Table 1
The obtained knowledge scores about optic nerve sheath ultrasonography by participants before and after education

Parameter	Before education	After education	*P* value
Level of knowledge	1.5 [1-1.7]	6.5 [5.0-8.5]	<.001
Attitudes			
1: Strongly disagree	-	-	.016
2: Disagree	5 (21.7%)	-	
3: Neither agree nor disagree	11 (47.8%)	3 (13.1%)	
4: Agree	5 (21.7%)	7 (30.4%)	
5: Strongly agree	2 (8.8%)	13 (56.5%)	

Data reported as absolute and relative frequency (%) or median and interquartile range.

Focused Assessment with Sonography in Trauma examination [2], or confirm the correct position of the endotracheal tube during intubation [3]. The application of ultrasound examination of the ONS for confirmation of IIP offers several advantages. First of all it is portable, rapid, noninvasive, low cost, and widely available [4,5]. Furthermore, it can be used both in the Emergency Department as well as in Emergency Medical Services.

Therefore, we decided to conduct a study on knowledge, attitudes, and skills audit of ONS ultrasonography among paramedics, as persons who have direct contact with the patient trauma at the accident scene.

After written informed consent, 23 paramedics volunteered for this open controlled trial. None of the study participants had experience in performing ONS ultrasound. Before the study, all participants received a questionnaire about their knowledge and attitudes regarding ultrasound. Level of knowledge was assessed in a 10-point scale ("1", inability to perform examination; 1"0", the ability to perform examination), and the attitude towards the ONS ultrasound was evaluated in a 5-point scale (the ONS ultrasonography is useful in emergency medicine "1, strongly disagree; 2, disagree; 3, neither agree nor disagree; 4, agree; 5, strongly agree). After completing the questionnaire, all participants completed a 60-minute training session led by an anesthesiologist with extensive experience in focused ultrasonography, including an introduction to the ultrasonography and ONS ultrasonography. Then participants practiced on themselves. During the examination a linear 6 MHz probe was used. Practice section was held until the participants felt comfortable during the test. Then, during an appropriate study, participants performed ONS ultrasonography. The correctness of ONS examination, as well as the correct interpretation of the ONS diameter, was evaluated by the instructor.

Twenty-three paramedics (9 female; 39.3%) were enrolled. All participants worked in Emergency Medical Service teams in Poland. Mean age was 31.5 ± 8.5 years, and mean work experience was 6.9 ± 4.5 years.

The correctness of the implementation of the study was observed in 91.3% of cases. The correctness of the interpretation of the ONS thickness was observed in 69.6% of cases. The results of the level of knowledge and attitudes towards ONS ultrasonography both before and after the course are presented in Table 1.

In summary, ours results indicate that paramedics are able to perform with high-efficiency ONS ultrasonography examination after a short training. Ultrasound measurement of ONS appears to be a rapid and promising bedside tool for identification of IIP in a prehospital setting.

The authors have no conflict of interests to disclose.

We would like to thank all paramedics providers for their participation in our trial.

Łukasz Szarpak, PhD, DPH, EMT-P
Zenon Truszewski, PhD, MD*
Department of Emergency Medicine, Medical University of Warsaw Warsaw, Poland
*Corresponding author at: Department of Emergency Medicine, Medical University of Warsaw, Lindleya 4 Str., 02-005 Warsaw, Poland
Tel.: +48 502258562
E-mail address: zetrtrusz@gmail.com

Andrzej Kurowski, PhD, MD
Department of Anesthesiology, Cardinal Wyszynski National Institute of Cardiology, Warsaw, Poland

Silvia Samarin, PhD, MD
Department of Cardiology, University Medical Centre Ljubljana, Slovenia

Togay Evrin, PhD, MD
Department of Emergency Medicine, UFuK University Medical Faculty Ankara, Turkey

Piotr Adamczyk
Student Research Circle at the Department of Emergency Medicine, Medical University of Warsaw, Warsaw, Poland

