



Open Medical Record System Plus (OpenMRS+)

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Agenda

- Background
- Problem statement
- Proposed solution: Open Medical Record System (OpenMRS)
- Findings and analysis
- Conclusion

Background of medical record system in Rwanda

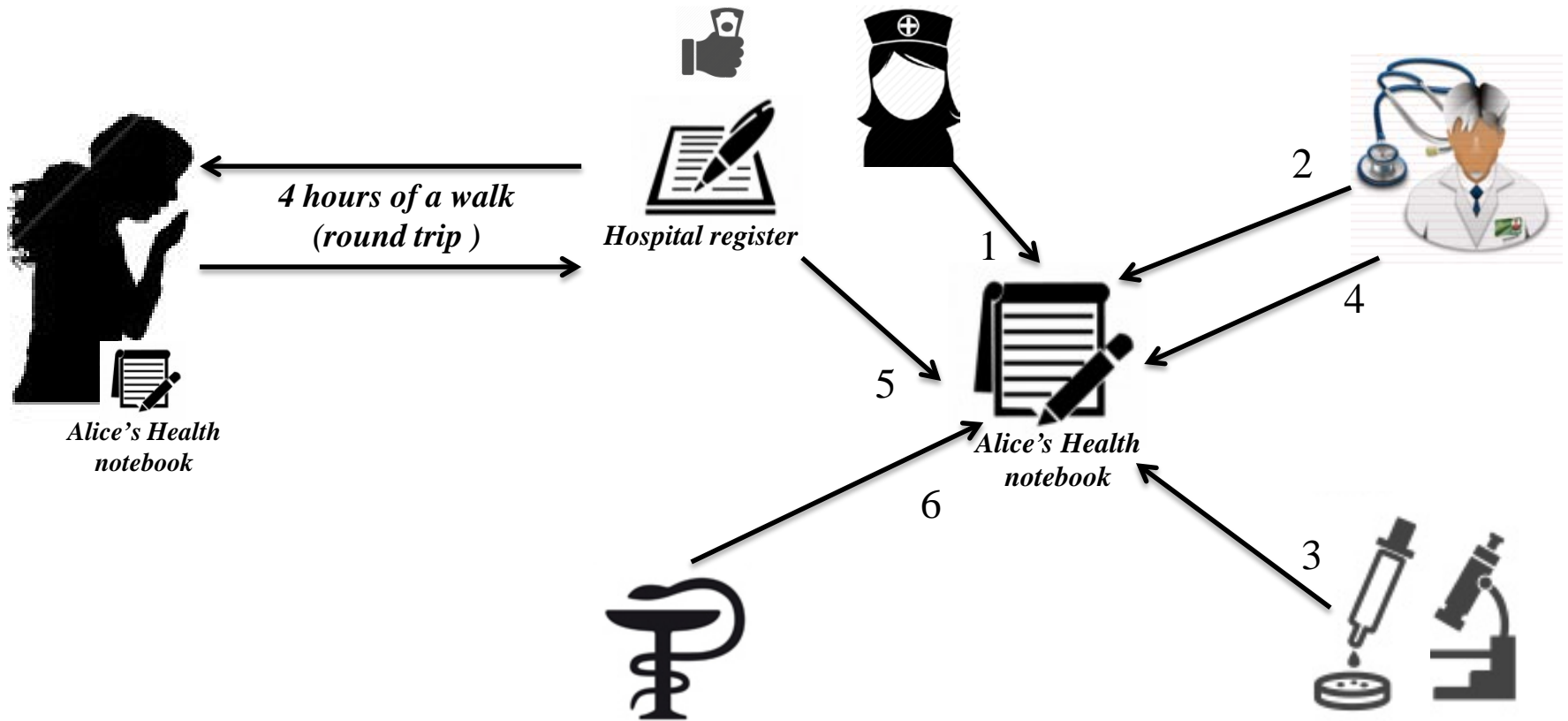
- Paper-based medical record system

Two systems:

