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# ***Aerospace Medicine Summit***

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*Forward Together*

## **Strategies for PHE Preparedness**

Mar 2019



Col Dan Murray, MD, MPH, aFASMA  
Master Clinician, Travis AFB



# *Overview*

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- **Disclaimer**
- **There I was...**
- **ICS 201**
- **PHE Phased approach**
- **Intel Trigger**
- **Host Nation Collaboration**
- **The Disease of Fear**
- **Summary: Yoda's Method of Preparedness**
- **Questions**

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# *Disclaimer*

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- Will be speaking in generalities from a largely US Air Force perspective, but my opinions are my own not the USAF's
- No conflicts of interest to divulge



# *There I was...*

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## Successes

- Built a PHEWG
- Reduced plan size by 150pgs
- Reconfigured the response paradigm—EM wins AF award
- Prevented real world impact to 24/7 operations area
- 91% of available base population vaccinated with Flu vaccine in one day (16Hrs)

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*There I was...*

Lesson One: Be Bold



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Lesson Two: There is much to learn...for everyone



## Lesson Three: Perseverance is key





# *Spangdahlem*



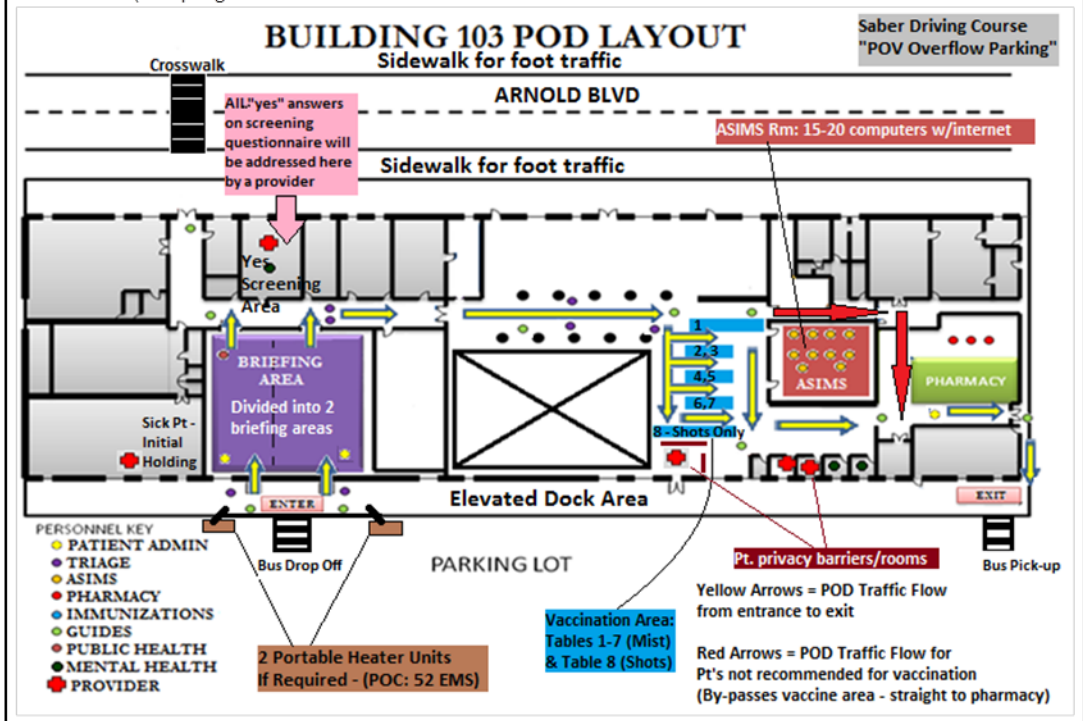
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# ICS201 Layout

1. Incident Name: Saudi Flu Exercise/Real World POD	2. Incident Number: POD-1	3. Date/Time Initiated: Date: 16 Oct 2013 Time:
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4. Map/Sketch  
The Primary POD (COA #1) that will be used for this Saudi Flu Response Exercise / "Real World" Flu Vaccine Point of Dispensing (POD) event will be Building 103 which is typically the facility used for base deployment/reintegration events. The facility has many positive factors such as space for processing and briefing large groups, one-way traffic flow (crowd control) design and support space for provider satellite offices and computer hook-ups. It is also located on a main route (on Spangdahlem AB).



The alternate POD locations (COA #2) would be the – "Old Base Gym/Theater" and the (COA #3) "Hangar #1 and/or Tents". Tents if used would be set-up in a location TBD.

5. Situation Summary and Health and Safety Briefing

EXERCISE EXERCISE EXERCISE

**Trigger Event:** Intelligence; Increased number of cases of Saudi Flu in Saudi Arabia, UAE and Iraq over last 2 months. Small number of cases in Italy (3; 2 deaths), Great Britain (2; 1 death), France (3; 1 death) (see summary below). All had recent travel to areas of interest. CDC states that mortality is dropped to <1% if Tamiflu is administered in the first 6hrs after initial symptom of fever (temp > 100.4F (98OC)). Investigational vaccine has been developed and is effective at reducing transmission. No cases reported in Germany as yet. WHO has not declared this a Public Health Emergency of International Concern (PHEIC) as of yet. This is a disease of Military Concern not a Public Health Emergency in USAF. DoD has directed all EUCOM bases to conduct a POD for distribution of vaccine and Tamiflu within 30 days to ensure Force Health Protection.

