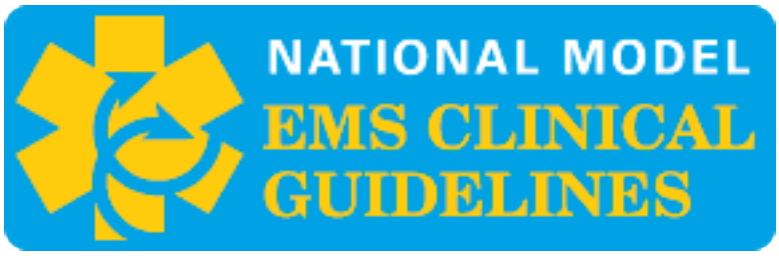
National Association of State EMS Officials



National Model EMS Clinical Guidelines:
An Assessment of a Resource for EMS
December 2016

Model EMS Clinical Guidelines Project Team
Hedges@nasemso.org

Background

In 2014, the **NASEMSO National Model EMS Clinical Guidelines** (Guidelines) were released following the conclusion of a two-year project initiated by the **National Association of State EMS Officials (NASEMSO) Medical Directors Council**. The project was developed to help state and local EMS systems ensure a more standardized approach to the practice of prehospital patient care using the most current knowledge and to encompass evidence-based guidelines as they were developed. The clinical guidelines are meant to serve as a resource for prehospital clinical practice and can be adapted for use on a state, regional or local agency level.

The project was funded by the National Highway Traffic Safety Administration, Office of EMS and the Health Resources Services Administration, EMS for Children Program. Co-principal investigators Dr. Carol Cunningham and Dr. Richard Kamin led a project team (work group) comprised of emergency and other specialty physicians from eight national EMS-related physician organizations in creating the document. Experts from a multitude of specialties provided input and technical assistance in creating the guidelines, and feedback from the EMS stakeholder community was incorporated into the final version. The result was a core set of the most commonly used or essential clinical guidelines.

In 2016, two years after the Guidelines were released, the project team reconvened to review the core guideline set, revise those in need of updating, and develop new guidelines to build upon the original set. The project team has also made a concerted effort to gather feedback on the original guidelines to determine what changes should be incorporated into the next version of the document. This document summarizes the feedback obtained about the original set of guidelines and what recommendations will be considered in the next release.

Who was Contacted/ Methods of Assessing

The audiences chosen to target for feedback about the original set of clinical guidelines were (1) state EMS officials and (2) those who had requested copies of the Guidelines in Microsoft Word, presumably for ease in adapting for their own use. A survey was designed specifically for each group to capture information the project team felt would be helpful in the next phase when revising and adding to the document.

Another measure of determining interest in the Guidelines is the number of times it was downloaded from the project website. While the download frequency yields limited information about whether the document met the needs of the EMS community, it does demonstrate the level of attention and presumably significance.

In the last two months of 2014, the Guidelines were downloaded 1,883 times. Even though it

was not posted until October 23, 2014, it was the 13th most downloaded document in 2014 of documents on the NASEMSO website.

In 2015, there were 7,655 downloads of the Guidelines. It was the 4th most downloaded document that year.

In the first 10 months of 2016, the Guidelines were downloaded 5,897 times and it was the 3rd most downloaded document.

The revised Model EMS Clinical Guidelines document (with an updated resuscitation guideline) was posted in August 2016 and was downloaded 598 times through October 31, 2016.

There was a total of 16,033 downloads, from October 23, 2014 through October 31, 2016.

What We Learned: from State EMS Officials

A request for feedback was sent to all state EMS directors via email with a link to the survey. Forty-two of the 56 state or territorial EMS offices complied with the request, resulting in a 75% response rate. Of the 42 responses, most (29) were from state EMS directors, while 13 were completed by the state medical director designee and 4 were from the deputy director or other similarly-ranking official.

