THE PEW CHARITABLE TRUSTS

Strengthening Food Safety through Root Cause Analysis

Iowa Food Safety Task Force Meeting

March 14, 2019

pewtrusts.org

Pew's Mission

- Foster unbiased, evidence-based public policy
- Public Charity
  - Established by four children of Sun Oil Company founder J.N. Pew Sr.
- Topics
  - **Health**; Governing; Trends; Conservation; Communities; Finance & Economy

Safe Food Project

- Approved in 2011
- FSMA implementation and research on meat and poultry safety
- Goal: reduce public health risks from foodborne pathogens

Pew's Role in Food Safety Policy

- **Facilitate dialogue** among stakeholders
- **Build relationships** through outreach
- **Foster research** to inform recommendations
- **Advocate for changes** in laws & regulations

Presentation Outline

- Pew's Root Cause Analysis (RCA) Initiative
- Approach to RCA guide
- Guide content and some lessons learned about RCA

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RCA project history

Collaborative Food Safety Forum	• RCA intrinsic to enhancing food safety
Convenings	• First meeting in 2016 • Bring together diverse stakeholders, discuss opportunities and barriers
Guide development	• Gather lessons learned and approaches for RCA • Look at guidance and models in different industries

Why is RCA a priority for Pew

- Foundation of a prevention-based food system
- Underutilized, ineffectively shared, lost opportunities
  - “Unfortunately, there does not seem to be a safe place for businesses to share such insights with each other” - B. Baker, Mars, Inc.
- Improvements require collaborative approach
- Alignment among FDA, CDC, FSIS, state & local gov, industry

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Guide information sources

1. **Convenings**
   - Key topics from discussion
     I. What is a RCA
     II. Considerations before conducting an RCA
     III. How should an RCA be conducted
     IV. How should findings be communicated
2. **Initial research**
3. **Input from working groups**

Initial research questions

- How are other organizations conducting RCA?
  - How do they decide when to conduct a RCA?
  - How do they perform the RCA?
- How are the key findings disseminated and used?
- What is working & what is not?

Audience

- Food industry; federal, state, local food safety agencies; trade and professional associations; academia; consulting companies
  - Practitioners
  - Managers/Resource allocators
- Varying backgrounds, experience, food settings

What's in the guide

- Approaches for effective RCAs
  - To prepare for and conduct RCA
  - To report findings and conclusions
  - To use RCA findings for process improvement

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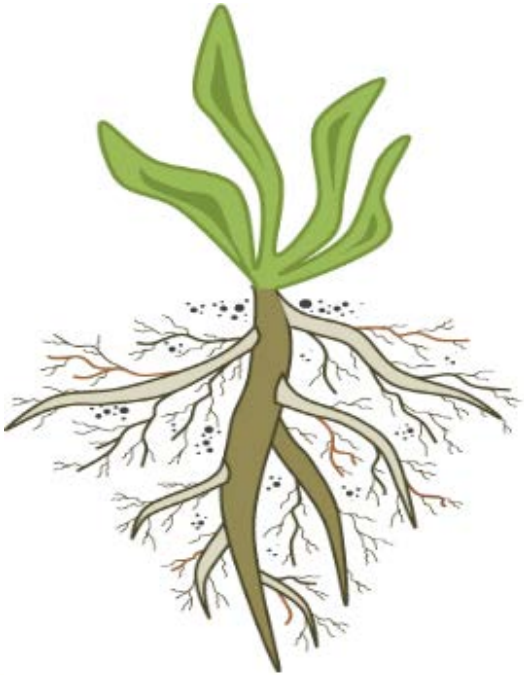
I. What is a root cause analysis?

- Definition: Retrospective investigation used to identify why a problem occurred
- Contributing factor vs. root cause
  - Don’t stop at contributing factor!
- When, where, who: Different food settings
  - Safety AND Quality



Example: Processed Food

Hypothetical: Item is re-contaminated after heat treatment and enters the market

- Contributing factors:
  - Machine corrosion from improper cleaning
  - Product not monitored post-processing
- Root causes:
  - Lack of defined maintenance SOPs
  - Unable to hire adequately trained staff

II. What should be considered before conducting an RCA?

- How should the scale be determined?
- Is sufficient capacity available?
- How long should it take?

