Official Academy White Paper

Necessary Components of a Secondary Telephonic Medical Triage System at 9-1-1

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INTRODUCTION

Healthcare Challenges

Inappropriate use of emergency medical services (EMS) is a significant problem from both EMS provider and patient perspectives and a growing worldwide problem. Often patients who do not have true emergencies, and have the ability to transport themselves to a hospital, call 911 instead.[1-3] Gratton, et al., in their study confirmed that there is a significant number of patients who call 911 and who do not need ambulance transport to an emergency department.[4]

Compared to other Organization of Economic Cooperation and Development (OECD) nations, hospital spending in the U.S. is more than 60 percent higher. Spending on physicians, specialists, and dentists is almost 2.5-times higher than in other OECD countries.[5] Increasingly, Americans are having problems paying for care — 26 percent report they, or a family member, had problems paying medical bills in the past year. Fifty-eight percent of Americans reported foregoing or delaying medical care in the past year.[6] In 2013, the National Health Expenditure (NHE) grew 3.6% to $2.9 trillion, or $9,255 per person, and accounted for 17.4% of U.S. Gross Domestic Product (GDP). Medicare and Medicaid respectively grew 3.4% and 6.1%.[7]

Emergency Medical Services (EMS) can play a role in mitigating some of this expenditure by redirecting patients identified as “low acuity”, who call into 911, to more appropriate healthcare resources, thereby freeing up scarce resources, and avoiding costs due to the unnecessary transport of patients, for whom alternative healthcare resources would have been a more appropriate avenue. In a study involving four UK-based EMS agencies, Barron et al. estimated a savings of £22,579,207 ($35,223,562) and an increase of 134,953 hours in the number of unit hours available for deployment of EMS resources by redirecting low acuity callers to alternative health recourses.[8] Gardett, et al., concluded that a 911 nurse triage service (such as the ECNS) can change the way EMS responds to patients’ calls for help, simultaneously reducing costs, using resources more efficiently, and maintaining high levels of patient care and satisfaction.[9] In order for this to occur, those calls that do not meet high-acuity criteria must be accurately identified. The Medical Priority Dispatch System (MPDS) has demonstrated the ability to do this at greater than 99% of the time, resulting in more appropriate and efficient emergency resource utilization.[10,11]

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Registered nurses and physicians have performed triage on emergent and urgent patient populations for decades. The use of medical telephone triage programs has increased around the globe using various models: some relying solely on the clinical expertise of the call-taking clinician, and other programs require scripts, protocols, and specific training.[12-15] Health care professionals, including doctors, nurses and paramedics, have been used to perform such triage functions (Dale, J. et al., 2004).[12] The purpose of this paper is to explore the current practices and recommendations for a secondary telephonic medical triage program.

SECONDARY TELEPHONE MEDICAL TRIAGE

WHAT Is Secondary Telephonic Medical Triage (STMT) and WHY is it necessary?

In over 3,000 medical dispatch centers distributed throughout 44 countries around the world, emergency medical calls are triaged by specially trained and certified emergency medical dispatchers (EMDs) through the International Academies of Emergency Dispatch (IAED). Using the automated Medical Priority Dispatch System (MPDS®) software, ProQA™, the EMD assigns specific clinical determinant codes which represent the patient's chief complaint, response urgency/level (OMEGA [lowest], ALPHA, BRAVO, CHARLIE, DELTA, and ECHO [highest]), and acuity, as determined by the EMD's primary assessment (Figure 1: EMD and ECN Emergency Call Triaging Process). A significant number of these cases, coded as low acuity by the EMD using the MPDS, are candidates for non-ambulance care to other, more appropriate healthcare resources.[16-18]

Low acuity codes which have been approved by the IAED's ECNS Council of Standards, and clinically selected by the local physician medical director, will then be transferred to an ECN for further triage. Physician medical oversight is an important quality assurance factor when triaging low acuity 911 calls.