Łukasz Czyzewski, PhD, RN
Department of Nephrologic Nursing, Medical University of Warsaw Warsaw, Poland

http://dx.doi.org/10.1016/j.ajem.2016.02.063

References

[1] Komut E, Kozacı N, Sönmez BM, Yılmaz F, Komut S, Yıldırım ZN, et al. Bedside sonographic measurement of optic nerve sheath diameter as a predictor of intracranial pressure in Emergency Department. Am J Emerg Med 2016;34:963–7.
[2] Bhoi S, Sinha TP, Ramchandani R, Kurrey L, Galwankar S. To determine the accuracy of focused assessment with sonography for trauma done by nonradiologists and its comparative analysis with radiologists in emergency department of a level 1 trauma center of India. J Emerg Trauma Shock 2013;6(1):42–6. http://dx.doi.org/10.4103/0974-2700.106324.
[3] Truszewski Z, Samarin S, Czyzewski L, Evrin T, Szarpak L. Are paramedics able to confirm endotracheal tube placement using ultrasonography? Preliminary data. Am J Emerg Med 2016;34:923–4.
[4] Doniger SJ. Bedside emergency cardiac ultrasound in children. J Emerg Trauma Shock 2010;3(3):282–91. http://dx.doi.org/10.4103/0974-2700.66535.
[5] Atkinson P, Boyle A, Robinson S, Campbell-Hewson G. Should ultrasound guidance be used for central venous catheterisation in the emergency department? Emerg Med J 2005;22(3):158–64. http://dx.doi.org/10.1136/emj.2003.011288.

Are paramedics able to perform endotracheal intubation with access to the patient through the back seat of the car? Randomized crossover manikin study☆

To the Editor,

Patients with trauma present unique airway management concerns. Conventional oral intubation with manual in-line stabilization (MILS) is still the most effective approach for early control of the airway in trauma [1]. However, there are situations in which access to the patient is difficult and direct viewing of the airways is impossible [2,3]. Such a situation might be encountered when a patient requires intubation when trapped in a vehicle [4]. In such cases, alternative methods of endotracheal intubation can be used, including videolaryngoscopy or video tubes, ie, the ETView VivaSight-SL (ETView Ltd., Misgav, Israel).

The aim of the study was to evaluate the VivaSight single lumen endotracheal tube (ETView) and the Macintosh laryngoscope (MAC) for intubation of a patient trapped in a motor vehicle. The trial is a continuation of studies undertaken by Truszewski et al [5].

The Institutional Review Board at International Institute of Rescue Research and Education approved this study. IRB number was 12.2015.08.32. Forty-five paramedics were asked to perform advanced

☆ Source of support: No sources of financial and material support to be declared.

Table
Data from intubation with access from the back seat of the car scenario

Parameter assessed	MAC	ETView	*P*
Time to intubation (s)	49 (41–63)	22.9 (20.4–26)	<.001
Overall success rate (%)	45 (100%)	45 (100%)	NS
Success rate of first attempt (%)	30 (66.7%)	45 (100%)	0.003
Dental compression			
N	-	42 (93.3%)	
1	33 (73.4%)	3 (6.7%)	<.001
2	11 (24.4%)	-	
3	1 (2.2%)	-	
Ease of intubation	6.5 (5–7)	2.5 (2–3.5)	<.001

Data reported as median (IQR) or number (%); NS = Not Statistically Significant; MAC = Macintosh laryngoscope; ETView = ETView VivaSight-SL.

airway management in a manikin entrapped in a car's left front seat, with access to the patient from the back seat.

