



HELSE BERGEN

Haukeland Universitetssjukehus
Yrkesmedisinsk avdeling



**NORWEGIAN CENTRE FOR
MARITIME MEDICINE**



Radio Medico Norway

**Challenges
Technology
Quality
Arctic areas**

Solstrand

23.April 2014

Arne J. Ulven

Research Director

Norwegian Centre for Maritime Medicine

Haukeland University Hospital

About me:

- Medical doctor
- Specialist in occupational medicine
- Diving medicine for some years
- Ship's doctor
- 21 years in Statoil
- Since 2006 NCMM as Research Director and RMN as Medical Director

My relevant experience in the present context :

- **For 28 years I have been treating patients without seeing them**

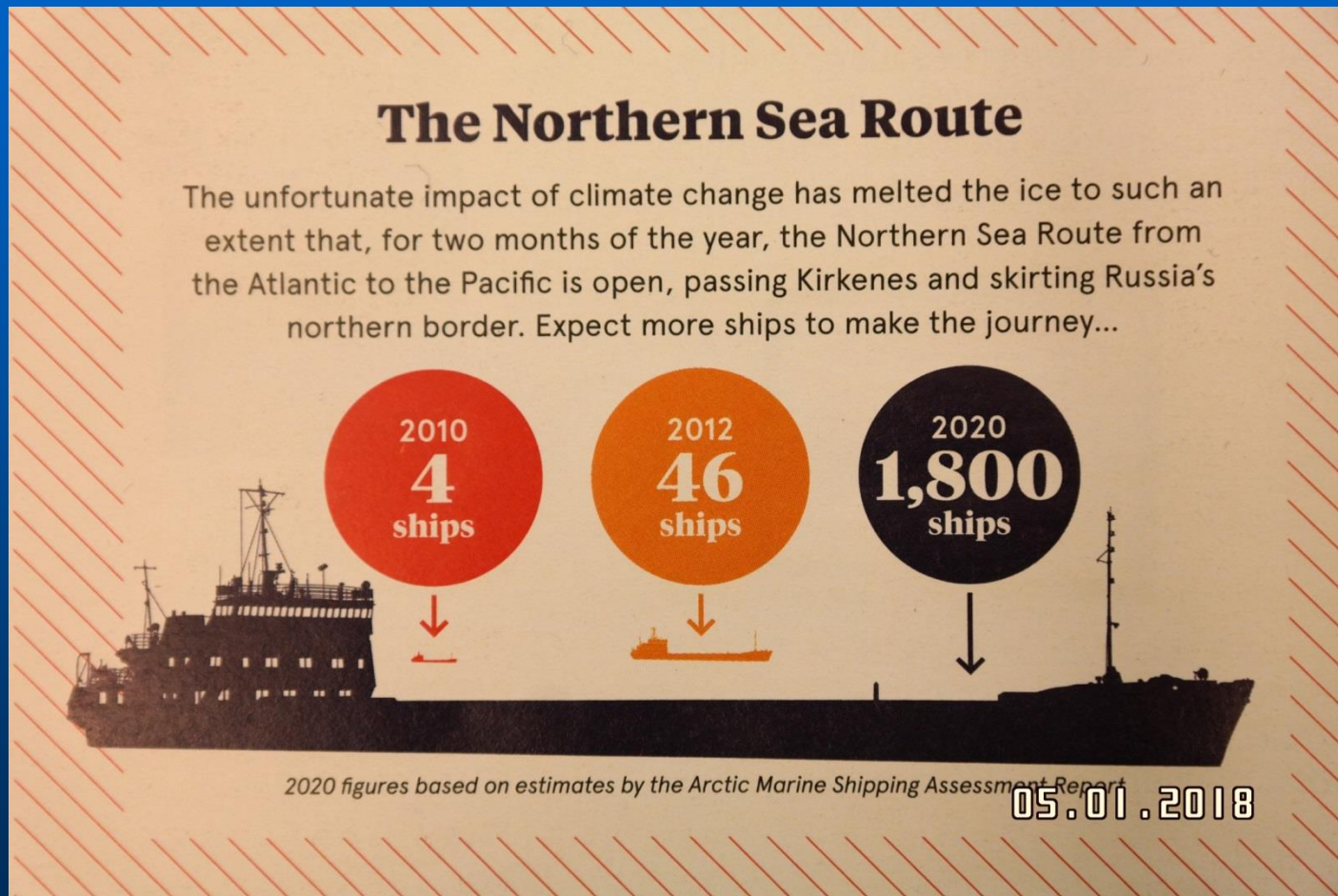
(North Sea Oil and Gas for 21 years)

(All around the globe for 6 years in Radio Medico Norway)



”Shipping is perhaps the most international of all of the world's great industries and one of the most dangerous”.

