

The role of Hospital Information Systems in Universal Health Coverage monitoring in Rwanda

Gustave Karara, Frank Verbeke, Marc Nyssen



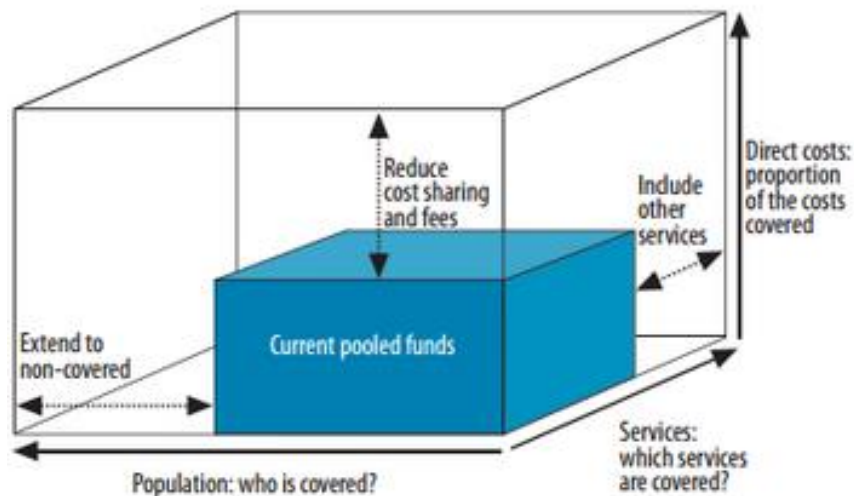
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Introduction

- Universal health coverage (UHC)

“All people receive the health services they need at an affordable cost”

Figure 1. Health coverage cube



Source: WHO (World health report 2008-2010)

UHC monitoring (3 dimensions):

- Population coverage
- Service coverage
- Financial coverage

Introduction (2)

- Providing UHC remains a challenge for many low income countries especially because of the weakness in their health financing systems,
- In the Sub-Saharan African context, Rwanda currently sustains one of the most elaborate health insurance schemes (health coverage: ~90%):
 - Public health insurance (RSSB) => Covers 85% of health services provided both by public and private HF
 - Military Medical Insurance (MMI) => Covers 85% of health services provided both by public and private HF
 - Community Based Health Insurance (CBHI) => Covers 90% of health services provided only by public HF
 - Private health insurance (PHI) => coverage varies between 85-100%
- MoH enforces tariffs for essential health services

Introduction (3)

- Invoice processing, payment status tracking and health care reimbursement rules have become increasingly complex
- More than 20 health facilities decided to implement a HIS also managing health coverage calculations applicable in Rwanda
- **OpenClinic GA**, an integrated HIS has been implemented since 2007 as daily working tool and as an university research project (VUB)
- The system includes modules for: ID, ADT, financial information management, medical record, lab (using LOINC codes) and imaging management, reason for encounter and diagnosis coding (ICPC-2 and ICD-10), reporting and statistics
- OpenClinic GA is an open source and web based solution built upon the GEHR architecture and is maintained by a group of VUB health informatics researchers

Objectives

- General objective
 - Determine the **population health coverage status evolution** in Rwandan hospitals using patient insurance and financial data available from 6 Openclinic GA reference implementations
- Specific objectives:
 - Evaluate the percentage of patients with health coverage consulting health facilities in Rwanda,
 - Determine the real reimbursement level of different health insurance schemes
 - Evaluate the evolution of patient out of pocket payments for uncovered health services

Materials and Methods

- A sample of 6 hospitals have been selected:
 - 2 national referral hospitals (NRH)
 - 2 district hospitals (DH)
 - 2 private hospitals (PH)
- OpenClinic GA was installed and implemented in these 6 hospitals since 2010 and was configured to manage all necessary patient health insurance status data.
- We analyzed the **health coverage information** available in the HIS health insurance module for all patients treated between 1/1/2011 and 30/11/2014.
- Analysis methods after data extraction:
 - Comparison of care provided to insured and non-insured patients
 - Type of health coverage applied to in- and out-patients
 - Evolution of patient out-of-pocket payments

