

A Soldier with Fever and a Rash

Lieutenant Colonel Peter A Leggat



Lieutenant Colonel Peter Leggat, RAAMC, joined the Australian Regular Army in 1987. He was posted to various units, including the historic 2 Field Ambulance in Townsville. Lieutenant Colonel Leggat is currently serving as a Consultant, Defence Health Service, Army Reserve, Queensland. In 2002, he was awarded the Major General John Pearn Surgeon General's Medal for outstanding contributions to tropical medicine. He was also President of The Australasian College of Tropical Medicine from 1996 to 1998, from 2002 to 2004 and from 2006-2008. He is currently Deputy National Director of Training for St John.

School of Public Health, Tropical Medicine and Rehabilitation Sciences, James Cook University, Townsville, QLD.

Peter A Leggat, MD, FAFPHM, Professor.

Correspondence: Lieutenant Colonel Peter A Leggat, School of Public Health, Tropical Medicine and Rehabilitation Sciences, James Cook University, Townsville, QLD 4811. peter.leggat@jcu.edu.au



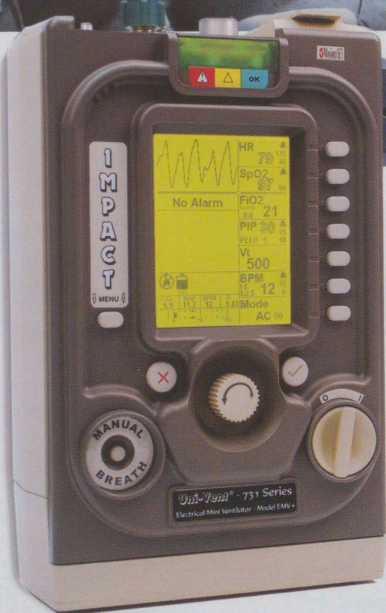
In May 2011, a 37 year old male soldier presented with a sudden onset of fever, retro-orbital headache, arthralgia, myalgia, some nausea and fatigue. On examination, the patient had a widespread rash, including the trunk (A, B). There was no history of overseas travel, but the soldier had been in the Cowley Beach Training Area, near Innisfail, North Queensland, and then in Cairns for a few days before returning to Townsville, where he presented unwell.





In the Air...
...Care Anywhere

www.impactii.com



EMV+ Portable Ventilator

Impact's product development team beat up, abused, punished and extensively tested our next generation of portable ventilators to create the EMV+ which is now being shipped to users around the world. We know this one's a winner based on customer feedback and the chatter from would be competition. Like all Impact product's the EMV+ is made to last and comes complete with two-fault tolerant subsystems, high-end performance and unique features like Smart-Help™ and NVG mode. It includes volume and pressure-targeted ventilation modes, pressure support and CPAP for use with infants thru adults. It runs for 10+ hours between recharges, weighs only 9.5 lbs and is fully self-contained with SpO₂, a compressor and PEEP. FiO₂ is altitude compensated to 25,000 feet.

Rymed
PTY LTD
sales@rymed.com (02) 9676 3488

CLINICAL QUIZ – ANSWER

A Soldier with Fever and a Rash

Diagnosis: This patient had probable dengue.

Initial Investigations: Full blood count revealed a slightly lowered white cell count (3.8; ref. 4.0-11), a slight lymphocytopenia (0.7; ref. 1.1-4.0), and a thrombocytopenia (66; ref. 150-450). He was also positive on a Dengue NS1 antigen rapid test.

Additional history: The soldier had been taking daily doxycycline for prevention of scrub typhus.

Discussion: His visit to Cowley Beach certainly raises the possibility of scrub typhus, as this is a known area for previous outbreaks amongst military personnel.(1-3) It could have represented a failure to his prophylaxis and scrub typhus was also investigated as a diagnosis. However, north Queensland is also an area where there are frequent outbreaks of dengue, which is often brought in by travellers and spreads quickly amongst the local population.(4) Outbreaks of all four serotypes of dengue (DEN-1, DEN-2, DEN-3 & DEN-4) has been seen in recent years in northern Queensland, as the vector, *Aedes aegypti*, is widespread in this region.(4)

