



INSTITUTE FOR DEFENSE ANALYSES

**Use of Metadata in the Collection and Assessment  
of Medical Exercise Observations**

Julia K. Burr

May 2018  
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I N S T I T U T E F O R D E F E N S E A N A L Y S E S

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Institute for Defense Analyses  
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May 2018

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Introduction—my relevant experience:

- Exercise lead for US-led Smart Defence project on bio-responsiveness
- Lessons learned lead for Clean Care 2016
- Lessons learned lead for bio component of Vigorous Warrior 2017

Brief description of IDA

- Federally funded research and development center located in Alexandria, Virginia
- Established in 1956 to provide DoD with objective analysis of national security issues and challenges, particularly those requiring high-level science and technology expertise

Note disclaimer

## **IDA** | What are Metadata?

- Metadata are tags and keywords that describe observations
  - Date, time, location, event
  - Subject, content
- MILMED COE LL Branch staff assign metadata to collected observations to:
  - Correlate observations from different sources/events
  - Identify patterns
  - Support development of lessons Identified
- Metadata can also be a powerful tool to support exercise objectives
  - Allow course correction during exercises
  - Facilitate targeted collection of observations
  - Support top-level analysis of observations as a component of exercise evaluation, concept development and experimentation, etc.

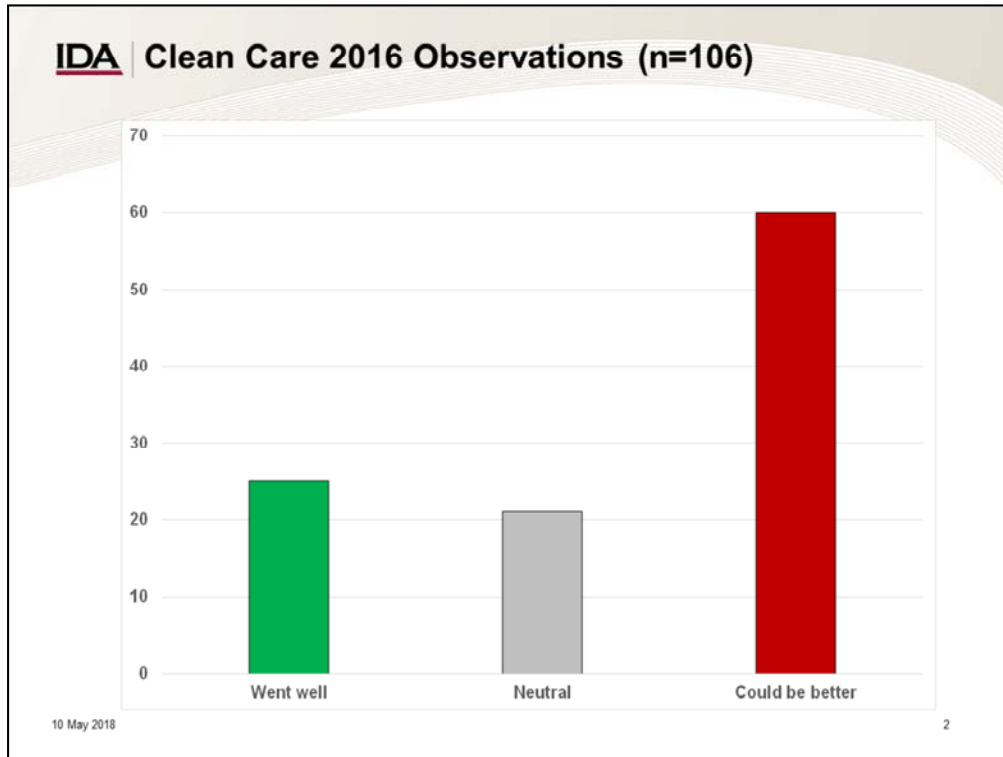
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Define metadata to start

