Pandemic Influenza
Preparedness

Jeffrey Engel, MD
State Epidemiologist
NC Division of Public Health
Acknowledgements

Krissy Simeonsson, Chief Planner

OPHP&R
  – Julie Casani
  – Amanda Fuller
  – Brant Goode

Epidemiologists
  – Lana Deyneka, Jean-Marie Maillard, Megan Davies (NC DETECT)
  – Jennifer MacFarquhar, PHE Director

SLPH
  – Myra Brinson, Peggy Brantley
Objectives

- Assess the current threat of pandemic influenza
- Planning by pandemic phase
- What we can do now (Phase 3)
- Pandemic influenza preparedness and response in North Carolina
Natural Reservoir for New Human Influenza A Virus Subtypes: Waterfowl (Aquatic Ducks, Geese)

Avian Influenza A viruses
H1 - H16
N1 - N9

Human Influenza A Viruses
H1 - H3
## Pandemics of the 20th Century

<table>
<thead>
<tr>
<th>Year</th>
<th>Impact in the United States</th>
<th>Subtype</th>
<th>Year</th>
<th>Impact in the United States</th>
<th>Subtype</th>
<th>Year</th>
<th>Impact in the United States</th>
<th>Subtype</th>
</tr>
</thead>
<tbody>
<tr>
<td>1918-19</td>
<td>550,000 deaths</td>
<td>H1N1</td>
<td>1957-58</td>
<td>69,800 deaths</td>
<td>H2N2</td>
<td>1968-69</td>
<td>33,800 deaths</td>
<td>H3N2</td>
</tr>
<tr>
<td>Spanish flu</td>
<td></td>
<td></td>
<td>Asian flu</td>
<td></td>
<td></td>
<td>Hong Kong flu</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Postulated Evolution of Human Influenza Viruses

Evidence ——— Seroarcheology ——— Virus Isolation ——— Present
Time 1890 ——— 1900 ——— 1918 ——— 1957 ——— 1968 ——— Present
Subtype H2N2 ——— H3N8 ——— H1N1 ——— H2N2 ——— H3N2 ——— Present

Avian genes 8 3 2

H1N1 H2N2 H3N2

Wright and Webster. Orthomyxoviruses in Fields Virology
Possible mechanisms for generation of pandemic influenza viruses.

Recent studies of reconstructed Spanish flu viruses are consistent with this theory: all genes of the 1918 virus were of avian origin.
Infectious Disease Mortality in the United States, 1900 to 1996
“Pandemic Watch”

Bird Flu
Pandemic “Prerequisites”

- Novel virus emerges
- Novel virus causes disease in humans
- Novel virus can be efficiently transmitted person to person

Dr. Asamoah-Baah, Assistant Director General, WHO Communicable Diseases
## WHO Pandemic Phases

<table>
<thead>
<tr>
<th>Inter-pandemic phase</th>
<th>Low risk of human cases</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>New virus in animals, no human cases</td>
<td>Higher risk of human cases</td>
<td>2</td>
</tr>
<tr>
<td>Pandemic alert</td>
<td>No or very limited human-to-human transmission</td>
<td>3</td>
</tr>
<tr>
<td>New virus causes human cases</td>
<td>Evidence of increased human-to-human transmission</td>
<td>4</td>
</tr>
<tr>
<td>Pandemic</td>
<td>Evidence of significant human-to-human transmission</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Efficient and sustained human-to-human transmission</td>
<td>6</td>
</tr>
</tbody>
</table>
H5N1 in Humans

- Current outbreak began December 2003
- Initially cases were limited to Southeast Asia
- Geographic distribution continuing to expand in 2006
  - Human cases are now being reported in Europe and Africa
### H5N1 by Country

<table>
<thead>
<tr>
<th>Year</th>
<th>Azerbaijan</th>
<th>Cambodia</th>
<th>China</th>
<th>Djibouti</th>
<th>Egypt</th>
<th>Indonesia</th>
<th>Iraq</th>
<th>Thailand</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>Vietnam</td>
<td>Thailand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>Vietnam</td>
<td>Thailand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Vietnam</td>
<td>Thailand</td>
<td>Cambodia</td>
<td>Indonesia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Azerbaijan</td>
<td>Cambodia</td>
<td>China</td>
<td>Djibouti</td>
<td>Egypt</td>
<td>Indonesia</td>
<td>Iraq</td>
<td>Thailand</td>
<td>Turkey</td>
</tr>
</tbody>
</table>

Human H5N1: 2003-6
Through November 29

Human Cases of H5N1

Human cases (infected) of A/H5N1 by date of onset and country up to date
Data as of 20 July 2006

- Vietnam
- Turkey
- Thailand
- Iraq
- Indonesia
- Egypt
- China
- Djibouti
- Cambodia
- Azerbaijan

Month of Onset

Year:
- 2003
- 2004
- 2005
- 2006
Direct Contact with Poultry
Primary Risk Factor

- Plucking and preparing diseased poultry
- Handling fighting cocks
- Playing with poultry
- Consumption of duck’s blood or possibly undercooked poultry
"Pandemic Watch"
Global Perspective

**Good news**
- No evidence of sustained person-to-person transmission
- Recent human cluster in Indonesia not a major genetic shift

**Bad news**
- H5N1 virus continues to circulate widely in Asia, Europe and Africa
- Eradication of H5N1 in birds is difficult
“Pandemic Watch”
United States

No reported cases of H5N1
- Migratory birds
- Poultry
- Humans

Other avian influenza viruses detected in poultry in 2004
- H5N2 in Texas
- H7N2 in Maryland
Documented Avian Influenza infections in humans

- **Hong Kong 1997**: 18 cases, 6 deaths
- **2003**: 2 cases, 1 death
- **Netherlands 2003**: 89 cases, 1 death
- **Cambodia 2005**: 4 cases, 4 deaths
- **Thailand 2004-2005**: 20 cases, 13 deaths
- **Viet Nam 2004-2005**: 92 cases, 42 deaths
- **Indonesia 2005**: 9 cases, 5 deaths
- **Canada (British Columbia) 2004**: 2 cases

Data as of: 11.11.2005
First Appearance of H5N1 in NC?
Recognition of 1st Human Cases of H5N1: Phase 3

Clinical
- Fever
- Cough
- Dyspnea
- Pneumonia

Epidemiologic
- Travel to H5N1-affected country and exposure
  - Poultry
  - Wild birds
  - Patient with severe respiratory illness
- Close contact with H5N1 patient
- Worked with H5N1 virus in laboratory
Suspect Novel Influenza Virus

- Report case immediately to health department
- Specimens can be sent to NC SLPH
- Consultation available
- Testing
- Treatment
- Prophylaxis
- Infection control

(919) 733-3419
Communication Plan
Phase 3: H5N1 in NC

- It’s OK to eat chicken
- Spread to people is very unlikely
  - Special populations
    - Hunters, Audubon Society members, campers
    - Backyard flock keepers
    - Commercial poultry operations
  - Healthcare personnel
- If detected in wildlife or poultry, Agriculture is the lead response agency
Pandemic Influenza

WHO Phases 4 (increased),
5 (significant), and
6 (efficient and sustained)

Human-to-Human Transmission
### Planning Assumptions

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Illness</th>
<th>Outpatients</th>
<th>Hospitalized</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe (1918-like)</td>
<td>3,000,000</td>
<td>1,600,000</td>
<td>300,000</td>
<td>65,000</td>
</tr>
<tr>
<td>Moderate (1957-like)</td>
<td>3,000,000</td>
<td>1,600,000</td>
<td>35,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>

*Assuming 35% attack rate and NC population of 9 million people*
*Based on CDC software FluAid 2.0*
Pandemic Response Goals

- Pandemic Begins (somewhere in the world)
- Time (months)
- Vaccine
- NC Impact
- Early Detection
- Control Measures

6-8
Core Components
NC Pandemic Plan

Command and Control
Surveillance
Vaccine Preparedness and Response
Antiviral Preparedness and Response
Medical Surge
Preparedness in Healthcare Facilities
Communication
Appendices

NC Pandemic Plan

- Supplements to core parts of plan
- “Stand alone” appendices
  - Laboratory diagnosis
  - Community containment
  - International travel guidelines
  - Mass fatality plan
  - Legal issues
  - Mental health
  - Quenching plan
  - Clinical algorithms
Pandemic Influenza Information for Health Professionals

On this page:
- Overview
- Flu Pandemics (historical)
- Frequently Asked Questions about Pandemic influenza

Pandemic Influenza Toolkit
A compilation of resources and information provided to clinicians for their use in discussing Pandemic influenza with patients and providing care in case of spread of this agent to the United States.

Overview

Flu Pandemics (historical)
Timeline for human flu pandemics.

Frequently Asked Questions about Pandemic influenza.
Clinical Algorithm and Toolkit

- Enhanced surveillance
- Infection control
- Diagnosis
- Treatment

Coming February 2007
Hospital Preparedness

- Hospital Emergency Incident Command System (HEICS)
  - A JCAHO standard
- Disaster Committee
- Infection Control Committee
  - Workforce protection
  - Patient placement
- Continuity of Operations Planning
  - Security and safety
  - Medical surge
  - Staffing
US DHHS Pandemic Influenza Plan

Clinical guidelines
- Case detection
- Clinical management

Healthcare planning
- Focus is hospital planning
- Highlights some planning steps for non-hospital healthcare facilities
NC Department of Health and Human Services

Pandemic Flu and You

Pandemic Flu and You: A Primer (700 KB file)
Preparing your Family (500 KB file)
First Aid Kit (1.4 MB file)
Faith-Based and Community Organizations Preparedness Checklist (550 KB file)
Business Planning Checklist (600 KB file)
Brochure (300 KB file)
  - En Español (300 KB file)
Poster (300 KB file)
  - En Español (300 KB file)

All files are in Acrobat format. Download the free reader.

Questions on these materials? Want to order (small quantities) of these printed materials? Want a higher resolution file so your organization can print large quantities? Contact public.affairs@ncmail.net
Business Continuity

- Critical operations
  - Minimum number of personnel needed
- Surge capacity issues
  - Staffing
    - Consumable resources
- Facility inaccessible
- Utility disruption
Sample Business Continuity and Disaster Preparedness Plan

☐ PLAN TO STAY IN BUSINESS

If this location is not accessible we will operate from location below:

Business Name
Address
City, State
Telephone Number

Business Name
Address
City, State
Telephone Number
Essential Functions of Your Business

Shoot
Move
Essential Business Functions
Public Health Epidemiology

- Medical Consultation
- Communication
- Access to information
- Plan: Work from home
  - Telecommunications
  - IT
- Business Recovery
  - Teams assigned to phased-in return to work
“Countermeasure Response”

Non-Pharmacologic Interventions

Personnel Protective Equipment

Hygiene

Social Distancing
Separation

**Anthrax**
AMI Building
Boca Raton, FL
October 2001

**SARS**
Respirator masks, fever screening
Taiwan May 2003

**MRSA**
Any hospital
USA
21st century
PPE

- Influenza transmission
  - Respiratory droplets
  - Airborne (>6 feet from patient)
  - Contact

A novel pandemic virus may have new properties
  - H5N1 and diarrhea
Masks and Respirators
For Responders

- Plain surgical masks for droplet spread
  - Along with standard precautions

- N-95 or equivalent respirators for airborne spread
  - Fit testing required
  - Training required
  - Currently recommended by US DHHS

- PPE planning
  - Stockpiling (50% N-95, 50% masks)
  - Training
Masks for Well People in the Community?

- No data
- Transmission reduction if worn by sick people
- Potential harm
  - Increase risk of inoculation if not properly trained
  - SARS example
- Masks are single-use, disposable

Public gathering places were ordered closed by the leaders of many major cities.

www.pbs.org
Hygiene

- Wash hands with soap and water
- Cover mouth and nose when coughing and sneezing
  - Use a tissue or upper sleeve, but not hands
- Avoid close contact & stay home if sick
Social Distancing

- Isolation and quarantine (legal authority)
  - For use in phases 4, 5, and early 6
- Mass quarantine (voluntary or declared emergency)
  - Advanced phase 6
  - Working at home
  - School closures
  - “Snow day”
“Countermeasure Response”
Pharmacologic Interventions

Antivirals and Vaccines
### Number of Antiviral Drug Courses for Prophylaxis vs Treatment
By Federal Priority Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Population</th>
<th>Number of courses</th>
<th>Prophylaxis*</th>
<th>Therapy**</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCWs</td>
<td>11 m</td>
<td>61.6 m</td>
<td>3.9 m</td>
<td></td>
</tr>
<tr>
<td>“Frontline” hosp</td>
<td>2.5 m</td>
<td>14.0 m</td>
<td>0.9 m</td>
<td></td>
</tr>
<tr>
<td>Public safety</td>
<td>2.3 m</td>
<td>12.9 m</td>
<td>0.8 m</td>
<td></td>
</tr>
</tbody>
</table>

*Assumes 8-week prophylaxis, duration of 1st wave
**Assumes 35% attack rate
Antivirals

- HHS goal is to stockpile 81 million regimens (treat 25% of the population)
- SNS inventory
  - 50 million regimens
  - 80/20 split with Tamiflu and Relenza
- States’ inventory
  - 31 million regimens
  - Federal contracts for purchase at a reduced rate
### Regimens, pills, doses

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Pills/Doses</th>
</tr>
</thead>
</table>
| **Tamiflu Regimen** | - 10 pills  
                      | - Prophylaxis-1 pill daily x 10 days  
                      | - Treatment-1 pill BID x 5 days |
| **Relenza Regimen** | - 5 ROTADISKS  
                      | - Prophylaxis-2 inhalations daily x 10 days  
                      | - Treatment-2 inhalations BID x 5 days |
ROTADISK

Parts of the DISKHALER®

**COVER**
- keeps the DISKHALER clean and free of foreign matter;
- replace cover when not in use

**WHITE MOUTHPIECE**
- where the medicine is inhaled by mouth

**DARK BROWN WHEEL**
- rotates to the next blister of medicine

**WHITE TRAY**
- pulls in and out of DISKHALER body

**RAISED RIDGES**
- help you pull out the tray for loading

**NEEDLE**
- punctures the blister to release medicine

**DISKHALER BODY**

**HALF-CIRCLE FLAP**
- lifts up and down to operate plastic needle

**SILVER MEDICINE DISK**
- contains 4 blisters of medicine; the disk fits into the dark brown wheel inside the DISKHALER
Tamiflu
Stockpiling in NC

- Yes
- Follow 80/20 model
- Goal: enough for 25% of the population
- Storage locations being investigated
- Used for Quenching and treatment
Shelf Life

~ 5 years

Shelf Life Extension Program (SLEP)

Allows for product in the SNS to receive extended expiration date if it meets specific conditions

SLEP is only available for federally-owned pharmaceuticals
Tamiflu

- M2 ion channel inhibitors (amantadine) have shown HIGH resistance
- Relenza is difficult to administer; has a black box warning (wheezing)
- Relenza indicated for patients over 5
- Tamiflu is easily stored and administered; available in suspension
Antiviral Distribution Plan (Proposal/Draft)

- Until stockpile is complete, only enough for treatment regimens
- 50% to public health, 50% to hospitals
  - Hospital amount based proportionate to historical ED volume
- Public health
  - 25% kept at State
  - 25% to local health departments proportionate to population of county/district
**Pandemic Vaccine**

- Created at time of pandemic
- HHS allocated $1.8 billion towards vaccine production and development
- Costly and time consuming
- Goal to produce enough for entire US population
H5N1 vaccine

- Not FDA approved
- Referred to as a “prepandemic vaccine”
- Based on current strains of H5N1
  - Thailand strain
  - Vietnam strain
- Held by manufacturer in bulk form
Vaccine request and distribution

- Early press releases stated SNS
- Distribution will be through the National Center for Immunization and Respiratory Diseases (NCIRD)
  - Formerly the National Immunization Program (NIP)
- Exact process not yet established
Current Status

- **SNS**
  - Push-package and managed inventory are available
  - Antibiotics, PPE, ventilators

- **Antivirals (as of 10/06)**
  - On hand:
    - 15.7 million regimens of Tamiflu
    - 84 thousand regimens Relenza
  - Ordered
    - 13.9 million Tamiflu
    - 6 million Relenza

- **Vaccine**
  - 20 million doses of H5N1 vaccine
Other Pandemic Preparedness Activities

- NC Pandemic Influenza Response Plan
  - Update February 1, 2007

- Exercises
  - Eight tabletop exercises Jan-Feb 2006
    - for hospitals and local partners
  - Statewide full scale exercise “CIPHER” May 2006, led by EM

- Pandemic Influenza Ethics Task Force

- Federal Supplemental Funding (CDC)
<table>
<thead>
<tr>
<th>Phase 1 Award: $2.5 Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractual</td>
</tr>
<tr>
<td>- Direct Aid to Counties</td>
</tr>
<tr>
<td>Laboratory</td>
</tr>
<tr>
<td>Direct assistance</td>
</tr>
<tr>
<td>Support/supplies</td>
</tr>
<tr>
<td>Travel</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$2,178,292</td>
</tr>
<tr>
<td>$977,491</td>
</tr>
<tr>
<td>$136,034</td>
</tr>
<tr>
<td>$110,000</td>
</tr>
<tr>
<td>$108,919</td>
</tr>
<tr>
<td>$14,599</td>
</tr>
<tr>
<td>$2,547,844</td>
</tr>
</tbody>
</table>
## Phase 2

$6,178,689

<table>
<thead>
<tr>
<th>Activity</th>
<th>Budget (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aid to counties, EBCI</td>
<td>1,881,615 (30)</td>
</tr>
<tr>
<td>Office of Emergency Medical Services</td>
<td>1,492,000 (24)</td>
</tr>
<tr>
<td>Information Technology</td>
<td>977,922 (16)</td>
</tr>
<tr>
<td>Community Health Centers</td>
<td>700,000 (11)</td>
</tr>
<tr>
<td>Public Affairs</td>
<td>409,870 (7)</td>
</tr>
<tr>
<td>Public Health Preparedness &amp; Response</td>
<td>288,469 (5)</td>
</tr>
<tr>
<td>Admin, equipment, supplies, travel</td>
<td>225,213 (4)</td>
</tr>
<tr>
<td>Disparities Prevention Team</td>
<td>103,600 (2)</td>
</tr>
<tr>
<td>UNC-Center for Public Health Preparedness</td>
<td>100,000 (2)</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td><strong>$6,178,689</strong></td>
</tr>
</tbody>
</table>
Pandemic Influenza Planning
Ongoing Issues

- Strengthen local health department plans
- Exercise pandemic influenza plans
  - School closure
  - Mass vaccination
- Increase situational awareness outside of public health
- Encourage planning among society other than healthcare
  - Businesses
  - Schools
  - Volunteer organizations
Conclusions

- Forecasting the next pandemic is difficult
  - When, not if
  - How severe: 1918-like or 1968-like

- Current outbreaks of H5N1 pose an ongoing threat

- Pandemic influenza presents unique challenges for planners

- Many different entities need to plan
What Can Be Done Now

New Information & Activities

Massachusetts State Summit
Feb. 7 — Governor Mitt Romney and HHS Secretary Leavitt address a wide range of community and business leaders from across the state. More >>

HHS and Institut Pasteur Partner on Pandemic Influenza Preparedness
Feb. 6 — Memorandum of Understanding signed establishing a Joint HHS-IP Working Group to work on projects to build global capacity to detect flu viruses that could have the potential to trigger a human pandemic. More >>

New Rapid H5 Flu Test Approved
Feb. 3 — The U.S. Food and Drug Administration approves rapid test for H5 flu in humans. More >>

Iowa State Summit
Feb. 3 — Meeting in Des Moines, Governor Tom Vilsack and HHS Secretary Leavitt discuss pandemic flu planning with state and local officials and private sector partners. More >>

Connecticut State Summit
Feb. 2 — Governor Jodi Rell and HHS Secretary Leavitt address state, local and private...
Communicable Disease Control

Pandemic Influenza (Flu)

N.C. PANDEMIC INFLUENZA PLAN

<table>
<thead>
<tr>
<th>Title</th>
<th>PDF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title Page</td>
<td>View (14kb)</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>View (27kb)</td>
</tr>
<tr>
<td>Cover Letter</td>
<td>View (65kb)</td>
</tr>
<tr>
<td>Introduction</td>
<td>View (47kb)</td>
</tr>
<tr>
<td>World Health Organization Phases of an Influenza Pandemic</td>
<td>View (24kb)</td>
</tr>
<tr>
<td>List of Commonly Used Acronyms</td>
<td>View (22kb)</td>
</tr>
</tbody>
</table>

Core Parts of Plan:
- Part A: Command, Control and Management Procedures
- Part B: Surveillance
- Part C: Vaccine Preparedness and Response
- Part D: Antiviral Preparedness and Response
- Part E: Mass Care
- Part F: Preparedness in Healthcare Facilities
- Part G: Communications

Appendices:
- Command, Control and Management Procedures
- A1: Appendix 7 to Annex B of the NC Emergency Operations Plan

www.ncpublichealth.com
Ready North Carolina
Prepare Now for Emergencies

We never know when an emergency might happen. They come in the form of severe weather, accidents, and unfortunately, terrorist attacks. Planning now for how you would respond will help you remain calm, think clearly and react appropriately to any disaster scenario.

Taking responsibility for your own safety by being prepared with plans and an emergency supply kit not only increases your ability to survive, but reduces the workload of first responders, emergency medical services, fire fighters and law enforcement.

No community is truly prepared for a disaster until every individual, family and household takes personal responsibility for his or her own safety.

The Ready North Carolina campaign provides North Carolinians with the information you need to prepare for all types of emergencies.

The N.C. Department of Crime Control & Public Safety, the N.C. Citizen Corps, the N.C. Emergency Management Association and the 130 county emergency management agencies across the state are ready to help you be better prepared for emergencies.
Online Resources

www.who.int
www.cdc.gov
www.pandemicflu.gov
www.ncpublichealth.com
www.readync.org

pandemicflu.plan@ncmail.net
2006 Seasonal Flu Activity

(WK # 20= May 19, 2006)

(WK # 40= Oct 7, 2006)
NC DETECT Flu Report: 2006

ED: ILI Cases As A Percentage Of All Visits Grouped By Week

County: All Authorized Counties

Percentage

Date

Week 40/2006
Week 41/2006
Week 42/2006
Week 43/2006
Week 44/2006
Week 45/2006
Week 46/2006
Week 47/2006

Infant (<=1)  Toddler/Pre_School (>1, <=4)  Elementary School (>4, <=9)  Middle School (>9, <=14)
High School (>14, <=18)  College (>18, <=24)  Young Adult (>24, <=44)  Middle Aged (>44, <=64)
Senior (>64)
NC DETECT Flu Report 2006

EDILI Cases As A Percentage Of All Visits Grouped By The First Team Region
2006-2007 Flu Season
Week 40=10/07/06
NC Respiratory Viral Pathogen Surveillance, 2006-2007
PHE Network
Week 40-48 (October 1 - December 2)

Number of Positive Lab Tests

<table>
<thead>
<tr>
<th>Week Number (Corresponds with CDC Sentinel Site Surveillance)</th>
<th>Influenza</th>
<th>RSV</th>
<th>Adenovirus</th>
<th>Parainfluenza</th>
<th>Rhinovirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weeks 40-48 show an increase in positive lab tests for Rhinovirus.