

Scenario Planning in Emergency Response

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MIT Center for
Transportation & Logistics

Introduction

In 2006 the MIT Center for Transportation & Logistics simulated how a Corporate Emergency Response Team (CERT) might respond to an Asian flu pandemic.

Staffed by volunteer executives, the fictitious CERT was fed updates of the unfolding crisis and responded.

Functional groups discussed the crisis in breakout sessions and convened as the full team to make decisions.

The updates are designed to simulate a real-life crisis that puts the workforce and the company's viability at risk.

Introduction

The simulation shows how a CERT functions as well as some of the key challenges it faces during a crisis.

The simulation also shows that many of these challenges are common to different types of crises regardless of when they occur.

The lessons learned are as relevant in 2020 when companies faced the COVID-19 pandemic as they were in 2006.

Companies can use the simulation to expose their CERTS to the principles of scenario planning and reinforce these lessons with other simulation resources as needed.

A consolidation of the information flow in the 2006 simulation begins on the next slide.



MIT CTL

Supply Chain Disruption Simulation

2006

Massachusetts Institute of Technology
Center for Transportation & Logistics

Background

- Supply Chain Response Project
 - Many outputs
 - Leading practices Business Continuity Planning (BCP)
 - BCP Workshop developed, executed & planned
- Simulation Exercises
 - Important part of BCP
 - Education for awareness, training for response
- This session is a simulation of disruption to a supply chain, observing the immediate response
 - Corporate Emergency Response Team (CERT)
 - Roles:
 - CERT: Respond, anticipate, represent the interest of the company, not just the function
 - Functional Teams: Be engaged, support your CERT representative
 - Facilitator: Introduce information, manage process

Corporate Emergency Response Team (CERT)

- CERT Director
 - Coordination among CERT
 - Reporting to CEO
 - Decision-maker
- Emergency Management/Risk Mgt
 - Focused on facilities
 - Respond to situation, disaster recovery
 - Marshalling the companies resources
 - Insurance
 - Global risk mitigation
 - Impact of continuity breaks
- Supply Chain Management/Logistics
 - Procurement, receiving and conversion of raw materials
 - Storage and distribution of finished product
 - Order management
 - Operations planning
 - Customer service operations
- Sales & Marketing
 - Product development concepts
 - Customer SLAs (service level agreements)
 - Sales to current customers and prospects
 - Product, placement, pricing, positioning of offering to customers (present and future)
- PR/Communications Manager
 - Communications within the company, across functions & geographies
 - Communications externally, public relations
- Human Resources/Health & Safety
 - Development personnel policies
 - Ex-pat policies
 - Travel policies
 - Organization design & effectiveness
 - Focused on H&S of workforce
 - Implement HR policies
 - Rescue operations

Supply Chain Disruption Simulation: Introduction

- The main aim of the simulation is to demonstrate the decisions and challenges that companies face when confronted by a major supply chain disruption. This is not a formal corporate emergency drill.
- The organizations, characters, and events are fictitious, and for the purposes of the simulation time has been compressed. In a real emergency many of the responders would communicate virtually.
- Refer to information sheet for a summary of the scenario. Additional information may be provided during the functional breakout sessions. If you need additional information, ask the facilitators during breakouts. As you can imagine, the information may be incomplete as the situation unfolds.....

Avian Flu Background

- **What is Avian Flu?**
 - An infectious disease of birds caused by type A strains of the influenza virus. Known as avian flu, bird flu, or H5N1. Found often in migratory birds; can spread easily to domestic poultry and birds.
- **How does it spread?**
 - Readily transmitted by the movement of live birds, people (especially when shoes and other clothing are contaminated), and contaminated vehicles, equipment, feed, and cages. It can survive for long periods in the environment, especially when temperatures are low.

This slide courtesy
of APL Logistics



Avian Flu Transmission

- **How does it spread to humans?**
 - Usually through direct contact with infected birds or environments. More than 200 cases have been reported worldwide as of May 2006.
- **Can it spread from human to human?**
 - This has been reported extremely rarely and continued transmission beyond one infected person has not been reported. However, the possibility exists that the Avian Flu virus may mutate and make it easier to spread from human to human (H2H).

