TapRooT®
Changing the Way the World Solves Problems
Focus on systems and processes, not individuals

Progress from special causes to common causes

Continue to dig deeper by asking Why? Why?....

Make changes in systems and processes to reduce the risk of re-occurrence
What Should Investigations Look Like?

What Happened?

Why Did It Happen (Proximate Cause, Processes, Underlying Systems)?

Fix Underlying Processes and Systems)

Major Techniques (Use every time)

Learn all three today

Optional Techniques (Use When Needed)

Learn Safeguards on Day 2
Get Started: First SnapCharT®

**Events**
- RN enters patient room
- RN goes to patient bedside
- RN trips on chair by bedside

**Incident**
- RN sticks self with needle

**Events**
- Nurse returns to work 2 days later
Start by building CHAIN OF EVENTS

Build START to FINISH if you can
Next add CONDITIONS

"What do I know about each Event?"

Add information to your SnapCharT®

In series, they are related to each other

In parallel, they are related to Event but not to each other
CAUSAL FACTOR

A problem or issue that, if corrected, could have prevented an incident from occurring or significantly reduced the incident's consequences.
Causal Factor Examples

- Nurse administers IV medication to patient
  - Nurse called to Attend to another Patient during administration
  - Wrong med administered to patient
  - No second check of med label
  - Policy states that second check Of Med Required

What’s the Causal Factor?
Causal Factor Examples

- Nurse administers IV medication to patient
  - Nurse called to Attend to another Patient during administration
    - Wrong med administered to patient
  - No second check of med label
    - Policy states that second check Of Med Required
- Nurse administers IV medication to patient
  - Wrong Med administered to patient
    - No second check of med label
      - Policy states that second check Of Med Required
        - Nurse called to Attend to another Patient during administration

Causal Factor
Exercise: Draw a SnapCharT®

1. Read Preliminary Report

2. Use information to draw a SnapCharT®

3. Identify Causal Factors

REMEMBER:

Work on "Sequence of Events" First
(Who Did What?)

Then Add Conditions
### Step 4: Find Root Causes

#### ONE Causal Factor at a time

1. **Get Started**
   - SnapCharT®
   - Root Cause Tree®

2. **Determine Sequence of Events**
   - SnapCharT®
   - CHAP
   - Equifactor®
   - Change

3. **Define Causal Factors**
   - Safeguards
   - Equifactor®

4. **Analyze Each Causal Factor’s Root Causes**
   - Root Cause Tree®

5. **Analyze Each Root Cause’s Generic Cause**
   - Corrective Action Helper®
   - Root Cause Tree®

6. **Develop & Evaluate Corrective Actions**
   - Corrective Action Helper®
   - SMARTER
   - Safeguards

7. **Report & Implement Corrective Actions**
   - SnapCharT® Software
   - Root Cause Tree® Software

---

Sometimes Called SPECIFIC Root Causes

Use the Root Cause Tree®

---

Copyright © 2002 by System Improvements, Inc. All Rights Reserved. Duplication Prohibited.
START HERE

ONE Causal Factor at a Time!!!

Causal Factor/Issue: Write Causal Factor HERE

START HERE with each causal factor/issue and select or eliminate each category to find root causes.

Use Process of Elimination/Selection

- HUMAN PERFORMANCE DIFFICULTY

  - TOLERABLE FAILURE
    - DESIGN SPECS
      - Specs NI
      - Design Not To Specs
    - Problem Not Anticipated
      - equipment environment not considered

  - DESIGN REVIEW
    - Independent Review NI
      - management of change (moc) NI hazard analysis NI

- EQUIPMENT / PARTS DEFECTIVE
  - PROCUREMENT
    - MANUFACTURING
      - HANDLING
    - STORAGE
  - QUALITY CONTROL

- NATURAL DISASTER / ABORTAGE
  - PREVENTIVE / PREDICTIVE MAINTENANCE
    - PM NI
    - No PM for Equip
    - PM for Equip NI

- OTHER (SNEaky)
  - REPEAT FAILURE
    - MANAGEMENT SYSTEM
      - Corrective Action
        - corrective action NI
        - corrective action not yet implemented
        - trending NI
15 Questions

Answer all 15 Questions

Circle "Yes"

Cross Off "No"

NOW Go To Indicated "Basic Cause Categories" on the BACK Side of the Root Cause Tree®
Back Side of Tree

Check Categories
Indicated by 15 Questions for Potential Root Causes

Other Categories Eliminated
Basic Cause Category

Near Root Cause

Root Causes are things you can fix

HUMAN ENGINEERING

- Human - Machine Interface
  - labels NI
  - arrangement/placement
  - displays NI
  - controls NI
  - monitoring alertness NI
  - plant/unit differences
  - excessive lifting
  - tools/instruments NI

- Work Environment
  - housekeeping NI
  - hot/cold
  - wet/slick
  - lights NI
  - noisy
  - obstruction
  - cramped quarters
  - equipment guard NI
  - high radiation/contamination

- Complex System
  - knowledge-based decision required
  - monitoring too many items

- Non-Fault Tolerant System
  - errors not detectable
  - errors not recoverable

NI = NEEDS IMPROVEMENT
May also substitute LTA (Less Than Adequate) or PIO (Potential Improvement Opportunity)
Our Definition of "Root Cause"

Operationally defined by the Root Cause Tree®

But the Root Cause Tree® was based on this definition:

The most *basic* cause (or causes) that can *reasonably* be identified that management has control to *fix* and, when fixed, *will prevent* (or significantly reduce the likelihood or consequences of) the problem's recurrence.
One Causal Factor Done, What's Next?

Finish the Rest of the Causal Factors and Go On To Step 5 To Find Generic Causes
Ideas From "Outside The Box"

Corrective Action Helper® Module of the Root Cause Tree® Software
Ideas Behind Corrective Action Helper®

1. Verify the root cause(s)

2. Remind people to check for Generic Causes

3. Get "Experts" to develop "Outside the Box" ideas for corrective actions for every category on the Root Cause Tree® (specific & generic)

4. Provide references for those who want to "dig deeper"
Corrective Action Implementation

On-Site

START HERE 

Incident

Immediate Fixes

Long Term Corrective Actions Recommended

Re-Analyze & Develop New Corrective Actions

Fixes Implemented

Doesn't Work

TEST

Measure Effectiveness

Effective

Document/Track/Validate

Off-Site

Share with Other Facilities

Other Facilities

Evaluate & Decide on Implementation

Yes

No

Document Decision

Implement Fixes

Document/Track/Validate

Measure Effectiveness

TEST

Effective

Doesn't Work

Re-Analyze & Develop New Corrective Actions

Done
Team Exercise

1. Go to the SnapCharT® Exercise from this Morning.

2. Analyze **ONE** Causal Factor and:
   - Find Specific Root Causes
   - Find Generic Causes
   - Develop Corrective Actions

3. Present What You Found