



Integrating disparate mortality systems with official death registration systems

Insights from Peru and Ghana



New York, December 2019

Dr. Daniel Cobos Muñoz

daniel.cobos@swisstph.ch

Health Systems and Policies Research Group

Swiss Tropical and Public Health Institute

Basel, Switzerland

Systems thinking for CRVS

It is not uncommon that **successful interventions** are not adopted or **do not produce the expected results** – health system as a key factor



(Atun 2012, WHO 2018)

**Every system is perfectly constructed
to produce the results it produces**

If you don't like the product.....

Change the system!

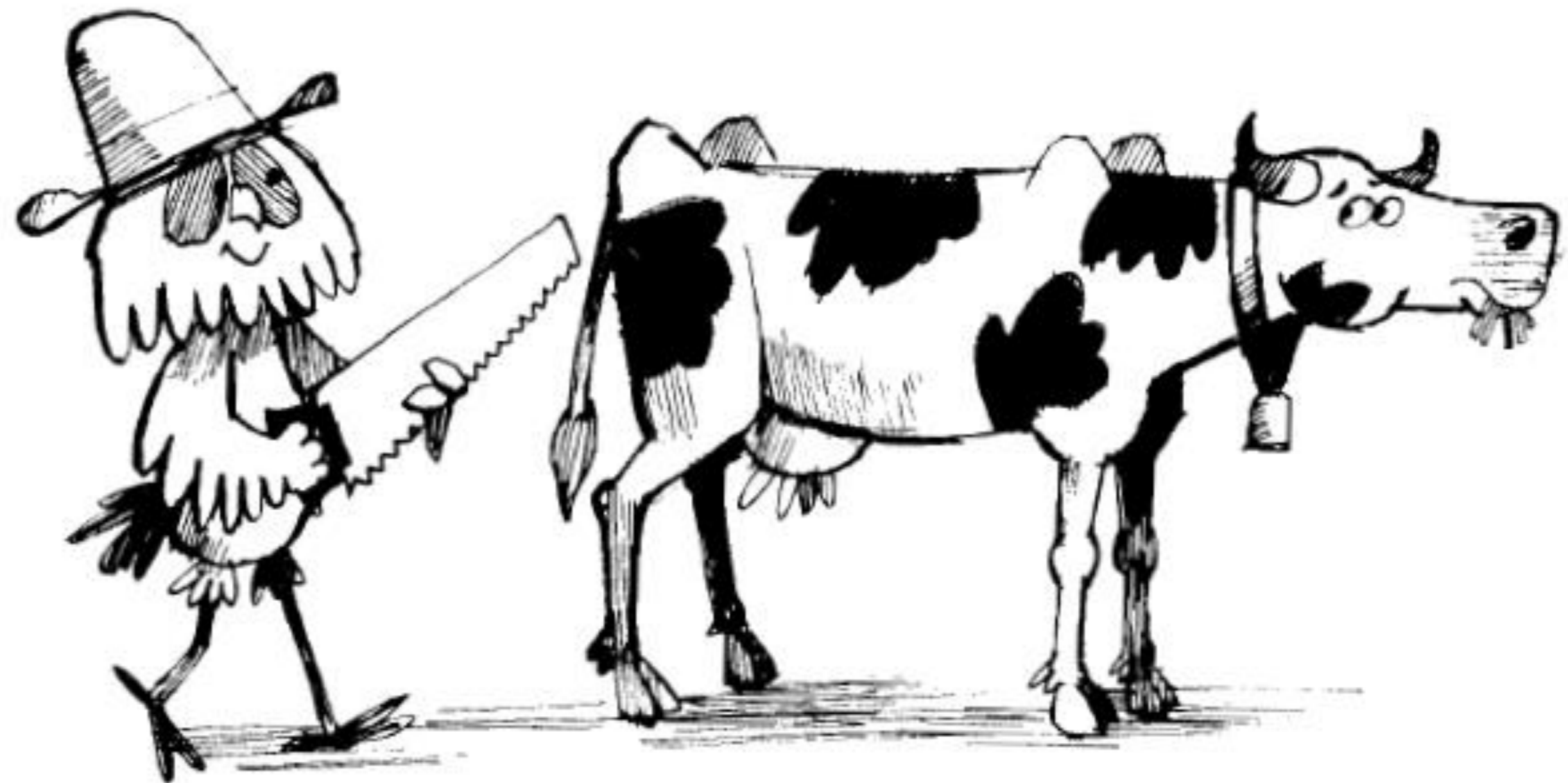
Systems thinking for CRVS



Introduction to systems thinking

“...dividing the cow in half does not give you two smaller cows (...) This is what we mean when we say **a system functions as a “whole”**. Its behavior depends on its entire structure and **not just on adding up the behavior of its different pieces.**”

