

SAND2016-10874C



IBCTR

INTERNATIONAL BIOLOGICAL
and CHEMICAL THREAT REDUCTION

International BioChem Readiness Approach to Strengthening Safety & Security

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Overview of talk today

- Need for BCR
- What is BCR
- How IBCTR has adapted US approach to meet challenges internationally in planning & exercises
- PREP Tool: New approach to participant-based BCR activities
- Self-Assessment



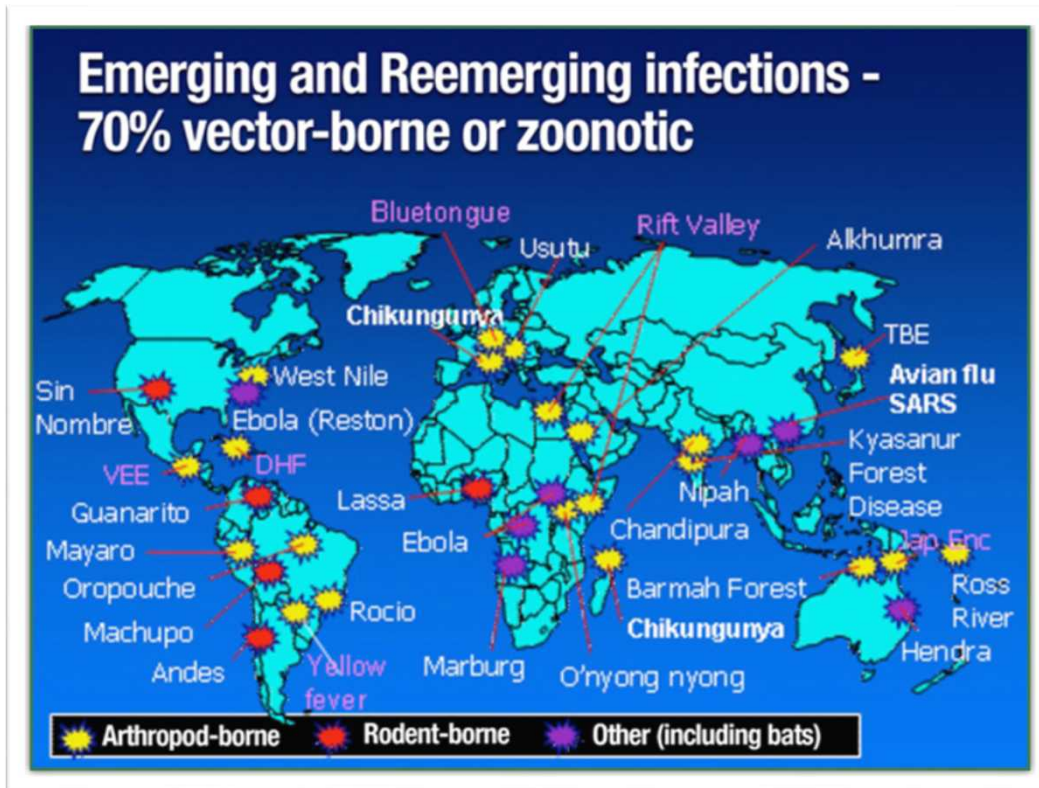
The Need for International BCR



**Biological incidents, public and animal health emergencies
do not recognize or stop at international borders**



Emerging Zoonotic Threats



http://www.who.int/zoonoses/emerging_zoonoses/en/

Newly recognized

-or-

Newly evolved

-or-

**Increased incidence or
geographic, host,
vector-range expansion
of previously-occurring
disease**

Global One Health



中国で鳥インフルエンザが発生しています！！

家きん肉、卵などの日本への持ち込み

生きた鳥を扱う市場や家きん飼育施設への立入り

NO!!

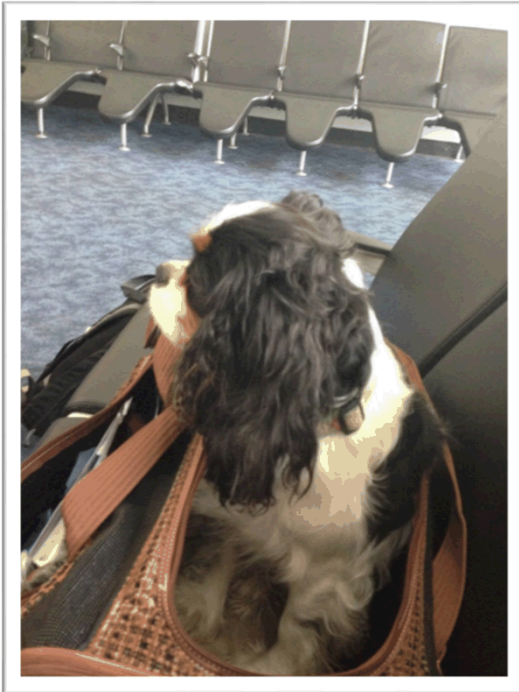
死んだ鳥や放し飼いの家きんとの接触

鳥の排せつ物との接触

農林水産省動物検疫所
成田支所 検疫第1課 TEL:0476-32-6664
検疫第2課 TEL:0476-32-2342
<http://www.maff.go.jp/ans/>