Results : distribution of patients and encounters

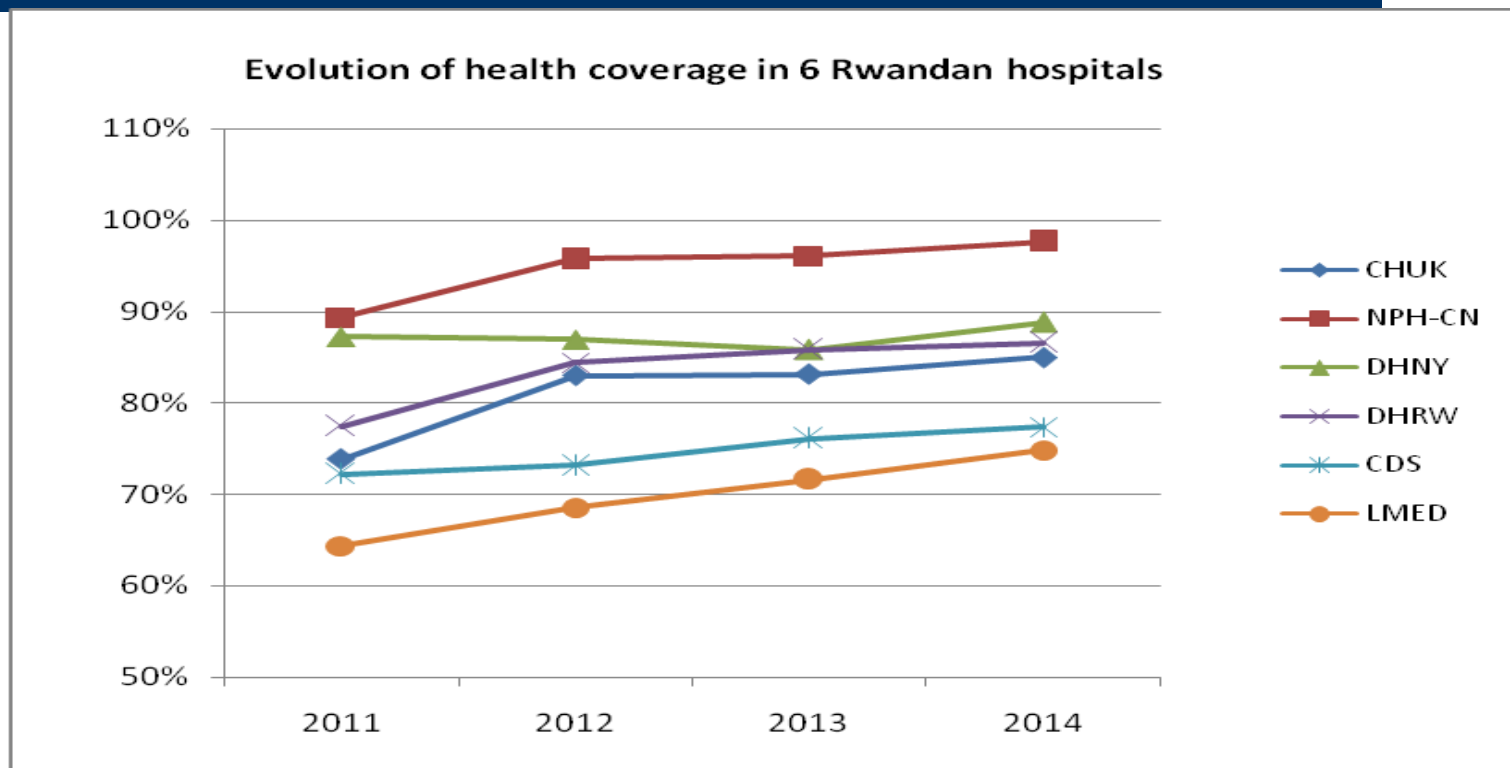
Number of electronic patient records analyzed

