



## Primary Goal of FETP

**To inform, as quickly as possible, the processes of selecting and implementing interventions to lessen or prevent illness or when emergency public health problems arise.**



# Public Health Surveillance

January 2018



# Specific Purposes of Public Health Surveillance

To portray the ongoing pattern of health-related states and events, to...

- Assess public health status
- Trigger public health action
- Define public health priorities
- Evaluate programs

“Information for Action”

# VISION

## Vision

Efficient systems that put the  
right data and information...

...in the right hands

...at the right time

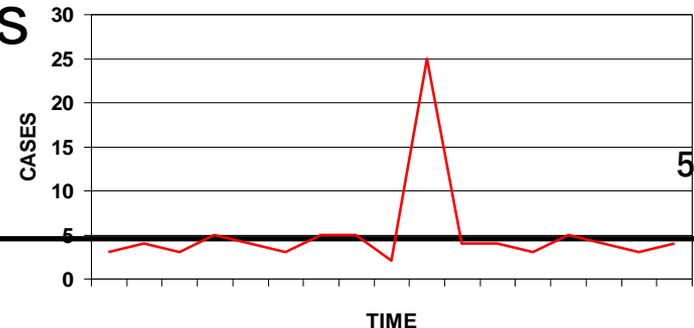
...in the right format

To take effective public health action



# Surveillance can...

- Estimate the magnitude of a problem
- Determine geographic distribution of illness
- Detect epidemics/outbreaks
- Generate hypotheses, stimulate research
- Evaluate control measures
- Monitor changes in infectious agents
- Detect changes in health practices



# What is Public Health Surveillance?

*How?*

*What?*

*Why?*

# What is Public Health Surveillance?

## How?

*Ongoing,  
systematic,*

## What?

*collection, collation  
analysis,  
interpretation, and  
dissemination  
of health-related data*

## Why?

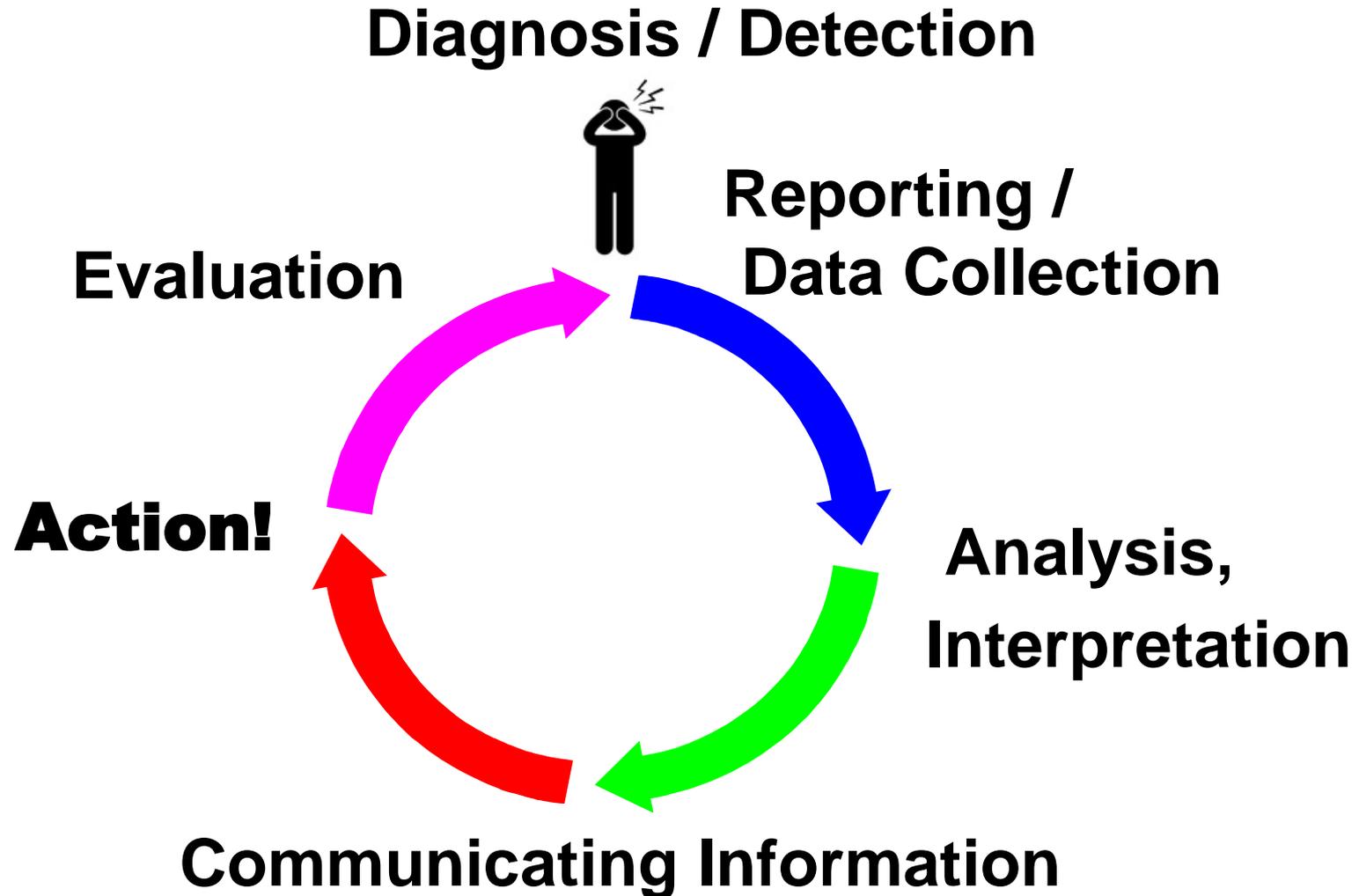
*for use in public health action  
to reduce morbidity and mortality and  
to improve health.*

# Surveillance of foodborne illness US CDC

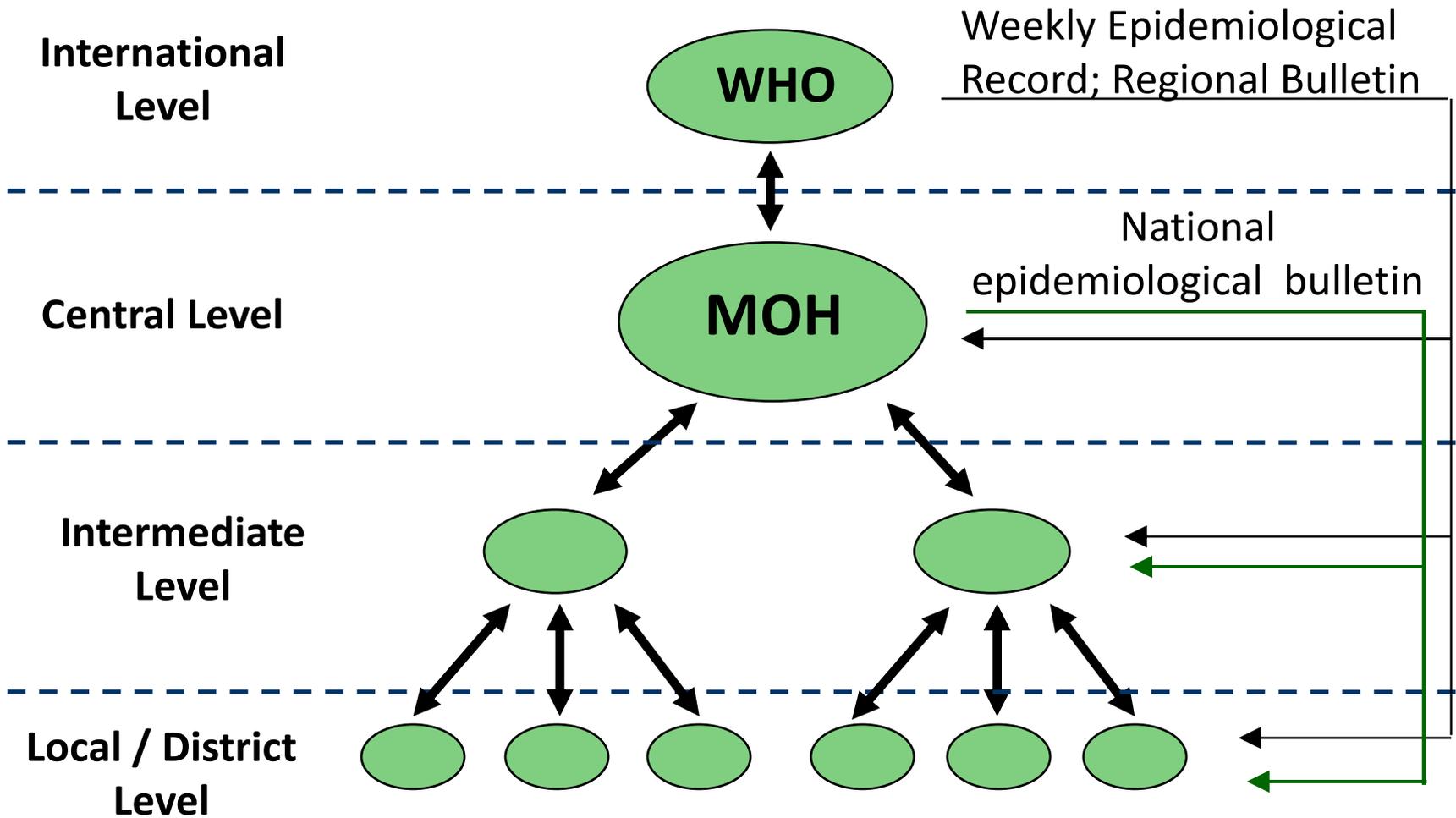
- How & What
  - CDC collects, analyzes, and disseminates national surveillance data on bacterial foodborne illnesses in order to provide a national snapshot of the occurrence of infections transmitted commonly through food.
- Why
  - Our goal is to decrease the burden of acute bacterial enteric illnesses in the United States.