This slide courtesy
of APL Logistics



Avian Flu Phenomena

- **What are the symptoms of Avian Influenza in humans?**
 - Ranges from typical flu-like symptoms (fever, cough, sore throat and muscle aches) to eye infections, pneumonia, severe respiratory diseases and other life-threatening complications.
- **How is it treated?**
 - Avian Flu is generally more severe than ordinary influenza, and patients may require hospital care. Some anti-viral drugs (e.g., Tamiflu) may be effective in treating the condition. The influenza vaccine for the 2005-06 flu season does not provide protection against Avian Flu.

This slide courtesy
of APL Logistics

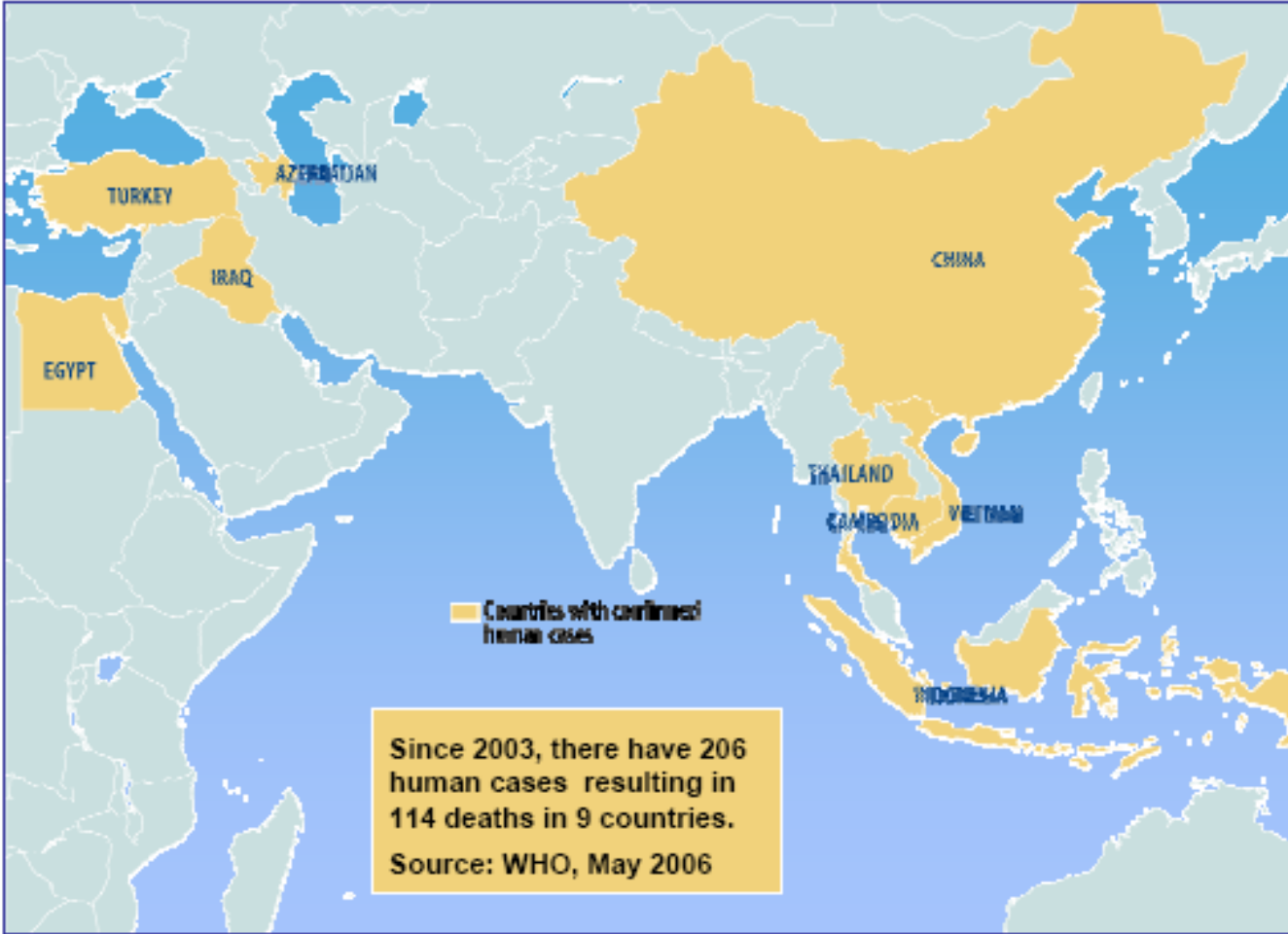


Expert on Avian Flu Epidemic: Background

Adolfo Garcia-Sastre
Professor of Microbiology
Mount Sinai School of Medicine
New York, NY

Excerpt (2:42) from
“The Dangerous Leap: Animal-to-Human Transmission of Disease”
November 9, 2006
MIT

Countries with Confirmed Human Cases



This slide courtesy of APL Logistics



Stages of the Potential Avian Flu Pandemic

The World Health Organization has developed alert phases to track the spread and impact of the disease.