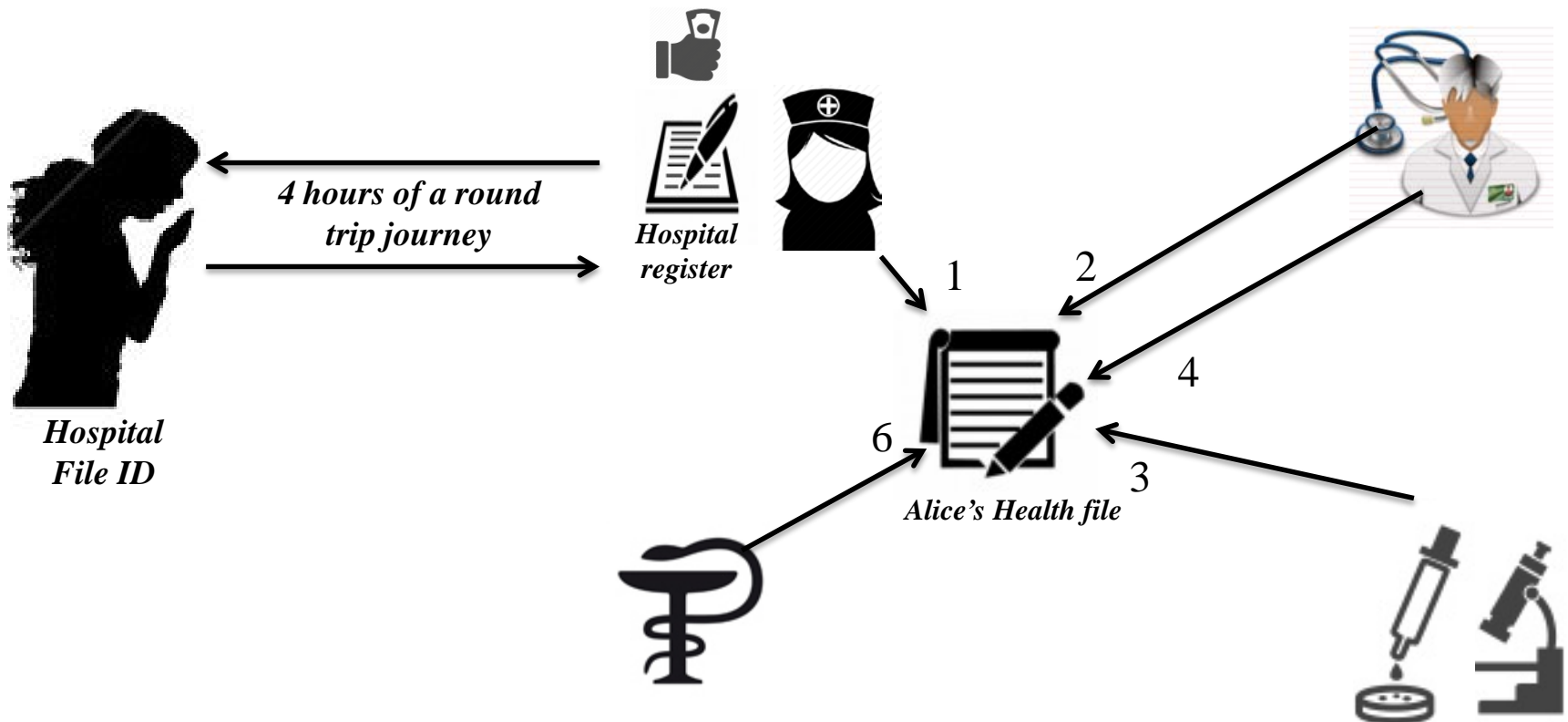
– *Patient's health notebook*

– *Patient's hospital file*

Paper based system 1: Patient's health notebook



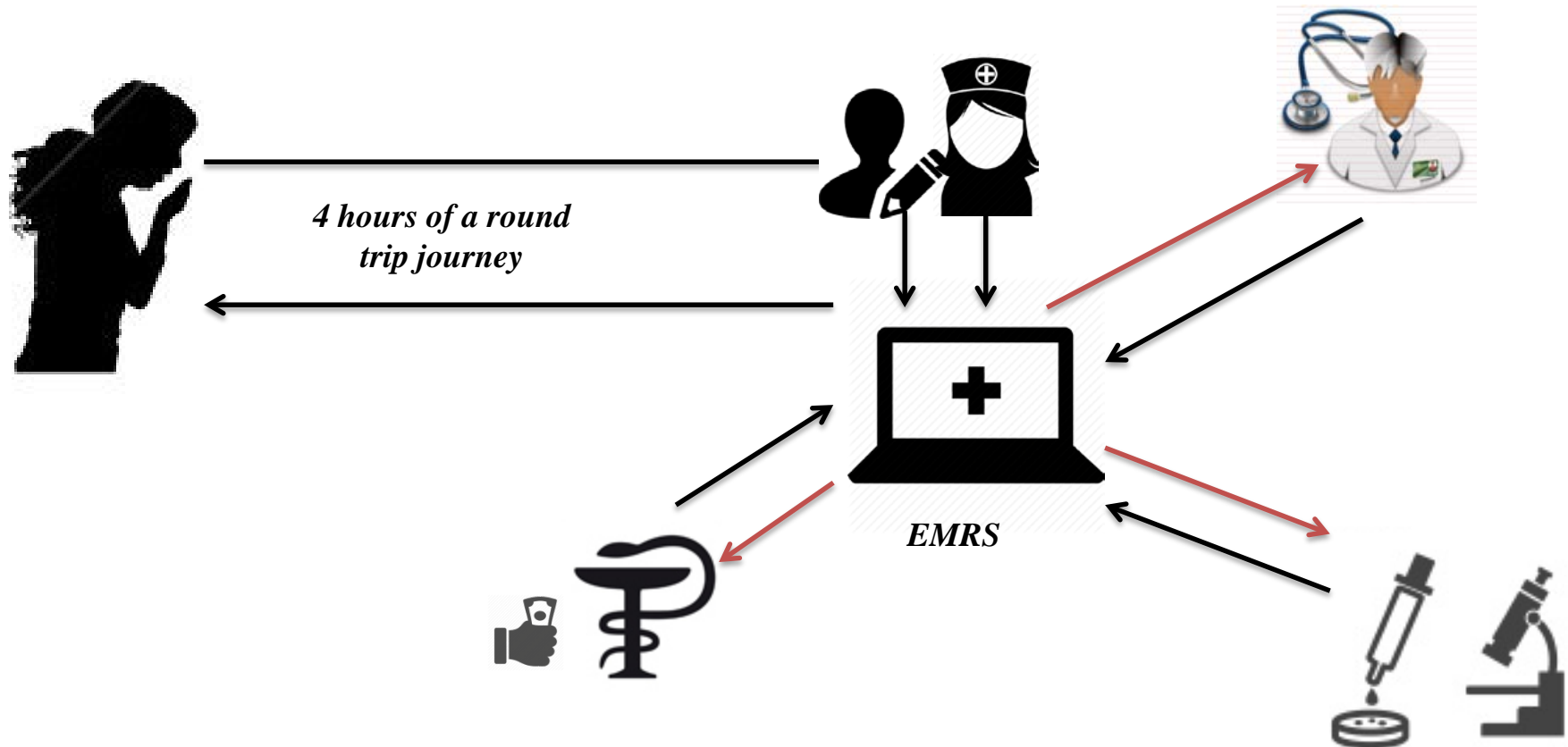
Paper based system 2: Patient's hospital file



Background of medical record system in Rwanda (cont.)

Plastic flow (Electronic medical record system)

(Example scenario of Alice)

