Redesigning Remote Healthcare Delivery and Clinical Support: An International Perspective

WEDNESDAY 11TH AND THURSDAY 12TH SEPTEMBER 2013
The Suttie Centre for Teaching & Learning in Healthcare,
University of Aberdeen

CONFERENCE OUTPUT
OCTOBER 2013
The IRHC hosted the conference in Aberdeen on September 11th and 12th at the Suttie Centre in Aberdeen. Over 120 delegates attended and International Speakers presented from Rural, Remote and Extreme Environments. This document aims to share some of the flavour of the conference.

Feedback from the Conference was very positive and as well as this Conference Output Document we are also preparing a video as the conference was streamed live on the web.

As well as the Conference the IRHC Council Awarded it’s first “Honours and Awards for Clinical Excellence in the Face of Adversity”

Four Awards were made:

The first award was for the category of “BASICS Responders”:

The winner for this category was: Dr Brian Fitzsimons of NHS

The second award was for the category of “Offshore Medics”:

The winner for this category was: Mr. Bruce MacDonald of Transocean.

The third award was for the category of “Ambulance Service Paramedics or Technicians”:

The winner for this category was: Samuel Snook who, at 17 years of age, is the youngest person in the UK to have completed his Level 2 Emergency Care Assistant Award through Edxcel/Pearson.

The fourth award of the evening was for the category of “HM Forces Medics”:

The winner for this category was: the Medical Emergency Response Team (MERT) deployed on operations to provide in-flight pre hospital emergency care

Work has already begun on thinking about the next conference!
PROGRAMME

Wednesday 11th September

10:30 - 10:45  Welcome: IRHC President – Professor Nelson Norman

Session 1  Developments / Achievements to Date

10:45 - 11:15  Opening Address – Setting the Scene
Dr Alistair Fraser [Vice President Health, Royal Dutch Shell]

Dr Abdul Halim Mohammed [Business Health Advisor, Shell International BV]

11:45 - 12:15  The Malta consensus conference on Maritime Telemedicine
Dr Arne Johan Ulven [Research Director, Norwegian Centre for Maritime Medicine]

12:15 - 12:30  IRHC Conference brief
Professor James Ferguson [Clinical Lead, Scottish Centre for Telehealth & Telecare]

Session 2  Models of Remote and Rural Clinical Support
Chair: Dr Malcolm Valentine

Dr Mary Jo Macleod [Senior Lecturer in Clinical Pharmacology, University of Aberdeen]

13:50 - 14:10  Delivery of Specialist Services to the Scottish Highlands and Islands
Mr. Kevin Baird [Consultant Orthopaedic Surgeon, NHS Highland]

14:10 - 14:30  “Who you gonna call!” Grampian’s Unscheduled Care, Decision Support Service
Dr Jamie Hogg [Medical Director, NHS Grampian]

14:30 - 14.45  Discussion/ Q&A

Session 3  Redesigning Remote and Rural Healthcare
Chair: Professor Graham Furnace - Medical Adviser, Oil & Gas UK

15:00 - 15:20  Case Study: “A Heart Felt Thanks”
Dr Joseph Pearson [President, XstremeMD, USA]

15:20 - 15.40  Can Technology Help Us in Providing Medical Assistance to Seafarers?
Challenges and Changes Over Seven Decades of Providing Remote Healthcare
Agnar Tveten [Radio Medico, Norwegian Centre for Maritime Medicine]

15.40 - 16:00  Fifty Years of Routine Remote and Rural Healthcare: The Greenland Experience
Dr Birgit Niclasen [Medical Advisor, Ministry of Health, Government of Greenland]

16:00 - 16:20  Emergency Medical Evacuations - Offshore United Kingdom
Michael Coull [Offshore & Development Officer, Maritime and Coastguard Agency]

16:20 - 16.35  Discussion / Q&A
Thursday 12th September

Review of Day 1 – Setting the Scene for Day 2
Alan Kennedy-Bolam [CEO, Institute of Remote Health Care]

**Session 4  Redesigning Extreme Remote Healthcare**
Chair: Dr Dick Hooper [Regional Medical Director – International SOS Assistance UK Limited]

08.40 - 09.00  Case Study: Lessons learned from two seasons supporting Operations in Greenland
Dr Lars Petersen, [Medical Director, Benelux & Scandinavia, International SOS]

09.00 - 09.20  eHealth in the Next Five Years
Dr Steiner Pederson [Tromsø Telemedicine Consult, Norway]

09.20 - 09.40  Medical Practice on Tristan da Cunha - The Remotest Island Community in the World
Drs Iain and Pamela Levack

09.40 - 10.00  Médecins Sans Frontières: Extreme Remote Clinical Care in a Humanitarian Setting
Dr Phil Lacoux [Consultant Anaesthetist and Clinical Lead Pain Clinic, NHS Tayside]

10.00 - 10.15  Discussion/ Q&A

**Session 5  Interactive Workshops**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker 1</th>
<th>Speaker 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.30</td>
<td>Pre-hospital Management of Hypothermia: Case Study and Practical Application of Latest Guidance for Managing Hypothermia of Multiple Aetiologies (e.g. immersion, avalanche etc.)</td>
<td>Dr Iain Scott [SPR Anaesthetics, Aberdeen Royal Critical Components of a Topside Service: Medical Operational Integration</td>
<td>Simon Marshall [Manager, Project and Analysis Group Medical Assistance, International SOS] / Ricus Groenewald [Director of Assistance Services, International SOS]</td>
</tr>
<tr>
<td>11.15</td>
<td>The Fisherman’s Friend: Delivering Medical Support to Fishing Vessels in Scottish Coastal Waters. Interactive Case Study and Presentation of Latest Data on Ship to Shore Support</td>
<td>Dr Mark Mitchelson [Consultant in Emergency Medicine, Remaining Resilient after Traumatic Events: An Organisational Approach</td>
<td>Mr. Gavin Rogers [Senior TRIM Instructor and Coordinator, March on Stress]</td>
</tr>
<tr>
<td>11.55</td>
<td>Major Incident Management in the Desert: Interactive Case Study and Major Incident Planning</td>
<td>Professor James Ferguson [Clinical Lead, Scottish Centre for Telehealth and Telecare Reducing Telemedicine Cost by 10x - Shell Oil Platforms, Rwanda Community Health, and Emergency Doctor Access via iPhone</td>
<td>Dr Milton Chen [CEO, Vsee, USA]</td>
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**Session 6**  **Key Drivers for Effecting Change in Remote Healthcare**  
Chair: Dr Alistair Fraser - Vice President Health, Royal Dutch Shell

