KAYAKING THE INSIDE PASSAGE WITH DISABLED VETERANS

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INTRODUCTION

From May to July 2023, a team including six disabled British veterans made an unsupported 2000km kayak along the Western coast of Washington, British Columbia and Alaska. Dr B McKenna was the medic on this high-risk expedition. This article shares the lessons learnt from this trip, concentrating on logistical and medical planning. It also explores the specific challenges, sources of assistance and the joys of working with disabled veterans.

A UK "veteran" is defined as anyone who has served for at least one day in Her Majesty's Armed Forces (Regular or Reserve)[1]. Disability is no longer a hindrance to expeditions and there are many organisations specialising in facilitating this, both in the civilian sector (e.g. Adaptive Expeditions, Outward Bound) and in the disabled veteran sector (e.g. Climb to Recovery, Rock to Recovery, Adaptive Grandslam). This practice of remote medicine involves dealing with hostile environments, having limited clinical diagnostic support, limited resources and equipment, unreliable communications, and altered treatment protocols but this can be counterbalanced by detailed planning and a comprehensive knowledge of the medical history of the individual team members[2].

THE EXPEDITION

In May to July 2023, an eight-man team, including injured military veterans, kayaked all 2000km of the Inside Passage of North West Americas. This historical route weaves northwards under protection from the fierce Pacific surf by the islands of the Fjordlands of Washington, British Columbia and into Alaska (Image 1). This route has a reputation for big surf, rapid tidal flows due to geographical narrowing, large tidal ranges and torrential rain. Much of the available camping is limited by thick and poisonous vegetation as well as obstructed by discarded, felled timber or oyster shell beaches.

The trip was being undertaken to raise funds for The Not Forgotten, probably one of Britain's oldest, but least well-known, military charities. It was founded in 1920 by US Soprano singer Marta Cunningham in response to her witness of the abandonment of soldiers in London's East End following World War 1. It focusses on combating loneliness and isolation in the Armed Forces community by providing social, sporting and respite breaks.

The team received funding from military charities such as Invictus, Team Forces, Endeavour Fund, as well as from the private sector e.g. British Airways, IAG. Individual team members also had support form their own regimental charities, as well as financial support from 'injury/theme specific' military charities such as BLESMA (British Limbless Ex-Serviceman's Association).

The team comprised six veterans and two civilians acting as Safety Officer and as Navigator.

The injuries of the veteran team members were:

- Bilateral above knee amputations and injuries to left, non-dominant hand from IED blast in 2012
- Bilateral above knee amputations from blast in 2004
- Gunshot injuries to abdomen in 2012 - small and large bowel resection and debridement of rectus abdominis muscle

Image 1: Map of coast paddled with key locations.

- Gunshot head injury in 2016 with neurosurgical resections of the left temporal and occipital lobes and resultant cognitive and expressive dysphasia, dyspraxia and epilepsy
- Post traumatic stress disorder - diagnosed three years pre-trip and treated with psychotherapy
- Guillain Barre Syndrome/ Acute Idiopathic demyelinating polyneuropathy/polyradiculoneuropathy in 1987 with complete functional recovery but residual autonomic symptoms
- The two civilian team members had no disabilities. One civilian member was undergoing annual monitoring for familial Hypertrophic Obstructive Cardiomyopathy with his last echocardiogram being normal.

The ages of team members ranged from 36 to 58yrs with a mean age of 46.6yrs.

LOGISTICAL AND MEDICAL PLANNING

When approached to be a medic for an expedition, there are three important factors to consider:

1. Is this a recurring/established trip or one being planned de novo?
2. Is there time to plan for this trip or is there a limited timeframe before deployment?
3. Is the medic working from a base or do they have to execute the expedition as a full team member?