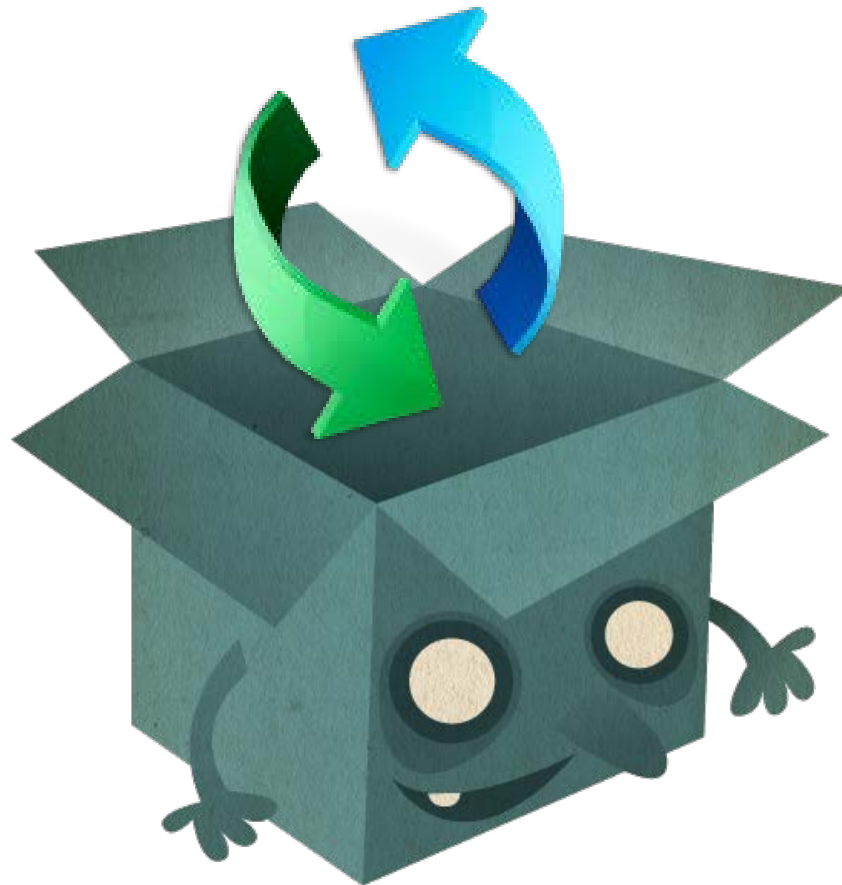


Problem statement

- Non communicable diseases
 - Non-communicable diseases (NCDs) kill 38 million people each year.
 - 28 million of NCD deaths - occur in *low- and middle-income countries*.
 - 16 million of NCD deaths occur before the age of 70
 - 82% of these "premature" deaths occurred in low- and middle-income countries.
- In Rwanda, the probability of dying between age 30 and 70 years is **19%** due to the 4 main NCDs (CVD, Cancer, Diabetes and Chronic respiratory diseases)