First, each participant received a 30-min standardized demonstration of the Macintosh laryngoscope (HEINE Optotechnik, Munich, Germany) and ETView by one of the investigators, including a demonstration of the correct use of the devices (5 min/device). Subsequently, each participant was allowed to practice intubations and placements, respectively, in a classically positioned a SimMan manikin (Laerdal, Stavanger, Norway; 10 min/device). After the practice session, the subjects were divided into two groups using Research Randomizer software. The first group attempted ETI using the MAC, the second using the ETView (Figure). After completing the ETI procedure, participants had a 10-min break before performing intubation using another technique. Participants had a maximum of 3 attempts for ETI with each intubation method. To simulate patient entrapped in vehicle manikin was placed on the driver's seat. The seat belt was fastened around the manikin's torso and the seat was moved as far forward as possible to reduce space and to simulate entrapment. Access to the patient was possibility from the back seat of the car (with the driver's seat back reclined to 75°). A cuffed ETT with an inner diameter of 7.0 mm was used for endotracheal intubation (with a semi-rigid stylet inserted into the ETT). All participants were unassisted during the airway procedures.

The Statistica statistical package (ver.12.0 for Windows; StatSoft, Tulsa, OK) was used for statistical analysis. Data were presented as median and interquartile range (IQR) or mean ± standard deviation (SD). We used Shapiro–Wilk test for verifying normal distribution and Wilcoxon signed rank test for verifying the result, which is not according to normal distribution. A significant difference was considered when *P* value was less than 0.05.

Forth-five subjects were enrolled in this study. They consisted of 31 men (68.9%) and 14 women (31.1%). Mean age of participants was 34.2 years old; mean career as healthcare provider was 9.4 years. The first attempt success rate for the MAC and ETView was 66.7% and 100%, respectively. The overall success rate was 100% for the MAC ad ETView. Time to intubation using MAC was 49 s and was statistically significant longer than time needed to intubate using ETView (22.9 s; $P < .001$). Dental compression rate was significantly lower in ETView than MAC. (See Table.)

In conclusion, the ETView clearly demonstrated advantages over the Macintsosh laryngoscope with shorter intubation time and increased

