The Compass

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College of Remote and Offshore Medicine
Foundation

Spring 2026 Volume 9 Issue 2

The Compass

Spring 2026 Volume 9 Issue 2

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Cover photo:

Two mountain rescue teams and the local air ambulance work together to rescue an injured climber. Peak District, England, 2017.

Photo courtesy of Dr. Tom Mallinson

CEO’s Brief

MiM27 Is Coming – And You Won’t Want to Miss It

John Clark
JD MBA NRP

Mark your calendars: January 29–31, 2027, Valletta, Malta. The Medicine in the Mediterranean Conference is back, and if the trajectory of recent years is any indication, MiM27 is shaping up to be the most compelling gathering yet in the remote and austere medicine world.

What started as a focused regional conference has quietly become something much larger — a landmark event on the international calendar for anyone serious about medicine beyond the hospital walls. Talk to attendees from previous years and you'll hear the same thing: MiM isn't just another CME box to check. It's where the field's most important conversations happen, where clinical innovation meets operational reality, and where the people doing the most interesting work in remote, wilderness, maritime, and expedition medicine come together in one place. That reputation has been earned conference by conference, and MiM27 will build on it in a setting that is nothing short of extraordinary.

Valletta is one of Europe's great historic capitals — a baroque city perched on a peninsula between two of the Mediterranean's finest natural harbors, steeped in the history of the Knights of St. John and centuries of seafaring and medicine. It is a fitting home for a conference that sits at the intersection of adventure, exploration, and clinical excellence. If you've been on the fence about attending, let the location settle it. Three days of world-class content in one of the world's most beautiful cities is a combination that doesn't come along often.

The programme is being built to reflect the full breadth of what remote and austere medicine has become. Whether your practice takes you to the mountains, the open ocean, conflict zones, or underserved communities far from definitive care, MiM27 will have sessions that speak directly to your work. Expect frank clinical discussions, cutting-edge case presentations, debates on evolving protocols, and the kind of practical, experience-driven teaching that only comes from faculty who have actually been there. CoROM has always believed that the best medical education happens when real practitioners teach real medicine — and that philosophy is at the heart of everything MiM does.

Beyond the formal programme, it's the hallway conversations, the dinners, and the connections forged between sessions that attendees consistently describe as the most valuable part of the experience. MiM has developed a reputation for attracting a community that is genuinely collaborative — people who came to share, not just to be seen. That culture doesn't happen by accident, and it's one of the things that keeps people coming back year after year.

Registration for MiM27 is €350, which represents exceptional value for three full days of expert-led, clinically focused content. Given the growing demand for places, early registration is strongly encouraged. Full details and the registration link are available at corom.edu.mt/medicine-in-the-mediterranean-2027.

Call for Speakers — The Stage Is Yours

MiM27 is only as strong as the people who step up to share their expertise, and the Call for Speakers is officially open now. We are looking for dynamic presenters with valuable insights, original research, compelling cases, or innovative ideas that will challenge and inspire an audience of experienced practitioners. If you are pushing boundaries in remote or austere medicine — clinically, educationally, or operationally — we want to hear from you.

This is a genuine opportunity to contribute to a field that depends on the open exchange of hard-won knowledge. The MiM audience is engaged, experienced, and hungry for content that goes beyond the textbook. If you have something worth saying, this is the room to say it in.

One practical note for prospective speakers: as CoROM works to ensure the long-term sustainability and growth of MiM, we are transitioning away from the speaker honorarium that has been offered in previous years. We recognize that represents a change, and we are grateful for the understanding of our faculty community. The platform, the audience, and the contribution to the field remain as meaningful as ever — and we are committed to making the speaker experience outstanding in every other respect.

To submit a topic proposal, reach out to mimspeaker@corom.edu.mt. The sooner we hear from you, the better — programme slots fill up, and we want to ensure the strongest possible lineup for what is already generating considerable excitement.

MiM27. Valletta. January 29–31, 2027. Don't lose your head — register now.

Full information at corom.edu.mt/medicine-in-the-mediterranean-2027

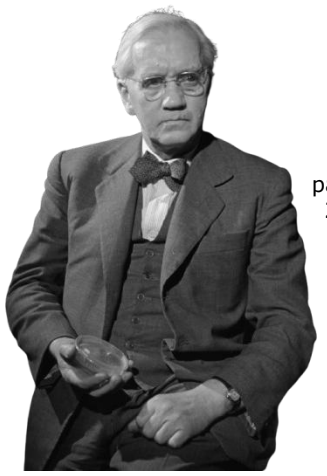
Editor's Notes

Jason Jarvis
NRP MSc 18D

I am thankful to the many contributors to this issue of The Compass. CoROM has assembled a truly all-star cast of healthcare professionals and becomes stronger by the day.

With my dissertation writing (diagnostic strategies in austere locations) now in full swing and the return of UNITAR training to my already-full schedule, I will be leaning even more upon the contributors who continue to breathe life into The Compass.

In this issue, Dr. Glenn Geelhoed presents a case of phlegmasia cerulea dolens encountered during his recent work in Kenya, while Cole Grant and Ben Tedder describe a technique for effecting an epinephrine infusion using an EpiPen.



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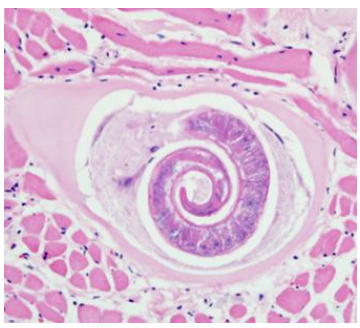
In Improvised Medicine, Aebhric O'Kelly continues to defy conventions, this time with a spotlight on the use of blood for hCG RDTs.



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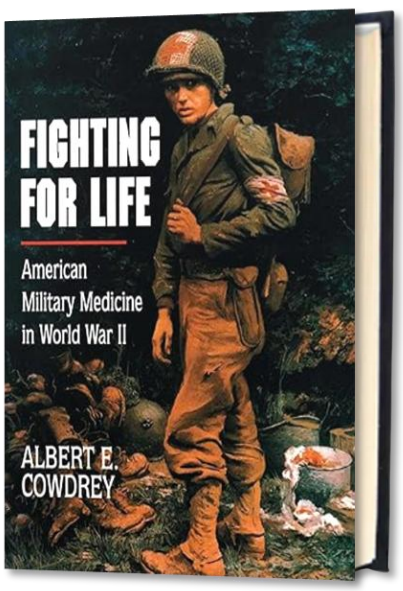
As artificial intelligence now consumes much of the world's bandwidth in terms of both press coverage and energy consumption, I decided it was high time to include this truly double-edged sword as a regular feature.

AI Without Borders seemed an apropos title.

Jason

12 April 2026



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Jason Jarvis is a 29-year paramedic and former U.S. Army Special Forces Medic (18D) with years of accumulated clinical experience in countries such as Laos, Burma, Iraq, and Afghanistan. Since 2007, he has taught throughout Africa, Asia, Europe, and North America.

As of 2026, Jason teaches ACLS and PALS courses fulltime in the Seattle area for Cascade Training Solutions, with occasional forays into the eastern hemisphere for the College of Remote and Offshore Medicine and the United Nations Institute for Training and Research.

He is a PhD student in Widener University's Health Professions Education program and holds a master's degree in Infectious Diseases from the London School of Hygiene and Tropical Medicine.

Jason has published peer-reviewed journal articles on malaria, sandfly fever, and hydatid disease.

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Case Report

Phlegmasia cerulea dolens

Korr Desert, Great Rift Valley, northern Kenya

2025

Glenn Geelhoed
AB, BS, MD, MA, DTMH, MPH, MA, FACS

A Rendille woman possibly approaching 30 years of age (she could not give us even an approximation of her birth date) had a fifth pregnancy that had proceeded to term three weeks earlier from which she delivered a fifth normal live birth.

The newborn was healthy although described as larger than her previous four babies. She had experienced some pain in her left calf two weeks before her delivery and she was unable to walk for the two weeks before and after her delivery, with some swelling she had noted in her left lower extremity. On examination, although her right lower extremity appeared to be normal, she had a "doughy" edematous left leg throughout its length, without pitting at the left ankle, and she experienced a sharp pain in her left calf on dorsiflexion of her left ankle (a positive "Homan's Sign.") She was unable to bear weight on her left leg and had to be carried into the examining room. Her own mother was required to be caring for the five grandchildren including the newborn of three weeks, with the only direct maternal care being nursing during intervals in the grandmother's care.

The diagnosis appeared to be a classic in post-partum complications known as "Phlegmasia Cerulea Dolens"--a name that might be culturally biased in the descriptors toward patients with less-pigmented skin, since it means a "painful swelling of a blue-tinged congested lower extremity. It is based in venous obstruction of the pelvic veins by compression of a mass impinging on the effluent venous drainage of the lower extremity--in this classic case, a gravid uterus. By the time of the delivery, although the uterus may have reverted toward normal size, decompressing the veins at the level of the pelvis, deep venous thrombosis in the limb had occurred in the prolonged period of stasis, and a complication that might have started as an inconvenience in mobility of the limb had progressed to a life-and-limb-threatening complication. The second term applied to a later stage, "Phlegmasia Alba Dolens", again, a term biased by its description in Caucasian populations, refers to the venous stasis leading to an elevation in venous pressure to approach the levels of arterial pressure, when ischemia and infarction might result.

At this point in her presentation, absent any likelihood of atherosclerosis in this population, the threat to her is not limb loss but the even more serious complication of thromboembolism.

Superficial thrombophlebitis is a condition of annoying morbidity--meaning that the patient has the inflammatory signs of superficial tenderness, fever, redness, and local swelling and skin changes. Deep thrombophlebitis is a condition of potential mortality--meaning that the findings in the limb may propagate and migrate, with the most lethal consequence being pulmonary embolism.

