

HOW THE ROYAL DANISH AIR FORCE IS ENHANCING CLINICAL CARE IN THE AIR



DEPLOYED MEDICAL &
HEALTHCARE DELIVERY



INTRODUCTION

As NATO continues to re-orientate towards peer threat readiness, the military medical community is under pressure to enhance clinical delivery across the Operational Patient Care Pathway. The Royal Danish Air Force is a case in point, and provides a fascinating case study on how aeromedical evacuation can itself be viewed as an essential care node.

Ahead of the Deployed Medical and Healthcare Delivery conference taking place this 10 – 12 April in London, Defence IQ had the chance to speak with Dr René Bleeg, Head Consultant, Aeromedical Evacuation SQN 690, Royal Danish Air Force. Here he discusses the Royal Danish Air Force's plan to integrate the Army Surgical team into its existing MEDEVAC Intensive Care Unit Module, and describes how this transition will support operational readiness by enhancing clinical care in the air.



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The Royal Danish Air Force is currently undergoing a capacity development process to integrate the Army Surgical Team into its existing MEDEVAC Intensive Care Unit Module. Could you elaborate on the thought process behind this project?

It started back in the spring of 2014, where a team of surgeons from the Royal Danish Airforce (RDAF), the Army Surgeon Team and a Surgical team from Aalborg University Hospital were assembled to discuss future cooperation, joint military medical capabilities and concept development. The outcome of the meeting was an effort to implement the Army Surgical Team (Damage Control Surgery) team into the existing RDAF MEDEVAC Intensive Care Unit Module. They wanted to answer the question: can we do surgery, i.e. can we put live tissue on an ECMO machine in an aircraft just before it takes off?

In order to try this, a live exercise was conducted in a military setting where the Danish Navy Seals, also called the Frogman Corps, landed on a beach from a Hercules C130J, with a member of the group severely wounded from gunshots, simulated by a pig. It was then evacuated from the beach into the cargo bay in the Hercules where the Danish army surgical team was ready and was expected to conduct damage control surgery in 60 minutes.

I went to the flight surgeons conference in Ramstein in March 2015, and heard a presentation from the U.S. Air Force on the development of an airborne damage control surgery on resuscitation dummies. At that time, we had been flying live tissue for six months.

Currently, we are trying to get permission to integrate our operating room in our existing modules and fly them. We have four modules in total in the form of containers that were invented almost 25 years ago: one used for Ebola evacuation; a platform for the integration of the surgical table; module A as a normal patient transportation unit; module B as an ICU intensive care unit. The Royal Danish Air Force has to control and grant that our medical equipment is durable and safe during flight, and that is a heavy process as there are a lot of in-flight and avionics engineering elements to it. Besides, a surgery table weighs about 300 kilos and the G-forces that occur during flight have to be tested. Moreover, our modules are 25 years old and the floor seating is not made to carry 300 kilos in 30 times 30 centimetres, so it has to be remade. We are working towards flying the surgical table just this summer, once our army surgical team comes back from Iraq. This is part of the capacity development process we are currently undergoing, and our Commander-In-Chief will need to decide if he wants the scalability; if he does, we will be able to share this capacity with our NATO partners.





How will your Air Force's innovative approach to in-transit care support clinical delivery for future operations?

This capacity would enable us to go in-flight and use tactical transport aircraft such as our Hercules C130J or any other aircraft of the same size, to conduct tactical MEDEVAC. We could transport injured unstable patients from a secure landing strip near the line of fire and start high quality gold standard surgery as soon as we receive them, such as emergency damage control surgery and damage resuscitation.

It would be especially useful for long duration flights, for example in Africa, where our troops are in missions 1,000 to 2,000 kilometres away from our patrol bases which only have one or two facilities. It would enable us to land close to the troops with the Hercules on an airstrip secured by Special Forces and tactical landing zone forces, and start taking care of the wounded patient then, who may be unstable or needing surgery; damage control surgery could be then conducted in the air.





How can the integration of pre-evacuation and in-transit care help overcome current clinical challenges and support operational readiness?

Our modules give us a high flexibility and readiness at a low cost, as they are stored in a hangar and ready to be quickly deployed on operations; it only takes 60 minutes to install them in an available aircraft.

The Royal Danish Air Force currently owns four aircraft, which is why we need to invent cheap and flexible solutions for the military medical troops. We do not have air evac planes and trained crews dedicated to air evac on standby such as the German, French and U.S. air forces.

As soon as the surgical team gets to the Danish wounded troops in operations, the Air Force has a maximum of 48 hours to arrange a plane for us to integrate the modules in. This is a very flexible solution, as we can either borrow an aircraft from our partners such as the UK, Germany, Sweden and Norway, or use our own Hercules. We would also like to cooperate more with our partners and even offer them our modules.

It is important to note that all our doctors, nurses and paramedics work full-time in civilian hospitals and are in the Air Force on a reservist contract. We use a civilian SMS System, named CIM Mobility that sends a text messages on their phone once a mission is ready; from this we put together the air evacuation team and the surgical team to be deployed. Not only is this low cost for us, but we are also always sure that they have the highest national and international standards for treatment, both in surgery and intensive care.

Hear more from Dr Bleeg at this year's Deployed Medical & Healthcare Delivery conference.



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Your top 5 reasons for attending Deployed Medical and Healthcare Delivery 2019:

- ✓ **Adopt an integrated approach to the Operational Patient Care Pathway** to advance clinical delivery from point of injury through evacuation and on to definitive care
- ✓ **Bring forward surgical intervention** by advancing the delivery of clinical care in the air, in order to support casualty stabilisation and treatment prior to arrival at a definitive care site
- ✓ **Hear from the clinicians** responsible for administering deployed care, and understand the on-the-ground impact of medical innovation for the equipment-user
- ✓ **Hold combat casualties further forward, for longer**, by accessing critical resources at point of need and improving the accuracy of pre-hospital assessment and diagnosis
- ✓ **Access more skill**, sooner by extending the role of the next generation combat medic, nurse and doctor, and assess the limits of using less highly trained personnel to administer care in the deployed environment

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