

March 1, 2011

John Halpin, MD, MPH, CDC/NIOSH  
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Dear Dr. Halpin:

Please find below the responses to the five reviewer questions, as well as two tables, detailing my comments on the NIOSH Emergency Responders Health Monitoring and Surveillance document. Please feel free to contact me regarding any of these comments for clarification or discussion. Thank you for considering these comments.

Sincerely,  
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1. Are the recommendations described in the draft document clearly described and justified with sufficient context and background information?

The two tables following list issues of note. Table 1 refers to contextual issues while Table 2 lists some editorial comments. Location refers to page/column number/and line of text (count does not include lines that are blank).

**Table 1. Contextual Issue Comments for the NIOSH ERHMS Information Product**

Location	Issue	Additional Comments
<p>In Deployment: Comparing 26/2/19 (Section 5) and 33/1/39 (within Section 7/1)</p>	<p>Biological monitoring in section 5 is noted as being "...rarely recommended for clinical assessment..."</p> <p>In section 7.1 it is stated that "...biological monitoring is available</p>	<p>With respect to the issue of biological monitoring, it would be helpful to state at the beginning of section 5 that the need for biological monitoring during deployment should be considered at the start of deployment in consultation with an expert in occupational medicine, toxicology, or risk assessment. The utility of biological monitoring, after exposure to certain chemicals or compounds, to better understand whether a health outcome in emergency responders was associated to a particular exposure, will help in avoiding unnecessarily invasive, long-term health monitoring and surveillance programs if in fact health outcomes are not related to given exposures. Since many of the exposures in an emergency situation might not be known, biological monitoring may be difficult to decide, but this inherent difficulty does not preclude the need for a step to ensure that the need for such monitoring in real time during deployment is appropriately considered for each situation, early on in the response timeline.</p> <p>NIOSH Response: The issue of Biomonitoring is specifically addressed in Section 6 (beginning on page 26). We do agree with this comment, and will make sure the ERHMS document discusses this when discussing biomonitoring in Section 6.</p> <p>These two statements might give contradictory impressions of the utility of biological monitoring. The statement in section 5 would seem to indicate that, from a clinical perspective, biological monitoring need not be considered because it is not thought to be actually that relevant. Perhaps this is an oversimplification due to semantic use of the words "rarely recommended." In the case of metals, for example lead, biological monitoring is part of clinical management, and is an example of a hazard which might be very relevant to emergency responders.</p> <p>The statement from section 7.1, however, might seem to indicate that the reason that</p>

	<p>for some compounds for which dermal contact is the major route of exposure... unfortunately... monitoring methods and applicable biological exposure limits are available only for relatively few agents..."</p>	<p>biological monitoring is not considered, particularly for dermal exposures, is because methods and guidance is lacking, not because of a lack of clinical recommendation for use.</p> <p>I would question both of these implications, if in fact these are what were intended. If both of these statements are meant to say, using different wording, that methods and guidance is not always available, then perhaps that should be stated directly, without the implications for clinical relevance. Particularly given that emergency responders may be exposed to high doses of hazards, from both individual chemicals as well as mixtures, implying that biological monitoring is "rarely recommended" might result in it being infrequently considered, when the decision of relevancy should really be determined for each emergency response situation.</p> <p>NIOSH Response: NIOSH feels that biological monitoring is rarely recommended in the context of emergency response, though does play a crucial role in some other settings, such as workers routinely exposed to lead. NIOSH is currently developing its policy on the role of biomonitoring in emergency response, and the ERHMS document will be updated to reflect this policy once it is completed.</p>
<p>54/1/26</p>	<p>"...it would be optimal for both the social benefits counseling and the mental health evaluation to be done at the same time, by the same professional, to enhance rapport and the likelihood that patients will seek appropriate mental health care..."</p>	<p>This is a complex issue. From a clinical perspective, social benefits and mental health counseling might lead to issues related to conflict of interest on the part of the counselor (if they are a representative of the organization providing social benefits), or to inaccurate reporting of mental health concerns, either volitionally or not, if the report of these concerns are concurrent with a discussion of social benefits.</p> <p>I appreciate the motivation for such a combined approach, as the emergency responder might be more likely to report such concerns if the assessment is done concurrent with a discussion of social benefits and not as an independent session.</p> <p>This proposal, however, might lead to a situation where data collected regarding mental health issues, and the need for referrals for/management of such issues, representing a significant problem for emergency responders, might be called into question by the proximity of mental health assessments to social benefits counseling provided by the same counselor.</p> <p>Also, the issue of expertise of the counselor in both social benefits and mental health</p>