The dividing line between superficial and deep phlebitis is the fascial layer confining the muscles of the lower extremity with apertures in that fascia for communicating perforating veins. The venous return from the skin and superficial circulation of the limb is conducted through these perforating veins where flow is directed into the deep venous system when the muscles are not contracting within their fascial sheath restrictions, and regurgitation of blood from the deep system into the superficial system when the muscles are exerting as when the patient is standing or moving is prevented by the venous valves that check the higher-venous pressure deep system flowing up through the collecting femoral and iliac systems, each with valves that prevent back flow from postural or exertional compression. There are no valves above the groin, and the motor force to cause the venous blood to "run uphill" in the upright patient is the negative intrathoracic pressure of inspiration. If there is a long period of pressure causing these perforating veins to dilate (="varix"), deep venous blood pressure can fill up the superficial venous network in dilating these in the condition known as varicose veins.

The concern in the patient with the Phlegmasia Cerulea Dolens is not so much that the deep venous pressure will cause varices in decompressing into the superficial venous system, as that stasis will result in intravenous clotting and that this deep venous thrombus might not just cause complications where it originated in the deep veins of the limb, but that it might propagate centripetally and break off, following the normal pattern of blood flow back to the right heart and out the pulmonic valves into the lungs. (Geelhoed, G. W. "Prevention of Thromboembolism," American Family Physician 19:147-153, March, 1979)

The "positive Homan's Sign" is an indication of DVT inflammation and ischemia in the muscles from the reduced arterial flow due to the impedance of elevated venous back pressure. She should have immediate supportive care to help resolve the underlying DVT, while working simultaneously on the prevention of the potentially lethal complications of this condition with the direct access to the pulmonary (lesser) circulation should any of the thrombus become dislodged and migrate to the lungs. Beginning with the simplest bedrest and immediate elevation of the lower extremities to facilitate venous drainage, and some form of antiplatelet activity to prevent clot propagation. The Korr Desert Health Center did not have so much as an aspirin, even the 65 mg "baby aspirin", and her condition had passed beyond primary prevention to treatment requiring heparin anticoagulation. This would mean monitoring the anticoagulation with partial thromboplastin time (PTT) or bleeding time, each beyond the sophistication level of a primary birthing center without an inpatient facility and round-the clock nursing or an ICU for an admitted hospitalized patient needing monitoring. The next step was to find transport and get her forwarded to a facility that could admit and treat her and monitor the anticoagulation, which would normally have meant referral to Marsabit, where, unfortunate in timing, all the staff of their health care team had gone on strike since their salaries had not been paid for some time. Through other connections, we got the patient transferred (along with her newborn to continue nursing) to Isiolo in the opposite (southern) direction in the Great Rift Valley beyond the Korr Desert for her acute treatment and followup.

In less remote environments of first-world health care referral facilities, are there more advanced means of care to treat thromboembolism? Yes, but.... the more conservative approach is to allow thrombolysis through the natural means while preventing further clot formation, rather than using active clot-lysing expensive and more hazardous intervention. Some invasive procedures might be rarely indicated, including ligation, plication, compartmentalization or clipping of the vena cava to intercept emboli before they reach the heart, and even more invasive means of preventing thromboembolic death might be pulmonary embolectomy in which a thoracotomy is performed to actively retrieve the emboli (particularly a saddle embolus at the bifurcation of the pulmonary arterial trunk) to reduce the right heart failure and the risk of fibrillation from the acute pulmonary hypertension actually "milking" the clots back out of the lung through embolectomy balloon catheter. Not only are these extreme measures, included here only for reference since they will likely never be available remotely, or even if they were, not useful in salvage of viable lifetime within the time frame needed. My own triple criteria would be that such invasive activism is appropriate only for 1) Radiographic proof, of 2) Recurrent pulmonary embolism ongoing in the course of 3) Adequate full anticoagulation or in contraindication thereto (e. g. intracranial bleeding).

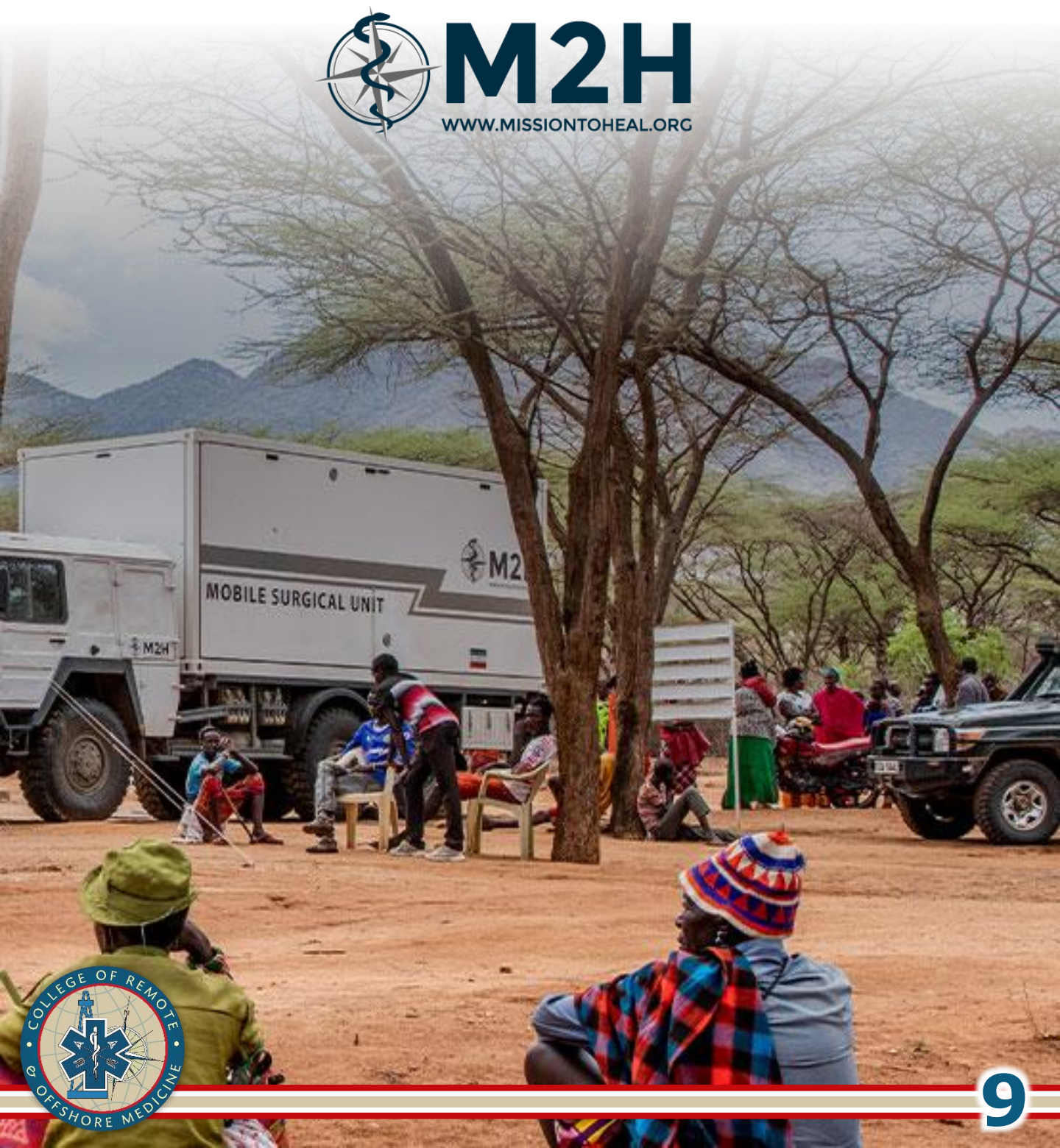
In nearly all complications, the best method for the optimum patient outcome is prevention, and nowhere is that more evident than in this preventable condition.

There are various means of preventing this complication ranging from elevation of the extremities, intermittent or continuous compression stocking devices, anti-platelet drugs or agents to prevent clumping, full anticoagulation acutely or chronically, to even selected instances of thrombectomy or embolectomy. (Kotz, H. L. and Geelhoed, G. W. "Why not low-dose heparin? Lethal thromboembolism and its prevention in pelvic surgery," GYN Oncology 12:271-80, Dec. 1981).

In this patient, following the stutter-starts caused by scarce logistics, she did have successful referral for anticoagulation and was weaned from heparin to a dicoumarol and now onto aspirin and a platelet-activation suppression, with local care including support stocking and ambulation assistance to be returned to her extended family of five children and three generations all living in the same Rendille-style "Gab" (a low-profile domed hut to survive the constant battering of the Wind Funnel of the Lake Turkana environment) in the relative "health care vacuum" of the Korr Desert of the Great Rift Valley in northern Kenya.

Dr. Glenn Geelhoed received his BS and AB cum laude from Calvin College and MD cum laude from the University of Michigan. He completed his surgical internship and residency through Harvard University at Peter Bent Brigham Hospital and Boston Children's Hospital Medical Center. To assist in developing further volunteer surgical services in underserved areas of the developing world, Glenn completed master's degrees in international affairs, epidemiology, health promotion and disease prevention, anthropology, and a philosophy degree in human sciences.

He still works as a professor of surgery at George Washington University Medical Center in Washington D.C. and is a member of numerous medical, surgical, and international academic societies. Glenn is an avid game hunter and runner. He has completed more than 135 marathons across the globe. He is also a widely published author accredited with several books and more than 500 published journal articles and chapters in books. He has two sons and five grandchildren.



