

Proposed NEMESIS Projects for 2015

- 1. Improved Recognition Programs for NEMESIS-related Successes**
 - a. Reinstate the state recognition award for moving to V3.
 - b. Develop local EMS agency recognition program for “accurate data collection”.
- 2. Improved Communication with Active Stakeholders**
 - a. Include section entitled “past call decisions” on the V3 Implementation Call agenda.
 - b. Post notes associated with V3 Implementation calls in JForum.
 - c. Devise process to ensure timely responses to all email requests for technical assistance.
- 3. Improved Educational Resources at the TAC**
 - a. Finish the Compliance “Lessons Learned” document
 - b. Finish Steering Committee “duties” document
 - c. Restructure the sample state DUA documents for V3.
- 4. Improved Stakeholder Training Opportunities**
 - a. Schedule bi-monthly NEMESIS report training webinars
 - i. Schedule dates with rotating training for state and public Tableau reports and local agency SAS reports.
 - ii. Advertise to State representatives, and local agencies.
- 5. Additional Tools to Ease V3 Migration Process**
 - a. Develop Census Tract Look-up API.
 - b. Formalize a suggested list for past medical/surgical history.
 - c. Develop white paper regarding availability and use of NPI codes.
- 6. V3 Resource Tool Development**
 - a. NEMESIS Performance Benchmark API (end of May).
 - b. NEMESIS State Specific Resource Repository (end of September).
 - c. NEMESIS V3 State Resource Builder (probably end of June).
- 7. Additional V2 and V3 Reporting Tools**
 - a. Develop a public-facing implementation of Tableau reports on website.
 - b. New state-level Tableau V3 dashboard using 2009 NHTSA Performance Measures.
 - c. Develop NHTSA Regional Representative dashboard (V3 and V2).
 - d. What will fill data exploration function for V3? (e.g., Cube)...undecided.
 - e. Rework Reporting Services reports with Tableau (begin with cardiac arrest).

- f. Create new permissions type (restricted State level – but sharable with other state employees [e.g., State Epidemiologist]).
- g. Approach NASEMSO about exposing restricted state summary data.

8. Additional HL7 Work

- a. Organize a stakeholder group to refine NEMESIS requested hospital outcome data.
- b. Build HL7 CDA (or equivalent) to support export of hospital outcomes to EMS.
- c. Ballot potential needed revisions to the outcome section of the NEMESIS standard.

9. Upgrade (retool) the NEMESIS website

10. Additional Tools to Enhance (ease) use of NEMESIS Public Dataset

- a. Consider developing an imputed version of the dataset (i.e., completing missing values)
- b. Post additional reusable SAS and STATA scripts
- c. Scheduled quarterly webinars teaching NEMESIS data manipulation
- d. Consider a reorganization of the relational table structure

11. Enhancements of the V3 Data Processing Strategy

- a. Develop capability to delete records from the V3 warehouse
 - i. Records will be flagged rather than deleted
- b. Automate the state Schematron verification process
- c. Automate DMC e-mail summarizing weekly or monthly V3 submissions
- d. Consider additional (and more informative) error codes/messages
- e. Consider adding “search” functions to the WSDL
 - i. Organize stakeholder group to consider
- f. Create mechanism to adequately report failed submission files and the submission of agency E records preceding agency D records
- g. Automate process for updating resource files (NPI, ICD-10-CM, RxNORM, SNOMED, LOINC, etc.)
 - i. Revise resource lists based upon V3.4.0 element pattern changes
- h. Completion of additional test environment (mirror of production environment)

All suggestions provided by external stakeholders :

1. Terry Mullins (AZ): Take this comment for what it is worth – “linkage 101, linkage 202 and linkage 303”.
2. Rogelio Martinez (AZ): The most arduous but most beneficial task that NEMESIS can undertake is to ensure pre-hospital data can interact with various other systems. Although, meaningful tools and actionable data are essential to the system, patient

outcomes should be the primary focus. Systems of care will benefit greatly once we can gain insight on morbidity and mortality following an EMS incident. A great example is a stroke call in an elderly patient. Relying exclusively on pre-hospital data will fail to provide a complete picture of that patient's societal cost, mortality, and quality of life following the incident. Secondly, a key feature in the future would be getting an understanding on the number of runs that are associated with an incident. An example of this would be when a fire department (non-transporting agency) responds to a call; transfers care to an ambulance company for transport to a hospital; and is followed by an inter-facility transfer to a higher level of care (through air). Although this is reported and/or analyzed as 3 incidents it is really one patient with multiple legs of care. What would be helpful is a tool that allows a system to be analyzed both ways. I understand the limitations and extensive work of these two requests but was hoping to share my thoughts.

