

Swiss TPH



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Schweizerisches Tropen- und Public Health-Institut
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Health Technology and Telemedicine

The Role of Biomedical Engineers

in the Introduction and Maintenance of Health Information Systems

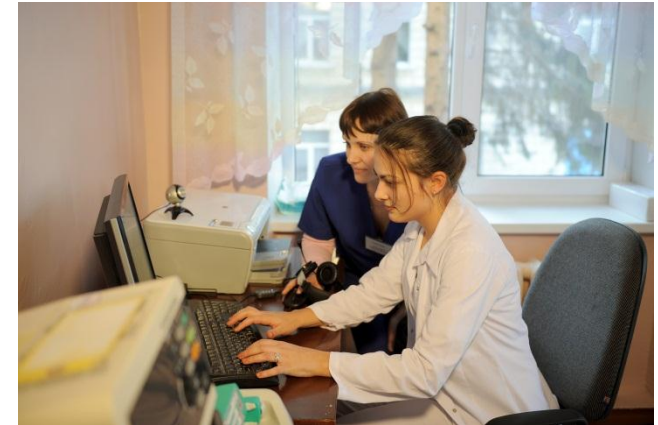
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Background- Health Information Systems (HIS)

Objective - To produce relevant and quality information to support decision making^[1]



Information Management

- Amount and complexity of data increases with technological advances in healthcare
- Need for new tools, methods and architectures to handle this data

Other Trends

- From institution-centered hospital information systems towards regional and national HIS ^[2]
- Consider **human resources allocation**, change management and strategic information management

