

Leveraging environmental health data to inform food safety initiatives

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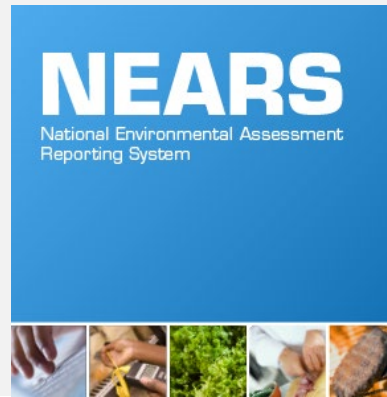
Water, Food, and Environmental Health Services Branch

Division of Environmental Health Science and Practice (DEHSP)

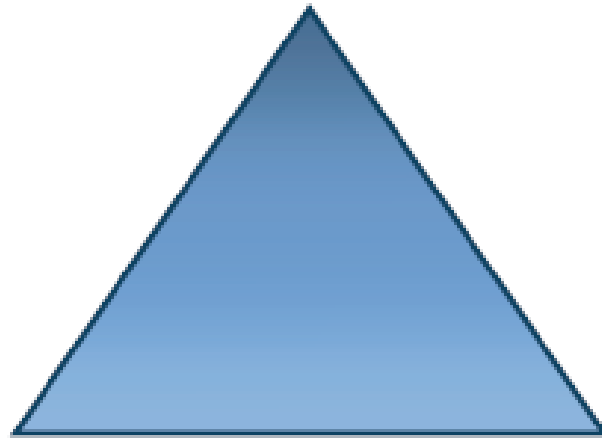
2021 FDA Food Safety Seminar

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CDC collects national outbreak surveillance data.



Environment
(Environmental Health)



Host
(Epidemiology)

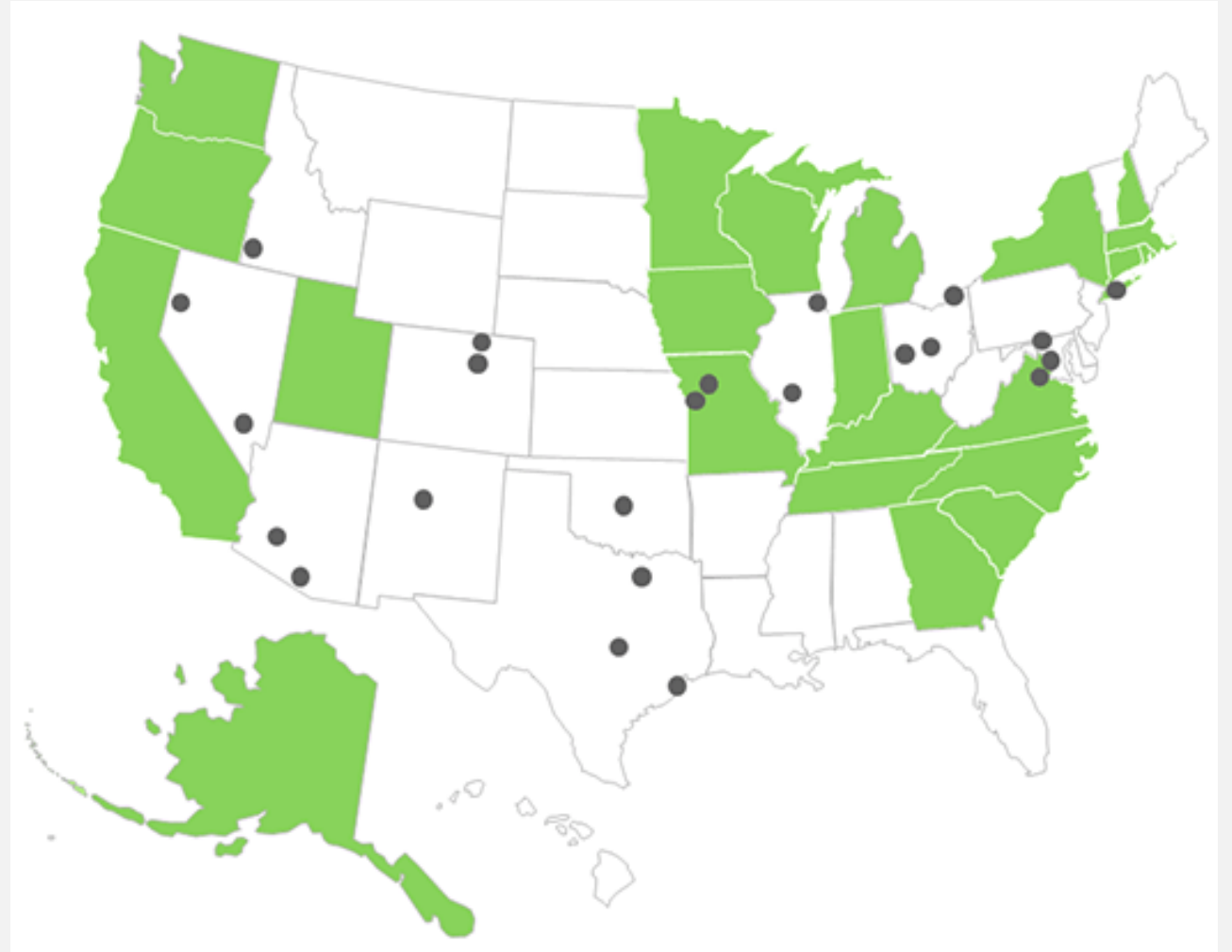
Agent
(Laboratory)



