

Prehospital Advanced Airway Management in the Nordic Countries – a prospective observational trial

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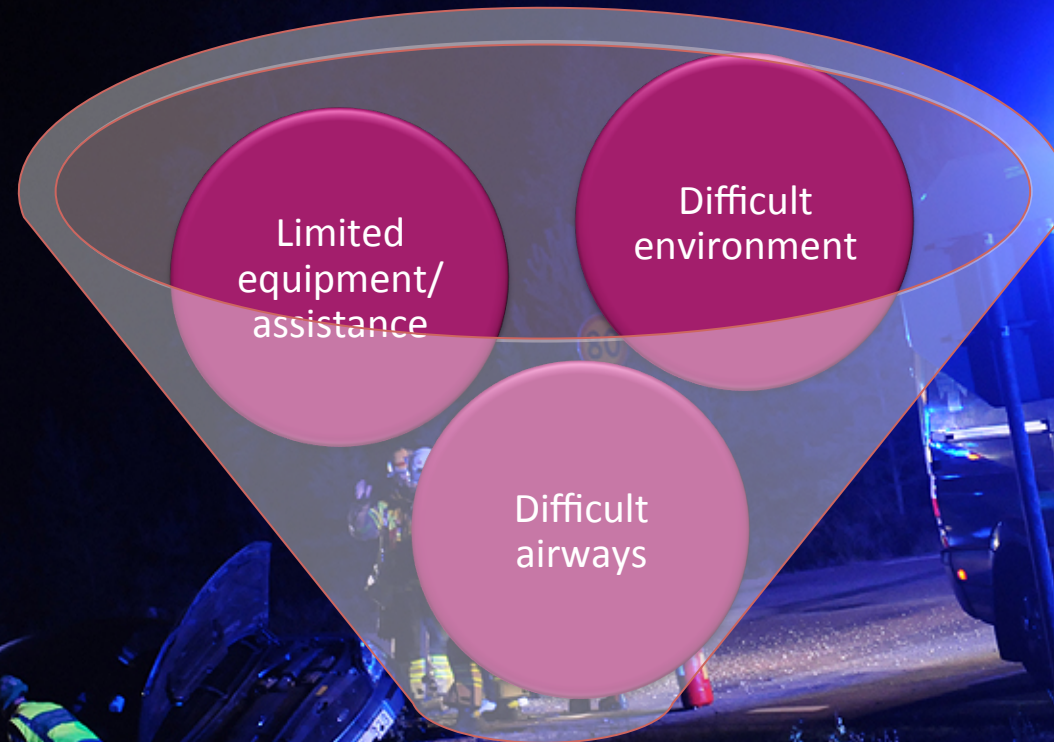
Consultant, Anaesthesiology and Intensive Care, SÖS

