

Remote Healthcare Solutions

With more than 20 years experience, Medical Support Solutions is the ideal partner for Integrated Healthcare Solutions for the remote and offshore environment.

We firmly believe in the importance of proper healthcare on remote, active and high-risk environments. We also know that in the current global economic climate, cost can influence the level of healthcare our clients can afford.

We strive to meet this challenge with pragmatic, innovative thinking, products and costing models.



Whether a single medic in a tent or a multi-disciplinary Medical Treatment Facility, properly organised healthcare systems on remote sites can reduce the incidence of lost time injuries, costly evacuations, disease complications and fatalities.

Our approach to remote healthcare is aimed at identifying and treating medical conditions on site before they lead to down time or become serious emergencies.

“The utilization of safety/medics in remote operating areas is a proven benefit in ensuring timely treatment, mitigating injury severity and containing medical costs. Simply put, “An ounce of prevention is worth a pound of cure,” or “Pay now or pay more later.”

* Quoted from Drillingcontractor.org: “Numbers show: Good safety is good business”

United Kingdom | Mozambique | Uganda | Democratic Republic of Congo | Somalia

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MEDICAL
support solutions





Medical Professionals

We place the most appropriate, trained and experienced medical personnel on the site. These can include Doctors, Nurses, Paramedics, technicians and National Health Professionals.

Emergency Services & Evacuations

Identifying the most appropriate provider based on cover, availability and cost is one of our strengths; enabling us to facilitate rapid and appropriate evacuations.

Equipment, Medications and Resupply

Carefully selected solutions help to reduce unnecessary evacuations, appropriately manage Injury On Duty cases and provide rapid Advanced Life Support in an emergency.

Skills Development and Training

Skills Assessments, training and mentorship programs are aimed at developing and up-skilling individuals to International Standard Emergency Care.

Complete Systems

Our capabilities range from single medic solutions to NATO standard Role 2 surgical facilities, laboratories, imaging and blood banks to COVID-19 Intensive Care Units.

ISO9001:2015 Quality Systems

Direct Operational Support and Oversight

Top-Cover by Emergency Physicians

Health and Wellness Programs

Comprehensive Insurance

Injury On Duty Protocols

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Case Study: Training, Experience and Resources Saves Lives

Case History

A patient presented to a remote site medical treatment facility. He had been previously diagnosed with malaria, was sweaty and had a fever. He was nauseous, anxious, had chest discomfort and was very tired.

It would be understandable to focus on the malaria, prescribing anti-malaria medications, as well as treat the nausea, fever and muscle aches. However, the MSS Paramedic noticed that the patient's blood pressure was unusually high.

The high blood pressure and history of chest discomfort meant that the next logical step was to perform a 12 Lead ECG.

The 12 Lead ECG confirmed that the chest discomfort was actually a sign of an Acute Coronary Syndrome (ACS). This directed immediate treatment away from malaria and towards the ACS.

This is the value of experience combined with proper equipment.

Following Advanced Cardiac Life Support guidelines, the patient was admitted, chest pain controlled, blood pressure reduced and vital signs stabilised. He was then transported to a local facility, which was fortunately able to continue care.

What is Definitive Care?

A Definitive Care facility is the medical facility where a patient receives medical care that definitively manages an injury or medical condition. This can be surgery, cardiology or neurosurgery with their associated specialised units, operating theatre and ICUs.

What this means

In serious cardiac events, the phrase "Time is Muscle" is very appropriate; the longer it takes to provide definitive care and unblock the arteries, the more heart muscle is damaged beyond repair.

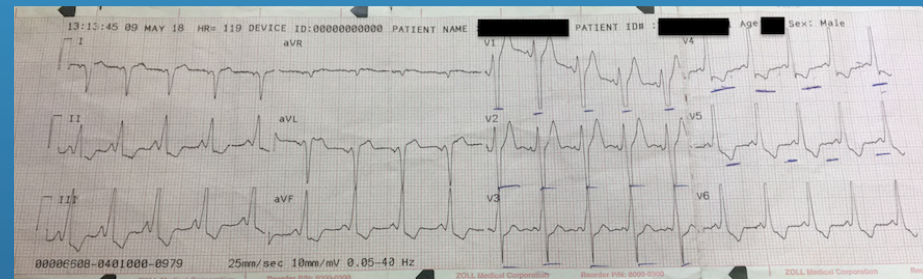
The same principle applies for other medical and trauma emergencies, the earlier a condition is diagnosed, the faster that treatment is started and the sooner the patient reaches definitive care, the better the outcome.

