

Predictive Ability of Emergency Medical Priority Dispatch System Protocols Should Be Assessed at the Atomic Level of the Determinant Code

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We commend Sporer *et al* for their work in determining predictive ability of the Medical Priority Dispatch System (MPDS™)^{1,2} in determining eventual Advanced Life Support (ALS)-level interventions in a wide variety of patient conditions.

However, there are some critical flaws. One significant flaw is in the artificial way the data initially were grouped for this study. An incorrect assumption that CHARLIE-level conditions should be placed in the same category of acuity as DELTA-level calls, and the same with ECHO-level problems, hides a great deal of what could have made this study much more valuable in refining the MPDS Protocols based on its findings. Per the National Academies of Emergency Dispatch (NAED) response matrix (Figure 1), each of the six clinical levels in this study represents a different but clinically-related grouping of potential evaluations, treatments, and response types and modes. By also grouping the ALPHA and BRAVO, and apparently the OMEGA level, into a single category, a similar important loss of code level detail occurred.

The CHARLIE level itself is defined as *not* having necessarily high acuity cases, but ones that the current standard of care and practice requires an ALS scene *assessment*—not necessarily ALS *treatment*. Chest Pain in a cardiac age patient (>35 years) is a good example. Many of these patients ultimately are determined as not having Acute Myocardial Infarction (AMI), but no one would say they do not need an ALS-type evaluation down the line. Examination of the general CHARLIE definition in the NAED response matrix shows a COLD ALS response default recommendation.

We also understand that in order to estimate sensitivities, specificities, and predictive values, the authors needed to dichotomize the “priority” levels into a high and low category. However, a better design would include: (1) establishing an overall trend analysis by analyzing association between MPDS priority levels as a categorical variable (ECHO, DELTA, CHARLIE, BRAVO, ALPHA, OMEGA) and each of the Delphi process categories (ALS-Intervention, ALS-Stat, ALS-Critical); and (2) taking each pair, (e.g., ECHO vs. DELTA) and assess their respective association with the Delphi process categories used in this study.

In addition, the sensitivity and specificity statements made regarding the general categories (chief complaint groups) such as Abdominal Pain, Falls, and Traffic/Transportation Incidents are unclear. Since each of these groups contains a spectrum of code levels, including four to 14 individual codes, such groupings are not useful to those involved in improving specific areas within the dispatch protocols. This paper lacks a clear message as to what specific determinant codes should be modified in the dispatch protocols, or how. The authors simply conclude that the protocols need modification so as to increase specificity of chief complaints, such as breathing problems, chest pain, and unconscious/fainting. Realistically, the acuity value of an entire “lumped” chief complaint is not of any particular use in formulating responses or urgencies—thus, the specific wide spectrum of the six levels and more than 600 individual codes therein contained in the MPDS. The authors had a great idea on these pertinent issues, but analy-

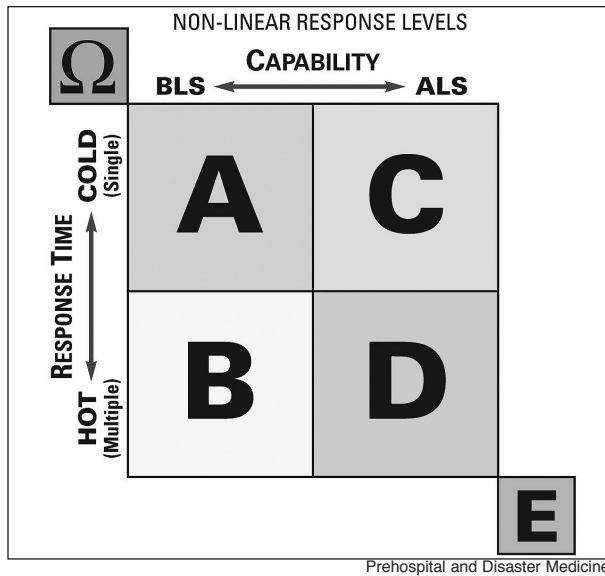


Figure 1—National Academies of Emergency Dispatch (NAED) response matrix

sis to demonstrate the need for the modifications essentially is lacking.

This paper also leaves the reader wondering if some of the low sensitivities and specificities observed in some chief complaints simply could be due to small sample sizes in each chief complaint. As the authors did not provide the

sample sizes in each chief complaint, we are not able to verify this issue.

Finally, the conclusion leaves us right where we started by restating the obvious: that the MPDS is more sensitive than it is specific. This is a well-known fact, since this is inherent in its ongoing design to maintain patient safety, especially when things are not clear in the non-visual dispatch environment. Of much more value in “modifying dispatcher protocols to increase specificity” is looking individually at codes within levels in a chief complaint—the “atomic level”. Trying to study the entire dispatch protocol as a whole is akin to trying to study “internal medicine”. By design, dispatch protocols differ significantly from diagnostic tools in their levels of sensitivities, specificities, and predictive values to capture levels of acuity.

Having read and reread this interesting study, we unfortunately failed to find the information necessary to submit any Proposal for Change request documents to the NAED for protocol improvement. Therefore, without analysis at the determinant level, and more specifically, the individual code level, we find no new message in the conclusions of this study. We look forward to further discussion with authors to see what we may have missed and which should be further evaluated.

Nevertheless, we are happy that collaborative dispatch research efforts have been initiated recently. We are aware and grateful that Dr. Sporer has been, and continues to be, a keen proponent of more collaborative efforts to improve medical dispatch protocol study effectiveness and relevance. We truly look forward to working with these dedicated dispatch scientists in the future.

References

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