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Sites	Screened		Treated				Total
	2012-2016	2012	2013	2014	2015	2016	
UB	153'000	452	474	450	486	304	2166
Khuvsgul	8'044	43	55	50	57	56	261
Uvs	6'295	51	57	49	51	58	266
Gobi-Altai	4'635	36	43	45	39	41	204
Bayan-Ulgii	6'062	35	33	34	35	30	167
Khovd	4'472	13	11	12	14	13	63
Zavkhan	5'670	11	9	16	12	9	57
Umnugovi	1'706				2	4	6
Dundgovi	822				2	5	7
Govisumber	452				2	4	6
Dornogovi	1'271				8	15	23
Bayankhongor	1'878			7	12	11	22
<b>Total</b>	<b>194'307</b>	<b>641</b>	<b>682</b>	<b>663</b>	<b>720</b>	<b>550</b>	<b>3'248</b>

Table: Actually examined Babys in the last 4 years in Mongolia, uploaded and treated

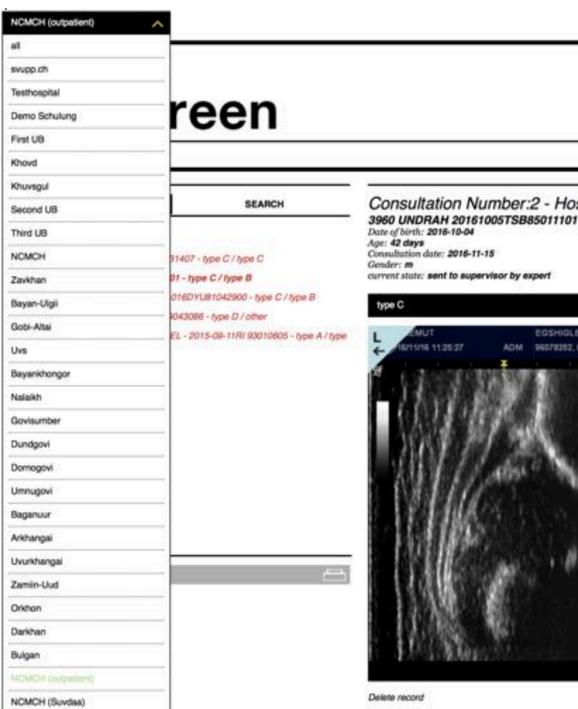


Fig. 2 List of all participating Mongolian hospitals. As of today, >91% of all hospitals participate, and approx. 89% of newborns are examined and if necessary treated.



Fig. 3 Very powerful search engine enables answering scientific population based questions in an unprecedented way.

# SWISSMONGOLIAN DDH-PROJEKT



Fig. 1 Hospital, patients list, task list, name of client and pictures with diagnosis in the middle. Right side: patient history, comments and possibility to upload further pictures like rx.

## CONCEPT FOR QUALITY CONTROL OF ULTRASOUND-BASED SCREENING AND TREATMENT OF HIP DYSPLASIA

### BACKGROUND

Developmental dysplasia of the hip (DDH) is a major health problem which can lead to lifelong treatment or handicapped individuals if diagnosis is missed in early weeks of life. DDH has implications not only for the baby itself and its entire family but is of enormous consequence for public health. The Swiss Mongolian pediatric project brought the knowledge and the hardware (US-machines, cradles, treatment devices) to Mongolia, to detect and treat neonatal DDH and realized from a early state on that the quality of the ultrasound examinations cannot be guaranteed with these measures alone. Quality checks and possibilities for feedback are important in daily practice to reduce wrong diagnoses or overtreatment. This is especially true for developing countries where resources and knowledge is sparse.

### METHODS

We therefore decided to implement a web-based quality control tool which offers the possibility to control and supervise Ultrasound pictures of all hip examinations of screeners by locally trained experts and Swiss supervisors.

### RESULTS

In order to implement the quality system, screeners can enter specifically programmed hotkeys for side of hip (left, right) and diagnosis (according to adapted Graf) and regular information (name, age, gender, and social security number) on their ultrasound machines in Mongolia. The resulting DICOM files are exported daily by the screener to a USB flash drive and uploaded to HipScreen. HipScreen is our web portal which is developed and regularly updated from Switzerland and offered to the Mongolian partners free of charge. HipScreen automatically extracts essential information from the files when uploaded by the screeners. Experts have access to those examinations including all pictures. They can either close the case (healthy hips, good quality of pictures) or give comments and return the examination to the screener; this procedure allows the screener to learn from mistakes. The experts decide on therapy and are allowed to send cases to the supervisors for further advice.

### KEY POINTS

- Quality control is a mayor issue in medicine
- Introduction of a 4 (6) eyes principle in mongolia is a model also for the developed world
- Hip Ultrasound is especially suited
- data collection of by now more than 200'000 children is the basis for future population based studies for diagnostics, treatment and follow up
- Software will be introduced also in Switzerland 2017

### CONCLUSION

A 3-level control and teaching tool allows standardized diagnosis and treatment of DDH. The Mongolian database is probably becoming the biggest cohort of screened newborns ever. The tool will serve as a model for a similar DDH project in other developing countries and in Switzerland and is open for interested pediatricians in other fields.

### PUBLICATION

In preparation for Ultrasound 2017

Further information is available on: [www.smopp.ch](http://www.smopp.ch), and [www.svupp.ch](http://www.svupp.ch)

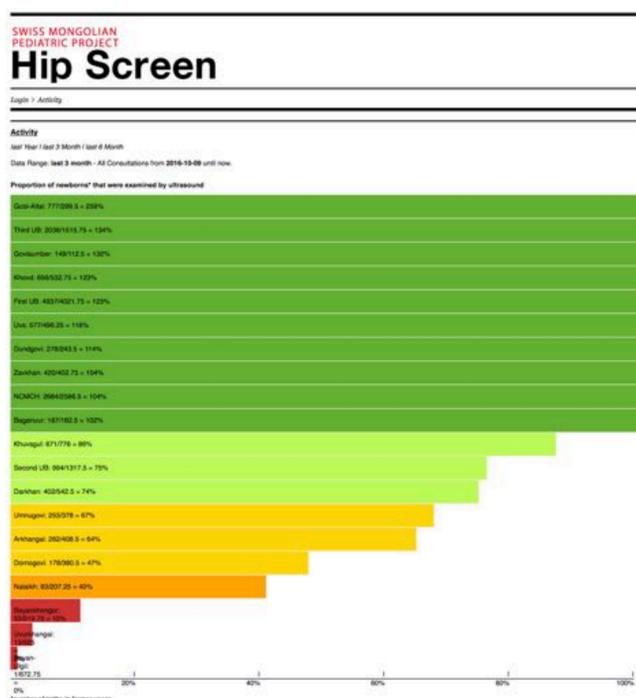


Fig. 4 Extensive, daily updated statistical analysis of traffic on the internet.