**Clinical Description:** H7N7 - Flu-like illness progressing to Adult Respiratory Distress Syndrome (ARDS).  
Expected Mortality Rate: ~50%      Expected Infection rate: Unk

**Number of Confirmed Cases:** Saudi – 500 (200 deaths); UAE – 100 (60 deaths); Iraq – 140 (73 deaths)



# ICS201 Situation

## EXERCISE EXERCISE EXERCISE

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**Population at Risk:** All; particularly immunocompromised; medical and first responders; Child care workers/educators; grouped housing (i.e. military barracks).

**Mode of Transmission:** respiratory droplet and contact with contaminated surfaces

**Incubation Period:** 2-10 days

**Natural Course:** 10-14d course: Sore throat, fever, dry cough, shortness of breath, pulmonary edema --. Death without adequate treatment in ~50% of infected persons; otherwise recover without incident.

**Case Definition:** Sore throat, fever, dry cough with “batwing” perihilar infiltrates on CXR

**Laboratory Diagnostic Criteria:** Viral culture takes 10d to two weeks for definitive. Nasal washing helpful but not specific.

**Surveillance/Detection Methods:** ESSENCE in PH, provider reporting, German PH department

**Effective Infection Control Measures:** Hygiene; Social Distancing; Isolation; Quarantine; PPE for medical/first responders-N95 mask optimal but regular surgical mask may be used if N95 not available; Vaccination (investigational); Medical treatment (Tamiflu); Avoidance of sick persons

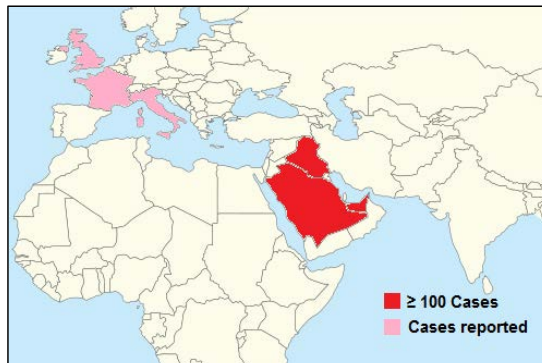
**Other protective measures:** Cover cough with elbow; sanitize common areas frequently with CDC recommended Lysol product; frequent hand washing or use of alcohol based hand sanitizer; stay at home if you are sick.

**Action:** Based on Phase 1 of Disease Containment (Intel Trigger) the DoD has directed all EUCOM bases to conduct a FULL SCALE POD (Point of Dispensing) for distribution of vaccine and Tamiflu within 30 days to ensure Force Health Protection.

### Additional consideration for Spangdahlem based on Exercise threat:

H7N7 is a disease of military concern - Expected Mortality Rate is 50% - potential exist for mission impact if cases occur. It is not currently declared a Public Health Emergency in USAFE. Currently there are no known cases in Germany. Cases and deaths have occurred in: Italy, England & France. Spangdahlem has military, civilians and local nationals that travel frequently to Italy, England and France. 100's of cases and multiple deaths have occurred in: Saudi Arabia, UAE & Iraq. Spangdahlem has personnel that travel to/from military bases in Saudi Arabia & UAE – highest frequency is from Al Dhafra AB in UAE

### EXERCISE, EXERCISE, EXERCISE – “H7N7 Global Spread – Status Map”



#### Exercise, Exercise, Exercise map info:

Breakdown of H7N7 “Saudi Flu by Country  
(Current as of 10 Oct 13 – cases all within 2 months)  
MIDDLE EAST  
- Saudi Arabia: 500 cases/200 deaths  
- Iraq: 140 cases/73 deaths  
- UAE: 100 cases/60 deaths

EUROPE  
- Italy: 3 cases/2 deaths  
- Great Britain: 2 cases/1 death  
- France: 3 cases/1 death