Global One Health Includes US



Los Angeles International Airport (LAX)

- 6th busiest airport in the world
- >900 weekly flights to 34 countries



Port of Los Angeles

- #1 in the US (by container volume)
- NE Asia (74%), SE Asia (15%) trade by volume

Borders—interstate and transnational

2006 study: ~287,000 dogs, 25% unvaccinated

1. TYPE OF ANIMAL SHIPPED (select one only) <input checked="" type="checkbox"/> Dog <input type="checkbox"/> Cat <input type="checkbox"/> Other _____ <input type="checkbox"/> Nonhuman Primate <input type="checkbox"/> Ferret <input type="checkbox"/> Rodent	2. CERTIFICATE NUMBER - OFFICIAL USE ONLY Q1526XX
3. TOTAL NUMBER OF ANIMALS 1	4. PAGE 1 OF 1



Emerging Concerns



Months before outbreak detected

Panic grows...& we don't have answers

Healthcare & Lab workers at risk

Zoonotic likely

(though who would've predicted camels?)



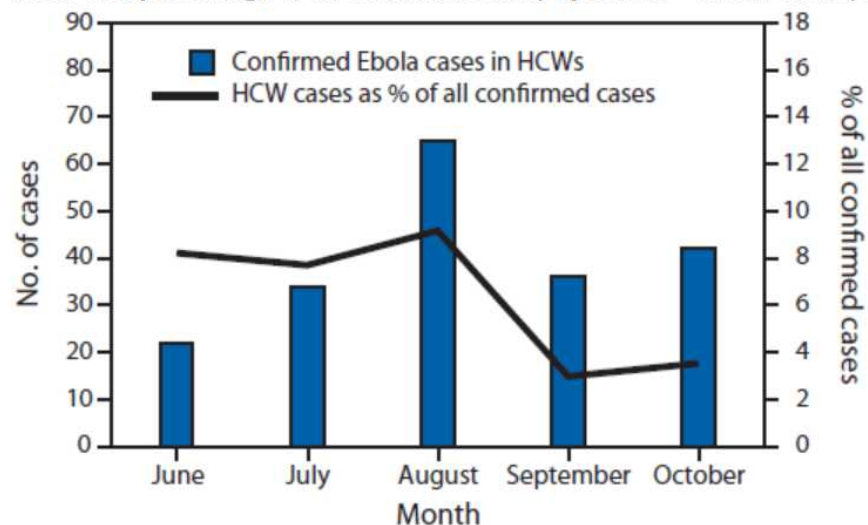
Emerging Successes

Early case detection saves lives

Effective risk communication is critical

Infection control saves (healthcare worker) lives

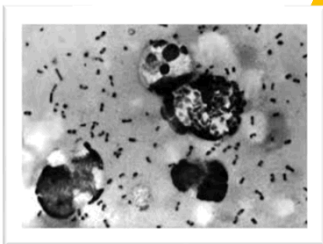
FIGURE 1. Number of laboratory-confirmed Ebola virus disease (Ebola) cases in health care workers (HCWs) and confirmed Ebola cases in HCWs as a percentage of all confirmed cases, by month — Sierra Leone, June–October 2014



Decrease in Ebola cases among healthcare workers may be due to concurrent implementation of infection control. cdc.gov/mmwr



Goal: Strengthen Readiness at Each Step



Cross-Sector Coordination Critical At Each Step



BioChem Readiness

BioChem Readiness encompasses how “ready” an entity is for an incident involving a biological or chemical agent release, whether intentional or unintentional as part of the health security program.

BCR incorporates all of the following...

- Preparedness & Planning
- Detection
- Investigation
- Response
- Recovery

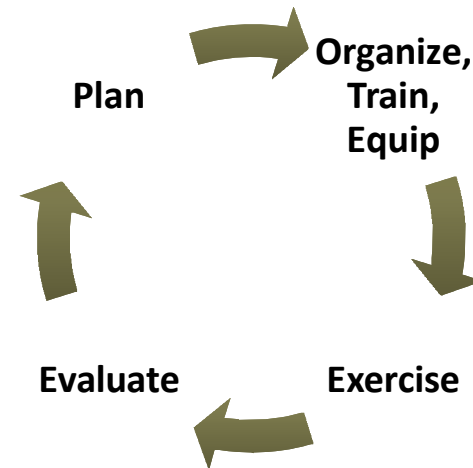


BCR requires systems-level, whole-of-community approach

BioChem Readiness

BioChem Readiness is applicable at many levels:

- **Facility**
 - Drills, SOPs validation
 - Chem Supplier Workshops
- **Ministry (agency)**
 - Evaluate Rural → Central Coordination
- **Multi-Ministry (agency)**
 - One Health, one country
- **Multi-Country**
 - One Health, multi-country



For each of these—we apply BCR to strategic/policy level, operational level or tactical level.



