

The Case of Mariama and Boubacar Zaza District



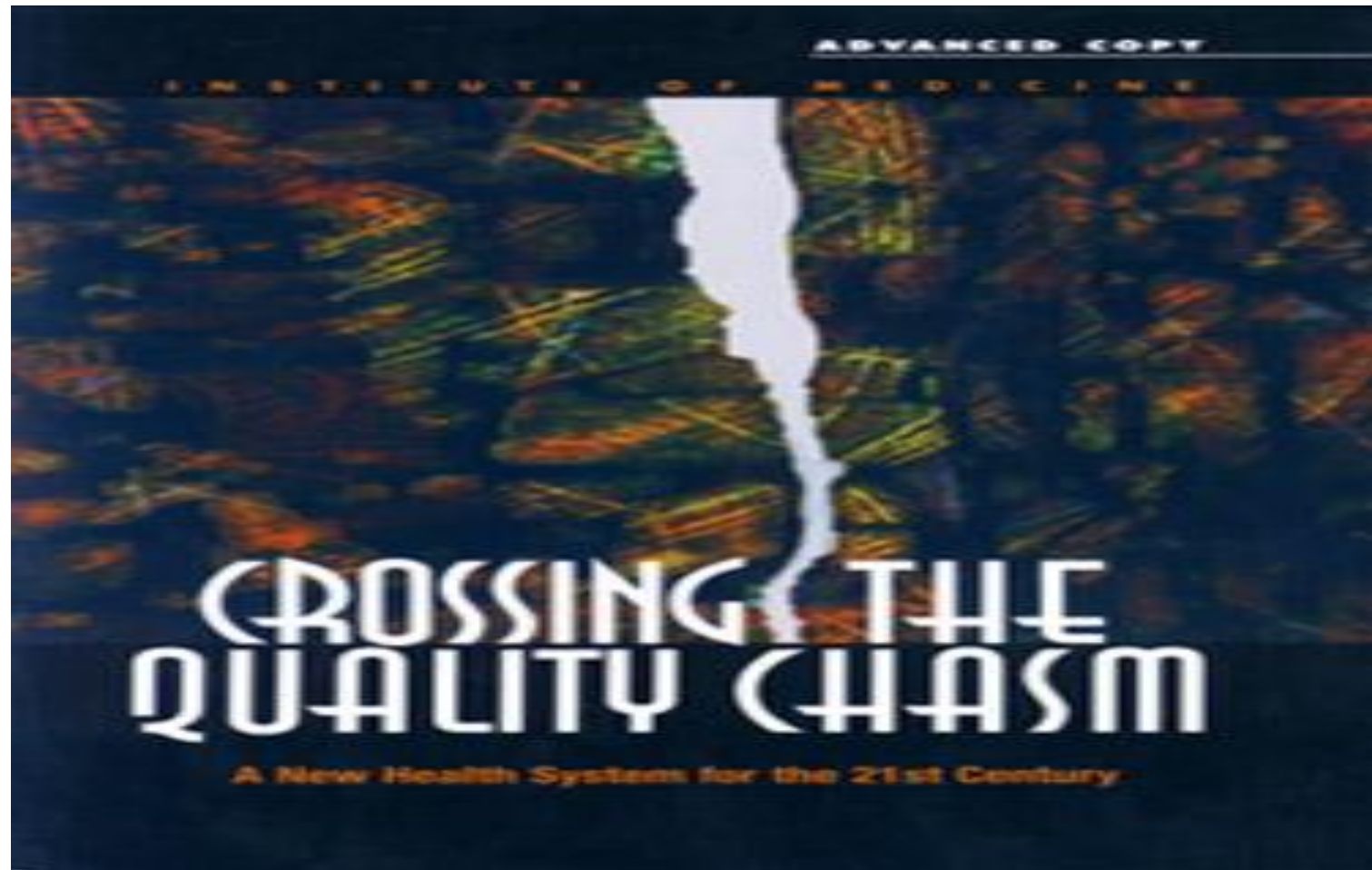
At the Lava Clinic

- Mariama presented to Lava Clinic 35 weeks pregnant with her first baby with a severe headache.
- Her BP was elevated at 174/110; clinic was out of urine dipsticks (rule out pre-eclampsia)
- Nurse told Mariama to find transportation to nearest hospital as soon as possible.
- Mariama and her husband decided to wait one day until they could borrow money and arrange transportation.

At the hospital... next day

- Next morning on way to the hospital Mariama suffered a seizure
- Once at hospital told to wait in a long queue
- 10 hours later Mariama admitted to hospital and Magnesium Sulfate started (eclampsia)
- Following morning Mariama delivered a small baby son who never started breathing; a neonatal bag and mask could not be found in the delivery room
- Mariama and her husband named their deceased baby son Boubacar
- Subsequent review of Mariama's antenatal record during a death audit showed that Mariama's BP had been elevated on 2 prior ANC visits

Leveraging mHealth to Help Cross the Quality Chasm.....



Institute of Medicine 2001

Critical Quality & System Gaps for Mariama and Boubacar

Clinic:

- Failure to detect and act on Mariama's elevated BP prior ANC visits (*pre-eclampsia red flag*)
- No urine dipstick in clinic (*diagnosis pre-eclampsia*)

Linkage between Clinic and Hospital:

- Communication and timely transport failure between clinic & hospital
- Nurse didn't know who to contact (even though she had a cell phone)

Hospital:

- Delayed wait (3rd delay) and no triage at hospital
- No timely administration Magnesium Sulfate (*treatment eclampsia*) and corticosteroids (*maturation lung in pre-term fetus*)
- No timely resuscitation Boubacar (no resuscitation bag & mask)

What m/eHealth technologies might have helped Mariama and Boubacar if integrated into an improvement effort?

