at NCMCH increased to **47.1%** from below 30% five years ago.

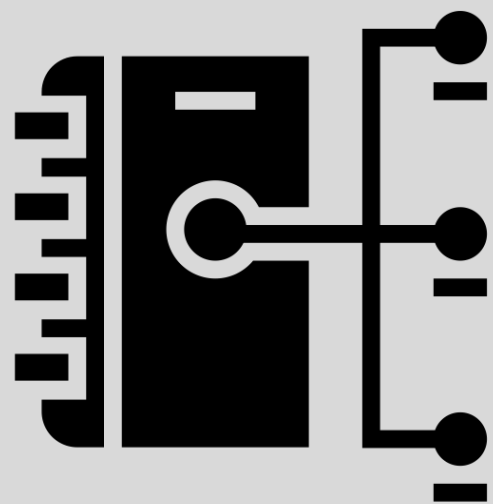
"Telemedicine Project made a real change in the mindset of doctors and quality of care." **DR. T. SARANTUYA**  
NCMCH



# Midwifery School

TOWARDS EXCELLENCE OF MIDWIFERY EDUCATION

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## Revision of Midwifery Curriculum

The Midwifery curriculum was revised based with the assistance of a consultant to comply with the current Guidelines of the International Confederation of Midwives and the WHO. The old curriculum had an imbalance of theory and practice hours with the ratio of 85:15. The new revised curriculum offers more emphasis on practice with theory to practice ratio of 60:40.



## MOU signed with Michigan University

A partnership agreement (MOU) was signed in 2019 between the School of Nursing and Midwifery, the University of Michigan and the Mongolian National University of Medical Sciences to ensure the continued collaboration for excellence in midwifery education. For the next 5 years the two schools will start the student exchange programme and research projects on midwifery education and quality of services.



## Faculty Training by International Experts

To support the implementation of the new curriculum and strengthen the capacity of faculty members, the international exchange program was initiated. With the facilitation of the international consultant, the School of Nursing and Midwifery of the University of Michigan and a WHO collaborating center was selected and agreed for continued collaboration for excellence in midwifery education.



## Introduction of New Midwifery Textbooks with Mentoring Programme

The new textbook for midwifery education "Varney's Midwifery" with Teacher's Supplement has been adopted as the main resource material for the faculty. In addition, two more books on "Health Assessment" and "Basics in Gynaecology" have been adopted as required by the new curriculum. Mentors from selected Mongolian maternal hospital or National Center for Maternal and Child Health (NCMCH) will assist the midwifery undergraduate students with their studies.



## Clinical Skills Lab with Various Midwifery Skill Simulators

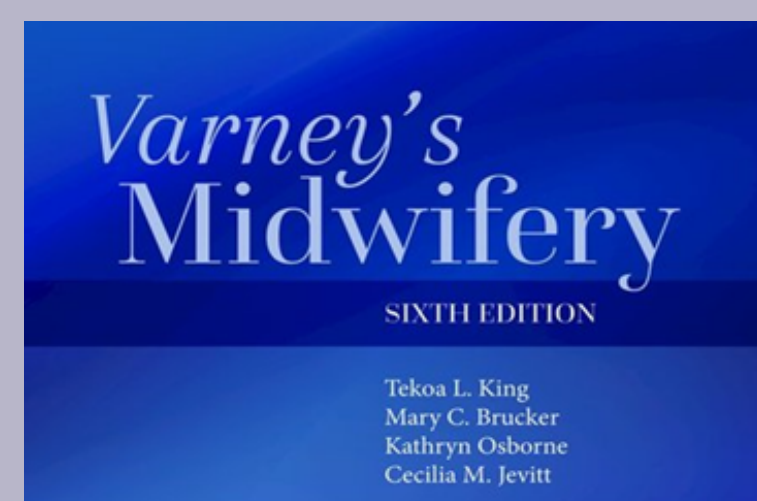
Cutting-edge training devices which create life-like learning simulations were provided. With them, midwifery students can develop their skills on obstetrics and newborn care through hands-on experiences. These activities complement the students' lack of clinical exposure to real cases during undergraduate training.



Students of midwifery school



President of Mongolian National University of Medical Science J. Tsolmon signing MOU with Prof. Ruth Z. of Michigan University.