Why Readiness?

Preparedness

Continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response.

Readiness

Condition of being **prepared and capable** to act or respond as required.

(DHS, Lexicon: Terms and Definitions , October 19, 2007, p. 22)



Our role in BCR

Building sustainable in-country program
with multiyear strategy development

Facilitating Plan Development

Validating those Plans → Exercises, AARs



Strategic Approach

Develop strategic approach to make sure the lab/ministry/country is **CAPABLE** and **READY** to respond to biological or chemical threats

From simple as SOPs and drills for handwashing



To complex multinational disease surveillance planning & exercises



Multiyear Strategy Development

	Engagement 1	Engagement 2	Engagement 3	Engagement 4
Option 1: <i>Plans known in advance</i>	Exercise Planning workshop Tabletop Exercise (TTX) #1	Revise & Train on Plan TTX #2	Revise & Train on Plan Full Scale Exercise (FSX) or modified FSX	More complex FSX/Modified FSX Revise & Train on Plan
Option 2: <i>No plans in place</i>	Exercise Planning workshop	Scenario-based workshop Revise & Train on New Plan	TTX #1 Revise & Train on Plan	TTX #2 Revise & Train on Plan



So, while Readiness may not seem as cool as...



It is just as important....



Readiness starts with Preparedness



*Let our advance worrying become
advanced thinking and planning."*

Winston Churchill



Can you really plan for...



3 Levels of Response Plans

Strategic Planning:

- Policy Objectives: Who, What, Where, Why

Operational Planning

- How to meet strategic objectives
- Concept of operations
- Roles & responsibilities

Tactical Planning

- How to achieve operational plan



Planning: No need to start from scratch

Take advantage of experience of other planners, existing plans

- Gain insight into community risk perceptions
- Identify organizational arrangements used in the past
- Identify private sector planning that can complement and focus public sector planning
- Learn how historical planning issues were resolved
- Identify readiness gaps



Common Planning Pitfalls

The most common planning pitfall is the development of lengthy, overly detailed plans that those responsible for their execution do not read.

- Don't try to cover every conceivable condition;
- Keep it simple and **flexible**
- Make sure assumptions have been vetted by implementing agencies
- Understand & Engage the community
(why we facilitate our local participants to develop & don't prescribe plan)
 - Diversity of community
 - Other members in community willing to play a role
 - Culturally appropriate