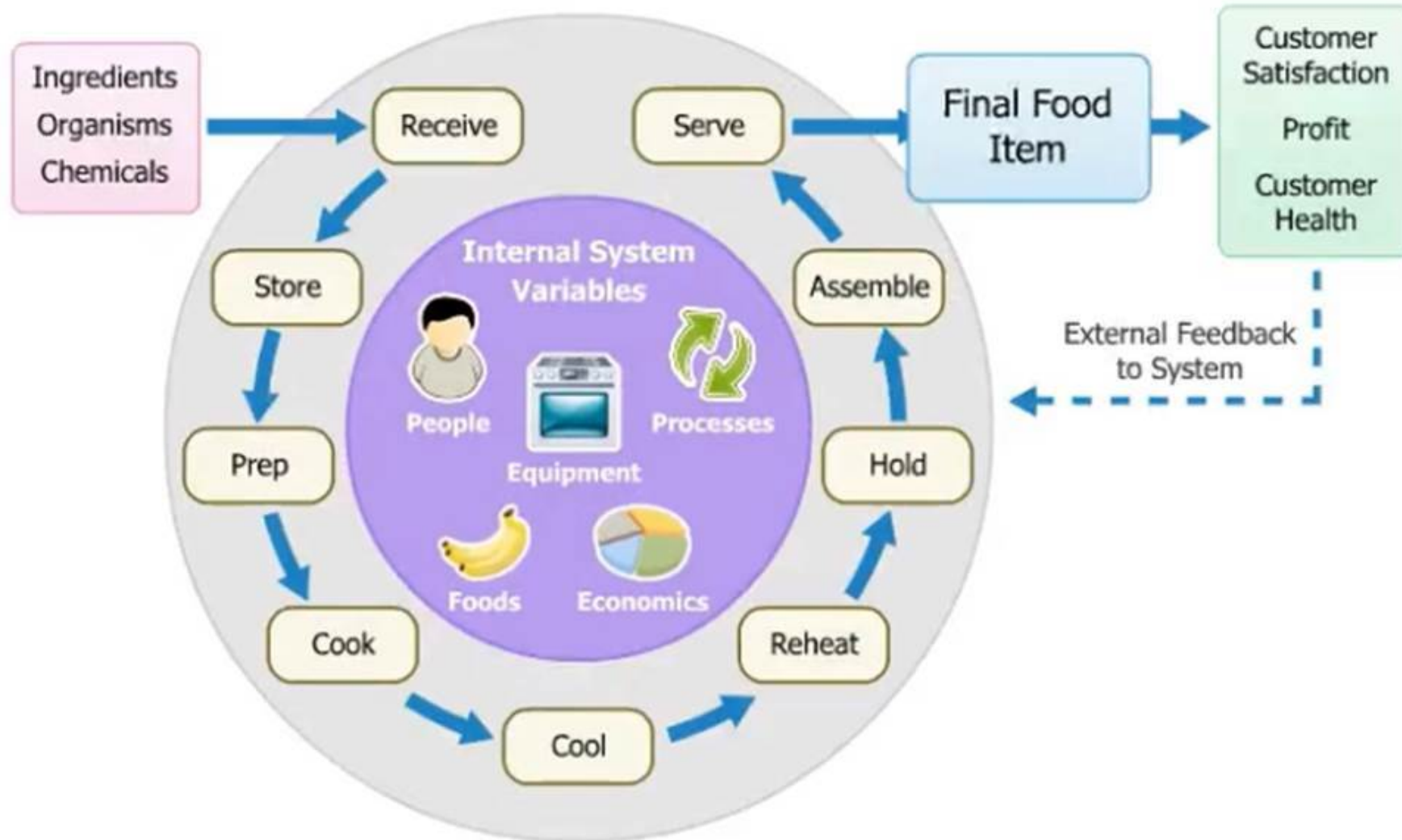
NEARS provides unique data on establishments that have experienced foodborne illness outbreaks.

Long-term goals:

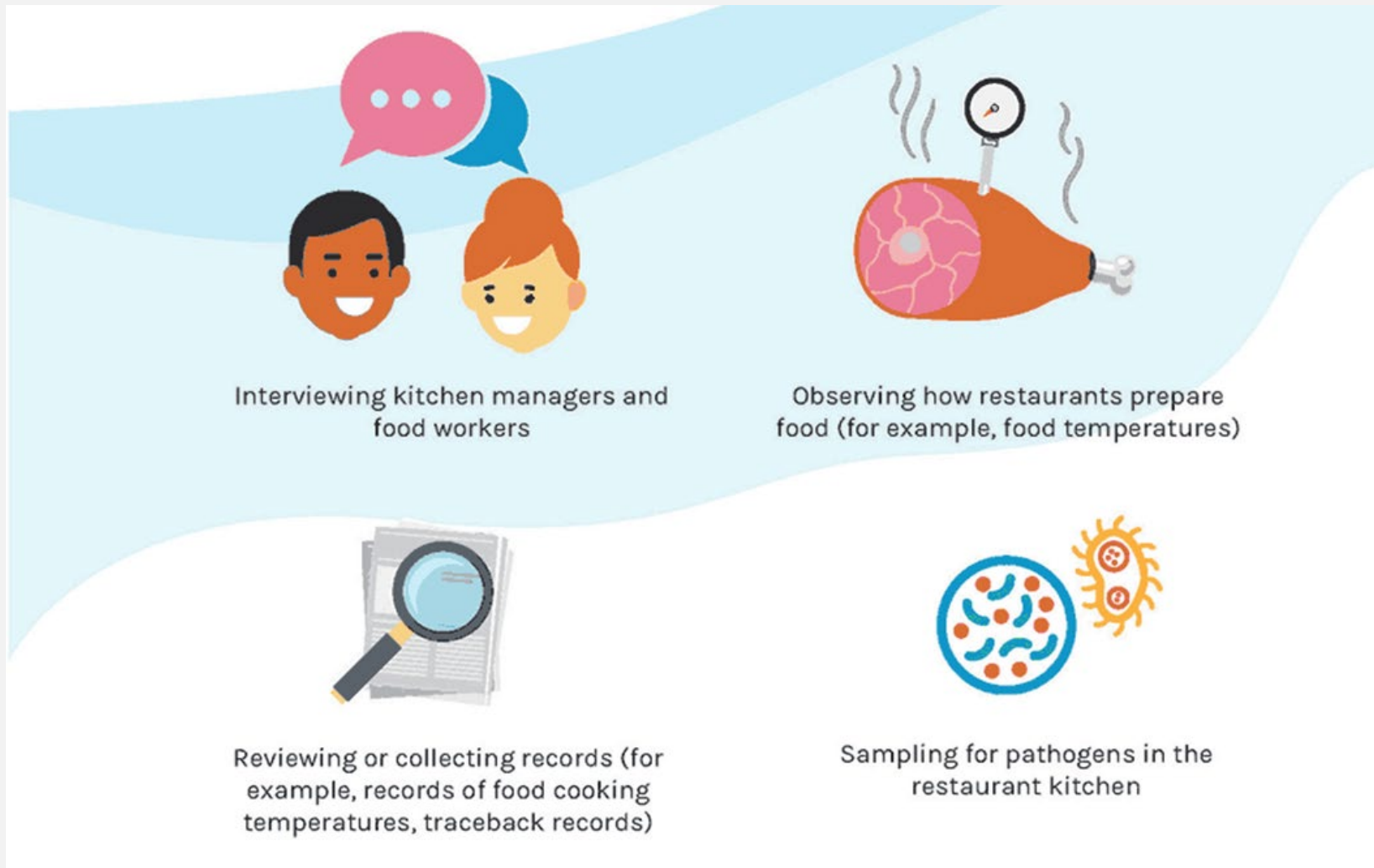
- ✓ **Improve outbreak investigation**
- ✓ **Improve outbreak prevention**