Plan to show some examples, starting with Clean Care 2016

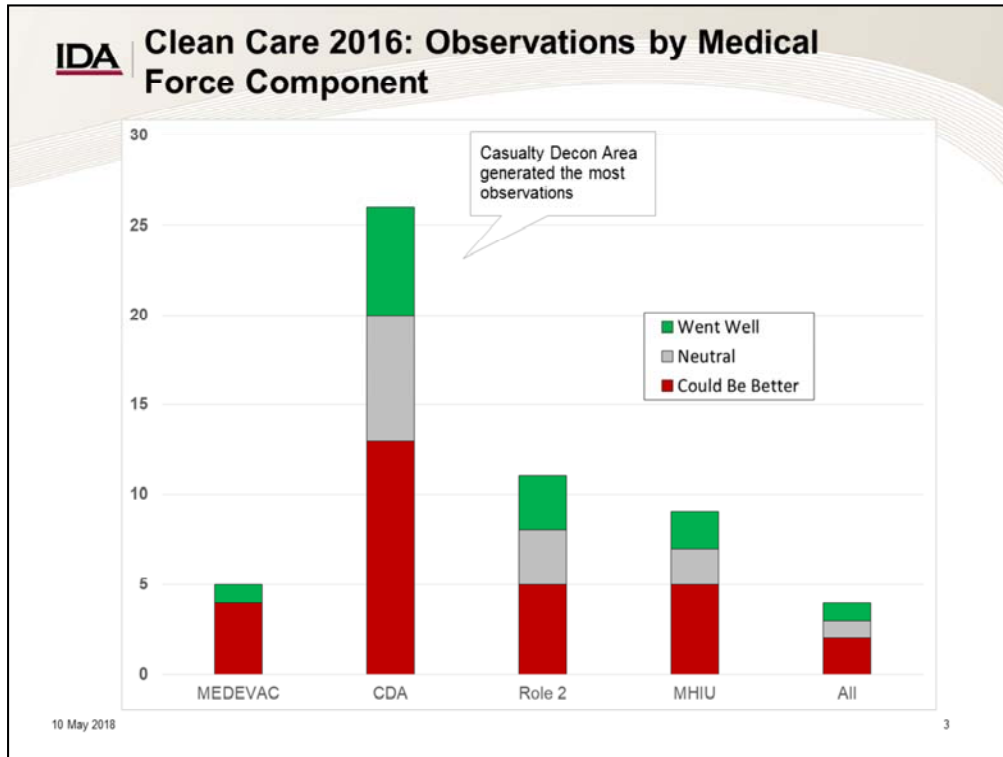
As I walk through those, ask audience to consider what types of metadata fields would be most useful in a CIV/MIL context, and how it could be used—since CIV/MIL interactions will be part of medical experimentation in Trident Juncture this coming fall, and in the next Vigorous Warrior exercise. I would very much appreciate the thoughts and advice of this group on those questions.



Clean Care 2016 was a CBRN medical exercise held in September, 2016 in Tiza, CZE, with participation by CBRN defense units. It generated 106 separate observations over five days, submitted in either paper form or electronically.

In addition to the standard Observation, Discussion, Conclusion, and Recommendation sections, we asked those submitting the observations to provide the date, location, event or inject if known, and to note whether the observations reflected something that went well, was neutral, or could be better.

Here, this very simple cut shows that just about 60% of observations noted things that could be better, which is not surprising given that identified problems are generally more motivating for submission of observations than are best practices.



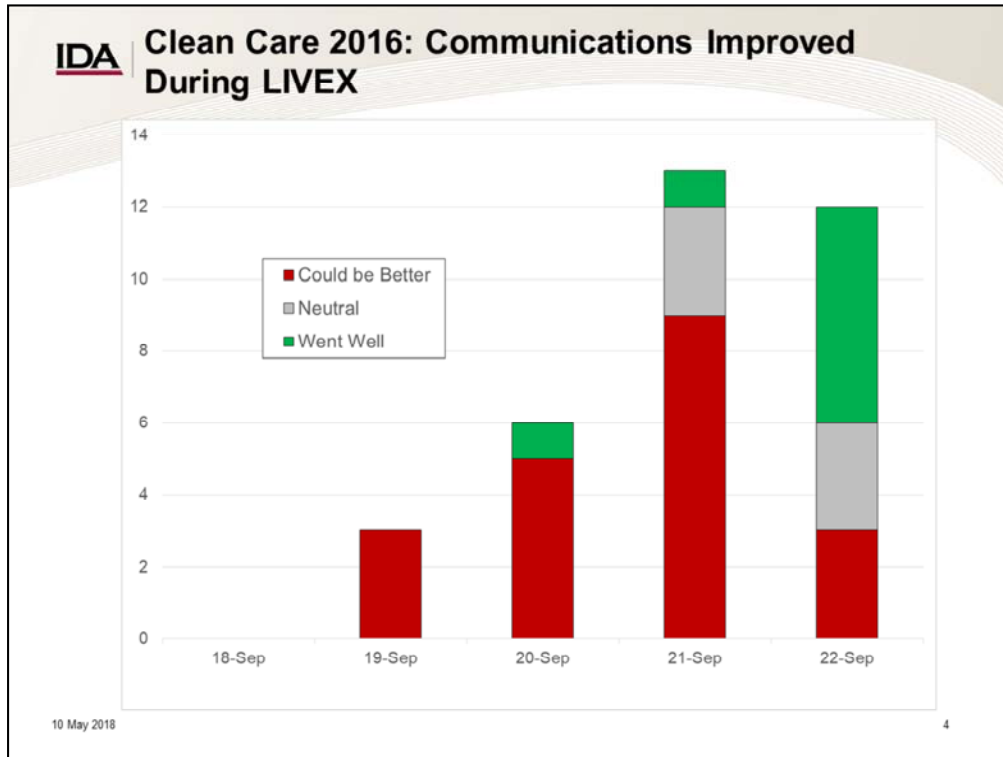
Now, we can add in some metadata tagging and look at the observations by medical force component.