		<p>screening is a question to consider in this paradigm.</p> <p>An initial literature search in PubMed combining “social benefits counseling” and “mental health” yielded two references by Abbot and colleagues [2006: Health and Social Care in the Community 14(1), 1–8; 2003: Health and Social Care in the Community 11(2), 168–174] that discuss benefits counseling in the primary care setting. However, these sources examine welfare benefits for patients in a general care setting in the United Kingdom, and thus may not be relevant. It is unclear what extant body of literature, either clinical or research-based, guided this recommendation.</p> <p>Further, in the United States, this type of work is most often encountered in the worker’s compensation or social security disability arenas. In both of these contexts, counseling of benefits and assessment of mental health concerns are conducted by different individuals with special expertise or appropriate training. Thus, this recommendation may lead to significant confusion and delay of proper management of both social benefits and mental health issues for emergency responders, given that precedent for this is lacking in the literature or in areas where these matters are more often considered.</p> <p><u>NIOSH Response:</u> NIOSH contends that it is important that these two activities be linked in order to optimize the use of mental health options that are available to emergency responders. Will change sentence to read:</p> <p>“Adding social benefits counseling to a mental health evaluation, should the provider have the requisite training, might enhance rapport and the likelihood that patients will comply with recommendations for further <del>appropriate</del> mental health evaluation and care...”</p>
16/1/4	<p>“...is not necessary...” might be too strong of a statement. From a purely evidenced-based perspective, to state this would mean that we have evaluated both a</p>	<p>Would recommend phrasing such as “...is not currently utilized...” This statement is neutral and does not imply a basis on evidenced-based information. In particular, for responders who belong to governmental or volunteer organizations whose primary function is to engage in first responder activities, locality based systems may or may not be redundant. One issue to consider is that of cumulative dose for a given set of exposures for an emergency responder who may have worked at multiple localities across the country. In such a case, disparate monitoring/surveillance systems might not be optimal. Again, however, data to</p>

	<p>national system and a locality based system and deemed that the latter is superior in an objective fashion. Such an evaluation does not exist, and likely will never exist. Thus it would seem such a definitive statement is not optimal.</p>	<p>evaluate this issue is not available.  <u>NIOSH Response:</u> Agree, and will change wording to the commenter's suggestion.</p>
<p>18/multiple locations</p>	<p>Use of the word "centralized" may emphasize a hierarchical component to the IC structure's function in the roster process that may not be consistent with the intent of the discussion of rostering.</p>	<p>Perhaps the use of the word "coordinated" can be considered. This word perhaps will convey that maintenance of a roster for workers from different sources (health care, volunteer, contractors, government, etc.) can be either coordinated by the IC structure or be delegated to employers of workers, as best fits a given situation.  <u>NIOSH Response:</u> NIOSH feels that centralized is an appropriate term to describe a potential option where all roster data is pooled together under the supervision of an ICS component during a response.</p>
<p>28/2/8</p>	<p>Use of the word denominator might be too epidemiologically technical for some target audiences as a significant inducement to collect such data.</p>	<p>Would consider keeping the text in parentheses "...size and composition of population under surveillance..." as the main point, and put something similar to the following in parentheses: "...this is referred to as denominator data and allows a better understanding of the part of the worker group that developed injury or illness and those that did not..."  <u>NIOSH Response:</u> Parenthetical statement explains the term.</p>
<p>28/2/24</p>	<p>"...function was being performed performing when it happened..."</p>	<p>Redundant text requiring clarification  <u>NIOSH Response:</u> Agreed, and will be edited to remove this redundancy.</p>
<p>29/1/first part of paragraph</p>	<p>"Once data are collected, they should be evaluated for quality, coded, analyzed, and</p>	<p>Would rework this to put the purpose of collecting, etc. the data and correct prepositional phrase agreement:  "Once data are collected, they should be evaluated for quality, coded, analyzed, and</p>