Knowledge of the Guidelines: The first question asked of state EMS officials was meant to determine their level of knowledge about the Guidelines. The Model EMS Guidelines project had been heavily publicized within NASEMSO at its inception, and presented or otherwise discussed several times at NASEMSO and other national and state EMS meetings from 2012 to 2015. However, it cannot be presumed that all state EMS officials were aware of the Guidelines or had taken the time to review them. The question is shown below and included a link to the Guidelines for those with less familiarity:

A-1) Please indicate your level of awareness/familiarity with the NASEMSO National Model EMS Clinical Guidelines released in 2014. For further information, see: https://www.nasemso.org/Projects/ModelEMSClinicalGuidelines/index.asp

- **Answered: 42 Skipped: 0**

Answer Choices	Responses
Prior to receiving this survey, I was unaware of the Guidelines.	**7.14%** 3
I am aware of the Guidelines, but have not had a chance to review them.	**7.14%** 3
I have briefly reviewed the Guidelines document, but have not examined them at length.	**45.24%** 19
I have read through the Model EMS Clinical Guidelines and have a good general knowledge of the document.	**40.48%** 17

Of the three who were previously unaware of the Guidelines, one is a relatively new state director (less than 18 months in the state EMS office), another is a state director who has not attended a NASEMSO meeting and is not active in the organization, and the third is a deputy director with 2 years in a state EMS office. Most (45% of the respondents) indicated they had briefly reviewed the document and another 40% indicated they had read through the document and possessed good general knowledge about it.

Distribution of the Guidelines by States: Those state EMS officials who have distributed the Guidelines were the among the minority with only 14 (33%) of the respondents indicating they had done so. It is not clear why more did not distribute the Guidelines, but it may have been a matter of how the question was phrased. A better question may have been to ask if *information about* the Guidelines had been distributed *or publicized*. No follow up inquiries were included to learn the reason for the low rate of distribution.

A-2) Have you distributed the Guidelines to EMS entities in your state or territory for their own reference and use?

- **Answered: 42 Skipped: 0**

Answer Choices	Responses
Yes	**33.33%** 14
No	**66.67%** 28

Use of the Guidelines: Three questions were asked to learn how many entities made use of the Guidelines. This included EMS services/agencies, educational institutions, regional EMS programs, as well as use by the state EMS offices in developing state protocols. The questions and responses are shown below.

EMS Agencies/Educational Institutions

A-3) Are you aware if any of the EMS agencies/services/educational institutions in your state or territory have used the Guidelines, either as a reference document or otherwise (e.g., educational tool, reference document, agency protocols, etc.)?

Answered: 41 Skipped: 1

Answer Choices	Responses
Yes, all have used the Guidelines in some capacity.	**0.00%** 0
Yes, some have used the Guidelines in some capacity.	**29.27%** 12
I am not aware of any who have used the Guidelines.	**70.73%** 29

It is likely that the state EMS offices would not necessarily know when or how EMS agencies or educational institutions used the Guidelines, thus these responses are not indicative of how widely the document was dispersed. It also helps to explain the high percentage (71%) that were unaware of any agencies or educational institutions who had used the Guidelines.

EMS Regions

A-4) Are you aware if any of the EMS regions in your state or territory have used the Model EMS Clinical Guidelines, either as a reference document or otherwise?

Answered: 41 Skipped: 1

Answer Choices	Responses
We do not have EMS regions.	**19.51%** 8
Yes, all EMS regions have used the Guidelines.	**0.00%** 0
Yes, some EMS regions have used the Guidelines.	**21.95%** 9
I am not aware of any EMS regions who have used the Guidelines.	**58.54%** 24

A-5) Which of the following does your state or territory have with respect to patient care protocols?

Answered: 42 Skipped: 0

Answer Choices	Responses
State EMS Protocols - mandatory	**28.57%** 12
State EMS Protocols - offered but not required (model)	**43.24%** 19
No state EMS protocols	**26.19%** 11

NOTE: The next three questions were asked of those who indicated they had state protocols.

A-6) Has your state or territory incorporated any of the NASEMSO National Model EMS Clinical Guidelines into your state patient care protocols?

Answered: 30 Skipped: 12

Answer Choices	Responses
Yes	**30.00%** 9

No, but we have used them as a reference	**43.33%** 13
No, we have not used them	**26.67%** 8

Statewide Protocols: Of the 30 states with either mandatory or model statewide protocols, 22 of them (73%) indicated they used the Model EMS Guidelines in some capacity when developing or revising their statewide patient care protocols. Only eight of 30 states reported not using the Guidelines. Of the nine states that incorporated elements of the Guidelines into their protocols, most (5) indicated that selected guidelines were incorporated. See below.