..and soon even more international



..and soon Oil and Gas Rigs in the Arctics



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ajul@helse-bergen.no
Haukeland University Hospital

**..and as a consequence:
a fleet of
Offshore Support Vessels
in the Arctics**





The Ship Safety Act

Regulations on ship medicine:

Ships shall receive medical advice free of charge in cases of disease or accident via coast radio stations, or the medical distress service



Special challenges:

- Untraditional, partially improvised treatment
- Medically unskilled personnel on board the ship. «Qualified MD» after 40 hours training in «medicine on board».
- Countries, harbours, hospitals



- **Search and rescue (SAR)-
capacity**
- **Weather conditions**
- **Procedures for medical
evacuation and repatriation**
- **Long period of treatment on
board the ship**



- **Level of medical knowledge and skills on board the ship**
- **Language-barriers**
- **Culture-differences**
- **Telecommunication**



- **The seafarers have to function as the doctor's eyes, ears, nose and hands**
- **Only the skills that has been trained in advance are available**
- **Only the equipment and medicines on board are available**
- **Variation between the different ships**

**The challenges are even
more important to be aware
of when sailing
”The Northern Sea Route”**

**...and performing
Oil and Gas Operations
in
the Arctic regions**

Oil and Gas Rigs

- Medic
- Nurse
- Medical Doctor

- Special training in Remote Health Care
- Additional Equipment (digital X-ray, Ultra sound +++)
- Advanced Telemedicine
- Additional stock of Medicines

■ +++ ?

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Oil and Gas Support Vessels

- Medic
- Nurse

- Special training in Remote Health Care
- Additional Equipment (Ultra sound +++) ?
- Advanced Telemedicine ?
- Additional stock of Medicines
- +++ ?

Merchant Ship

- Additional Equipment ?
- Basic Telemedicine ?
- Additional stock of Medicines ?
- +++ ?

An important ethical dilemma:

- The outcome of a serious medical condition can differ dramatically depending upon whether you are located on a merchant ship, an OSV or a rig.



What the responsible «medical officer» must master :

Examine a sick or injured person



Stop bleedings

Repositioning of fractures



Bandaging and splinting

Close a wound

**Establish an intravenous line
and give infusions**

**Administer medicines by
injection**

Give oxygen



**Select the correct medicine
from the medical chest**

**Monitor and continuously
evaluate the patient**

**With instructions be able to
empty the urinary bladder by
means of a catheter**



Treat serious infections

**Manage on your own for many
days**

+++++

The medical skills of the responsible «medical officer» become even more important when sailing "The Northern Sea Route" or operating in the Artics

The challenge of evacuation

■ From ship/rig to decent hospital

1. «Time-Window»
2. Possible
3. Not possible
4. Deviation needed

■ From ship to rig

1. «Time-Window»
2. Possible
3. Not possible
4. Develop a transfer-system?

■ Helicopter range

1. An important limitation
2. Fuel depots (on land, on ice, on ship) ?



TMAS Norway

=

Radio Medico Norway

=

RMN

Radio Medico Norway

RMN

- Est. 1949
- From 01.01.2011 the service is incorporated in **Norwegian Centre for Maritime Medicine NCMM**
- NCMM is part of the public hospital in Bergen: **Haukeland University Hospital**

RMN

- We serve every ship that contacts the Norwegian CES
- Nationality of shipowner, ship registry, flag-state, captain or crew does not make any difference.
- Every geographical position is allowed.
- The service is totally free of charge.



Radio Medico Norway



**serves
the world of shipping
free of charge**



Risks
and
Risk assessment
in
Remote health care

Suboptimal or wrong:



Diagnosis

Treatment

Monitoring

Follow-up

**Decisions on actions
(MEDEVAC, deviation
++++++)**

What are the consequences of a wrong diagnosis?

When needed:

- No evacuation
- No deviation
- No admission to hospital
- No sick-leave
- No repatriation
- ++++

When not needed

- Evacuation
- Deviation
- Admission to hospital
- Sick-leave
- Repatriation
- ++++

Relevance to KPI ?

- Life or Death
- Still at good health vs. Disability
- Lost Time Incident (LTI) vs.
- Medically Treatment Incident vs.
- First Aid Incident
- Insurance premium
- Sick leave
- Repatriation
- Deviation
- Delay

Telemedical shortcomings ?

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ajul@helse-bergen.no
Haukeland University Hospital



YES !

Abdominal pain



See the patient walking?

See the patient lying down?

See the officer palpating the abdomen?

