

Module 1 :

Nature of Chronic Losses



The Problem of Chronic Loss

Why does chronic losses persist ?

- Failure to understand the nature of chronic loss
- Using ineffective approaches in dealing with chronic losses

Chronic vs Sporadic Losses

Sporadic

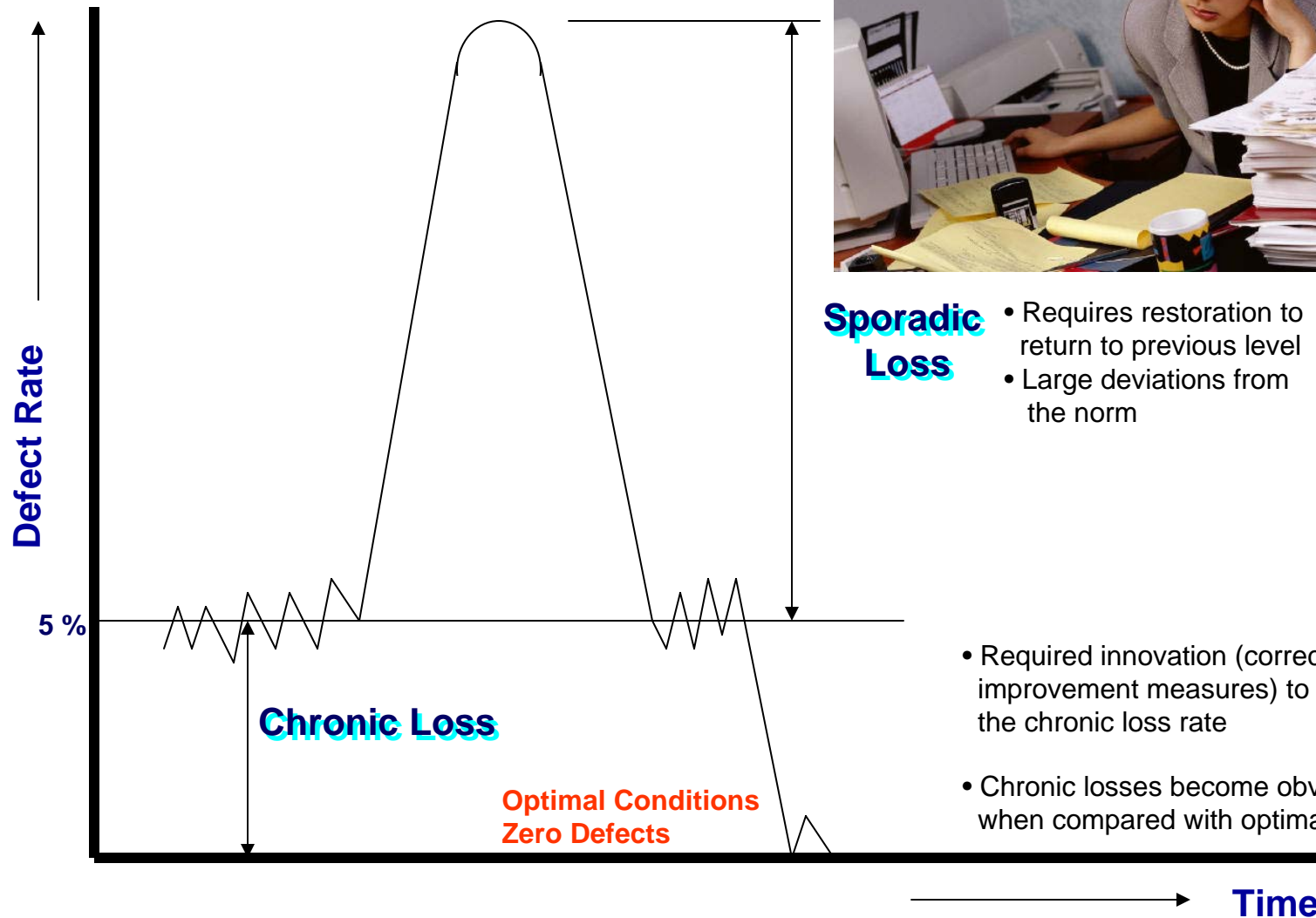
- Indicate sudden often large deviations from the norm
- They result from a single cause that is relatively easy to identify
- Since rootcause is often a single cause corrective measures are easy to formulate and easy to correct