<b>1. Incident Name:</b> Saudi Flu Exercise/Real World POD		<b>2. Incident Number:</b> POD-1		<b>3. Date/Time Initiated:</b> Date: 16 Oct 2013 Time:	
<b>7. Current and Planned Objectives:</b>					
<b>Phase 1 Objectives. Prevention</b>			<b>PHEWG SECTION ASSIGNED</b>		
1. Threat/Hazard/Risk Assessment			PH/BIO		
2. Identify needed response resources and current availability status			ALL		
3. Identify shortfalls and LIMFACs and develop mitigation strategy			ALL		
4. Confirm currency and review existing MAA/MOUs that may be implemented			ALL		
5. Review plans that may be implemented			ALL		
6. Increase appropriate surveillance measures			MDOS/PH		
7. Begin to implement appropriate infection control measures			ALL		
8. Identify training deficiencies and perform "just in time" training/education			ALL		
9. Ensure reporting capabilities are in place			ALL		
10. Consider Public Risk Communication message			PA/PHEO		
11. Ensure Recall/Mass Notification process ready to execute			ALL		
<b>Operational Objectives:</b>					
A. Identify and neutralize the risk of transmission from the first case ASAP when it becomes an imminent threat to the base/population					
<b>EXERCISE Objectives</b>					
A. Demonstrate the ability to exercise the DCP by executing a Real World POD on 16 Oct IAW the exercise message.					
B. Demonstrate ability to provide real-time unit vaccination status updates.					
C. Offer Flu vaccinations at the POD to all MTF beneficiaries.					
D. Capture lessons learned from the POD in this document (via Hotwash POD leaders; PHEWG; monitoring feedback on Facebook other "HUMINT" sources).					
<b>Tactical POD Objectives</b>					
A. Maintain patient and provider safety throughout operations					
B. To meet operational objective: Conduct surveillance for disease real time on all processed personnel and limit the risk of transmission with infection control measures					
C. Administer Flu vaccinations at the POD to 90% of available 52 FW AD Military Personnel.					
D. Process personnel at a rate of 750/per hour through the POD.					
E. Develop means to provide real-time unit vaccination status updates.					
<b>Time:</b>		Action/strategies/tactics for execution of objectives:			



