Introduction
This is a guide for students and researchers to research published in peer reviewed journals, and some reports, on the topic of the identification and treatment of Sepsis in prehospital care which includes Emergency Medical Services (EMS)/Ambulance Services and the Emergency Department/Accident and Emergency (A&E). The guide is based on searches of the literature using Medline, CINAHL, EMBASE and PubMed, additional searches of references and citations and a rigorous selection process. See Methodology. 102 articles and two reports are included in the final selection. The complete database is available via Mendeley here.

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Systematic Reviews

What is a systematic review?
“A systematic review attempts to identify, appraise and synthesize all the empirical evidence that meets pre-specified eligibility criteria to answer a given research question. Researchers conducting systematic reviews use explicit methods aimed at minimizing bias, in order to produce more reliable findings that can be used to inform decision making.” (Cochrane 2013)

Systematic reviews included in this guide are by Herlitz et al. (2012) looking at the identification and treatment of severe sepsis and Schuetz et al. (2011) and Tang et al. on the use of procalcitonin as a diagnostic tool for sepsis.


Reviews

What are Reviews?
These reviews are identified using MeSH heading Publication Type: Reviews. MeSH defines reviews as being “… published after examination of published material on a subject. It may be comprehensive to various degrees and the time range of material scrutinized may be broad or narrow, but the reviews most often desired are reviews of the current literature.” (MeSH 2013).

Three reviews (Bressan 2012; Melendez & Bachur 2006; Oliveira De 2010) address the management and treatment of paediatric patients with sepsis. Three reviews look at particular, but different, treatment options (Bozza 2010; McLeay 2004; Senz 2009). Schuetz et al. (2012) looks at the potential of bio markers to support personalised care for sepsis patients. A number of reviews look at the diagnosis and
management of sepsis (Nguyen & Smith 2007; Rivera 2009; Sweet 2012) with some reviews focusing on severe sepsis and septic shock (Catenacci & King 2008; Puskarich 2012; Rivers 2006; Talan 2008).


**Subject Headings**

To see articles on the topics below click on the links. These take you to database in Mendeley. The number of articles retrieved is in square brackets.


Dashboard

Subject Coverage Represented by Instances of Keywords
Figure 1. lists the instances of keywords used to Tag five more articles. It gives an overview of the topics covered in the published research under the broad heading of *sepsis and pre-hospital care*. Keywords are chosen from MeSH 2013 and author assigned keywords derived from the topics covered by published research.

![Figure 1. Instances of the use of keywords](chart.png)

Analysis by year of publication
The total number of articles included in this bibliography was n=104. Articles from the bibliography published in between 2003 and 2013 are included in Figure 2. below (n=100). The data indicates an upward trend in publication of research in this area of sepsis and prehospital care.
Analysis by number of articles in each journal title

Data in Figure 3. shows that the highest number of articles, six, are published in *Academic Emergency Medicine / Journal of Emergency Medicine* journals. Over 60% are published in core journals in Emergency Medicine.
Methodology

Search Question
Identify research on Sepsis present in users of Ambulance, Emergency Medical Services (EMS) and Emergency Department services, the tools and techniques used to identify Sepsis and interventions used to treat Sepsis in the prehospital environment.

Scope of Enquiry
The scope of enquiry provides a definition of the specific terms used in the research question and sets the parameters of the broader topic the research question addresses.

The focus of this bibliography is the prehospital environment including the hospital Emergency Departments or Accident and Emergency Departments. Users in this case are patients delivered by Ambulance Services and self-referred patients who arrive either on foot or brought by other form of transport.

The condition addressed is Sepsis, Severe Sepsis and Septic Shock defined by selecting those articles that have the MESH (2013), CINAHL Subject Heading or EMTREE Subject Heading Sepsis applied in the Medline, CINHAL and EMBASE databases.

The search identifies evidence reviews for example systematic reviews, and research articles that deal with the assessment or diagnosis of Sepsis and interventions or treatments delivered in the prehospital environment by Paramedics or clinical staff working in the hospital Emergency Department or Ambulance and Emergency Department.

Purpose of the Enquiry
To map the literature and create an overview of the current of existing research.

Search Strategy

Search One

Concept one
Search in Title and Abstract for:
ambulance* OR paramedic* OR prehospital OR ems
combined with (OR) Emergency Medical Services as a MeSH (2013) / CINAHL subject heading, Emergency Health Service in EMBASE/EMTREE.

Concept two
Sepsis as MESH (2013)/CINAHL/EMTREE Subject Heading

Limits
No Limits were applied to this search.
Search two

Concept one
Search in Title and Abstract for:
ambulance* OR paramedic* OR prehospital OR ems
combined with (OR) Emergency Medical Services as a MeSH (2013) / CINAHL subject heading searched as exploded terms. Emergency Health Service in EMBASE/EMTREE searched as exploded term.

Concept two
Sepsis as MESH (2013)/CINAHL/EMTREE Subject Heading searched as an exploded terms.

Limits
The results were limited to Article Type > Review Articles

The actual search example
Search terms as they were entered into search using EBSCO HOST interface to MEDLINE and CINAHL and NICE Evidence Search for EMBASE. This is example is indicative of the searches conducted for this guide.

MEDINE / CINAHL
#1 Emergency Medical Services (MESH 2013 / CINAHL Subject Heading)
#2 prehospital OR paramedic* OR ambulance* OR EMS
#3 Combine #1 OR #2
#4 Sepsis (MESH 2013 / CINAHL Subject Headings)
#5 Combine #4 AND #3

EMBASE
#1 Emergency Health Services (EMTREE)
#2 prehospital OR paramedic* OR ambulance* OR EMS
#3 Combine #1 OR #2
#4 Sepsis (EMTREE)
#5 Combine #4 AND #3
**Processing results**
The data was collated using [Mendeley](http://www.mendeley.com). Results were processed to remove articles outside the Scope of Enquiry. This was done in three phases. See Diagram 1. below. Keywords and Tags were added to facilitate retrieval and support linking to the web available version of the database.

**Diagram 1. Flow chart.**

Combining all searches together and after de-duplicating the searches generated an initial set of n=161 unique research articles.

First parse eliminated articles of no relevance giving a set of n=141.

Second parse adding Tags and Keywords Eliminating articles with limited relevance giving a set of n=97.

Final parse revising Tags and keywords. Articles and reports added from additional research n=104.

Matt Holland
Librarian
NWAS LIS, December 2013.