	interpreted. Data should be disseminated in concise and easily understood reports, which should provide information that can serve to reduce the risk of future injuries and illness among response workers..."	interpreted. To provide information that can serve to reduce the risk of future injuries and illness among response workers, data should be disseminated in concise and easily understood reports, which should provide information that can serve to reduce the risk of future injuries and illness among response workers..."	NIOSH Response: Agreed, and will make suggested change.
33/1/13	"The limitations of these approaches when interpreting results."	Partial sentence NIOSH Response: Agreed, and will edit to make this a full sentence.	
47/1/30	"...epidemiology and industrial hygiene..."	Would consider adding: "...epidemiology, industrial hygiene, toxicology, and risk assessment..." NIOSH Response: Agreed and will make this addition.	
51/1/29, 40	Use of the phrase Institutional Review Board	I wonder if non-academic/research/health-care or non-governmental audiences would require a short definition. NIOSH Response: Agreed, and will either add into the text, or include in the Glossary.	
51/2/34	Use of the term ascertained	Perhaps a less technical term could be considered, or the concept of case ascertainment defined for non-medical and non-epidemiologic audiences. NIOSH Response: Agreed, and will consider the use of a less technical term	
53/Table 1.	1 <sup>st</sup> and 2 <sup>nd</sup> rows	Would consider including some comment on maintaining privacy/security of records NIOSH Response: The issue of data privacy and security has its own section in this document, beginning on page 13.	

**Table 2. Editorial Issue Comments for the NIOSH ERHMS Information Product**

Location	Issue	Additional Comments
v/2/11	Two partial sentences seem to be present	NIOSH Response: Agreed. Will edit sentence beginning with "Practices such as..."
6/2/26	An incorrect "a" is present	NIOSH Response: Will correct
19/1/6	"...as soon as an exclusion zone..."	"...as soon as an exclusion zone..." NIOSH Response: Will correct

20/1/23	"...and opportunity/collect a health..."	Insert a "to" in place of the "/" NIOSH Response: Will correct
24/1/19	"...tasks..."	I have not done a complete spell check, but this might need to be done. NIOSH Response: Will correct
31/2/15	"...feelins..."	Spelling NIOSH Response: Will correct
32/2/4	"...Time-Weighted-Averages..."	Extra space before "Averages" NIOSH Response: Will correct
34/1/46	"...the kinds of techniques in designing..."	"...the kinds of techniques used in designing..." NIOSH Response: Will correct
35/2/14	"...accessible, aggravate other..."	"...accessible, may aggravate other..." Maybe since the next item on the list uses "can" as the verb, not "may," "may" ought to be stated. NIOSH Response: Will correct
47/1/38	"...aprocess..."	"...a process..." NIOSH Response: Will correct
47/2/26	"...compliance.Final..."	"...compliance. Final..." NIOSH Response: Will correct

2. Will the recommendations, if implemented as presented in the draft, likely protect and/or improve responders' safety and health?

Answer: Yes. The document does present overall a coherent set of recommendations that will likely protect and/or improve responder's safety and health and allow for appropriate guidance for all three phases of deployment. There are enough specific issues that require clarification, however, that might result in some limitations to the ultimate goal of improving responders' safety and health. For specific issues see Table 1 above.

3. Is the guidance organized in a logical and useful manner? Would companion documents, such as an electronic version or training materials, be helpful?

Answer: Please refer to Table 1.

4. Are the recommendations practical and implementable? Are the recommendations sufficiently flexible to allow scalability for different sizes of events and different sizes of response organizations?

Answer: Uncertain.

5. Is there anything missing that should be added to make this document complete? Such as checklists, surveys, and templates in the Tools Section.

Answer: At present I am not aware of any such materials.

Review comments on "Emergency Responder Health Monitoring and Surveillance – Draft 1.2."  
Doug Trout, MD DSHEFS  
2/18/11

This is a great document, I believe it will be a very useful resource. I have a couple comments for consideration.

1. Aspects of pre-deployment screening were a problem for NIOSH Cincinnati during the DH response (and also this would be an important issue for all using your document) and I am not sure this document addresses the root of the problem we faced.

The important points are:

- a. the responder should be physically able to perform the duties to which they are being assigned; and
- b. the health professional performing the screening must be provided information {for each responder being evaluated} concerning the expected job duties.

a. The point in a. is directly addressed on page 6, 2.1, 2<sup>nd</sup> bullet, 1<sup>st</sup> sub-bullet. However, that idea is not reflected in the summary information on page 5 (same text is in Exec Summary, p. iii). For example, current text reads:

"Within the framework of an ERHMS program, pre-deployment health screening is intended to establish a baseline physical and emotional health status";

"In addition to providing baseline health information, the pre-deployment screening can serve as an opportunity to assess whether the responder has the appropriate education, training, and experience to perform assigned response capacities"; and

"...a screening exam must at minimum establish whether the responder has the physical and emotional fitness to perform the essential functions of his or her job."

