Improving Health Technology Management:
Development of a Model for the Implementation of an Essential Information System for Medical Devices in Low- and Middle-Income Countries

Claudio Zaugg.
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Background: The World of Health Technology

13’600 registered manufacturers (FDA)
10’000 generic device types
> 500’000 products

Trend: 50% of all diagnostic and treatment methods did not exist 10 years ago

Medical technology in % of total expenditure for health
> 5 % among OECD countries
40 – 50 % in low-income countries

Broken or idle equipment in low- and middle income countries:
25 to 50%

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1 The Medical Device Register 2009, Grey House Publishing, 2 Swedish Council on HTA, 2006
Information Base on Medical Devices in Low- and Middle-Income countries

No good data on quantity and quality of medical device infrastructure

- Only bookkeeping data, but no “technical” data
- No Nomenclature applied
- Data not analyzed and used for planning and policy making

Commercial SW solutions for data management not suitable

- High license fees
- Proprietary systems, no portability
- High complexity
- Local language often not supported

-> Made by - and made for - countries with “expensive” health systems
Motivation of our Institute

Find a free, simple, and flexible model solution / framework to collect medical device data

Collect, merge data on larger scale (Information System approach)

Come up with „Implementation-Kit“ (OS application, Training, Customization, Operation)

⇒ Building a fundament for improving Health Technology Management
Results I – Online Survey and Interviews

Online Survey
- n = 27
- 50% from developing countries
- consultants and managers

Some Key Findings
- 2/3 of respondents: “New system is needed”
- Major Problems: HR, Standards, Institutional
- Requested Features: Connectivity, Flexibility
Survey Results Outtake

Problems Reported by Experts (n=27)

- Availability of qualified personnel
- Nomenclature, naming conventions
- Connectivity, data exchange
- Computer infrastructure
- Computer literacy of the user
- System is lacking important functions
- Financial resources for licenses
- Too high complexity
- Language (of medical devices)
- Software support not available
- Training not provided

% of mention
Development of openMEDIS

Inventory management SW using free and popular web-technology (PHP and mySQL)

Open Source
  Freedom to translate, scale or extend application

Integration of useful databases
  UMDNS nomenclature and generic device lists
  supplier database, etc.

Import and export functionality and low hardware requirements

Flexible installation scenarios
  1. Full online operation
  2. LAN operation
  3. Local operation

No license cost... but support needed!
openMEDIS - overview
OpenMEDIS Functions

Standardized and user friendly data entry

Standard List of Medical Devices (initial: 350 types)

User configurable „Essential Equipment List“

Predefined Supplier and Manufacturer list

Forms and guidelines for paper-based operation

Import / Export functionality (xls, mysql, etc...)
Practical Results

Ukraine (Mother and Child-Health Program)

Local staff trained (IT, data collectors)
2 Hospitals recorded, results presented, data collection ongoing
High interest of Local Health Administration in FOSS like openMEDIS

Republic of Moldova (Perinatal Project)
Translation of SW and Medical Database into Romanian
University of Chisinau hosting server, students train hospital staff
6 Hospitals recording Data
Egypt (Radiology Project)

Used for registration of public hospital radiology equipment

Extra module development by local engineer

Accountability concerns from MoH towards FOSS
Competence Growth

- Develop application
- Installation & Support
- Define requirements
- Train users
- Operation

Today
- International Agency
- Local Experts
- Local ICT Company
- Local Experts
- Local ICT Company

Tomorrow
- Internat. Agency
- ICT Company
- Local Experts
- Hospital Staff
- Local ICT Company

Long run
- ICT Company
- Local Experts
- Hospital Staff
- Hospital Staff

Capacity
Conclusion and Outlook

openMEDIS is the first OS, web-based Medical Devices Information System

Web-based architecture has many benefits in target setting

Ministry of Health understands need for better Health Information Systems in general

Local technical resources for IT support and training available ...but building SW development capacities is difficult

FOSS is advantageous where health sector has limited resources e.g. Eastern Europe

Swiss TPH to offer further technical assistance in implementation of openMEDIS and other open source applications
“If it isn't on the Web ...
... it doesn't exist” (Oreste Signore, W3C)

Test it:  http://openmedis.scih.ch (login: demo password: demo)
Download it: http://sourceforge.net/projects/openmedis/
Watch it: http://www.youtube.com/watch?v=8C2CwWI4IGY

Thank you for your attention