

**AMMA JOURNAL VOL 7 ISSUE 1**  
**APRIL 1998**  
**Abstracts from the Literature**

by  
Andy Robertson

**Affleck PJ, Needleman S. Sevoflurane and the 885A field anaesthesia machine: Clinical report. *Mil Med* 1997; 162(11): 7692-5**

The Ohmeda 885A field anaesthesia machine is equipped with a non-agent-specific, universal vaporiser that can be used with most volatile anaesthetic agents. On a recent humanitarian medical mission to Honduras, the 885A was used to administer general anaesthesia to 26 patients utilising sevoflurane, a new inhalational anaesthetic with a variety of clinical benefits, including less airway irritability, making it ideal for inhalation inductions. Flow rates for delivery of anaesthetic agent were calculated by using the enflurane portion of the VerniTrol flow calculator wheel because sevoflurane and enflurane have similar vapour pressures. Calculated anaesthetic concentrations were compared with measured concentrations using linear regression analysis and found to have a Pearson product moment of 0.995. We find that the use of sevoflurane in the 885A is an excellent alternative to other inhalational anaesthetic agents and may have applications for use during both military conflicts and peacetime missions in remote areas.

*Comment: Sevoflurane is receiving increased use in Australia and, given the decreased airways irritability, may have a useful application in the field.*

**Zilinskas RA. Iraq's biological weapons: The past as future? *JAMA* 1997; 278:418-24**

Between 1985 and April 1991, Iraq developed anthrax, botulinum toxin, and aflatoxin for biological warfare; 200 bombs and 25 ballistic missiles laden with biological agents were deployed by the time Operation Desert Storm occurred. Although cause for concern, if used during the Persian Gulf War, Iraq's biological warfare arsenal probably would have been militarily ineffective for 3 reasons: (1) it was small; (2) payload dispersal mechanisms were inefficient; and (3) coalition forces dominated the theatre of war (i.e., they had overwhelming air superiority and had crippled Iraq's command and control capability). Despite the Gulf War defeat, the Iraqi biological warfare threat has not been extinguished. Saddam Hussein remains in power, and his desire to acquire weapons of mass destruction continues unabated. In this context, the international community must be firm in its enforcement of United Nations resolutions designed to deter Iraq from reacquiring biological warfare capability and must take steps to develop a multidisciplinary approach to limiting future development of weapons of mass destruction.

**Christopher GW, Cieslak TJ, Pavlin JA, Eitzen EM. Biological warfare: A historical perspective. *JAMA* 1997; 278:412-7**

The deliberate use of microorganisms and toxins as weapons has been attempted throughout history. Biological warfare has evolved from the crude use of cadavers to contaminate water supplies to the development of specialised munitions for battlefield and covert use. The modern development of biological agents as weapons has paralleled advances in basic and applied microbiology. These include the identification of virulent pathogens suitable for aerosol delivery and industrial-scale fermentation processes to produce large quantities of pathogens and toxins. The history of biological warfare is difficult to assess because of a number of confounding factors. These include difficulties in verification of alleged or attempted biological attacks, the use of allegations of biological attacks for propaganda purposes, the paucity of pertinent microbiological or epidemiologic data, and the incidence of naturally occurring endemic or epidemic diseases during hostilities. Biological warfare has been renounced by 140 nations, primarily for strategic and other pragmatic reasons. International diplomatic efforts, including the 1972 Biological Weapons Convention, have not been entirely effective in preventing the

enhancement and proliferation of offensive biological warfare programs. The threats posed by biological weapons are likely to continue into the future.

**Franz DR, Jahrling PB, Friedlander AM, McClain DJ, Hoover DL, Bryne WR, Pavlin JA, Christopher GW, Eitzen EM. Clinical recognition and management of patients exposed to biological warfare agents. *JAMA* 1997; 278:899-411**

Concern regarding the use of biological agents - bacteria, viruses, or toxins - as tools of warfare or terrorism has led to measures to deter their use or, failing that, to deal with the consequences. Unlike chemical agents, which typically lead to violent disease syndromes within minutes at the site of exposure, diseases resulting from biological agents have incubation periods of days. Therefore, rather than a paramedic, it will likely be a physician who is first faced with evidence of the results of a biological attack. We provide here a primer on 10 classic biological warfare agents to increase the likelihood of their being considered in a differential diagnosis. Although the resultant diseases are rarely seen in many countries today, accepted diagnostic and epidemiologic principles apply; if the cause is identified quickly, appropriate therapy can be initiated and the impact of a terrorist attack greatly reduced.

*Comment: These three articles provide a useful update on the history of biological warfare, Iraq's biological weapon's program, and the clinical recognition and management of biological weapon infection or intoxication. This should be required reading for all military health practitioners.*