Clinical Pearls

Use of an epinephrine auto-injector for improvised epinephrine infusion

Cole Grant
PgDip (Crit Care) BA
ACP(f) MCoROM

Scenario

An off-duty clinician is on a family camping trip when a family member with a known bee sting allergy is stung. They activate emergency medical services (EMS) and administer two epinephrine auto-injectors. The patient requires further intervention; however, the basic life support crew that arrives carries only basic intravenous supplies and no medications.

Ben Tedder
BSc ACP CCP-C

Solution

Assuming the first dose of epinephrine has been given intramuscular (IM), the EpiPen can be dismantled to access four remaining doses[1]. This is achieved by cutting the indicated area with a knife or saw (Fig 1) to remove the syringe (Fig 2) and pull the plunger back to the end of the stopper. The syringe can then be held vertically with the needle pointing down so that the air moves to the top, and the plunger depressed until it stops to dispense an additional dose. This process may be repeated up to four times to dispense a total of 1.2ml of additional epinephrine.

The Epi-Pen® states that the concentration is 0.3mg/0.3ml, ergo 1mg/1ml. The remaining 1.2mg of epinephrine can then be injected into a bag of IV fluids, infused with a macro drip set, and titrated to the desired effect (Table 1). If an appropriate syringe is available and 1ml can be safely extracted, the drip rate will be easier to calculate and achieve (Table 2). Given the circumstances that may necessitate this method of epinephrine infusion, titrating to clinical effect is likely adequate, and knowing the precise drip rate not strictly necessary.

	10gtt/ml giving set			
	500ml bag		1000ml bag	
	gtts/sec	sec/gtt	gtts/sec	sec/gtt
2 mcg/min	0.33	3.00	0.33	3.00
5 mcg/min	0.83	1.20	0.83	1.20
6 mcg/min	1.00	1.00	1.00	1.00
8 mcg/min	1.67	0.60	1.67	0.60
12 mcg/min	2.00	0.50	2.00	0.50
16 mcg/min	2.67	0.38	2.67	0.38
20 mcg/min	3.33	0.30	3.33	0.30

Table 1. Example drip rates when 1mg of epinephrine is added to a 500ml and 1000ml bag of IV fluids and administered using a 10gtt/ml giving set.

Figure 1

Figure 2

	10 gtt/ml giving set			
	500ml bag		1000ml bag	
	gtts/sec	sec/gtt	gtts/sec	sec/gtt
2 mcg/min	0.28	3.60	0.28	3.60
5 mcg/min	0.69	1.44	0.69	1.44
6 mcg/min	0.83	1.20	0.83	1.20
8 mcg/min	1.39	0.72	1.39	0.72
12 mcg/min	1.67	0.60	1.67	0.60
16 mcg/min	2.22	0.45	2.22	0.45
20 mcg/min	2.78	0.36	2.78	0.36

Table 2. Example drip rates when 1.2mg of epinephrine is added to a 500ml and 1000ml bag of IV fluids and administered using a 10gtt/ml giving set.

Discussion

In Canada[2], Australia[3], & New Zealand[4], epinephrine auto-injectors do not require a prescription, and they are often readily available amongst the public and first responders. Furthermore, in rural Canada access to advanced life support providers and medications is often challenging. A remote medic could have lost, damaged, exhausted, expired, or had customs seize their initial supply of epinephrine. Therefore, this method may be useful and extrapolated to other use cases in the remote and austere environment.

References

1. Kings of County EM. Dr. Silverberg - How to get the extra doses from an epipen. YouTube. Published December 2, 2017. Accessed June 17, 2025. https://www.youtube.com/watch?v=fn2oinVuryw

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3. Grainger S. Adrenaline devices - Australasian Society of Clinical Immunology and Allergy (ASCIA). Allergy.org.au. Published 2025. Accessed June 17, 2025. https://www.allergy.org.au/hp/anaphylaxis/adrenaline-devices

4. EpiPen FAQ» Allergy New Zealand. Allergy.org.nz. Published 2025. Accessed June 17, 2025. https://www.allergy.org.nz/education/anaphylaxis/epipen-faq/

Improvised Medicine

Test hCG RDTs using blood

Aebhric O'Kelly
M.Psy DTN FRSM FAWM

Remote medics need to have a pregnancy RDT in their medical kit. This is very important in austere environments. But don't forget that you can use this test on blood as well. In this 2023 review[1], the study showed high specificity, approaching 100%, but reported sensitivity ranging from 90–95%, reinforcing the need for confirmatory testing when clinical suspicion remains high. This technique takes longer than using urine due to increased viscosity and slower capillary migration. Wait at least five minutes before reading the pregnancy test.

The study showed that human chorionic gonadotropin (hCG) is present in circulating blood earlier and often at higher concentrations than in urine, making whole blood a viable substrate for lateral-flow immunoassays designed for urinary detection.

Despite these advantages, the technique remains off-label and must be interpreted with clinical caution. Sensitivity appears to decline at very low hCG thresholds, particularly in early pregnancy, in which false negatives may have significant consequences, such as missed ectopic pregnancy. However, when used judiciously, whole blood hCG testing offers a valuable point-of-care diagnostic tool in situations where urine cannot be obtained or laboratory infrastructure is absent, aligning with broader principles of essential emergency and critical care that prioritise rapid, actionable diagnostics over laboratory precision.

References

Shukaili AA, et al. Accuracy of whole blood for bedside pregnancy test. *Systematic Reviews in Pharmacy*. 2023;14(1):1–6.

AI Without Borders

Artificial intelligence in clinical decision-making

Cureus
Alnattah A, Jajroudi M, Fadafen SAN, Manzari MN, Eslami S. Artificial Intelligence in Clinical Decision-Making: A Scoping Review of Rule-Based Systems and Their Applications in Medicine. *Cureus*. 2025;17(8):e91333. Published 2025 Aug 31. doi:10.7759/cureus.91333

ABSTRACT

Artificial intelligence (AI) has become increasingly integrated into clinical workflows, with rule-based clinical decision support systems (CDSS) emerging as one of its most mature and widely adopted applications. These systems rely on rule engines, that is, software components that apply predefined conditional logic (if/then rules) to patient data, to deliver alerts, diagnostic suggestions, or treatment recommendations.

By embedding expert knowledge into structured rule sets and utilizing inference engines to process them, rule-based CDSS provides transparent, interpretable, and adaptable decision support. Although their use has expanded significantly over the past decade, evolving from simple decision aids to advanced tools incorporating AI and real-time analytics, a comprehensive synthesis of their applications, effectiveness, and technological evolution remains lacking.

This scoping review aims to examine the current landscape of rule engine implementations in medicine, focusing on their clinical functionalities, evaluated outcomes, technological characteristics, and geographic adoption patterns across different medical domains. Following established scoping review methodology, we conducted a systematic search of PubMed and Scopus databases (2007-2023). Of 437 initially identified records, 28 studies met our inclusion criteria after rigorous screening. Data were extracted on study characteristics, clinical applications, rule engine technologies, and implementation outcomes, with particular attention to temporal trends and geographic distribution. The analysis revealed several key findings. The United States accounted for 46.42% of studies, demonstrating significant geographic concentration.

Technologically, implementations evolved from early SQL-based systems to contemporary approaches integrating machine learning and natural language processing. Clinically, the rule engine showed particular effectiveness in chronic disease management (approximately 30% focused on diabetes care) and demonstrated measurable improvements, such as 30% reductions in adverse drug events. However, challenges persisted in system interoperability and clinician adoption across multiple studies. Our analysis of 28 studies demonstrates that rule engines have demonstrated substantial potential to enhance clinical decision-making and healthcare efficiency, though their adoption remains uneven geographically and is technically constrained in some settings.

Based on our findings, we recommend: (1) developing standardized implementation frameworks to address interoperability challenges, (2) expanding research and deployment in underrepresented regions, and (3) investing in hybrid systems that combine rule-based logic with machine learning capabilities. These insights provide valuable guidance for healthcare organizations seeking to implement or optimize rule engine technologies in clinical practice