Example: National Transportation Safety Board

What can we learn from NTSB on scaling an investigation?

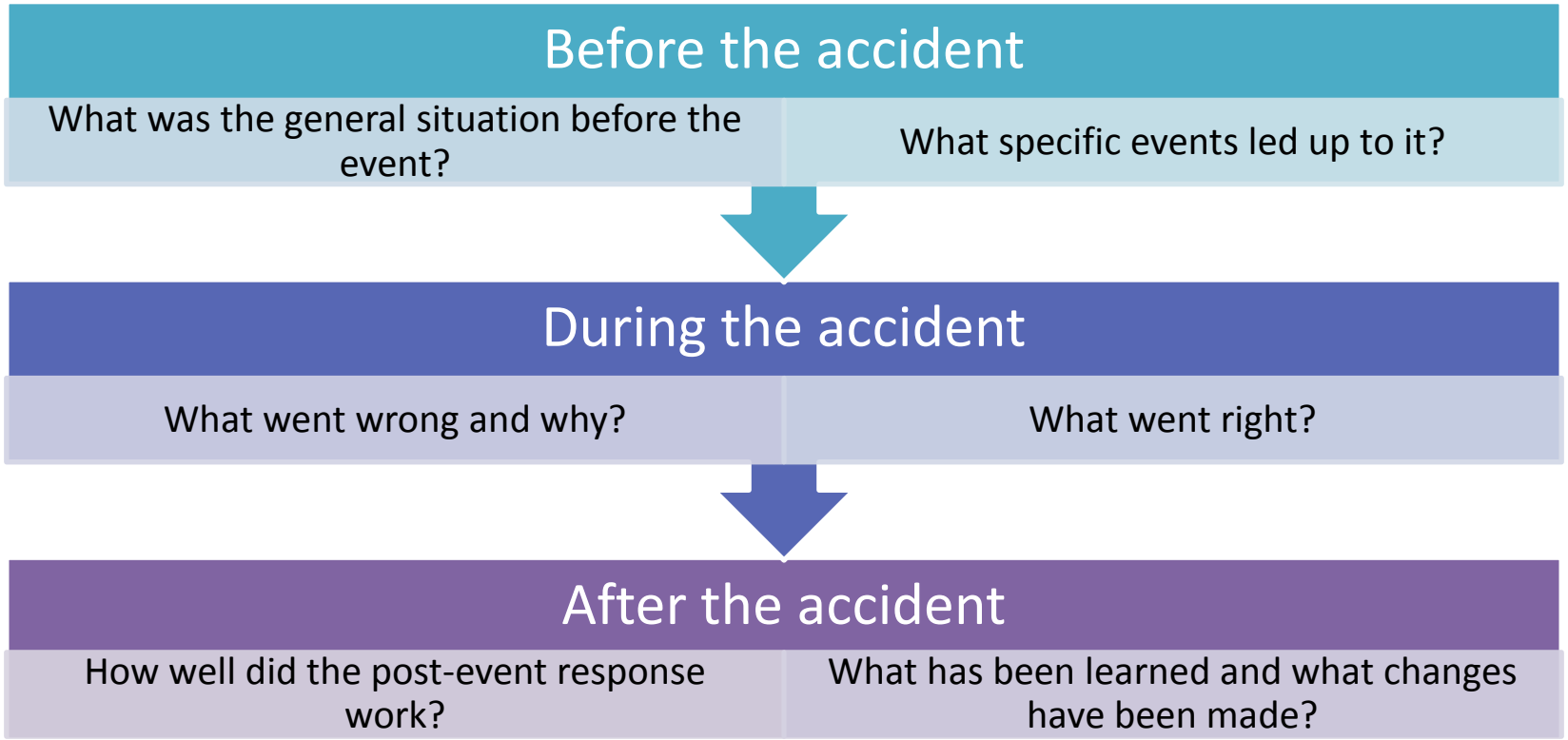
1. Accident notification
2. “Go Team” composed
   - Number of injuries & fatalities
   - Location
   - Public interest
   - Magnitude of tasks
   - Previous accidents of same type