Kauffman, 1980, p2

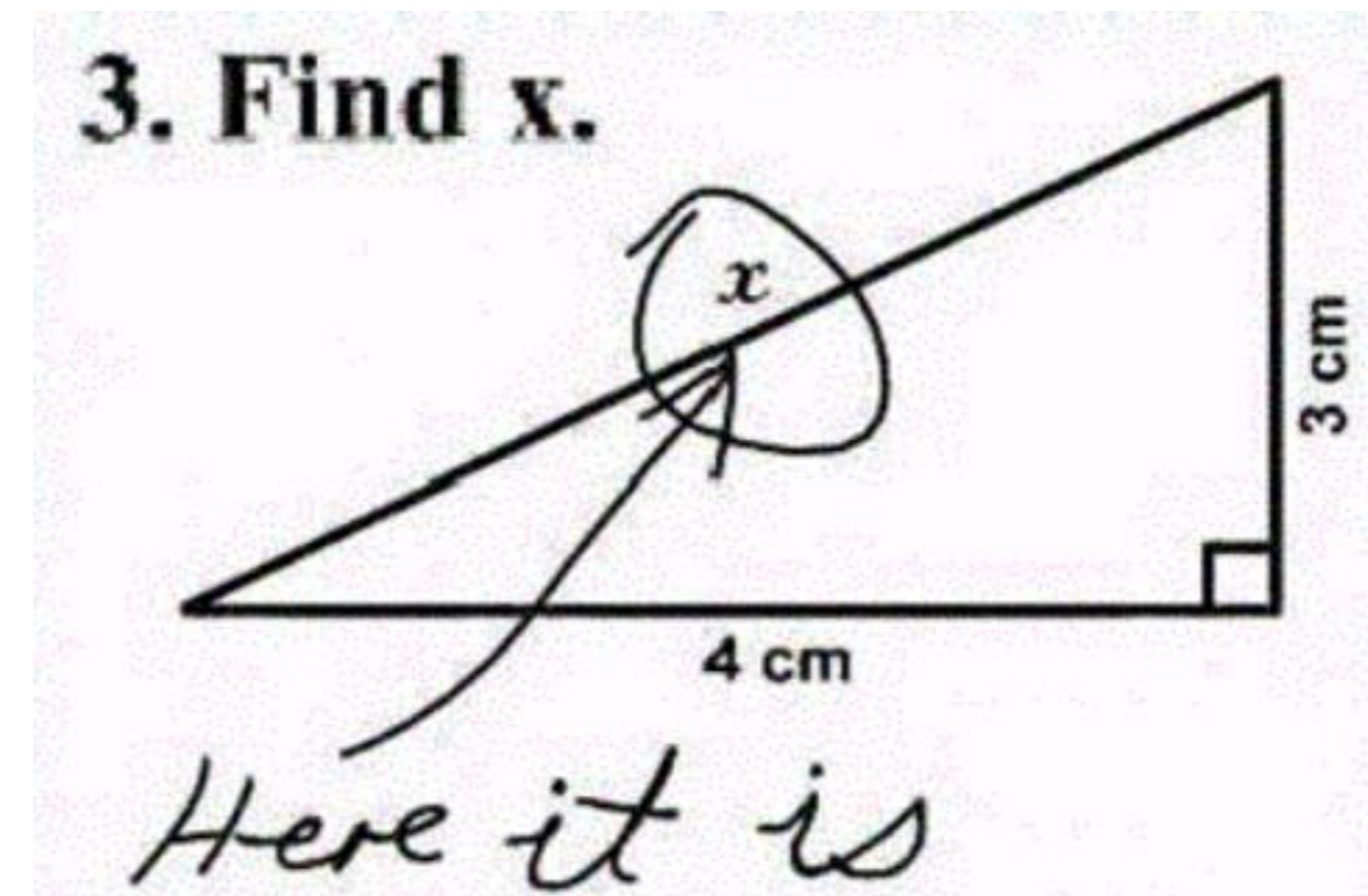


“Dividing a cow in half does not give you two smaller cows.”

Systems thinking for CRVS

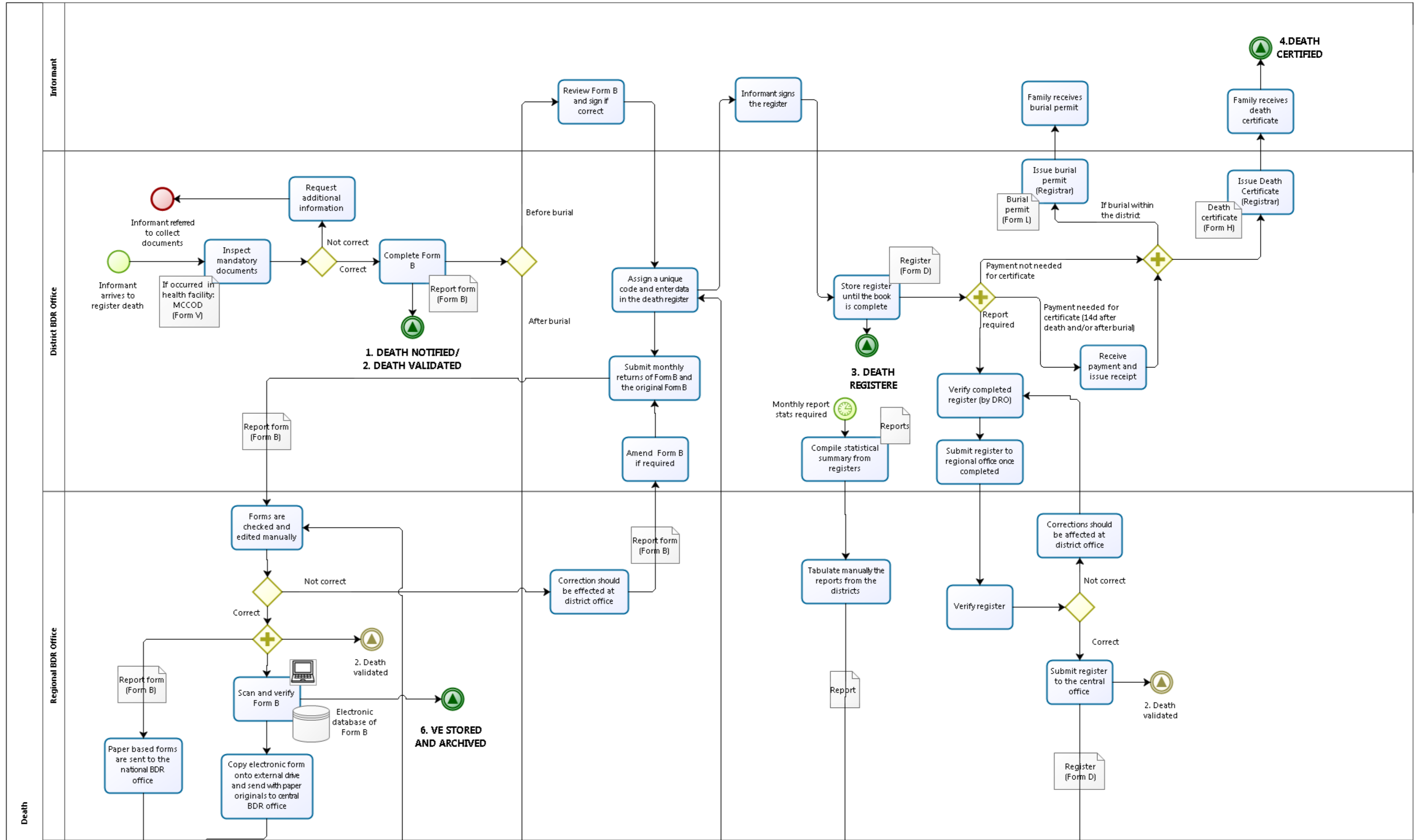
Systems thinking to transcend complexity and increase effectiveness of health interventions

(Adam 2014)