I think in the summary information, page 5, Exec. Summary, and maybe elsewhere it would be important to point out that the pre-deployment screening is more than a baseline, for example

"...a screening exam must at minimum establish whether the responder has the physical and emotional fitness to perform the essential functions of ~~his or her job~~ the job the responder is expected to perform in the emergency setting" and

"In addition to providing baseline health information, the pre-deployment screening can serve as an opportunity to assess whether the responder has the appropriate education, training, ~~and~~ experience and health status to perform assigned response capacities";

NIOSH Response: Agree to first change. Second change seems redundant.

b. And, in order to accomplish this, the point raised in “b” should be discussed in the text (I didn’t see it...) – the health professional doing the screening cannot be assumed to know what the responder will be doing and must be provided adequate information for each responder.

NIOSH Response: Agree, and will add this to the document as appropriate.

2. Consistency of terms to describe “who this document is intended for” – the document clearly defines “emergency responders” on page i , page iii, and in the Glossary. I did not see that defined in the body of the document – your current text is probably adequate and you may have intended this, although for completeness you may want text in the body of the document defining who the document is for. Along those lines, most of the document refers to “responders.” Chapter 9 p. 42 (and corresponding text in Exec Summary) refers to “incident personnel”, Ch. 10 then goes back to responder. Also, for example, p. 27, 6.6 uses the term “incident personnel” Do you intend this...? If they are the same, you might clarify that up front and in the Glossary.

NIOSH Response: Will attempt to use one consistent term throughout the document when referring to emergency responders, which is defined in the opening paragraphs.

3. Same idea of term consistency with the word “tracking” used in Ch . 10 (and Exec Summary) – how does “tracking” compare to your well-defined terms of monitoring and surveillance? (also see below...)

NIOSH Response: Tracking is a generic term we chose to encompass any and all forms of methods to follow the health and safety of responders during and after an event. We can include this term in our glossary to make this more clear.

4. The following is a somewhat academic point for your consideration....

The medical surveillance literature and documents from government organizations (including NIOSH) are not consistent with the use of the terms “surveillance” , “screening”, and “monitoring” (and probably other related terms). Everyone uses different definitions – however, I think this is a problem because when our guidance documents recommend that some entity perform one or more of these activities, we should be accurate in describing what exactly we are recommending. You have obviously thought about this because you have clearly defined “monitoring” and “surveillance” in several places.

Your definition of “monitoring” is clear and makes sense in your document. As I’ve looked into this topic though I’ve not seen “monitoring” defined as you do. You may have based this on other pre-existing medical programs, for example, I see that the WTC program is called a “monitoring” program. The NIOSH RCF Criteria Document, as an example of a fairly recent NIOSH document, is not particularly clear on what “monitoring” is -- in various places it refers to monitoring as “periodic medical evaluation” and also notes that it is made up of “screening and surveillance.”

Overall I think the document uses the terms clearly. If I were starting from scratch on medical surveillance recommendations I think NIOSH should try to start becoming more consistent – (which is not easy because these terms are used ‘all over the place’). For example, I think there would be precedent to have the activities described by your “monitoring” and “surveillance” terms both being encompassed by the term “surveillance”, with the key idea being the longitudinal component and analysis of data/trends/events over time. “Screening” could be defined as you have in your Glossary, with the key idea that screening uses a cross-sectional approach. (Screening data can be used for surveillance, for individuals or groups).

If you’re interested – you’ve probably seen these....

Baker et al [1989]. Surveillance in occupational illness and injury: concepts and content. *AJPH* 79 (Supp)9-11.

Dr. Baker also has a pretty concise terminology discussion in Rosenstock text 2<sup>nd</sup> edition. p. 77  
The best article discussing these terms I think which complements the Baker definitions is:  
Gochfeld M [1992]. Medical surveillance and screening in the workplace: complementary preventive strategies. *Env Res* 59:67-80.

Page 24, last para prior to 6.3 – minor point – I think it is more accurate to say that what OSHA requires and describes as “medical surveillance” is actually “screening” – your definition of monitoring has a longitudinal component (“ongoing”) which I don’t think is present in most OSHA standards – for the most part they require periodic exams but no mention of ongoing analysis, interpretation, etc.