Conclusion

On a remote site, properly organised and equipped healthcare facilities with trained and experienced healthcare professionals can save lives.

Site based medical professionals can provide life saving interventions to minimize further irreversible damage to heart muscle, preventing a fatal heart attack.

The 12 Lead ECG below is the patient's actual ECG. It shows some of the changes that indicate an ACS, caused by partial or complete blockage of blood flow to sections of the heart.



Risks are not only industrial or accident related. Robust health and safety practices cannot prevent medical risks such as Heart Attack, Stroke and other medical or surgical emergencies.

The sooner the arteries are unblocked, the greater chance the patient has of survival

About 90% of people who experience out of hospital cardiac arrest die

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TRAINING AND SKILLS DEVELOPMENT



Formal international best practice emergency medical training; in particular prehospital emergency medical training does not exist in most of Africa, with the result that many national healthcare practitioners are sadly not equipped to assess, diagnose and treat medical and trauma emergencies. ¹

However, many medical professionals have shown a desire for knowledge, skills and capabilities to be able to contribute more to a remote site healthcare system and their communities.

MSS has developed programs and training materials aimed at identifying individuals who have the potential to be trained and developed to international standard emergency care, leaving a lasting legacy and contributing to local healthcare.

A key aspect of these programs is that they are offered in French, with French language training materials and workbooks.

Medical Support Solutions is a registered training centre with the Emergency Care and Safety Institute (ECSI). ECSI is accredited by the American College of Emergency Physicians and American Academy of Orthopaedic Surgeons.



Standard First Aid, Advanced First Aid, Emergency Medical Responder, CPR and AED course content includes:

- Student Manuals
- Presentations and lectures
- Instructor Manuals
- Practical sessions
- Scenarios
- Skills stations and tests
- A certificate is issued, accredited by ECSI, AAOS and ACEP.

1 References:

1. Kalisya et al; **The state of emergency care in Democratic Republic of Congo**, African Journal of Emergency Medicine, 2015, republished in 2021
2. **Awareness, attitude and perceived knowledge regarding First Aid in Kinshasa, Democratic Republic of Congo: A cross sectional household survey**, African Journal of Emergency Medicine 12 (2022) 135–140
3. **Education Congo, Rhumba and resuscitation: emergency medicine education in D.R Congo**
4. **WHO Publication on road traffic deaths in the Democratic Republic Of Congo**

MSS Courses and Workshops

Advanced First Aid and Emergency Medical Technician - Basic (English and French)

Ideal for: Safety officers, prehospital providers and ER nurses

Table de matières

- Qu'est-ce que les premiers secours et la réanimation de base
- RCR et AED
- Utilisation du DEA
- Mettez-la en position latérale de sécurité
- Obstruction des voies respiratoires
- Symptômes classiques
- Perte de connaissance
- Crise cardiaque/infarctus du myocarde
- Accident vasculaire cérébral/AVC
- Convulsions
- Choc
- Saignements
- Utilisation de pansements et bandages
- Lésions des tissus mous
- Lésion de la moelle épinière
- Traumatismes thoraciques, abdominaux et pelviens

Table de matières

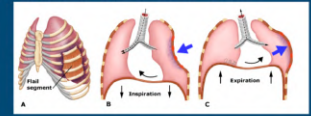
- Fractures
- Blessures à la tête
- Lésions oculaires
- Brûlures
- Préparer un patient pour le transport
- Allergies et Auto-injecteur d'adrénaline
- Asthme
- Urgences diabétiques
- Morsures de serpent
- Fièvre
- Diarrhée et vomissements
- Urgences liées à la chaleur
- Empoisonnement