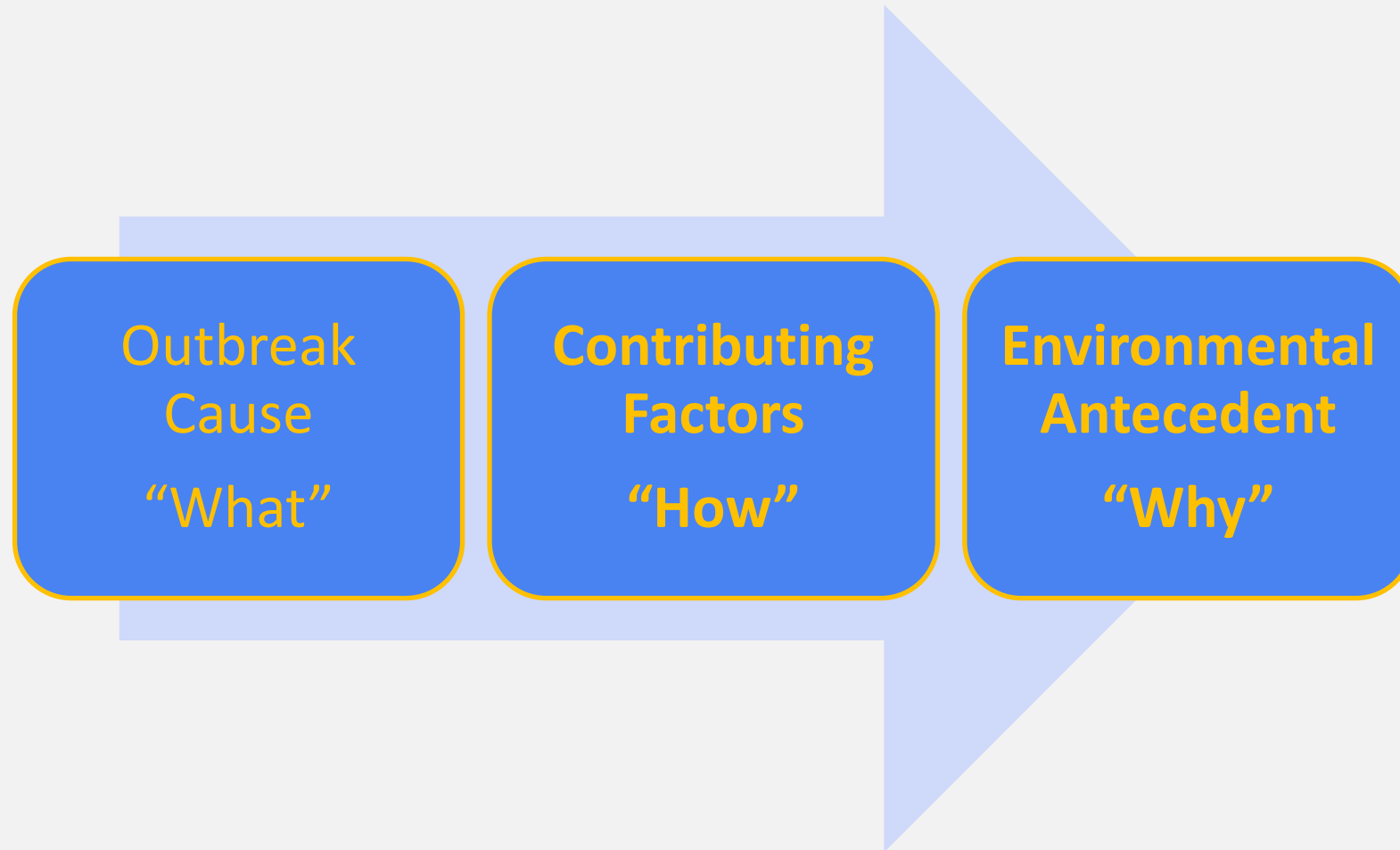
An environmental assessment is a systematic process.



Environmental assessments help uncover outbreak contributing factor(s) and environmental antecedent(s).



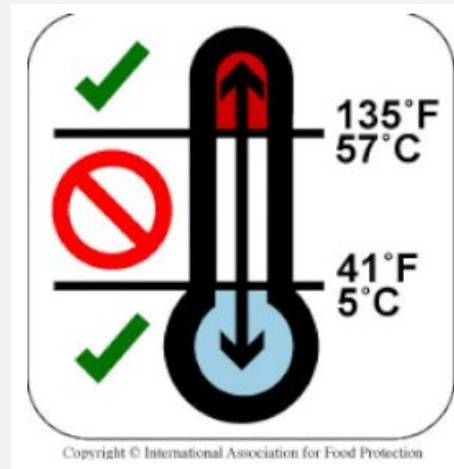
An environmental assessment help identifies the underlying environmental causes of foodborne illness outbreaks.



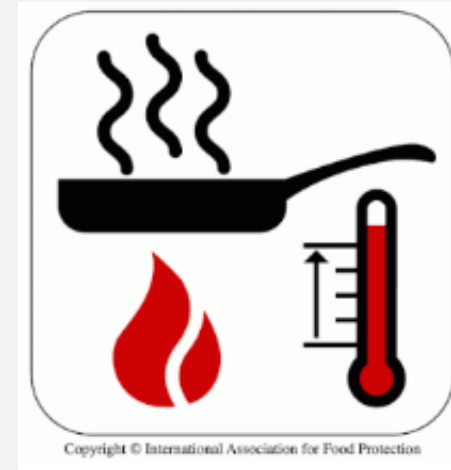
Contributing factors are the practices that most likely contributed to a foodborne illness outbreak.