**** Using an international “template” plan without making sure it works in specific country or for a specific lab**



IBCTR Planning Project Examples

Strategic Level

- Scenario-based workshop to outline multi-ministry coordination

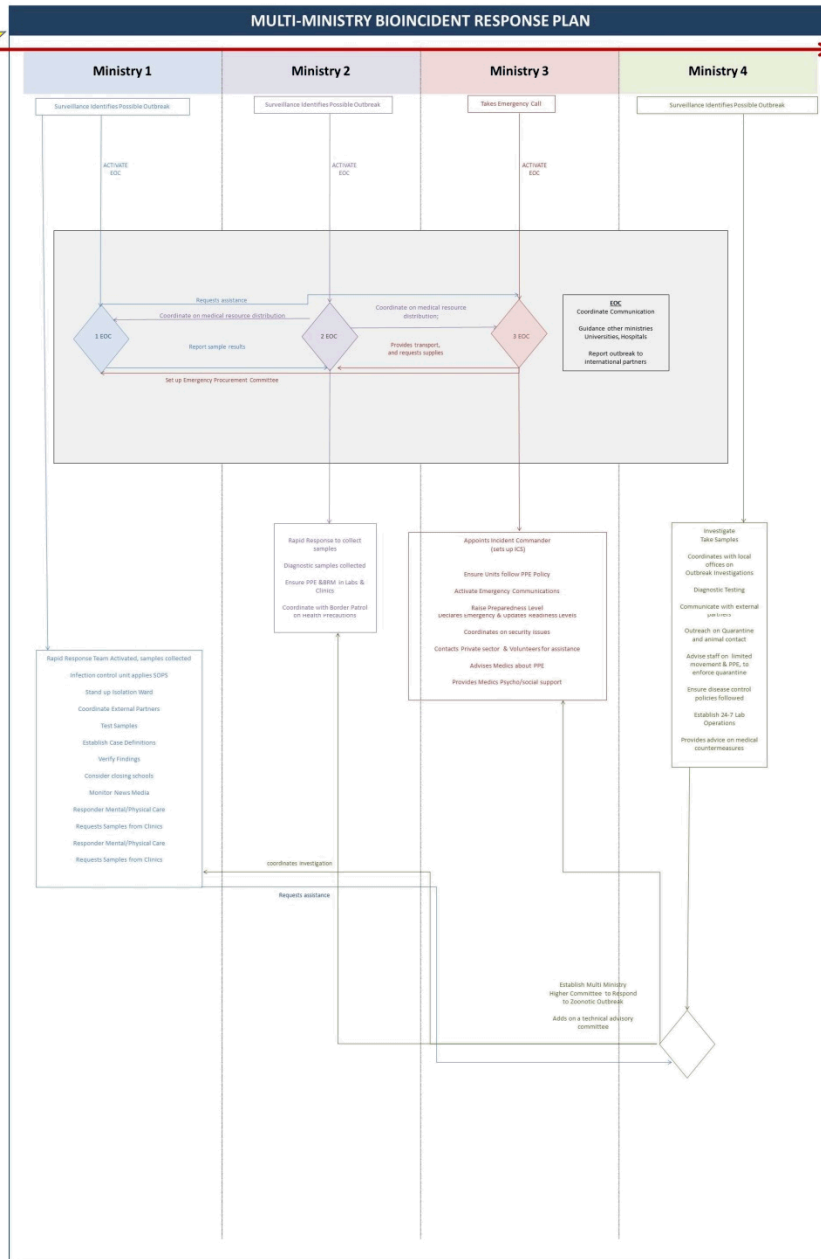
Operational Level

- Scenario-based workshop to outline coordination of activities among first responders to unknown incident

Tactical Level

- Scenario-based drills to create chemical supplier reliability checklists





Example Strategic Planning Multi-ministry Response for 1 country



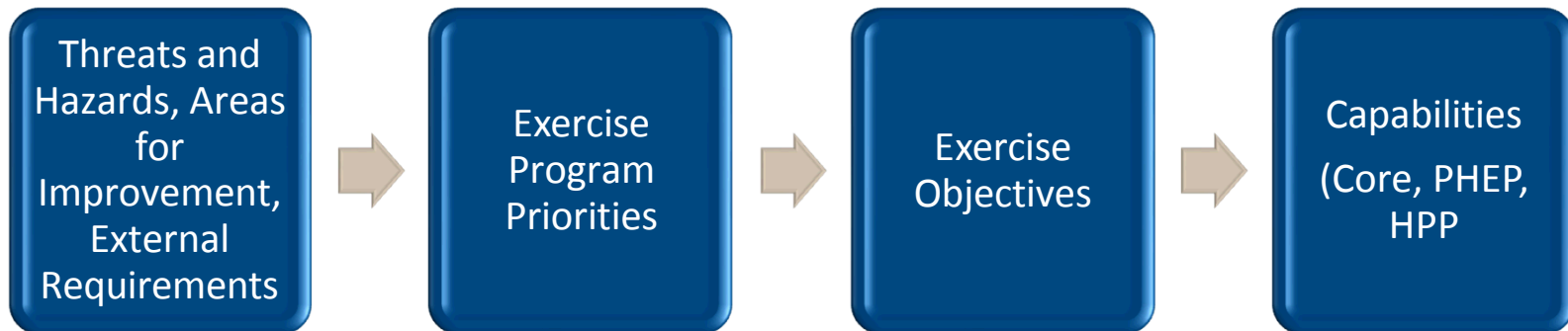
Exercising the Plans

- Does the plan work?
- Are we ready?
 -and what do we need to do to be even more ready?
- Training
- Planning
- Staffing
- Resources





HSEEP Exercise Methodology:



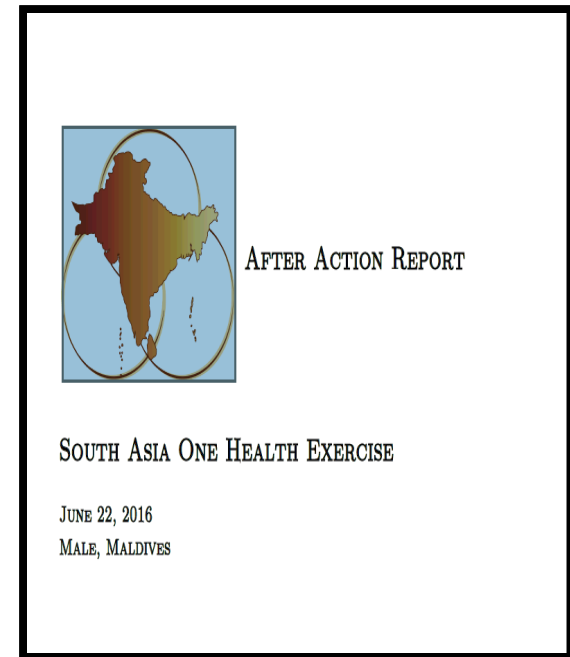
IBCTR Leverages HSEEP Strengths

Planning Workshops

- Scenario-based workshops
- Modified FEMA Planning Template

Exercises

- Concept and Objectives Meeting
- Master Scenario Events List
- Exercising Plans (*or as close to a plan as we can get*)
- Participant Criteria (Roles)
- Facilitators, Controllers
- Observers
- After Action Review