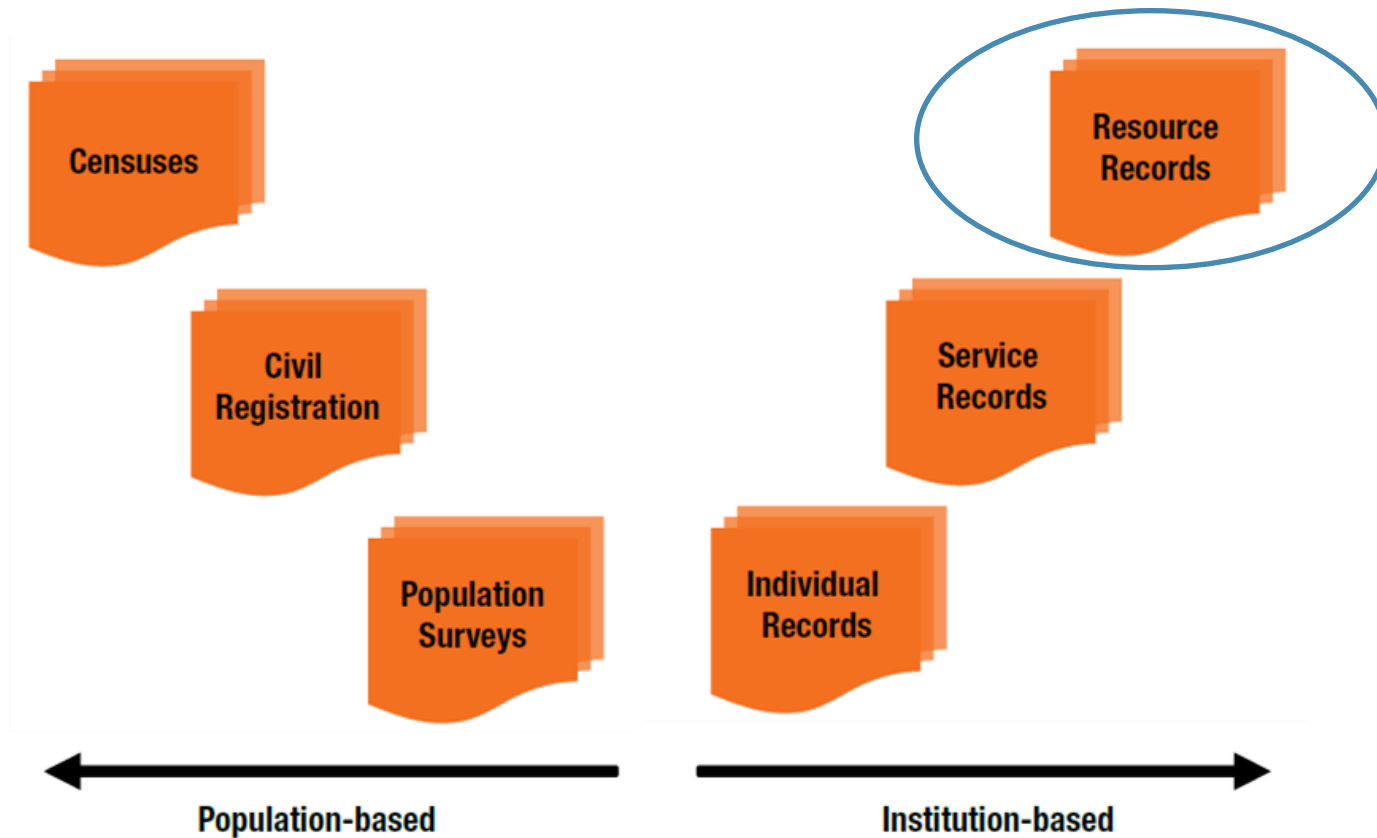
[1] Health Metrics Network 2006

[2] R. Haux, "Health information systems - past, present, future," *Int J Med Inform*, vol. 75, no. 3–4, pp. 268–281, Apr. 2006.