Contamination



Proliferation



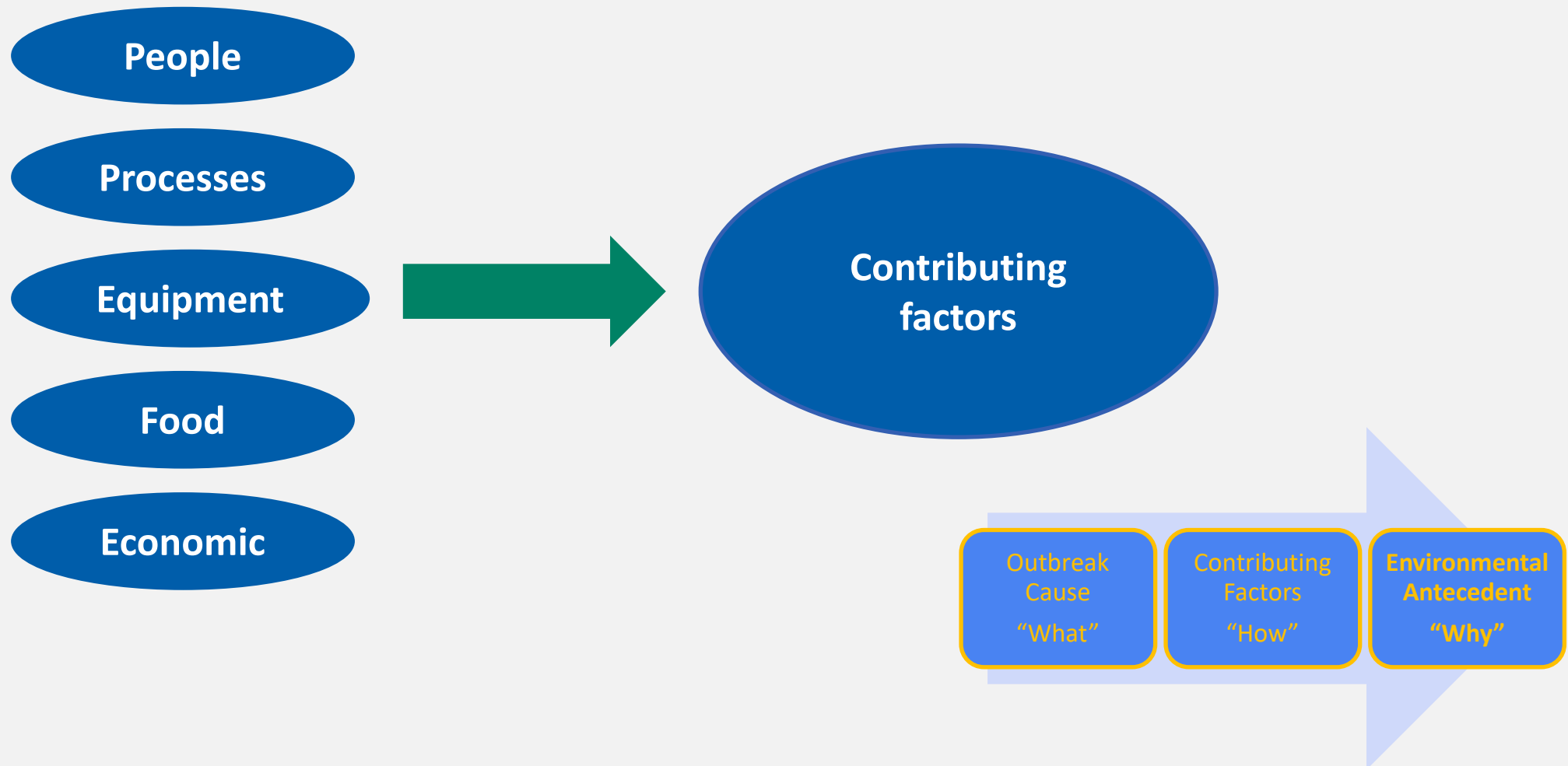
Survival

Outbreak
Cause
"What"

Contributing
Factors
"How"

Environmental
Antecedent
"Why"

Environmental antecedents are the conditions leading to the contamination, survival, or increase of biological or chemical agents in food.





PREVENTION- LEVERAGING FOODBORNE OUTBREAK DATA

Foodborne outbreak data shows us where we can focus our prevention efforts.

Restaurants are the most common single-setting outbreak location.



Norovirus is the most common restaurant outbreak pathogen.



Contamination by infectious workers is responsible for most common restaurant outbreak contributing factors.



Prevention of outbreak contributing factors are key.

Infectious workers contaminate food and environment.



Prevent infectious workers from working



Prevent bare hand contact with ready-to-eat food



Practice good hand hygiene



Clean and sanitize



PREVENTION- IMPLEMENTING FOOD SAFETY MANAGEMENT SYSTEMS

FDA Risk Factor Study found links between strong food safety management systems and food safety.



Procedures

A set of actions adopted by management for accomplishing tasks in a way that minimizes food safety risks