Proposed solution

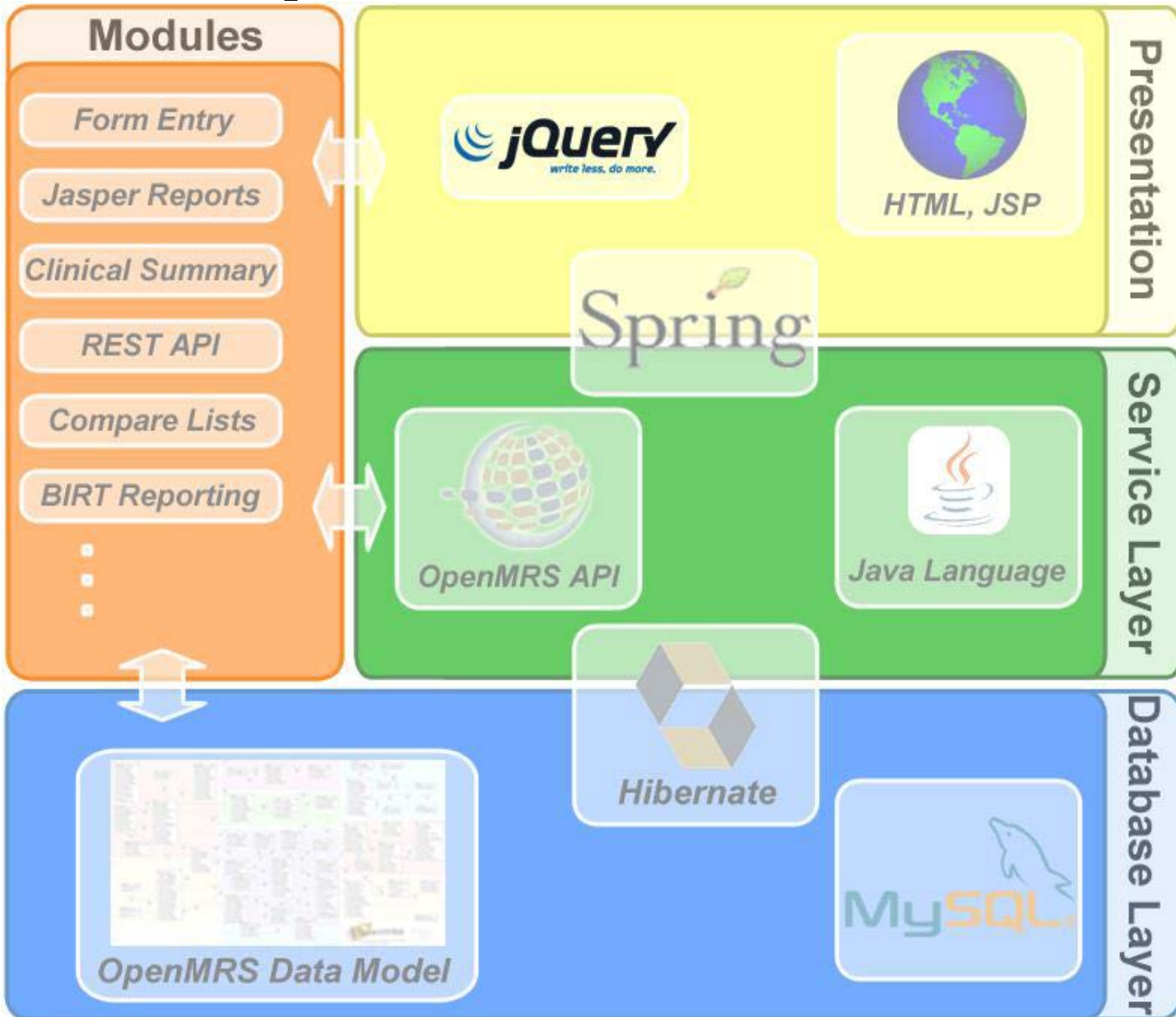
Open source



