

Root Cause Analysis

Learning Objectives

- **When you complete this module, you will know how to:**
 - Create a cause/effect 'fishbone' diagram to determine the root cause(s) of a problem
 - Identify and prioritize modifiable causes as targets of a policy brief



Root Cause Analysis: Not Only *What* Happened, But *Why*, and *How*

So our healthcare workers are getting TB because they don't use PPE?

That's right. A study in our ten TB hospitals showed that only 22% of workers used masks and gloves when interacting with patients! Even at the best hospitals, only 30% used masks.

But why wouldn't they use the PPE?

It's not as simple as you'd think! First, the government doesn't budget enough for PPE, so it's rarely available! And even when the government *has* purchased it, they don't distribute it efficiently to facilities. Beyond that, a survey showed that only 40% of healthcare workers in our TB hospitals *know* about the dangers of interacting with patients without PPE!

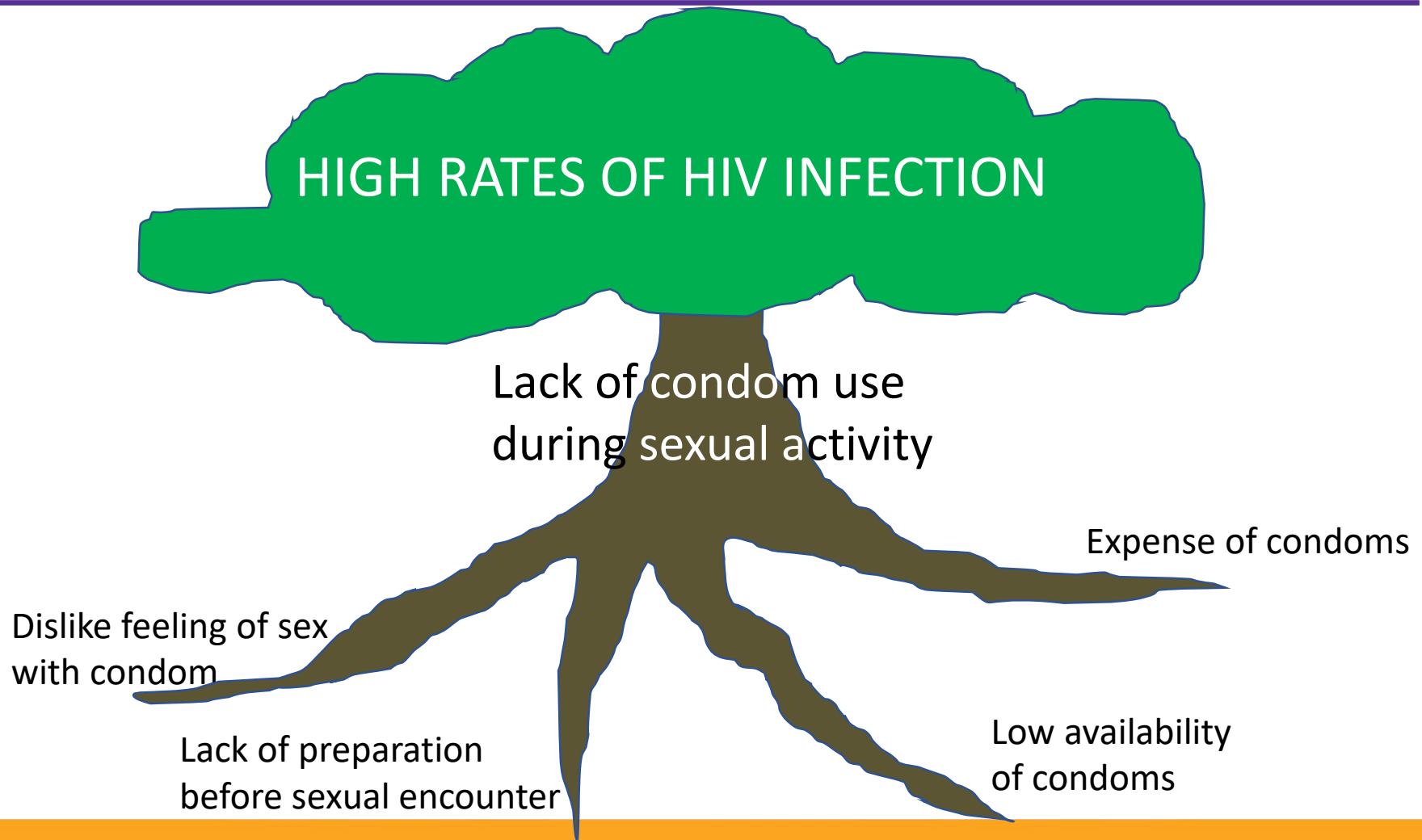


Esther

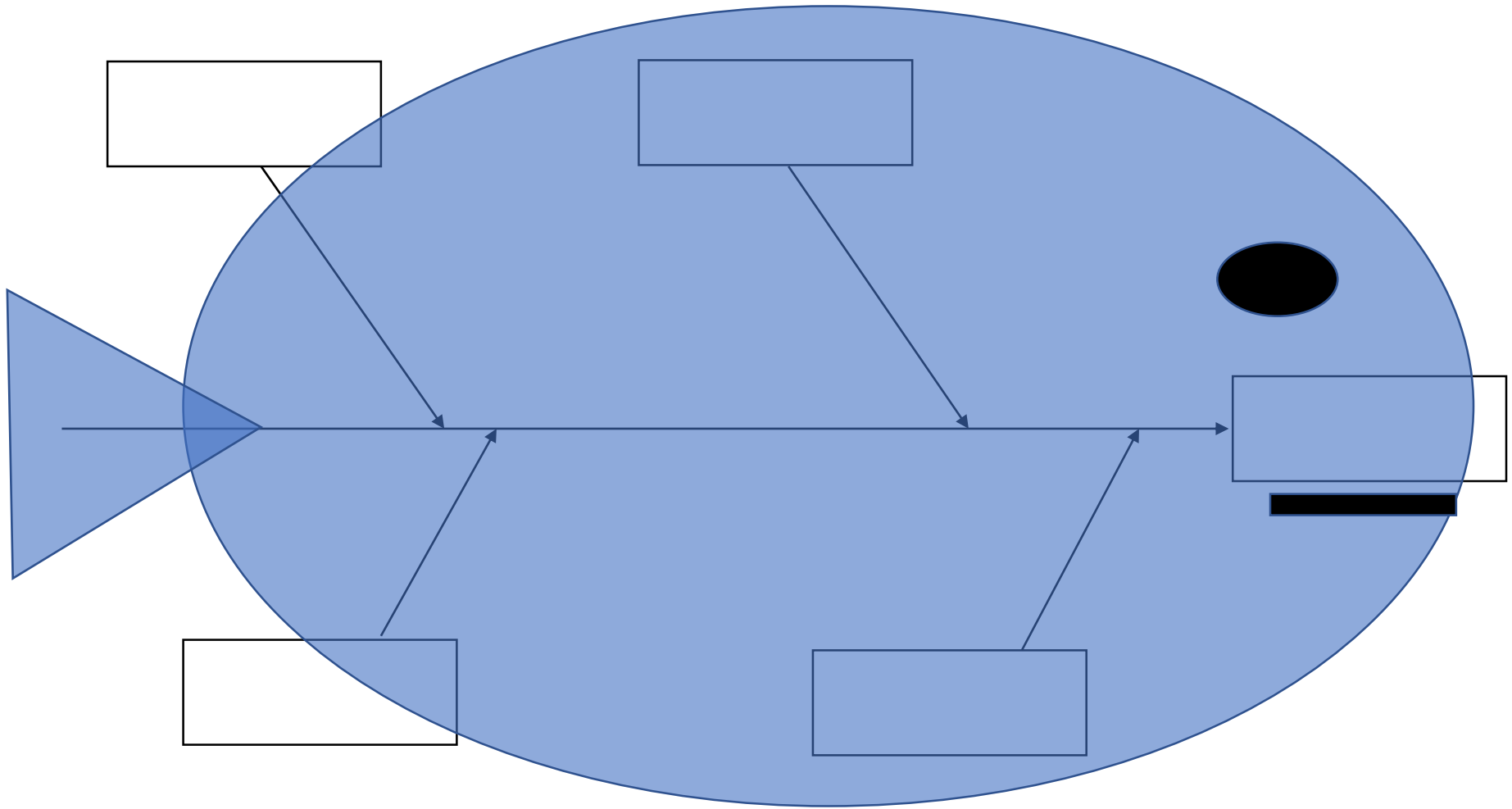


Josephine

Problems Often Have One or Two Primary Causes, But Many Root Causes



The 'Fishbone Diagram': Getting from Primary Cause to Root Causes



Root Cause Analysis: Critical to Ensure Well-Targeted Policy Options

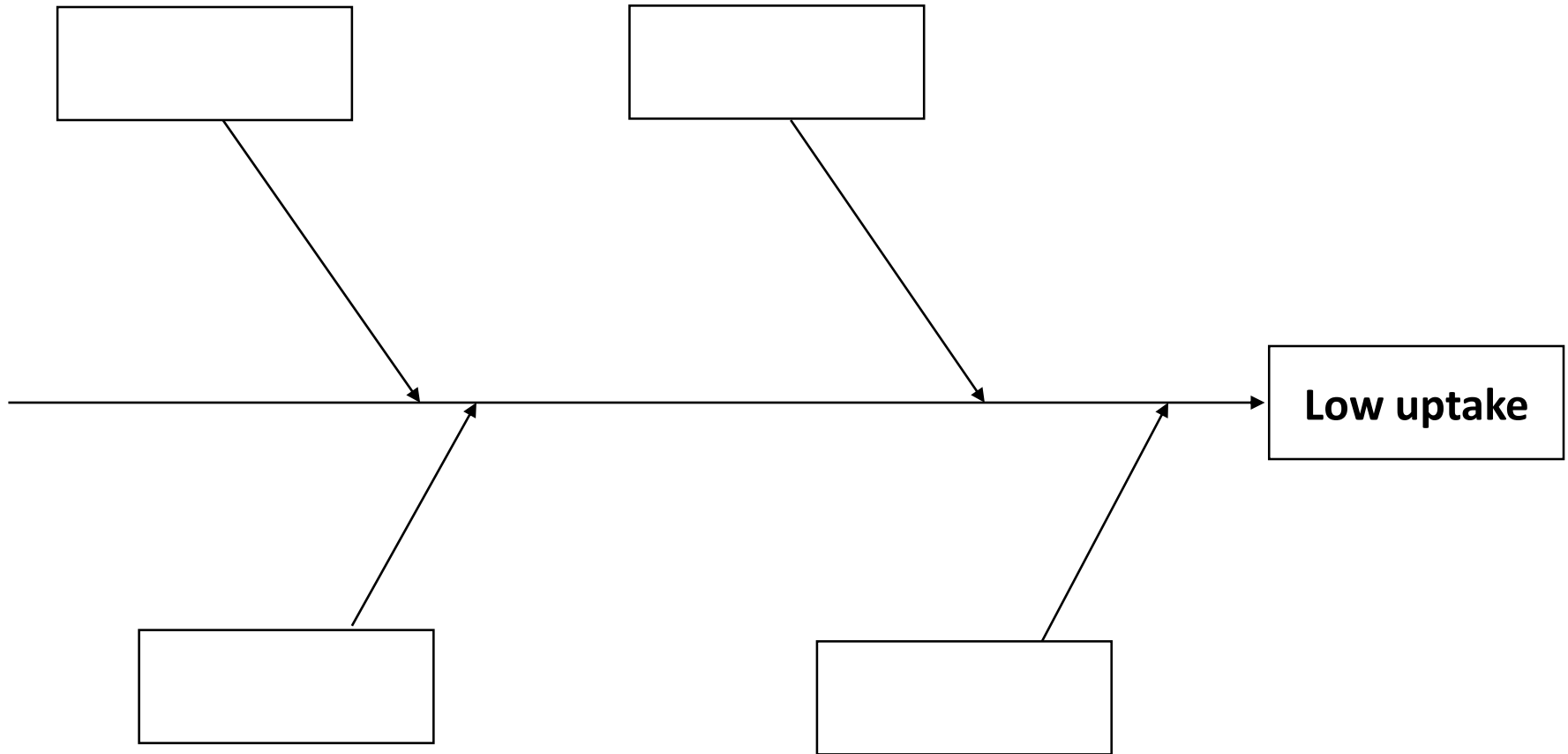
- **Imagine: You are in charge of vaccine-preventable disease in Bangladesh**
 - Repeated outbreaks of measles
 - ‘Surface-level’ investigation concludes low vaccine uptake in Bangladesh
 - Accurate, but does not identify reasons for low uptake
 - Does not allow for interventions (policies) to address the root causes

How to Make a Fishbone Diagram

1. Frame the Problem as the Outcome + Primary Cause

- **Measles outbreaks in Bangladesh in 2015, 2016, 2017**
 - Occurring primarily in three regions in the country
 - 700-1200 cases each year and 200 deaths in the last year; 25% of survivors have lasting neurologic damage
- **Poor uptake of routine vaccines is the primary cause**
 - Although EPI (Expanded Programme on Immunization) targets full vaccine coverage of the child population, uptake has been much lower than desired
 - Only 45% of eligible children received full complement of measles-containing vaccines by two years of age (2016)
 - The MoH has put pressure on you to achieve 95% coverage during the next three years

The *Primary Cause* (*not* the Outcome!) Goes at Head of the Fishbone Diagram



Data search: Root Causes for Low Uptake of Measles Vaccine

- **Many possible causes, but just because they are *possible* doesn't mean they are correct in your context!**
- **Root causes may be known or inferred from various sources**
 - Published literature is best source, but may not be available for all problems!
 - Unpublished information from local surveys or studies may be helpful
 - Conversations with persons familiar with the problem are important when there are not available local data