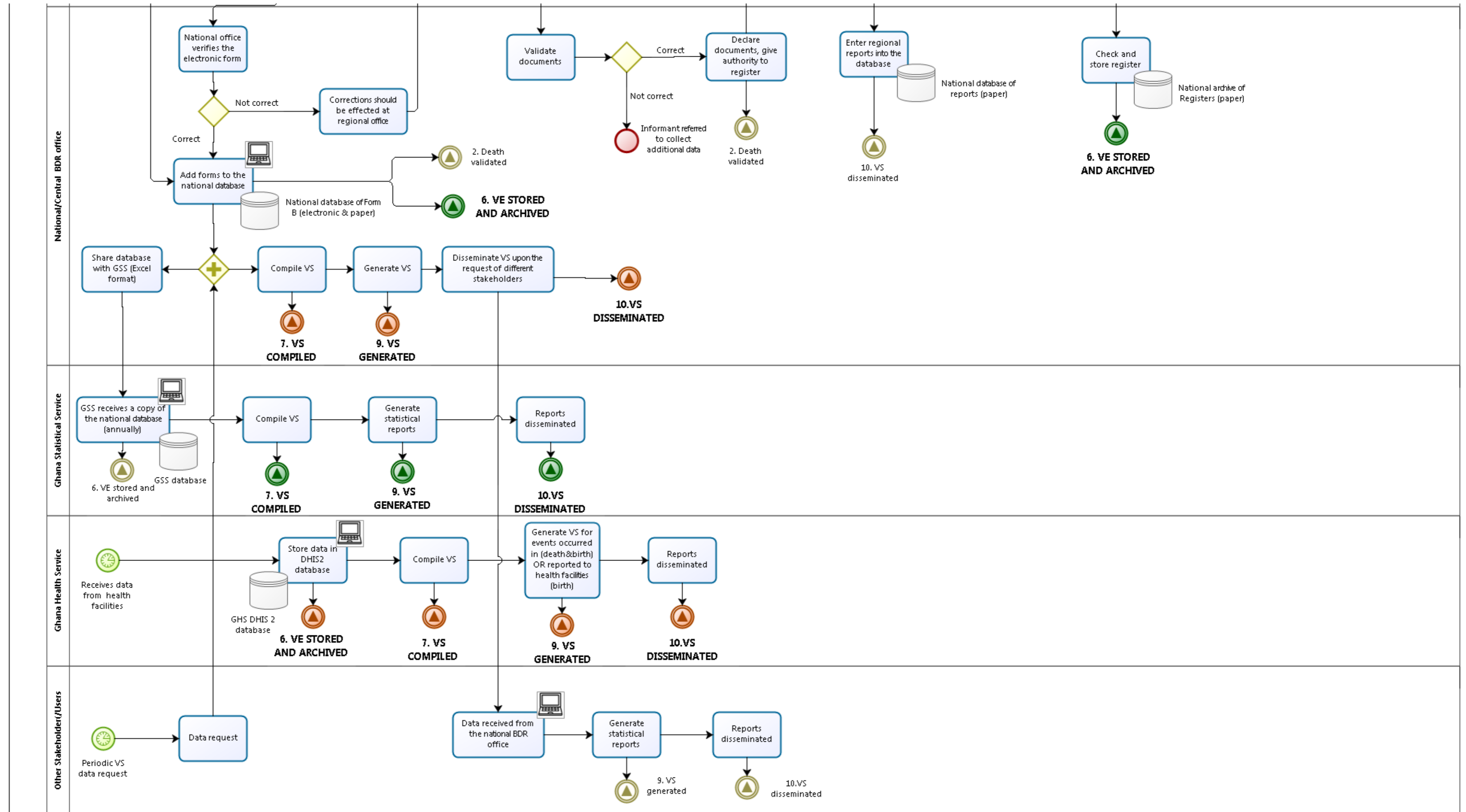


CRVS As-Is processes

DEATH PROCESS AS IS IN GHANA - V.5



CRVS As-Is processes

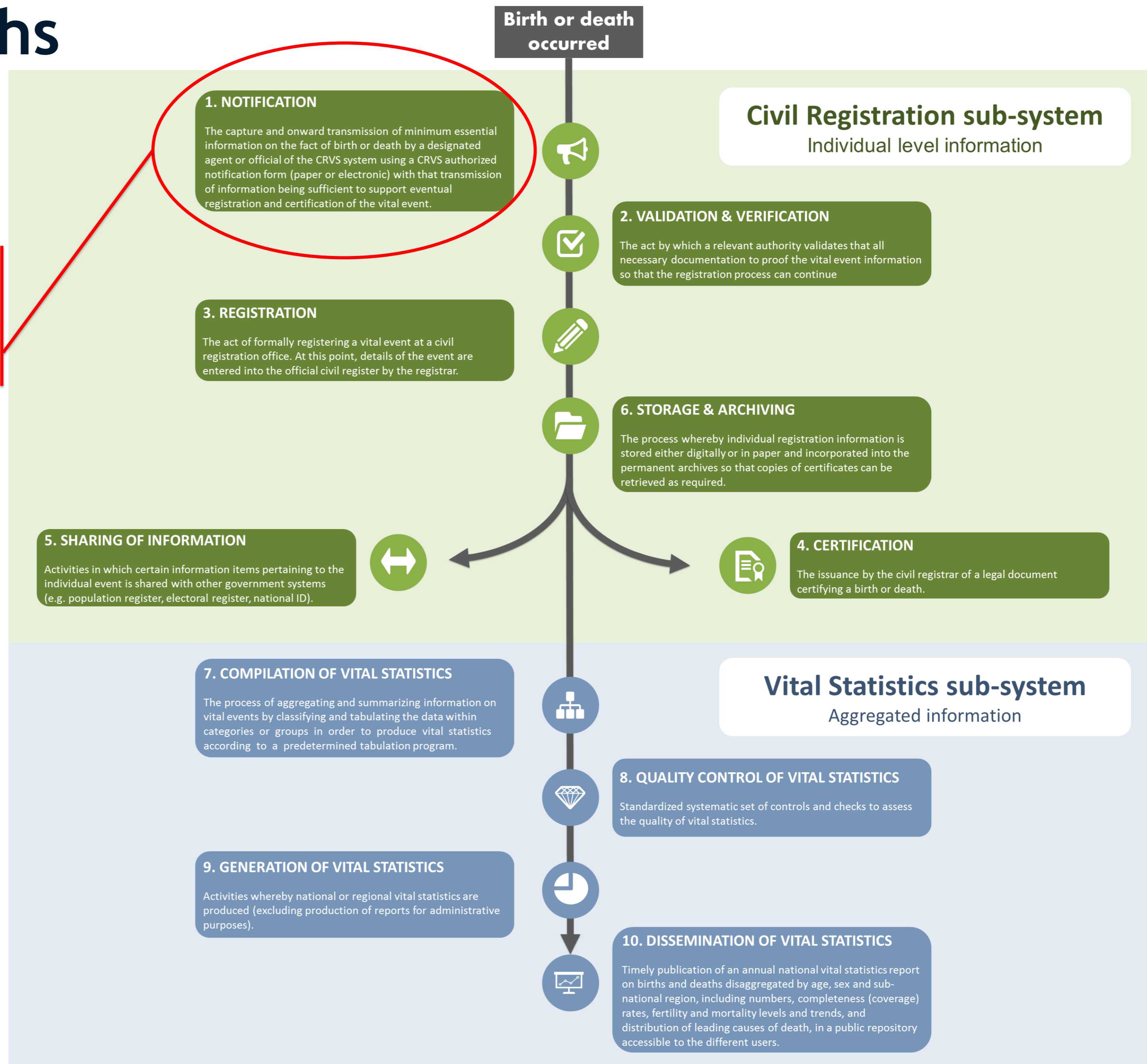


Notification of deaths




There was no notification step for deaths in the community

Ten CRVS Milestones



1. To **map all the systems and institutions** that recorded any information about a death event (e.g. hospital records, police, civil registration...);
2. To **document all the forms, reports and records** use in that system to capture information about the deceased; and
3. To list **all the data elements** (e.g. name, age, sex, cause of death...) included in each of the forms.

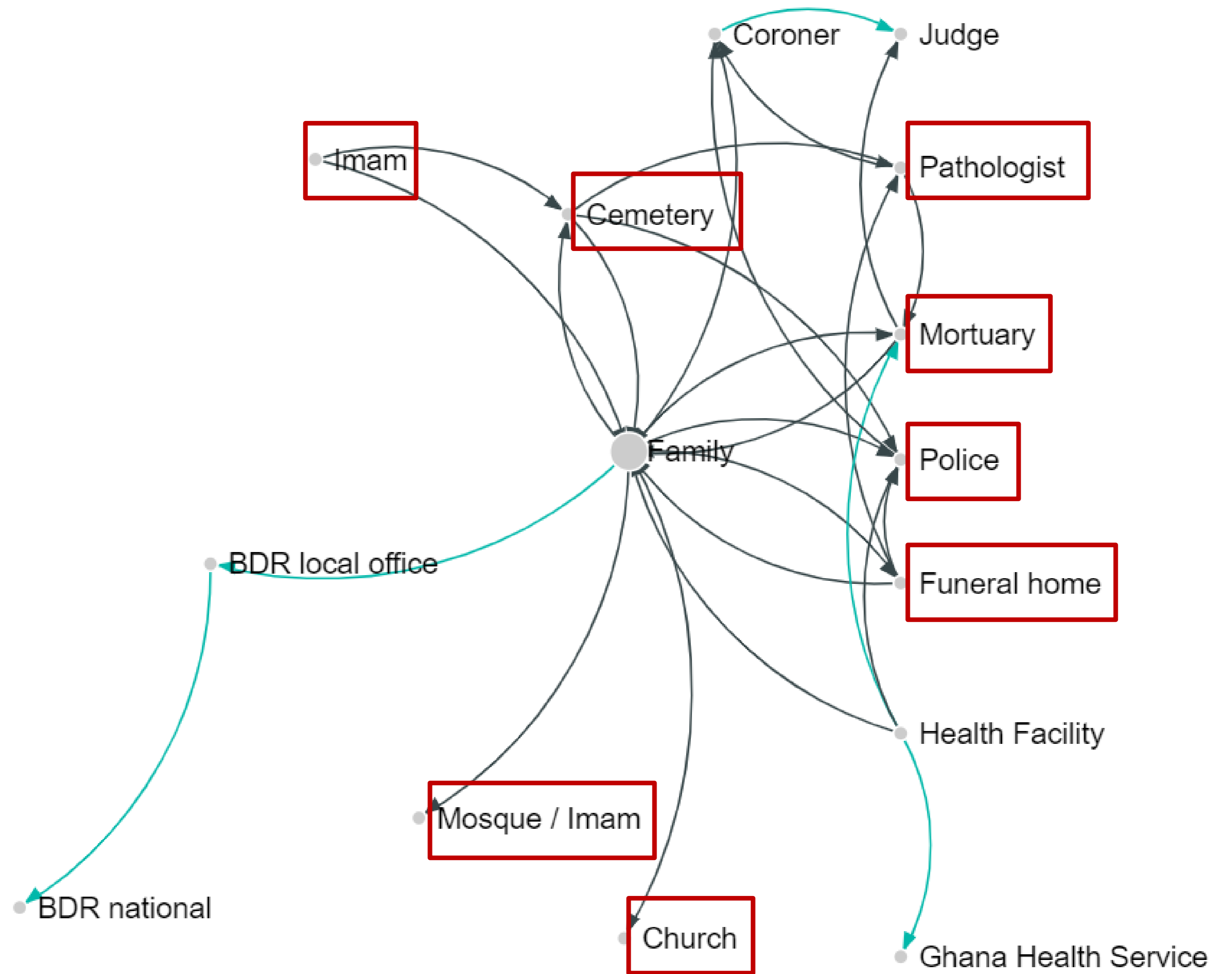
- Descriptive cross sectional study in Peru and Ghana
 - Use **Business Process Mapping (BPM)** to map the flow of activities and stakeholders recording any information about a death event;
 - Document the **information architecture** of each system
- 

Institutions visited

Peru	Ghana
Public hospitals from the Ministry of Health	Public hospitals from the Ministry of Health
Social security system (ESSALUD) hospitals	Teaching hospitals from the Ministry of Education
Military and police hospitals	Public mortuaries
Private clinics	Military and police hospitals
Health posts and health centres	Private clinics
Regional Health Directorate	Health posts and health centres
General office of information technology	Ghana Health Services
Institute for Legal Medicine	Ghana Statistical Services
Police department	Birth and Death Registration
Coroner	Police department
Funeral homes	Coroner
Cemeteries	Funeral homes
RENIEC	Public Cemeteries
INEI	Private Cemeteries
	Religious entities