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Board Member, SFLPA

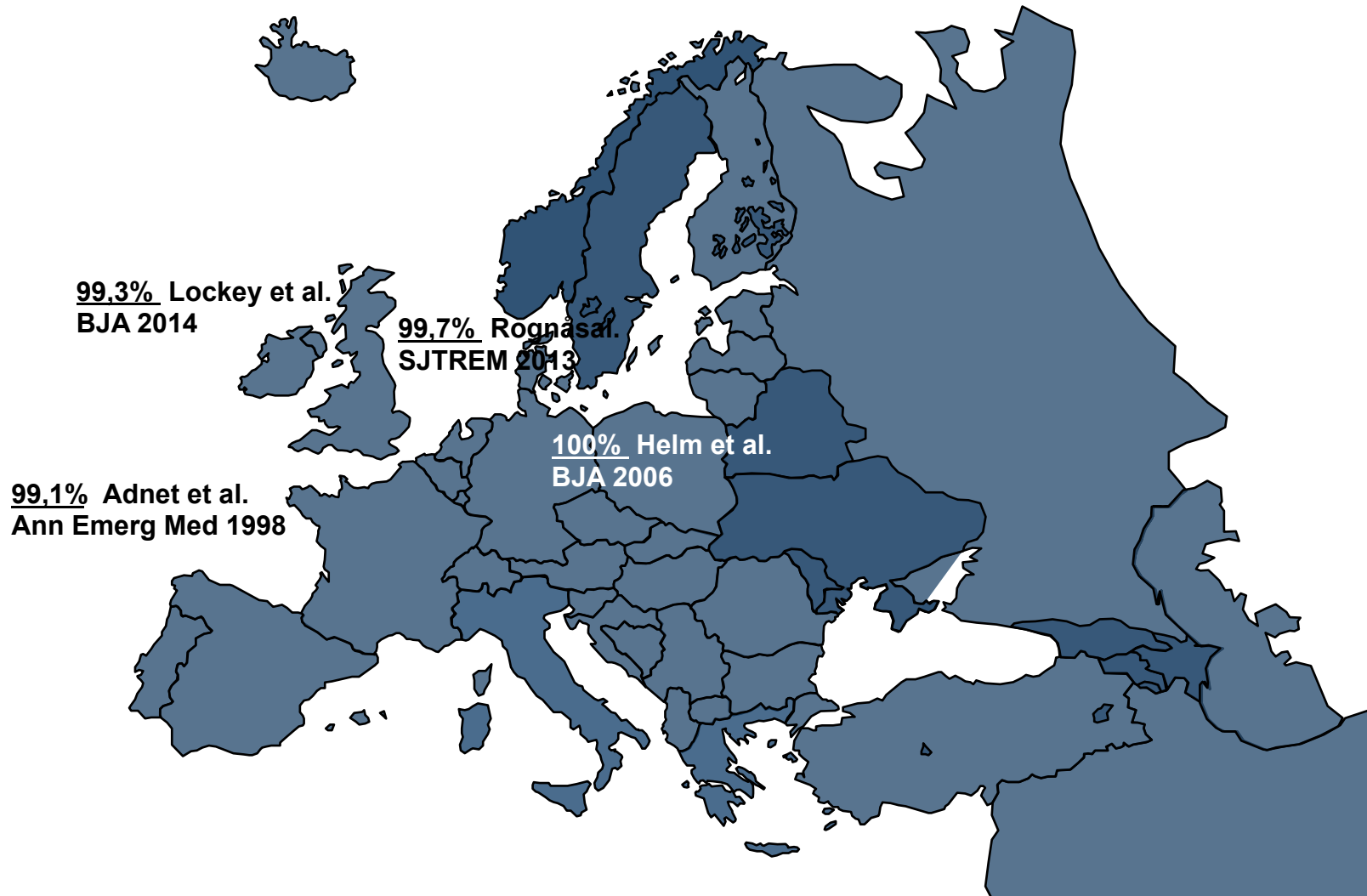


Prehospital airway

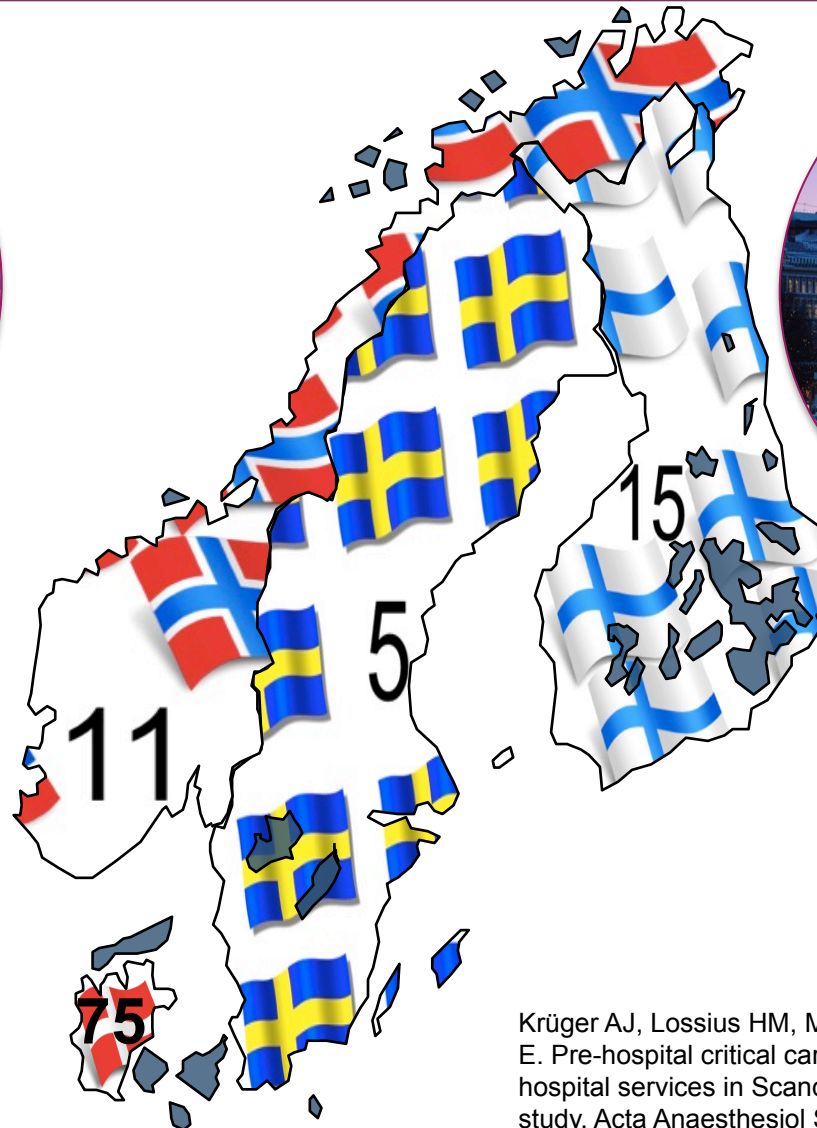


PHAAM problems

Background PHAAM in Europe



EMS in the Nordic Countries



Krüger AJ, Lossius HM, Mikkelsen S, Kurola J, Castrén M, Skogvoll E. Pre-hospital critical care by anaesthesiologist-staffed pre-hospital services in Scandinavia: a prospective population-based study. *Acta Anaesthesiol Scand.* 2013 Oct;57(9):1175-85

Aim Investigate PHAAM success rate and complications in different types of Nordic EMS and physician critical care teams.

Design

- Prospective
