

Pre Print

Holland, M. & Price, A., 2013. Looking at the information resources available for paramedic practice. *Journal of Paramedic Practice*, 5(5), 279-284. Available from:

[http://www.paramedicpractice.com/cgi-](http://www.paramedicpractice.com/cgi-bin/go.pl/library/article.cgi?uid=98356;article=pp_5_5_279_284)

[bin/go.pl/library/article.cgi?uid=98356;article=pp_5_5_279_284](http://www.paramedicpractice.com/cgi-bin/go.pl/library/article.cgi?uid=98356;article=pp_5_5_279_284) [Accessed 04 May 2013].

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Information Resources for Paramedic Practice

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INTRODUCTION

This article describes the sources of published research available to NHS Ambulance Service staff. It gives advice on where to find resources and how to access them. The article shares knowledge and experience with readers to support study, research and Continuing Professional Development (CPD). The authors are Librarians currently supporting NHS Ambulance Service staff in England.

What is evidence based practice?

The NHS invests in Library & Information Services and electronic resources to support clinical practitioners in developing and delivering evidence-based services. This definition of evidence based medicine summarises the intention of using the best and most current research to inform clinical practice,

“Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.” (Sackett et al. 1996)

Evidence is contained in leading medical and allied health research journals, summaries and analysis of current published research around a specific topic, for example systematic reviews, and in reports, guidelines and reports of best practice.

Who should be using information resources?

Finding and using the best published research is a skill embedded in the Paramedic Practice and Paramedic Science programmes across the United Kingdom. Librarians would characterise these skills as information skills. These are transferable skills that are useful for CPD, study and research at university and for preparing for reports and guidelines for work. All NHS Ambulance Service staff should have information skills and knowledge of the resources available to them.

Why would you use information resources?

The ultimate beneficiaries of an evidenced-based approach to professional and clinical practice, as is indicated in the definition of evidenced-based medicine, are patients.

RESOURCES

Access to Resources - OpenAthens

Access to many information resources is free. However, in instances where resources are paid for by individual NHS Trusts/organisations and licensing agreements have been entered into between NHS Trusts/organisations and publishers, access is controlled to ensure only those who are intended to benefit get access to resources. The system for managing access is called OpenAthens.

Accessing the evidence base

Different arrangements are in place for England, Northern Ireland, Scotland and Wales. This reflects different approaches to Library provision, and different approaches to managing access. These are described below. The aim, however, is the same. NHS libraries and librarians aim to enable the most efficient access to the best available resources for NHS staff.

England

Three of the eleven Ambulance Services in England have access to a dedicated or contracted in Library & Information Service. These are the North West Ambulance Service NHS Trust, South Central Ambulance Service Foundation Trust and Yorkshire Ambulance Service. Other services in England rely on guest access to local NHS Trusts. Ambulance Service staff undertaking courses in higher education have access to their university library. NHS libraries can be located using the Health Library & Information Services Directory (HLSID) [www.hlsid.org].

- NWAS NHS Trust - North West Ambulance Service Library & information Service. Contact: [Matt.Holland@nwas.nhs.uk]
- South Central Ambulance Service Foundation Trust. Contact: [library@royalberkshire.nhs.uk]
- Yorkshire Ambulance Service NHS Trust, Library & Information Service. Contact: Chris Jackson/Helen Curtis [library.crh@cht.nhs.uk]

Evidence Search is the core service provided for the NHS in England to enable access to research. Evidence Search contains free to access material published by the Department of Health, the NHS, its agencies and professional organisations associated with healthcare in the United Kingdom.

Protected behind a security system, OpenAthens, Evidence Search provides access to core journals, e-books and databases in medicine and allied health subjects. Layered on top of this are resources purchased by Library & Information Services for individual NHS Trusts, for example specialist databases and journals. Any member of NHS England staff can register for an OpenAthens account on the Evidence Search website [www.evidence.nhs.uk]. Information provided in the online registration form, including an NHS e-mail address, validates applications. OpenAthens provides a User Name and Password that can be entered when resources, usually journals or databases, challenge users for authentication. Typically users are asked to follow instructions specifically for OpenAthens account holders to log in. OpenAthens accounts are managed by local administrators to whom individual questions can be addressed. Local administrators can be found through this link [www.openathens.net].

Northern Ireland

All HSC personnel, including Paramedics, are entitled to join the Medical & HSC Library Service by completing the registration form available on Health on the Net Northern Ireland (honni) [www.honni.qub.ac.uk/Membership/]. Once registered the library provides HSC staff with a library card which entitles them to borrow books from any affiliated libraries. In addition HSC staff are issued with a User Name and Password which enables them to access the electronic resources available on the *honni* website. Access can be from anywhere there is an internet connection.