A-7) You indicated that you have incorporated elements of the Guidelines into your protocols, please select how the document has been utilized.

Answered: 9 Skipped: 33

Answer Choices	Responses
Adopted in its entirety	**11.11%** 1
Adopted in near entirety with some changes	**11.11%** 1
Adopted as a foundation within a more expanded protocol document	**22.22%** 2
Adopted as a foundation within a shorter/leaner protocol document	**0.00%** 0
Selected guidelines were incorporated into our protocols	**55.56%** 5

ALS / BLS: When developing the Model EMS Guidelines, the project team discussed and ultimately decided not to distinguish between skill level of the provider because of the wide variation among states. It was expected this would lead to some difficulty in adopting the guidelines as presented, as systems would have to determine which skills could be performed by whom. The response to the following question was anticipated (that they would need to separate the guidelines by skill level) but reassuring that so few found it problematic.

A-8) The National Model EMS Clinical Guidelines were developed without regard to the EMS provider's certification or skill level because of variability among states, regions and EMS agencies. Did this one-size-fits-all approach pose a problem for using the guidelines in your state or territory?

Answered: 30 Skipped: 12

Answer Choices	Responses
No	**20.00%** 6

No, but we had to separate the guidelines by service/skill level (BLS/ALS, etc.)	**43.33%** 13
Yes, it made the guidelines more difficult to incorporate into our protocols.	**3.33%** 1
Responses **Other (please explain)**	**33.33%** 10

1. To date, WA has had mandated State Basic EMT protocols, but Advanced protocols are Medical Program Director directed.
2. Our scope is difficult to change and we are working on an adjustable scope from the EMS office
3. Our statewide protocols were very similar to the model guidelines. We continued to use our format for our protocols, which are split by levels of provider. We took some sections of the guidelines that differed from our protocols and incorporated them into our protocols.
4. Protocols adopted at this time are primarily included in our state EMSC protocols.
5. Will need to review.
6. We are currently updating our model protocols using the Nat'l Guidelines as a baseline but incorporating OH specific scope items; we maintain one level for Adult and one specific to Pedi and have a separate EMR model protocol.
7. Our state protocols have not been revised. However, I do know that the EMS Board and State medical director have looked at the guidelines. It would be difficult to incorporate because we would have to separate into 4 skill levels.
8. We have not utilized them.
9. It didn't matter
10. No as we used this document as a model foundation for service protocols. We did, however, develop state protocol for systems of care based on the information found in the document.

The Guidelines document is 288 pages in length. There was concern as it was being developed that it may to be too detailed to be useful for the average EMS provider and would not be suitable for use in the back of an ambulance. The following question was meant to address that concern. The majority of respondents indicated it was "about the right amount of detail." However, there are several comments later in the survey indicating the Guidelines as presented are not practical for use by EMS in the field and suggestions to create two versions—a shorter version and the full-length version for reference.

A-9) Did you find the guidelines to be:

Answered: 41 Skipped: 1

Answer Choices	Responses
More detailed/lengthy than necessary?	**9.76%** 4
About the right amount of detail?	**58.54%** 24
Needing more explanation?	**4.88%** 2
I am not familiar enough with the Model EMS Clinical Guidelines to answer this question.	**26.83%** 11

A-10) The original set of Model EMS Guidelines released in 2014 were meant to be a core set with more to be added in the future. What guidelines do you recommend adding?

Answered: 23 Skipped: 19

1. Excited delirium update. Naloxone update
2. Removal of any mention of auto-injector for epinephrine. There are common sense alternatives.
3. Infection Prevention Protocols. Our state does allow individual medical control authorities to amend the state protocols to meet their jurisdictional needs, but the changes have to be supported by evidence and approved by the State Quality Assurance Task Force.
4. Consider more detailed recommendations on medication especially STEMI.
5. It will be helpful to add additional guidelines to make these as comprehensive as possible, but only when there are EBGs or other information that supports the addition. Would be helpful to have guidelines like Human Trafficking guideline - based upon DHS guidance.
6. Replacing epi auto injectors.
7. Disaster Response / Crisis Standards of Care TECC
8. Triage to include MUCC
9. Induced Hypothermia Post Resuscitation Activase / t-PA IV Transfer MCI / Triage (MUCC Standard and Triage Tag Standard) Amputation (Trauma) Fever/Infection Control? Selective Spinal Motion Restriction
10. "Highly Infectious Diseases" maybe?