Show the officer how to examine the abdomen?



Wound

Show the officer how to suture the wound?

Observe how the officer is performing the suturing?

Correct the procedure?



Dislocated fracture

Show the officer how to reposition the fracture?

Observe how the officer is performing the repositioning?

Correct the procedure?



The challenge:

**Take available
communications technology
into use !**



The ethical dilemma:

Knowing what to do,
having an available toolbox
and available resources,
but **not doing**.....



Radio Medico Norway

**is knowing what to do
and
is doing...**

Videocostultation

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ajul@helse-bergen.no
Haukeland University Hospital

With a little help from ...

**Siem offshore, SHELL and Viju
....and suddenly....
eternity was redefined to
6 weeks**

15. June 2012 - 01. August 2012



Baffin Bay, Greenland

Siem Offshore / Shell

Contract

Agreement with hospital CEO

Agreement with CES

Agreement with specialists

Allowed into the «health IT-net»

Hardware bought and installed

Software installed

Information and training in the hospital

Information and training at CES

In operation

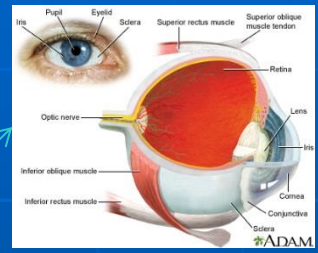
Radio Medico Norway has established:

- **Medical doctor on call 24/7**
- **State of the art Telemedical facilities**
- **Operations Central**
- **Demonstration Room**
- **Immediate telemedical access to all Specialist Departments**
- **Necessary logistics within the Haukeland University Hospital in Bergen**

Radio Medico Norway is aiming at:

- **1 medical doctor present 24/7 in an operation central**
- **1 medical doctor (with an extensive experience from maritime telemedicine) on call 24/7 for consultation and back-up**
- **The challenge is the funding of the service (free of charge for all ships)**