13:30 - 13:50  **Promoting Health in Remote Locations: Maritime and Global Health**  
Professor Mac MacLachlan [Director, Centre for Global Health & Centre for Innovative Human Systems, School of Psychology, Trinity College Dublin, Ireland]

13:50 - 14:10  **Maintaining Psychological Resilience in Hazardous Environments**  
Gavin Rogers [Senior TRIM Instructor and Coordinator, March on Stress]

14:10 - 14:30  **Maximising Organisational Effectiveness in Demanding Settings: Attention to Human Behaviour**  
Dr Paul Shanahan [Director, gs partnership ltd]

14:30 - 14:50  **“Leading Ideas”**  
Major General Professor David Shaw CBE [President, UNICORN ARC]

**Session 7**  **Panel Discussion/ Plenary/ Closing & Way Forward**  
Chair: Mr. Ian Anderson [Immediate Past President, Royal College of Physicians and Surgeons of Glasgow]

15:25 - 16:15  **Expert Panel Discussion (Q&A), Plenary/ Closing & Way Forward**
Institute of Remote Health Care

Redesigning Remote Healthcare Delivery and Clinical Support: An International Perspective

Wednesday 11th and Thursday 12th September 2013

Day 1 - Wednesday 11th September 2013

Welcome - Professor Nelson Norman

Professor Norman welcomed the 120 plus delegates to the conference. Representing a truly multinational attendance was certain to bring some interesting debate over the course of the meeting. Maintaining the international flavour, it was also pointed out that the conference was being hosted on the world wide web - both live and following the event.

It was pointed out that this meeting was very much a follow on to the IRHC conference of 2012 and the Bergen conference of January 2013 which had sought to re-establish an international standard for remote healthcare practitioners and to seek a consensus on what might be the ideal characteristics of a remote healthcare practitioner.

There remains a number of challenges - the definition of training needed and the ability of training providers to respond to delivering this need.

Prof Norman also spoke of the discussions already held and the hopes for eventual incorporation of the IRHC as a faculty of the Royal College of Physicians and Surgeons of Glasgow, thus ensuring a permanent home for the organisation. This could in time bring a more professional method for assessing the final training of remote health care practitioners and to have them validated by an independent academic organisation.

Finally, it was hoped that the conference would truly produce a vision for the way forward.

Session 1  Developments and achievements to date

Chair - Dr Alistair Frasers and opening address

The theme of this presentation was 'collaboration'. There has been extensive collaboration over the past 2 years between elements of the industry, the IRHC and other bodies. The focus now is on determining the best way forward for remote health care and RHC practitioners.

In terms of technology, 30 years ago, there was only the radio telephone and maritime satellites. This in the context of personal experience working in Madagascar, the North Sea, Oman and more recently the North Caspian. All have unique challenges, problems and remoteness.

Future drivers for change will include very remote locations such as Greenland with limited seasonal access and even poor access to satellites given the latitude. Drilling ships, tanker fleets and even corporate jets all bring their own challenges. Drilling ships can move around many differing remote locations.
A powerful video presentation was utilised to illustrate the traditional scoop and transfer approach to critical care compared with now the potential use of extended training and skills - and the maximum use of near patient equipment and communications. This is still work underway - we are a little off of having intuitive plug and play type equipment - but this illustrates the direction of travel.

Eventually this has to be backed by a network of capable expert medical advice - and work is underway establishing this as well. The logical extension of this is not just to companies that may commission and resource this support - but to extend it to any potential user utilising online payment systems.

Regarding the infrastructure and support for those providing remote health care, training, establishing competencies and eventual accreditation can be developed by e.g. the IRHC. Planning, procedures and protocols should be multi input collaborations. A gap remains for research - what works? what are we likely to see in terms of health care need? what equipment and drugs are truly needed? how do we solve technical challenges? are all questions that need clarification.

There is unlimited scope for the development of the remote health care practitioner - not just in the remote industry, but also in remote mainstream populations.

**There is more work to be done!**

**Presentation 1 - IRHC Remote Healthcare Guidance Document - an update:**

**Remote Healthcare Strategies in Energy and its associated Maritime Activities**

Dr Abdul Halim Mohammed

The development of energy sources from remote locations has steadily increased in order to meet the world’s growing energy demand. These remote locations are defined as locations where the medical evacuation of an injured or ill person to a hospital within four hours, cannot be guaranteed in foreseeable circumstances. A common example is the offshore oil and gas production platform. In addition, the energy industry is increasingly pursuing operations in extreme remote locations. These are sites where medical evacuation to a hospital can never be achieved within four hours, even in the best of circumstances. Operating in these locations present a multitude of health challenges, including significant delays to treatment, significant environmental exposure (e.g. hot or cold extremes), limited access to basic necessities (e.g. clean water), limited medical expertise, limited medical supplies and communications. Not only do these factors increase the risk of developing an illness or injury, they also increase the risk of it worsening due to delays in diagnosis and treatment.

Whilst these health risks cannot be totally eliminated, they can be kept as low as reasonably practicable, by implementing a number of control strategies. They include health risk assessments, medical emergency response planning, medical assessments for fitness to work, workplace health promotion programmes, food safety management systems, healthcare practitioner competency requirements, remote medical support, telemedicine, careful selection of equipment and supplies, and adopting the right culture and mindset for delivering health.

This paper provides details of each of these remote healthcare strategies established by the Remote Healthcare Workshop, Bergen, Norway, 2013. Together, these strategies work to prevent health complications, optimise care during transfer, minimise unnecessary medical evacuations, and
facilitate necessary ones. It is believed that the implementation of these strategies protects the health of remote location workers’, at a level that is comparable with their non-remote counterparts.

In the presentation Dr Halim reprised the output from the Bergen Conference of January 2013 that sought to establish some agreement around competencies and standards for remote health care practitioners.

Thus there are the challenges of not just the health issues likely to be seen, but agreement on common ways of addressing these, the competencies needed, equipment needed, communication and topside support as well as prevention of illness and injury and healthcare planning.

For extreme remote healthcare, there is a need to ensure personnel are screened as effectively as possible. Currently the OUGK medical standard seems to apply - but there are arguments that screening should be more frequent and should include more specific focus on issues such as dental state and psychological fitness. There may need to be higher standards applied to chronic disease issues for instance cardio-vascular disease, diabetes, asthma, etc.

In addition, workplace active health promotion needs to be enhanced; food safety needs to be enhanced. This will require a tiered modular approach to training depending on the requirements of the location. Equipment needs similarly to be defined around need. Topside support needs to be more bespoke. The mindset and culture also needs to be developed such that healthcare and disease prevention is seen as essential - and not a barrier to commercial operations.

Underpinning all this is a need for research and scientific rigour - the best methods are likely to be a high standard of qualitative research.