INPUTS

EMR w/automatic alert for elevated **BP**

EMR Integrated eClinical decision support tool to guide clinic nurse

MgSO₄, ACS & Bag&Mask available bedside

PROCESSES

Mobile phone communication between nurse and hospital

e-referral protocol and SMS messaging

e-assisted triage process at hospital

RESULTS

Mariama's elevated BP detected early

Prompt transfer to hospital with loading dose MgSO₄ & ACS in clinic

Resuscitation and survival of Boubacar

One year later in Zaza District: District Management Team Takes Action



Key District Team Actions

- Improvement team formed and supported in every facility in Zaza district:
 - Competency based training/supervision coupled with on-site **e-clinical decision support**
 - **e-referral** protocol and tools
 - Improved care processes (hospital **e-automated triage**)
 - **EMR** to track patient info across time & system levels
 - **Mobile phones** with emergency contact #s and call schedule
- **Supply chain e-tools** to ensure essential commodities at the bedside (MgSO₄, ACS, bag & mask)
- **Automated run charts** generated by EMR to track common quality measures across district facilities (DHIS-2)
- Quarterly district meetings to assess progress & share learning

Competency Based Newborn Resuscitation Peer to Peer Observation *(could use an e-checklist...)*



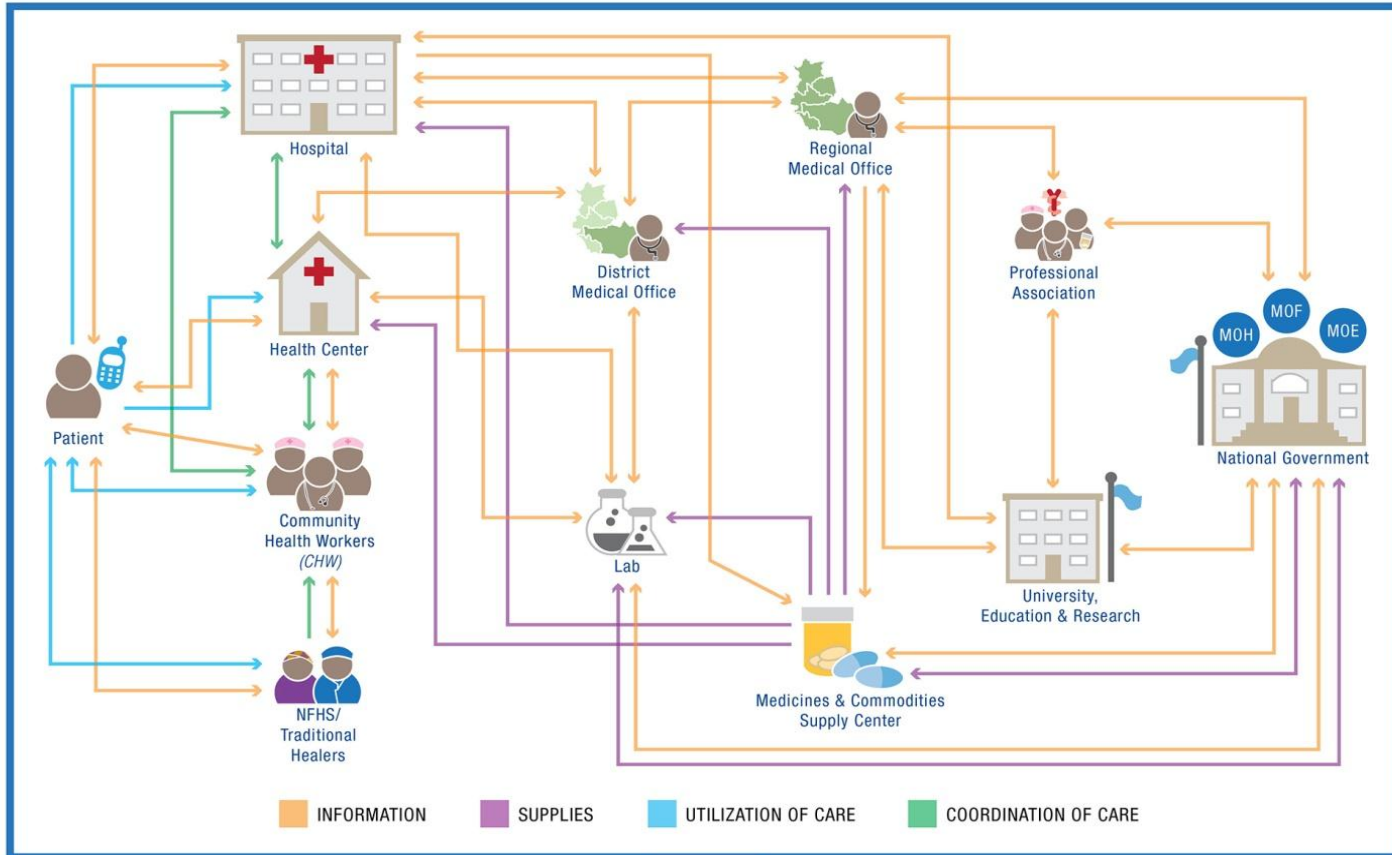
Moving beyond building blocks to grow dynamic systems that strategically integrate mHealth technologies



The Opportunity....leveraging mHealth to strengthen dynamic systems

COMMUNITY GROUPS

CIVIL SOCIETY



PRIVATE SECTOR

GLOBAL STAKEHOLDERS

UHC Reduced MNC mortality AIDS-free Generation