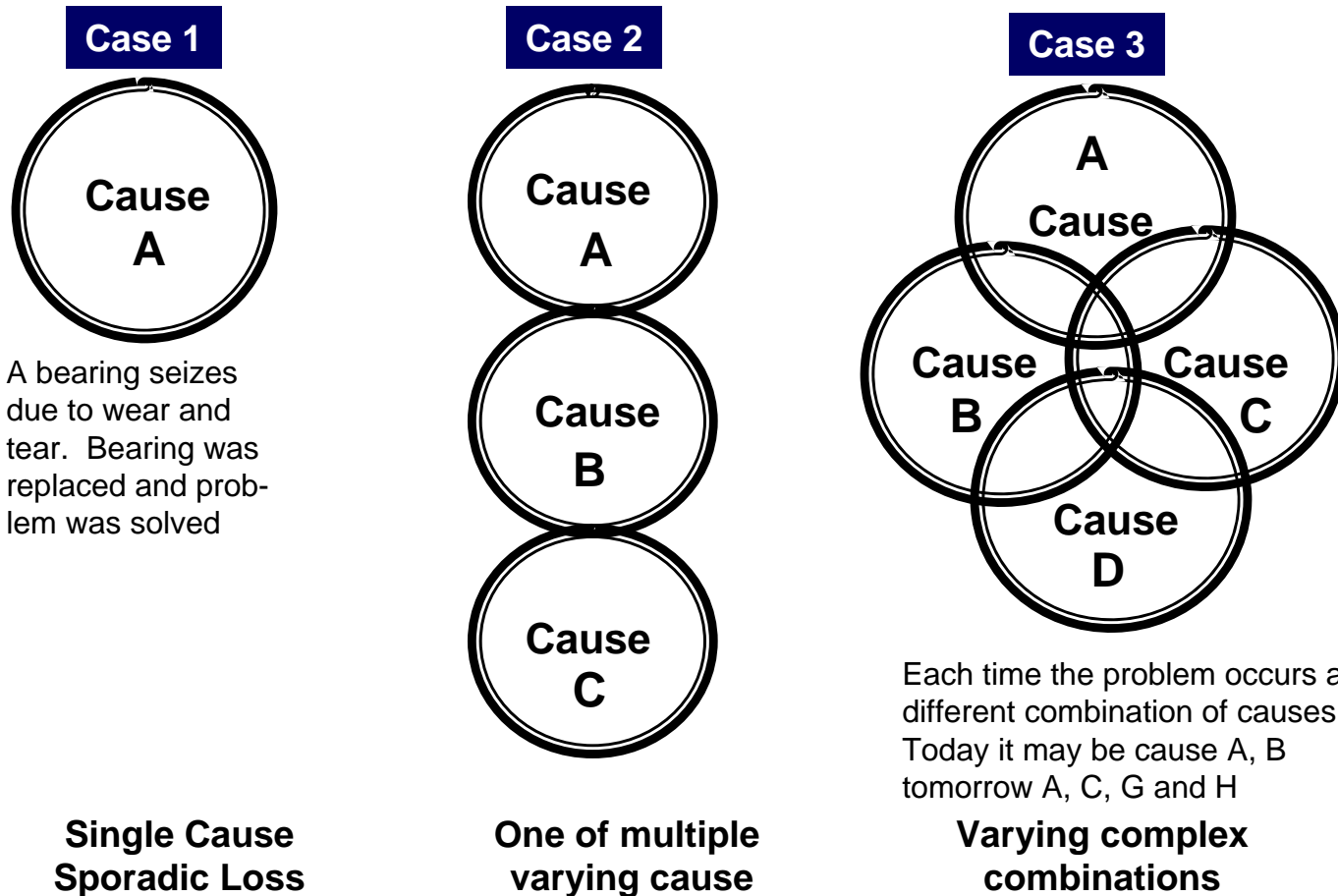
Chronic vs Sporadic Losses

	SPORADIC	CHRONIC
Characteristic	<ul style="list-style-type: none"> • Occur suddenly and infrequently , large deviations from the norm 	<ul style="list-style-type: none"> • Smaller , frequent deviation, resist variety of corrective measures • Includes 1- 5%of the problem
Cause	<ul style="list-style-type: none"> • Single cause, problem is easy to identify 	<ul style="list-style-type: none"> • Complex, tangled cause and effect relationship, difficult both to identify causes and clarify effect.
Countermeasure	<ul style="list-style-type: none"> • Restore to return to its previous level 	<ul style="list-style-type: none"> • Requires innovative break through measures, that restore the mechanism or component to its original, defect-free state.