Inter-pandemic phase New virus in animals, no human cases		Pandemic alert New virus causes human cases			Pandemic
Low risk of human cases	Higher risk of human cases	No or very limited H2H transmission	Evidence of increased H2H transmission	Evidence of significant H2H transmission	Efficient and sustained H2H transmission
Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6

12 months – 2 years

Months

Weeks



▲
as of May 2006

This slide courtesy
of APL Logistics



BCP Simulation

- There will be multiple Corporate Emergency Response Teams (CERTs)
- You'll all get some info as a group
 - Then you'll be asked to discuss the information and make choices
 - What actions will you take?
 - What are your assumptions?
- You'll also receive information individually within your CERTs
 - The recipient should share the information as appropriate
- Consider the source of the information and the likely credibility
- You will have most of the information that is available
 - You may ask for clarification but you won't get more information until it becomes available
- On occasion we will ask for a CERT report out
- We will also have some group discussions

Starting Information (1)

- Vaxonn receives a call from Geeling in Taiwan. Geeling's plant in Nanzhou, South China, is under quarantine. A worker is hospitalized with avian flu.
- No shipments are allowed in or out of the facility, and travel restrictions are in force. Production has slowed significantly.
- Vaxonn's CEO decides to activate the Corporate Emergency Response Team (CERT). Production of the new SlimPhone 360 is already behind schedule and the company needs to resolve this situation quickly. They contact the Director of Vaxonn's CERT, and the team convenes within two hours.
- During that time the situation in the Geeling plant has worsened. Day shift workers more than 15 km from the plant aren't allowed to travel home. Night shift workers more than 15 km from the plant are not allowed in the area.
- There is much confusion. Geeling does not have any contingency plans for such an emergency, and is having to accommodate tired, anxious workers. Its personnel records are incomplete so notifying families has been difficult.
- Tests are being done to identify the avian flu strain that the sick worker has contracted.
- Vaxonn has two managers working on-site at the Geeling plant. They called to confirm the situation, they are alarmed and want Vaxonn to fly them home immediately.
- Vaxonn has only recently initiated a CERT process, and does not yet have complete business continuity plans developed or implemented.

Information Received by Different Groups (1)

- Info to HR
 - A third Vaxxon employee, John Bright, Vice President of Design & Development, left Nanzhou just prior to the quarantine being imposed
 - Email from Vaxxon's David Abrams at Geeling plant, there is forced testing and they want to go back to the US
- Info to Supply Chain/Logistics
 - The Geeling plant has enough inventory of components and raw materials to keep production lines running for about two days.
 - A shipment of finished cell phones was dispatched to the Chenbo Container Port Sept 27.
- Info to Sales/Marketing
 - A few hours before the quarantine was imposed a second shipment of finished cell phones was dispatched to the airport. The express shipment is part of a plan to bring production of the SlimPhone 360 back on schedule.
- Info to entire Group
 - Approximately 10 hours after the quarantine was imposed, the Chinese Government announces that the stricken worker has the deadly H5N1 strain of the avian flu virus.
 - The Government wont lift the restrictions until cause of the infection is known, est. in 24 hours.
 - The air and sea shipments of finished cell phones are being held up by Chinese customs.
 - Absenteeism and the travel restrictions have cut the Geeling work force by almost 30%. Output is down by an estimated 40%.

