



# Mongolian Emergency Service Hospital Hygiene Project

MeshHp.mn

**Prof. Dr. W. Popp**  
HyKoMed GmbH, Lünen/Dortmund  
Germany

## Report of the visit to Ulaanbaatar 3 – 10 September, 2017

### Participant:

Prof. Dr. Walter Popp, HyKoMed, Dortmund  
Prof. Dr. Heike Martiny, Berlin  
Nouzha Maazouz, University Clinics Essen

The main purposes of this visit were training (done by Nouzha on three full days in Hospital No 2) and have a look for dentists and endoscopy reprocessing as possible main sources for hepatitis problem in Mongolia. This was why Prof Heike joined the tour who is specialist in the field of reprocessing of dental instruments and endoscopes.

### Hospitals

Again we had a visit to the **State Servant Hospital**. They have an additional building now with very high construction quality:



A lot is still under construction.

We gave some advice regarding CSSD, transport of instruments, equipment for CSSD.

We had a visit to **Chingeltej District Hospital**. They have new cleaning carts now.

Also results of health examinations of staff were reported:

Half of staff has antibodies against hepatitis B. In 269 staff members who were tested, there were 18 with HBsAG, 30 with HBc, 4 with combination. At a whole this

means that **19 % of the staff are hepatitis virus carriers, most of them hepatitis C.**

Vaccination against hepatitis B is now with three shots, but still no antibody control.

We were informed that ADB is willing to build a new hospital in ger district.

They got three small new sterilisers from China for dentists' department. It seems that they work with one vacuum cycle only and 125°C. We are not sure whether the vacuum is high enough to sterilize the channels of hand pieces.

No new information about Health V project – did not hear anything in last months.

We had a look at CSSD – no changes there.

Also we saw the **renovated surgical ward in the outpatient area.**

Energy supply is new there because it was too weak – eg it was not possible before that sterilisers and laundry work in parallel.

The renovated ward is improved now, but quality of renovation could be better:



Some of the fittings are touchless which is not necessary because this technique saves water and by this usually they are contaminated rather fast because of biofilms in them.

Now they got new plastic beds which is really an improvement as the old wooden beds could not really be disinfected.

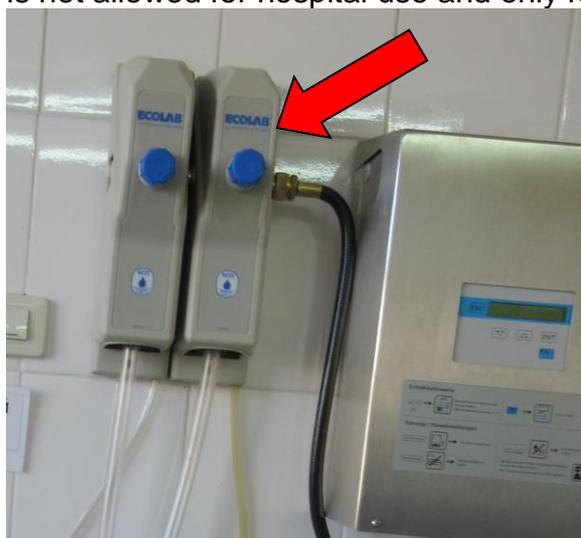


During our visit to **Cancer Center** we again visited CSSD. As mentioned in reports before, it is rather big.

There were deficits in hand hygiene, some dispensers for fluid soap and paper towels were empty, not enough hand disinfectants:



There are two metering units for disinfectants from Ecolab. According to internet research they are intended for use in food production and not in hospitals. They seem to be used for Incidin plus (allowed for hospitals) and Ecolab Microquat which is not allowed for hospital use and only for food production.



**So it seems that there are metering units used and also a disinfectant which are not allowed for hospitals.** It should be clarified who is responsible for that.

We were told that the technical staff is adjusting the concentration. Is the concentration controlled in some way?

Only one of three sterilisers is working.

Positive is that more paper wrapping is done instead of the oldfashioned containers (with holes, which cannot guarantee sterility).

Nouzha made three full days training in **Hospital No 2** in CSSD which was participated by far over 100 people from other hospitals.

Because of the big engagement of Hospital No 2 and the improvements in CSSD and endoscopy (see below) Hospital No 2 will now become a **training center of MeshHp** for CSSD and endoscopy reprocessing.

## Dentists

We visited **private dentist Star Smile**. Construction conditions are not really good as often. Water to dental chair is going through plastic pipes – biofilm development has to be expected and contamination of the water:



We could not find a disinfectant which is disinfecting the water before used for patients.