Experts in enteric diseases epidemiology and laboratory testing and analysis lead this effort

# The Surveillance Cycle



# WHO Schema for Information Flow for Communicable Disease Surveillance





# Improving Community Health

Supporting MOH & DOPH Activities

## Surveillance and Response

Diseases under  
National  
Surveillance

HMIS + 33  
Sentinel Sites

Epidemic prone  
Communicable  
Diseases

Diarrhoea  
Cholera  
Meningitis  
Food poisoning

Vaccine  
Preventable  
Diseases

Poliomyelitis  
Measles  
MNT  
Diphtheria  
Whooping Cough

Emerging  
Infectious  
Diseases

Influenza  
(H1N1, H5N1)  
SARS  
Nipah Virus

Zoonotic  
Diseases

Plague  
Leptospirosis  
Anthrax

Disaster Management (esp. Early Warning Alert & Response System)

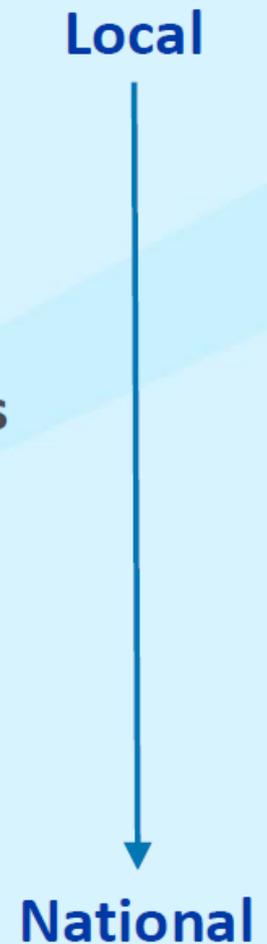
IHR Implementation (Port Health & Cross Border Surveillance)

# Some Uses of Public Health Surveillance

- **Describe** the burden of or potential for disease
- **Monitor** trends and patterns in disease, risk factors, agents
- **Detect** sudden changes in disease occurrence and distribution
- **Provide** data for program, policies, priorities
- **Evaluate** prevention / control efforts

# Uses of Public Health Surveillance Data

- Identify individual cases
- Track and manage cases
- Identify outbreaks and clusters
- Investigate causes
- Implement measures to prevent or control diseases
- Monitor trends, distribution, spread
- Study etiology, natural history, and risk factors
- Target resources
- Evaluate prevention and control efforts
- Assess healthcare utilization and quality of care
- Set research agendas



# Influenza 2017-2018.

## Impact of Current Season

### Colorado Among Worst Hit States For Flu Cases

Watch & Listen LIVE



By Jamie Leary

WELD COUNTY, Colo. (CBS4) - The Centers for Disease Control & Prevention says the 2017-2018 flu season is now widespread in every state except Hawaii.

### Alabama declares state of emergency due to widespread flu cases

Posted: Jan 11, 2018 6:41 PM EST  
Updated: Jan 11, 2018 7:01 PM EST  
By WVAJ Welislaw



**BREAKING NEWS**  
**FLU ALERT**  
WIDESPREAD OUTBREAK ACROSS ALABAMA  
LOTTERY 2-8 JACKPOT \$100 MILLION LOTTO: 05-19-20-24-27-1

### Severe flu in California brings medicine shortages, kills 27



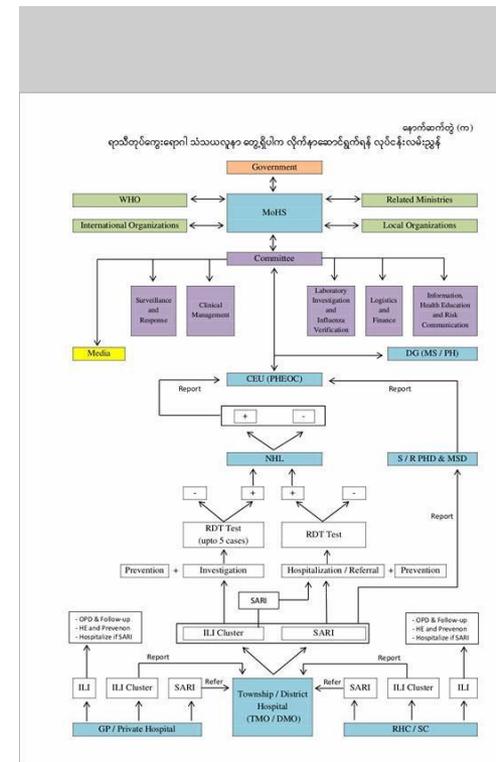
**HOSPITALS SWAMPED WITH FLU CASES**  
KUCI NEWS HD

...ed early and is spreading fast

## Public Health Surveillance for Influenza in the U.S.

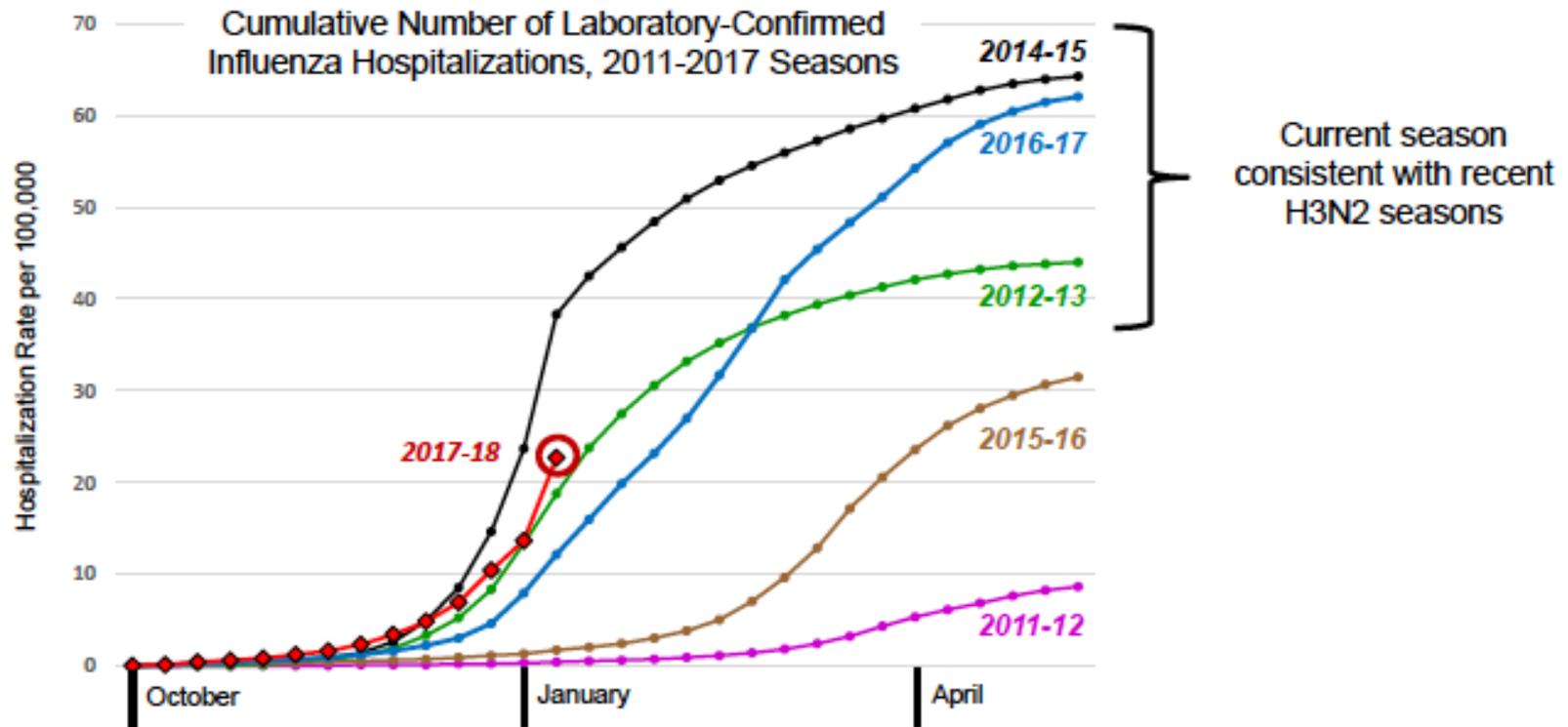
### ➤ Surveillance Systems

- Virus Surveillance
- Geographic Spread
- Outpatient Illness
- Hospitalizations
- Mortality



# Importance of data

## Hospitalizations Tracking with Recent H3N2 Seasons



- Public health surveillance
  - is system of health data collection, analysis, interpretation, and sharing to help guide decision-making and action
  - Requires multi-level collaboration, from local to international
  - Can be used to describe disease burden, trigger action, guide policy, evaluate programs