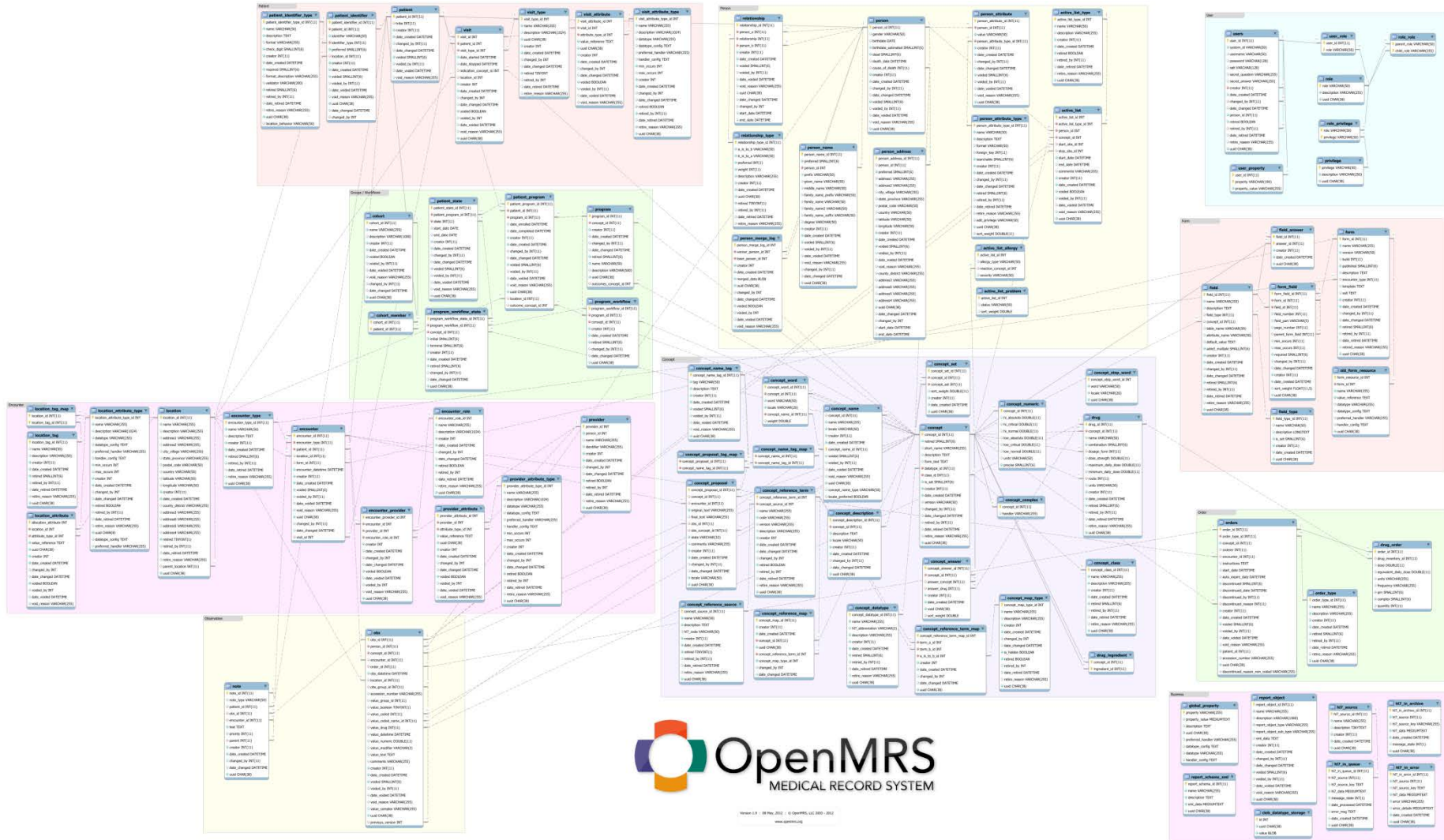
Open Medical Record System (OpenMRS)