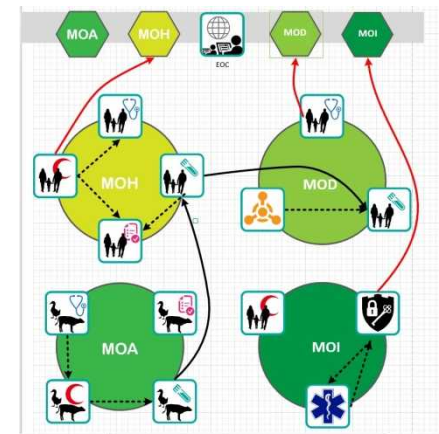
Unique concepts in IBCTR's Exercises

**Participant Driven

- Participants develop After Action Review and Improvement Plan
- Evaluators provide insight, comment, ask thoughtful questions
 - *They don't write the AAR or Action Plan*

Data Based

- Qualitative Data collection throughout using Hot Washes
- Assessment based on data collected
- Systems-level communication mapping tool and Visualization Tools



Addressing the challenges

1) How do we get “buy in” from staff to change practices?

- Scenario-based workshops with participant-led evaluation

2) How do we have time to create reports, find gaps, incorporate input from *all* participants?

- PREP Website Toolbox

3) How do we make sure findings from exercises actually lead to plan or SOP changes?

- Leadership buy-in to a multiyear plan-exercise process





PREP: Portal for Readiness Exercises & Planning

Web/Computer-based Tabletop & Planning Workshop Recording Tool

- Real-time qualitative data collection
- Direct participant input
- Applicable to all-hazard scenarios
- Communication tracking tool included
- Able to be played by each role remotely, at different times, ease of use during regular workday
- Flexible for tactical, operational & strategic use
- Preliminary AAR for evaluator & facilitator review
- Final version AAR provided immediately
- For planning, possible to track deviations in actions from existing plan & SOP requirements

The screenshot displays the PREP web application interface. The main content area is titled "Scenario" and contains a "Current Scenario" section with a time stamp "Time: 10/12/2011 11:00:00 AM" and a "Party Summary" section. Below this is a "Questions" section with several text input fields for recording participant input. On the right side, there is a sidebar with a "Minuties" section and a "Communication" section listing various roles such as "Public Health", "Hospital - Public Health", "Dartmouth - Animal Health", "Blaine - Public Health", "Blaine - Animal Health", "John - Public Health", "John - Animal Health", "Valerie - Public Health", "Valerie - Animal Health", "Nigel - Public Health", "Nigel - Animal Health", "Silvana - Public Health", and "Silvana - Animal Health". At the bottom of the sidebar is a "Go To" section with a list of "Phase 1 Scenario" and "Phase 2 Scenario" options.



PREP: Communication Visualization

Phase 1

	Bangladesh-MCH	Bangladesh-MCAH	Bhutan-MCH	Bhutan-MCAH	India-MCH	India-MCAH	Nepal-MCH	Nepal-MCAH	Pakistan-MCH	Pakistan-MCAH	SriLanka-MCH	SriLanka-MCAH
Bangladesh-MCH	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh-MCAH	X	-	-	-	-	-	-	-	-	-	-	-
Bhutan-MCH	-	-	-	-	-	-	-	-	-	-	-	-
Bhutan-MCAH	-	-	-	-	X	-	-	-	-	-	-	-
India-MCH	X	-	X	-	X	-	X	-	-	-	-	-
India-MCAH	-	-	-	-	-	-	-	-	-	-	-	-
Nepal-MCH	-	-	-	-	-	-	-	-	-	-	-	-
Nepal-MCAH	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan-MCH	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan-MCAH	-	-	-	-	-	-	-	-	-	-	-	-
SriLanka-MCH	-	-	-	-	-	-	-	-	-	-	-	-
SriLanka-MCAH	-	-	-	-	-	-	-	-	-	-	-	-

Phase 2

	Bangladesh-MCH	Bangladesh-MCAH	Bhutan-MCH	Bhutan-MCAH	India-MCH	India-MCAH	Nepal-MCH	Nepal-MCAH	Pakistan-MCH	Pakistan-MCAH	SriLanka-MCH	SriLanka-MCAH
Bangladesh-MCH	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh-MCAH	X	-	X	-	X	-	X	-	-	-	-	-
Bhutan-MCH	-	-	-	-	X	-	X	-	-	-	-	-
Bhutan-MCAH	-	X	-	-	-	-	-	-	X	-	-	-
India-MCH	X	-	X	-	-	-	X	-	-	X	-	-
India-MCAH	-	-	-	-	-	-	-	-	-	-	-	-
Nepal-MCH	X	-	X	-	X	-	-	X	-	-	-	-
Nepal-MCAH	-	X	-	-	X	-	-	-	-	-	-	-
Pakistan-MCH	-	X	-	X	-	X	-	-	-	-	-	-
Pakistan-MCAH	-	-	-	-	-	-	-	-	-	-	-	-
SriLanka-MCH	X	-	-	-	-	-	-	-	-	-	-	-
SriLanka-MCAH	-	X	-	-	-	X	-	-	-	-	-	-