Traumatismes thoraciques, abdominaux et pelviens

Volet costal

Il se caractérise par une respiration paradoxale, qui désigne un état où la partie touchée bouge dans le sens contraire du mécanisme de respiration :

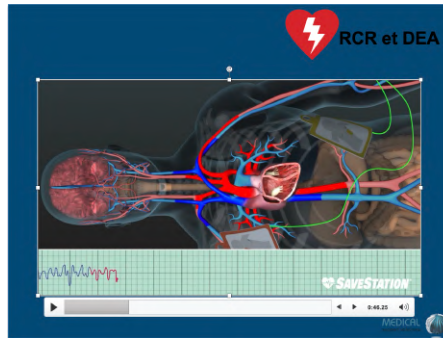
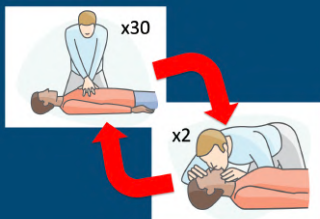
- À l'expiration – la partie touchée « rentre »
- À l'inspiration – la partie touchée ressort.



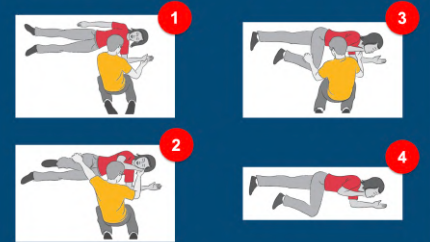
CPR, AED and Choking (English and French)

Ideal for: Safety officers, prehospital providers and nurses

Continuer de réaliser des séries de 30 compressions et 2 insufflations



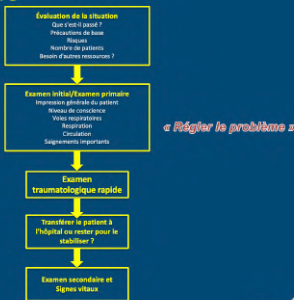
Mettez-la en position latérale de sécurité



Patient Assessment According to ITLS and PHTLS principles: (English and French)

Ideal for: Prehospital providers, Doctors and ER nurses

Examen primaire

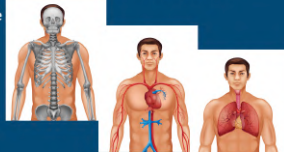


Examen thoracique - Traumatisme

L'objectif est de déterminer s'il y a une lésion au thorax et aux structures sous-jacentes, au niveau des côtes, du cœur, des artères principales et des poumons.

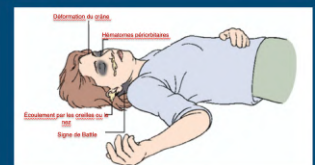
Pour examiner le thorax, il faut pouvoir le voir et le palper :

- Dégagez la zone
- Inspectez
- Palpez
- Auscultez
- Percutez



Examen de la tête et du cou - Traumatisme

Inspectez la tête.



Ces signes peuvent indiquer la présence d'une fracture du crâne et d'une fracture de la base du crâne.



Basic ECG and Arrhythmias (English and French)

Ideal for: Prehospital providers, Doctors and ER nurses

Conduction cardiaque

Phase 0 : Dépolarisation – Déclenchement du nœud lorsque la cellule atteint son potentiel seuil

Phase 2 et 3 : Repolarisation : Après la dépolarisation, la cellule commence à revenir à son état de repos initial. La cellule ne peut pas se dépolariser à nouveau avant de s'être repolarisée.

Phase 4 : La repolarisation est terminée. Pendant cette phase, le sodium fuit lentement dans la Cellule pacemaker, et rien ne se passe dans la Cellule (contractile) ventriculaire (cf. tracé plat pour la phase 4).

Rythme ECG

Les intervalles P-P sont-ils réguliers ou irréguliers ?

Les intervalles R-R sont-ils réguliers ou irréguliers ?