Training

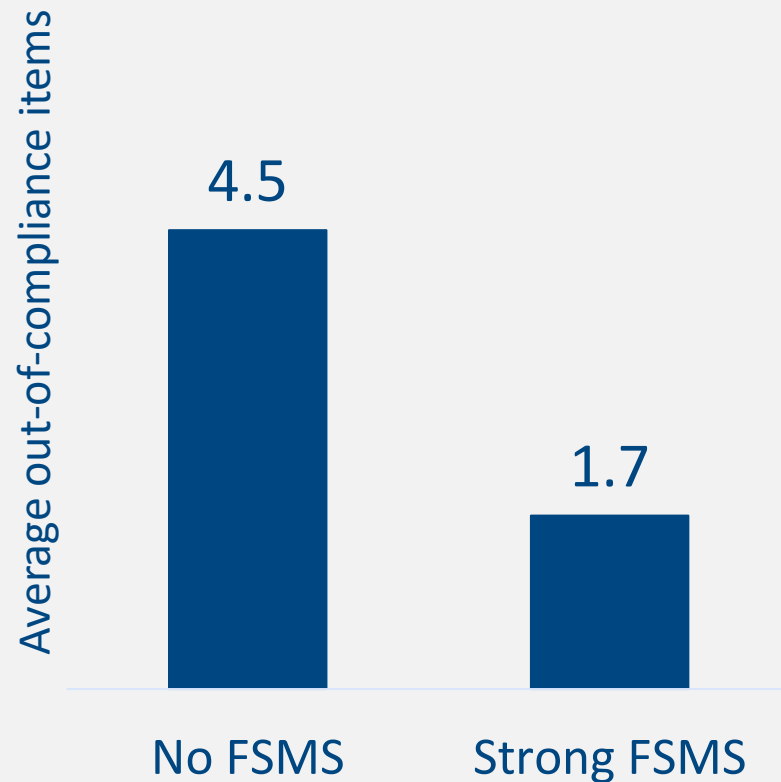
The process of management teaching employees food safety procedures



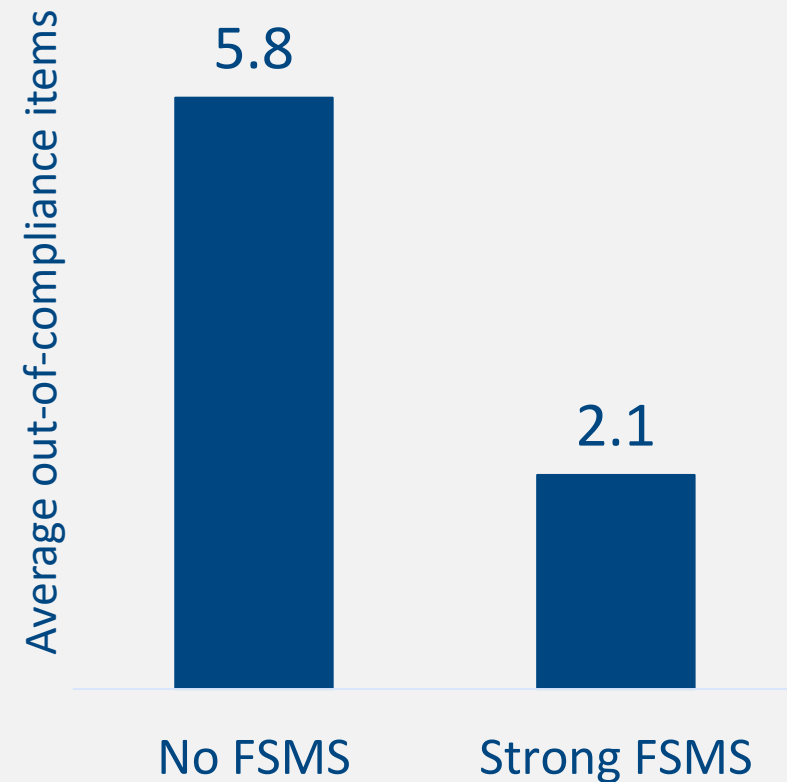
Monitoring

Routine observations and measurements conducted to determine if food safety procedures are being followed

Restaurants with strong food safety management systems (FSMS) have fewer out-of-compliance food safety practices.