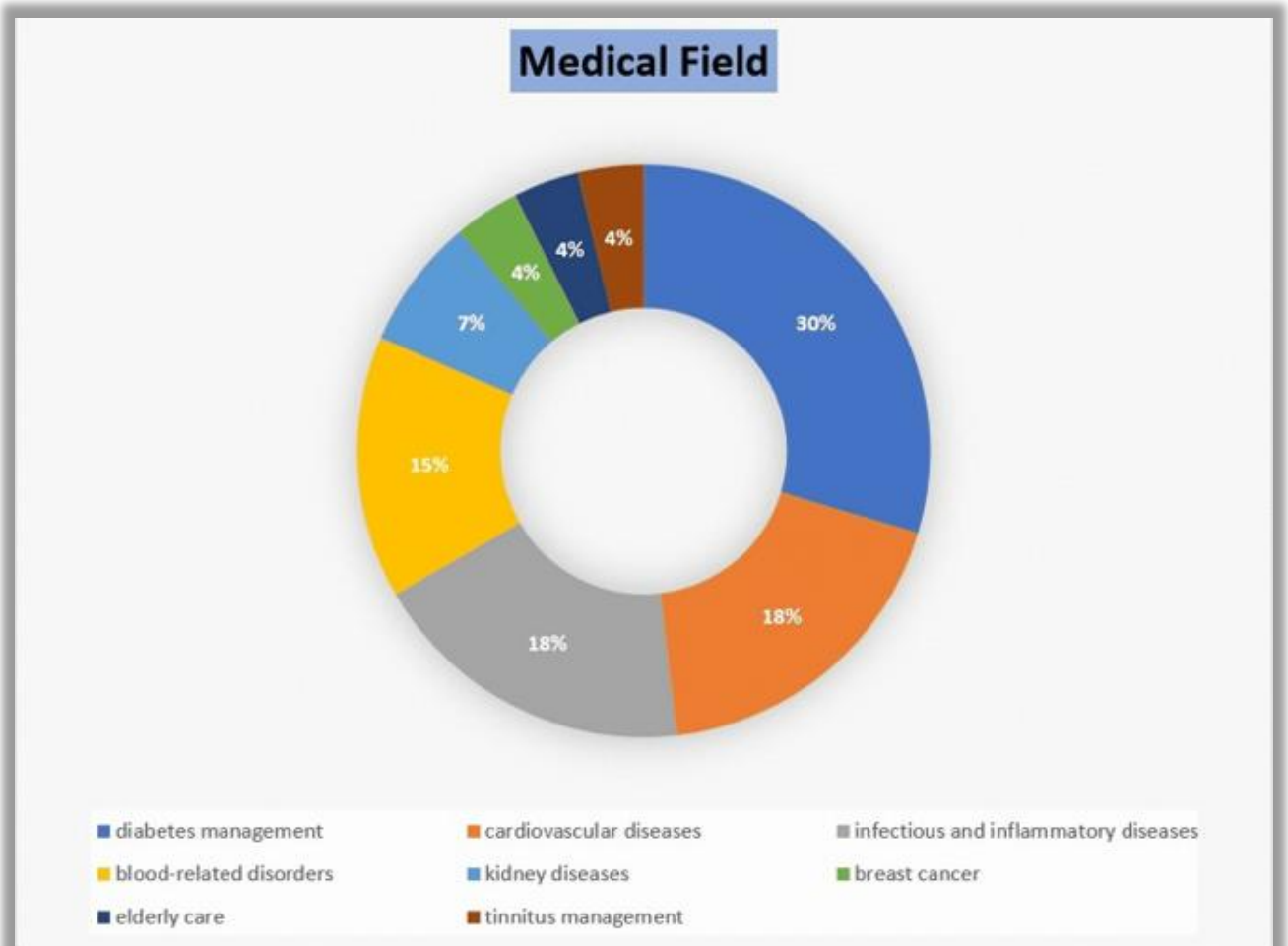


FIGURE 3: Distribution of included studies by clinical application domain, illustrating the breadth of rule engine implementations in healthcare

The figure categorizes studies across major medical fields including diabetes management, cardiovascular care, infectious and inflammatory diseases, hematologic disorders, and other domains such as kidney disease, oncology, geriatrics, and tinnitus. It highlights areas of concentrated research activity (e.g., diabetes and cardiovascular diseases), while also revealing underexplored domains. This distribution provides insights into the clinical contexts where rule engines have demonstrated utility, and identifies opportunities for future research and implementation in less represented specialties.

The CoROM Cast

Episode 187

Austere Primary Care

20 March 2026

https://open.spotify.com/episode/6Ti8hm0g3gxj8bWR090xUy

This week, Aebhric O'Kelly talks with Eirik Holmstrom about the newly updated MIC MEC and Pharm CPD courses, which have been combined into a new online CPD programme called 'Austere Primary Care.'

This APC is a package that includes Disease and Non-Battle Injuries (DNBI) encountered on expeditions, in military operations, at remote clinical sites, and in resource-limited environments.

Audio Files

A selection of medical podcasts

EMJ
27 January 2026

Solving corridor care, and return of spontaneous circulation

https://open.spotify.com/episode/2imhqvRIXiQxkHEYeaU0Yj

Prolonged Field Care
2 March 2026

Combat facial blocks

https://open.spotify.com/episode/7EV7kFF8tpA5jTDntKrihT

Anesthesia Updates
2 March 2026

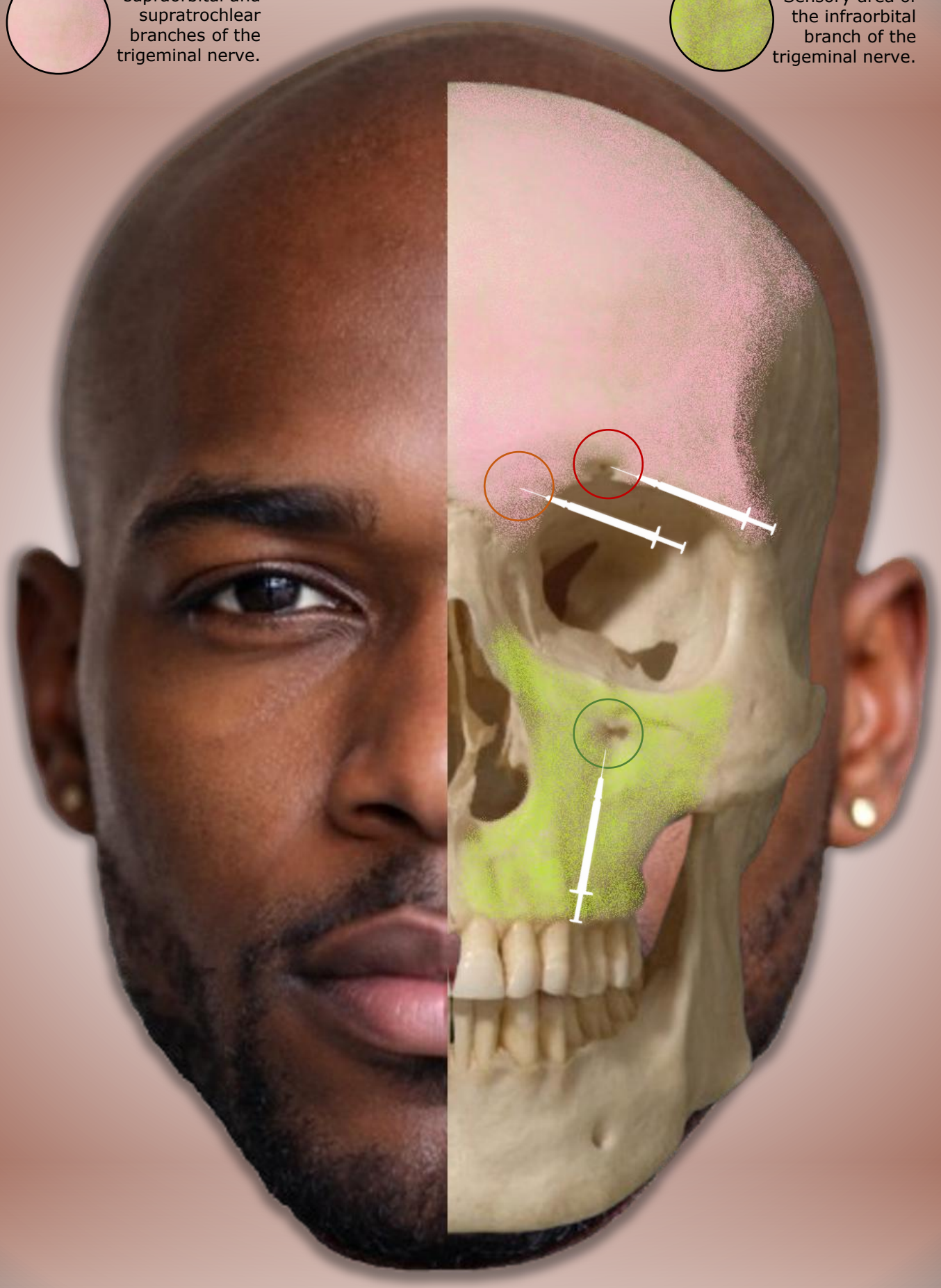
Rib fracture analgesia: comfort vs. function – which block really wins?

https://open.spotify.com/episode/2FJ62R4GXlhYAU0opvXAHD

Envisioning Information

Sensory area of the supraorbital and supratrochlear branches of the trigeminal nerve.

Sensory area of the infraorbital branch of the trigeminal nerve.



0.5 – 1 mL local anesthetic

0.5 mL local anesthetic

1 – 3 mL local anesthetic (intraoral approach (insert needle into buccal mucosa in the subsulcal groove))

Journal Watch

Tourniquet management beyond the golden hour: a call for doctrinal change in TCCC

Journal of Special Operations Medicine

Beerbaum M, White J, Henderson J. Tourniquet Management Beyond the Golden Hour: A Call for Doctrinal Change in TCCC. *J Spec Oper Med*. 2025;25(4):59-62. doi:10.55460/FK4U-14RP

ABSTRACT

Tourniquets have proven lifesaving in modern combat, particularly during the Global War on Terror, where rapid evacuation often mitigated the risks of prolonged and non-medically indicated application. However, in future large scale combat operations (LSCOs), prolonged field care and delayed evacuation will be common. Without timely reassessment, medically unnecessary or ineffective tourniquets may lead to avoidable morbidity, including limb loss, rhabdomyolysis, and compartment syndrome. Data from U.S. and Ukrainian surgical teams reveal tourniquet reassessment, conversion, and optimization are not being practiced in the field to effectively control hemorrhage. Despite this, current TCCC doctrine lacks sufficient emphasis on tourniquet reassessment, conversion (TC), and optimization (TO)-especially among non-medical personnel. This paper calls for doctrinal change to classify tourniquet reassessment, TC, and TO as Tier 1 (All Service Member) skills. We recommend updating TCCC training, emphasizing reassessment within 2 hours of application, incorporating TC/TO into training lanes, and revising the DD1380 TCCC card to document these interventions. Preparing for LSCOs requires shifting from the "fire-and-forget" mindset. Equipping all service members with the skills to reassess and manage tourniquets appropriately can reduce preventable morbidity and preserve lives in prolonged care environments without compromising the proven benefits of rapid hemorrhage control.