A-11) What other changes to the Model EMS Clinical Guidelines would you recommend?

Answered: 17 Skipped: 25

1. Continued refining/development. building of communication platform for users / stakeholders to electronically communicate about the guidelines, implementation, etc

2. I would settle on a base-line set of protocols, with add-ons for more permissive states (e.g., advanced airway should have a base-line minimal, but many states allow RSI, surgical cric, etc.)

3. A standardized dose and therapeutic pearls for all drugs for quick reference. Worth a discussion

4. Removal of any mention of auto-injector for epinephrine 1:1000. Emphasize BLS airway care, and then supraglottic airways for pediatrics as a preference rather than a "consideration" over endotracheal intubation.

5. The EMS Model EMS Clinical Guidelines are a good reference for starting to write protocols and for use as a teaching document, but they contain too much detail to be a practical reference to on duty EMS providers.

6. I like the way they are set up with the references and tips. I also really like the performance measures being included. Keep this format.

7. The guidelines are not field user friendly so they are guidelines there is a lot of massaging and adjusting that needs to go into making them a viable field document.

8. Clearer indication of pediatric specific inclusion (e.g. pain management)

9. The biggest items would be a thorough review/update (...but that's what the project is about...) Suggest that someone compile a list of the big events/issues that have occurred since 2011 (Ebola, narcan, epi-auto-injectors, spinal packaging) More citations and "evidence"

10. I think that the format and content are quite appropriate. We look forward to aligning our model state guidelines with these in the near future!

What We Learned – from those requesting the Guidelines in Word Format

Those individuals who had made a specific request for the Guidelines in Word format (70 requests over the two-year period) were asked to provide feedback as well. These were individuals who were obviously aware of and interested in the guidelines, thus a set of questions was designed for them. At least 11 of the requests were from educational institutions, while the remainder were primarily EMS agencies with a few others (software developers, regional EMS systems, state EMS offices, military EMS). Of the 70 who were contacted by their last known email address, 23 completed the assessment (33% response rate). A small number could not be contacted (emails bounced), while others failed to respond for unknown reasons. Those responses received, however, were complete (very few skipped questions) and provided helpful information. The position and level of clinical training of those responding are shown below:

B-1) Your position within the Organization:

Answered: 23 Skipped: 0

Answer Choices	Responses
EMS Medical Director	**21.74%** 5
Administrator or Training Officer (responsible for Protocols)	**47.83%** 11
Other	**30.43%** 7

B-2) Your highest level of EMS clinical training:

Answered: 23 Skipped: 0

Answer Choices	Responses
Physician	**21.74%** 5
Paramedic	**69.57%** 16
Advanced EMT (or other level between Paramedic & EMT)	**0.00%** 0
EMT	**8.70%** 2
EMR	**0.00%** 0
Responses **Other (please specify)**	**0.00%** 0

Respondents who requested the Guidelines in Word format were more likely to use the Guidelines than not - nearly 70% indicated they had used them. See below.

B-3) Have you or your organization incorporated any of the NASEMSO National Model EMS Clinical Guidelines into your patient care protocols?

Answered: 23 Skipped: 0

Answer Choices	Responses
Yes	**69.57%** 16
No	**30.43%** 7

For those who used the Guidelines:

B-4) You indicated that you have incorporated elements of the Guidelines into your protocols, please select how the document has been utilized.