Fundamentally, it is asserted that it is possible to link high quality health care to remote locations.

Presentation 2 - The Malta consensus conference on maritime telemedicine

Dr Arne Johan Ulven

OBJECTIVE:

Establish consensus on:
- The added value by two-way real-time video in telemedical assistance to ships
- Technology, standardization, necessary skills and training, certification, necessary quality, bandwidth, ethics, personal integrity, economy and international cooperation

METHODS:

Maritime telemedical services and other relevant subject matter experts were gathered for a consensus workshop. Three groups were given the same tasks and performed evaluations in parallel. The first process assessed a number of relevant medical conditions that were prepared in advance by systematically dividing them into different sub processes related to diagnosing, treatment, and observation/monitoring. The sub processes were evaluated by the three groups in relation to different methods of communication and in relation to criticality. Technology, standardization, necessary skills and training, certification, necessary quality, bandwidth, ethics, personal integrity, economy, frequency of use and other constraints should not be taken into consideration in the first process. These topics were dealt with in the following sections of the workshop.
RESULTS:
The method showed to facilitate the consensus processes. The added value by two-way real-time video in telemedical assistance to ships was agreed upon and varied in relation to the character of the different sub processes. The added value was high in dynamic processes and low to absent in static processes. Typical dynamic processes would be the evaluation of an examination of the abdomen or a neurological examination. The possible benefits of instruction and correction of procedures were also evaluated and showed the same result. Consensuses in relation to the other topics were also established.

CONCLUSION:
Consensus is normally very challenging to reach. Topics are complex and lots of constraints are typically taken into account and can block the process. Through a number of sub consensuses a difficult consensus can be achieved. The described method facilitated the process of consensus.

PRESENTATION:
The Malta Conference brought together many of those involved in the worldwide provision of healthcare advice to ships at sea - a right of access for no cost that is enshrined in international maritime regulations. This was a network established in 1949 and which internationally continues to flourish. The Norwegian Centre for Maritime Medicine has taken a particularly developmental approach to the provision of maritime health advice and is highly committed to the development of telemedicine utilising the best of modern technologies.

Three clinical scenarios presented covered different aspects of medical and trauma cases and the limitations that can still occur in terms of delivery of clinical examination, provision of advice and appropriate intervention

Thus the Malta conference sought to build some consensus on future direction. The aim was to avoid conflict of interest, achieve some mutual understanding, reduce challenges to solvable 'chunks', and try to ensure generic solutions with clear methods.

The Tele Medical Advice Service (TMAS) is the subject of international conventions. All maritime states are required to provide a TMAS. As would be expected, this service massively varies according to individual state objectives, funding and resources. There are many private providers now involved - they have varying levels of sophistication. There is limited data on activity to study - little is shared or published and outcomes are difficult to track through. Developments in consulting technology are far from fully exploited. There are compatibility issues all over - supplies, equipment, facilities, training and information systems vary wildly. Ethics and confidentiality issues are complex as are issues of commercial sensitivity and secrecy. The competence of crew members to react to advice is variable. Increasing telemedical bandwidth has improved matters - but it still depends on resourcing - and there are still geographical issues to contend with. Recording systems and documentation massively vary too - there is limited use of standard coding e.g. ICD 10. There are legal hurdles in terms of the respective role of the ships master, the doctor's international status, safety and liability.

Finally, we need to establish what value different communication modalities bring - what are the respective values of voice / text / text with attachments / video / video shared conferencing. We need to ensure the complimentary input of visual interaction with the transfer of hard data. So it is about knowing what to do, having the right toolbox and having the right resources.
Presentation 3 - IRHC conference brief

Prof James Ferguson

This was indeed a brief 'brief'! Prof Ferguson reprised the roles of the Scottish Centre for Telehealth and Telemedicine. He made it clear that it is not all about the technology - but about the philosophy, the skills and the strategies to be adopted.

There is a need to review and change the various roles of those involved and change their training to embrace newer methods of working and newer technologies. This has to happen despite the restrictions of national regulatory systems.

Session 2 - Models of Remote and Rural Clinical Support

Chair - Dr Malcolm Valentine and opening address

It was suggested that this session fundamentally underpins the title of the event. Redesign may be very important – but it is the patient and their good clinical care that should be at the heart of whatever happens.

Notwithstanding the basic expectation of healthcare provision both rural populations and remote work areas will now expect equity of access – as far as is reasonably practical. This needs to subsume the increasing evidence base for all clinical interventions. Many clinical interventions are now very time dependant and many clinical interventions now no longer focussed on ‘acute care’ (e.g. accidents and emergencies) but the broader issues of ‘unscheduled care’.

Scotland has been very innovative in this regard because of its dispersed population – so many developments are already underway. The three topics address a progression of innovation from a specific clinical intervention, through broader delivery of services, to broader decision support. Decision support has been debated before in terms of the increasing sophistication of ‘smart’ computer based decision support systems – but innovations in Grampian are designed to provide real time peer to peer support – so potential for further development.

Presentation 1 - Case Study: “Brain Attack! Remote Stroke Management”

Dr Mary Jo Macleod

Providing equality of care for conditions which require specialist input (24/7) is challenging for countries such as Scotland. Thrombolysis, when administered within four and a half hours after onset of stroke, is proven to increase the likelihood of discharge home and reduce disability when administered appropriately. In order to provide this service to some of the peripheral district general hospitals in the North of Scotland, a telestroke service has been developed in Grampian, in partnership with the Scottish Centre for Telehealth. This hub and spoke model assesses approximately one patient a week, and helps support thrombolysis decisions. Patient and staff acceptability is high, and there is preliminary data to suggest it is as
safe as direct face to face assessment of the patient.

Regular service and IT review and ongoing protocol development allow any issues to be addressed. Telesuister services are developing across Scotland to help support service delivery in many other geographical areas, and this will be described. In addition to the hyper acute service, there is now a rehabilitation support service offered to Stornoway and Orkney from Lanarkshire. As the risk of stroke after TIA is highest in the first few days, urgent review of these patients is essential. To facilitate this, a ‘one stop’ tele-TIA clinic’ has been established between Aberdeen and Stornoway. Various patient examples and the most up to date audit data were presented.

There are 25 such strokes daily in Scotland- at huge eventual total product cost - as much as an additional £100 000 per sufferer in extra costs and lost productivity. There is still a need to ensure accuracy of diagnosis through CT scanning before thrombolysis can be given. Optimum timing to treat is less than 90 minutes - though treatment up to 4.5 hours still confers benefit. Evidence suggests that the telemedical intervention is as effective as a medical unit - even a neurological unit admission. Certainly telemedicine is better than mere telephone support.