This was a new expedition (1) with approximately one year to formulate a comprehensive and useable medical planning document (2) taking into consideration the fact that the medic was required to kayak with the team (3). Therefore, the clock was ticking to address the plethora of medical and logistical issues to comply with the guidance of the Mellor et al. 'Expedition medical planning should enable all these aspects to be considered so that appropriate personnel are selected and medical threats recognised and mitigated against'[3]. They also provide a structured approach to addressing the key themes of:

- Medical planning
- Clinical governance
- Risk Management
- Medical threats
- Human factors, personal skills, (communication skills, self-awareness, teamwork, leadership, decision making, coping with fatigue and stress)
- Medical Kit
- CPR

We used these as a guide to analyse the challenges specific to this expedition.

Medical Planning

This is a daunting task when approached for a de-novo expedition due to the accumulating uncertainties. Mellor et al[2] acknowledge how Iserson[4] identified 10 key stages in planning for an extended expedition in a remote location that can be helpful in formulating an analysis of these uncertainties.

1. Optimise workers' fitness
2. Anticipate treatable problems
3. Stock appropriate medications
4. Provide appropriate equipment
5. Provide adequate logistical support
6. Provide adequate medical communications
7. Know the environmental limitations on patient access and evacuation
8. Use qualified providers
9. Arrange knowledgeable and timely consultations
10. Establish and distribute rational administrative rules.

Establishing kayaking endurance was fundamental to this trip as it required paddling fully loaded sea kayaks for an average of 25-30km per day for 70-90 days in challenging sea conditions. An advantage of working with veterans is that the military has already tested their physiological ability to work at this level, so the focus of training was to improve physical fitness and to attain the safety and skillset specific to sea kayaking. Under the tutorage of our safety officer, who is also a senior kayak guide, we conducted multiple training weeks in UK and abroad addressing sea kayaking skills. Boat steering mechanisms had to be adjusted to accommodate the amputees as well as strengthening footplates for the member with reduced core stability due to absence of rectus abdominis muscle. Instructions and drills had to be amended to ensure the understanding of the individual with dyspraxia and receptive dysphasia.

The majority of medical issues on an expedition are predictable and treatable based on an analysis of the pre-existing medical conditions of the team. Again, if working with veterans, the military has usually filtered out chronic conditions such asthma, epilepsy, Type 1 diabetes or skin conditions but older or disabled veterans can develop age-related hypertension, ischaemic heart disease, chronic lung conditions or injury-related epilepsy. The principle anticipated problems for this trip were:

- Skin issues associated with stump care in amputees. However, their knowledge of prevention and treatment of this in sea water conditions was excellent as both members with amputations had previously rowed the Atlantic.
- Treatment of epilepsy. This would be most likely secondary to hyponatraemia (prevented by using electrolytes in rehydration), missed medication doses (checks were made on medication

Image 2: Still from video showing how boats were carried to and from water using slings, 4 for single kayak, 6 people for double kayak.

Image 3: Black bear spotted on shore, reason for using bear hanging food storage.

Image 4: Typical improvised campsite.

compliance and supplies were stored in three different boats) or after strenuous exertion (immediate access buccal midazolam was carried by the medic as rectal diazepam was not an option in status epileptics due to kayaking in drysuits). Midazolam is a Schedule 3 controlled drug (CD) in UK and a Schedule IV CD in the USA and Canada. It was sourced via CD requisition order form (FP10CDF) in the UK and transported as part of the comprehensive team medical kit and no issues were encountered during air travel or border crossings.