Bloc AV de 2° degré – Type Mobitz 1

1. Vitesse de conduction normale

2. L'impulsion passe mais met plus de temps

3. Le cycle redémarre

4. L'impulsion passe mais met encore plus de temps

L'impulsion ne passe pas

12 Lead ECG and Myocardial Infarction (English and French)

Ideal for: Prehospital providers, Doctors and ER nurses

Anatomie d'un ECG à 12 dérivations

Un ECG à 12 dérivations doit afficher les dérivations suivantes :

Dérivations standard 1, 2 et 3 (I ; II et III) ; aVR, aVL ; aVF ; V1 à V6

Chaque dérivation examine une zone spécifique du cœur, comme une caméra.

Regarder le cœur

Reconnaître l'élévation du segment ST

ER Roles and Responsibilities (English and French)

Ideal for: ER doctors and ER nurses

Retrait d'une planche dorsale

Planche dorsale : Le patient est descendu de la planche, une infirmière assurant le contrôle de la colonne cervicale.

L'infirmière à la tête du patient coordonne le mouvement de rotation, avec la consigne « Prêt, Accouder, Bouge ».

Une équipe de traumatologie typique

Infirmière 2

Positionnement à gauche du patient

Commence à déshabiller le patient, avec l'aide de l'infirmière 3 si nécessaire

Mise en place d'une perfusion si nécessaire

Mise en place d'une sonde urinaire si nécessaire

Mise en place d'une sonde nasogastrique si nécessaire

Major Hemorrhage Control Basic and Advanced Life Support (English and French)

Ideal for: Safety officers and prehospital providers (Basic), Doctors and ER nurses (Advanced)


Saignements

Une hémorragie peut être interne ou externe.

L'hémorragie interne peut être causée par un ulcère ou une lésion au niveau des organes internes.

Les ecchymoses ou « bleus » sont une forme bénigne d'hémorragie interne.

L'hémorragie interne est difficile à identifier, mais le patient peut montrer des signes de choc.



Bandage d'urgence (Pansement Israélien)

Il s'agit d'un bandage doté d'une boucle plastique permettant de tirer pour le serrer fermement en le rabattant sur lui-même pour exercer une pression sur la plaie.

Ce type de bandage est particulièrement pratique pour des pansements hémostatiques ou des bandes de gazes appliquées sur une plaie au niveau d'un bras ou d'une jambe.



What is Tranexamic Acid?

Tranexamic acid (TXA) is a synthetic analogue of the amino acid lysine, discovered in the laboratory in 1962.

TXA acts by reversibly binding to lysine receptor sites on plasminogen, thus preventing it to bind to the tissue plasminogen activator (tPA). Once this binding is prevented, plasmin will not be formed, avoiding fibrinolysis

More recently, TXA use has been expanded to patients undergoing elective surgery, showing to reduce the needs for blood transfusion

Rapid Sequence Intubation (English and French)

Ideal for: Prehospital Advanced Life Support Providers and Doctors

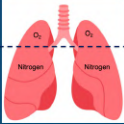
Preoxygenate

Increase Safe Apnea Time
Denitrogenate the Lungs

Before preoxygenation / Denitrogenating the lungs:

At Room Air: 78% Nitrogen
 → O₂ in lungs = 450cc
 → O₂ reservoir (lungs & blood) = 1-1.5 L
 → Rate of O₂ consumption (Healthy) = 250cc/min

Time to critical desaturation = 1 min
(In a healthy non-compromised patient)




Prepare for RSI

- Perform Checklist
- Optimise the 1st Attempt

Position the patient


Visualisation of the cords is difficult in 5% of cases, this increases to 40% in patients with C-Spine Injuries



Post Intubation Care

- Ventilation – in the ER or Pre-hospital

Quick reference settings – Lung protective ventilation – ARDSnet Ventilation Strategy