CHUK	NPH-CN	DHRW	DHNY	CDS	LMED	Total
216 389	32 128	92 907	89 218	170 852	177 421	778 915

Number of encounters analyzed

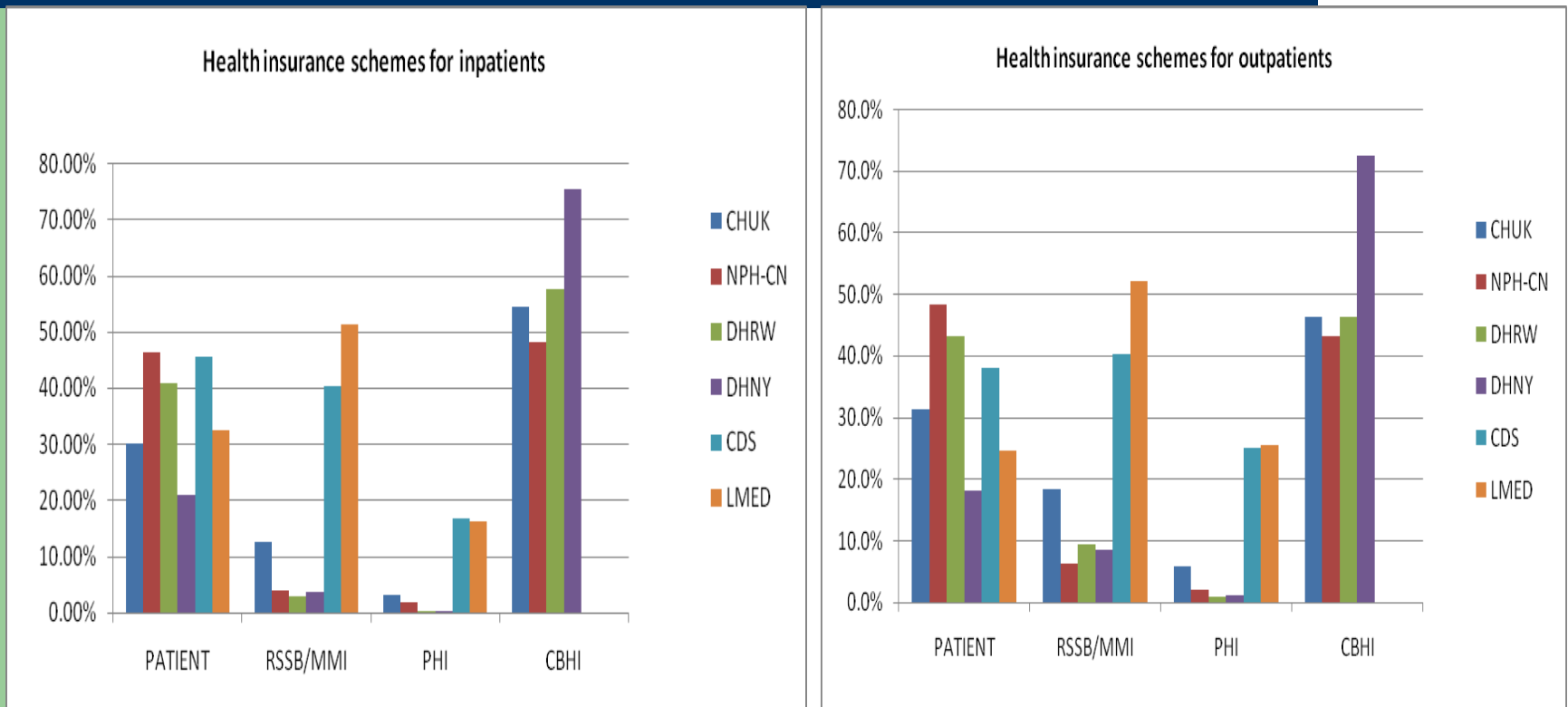
	Inpatient	Outpatient	Total
CHUK	92 103	639 447	731 550
NPH-CN	22 260	244 653	266 913
DHRW	110 941	224 817	335 758
DHNY	58 665	260 176	318 841
CDS	55 655	708 327	763 982
LMED	3 254	457 547	460 801
Total	342 878	2 534 967	2 877 845

