

Multistate Psittacosis Outbreak among Poultry Plant Workers, 2018: Animal Health Perspectives

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USAHA 2019: Poultry and Other Avian Species

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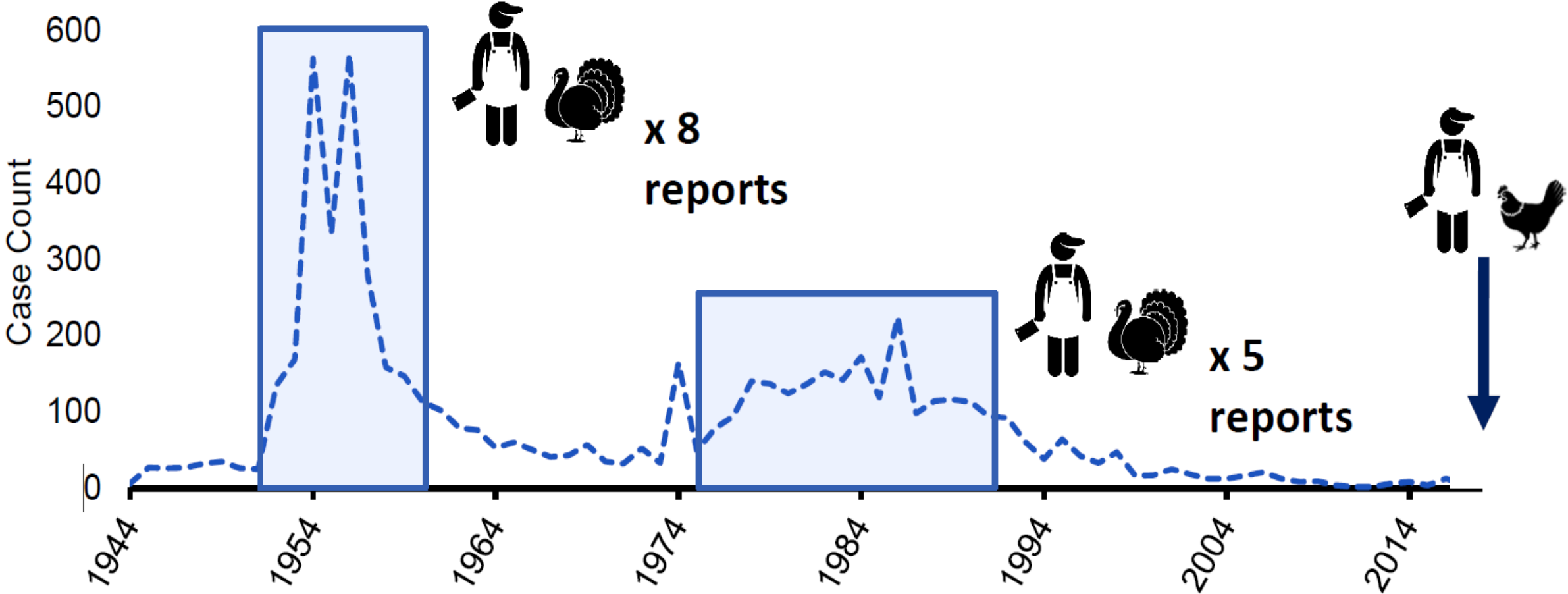
Director, Applied Epidemiology Staff, USDA, FSIS

Michael Martin, DVM, MPVM, ACPV

Director, Poultry Programs

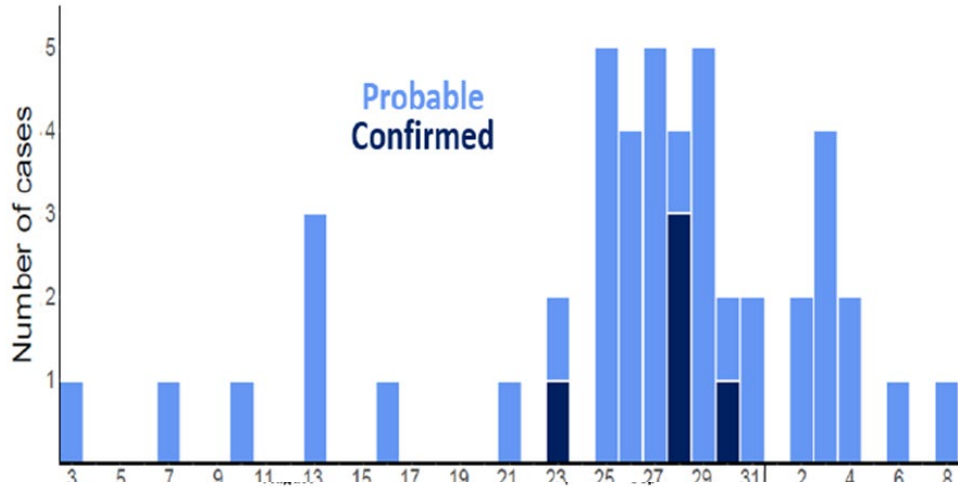
NC Dept. of Ag and Consumer Services, Veterinary
Division

This was the first U.S. psittacosis outbreak among poultry slaughter plant workers reported in 30 years.



