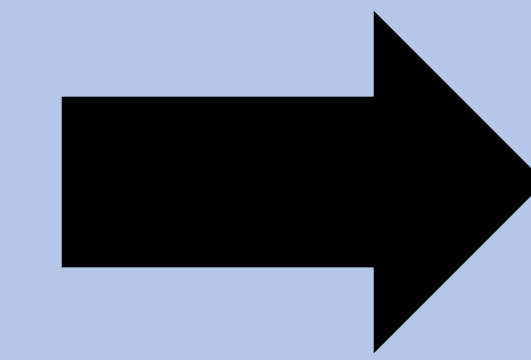


Integrated Health Center Information Management Solution in Burundi

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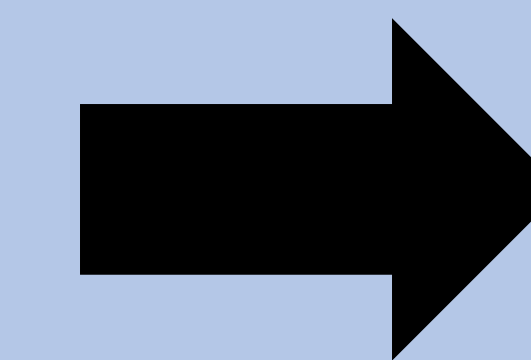
Context of health centers in Burundi

- Data registration predominantly on **paper**
- **Focused on reporting obligations** and not on patient care (health registers)
- **Poor data quality**
- Information difficult to exploit
- **Poor quality of clinical services**
- Paper based **clinical care pathways** are available but hardly used



Previous attempts to digitalize healthcenter information flows

- **2017**: introduction of a **digital version of the clinical care pathways** improved their use to some extent
- **2018**: pilot implementation with HERODA and CERHIS **digital health registers** (for reporting) not successful
- **2018**: small pilot implementation of a **patient-centered** health facility information management system (OpenClinic HCE) **integrating digital clinical pathways** provided encouraging results



Setup of a controlled implementation of the solution **integrating the OpenClinic HCE health facility information system with the SPT clinical decision support instruments in 6 health centers in 2021**

Objectives of the intervention

- Administrative and clinical **patient record**
- **Financial** management
- **Pharmacy and lab** management
- **Clinical pathways** management
- Automated **reporting** to the national data warehouse for health (DHIS2)
- Focus of **improved quality** of (i) **patient care** and (ii) **data reporting**

Hardware needs

- **Micro-server** with extremely low power consumption (1 to 4Watt) based on ASUS Thinkerboard S
- **Solar energy** system
- **Local wifi-network** covering the complete health center
- **Tablets and portable computers** (+- 10 / health center)

Training

- **On-site training** of all health center staff

Evaluation methods

- Automatic extraction of predefined performance metrics after 6 months of system use
- **Semi-structured interviews** focusing on user-experience
- **Final evaluation** in December 2021

Results – software use

- **Large data volumes registered**: 10.000+ patients and 24.000+ clinical documents in 6 months time
- Clearly **expressed enthusiasm** by health center staff
- **Lack of existing ICT competences** not a significant obstacle
- **Effective automated aggregate data reporting** to DHIS2 (short reporting time and better data quality)
- **Less systematic use of digital clinical pathways** (i) after a few months of system use and (ii) compared to a previous pilot where only digital clinical pathways were provided (no patient record)
- Persisting **paper based lab order entry**
- Some reporting obligations remained unserved

Results – hardware (low cost: 5.800 EUR / health center)

- **Well dimensioned mini-solar energy system** (1 panel and 1 battery) thanks to exclusive use of 5V and 12V power plugs
- **Robust micro-servers** well adapted to health center context
- Average need of 3 wifi access points for full coverage of the health center
- **Average need of 5 to 10 workstations** per health center
- **Local hardware maintenance** could not be organized at health center level

Discussion

- Important improvement of **quality of information** recorded in patient records
- **Secondary use of care information** for aggregate data reporting into DHIS2 is feasible at the health center level

Conclusions

- **Integrated digitalization** of first level health centers in a low resource context is **feasible**
- **Further cost reduction** feasible with economy of scale of larger implementations and using refurbished hardware
- Seamlessly available **hard-and software support from the district level** is key to keep the systems operational
- **Paper based data registration must be removed** in order to make the digital solution acceptable in the long term