

Just-in-Time Research to Address Emerging Issues

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Just-in-Time Research, What?

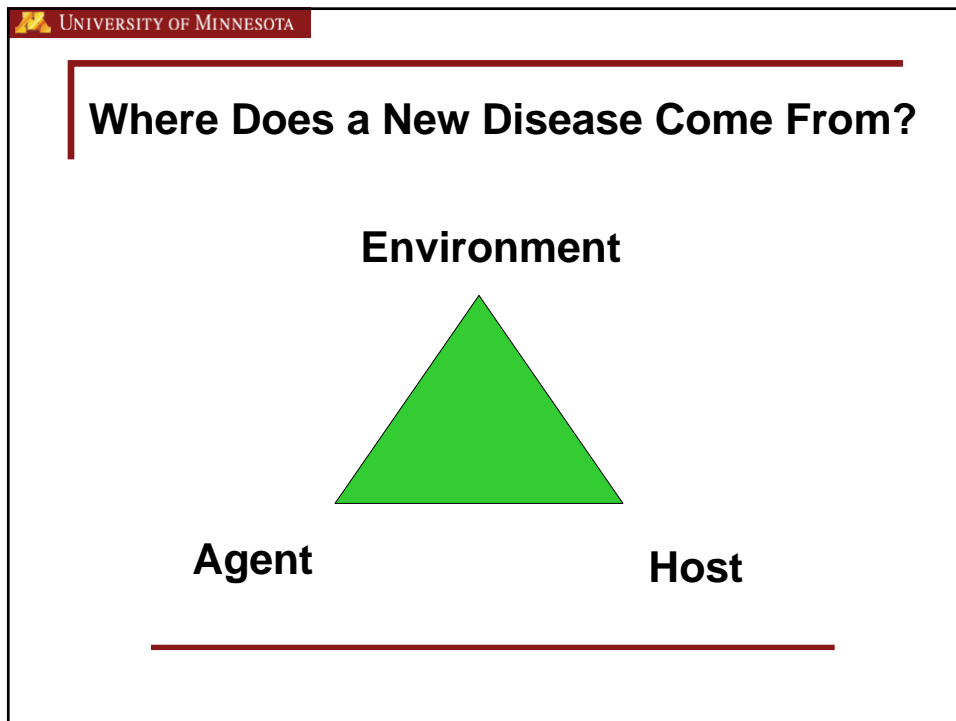
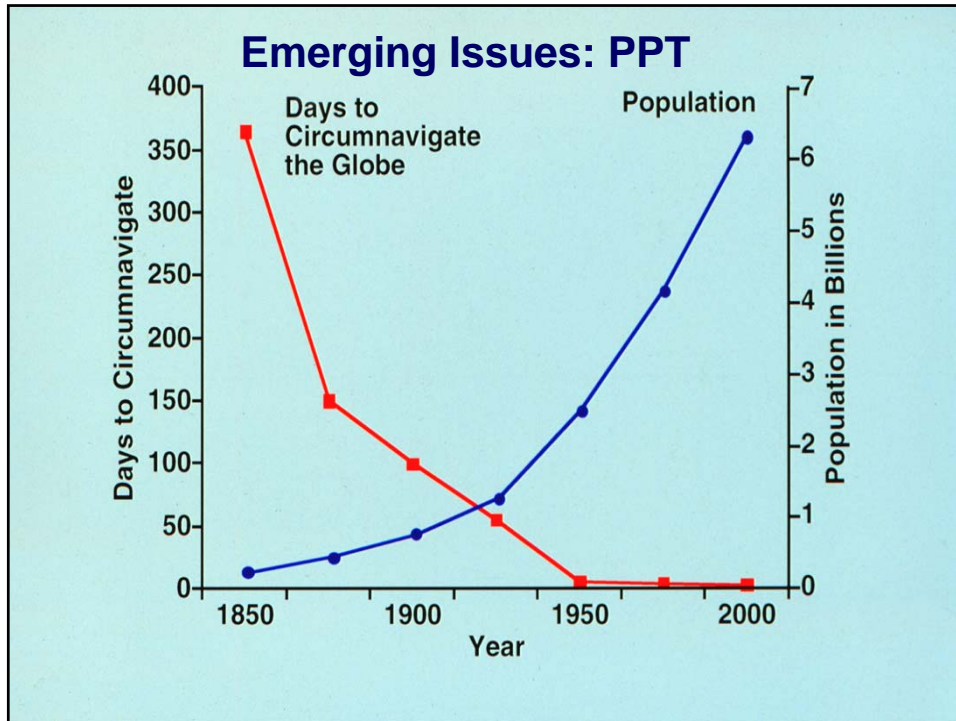
- Description of new disease, condition or hazard
- Prevention or control strategy