- Observational
- PHAAM data (Sollid et al)
- Nordic Multicentre

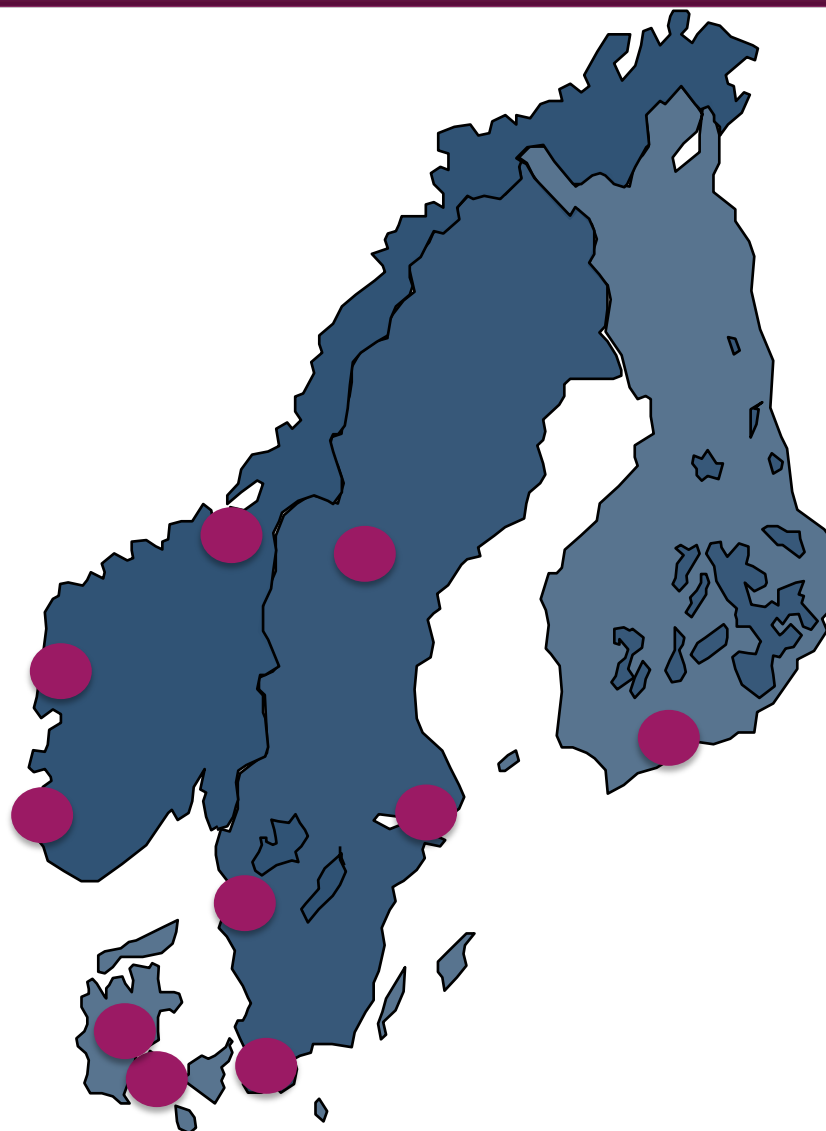


Sollid S, Lockey DJ, Lossius HM. A consensus-based template for uniform reporting of data from pre-hospital advanced airway management. SJTREM 2009, 17:58

Participating centers



Norway	Stavanger HEMS Trondheim HEMS Bergen HEMS	Physician Ane. Physician Ane. Physician Ane.
Sweden	Stockholm HEMS Stockholm RRC Stockholm RRC 1&2 Gothenburg HEMS/RRC Skåne Ambulance Östersund HEMS	Nurse Ane. Physician Ane. Nurse Ane. Physician Ane. Nurse Phys./Nurse Ane.
Denmark	Århus RRC Odense RRC	Physicians Ane. Physician Ane.
Finland	Helsinki HEMS	Physician Ane.