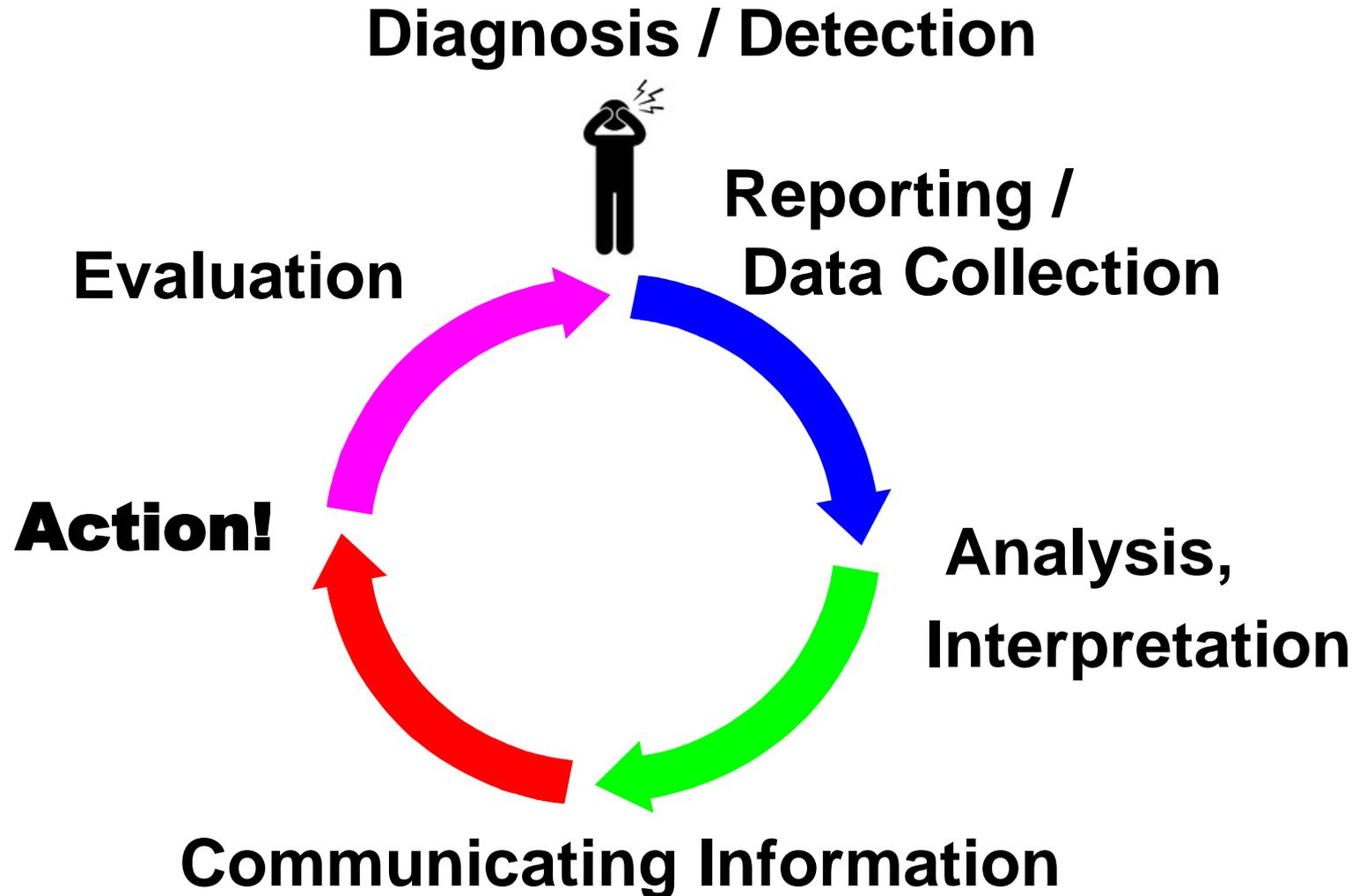


# Public Health Surveillance: Monitoring & Evaluation

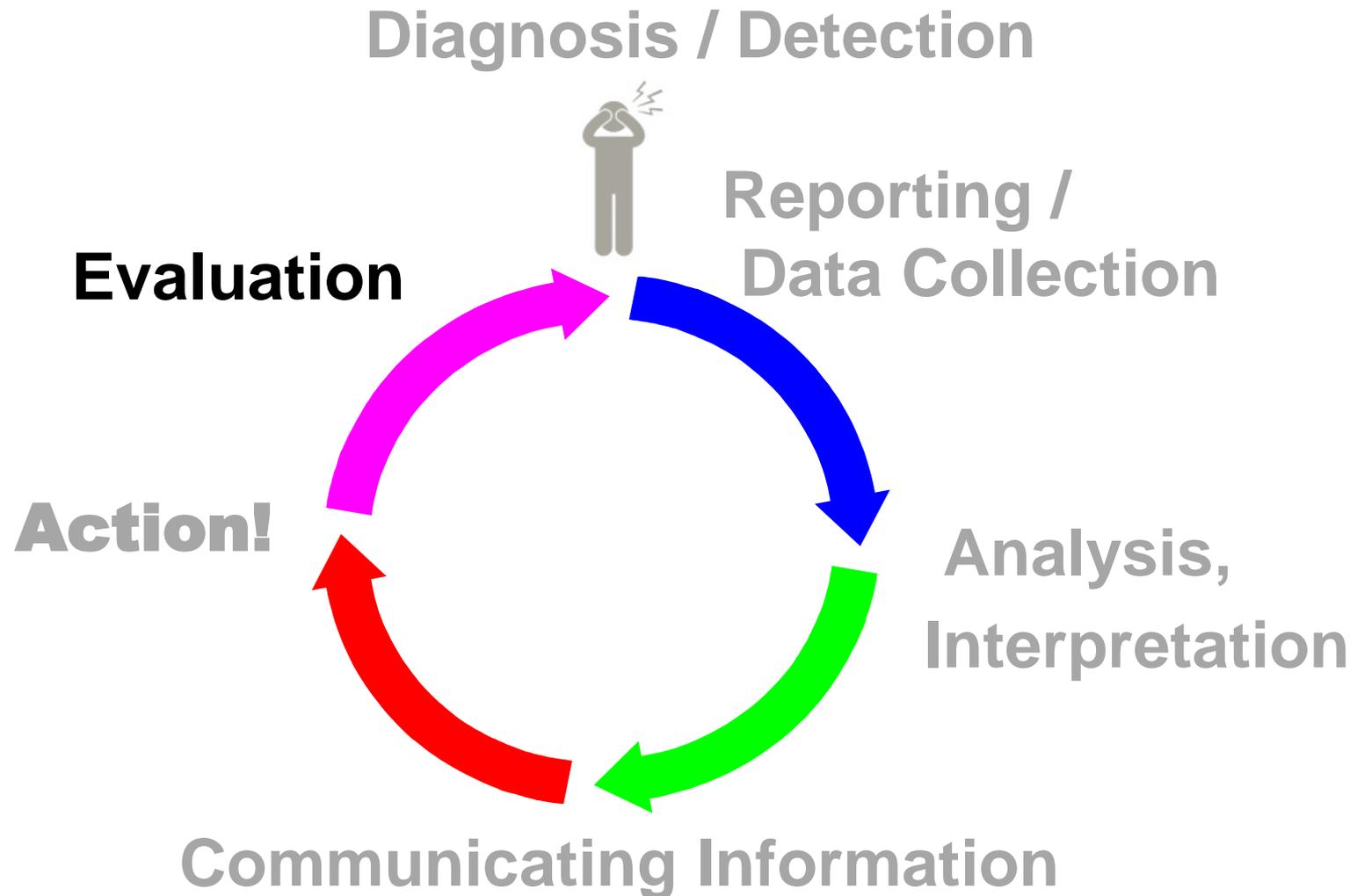
January 2018



# Summary: The Surveillance Cycle



# The Surveillance Cycle: Monitoring & Evaluation



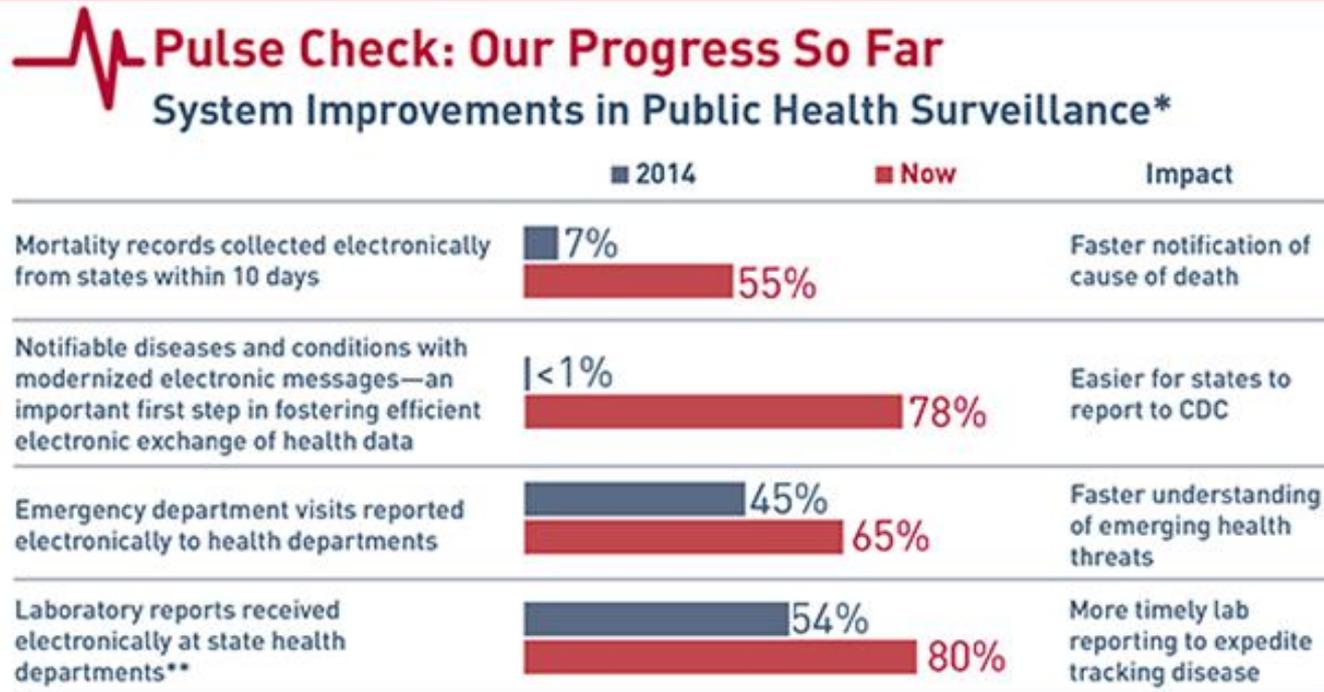
# Monitoring - US CDC Surveillance Strategy

- *To meet increasing demands for speed and accuracy, we must constantly improve how we track and report illness and other health conditions.*

# Monitoring surveillance systems CDC

## Goal 3: Identify achievable and targeted surveillance improvements that can be accomplished quickly

### Pulse Check: Our Progress So Far



\* Percentage change furthered by CDC Surveillance Strategy since 2014

\*\* Approximately 20 million laboratory reports are received annually at health departments—80% are now received electronically.



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

# Monitoring & Evaluation: Learning Objectives

At the end of this session, you will be able to:

- Use basic indicators such as timeliness & completeness to monitor surveillance and response activities at the township, district level and state/regional level
- Identify targets and indicators for your state/region
- Monitor the quality of surveillance activities at the district level
- Use results to take action to improve surveillance and response

# Monitoring and Evaluation

- Monitoring = routine and continuous tracking of planned surveillance activities
- Evaluation = periodic (e.g., annual) assessment of whether surveillance and response objectives have been achieved

# What Indicators Could Monitor Performance?

<b>Health Facility/Township Reporting Practices</b>	<b>District Reporting Practices</b>	<b>Disease/Public Health Action</b>	<b>Laboratory Practices</b>

# What Indicators Could Monitor Performance?

Health Facility Reporting Practices	District Reporting Practices	Disease/PH Action	Laboratory Practices
Proportion of health facilities submitting reports on time to district	Proportion of districts submitting reports on time to next higher level	Proportion of outbreaks notified to the next higher level within 2 days	Proportion of districts that report laboratory data
Proportion of health facilities submitting complete reports to district	Proportion of districts using line graphs or histograms	Proportion of outbreak reports that analyzed case-based data	Proportion of district laboratories visited
Proportion of health facilities submitting zero reports for epidemic-prone diseases	Number of epidemics missed by district (detected by national level)	Proportion of confirmed outbreaks with recommended PH response	Proportion of states/regions reporting analyzed lab data to national lab
		Case-fatality rate for each epidemic-prone disease reported	