2. Brainstorm / Search Literature to Identify Root Causes of Primary Cause

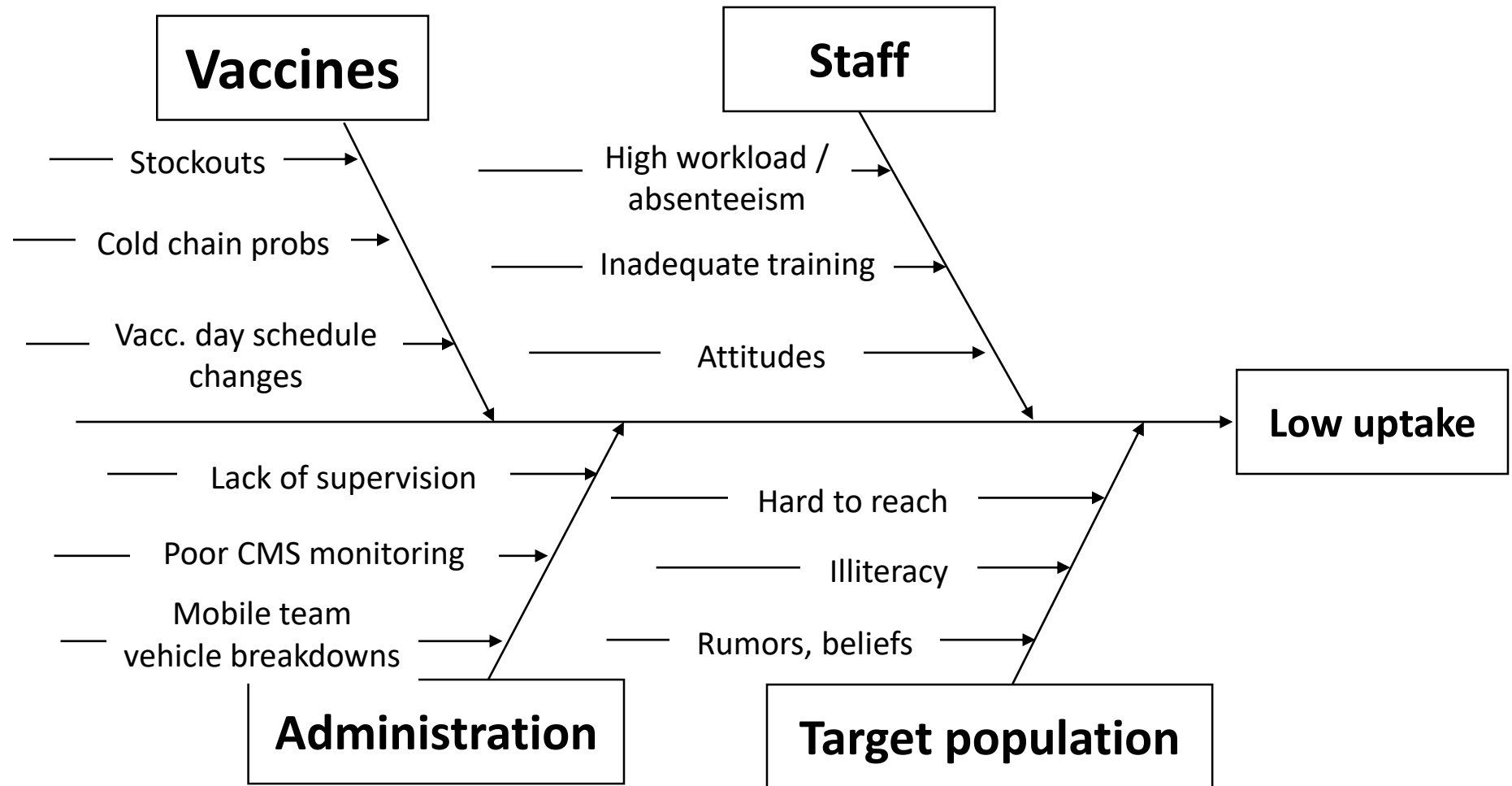
- **Low uptake...*but why?***

- Stockouts in vaccines; clinics don't have them on vaccination days
- Cold chain problems leading to vaccine delivery delays
- Unscheduled changes in vaccination days
- Staff untrained in vaccination; potential patients denied vaccines
- Remote communities find it difficult to reach clinic
- Mobile team available but vehicle breaks down regularly
- Rumors/beliefs about vaccination reduce interest in vaccine
- Staff workload, absenteeism
- Illiteracy among community members
- Poor monitoring of vaccine supply leading to CMS shortages
- Lack of supervision
- Staff unwilling to take time to vaccinate (attitudes)