For reprocessing, there are two rooms for dirty and clean which is basically ok. Reprocessed and wrapped instruments are stored in small apparatus which are basically thought for UV and ozone treatment. Handpieces are not reprocessed sufficiently. After patient use they are not flushed by water from the patient's chair. There is no cleaning at all. They are wiped (disinfected) outside with alcohol which may fix proteins. Then the hand pieces are "disinfected" from outside, but not inside, by UV:



Also we saw handling mistakes as filling material (basically used for more than one patient) was taken by an instrument which was already used with the patient.

Then we visited **private dentist Nara Dent**. Here reprocessing is in one room only. Autoclave is from China, working at 125°C and only one vacuum cycle. Positive is that instruments are dried manually and not in drying oven which may destroy instruments on the long hand. Endodontic files for root canals are disinfected in alcohol and sterilized. Also here handpieces are not cleaned at all and are only "disinfected" by UV.

Storage of instruments is fine in storage cabinet:



A patient was using phone between treatment – cool 😊:



Prof Heike gave a presentation in the **University School of Dentistry**. There we met with a lot of people, like Dr Tsengelsaikhan, Prof Otgonbold, Prof Amarsaikhan, Prof Sapaar and Prof Urjinkham.

Then we had a look at the new building which is still not finished. Unfortunately, the construction quality is very bad:



One operation room has big windows on two walls – it will be very hot in summer and cooling units will be needed. Operation department will do their own reprocessing of instruments.

The rest of reprocessing is centralized which is very good. This is done in basement by only one person per shift. Handpieces are given in another apparatus (we could not discover how it is working) but not sterilized and also not treated inside at all:



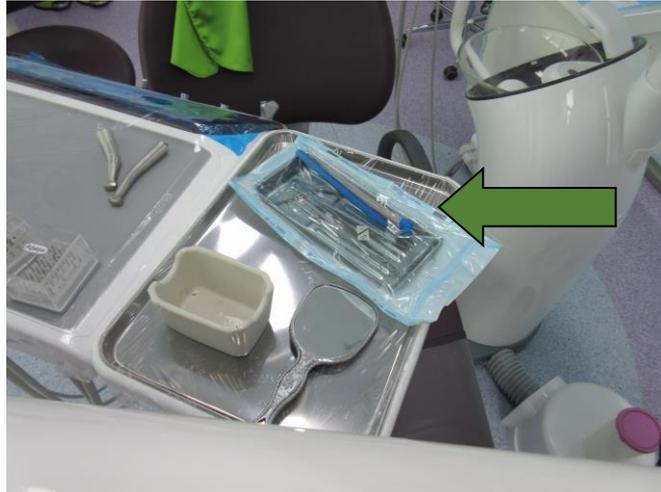
The working places of dental technicians are without suction – that means a risk of silicosis and infections.

We visited **private dentist company Tujdent**. All staff members are vaccinated against hepatitis B.

They have fluid soap and hand disinfectants and paper towels, very positive. Now they finally should take away the textile towels.



Very positive: They have defined and sterilized instrument sets for every patient:



Reprocessing seems ok, they use cleaner and disinfectant. But also here only UV “disinfection” of handpieces from outside, no cleaning at all and no disinfection of the channels.

The dental technician did not use the mask – increases risk for infection and silicosis!  
The x-ray apparatus is hold by hand:



We have some doubts whether this is not a risk for the hands. They use dosimeters, but on the shirt. It might be better to use finger ring dosimeters (additionally?). The opinion of the staff is that the situation is worse outside of UB, especially in soum and intersoum hospitals. On the other hand, mostly only teeth are extracted there.

#### **Conclusion for dentistry:**

**There are deficits in reprocessing of dental instruments, especially for hand pieces. At no places hand pieces are flushed after patient treatment. This means that blood and saliva of patients remain in the channels. During reprocessing the channels are not cleaned and not disinfected. The hand pieces are usually not sterilized. If they are treated by a sterilizer, it is not clear whether the vaccum is strong enough to evacuate the channels. If the channels are not evacuated there is no guarantee for a successful sterilization. In addition, it is not safe to sterilize dirty instruments at all.**

**So the hand pieces pose a risk for hepatitis transmission – especially on basis of the fact, that up to 20 % of patients are virus carriers.**

**The situation might be even worse outside of UB, in aimag, soum and intersoum hospitals.**

**Additionally, there is a risk from hepatitis positive dentists (maybe more than 20 %?) – it is known that in dentistry often hands are injured so that blood of the dentist can contaminate the patient who also has open wounds in his mouth.**

Finally we were invited to the opening of **Enerel Health Center**, also a private dentist.

### **Endoscopy units**

In **Cancer Center** we visited **endoscopy unit**. There are 4 rooms for endoscopy.

Bronchoscopies (around 5 on a day) are only done in one room.

The situation about hand hygiene is bad: partly no towels, no disinfectant near sink.

Very few disinfectant bottles.

Endoscopes are stored in storage cabinets and – as we saw – the transport to the cabinets is mostly done open, just by hands.