Good clinical examples were given of how even in the Western Isles it is possible to achieve accuracy of diagnosis and treatment within 90 minutes - just by using the input of Nurse Practitioners. The patient example had only minimal residual signs after only 1 day. A further example was given of where no CT scan exists and where air ambulance was needed. This meant a 4.5 hour plus delay in diagnosis and treatment. Outcomes were not so good.

The whole project is subject to further evaluation - but one bit of emerging evidence is the very clear evidence of value expressed by patients and their families.

**Presentation 2 - Delivery of Specialist Services to the Scottish Highlands and Islands**

Mr. Kevin Baird

The Highlands of Scotland is a large area with sparse population density out with the single city and a few small towns. Secondary healthcare is delivered via a network centred at Raigmore (Inverness) with additional rural general hospitals in Fort William and Wick. Such an arrangement presents challenges in terms of frequency of “peripheral” clinic sessions, lengthy journeys for patients and specialists, logistics of disease monitoring and surgical follow-up etc.

This paper will describe the development of several telemedicine networks over the past three decades, with particular reference to dermatology, orthopaedics and orthodontics. Valuable lessons have been learned; often the hard way, and new procedures and technologies have been adopted and gradually refined. Opportunities for future development were described.

In this presentation it was noted the much dispersed population that occurs in the Highlands of Scotland - and also in the Falkland Islands. Thus there are some similarities - even though the Falkland’s only have a resident population of about 2500.

In the Falkland’s, there are 4.5 WTE GPs, a general Surgeon, Anaesthetist and Radiographer. There is a 20 bed Hospital. Trauma can be handled generally by phone advice - there is the possibility of
transfer to Uruguay or Chile. Intermittent visits by Mr. Baird - with planned operating - are made twice yearly. There are around 100 referrals annually for further opinions, it is sustainable and the twice yearly visits ensure good rapport with the medical staff on the islands. There is high patient and referrer satisfaction.

Further to this, an account was given of telemedicine and Dermatology services. These were originally developed some 40 years ago - though only recently has technology maximised their use. It enables a Consultant Dermatologist generally being able to give advice on diagnosis and management within 5 days as compared to the normal several weeks of waiting for an outpatient appointment.

Presentation 3 “Who you gonna call!” Grampian’s Unscheduled Care, Decision Support Service

Dr Jamie Hogg
Decision support for frontline clinical staff is seen in NHS Grampian as an important step towards being able to make the best well informed decisions for patients at the point of contact. A team of senior experienced clinicians is being developed who will support frontline paramedics, doctors and nurses as well as non medical staff. The concept is to build on the existing relationships and networks and to link people together in real time (zero delays) to make clinical decisions.

The team have been testing ideas through a series of clinical scenarios and have been developing the communications and information infrastructure to allow data and video to be exchanged. The service will start in September 2013 in a limited manner as a proof of concept and if successful will expand to become a 24/7 support service.

It was noted that even within the 4 days of operation, the available information suggested that near 50% of contacts resulted in conversion of an unplanned care incident to a planned care incident. This will have significant benefits for service provision in future if sustained.

Session 3 Redesigning Remote and Rural Healthcare

Chair: Professor Graham Furnace - Medical Adviser, Oil & Gas UK

Presentation 1: Case Study: “A Heart Felt Thanks”

Dr Joseph Pearson

Location: Nabors Drilling, Green Canyon 338 (170 miles SW of New Orleans)
Onsite Medical Capabilities: Telemedicine + DFA

History of Present Illness: 64 year old white male developed sudden onset of shortness of breath at 2:19 am. Past medical history significant for diabetes and hypertension only. No history of heart disease.
Physical Examination: Reveals pale and diaphoretic white male who is unable to communicate or complete sentences secondary to gasping for air. Vitals: BP 163/96, HR 145, O₂ saturation 49%. Patient with coarse audible breath sounds, wet sounding cough, and inability to lean backwards.

Findings: EKG reveals acute MI

Outcome: “On March 20, 2013, while at work on Rig 200 for Murphy Oil and Gas (about a hundred miles from the coast of Louisiana) I began feeling ill. Initially, I thought it was nothing but fortunately my supervisors had the forethought to contact Dr. Pearson through the XMD Responder, because my “just feeling ill” was actually a HEART ATTACK. Dr. Pearson’s superb skill and patient attentiveness was instrumental in guiding the on-site crew’s actions and life-saving techniques needed to get me to advanced medical care. Because of these professionals, I am here today to say THANK YOU to Dr. Pearson, the Rig crew, the Medical helicopter crew, the hospital staff and everyone along the way” (Aubrey K. “Red” Tyler April 6, 2013)

Lessons:
- Importance of being proactive
- Importance of immediate response
- Importance of adequate supplies and equipment
- Importance of adequate training

This was a fascinating video of a presentation of chest pain to a First Responder on an offshore platform. Extending over many hours, the video sampling illustrated the way in which the Physician was able to provide stabilisation advice and maintain direct visual contact with First Responder and patient until evacuation could safely be managed.

There was much discussion - but an enduring question remained regarding the methodology by which such a patient could potentially be thrombolysed in the future. This yielded much insight into all the training and regulatory restrictions and liability issues that can arise in such cases.

**Presentation 2: Can Technology Help Us in Providing Medical Assistance to Seafarers?**

**Challenges and Changes Over Seven Decades of Providing Remote Healthcare**

Agnar Tveten

Radio Medico Norway (RMN) is the official maritime telemedical assistance service (TMAS) for seafarers in Norway. Through international conventions Norway and other coastal states are obliged to deliver this service, together with services from joint or maritime rescue coordination centres (JRCC) and coastal ground stations services.

Telemedical advice to seafarers through radio has been possible since 1902 when radio communication from ships became possible. RMN has provided telemedical assistance to ships since 1948. We look upon what the challenges and solutions have been to effectively communicate signs, findings and treatment, and how these have changed, as seen from Radio Medico Norway perspective.

Radio Medico Norway now has established a solution for receiving video consultations from ships. The service became fully operational in August 2012, and was used up against a vessel stationed in
Baffin Bay west of Greenland for three months. The system was tested and exercised several times during that employment, and video consultation is today a permanent part of the service provided by Radio Medico Norway.

The presentation covered today’s organisation of Maritime medical Assistance Services and a picture of challenges and the way forward for remote healthcare in the maritime environment.

The presentation impressed the massive variability in TMAS services provided by maritime nations. In the US it is provided by the Coastguard Service. Europe has several different models - some are good - others less so. Most still use the radiotelephone to communicate. This variability is confusing for seafarers.