Background – HIS Data Sources

Health Information Systems





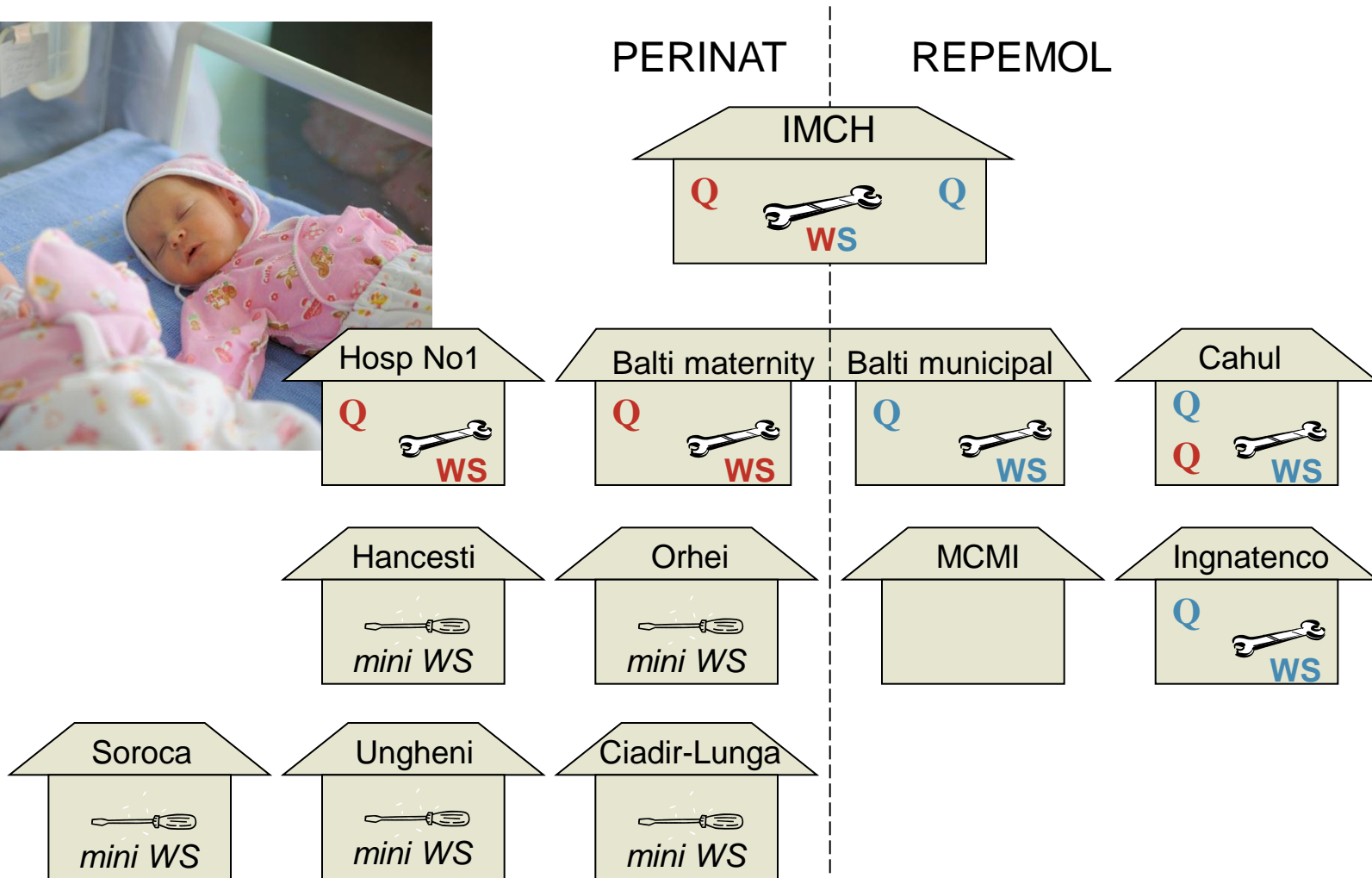
Methods - Approach

- REPEMOL and PERINAT, a Swiss Agency for Development and Cooperation (SDC) financed project, are strengthening Health Technology Management (HTM).

This Study..

- Research of electronic- or computer-based HIS and the challenges of institution based data management
- Study based on experiences with Information- and Management System for Medical Devices in the Republic of Moldova
- Use information from project monitoring system and progress reports (Additional information obtained through phone calls)

Methods – Project Hospitals





Results – General Outcomes

- Project could not identify IT- or health informatics specialists at the hospital level to support the introduction of this HIS
- Data quality was very poor at the beginning
- Staff available was often not familiar with the information to be collected (administrators, or computer clerks)
- From 2010 to 2012, more hospitals could employ biomedical engineers
- Data quality has improved & data is better managed
- Users are supported, ICT infrastructure was established

Results – Human Resources for HIS

	PROFESSIONS				TOTAL
	BIO. ENG.	ENG.	IT	OTHER	
TOTAL	10 (0.43)	5 (0.22)	4 (0.17)	4 (0.17)	23 (1)
2ND LEVEL (9 HOSP.)	6 (0.6)	3 (0.6)	4 (1)	2 (0.5)	15 (0.65)
3RD LEVEL (1 HOSP.)	4 (0.4)	2 (0.4)	0 (0)	2 (0.5)	8 (0.35)
MALE	10 (1)	4 (0.8)	4 (1)	4 (1)	22 (0.96)
FEMALE	0 (0)	1 (0.2)	0 (0)	0 (0)	1 (0.04)
Ø AGE [Y]	24.0	47.2	27.0	55.8	35.1
HIS EXP.	9.0 (0.9)	1.0 (0.2)	4.0 (1)	0.0 (0)	14.0 (0.61)

Results – The Role of Biomedical Engineers



- Specifications and requirements writing
- Software installation and acceptance
- Infrastructure installation and maintenance (network, server, etc.)
- Documentation and data management (including data quality)
- Training and education of other users

Conclusion (1)

- Deploying any health information systems within facilities and districts requires **dedicated human resources**, training and career development
- Despite e-Transformation initiative, investment in **HIS skills** at local/facility level is poor (only 17% have IT background)
- Biomedical Engineers have greatly improved the implementation of **HIS** and **other ICT tools**
 - Telemedicine Systems
 - Clinical Skills Lab
 - Other





Conclusion (2)

- Theoretical background on HIS and hospital networks should become integrated in the educational **curriculum** of Biomedical Engineering
- Specific skills (technical + ICT) of Biomedical Engineers need to be recognized by the hospital management and go into their **Job Description**
- Their presence small or mid- size facilities is critical to effectively **profit from** the large range of **information technologies and tools**





... a short guide?



**Thank you for your
attention!**