
IMPROVING HEALTHCARE IN REMOTE ENVIRONMENTS VIA A NEW INTEGRATED, ONLINE COMMUNICATION PLATFORM

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Abstract

International SOS delivers integrated medical solutions to remote and extreme remote onshore and offshore projects worldwide, using highly trained and experienced medics with a robust system of protocols, procedures and clear escalation criteria to our Topside support centres. To enable improved medical escalations from the remote sites, we have developed a customised, online communication tool called the Digital Topside Platform (DTP). The system was designed to allow simplified telemedical interaction, improved data security, and enable integrated patient care from initial presentation to return to work, with a focus on managing the case on-site, and patient confidentiality. The design process included a focus on user experience and workflow optimisation, and an iterative development methodology. The system includes multiple components including: management dashboards, interoperability with existing case management systems, messaging, video and file transfer features, and case data including medical and contextual information via a mix of auto-populated and manual entry data points. The solution was designed for non-urgent cases, which represents >80% of case escalation volume. Initial deployment of the solution to offshore oil rigs in West Africa and the Intl.SOS Johannesburg Response Centre has demonstrated four key improvements over baseline data. A preliminary analysis of our data shows that 70-80% of the case escalations use the system, demonstrating a high rate of user adoption. The improvements shown were: (1) reduced need for urgent medical evacuation for non-life threatening conditions; (2) increased adherence to evidence based guidelines via more efficient clinical governance processes; (3) faster escalation processes via profile management

and system integration; and (4) early escalation of work related injury cases resulting in reduced time off work. Based on evidence to date, the system facilitates improved healthcare management for patients in the remote offshore environment. The system continues to be deployed to additional sites and regions globally, which will generate a statistically significant dataset for further evaluation.

Keywords: telemedicine; telehealth; eHealth; topside; offshore

Introduction

International SOS is a global medical and travel security risk services company, with more than 1,000 locations in 90 countries. The Intl.SOS group includes more than 11,000 employees, including 1,400 doctors and 200 security specialists operating 24/7 to support a variety of corporate, government and NGO clients. The global service delivery structure includes 27 Assistance Centres, which managed 4.6 million assistance calls in 2016.¹ The Assistance Centres also provide medical support to over 850 remote sites.

Intl.SOS has global ISO 9001:2008 certification across all its business lines and registered companies.² Additionally, Intl.SOS became the first organisation in the world to be certified in accordance with the newly published ISO 13131 Guidelines for the delivery of TeleHealth services, awarded by the British Standards Institution (BSI). The ISO/TS 13131 guidelines address several practices: consistent delivery of remote medical assistance, clinical governance and quality management protocols, ability to meet legal requirements and protection of patient data and information.

Topside support is an industry term used to describe the services provided to remote installations

from a team of medical and operations personnel onshore. When an injury occurs on a remote site, the clinician onsite can escalate to the Assistance Centre team for medical and operational guidance under defined protocols to ensure optimal clinical outcomes.

Topside support has been a leading example of telemedicine for several decades.³ As available bandwidth and technology improves, greater opportunity exists to improve the technical solutions and therefore capability to remotely manage cases on site. However, for any new telemedicine solution to be successful, the development and deployment must take an end to end approach, including non-technical factors such as end user training, adherence to protocols, and early stakeholder engagement.⁴

Methods

The Digital Topside Platform was developed to further improve the communication process between remote sites and the Intl.SOS Assistance Centres, as part of a focus on continuous improvement and best practice. The system development focused on creating an integrated, streamlined solution to improve communication and collaboration.

The system provides a variety of information and tools, including: patient and incident details, triage tools, integrated transfer of diagnostic files and images, management dashboards, plus messaging and video features. Additionally, the DTP is inter-operable with existing Intl.SOS electronic case management systems. The DTP was developed in compliance with Intl.SOS IT Security and Data Protection policies, and subject to ongoing cybersecurity testing per compliance requirements.

The system was deployed in late 2015 to six drilling rigs located offshore of West Africa. These rigs connect to the Intl.SOS Johannesburg Assistance Centre, which provides 24/7 topside support to sites across the African continent and in surrounding waters. The implementation process included site reviews of each location to determine technical feasibility, stakeholder engagement, plus training and drills with the end users before enabling live use.

All topside case data are stored and archived in a proprietary electronic case management system, which was used to support subsequent reporting and data analysis. Data are transferred between the DTP and the case management system through a semi-automated process both at the start and end points of

the case. The case management system provides a reporting capability that was used to assess historical activity at the six locations. Each case escalated from the six rigs was reviewed by an Intl.SOS Medical Director as part of the structured Clinical Governance process. The review included an evaluation of treatment methodology, urgency of evacuation (when relevant), clinical outcomes, adherence to evidence based guidelines, and optimised return to work management where appropriate.

Case Example

Burn wounds successfully managed on-board, with regular review via DTP.

History: The patient was working in the engine room with one of the engines, when hot water from a broken pump soaked his left glove causing 1st and 2nd degree burns on his left hand.

Examination: 1st and 2nd degree burns on dorsum and the 2nd, 3rd and 4th digits of the left hand. Vital signs within normal limits: Blood pressure 130/90, Pulse 67, Temperature 36.4°C, Respiratory rate 18, Oxygen saturation 98% on room air.

Treatment: Burn gel applied for 30 minutes. Zinc oxide ointment applied over the affected area. Dressings to cover the wounds. Tetanus toxoid booster given.

Assistance Centre recommendation: Close monitoring on-board, with daily discussion with treating doctor and review of images. Back-up plan in case progress is suboptimal: non-emergent disembarkation via helicopter for onshore wound review by specialist.

Outcome: Patient successfully managed on-board the rig. Disembarkation not indicated.

Results

Between 1 Jan 2016 and 31 Oct 2016, there were a total of 125 cases escalated via the Digital Topside Platform, which represented 77% of the total 162 case escalations from these rigs. The 37 cases not escalated via the DTP were initiated via telephone instead, and generally represented more acute clinical scenarios.

While the volume of topside case activity in the period was insufficient to support a statistically meaningful review, anecdotal results were found to include: (1) reduced need for urgent medical evacuation for non-life threatening conditions; (2) increased adherence to evidence based guidelines via more efficient clinical governance processes; (3) faster

escalation processes via profile management and system integration; and (4) early escalation of work related injury cases resulting in reduced time off work.

Discussion

The DTP was designed for non-acute clinical cases, which typically represent 80% of Intl.SOS's topside support activity. For each case, the remote medic had the option to either escalate the case via telephone or through the DTP. The 77% utilisation rate correlates to the approximate number of non-acute cases, therefore indicating a very high rate of user adoption of the DTP.

Conclusions

The DTP was developed to improve topside support and clinical outcomes. Initial study has shown positive feedback from end-users and anecdotal improvements in clinical outcomes and management of work related injuries. Further deployment of the system to offshore installations in West Africa and other regions is planned for 2017. The additional case activity will enable statistical evaluation of the impact of the DTP relative to the four areas of focus: optimising treatment onsite, adherence to evidence based guidelines, early escalation, and management of work related injuries.

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Conflict of interest. The authors declare no conflicts of interest

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