3. Group the Root Causes Into Categories *after* Brainstorming

- **In our example:**
 - Staff
 - Vaccines
 - Administration
 - Population

4. Fill in the Fishbone Diagram

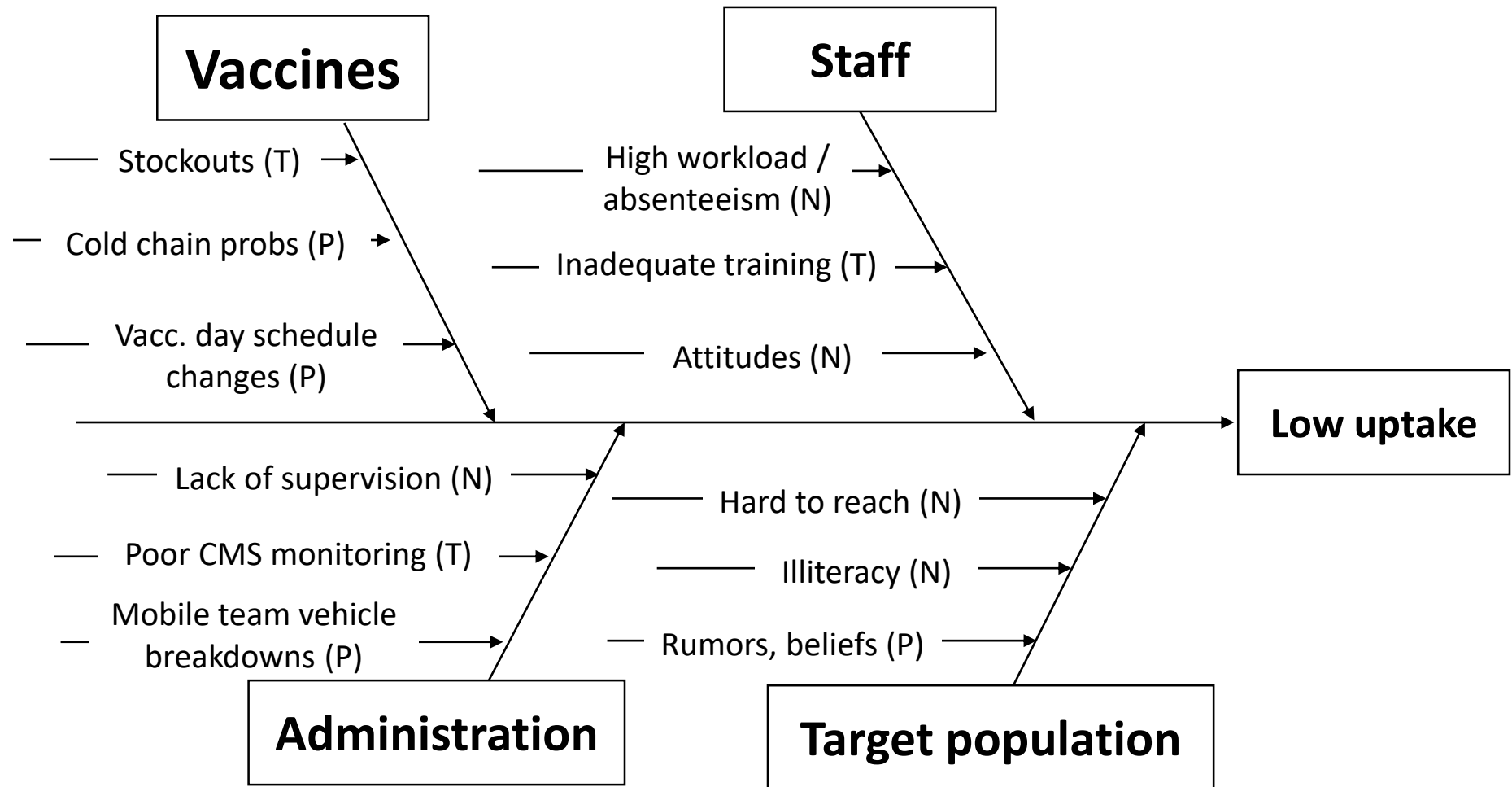


5. Categorize Root Causes by Modifiability

| | |
|----------|-----------------------------|
| T | Totally (easily) modifiable |
| P | Partially modifiable |
| N | Not (easily) modifiable |

