Challenges

- 38-40 students per exercise
- Identifying and communicating with co-workers, dressed in isolation gowns and masks, was new to beginning 3rd year students
- Working in 4 person teams: Physician, Registered Nurse, 2 Patient Care Technicians (comparable to Aide or Orderly)

Simulation Roles (defined what individuals could do, as in real life)

- Nurse can do nearly any task, but cannot perform a Physician Exam
- Physician can do nearly any task, but cannot administer medications (do not have access to computerized dispensing system)
- Aide can only do certain tasks, but these are essential for smooth operation of the unit. Cannot administer medication or breathing treatments, start IVs, or perform an MD exam

Staffing

- One non-medical staff member for every row
  Assignment – place action flags with patients and refill empty seats with new patients
- One medical or senior nursing faculty for each 2 adjoining rows
  Assignment – facilitate, interrupt and challenge actions, address problems and smaller teaching points on the fly
- One exercise facilitator
  Assignment – monitor overall flow, activate portions of the scenario (e.g. hospital has run out of Antivirals and IVs; begin designating certain students as having become ill)
- Three roving non-medical staff
  Assignment - replenish supplies, action flags and patients

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PURPOSE

The threat of an avian influenza pandemic is growing, and the medical and public health communities are accelerating plans to prepare for a potentially severe impact on the population.

Improving public health preparedness and preparing to cope with a pandemic depends on functioning in symbiosis with all elements of the healthcare team, including the public health community.

This 1-day pandemic-preparedness program for beginning 3rd year medical students was designed to:

♦ increase students’ understanding of the multidimensional nature of disaster and pandemic response
♦ demonstrate how health care delivery and systems may be affected by the circumstances of an infectious outbreak
♦ provide specific content information relevant to preparing for an influenza pandemic

METHODS

The overall module construct was comparable to other simulation-based curriculum units.

♦ It began with a lesson on fundamental, generalizable concepts.
♦ Each exercise included an immediate group debriefing, to answer students’ questions and solidify lessons learned.
♦ The module began with core topic lectures on disaster medicine, the current pandemic threat and state of preparedness, and how pandemic treatment and triage may occur.

Beginning 3rd year students were divided into four 40-student groups for the 2-part practical simulation exercise. Students then applied this new knowledge by participating in two highly engaging simulation exercises.

Hospital Simulation

Students managed a 140 “bed” hospital, created in a large lecture hall using a new method for simulating a hospital environment.

♦ Each seat was a bed, and each 15-seat row was a hospital unit, staffed by 4 students in roles of physician, nurse and nursing assistant.
♦ The cardboard patients came to life as staff members continuously placed paper “action flags” on each patient, to indicate what treatment or evaluation was required.
♦ Students “treated” the patients by bringing a matching action flag to the bedside.
♦ Students also became infected, and were “treated” by colleagues, further burdening the hospital and degrading capabilities.

Public Health Simulation

Students learned the various complexities of case tracking in an outbreak by performing interviews with standardized patients.

♦ Through successive layers of epidemiologic interviews, students located infection sources and individuals at risk of contracting the disease.
♦ After initial layers of SP interviews, students followed the trail further by accessing virtual patients through written case histories.
♦ A debriefing with the county health department director put their findings into a real world focus.

In both simulations, students were closely supervised by medical and public health leaders that serve in key roles during actual emergencies.

RESULTS

Students quickly embraced the scenario and participated with energy and enthusiasm. They valued the hands-on nature of the simulations.

The simulation fidelity and intensity were enhanced by wearing isolation gowns and masks, supply shortages, and the presence of real news media personnel.

The overall simulation was very well received, and highly rated on student evaluations and comments.

In debriefings, students indicated they had improved knowledge about pandemic influenza, but also had developed greater understanding of broader concepts that are vastly more difficult to teach –

♦ teamwork
♦ collaboration
♦ communication
♦ leadership
♦ interdisciplinary respect

Faculty observed that this exercise taught many of the same principles that are objectives of learning about the Toyota Production System as an approach to improving health care systems.

CONCLUSIONS

This all-new pandemic simulation provided a unique venue for students to learn about pandemic preparedness and the threat of avian influenza.

Students gained appreciation for the essential roles of every member of the healthcare team in a manner that cannot easily be replicated in everyday experiences.

This type of exercise can readily be generalized to other circumstances and health disciplines, and exported to other institutions.