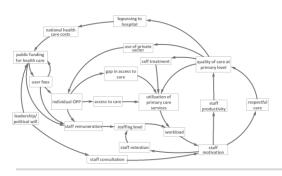
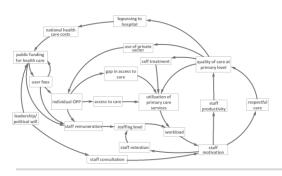
SYSTEMS TOOLS FOR COMPLEX HEALTH SYSTEMS: A GUIDE TO CREATING CAUSAL LOOP DIAGRAMS



SESSION FIVE APPLYING SYSTEM THINKING TOOLS



Session objectives

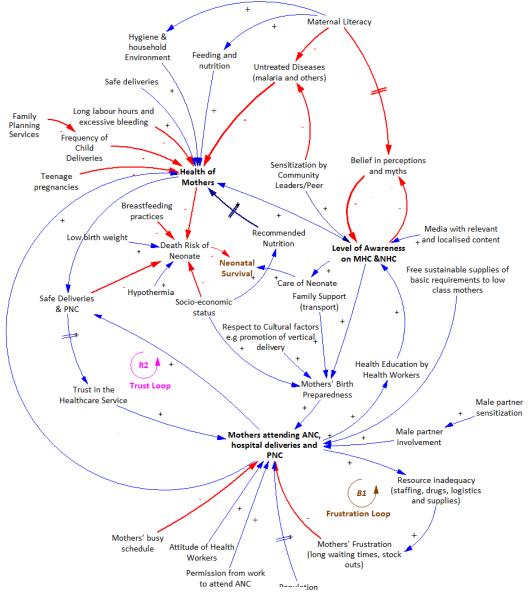
- Interpret causal loop diagrams
- Describe the system dynamics applying principles of complex adaptive systems
- Identify leverage points from a causal loop diagram
- Use a causal loop diagram for inference regarding health system interventions

Demand for health services

Examine the causal loop diagram showing the <u>demand</u> for neonatal and maternal health services

- I. Identify linkages and polarities; what key messages emerge?
- 2. Identify the key drivers of the risk of neonatal death "death risk of neonate" and discuss how these drivers are interlinked
- 3. Identify any additional feedback loops—are they balancing or reinforcing?

Causal loop
diagram
showing the
demand for
neonatal and
maternal health
service delivery.



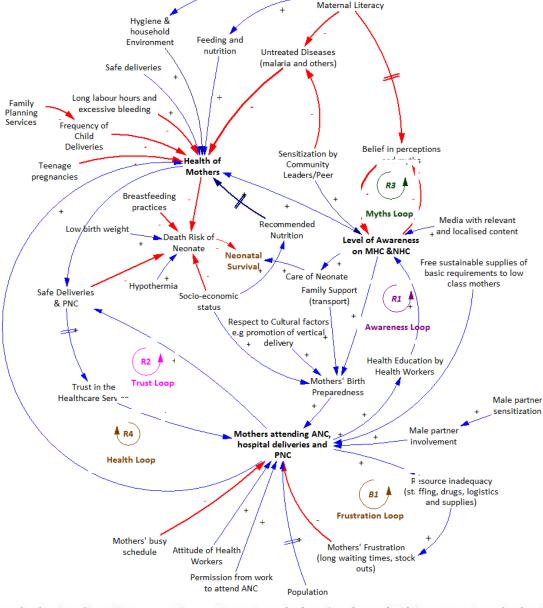
Denotes a **positive link** where a change in the influencing element is in the same direction as the influenced element

Denotes a **positive link** where a change in the influencing element is in the opposite direction as the influenced element

Denotes a delay where a change in the influencing element produces a change in the influenced element only after a delay

Legend

Causal loop
diagram showing
the demand for
neonatal and
maternal health
service delivery:
Feedback Loops





Denotes a **reinforcing loop** (R1) in counter clockwise direction. Similarly R2,R3 and R4 are Reinforcing loops