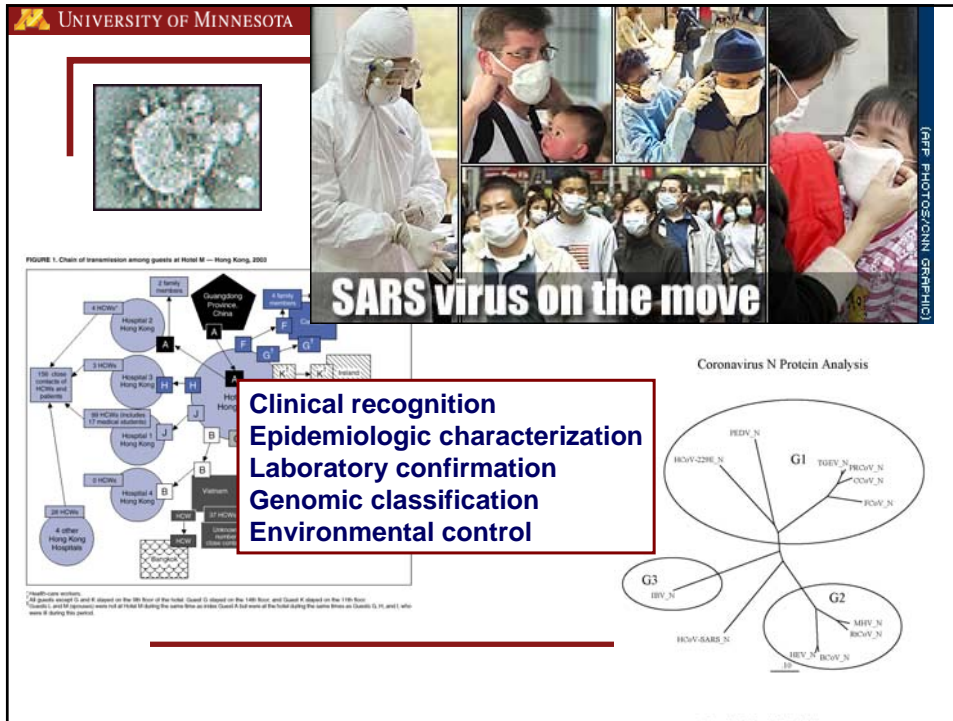
Just-in-Time Research, Who?

- Research teams assembled *on demand* to provide expertise needed to address issue
- Expertise, not *source* of expertise, is key-
 - Collaborations across industry, government and academia should be expected...
 - and encouraged!

Just-in-Time Research, Why?

- An emerging disease may have a global impact that may be felt immediately



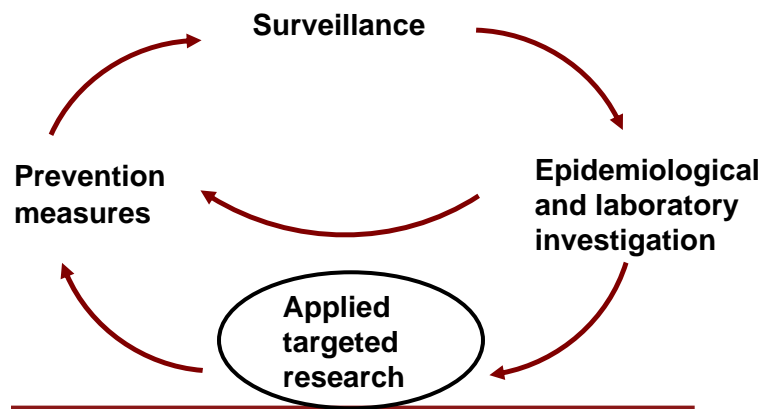


UNIVERSITY OF MINNESOTA

Investigation of Progressive Inflammatory Neuropathy Among Swine Slaughterhouse Workers --- Minnesota, 2007--2008

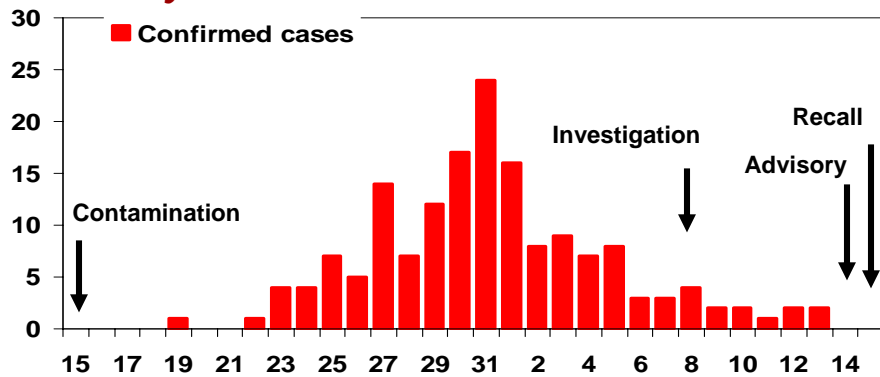
| Organizations | Expertise |
|--|---|
| <ul style="list-style-type: none"> • Mayo Clinic • Minnesota Department of Health (MDH) • Industry • CDC • University of Minnesota • USDA/ MDA | <ul style="list-style-type: none"> • Clinical • Epidemiological • Immunology • Virology • Infection control • Veterinary • Engineering |