It was said that brushes and biopsy forceps are reprocessed and sterilized by Plasma. But we also saw open forceps in the storage cabinet – an explanation could not be given for that:



It was said that polypectomy loops are only single use.  
The reprocessing room is too small, big water damages on the ceiling (yeast and allergy risk!). Sink is too small (will it be disinfected?):



There are four half-automatic washer disinfectors, two for gastroscopes, one for coloscopes and one for bronchoscopes.  
It was said that endoscopes are first rinsed with Sekusept Cleaner 2 %, then wiped outside. Then they are brushed in water in sink without cleaner. It was not clear whether all channels are precleaned, it seems that only the biopsy channel is rinsed and brushed.  
Then in washer disinfectant.  
We have doubts whether all channels can be connected to the machine so that all channels are rinsed because there are not connectors and not enough tubes for all channels:



It was said that in the washer disinfectant they use Sekusept Cleaner 2 % (30 minutes) and Sekusept Extra N 2 % (5 minutes). According to the German product information of Sekusept Extra N exposure time should be 15 minutes for a 2 % solution. So the 5 minutes might be too short.  
The tank for the cleaner is much too small for this procedure.

Endoscopes come out wet and are wiped outside and blown through channels by compressor in order to dry the channels. The disinfectant has to be rinsed out and washed off. This is done by tap water without a defined quality; no bacterial filter could be seen, only a filter for particles.

Transport in boxes which are permanently defined as clean or dirty. They are wiped by disinfectant.

In the room is no hand disinfectant!

The **endoscopy unit in Hospital No 2** is much improved now. Reprocessing steps are clearly defined. Staff can explain every step they are doing. There are enough basins now for every step like cleaning and disinfection and pouring with water finally. The air pressure of compressor (see last report) was reduced. Staff protection is great!



There was a training of staff from other hospitals and this was really impressive.

One negative point: Nouzha got an acute Latex allergic reaction of the hands and the gloves are really not Latex free:



Latex allergies can be very dangerous. So basically, only gloves without powder and a very low Latex concentration (in Germany maximum 30 microgram per gram) should be used. An alternative are nitrile gloves which give a better protection against chemicals, too.

### **Conclusion for endoscopic units:**

**Based on experiences in all of our visits, endoscope reprocessing is mostly not done in a correct way. It must be supposed that in some cases even disinfectants are not used. Very often concentrations and exposure times are not correct, disinfectants are often used much too long – eg up to two weeks. So it must be presumed that often channels are not enough / not at all disinfected and bacteria and viruses can survive inside.**

**Endoscopic processes pose a risk for hepatitis transmission – especially on basis of the fact, that up to 20 % of patients are virus carriers. Additionally, very often the gut is injured because of biopsies or polypectomia.**

**The situation might be even worse outside of UB, in aimag and intersoum hospitals.**

During our talks we got to know that there might be **additional reasons for hepatitis transmission:**

Often ladies get a tattooing of eye brows by microblading which means that upper skin areas are sliced.

Also it seems that young people use tattooing machines coming from China which are not working sterile and which are used by themselves in group happenings.

### **Meetings**

We had a meeting with **Viceminister of Health** Mrs Byambasuren. Shortly after that the government had to resign (not because of us). Anyway we will stay in contact with Dr Buyanjargal who is in charge of hospital hygiene in the ministry.

One evening we were at a reception of the **German Mongolian Business Association.**

We had a meeting again with **Prof Erdenkhyy, MNUMS**, and his staff. Opening of the new **University Clinics** which is under construction is intended to be in September, 2018. We will stay in contact and clarify whether there can be some cooperation in the future.

## Social life

After arrival on Sunday, we had a nice trip to **Terej National Park** together with Emergency Service 103. It included airag, khushuur, wodka, tsuivan... - Prof Heike who was first time there enjoyed everything!



Of course, there was **sightseeing** in UB, especially for Prof Heike who was first time in UB.

There was a nice evening in Atlantis restaurant where Uka presented first time his **Hymn to Essen city**.

### Next steps

**Next trip to Germany** will be done by up to 10 directors end of November, 2017.

One of the next trips Nouzha will visit **Cancer Center** and have a look at CSSD and endoscope reprocessing. Also in one of the next groups visiting Germany a staff member of Cancer Center will be.

The time of the **next Hygiene Symposium** in UB was changed to 19 and 20 September, 2018, also including German companies like in last year. MedClean will be responsible for organizing the meeting.

We had a meeting with Mrs Nyamsuren. She is head of nurses in Hospital No 2 and president of the Mongolian Nurses Association. There are 10,000 nurses in Mongolia. **June 2018** we will make a **two day training** for 100-150 nurses each day from all aimags, also using telemedicine video broadcast to the aimags.

Walter Popp, 18 September 2017