- **OpenMRS** is a web/mobile based open source medical record system developed using Java. It was created in 2004 with the aim to support:
 - Gathering observations
 - Patients' care
 - Encounters and visits
 - Generate report
- Implemented in Rwanda in 2005 (to collect HIV and TB patient's records)
- OpenMRS has a modular architecture
- Concept dictionary basics
- Data are encrypted

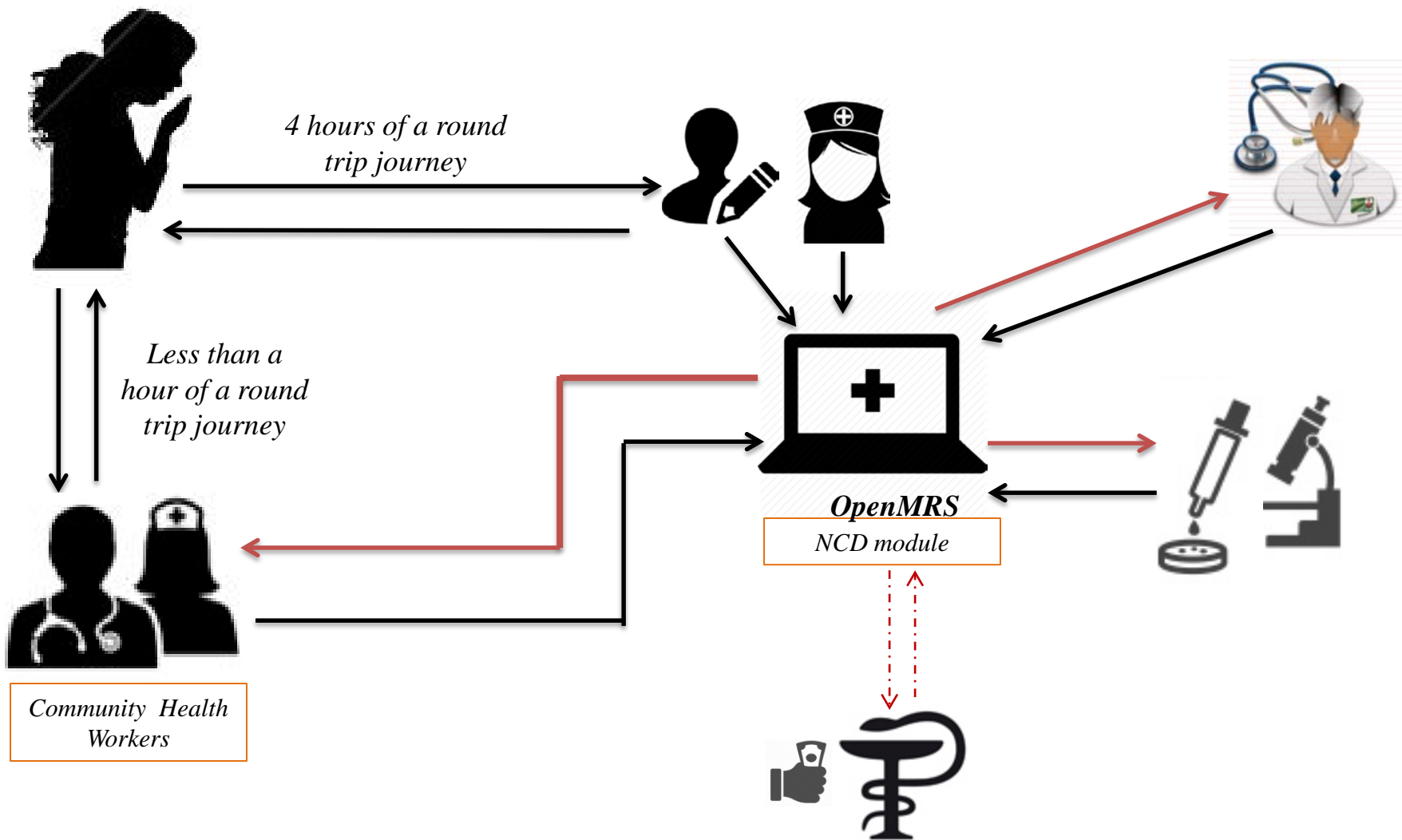
OpenMRS structure



OpenMRS database - 2013



Proposed solution logic

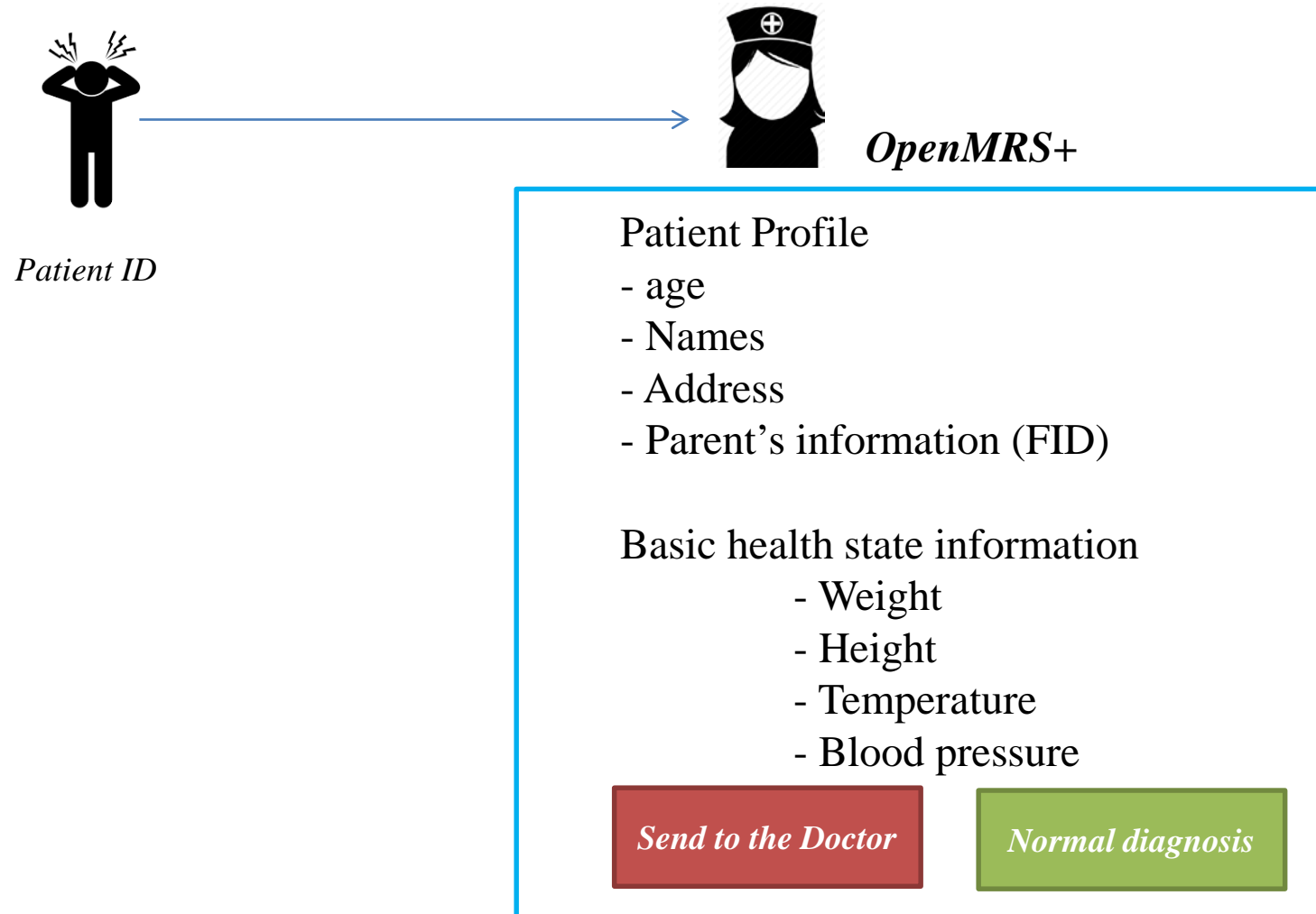


Basic screening for diabetes and CVD

Cases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Age above 40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blood pressure not in normal range	✓					✓	✓	✓										
BMI not in normal range		✓				✓			✓	✓	✓	✓	✓					
Family history of CVD			✓				✓		✓									
Family history of Diabetes				✓				✓		✓								
Smokes											✓							✓
Alcohol												✓						✓
Headaches					✓								✓	✓			✓	
Frequent urination													✓	✓			✓	
Thirst															✓	✓		
Actions																		
Hygieno-dietetic counselling	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Serum lipids/fats	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Blood glucose		✓				✓		✓		✓			✓	✓	✓	✓		

Proposed NCD module cont.