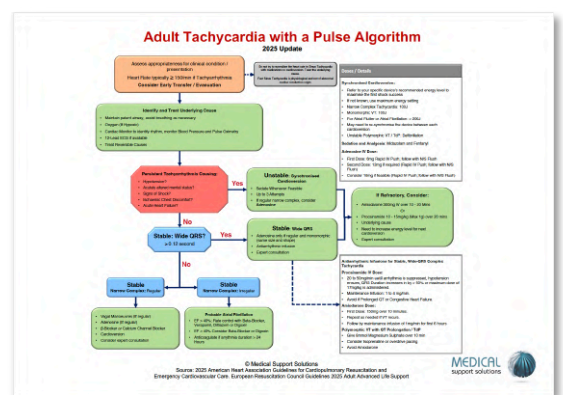
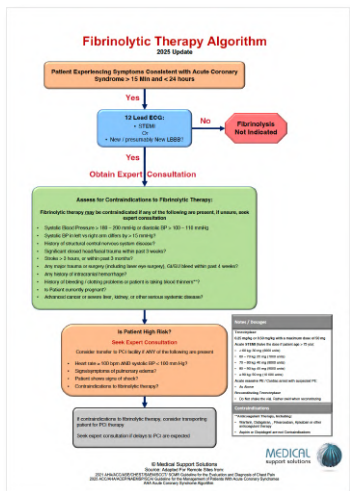
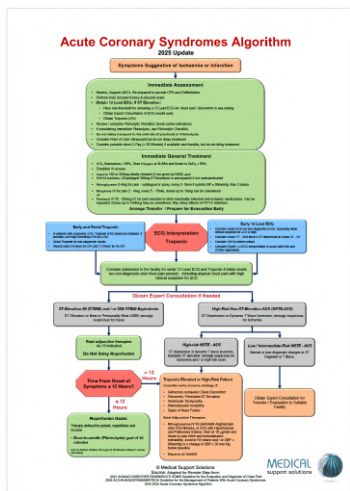


- Calculate predicted body weight (PDW)
- Aim for Vt of 6ml/kg
- Set a rate of 10 – 12 Bpm (~35 Bpm), aiming for a minute volume of 5 to 8 L/min based on expected physiological need
- Aim for a SpO₂ of 88% to 95% or PaO₂ of 55 to 80mmHg
- Start with an FiO₂ of 1, reducing to the lowest FiO₂ that achieves optimal oxygenation
- If necessary, decrease Vt stepwise by 1ml/kg PDW to a minimum 4ml/kg

Adult Male	50 + 0.21 x (height in centimeters – 152.4)
Adult Female	45 + 0.21 x (height in centimeters – 152.4)

2025 ERC and ACLS Algorithm Updates (English and French)

Ideal for: Prehospital Advanced Life Support Providers and Doctors





Other Practical / Short Modules that are available:

- Intravenous Therapy and Intra Osseus Infusions
- Resuscitation and emergency medication administration
- Analgesia
- Basic ventilation principles
- Basic infusion principles
- Additional modules can be prepared as requested.

Scenario Based Simulations

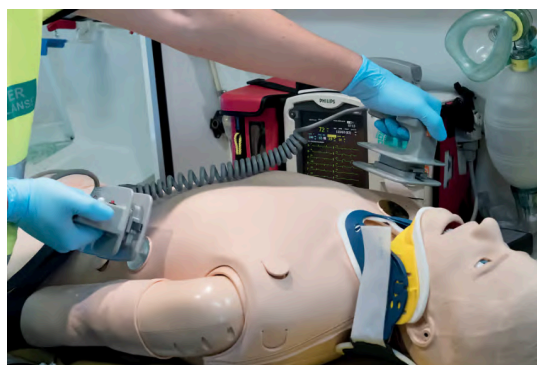
As part of an ongoing skills transfer program, making use ALS Resuscitation Mannequins, MSS personnel can facilitate ongoing scenario-based simulations of various modules. As it is difficult to take nurses out of service for dedicated courses, these are run on a slightly less formal and structured basis, allowing them to continue their daily tasks.

These can also be done at regular times, such as two hours each Monday, Wednesday, Friday or Saturday

Objectives

These simulations empower local nurses and healthcare providers to be competently able to assess, treat and manage ill or injured patients as well as to prepare them to complete the formal certificated courses, if required.