Candidiasis

StatPearls

Jenks J, Tobin EH. Candidiasis. [Updated 2026 Jan 31]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK560624/

EPIDEMIOLOGY

Candida infections are most prevalent at the extremes of age. Approximately 45% of neonates, 45% to 65% of healthy children, 30% to 45% of healthy adults, and 50% to 65% of adults who wear removable dentures are colonized with *C albicans* in the oral cavity. The colonization rate is even higher in certain populations, e.g., individuals living in acute and long-term care facilities (65% to 88%), individuals with acute leukemia undergoing chemotherapy (90%), and individuals living with HIV (95%). In most cases, candidiasis occurs from a *Candida* strain that is a part of an individual's mycobiome. However, acquisition of new strains, e.g., in the hospital environment, can also occur.

Journal Watch

Non-anticoagulated fresh whole blood syringe transfusion as an alternative for military hemorrhage resuscitation in austere environments

Military Medicine
Scheiber CJ, Glier S, Magin J, et al. Non-Anticoagulated Fresh Whole Blood Syringe Transfusion as an Alternative for Military Hemorrhage Resuscitation in Austere Environments. *Mil Med*. Published online January 27, 2026. doi:10.1093/milmed/usaf564

ABSTRACT

Introduction: Military field medicine providers often operate in resource-limited environments where improvization with available equipment is essential. Whole blood transfusion has had significant benefits in treating severely injured trauma patients in these settings. Current protocols often mandate anticoagulant-containing intravenous (IV) fluid bags for fresh whole blood transfusion, which can pose logistical challenges for forward-placed medical units. This study explores the feasibility of using a syringe without anticoagulant as an alternative method.

Materials and methods: Whole blood was collected from healthy volunteer donors and divided into syringes with and without citrate-phosphate-dextrose (CPD) solution. Samples were stored for varying durations and infused through a standard IV setup to simulate transfusion conditions. To assess coagulation, infusion rate under standardized infusion pressure, clot mass, and coagulation parameters (PT/INR, PTT) was measured. Hemolysis was assessed by measuring plasma hemoglobin, potassium, lactate dehydrogenase (LDH), bilirubin pre- and post-infusion at either 100 mL/minute, 200 mL/minute or maximal manual compression.

Results: We performed a nested analysis of variance (ANOVA) analysis on coagulation and hemolysis parameters. Tukey post-hoc testing was used to determine mean subgroup differences. Analyses were carried out using R version 4.3.0 (R Core Team, 2024). Significant differences were observed in infusion rates across different storage times but not between CPD and non-CPD conditions. There was significantly greater clot burden in non-CPD groups compared to CPD at 30 minutes (6.5 ± 2.1 g) and 60 minutes (8.8 ± 1.9 g), but no significant difference was observed in the 30 second (0.001 ± 2.0 g) and 5 minute (1.1 ± 2.0 g) groups. Coagulation parameters (INR, PT, and PTT) showed no significant differences based on storage time but were impacted by the presence of CPD. Hemolysis markers indicated significant changes in plasma hemoglobin with higher infusion rates but no significant alterations in LDH, potassium, or bilirubin at any of the infusion rates.

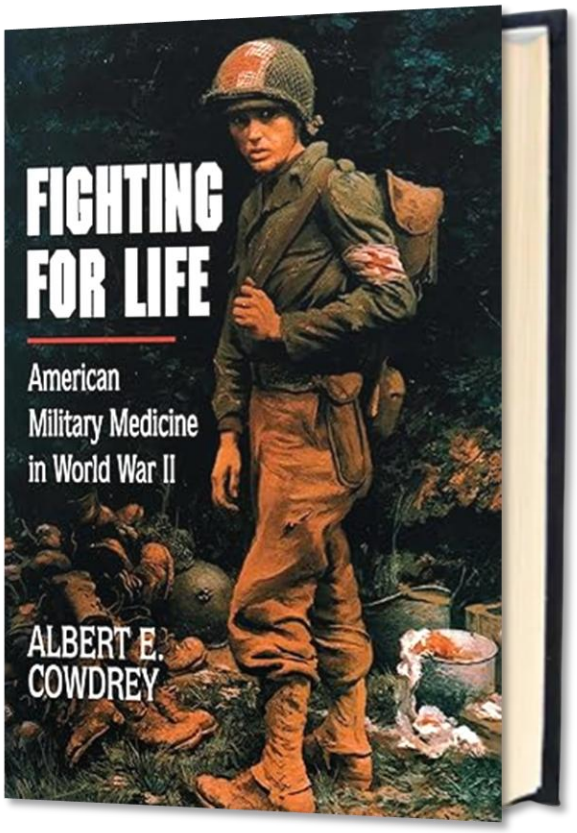
Conclusions: These findings suggest that non-anticoagulated fresh whole blood may be transfused within 5 minutes at infusion rates of 100 mL/minute or less with no significant clot burden and no evidence of hemolysis. Longer storage times and faster infusion rates may also be clinical safe but require further investigation. This study indicates that there may be some potential use of this method in military units executing a fresh whole blood draw with short donor-to-recipient times.

Book Review

Fighting for Life: American Military Medicine in World War II

By Albert E. Cowdrey

Review by Rhodri Jordan



Fought on almost every continent, World War II confronted American GIs with the unprecedented threats to life and health posed by combat on Arctic ice floes and African deserts, in steamy jungles and remote mountain villages, in the stratosphere and in the depths of the sea.

Albert E. Cowdrey's book, *Fighting for Life: American Military Medicine in World War II*, brings into sharp focus a crucial yet often neglected facet of the Second World War—the medical services that kept soldiers alive in some of the most unforgiving environments imaginable. Unlike many war histories that concentrate on combat and strategy, this work pays tribute to the doctors, nurses and medics who, through their skill and inventiveness, fundamentally transformed military medicine during one of the deadliest chapters in human history.

Spanning the years 1939 to 1945, Cowdrey traces the extraordinary evolution of medical care amidst the chaos of global conflict. Whether battling the bitter cold of the Arctic or the sweltering heat and humidity of the Pacific jungles, American military medicine faced challenges unlike any before. Through vivid descriptions and detailed accounts, Cowdrey reveals how key medical breakthroughs—such as the introduction of penicillin as a widespread treatment and the innovation of air evacuation techniques—did not merely save lives but revolutionised recovery processes, dramatically improving survival rates. This is far more than a straightforward chronicle; it's a gripping narrative about human resilience and scientific ingenuity converging under the harshest of pressures.

One of the most compelling sections of the book centres on the landmark 1943 discovery that whole blood was vastly superior to plasma for treating combat injuries. Initially, plasma had been preferred due to its relative ease of storage and transport, but it soon became clear that whole blood's capacity to both carry oxygen and assist in clotting made it indispensable in addressing haemorrhagic shock—the severe blood loss caused by battlefield wounds. This discovery was not accidental; it emerged from painstaking testing and hard-earned lessons on the front lines. Cowdrey uses this breakthrough to exemplify a broader theme that runs through the book: the rapid learning, adaptation, and unyielding determination that characterised military medicine throughout the war.

Cowdrey's writing skillfully balances academic rigour with accessibility. Drawing on his experience as a historian with the U.S. Army Corps of Engineers, he imbues the narrative with authenticity and depth. Yet, his clear and engaging prose ensures that complex medical and military topics are understandable to a wide readership. The book paints a nuanced portrait of the military medical corps—not simply as a faceless bureaucracy, but as a courageous and dedicated group of surgeons, nurses, medics and psychiatrists, all working tirelessly under extraordinary circumstances to save lives and maintain troop morale.

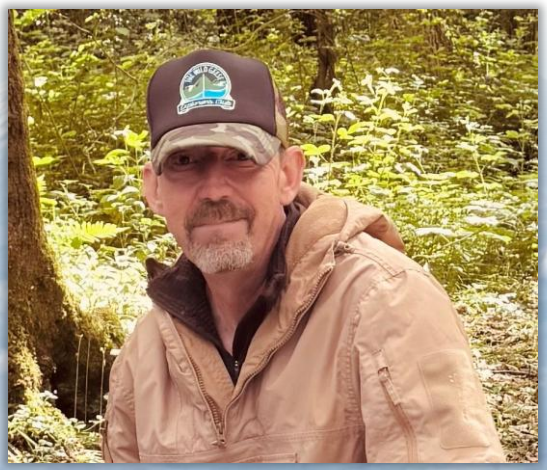
At its core, *Fighting for Life* is a profound exploration of humanity amid destruction. It shows that medical services were not just logistical support for fighting forces but a moral and practical battle to preserve life itself. Technology, organisation, and personal commitment come together throughout the narrative to reveal how necessity spurred innovation and how such advances were driven by relentless effort and determination.

The book's greatest strengths lie in its comprehensive research and balanced critique of both medical and military leadership. Critics and readers alike have lauded it as one of the most thorough and readable accounts of military medicine during the Second World War. It is a text that rewards repeated readings, with layers of detail and insight that deepen the reader's understanding each time.

That said, those seeking a traditional war story, full of frontline heroics and sweeping battle scenes, may find the book's focus on medical history and institutional development somewhat dense. The detailed discussions of medical procedures, logistics and administrative decisions require patience and interest in the specialised subject matter, making it particularly suited to readers with a keen enthusiasm for military or medical history.

In conclusion, Albert E. Cowdrey's *Fighting for Life* stands as a powerful and authoritative tribute to the medical professionals who fought alongside soldiers, revolutionising battlefield medicine and saving millions of lives in the process. The detailed account of the whole blood versus plasma breakthrough perfectly illustrates how the pressures of war drove innovation that, in turn, shaped the modern practice of military medicine. For anyone intrigued by the intersection of war, medicine and human endurance, this book is an essential and rewarding read.

Sources: Amazon, Goodreads, Barnes & Noble, Better World Books, Simon & Schuster.