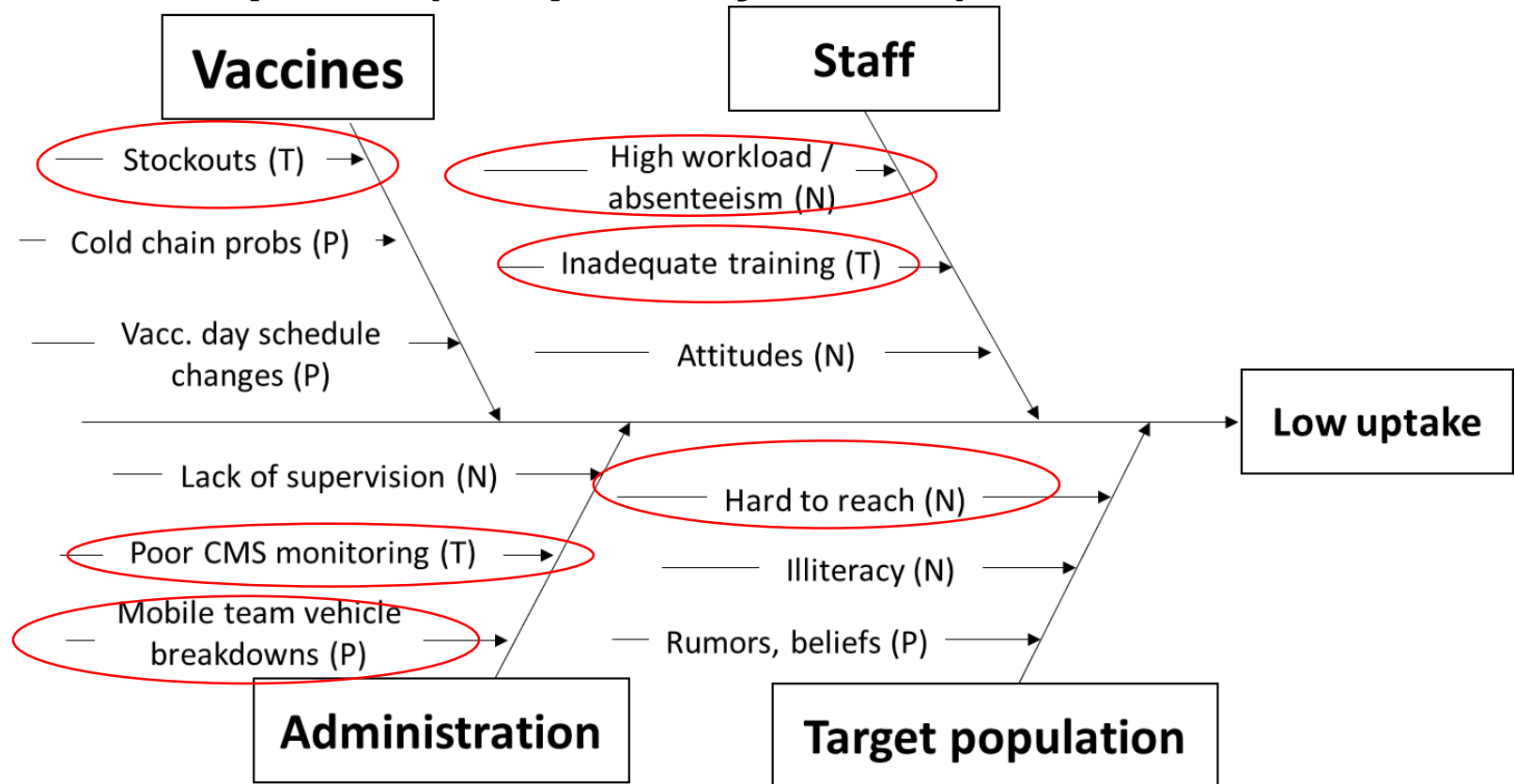
- Focus on T or P causes

5. Categorize Root Causes by Modifiability



6. Categorize By Expected Impact

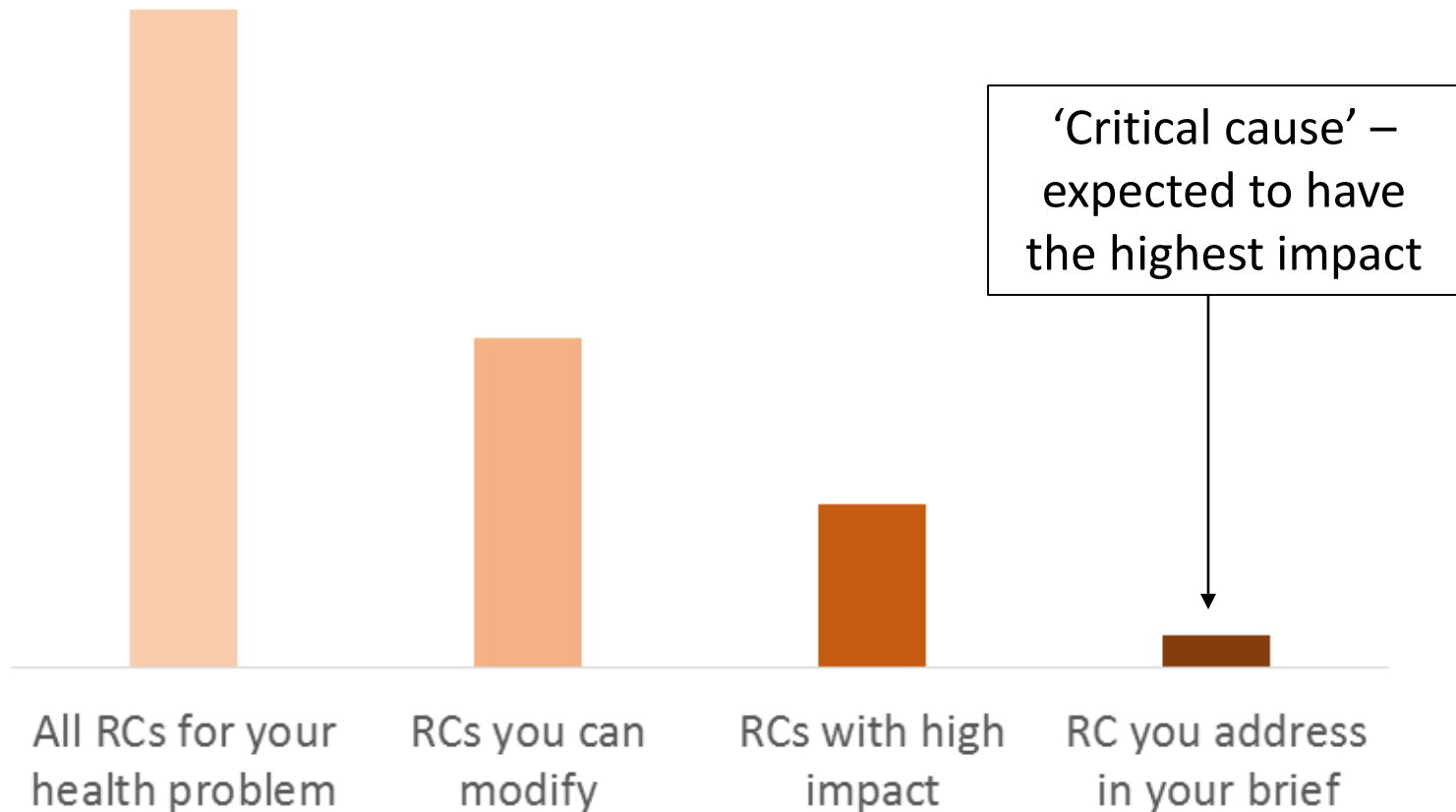
- Which of the root causes have the greatest impact on low uptake (the primary cause)?



How Do I Know Which Root Causes Will Have the Greatest Impact? Which Will Be Modifiable?