Fast food restaurants



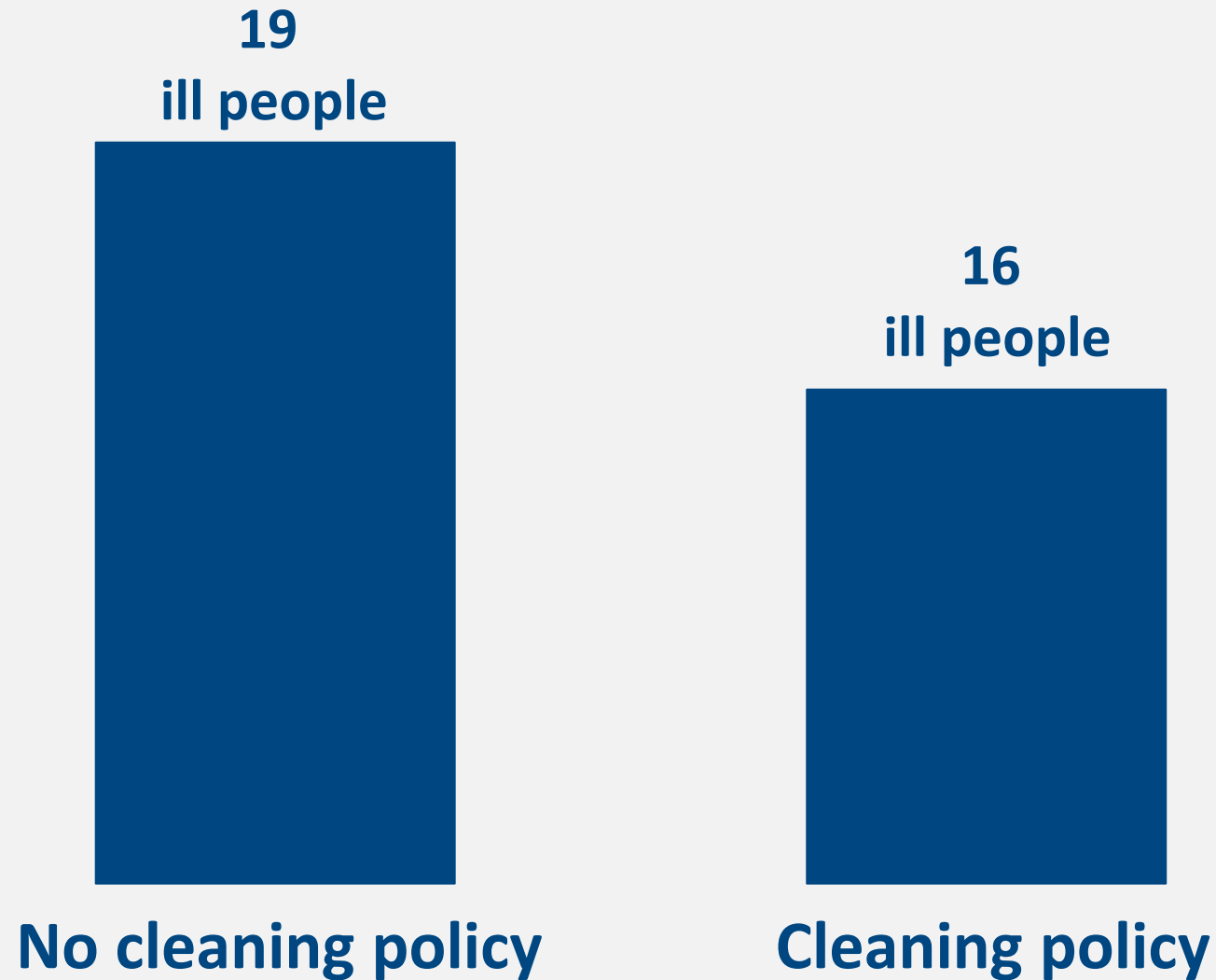
Full service restaurants



CDC data show links between procedures and food safety.

- Written slicer cleaning policy** → **Slicers cleaned more frequently**
- Staffing plans for absent workers** → **Workers less likely to work while ill**
- Policy requiring workers to tell managers when they are ill** → **Workers less likely to work while ill**
- Policy or schedule for cleaning** → **Smaller outbreaks**

Norovirus outbreaks are smaller in restaurants with cleaning policies.

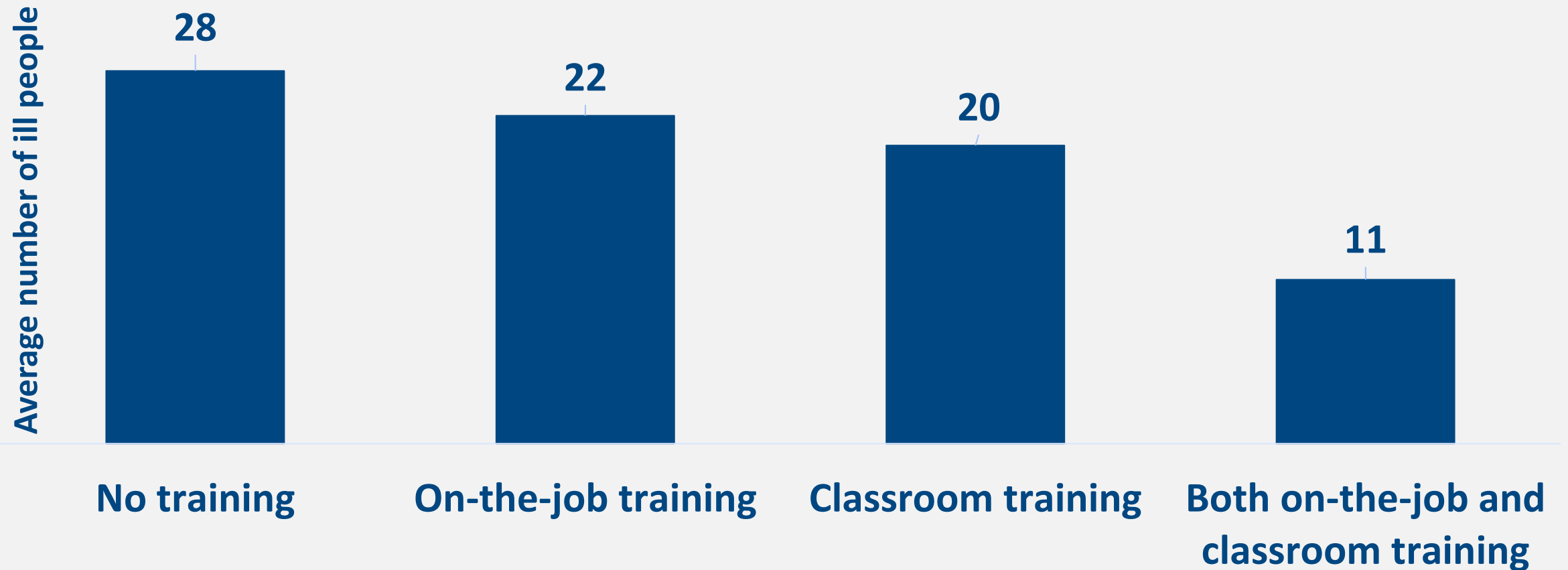




CDC data show links between certification/trainings and food safety.

- Certified kitchen manager** ➔ **More likely to have proper refrigerator temperatures**
- Certified kitchen manager** ➔ **Fewer critical violations on inspections**
- Kitchen manager food safety training** ➔ **More likely to use recommended food cooling methods**
- Food worker food safety training** ➔ **Workers more likely to wash hands when needed**
- Food worker food safety training** ➔ **Smaller outbreaks**

Norovirus outbreaks are smaller in restaurants that provide training.





CDC data show links between monitoring and food safety.

Food workers actively monitor cooling food temperatures



Foods more likely to cool within recommended timeframe

Workers record refrigerator temperatures



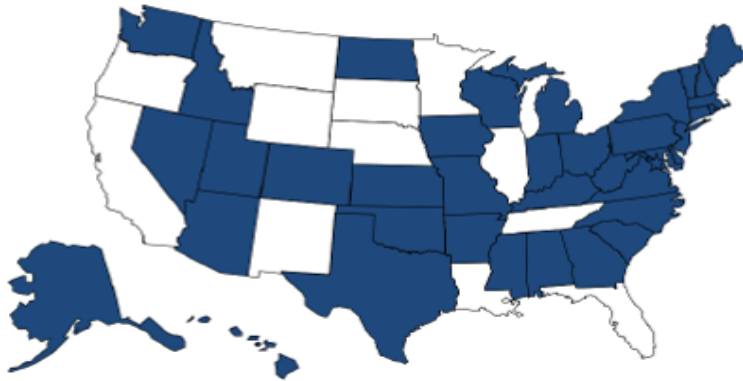
Refrigerators more likely at appropriate temperatures



