REDUCING TIME BETWEEN DECISION AND CAESAREAN SECTION: A QUALITY IMPROVEMENT INITIATIVE AT A RURAL DISTRICT HOSPITAL IN RWANDA

Egide Karangwa
Kirehe District, Rwanda

- Catchment area over 350,000
  - On average 200 deliveries per month
  - Cesarean section is 33.3% per month

- In rural Rwanda:
  - 89.4% of women deliver in a health facility
  - 43.9% of women complete 4+ antenatal care visits
All Babies Count

Clinical mentorship & QI coaching

Clinical training
Procurement & distribution of essential equipment

Identify QI teams

LS1 → LS2 → LS3 → LS4

P = Plan
D = Do
S = Study
A = Act
LS = Learning Session
QI = Quality Improvement

ABC mentors transition to MOH mentors

LS’s transition into district-level meetings

18 MONTH CHANGE ACCELERATION PROCESS
EXIT STRATEGY
OUTCOMES

IMPROVED NEONATAL HEALTH OUTCOMES AND CONTINUOUS QUALITY IMPROVEMENT
In 2012, the Rwandan Ministry of Health in collaboration with Partners In Health implemented “All Babies Count” (ABC) initiative as a strategy to reduce neonatal mortality.

Delays in decision-making or executing of cesarean sections can lead to maternal and newborn complications and deaths.

It is recommended 30-50 minutes as the acceptable interval between decision-making and execution of the CS.

ABC QI Indicator targeted by our team: Time between decision to CS
In Kirehe District Hospital, we implemented a QI project to reduce the delay between decision and intervention.

- **Decision time point:** Doctor calls for a c-section
- **Intervention time point:** c-section intervention

Applied QI methods to:

- Establish a root cause
- Prioritize the focus of the intervention
- Initiate PDSA cycle
Root Cause Analysis

Infrastructure
- Shortage of theatre

Materials and Equipment
- Old Materials
- Late in sterilization of materials
- Lack of personnel
- Lack of experience EmONC
- No nurses appointed on theatre

Human Resources

System
- Late communication

Delay between decision and intervention
Prioritized the following change activities to reduce the delay:

- **System Intervention:**
  - Routine QI meetings to improve communication between departments
  - Created a communication system for notifying personnel necessary for CS

- **Human Resources Intervention:**
  - Conducted skill-building sessions with maternity staff to address limited EmONC skills

- **Materials and Equipment Intervention:**
  - Added sterilization to QI meeting agenda and involved sterilization team to ensure timely availability of sterile materials
Evaluation of Progress

- Tracked data for process and outcome indicators
  - Process: Number of QI meetings held, number of teaching sessions
  - Outcome: Delay between decision and intervention

- A random sample of approximately 20 files per month were taken to track the outcome indicator

- Data were analyzed using descriptive statistics and the Mann-Whitney test was used to assess differences in the median delay at baseline and post-intervention.
## Results

<table>
<thead>
<tr>
<th>Time Point</th>
<th>Number of Deliveries</th>
<th>DDI Median [IQR]</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (Sept ‘13-Jan ‘14)</td>
<td>86</td>
<td>59.5 [40-105]</td>
<td>0.004</td>
</tr>
<tr>
<td>Post-QI (Aug-Dec ‘14)</td>
<td>169</td>
<td>48 [39-61]</td>
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</table>

<table>
<thead>
<tr>
<th>Time of Decision</th>
<th>Number of Deliveries</th>
<th>DDI Median [IQR]</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day (Baseline)</td>
<td>45</td>
<td>60 [45-95]</td>
<td>0.762</td>
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<tr>
<td>Night (Baseline)</td>
<td>41</td>
<td>55 [35-115]</td>
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</tr>
<tr>
<td>Day (Post-QI)</td>
<td>89</td>
<td>45 [36-61]</td>
<td>0.046</td>
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<tr>
<td>Night (Post-QI)</td>
<td>80</td>
<td>50 [43.5-62]</td>
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</table>
Decision Delivery Interval Run Chart

- **Baseline** (Sep '13 – Jan '14)
- **Post-QI** (May – Dec '14)
- Baseline Median
- Post-QI Median
- Goal
Conclusions

- The results show success in reducing the delay from decision-making to performing a c-section.

- In the future, plan to track the additional delay from when the nurse notifies the doctor of a concern, to the time the doctor makes a decision.

- Positive experience in QI implementation, reinforced by peer-to-peer learning sessions, has led to addition of new QI projects in maternity ward.
THANK YOU