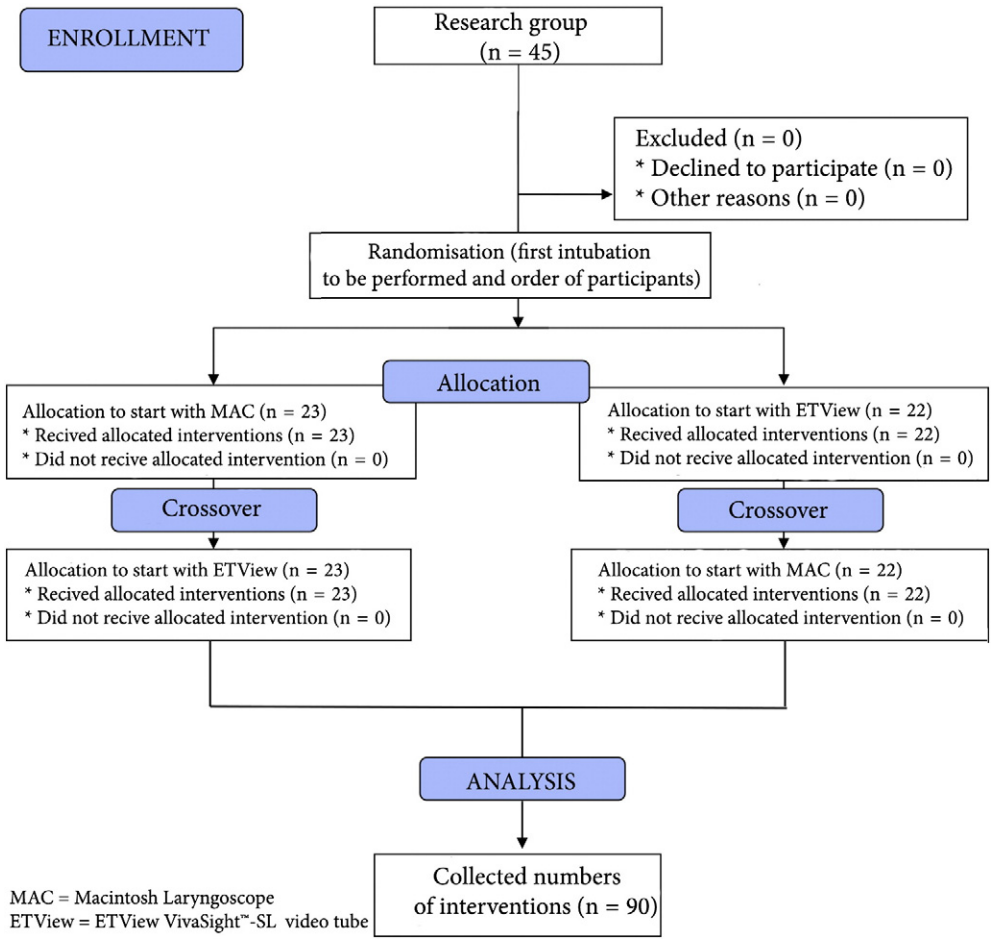

Figure. Flow chart of design and recruitment of participants according to Consolidated Standards of Reporting Trials (CONSORT) statement.

success rate of first intubation attempt. We believe that ETView video tube device could be used to save lives by allowing on the scene early emergency tracheal intubation in trapped patients.

Łukasz Szarpak, PhD, DPH, EMT-P
Zenon Truszewski, PhD, MD
Department of Emergency Medicine, Medical University of Warsaw Warsaw, Poland

Jacek Smereka, PhD, MD
Department of Emergency Medical Service Wroclaw Medical University, Wroclaw, Poland
Corresponding author. Department of Emergency Medical Service Wroclaw Medical University, 34 Str. Parkowa, 51-616 Wroclaw, Poland
Tel.: +48 500186225
E-mail address: Jacek.smereka@umed.wroc.pl

Togay Evrin, PhD, MD,
Department of Emergency Medicine, UFuK University Medical Faculty, Ankara, Turkey

Łukasz Czyzewski, PhD, RN
Department of Nephrologic Nursing, Medical University of Warsaw, Warsaw, PolandDepartment of Nephrologic Nursing, Medical University of Warsaw, Warsaw, Poland

http://dx.doi.org/10.1016/j.ajem.2016.02.062

References

[1] Crosby ET. Airway management in adults after cervical spine trauma. Anesthesiology 2006;104:1293–318.
[2] Green-Hopkins I, Nagler J. Endotracheal Intubation In pediatric patients using video laryngoscopy: An evidence-based review. Pediatr Emerg Med Pract 2015 Aug;12(8):1–22.
[3] Russo SG, Nickel EA, Leissner KB, Schwerdtfeger K, Bauer M, Roessler MS. Use of the GlideScope®-ranger for pre-hospital intubations by anaesthesia trained emergency physicians - an observational study. BMC Emerg Med 2016;16(1):8. http://dx.doi.org/10.1186/s12873-016-0069-2.
[4] Wetsch WA, Carlitscheck M, Spelten O, Teschendorf P, Hellmich M, Genzwürker HV, et al. Success rates and endotracheal tube insertion times of experienced emergency physicians using five video laryngoscopes: a randomised trial in a simulated trapped car accident victim. Eur J Anaesthesiol 2011;28(12):849–58. http://dx.doi.org/10.1097/EJA.0b013e32834c7c7f.
[5] Truszewski Z, Szarpak L, Smereka J, Kurowski A, Evrin T, Czyzewski L. Comparison of the VivaSight™ single lumen endotracheal tube and the Macintosh laryngoscope for emergency intubation by experienced paramedics in a standardized airway manikin with restricted access. A randomized, crossover trial. Am J Emerg Med 2016;34:929–30.