Slide courtesy of CDC-Respiratory Diseases Branch

Epidemic Curve of VA Plant, Aug 3–Sept 8, 2018



Case definitions:

Person working at either VA or GA plant with:

Confirmed: PCR detection in a clinical sample

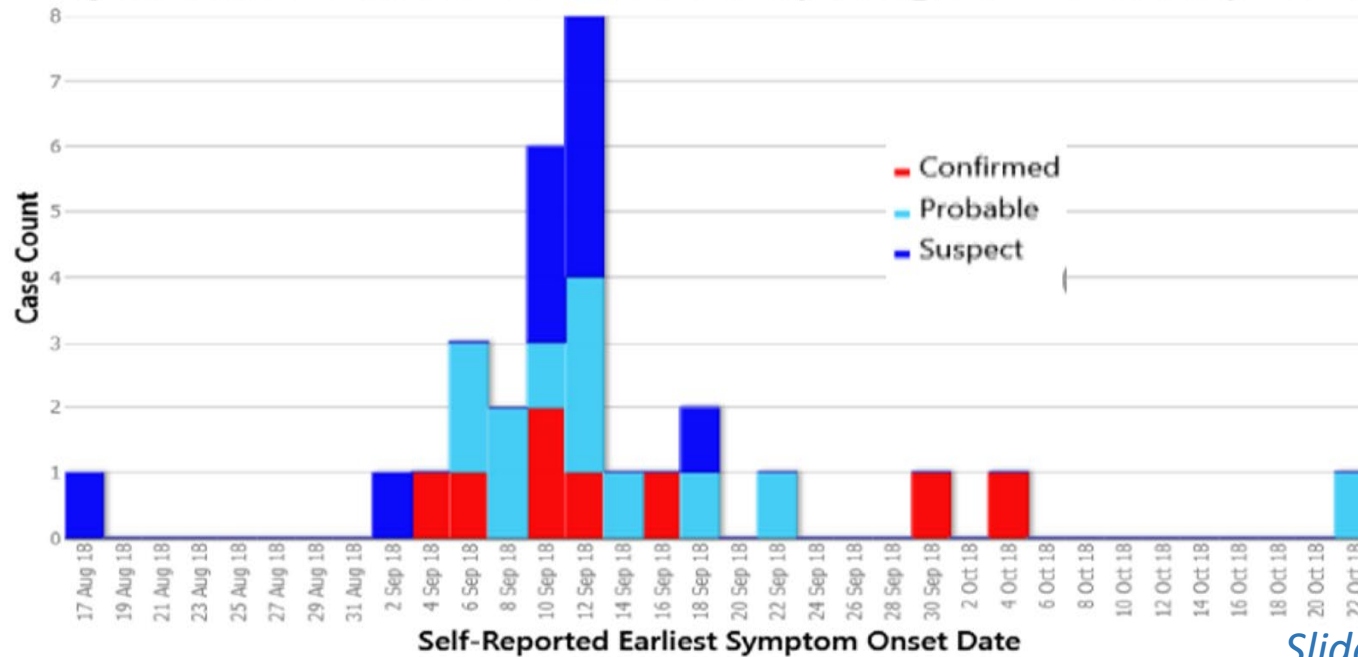
Probable: Physician diagnosed pneumonia

Suspect: Fever or chills, plus ≥ 2 of the following: Cough, headache or muscle aches

Combined for VA



Epidemic Curve of GA Plant, Aug 17–Oct 22, 2018



Slide courtesy of CDC-Respiratory Diseases Branch

Multi-sectoral Investigation

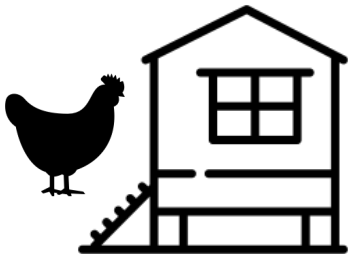
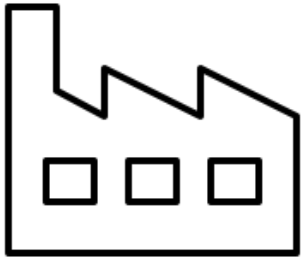


State Health Departments, CDC, NIOSH

- Case finding and risk assessment, lab testing, communication

FSIS, Plant Management

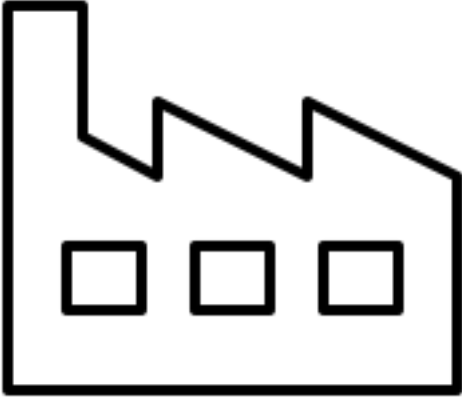
- Evaluate potential food safety hazards
- Health Hazard evaluation (request to NIOSH)
- Ante / post mortem inspections, flock health screening questionnaire
- Data analysis / investigation in partnership with APHIS and SAHOs
- Town halls for case finding and prevention