Rhodri Jordan

FAWM FRGS FAEEM MCoROM MCPara TInSTR

On the Shoulders of Giants

Alexander Fleming
1881 - 1955

Alexander Fleming was a Scottish bacteriologist best known for his discovery of penicillin. Fleming had a genius for technical ingenuity and original observation. His work on wound infection and lysozyme, an antibacterial enzyme found in tears and saliva, guaranteed him a place in the history of bacteriology. But it was his discovery of penicillin in 1928, which started the antibiotic revolution, that sealed his lasting reputation. Fleming was recognized for that achievement in 1945, when he received the Nobel Prize for Physiology or Medicine, along with Australian pathologist Howard Walter Florey and German-born British biochemist Ernst Boris Chain, both of whom isolated and purified penicillin.

- Encyclopedia Brittanica

Image credit: Baron-Hulton Archive/Getty Images

Test Yourself

ECG

This rhythm would help solidify your diagnosis of which of the following conditions?

A. Herpes gladiatorum

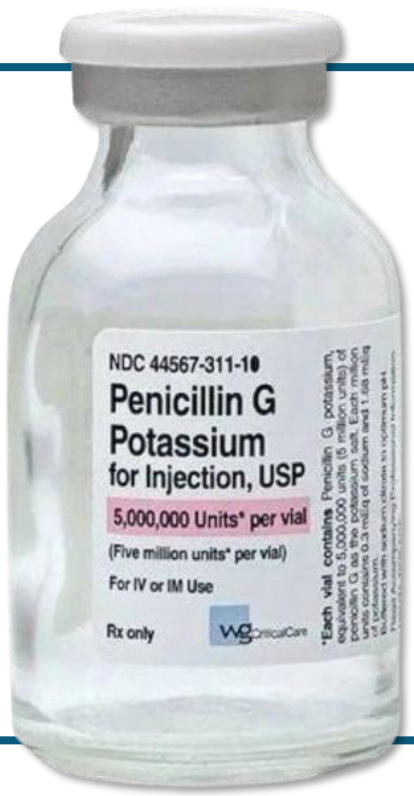
B. Invasive candidiasis

C. Multibacillary leprosy

D. Early disseminated borreliosis

Clinical Calculation

While manning a remote clinic in Papua New Guinea, you assume care of a patient suffering from neurosyphilis. Your treatment protocol begins with 4 million units of aqueous penicillin G infused over 2 hours. The penicillin has been diluted with normal saline, giving a total fluid volume of 100 mL. Using a 60-drop/mL IV giving set, at how many drops per minute should you set the infusion?



Species Identification

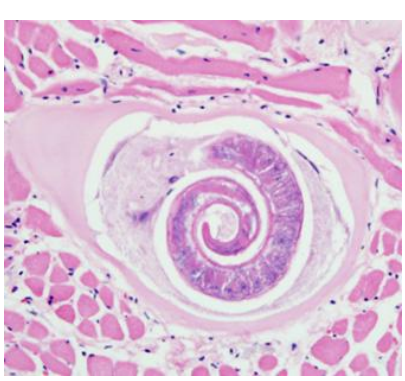
While attending medical school in 1835, James Paget was curious what the anatomist meant by "here we have another cadaver with sandy diaphragm." Paget obtained a tissue sample and brought it to Richard Owens at the British Museum of Natural History. Using a microscope, they discovered which of the following striated muscle-thriving parasitic conditions?

A. Trichinellosis

B. Cysticercosis

C. Toxoplasmosis

D. Schistosomiasis

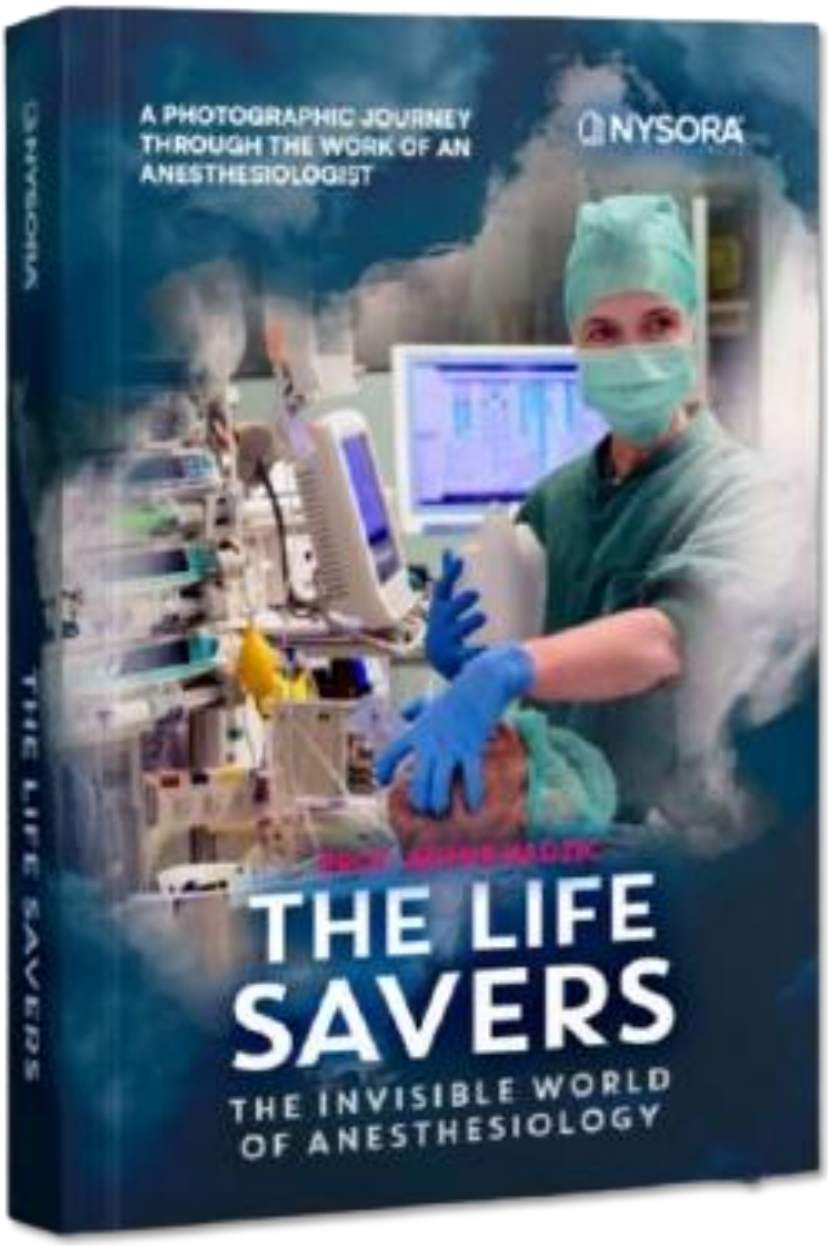


Answers will appear in the Summer 2026 Compass

Answers to "Test Yourself" from the previous issue:
ECG: C. second-degree type II atrioventricular block
Clinical calculation: amiodarone concentration of 1.8 mg/mL
Species identification: B. *Taenia saginata*, the beef tapeworm

Resources

The Life Savers



Arclight Pocket-Sized Ophthalmoscope & Otoscope - Rechargeable

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•**Easy to Use** – Intuitive design with multiple features. Effortlessly examine the optic nerve, eardrum, or skin with precision.

•**Portable & Compact** – Lightweight and fits in your pocket or hangs around your neck. Perfect for detailed views of the anterior segment, eyelids, and skin.

•**Solar-Powered** – Charges in just a few hours, providing energy for a full day's work or a week of occasional use.

•**Bright LED Illumination** – Delivers outstanding lighting for accurate diagnoses, while minimizing infra-red and UV exposure for patient comfort and safety.

•**USB-C Charging** – Convenient USB-C compatibility allows quick indoor charging when solar power isn't available.

Included Accessories:

•Two specula (4.5mm for adults and 2.5mm for infants)
•USB-C charging cable
•Lanyard and clip
•Phone attachment for capturing images or videos
•Cloth visual acuity chart
•Reading chart
•Quick guide instructions
•Fabric case

About CoROM

The College of Remote and Offshore Medicine Foundation is an academic not-for-profit organisation for healthcare professionals working in the remote, offshore, military and security industries.

The College was founded in 2016 and is governed by a Board of Regents supported by a faculty of medical professionals from four continents. The College is a Higher Education Institution registered with the Malta Further and Higher Education Authority. License No. 2018-022.

CoROM focuses on the improvement of medical training and the practice of healthcare for those working in remote, austere and resource-poor environments.

What does CoROM specialise in?

Tropical Medicine

We provide clinical research and academic training in Tropical Medicine for medical professionals located worldwide.

CoROM provides the Tropical Medicine module for the NATO Special Operations Combat Medic (NSOCM) course at the International Special Training Centre in Pfullendorf, Germany.

Austere Medicine and Prolonged Field Care

The tyranny of distance requires that medical professionals working in Africa, Asia and the Middle East must have the ability to provide best practice medicine for extended periods of time.

CoROM focuses on the practice of medicine with limited resources and the ability to improvise whilst providing excellent medical care.

Austere Critical Care

The ability to provide care for critically ill casualties must be available regardless of location and resources.

CoROM provides Critical Care Transport curriculum and expands into the provision of critical care in less-than-ideal environments.

Who is CoROM working with?