Results

Multiple actors that are not the “usual suspects”

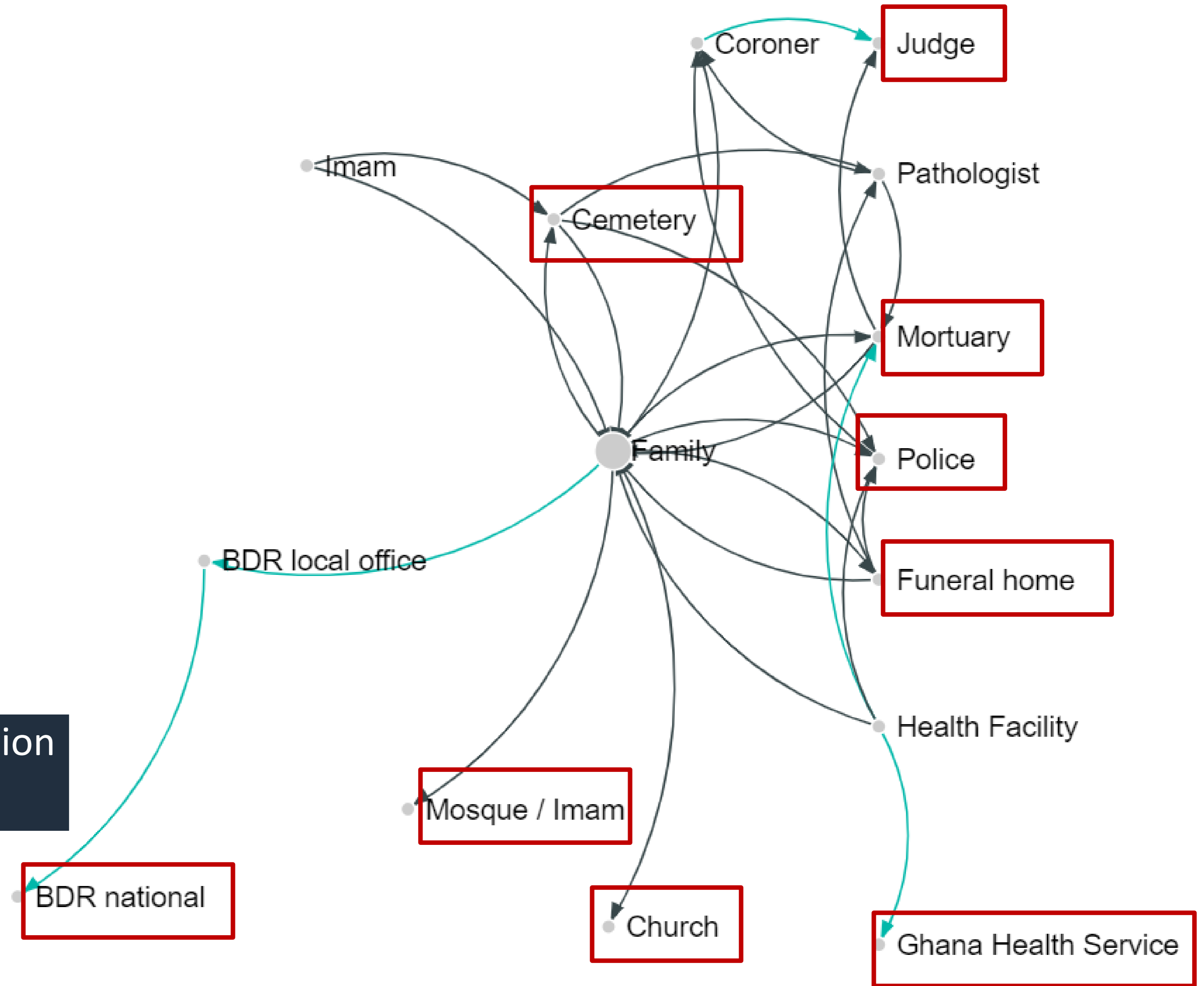


Ghana death reporting system

Results

Highly fragmented systems with multiple silos