APHIS, State Animal Health Officials (SAHOs)

- Options and criteria for poultry flock trace back
- Questionnaire for potential risk factors
- Recommendations for surveillance and prevention

Methods – Plant investigation



- USDA Health Hazard Evaluation Board
- Environmental testing
 - Live bird areas
 - Organic matter reservoirs
 - Ventilation sites
 - Drain sites
- Cleaning and Disinfection:
 - Routine plant cleaning protocols followed
 - Disinfection pH<3 on surfaces
- NIOSH Health Hazard Evaluation requested

Results

USDA Health Hazard Evaluation Board findings and recommendation:

- No significant food safety risk due to minimal likelihood of exposure through food
- Cleaning and Disinfection (C&D) with quaternary ammonium or bleach followed by environmental testing
- FSIS partner with APHIS to evaluate preharvest mitigations to eliminate exposure
 - Preharvest questionnaire created and provided to plant management

Health Hazard Evaluation (NIOSH):

Adjust cooling fans

Recommendations to reduce bacterial contamination and aerosolization

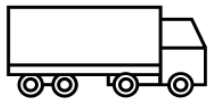
No *Chlamydia psittaci* detected



23 companies,
wide geographic
area east of
Mississippi River

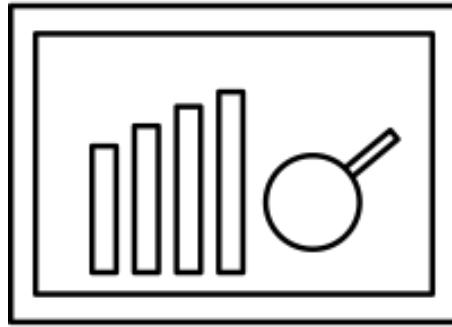
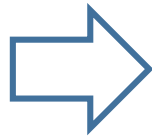


Dates of
illness onset



+

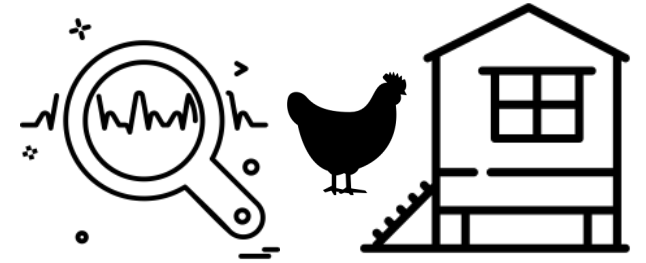
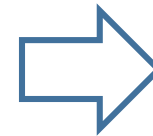
timing of shipments



12 flocks = 'farms of interest'

Further analysis for these factors:

- Flocks processed at both plants
- Dates of processing within known human incubation periods
- Increased levels of deads on arrival (DOA) and condemnations at one or both plants
- Reasons of condemnation consistent



NC investigation:

- Review public health syndromic surveillance
- Conduct Farm surveys (n=6)
 - Human health
 - Animal health
 - Biosecurity



7 flocks of interest: TN and NC

Results

Seven farms completed surveys. Results shown for 6 farms from NC
Biosecurity and animal health:

Wild Birds seen?	Wild bird entry points evaluated?	Spilled Feed clean up:	Written biosecurity plan and employee training	Increased mortality within 4 weeks processing?
4 farms routinely outside houses 1 farm inside houses during life of flock	2 farms: daily 3 farms: weekly 1 farm: twice per year	4 farms: same day 1 farm: weekly 1 farm: once per year	6 farms: have plan 5 farms: train employees	3 farms: increased mortality None reported increased respiratory disease

3 flocks spiked with male birds within 12 weeks of processing

Human Health: No respiratory illness patterns detected from syndromic surveillance.

No symptoms or illnesses reported among

- **21 full-time, 17 part-time and 17 contract workers between July 1 and Sept 1, 2018**

Summary and Recommendations

Rare but significant human health risk in processing plant workers

Biosecurity principles to prevent exposure. [Defend the Flock Resources Center](#)

Targeted Surveillance: maximize value, minimize false positives

- during last 4 weeks before processing, if mortality $>1.75x$ expected \gg necropsy
- if signs of bacterial septicemia or respiratory disease \gg test for common bacterial pathogens
 - if negative, inconclusive, or necropsy supports \gg test for *C. psittaci*

Icon credits

The Noun Project:

Illness by ester barbato

Chicken coop by Achmmad Fauzi, ID

Semi truck by Blaise Sewell, US

Semi-trailer truck by Nico Strobl, AT

Diagnosis by Nithinan Tatah, TH

Analysis graph by ibrandify, PK

Factory building by iconsphere

Chicken by David, US

Thank you

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Field Epidemiology Investigation Services

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