3. John Kutcher (DI, 1) **Adding an EMS Linkage Compliance Component to NEMSIS**

Purpose - It would be nice to see the fundamental NEMSIS vision of "interoperability" expanded over time, to support additional and important "flows" of EMS data that stakeholders desire -- such as EMS linkage with hospital-based registries with Trauma, Stroke, STEMI, etc. It does not make sense to have hospitals have to "rekey" information that is on their screen and already available in an electronic format. NEMSIS XML can and should be the vehicle to avoid the need to rekey information.

Solution - Supporting EMS Linkage across vendors requires just a small extension to the Web Services API to allow for a secure "Search" function to allow a 3rd party system to securely "tap into" appropriate NEMSIS data from the subset of PCR's that a given stakeholder is permitted to access. Note: The security-related aspects of such access are essentially the same as existing EMS vendor functionality to provide interactive PCR lookup & viewing at hospitals, for example, so there should be no fundamental security or privacy roadblock to such interfaces. There are existing API's in place successfully that can be shared with NEMSIS and used as a starting point for such a Web Service.

Remarks - This type of API would also pave the way for additional 3rd party add-on modules to allow States & Regions to purchase analytic, surveillance, and other clinical intelligence solutions that can marry up to their State EMS Repositories without requiring all components to come from a single vendor. In short, the present NEMSIS Compliance requirements are mainly geared to support the efficient "one way flow of data" -- i.e., from Agencies ... to States/Regions ... to TAC -- and the end result is EMS data cannot move across vendor systems without business alliances that are difficult to establish politically and should not be necessary. This in turn artificially limits integration options by States and Hospitals. By expanding the NEMSIS vision of efficient

data flows to support other very important flows (such as State to Hospital) without requiring custom cooperative initiatives between vendors (that have to be paid for by States), EMS stakeholders can realize additional benefits with product interoperability options, as well as supporting the important "feedback loop" of patient outcomes from hospital data collection efforts across multiple clinical registry areas supported by dozens of vendors.

Recommendation - NEMSIS should add this optional compliance (as either an optional or required component) to the Receive and Process compliance to drive market adoption of vendors supporting the flow of EMS information to hospitals and other stakeholders. Many stakeholders need this EMS information to improve data quality and completeness, and support outcomes evaluation and process improvement back to EMS providers and oversight agencies.

4. John Kutcher (DI, 2) **Establishing Technical Standards For EMS Systems Integration**

Purpose - NEMSIS does an excellent job at defining the clinical data standards and formats that can support data exchange, but does not address some of the important "engineering aspects" required to achieve true "plug and play" interoperability. In the PC world, we all routinely connect devices through USB and HDMI cables from a multitude of vendors. This requires standards of several types -- for example, not only the video compression and encoding standards of "data" and signals -- but also more mundane standards such as voltage levels, physical connector shapes and sizes, and a host of other engineering details.

Solution - The analog of USB & HDMI standards to the EMS world, are established vendor standards such as: a common way to authenticate users & access; a way to correlate facilities by their varying vendor-specific ID's; response time requirements; maximum messaging size limits; and things of this nature. These standards will need to be developed by a vendor consortium of software engineers, perhaps via an engineering "summit".

Remarks - The payoff will be increased plug and play for clients who purchase products from multiple vendors, and giving clients ways to ensure interoperability without limiting themselves to a single vendor's offerings. No vendor or product can optimally meet every need of every stakeholder. If that were the case, we wouldn't need NEMSIS.

Recommendation - It would be helpful for NEMSIS to determine whether these types of standards are in or outside the scope of NEMSIS. It is not clear whether these efforts should be "industry-vendor-driven" or "standards-driven", but there is a clear need for these standards. Either way, NEMSIS can provide an important leadership and direction for the industry to move in this direction.