Global TMAS amounts to 120 000 calls per year - a significant amount of work. The Norwegian service handles about 2200 contacts per year. Effective communication has been and will remain the challenge. there are always language issues to overcome - but so will be the challenge of specifying telemedical provision and ensuring its availability and use

Presentation 3: Fifty Years of Routine Remote and Rural Healthcare: The Greenland Experience

Dr Birgit Niclasen

Greenland, the essentials: A former Danish colony, today self-governing and struggling for independence. Greenland is located in just below the North Pole. It is the world largest island about 2000 km from north to south. The 56,000 inhabitants are living in 16 towns and about 60 villages along the coast line.

Health care including prescribed medicine is a public expense. The health care system including health preparedness was taken over from Denmark in 1992. In 2010 a system reorientation moving towards larger health care regions was started and today, the health care system is constituted by five health regions and a national hospital with 150 beds located in the capital Nuuk. Each region has a regional hospital and in every other is a small hospital and in every village a nursing station. The system is challenged by Greenland’s demographic structure, rapid epidemiological changes, increased public demand for specialized treatment, difficulty in recruiting professionals and the economic burden imposed by around-the- clock maintenance of specialized staff in sparsely populated areas. Also the increasing demand for better surveillance and monitoring of health is recognized.

To meet these challenges, a public health program focusing on health promotion and prevention, educational initiatives to improve recruitment especially of doctors and nurses, and tying the service together by telemedicine system and in a few years by a national and joint electronic patient file.

Still, securing best clinical practice and implementing better steering instruments on resource allocation and quality are areas needing focus in the future.

The presentation also highlighted general global healthcare challenges in the context of Greenland remoteness. Epidemiological changes (obesity, diabetes, etc) and increasing numbers of elderly were highlighted. There are the economic burdens of maintaining specialised services near to the patient.
As in many places, there are challenges with recruitment and retention of medical personnel - but this also presents lots of opportunity to develop a different type of workforce.

And as ever, in Greenland, despite the best laid plans - the weather still frequently wins!

**Presentation 4: Emergency Medical Evacuations - Offshore United Kingdom**

Michael Coull

The presentation looked at a particular type of maritime emergency, that of the offshore medical evacuation. At first glance, this type of incident might appear to be straightforward, even on some occasions, routine. However, as was seen, this is very rarely the case, given the complexities involved.

A maritime medical evacuation conducted by HM Coastguard is initiated after a clinical authorisation to do so – in other words, a Doctor must authorise the evacuation in the first instance. Often, the Doctor is authorising evacuation based on an initial, remote, assessment of medical need, which is the starting point for the Coastguard to draw up a plan of action. After this, many other factors need to be considered and addressed, such as the location, weather conditions, etc. To aid this, the authorising Doctor must also provide a timescale within which the evacuation must take place and also the type of medical facility required. Further complexities are added when the nature of offshore industry is factored in, as well as the capabilities and limitations of any unit tasked to complete the evacuation. For example, the nearest method of evacuation may not in reality be the most appropriate, taking into account urgency of response, ultimate destination etc.

An analysis of HM Coastguard’s records has revealed some interesting statistics, covering the frequency of and the reasons for medical evacuations, giving an insight into one of the most commonly occurring of our activities.

In this presentation we were again reminded that in the UK, maritime advice is provided from two centres - Portsmouth and Aberdeen. The Coastguard can access many assets e.g. RAF, Navy, the Coastguard itself, Offshore Industry Helicopters and Vessels and neighbouring states assets. This is all initially deal with through 3-way communication - the Maritime and Coastguard Agency, the vessel and the Doctor. This is essential if it is becoming clear that a medevac may be needed.

In many ways, with the provision of healthcare and medevac support, it is less the distance concerned rather than the time required to physically access a vessel. This is of course subject to many limitations - weather being one of the most important. Quality of information being conveyed is of vital importance and the case studies presented illustrated the need for good quality assessment and careful decision making.

For the future, we note that in the UK, the provision of Search and Rescue Helicopters will transition from a combination of Military and Coastguard (provided by a civilian contractor), to Coastguard only, again provided by a civilian contractor. The benefits are standardisation of assets designed for purpose, including an improved communications capability, leading to enhanced patient care en route.
Day 2 - Thursday 12th September

**Review of Day 1 – Setting the Scene for Day 2**

Alan Kennedy-Bolam [CEO, Institute of Remote Health Care]

In this opening address, there was a review of the output from the Bergen Conference of January 2013 looking at training competencies for remote medical practitioners. It was revealed that the consensus document from that conference has now been updated and is available for circulation. There will be plans published in due course for how this will be taken forward.

**Session 4 Redesigning Extreme Remote Healthcare**

Chair: Dr Dick Hooper

**Presentation 1: Case Study: Lessons learned from two seasons supporting Operation in Greenland**

Dr Lars Petersen

**Delivering high quality health care in extreme remote environments**

Introduction: As the quest for oil, gas, minerals and other natural resources becomes more complicated, major oil, gas and mining companies are moving to extreme remote locations which offer considerable challenges, patients cannot be evacuated within a few hours, so stabilisation and high quality treatment for several days must be facilitated within an environment which can offer its own challenges of extreme heat/cold, infectious/tropical disease and with limited access to basic necessities (e.g. clean water) and often limited communication.

The scope of this study is to examine the demands and expectations and the necessities needed to deliver excellent care in extreme locations, and to present the results of 3 years working in the Arctic region.

The following aspects were addressed

**Planning and Prevention:**
- Health risk assessment
- Medical emergency response planning
- Fitness to work
- Health promotion
- Food and drinking water safety

**People and Competence.**

**Topside support including the use of Telemedicine.**

**Medical Equipment and Supplies.**
Methods: Retrospective analysis and lessons learned. In depth analysis of the presented cases and their management.

Results and observations: Competencies required:
- Managing Medical Emergencies
- Advanced life support
- Emergency transportation
- Communications
- Outbreak management
- Use of medical technology.

Topside support and telemedicine save lives in critical care and emergency situations by bringing the hospital to the patient.
More attention needed to be given to drugs and equipment.
Dental screening pre-deployment reduced the necessity for medical evacuations.

Conclusions: Although operating in extreme locations does carry additional risk, and health care in these locations does have its limitations (major surgery not possible), we do believe, based on our experience, that with the necessary preventive tools, training, equipment and a solid topside support platform, it is possible to deliver high quality health care in even the most extreme environments.

The presentation went on to highlight a number of issues. There is an absolute need to research and plan - but inevitably there is a simple need to 'go there' and improvise. It is critical to work with local people and organisations and not be isolationist. There is a need to review existing assets that might be available and it is essential to be aware of local restrictions - in Greenland fog is a notorious handicap to operations.

