

S1) Announcement of the survey

Safety and complication rates of helicopter emergency medical service transport of ventilated patients – the HOVER II study

Announcement of call for participation

Potential participants:

Helicopter Emergency Medical Service (HEMS) bases transporting ventilated patients independent to mission (no matter if rescue mission or inter-hospital transfer)

Status:

In Set Up

Trial registry:

Research Registry (www.researchregistry.com): [researchregistry2925](https://www.researchregistry.com/registries/researchregistry2925).

Purpose:

Scientific research has shown that the management of ventilated patients during HEMS mission may vary considerably. The handover management of ventilated patients is particularly prone for potential complications that may deteriorate already critical patients conditions. According to a recent survey, only approximately 50% of the participants frequently carried the helicopter ventilator and emergency equipment during patient transport to the ER. Depending on the situation, more than 90% of the respondents used the helicopter ventilator and emergency backpack during the transport. The collection of the HEMS team by a hospital team at the helipad was appreciated by the majority of participants.

The purpose of this study is to assess real-world management of ventilated HEMS patients in an observational point-prevalence survey.

For patients there will be no interventions but documentation of mission-related data. Data will be collected and analyzed anonymously via an online database. The need for written informed consent was waived by the Ethical commission of the University of Würzburg, Germany.

We wish to study all patients of participating HEMS bases who are transported under ventilator use. In order to maximize sample size of participants, we will analyze three consecutive days in June 2019 (20th of June to 22th of June). Safety will be monitored by an independent Data Monitoring and Safety Committee.

Results from this study will be published in an international journal so that this work will have worldwide benefit.

Contact Information

Chief Investigator: Dr. Peter Hilbert-Carius

Study Coordination: HOVER study team: Dr. Michael Bernhard, Dr. Veronika Hofer, Dr. Björn Hossfeld, Prof Jochen Hinkelbein, Dr. Manuel Struck, Prof Thomas Wurmb

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The survey link is going to be available with the second announcement at 1st of June (see below)

Timeline



1. Announcement: 01.05.2019

Preparation of online data base and survey link

2. Announcement and send of survey link: 01.06.2019

3. Announcement: 19.06.2019

Study date: 20./21./22.06.2019

Date analysis and preparation of publication

Contact Information:

Main Investigator: Dr. Peter Hilbert-Carius

Study Coordination: HOVER study team: Dr. Michael Bernhard, Dr. Veronika Hofer, Dr. Björn Hossfeld, Prof. Jochen Hinkelbein, Dr. Manuel Struck, Prof. Thomas Wurmb

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We would be very grateful if you could forward the information regarding HOVER II to chummy HEMS bases.

S2) Questionnaire of the survey

General characteristics: HEMS team

1. Helicopter availability:

- until sunset
- 24h

2. Helicopter Type:

- Airbus (and predecessor manufacturers) _____,
- Bell _____,
- MD _____,
- Sikorsky _____,
- Agusta _____
- other (specify): _____

3. Configuration:

- single pilot
- dual pilot
- depending on time of day

4. HEMS team structure:

- Physician/Paramedic
- Physician/Flight nurse
- Flight nurse/Paramedic
- other (specify): _____

5. HEMS experience medical team leader:

- ___ Years

6. Physician training (main area of expertise):

- N/A
- emergency medicine
- anaesthesia
- intensive care
- medical
- surgeon / traumatologist

other (specify: ___)

7. Physician board certification:

N/A

yes

no

8. Physician special ICU training:

N/A

yes

no

9. Persons on board total:

__ number

10. Persons in cabin: number

__ number

11. During flight in cabin with the patient:

paramedic

flight nurse

physician

other (specify): ___

12. HEMS ventilator:

VCV / IMV / IPPV only

PCV / BIPAP possible

CPAP / ASB / NIV possible

specify manufacturer and type: _____

13. HEMS ventilator backup:

BMV only

BMV with O2-demand option

additional ventilator

14. Ability to take Blood-Gas-Analysis during flight:

yes / no

15. HEMS stretcher:

roll in stretcher

non roll in stretcher

depending on mission

16. HEMS missions today:

total number:

number of ventilated patients:

If you have transported a ventilated patient today please complete the following CRF! Use a separate CRF for every ventilated patient if you have transported more than one of these patients.

CaseReportForm (CRF) Patient

- **SEX:**
 - male
 - female
- **AGE:**
 - years
- **WEIGHT:**
 - kg
- **HEIGHT:**
 - cm
- **APPROACH:**
 - ICU
 - ED
 - SCENE
- **CONTEXT:**
 - Trauma
 - Burns
 - Neurology
 - Cardiothoracic
 - ARDS
 - post CPR
 - post-surgery
 - paediatric
 - other (specify): _____
- **ETI:**
 - HEMS
 - OTHER EMS
 - HOSPITAL

- **INSTRUMENTATION:**

- AIRWAY: Endotracheal Tube (oral or nasal) Tracheal Cannula Supraglottic Airway
- IntraVenousLine: __ (number)
- CVC: jugular V. subclavian V. femoral V. none
- ArterialLine: rad fem other none
- ChestTube: unilateral bilateral none
- UrinaryCatheter: Yes No
- OTHER DEVICE (specify):_____

- **PERFUSOR (syringe-pump):**

__ number

- **DRUGS:**

Vasopressor

Inotrope

Sedative

Analgesic

Other

- **SBP (mmHg)**

at admission____

at handover_____

- **HR (bpm)**

at admission____

at handover_____

- **SAO2 (%)**

at admission____

at handover_____

- **ETCO2 (mmHg)**

at admission____

at handover_____

- **Mode of ventilation at admission:**

VCV (IPPV, SIMV)

PCV (BIPAP, PSV, BiLevel, APRV)

NIV

- **Mode of ventilation at handover:**
 - VCV (IPPV, SIMV)
 - PCV (BIPAP, PSV, BiLevel, APRV)
 - NIV
- **Patient paralysed during HEMS transport: yes / no**
- **PIP (mmHg)**
 - at admission___
 - at handover_____
- **PEEP (mmHg)**
 - at admission___
 - at handover_____
- **RF (f/min)**
 - at admission___
 - at handover_____
- **TV (ml)**
 - at admission___
 - at handover_____
- **Target Hospital - Availability of... at landing site:**
 - O2
 - Ventilator
 - Welcome team at landing site
- **Handover place (end of HEMS responsibility):**
 - Landing site
 - ED
 - ICU
 - OR
- **Ventilator used during transfer from landing site to hospital:**
 - HEMS ventilator
 - hospital ventilator
 - BMV only

- **Prophylactic safety measures during transfer from landing site to hospital:**
 - BMV
 - emergency backpack
- **Adverse events during transfer- loss of:**
 - tube
 - line
 - device failure
 - deterioration of patient condition
 - none

Thank you for your participation!

S3) The announcement of the survey was send to HEMS bases of the following countries:

- **Austria**
- **Denmark**
- France
- Finland
- **Germany**
- Italy
- **Luxemburg**
- Netherland
- Norway
- Poland
- **Switzerland**
- Sweden
- **United Kingdom**

HEMS bases of countries printed in bold type participated in the survey.