UNITED NATIONS

Wilderness Medical Society

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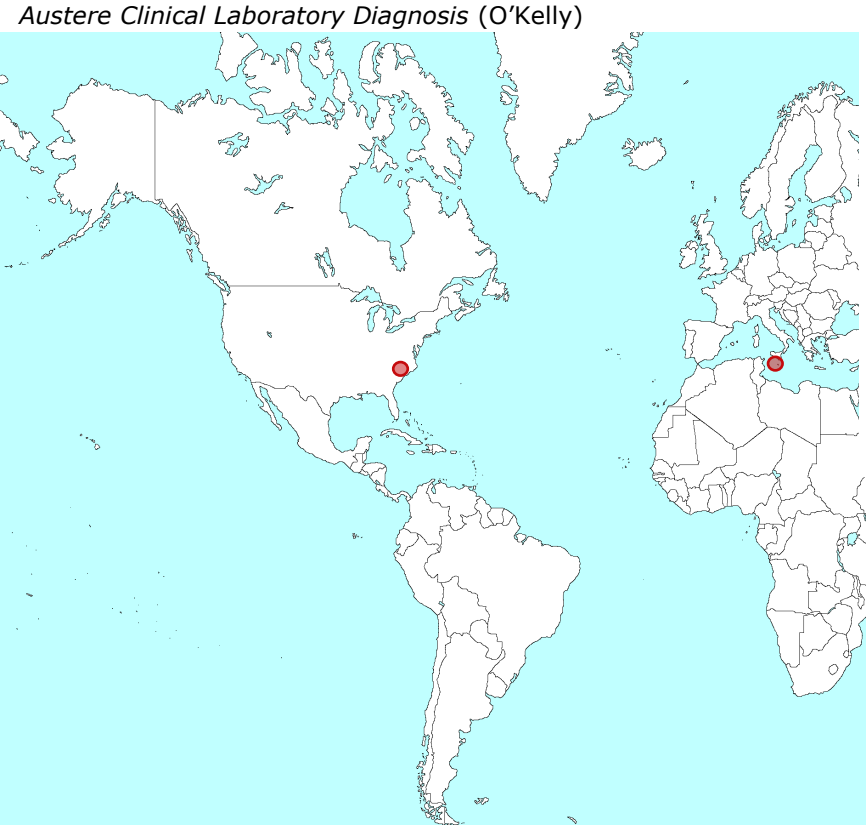
Arclight Project

Calendar

NORTH CAROLINA

SOMSA Conference 27 April - 1 May
Tactical Medicine Review (Clark, Holmstrøm, Birks, Moront)
Improvised Medicine (O'Kelly, Moront, Shertz, Loos)
Austere Clinical Laboratory Diagnosis (O'Kelly)



MALTA

RPP104	27 April-16 May
IMSD	11-16 May
AEC	18-21 May
WED	22 May
PHTLS	23-24 May
AREMT	7-12 Sept
TTEMS	14-18 Sept
APUS	19-20 Sept
ICARE	21-25 Sept
MiM	29-31 Jan 2027
AREMT	1-7 Feb 2027
TTEMS	8-12 Feb 2027
APUS	13-14 Feb 2027
ICARE	15-19 Feb 2027
AREMT	6-11 Sept 2027
TTEMS	13-17 Sept 2027
APUS	18-19 Sept 2027
ICARE	20-24 Sept 2027
ATTEMS	27 Sept-1 Oct '27

Degree Programmes

Bachelor of Science Remote Paramedic Practice
Master of Science in Austere Critical Care
Master of Global Health Leadership and Practice
Doctor of Health Studies

Advanced Certificate & Diploma Courses

Diploma Remote Paramedic
Higher Diploma of Remote Paramedic Practice
PG Diploma in Austere Critical Care
PG Cert Tropical Medicine & Hygiene
Award in Tropical & Expedition Medicine

Online Courses

Critical Care Transport
Basics of Resource Limited Critical Care
Aeromedical Retrieval Medicine for Extreme Altitude
Pharmacology for the Remote Medic
Minor Illnesses Course
Minor Emergencies Course
Tactical Medicine Review

Clinical Placements

Kilimanjaro Christian Medical Center (KCMC), Tanzania
Remote clinics, Northern Tanzania
Ternopil State Medical University, Ukraine
Kibosho District Hospital, Kilimanjaro
Ghana National Ambulance Service

LEGEND

ACC	Acute Critical Care
AEC	Austere Emergency Care
ACLS	Advanced Cardiac Life Support
AHA	American Heart Association
AMLS	Advanced Medical Life Support
APUS	Austere and Prehospital Ultrasound
AREMT	Award in Remote Emergency Medical Technician
ATTEMS	Advanced Tropical, Travel and Expedition Medical Skills
FiCC	Foundations in Critical Care (RPP203)
ICARE	Intensive Care for Austere and Remote Environments
IMSD	International Maritime Ships Doctor Course
MiM	Medicine in the Mediterranean conference
PALS	Paediatric Advanced Life Support
PG Cert	Postgraduate certificate
PHTLS	Prehospital Trauma Life Support
RMLS	Remote Medical Life Support
RPP104	Fundamentals of Paramedic Practice (in-classroom)
SOMSA	Special Operations Medical Association Scientific Assembly
TTEMS	Tropical, Travel and Expedition Medical Skills
WED	Wilderness Expedition Dentistry

For more information about training with CoROM, please visit corom.edu.mt

GLOBAL rescue

Quick Guide: Global Rescue Membership for the CoROM Family

Why You Need It

CoROM has partnered with Global Rescue to offer comprehensive travel protection that goes beyond ordinary insurance, giving you access to real-time support, medical evacuation, and field rescue — even from the most challenging environments. We've selected this offering because our CoROM family is likely to travel for remote clinical rotations, humanitarian projects, adventure tourism, electives, international training or even work. Global Rescue offers a low-cost, no stress solution. From our main page, click the red box or go directly to: https://partner.globalrescue.com/collegeofremoteoffshoremedicine/index.htm

What's Included in the Membership

24/7/365 Traveler Assistance & Advisory — Real-time help for health-care access, local healthcare systems, visa/passport issues, translation, and more.

Worldwide Field Rescue — If illness or injury strikes and you cannot get to care on your own, Global Rescue will deploy a rescue team to transport you to the nearest capable medical facility.

Medical Evacuation & Repatriation — If you require hospitalization far from home, Global Rescue will transport you to your home-hospital of choice (if more than 100 miles away) at no additional cost.

Destination Reports & Event Alerts — Up-to-date advisories on health, security, and travel conditions in 215+ countries and principalities.

Situations When It's Critical

Clinical rotations or fieldwork in **remote, resource-limited, or unstable regions**

International travel or humanitarian deployments

Backcountry expeditions, high-altitude work, or travel with unpredictable logistics

Any scenario where local medical infrastructure may be insufficient, or evacuation may be needed

How to Enroll (and Why It Matters)

Use the **official Global Rescue link** on the CoROM website so we receive appropriate credit for your membership, ensuring the sustainability of our partnership.
https://partner.globalrescue.com/collegeofremoteoffshoremedicine/index.html

Choose a membership plan based on the length and nature of your travel (short-term, annual, etc.).

Before You Travel — Simple Steps to Take

✓ Confirm your membership is active
✓ Save the Global Rescue contact number (**+1-617-459-4200**) or install the My Global Rescue app on your phone or satellite device.
✓ Review the health and security profile of your destination
✓ Keep membership details readily accessible in case of emergency

Peace of Mind Matters

Global Rescue isn't just another travel add-on — it's a safety net, a rapid-response team, and your backup abroad. This membership is more than recommended – it's essential.

Don't lose your head! Register now for MiM27!

The **Medicine in the Mediterranean Conference** is where you will discover unparalleled insights and connect with leading experts in remote and austere medicine in a one-of-a-kind gathering.

29 - 31 January 2027
Valletta, Malta

More info: https://corom.edu.mt/medicine-in-the-mediterranean-2027

Medicine in the Mediterranean Call for Speakers

Are you a dynamic speaker with valuable insights, experiences, and innovative ideas?

Submit a topic for MiM27 to mimspeaker@corom.edu.mt.

29 - 31 January 2027
www.corom.edu.mt

Learn more at IBSCertifications.org

Dr. Mallinson is an experienced Paramedic, Rural Generalist (MRCGP), Prehospital Doctor and the Co-Director of Prehospital Care and responder for BASICS Scotland. @MallinsonT

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Volunteers Wanted

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Mission to Heal goes where medical need is greatest. We visit remote regions to teach basic surgical skills to local healthcare practitioners so they can care for their community year-round. Due to our educational approach, we need a variety of expertise on these missions. We welcome the following specialists to volunteer with us:

Nurse Anesthetists
Tropical Medicine Specialists
Obstetricians & Gynecologists
Optometrists & Ophthalmologists
Dentists & Oral Surgeons
General Surgeons
OR Nurses
Triage Nurses
Medical & Dental Students
Residents

As you can see, it's a wide-ranging list – but it's not all inclusive. If you have a specialty that's not listed here, but would love to volunteer with us, there is still a place for you!
Why volunteer?

- Get a transformational learning experience where you learn just as much as you teach.
- Experience a culture outside of your own.
- Experience how healthcare is practiced in other countries.
- Use your expertise to benefit the less fortunate.

As one of our volunteers said to us, "We want to volunteer with you because you actually *do*."