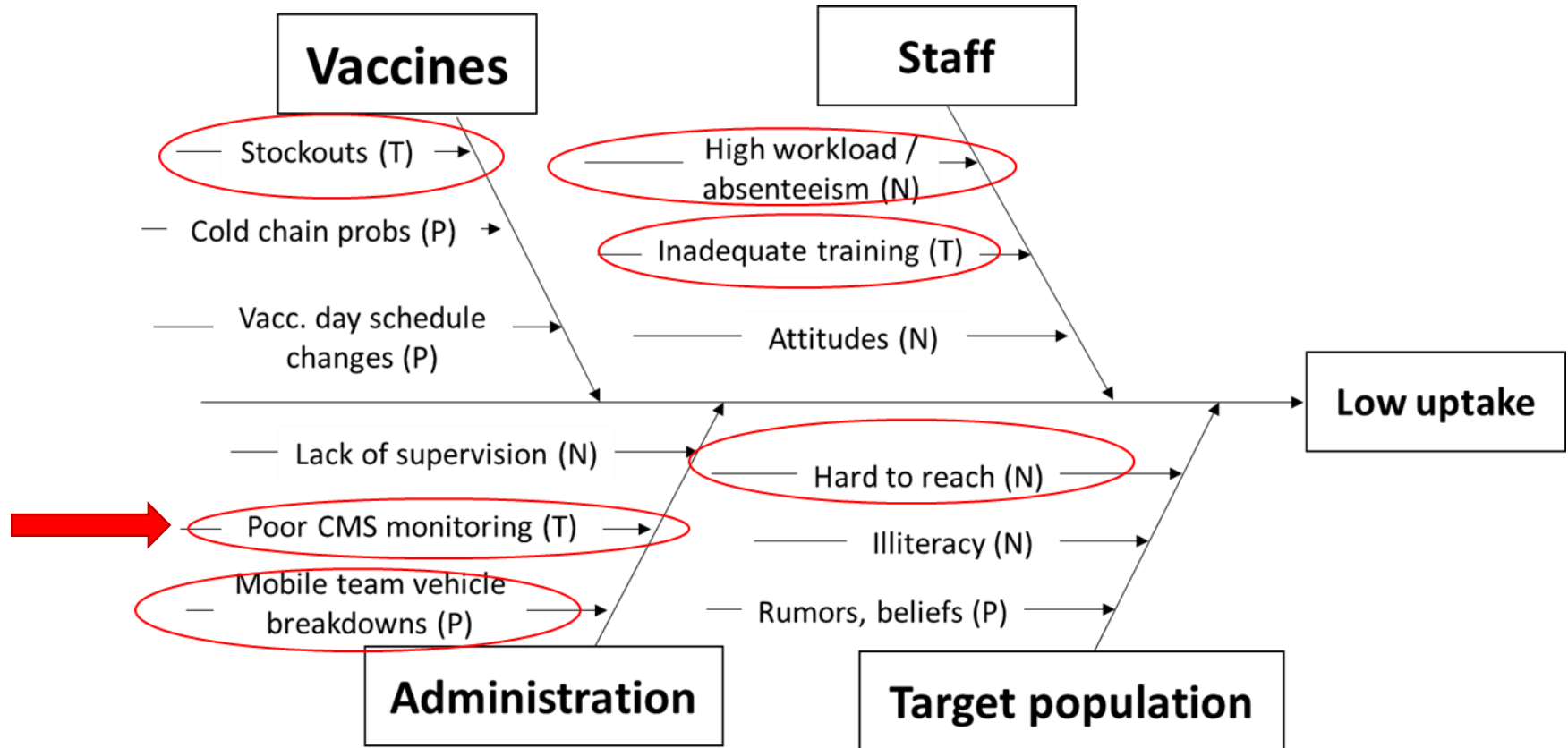
- **Literature search**
 - Others might have already calculated/estimated impact of modifying different root causes on outcomes
 - Might or might not be precise for your setting, but provides a general idea
 - Other policy briefs dealing with the same issue
- **Talk to experts**
 - Field staff
 - Ministry staff
- **Educated guess!**