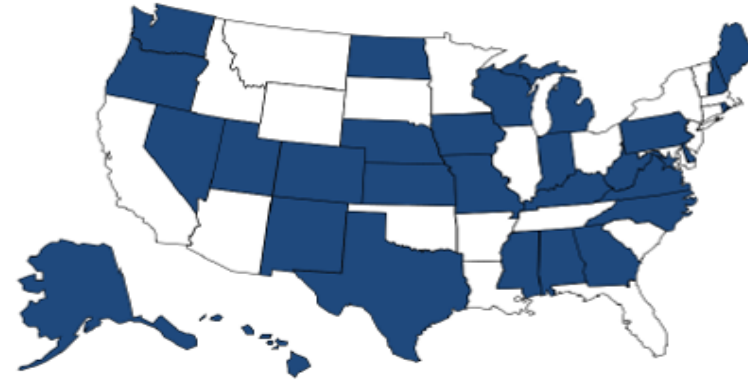
PREVENTION- ADOPTING REGULATIONS

The adoption of the Food Code provisions is at the discretion of state and local governments.

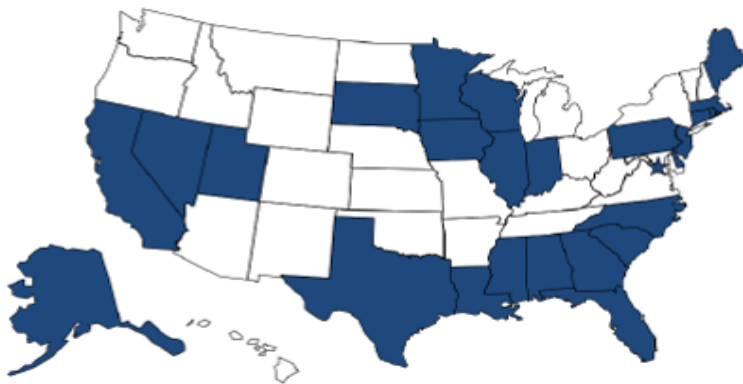
Prohibition of bare-hand contact



Exclusion of food workers with vomiting/diarrhea




Certified Food Protection Manager



Contamination event response plan



States with specific regulations have fewer norovirus outbreaks.

- Prohibiting bare-hand contact
 - Requiring a certified kitchen manager
- 
- Fewer
norovirus
outbreaks

CDC data has influenced national food safety policies.

RESTAURANTS WITH MANAGERS CERTIFIED IN FOOD SAFETY...



are less likely
to have **foodborne
illness outbreaks**



have better **food
safety practices**



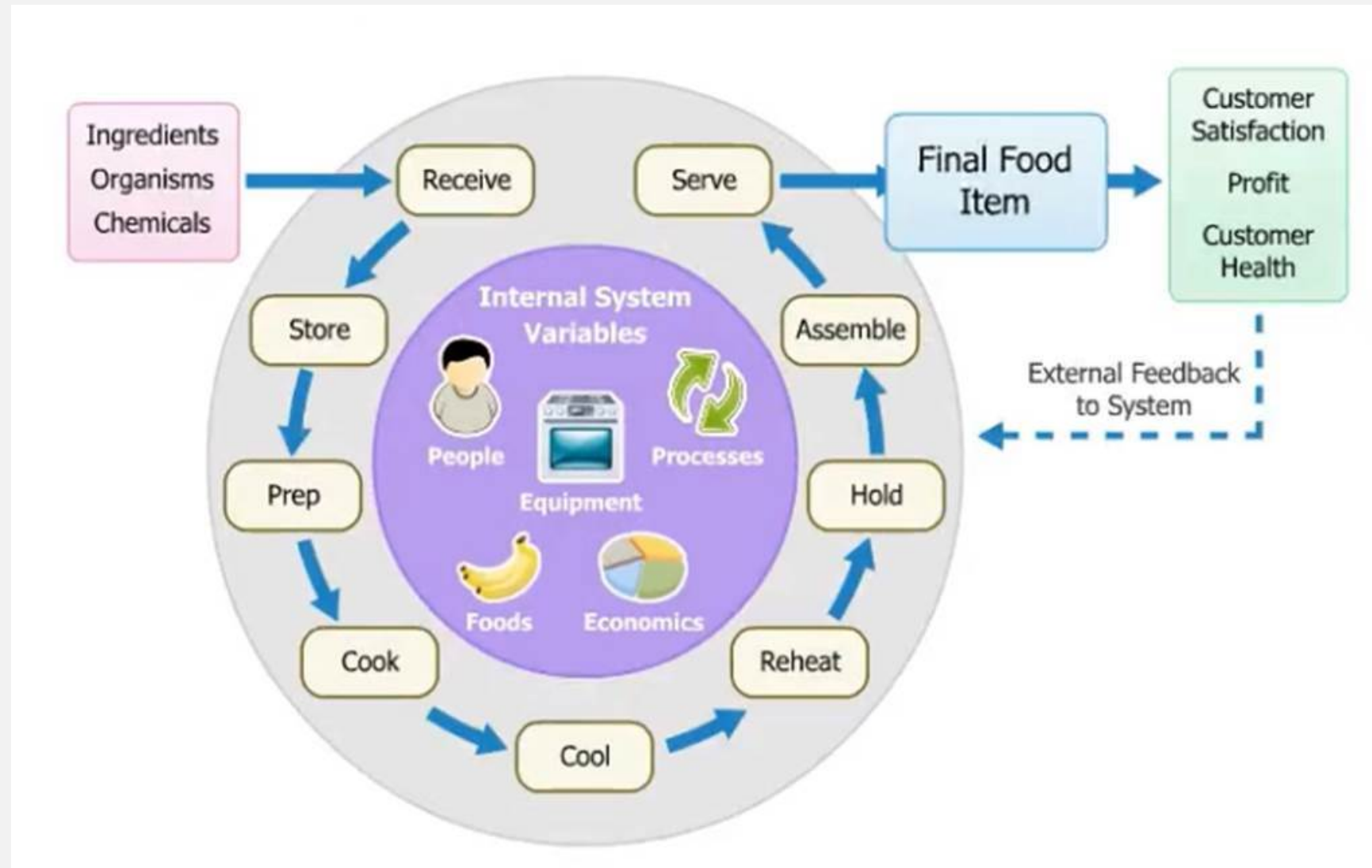
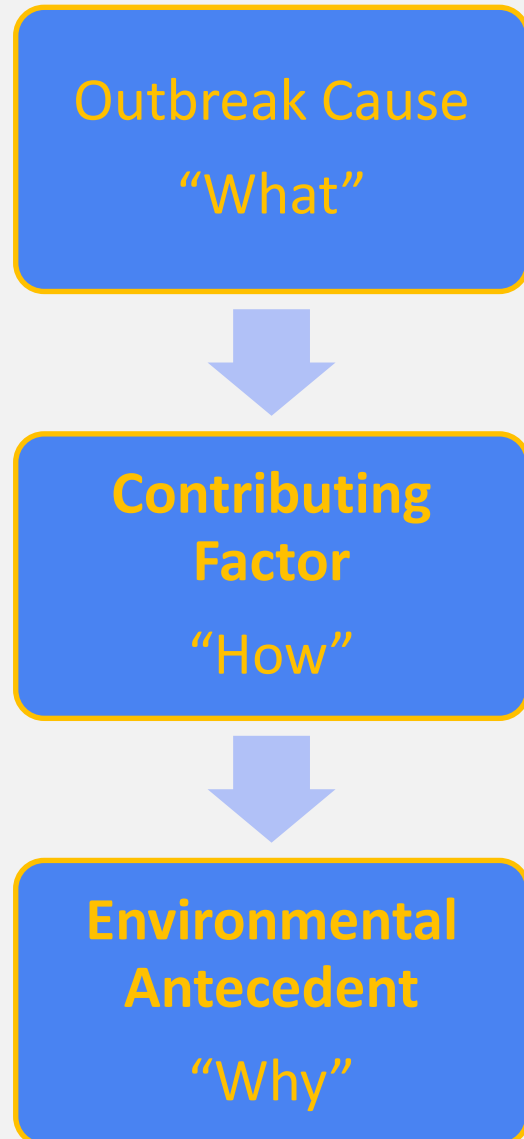
have better **ratings** and
fewer critical violations
on their inspections