"Varney's Midwifery," a new textbook for midwifery education - by King, Brucker, Osborne, and Jevitt.



Advanced, life-like mannequins in the training of midwives



# Teleconsultation Network

FROM DATA SHARING  
TO REAL-TIME CONSULTATION WITH PATIENTS

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## Development of Teleconsultation Network

Throughout Telemedicine Project, the technology for teleconsultations evolved as following:

### (1) Phase I (2007-2011)

iPath platform, an open source programme offered by Swiss Surgical Team

### (2) Phase II (2012-2016)

Campus Medicus, a commercial platform

### (3) Exit Phase (2017-2019)

MnObstetrics, a nationally developed and owned software  
and Emergency Consultation Network

## Emergency Teleconsultation Network

Direct teleconsultation cameras, as part of Emergency Teleconsultation Network, are now installed in all 21 provinces and two remote districts of Ulaanbaatar city, which facilitates live interactions between the specialists and patients in remote areas.



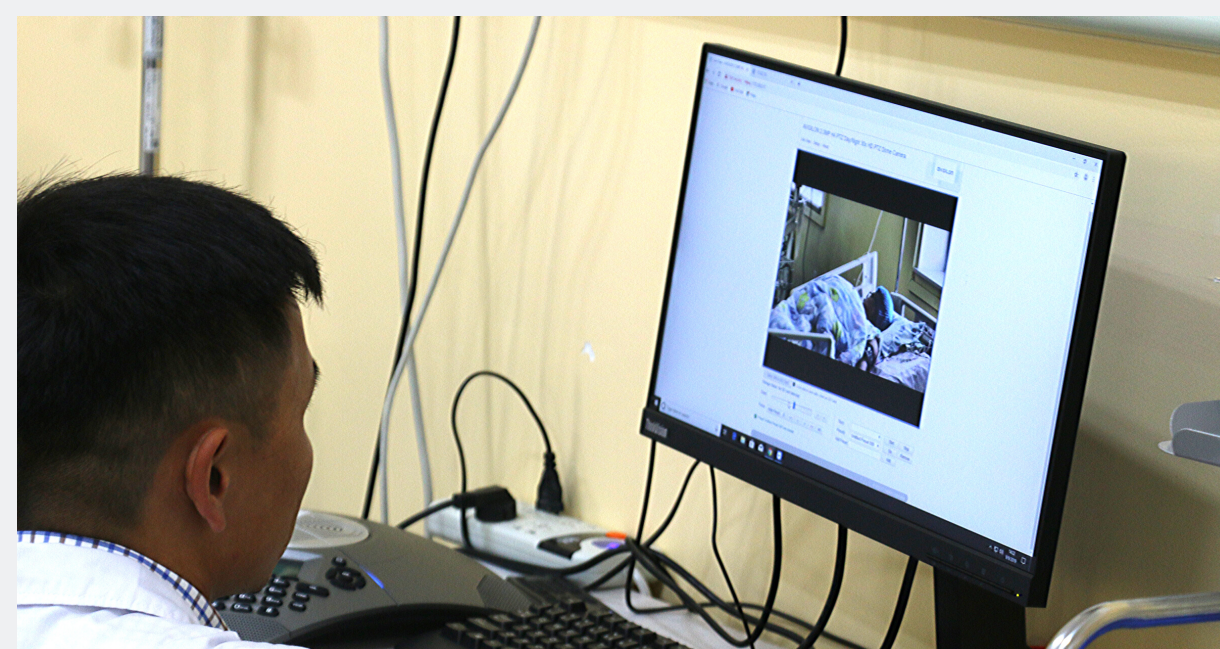
A provincial doctor sharing information via Emergency Teleconsultation Network with NCMCH



A high-definition camera and a screen for emergency teleconsultation system allow experts to closely observe patients' symptoms and information



National Center for Maternal and Child Health (NCMCH) experts observing a patient in a remote province



A doctor adjusting Emergency Teleconsultation Network camera to share visuals of a patient

"Umnugovi Provincial Hospital and National Center for Maternal and Child Health doctors, we are now working as one team."

DR. MUKHBAT,  
UMNUGOVI PROVINCIAL HOSPITAL