Healthcare Delivery for Armed forces using telemedicine (Iraq case study)

[1]Abdul Monem Saleh Rahma, [2]Suhiar Mohammed Zeki

[1]Computer Science Department / University of Technology/

[2]PhD. StudentatComputer Science Department/

monem.rahma@yahoo.com, suh_1970_@yahoo.com

Abstract:

This study aims to create a system that provides health care and treatment and health services remotely for those who serve our country is an honor for Sami are members of the armed forces of soldiers and officers, whether in the battlefield or in military training camps, And through the use of telemedicine technology remotely in the military field using the electronic health files (EHR) for each member of this alternative process for medical evacuation in military operations or the battlefront.

Any use of medical technology will be distributed and the delivery of health care away from the military hospital of the Ministry of Defense and health centers in real time and at reasonable prices and Tver services very quickly, as well as working to improve quality in the provision of these services and care for the sick and wounded soldiers and to ease the pressure on the military hospital, doctors, specialists and this is achieved What's called (TRIPLE AIM)

TRIPLE AIM= better patient experience+ lower cost+ better comes

A balance between work, quality, cost and speed.

المستخلص

تهدف هذه الدراسة إلى إنشاء نظام يوفر الرعاية الصحية والعلاج والخدمات الصحية عن بعد بالنسبة لأولئك الذين يخدمون بلدنا لشرف سامي هم أفراد القوات المسلحة من الجنود والضباط، سواء في ساحة المعركة أو في معسكرات للتدريب العسكري، و من خلال استخدام التكنولوجيا التطبيب عن بعد عن بعد في المجال العسكري باستخدام الملفات الصحية الإلكترونية (EHR) لكل عضو من هذه العملية البديلة للإخلاء الطبي في العمليات العسكرية أو جبهة القتال.

وسيتم توزيع أي استخدام للتكنولوجيا الطبية وتقديم الرعاية الصحية بعيدا عن المستشفى العسكري في وزارة الدفاع والمراكز الصحية في الوقت الحقيقي، وبأسعار معقولة وخدمات تفير بسرعة كبيرة، وكذلك تعمل على

تحسين النوعية في تَقديم من هذه الخدمات والرعاية للجنود المرضى والجرحى وتخفيف الضغط على المستشفى العسكري، والأطباء والمختصين ويتحقق هذا ما يسمى (AIM الثلاثي)

AIM الثلاثي = خبرة افضل للمريض + تكلفة أقل + نتائج افضل

التوازن بين العمل والجودة والتكلفة وسرعة.

The aim of this study

Creating a military telemedicine system provides consulting and comprehensive medical services similar to countries used similar techniques in the medical field Email this technique is a successful form of the provision of health care for soldiers and officers and employees in the military field and in the battlefields instead of hardship transfer the injured fighter and wounded, To the nearest military health center and visit military hospitals and get advice and decision and appropriate treatment directly and in real-time. The real aim of this study create a way to expand telemedicine at the military level in Iraq to advance in real terms to take advantage of technologies can information in the military field and genuine cooperation between The Ministry of Health and the Ministry of defense

1 – Introduction

Military medicine has a long history of progress and to provide medical services to officers and soldiers in the military, medical and military hospitals and health centers within the introduction of new surgical techniques and strong pain relievers and antibiotics, But with the advancement in science and technological networks, smart phones, there has become an urgent need to provide these services through the technical system remotely to provide speed, cost and ease pressure on the military hospitals.

This study focused on the importance of the use for the first time (telemedicine) in the armed forcesand the ability of the Ministry of Defense on the use of modern technology with smart devices for advanced and rapid health services in real-time and lower the cost of which gives the substantiation of health and technological quality

This study shows how the use of this proposed system to address the behavioral health of military personnel issues, such as post-traumatic disorders among returning soldiers and cheaply and quickly, as well as the possibility of the use of symbols in the messages pertaining to the mental health of soldiersBesides that can allow the system to send messages to the soldiers to remind them about the medical advice and advertising and other battlefields (Health Information Service), which is activated for

the purpose of providing health and medical information for soldiers and employees of the Ministry of Defense.