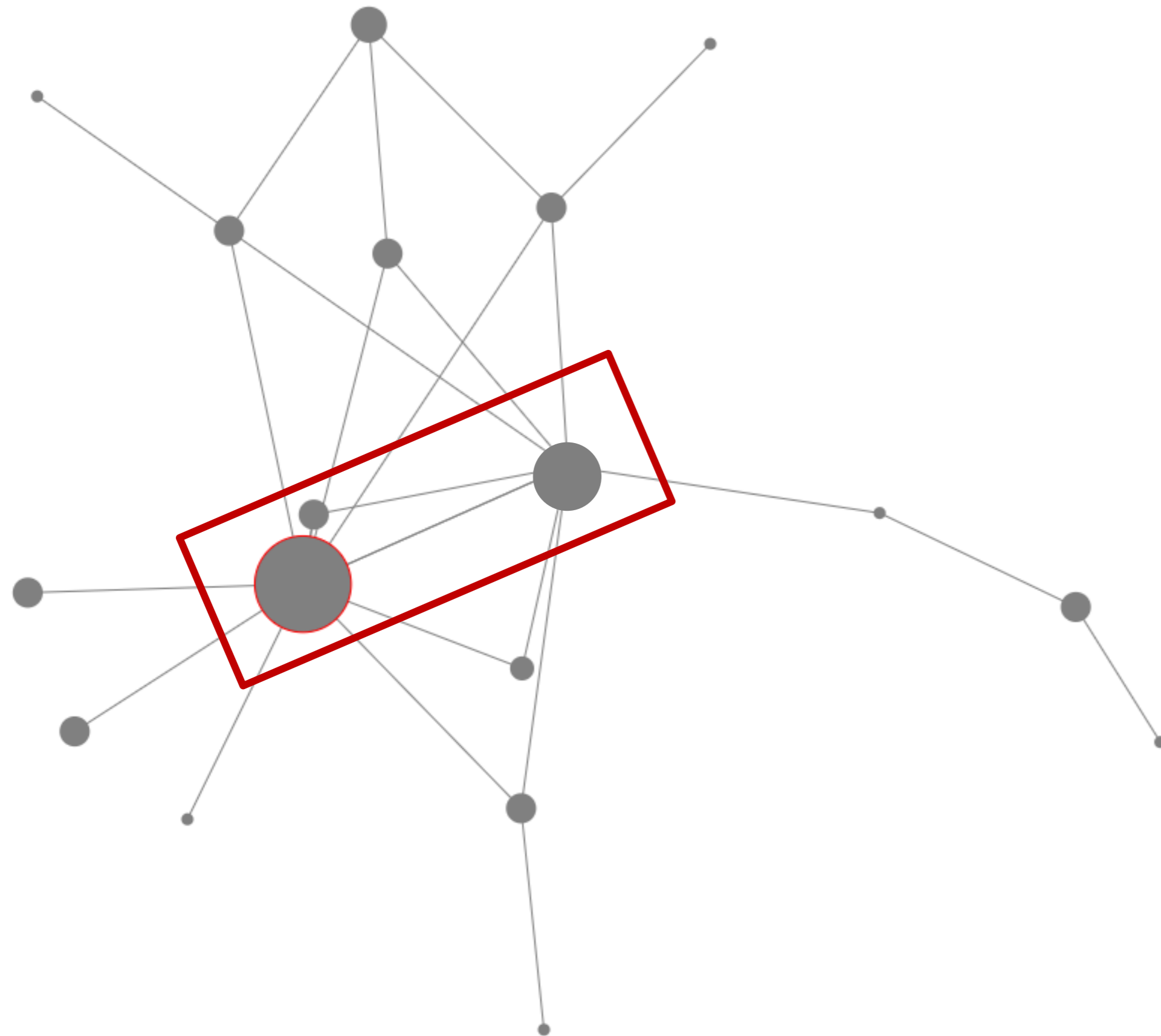
9 independent information subsystems



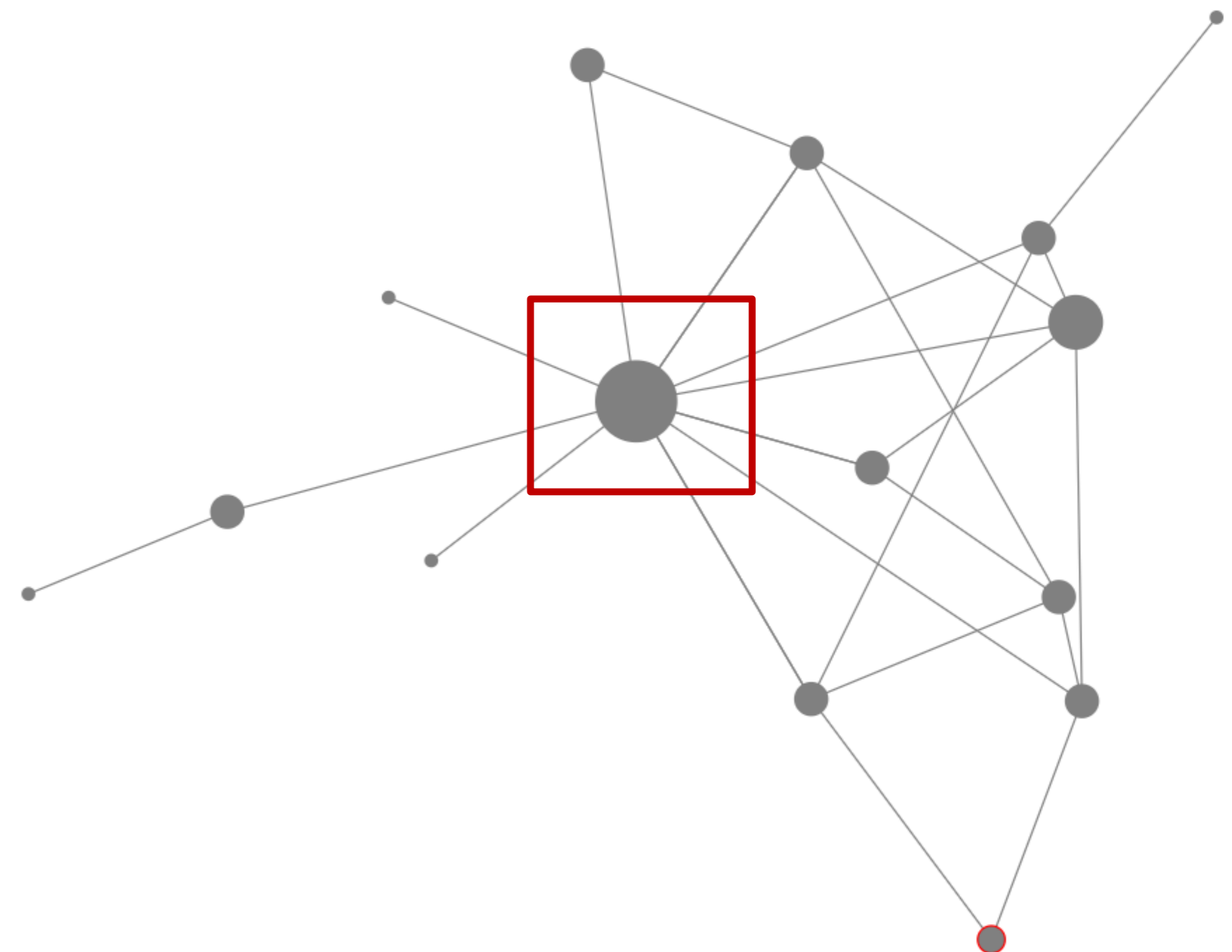
Ghana death reporting system

High burden on the family

Peru death reporting system