5. John Kutcher (DI, 3) **Establishing Best Practices Guidance For NEMSIS Procurements** -

Purpose - NEMSIS established "agency" compliance and "state" compliance, as two

separate compliance requirements to allow vendors to specialize in different solution segments, and increase open and fair competition. Recently, there have been examples of NEMESIS Compliance being used to restrict competition. This is particularly disturbing and ironic, since NEMESIS is founded upon the very notions of systems interoperability and increasing open competition.

Solution - It would seem that if a given procurement elects to require all components from a single vendor, that such a procurement should require only a single one of these interoperability compliances. Certainly a single vendor would be interoperable with itself, so adding a second compliance requirement serves no purpose than to limit competition. NEMESIS cannot and should not be the "tool" that is used to limit competition. To the contrary, NEMESIS should be the tool that enhances competition. I realize this is a somewhat an esoteric subtlety of semantics, but the general rule of thumb that seems should apply, is "Use NEMESIS Compliance requirements for areas of your system where your goal is to support interoperability between multiple vendor systems", and just as important, "Don't Use NEMESIS Compliance requirements for areas of your system that entail connections between only the one vendor you are hiring".

Remarks - I understand that the NEMESIS Compliance requirements give purchasers a "shorthand" way to request a large number of features and requirements in a single phrase. But there are ways bids could be written to achieve this benefit without requiring more than one compliance itself. In short, When NEMESIS Compliance is used to restrict respondents to an open fair competition, it should be used to ensure interoperability between vendors. That way, NEMESIS supports open competition and multiple vendor solutions. If NEMESIS Compliance is used to help force the procurement of single vendor systems, doesn't that seem contrary to the very NEMESIS purpose of systems interoperability?

Recommendation - The idea would be to see if NEMESIS could provide any clarifying language as to the intent and usage of using multiple NEMESIS Compliance requirements in a procurement. It seems that each usage of a NEMESIS Compliance requirement should be associated with supporting a 3rd party interface between vendors. (Otherwise, leave NEMESIS Compliance out of the requirements, except perhaps as a shorthand way to express a batch of requirements without limiting vendors.) I realize this area may not be one NEMESIS can or wants to tackle, but it does seem awfully ironic that the recent TAC efforts to create two NEMESIS V3 Compliance types can now be used to completely force \$1M+ EMS systems procurements to a sole source -- with no option for nearly everyone on this group to compete -- even though nearly everyone on this group has products that can support an amazing integrated solution as a whole.

6. Nik Martin (NitroPCR): One suggestion I have is to possibly unify the several forms of communication we bounce between. Between jforum, google groups, email lists, etc. there is a ton of overlap between the jforum and Google groups, and it keeps us busy remembering where for what purpose each tool serves. Also, give Jorge some nitrous oxide before each TAC conference call.
7. Josh Legler (Consultant, 1): V2-to-V3 Translation: I think I should update it for V3.4.0, since it's not backward compatible with 3.3.4 and we still have lots of V2 data being collected. (This is a small project.)
8. Josh Legler (Consultant, 2): GIS: Stakeholders are being challenged by city GNIS codes, Census tracts, ZIP codes, GPS, and USNG, in terms of understanding them, fitting them all together, and figuring out things like agency service areas. Perhaps we can help.
9. Josh Legler (Consultant, 3): Helping state data managers to build their state-specific resources.
10. Josh Legler (Consultant, 4): Exposing EMS data: There are lots of research projects and other uses going on with data from the National EMS database and state and local systems. I think more could be done to publicize the great things being done and to further expose national EMS data to a wider non-technical audience.
11. Josh Legler (Consultant, 5): Modularized NEMESIS data model: This is long-term, big-picture... Can the NEMESIS data model be architected in such a way that all of the data types and elements make up a model, or "menu," from which purpose-specific XSDs can be created? I'm thinking along the lines of approaches used by NIEM and HL7.
12. Ben Barnett (Zoll, 1): A translation from V3 files to V2, we envision this mostly important for billing purposes but have found on other occasions where there has been a need for a "backwards" translation (XSLT) file.
13. Ben Barnett (Zoll, 2): A Schematron builder/editor. This is exactly as it sounds, a tool in which would be able to be used to build/create a schematron file.