Scotland

Paramedics from the Scottish Ambulance Service have access to electronic library services provided through the Knowledge Network [www.knowledge.scot.nhs.uk]. From the Knowledge Network Paramedics can register for an NHS Scotland ATHENS User Name and Password and access paid-for content. The Knowledge Network directs NHS Scotland staff to their nearest physical NHS Library, which will be able to advise on other services available to them. In addition, Scottish Ambulance Service paramedics have access to the Health Management Library, a national library and information service available to all NHS Scotland staff [www.healthmanagementonline.co.uk].

Wales

Paramedics from the Welsh Ambulance Service have access to the *NHS Wales e-Library for Health* [www.wales.nhs.uk/sitesplus/878/home]. NHS Wales staff can register online from here for an NHS Wales Athens Account. Paramedics can also find their nearest NHS Wales Library using the online directory located on the NHS Wales e-Library page. Access conditions to NHS libraries in Wales are set by individual libraries.

Access to People and Advice - Library & Information Services

Consulting a Librarian saves time and makes the time you spend searching for resources more productive. Librarians are experts in the tools and techniques for locating research and in

addition NHS Librarians have a special knowledge of the NHS and the medical and allied health literature. Librarians are also skilled at helping NHS staff develop their own skills with appropriate advice and support about which resources to consult and how to use them providing individualised advice that meets specific needs.

Journals (Peer Reviewed / Scholarly / Academic Journals)

Peer reviewed journals are the channel through which original research is published and put in the public domain. Peer review refers to a process of rigorous review that articles have gone through before they are published. Peer review checks the quality of the research, that the methodology is appropriate and well executed and that the research is original and makes a contribution in some way to existing knowledge. While figures will vary for each journal title a high percentage of submitted articles are rejected by reviewers as being of insufficient quality. In other words, publication in a peer reviewed journal is an indication of the reliability of research.

Peer reviewed journals address specific communities. For example the journal of a professional organisation, or a group of clinicians or allied health professionals who have a common interest in a single topic such as Emergency and Prehospital Medicine, or they can be a channel for research in an emerging/niche research area. The Journal of Paramedic Practice falls into this last category.

A list of journal titles broadly defining the area of knowledge comprising Emergency and Prehospital Medicine, in which the most relevant articles will be published, would include:

- Academic Emergency Medicine
- Air Medical Journal
- American Journal of Emergency Medicine
- Annals of Emergency Medicine
- Canadian Journal of Emergency Medicine
- Critical Care Medicine
- Emergency Medicine – BMC - Open Access
- Emergency Medicine Australasia
- Emergency Medicine Journal
- European Journal of Emergency Medicine
- Internal and Emergency Medicine
- International Journal of Emergency Medicine - Open Access
- Journal of Emergency Medicine
- Journal of Emergency Public Health Care
- Journal of Paramedic Practice
- Journal of Trauma and Acute Care Surgery
- Journal of Trauma Management & Outcomes - Open Access
- Journal of the Royal Army Medical Corps
- Open Access Emergency Medicine - Open Access

- Prehospital Emergency Care
- Resuscitation
- Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine
- Trauma (Sage)

Bibliographic Databases

Bibliographic databases contain information about individual journal articles. Typically they include the basic citation comprising: Author, Title, Journal Title, Volume, Issue and Page Numbers. In addition they may contain a summary or abstract of the article so that you can know what the article is about. Bibliographic databases are big, hundreds of thousands or millions of articles. Medical and clinical topics are well served by established databases. MEDLINE covers all medical topics. Allied health subjects are covered by CINAHL, EMBASE and British Nursing Index [BNI]. All databases are available through Evidence Search to NHS England staff with an OpenAthens Account. Some or all are available to colleagues in Scotland, Wales and Northern Ireland.

Database publishers may add subject keywords and phrases from a predefined list or thesaurus that describes the subject of each article. The database publisher for example may apply the term *Emergency Medical Services* to all articles about some aspect of prehospital care. Database users knowing this can easily find all the articles on this topic by searching for *Emergency Medical Services* as a subject heading. MEDLINE uses its own thesaurus called MeSH [**M**edical **S**ubject **H**eadings]. The MeSH thesaurus can be searched separately in most presentations of MEDLINE to find the best subject terms for your search. The CINAHL thesaurus is based on MeSH but expands the number and range of terms that deal with nursing and allied health professions. EMBASE has its own thesaurus Emtree and BNI has its own subject headings.

Use databases to find articles on a specific topic, for example to answer questions about the use of ketamine in prehospital care, spinal immobilisation techniques, the use of ultrasound in prehospital care or assessment of patients with blunt trauma head injuries. The tools provided by databases, searching for keywords and thesaural terms, allow users to find from millions of articles the smaller number of articles containing published research on any topic.