MEDEVAC= Medical evacuation

CDA=Casualty decontamination area

MHIU=Mobile hospital isolation unit

We can see that activity at the casualty decon area generated more than twice as many observations as any other component of the training audience. What was particularly interesting about this to those of us on the core planning team was that the CDA was the primary geographical point of interaction between the CBRN medical and CBRN defense forces. Since one of our main exercise objectives was to train interoperability between these units, we saw the fact that this was the hub of observation-generation activity really validated the need for this kind of training.



The last point I wanted to make about metadata in Clean Care is that we were able to use it as a feedback tool during the exercise to trigger some additional instruction, to adjust some exercise TTPs, and to add points of emphasis for observer trainers.

Communications issues seem to be an ongoing problem in exercises, especially in a multinational environment where there are some language barriers and variations in national procedures. In Clean Care, this was very evident in casualty handover, where information about the casualty and any first aid or treatment received did not—at first—travel with the patient very often. Over the first couple of days of the exercise, we in the lessons learned team noticed that this issue was recurring consistently, communicated this during our end-of-day brief, and as a consequence, the EXCON staff added a training session on the third day to address the issue. As you can see, on the final day of the exercise, this area had improved significantly, and this improvement was not lost on those who provided related observations.

# IDA | VW17 Bio-responsiveness ODCR Form

**EXERCISE VIGOROUS WARRIOR 2017 OBSERVATION DATA COLLECTION FORM**  
CLASSIFICATION: UNCLASSIFIED

ACTIVITY: EDW17/ Rostock Bio-responsiveness

DATE OF OBSERVATION: \_\_\_\_\_

TITLE: \_\_\_\_\_

Observation: Went well 😊 Neutral 😐 Could be better 😞

DISCUSSION: \_\_\_\_\_

CONCLUSION: \_\_\_\_\_

RECOMMENDATION: \_\_\_\_\_

**LEARNED TEAM USE ONLY**

CONTACT DETAILS (optional but desirable):  
 First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_  
 Rank: \_\_\_\_\_ Service: \_\_\_\_\_  
 Organisation: \_\_\_\_\_ Nation: \_\_\_\_\_  
 E-mail: \_\_\_\_\_

Permission to include contact details in Lessons Identified:  YES  NO

Task	Capability Integration	Modules
Deployed health surveillance	Sample management	Doctrine
Operational epidemiology	Medical evacuation	Organisation
Reach back capabilities	Patrol management	Training & Education
Decision support	Medical countermeasures	CB
Personnel	Medical preservation and control	Material
MO	Health, quarantine, and control	Leadership
Health risk assessment	Sustenance	Personnel
Strategic communications	Contaminated clinical waste	Facilities
CVML, cooperation	Fatality management	Interoperability
Laboratory	Psychosocial support	Forward MED/VAC
Clinical diagnosis		Non-sterile MED/VAC
		Tactical MED/VAC
		Strategic MED/VAC
		Emergency Area
		Patrol history
		Ward
		Medical waste
		Animal care
		Military
		Mental health
		CBM medical support

INITIAL LESSONS IDENTIFIED ACTIONS

Further information required:  Not a Lesson Identified:  Lesson Identified:

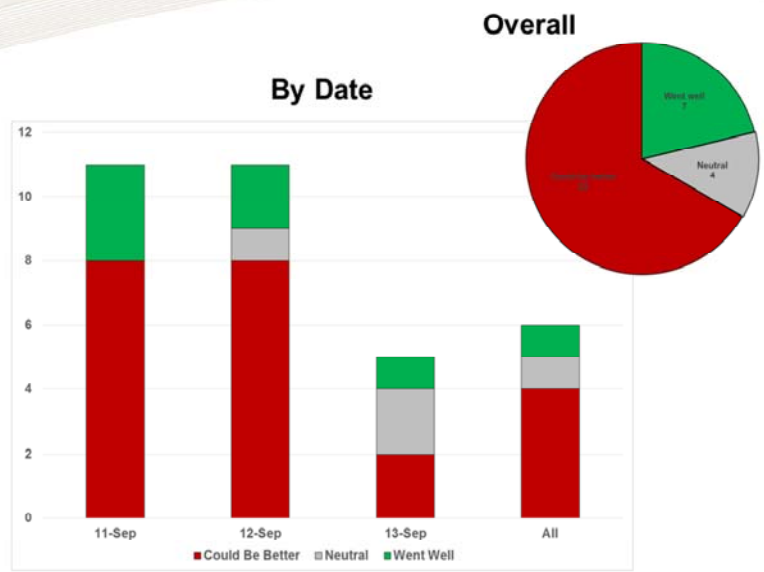
COMMENTS: \_\_\_\_\_

Having experienced the lessons learned process first hand in Clean Care, and found it interesting and useful, I volunteered to be part of that process for the bio component of Vigorous Warrior 17. This part of the exercise was held in Rostock, Germany, in a location separate from the main body of the exercise, and provided a real opportunity to exercise the bio-responsiveness tasks and capabilities that we have identified in the Smart Defense project.

To take advantage of that opportunity, and because of my lessons learned role, I developed a dedicated ODCR form to collect observations that included a list of targeted bio-responsiveness metadata. I included the “went well, neutral, could be better” tags that we used in Clean Care, as well as a list of the participating units. Then I also added the set of bio-responsiveness tasks developed by the SD 1.45 project team, and the related medical modules. Finally, I included the set of DOTMLPF-I domains.

Note that the actual metadata tagging was done by the lessons learned team, and would not require any obligation or effort on the part of the observation submitter. However, in many exercises, observer-controllers/observer-trainers are the primary source of observations, and I’ve come to think that reviewing exercise/experimental objectives and the associated metadata with those folks during the academics portion of the exercise would help focus their observations on the information we are looking to collect.

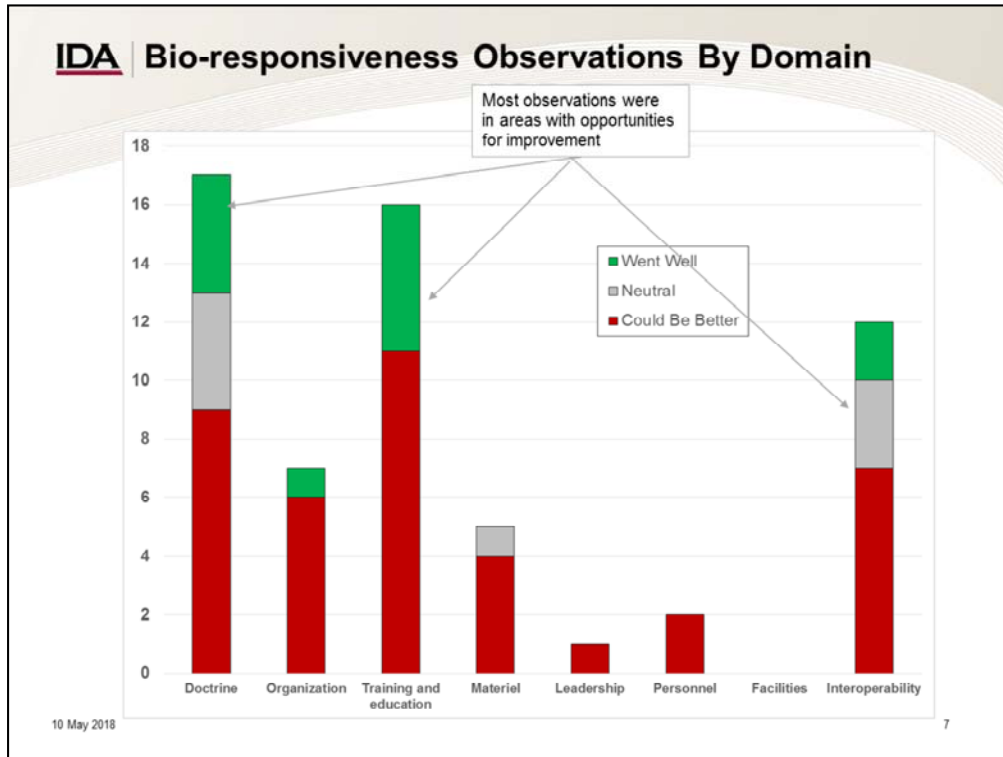
So what did that allow us to do?