The reality was that most of the care was primary care / generalist. Trauma and Emergency situations did not occur. Distant support and advice was rarely used. There was also the discovery of the technical limitations of operations at increasing latitude - communications satellites sit too low on the horizon to be effective. There is a need to utilise existing simple solutions - for instance VSee and its bespoke medical solutions. But there are simple restrictions - medical facilities on any installation tend to be cramped - so at a practical level, how can all the equipment be accommodated.

There was a good presentation of a case of a broken toe that proved the usefulness of telemedicine and the support it offered the medic.

**Presentation 2: eHealth in the Next Five Years**

Dr. Steiner Pederson

In 1998 we, for the very first time heard about Google. In 2004 the word Facebook surfaced. What will happen between 2013 and 2018 is that the mHealth, the uHealth, the eHealth, the telemedicine, the teleHealth, the homecare, the smart- house technology are all moved in the direction of one common system. The same technology and the users will be everywhere.

The knowledge will no longer be at our fingertip, a click away, it will be a question away - embedded in the Google glass (or some other devises) which we can talk to, ask any question (and get an
answer) whoever we are and wherever we are. This will change the way we read, learn and execute our work whether we are a doctor, a nurse, an oil worker or professor in mathematics.

In this presentation, great emphasis was placed on the pace of change and the fact that this pace is undoubtedly accelerating. It is near impossible to predict the possibilities even in the next 5 years. However, as ever, if it is all to be embraced for medical benefit, we need to ensure that the technical solutions are widely available - to avoid incompatibilities - and it needs to be hooked in at the start to project management.

The use of technology will extend far and wide in medicine - ponder the potential use of home monitoring systems. There are already gadgets that can attach to current smart phones to image ear examination, blood pressure monitoring, ECGs etc. There are examples of major projects (the Dr Watson experiment) that illustrated the full potential of computer based diagnostics.

The challenge then arises regarding the future training of Doctors, Nurses and other Healthcare Practitioners. What are they being trained for? Or do you now have to train in addition to current programmes how they can embrace new technologies?

**Presentation 3: Medical Practice on Tristan da Cunha - The Remotest Island Community in the World**

Drs Iain and Pamela Levack

Tristan Da Cunha is the most remote inhabited island on earth. It is equidistant (about 1700 miles and a weeks’ sail) from Cape Town and Buenos Aires. Getting there is by sea only (no airstrip) with about eight chartered sailings from Cape Town annually. On the edge of the roaring forties, the sea is to be respected and there is no harbour port. A breakwater defends the shallow (1 - 2 metre deep) embarkation point. Ship to shore is exciting depending on the swell – usually in a metal box swung by crane from ship to landing craft and then onwards under full throttle to shore. If the ship has a helicopter (and there are not many that do), it adds to the excitement.

There are three hundred islanders with around ten expats. Though internet connection is excellent telephone contact is variable with no Skype, there is no contact with the UK.

The authors presented their experience as joint island medical officer over a six month period. Most of the clinical work is general practice and public health but emergencies are inevitable. Hence the doctor provides primary and secondary care. Delayed planned tertiary care is available in Cape Town but at the mercy of ship availability and the sea. In an emergency the priorities are rapid resuscitation and broad spectrum intensive antibiotic management. Life support for longer than 24 hours is unrealistic because of limited logistics including specialist nursing staff, intensive care equipment, transfer to ship, should there be one, and a week’s voyage.

Over the last 10 years doctor recruitment has become harder. Although long term health of the islanders is important, short term island doctors can unsettle island life with differing treatment regimens as islanders are self-sufficient, astute and care well for their sick and elderly.
The presentation conveyed information on the catalogued 700 consultations in the 6 months of the attachment. They were inevitably mainly of general practice type activity. There was one case of fracture / dislocation, a case of acute mania and a case of myocardial infarction. There were two maritime incidents - one person with chest pains and one person from an ocean race.

Medical supplies are an issue - both in terms of the correct array of medication and ensuring appropriate quantities. Medications are paid for by the islanders themselves and this is an additional consideration.

Nevertheless, isolation remains the major issue.

**Presentation 4: Médecins Sans Frontières: Extreme Remote Clinical Care in a Humanitarian Setting**

Dr Phil Lacoux

Médecins Sans Frontières/Doctors Without Borders (MSF) are a large international medical humanitarian organisation. Their aim is to treat people where the need is greatest. Dr Lacoux has worked with MSF in Lebanon, Sierra Leone, Sri Lanka, Abkhazia and Haiti in Anaesthesia and Pain Medicine. He outlined how MSF works including its Charter, and illustrated the programs he has worked within. MSF believe in being present on the ground however there are drivers that are encouraging alternate approaches. Medical Aid organisations are sometimes themselves targeted, and because of this the space available for humanitarian organisations to work within during war or other catastrophe is changing. This presentation covered some of the extremes of remoteness by reason of hostile environment or war etc. Again, some of the recurring themes of the conference were explored - looking at what facilities might exist locally and trying to integrate with these. When MSF places medical staff into a situation of need, it’s important to be able to identify the individual specialisms that might exist amongst the medical staff and to try and utilise these if possible. Activities can range from help in war zones, disaster areas and in areas of chronic epidemic

As mentioned, MSF staff themselves can become targets as having some perceived value. This, despite avoiding as far as possible political, economic and religious influences on the work of MSF. It is important that MSF is not hooked into political leverage - it must retain its independence. Whilst risk exists - it is the traditional risks that still predominate - more MSF personnel are killed in RTAs than in violence.

**Session 5 Interactive Workshops**

a) **Pre-hospital Management of Hypothermia: Case Study and Practical Application of Latest Guidance for Managing Hypothermia of Multiple Aetiologies (e.g. immersion, avalanche etc)**

Dr Iain Scott

Cardiac arrest secondary to severe accidental hypothermia is associated with a high mortality rate. Non-survivors make up 80% of this group without appropriate intervention. Of those who survive a number of case reports and series demonstrate that good neurological recovery is possible with early intervention.
Re-warming hypothermic patients can be extremely difficult unless active methods are used. Traditionally cardiopulmonary bypass (CPB) has been used to rapidly re-warm patients with success and this has become the gold standard. Patients that have been re-warmed following severe hypothermia are at risk of developing a reperfusion lung injury and cardiac dysfunction. Deaths from secondary pulmonary oedema have been reported in patients who have been successfully re-warmed. ECMO has the advantage that support can be continued and still allow time for the cardio-respiratory system to recover before support is withdrawn.

