TO: All Ambulance and First Response Services in Suffolk County

FROM: Robert Delagi, MA, NREMT-P
Chief, Prehospital Medical Operations and
Acting Director

DATE: December 20, 2010

RE: SITUATIONAL AWARENESS:
Cautions When Using RAD-57 Non-Invasive Co-Oximetry During Patient Assessment

The Annals of Emergency Medicine published a study in the October 2010 issue (volume 56, number 4) entitled *Performance of the RAD-57™ Pulse Co-Oximeter Compared with Standard Laboratory Carboxyhemoglobin Measurement.* This study, conducted by the Department of Emergency Medicine of the Jacobi Medical Center, Albert Einstein College of Medicine, in NY City, was designed to compare carboxyhemoglobin values obtained by the RAD-57™ with values obtained by standard arterial blood gas analysis in a sample study of patients in the emergency department with carbon monoxide poisoning. The results of this side-by-side study led researchers to report their conclusion that they found significant differences between the values obtained by non-invasive co-oximetry and those obtained by traditional blood analysis, causing concern that users of the RAD-57™ may be under-triaging actual or potential patients based on false negatives for CO poisoning obtained in the prehospital setting. Since the release of the results of this research study, Masimo Corporation has issued their rebuttal, in effect defending their product’s performance as within acceptable limits, citing positive performance in other comparison studies, as well as their FDA-approved internal test data.

After careful consideration of all the literature and discussion at the November meeting of the Suffolk Regional Emergency Medical Advisory Committee (REMAC), it was agreed upon that at this time, there is no need to revise current standard operating policies for *Emergency Incident Rehabilitation (REHAB)* or *Non-Invasive Co-Oximetry at Carbon Monoxide Emergencies.* However, there is enough debate to draw attention to the results and release this situational awareness memo as a reminder that reliance on technology should not replace good clinical judgment and adherence to applicable clinical protocols, standard operating policies, and manufacturer’s recommendations for using the RAD-57™, all in effort to provide the highest level of care to our firefighters and patients.

EMS providers should be thoroughly familiar with all such documents, with particular emphasis on normal SpCO values for smokers and non-smokers, expected signs/symptoms and their correlating SpCO percentages, vulnerabilities to CO associated with, gender/age/underlying medical conditions, subtleties of non-descript and vague signs/symptoms, awareness of, and confidence in, local fire department atmospheric monitoring techniques, and manufacturers recommendations for sensor size, finger positioning, patient motion, and the effects of external light interference on SpCO readings. In addition, during the rescue and rehab components of firefighting operations, EMS providers should be reminded that hydrogen cyanide gas is a common by-product of combustion in many fire situations and the synergistic combination of hydrogen cyanide and carbon monoxide is particularly dangerous to firefighters and occupants exposed to smoke. Hydrogen cyanide gas is not detected by the RAD-57™.

Please don’t hesitate to call the EMS office if you have any questions, or require any additional information or education & training.