2. First consultation – Nurse's office



Proposed NCD module cont.

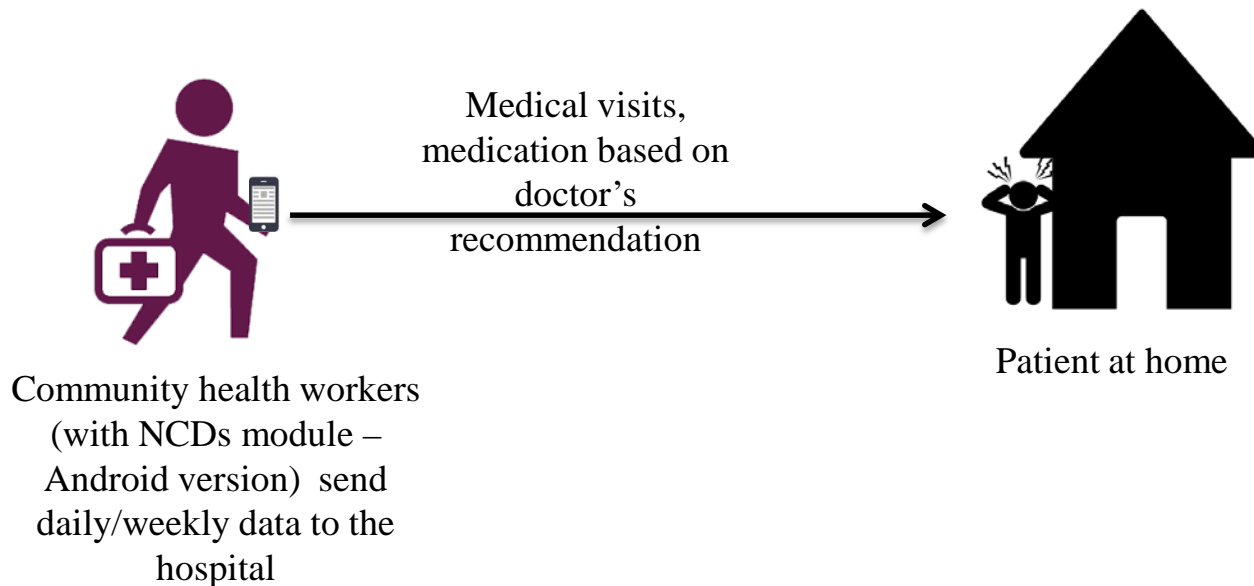
3. Further consultation – Doctor’s office



<p><u>List of patients</u></p> <ol style="list-style-type: none"> 1. A..... 2. B 3. Ivan Irakiza 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 	<p><u>Patient profile</u></p>	<p><u>Patient observation</u></p> <ul style="list-style-type: none"> - (All about the diagnosis, including NCDs treatment if any) - Prescription 						
	<p><u>NCD Vulnerability</u></p> <ul style="list-style-type: none"> - Possible NCDs - Possible family NCDs <p>Recommended Lab test</p> <table border="1" style="border-collapse: collapse;"> <tr> <td style="padding: 2px;">-</td> <td style="padding: 2px;">A..</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">Lab result</td> </tr> <tr> <td style="padding: 2px;">-</td> <td style="padding: 2px;">B...</td> </tr> <tr> <td style="padding: 2px;">-</td> <td style="padding: 2px;">C...</td> </tr> </table>	-	A..	Lab result	-	B...	-	C...
-	A..	Lab result						
-	B...							
-	C...							

Proposed NCD module cont.

4. Follow up by Community Health Workers– In the village



Modules used

- Administration modules (Customizable forms)
- Appointment scheduling
- Medical problem module
- Diabetes management
- Simple lab entry
- Patients flag
- OpenHMIS cashier module
- Messaging module
- Printing
- Synchronization
- Etc...

Main key success

- Data sharing (health care institutions – public & private)
 - Who are willing to share?
 - Who has time for electronic systems?
- Government health policy

Analysis and findings

- At least 80% of premature deaths from heart disease and stroke could be avoided through healthy diet, regular physical activity and avoiding excessive tobacco smoke (World Health Organization)
- People with type 2 diabetes can be treated with oral medication
- Importance of early detection of NCD in preventing NCD
- Importance of family hierarchy in health care services (especially NCD treatment)
- Role of community health workers

Conclusion

A world free of the avoidable burden of no communicable diseases.

Thank you!

Murakoze.