Case presentation: February 2013; 3 climbers were involved in an avalanche in the Cairngorms in Scotland. 1 died at the scene. 2 were in cardiac arrest after being dug from avalanche debris after 110 mins they were flown to Aberdeen Royal Infirmary for extracorporeal re-warming. Both patients fulfilled The International commission of alpine rescue guidelines for instigating re-warming. The first patient was re-warmed with cardiopulmonary bypass but their left ventricle did not contract despite normothermia and resuscitation was abandoned. Patient 2 was re-warmed with vaECMO, return of spontaneous circulation occurred but later died of severe coagulopathy.

Discussion: Development of guidelines for the pre-hospital management of severely hypothermic patients from both mountainous and water environments would be desirable - what is the consensus of the group?

b) **Critical Components of a Topside Service: Medical Operational Integration**

Simon Marshall / Ricus Groenewald / Dr Ryan Copeland

Objective: Identify the critical medical and logistical elements of a Topside service in order to develop a commissioning and governance framework that will ensure efficient and effective delivery of medical support to remote operations.

Background: To build on the outcomes of the IRHC “Remote Healthcare Workshop 2013 Bergen, Norway” by looking at the realities of implementing the key standards and competency requirements based on current operations and experience.

Methodology: Facilitative and appreciative enquiry to identify the components of topside support that work well, with a specific focus on discussing and designing a scope of service delivery and support in accordance with full clinical governance. Discuss current thinking and standards in order to identify key concerns, risks and issues by way of participatory information sharing. Open discussion around technical components deemed essential for topside support with specific reference to previous experiences, referencing new technological developments. Document agreed prioritised structural elements of an effective topside support system, as well as summarising the outcomes of the workshop in table format.

Facilitating Activities:
1. Develop domains and criteria deemed critical for topside support success
2. Facilitated discussion and review to confirm a common baseline of knowledge
3. Discuss participant concerns, perceived risks and issues with respect to topside governance
4. Qualitative discussion to identify and risk rate critical success factors
5. Ideas generation for controlling critical success factors
Workshop Reporting; Report workshop findings in a simple table in order to be used for management guidance and reference.

Some of the key factors discussed included:
- single point phone access 24/7/365
- Phone answered within 20 seconds
- Good triage
- Multimedia capabilities
- Mass casualty incident support potential as well as single issue support
- Good communication protocols
- A fully recordable system (telephony and data)
- Business continuity support and disaster recovery
- Topside medical support needs networks
- There is a need for broad competencies
- Support needs knowledge of equipment and personnel capability
- There is a need for decision support tools
- There must be clear criteria for escalation
- Specialist opinion must be available
- There should be good clinical governance
- Clinical competencies should be core and site specific
- Environmental awareness is important
- Mutual familiarity is useful
- There should be clear medevac response plans
- Options should be explored - including local options

c) The Fisherman’s Friend: Delivering Medical Support to Fishing Vessels in Scottish Coastal Waters. Interactive Case Study and Presentation of Latest Data on Ship to Shore Support

Dr Mark Mitchelson / Mr. Derek Cardno / Dr Innes Crawford

This workshop focussed on development of telemedical advice to the UK fishing fleet. Historically a patchy network, this has long been rationalised to the hospitals in Portsmouth and Aberdeen. It is recognised though that as much fishing occurs in coastal waters, incidents will often be retained until reaching shore as planned rather than utilising medical advice whilst still fishing.

A practical case was explored with a fisherman having a serious arm injury at night with issues of distance to nearest port being explored; the appropriateness of the port medical facilities and the other options e.g. medevac that might have existed. The limitations of radio-telephony were explored.

A fascinating fact emerged that in the 2 years since the incident explored, from a near zero availability of broadband access on fishing vessels, there is now 75% of the vessels having access to this. In the incident explored, a single photograph of the injury would have completely changed the management options chosen
**d) Remaining Resilient after Traumatic Events: An Organisational Approach**

Mr. Gavin Rogers

There has now been considerable high quality science which has shown that whilst only a minority of individuals who are exposed to traumatic incidents are likely to develop mental health problems, including (but not limited to) Post Traumatic Stress Disorder (PTSD), the effects of trauma can have wide reaching implications. Traumatic incidents often put pressure on an organisation’s welfare services and can affect an organisation’s overall morale. Furthermore, there is now an abundance of evidence which suggests that many people who do not become clinically “ill” do suffer with sufficient post incident mental health symptoms that their ability to function in the workplace is substantially impaired. Therefore, even relatively low levels of post traumatic symptoms are important to detect and manage.

The workshop detailed the use of a secondary prevention measure called TRiM (trauma risk management) which is a peer support programme which originated in the UK military but has since been used by a large number of emergency services, healthcare providers, media companies, diplomatic organisations and security organisations. TRiM is a practical peer support programme and the workshop will cover the basics of TRiM and provide attendees with an ‘interactive’ demonstration of how TRiM works in order to allow attendees to better understand how it might fit into a comprehensive traumatic stress management plan. The TRiM process makes considerable use of an evidence based post incident risk assessment checklist which was explained further in the workshop itself.

The workshop explored a number of emergent issues. Trauma and the routine stressors of life inevitably interact. PTSD is not the most common outcome despite media interest in it. Mental health symptoms affect all types of people no matter how ‘tough’ they are perceived. Frequency or intensity of episodes are as bad as each other. Lots of stigma still attaches to these issues. Generally, recovery can be anticipated n 4 - 6 weeks. Organisations need to be prepared to deal with the psychological sequence of events.

**e) Major Incident Management in the Desert: Interactive Case Study and Major Incident Planning**

Professor James Ferguson

The workshop applied the PETS (Planning, Equipment, Training and Support) approach to planning for major incidents in a desert situation. This will be by an interactive approach with participants and based around a scenario based on actual incidents.

The aim was to illustrate current concepts in Major Incident Medical Management and Support (MIMMS) and explore the practicalities of applying such concepts in a remote, hostile, land based environment.

This was a fascinating workshop exploring scenario management after a major desert explosion.
The complexities of various casualty management options utilising available medical resources and ambulances raised much debate. Of interest was the pressures being brought to bear on the medic regarding how such an incident would be generally handled locally - which of course did not take into account objective analysis.

The audience concluded support for the way that the medic did in fact handle the incident

**f) Reducing Telemedicine Cost by 10x - Shell Oil Platforms, Rwanda Community Health, and Emergency Doctor Access via iPhone**

Dr Milton Chen

Telemedicine traditionally requires complex infrastructure and in-depth staff training due to the complexity of hardware and software.

VSee is a simple telemedicine software that came from Stanford University that eliminates the deployment experience from Shell Oil platforms in Nigeria to community doctor access via iPhone. We will demonstrate that the new generation of low cost telemedicine equipment such as EKG, ultrasound, etc., when combined with simple and secure telehealth software reduces the cost of telemedicine by 10X.