Phase 3

	Bangladesh-MCH	Bangladesh-MCAH	Bhutan-MCH	Bhutan-MCAH	India-MCH	India-MCAH	Nepal-MCH	Nepal-MCAH	Pakistan-MCH	Pakistan-MCAH	SriLanka-MCH	SriLanka-MCAH
Bangladesh-MCH	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh-MCAH	-	-	X	-	X	-	X	-	-	-	-	X
Bhutan-MCH	-	-	-	-	-	-	-	-	-	-	-	-
Bhutan-MCAH	-	-	-	-	X	X	-	-	-	-	-	-
India-MCH	X	X	X	X	-	-	X	X	X	-	X	X
India-MCAH	-	X	-	X	-	-	X	-	X	-	X	-
Nepal-MCH	X	-	X	-	X	-	-	-	X	-	X	-
Nepal-MCAH	-	X	-	X	-	X	-	-	-	X	-	X
Pakistan-MCH	-	X	X	X	X	X	-	X	-	-	-	-
Pakistan-MCAH	-	-	-	-	-	-	-	-	-	-	-	-
SriLanka-MCH	-	X	X	X	X	-	X	X	X	-	-	X
SriLanka-MCAH	-	X	-	-	-	-	-	-	-	X	-	-



PREP: Tracking Communication

Talked To	Talked About
Bangladesh - Ministry of Animal Health	Bangladesh asked if Bhutan had mortality of migrating birds in the riverside. The answer was yes we have had death of water fowls along the Manachou river. They also asked if Bhutan had seen mortality amongs goats. The answer was no mortality, but they are sick.
Pakistan - Ministry of Animal Health	Pakistan contacted Bhutan. They asked the severity of disease in poultry population. Any incidence in humans. What could be the source of infection. Any other animal species affected?



PREP: Qualitative Data collection informs AAR

Phase 2 - SriLanka - Ministry of Animal Health

Question	Response
What were your major strengths for this phase?	<ol style="list-style-type: none">1. Available skilled technicians and equipment for lab testing2. Available internationally accepted protocol for sample collection and dispatch3. Available early detection and immediate response team from up to grass-root level4. Legal provisions for disease prevention and control
What were your major areas for improvement?	<ol style="list-style-type: none">1. Due to Flora and Fauna Act, it is difficult to do even surveillance activity in wildlife park. Unable to even apply medication2. Lack of budget to strengthen lab faculties for detection of other diseases3. Lack of knowledge in technical staff and detection of novel viral diseases

We can print hotwash (and actions recorded) at the end of each section of scenario.

This allows evaluators to review at each step & informs participants to help in prioritization during After Action Review



PREP: AAR Strength & Gap Prioritization

Question	Response
Regional Strengths	<p>Good Communications, Similar Conditions, CVO meeting in SAARC 3 Regional Labs in three countries Good networking in Animal Health Public health knowledge/expertise Existing Focal points Strong regional health system and pandemic preparedness plan</p>
Regional Areas for Improvement	<p>Develop Cross Border Dialog, Capacity Building, Alert Farmers Implementation mechanism Policy development for information sharing and getting things done Improve Human capacity Information sharing and coordination Coordination between animal and human health Regional Collaboration and better develop Trans-border security Lack of official communication channels between countries Need to revise pandemic plans Better international sample transportation and retrieving process</p>



Priority Strengths and Gaps for Region

Priority Strengths identified

- Existing pandemic plans
- Three regional labs (in three different countries)

Priority Gaps identified

- Need to develop better cross-border dialog and collaboration
- Improvement and implementation of a One Health approach
- Need policy development of technology and information sharing to get things done