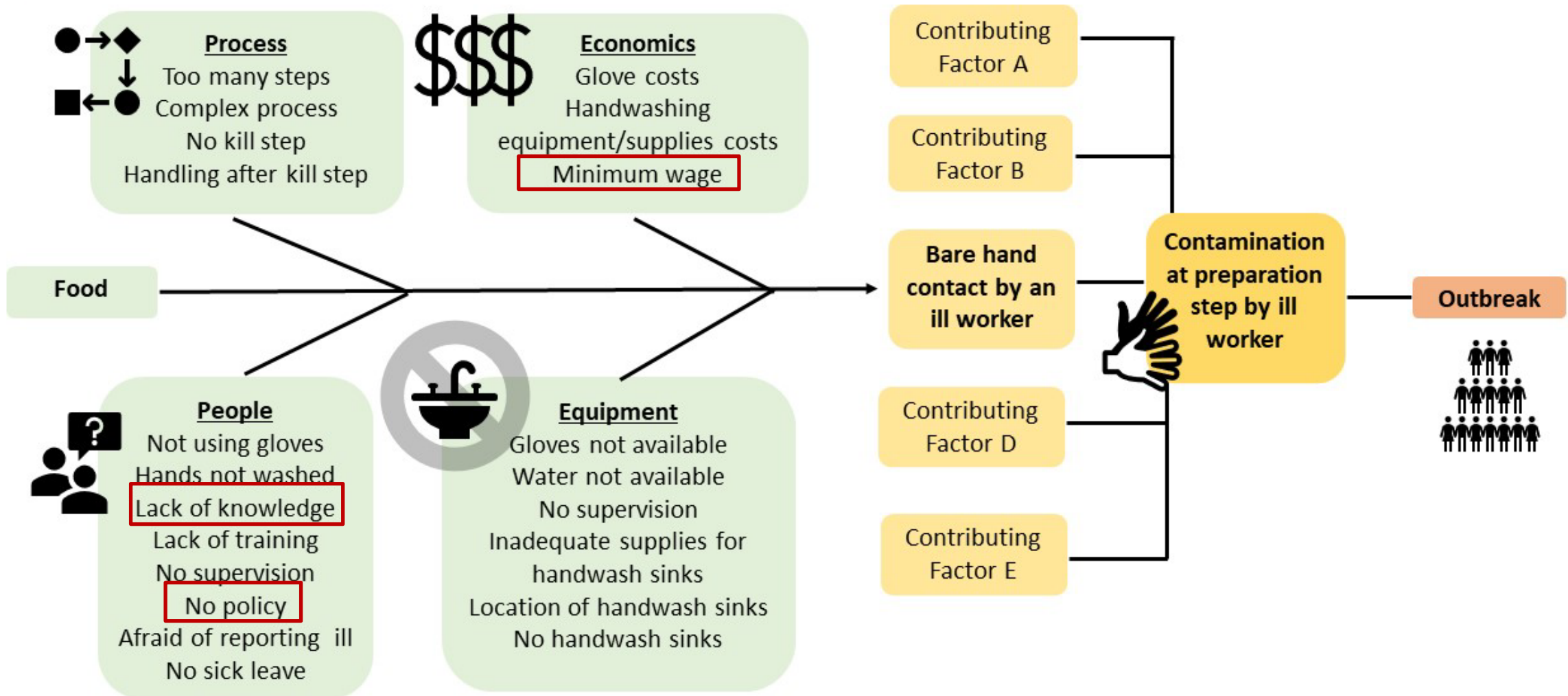


PREVENTION - INVIGORATING ROOT CAUSE ANALYSES (ENVIRONMENTAL ASSESSMENTS)

Environmental assessment data are used to stop current outbreaks and prevent future ones.



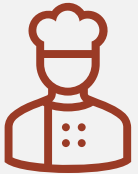
Environmental antecedents identify long-term solutions to prevent future outbreaks.



What can industry and food officials do?



Support strong food safety management systems in restaurants



Focus on

- Preventing ill workers from working
- Prohibiting bare hand contact with ready-to-eat foods
- Requiring a certified kitchen manager



Adopt and enforce food safety regulations



Invigorate root cause analysis

Thank you

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For more information, contact NCEH
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