NTSB 2002

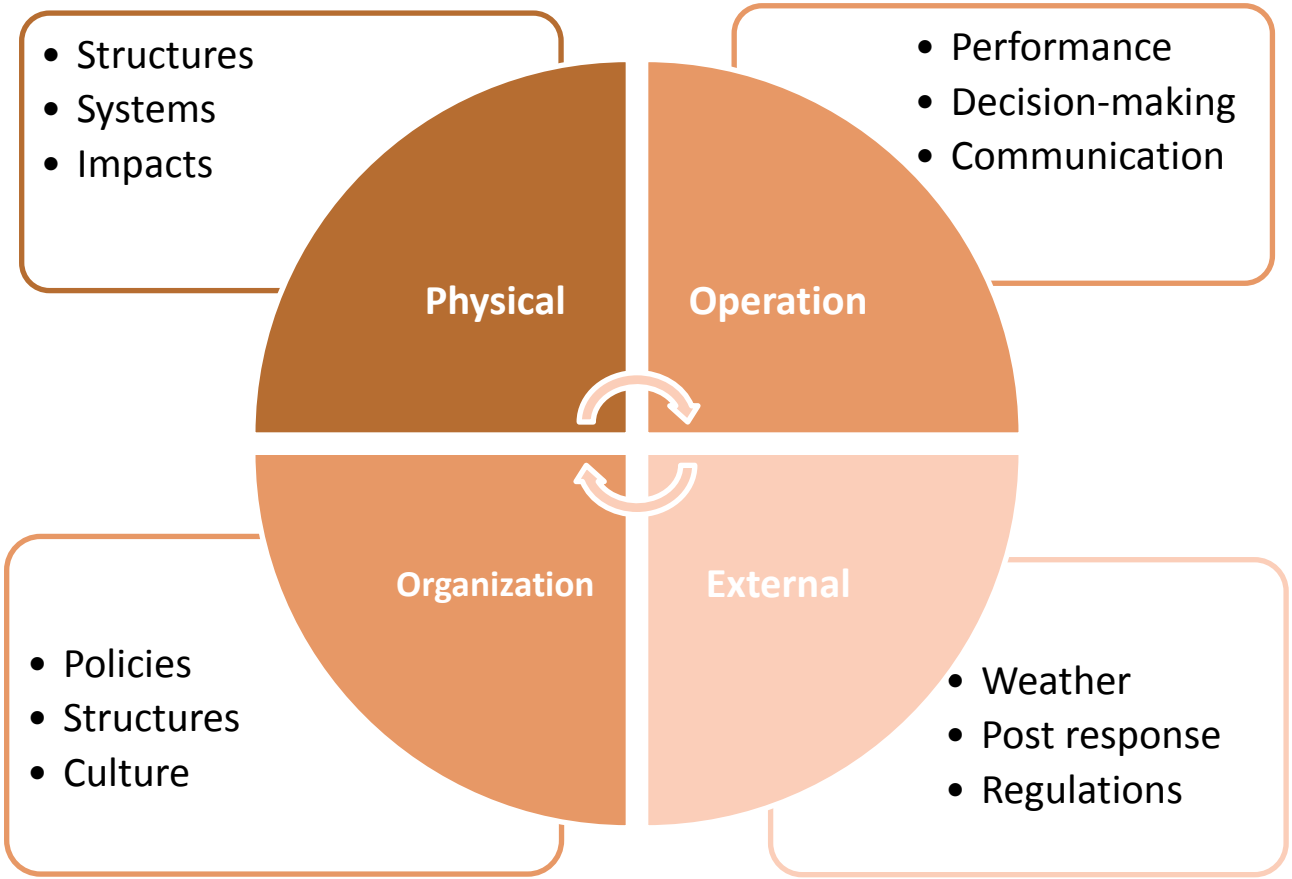
III. How is an RCA conducted?