At the time of presentation, there were three dengue outbreaks declared in north Queensland, namely in Cairns (DEN-4), Innisfail (DEN-4 and DEN-2) and Townsville (DEN-1).(5) These outbreaks are now declared over.(6) Infection with dengue virus can range from no apparent symptoms to a mild to moderate illness (dengue), or sometimes even a potentially fatal condition, i.e. dengue haemorrhagic fever (DHF) or dengue shock syndrome (DSS),(4) which may be related to subsequent infections with a different dengue serotype. The symptoms of dengue usually come on between 4-7 days after exposure, but can be an earlier or later onset, and symptoms can last up to a week. There is sometimes quite a florid macular or maculopapular rash a few days after the onset of fever and other symptoms.(4)

The detection and successful typing of dengue virus from patients with suspected dengue is important both for the diagnosis of the disease and also for the implementation of public health control measures. The development of rapid tests to detect the non-structural protein (NS1) has greatly improved early diagnosis of dengue.(7) NS1 is an antigen localized on the surface of cells infected with dengue virus that is common to the four dengue serotypes and is detectable between the first and ninth days after the onset of fever.(7) NS1 rapid tests kits are being increasingly promoted for first-line testing for acute dengue infection in clinical diagnostic laboratories. Its sensitivity is around 89% and it appears to be 100% specific.(8) Definitive dengue tests include dengue serology (acute and convalescent samples to detect antibodies) and serum dengue PCR (particularly used if early in the illness).

Treatment and Prevention: Treatment of dengue is symptomatic and supportive and usually involves paracetamol and adequate

oral and supplemental intravenous hydration, while carefully following relevant parameters such as the haematocrit, platelet count and tourniquet test for any evidence of DHF/DSS,(9) as was largely the case with this patient. Aspirin and non-steroidal anti-inflammatory drugs are avoided, because it can aggravate bleeding.(7,9) Public health management is directed at preventing transmission, where suitable vectors are present, which is certainly the case in Townsville. Dengue is a notifiable disease in Queensland and suspected dengue on clinical/provisional grounds requires notification by clinicians.(10) In north Queensland, there is an ever present risk of importation of dengue from soldiers, which must be well managed.(11) The Australian Defence Force experienced a significant exposure to dengue during its deployments to Timor Leste.(12) Until a suitable dengue vaccine becomes available, where there has been some progress,(12) personal protective measures remain the first line of defence against dengue.(4)

References

1. McBride WJ, Taylor CT, Pryor JA, Simpson JD. Scrub typhus in north Queensland. *Med J Aust* 1999; 170: 318-320.
2. Likeman RK. Scrub typhus: a recent outbreak among military personnel in north Queensland. *ADF Health* 2006; 7: 10-13.
3. Leggat PA. A soldier with a fever and a rash. *ADF Health* 2006; 7: 67, 91.
4. Leggat PA. Dengue in northern Queensland, Australia: Risk from travellers or risk to travellers. *Travel Med Inf Dis* 2009; 7: 212-214.
5. Queensland Health. Outbreak Update. Previous outbreaks in north Queensland. Dengue in north Queensland. Last updated 14 June 2011. URL. http://www.health.qld.gov.au/dengue/outbreak_update/previous.asp (accessed 9 July 2011)
6. Queensland Health. Outbreak Update. Dengue Fever. Last updated 14 June 2011. URL. http://www.health.qld.gov.au/dengue/outbreak_update/current.asp (accessed 9 July 2011)
7. Teixeira MG, Barreto ML. Diagnosis and management of dengue. *BMJ* 2009; 339: 1189-1193.
8. Dussart P, Labeau B, Lagathu G, et al. Evaluation of an enzyme immunoassay for detection of dengue virus NS1 antigen in human serum. *Clin Vaccine Immunol* 2006; 13: 1185-1189.
9. World Health Organization. *Dengue Haemorrhagic Fever: Diagnosis, Treatment, Prevention and Control*. 2nd edn. Geneva: WHO, 1997. URL. <http://www.who.int/csr/resources/publications/dengue/Denguepublication/en/> (accessed 20 June 2011)
10. Queensland Health. List of Pathological, Clinical and Provisional Diagnosis Notifiable Conditions – Public Health Regulation 2005 – as at 30 October 2009. Last Reviewed 2 July 2010. URL. http://www.health.qld.gov.au/ph/documents/cdb/notif_conditions_list.pdf (accessed 9 July 2011)
11. Kitchener S, Leggat PA, Brennan L, McCall B. Importation of dengue by soldiers returning from East Timor to North Queensland, Australia. *J Travel Med* 2002; 9: 180-183.
12. Kitchener S. Dengue fever update. *J Mil Veterans' Health* 2010; 18: 42-43.