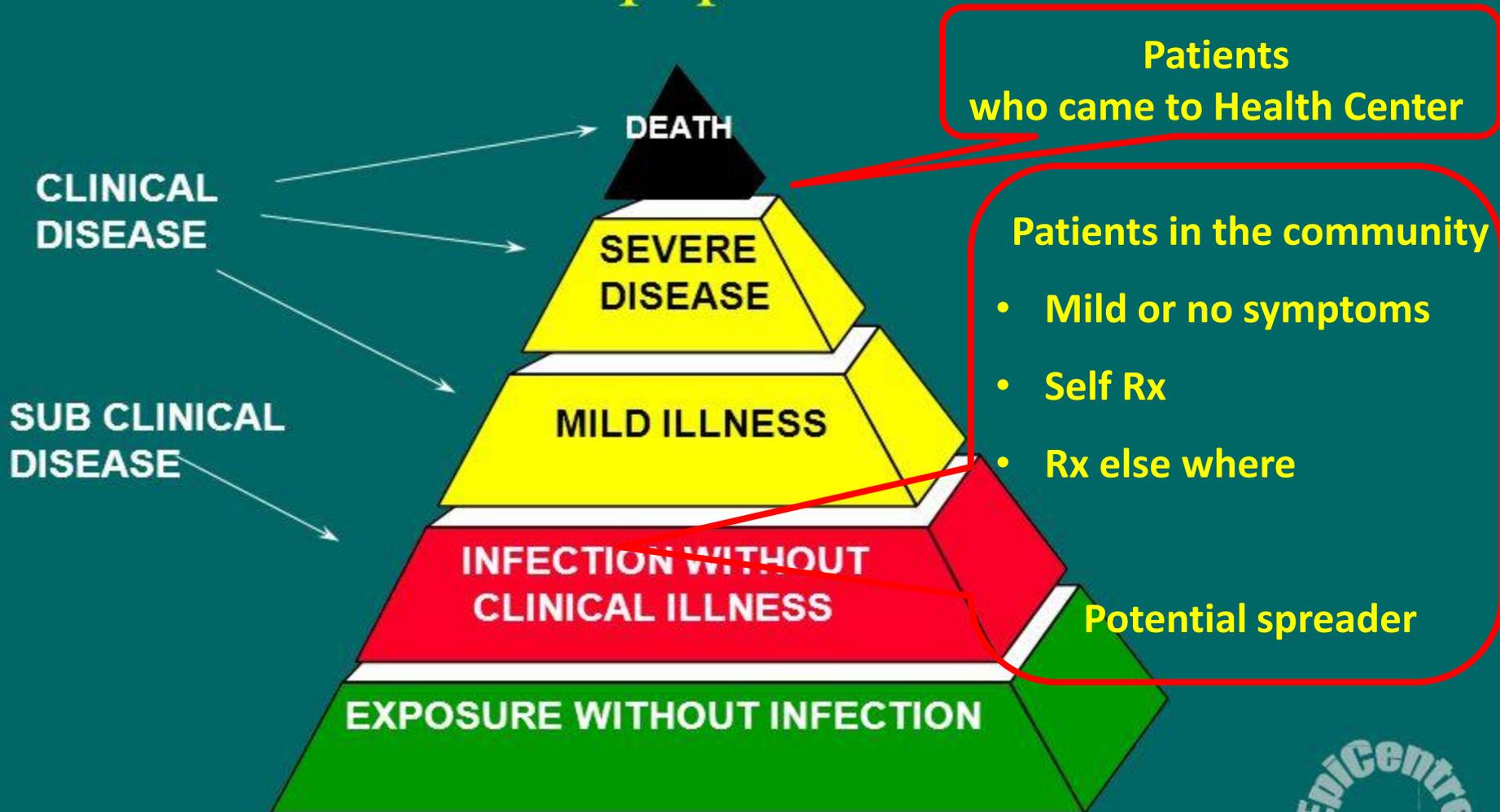


# Exercise: Calculating Indicators

Use the information in the table to:

1. Calculate timeliness of reporting for each health facility
2. Calculate the completeness of reporting for each health facility
3. How many health facilities reached the 80% target?
4. Which health facility was the best for timely reporting?

# “Iceberg” concept of infectious disease in populations



# Monitoring can lead to better quality

## Promote Quality by Giving Feedback

### Facility Timeliness

Facility	This Week	% Cumulative YTD
Ringa	L	60.4
Zahanati	T	85.7
Mopongo	T	90.3
Zinhlago	L	81.9
Tomba	NR	68.5
Bombalo	L	73.8
Bele	T	94.0
Hatari	T	78.2
Sokaa	T	86.4
Magara	NR	42.9

### Legend

	This week			% Cumulative YTD		
Facility	On time T	Late L	No report received NR	≥80% on time	≥50-79.9% on time	<50% on time

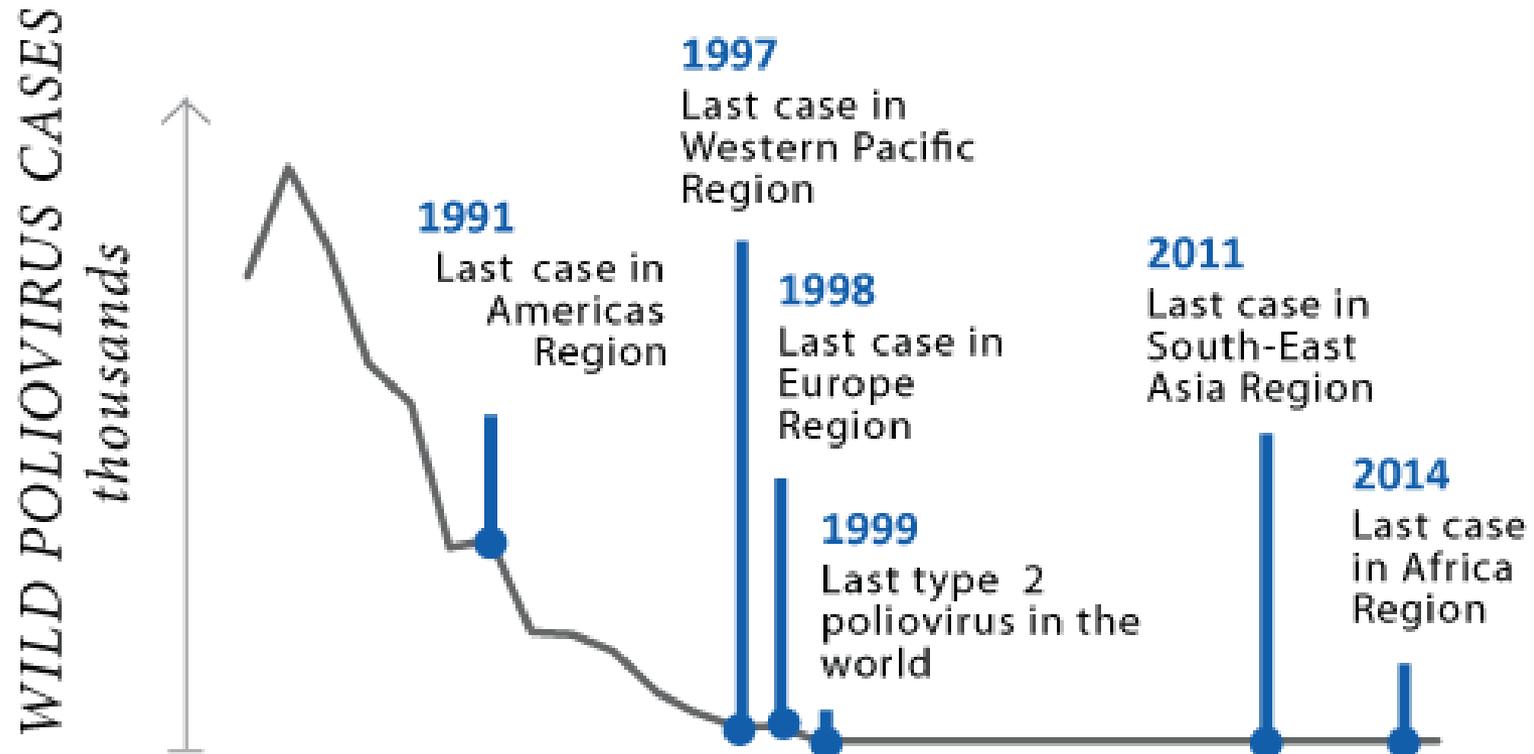
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Data Quality

# Acute Flaccid Paralysis Surveillance

# Evaluation

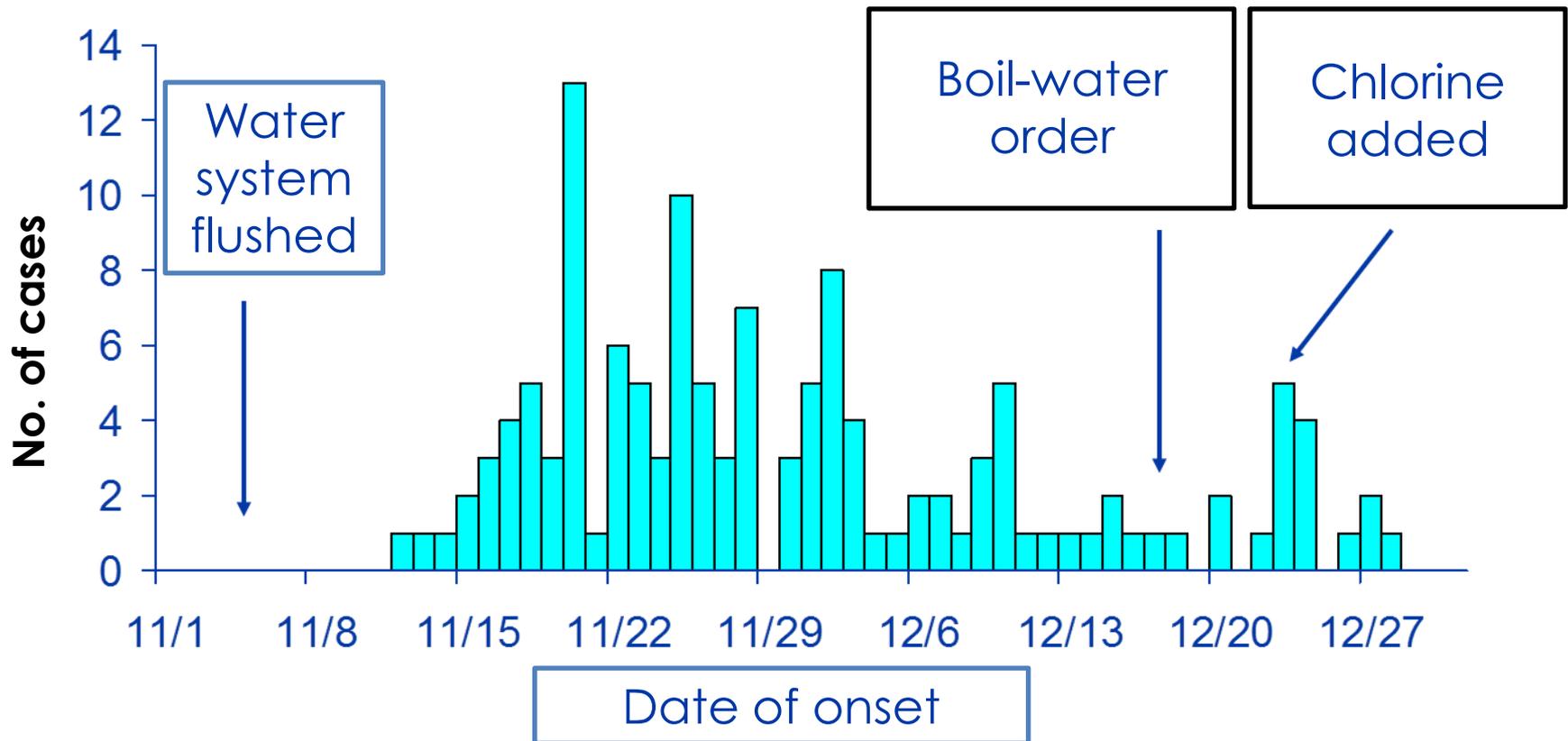
## Is global action working?