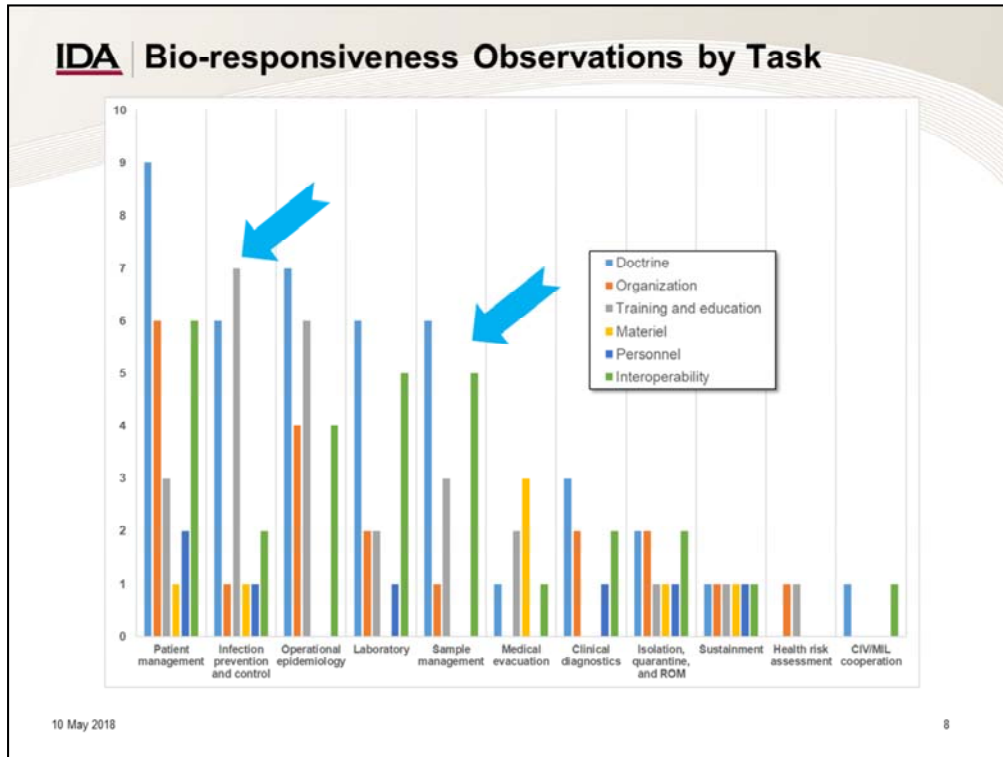
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First of all, the number of observations generated in the bio component of Vigorous Warrior 17 was much smaller than in Clean Care—we only had 33. And as you can see, much like in Clean Care, the majority of observations fell in the “could be better” category.



Interestingly, though, when we looked at observations by DOTMLPF-I domain, we found that a solid majority of them fell into the Doctrine, Training, and Interoperability domains, and very few in Materiel, Personnel, and Facilities. For the Smart Defence project, this is a very good result, as it means there are opportunities for improvements and solutions that don't involve capability development programs or large financial expenditures.



Finally, we then took an even further cut, and looked at the correlation between tasks and DOTMLPF-I domain, which provided us even further visibility into which specific tasks generated the largest number of observations in a specific domain. For example, you can see here that for sample management, doctrine, and interoperability were key issues, and for infection control, training and education dominated.

## **IDA** | Summary

- Metadata has been a useful tool for evaluating exercise observations
  - Allow course correction during exercises
  - Determine areas for continuing/additional emphasis
- Lessons learned personnel should be involved in exercise design
  - Metadata supports exercise and experimental objectives
- For exercises with CIV/MIL interactions as a major component:
  - What are primary exercise objectives?
  - What metadata categories would be most useful to support objectives?
  - What metadata categories would provide the best measure of exercise outputs?

## **Questions?**

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**REPORT DOCUMENTATION PAGE**

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