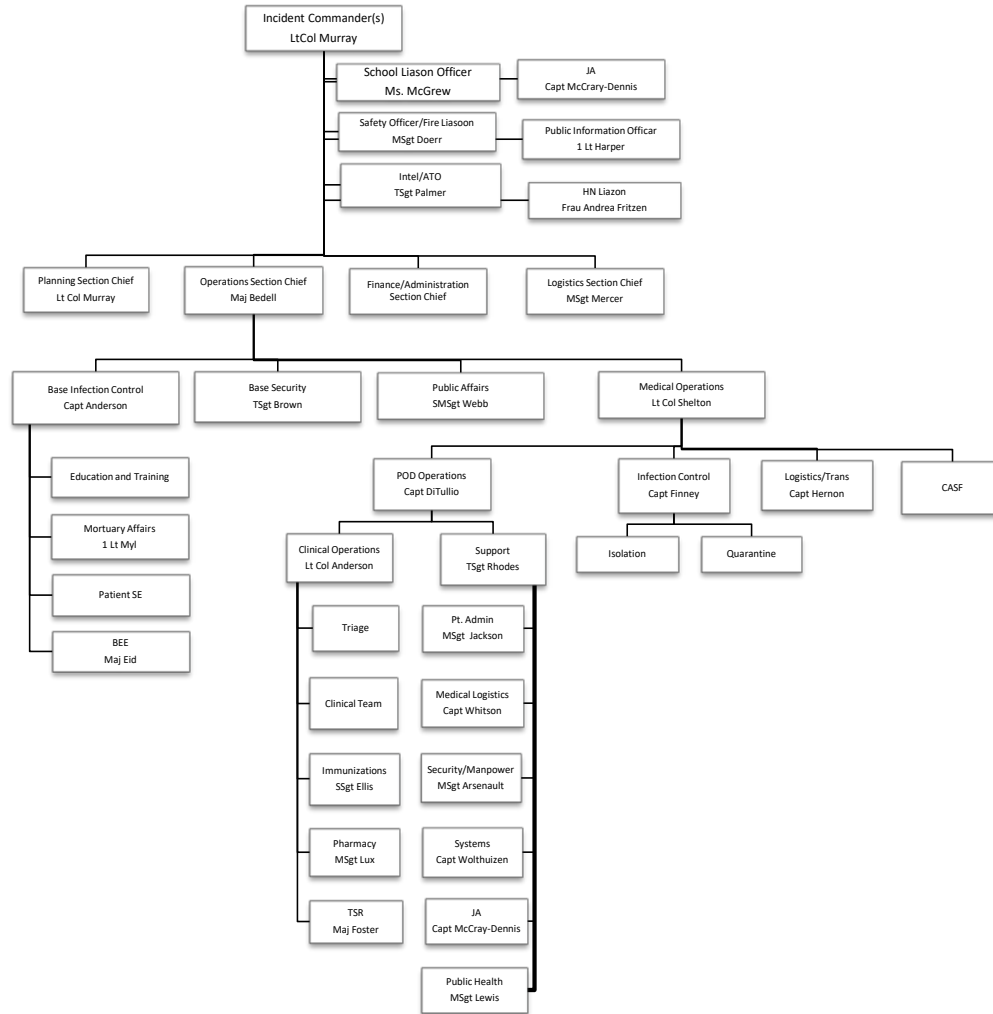
# ICS201 TTPs

Sept 2013	<p><b>Strategy:</b> Activate the Public Health Emergency Working Group (PHEWG) to address the above PHASE objectives and function in a threat analysis capacity (like a TWG). Take specific actions for each objective and provide recommendations for base disease containment based on threat.</p> <p><b>Objective Tactics:</b></p> <ol style="list-style-type: none"> <li>1. Threat analysis was conducted using a specific spreadsheet listing the threats/hazards. These threats led to a need for further information about current travel of base personnel to affected areas to clearly define the risk. Coordination of multiple base agencies (OSI, Pax Terminal, OG, Installation Deployment Officer) to quantify risk. <b>NOTE:</b> Understanding of the disease behavior and other specifics (infectivity, transmission, lethality etc) are fundamental to this assessment and were obtained from the CDC website using MERS as the paradigm. Modifications were made to disease specifics to facilitate the exercise (more rapid transmission; treatable with Tamiflu and an investigational vaccine available)</li> <li>2. Status of resources to respond were gauged by each PHEWG member for both POD development and should the situation advance to a PHE. Specifically quantity and availability of medication, vaccine, PPE, infection control agents (sanitizers/ hand gel), transportation resources, quarantine/isolation capabilities, preparation of legal documents (PHE declaration, quarantine/isolation notification, SFS ROE, etc.), PA assets/availability/opportunities to produce messaging. These resources were listed in section 10 of this document with assets, capabilities, LIMFACs and support requirements for each listed in the Notes section.</li> <li>3. Mitigation priorities were educate, defend, identify, contain/ intervene and resulted in four operational branches: Infection Control, Base Security, Public Affairs and Medical Operations. <b>Strategies and tactics for each are attached.</b></li> <li>4. MOUs with hospitals were reviewed to ensure that hospitals would receive the index case when identified. DRK was not consulted about transport, but it would be feasible for the 52 MDG to use it's own assets for the transport of this patient with decontamination with Lysol spray and limiting disease spread by masking the patient.</li> <li>5. Plans reviewed included the MCRP and the IDP. DCP is in rewrite due to the fact that it cannot be easily reviewed in these cases (too long and cumbersome).</li> <li>6. Surveillance tactics included the use of ESSENCE, monitoring through CDC website, German PH department liaison, and a proposal to investigate the use of thermal imaging at the PAX terminal to aid in the identification of ill personnel. Also provider education about the disease, case definition, and appropriate assessment was distributed in the MDG.</li> <li>7. Infection control tactics are listed on the attached.</li> <li>8. Training deficiencies identified included N95 mask training that was accomplished JIT; provider education on disease; ASIMS education for personnel to man computers; vaccination administration training to expand our capacity. One failure was the education of providers on indications and contraindications of vaccination and standardization of recommendations for evaluation of patients who answered "yes" to some of the survey questions.</li> </ol> <p>Further the PHEWG executes the "planning P" to discuss and plan for the Exercise Threat and Real World POD Event. PHEWG Meetings were conducted on: 6 Sep, 10 Sep, 20 Sep (exercise initiation), 27 Sep (Tactics meeting; COA decision) and 4 Oct (Plan approval) at the Wing IG CR.</p>
Sept-Oct 2013	Respond to Exercise Injects – Task PHEWG Members to Execute the Read World POD Event Planning/Execution measures based on the POD Event Organizational Structure Chart (Included Below)
27 Sep 2013	PHEWG Meeting - Draft POD Plan reviewed (all PHEWG members reported on LIMFACS, Strategies, Capabilities and Requirements). Building #103 selected as the primary POD location.



9. Current Organization (fill in additional organization as appropriate):

# ICS201 Org



6. Prepared by: Name: Lt Col Daniel Murray Position/Title: PHEO/Exercise-POD IC Signature: \_\_\_\_\_





1. Incident Name: Saudi Flu Exercise/Real World POD		2. Incident Number: POD-1			3. Date/Time Initiated: Date: 16 Oct 13 Time:	
<b>10. Resource Summary:</b>						
Resource	POC	Contact Info	ETA	Arrived	Notes (location/assignment/status)	
Incident Commander/PHEO/Planning Section Chief	Lt Col Daniel Murray	452-8256			On Scene IC. PHEWG Chair/PHEO Support Needed: Radio, Comm Plan, Team Leader Staffing Plans, Final 201 plan	
Operations Section Chief	Maj Ren Bedell	452-8303			Onsite Support Needed: Radio, Comm Plan, Team Leader Staffing Plans, Final 201 plan	
School Liaison Officer	Ms Chi McGrew	452-6942			DoDEA School Liaison/PHEWG Representative – Will promote POD Schedule with open hours to teachers, parents and their children. Request that POD have a vaccination receipt that parents, children and teachers can use to prove they received their vaccination as required for employment and school attendance.	
Safety Officer/Fire Liaison	MSgt David Doerr	452-4403			Fire/Safety Rep	
Intel/ATO	TSgt David Palmer	452-6120			ATO Rep	
Host Nation Liaison	Frau Andrea Fritzen	452-8408			Public Health Civilian – Host Nation POC for PHEWG. Will assist with resolving any Flu POD participation/access concerns from Local National Employees – LN Employees receive vaccinations from local providers and cannot be mandated to receive them at the POD.	
Logistics Section Chief	MSgt Gregory Mercer/Capt Herner	452-6008			Transportation – POD Schedule	
Base Infection Control (Primary POC)	Capt Daniel Anderson	452-8427			Infection Control SME for base focused initiatives	
Base Infection Control (Support)	Maj Claudia Eid	452-8348			Bio Environmental Engineering Flight Commander – Assisting with infection control considerations for respiratory protection. Assets: Just in time provider fit testing for respiratory mask/PPE (Ex. N-95 masks). Support for hazard/risk assessments.	
Mortuary Affairs	1 <sup>st</sup> Lt	452-7880			52 FSS/FSOX – PHEWG Liaison Assets: Mortuary Affairs, Lodging (isolation/quarantine needs), food services/options for POD workers and isolation/quarantined personnel. LIMFACS: May have limited isolation/quarantine options	
Base Security (SFS)	TSgt Larry Brown	452-6382			Outside Security	