Region = WHO regions  
Source: Global Polio Eradication Initiative

# Link to Action

## Evaluate prevention and control efforts (continued)



# Conclusion

- Monitoring is essential to maintain quality
- Established indicators are available for monitoring performance of reporting sites
- Monitoring and evaluation should be used to develop strategies for improvement

***“The reason for collecting, analyzing, and disseminating information on a disease is to control that disease. Collection and analysis should not be allowed to consume resources if action does not follow.”***

**—William Foege, 1976**



Photo: Kay Hinton, Emory University



# Problem Analysis

January 2018



# Cholera — A Public Health Approach

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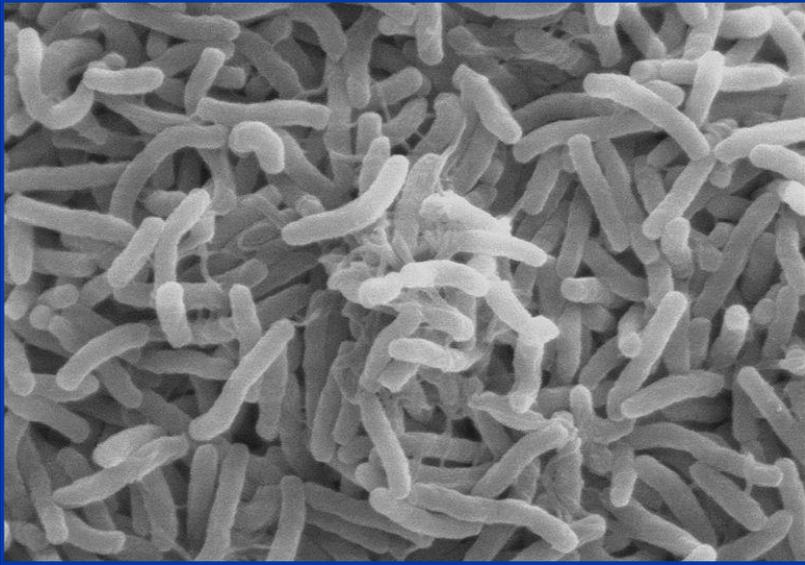


Photo: TJ Kirn, MJ Lafferty, CMP Sandoe, and R Taylor,  
Dartmouth Medical School

Cholera, a fatal intestinal disease, was rampant during the early 1800s in London, causing death to tens of thousands of people in the area. Cholera was commonly thought to be caused by bad air from rotting organic matter.

# John Snow, Physician

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Photo: London School of Hygiene  
and Tropical Medicine

John Snow is best known for his work tracing the source of the cholera outbreak and is considered the father of modern epidemiology.

# Epidemiology — What is the Problem?

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## Cluster of Cholera Cases, London — 1854

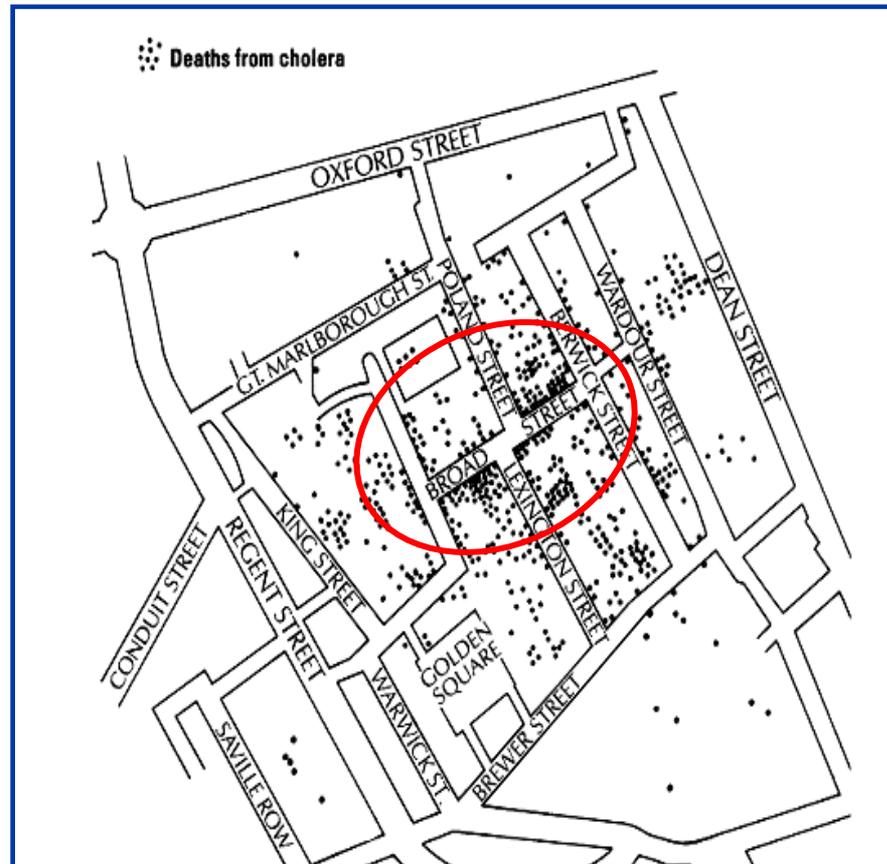


Image: The Geographical Journal

# Risk Factor Identification — What Is the Cause?

## Cluster of Cholera Cases and Pump Site Locations

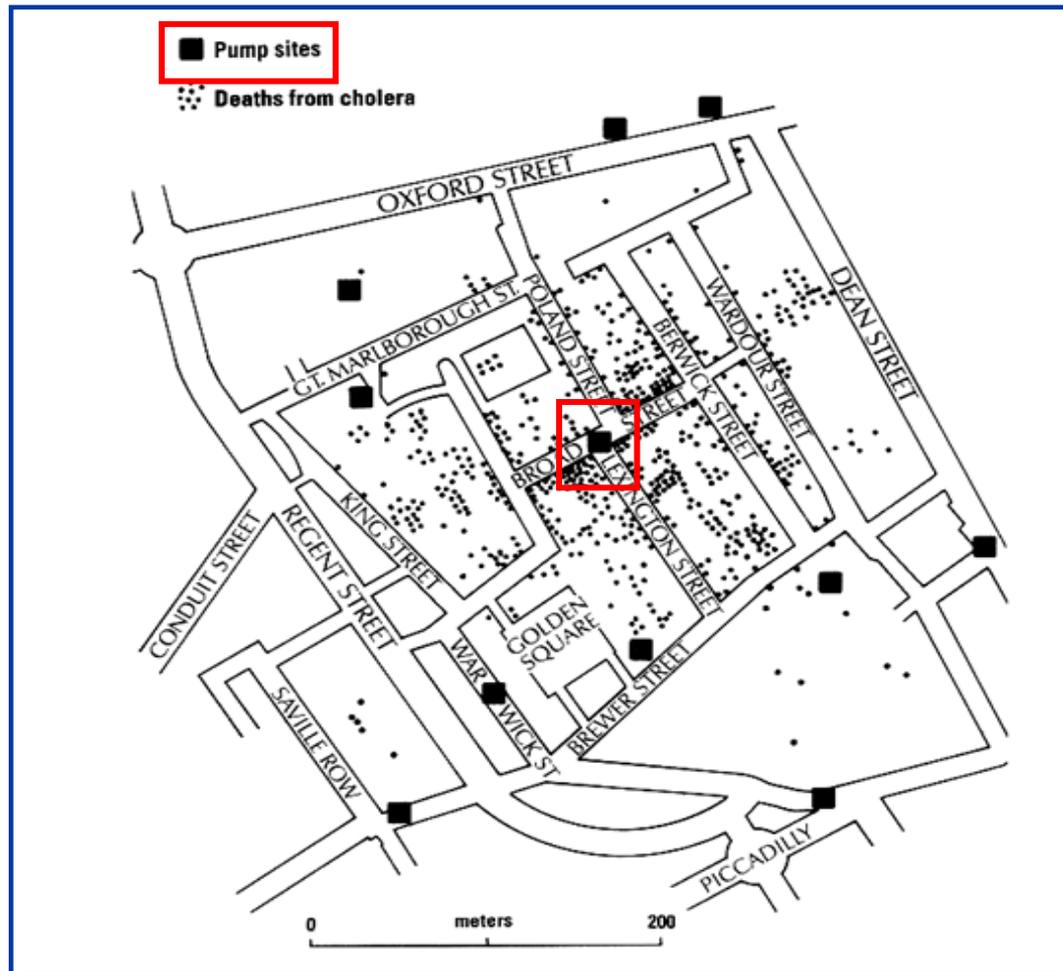


Image: The Geographical Journal

# Intervention Evaluation — What Works?

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Through continuous research, Snow understood what interventions were required to

- stop exposure to the contaminated water supply on a larger scale, and
- stop exposure to the entire supply of contaminated water in the area