Results : evolution of patient health coverage



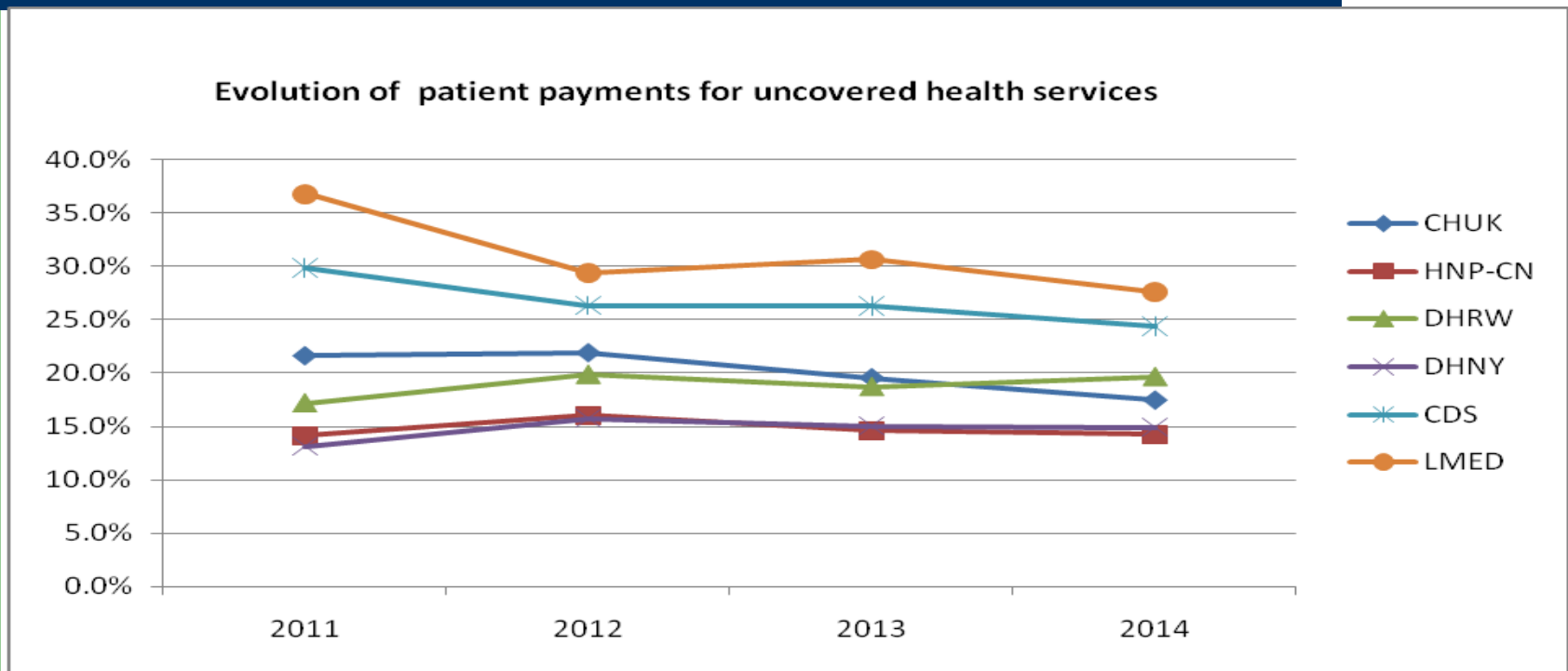
The percentage of patients who had health insurance globally increased from 65% in 2011 to 90% in 2014.