PREP: Virtual Exercise Simulation

Key capabilities

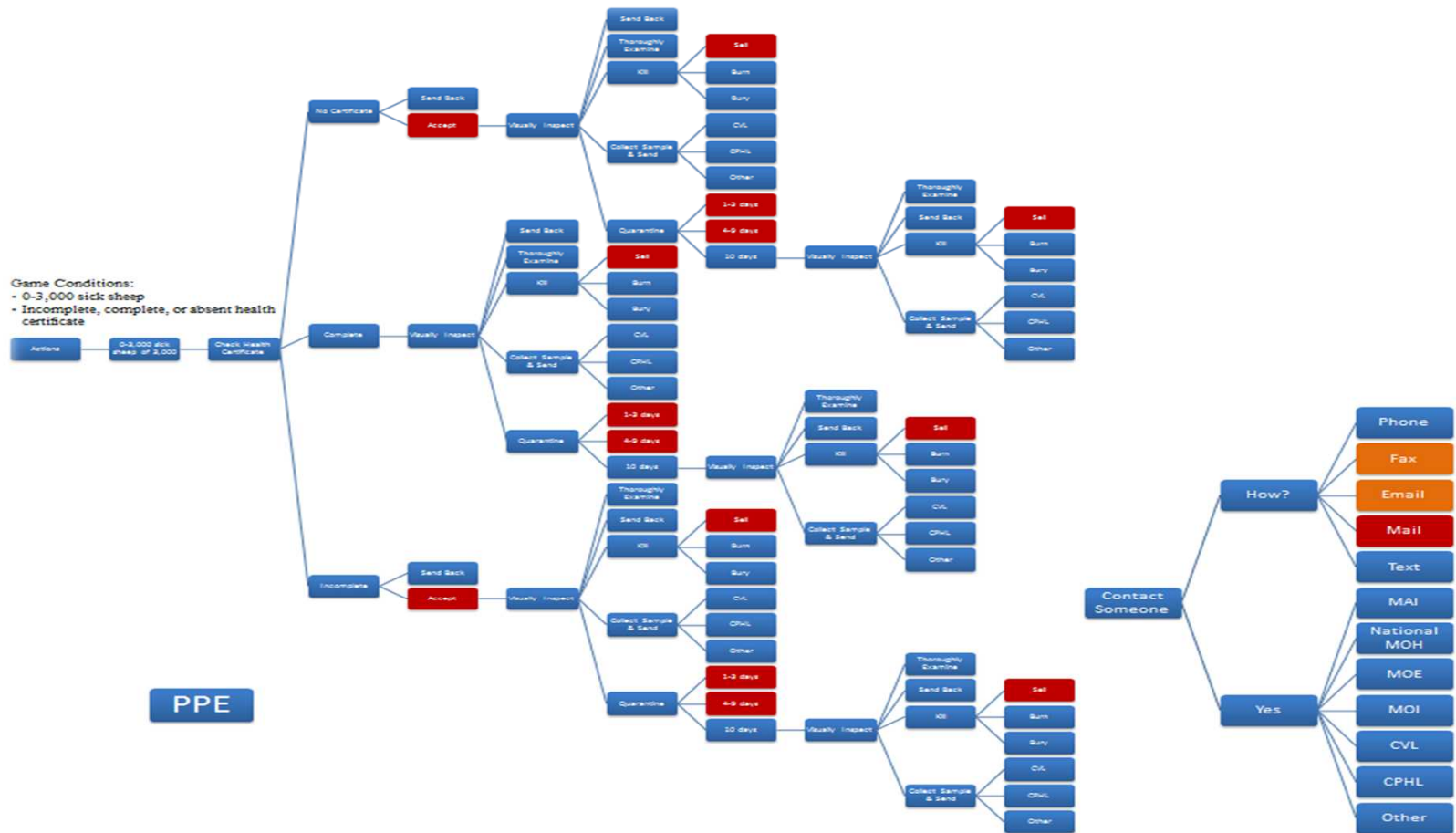
- Tracks key actions & quantitative data
- Relatively low cost
- Increased repeatability and control
- Useful in training, planning & exercise
- High engagement
- Useful for remote activities
- Safety
- Easily adaptable to All Hazards (CBRNE)
- Online and App- Available anywhere
- Possible to incorporate real-time feedback

IBCTR Tool is unique...

- Multi-player, first person
- Automatic Generation of Evaluation Report (AAR)
- Communication Tracking Tool