- Statistics
- Paper CRF
- CRF reviewed by 10 prehospital physicians
- Investigators Meeting
- Base staff education & IB
- Monthly email newsletter/update

Pre-hospital Advanced Airway Management (PHAAM) in the Nordic Countries



IMPORTANT: Please answer all questions and fill in all numbers in the brackets

1a. Provider	☐ Physician ☐ Anaesthesiologist ☐ Anaesthesiology registrar ☐ Emerg.Med. specialist ☐ Emerg.Med. registrar ☐ Physician specialist other: _____ ☐ Nurse ☐ Nurse Anaesthetist ☐ Nurse EMS/ICU ☐ Paramedic ☐ Other: _____
2. Experience	Years as specialist: [] Years as EMS physician/nurse: [] Total intubations: []
3. Alarm data	Date (Y/M/D): [] Ambulance number: [] Record no: [] Time on scene: [] min Transport time to hospital: [] min Comment: _____
4. Patient data & comorbidities	Id-number: []- [] or provisional no. [] ☐ Male ☐ Female ASA-score (1-6): [] ☐ ASA unknown Ischemic heart disease: ☐ Yes ☐ No ☐ unknown COPD: ☐ Yes ☐ No ☐ unknown Estimated weight: [] kg Other: _____
5. Pat. Category (more than one may be checked)	NACA-score (0-7): [] Blunt Trauma: ☐ Traumatic brain injury ☐ Multitrauma ☐ Other blunt trauma ☐ Burns Penetrating trauma: ☐ Gun Shot ☐ Knife ☐ Other penetrating Non-trauma: ☐ Cardiac arrest ☐ Other Cardiology ☐ Stroke/SAH ☐ Astma/COPD ☐ Intoxication ☐ ENT ☐ Strangulation ☐ Other: _____
6. First vital signs	Glasgow Come Scale (3-15): [] (IMPORTANT) SpO2 [] % ☐ with O2 ☐ w/o O2 Respiratory rate: [] /min Heart rate: [] /min Systolic Blood Pressure [] mmHg
7. PHAAM indication	☐ Reduced consciousness ☐ Hypoxia ☐ Ineffective ventilation ☐ Cardiac Arrest ☐ Existing airway obstruction ☐ Threatening airway obstruction ☐ Reduce pain or stress ☐ Combative or uncooperative ☐ Other (specify): _____
8. Airway assessment	☐ Prior difficult airway management ☐ Reduced neck mobility /in-line stabilisation ☐ Severe obesity ☐ Small mouth (<4 cm) ☐ Short thyro-mental distance (<6,5 cm) ☐ Significant airway trauma ☐ Blood/mucus ☐ Other: _____ ☐ Airway evaluation not performed ☐ Pre-existing airway device (LMA etc) not working
9. Aggravating conditions	☐ Patient trapped ☐ Bright light/sun ☐ Darkness ☐ Hostile environment ☐ In moving helicopter/ambulance ☐ In stationary helicopter/ambulance ☐ Other: _____
10. Checklist	Pre-intubation checklist used ☐ Yes ☐ No
11. Airway management	Mark with figures in boxes below first attempt with "1" and if more attempts "2", "3", "4" etc Ex. A) Two intub. attempts standard laryngoscope → [1] standard laryngoscope w/o stylet Ex. B) One attempt I-gel then one laryngoscopy → [1] I-gel + [2] laryngoscopy Ex. C) first one failed laryngoscopy, then two failed attempt C-MAC (second C-MAC with stylet) then I-gel LMA → [1] standard laryngoscope + [2] C-MAC / [3] with stylet + [4] I-gel Spontaneous respiration ☐ No assistance (with/witout O2) ☐ With chin-lift or jaw-thrust ☐ With oropharyngeal-/nasopharyngeal airway Bag-mask-ventilation ☐ With chin-lift or jaw-thrust ☐ With oropharyngeal/nasopharyngeal airway Laryngeal mask (LMA) ☐ Standard ☐ I-gel ☐ Supreme ☐ Air-Q ☐ Intubating LMA ("Fasttrach") ☐ Other (specify): _____ Oral intubation ☐ Standard laryngoscopy ☐ with stylet ☐ with "Gum Elastic Bougie" Videolaryngoscope ☐ Glidescope ☐ C-MAC ☐ McGrath ☐ Airtraq ☐ Other VL: _____ ☐ with stylet ☐ with "Gum Elastic Bougie" to VL above Other ☐ Coniotomy ☐ Percutaneous ☐ Surgical ☐ Nasal intubation