Approach	<ul style="list-style-type: none"> • Cause and Effect • Pareto Diagram 	<ul style="list-style-type: none"> • P-M Analysis

Chronic vs Sporadic Losses



The Nature of Chronic Loss



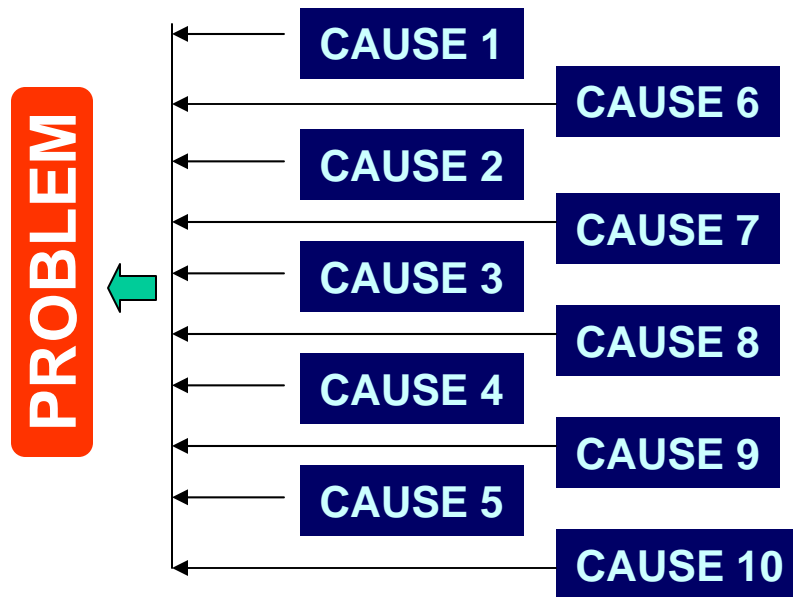
Each time the problem occurs a different combination of causes. Today it may be cause A, B tomorrow A, C, G and H



Difficulty in pinpointing causes

Even when measures taken against a single targeted cause are effective, the improvement is often temporary, hence the problem will resurface since we failed to eliminate the cause

Dealing With Chronic Loss

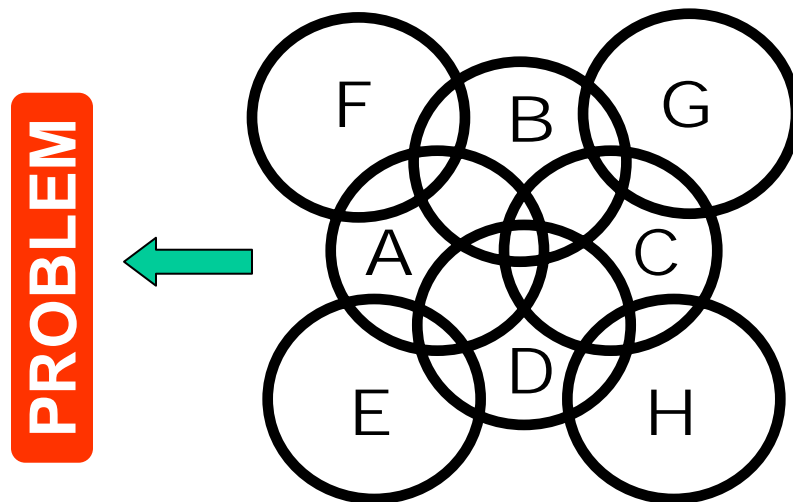


- A given problem with 10 potential causes , 1 to 10
- Each time the problem occurs, the cause is different
- Measure focused only 1 specific cause, cannot control the problem
- Today problem is caused by 1, 2, 3
2nd shift is caused by 7, 8 and 10

How do you deal with this type of problem ?

