Implementation research as a tool for improving intersectoral action
Defining implementation research

'Implementation research is the scientific inquiry into questions concerning implementation'
Implementation Research Process

- **Intervention or Technology**
- **Implementation Problem**
- **Implementation Strategy**
- **Testing Strategy - did it work?**
- **Improved implementation**
- **Improvement in health outcomes**

**Adaptation**

<table>
<thead>
<tr>
<th>Why it's not working</th>
<th>What can be done to mitigate</th>
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<tbody>
<tr>
<td>Contextual barriers, deviations from design</td>
<td>opportunities for improvement identified and fed back into implementation cycle</td>
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<tr>
<td>Barriers to scale-up</td>
<td>Integration &amp; adoption</td>
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**Service Outcomes**
- Efficiency
- Safety
- Effectiveness
- Equity
- Patient-centeredness
- Timeliness

**Testing Strategy** - did it work?
- Improved implementation
Implementation research to explore impact of the DFID-supported and UNF-managed grant for the sustainable electrification of health facilities focusing on maternal and newborn health services in Ghana & Uganda
The overarching goal of the study was to deepen the evidence base on linkages between accessibility and reliability of electricity in health facilities and service delivery outcomes, and to study barriers and facilitators in implementation of similar sustainable energy solutions, in particular at the primary care level.

Specific objectives were to:

• Monitor the pathways, barriers and facilitators in implementation of the UNF/DFID intervention “electrification of health facilities with solar systems”;

• Explore the impact of electrification of health facilities with solar systems on service delivery for maternal and new-born health, using routinely collected data;

• Describe how and why electrification of health facilities with solar systems affects demand for, utilization of and satisfaction with maternal and newborn services by mothers within the health facility catchment area;

• Develop policy-relevant evidence to integrate energy service considerations into health services planning, resourcing and evaluation.
Theoretical framework guiding implementation research

**CONTEXT**
- Health System context: Staffing, workload, Essential equipment tools and supplies availability, Essential medicines availability, geographic access, financial access, sociocultural access
- Macro context: Social, Cultural, Political, Economic, Demographic

**Intervention**
- Sustainable energy provided to health facility

**Process**
- Uninterrupted (24 hrs) power availability
- Use of power in MNCH service delivery
- Improved readiness & quality of MNCH services

**Outcomes**
- ↑ community demand
- ↑ MNCH service coverage
- Improved staff satisfaction & motivation
Selecting Indicators

**Readiness**
- Staff
- Availability of services and medicines
- Basic equipment and amenities
- Laboratory capacity
- Infection prevention and control standards

**Quality**
- Compliance with WHO guidelines on standards and maternal and child healthcare
- User satisfaction (patient and provider)

**Use**
- Outpatient consultations
- Inpatient discharges
- Referrals
- Deliveries performed
Selecting Indicators

- Inputs
  - appropriate physical environment, with adequate water, sanitation and energy supplies, medicines, supplies and equipment for routine MNCH and complications
  - budget and protocol for the operation and maintenance of energy, safe water and sanitation services
  - energy infrastructure (e.g. solar, generator, grid) that can meet all the electricity demands

- Outcomes
  - satisfaction with water, sanitation and energy services and would recommend the health facility to friends and family
  - Health care staff satisfied with the water, sanitation and energy services and consider that these services contribute positively to providing high-quality care
Tools Used

• WHO Service Availability and Readiness Assessment Tool
• Implementation research theories
  • Exploration, Preparation, Implementation, and Sustainment
  • Sense-making, cognitive participation, collective action, reflexive monitoring
• In depth interviews
  • Interview guides using WHO guidelines and SDG framing
• Focus group discussions
• Field observation
Feedback to implementation

Link between district officers, local implementers and international stakeholders

- Institutional memory
- Dissemination of policy-relevant evidence

Trouble-shooting minor implementation challenges

- Appropriateness of equipment
- Tuning of infrastructure based on field observation
- Functionality of existing energy-dependent equipment
- Observational data on organic use of energy services
- Community expectations
Trends in findings

- ↑ 24 hr availability of services
- ↑ facility-based deliveries
- ↑ user satisfaction
- ↑ health provider satisfaction
- ↑ access to communication and reporting tools
- ↓ accidents

Potential for future health systems strengthening measures that are reliant on power
Application for way forward

Sharing reflections with decision makers at district, national and international level

Highlighting challenges for sustainability

Demographic data and health facility data available for more accurate planning

Qualitative and quantitative data available for compelling investment case for future funding
Thank you

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• Dr John Ssempebwa, Dr John Bosco Isunju
INNOVATION

RESEARCH

Proof of concept: Is it safe and does it work?