- What happens before the investigation begins?
- Steps for conducting RCA
- How do you know you've found a root cause?
- How can changes be maintained?
- What if I can't find a root cause?

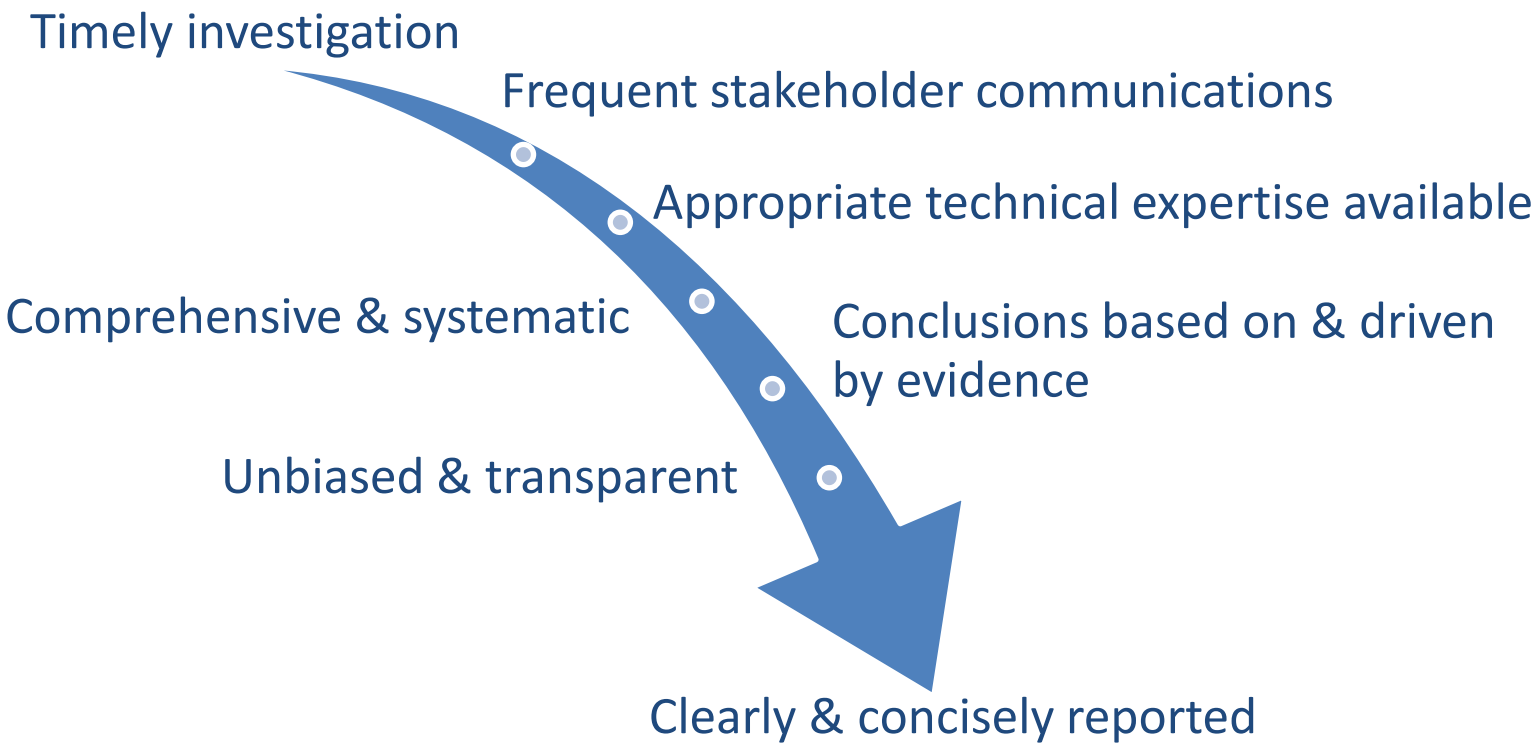
Effective RCAs reconstruct events



Effective RCAs consider 4 types of factors

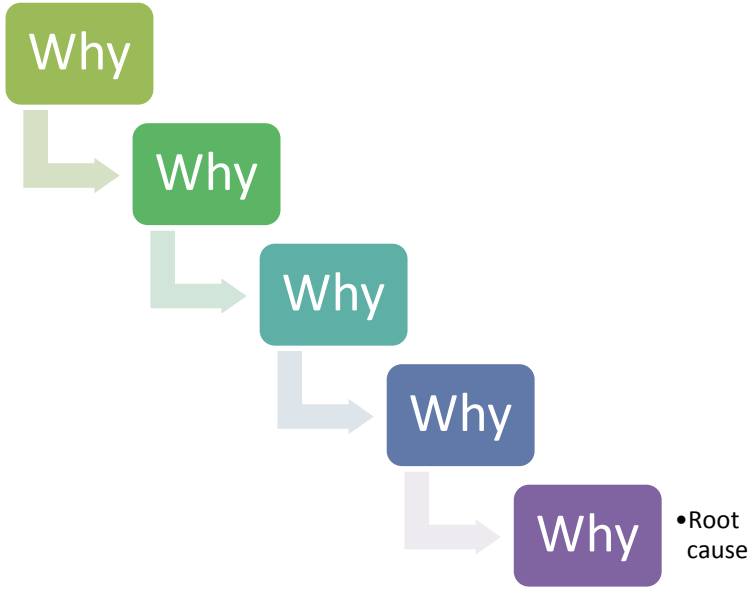


Properties of effective RCAs

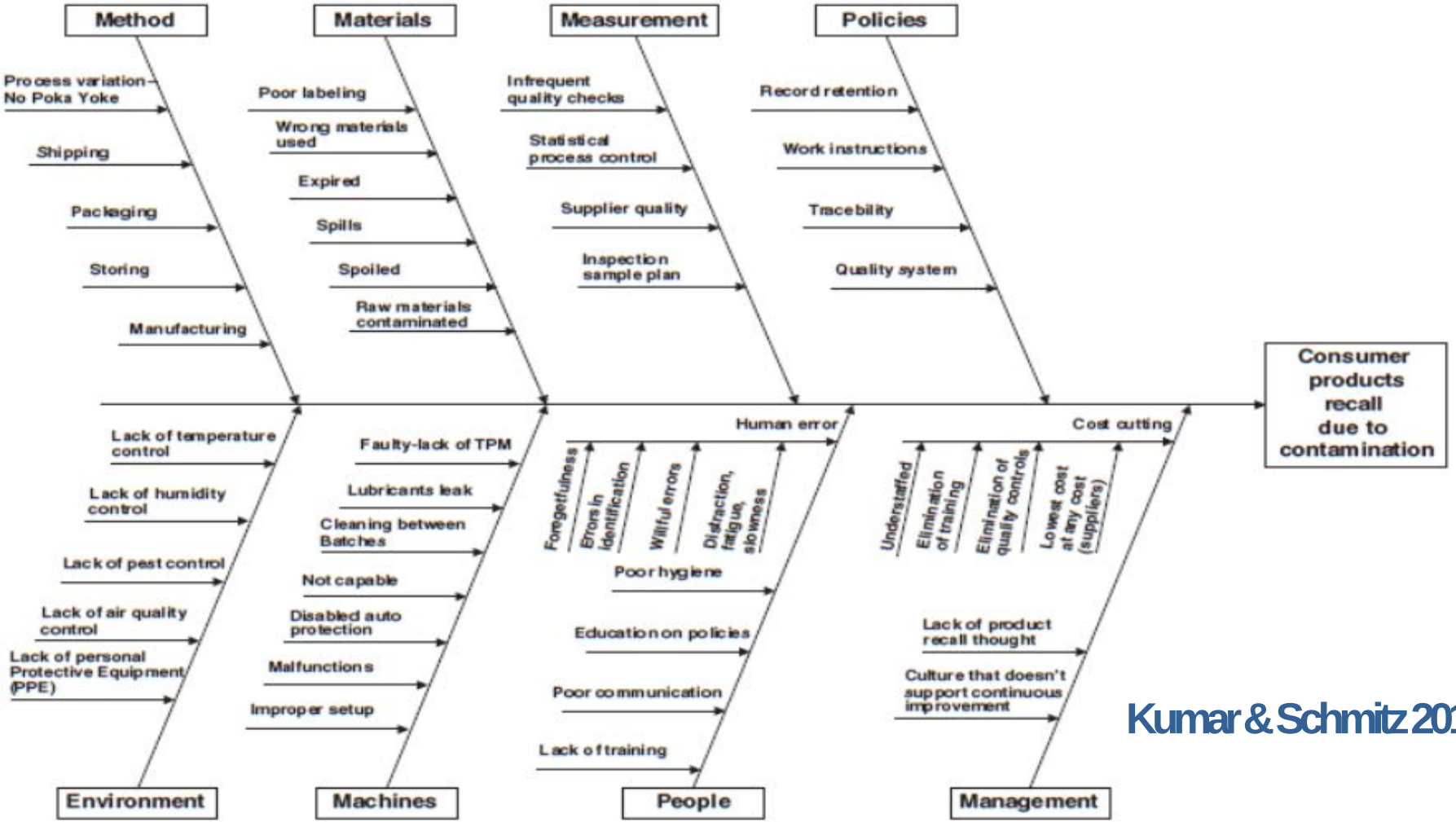


Tools

- Cause & effect diagrams
  - Fishbone/Ishikawa, Fault tree
- KNOT chart
  - Classify evidence
- 5 whys
  - Very simple, use with other techniques



	Specific Data Item	Know	Need to know	Opinion	Think we know	Action
D1	80% Humidity and Temperature of 84 degrees F at 2:00 PM	X				
D2	Belt Speed on the machine *appeared* to be slower than usual			X		Locate and interview other witnesses
D3	Operator said she was having a difficult time cleaning the contacts			X		Locate and interview other witnesses