# ICS201 ACLS



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# ICS201

Includes all created documents and After Action Lessons Learned.

0. Prepare

Planning, Training, Exercising Cooperative activities

DoD Phased Response of Disease Containment

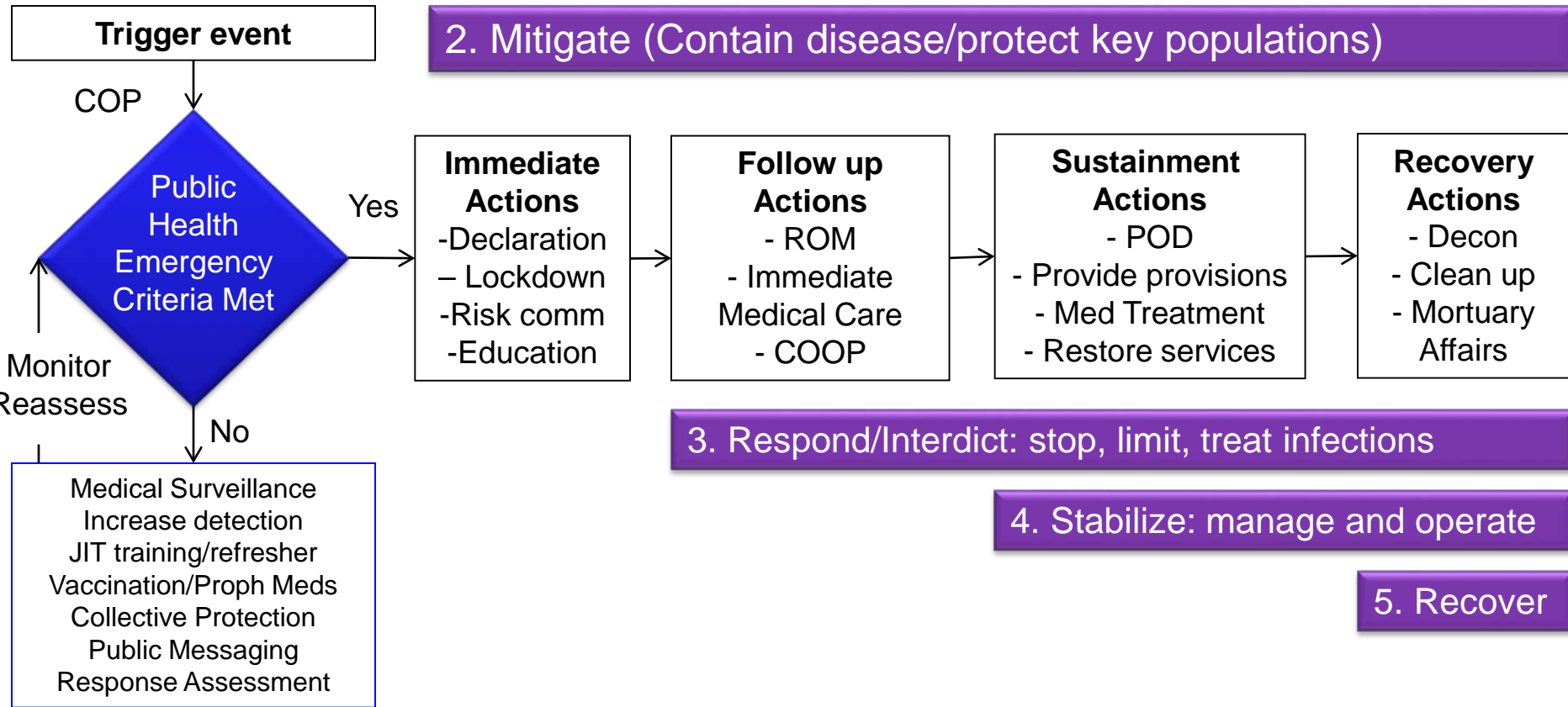
1. Protect (Prevent Infection/FHP)