- Treatment of musculoskeletal injuries (especially shoulder) was addressed by teaching optimal kayaking technique in training and by easily accessible paracetamol and NSAIDs in member's Individual First Aid Kits (IFAKs).
- Prevention of musculoskeletal injuries due to carrying fully loaded boats, circa 70kg, across challenging beach terrain by establishing drills where four to six team members carried boats with specially made slings. (Image 2)
- Prevention of musculoskeletal injuries due to falls or bear/wolf attack on leaving tents overnight by using fluorescent bottles for urination overnight (Image 3 & 4).
- Adequate pain relief for major trauma or dislocation incidents – the medical kit contained UK sourced Methoxyfluorane, a self-administered analgesic known by the tradename Penthrox™ or colloquial nomenclature of 'The green whistle', a non-CD prescription only medication (POM) in the UK and Canada but not currently available in USA. This could be supplemented by Tramadol for injection, which was sourced in the UK using an FP10CDF as it is a Schedule 3 CD. Tramadol is a Schedule 1 CD in Canada and a Schedule IV CD in USA but again no airport, customs or border issues were experienced as it was a component of a comprehensive medical kit with its administration supervised by a medical professional.

Stocking appropriate medication and equipment was informed by analysis of treatable problems (see above) and the risk assessment (see below). However, this was also tempered by the practicalities of weight and volume restrictions of an 18-foot kayak as well as the need for waterproofing and accessibility. All team members had their own IFAKs but were also instructed in contents and use of team medical equipment as the medic could become the casualty and require assistance. All equipment was bagged and labelled in lay terms to allow team members to accurately access equipment at the behest of the medic. Therefore, the medic's kit was divided into three categories:

Image 5: Unpacked kayak with all gear carried laid next to respective areas packed in boat, with medical gear circled and labeled.

1. Immediate access equipment on a deck bag, e.g. paracetamol, NSAIDs, antiemetics, antihistamines, anaphylaxis kit, buccal midazolam, glucogel, immediate wound closure and haemostasis kit.
2. Emergency equipment stored in unique dry bags in a location known to all team members. This had emergency airway kit, breathing kit, circulation/bleeding kit, sepsis kit, major trauma kit and splints.
3. Elective kit stored in front of the medic's foot pedals as only needed when on land and included a 'skin bag,' suture kits, joint injection kit and resupply meds (Image 5).

Logistical support was addressed in a separate Logistics Document for the trip and involved enlisting the indispensable help of local Veterans groups along the Western US/Canadian coast as well as the local kayaking knowledge and support of Washington Water Trails and BC Marine Trails.

The geography of the area meant that a variety of modes of communication would be used as primary and secondary in event of the need for medical assistance and included cellphone, VHF radio (for communication both within the team and with Coastguard), satellite phone and Garmin Inreach. The sequence for communication was made clear in each daily briefing before going on the water. Our location was formally tracked by a professional company, Northcott Global Solutions (NGS) specialists in global risk management services, emergency response, travel security, and remote medical assistance and by YB Tracking, providers of satellite tracking for nautical events and adventure races. Team members also sent a preset message by cellphone or Garmin Inreach, in areas of no cellphone coverage, to confirm that we had achieved our campsite for that day.

There were significant geographical, environmental and meteorological limitations presented by the trip, e.g. it is difficult to treat a medical emergency effectively at sea, with a safe or suitable landing site not accessible for many kilometres, necessitating the medic and casualty being towed by other team members to a landing site at which point a risky, rehearsed landing sequence would need to be initiated. Equally, medevac services may be hindered in their land, sea or air approaches by weather or terrain.

An important point to consider for a medic is how to deliver timely consultations when you are also a fully functioning team member i.e. fulfilling the same daily physical tasks as every other team member. The approach on this expedition was that there were fixed points at which any team member could declare medical issues usually at the morning's pre-paddle briefing and in the evening after camp had been set up. The medic also accepted that the 'patient' might decide when medical help was needed and if that was the ideal time for the team member, then the consultation would take place there and then.

It is vital to establish administrative rules before deployment. There are potentially many stakeholders in an expedition - charities, sponsors, team leaders, team members and medics to name a few. Subsequently there can be discordance around goals and objectives which may only become apparent at crucial or dangerous points during an expedition when judgement and communication may be clouded. Chains of command were discussed before deployment, and it was agreed that the team skipper made decisions about route and objectives using the advice of the navigator and safety officer. However, in the event of a medical emergency, the medic assumed leadership until the medical emergency was declared to be over. This was based on an agreed contract between all team members of safety over any other objective.