The Cycle of Public Health Prevention



E. coli O157:H7 Associated with Fresh Bagged Spinach, 2006

30 days from contamination to intervention

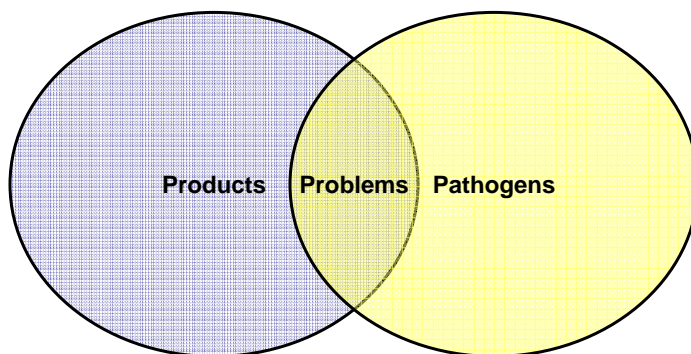




FRESH EXPRESS PROVIDES \$2 MILLION TO FUND STUDY OF *E. COLI* 0157:H7 PATHOGEN IN PRODUCE

- - *Independent, Nationally Recognized Scientific Panel to Guide Research to Improve Food Safety for Consumers -*
- - *Company Commits to Share Learnings to Benefit Entire Fresh-Cut Industry -*

Microbiology/Processing Problem Identification Model



Outbreaks identify new problem areas.

Microbiology/Processing Problem Identification Model

- Problem areas that are *reasonably likely to occur* need to be covered by HACCP plans.
- Potential problem areas that may escape control by existing HACCP plans need to be evaluated for potential public health impact due to high production volumes and widespread distribution.
- If multiple potential hazards that are individually not “reasonably likely” to occur may get around HACCP through a common pathway, they should collectively be considered “reasonably likely” to occur and covered by HACCP plans.

Estimated Norovirus Infections Among Restaurant Employees

- Employees **12 million**
- Diarrheal illness rate **(0.79 per person/year)**
- Illnesses among restaurant employees **9 million**
- % of GI illnesses due to norovirus **(11%)**
- Norovirus among restaurant employees **990,000**
- Foodworkers who work while ill **(5%)**
- Norovirus infected restaurant employees who work while ill **>50,000**

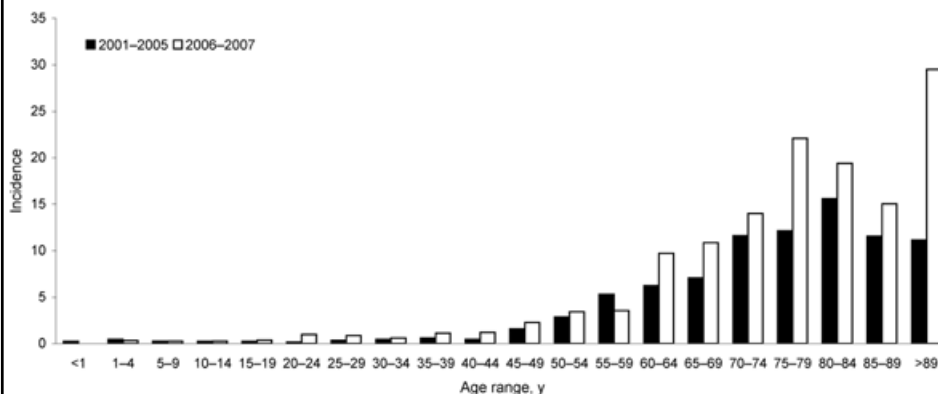
NRA 2004, Mead 1999, Green 2005

Estimated Burden of Norovirus Due to Ill Restaurant Employees

- Norovirus infected restaurant employees who work while ill **>50,000**
- Average no. ill per outbreak in a restaurant **31**
- Estimated illnesses attributable to ill employees **~1,550,000 (15-20% of all foodborne norovirus)**

NRA 2004, Mead 1999, Green 2005, Fankhauser 2002

Increasing Incidence of Listeriosis in France, by Age



Goulet V, 2008 EID

Increasing Incidence of Listeriosis in France

- Listeriosis in France decreased from 1987-1997
 - control measures implemented by the food industry in response to several large outbreaks.
 - In 2002, French Food Safety Agency recommended 20% reduction in average salt intake over 5 years.
 - food industry reduced the salt content of selected products, such as ready-to-eat meat products.
 - Ready-to-eat products, may be contaminated by *LM*
 - reduced salt content may contribute to growth of *LM* and increased likelihood of infection when consumed by susceptible persons.
 - Surveys to determine frequency and level of *LM* in ready-to-eat food stuffs initiated in 2008.
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Increasing Incidence of Listeriosis in France

- Also observed absolute and relative increase in patients with hematologic malignancies.
 - Improved treatment likely resulted in increased number of patients surviving longer with these malignancies.
 - Not aware of sudden and recent increase in the number of these patients that could explain the upsurge.
 - Further investigations needed to assess whether changes in treatments for these patients may have contributed to an increased susceptibility for illness.
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