2. Mitigate (Contain disease/protect key populations)

3. Respond/Interdict: stop, limit, treat infections

4. Stabilize: manage and operate

5. Recover



Incident Level 5 4 3 2 1

HP CON 0 A B C D D C B A 0



# *Phase 0 objectives*

- Adaptive disease containment planning; creating DCP (CONOPS: train, organize, equip), TTPs (WHAT you will do and HOW) and Subject Matter Expert Response Tables (SMERT) books (Assets; Capabilities; Support Req; LIMFACS)
- Routine medical/PH surveillance.
- Engagement in activities to assure and solidify collaborative relationships, shape perceptions, and influence behavior in order to be prepared for a disease incident.
- This phase includes education, training and exercising of the DCP for key personnel, interagency, and other partners/stakeholders-- particularly host nation counterparts.
  - Training PHEWG on roles/responsibilities.
  - IAP planning process.
  - Incident command system and paperwork
  - PHEWG CONOPS and TTPs.
  - Exercises at unit levels and beyond; integrate with host nation capabilities required as part of a response to ensure interoperability.

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# *Phase 1 objectives*

- 
- |   |             |
|---|-------------|
| ■ Risk assessment                       | TWG/PHEWG   |
| ■ Check status of resources to respond  | PHEWG       |
| ■ ID shortfalls/LIMFACS                 | PHEWG       |
| ■ MOUs/MAAs status                      | PHEWG       |
| ■ Review plans                          | PHEWG       |
| ■ Increase surveillance                 | PH/BE/CE    |
| ■ Begin infection control measures      | PH/PHEO     |
| ■ ID training deficiencies JIT training | PHEWG       |
| ■ Reporting capabilities are in place   | ICC/CAT/MCC |
| ■ Public risk communication message     | PA/PHEO/PH  |
| ■ Recall/mass notification              | ICC/CAT     |
| ■ Set Threshold for PHE                 | PHEO/PHEWG  |

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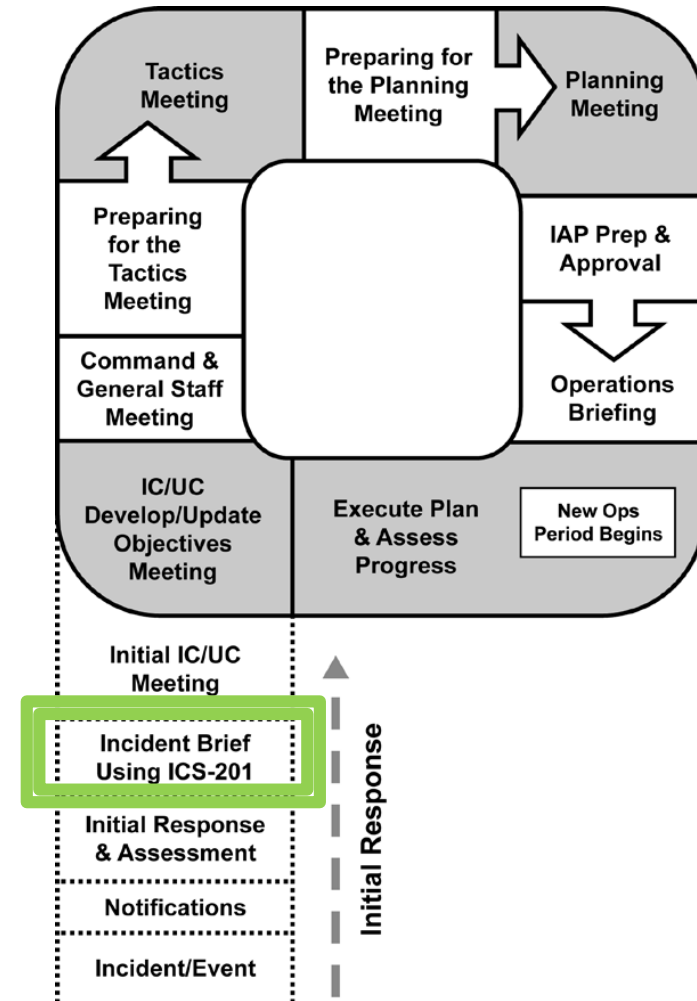
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# Battle Rhythm

- UC Objectives Update Meeting – Time
- Command Staff Meeting – Following
- Tactics Meeting – Time
- Planning Meeting – Time
- IAP Approval Meeting – Time
- Ops Brief – Time