5. Lastly – the document discusses exposure assessment and other issues related to exposure without referring to “hazard surveillance.” The title of the document and the way the term “health monitoring and surveillance” are used in the document imply that this is a health-related document and that the surveillance being referred to is health/medical surveillance. The document presents important text concerning exposure assessment - I am wondering if text should be added to ? Foreword, Exec Summary, beginning of Chapter 7...? just to provide a couple of “big picture” statements concerning the importance of exposure assessment (could broaden to include the concept of hazard surveillance) in the overall occupational health surveillance effort. Would the title “Surveillance and Health Monitoring for Emergency Responders” be more complete (and also allow the document to be seen as a resource for those involved with hazard surveillance)?

NIOSH Response: Point well taken, and will look for opportunities to point out the importance of “hazard surveillance” in addition to “medical surveillance”.

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**1. Are the recommendations described in the draft document clearly described and justified with sufficient context and background information?**

The recommendations in the draft document are clearly described and justified with sufficient context and background information. The draft is clearly written with sufficient supporting documents and references. It presents a comprehensive multi-source possible scenarios and tools for the anticipated emergencies.

**2. Will the recommendations, if implemented as presented in the draft, likely protect and/or improve responders' safety and health?**

The draft document presented recommendations and tools for health monitoring and surveillance framework for emergency responders at all phases of a response, including pre-deployment, during-deployment, and post-deployment. The likelihood of success of these recommendations and implementing these tools to protect emergency responders depends on their acceptance by stakeholders and frontline workers; including financial support. I am pleased that NIOSH will present this draft document to the public to receive input prior to submission for National Response Team approval. It is essential that stakeholders and frontline workers furnish feedback on this guidance especially on the requirements to do the pre-placement, screening, long term monitoring, long term surveillance, and the long term adverse effects on employees including financial burden.

**3. Is the guidance organized in a logical and useful manner? Would companion documents, such as an electronic version or training materials, be helpful?**

The guidance organized in a logical and useful manner and definitely companion documents, such as an electronic version or training materials will be helpful.

**4. Are the recommendations practical and implementable? Are the recommendations sufficiently flexible to allow scalability for different sizes of events and different sizes of response organizations?**

The recommendations are more practical and implementable at organizations where regular employment already includes comprehensive training and evaluation (emergency response monitoring and surveillance). There are clear differences in implementation among the following intended users of these recommendations and tools: (1) incident command officials, medical staff, and health and safety professionals; (2) local fire, police, and EMS organizations; (3) state, local, tribal, and territorial health departments; (4) federal agencies; (5) volunteer, non-profit, private-sector, and union organizations; and (6) vendors of responder-specific tools and equipment.

The document mentioned that different users may find individual sections of this document more relevant to their responsibilities or areas of expertise. However, once workers are deployed they are exposed to similar adverse effects; more upfront work is needed to make sure we only deploy employees who have had equal opportunity in training, readiness, and monitoring and surveillance. I encourage all stakeholders and frontline workers to comment on the draft document, so we may better understand how the entire health monitoring and surveillance program, especially long term evaluation, is intended to function.

These recommendations definitely apply more to institutions that deploy or contribute employees infrequently and whose certification or job training programs does not include performing their duties in a disaster zone; despite having had preparedness training. Examples of these employees are; public health professionals ;such as industrial hygienists, epidemiologists, statisticians, or even physicians who have board certification for life and have not practiced medicine for years. These institutions need more guidance and more use for the practical adaptations proposed in the recommendations

**5. Is there anything missing that should be added to make this document complete?  
Such as checklists, surveys, and templates in the Tools Section.**

Confidentiality of the data is a significant concern. Policies and procedures for the monitoring of; privacy, confidentiality, and data security are not established in many institutions who would potentially intend to apply the recommendations developed by the draft guidance. Post-event tracking of responder health is as special concern unless we plan on creating a national registry for major emergency events. Notice that we are still dealing with long term adverse effects of Agent Orange, asbestos, and September 11 exposures until now. I noticed that the document seeks to collect this data; however translating this data into; information, practical actions, and resources to execute findings are not clear.

NIOSH Response: This topic is covered in Ch. 11, Lessons-learned and After-action Assessments.