Patient treatment in ED hallways and patient perception of clinician-patient communication☆,☆☆

To the Editor,

In the setting of high patient volumes and boarding times across many emergency departments (EDs), clinicians are increasingly tasked with the challenge of managing patients in nonconventional care areas [1]. The use of hallway care areas, locations where patients are in close proximity to one another with little or no structural partitions separating them, has increased [2–3]. Several negative consequences of ED hallway care have been noted, including patient perceptions of compromised care [4] and poor infection prevention practices among staff [5]. However, the impact of hallway care on clinician-patient communication has not been studied. Clinician-patient communication is an important aspect of care associated with decreased patient anxiety and patient satisfaction [6]. Clinician-patient communication may be particularly important for patients evaluated for potentially life-threatening conditions such as acute coronary syndrome (ACS). Our study examined the association between hallway care during ED evaluation for ACS and patients' perception of clinician-patient communication. We hypothesized that hallway care would be associated with poorer perception of clinician-patient communication compared with patients receiving care in curtained or divided rooms.

This study was conducted as part of an ongoing observational cohort study of patients presenting to the ED for evaluation of suspected ACS, the REactions to Acute Care and Hospitalization study. Five hundred patients were enrolled at a single-site urban academic medical center ED. English -and Spanish-speaking patients were eligible if they had a provisional diagnosis of "probable ACS" by the treating ED physician. Exclusion criteria included ST elevations on electrocardiogram, psychiatric intervention, or unavailability for 1-year follow. Research assistants recorded patient locations in the ED at study enrollment. *Hallway areas* were defined as treatment spaces located in open corridors (as opposed to treatment spaces that were partitioned by walls or curtains). Participants' perceptions of clinician-patient communication were measured with the Interpersonal Processes of Care (IPC) Survey [7], an 18-item questionnaire assessing aspects of interpersonal processes. Items assess communication style, type of information conveyed between clinician and patient, and patient-clinician shared decision making. The IPC contains 3 subscales evaluating "hurried communication," "empathy/respect," and "discrimination." In addition to excellent psychometrics across a number of studies in multiple countries [8–9], the IPC has been associated with multiple objective indicators/outcomes of communication including length of doctor-patient relationship [10]. Cronbach α for the IPC in this study was .84. Medical severity was assessed with the Global Registry of Acute Cardiac Events (GRACE) index [11], whereas medical comorbidities score were calculated with the Charlson comorbidity index [12]. Final hospital discharge diagnosis was also examined in the study based on review of the medical record by 2 board-certified physicians.

Multiple linear regression was used to test whether patients managed in hallway beds reported worse perceived clinician-patient communication. The model adjusted for patient age, sex, hospital discharge diagnosis (confirmed ACS vs non-ACS), GRACE score, and Charlson comorbidity index. Characteristics for the 500 individuals are presented in Table 1.

Multivariate modeling found that only hallway care was associated with worse perceptions of clinician-patient communication ($\beta = -0.11$, $P = .016$) (see Table 2 for model with overall IPC score). Multivariate model examining domains within the IPC revealed that hallway care was associated with worse communication scores in the domain of hurried communication ($B = -.152$; $P < .001$) and empathy/respect ($\beta = -.132$, $P < .004$), whereas it was not associated with the discrimination domain ($\beta = -.062$, $P < .171$).

We found that hallway care was associated with worse patient perceptions of clinician-patient communication. Our study is the first to document the association of hallway care with clinician-patient communication. Challenges in clinician-patient communication may be especially significant for acute medical conditions such as ACS where poor communication may be associated with increased risk for adverse psychological outcomes [13]. Recognizing the association between communication and hallway care may identify patients who may benefit from additional psychosocial support and help improve aspects of clinician-patient communication across a wide range of care environments in the ED.

This was a single-site study limited to ED patients presenting with ACS symptoms, so findings may not be generalizable to different patient populations or clinical locations such as inpatient (vs ED) hallway [14]. In addition, we were unable to determine the impact of length of time spent in a hallway-care area on our outcome because participant

☆ Grant: This work was supported by grants HL117832, HL123368, and HL128310 from the National Institutes of Health/National Heart, Lung, and Blood Institute.
☆☆ Meetings: To be presented at the Society for Academic Emergency Medicine Annual Conference, New Orleans, LA, May 22, 2016 (accepted for oral presentation).