

the power, mass and volume needed to support the patient. Method: we evaluated medical kits used by military forces during casualty evacuation (CASEVAC) to develop a minimum standard of care so that functional requirements could be identified. Using these requirements we evaluated commercially available OEM technology to determine the mass, volume and power requirements for these components. We then developed a prototype combined system based on existing technology that allows for practical evaluation of UAV integration. Applicable civilian and military medical device and environmental standards were identified to define the testing and performance needs for the integrated system. Lastly, we developed a method for mitigating the fire risk associated with delivering supplemental oxygen (O2).

Results: based on multiple sources we identified the following requirements: patient warming, ventilatory support, IV fluid support and noninvasive physiologic monitoring. Using commercially available technology the system could have: mass = 16 kg, volume = 14,000 cc and require only 300 watts.

Discussion: there exists a wide range of thought on what care needs to be provided during CASEVAC and what would be required for life support in a UAV. While O2 is typically associated with mechanical ventilation previous studies from our group demonstrate that no more than ~3 liter/min are required to support multitrauma patients early in their care when O2 is controlled automatically. There is a simple method for preventing O2 build up in the closed volume of the UAV.

Conclusions: with or without O2 the power, mass and volume required to provide life support and monitoring of the critically ill patient appears to be achievable. Successful implementation will depend on the development of a seamless concept of operation that results in an integrated set of requirements that addresses the medical needs as well as operation in the UAV and during ground operations (preparation for transport, loading and unloading).

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The Intelligent Tasking Project 2010 - Aero evacuation coordination in Southern Afghanistan

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The International Security Forces Afghanistan (ISAF) Combined Joint Medical Cell (CJMED) at NATO Headquarters Regional Command South (Kandahar Airfield) implemented the Aeromedical Evacuation Intelligent Tasking project over a 6-month period from June - November 2010. The project timing coincided with the inaugural contribution of 2 Royal Australian Air Force Health personnel embedded within the NATO CJMED cell. The primary tasking assigned to the Australian personnel was to develop, pilot and implement the Intelligent Tasking project throughout the Southern Afghanistan area of operations.

The summer "Fighting season" of 2010 was a definitive period in the ISAF Campaign Against Terror. Operational tempo was heightened to an unprecedented level with significant surges in US troop numbers and the subsequent multiple, concurrent planned offensive actions throughout this period. Conversely, several other NATO and troop contributing nations were also in the process of planned National draw downs and withdrawal from the Afghanistan campaign during this

timeframe. This led to a constant flux in the availability and location of resources required. Aeromedical evacuation assets were limited and remained a significant, challenging factor throughout this period. This unique combination of circumstances generated the need for the Intelligent Tasking project to be undertaken in order to ensure the provision of timely and appropriate, forward, tactical and strategic Aeromedical care platforms across the Southern Afghanistan area of operations.

The success and positive outcomes generated from the Intelligent Tasking project have directly led to substantial change in NATO doctrine regarding Aeromedical evacuation and tasking throughout all areas of operations within Afghanistan. It has also generated significant change within the United States Air Force doctrine and led to a flow on project with respect to the ongoing provision of Tactical "Enroute care" teams. The impact and results of the Intelligent Tasking project may also be highly relevant to the future approach and doctrine of Australian Defence Force Aeromedical Evacuation.

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