Results: health insurance schemes



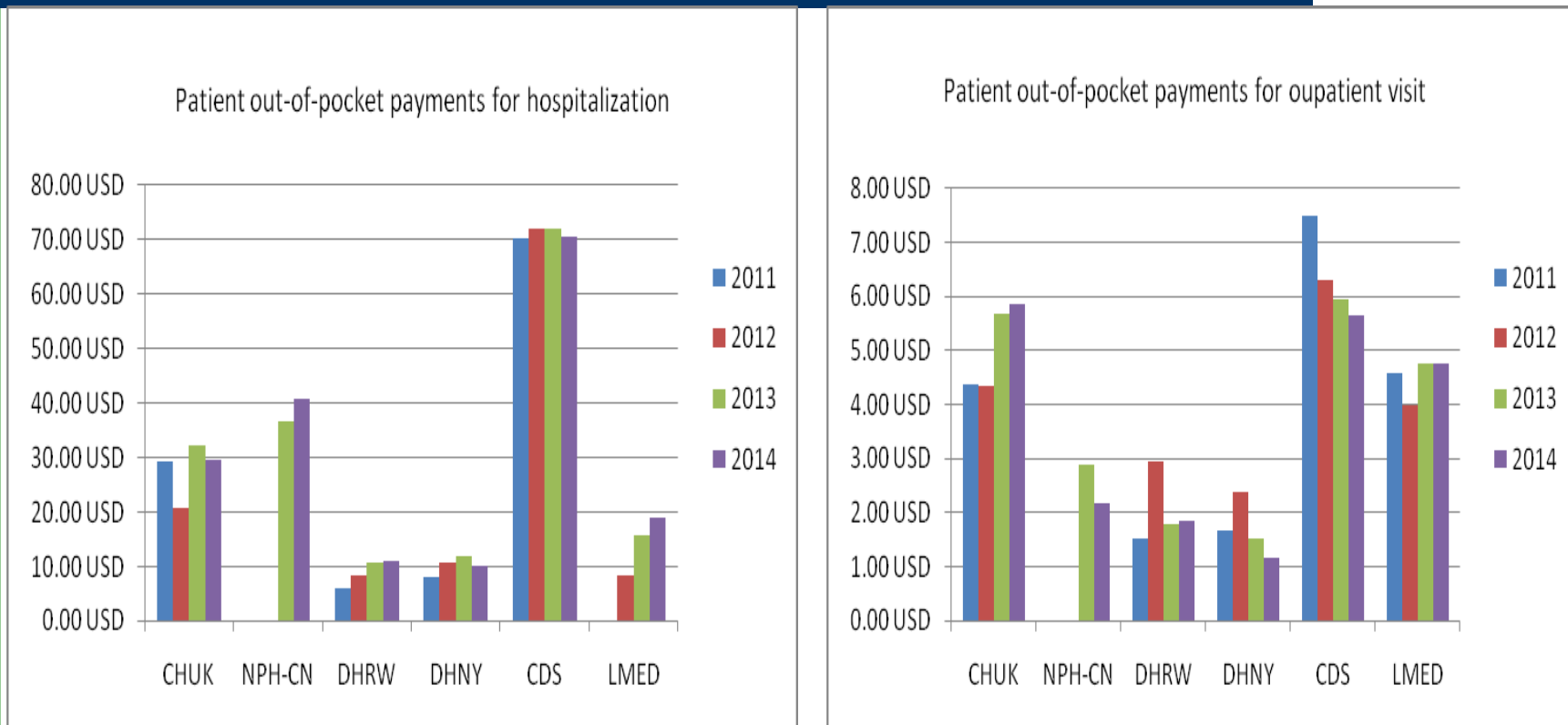
In general, the CBHI is the most commonly used scheme (50%-70%). The weighted share of the uncovered health services remains important (40%).

Results: evolution of patient out-of-pocket payments



The patients' out-of-pocket payments decreased in private hospitals from 35% to 25% of the total costs between 2011 and 2014 and vary between 14% and 19% in public hospitals.

Results: average amounts paid by the patient



The absolute value of patient out-of-pocket payments increased especially for inpatients (NRH: 30-40 USD, DH: 11USD, PH: -> 70USD). It stabilized or decreased for outpatients

Conclusion

- The utilization of an open source HIS enabled the detailed monitoring of universal health coverage in 6 Rwandan hospitals
- The results show improvement in health coverage in both public and private hospitals during the period between 2011 and 2014 due to the role of public, community and private health insurance schemes. But efforts are still needed to further reduce the patient's out-of-pocket payments.
- This study demonstrates the value of integrated hospital information systems for health economics research in developing countries.

Thank you for your attention

More information:

<http://sourceforge.net/projects/open-clinic>

<http://www.globalhealthbarometer.net/>

<http://www.medfloss.org/node/271>

gustave.karara@vub.ac.be



Vrije
Universiteit
Brussel