2 - System requirements [1,2]

Get the consent of the Iraqi Ministry of Defense

Get the consent of the Iraqi Ministry of Health

Good network

Soldiers and employees of defense accept accommodate modern technology

An electronic medical record for each military which provide personal information as well as information about his physical health and physical (chronic diseases, allergies and previous operations in the war) as well as other personal information (age, housing, etc

Ensure the confidentiality of information

Compatibility with health information technology platform

Military hospital linked to a satellite with a range of high-bandwidth for the purpose of (sending X-rays, and video) in the event of injuries or wounds to get a quick fix and content and to speak with a specialist doctor in real time.

3 - Conventional military medicine[4]

The traditional military medicine have included functional and service-even working to provide medical services on the battlefield as well as military hospitals, as well as a successful role and called the (medical evacuation),Where there is an integrated medical team for this purpose (doctors and nurses). But the suffering was that these medical centers were relatively far away and need time to when access and benefit from the services of this study focused on the creation of a military telemedicine offers medical services, treatment and counseling in real time and by the patient himself by smart devices and mobile phones and at the lowest cost and as soon as possible and by the patient himself to save the confidentiality of the information
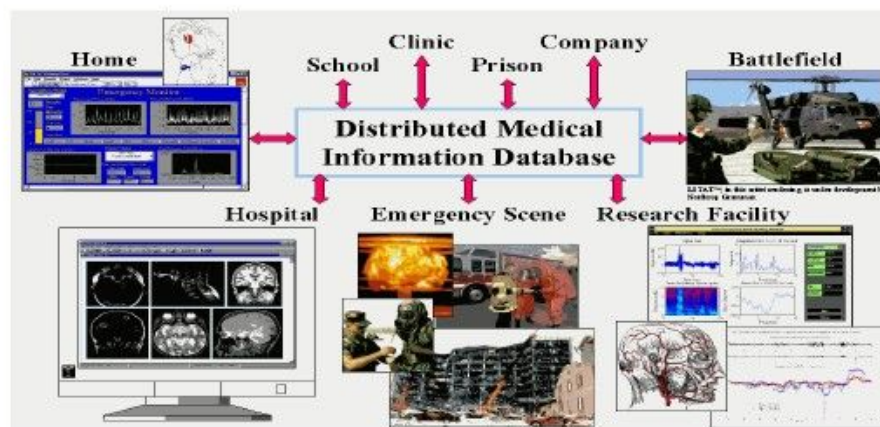
Figure 1: traditional military medicine

4– Transform from traditional military medicine to military telemedicine[3,5]

Despite the success of medical evacuation (conventional military telemedicine) in military medical hospitals when transferring the wounded, whether (simple cases or dangerous situations or moderate cases),There have been obstacles to this process is after the military hospital on the place of injury or accident, as well as the lack of an airstrip for military helicopters in military hospitals, as well as specialized centers or hospitals, slow speed to receive military patient for treatment and the fear of injuring the soldiers and military officers in the battlefields what is known (influenza syndrome) , and symptoms: fatigue, high temperature and pain in muscles and joints, pain in the head.

These symptoms that afflict most of the soldiers on the battlefield as possible processed through military telemedicine to receive medical advice via the mobile phone and smart devices or, for example, provide information and tips to avoid such injuries.

Figure 2: Medical Information exchanged in a variety of environments-Battlefield, research facility, emergency scene

Usefulness of this study provide medical services to soldiers on the battlefield and the exchange of information and data across a network with the doctors and specialists with the help of an electronic file for each member of the Army forBest (and the cost of real-time and frustrating)

Telemedicine a solution for the 21st century then Contact physicians specialists gets injured on:

Diagnose

Answer questions

Prescribe medicine

That is straight for word answer and solutions for routine illnesses then this paper focus about the use of medical information exchanged from one site to another via electronic communications to improve patient's health statues.

Telemedicine=pear-to-pear collaboration +clinical practice and patient experience

The connecting = conference vide o rounds+ remote patient monitoring.