Discussion Suggestions

- CERT Leader:
 - Suggest ‘managing’ the CEO to focus on leading the company, allow CERT to focus on managing the disaster
 - Consider how the launch of the SlimPhone 360 is being impacted
- PR-Comm:
 - How should the company respond to questions from the media, workers, workers’ families, suppliers and customers?
 - Who should the CERT brief now, and what would you tell each group?
- Inbound Logistics and Sourcing Manager:
 - Consider potential actions to offset delays in production, impact of a continuing quarantine on production
 - What other supply/manufacturing options do you have?
- Risk Manager (and Emergency Manager):
 - Consider how Vaxonn can help its managers in the Geeling plant.
 - Probably have to tell the managers to comply with local authorities although employees wish to refuse to be tested for bird flu
- Distribution Manager (and Sales & Marketing):
 - Consider potential actions to offset delays in shipments to 3PL Global Carriers, and impact of Global Carriers kitting operations on customers and SlimPhone 360 launch
 - What other options do you have to keep 3PL operating, to supply customers?

Information Received by Different Groups (2)

- Info to Supply Chain Management/Logistics
 - In the Geeling plant the new day shift is 40% below capacity.
 - A production line is down because of a maintenance problem.
 - Output is down 70%, it will take 3 days to return to full production.
- Info to Sales/Marketing
 - Global Carriers says it will shut ops in 48 hrs unless they get phones at CA hub.
 - Major customer Bullseye Co (25% of Vaxxon volume) ask for an update on shipments due for upcoming holiday promotion. Expect penalties if delayed.
- Info to CERT Director
 - PHONE CALL FROM RECEPTIONIST in VAXONN PR OFFICE
 - A prime time news report suggests that the cell phone shipments are being held by customs because there are fears that the virus can survive on plastic surfaces for up to 72 hours. A Chinese government official denies this. Experts disagree on the issue.
 - CTL News will broadcast a story on Geeling, calls it “The Plant Under Siege.”

News Bulletin One

Information Received by Different Groups (3)

- Info to Supply Chain/Logistics
 - The Chinese government, under intense pressure lifts the quarantine restrictions.
 - Chinese Customs say that two shipments of cell phones to be released in 24 hrs.
 - Geeling estimates it will take 3-4 days to ramp up to full production again.
- Info to Sales & Marketing
 - Bullseye VP of Merchandising calls to express concern over the SlimPhone 360 and possible exposure of their customers to the avian flu. She demands assurance from Vaxonn that the phones will be safe, may cancel the order.
- Info to Human Resources
 - Bright says “Stopped in Hong Kong for an urgent meeting. Got your message to get tested for avian flu. I don’t have time right now. I feel fine. The flu problem in Geeling is overblown. I’ll check in when I get to the home office in US.”
- Info to Group
 - A 2nd worker at the Geeling plant has been hospitalized with suspected flu.
 - The quarantine has been re-imposed. No shipments in or out of Geeling., and travel within a 10-mile radius is restricted.
 - The Vaxonn managers in Geeling are still stranded.

Expert on Avian Flu Epidemic: Flu Pandemic & Transmission

Megan Murray
Assistant Professor of Epidemiology
Department of Epidemiology
Harvard School of Public Health
Cambridge, MA

Excerpt (2:07) from
“The Dangerous Leap: Animal-to-Human Transmission of Disease”
November 9, 2006
MIT

Group Info Update

- The Chinese Government confirms that the second worker has the H5N1 virus. How the man contracted the virus is still a mystery.
- News of the second case of avian flu breaks, and an anonymous government official is quoted as saying that the authorities in China are very concerned. An avian flu expert says that if the virus has mutated and is capable of transferring from person to person, the first stage of a pandemic could have started.
- The World Health Organization complains that China has not provided samples from the second worker, and is anxious to carry out further tests to find out whether the virus has mutated.
- The two employees at the plant are feeling abandoned and have emailed their situation broadly and are now setting up a blog to air their concerns.
- News bulletin #2

News Bulletin Two

Information Received by Different Groups (4)

- Info Supply Chain Management/Logistics
 - Absenteeism in Geeling is around 40% and production down by 60%.
 - The plant has less than 24 hours of raw material inventory left.
- Info to Supply Chain Management/Logistics
 - The US government decides to quarantine the Vaxonn shipments.
- Info to Sales & Marketing
 - The delayed air shipment of cell phones from Geeling arrives in New York, but cargo handlers refuse to unload it, fears that the bird flu virus can be carried on plastic surfaces.
 - US longshoremen demand more stringent inspections of all shipments from China.
- Info to Human Resources
 - Received email message from David Abrams, Vaxonn Engineer on site
 - David writes “Conditions in the Geeling plant are grim. Management is overwhelmed and a lot of workers are angry at not being allowed home. There was a near riot in one department when the quarantine was imposed again. What are you doing to get us home?”