D4	Press Head speed was set at 4500 rpm				X	Verify by review of Press Head logs
D5	Oily Substance on the floor?		X			Interview Cleaning Crew
D6						



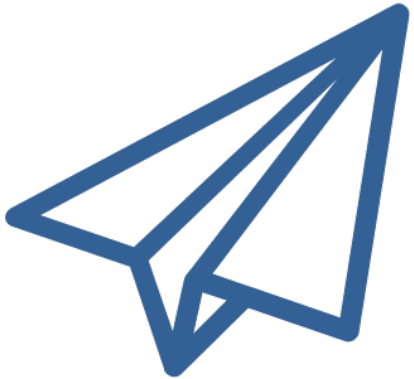
Kumar & Schmitz 2011

Example: Changes to Food Policy

- 2006 Spinach & E. coli
  - Contamination from feral swine and cattle
  - Finding: Wildlife intrusion on fields
  - Policy change: emphasize wildlife barriers in good agricultural practices
- Food service & Norovirus
  - Ill workers handling food
  - Finding: Pressure to work
  - Policy change: require workers to report illness, mandating sick leave

Jay et al. 2007; CDC 2017

IV. How should findings from an RCA be communicated?



- Report sharing
  - Academic institutions
  - Industry associations
  - Government networks
- Education and training
- Policy action

Example: Patient Safety

What can we learn from Patient Safety on sharing results?

- U.S. Department of Veterans Affairs (VA) National Center for Patient Safety
  - Developed and mandated RCA process
  - Maintains database of RCAs for analysis and to drive improvements
- Enables analysis of RCA's impact
  - Study found postoperative complications higher at VA medical centers that performed fewer RCAs

Percarpio et al. 2013

How we hope the guide will be used

- Promote RCA as part of a food safety professional's training
- Starting point for investigators in any organization with vested interest in food safety
  - Principles, basic tools, resources, rationales
- Template for creating internal standard procedures for root cause analysis

Next steps

- Work in progress, circulation and review
- Strategy for sharing and communication of RCA findings

Thank You

Questions?

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