7. Choose a Critical Cause (or Causes) to Target for Policy Brief



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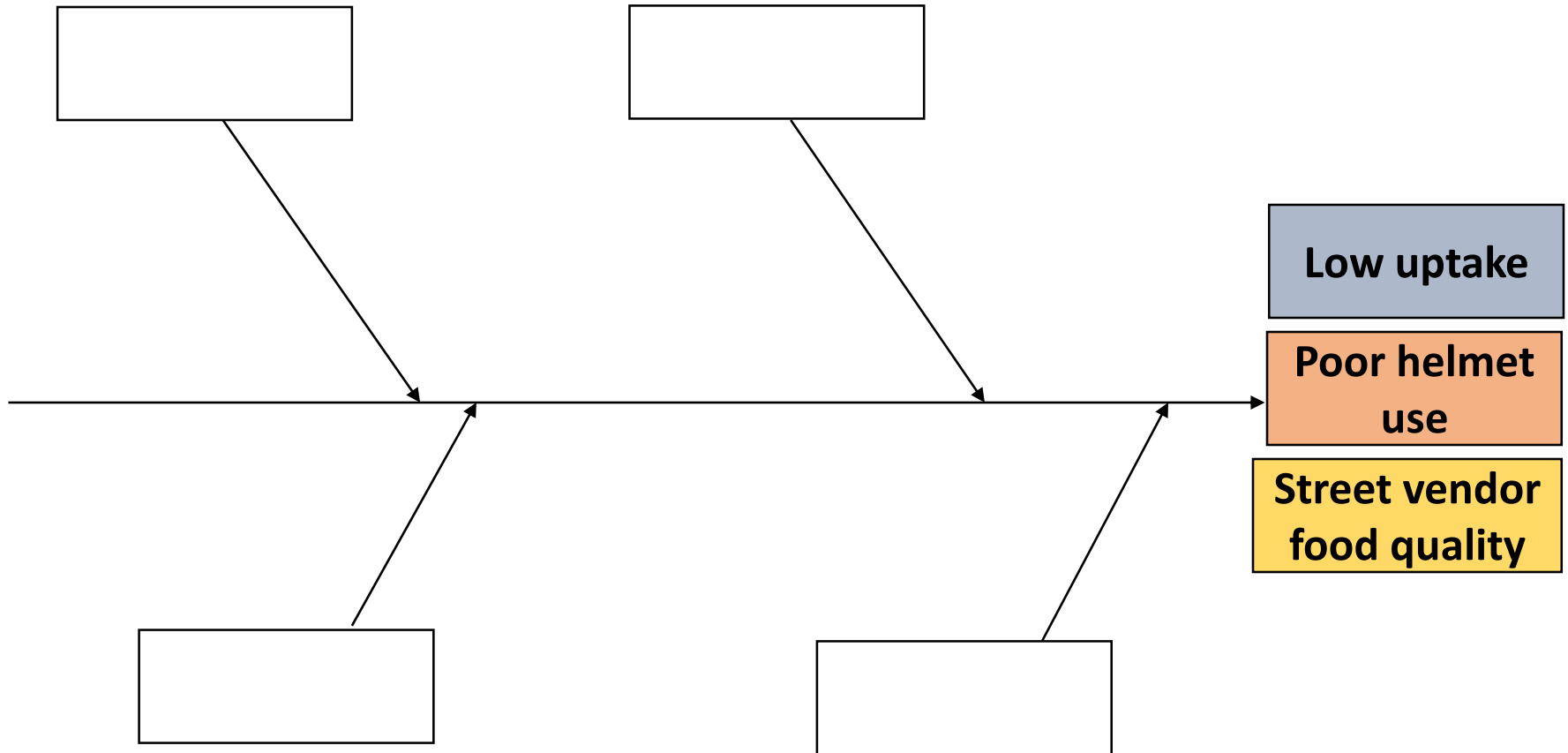
- Which of the root causes have the greatest impact on low uptake (the primary cause)?



What If There Is No Identified Health Problem Yet?

- We expect that all primary causes (like low vaccine uptake) are associated with poor health outcomes (such as outbreaks of vaccine-preventable diseases)
- In some situations, a country may wish to address a primary cause for a *potential problem* that has not yet been documented:
 - District may know that vaccine coverage is low, and wish to improve it, but no outbreaks have happened yet
 - Country may be aware of low rates of motorcycle helmet use, but not have data on ongoing head injuries yet
 - Region may know that street food vendors generally have unsafe food and want to address it, but not have identified any clusters or outbreaks yet

The Primary Cause Still Goes at the Head!



Summary

- **For the purposes of policy briefs, our problems can be framed in three parts: the health problem, or outcome, the primary cause, and the root causes**
- **We can identify by *root causes* asking ‘why does the primary cause exist’?**
 - Identified in literature, unpublished data, or through conversations with persons familiar with the problem
- **Prioritize root causes by (1) our ability to modify them, and (2) their expected degree of impact**
 - Allows us to identify a *critical cause(s)* to target in our policy briefs for our policy options

Case Study

Instructions

- **Read the first section of your case study, and answer Questions 1-3 in the case study.**
 1. What is the health problem? What is the primary cause?
 2. What are possible root causes for lack of certified helmet use?
 3. What additional information do you need to determine a target for your policy brief?

Did You Answer the Case Study Questions?



Case Study Questions 1-3

1. What is the health problem? What is the primary cause?

- ❖ The health problem is ongoing head injuries and deaths due to motorcycle crashes even after implementation of a helmet law.
- ❖ The primary cause is 'lack of certified helmet use.'

2. What are possible root causes for lack of certified helmet use?

- ❖ Possible root causes could include certified helmet cost, dislike of certified helmet weight / shape / style, lack of knowledge about the law, lack of enforcement of the law.

3. What additional information do you need to determine a target for your policy brief?

- ❖ Data needed are the modifiability and the impact of changing each root cause on the primary cause.

Deliverable 2:

Root Cause Analysis for Your Policy Briefs

1. Write a sentence stating your health problem of interest.
2. Write a sentence describing the primary cause.
3. Brainstorm possible root causes.
4. Draw the fishbone; put the primary cause in the head of the fish
5. Group similar possible root causes on the bones of the fish.
6. Name the categories of your bones.
7. Consider each cause and determine if it is totally (T), partially (P) or not at all (N) modifiable.
8. Prioritize the root cause(s) being addressed in your briefs
9. Identify (a) critical cause(s) that you would like to address for your policy brief options

END