Clinical Governance

This is a joint responsibility of the medic and the organisers. For this trip, the medic organised indemnity, advised on insurance cover and assembled the medical kit and medications. An important aspect of governance is the safe keeping of personalised medical information. The medic carried a waterproofed A4 sheet of each team member's medical history, insurance details and next of kin details. This was destroyed on return to UK.

Risk Management

A generic risk assessment with respect to kayaking and the specific team was carried out before the trip. Subsequent physical, skills and safety training was carried out with the expedition kit. A daily, structured risk assessment was performed before kayaking which could be augmented at any time during a kayaking phase on the expedition if a new injury or medical condition presented.

Medical Threats

Thorough medical screening pre-trip mitigated most medical problems, but this was revisited if new information or conditions arose in the field.

Human Factors

The non-clinical aspects of team dynamics and the subtleties of communication, humour, self-awareness, teamwork, leadership, decision making and acknowledging the impact of fatigue was addressed. The medic on this trip had the advantage of being a veteran as well as having time to train with and get to know the team before deployment.

Medical Kit

As discussed above, the kit was comprehensive, appropriate, tailored to the trip and stored in an accessible and waterproof manner.

CPR

The environmental and geographical practicalities of this expedition, the chronology for medevac and the inability to carry a defibrillator, oxygen or IV fluids meant that Advanced Life Support was not possible. However Basic Life Support would be initiated when appropriate. Each team member gave their informed understanding of this before deployment.

SPECIFICS OF WORKING WITH DISABLED VETERANS

How would you approach a request to join as medic on an expedition with disabled veterans? Research[5] suggest that the perception of UK armed forces veterans by those in healthcare is largely shaped by personal experience of ex-service personnel – those with first-hand experience of UK armed forces personnel were generally more empathetic, while those who lacked experience were less positive and drew on negative media stories. In British society, veterans are commonly perceived as highly skilled individuals (factually correct) but more likely to engage in high-risk drinking, abuse of drugs, or have health problems (all factually incorrect)[6].

Veterans are likely to have been exposed to trauma but the vast majority leave with no mental damage[7]. Research suggests that about 10% of veterans who served over the past 20 years may eventually develop mental health problems requiring treatment with some groups such as soldiers in combat roles, being at higher risk following deployment to Afghan or Iraq. There is very little data specifically related to those veterans with service-related disabilities other than a qualitative conclusion that the transitioning away from military service is stressful[7].

Lessons learned from this trip to optimise the role as a medic with disabled veterans include:

1. Acknowledge individual pride for the combat unit in which each veteran served and the subsequent rivalry between branches of the services as well as between regiments.
2. Each veteran has positives and negatives associated with their service and previous experience of leadership, teamwork, moral injury. This impacts trust, but if you get to know them, they will share their story with you.

Images 6 and 7: Some great weather for Kayaking - although it did not always look like this!

Image 8: Serenity.

3. The importance of compassion, communication and consistency in the role as medic.
4. Medical knowledge of their past medical histories, injuries and any previous psychiatric or psychotherapies and importance of knowing potential individual emotional triggers.
5. Humour is a powerful medium of communication within veterans, escalating as friendship and trust grows.

Do not ignore the role of Military charities in selecting individuals, provision of psychological and financial support in both the preparation and decompression phases. These charities can be related to the 'Arm' of the services with which you served (Navy, Army, RAF), theme/disability specific or unit/Regiment specific. Disabled veterans on this expedition benefitted from all three of these types of Military Charity Support[8].

Expedition

The contemporaneous medical log for the trip has 24 entries, the majority of which were minor skin and musculoskeletal complaints. The log includes one dental issue in Seattle before paddling commenced, treated by a dentist and causing no further issues. During the trip there was one episode of Upper Respiratory Tract Infection/ pharyngitis treated with oral antibiotics. There was no major trauma or requirement for CPR during the paddling phase. No paddling days were lost on the trip due to medical issues.