The Emergency Communication Nurse System (ECNS™) is a comprehensive computerized clinical decision support system, used by an IAED certified Emergency Communication Nurse (ECN) that can be used for secondary triage of low-acuity 911 calls. Secondary telephonic medical triage, situated within the 911 Communication Center, is the practice of assigning alternative options to emergency response to lower acuity patients who have called an Emergency Communication Center (ECC) and have been determined as not requiring a rapid, or even routine, ambulance response.[19]

Research found that, on average, calls that needed a 911 mobile response, only made up 3.8% of this low-acuity volume.[20] Using the ECNS, the nurse can make a reasonable final determination as to the type and place of care the patient receives, and thus identify the most appropriate healthcare resource and destination when used in conjunction with a locally – defined Directory of Services (DOS).

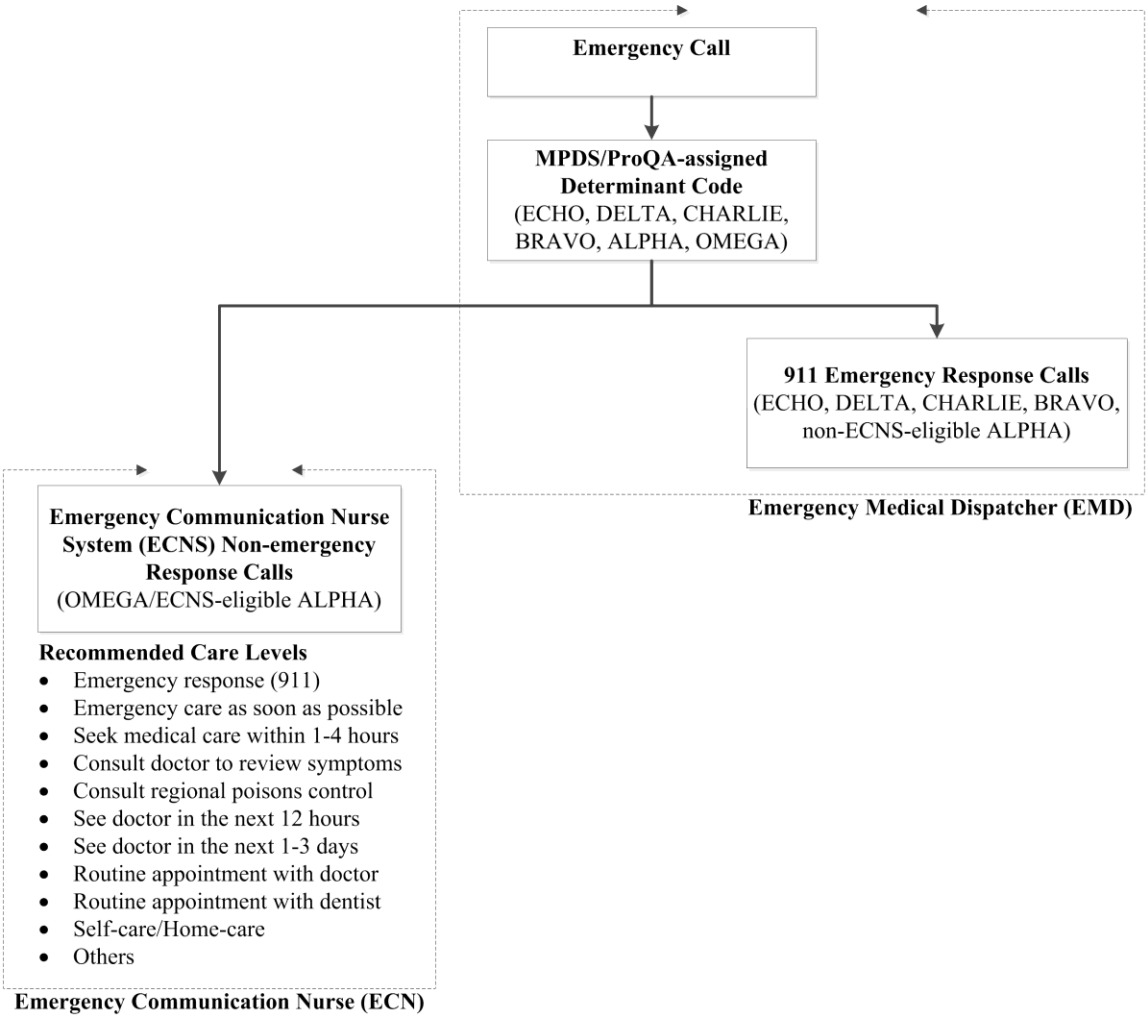

Figure 1: EMD and ECN Emergency Call Triaging Process

The protocols used in the ECNS system were developed by an international team of physicians, nurses, pharmacists, dentists, and other healthcare and information technology professionals. These protocols went through rigorous quality assurance testing in various countries and the clinical governance of the protocols are currently a function of the IAED. Each question in the protocol is supported by a clinical rationale for the nurse to access should there be any doubt as to the context of the questions/conditions s/he is ruling out. The ECNS system currently houses 212 clinical protocols.

WHO navigates the STMT System

The ECNS protocols were designed and constructed for use by a registered nurse with emergency/urgent care experience in triage to be used in a controlled, nonvisual environment. The protocols, used as an adjunct tool in the emergency dispatch environment, create considerable complexities. While the core of the ECNS software is an automated, clinical content product, the nurse, interacting with a caller who has the expectation of an EMS response must quickly and accurately interpret symptoms and, either re-direct that caller to an appropriate level of care, or educate the patient on self-management. In addition to contextualizing the clinical question process, registered nurses will need to apply specifically learned clinical judgment gained from years of experience (at least 5 years post-registered nurse licensure) in acute and non-acute clinical settings. It is the speed and intricacies of this process, with its multiple potential Point of Care dispositions, that led the ECNS Council of Standards to reinforce the requirement that staff must have registered nurse-level credentials to maximize a positive clinical experience and minimize risk.

Dale, et al., compared nurses to paramedics when they investigated the potential impact for ambulance services of telephone assessment and triage for callers who presented to EMS with non-serious problems.[12] They found that nurses were more likely than paramedics to triage calls into the groups classified as not requiring an ambulance. After controlling for age, case mix, time-of-day, day-of-week, season, and ambulance service, the results of a logistic regression analysis revealed that this difference was clinically significant with a CI of 95%.[21]