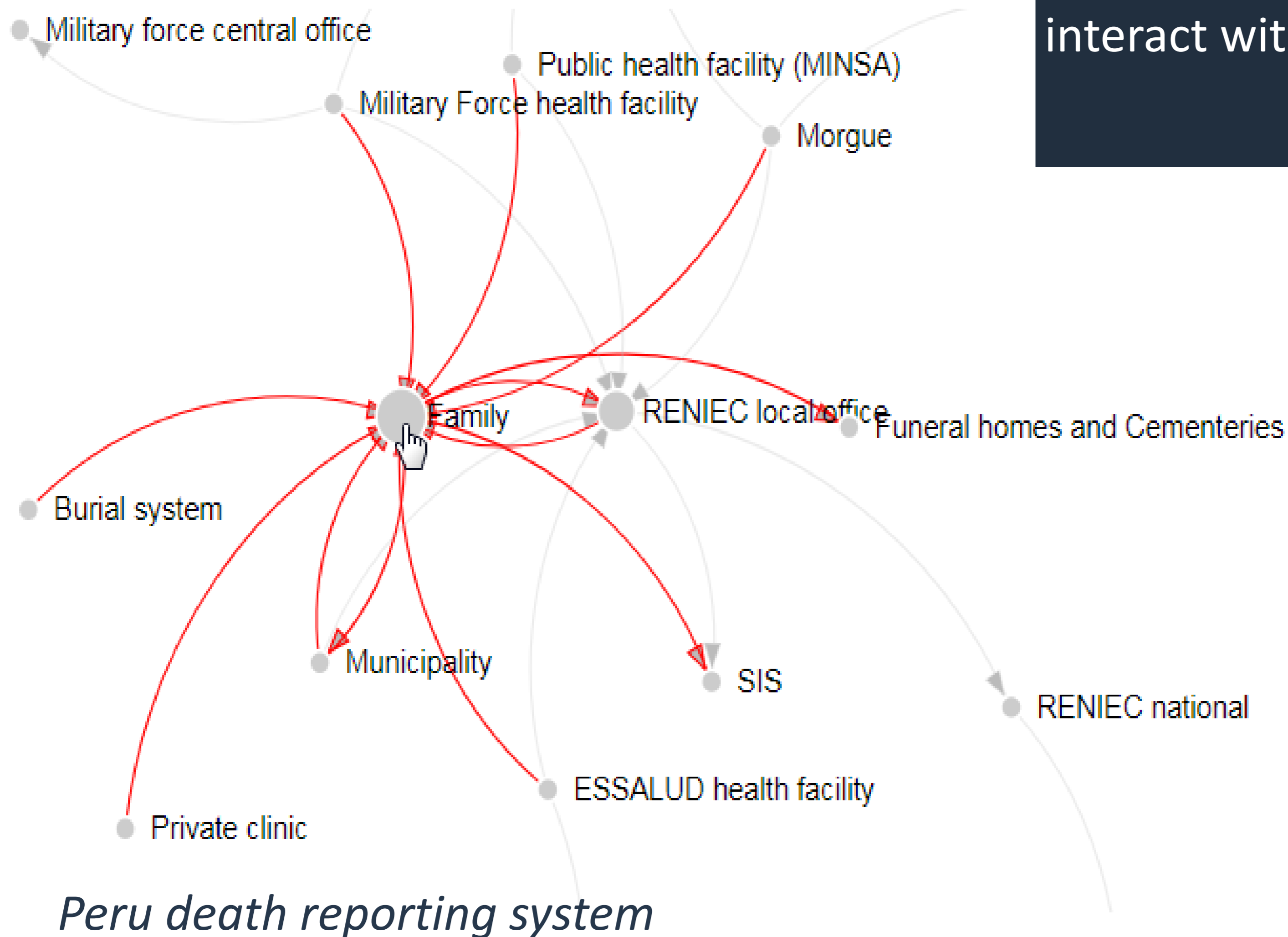


Ghana death reporting system



High burden on the family

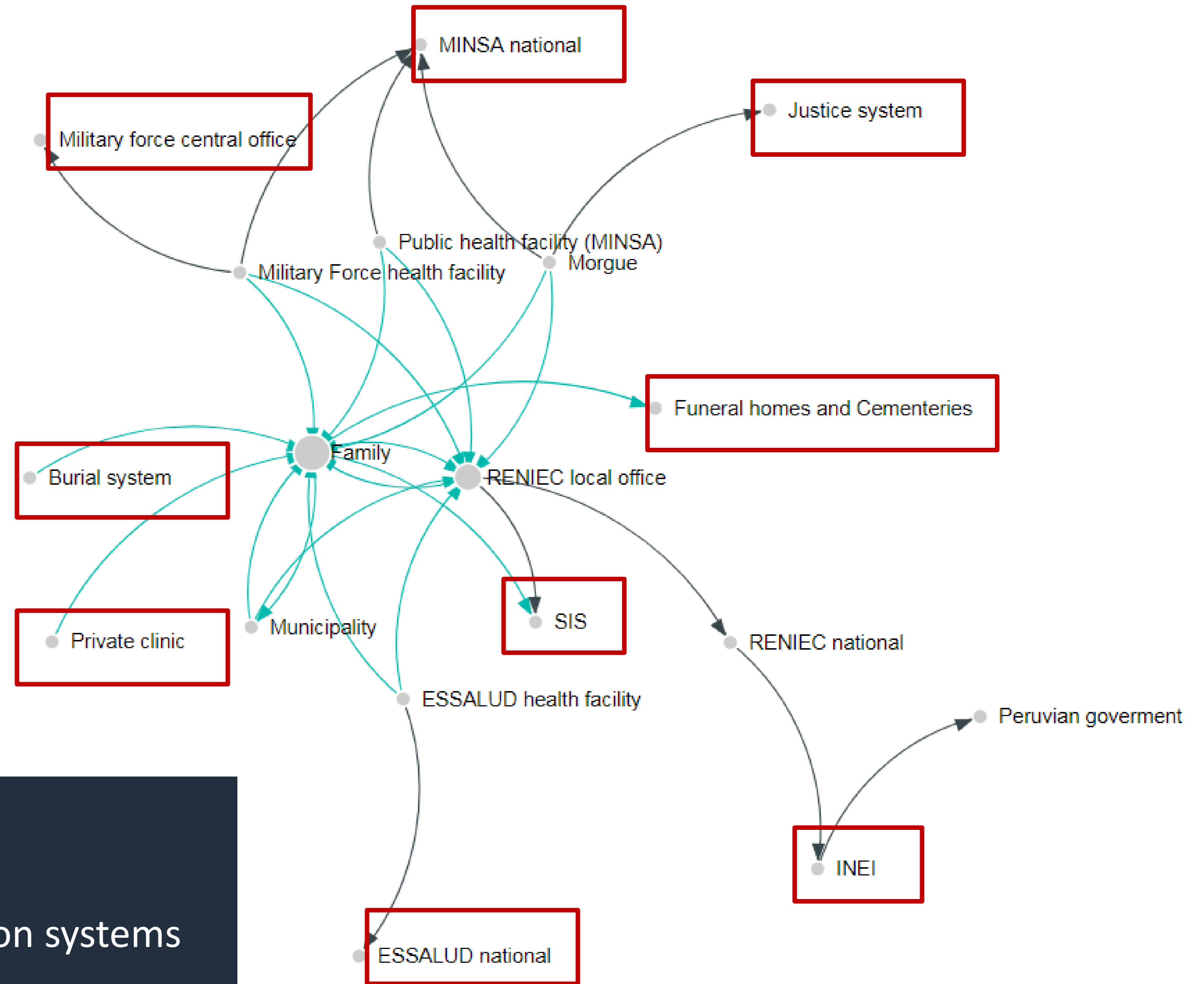
The family may need to interact with up to **6** different institutions