# Implementation — How Do You Do It?

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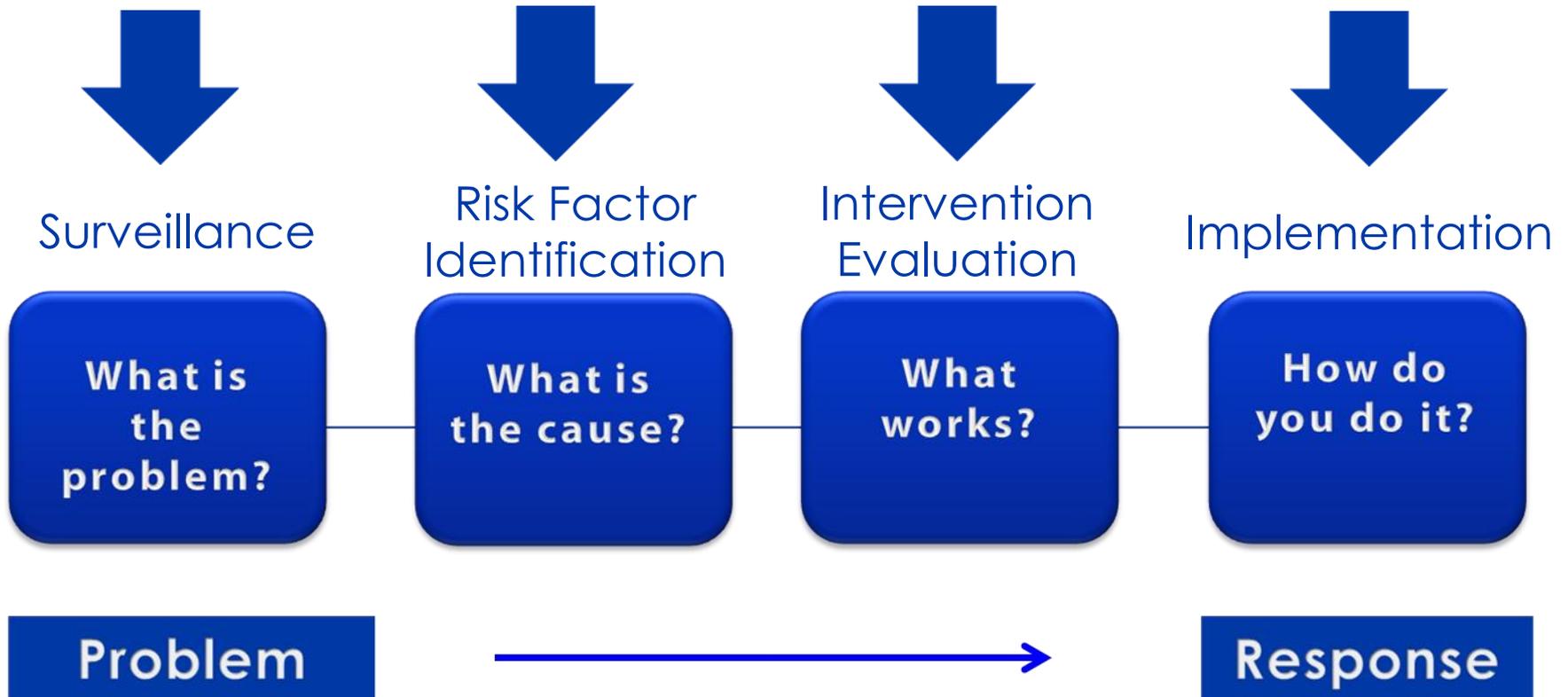
Photo: Justin Cormack

John Snow's research convinced the British government that the source of cholera was water contaminated with sewage



# A Public Health Approach

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# Learning Objectives

When you complete this workshop, you will know how to:

- Use a methodical approach to analyze a performance problem
- Create a cause/effect diagram to determine the reasons for a problem
- Identify the best problem to address to have the highest impact

# Problem Analysis

- Don't jump to a solution when you encounter quality problems
- Analyze the root cause of a performance problem
- Involve stakeholders to gain consensus
- Provide recommendations for improvement

# Data Quality Audits

# Data quality; possible problems

- 
- Poorly completed forms
  - Unentered forms
  - Under-reporting
  - Over-reporting
  - Duplicate reporting
  - Unsystematic data collection / reporting
  - Untruthful reporting
  - Inconsistent reporting formats (forms)
  - Late submission / reporting
  - Inconsistent reporting periods
  - Calculation errors
  - Lack of documentation
  - Data or files are lost

# What Did the Data Quality Audits Find?

**No  
laboratory  
confirmation**

**Missing  
forms**

**Private  
clinics  
don't  
report**

**Late  
reporting**

**Incorrect  
information**

**No tracking  
of disease  
information**

**No  
feedback  
to the  
sites**

**No plan for  
coordination  
during  
outbreaks**

**Missing  
data**

# Selecting a problem

- Many problems identified
- Which to choose?
  - Importance
  - Feasibility

- **Staff shortages**
- **Power cuts**
- **Bed shortages**
- **Poor uptake of routine vaccines**

# Challenges of Current Surveillance System

- Have Communicable Disease Control law but poor regulation
- Poor involvement of Private sector in routine surveillance
- Limited Human Resource and capacity
- Delay reporting of some outbreak
- Under reporting of cases
- Need refresher training for RRT(Capacity Building)
- Limited Lab capacity
- Most of the reporting are paper based , Fax / phone but no electronic digital reporting
- Limited operation cost for outbreak response/Transportation
- Integrated weekly reporting system include only 4 diseases

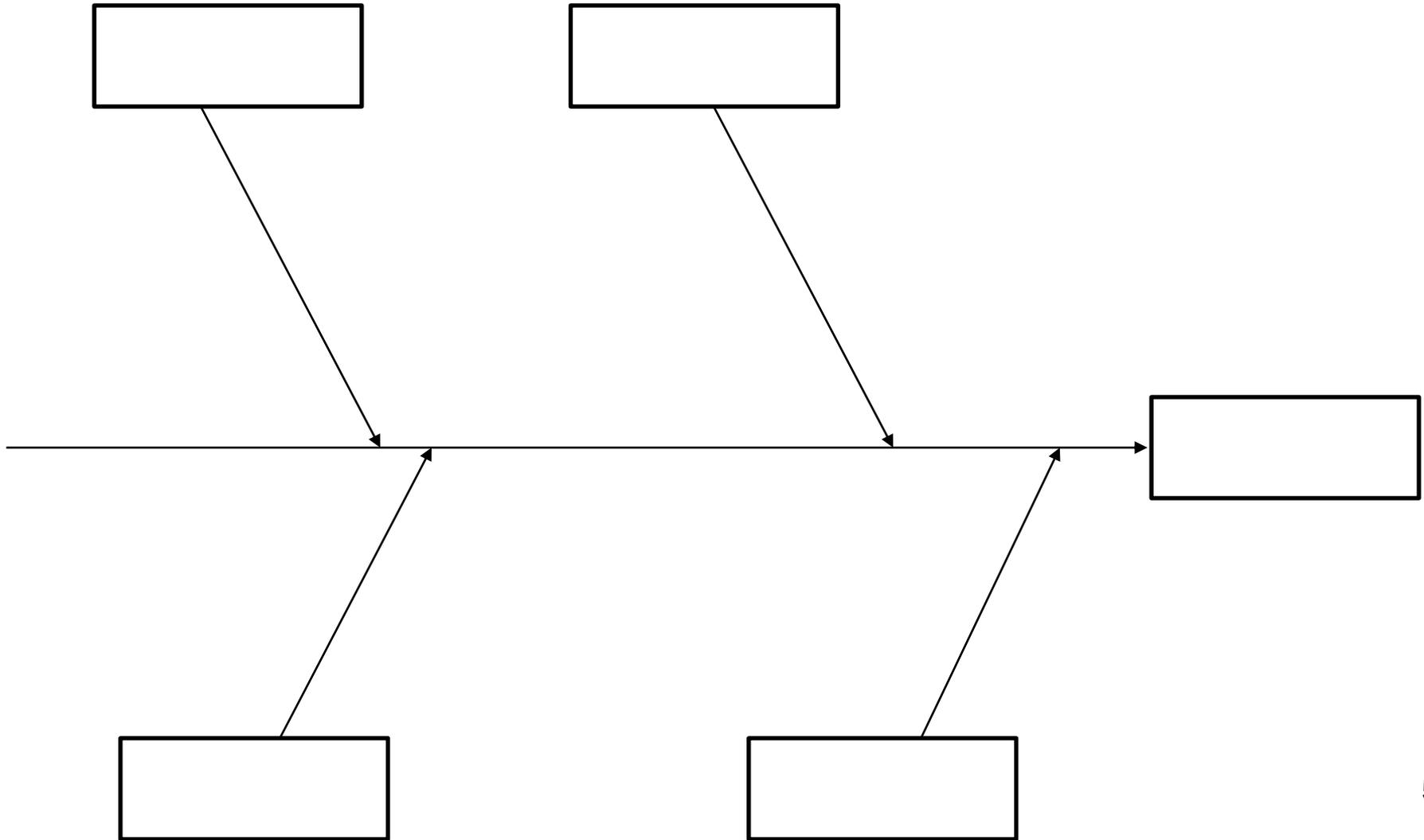
# Describing the problem

- Poor uptake of routine vaccines
  - EPI (Expanded Programme on Immunization) targets full vaccine coverage of child population
  - However, uptake has been much lower than desired, with only 65% of children receiving their complement of vaccines by age one year
  - You are expected to achieve 95% coverage during the next three years

# Writing a problem statement

- Write a full sentence describing the problem
  - Don't define in terms of the possible solution
  - Avoid assigning blame
- “Routine vaccination uptake among infants is low” is better than “People who are poorly educated need to understand why vaccines are important”