Implementation not relevant
- Research question: Basic sciences, product development, or inquiry unrelated to implementation
- Context: Controlled or not related to implementation
- Implementation strategies and variables: not relevant

Examples: Basic science; Phase I & II clinical trials; Qualitative studies unrelated to implementation issues (e.g., perceptions of illness)

Proof of implementation: How does it work in real-world settings?

Implementation relevant but not considered
- Research question: Susceptible to implementation variables, but not considered
- Context: Largely controlled, highly selected population, factors affecting implementation fixed or ignored
- Implementation strategies: None or one type only, not considered in research
- Implementation variables: Can influence results but assumed to be controlled or not relevant

Examples: Efficacy studies, Phase III randomized controlled clinical trials; Qualitative study on health service use that does not consider how well the services are provided.

Implementation relevant but effects reduced
- Research Questions: Secondary question, e.g., average effectiveness of a program
- Context: Real-world setting with partially controlled intervention
- Implementation strategies: Identified and described, but uses one type only and effects are controlled
- Implementation variables: Assumed to be equal or unchanging, or effects controlled (e.g., adjusted as confounding factors)

Example: Pragmatic trials, Quasi-experimental study with intervention and comparison areas; Observational studies with implementation as secondary issue

Implementation studied as contributing factors
- Research Questions: Co-primary or secondary question, e.g., effectiveness of program in all its variation
- Context: Real-world setting and population
- Implementation Strategies: One or more studied
- Implementation variables: May be used as independent variables

Examples: Effectiveness-Implementation trials; Observational studies assessing implementation variables as secondary factors; Participatory research

Informing Scale-up: Health systems integration and sustainability

Implementation as primary focus
- Research Questions: Primary question, e.g., How do parts of a program change and why? What are the effects of implementation strategies?
- Context: Real-world setting and population
- Implementation strategies: May be primary focus
- Implementation variables: May be primary outcomes or determinants

Examples: Mixed methods and quasi-experimental studies to determine the changes in delivery or acceptability of a program; Observational studies on adaptation, learning, and scaling-up of a programme
<table>
<thead>
<tr>
<th>Specific Objective</th>
<th>Study Question</th>
<th>Variables/indicators</th>
<th>Data Collection Methods</th>
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| (1) To monitor the pathways, barriers and facilitators in implementation of the UNF/DFID intervention “electrification of health facilities with solar systems”; | What are the pathways, barriers and facilitators to integration of sustainable energy solutions in health facilities? | -Descriptive narrative of how the project was done, including facilitators and barriers to implementation  
-Qualitative data indicating other contextual factors that influence the process and readiness to provide energy-sensitive MNCH services at the facility | -Key informant interviews with contractors, donors, health managers  
-Observation of training of health workers on use of solar systems  
-Desk review of implementation documents |
| (2) To explore the impact of electrification of health facilities with solar systems on service delivery for maternal and newborn health, using routinely collected data; | How and why does the electrification of health facilities with solar systems affect/influence maternal and neonatal service delivery, and in particular readiness and quality of MNCH at health facilities? | Quality and readiness indicators:  
-skilled attendance at deliveries  
-number of pregnant women making at least 4 ANC visits  
-increased # of children attending growth monitoring and promotion  
-Number of neonates receiving at least a quality PNC by the end of the seventh day after delivery  
-Number of mothers receiving at least a quality PNC visit by the end of the seventh day after delivery  
-No of facilities providing 24 hour services  
-% Availability of functioning key equipment and supplies by facility.  
-% availability of key MCNH services by facility, by day and night | -DHIMS2 extraction form  
-Facility assessment questionnaire (SARA)  
-interviews with health workers |
| (3) To describe how and why electrification of health facilities with solar systems affects demand for, utilization of and satisfaction with maternal and newborn services by mothers within the health facility catchment area | How and why does electrification of health facilities with solar systems affect/influence community uptake of MNCH services, and overall coverage of services within the health facility catchment area? | %-satisfaction of mothers who utilize the service  
-Qualitative data indicating satisfaction with services and why  
-changes in health-seeking behavior  
-coverage rates | -Interviews with mothers  
-Community members focus group discussions |