13. PHAAM result	Intubation success ☐ Yes ☐ No <i>Intubation success = capnographic or lung auscultation verification</i> Approximate intubation time [] s <i>Intubation time = laryngoscope first pass front teeth to verification by ETCO2 or lung auscultation</i> Best Cormack-Lehane score (1-4, 1=best view): [] Number of airway attempts: Intubation [] Laryngeal mask [] Other [] Number of airway management devices used: []	
14. PHAAM complications (occurring due to and not before PHAAM)	☐ None ☐ Surgical airway necessary ☐ Esophagus intubation ☐ Bronchus intubation ☐ Post-intubation cardiac arrest ☐ Hypoxia (SpO2<90%) ☐ Bradycardia (HR<60/min) ☐ Hypotension (SBT<90) ☐ Aspiration (during PHAAM) ☐ Dental trauma ☐ Other (specify): _____	
15. Drugs used during PHAAM (more than one may be checked)	☐ None ☐ Thiopental ☐ Propofol ☐ Ketamine (Ketalar) ☐ Esketamine (Ketanest) ☐ Fentanyl ☐ Alfentanil ☐ Morphine ☐ Lidocain ☐ Midazolam ☐ Suxamethonium (celocurin/curacit) ☐ Rocuronium (esmerone) ☐ Vasopressor ☐ Other: _____	
16. First vital signs post PHAAM	ETCO2 _____ kPa SpO2 _____ % Respiratory rate _____ /min Heart rate _____ /min SBP _____ mmHg	16. Post PHAAM ventilation ☐ Spontaneous ventilation ☐ Controlled ventilation ☐ Manual ventilation ☐ Mechanical ventilation ☐ Both manual/mechanical ☐ Mixed spontaneous & controlled ventilation
17. First blood gas at emergency department	PaCO2: [] pH: [] Base excess: [] PaO2: [] Lactate: [] B-glu: []	17. Vital signs on arrival at the emergency department ETCO2 _____ kPa SpO2 _____ % Respiratory rate _____ /min Heart rate _____ /min SBP _____ mmHg
18. Prehospital outcome	☐ Patient alive upon arrival at emergency department ☐ Ongoing CPR upon arrival at emergency department ☐ Prehospital death (declared by physician outside hospital)	
19. PHAAM not performed	Did you consider prehospital intubation but decided against it? ☐ Yes ☐ No If yes, what was the reason (more than one may be checked)? ☐ Expected difficult intubation ☐ Difficult access to patient ☐ Patients co-morbidity ☐ Patients condition ☐ Short distance to hospital (☐ <10 min, ☐ 10-20 min, ☐ 20-30 min) ☐ Lack of training/experience ☐ Lack of appropriate equipment ☐ Lack of necessary assistance ☐ Other: _____	
20. Other comments	_____ _____ _____	

Please check that all questions have been answered. Thank you for your participation and important contribution.
 /professor Hans Morten Lossius on behalf of PHAST Trial Group
 24/7 study contact: Mikael Gellerfors, MD, +46-70-7711133, E mikael.gellerfors@ki.se

- Statistics
- Paper CRF
- CRF reviewed by 10 prehospital physicians
- Investigators Meeting
- Base staff education & IB
- Newsletter/update & meeting with investigators etc

Investigator info



Pre-hospital Advanced Airway Management in Nordic Countries – a Prospective Multicentre Observational Study

Venue Torsten Gordh-salen F2:00, Anaesthesiology & Intensive Care Department
Karolinska University Hospital, Solna, Stockholm

<u>Time</u>	<u>Program</u>	<u>Presenter</u>
12.00-12.30	Welcoming words and lunch	Hans Morten Lossius
12.30-13.00	Background PHAAM in the Nordic Countries	Hans Morten Lossius
13.00-13.30	PHAST	Mikael Gellerfors
13.30- 13.50	Coffee Break	
13.50-15.00	PHAST Protocol, CRF & Investigator Brochure	Mikael Gellerfors
15.00-15.45	Demo - Trauma Unit & New Karolinska Hospital	Dan Gryth
15.45- 16.00	Coffee Break	
16.00-17.00	Workshop and Q&A	All

RSVP Before April 1 to mikael.gellerfors@ki.se
Meeting contact: Mikael Gellerfors, M +46(0)70-7711133