Denotes a **balancing loop** (B1) in a counter clockwise direction

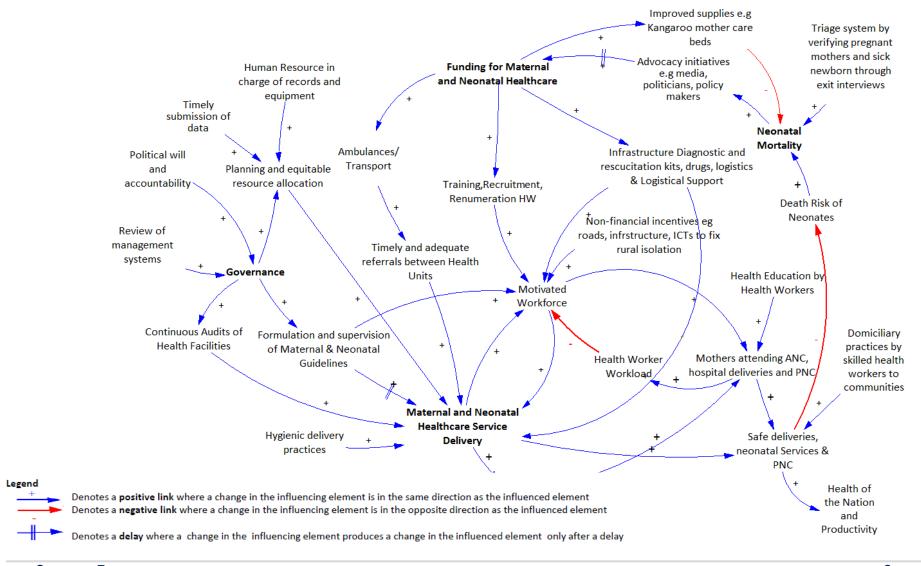
Supply of health services

Examine the CLD showing the **supply** of neonatal and maternal health services

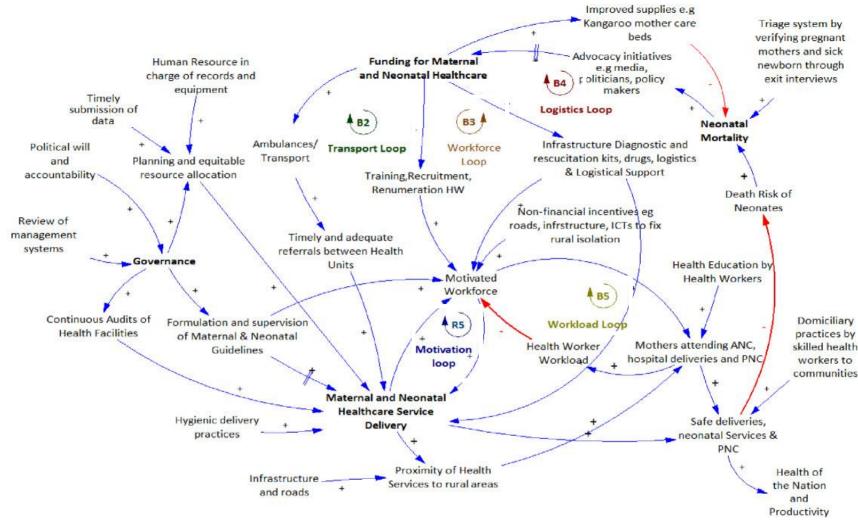
I. What key messages emerge?

2. Identify at least one feedback loop, and describe the loop and its impact on the system

Causal loop diagram showing the supply of neonatal and maternal health service delivery



Causal loop diagram showing the supply of neonatal and maternal health service delivery – feedback loops





Denotes a **balancing loop** (B2) in the clockwise direction Similarly B3, B4 and B5 are balancing loops



Denotes a reinforcing loop (R5) in the clockwise direction

Increasing newborn survival

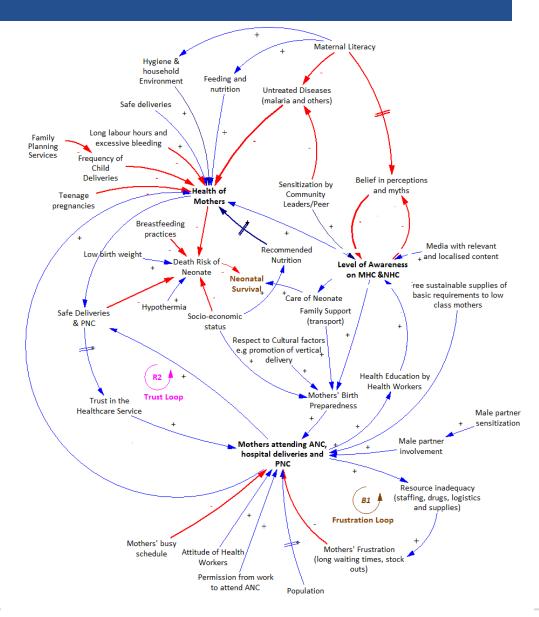
Using both the supply and demand causal loop diagrams.

- Identify key leverage points aimed at increasing newborn survival from the following stakeholder positions.
 - Provide a rationale based on the CLDs for your decisions
 - Minister of Health (National policy level)
 - Clinic manager
 - Non-governmental organization (NGO) working at community level

Potential leverage points

damand

- Increased awareness on maternal and neonatal healthcare
- Socio-economic status



Potential leverage points -

Funding for Improved supplies e.g maternal and Kangaroo mother care Triage system by beds verifying pregnant mothers and sick Advocacy initiatives Human Resource in **Funding for Maternal** newborn through e.g media, neonatal health charge of records and and Neonatal Healthcare politicians, policy exit interviews equipment makers submission of data Neonata care Mortality Infrastructure Diagnostic and Ambulances/ Political will Transport rescucitation kits, drugs, logistics and Planning and equitable & Logistical Support accountability resource allocation Training, Recruitment, Socio-economic Renumeration HW Death Risk of Neonates Non-financial incentives eg Review of roads, infrstructure, ICTs to fix status management Timely and adequate rural isolation systems referrals between Health Governance Health Education by Units Health Workers Motivated Workforce Continuous Audits of Domiciliary Formulation and supervision **Health Facilities** practices by of Maternal & Neonatal Mothers attending ANC, Health Worker skilled health Guidelines hospital deliveries and PNC Workload workers to communities Maternal and Neonata **Healthcare Service** Hygienic delivery Safe deliveries, Delivery practices neonatal Services & **PNC** Proximity of Health Health of Infrastructure Services to rural areas the Nation and roads and Productivity

Reflection

 What are the implications of feedback loops for determining leverage points?

 What insights do these CLDs provide that might have otherwise been missed?

5.1

References

 Rwashana Semwanga A, Nakubulwa S, Nakakeeto-Kijjambu M, Adam T. Advancing the application of systems thinking in health: understanding the dynamics of neonatal mortality in Uganda. Health Res Policy Syst. 2014;12:36

Thank you



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