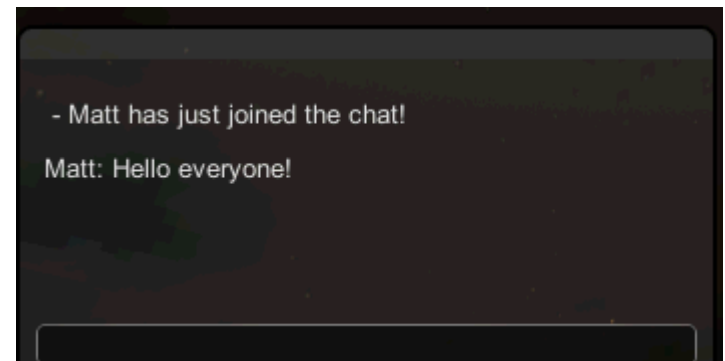
Decision-tree Game development



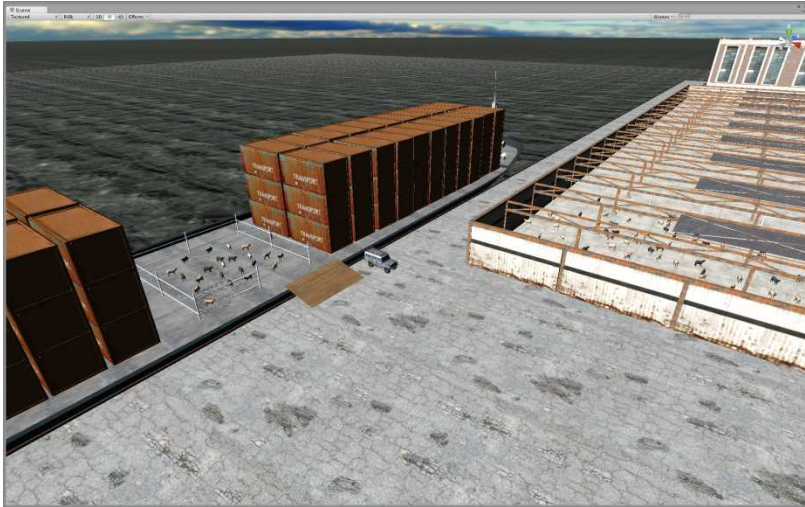


Additional strengths

- Multilingual possibilities
- Multiple environments, multi-player
 - Can be used for cross-training critical for preparedness
- Easy to modify scenarios, decision trees
- Tracks PPE choices throughout
- Multiplayer continuous chat
- Local/Wide Area Multiplayer



Simulates multiple roles, environments



IBCTR BCR Tools

Planning

- Scenario-based Plan Development Workshops
- SOP workshops
- Multiyear Strategic Planning Workshops



Exercises: Evaluation & Validation

- PREP– virtual simulation and web-based TTX
- Unique AAR approach utilizing participatory-based qualitative methods
- Discussion-based Table-Top Exercises
- Operations-based Exercises & Drills

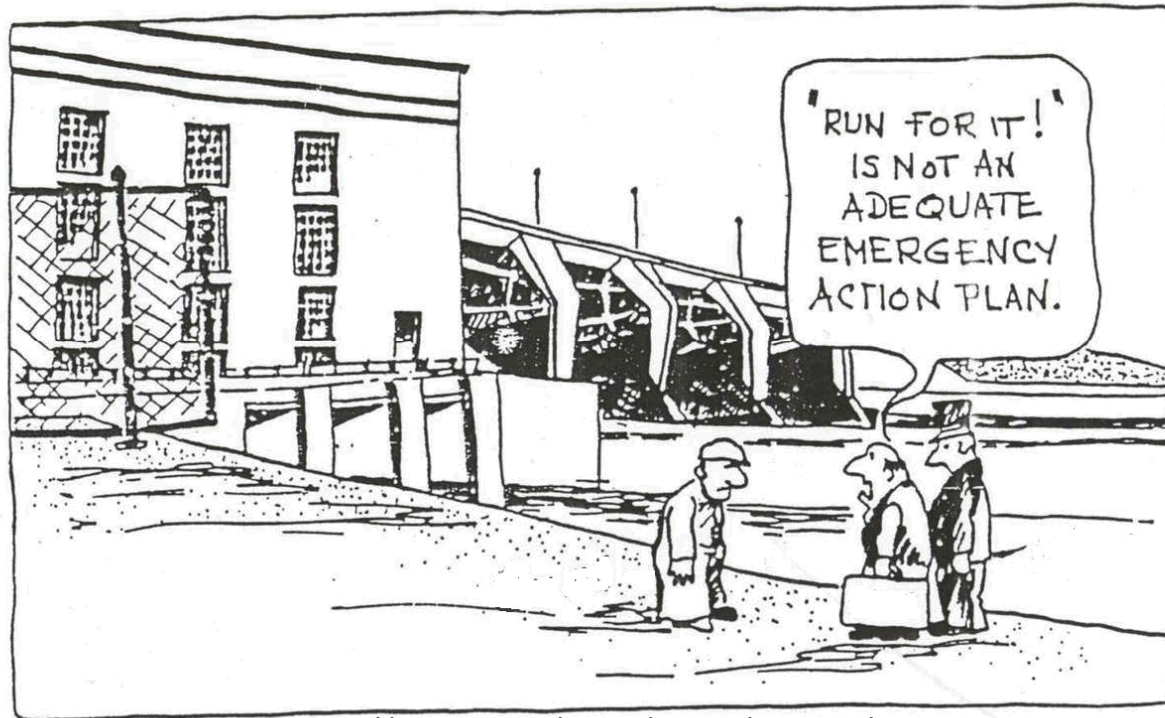
Training in BCR

- First Responder
- BCR Leadership training to build in-country capabilities

Self Assessment



Questions?



<http://dnr.wi.gov/topic/Dams/images/cartoon.jpg>

Acknowledgements:

Julie Wilder PhD, Sandy Sanzero PhD, Todd Noel, Kassie Serna