5 - How the system works(proposed system)

The proposed system works after it is processing a reservation Website is allocated for this purpose in addition to the staff (doctors, nurses, administrators and administrators) to answer any question or provide medical service or conversion to doctors jurisdiction and have the site and the system is easy to use and works in real time to create the medical atmosphere and services battlefields and training camps for the soldiers and officers and employees in the military.

Simply sign-in and security invite patients, peer, or your extended care team to vide conference. [One-on-one or all at once] that is flexibility and more features than ever, than move information that in battlefailed where military patients electronically share their vitals with specially cases.

Then the doctors and trained nurses providing remote care and coaching delivering better outcome for this system.

Then find the programs in user's area or connect the hub directory.

Figure 3: (military medicine – electronic military healthcare)

Figure 4: (military –telemedicine)

6 - Benefits of military telemedicine for military patient

- ❖ There is no appointment
- ❖ Treatment immediately
- ❖ Without consume times
- ❖ No wetting time
- ❖ The doctors receive the request in the real time
- ❖ Emergency case solutions
- ❖ The content via smart phone or smart devices
- ❖ Send information in secure and rapidly
- ❖ Can visit the pharmacy in secure and rapidly
- ❖ Improve health care
- ❖ Make the daily military life easier
- ❖ Visit the doctors simply
- ❖ Keeps the psychic soldiers and officers

❖ Keep up with modern technology in the military side

❖ Ensure cooperation between the Ministry of Health and the Ministry of Defense.

❖ Train soldiers on the use of modern technology for the purpose of access to medical services easily and quickly.

7 - Why military telemedicine

This study of the military telemedicine to allows the expertise to be every military street corner and to regionalization improves efficiency and quality the study think about lower cost of equipment and tale- communication then can increased opportunities for funding ,and changes in reimbursement and getting over the "early adopter" hub.

8- Triple Aim diagram

The main objective of health care and use of remote part basic military field to achieve the (triple-target) ... better health and improve health and medical experience as well as reduce costs, where the system is a powerful tool in clinical, medical and personal data for patients collection.

Care +health +cost

To creating a high value military health system is: predicated on defining and measuring value.

Figure 5: triple aim of military telemedicine[3]

The military health system value equation aim:

Value= (readiness+ experience of care+ population care)/ cost –over a span time.

9 - The challenge of the proposed system[5]

- ❖ Bad utilization of this technique
- ❖ Misdiagnosis for complex things
- ❖ Lake for band width of internet
- ❖ The legal and regulatory infrastructure for this proposed system has yet to catch up with the new technology in military medicine.
- ❖ The influence of military telemedicine its varies greatly on where the technology applied (battle fields or camps).
- ❖ Don't understand consequences of the term telemedicine.

Conclusion

In this study, the telemedicine system proposed in the Department of Defense to support the provision of medical services and treatment and appropriate consultation and in real-time and by specialist doctors for members of the military service, soldiers and officers, whether on the battlefield or training camps in order to avoid the use of traditional means (medical evacuation) without delay time and the cost of a large and strained.

The use of an electronic record for each member of the defense of the entire personal information and information of physical and pathological information developed and become the electronic army and preserved health record in military medicine to be used electronically.

n our country, Iraq's need for such technology to help our armed forces and employees of the Ministry of Defense to receive medical services even in the battlefields, especially in the current circumstances in Iraq, this saves time and reduce morbidity and mortality in the ranks of our military rates and be part of the defense department and the health information system and medical information system on the battlefield.

This study included the availability of medical care in the areas of complex and difficult because of the limited medical resources for the purpose of stabilizing patients for quite a distance and mitigates the effects of the injuries occurring on the battlefield.

References

[1] Joseph K.Maddry.Danialsessions.Kennon heard," Military medical toxicology telemedicine service",2011.

[2] Corry Jeb, J.jonasCarmichael ," Telemedicine and future innovations"2013.

[3] Dimitarhirstovski, Institute of biomedical informatics medical faculity" Telemedicine – telehealth-telecare"2002.

[4] EbrahimNegeba , Jocelyne foyn and paulrubel , university Lyon1" Telemedicine system for hospital environment"2012.

[5] AMD global telemedicine" Telemedicine in rural communications"2014.