MODULE 4: Quality Improvement Tools and their Application in KQMH

Unit 4.3: Tools for Continuous Quality Improvement and their Application

Part 6: Tree diagram and X-Y matrix (Driver’s diagram)
Objective

• To evaluate change ideas and decide on the feasible ideas for implementation
Content

• Constructing a tree diagram
• Constructing a matrix diagram
• Evaluating change idea
Tree Diagram

Satisfied customers

- Good food
  - Quality ingredients
  - Good recipe
- Good service
  - Prompt attention
  - Professional waiter
  - Happy atmosphere
  - Good table presentation
  - Pleasing decor
- Pleasant surroundings
### Matrix diagram

<table>
<thead>
<tr>
<th>Importance</th>
<th>Urgency</th>
<th>Difficulty</th>
<th>Policy</th>
<th>Duration</th>
<th>Score</th>
<th>Evaluation</th>
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<tbody>
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Score: ◎3, ◎2, △1, □0
Kaizen (CQI) Process has 7 steps

1. Select CQI problem area
2. Situation analysis
3. Root cause analysis
4. **Identify countermeasures for solving CQI Problem area**
5. Implement identified countermeasure(s)
6. Check effectiveness of the **countermeasures**
7. Standardize **effective countermeasures**
Identifying countermeasures

- Root causes were identified earlier
- There is a need to identify countermeasures to solve the root cause
- You need some tools that are useful for identifying and checking the feasibility of countermeasures
The tools

1. Tree diagram
   - useful for **identifying** of countermeasures in structural manner

2. Matrix diagram
   - Useful for checking **feasibility** of identified countermeasures in terms of **importance**, **urgency**, **difficulty**, **time consumption**, **resource availability**
Tree diagram

1. Put the identified Root Causes (from fish bone analysis) on the left end for the *horizontal tree*, and on the top for the vertical tree

2. Put identified countermeasures for each root cause systematically

**Notes**

- *There may be more than one countermeasure for one root cause*
- *Branch line and connect with arrows (will be shown in the diagram)*
Tree diagram (cont.)

- Brainstorm on all possible answers and write each idea in the line below (for vertical tree) or right (for horizontal tree)
- Show links with arrows
- Ask yourself WHAT can be done (tasks), and HOW to accomplish it
- Put identified countermeasures for each root cause systematically on right side of the root cause
- Put a branch line for a root cause with more than one countermeasure
Matrix diagram

- Check the feasibility for each countermeasure
- Decide on the evaluation scale, e.g. numbers, symbols?
- The evaluation scale must be easy to understand and check
  
  e.g. Set the scale from 0–3

Evaluate in terms of:
- Importance
- Urgency
- Difficulty
- Time consumption
- Resource availability
Matrix diagram

- “0” has negative meaning and “3” has positive meaning
  
  e.g.
  - if a countermeasure got 0 point on importance – means that countermeasure is less important
  - If a countermeasure got 3 points in difficulty it means that countermeasure is not difficult
  - (Countermeasures that got more than 11 points out of 15 (>70%) are selected as feasible countermeasures)
Matrix Diagram

Numbers vs. Symbols

• Numbers are easier to understand
• Particularly when using a computer spreadsheet
• On a scale of 0–3: 0 = Weak, 3 = Strong

Symbols are easy to interpret visually

☉ – 3 points
⊙ – 2 points
◆ – 1 point
✗ – 0 point
**TREE DIAGRAM**

AIM

RCA

Counter measures/change ideas Theories

- Regular action linked exist interviews
- Monitor report of abuses

Privacy

- Delivery only room
- Curtain division

No companion

- Allow TBA etc

Hot shower

- Jiko & Charcoal
- Wimbi/Sugar
- 3 Sufurias

Hot porridge

Male midwife

- Client education
- Female Nurse

**MATRIX DIAGRAM**

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<th>D</th>
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SD 30% to 70%
Example of Tree diagram and matrix diagram (using symbols)

**Root cause**
- No training on handling lab test samples
- There is not stock inventory system for sampling containers
- No usage explanation of each sampling containers
- There is no rules for storing sampling containers according to the purposes

**Setting counter measures**
- Develop sample handling manual
- Conduct sample handling training
- Develop and introduce stock control register
- Select in-charge of stock manager
- Establish stock inventory & order system
- Develop guideline for sampling containers
- Display sampling container guide
- Standardize sampling container store
- Set boxes for each sampling containers

**Feasibility check**

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1) The in-charge of the pediatric ward at County Referral Hospital (CRH) was shocked that 25% of neonates admitted were dying. The improvement team decided to take action (groups 1 & 2)

2) Wario was made in-charge of CRH MCH clinic. She found that 30% of HEI were +ve at 9 months check. She formed an improvement team and they decided to take action (groups 3 & 4)

3) The in-charge of the CCC at the CRH recently found that despite the high retention of clients, >50% were repeatedly re-admitted with opportunistic infections. She formed an improvement team to take action (groups 5 & 6)
Steps to take

1. State your improvement aim (2 mins.)
2. Do a root cause analysis, 5 WHYs / fish bone diagram (30 mins.)
3. Identify all possible solutions, theories, countermeasures, change ideas (brainstorm, client interviews, etc. (15 mins.)
4. Check the feasibility of each countermeasure (10 mins.)
5. Select the viable solutions (5 mins.)
6. Write out an action plan (10 mins.)
Thank You