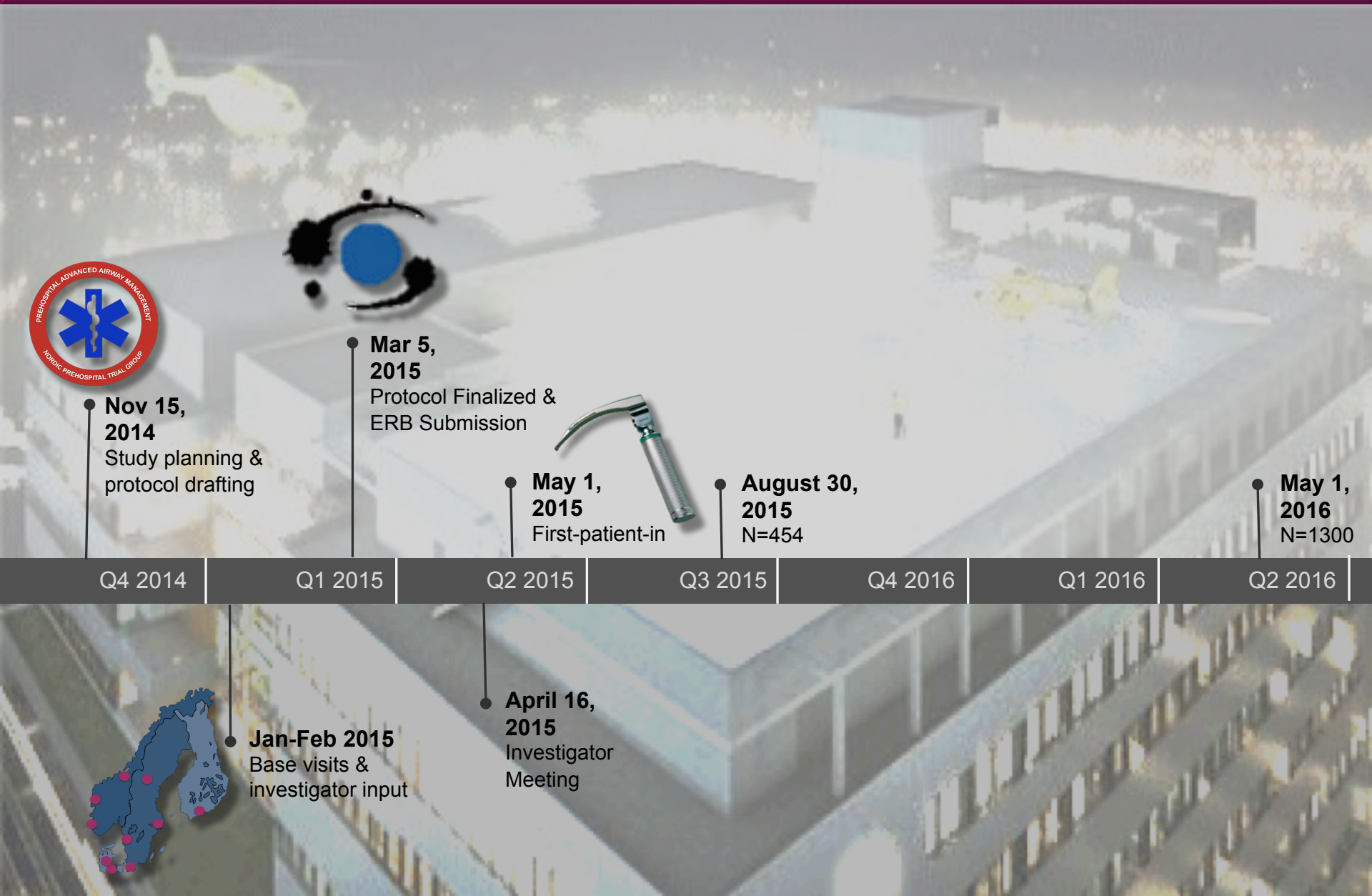


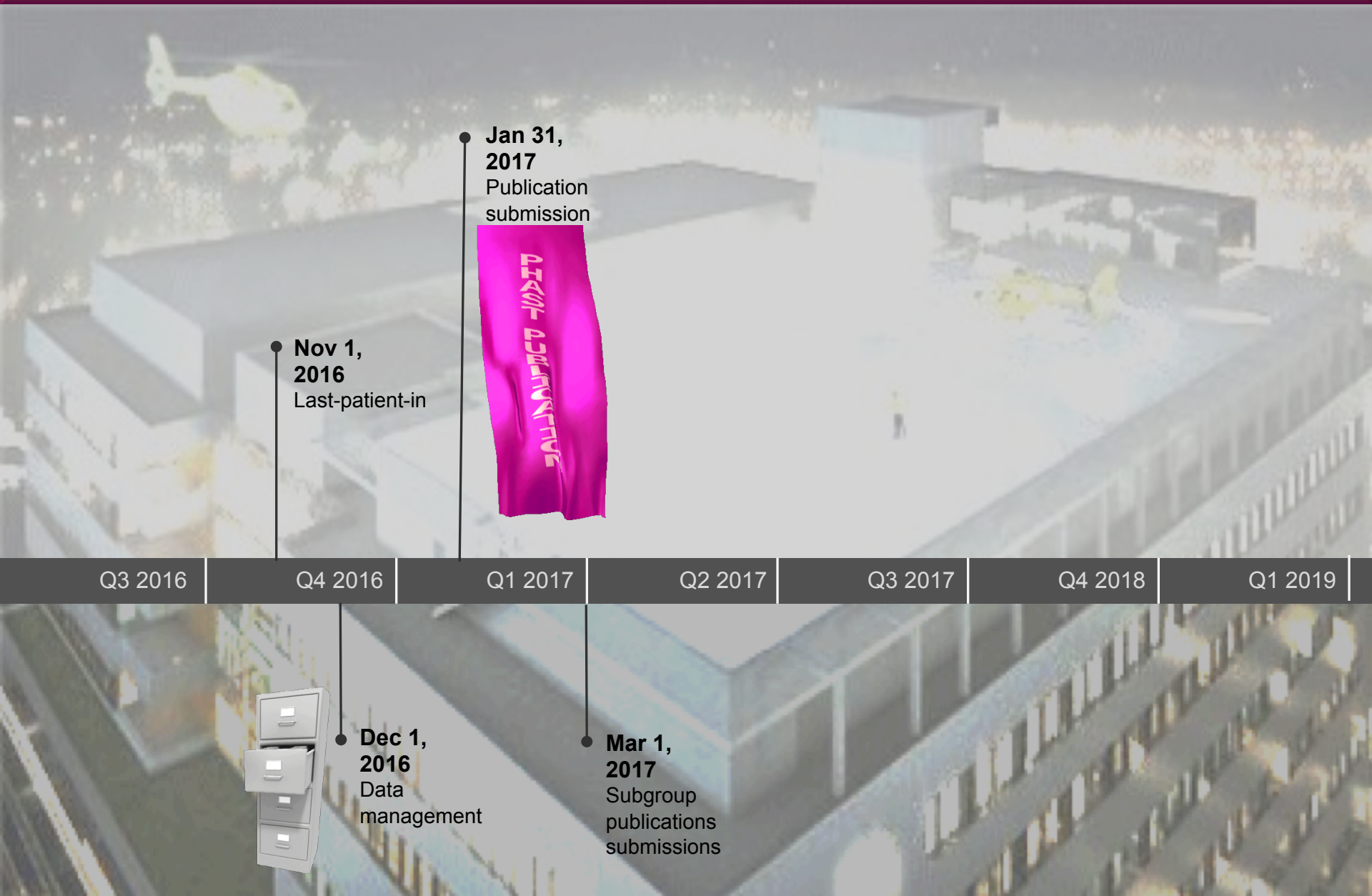
Pre-hospital Advanced Airway Management in Nordic Countries – a Prospective Multicentre Observational Study

Vilka patienter?	Alla patienter som har indikationen för avancerad luftvägshantering (intuberas, larynxmask eller koniotomi) oavsett om du väljer att göra detta eller inte.
Hur?	Fyll i den 2-sidiga luftvägsenkäten och lägg den i avsedd låda på ambulansstationen. Viktigt att fylla i alla rutor (behövs för statistiken).
Mer info?	Vb finns detaljerad vägledning i "Investigators Brochure".

24/7 kontakt Välkommen med alla frågor (inga frågor är för dumma) till prövare
Mikael Gellerfors leg. läk. M 070-7711133 E mikael.gellerfors@ki.se

- Observational non-intervention study
- ERB application approved in Sweden (2015/411-31, 2015/1519-32), Denmark & Norway, not necessary Finland
- PUL registered (31/3/15)
- Clinicaltrials.gov registered NCT02450071