Answered: 16 Skipped: 7

Answer Choices	Responses
Adopted in its entirety (or near entirety with some changes)	**18.75%** 3
Adopted as a foundation within a more expanded protocol document	**31.25%** 5
Adopted as a foundation within a shorter/leaner protocol document	**6.25%** 1
Selected guidelines were incorporated into our protocols	**43.75%** 7

For those who did *not* use the Guidelines:

B-5) What are the reason(s) that you or your organization has not incorporated the Guidelines into your EMS protocols? (Check all that apply)

Answered: 7 Skipped: 16

Answer Choices	Responses
Satisfied with current patient care protocols	**14.29%** 1
Did not find the Model EMS Guidelines useful for our organization	**0.00%** 0
Unable to overcome barriers within the organization to adopt the Guidelines	**28.57%** 2
Did not like the format of the Model EMS Guidelines	**0.00%** 0
Responses **Other (please explain)**	**85.71%** 6

1. Never really thought about using them.
2. They are very useful as a reference--we worked on a shorter version of the NAEMSO protocols but they were still 'too long' for the rest of the subcommittee.
3. Unfamiliar
4. Working independently on analysis, not with EMS org.
5. Not the intended use - we are using them for initial paramedic education to help students build critical thinking and priority of interventions. We expect they will be working with an assortment of protocols when they are done - these are universally useful so we use them for education. I am not an operations level supervisor and do not have influence at that level.
6. We are purely academic and have no clinical program

The following two multiple choice questions, also in the state EMS officials survey, were asked of those requesting the Word document. The responses were similar in both cohorts. For example, the majority of respondents in both groups did not find the one-size-fits-all approach to be problematic and were able to separate the guidelines into service/skill level (BLS/ALS) if needed. Only a small number/percentage indicated it was problematic. These results suggest there is no need to change this approach. See below (results from state EMS officials can be found on pages 6-7, question A-8).

B-6) The National Model EMS Clinical Guidelines were developed without regard to the EMS provider's certification or skill level because of variability among states, regions and EMS agencies. Did this one-size-fits-all approach pose a problem for implementing the guidelines by your agency?

Answered: 23 Skipped: 0

Answer Choices	Responses
No	**52.17%** 12
No, but we had to separate the guidelines by service/skill level (BLS/ALS, etc.)	**34.78%** 8
Yes, it made the guidelines more difficult to incorporate into our protocols	**13.04%** 3

Similarly, the majority of respondents in both cohorts indicated that the Guidelines were "about the right amount of detail." See below (results from state EMS officials can be found on pages 7-8, question A-9).

B-7) Did you find the guidelines to be:

Answered: 23 Skipped: 0

Answer Choices	Responses
More detailed/lengthy than necessary?	**8.70%** 2
About the right amount of detail?	**73.91%** 17
Needing more explanation?	**0.00%** 0
Responses **Other (please specify)**	**17.39%** 4

1. As resource protocols, they were great. I also like the ones the State of Oklahoma has done. This allows everyone to see the total 'playbook' and source material for the protocol. You may be most successful in creating a companion version that is as lean and field oriented (drop source material, headings, edit down as sparse as possible.

2. Really appreciated the additional Toxin and Environmental guidelines!

3. NA - not consuming guidelines from a direct provider perspective

4. My staff wanted streamlined content for when they were on calls. I liked the full version with rational, guidance, etc.

B-8) The original set of Model EMS Guidelines released in 2014 were meant to be a core set with more to be added in the future. What guidelines do you recommend adding?

Answered: 12 Skipped: 11

1. Sepsis, change ALTE to BRUE, thoracic dissection / aortic aneurysm, COPD / Asthma, CHF, pediatric cardiovascular (PALS), stroke (RACE / NIH).

2. these are pretty good; probably some more on cardiac, mass care, sports injury management at events,

3. Rapid sequence intubation. I understand why it was excluded as something that requires specialty training At least in rural Florida, RSI is a common occurrence when quality hospitals are over an hour away.

4. RSI

5. Sepsis and crush injuries

6. Adrenal Insufficiency; Sepsis/Septic Shock; Febrile Illness; {reference to} National Incident Management System terms/structure with mass casualty triage algorithm(s)

7. Update with the most current cardiac care, trauma care and stroke care guidelines.

8. Medicated assisted intubation.

9. Use of CPAP/BIPAP. Guidelines on uses for other non- pulmonary edema; such as. Pneumonia, COPD, and CO poisoning.

10. Tactical Emergency Casualty Care guidelines and other appropriate guidelines for austere/hostile environments

11. I cannot think of any specific guidelines but I recommend adding the use of ultrasound into the protocols- particularly the FAST procedure. The medications can be expanded to include neuromuscular blockers (Sux, Roc, Vec) and Mark I kit contents

12. We have not found it necessary to add any guidelines but we are interested in seeing them updated with the newest research.