Useful links:
Volunteer with Mission to Heal - https://missiontoheal.org/apply/
Volunteer FAQ's - https://missiontoheal.org/faqs/
Our approach to missions - https://missiontoheal.org/approach/
Volunteer reflections - https://missiontoheal.org/blog/
Questions about M2H missions – samuel.jangala@missiontoheal.org

2026 Missions:

Uganda I	April 10-18
Uganda II	June 12-20
Uganda III & IV	August 7-22

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Remote & Austere Medicine Field Guide for Practitioners

Aebhric O'Kelly
PhD(c) FAWM FRSPH CCP-C TP-C
Executive Dean, CoROM

Jason Jarvis
18D MSc(c) NRP TP-C
Tropical Medicine Lead

College of Remote and Offshore Medicine Foundation
www.CoROM.org

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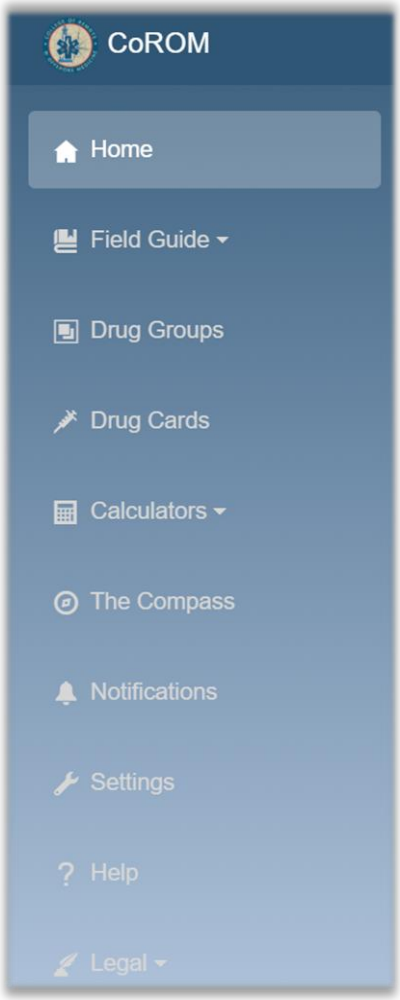


Contents:

Spleno-renal pouch

Use convex probe

Technique *[suggest curve array]*
Position the probe's long axis beneath the costal margin on the left lateral aspect of the patient's abdomen.

What to look for
The presence of fluid as a dark sliver between the solid spleen and kidney organs is indicative of free fluid (e.g. blood) in the abdomen.

Normal appearance of spleen and adjacent kidney ; no black sliver visible at organ interface

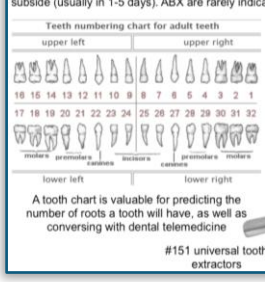
Indications for Tooth Extraction

A tooth that is riddled with cavities (caries) and lacks any sensation will need to be extracted.

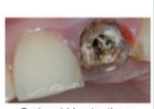
Extraction Sequence

1) Consult a dentist or dental reference
2) Anaesthetize the tooth/teeth using local anaesthetic with epinephrine
3) Use a periosteal elevator to break gum away from tooth
4) Use a straight elevator to pry the tooth loose in its socket
5) Extract tooth using the appropriate extraction forceps (*do not twist a multi-root tooth*)
6) Inspect to ensure all of the root was removed
7) Give codeine and paracetamol for pain
8) Apply gauze pressure to socket for 60 minutes
9) Instruct patient not to rinse for 12 hours

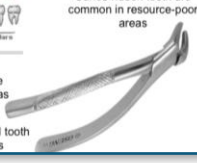
***Dry socket** (localized osteitis) may result in loss of the blood clot in the socket. This condition will develop over 3-5 days and is very painful, with foul taste and odour in the mouth. Treatment consists of irrigation and packing of eugenol-soaked (1-2 drops) iodoform gauze into the socket and PO NSAIDs. Change gauze daily until s/sx subside (usually in 1-5 days). ABX are rarely indicated.



A tooth chart is valuable for predicting the number of roots a tooth will have, as well as conversing with dental telemedicine



Caries-ridden teeth are common in resource-poor areas



#151 universal tooth extractors

Labour and Delivery Emergencies

Breech Birth: An umbrella term for a baby that is not delivering head-first.
Complete breech: Buttocks and feet set to deliver first
Footling breech: One or both feet are pointed down and will deliver first
Frank breech: Buttocks set to deliver first (feet near fetal head)

Complete breech *Footling breech* *Frank breech*

Amniotic Fluid Embolism: A rare complication of labour, in which amniotic fluid is pulled into the venous circulation of the uterus and lodges in the maternal pulmonary arteries, causing cardiac arrest.

Uterine Rupture: The uterus may rupture during labour if there is a weak spot on the uterus from scarring or from previous pregnancies.

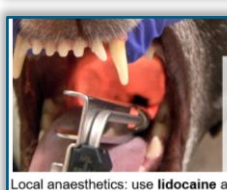
Placenta Accreta: A deeply-implanted placenta that does not detach during the 3rd stage of childbirth. This results in uncontrolled haemorrhage.

Prolapsed Umbilical Cord: This occurs when the cord precedes the fetus exiting the uterus. If the cord becomes compressed, the fetus will become hypoxic.

Nuchal Cord: The umbilical cord is wrapped around the fetus's neck.

Shoulder Dystocia: This is a condition in which the fetus's shoulder becomes stuck in the birth canal after the head has partially or fully delivered.

Postpartum Haemorrhage: Defined as blood loss of more than 500mL following delivery.



Intubation: use a 9-12 mm ETT and a size 4 Miller blade.

Position dog in prone position for improved access to glottis.

Local anaesthetics: use **lidocaine** as you would on a human patient; use staples instead of sutures if available; keep dog from licking wound.

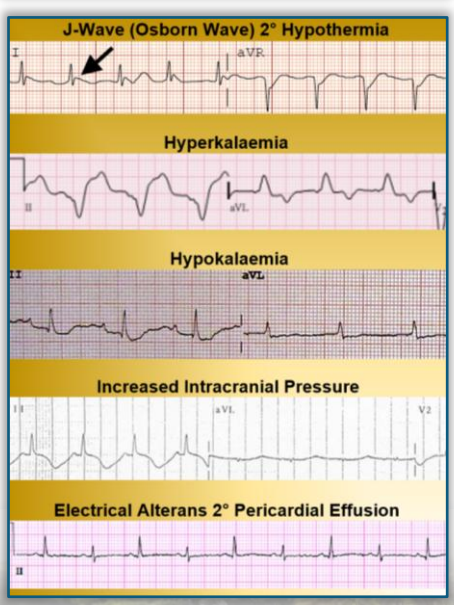
Ear infections are very common. To clean a dog's L-shaped ear canal, apply a slightly acidic solution into the ear, massage base of ear for 30 seconds, then allow dog to shake clear; repeat PRN, and do not put ear-cleaning devices into dog's ear

Ear allergic reactions are also common: treat by cleaning ear as above, and give corticosteroids

Ear infections: S/Sx: scratching ear, discharge, loss of balance, walking in circles. Tx: amoxicillin 5-10mg/pound q12-24h x10 days

Rat poisoning is the most common accidental poisoning
- Rat poisoning is an anticoagulant
- S/sx usually seen 3-5 days post-exposure: difficulty breathing, anorexia, blood in stool; most common cause of death is bleeding into the thorax
- If caught early, induce vomiting, or perform gastric lavage, or give activated charcoal
- Treatment: vitamin K1

Dog ears accumulate debris and bacteria, and should be regularly cleaned using a slightly acidic solution, such as diluted vinegar



Onchocerciasis (River blindness)

Causative organism: Filarial nematode *Onchocerca volvulus*
Vector: *Simulium* genus black fly
Life cycle: Larval entry at black fly bite – maturation in SC tissue – microfilariae released into skin, connective tissue, blood, sputum – black fly ingests microfilariae
Endemic in: Sub-Saharan Africa, Yemen, Mexico, Central America, Amazonia
Prevalence: 18 million infected, 270k blind, 750k visually impaired
Annual deaths: None
Incubation period: 9 months – 2 years after inoculation
S/Sx: Asymptomatic palpable nodules (containing adult worms), intensely pruritic dermatitis, lymphadenopathy, anterior eye lesions, "hanging groin", and "leopard skin" on legs
Ddx: Loa loa (African eye worm), cysticercosis, tumor, dermatitis
Dx: Microfilariae found in skin-snips or seen in eye during slit-lamp exam
Prevention: Avoidance of black fly bites
Prophylaxis: Ivermectin MDA annually or semi-annually
Tx: Ivermectin
Pearl: Check for loa loa coinfection prior to giving ivermectin

The burden of onchocerciasis: children leading blind adults in Africa

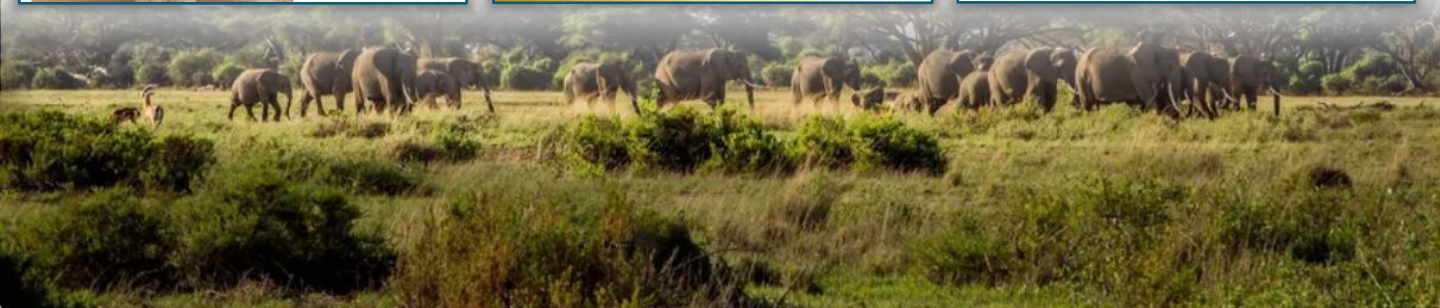
By Otis Historical Archives Nat'l Museum of Health & Medicine

Simulium damnosum black fly vector

Treatment
Ivermectin

"Leopard skin" dermatitis

WHO



Coming Soon!

Remote & Austere Medicine Field Guide for Practitioners

Edited by Jason Jarvis and Aebhric O'Kelly

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THIRD EDITION