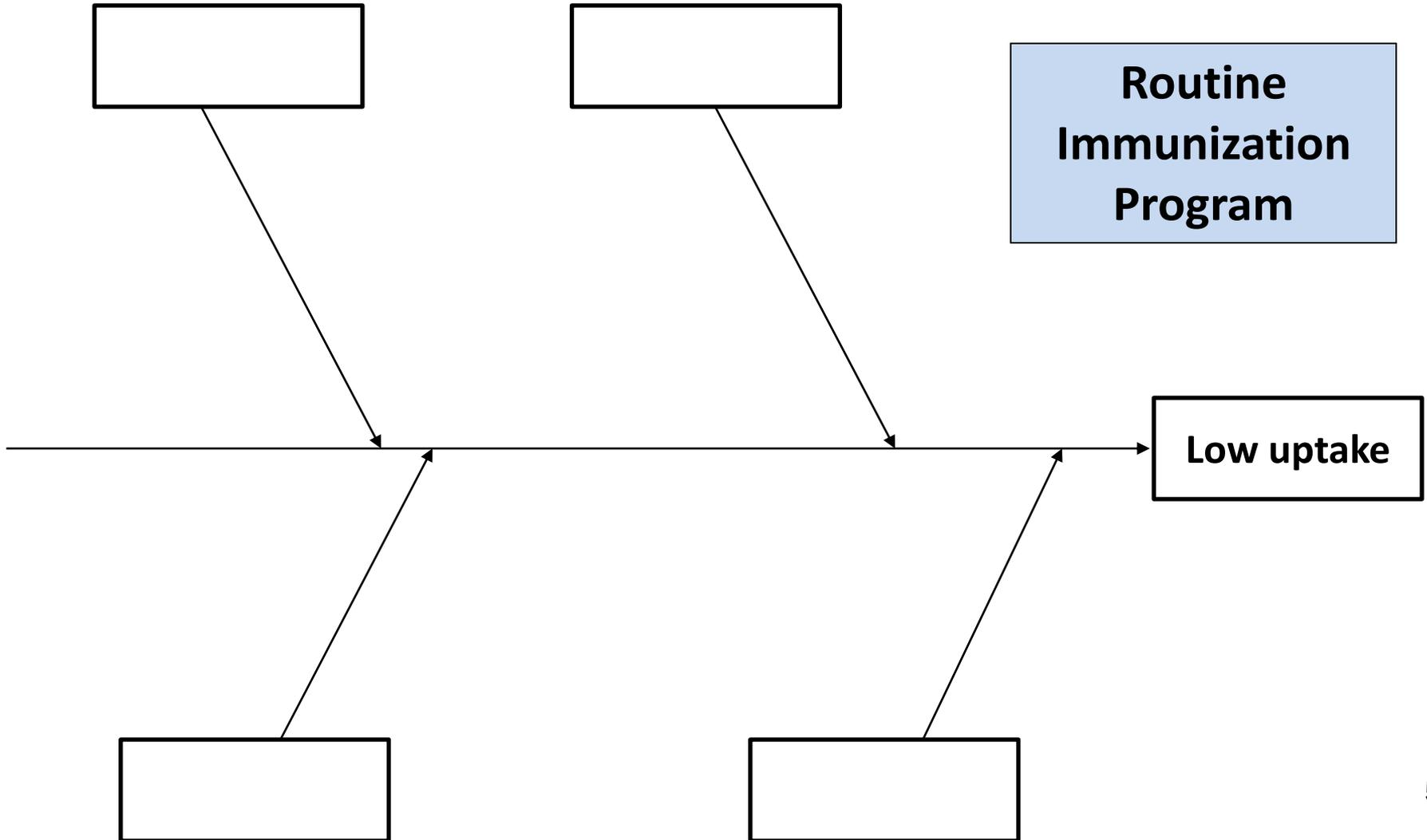
# The 'Fishbone Diagram'



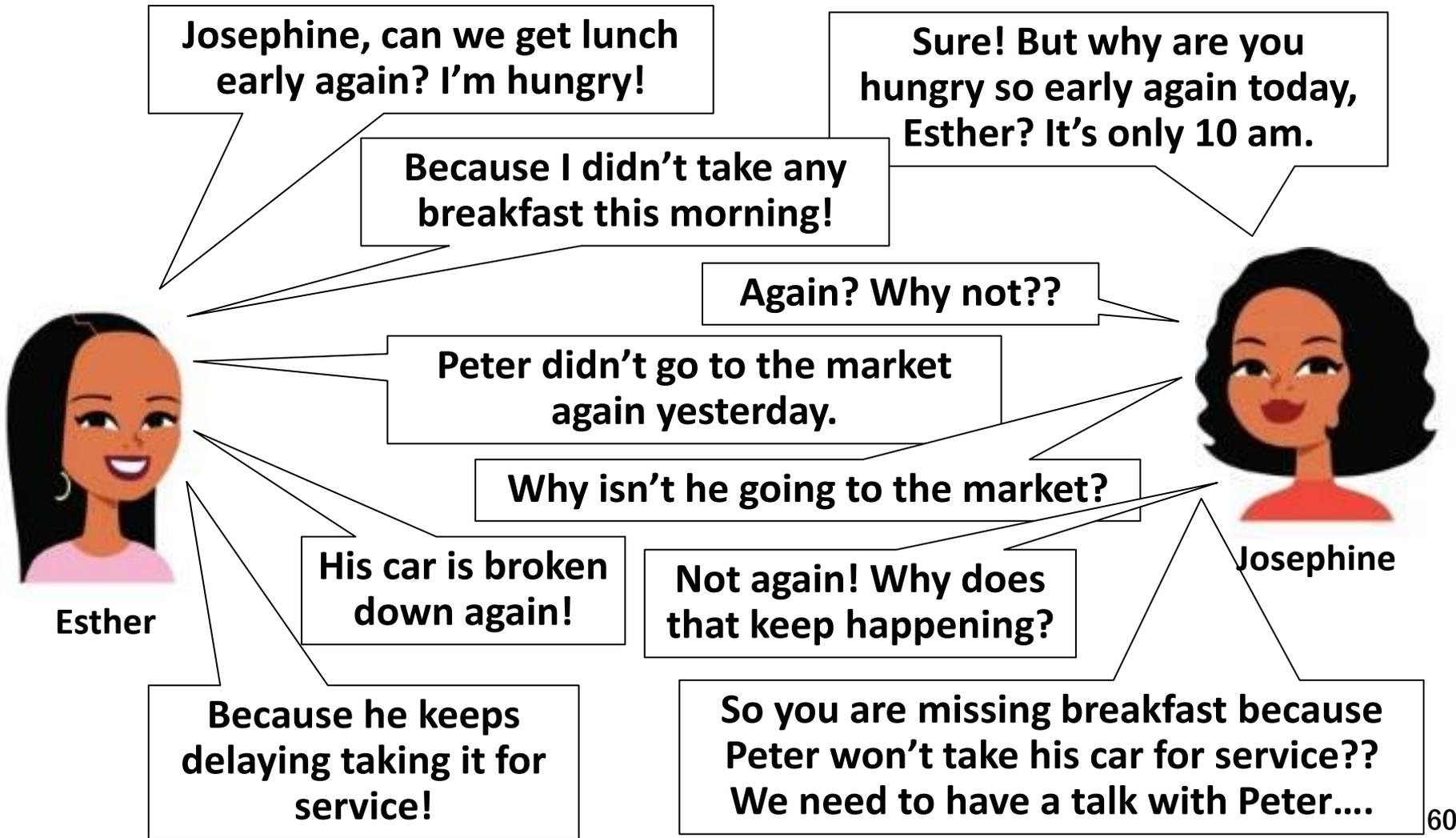
## Fishbone Diagram



# The 'Fishbone Diagram'



# Getting to the root of the problem: The 'But why?' method



# Possible causes for low uptake among infants in a routine immunization program?

- Stockouts in vaccines
- Cold chain problems leading to vaccine delays
- Beliefs about vaccination in community
- Staff workload, absenteeism
- Illiteracy among community members
- Staff unaware themselves of available days
- Lack of supervision

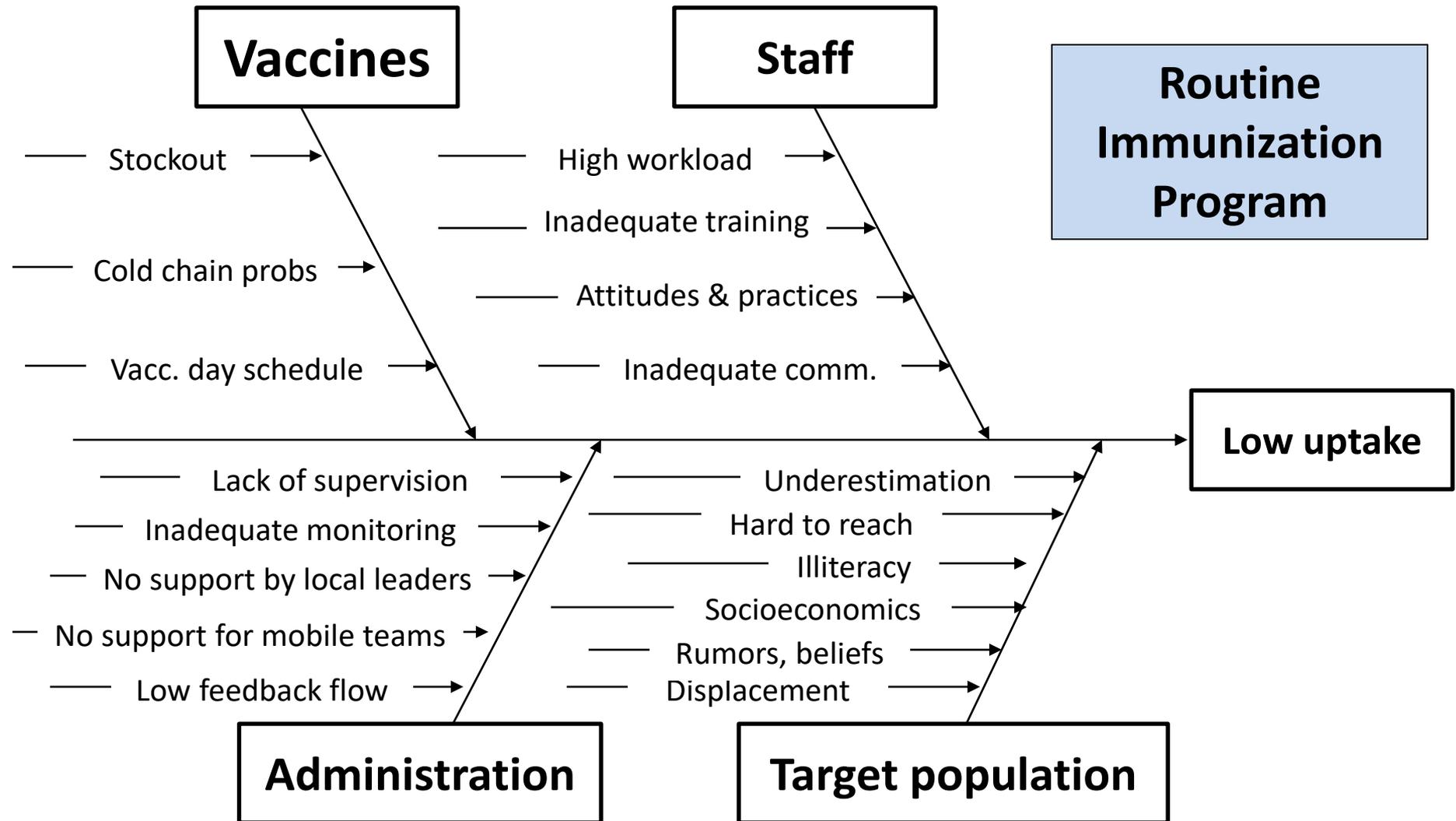
# Challenges of Routine Immunization

1. Migrant Population
2. Inaccurate target setting and head count
3. Absence of micro plan/ session plan for poor who cannot come to immunization session and weakness to do due list and drop out tracking
4. Difficulties in collection of immunization data from private hospitals and clinics
5. Inappropriate ratio of service providers and population
6. Cold Chain Logistics
7. Hard to reach areas (socio-economic/ geographic)
8. Same opportunities for hardworking staffs and laid-back staffs
9. Supervision in terms of supportive and corrective actions 62

# Group the causes into categories *after* brainstorming

- Do this at the end of brainstorming!
- In our example:
  - Staff
  - Vaccines
  - Administration
  - Population