This workshop explored the full potential of VSee and its commitment to medical communication. The use of telemedically linked ophthalmoscopy / otoscopy / ultrasound was illustrated.

VSee is unique in having end to end encryption thus ensuring secure communication. It can co-run applications such as CT and x-ray. It can both send as well as receive multiple sources. It has no infrastructure peculiarities and no firewalls, thus improving accessibility. The potential for further development is impressive.

**Session 6 Key Drivers for Effecting Change in Remote Healthcare**

Chair: Dr Alistair Fraser

**Presentation 1: Promoting Health in Remote Locations: Maritime and Global Health**

Professor Mac MacLachlan

Equity in healthcare has become a clarion call for health policy globally. Such equity requires that those marginalised by distinctive challenges are able to access healthcare appropriate to their needs. This challenge extends to a number of quite different contexts. Research on how best to provide healthcare in these contexts has provided some useful and perhaps surprising insights which are relevant to the challenge of promoting health in remote locations. We consider demand (Who is most likely to need healthcare?) and supply (How can healthcare best be provided with scarce resources?) factors in several resource-poor settings. We also consider ‘improvement’ factors (How can health, well-being and performance be enhanced though systems intended largely to manage illness?). Maritime health presents global health with opportunities to develop its scope not only to
remote occupational environments but also to engage with a more ‘positive psychology’ ethos that can promote wellbeing.

The presentation went on to explore the increasing impact of the mid level cadres in healthcare - enhanced practitioners may well be more appropriate than specialists - there is increasing evidence this is so. New modalities are also gaining evidence of worth - for instance CBT delivered through online access would appear to achieve the same outcomes as more resource intensive face to face encounters. If this is so, such interventions can reach more marginalised groups.

Presentation 2: Maintaining Psychological Resilience in Hazardous Environments

Gavin Rogers

The presentation presented a combination of academic data and considerable life experience of the presenter in order to explore the above issues in some detail. Evidence presented drew on relevant scientific publications rather than hearsay or often unhelpful media headlines. Where appropriate, experience from other organisations which predictably place their personnel in harm’s way, for example the military, diplomatic services and the emergency services, was discussed. The presentation provided attendees with an evidence-based overview of how organisations can prevent, detect and treat mental health problems to minimize their effects upon staff in order to maintain as close to ‘business as usual’ after a traumatic event. The presentation included coverage of peer support programmes, which empower organisations to deliver psychological first aid, as well as discussing other important topics like the failings of mental health screening and the challenges of preparing organisations before incidents occur.

This presentation built on the workshop earlier in the days, reinforcing some of the output that was achieved in that workshop

Presentation 3: Maximising Organisational Effectiveness in Demanding Settings: Attention to Human Behaviour

Dr Paul Shanahan

On the one hand recent accidents like Deep Water Horizon, the Costa Concordia and the Spanish train crash provide strong evidence that in many areas of human activity, the potential for disaster remains as strong as ever. On the other hand, psychology has made great advances in recent years in understanding why people behave the way they do. We have spent many years applying the findings from psychology to improving the effectiveness and safety of organisations engaged in hazardous operations in the maritime, rail, aviation and defence sectors. In this paper we select and describe seven of the key lessons from psychology we have learned that may have value for the field of remote healthcare.

The presentation reviewed these seven areas, namely:

1   We make a trade off between thoroughness and efficiency and this is always a tension
2   We construct our own reality which again is the tension between visual interpretation and objectivity
3 We are not as rational as we think. Rationality is reduced by reflexes, habits, expectations, biases, mental shortcuts, practiced skills, stress, fatigue, emotions, attention limits and memory limits. Rationality increases with attention, effort, mindfulness, self control
4 We are not good at calibrating risk. Humans are poor at probability and consequences. We are often over optimistic or over confident
5 We all see the world differently. Culture, age, gender, religion, personality, education, etc. all influence this
6 Our goals are not what we imagine
7 We are more social than we might imagine and we benefit from positive deviance e.g. peer teaching, influence or leadership

**Presentation 4: “Leading Ideas”**

Major General Professor David Shaw CBE

Redesigning remote healthcare and clinical support is a complex issue, especially as the environments involved, resources available, regulations applying and capabilities of people participating are inevitably diverse. An even more challenging issue will be that of delivering such change. Both the planning and delivery will require effective leadership, an understanding of change management and the ability to communicate and influence others.

‘Leading Ideas’ explores the requirements of redesigning and delivering remote healthcare and clinical support in terms of the leadership and change challenges, before offering some ideas, based on empirical results in challenging and routine environments, that could raise the chances of success.

The presentation discussed how the aim to adjust leadership to deliver RHC better could be achieved. Inevitably this depends on good leadership, change management, influence and communication.

In terms of remote healthcare, we need to be clear about the intent. We need to identify the route by which it can be developed. We need to explore motivation for change. There needs to be interaction between all the involved entities and groups. Accountability for changes and implementation is essential. Identifying competencies has already been widely discussed

If there is to be delegation of tasks, there needs to be clear understanding of intent. There needs to be clear understanding of what to do - not just how to do. Boundaries need to be set - including freedoms and restrictions. Resources need to be identified and monitoring systems put in place.

If successful, this can lead to unity of effort, decentralisation, trust, mutual understanding and effective decision making. The outcome could be better results and motivation for change.

In facilitating change, it is important to identify and communicate the need. There is a need for a clear plan, and ‘bosses’ need to be persuaded at all levels. The plan needs to be activated and obstacles removed. Success needs to be demonstrated and reviewed and adjusted as necessary. The bottom line as ever is good communication.

Communication needs leadership of strategic communication, change communication and influence communication. In summary, remote healthcare leadership challenges can be overcome; change needs to be thought through; influence needs to be explored and we must communicate to succeed
Session 7       Panel Discussion/ Plenary/ Closing & Way Forward

Chair: Mr. Ian Anderson

**Expert Panel Discussion (Q&A), Plenary/ Closing & Way Forward**

The expert panel discussion covered:

Debate on the role of the RCS Edinburgh Diploma in Remote Health Care.

Opportunities for further collaborations which touched on course provision; developing the IT infrastructure; sharing of information openly; practical collaboration - e.g. the IRHC; the importance of vital strategic interests - the industry, remote communities etc.

Diversification of the future workforce including such issues as 'task shift', the use of existing professionals and the development of new professionals.

Finally a question on what might cause panel members loss of sleep. This generated responses including the need for accreditation and registration to verify individual capability; the need to change the workforce; the need to enable the future workforce despite some of the regulatory and other international restrictions that exist.

IRHC “improving healthcare of those who live and work in rural, remote and extreme environments”