B-9) What other changes to the Model EMS Clinical Guidelines would you recommend?

Answered: 12 Skipped: 11

1. Just to update them more often to keep up with evidence based practice

2. change from a word use to a flow diagram

3. it would be nice to have some procedures to accompany these protocols.

4. These guidelines are a great foundation for our department. We added RSI and some State specific guidelines (care for cats and dogs) and deleted a few protocols that were not applicable (we don't deal with altitude sickness, or jelly fish). I love the extra references and EBM approach.

5. N/A

6. Be sure to make the document printable in black and white for agencies that cannot afford color printing and for color blind providers. -If feasible, the text, charts and graphs should be easily readable. Examples are pg. 150, 243, 279, 280, 283 and 284. -Consider using the same format for all charts and tables. - Consider reducing the overall size (# pages) by deleting the references throughout the document.

7. From a data analysis / programmatic usage standpoint, having a more structured format to the information (i.e. something like JSON or XML rather than word/pdf) would simplify that process. (fyi - I'm currently working on parsing the word doc version of the 2014 guidelines into a semi-structured JSON format for follow up analysis / programmatic access.)

8. None really - honestly we are so happy with the layout - goals of care, inclusions and exclusions, assessment findings, management, key performance indicators and references - it is the perfect accomplice in paramedic education - it helps us bridge the gap between the book and evidence based medicine and teaches students how to approach care once the assessment is complete.

9. The addition of treatment flow charts/algorithms.

10. Continue to grow the acorn into an oak tree. :-)

11. A more regular or better yet on-going updates in an attempt to keep up with the science.

12. Maybe have 2 versions. 1 is streamlined for EMS providers and the other is for the reference

Considerations for the Future

The findings from the assessment of the 2014 National Model EMS Clinical Guidelines will be tremendously helpful as the project team moves forward in updating and creating new guidelines to add to the original core set. The feedback received will allow the group to focus its time and efforts on the areas that need work with reassurance that it is headed in the direction needed by those who utilize this important clinical resource.

Awareness/Publicity

Feedback from the state EMS officials indicated that while the overwhelming majority were aware of the Guidelines, a small number of those who were relatively new (within the past two years) or not involved were unaware of their existence. The project received the most attention

during 2012 through 2014 (while it was underway and upon its completion in 2014) which could explain why the newer state officials were unaware of this resource. In the future, increased efforts should be made to continually promote the Guidelines beyond the initial release. As the NASEMSO Medical Directors Council continues to take the lead in updating and building upon the document, the Guidelines will likely be more widely known and associated with NASEMSO. The project team will want to further discuss and make recommendations as to how to continually promote this important resource for EMS. (Question A-1) In addition, efforts will be made to encourage state EMS officials to distribute information about the Guidelines to EMS agencies, educational institutions and regional programs in their respective states. The assessment results indicated that few states distributed the Guidelines. (Questions A-2 and A-4)

New Guidelines

The project team has spent considerable time during teleconference meetings in summer and fall 2016 reviewing public comments and making decisions whether to include the suggested new guidelines. A few additional guidelines were recommended in this assessment, which will be reviewed and considered for inclusion by the project team. (Questions A-10 and B-8)

Other Suggested Changes

The team will also review the various changes suggested by the respondents. There are several practical recommendations to make the document more user friendly, which will be weighed against the feasibility of doing so with limited resources. While some of the comments primarily related to format were considered during the initial project, it would be appropriate to revisit some of the issues. (Questions A-11 and B-9)

Two Versions

Consideration will be given to creating two versions of the Model EMS Clinical Guidelines: an abbreviated version for use by providers in the field, in addition to the full-length document with references. This will be dependent on the level of resources available for creating and maintaining two versions.

NEMSIS

Although not specifically addressed in the assessment, consistency with the protocols in NEMSIS Version 3 is a priority and will be given due consideration as the Guidelines are updated and expanded. The current project team includes a member of the NASEMSO Data Managers Council specifically for that purpose.

Further Information

Further information the **NASEMSO National Model EMS Clinical Guidelines,** including project team members, meeting records, the complete document and more is available at https://www.nasemso.org/Projects/ModelEMSClinicalGuidelines/index.asp