# The 'Fishbone Diagram'

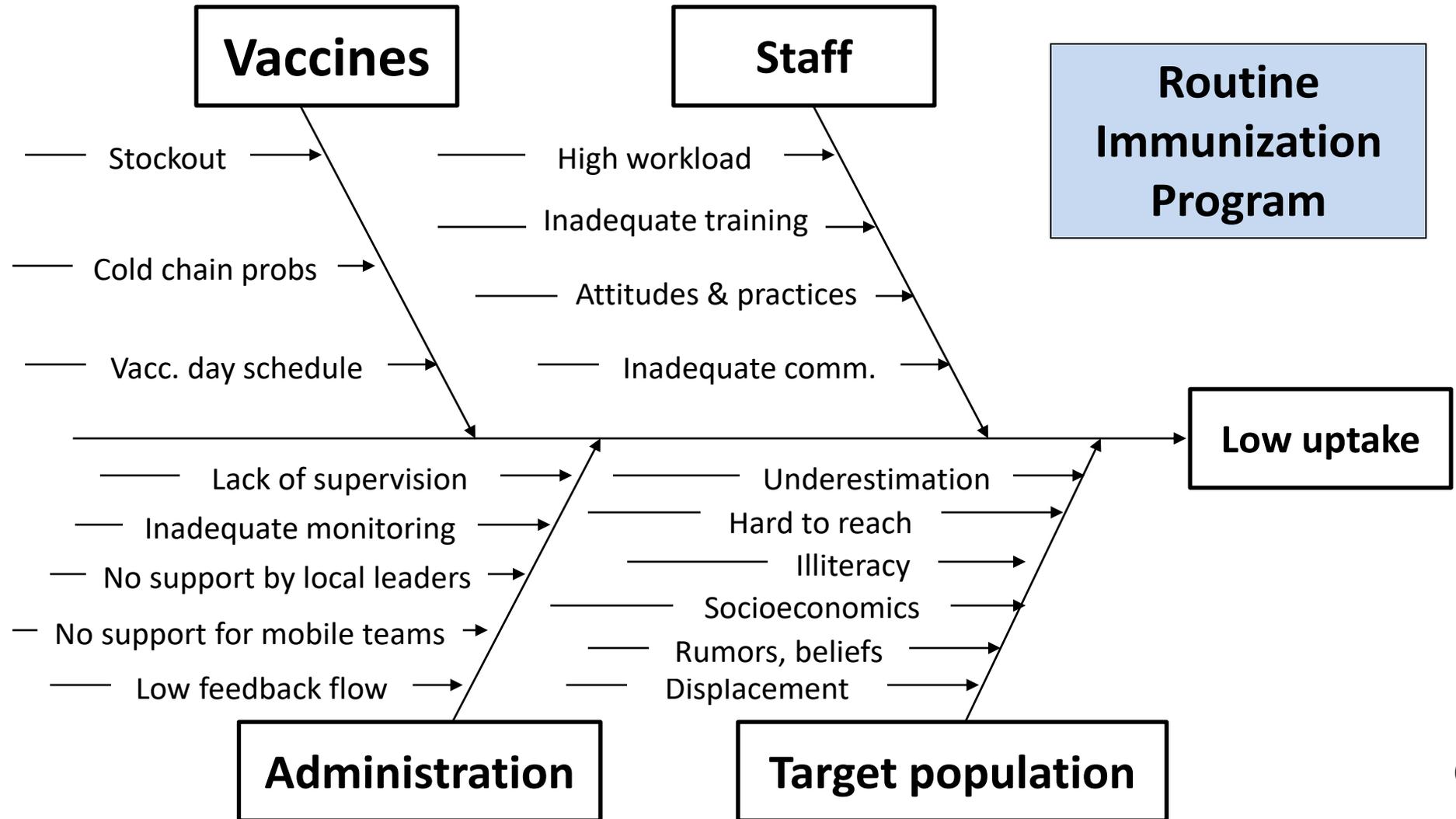


# Selection using TPN

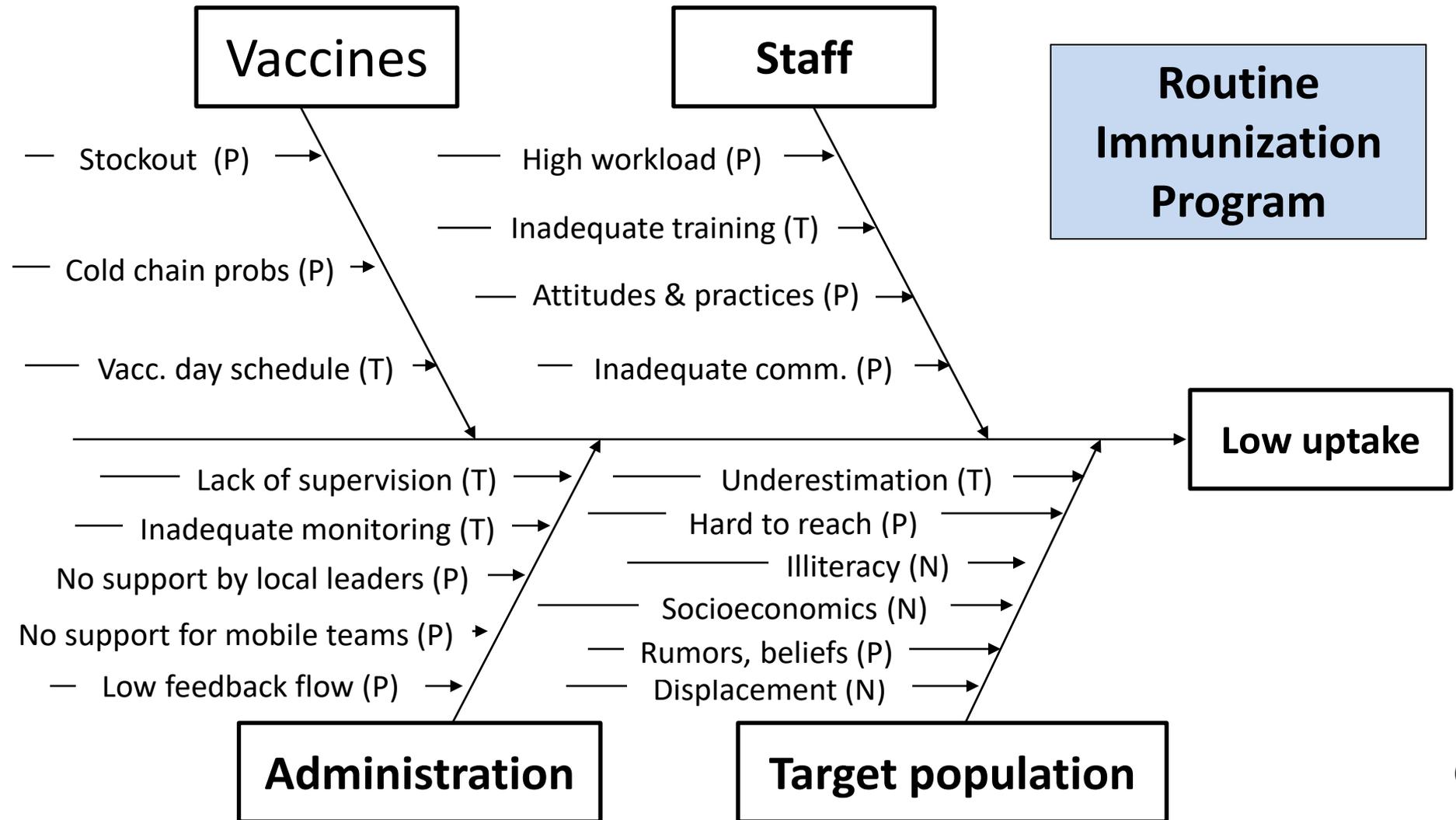
<b>T.</b>	<b>Totally within your control to improve</b>
<b>P</b>	<b>Partially within your control</b>
<b>N</b>	<b>Not in your control</b>

- Focus on T or P causes
- N's can be assigned to other teams or individuals

# The 'Fishbone Diagram'



# Assigning degree of control



# Critical Cause

- **Totally** or **partially** under your control
- It will deliver an improvement which is expected to have the greatest impact on:
  - customers' needs and reasonable expectations; and,
  - performance to technical standards.



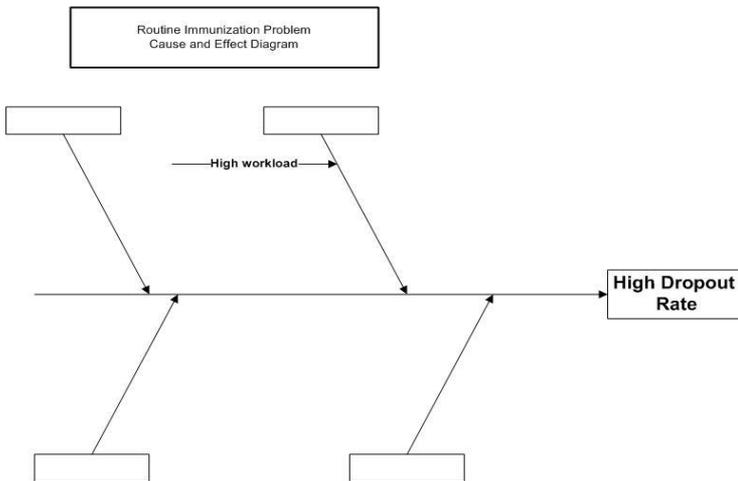
## Exercise: Explore the Causes

1. Considering the problem, brainstorm all the possible causes. Record your ideas on sticky notes.
2. After completing your brainstorm, draw the fishbone structure with 4-6 bones.
3. Write the problem in the head of the fish.
4. Attach your sticky notes to the bones. Group similar possible causes on the bones of the fish.
5. Name the categories of your bones.
6. Consider each cause and determine if it is totally in the team's control (T), partially (P) or not at all (N). Mark each sticky note accordingly.

# Next: Plan Improvement Ideas

1. Collect ideas from people who know
2. Check with stakeholders
3. Make a plan with specific actions
4. Plan to evaluate your improvement

# Problem Analysis Next Steps



1. Don't jump to a solution when you encounter quality problems
2. Analyze the root cause of a performance problem
3. Involve stakeholders to gain consensus
4. Provide recommendations for improvement

# Additional Resources: US CDC website

- For more information, please contact the Centers for Disease Control and Prevention
- Visit: <http://www.cdc.gov> | Contact CDC at: 1-800-CDC-INFO or <http://www.cdc.gov/info>

Thank you

**Myanmar FETP – Our Strength for the Country**

*Changing Mindset & Attitude*

*Do good Job with Good Practices*

*“Save Lives”*