Results

Multiple silos and lack of integration

1 Death could be recorded in **9** Different information systems



Peru death reporting system


Results

Multiple forms with a wide range of data elements

The collage displays several forms and documents:

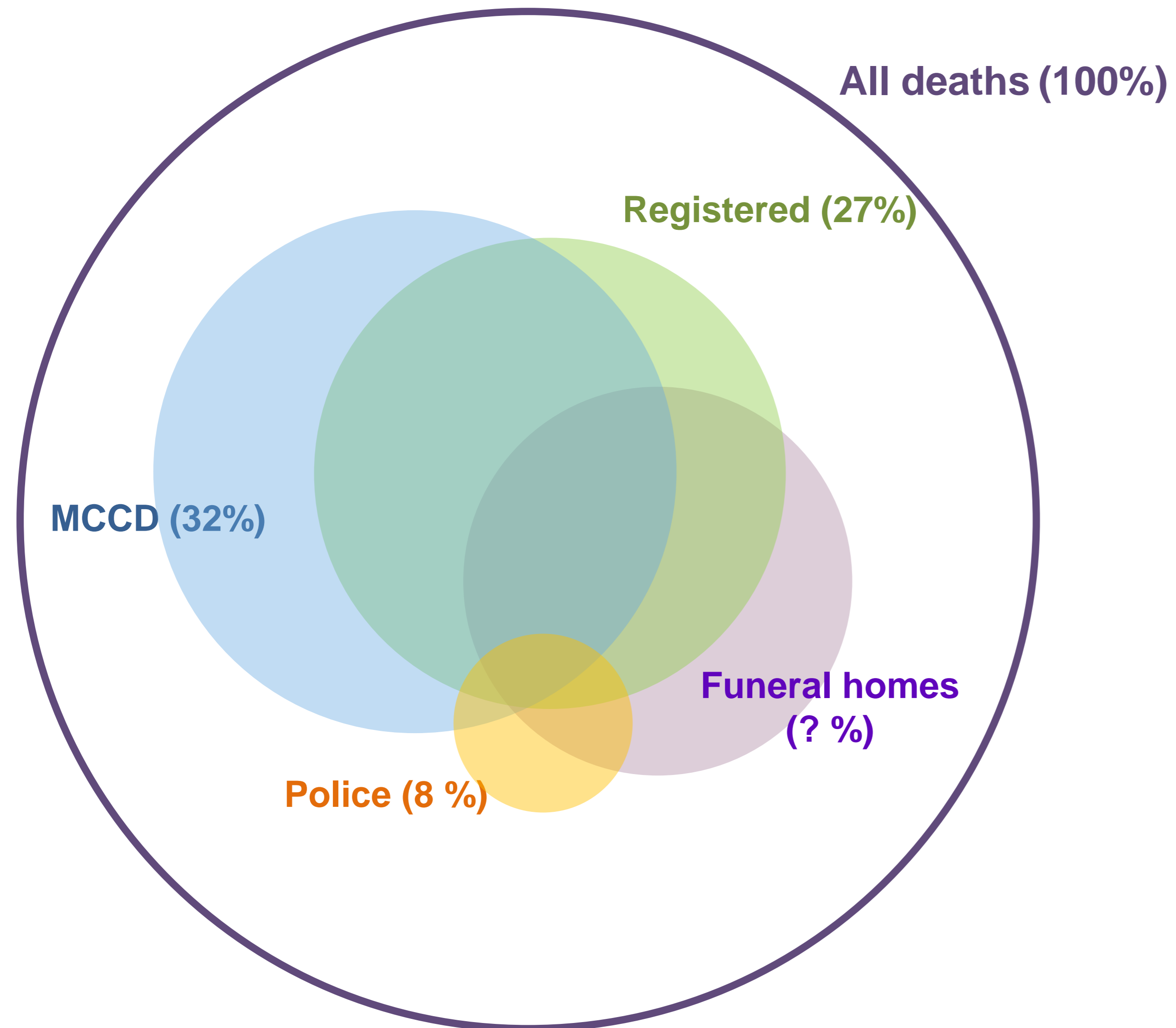
- MEDICAL CERTIFICATE OF CAUSE OF DEATH (FORM V):** A form with handwritten text and a signature. It includes fields for patient name, date, and medical details.
- CONFIDENTIAL DEATH REGISTRATION REPORT FORM (FORM B):** A form with a grid for recording data, including fields for sex, marital status, and cause of death.
- INFORME DE DEFUNCIÓN (Form 1):** A form with handwritten details for a death, including name, date, time, and cause of death. It includes a signature and a stamp from the forensic unit.
- CERTIFICADO DE NECROPSIA:** A form for a necropsy certificate, including fields for the doctor's name and the cause of death.
- Software Interface:** A screenshot of a web-based system for managing forensic data, showing fields for patient information, location, and dates.

So....

- **High degree of fragmentation** in their information architecture with several silos of information
 - The process is highly **dependent on the family** of the deceased to transfer the information from one institution to the next one
 - **None** of the different sub-systems identified in this study contained a **complete picture of mortality in the country**
- 

- **Unexploited sources** of mortality information (e.g. police for deaths due to external causes or funeral homes)
- CRVS systems are digitized early in the process for most institutions involved, **technology is not a limitation** to integrate the several parallel information sub-systems
- **BPM very useful** in understanding the mortality surveillance ecosystem to harness these opportunities

Next steps



Need to understand who are we missing (the white space)



Thank you
Muchas gracias

How process mapping can be useful

Describe how systems operates capturing their complexity

Identify all relevant stakeholders and align their views of how the systems operates

Identify inefficiencies and bottlenecks in the process

Forces stakeholders to consider the system as a whole

Identify functional relationships between actors (areas where interoperability is required)