Subgroup analysis

Pre-hospital Advanced Airway Management (PHAAM) in the Nordic Countries



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2. Experience	Years as specialist: [] [] Years as EMS physician/nurse: [] [] Total intubations: [] [] [] []
3. Alarm data	Date (Y/M/D): [] [] [] Ambulance number: [] [] [] [] Record no: [] [] [] [] Time on scene: [] [] min Transport time to hospital: [] [] min Comment: _____
4. Patient data & comorbidities	Id-number: [] [] [] []- [] [] [] [] or provisional no. [] [] [] [] ☐ Male ☐ Female ASA-score (1-6): [] ☐ ASA unknown Ischemic heart disease: ☐ Yes ☐ No ☐ unknown COPD: ☐ Yes ☐ No ☐ unknown Estimated weight: [] [] [] kg Other: _____
5. Pat. Category (more than one may be checked)	NACA-score (0-7): [] [] Blunt Trauma: ☐ Traumatic brain injury ☐ Multitrauma ☐ Other blunt trauma ☐ Burns Penetrating trauma: ☐ Gun/wound ☐ Knife ☐ Other penetrating Non-trauma: ☐ Cardiac arrest ☐ Other Cardiology ☐ Stroke/SAH ☐ Astma/COPD ☐ Intoxication ☐ ENT ☐ Strangulation ☐ Other: _____
6. First vital signs	Glasgow Coma Scale (3-15): [] [] (IMPORTANT) SpO2 [] [] % ☐ with O2 ☐ w/o ☐ Respiratory rate: [] [] /min Heart rate: [] [] /min SBP [] [] mmHg
7. PHAAM indication	☐ Reduced consciousness ☐ Hypoxia ☐ Ineffective ventilation ☐ Cardiac Arrest ☐ Existing airway obstruction ☐ Threatening airway obstruction ☐ Reduce pain or stress ☐ Combative or uncooperative ☐ Other (specify): _____
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9. Aggravating conditions	☐ Patient trapped ☐ Bright light/sun ☐ Darkness ☐ Hostile environment ☐ In moving helicopter/ambulance ☐ In stationary helicopter/ambulance ☐ Other: _____
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Trauma
Shock

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- 30/11/2015 - 30/04/2016 425 pts

Top 5 including units spring 2016

Helsinki HEMS	124 pts
Stockholm (Sollentuna) RRC	72 pts
Aarhus RRC	62 pts
Odense RRC	62 pts
Trondheim	35 pts

- Total 1300 pts

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Success factors



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HM Lossius

Paper CRF

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Providers

You



Success factors

HM Lossius

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Success factors



Karolinska
Institutet

HM Lossius

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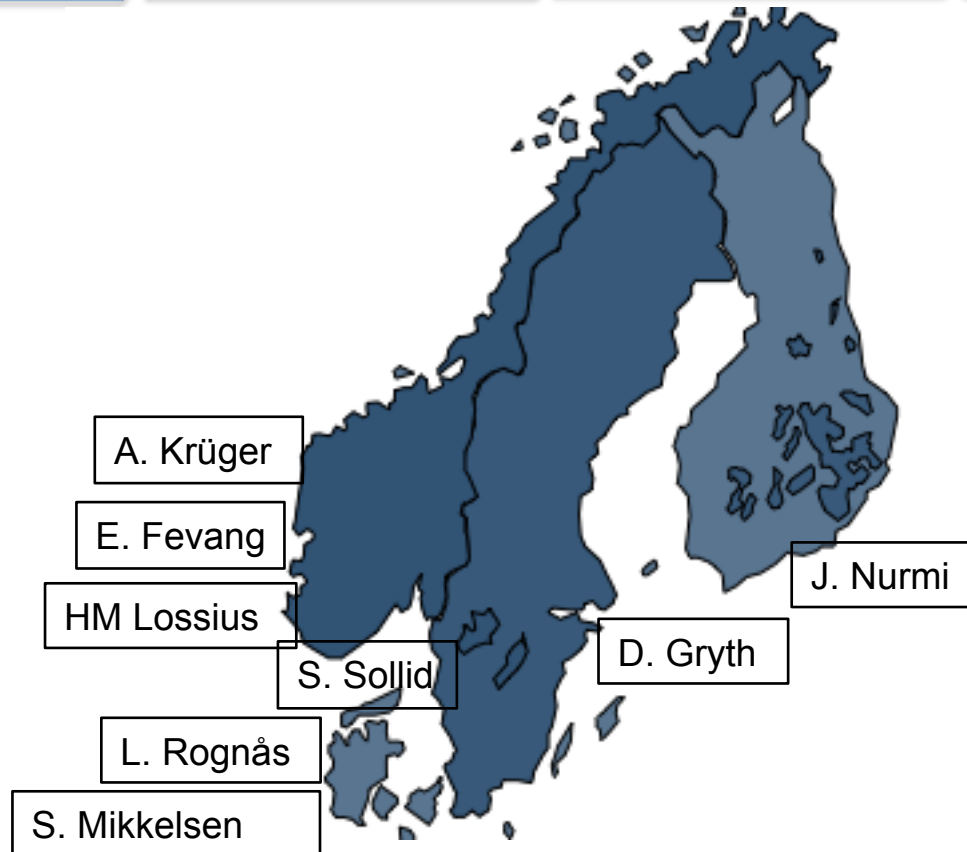
You



Success factors



Karolinska
Institutet



Thank you



Karolinska
Institutet