THE MODULAR DESIGN
MEANS I HAVE JUST
EVERYTHING I NEED



VIO® 300 D (electrosurgery)
APC2 (argon plasma coagulation)
ERBEJET® 2 (waterjet surgery)
ESM 2 (secretion aspirator)

MY SURGICAL WORKSTATION FROM ERBE

VIO® System

Master module with all electrosurgical modes for CUT and COAG, with output dosage



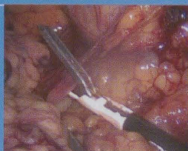
APC 2

Devitalizes tissue and stops bleeding, non-contact technology



BiCision®

Thermofusion and dissection for vessels and tissue structures, easy to operate



ERBEJET® 2

Dissection can be performed selectively and for specific tissue layers with minimal bleeding



Further information on medical procedures
can be found on our web site.

Rymed | Unit 12, 36 Lidco St | Arndell Park | NSW 2148 | Australia | Phone +612 9676 3488 | www.rymed.com
ERBE Elektromedizin GmbH | Tuebingen | Germany | Phone +49 7071 755-0 | www.erbe-med.com

ERBE

Perfection for Life

READERSHIP SURVEY

This is the second Readership Survey we have conducted. The first was in April 2005. Amongst other things that first survey encouraged us to include more practical tips on management; quizzes, field anaesthesia, and military historical perspectives. We would ask you to complete this second Readership Survey and fax it back to: **029 5873631** by 1 December 2011. Your reply will be placed in a draw for a substantial prize.

Demographic questions.

Tick appropriate box.

I am an :	ADF Reservist	ADF Regular	Civilian contractor to ADF	ADF retired	DVA	Sponsored medical student	Govt medical scientist	Educator	CFTS	Other State which below

Comments.....

My profession is:

Medical officer	
Medical administrator	
Dental officer	
Dental assistant, hygienist, technician	
Nursing officer	
Pharmacist	
Medical assistant	
Medical student	
Medical entomologist	
Environmental/preventative health officer	
Environmental management	
Scientific, lab officer	
Physiotherapist	
Psychologist	
Logistics officer	
Radiographer	
Retired	
Aircraft support	

My Service is:

NAVY	
ARMY	
AIRFORCE	
Australian Public Service	
Civilian	

My rank
(if applicable) is:

01 (SBLT equiv)	02 (LIEUT equiv)	03 (CAPT equiv)	04 (MAJ equiv)	05 (LTCOL equiv)	06 (COL equiv)	07 (BRIG equiv)

My age is (yrs)

Less than 25	
25-29	
30-34	
35-39	
40-44	
45-49	
50-54	
55-59	
60+	

Readership Questions

1. How many issues of ADF Health have you seen? Tick which box.

Just this issue	2-3 issues	More than 3 issues

Comments.....

2. Do you access ADF Health online?

<http://www.defence.gov.au/health/infocentre/journals/i-ADFHJ.htm>

Yes	No	Unaware it was available

3. In each issue you have seen, how much have you read? Tick which box.

Nil articles	1-2 articles	3-6 articles	More than 6 articles

Comments.....

4. How often should ADF Health be issued? Tick which box.

Not at all	Annually	Twice a year	Quarterly	No opinion

5. The 3 most interesting subjects to me are:

Emergency medicine ,disaster response		Terrorism	
ADF health units and services		Health admin and planning	
Military Anaesthesia		Veterans	
Peacekeeping		Respiratory medicine	
Infectious disease		Weapons	
Aviation medicine		Radiology/imaging	
Ethics		Sexual health	
Military history		Nursing	
Fitness		Ophthalmology	
Chemical, biological, radiation hazards		Orthopaedics	
Forensic medicine		Haematology	
Training		Dentistry	
General medicine		Cardiology	
Diving medicine		Urology	
Surgery including trauma		Veterinary care	
Notice of events		Obstetrics and Gynaecology	
Letters to the Editor		Dermatology	
Issues for Debate		Paediatrics	
Mental health		Other-state which	

Comments.....

6. ADF Health is a useful source of information. Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

7. **ADF Health is too serious and boring.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

8. **ADF Health is well presented.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

9. **ADF Health is glossy and superficial.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

10. **ADF Health is an interesting read.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

11. **ADF Health articles are difficult to understand.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

12. **ADF Health is informative about Defence Health Service activities.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

13. **ADF Health is not focused on my interests.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

14. **ADF Health is of high intellectual quality.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

15. **ADF Health is relevant to my employment.** Tick which box.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree

Comments.....

If you wish to be considered for the prize draw please fill in your telephone number for contact:

Mobile: Home: (code)