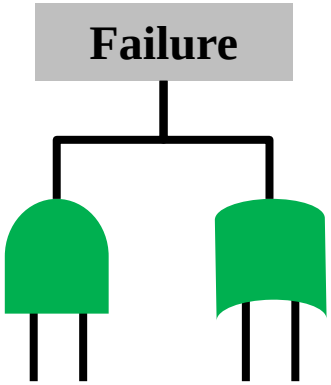
Continuous Improvement Toolkit

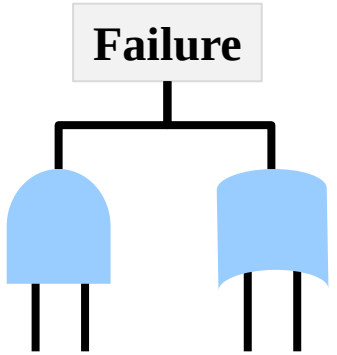
Fault Tree Analysis




Managing Risk
PDPC
FMEA
RAID Logs
Fault Tree Analysis
Risk Assessment*
Traffic Light Assessment
Deciding & Selecting
Pros and Cons
Importance-Urgency Mapping
Break-even Analysis
Cost -Benefit Analysis
Force Field Analysis
Voting
Pugh Matrix
Decision Tree
TPN Analysis
QFD
Matrix Diagram
Kano Analysis
Prioritization Matrix
Critical-to Tree
Paired Comparison
Planning & Project Management*
RACI Matrix
Stakeholders Analysis
PEST
PERT/CPM
Activity Diagram
SWOT
Roadmaps
Project Charter
Gantt Chart
PDCA
Control Planning
Gap Analysis
Hoshin Kanri
Kaizen
How-How Diagram
Tree Diagram**
Standard work
Lean Measures
KPIs
OEE
Capability Indices
MSA
RTY
Descriptive Statistics
Cost of Quality
Reliability Analysis
Graphical Analysis
Cause & Effect Matrix
Pareto Analysis
Confidence Intervals
Understanding Cause & Effect
Probability Distributions
ANOVA
Hypothesis Testing
Design of Experiments
Scatter Plot
Correlation
Regression
Multi-Vari Charts
5 Whys
Chi-Square Test
Relations Mapping*
Identifying & Implementing Solutions***
Simulation
TPM
Mistake Proofing
Pull Systems
JIT
Ergonomics
Work Balancing
Automation
Bottleneck Analysis
Visual Management
Flow
Value Analysis
5S
Understanding Performance
Run Charts
Control Charts
Benchmarking
Sampling
Fishbone Diagram
TRIZ***
Brainstorming
Analogy
SCAMPER***
Nominal Group Technique
Mind Mapping*
Affinity Diagram
Attribute Analysis
Lateral Thinking
Visioning
Creating Ideas**
Wastes Analysis
SMED
Time Value Map
Process Redesign
IDEF0
Value Stream Mapping
SIPOC
Flow Process Chart
Process Mapping
Flowcharting
Service Blueprints
Designing & Analyzing Processes
Data Collection
Focus groups
Interviews
Photography
Check Sheets
Measles Charts
Surveys
Critical Incident Technique
Observations

- Fault Tree Analysis

- Shows combinations of failures that can cause overall system failure.
- Provides a method of breaking down these chains of failures.
- A key addition is identifying combinations of faults that cause other faults.



- Fault Tree Analysis

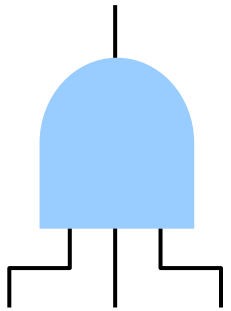
When to Use It?

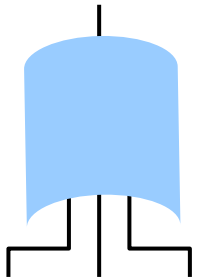
- To identify risks in a system, then identify risk reduction measures.
- To find how a failure might be caused by combinations of other failures.
- When designing a solution to make it more robust.

- Fault Tree Analysis

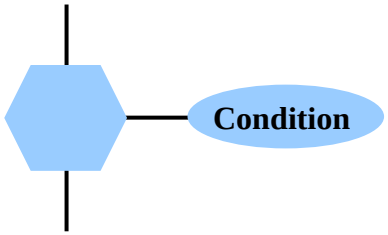
Combinations of Faults:

- **'And' Combination:**
  Several items must fail together to cause another item to fail.
- **'Or' Combination:**
  Only one of possible faults need happen to cause another item to fail.