Alternative resources (i.e. paramedics) to registered nurses operating the ECNS system has been proposed but evidence in the literature evaluating paramedic determinations of medical necessity for ambulance transport vary considerably. A meta-analysis found that the data does not support the practice of paramedics determining whether patients require ambulance transport.[22]

Hauswald, et al., set out to determine if paramedics can safely decide which patients do not require ambulance transport or emergency department (ED) care. They concluded that allowing paramedics to transport to non-ED care settings will result in many patients requiring a second transport from clinic to ED. Paramedics, as currently trained, are not capable of making these determinations accurately or safely.[23]

WHERE is STMT being performed?

The ECNS-base protocol set has triaged in excess of 85 million calls over the last 15 years, and is currently in use on four continents, which include centers in North America, Canada, Europe, Africa, and Australia.

Is STMT safe?

Smith, et al., concluded in their study that medical review found no evidence of adverse outcomes when transferring 911 calls to a nurse triage facility, while maintaining high patient satisfaction. Systems led by nurses are safe and effective in out-of-hours settings. In the USA, early evaluation of a pilot study of a similar advice service showed that the number of ambulance transports could be reduced without compromising patient safety.[24] Dale, et al., studied the safety of telephone consultation process and concluded that it appears to be a safe alternative response to non-serious EMS callers.[12] Nurse telephone consultation has been proven to reduce overall workload of general practitioners by 50% while allowing callers faster access to health information and advice. It was not associated with an increase in the number of adverse events. This model of out-of-hours primary care is safe and effective.[25]

What are the recommended components of a modern STMT System?

- IAED-Accredited Center of Excellence status obtained ensuring high compliance to EMD protocol
- Safe and reliable clinical triage protocols
- Robust clinical governance process
- Clinical decision software system (CDSS) co-located in the ECC
- Registered nurses with prehospital/acute care experience operating CDSS
- A comprehensive Directory of Services available for alternative healthcare resource referral access

CONCLUSION

Secondary medical telephone triage is safe and effective, when patient care decisions are driven by clinically sound medical protocols located within a highly functional emergency communication center (ECC), by using specially trained and certified nurses with experience and training as an acute care registered nurse, under emergency medical services physician oversight.

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