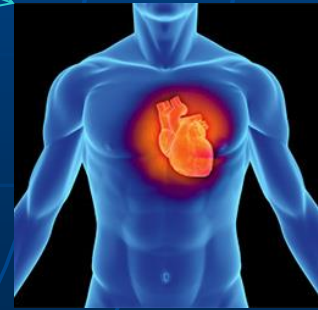




RMN

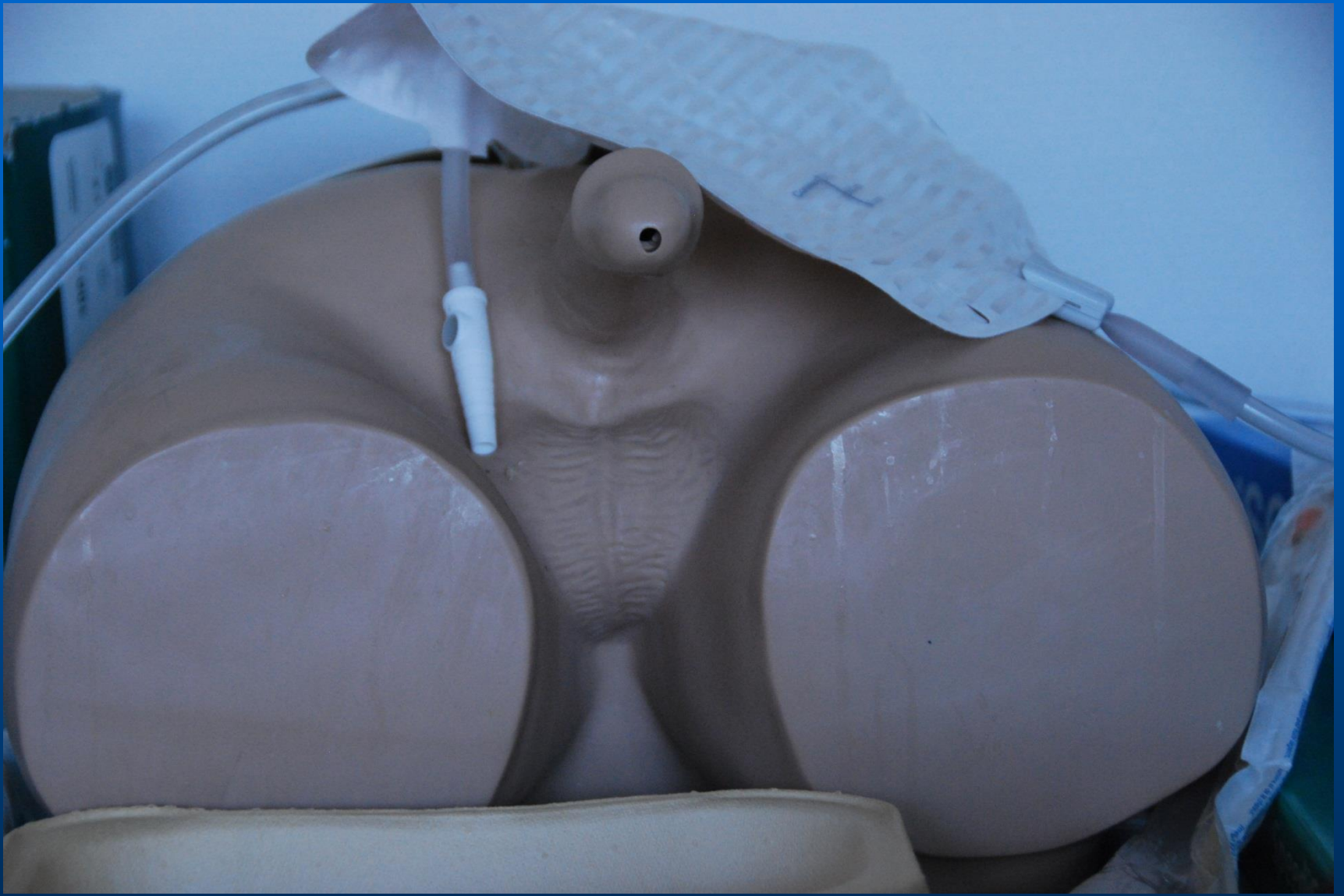
CES

JRCC









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Haukeland University Hospital



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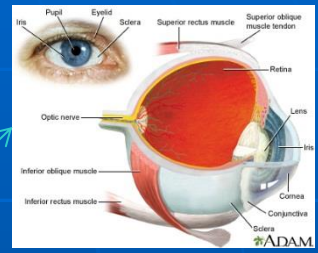
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RMN

CES

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NORWEGIAN CENTRE FOR
MARITIME MEDICINE

Ny sikkerhetsmelding - Kommunikasjon mellom sykerom og assisterende lege i land

Publisert: 24. jan 2014 16.16 Sist endret: 24. jan 2014 16.17

Årsak:

«Tilfeller der syk eller skadet person ikke får optimalt medisinsk tilsyn og behandling på grunn av manglende eller sviktende kommunikasjonssystem mellom sykerom og assisterende lege i land.

Det kan være avgjørende for om pasienten får en vellykket behandling eller ikke at medisinsk personell om bord kan være tilstede i samme rom som pasienten ved beskrivelse av skader/symptomer og ved mottak av råd om behandling fra lege i land. Dette forutsetter et velfungerende kommunikasjonssystem mellom sykerom og lege i land.

Sjøfartsdirektoratet har sett tilfeller av manglende direkte kommunikasjonsmuligheter mellom sykerom og assisterende lege i land som har ført til at pasienten ikke har fått den riktige behandlingen, eller at behandlingen har kommet for sent i gang. Årsaken er at medisinsk personell blir nødt til å forlate sykerom og pasienten for å kommunisere med legen. Spesielt alvorlig kan dette bli for svært syke pasienter som trenger overvåkning og som ikke er i stand til å forflytte seg fra sykerom.»

Tiltak

«Med bakgrunn i erfaringer med uønskede hendelser, vil Sjøfartsdirektoratet anbefale at fartøy som ikke har kommunikasjonsutstyr i sykerom legger **forholdene til rette for at kommunikasjon med lege i land kan skje direkte fra sykerom**, slik at pasienten får et behandlingstilbud som er optimalt under de rådende omstendigheter. Det vil være en fordel om denne kommunikasjonen kan skje trådløst og over høyttaler, slik at medisinsk personell om bord kan vie sin fulle oppmerksomhet til pasienten. **Den teknologiske utviklingen tilsier at dette er et tiltak som det er mulig å få til på alle seilende skip i dag.** Bredbåndstilkopling til satellittsamband er nødvendig dersom en skal sende bilder eller annen informasjon til lege i land.

Utover dette bør en vurdere ytterligere tiltak, slik som installasjon av overvåkningsutstyr/ videokamera i sykerom, for å kunne gjennomføre en videokonsultasjon mellom skip og assisterende lege i land. Da kan legen se og observere pasienten, noe som vil tale til fordel for pasienten.»

«Utover dette bør en vurdere ytterligere tiltak, slik som installasjon av overvåkingsutstyr/ videokamera i sykerom, for å kunne gjennomføre en videokonsultasjon mellom skip og assisterende lege i land. Da kan legen se og observere pasienten, noe som vil tale til fordel for pasienten.»