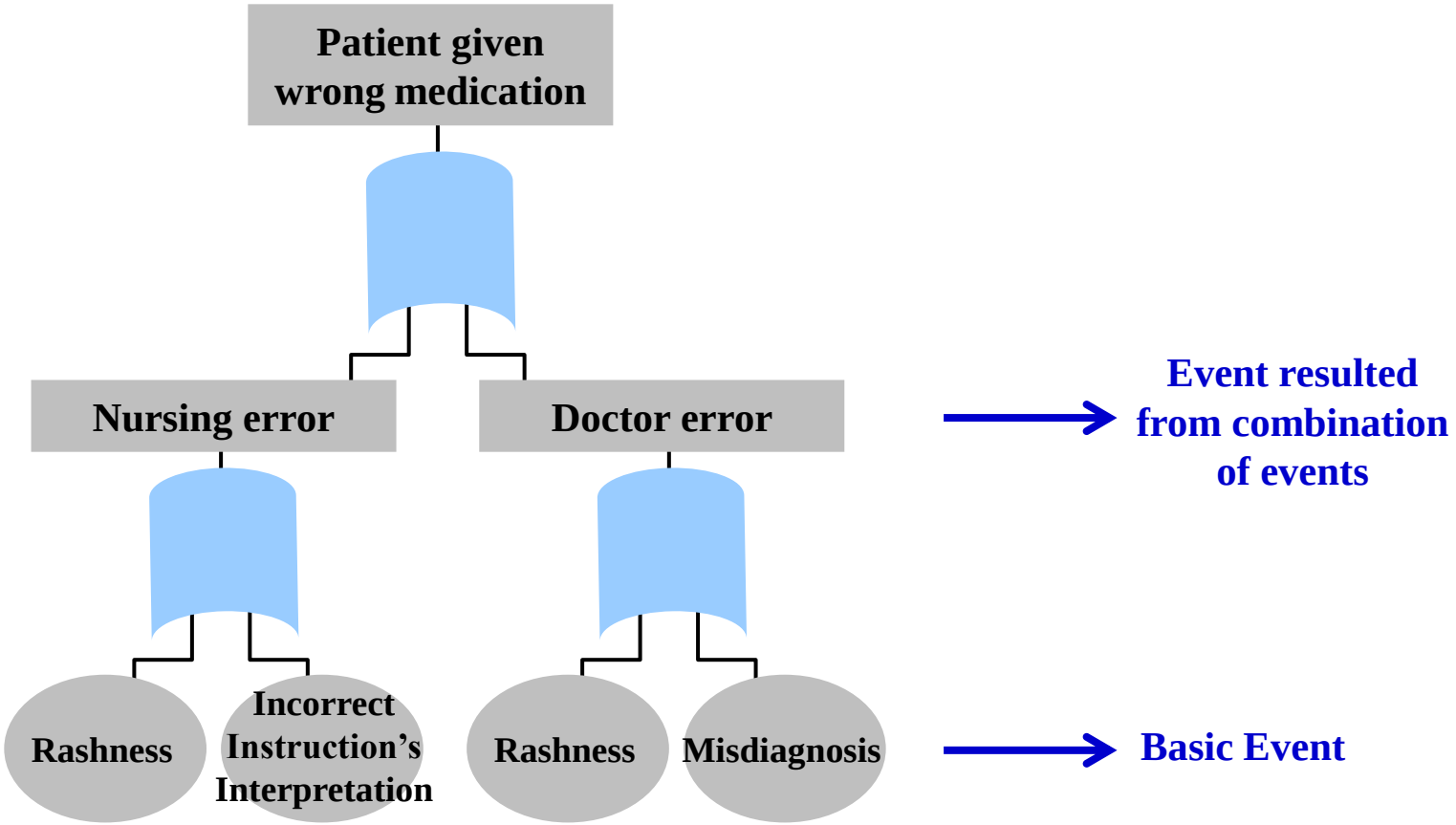


- **Inhibit Gate:**
  Prevents a failure from happening unless a specific condition is met.



- Fault Tree Analysis

Example – Give Patient Wrong Medication:



- Fault Tree Analysis

Example – Person De-motivated by Evaluation: