Avian & Pandemic Influenza Planning Assumptions, & Westport / Washington Summary Preparedness Matrix

Influenza Working Group, Save the Children (US)

December 12, 2007 Working Draft

(Recent edits after are highlighted in yellow)

This document contains important assumptions for SC preparedness planning, and a draft summary preparedness matrix for the Westport and Washington office IPPs & IWG, which also serves as a suggested template for development of similar plans by other SC offices. Please send comments, suggestions for improvement, and questions to estarbuck@savechildren.org.

I. Urgency

According to WHO: "Neither the timing nor the severity of the next pandemic can be predicted with any certainty. At the same time, however, the present threat to international public health is sufficiently serious to call for emergency actions calculated to provide the greatest level of protection and preparedness as quickly as possible. …... More than half of all laboratory confirmed cases have died. Scientists do not know if the H5N1 virus will retain its present virulence should it acquire an ability to spread easily among humans. …… all concerned should keep in mind that no health emergency on the scale of a severe influenza pandemic has confronted the international community for several decades." (WHO strategic action plan for pandemic influenza 2006–2007, pages 3 & 4, http://www.who.int/csr/resources/publications/influenza/WHO_CDS_EPR_GIP_2006_2/en/index.html)

These concerns are shared by governments and ministries of health around the world, all the way down to small towns in Connecticut, where "the local health departments and districts currently note, somewhat incredulously, that, in the event of a Pandemic Flu, they are responsible for: (a) Community quarantine and isolation protocols and field operations, including integrating law enforcement and Probate Court; (b) Instituting "community shielding" and other forms of "social distancing" on a wide-area basis; (c) Mass Care, i.e., taking care of those too ill to be at home during a period when the hospitals have exhausted surge capacity and shut their doors; (d) Mass Fatalities, i.e., collecting large numbers of bodies when the ordinary medical examiner and mortuary processes have collapsed; (e) Note! All this to be undertaken without any assistance from any outside source, as it is assumed that every community is undergoing the same crisis." …… (From a local health department in Connecticut, February 2007)

The likelihood of a rapid transition from the current WHO Pandemic Alert Phase 3 to a pandemic (Phase 6), combined with rapid spread around the world at the start of Phase 6, means that we may have only a few weeks warning, at most, before many SC countries around the world are hit, leaving little time for final planning and preparations after Phase 3. The Senior Management Team of Save the Children (SC) shares this sense of concern and urgency. Thus, SC has pursued two parallel preparedness tracks:

1. Most important guidance/preparations: Distributed/available/completed ASAP; &

2. Work on the more comprehensive Business Continuity Plan, which has taken more time to draft & complete.

II. Vetting of Draft Materials

- Vetting of draft materials for consistency across documents & obtaining approval of decision makers prior to posting on SaveNet and on the external site (www.savethechildren.org) or distribution (for WWO, all materials go through Adam Keehn)
- Health technical vetting of materials prior to distribution (for WWO, all materials go through Adam Keehn for vetting by Eric Starbuck and/or Kathryn Bolles)

III. Avian & Pandemic Influenza Threat & General Planning Assumptions (mostly from WHO http://www.who.int/csr/disease/influenza/pandemic10things/en/index.html & the US plan, http://www.hhs.gov/pandemicflu/plan/part1.html)

While many characteristics of the next pandemic can be predicted based on experience from the three pandemics of the 20th century and the inter-pandemic periods, some of the specific characteristics of a new pandemic virus will remain uncertain until after specific information becomes available following pandemic onset. Thus, some characteristics of the pandemic (including those related to the relative importance of different modes of transmission, effectiveness of preventive measures, severity of illness in general, and by demographic / risk group, antiviral drug effectiveness & use, & immunity following recovery) must be monitored during the pandemic and related interventions modified after pandemic onset.

1. 52% of the 256 WHO laboratory-confirmed H5N1 cases from November 2003 through November 2006 were in children and teens under 20 years of age, with case fatality highest in 10 to 19 year olds (76%). As H5N1 in birds spreads throughout the world, illness in humans due H5N1 will continue to occur (irrespective of any change in pandemic threat). Risk of human infection with avian H5N1 can be reduced by reducing human exposure to potentially infected birds and surfaces / objects contaminated by their droppings.
2. Every SC country / office should expect confirmation of H5N1 in birds, and all countries with substantial human exposure to potentially infected birds should expect associated sporadic human cases, small clusters of human cases, and human deaths, in their countries.
3. There will be economic consequences of confirmation of H5N1 in many countries. Economic impacts on SC beneficiary populations, due to avian flu bird deaths, culling, and lower demand for and prices of poultry products, have already begun and may become more substantial.
4. However, the main direct threat to human health is from pandemic influenza, not from avian influenza.
5. Pandemic influenza is different from avian influenza. Influenza pandemics are caused by avian influenza viruses that adapt to allow efficient & sustained person-to-person transmission. Once this adaptation occurs, the avian flu virus will no longer be a bird virus - it will be a human influenza virus.
6. Influenza pandemics are worldwide epidemics. Measures such as border closures & travel restrictions may delay arrival of the virus, but are unlikely to stop it. Geographical spread will be

rapid and virtually all communities on earth will experience outbreaks. (In 1918, although the Pacific island of American Samoa was spared by draconian seclusion from the rest of the world, many of the most isolated communities on earth were devastated. For example, just a few miles away, on Western Samoa, 22% of the entire population of the island died.)

7. Influenza pandemics are recurring events, with 10 recorded since 1732, with no recognizable pattern in timing. There is widespread expert agreement that another pandemic will occur, though when this will happen remains very uncertain. ("The clock is ticking, we just don't know what time it is." When the next pandemic will start is the 1st of the 5 most important uncertainties posing great challenges to SC pandemic planning.)

8. However, the world may now be on the brink of another pandemic. Since mid-2003, the H5N1 virus has caused the largest & most severe outbreaks in poultry on record (following an outbreak in poultry & 18 human cases in Hong Kong in 1997). Since December 2003, over 300 human cases of H5N1 have been laboratory confirmed and reported by WHO, & more than half of these people have died. (Case-fatality may really be very high as evidence to date suggests that mild illnesses & asymptomatic infections have been rare.)

9. WHO has defined 6 phases of pandemic alert to facilitate preparedness planning & response. The world is now on Pandemic Alert, Phase 3: A virus new to humans is causing disease in humans, but does not yet spread easily from one person to another. (See more info. on WHO Phases below.)

10. The likely speed of transition from Phase 3 to a full-fledged pandemic Phase 6 is unpredictable, ranging from instantaneous / overnight (following a single genetic "re-assortment" of an avian with a human flu virus, or few mutations of an avian virus, and a large outbreak in an area with poor surveillance or reporting) to several months or years (following slow evolution through a series of mutations of an avian virus, with good monitoring and reporting of the process). (The speed of transition from Phase 3 to 6 is the 2nd important uncertainty challenging SC pandemic planning).

11. Once the pandemic starts, 20% - 40% of all people on earth will likely become ill during 1 – 3 waves over a period of time which may last up to approximately 1½ years.

12. Susceptibility to the pandemic influenza subtype will be universal. (Anyone can get it.) Because a pandemic virus is new to humans, there is no pre-existing immunity, & disease may be more serious than that caused by seasonal influenza. Risk groups for severe and fatal infection cannot be predicted with certainty but are likely to include infants, the elderly, pregnant women, and persons with chronic or immunosuppressive medical conditions. In 1918, most deaths occurred among young, previously healthy adults, while case-fatality was highest among pregnant women.

13. Illness resulting from the pandemic strain is likely to confer at least partial immunity to subsequent illness or severe illness due to the pandemic flu (depending on evolution of the strain during the course of the pandemic?). (This will need to be monitored and findings communicated.)

14. The number deaths will depend on the virulence of the pandemic virus. The 1918 – 1919 pandemic caused 40 – 100 million deaths worldwide (when global population was 28% of what it is now), & over 500,000 in the US. In 1957-58 there were approximately 2 million deaths worldwide and 60,000 deaths in the US, & in 1968-69, 1 million worldwide and 34,000 in the US (comparable to the current average number of deaths in the US each year due to seasonal flu,

36,000). Mortality in the next pandemic is unpredictable, but could be very high if caused by mutation of H5N1.[1] (This is the 3rd important uncertainty.)

15. The first pandemic wave (rather benign in 1918) does not predict mortality in subsequent waves.
16. Social & economic disruptions may be temporary, but amplified in today's closely interrelated & interdependent systems of global commerce, involving just-in-time delivery of goods. Disruption of key services, such as airline travel (perhaps including power supplies and communications services, including the internet[2]), and reduced availability of important goods, including food, fuel, medications (even those unrelated to influenza), and office supplies, are likely, particularly if the pandemic involves high mortality. (The extent of social & economic disruption is the 4th important uncertainty.)

IV. Planning Assumptions Related to Transmission of the Virus (from CIDRAP, the Center for Infectious Disease Research & Policy, University of Minnesota, http://www.cidrap.umn.edu/cidrap/content/influenza/panflu/biofacts/panflu.html, and the US HHS plan, supplement 4, http://www.hhs.gov/pandemicflu/plan/pdf/S04.pdf).

17. In each community, each pandemic wave (outbreak) will last about 6 to 12[3] weeks. The seasonality of the pandemic & pandemic waves cannot be predicted with certainty.
18. The typical incubation period (the time between acquiring the infection until becoming ill), for influenza averages 2 days. (We assume this would be the same for a pandemic strain that is transmitted between people by respiratory secretions, though current H5N1 incubation periods may be longer). Persons who become ill may shed virus and can transmit infection for one-half to one day before the onset of illness, with viral shedding and the risk for transmission from adults greatest during the first 2 days of illness (yielding an average of about 3 days between each generation of cases, very different from SARS which had peak transmission during the second week of illness), but lasting up to 7 days after the fever has disappeared (?). Children will shed

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[1] "One especially important question that was discussed is whether the H5N1 virus is likely to retain its present high lethality should it acquire an ability to spread easily from person to person, and thus start a pandemic. Should the virus improve its transmissibility by acquiring, through a reassortment event, internal human genes, then the lethality of the virus would most likely be reduced. However, should the virus improve its transmissibility through adaptation as a wholly avian virus, then the present high lethality could be maintained during a pandemic." ….. "Concerning the potential high lethality of a wholly avian pandemic virus, some modelling studies have suggested that pandemic spread could not be fully sustained in the presence of very high mortality. All such matters remain difficult to predict." Influenza research at the human and animal interface: Report of a WHO working group, Geneva, Switzerland, 21–22 September 2006 (www.who.int/csr/resources/publications/influenza/WHO_CDS_EPR_GIP_2006_3C.pdf, pages 15 & 16).

[2] Increased telecommuting and millions of homebound children could put heavy pressure on the system. Rajeev Venkayya, MD, senior director for biodefense on the White House Homeland Security Council, said, "What I'm hearing is that there continues to be concerns about the last mile and also about the backbone," referring to the capillaries and main arteries of the Internet. He added that the Department of Homeland Security (DHS) is looking into the question. Alfonso Martinez-Fonts, assistant secretary for the Private Sector Office at DHS, had a somewhat different message. "The backbone of the Internet is pretty sturdy," he said. "It's the last mile that's a concern." (Business Preparedness for Pandemic Influenza, Center for Infectious Disease Research & Policy, Feb. 5 – 6, 2007 meeting.)

[3] In early 2007, both WHO & CDC started referring to local outbreaks / waves lasting as long as 12 weeks.

the greatest amount of virus, over a longer period of time (up to 21 days from illness onset?), and therefore are likely to pose the greatest risk for transmission. (Each ill person will cause illness in an average of about 2 or 3 other persons. Thus, we expect the number of new cases of illness to roughly double or triple about every three days.) Some transmission by asymptomatic carriers is also expected.

19. Despite the prevalence of influenza year after year, most information on the modes of influenza transmission from person to person is indirect and largely obtained through observations during outbreaks in healthcare facilities and other settings (e.g., cruise ships, airplanes, schools, and colleges); the amount of direct scientific information is very limited. However, the epidemiologic pattern observed is generally consistent with spread through close exposure (6 feet or 2 meters, i.e., exposure to large respiratory droplets, direct contact, or near-range exposure to aerosols). The relative contributions and clinical importance of the different modes of influenza transmission are currently unknown.

20. Droplet transmission: Large droplets are expelled by coughing, sneezing, and talking, and generally travel through the air no more than 3 feet (one meter) from the infected person. Transmission via large droplets requires close contact between the source and recipient persons, permitting droplets, which do not remain suspended in the air, to come into direct contact with oral, nasal, or ocular mucosa. Special air handling and ventilation systems are not required to prevent droplet transmission.

21. Direct and indirect contact transmission: Direct contact transmission involves skin-to-skin contact (such as hand-to-hand) between an infected person and a susceptible person. Influenza viruses can live for 24 to 48 hours on nonporous environmental surfaces and less than 12 hours on porous surfaces, indicating that transmission can occur when hands that touch contaminated surfaces subsequently come into contact with oral, ocular, or nasal mucosa, though this type of (indirect contact or "fomite") transmission appears to be rare.

22. Airborne transmission (via small-particle aerosols / droplet nuclei): The relative contribution of airborne transmission to influenza outbreaks is uncertain, but is an important issue, because droplet nuclei are smaller in size than large droplets (with implications for the type of masks most likely to be effective), can travel farther than 3 feet (1 meter), and can remain suspended in air. As it is likely that some aerosol-generating medical procedures (e.g., endotracheal intubation, suctioning, nebulizer treatment, bronchosocopy) could increase the potential for dissemination of droplet nuclei in the immediate vicinity of the patient, additional precautions for healthcare personnel who perform aerosol-generating procedures on influenza patients may be warranted (such as fit-tested N-95 masks or equivalent, instead of surgical or procedure masks, for example). Airborne transmission may also occur at short distances, particularly in shared air spaces with poor air circulation. (This implies that good air circulation / ventilation may reduce transmission in indoor areas and in other enclosed spaces, such as in vehicles, planes, trains, etc.) There is little evidence of airborne transmission over long distances or prolonged periods of time (as is seen with *M. tuberculosis*), and no evidence that influenza transmission can occur through ventilation systems.

23. Bird-to-Person: As bird-to-person transmission is expected to remain a comparatively rare event, the information above all refers to person-to-person transmission. (Types of H5N1 bird-to-person exposures that have been identified to date include: Plucking and preparing diseased birds; Handling fighting cocks; Playing with poultry, particularly asymptomatic ducks;

Consumption of duck blood, and possibly undercooked poultry. http://www.cidrap.umn.edu/cidrap/content/influenza/avianflu/biofacts/avflu_human.html)

V. Planning Assumptions Related to Prevention & Treatment (from WHO, CDC, CIDRAP)

24. "Few" countries have the staff, facilities, equipment, & hospital beds needed to cope with the large numbers of people who will suddenly fall ill. Most ill people will need to be cared for in their own homes/ communities. (Guidance for family members and community health workers on home care is needed, particularly for settings in countries in which SC works, and particularly with regard to hydration, which may be life saving.)
25. If the pandemic happens soon, supplies of vaccines & antiviral drugs – the two most important medical interventions for reducing illness & deaths – will be inadequate in all countries at the start & for many months thereafter.
26. Annual / seasonal human influenza immunization will likely not be protective with regard to the pandemic strain. However, prior annual immunization for seasonal flu will be very beneficial for staff, their families, and for SC, as seasonal and pandemic flu are likely to circulate concurrently, and presenting symptoms of the two types of influenza are likely to be similar, and differential diagnosis difficult or impossible. Immunization will also help protect against getting both kinds of flu during the same season.
27. The effectiveness of currently available antiviral drugs for treating viral illness due to the next pandemic strain (including treating viral pneumonia and preventing the "cytokine storm" immune response) is uncertain. (This is the 5th important uncertainty.) (Tamiflu dosage, duration of treatment, and time by which treatment needs to be started after infection, also remain uncertain. See SC document on Tamiflu & http://www.who.int/csr/disease/avian_influenza/guidelines/clinicalmanage07/en/index.html Antibiotics will likely play an important role in treating secondary bacterial infections, including bacterial pneumonia.)
28. Interventions related to "social distancing" & hygiene may somewhat reduce risk to individuals and/or slow down the spread / flatten the epidemic curve (meaning that persons get ill over a somewhat longer period of time, which is very desirable. See WHO Global Influenza Preparedness Plan, 2005, Annex 1, http://www.who.int/csr/resources/publications/influenza/WHO_CDS_CSR_GIP_2005_5/en/index.html), Nonpharmaceutical Interventions for Pandemic Influenza, National and Community Measures, World Health Organization Writing Group, EID, January 2006, http://www.cdc.gov/ncidod/EID/vol12no01/05-1371.htm), & Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States - Early, Targeted, Layered Use of Nonpharmaceutical Interventions, released by CDC/HHS & 14 other Federal Departments, Agencies, & Offices, February 1, 2007 (http://www.pandemicflu.gov/plan/community/mitigation.html)[4]

[4] Introduces a new index of pandemic severity (with a "Category 5 Pandemic" equivalent to 1918 or worse) & recommends voluntary isolation of the ill, voluntary quarantine of all members of households with ill people, closing schools for up to 12 weeks, & social distancing in workplace & community, depending on pandemic severity. All of this is consistent with current SC plans, except for quarantine, which goes well beyond what we had anticipated. This is the first document of its kind which we have seen that describes how to

29. Ill persons with symptoms compatible with influenza represent a high risk of transmission to others (and should thus depart the office without delay and stay home). Children and other personal guests can pose a risk of transmission to others, even when they are apparently well, while themselves being at risk of becoming infected from others in an office setting. (See SC and/or New Zealand office notices.)

30. Frequent hand washing is often cited as likely being one of the most effective feasible interventions for the general population. The advantages of alcohol based sanitizers (over washing with soap & water) include reduced skin irritation & potential close access (on every desk).

31. Disposable surgical, procedure, or N-95 masks (all of which require replacement on at least a daily basis) are recommended by WHO & CDC for health workers caring for potentially infected patients, for potentially infected persons to reduce transmission to others, and for those handling potentially infected birds & bird products. Other situations in which mask use would be advisable include use by caretakers of ill persons in the home and by co-workers to drive ill members of staff home from the office, and other uses in crowded settings such as public transport. (see SC IWG document on masks and other PPE, http://www.iom.edu/CMS/3740/32033.aspx, & http://www.who.int/csr/disease/avian_influenza/guidelines/humanitariandoc2006_04_07/en/index.html)

32. Additional Personal Protective Equipment (PPE) is recommended for health workers caring for patients potentially infected with avian or pandemic flu (see: Pandemic influenza preparedness and mitigation in refugee and displaced populations, WHO guidelines for humanitarian agencies (http://www.who.int/csr/disease/avian_influenza/guidelines/humanitariandoc2006_04_07/en/index.html, page 21, & Aide-Memoire - Infection control recommendations for avian influenza in health-care facilities, WHO, April 2006, http://www.who.int/csr/disease/avian_influenza/guidelinestopics/en/index3.html, noting that this is for avian flu, and may be revised for pandemic flu) and for those working with potentially infected birds (see Advice for People Living in Areas Affected by Bird Flu or Avian Influenza, WHO, November 2004, http://www.who.int/csr/disease/avian_influenza/guidelines/advice_people_area/en/index.html, & WHO interim recommendations for the protection of persons involved in the mass slaughter of animals potentially infected with highly pathogenic avian influenza viruses, 26 January 2004, http://www.wpro.who.int/NR/rdonlyres/7693BAF7-13E7-42DB-B92B-004CF5D517E7/0/WHOinterimrecommendation26012004.pdf)

33. Other social distancing & hygiene interventions: See SC office notices & NZ planning guide.

VI. Workforce Planning Assumptions (Government of New Zealand Influenza Pandemic Business Continuity Planning Guide, pages 61-62. These planning assumptions are produced for planning purposes only. Planning assumptions deliberately represent extremes and are not predictions.) This models the potential impact of a large severe pandemic influenza **wave** on the workforce. The basic scenario is that of November 1918. This differs from earlier published New

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implement NPIs in the community, & although it is written for the US context, we believe it is quite relevant as well to the other countries in which we work.

Zealand scenarios that were based on lower infection and death rates as observed in the 1968 pandemic. Assumptions:

34. 15% of the workforce is absent for 8 weeks because school closures oblige working parents to stay home and look after children. Note that this proportion will vary according the particular workforce. (Please note that all references here to "8 weeks" probably need to be updated to "12 weeks.")
35. 40% of those remaining at work become ill at some time during the 8 weeks of the pandemic wave.
36. The workplace attack wave follows a pattern similar to that expected in the general population.
37. Every person who becomes ill has 7 shifts off work.
38. There is a 100% additional absence rate – that is, for every person in the remaining workforce who gets ill, another does not come to work because of the need to look after a spouse or children, or a disinclination to travel or work.
39. The additional absences follow the workplace attack pattern.
40. 2% of workers who become ill die.
41. Note that no estimate is made for people doing extra shifts or longer shifts, or for any recruitment into the workforce during the pandemic.
42. Individual employers must consider their workforces and their particular circumstances. However, in general, employers should make contingency plans to operate for the pandemic period with at most 85% of their normal staff available, and between 50% and 65% available for the peak three weeks of the pandemic. (Looks like the references to the "pandemic period" and "the pandemic" should refer to each of the expected 1 to 3 pandemic **waves**, as suggested by the language introducing this section.)
43. It is important to note that the scenario shown above will not develop suddenly. A large pandemic wave cannot develop in New Zealand without significant numbers (some hundreds to thousands) of human cases having been present in New Zealand for some time. Workforce planners should note that impacts from school closures might be felt for some time before the above scenario develops.

Additional assumptions (Not from NZ Guide)

44. Abrupt onset of illness, leaving some persons unable to seek care without the assistance of others, is likely in some cases. (Based on 1918 accounts, including Barry.)

VII. WHO Phases of Pandemic Alert
(http://www.who.int/csr/resources/publications/influenza/WHO_CDS_CSR_GIP_2005_5/en/index.html)

The Director-General of WHO will declare changes in phases (which apply to the whole world, rather than to specific countries). If a phase is skipped, actions in the skipped phase should also be implemented, unless they are specifically superseded by actions in the new phase. It is not unlikely that Phases 4 and/or 5 would be skipped altogether, or last only a matter of a few days, in a rapid progression from Phase 3 to 6. Alternatively, progression through these phases may last months or years.

SC plans can group Phases 4 & 5 together.

Pandemic Alert Period

("The distinction between phase 3, phase 4 and phase 5 is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.")

Phase 3 (CURRENT PHASE): Human Infection(s) with a new subtype, but no human-to-human spread, or at most, rare instances of spread to a close contact. Examples:

- One or more unlinked human cases with a clear history of exposure to an animal source/ non-human source (with laboratory confirmation in a WHO-designated reference laboratory).
- Rare instances of spread from a case to close household or unprotected health-care contacts without evidence of sustained human-to-human transmission.
- One or more small independent clusters of human cases (such as family members) who may have acquired infection from a common source or the environment, but for whom human-to-human transmission cannot be excluded.
- Persons whose source of exposure cannot be determined, but are not associated with clusters or outbreaks of human cases.

Phase 4: Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well-adapted to humans (pandemic may possibly be delayed or contained). Examples:

- One or more clusters involving a small number of human cases, e.g. a cluster of <25 cases lasting <2 weeks.
- Appearance of a small number of human cases in one or several geographically linked areas without a clear history of a non-human source of exposure, for which the most likely explanation is considered to be human-to-human transmission.

Phase 5: Larger cluster(s) but human to human spread still localized, suggest that the virus is becoming increasingly better adapted to humans, may not yet be fully transmissible (substantial pandemic risk. This is likely to be the last chance for massive coordinated global intervention, targeted to one or more foci, to delay or contain spread.) Examples:

- Ongoing cluster-related transmission, but total number of cases is not rapidly increasing, e.g. a cluster of 25–50 cases and lasting from 2 to 4 weeks.
- Ongoing transmission, but cases appear to be localized (remote village, university, military base, island).

Pandemic Period

Phase 6: Increased and sustained transmission in general population (pandemic risk is imminent for all countries. The national response is determined primarily by the disease impact within the country.) (SC Note: Efficient transmission in the general population of a single country may be sufficient to move the world into Phase 6.)

- Thus (as the WHO examples above suggest), concerns about the impact of avian and pandemic influenza on human health should be based mainly on the size and growth of human clusters (outbreaks of human influenza cases linked to each other and due to H5N1 or another new viral subtype), WHO updates on the phase of pandemic alert, and on the severity of illness in human cases, anywhere in the world, rather than on the arrival of H5N1 in birds in any country.

The WHO Protocol for Rapid Response and Containment (updated October 2007, http://www.who.int/csr/disease/avian_influenza/guidelines/draftprotocol/en/index.html) has been an important focus of WHO preparedness. WHO may support a containment operation in an attempt to prevent a pandemic, if an outbreak of human cases is promptly detected and reported, and there is compelling evidence that the situation represents a transition in the behavior of the virus likely to result in efficient and sustained person-to-person transmission. Credible news of WHO plans to support such an operation would be an important signal of a very high level of risk of imminent pandemic onset (because such an operation is likely to fail). This process is not directly linked to the phases of pandemic alert, changes in which require a decision by the Director-General.

VIII. Objectives of SC Avian and Pandemic Influenza Preparedness Plans

SC seeks to help protect the health of SC staff and their families worldwide, the health and livelihoods of our beneficiaries, and to prepare the agency to continue key functions in the event of a pandemic.

IX. Dimensions of the Save the Children Plan

Main dimensions (defining rows & columns of the matrix below, & sections of the narrative)

1. **WHO Pandemic Phase** of Pandemic Alert: Phase 3 (current), Phases 4 and 5 (grouped together), and Phase 6.
2. **Issue**: Most broadly, issues relate to what we plan to do with regard to our staff, our beneficiaries, the organization, and over-arching issues which relate to all three objectives (see planning matrix below).

Additional triggers & considerations for action (These considerations, if important with regard a specific issues, are noted in the text of the plan and in the matrix cells, rather than forming a column or row of the plan.)

3. **Proximity Triggers** (based on credible reports of human-to-human transmission):
    - **Distant**: No transmission yet in country
    - **In-Country** (or in a country which our office has travel contacts with. This would include periods between waves.)
    - **Nearby**: Current pandemic wave / outbreak in same or nearby state or district as office location

4. **Severity:** Some planned actions will be more important in a pandemic causing many deaths (high case-fatality rates, as in 1918/19 = "**severe**"), than in a pandemic of low mortality (total deaths in-country comparable to 1968/69 = "**less-severe**").

Format: Matrix, with columns for Phases 3, 4/5, and 6, rows for issues, and planned actions in the matrix cells (see below). Proximity triggers, severity considerations, and persons responsible for each action, are addressed in the cells of the matrix.

Most of SC's preparedness plan and guidance is in narrative form in more detail in the following SC IWG documents on SaveNet and on the external website (additional references from other sources, including from WHO and CDC, and two documents on home care, are also included on both websites, but are not listed below):

Key Information for All Staff

1. What All SC Staff Need to Know and Start Doing Now (April, 07)
2. Influenza Symptoms, Transmission, & Prevention (Jan. 07)
3. Home Stockpiling of Food & Essential Items (Mar 06)
4. Travel Guidance (Mar 06)
5. Staff Repatriation and Relocation (June 06)
6. Voice & Data Connections from Home (Mar 06)
7. Guidance on Staff Absence (July 06)

Additional Information for Influenza Point Persons

8. Links for IPP's: News, Plans, Guidelines & Background Info (April 07)
9. Influenza Point Persons Roles and Responsibilities (May 06)
10. Influenza Point Persons Contact List
11. Influenza Office Notices (Mar 06)
12. Tamiflu: To Stockpile or Not to Stockpile (Dec. 06)
13. Influenza Procedures & Supplies for the Westport & DC Offices (July 06)
14. Additional Links to Helpful Documents for IPP's (Dec. 06)
15. Masks and Other PPE (June 06)
16. Guidance for Avian and Pandemic Flu Programming (short documents of suggestions for programming through each of the following sectors: Health, Livelihoods, Education, & HIV/AIDS)
17. Business Continuity Plan Summary (Input from Influenza Point Persons, September 14, 2006, available on request from estarbuck@savechildren.org)
18. Pandemic Influenza: Epidemiology, Prevention, Treatment, History, & Current Threat (PPT slides available on request from estarbuck@savechildren.org)

X. References

1. SaveNet (http://savenet.savechildren.org/savenet/Security/Useful+Resources/AvianFluUpdates.htm) and external site (http://www.savethechildren.org/publications/technical-resources/avian-flu/)
2. Pandemic influenza preparedness and mitigation in refugee and displaced populations, WHO guidelines for humanitarian agencies, May, 2006, http://www.who.int/csr/disease/avian_influenza/guidelines/humanitariandoc2006_04_07/en/index.html
3. Business Continuity Planning for AHI. Considerations for Humanitarian Agencies. InterAction, February 2006, http://www.humanitarianinfo.org/iasc/content/documents/other/20060222-848/business%20continuity.pdf
4. Pandemic Preparedness Planning for US Businesses with Overseas Operations (4 pages, Jan. 5, 07, http://www.pandemicflu.gov/plan/business/businessoversea.html)[5]
5. The Government of New Zealand pandemic flu Business Continuity Planning Guide, October 2005, remains an excellent 68-page resource with practical tools **(**http://www.med.govt.nz/irdev/econ_dev/pandemic-planning/business-continuity/planning-guide/index.html)

For more information on pandemic flu and human health:

6. http://www.fluwikie.com/ (Good introduction to pandemic flu, links to news sources, preparedness plans, & more)
7. http://www.who.int/ (Scientific basis & the official bad news on new WHO lab-confirmed human cases & change in Phase)
8. http://www.pandemicflu.gov/ (US "MOH." Now a better initial site than CDC, good links to CDC, & planning checklists)
9. Center for Infectious Disease Research & Policy, University of Minnesota http://www.cidrap.umn.edu/cidrap/content/influenza/panflu/index.html (High quality science, less official very selected news & commentary)

[5] Suggests reminding "employees that normal supply lines may be slowed or inoperable for an extended period of time and to make personal preparations for pandemic for up to 12 weeks (e.g., stockpiling food, water, and prescription drugs)." This checklist suggests a few activities which we have not considered, including: "Assess potential availability of pandemic vaccine in host country, determine its reliability, and plan for its distribution during a pandemic."

XI. Avian and Pandemic Influenza Summary Preparedness Matrix: SC Actions by WHO Phase – Westport & DC Offices

(Includes Persons Responsible, Proximity Triggers, & Severity Considerations) (Uncertain: yellow, To Be Determined: underlined, Recent changes in blue)

Issues	SC Actions		
	WHO Phase 3	**WHO Phases 4 & 5** (These phases assume a gradual evolution of the virus & may be skipped altogether in a rapid progression from phases 3 to 6.)	**WHO Phase 6 (Pandemic)** (Implement Phase 4 & 5 activities as well if these phases were skipped)
Overarching Actions			
1. Avian and Pandemic Influenza Preparedness Plans	• Preparation of preparedness plans by each country office & Westport, DC, & 2 US field offices (IPPs) - Due to IWG 6/15/06. • Review & feedback on all plans due 7/31 (WWO & DC IPPs) • Monitor, evaluate, & regularly revise plans on at least a quarterly basis (IPPs)	• Activation of plans based on WHO Phase, proximity triggers, & severity (IPPs & IWG) • Monitor, evaluate, & regularly revise plans on at least a quarterly basis (IPPs)	• Activation of plans based on WHO Phase, proximity triggers, & severity (IPPs & IWG) • Monitor, evaluate, & regularly revise plans on at least a quarterly basis (IPPs)
2. Financial implications of preparedness	Budget to fund implementation of SC API plans for Phase 3, 4/5?, & 6? • **For Westport / DC** • **For other offices.** (Adam & Vickie)	Confirm adequacy of budget for implementation of Phase 4/5 & 6 plans. • For Westport / DC • For other offices. (Adam & Vickie)	Confirm adequacy of budget for implementation of Phase 6 plans. • For Westport / DC • For other offices. (Adam & Vickie)
3. SC global interdisciplinary Influenza Working Group (**IWG**)	• Establish IWG (done) • Complete SC API plan for WWO & DC, advise SC & country offices on planning (Adam & Vickie for WWO/DC)	Review / revision of SC preparedness, response, guidance, etc. in light of global & local situations	Review / revision of SC preparedness, response, guidance, etc. in light of global & local situations
4. Influenza Point Persons (**IPP**s) in each office	Selected & trained (Done), completing plans, educating staff (Adam)	Continuing support to & communication with IPPs (WWO IPPs)	Continuing support to & communication with IPPs (WWO IPPs)

5. Pandemic news tracking & communication	• Immediately report credible news related to any launch of an extensive WHO/MOH operation to contain an emerging pandemic virus to Michael O'Neill & IPP listserv. (IPPs) • Clusters meeting the definition on page 9 of http://www.who.int/csr/disease/avian_influenza/guidelines/humanitariandoc2006_04_07/en/index.html should be urgently reported to appropriate local authorities. (IPPs) • Communicate news on pandemic status, plans, & actions to IWG, IPPs, all staff, & externally (IPPs) • Monitor information on epidemiology & guidelines relevant to SC, including info. on (a) geographic spread, (b) modes of transmission, (c) effectiveness of & recommendation re. preventive measures, (d) severity of illness by demographic & risk group, (e) antiviral drug effectiveness & use, & (f) immunity to subsequent illness. Revise SC guidance & communicate revisions to IPPs & IWG. (See doc on web links for IPPs) (Eric & Kathryn) • Ensure that IPP listserv works for all IPPs & keep this, IWG listserv, & SaveNet up-to-date (Daisy)	• Same as Phase 3. • Communicate increased pandemic risk & urgent priority of focusing on pandemic preparation to senior staff & all staff	• Communicate news on pandemic status, plans, & actions to IWG, IPPs, all staff, & externally (IPPs) • Monitor information on epidemiology & guidelines relevant to SC, including info. on: (a) geographic spread, (b) modes of transmission, (c) effectiveness of & recommendation re. preventive measures, (d) severity of illness by demographic & risk group, (e) antiviral drug effectiveness & use, & (f) immunity to subsequent illness. Revise SC guidance & communicate revisions to IPPs & IWG. (See doc on web links for IPPs) (Eric & Kathryn) • Ensure that IPP listserv works for all IPPs & keep this, IWG listserv, & SaveNet up-to-date (Daisy)

6. Coordination of plans & actions with in-country & local partners	• WWO: Westport Weston Health District (local health department, www.wwhd.org/, 227-9571), Director of Health, Sue Jacozzi. SC is on the WWHD Pandemic Flu Planning Committee & Sue addressed SC staff in one of the staff prep. sessions. (Eric, Adam, & Kathryn.) • **DC**: (IPPs)	Continue (IPPs)	Continue (IPPs)
7. SC Alliance	Send SC (US) API docs to Alliance contacts & invite to IPP trainings (Adam) (Done)	Send new/revised SC (US) API docs to Alliance contacts & inform them of SC (US) actions & further plans (Adam)	Send new/revised SC (US) API docs to Alliance contacts & inform them of SC (US) actions & further plans (Adam)
8. Security	Refer to general security plan – The influenza plan should be referenced as a contingency plan to country office security plans (M. O'Neill)	Monitor any change in the threat environment and make appropriate adjustments to security plan and procedures. Some areas of concern might include: ➢ Substantial decrease in law enforcement and security personnel availability ➢ Increase in property and violent crime ➢ Targeting of people and organizations with stockpiles of food and medicine ➢ Destabilization of government and increased public disorder ➢ Failure of centralized government services: electricity, water, communications	Continue monitoring and adjusting as necessary.

Help Protect the Health of SC Staff and their Families Worldwide			
9. Staff orientation (overview, current status, risks, transmission, prevention, symptoms, home care, stockpiling)	3 all-staff preparedness sessions conducted in Westport office & 3 in DC (excluding the scenario exercises which were also conducted twice in each location.) (IPPs) (Done)	• Conduct similar sessions. (IPPs)	• Conduct similar sessions. (IPPs)
10. Written guidance for staff & their families (transmission, prevention, symptoms, home care, stockpiling)	See documents on SaveNet & the under the heading of "Key Information for All Staff." E-mail on what everyone needs to know & do now, with link to all key docs, sent out several times. (Done)	Update docs, re-send, re-post. Include home care guidance (best current source is Woodson, in English & French at: http://www.fluwikie.com/pmwiki.php?n=Consequences.PandemicPreparednessGuides) (IPPs)	Update docs, re-send, re-post. Include home care guidance. (IPPs)

11. Social distancing (including ill persons staying at home, hygiene, office layout in SC buildings, loss or risk of using public transport for commuting to/from work place)	• Notices developed (Eric) & provided to IPPs (Done) (for local adaptation & translation) • Commuting issue not applicable to WWO? For DC office, have stocked larger supply of masks (Done) (& plan to close office if pandemic is severe)	**Phase 4**: • Review office layout in relation to transmission risk. 5ft+ high cubicle walls and/or over 2 meters (6ft) spacing between all staff. • Ensure good air circulation / ventilation in all office areas. • Install glass window at main reception desks in WWO & DC?? (IPPs) **Phase 5**: • Review & revise notice content to reflect illness severity. • Notices to be posted & enforced **if in-country or nearby** (depending on notice, as cited at the bottom of each notice). • Access may be limited to single entry door. (IPPs) • Restrict entry to areas with poor air circulation to only one specified individual? (to reduce risk of airborne transmission. Could be justified, particularly if pandemic appears severe, but then office would likely close anyway?)	• Review & revise notice content to reflect pandemic severity. • Notices to be posted & enforced **if in-country or nearby** (depending on notice, as cited at the bottom of each notice). • Access may be limited to single entry door. (IPPs)

12. Travel guidance	• Guidance revised & posted to reflect current WHO, CDC & State Dep. Guidance (Done), monitored at http://www.who.int/csr/disease/avian_influenza/en/index.html & http://www.pandemicflu.gov/travel/. • Credible news related to launch of an extensive WHO/MOH operation to contain an emerging pandemic virus will trigger immediate SC guidance to avoid non-essential travel to the concerned area & regarding risk of international travel disruptions. • More information (from outside sources) on plans, timing, & likelihood of border closures & air travel disruptions would be helpful. (Michael)	• WHO, CDC, & State Dep. travel guidance monitored on a daily basis, & SC guidance promptly updated as indicated. • Credible news related to launch of an extensive WHO/MOH operation to contain an emerging pandemic virus, or declaration of **Phase 4** by WHO, will trigger immediate SC guidance to avoid non-essential travel to the concerned area & regarding risk of international travel disruptions. • WHO **Phase 5** will trigger immediate SC guidance to avoid all non-essential international travel, & urgent CMT review of travel guidance. • Consider (particularly if mortality is high) providing guidance to country offices & travelers from areas with person-to-person transmission, to institute voluntary quarantine of these travelers, in home or hotel, with no visits to SC offices, for 96 hours (?) from the time they arrive at their destination (from time they leave the destination airport, at which they have arrived). Allow into SC offices only if free of flu signs/ symptoms after 96 hours (?). • (Michael)	• WHO, CDC, & State Dep. travel guidance monitored on a daily basis, & SC guidance promptly updated as indicated. • CMT review of travel guidance. • Early in Phase 6, before there is person-to-person transmission in the local area: Consider (particularly if mortality is high) providing guidance to country offices & travelers from areas with person-to-person transmission, to institute voluntary quarantine of these travelers, in home or hotel, with no visits to SC offices, for 96 hours (?) from the time they arrive at their destination (from time they leave the destination airport, at which they have arrived). Allow into SC offices only if free of flu signs/ symptoms after 96 hours (?). (Michael) **96 hours is currently assumed to be the maximum length of the incubation period for pandemic flu. This will need to be confirmed/ revised. The US HHS panflu plan (page S8-31) advises quarantine for 10 days from time of exposure (to also cover transmission by asymptomatic infected persons?)**

13. Staff relocation / stay in place	• SC guidance posted on SaveNet and sent to IPPs (reflecting UN & US Dep. of State guidance) suggesting that SC offices similarly adopt a stay in place response while nonetheless developing Country and Program and Area Office specific plans identifying events that might prompt them to send international staff and dependents out of the country or to relocate national staff assigned to an impact area or office away from their home of record, assuming such travel is possible. (Done) • During the preparedness activities all staff should be asked to consider what they believe will inform their own personal decisions about repatriation or relocation in relation to pandemic flu. (Cynthia Carr)	Monitor UN & State Dep. guidance & input from ADs, CODs & IPPs. Review, revise, & communicate revised guidance. (Cynthia Carr) Obtain info on plans related to pandemic vaccine availability & supply for SC staff & their families based in country & overseas field offices. Plans for vaccine availability in home countries but not in countries to which staff are posted could be an important justification for evacuation (particularly after the 1st wave, before vaccine becomes available to the general public, several months after pandemic onset). (Eric & Kathryn)	Monitor UN & State Dep. guidance & input from ADs, CODs & IPPs. Review, revise, & communicate revised guidance. (Cynthia Carr) Obtain info on plans related to pandemic vaccine availability & supply for SC staff & their families based in country & overseas field offices. Plans for vaccine availability in home countries but not in countries to which staff are posted could be an important justification for evacuation (particularly after the 1st wave, before vaccine becomes available to the general public, several months after pandemic onset). (Eric & Kathryn)

14. Arrangements with health care providers for services, including seasonal flu immunization, & pandemic vaccine, once available	• See # 6 (above). (Except for seasonal shots, limited applicability to US-based staff, as health services are through large numbers of different private providers.) • Seasonal shots for WWO: Make arrangements for on-site immunization as soon as possible following vaccine availability & encourage all staff to get immunized. Occupational Health Services Department, Norwalk Hospital, has provided seasonal flu shots in the Westport office over the last several years. Director, Linda Morgan, 852-2417. (Eric & Kathryn) • Seasonal shots for DC:	(Same as Phase 3)	Monitor www.pandemicflu.gov for news on availability of pandemic vaccine & make arrangements with local contacts See # 6 (above). (Eric & Kathryn) Obtain info on plans related to pandemic vaccine availability & supply for SC staff & their families based in country & overseas field offices. (Eric & Kathryn) Note that seasonal flu immunization remains important during the course of the pandemic.
15. Counseling for staff	Staff wellness strategy developed by John Fawcett (HR) (Includes contingencies for larger-scale crises, such as pan flu.)	(TBD)	(TBD)
16. Antivirals / Tamiflu for health care providers, bird handlers, & others	• SC document on Tamiflu drafted & widely distributed. (Done) • Monitor news on antiviral efficacy, effectiveness, & practical constraints, revise SC guidance accordingly, & communicate revisions to IPPs. (Eric)	Monitor news on antiviral efficacy effectiveness, & practical constraints, revise SC guidance accordingly, & communicate revisions to IPPs. (Eric)	Monitor news on antiviral efficacy effectiveness, & practical constraints, revise SC guidance accordingly, & communicate revisions to IPPs. (Eric)
17. Flu-related supplies for SC offices / staff (incl. PPE for health care providers, bird handlers, & supplies for others)	• Office supplies guidance drafted & distributed/posted (Done) (Kathryn & Van). • SC guidance on masks & other PPE drafted (Done) (Eric). • Purchase of supplies for WWO & DC. (Done) (Kathryn & Van).	Revise guidance based on SOTA information & re-supply (Eric, Kathryn, Van)	Revise guidance based on SOTA information & re-supply for waves 2 & 3, if needed & available (Eric, Kathryn, Van)

18. Staff at higher risk of severe illness (Pregnant? Immune deficient?)	Monitor WHO & CDC guidance, develop SC guidance if any risk groups are identified, & communicate to IPPs. (Ongoing) (Eric & Kathryn)	Inform all staff that some groups (Pregnant? Immune deficient?) may be at increased risk for severe disease & should plan to reduce their risks of exposure (Eric & Kathryn)	Monitor WHO & CDC guidance, develop SC guidance, & communicate to staff & IPPs. (Eric & Kathryn)
19. Staff with special needs (incl. language)	• Translate key SC documents, including office notices. (Mass 2-pager is available in many languages, excluding French.) • Ensure that cleaning staff are well-oriented (Phase 3 vs. 4?, by SC or by the contractor who employs them?)	• Complete translation of remaining documents & update as needed. • Ensure that cleaning staff are well-oriented	• Complete translation of remaining documents (PDQ) & update as needed. • Ensure that cleaning staff are well-oriented
20. Return to work of potentially "immune" staff following recovery from pandemic flu	(Currently an uncertain issue. Some level of immunity is assumed, but it may not be feasible to confirm that an illness was in fact pandemic flu, leaving immunity very uncertain.)	(See cells to left & right)	Monitor WHO & CDC guidance, develop SC guidance, & communicate to staff & IPPs. (Eric & Kathryn)

Help Protect the Health and Livelihoods of our Beneficiaries			
21. Health-related programming for SC beneficiary populations	• Primary focus: Pandemic preparedness planning with national & local partners (see www.coregroup.org/avian_flu/resources.cfm) • Secondary focus: Reduce human exposure, particularly in children, to H5N1 in birds. (SC guidance posted) (Eric & Kathryn)	(Same as Phase 3)	Communication re. relevant plans, activities, progress, constraints, guidelines, suggestions from SC & others among all IPPs. (IPPs)
22. Staff & resources to support local response	Implications, liability, costs, risks?	(Not Applicable)	SC may suggest that some SC staff voluntarily "redeploy" to support local pandemic response efforts?
23. Livelihoods-related programming for SC beneficiary populations	SC Livelihoods program response posted. • (IWG Program Sub-Committee) (see www.coregroup.org/avian_flu/resources.cfm)	(Same as Phase 3)	Plan for post-pandemic/wave activities.
24. Fundraising for flu programming for local populations (WWO support to country offices)	Monitor for funding opportunities, advise country office IPPs, & respond to RFAs/RFPs (IWG Program Sub-Committee)	(Same as Phase 3)	(Intensify Phase 3 efforts)
25. Communications with / talking points for external audiences	• Aceh piece is on SC website. (PAC) • Most SC IWG documents from SaveNet also on SC internet site for easier SC staff access & to share with external audiences (Adam & Eric) http://www.savethechildren.org/publications/technical-resources/avian-flu/	(Same as Phase 3)	(Intensify Phase 3 efforts)

Continue Key Agency Functions			
26. Mission-critical activities & staff	• Identify, incl. appropriate decision makers for plans & actions in all offices (incl. triage/re-focus on selected critical activities & re-deployment of staff to support critical activities) • Staff roles defined & essential positions backed-up by alternate staff persons (SC Business Continuity Plan, which includes a pan flu scenario, drafted, & selected elements tested)	(TBD)	(TBD)
27. Supplies & cash for SC offices / staff for general operations (incl. staff access to paychecks & benefits, supply chains, vendor continuity, & cash flow)	(Payroll from home operational & successfully tested) (See Business Continuity Plan)	(TBD)	(TBD)
28. Staff contact info., phone tree	Recently updated by HR for WWO & DC. Contact info for IWG & CMT to be made available to IPPs? (See Business Continuity Plan)	(TBD)	(TBD)
29. Inter-office / global communications plan, incl. emergency communications for phone, e-mail, & internet failure	(See draft Business Continuity Plan)	(TBD)	(TBD)
30. Working from home (related to SC/IT, information technology)	Essential equipment provided to key staff & information on computer & phone use provided to all staff – guidance posted on SaveNet (Guidance done) (Rui)	(TBD)	(TBD)

31. Benefits related to absenteeism (related to Human Resources)	Developed by HR for US-based staff & posted on SaveNet. (Objective is to sustain the business, encourage ill staff to stay at home to reduce transmission in the workplace, & simultaneously support employees by continuing to pay salaries & benefits.)	IWG recommends establishment toll free call-in number so staff can keep office abreast of their particular circumstances (to facilitate contingency planning & reallocation of resources as needed).	IWG recommends US-based employees who need to be out due to pandemic & cannot work from home, inform their supervisor, & be paid from contingency fund for max of 3 weeks. Employees may have to utilize established leave balances to supplement the contingency resources. • Inform staff of the above, & re. when not to come to office (see office notices & HR doc. on SaveNet)
32. Office closure	(See cells to right)	Guidance will reflect that of CDC, HHS, CT/DC health department, & local epidemiology: **Nearby/Less-Severe**: Staff encouraged to come to work if well / feasible. **In-Country/Severe**: All staff encouraged to work at home or office closure	Guidance will reflect that of CDC, HHS, CT/DC health department, & local epidemiology: **Nearby/Less-Severe**: Staff encouraged to come to work if well / feasible. **In-Country/Severe**: All staff encouraged to work at home or office closure
33. Office re-opening & inter-wave operations	(See cells to right)	Guidance will reflect that of CDC, HHS, CT/DC health department, & local epidemiology.	Guidance will reflect that of CDC, HHS, CT/DC health department, & local epidemiology.