There were two major medical incidents pre and post the paddling phase:

1. During training in high flow conditions in winter, five months before the trip, one of our kayaking instructors had a syncopal event on the water, requiring immediate rescue and transfer to the shore where the medic assessed him using the team equipment and standard ABCDE protocols. He made a full recovery.
2. During the return phase of the trip, on a four-day ferry transfer from Alaska to Washington, the team witnessed the collapse and loss of consciousness of a passenger. The patient was transferred to the ship's sickbay. The differential diagnosis was post-operative (total knee replacement) pulmonary embolus and the team medic organised helicopter medical transfer via Canadian Coastguard. The patient outcome is unknown.

Post Expedition

A medic must remember that their duty of care can extend beyond the 'action' part of the trip. In this case, the return and decompression phases were significant given the medical history and experiences of the veterans:

- As detailed above during the return phase, the team witnessed a helicopter medevac of a passenger from a ferry at night. This introduced the risk of significant psychological retriggering in the team members who had personal experience of helicopter medical extraction following their injures. However, during a debrief immediately after the event, the team members expressed their catharsis largely due to the positive impact of the presence of the team on the outcome for the patient.
- The decompression phase is where team members transition from three months living in tents in the wilderness and paddling together to reintegrating with families, jobs and the minutiae of daily life. The team helped to reduce 'post expedition blues'[9] by speaking regularly, meeting in person and presenting talks to both medical and kayaking audiences. During decompression, members have received support from our sponsoring charity, The Not Forgotten, as well as personal regimental charities. The trip has also been a catalyst for many of the team members to initiate significant life and career changes.

CONCLUSION

This article provides practical information on the medical preparation and smooth execution of an expedition with disabled veterans. In an ideal situation, the medic has time to plan, medically screen the team members, access the support of appropriate agencies & charities, assemble a comprehensive medical kit and establish the chain of command before deployment.

How do you measure personal or team achievements for an expedition? Is it distance covered, time taken or the fact that no days were lost due to medical issues as in this expedition?

The medic on this trip learned a lot, laughed a lot and cried at times – an enriching experience indeed. There is a developing theme of 'spirituality' amongst injured veterans as demonstrated by our 'bard,' the team member who beautifully documented each day, an example of which follows, this being written about the last day of our expedition:

'I had a lot of time reflecting on what it means and going forward, I have learned so much of myself, the limits you can push through, that the body is nothing, but a machine made up of muscle, sinew and tendons controlled by you and your thoughts! That there is so much beauty around you and being in natures cathedral is a place of healing and working through that silent scream of I'm not good enough, those insecurities laid bare and dealing with it! I am enough, I can do whatever I put my mind too, I have a voice that won't be silenced by my inner thoughts, my inner child needs to wild and free. We achieved over a thousand miles between 1.5-1.7 million paddle strokes with no injury! That I am a better man than yesterday! The craving of that human connection, finding human kindness and making someone smile! Sharing of laughter and tears, stories and dinner. That giving control over to mother nature in all of her raw power! Seeing the devastation and beauty memories of whales breaching, pods of porpoise joining us, orcas, black bears, minks, seals and sea lions. The brutal and savage landscape that changed to raw unfiltered beauty, the underwater forests of kelp and seaweed the tendrils reaching upwards towards the surface, crabs fighting for dominance, the bright colours of starfish clusters on the rocks. The sun-bleached driftwood and barnacle encrusted rocks! Eagles and those little guillemots that brought so much joy and happiness to me! To all the people we have met along our journey you have added vibrant colours to the tapestry of my life! Your kindness, love and support will nourish me just like the story we got told! I didn't find the fortune I set out to find but the one I found instead is worth more! I have hope! Hope that got rekindled by all of you!'[10]

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