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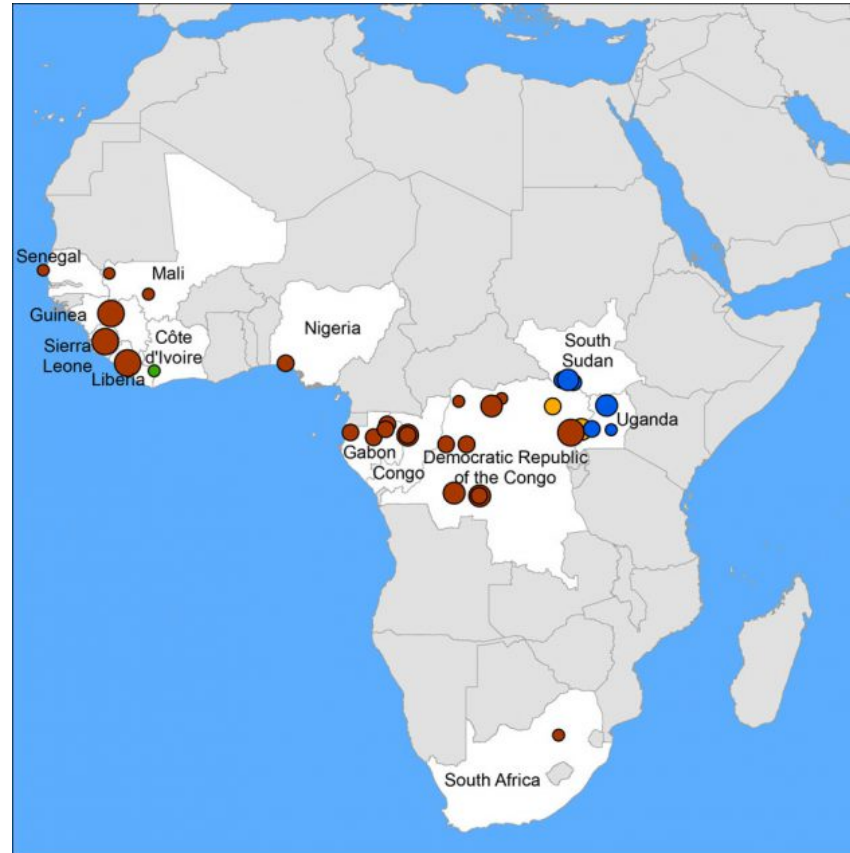


## *Phase 3*

- Risk Communication Message of What is “sick”, reporting instructions, when/where to seek medical treatment. PHEWG/PH/PA
- Establish treatment area for the infected population; for sick but not infected; quarantine of exposed & isolation PHEWG/MCC
- Plan for the removal of dead to limit disease spread PHEWG/FSS
- Prepare Legal documents for Quarantine, Isolation notification PHEWG/JA
- Determine and implement Restrictions of Movement strategy with appropriate Risk Communication message PHEWG/PH/PA
- Prepare for next operational phase; assess/order supplies for POD (SNS?) MCC/PHEO/PH
- Move personnel to quarantine/isolation facilities and arrange for peacetime disaster sheltering support PHEWG/LRS/CE
- Arrange transport/evacuation for critical cases to appropriate definitive care facilities EOC/PHEWG

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**Species**

- Zaire ebolavirus
- Sudan ebolavirus
- Tai Forest ebolavirus
- Bundibugyo ebolavirus