Group Info Update

- The second Geeling production worker with avian flu dies. A cluster of wild birds has been found dead with avian flu in the area. The Chinese announce that the second worker caught the flu in a local poultry market. He did not catch it from the first woman. There was no human-to-human spread of the virus.
- The Chinese government announces it will lift the Geeling quarantine within 24 hours.
- Vaxonn's CEO suggests that the Marketing department consider developing a flu-free-phone called the Kellso (named after the Lysol VP of Marketing who pioneered this approach) since they are getting expertise with viruses and mobile phones.

Information Received by Different Groups (5)

- Info to CERT Director
 - The first outbreak of avian flu in the United States is reported. Wild birds infected with the virus migrated from Asia, and have been found dead in Alaska.
 - The US Government has established a 'biosecurity zone' around the area and is culling the bird population.
 - A media report says that the US is ill-prepared for a pandemic, with only enough vaccine for about 40% of the population.
- Info to PR/Communications
 - The US Government stresses that the outbreak in Alaska is being dealt with, and there are no reports of humans contracting the disease in Alaska.
 - The US Government announces it is purchasing 40 million extra doses of Tamiflu. It has tightened inspections of imports from China, and introduced a disinfectant program for freight containers.
 - Public groups are lobbying for a total ban on shipments from China
- Info to the Group
 - **Telephone call to CERT from Vaxonn Nurses Office:** John Bright arrived in the early hours of the morning and used his pass key to enter the building. He just visited the plant nurse complaining of a headache and flu-like symptoms. What shall we do?

Group Info Update

- The US government has quarantined the area. John Bright and his team are undergoing tests.
- Vaxonn's CEO suggests that all production of the SlimPhone 360 be halted. Existing inventories of the finished phone may be scrapped. He wants input from CERT on where the phone can be manufactured outside China. There will likely be a new launch.
- There is widespread alarm. The US government emphasizes that there is no proof that Bright has avian flu, but announces travel restrictions to and from China. The EU and 10 other countries follow suit
- News bulletin #3

News Bulletin Three

Group Info Update

- The US government announces that John Bright does not have avian flu. He has a common variety of flu. US government lifts the New Jersey quarantine.
- The US government confirms that there is no pandemic. The situation in Alaska is under control and there are no reports of human illness.

Group Info Update

- Vaxonn has \$300 million dollars worth of SlimPhone 360 inventory.
- Geeling is threatening legal action over the decision to cease production of the SlimPhone 360 at its plant in China. Retailer Bullseye also threatening legal action for failure to deliver phones for their heavily-invested holiday promotion with Vaxonn.
- The company's stock price is down 45% from the previous week
- CEO closes CERT and charters Business Continuity Planning team to reconstitute operations

Group Info Update

- The World Health Organization announces the results of its tests on the deceased Geeling workers. The work was delayed owing to WHO's avian flu database being out of date. The Chinese authorities have not been diligent in sending WHO samples from every outbreak of bird flu.
 - WHO concurs that there was no connection between the two Geeling cases, and hence no person-to-person transmission of the virus.
 - However, the tests show that the H5N1 virus has changed. There are some important mutations that could make it resistant to Tamiflu, and make it easier for the virus to infect humans.
- CTL News reports that a cluster of three workers in the Geeling plant have been hospitalized with suspected avian flu

Learnings Summary

- SCM and Logistics must be part of a business continuity plan
 - Need to be part of an integrated corporate response
- Advance planning is necessary: its too late to wait until the problem occurs
 - Need contingency plans (e.g. backup supply, transportation, internal communication processes, clear HR and PR policies, working BCP relationship with key customers and key suppliers)
 - Education for awareness and training for response
 - Need relationships in place (e.g. Gov't relations beyond regulatory compliance)
 - Need 'what if' resources in place: clearly defined CERT roles and responsibilities, up-to-date contact lists
- Separate the facts from the rumors
 - But you may have to deal with rumors based on public perception
- “People” issues are among the most unpredictable in crisis situations.
 - E.g. John Bright’s single-minded decision to ignore emergency & keep working
- It is crucial that you reach out to official and trade organizations for support, and to avoid becoming identified as the ‘face of the crisis’
- Emergency response success =f(company’s core values + how leaders reflect and communicate those values)