The delineation and use of; personal and private medical information, life style information, occupational medical information, fitness for duty information, and evaluation information, especially individual monitoring information is not clear. There should be a program administrator and a designated custodian of the data collected, and it should be clear who is allowed access to the data and what the procedure is for granting access to de-identified information. The flow and contents of personal and medical information should be very clear and justified among employee, personal primary healthcare providers, occupational healthcare professionals, fitness for deployment at specific level, supervisor, incident command center, during deployment, and post-deployment. For example, supervisors should only know the categorical level of the employees, not the specific medical or lifestyle information.

NIOSH Response: Point well taken. Will add material to the Data Security and Confidentiality section to reflect these comments and the importance of this issue.

*Ahmed Gomaa, MD, ScD, MSPH*  
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Comments from Amy Wolkin, NCEH:

**Questions for Peer Reviewers:**

To facilitate review of the draft Emergency Responder Health Monitoring and Surveillance document, please address the five questions shown below. The charge to the Peer Reviewers is to objectively review the guidance document to determine whether the information contained in the document is clearly described; the recommended approaches would likely protect or improve responder health; the guidance is organized and presented in a logical and useful manner; and the recommendations are practical and implementable.

1. Are the recommendations described in the draft document clearly described and justified with sufficient context and background information?

It was confusing to read the Pre-event section (pg 18) under the Deployment section. This seems to belong in the pre-deployment section. NIOSH Response: We agree with this comment, and will move or eliminate this section so that it no longer appears in its current location.

The section on What to Do With Data is extremely short (section 6.10); provided this is the most important section of collecting data, it should be more detailed. Give timeframes for how often data should be analyzed and reported, when surveillance should be initiated and terminated, or refer readers to section 8 of the document, which covers communicating results.

NIOSH Response: We agree with your comment and will refer readers to Section 8 for more information about communicating results.

Predeployment data management should give more information on how to actually set up a database that can be deployed in the field. It would be helpful to have examples of tools to use. Rather than specifically laying out the core components of a secure database you should refer people to the organization's information security policies and only highlight considerations that should be made.

NIOSH Response: The ERHMS system is meant to be highly flexible, based on the needs and means of a given responder organization, and thus refrains from being overly prescriptive in its recommendations to allow for this flexibility. We can however possibly provide further tools which can be used to facilitate this process. We would welcome your suggestions.

All 3 stages (pre-deployment, deployment, and post) involve health questionnaires. It should be suggested somewhere in the document, that at least a subset of the questions should all be the same. This way the data can be aggregated and comparable.

NIOSH Response: We agree and will make these edits.

Section 10, uses post-event monitoring, surveillance, and tracking interchangeably. At Section 10.4, unclear if ERHMS is suggesting a new idea (monitoring and surveillance) or expanding on tracking. Should be consistent with terminology.

NIOSH Response: Will try to clarify our terminology, and will incorporate links to our glossary so that these terms can be clarified by quickly referring to the glossary.

2. Will the recommendations, if implemented as presented in the draft, likely protect and/or improve responders' safety and health?

yes

3. Is the guidance organized in a logical and useful manner? Would companion documents, such as an electronic version or training materials, be helpful?

Organization is logical. I like the split between the guidance and tools section; however, the tools section should be referenced in the guidance section. NIOSH Response: Will look for opportunities to link the guidance and tools sections, particularly when we use an electronic format. An electronic version of the tools would be helpful, particularly if it was a word document rather than a pdf so that people could use the document and not have to create theirs from scratch. NIOSH Response: We plan to have an electronic version of the overall ERHMS document in the future, including electronic versions of the Tools.

4. Are the recommendations practical and implementable? Are the recommendations sufficiently flexible to allow scalability for different sizes of events and different sizes of response organizations?

I'm not sure if the recommendations are practical. I don't see very many emergency situations where all aspects would be covered. Oil spill is a great example and I think more likely the norm than an anomaly. It does seem flexible; however, since you give several options for accomplishing an objective. One topic that is not covered is establishing who is in charge of each activity and who would cover the cost. While that may be outside the scope of the document, it would make it more practical. It was unclear in some sections who would be leading the effort, either individual employers, government agency, or other personnel.

NIOSH Response: This again is a result of the ERHMS document's attempt to not be overly prescriptive. Each section does however start with a box section which attempts to suggest to the reader both what data will be needed in that section, as well as the likely person or group (typically within ICS structure) who should be responsible for this information.

5. Is there anything missing that should be added to make this document complete? Such as checklists, surveys, and templates in the Tools Section.

no