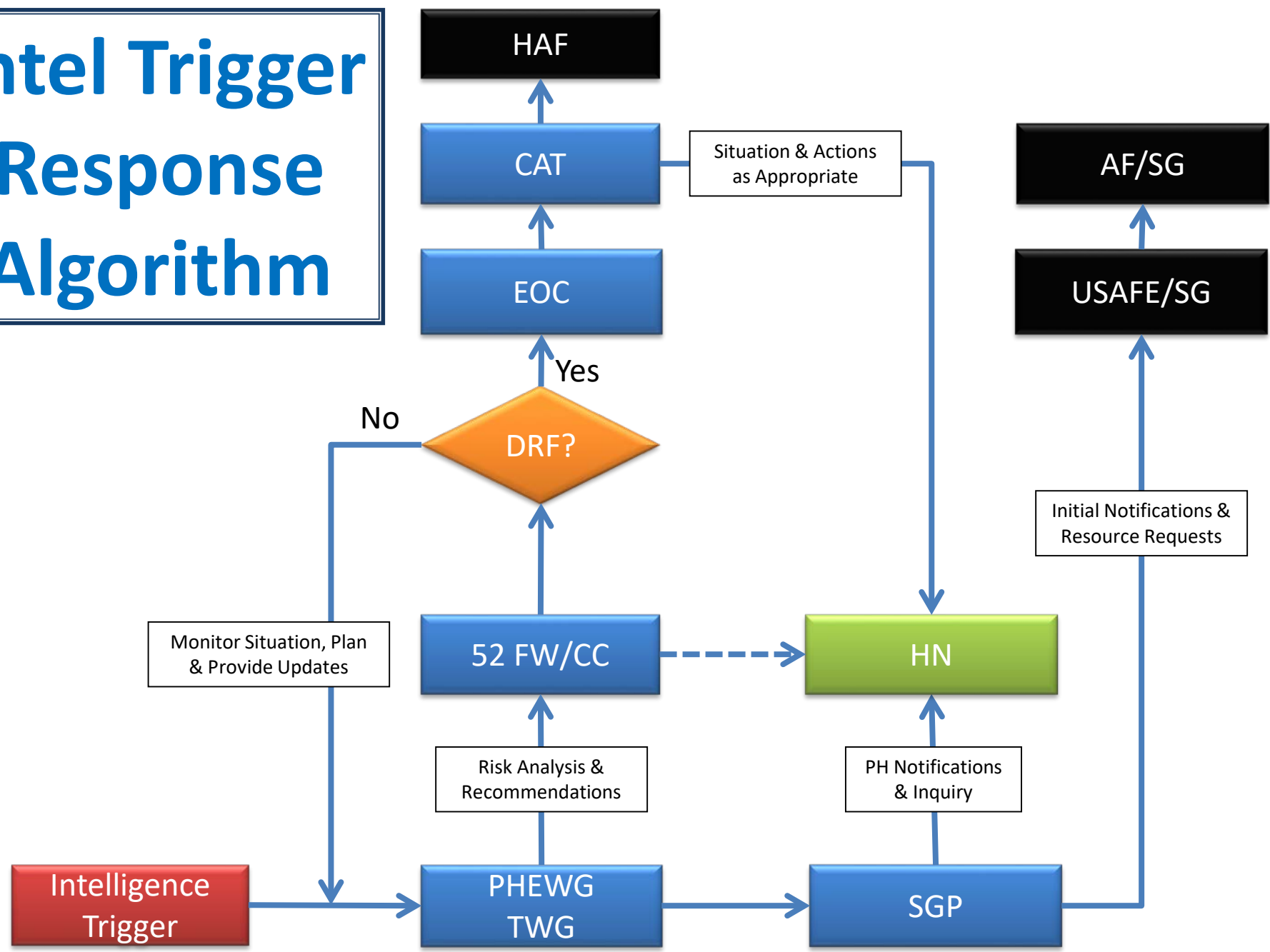
**Number of Cases**

- 1 - 10
- 11 - 100
- 101 - 425
- Greater than 425



0 250 500 1,000 Miles

# Intel Trigger Response Algorithm





# *Host Nation Collaboration*



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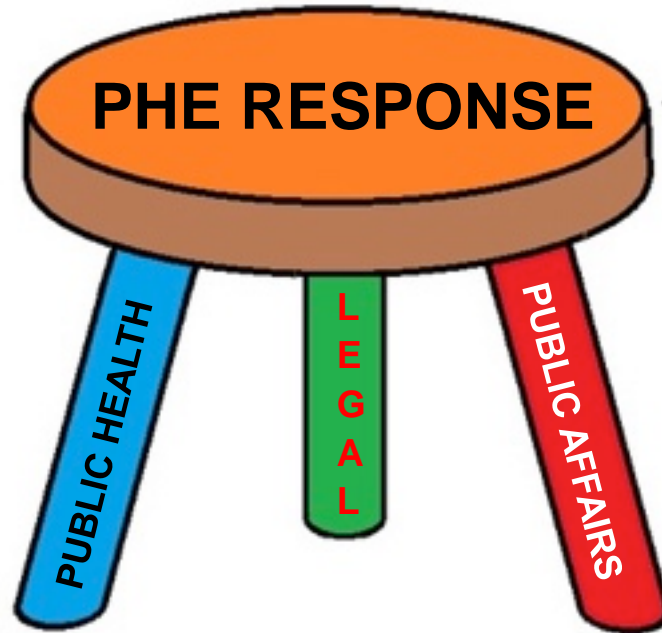
# *Spangdahlem Exercise*



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# *Lesson Learned*

Lesson Four: Fighting the FEAR of the disease will take more resources than the disease itself





# *Lessons Learned*

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Lesson Five: You may not be able to kill the crazy—even in your own team



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# *Lessons Learned*

**Lesson six: You can leverage the crazy. Just don't feed it!**



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# *Yoda's Method of Preparedness*

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1. **Take a PROactive role**
2. **Get Smarter/Build a Team**
  - **Organize/train/equip a Cadre of Subject Matter Experts (PHEWG)**
  - **Know your ACLS (Assets, Capabilities, LIMFACs, Support Req)**
  - **Know/Use the Incident Command System—even NATO uses it**
3. **Get Ready**
  - **Make an EXECUTABLE CONOPS (NOT A PLAN)**
    - **An Indecent Action Plan (IAP) requires an incident**
  - **Analyze your environment for threats: does your ACLS match?**





# *Yoda's Method of Preparedness*

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## **4. GO!**

- **Test the CONOPS through exercises of highest risk/highest probability threats**
  - **Realistic!**
  - **Expanding series**
- **Use the ICS paperwork to create a specific Incident Action Plan for specific threats**
- **Revise the plan/CONOPS based on lessons learned**

## **5. Reassess and Repeat based on threats**

- **Respond to smaller real world threats to keep skills sharp!**

My dad encouraged us to fail. Growing up, he would ask us what we failed at that week. If we didn't have something, he would be disappointed. It changed my mindset at an early age that failure is not the outcome, failure is not trying. Don't be afraid to fail.

— *Sara Blakely* —

AZ QUOTES