Varying Combination of Losses

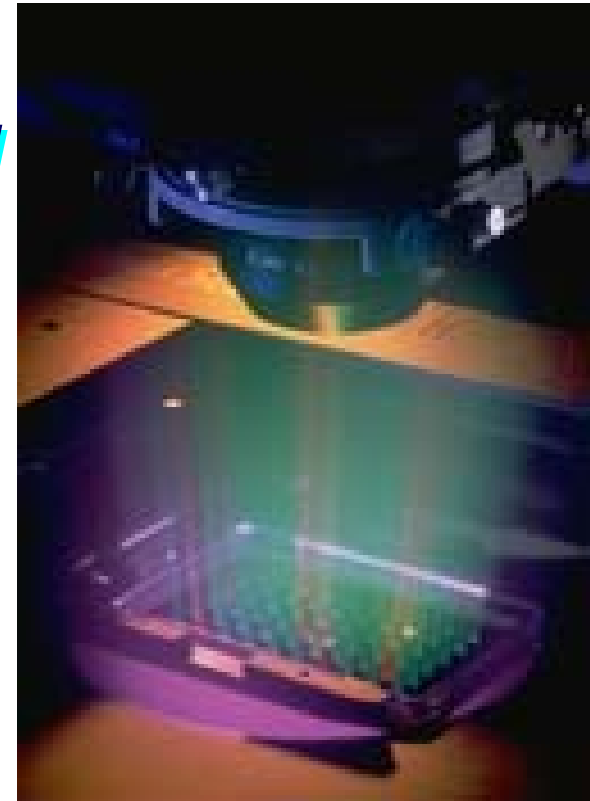
- Identify all factors that contribute to a loss
- Thoroughly investigate each factor
- Eliminate any malfunctions or sub-optimal conditions discovered in the process



Why Chronic Losses Persists :

- **Phenomena are insufficiently stratified and analyzed**
 - Defects and failures are not carefully observed and stratified
 - People do not notice the defect pattern (how), elements (where) periods (when)
- **Some factors related to phenomena are overlooked**
 - Potential causes are overlooked and uncontrolled
 - Uncontrolled factors can easily lead to Chronic Losses
- **Hidden abnormalities in individual factors are not addressed**
 - Failing to identify and respond to abnormal conditions
 - People are more alert to large problems since they appear more significant and the smaller the problem the more likely they are to be ignored
 - Slight abnormalities includes dirt, rust, vibration, looseness, slightly wear, dirty contact

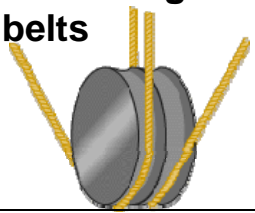

Phenomenon - the physical event or precisely what happens to produce the defect in question. This is the abnormal event to be controlled



Optimal Conditions :

- **A thorough elimination of slight abnormalities is a prerequisite for achieving zero defects and breakdowns**

OPTIMAL = Necessary + Desirable

Mechanism	Necessary	Desirable
Pulley arrangement accommodating all three belts 	<ul style="list-style-type: none"> • At least one V-Belt must be installed for correct operation 	<ul style="list-style-type: none"> • All 3 V-Belts should be installed for operation • All 3 V-Belts should have equal tension • The belts should be free of cracks & grease • Pulley should be free of abrasion • The motor and speed reducer should be aligned properly at all times
Grease supply 	<ul style="list-style-type: none"> • Grease must be supplied at specific locations 	<ul style="list-style-type: none"> • Grease nipple should be kept clean • Area around the grease fitting should be wiped clean after each application • The condition and volume level of used lubricant should be checked constantly • Grease container should be kept clean • Used lubricant should be disposed of properly • The number of days for the lubricant to reach the end of piping should be estimated

Optimal Conditions :

- Represents equipment operating at its highest level - reliable maintainable performing to the full extent of its design capabilities. It is the sum of 2 categories namely necessary and desirable
- As good as new, it is what the equipment was designed and built

Necessary Conditions :

- Minimum requirement to support equipment conditions



Maintenance Excellence



Desirable Conditions :

- Desirable conditions are not essential for operation but they are needed to prevent breakdown and defects