1. Provide healthcare professionals with the ability to conduct a thorough, focussed patient assessment which enables them to assess the patient and identify the need for advanced life support support as well as initiate treatment while ALS is en route.
2. Provide a knowledge and skills base in a structured manner.
3. Ensure that the healthcare professionals are aware of their capabilities and limitations.





Mentorship Programs

MSS Mentors are placed in the facility to provide on the job mentorship and skills enhancement, as well as conduct regular scenario-based sessions.

Formal Certified Courses

The training, workshops and scenario-based simulations will prepare the practitioners to attend and pass formal certificated courses, such as:

PHTLS for First Responders and PHTLS / ITLS (English and French)

With a solid BLS base, the PHTLS / ITLS program can be attempted. We have PHTLS manuals in French and in English, as well as PHTLS instructor resources and media which are used to prepare the candidates for a formal course.

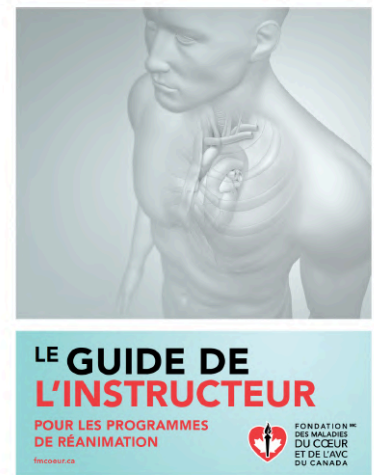
A large component of PHTLS is practical in nature, various patient mannequin simulators can provide be used.

ACLS (English and French)

With course manuals in French and English, this is an ongoing training component aimed at preparing the candidate to attend and pass a formal ACLS course.

This component includes:

1. Introduction to advanced life support
2. Basic ECG and 12 Lead ECG
3. Team dynamics and role allocation
4. Pharmacology and vascular / IO access
5. Airway management strategies
6. Practical scenarios





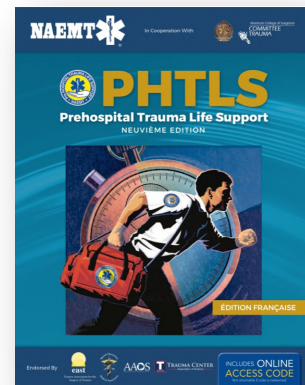
Training Materials:

The following training materials are available:

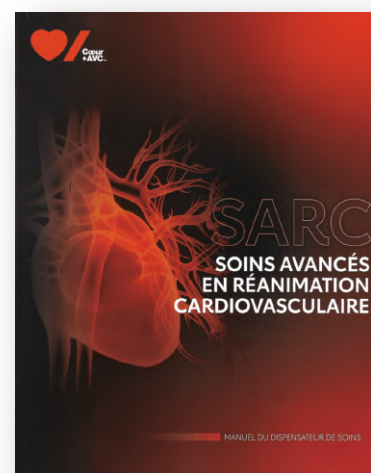
1. **Bleeding Control Course - English and French**
2. **Patient Assessment - English and French**
3. **EMT Basic Full Training Course**
 - a. All lectures in PPT (English, it can be fully translated to French at a fee)
 - b. Instructor and Student Manuals
 - c. Quiz Sheets
 - d. Skill Sheets
 - e. Skill Sheets
 - f. Assorted Lectures



4. **Emergency Medical Responder - Materials in English and French**
5. **PHTLS for First Responders - Materials in English and French**
 - a. French Manual
 - b. English Manual
 - c. Official PHTLS Instructor resources
 - d. PHTLS lecture Videos



6. **ECGs – Materials in English and French**
 - a. Introduction to Basic ECG (French, as above)
 - b. Introduction to 12 Lead ECG
 - c. ECG Quiz
 - d. French ECG Manual
 - e. ECG Quiz and answer sheet



7. **ACLS – Manuals in English and French**
 - a. Megacode Videos
 - b. Training videos
 - c. Summary videos
 - d. ACLS General training videos



Documentation

Attendance registers will be provided and signed on the day, outlining the nature and content of the course provided, or the simulation conducted and the duration thereof.

For the “formalised courses” a certificate of attendance will be provided to the attendees