Free to access medical databases

PubMed is a free version of Medline which provides access to over 22 million citations and includes PubMed Central and Europe PubMed Central which are full text repositories created in partnership with publishers and projects and individuals who wish to make their research available in an Open Access form,

- Europe Pubmed Central [europepmc.org]

- PubMed [pubmed.gov]
- PubMed Central - Full Text Archive
[www.ncbi.nlm.nih.gov/pmc]

Alerting Services and Current Awareness Services

Alerting services are a convenient way to keep up to date with journals you are interested in. Evidence Search (England) recently stopped its subscription to the British Library table of contents (TOC) alerting service, ZETOC. However, there is an excellent free to use service JournalTOCS [www.journaltoocs.ac.uk] which is free to use. There are also options to register with individual publisher/journal websites to get the TOCs of individual journals e-mailed to you.

Current awareness for Ambulance Services is provided by the Emergency Services Current Awareness Update, published under the direction of the National Ambulance Research Steering Group (Price et al. 2011). Released every two months, the current and previous editions are available online.

- Emergency Services Current Awareness Update
[www.networks.nhs.uk/nhs-networks/nwas-library-and-information-service/esca]

Evidenced-Based Summaries

Evidence-Based Summaries address the challenge of the expertise, skills and time needed to collate a meaningful overview of evidence in a specific area, for example the value of a treatment in delivering positive outcomes for patients or choosing the best clinical practice among alternatives. Evidence-Based Summaries are expert reviews of the evidence or systematic reviews providing easy access to relevant research on specific conditions or procedures. There are a number of services designed to give quick access to systematic reviews and evidence summaries.

- **BestBETs** Rapid evidence-based answers to real-life clinical questions in emergency medicine [<http://www.bestbets.org>]
- **Centre for Reviews and Dissemination (CRD)** Expert critical appraisals of research about the effects of health and social care interventions [<http://www.york.ac.uk/inst/crd>]
- **The Cochrane Library** High-quality, independent evidence to inform healthcare decision making [<http://www.thecochranelibrary.com>]
- **Evidence Search - Evidence Updates** Gateway to evidence published by or on behalf of the NHS and associated healthcare organisations. [<http://www.evidence.nhs.uk/nhs-evidence-content/evidence-updates>]
- **Clinical Knowledge Summaries CKS** A reliable source of evidence-based information and practical 'know how' about the common conditions managed in primary care, aimed at healthcare professionals working in primary and first-contact care. [cks.nice.org.uk]
- **Turning Research Into Practice TRIP** Trip is a clinical search engine designed to allow users to quickly and easily find and use high-quality research evidence to support their practice and/or care. [<http://www.tripdatabase.com>]

Health Statistics

Statistics from the *Office of National Statistics* [ONS] are published from the National Statistics website, covering all aspects of national life including topics related to health. The *NHS Information Centre for Health and Social Care* provides access to statistics on behalf of the NHS in the areas of commissioning, workforce, finance & performance, clinical, public health and social care.

- **National Statistics Online** [www.statistics.gov.uk]
- **NHS Information Centre for Health and Social Care (NHS IC)**
[www.ic.nhs.uk/statistics-and-data-collections]

Ambulance Service Statistics

Ambulance statistics are published online by the Department of Health. The method for calculating statistics changed in 2011. An archive statistics pre 2011 are still available.

- **Ambulance Quality Indicators** - post April 2011
[www.england.nhs.uk/statistics/ambulance-quality-indicators/]
- **Weekly Ambulance SitReps** - pre April 2011
The old data series is available as an archive [webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Statistics/Perfomancedataandstatistics/WeeklySituationReports/DH_128506]

Other Relevant Statistics

Trauma Audit & Research Network publish resources and information including statistics relating to injury. Statistics about attendance at Accident & Emergency (A&E) are published as part of the Hospital Episode Statistics [HES]. NHS England collects data about A&E attendances and 4 hours waiting times.

- **Trauma Audit & Research Network [TARN]**
[www.tarn.ac.uk]
- **Accident and Emergency** - Hospital Episode Statistics [HES]
[www.ic.nhs.uk/hes]
- **A&E Waiting Times and Activity**
[www.england.nhs.uk/statistics/ae-waiting-times-and-activity/]

Formularies

Formularies provide clinically validated information about drugs. The British National Formulary [BNF] and the British National Formulary for Children [BNFC] provides information on medicines prescribed in the UK. Access to both resources requires an OpenAthens Account. Note that different arrangements are in place for access in Northern Ireland, Scotland, and Wales.

- **British National Formulary for Children [BNFC]**
[www.medicinescomplete.com/mc/athens.htm]

- British National Formulary [BNF]
[www.medicinescomplete.com/mc/athens.htm]

NICE apps for Formularies and NICE Guidance

NICE publish mobile phone apps for both BNF and BNFC for Android and iPhone. Information on how to download them is available from the NICE website. NICE also publish an app for its Guidance.

- NICE BNF, BNFC and Guidance apps
[www.nice.org.uk/aboutnice/nicewebsitedevelopment/NICEApps.jsp]

Clinical Guidelines

Clinical guidelines are systematically defined statements created to help practitioners and patients decide on appropriate healthcare for specific clinical conditions and/or circumstances. In the UK, with variations for Wales and Scotland, guidelines are developed by the *National Institute for Health and Care Excellence* (NICE). In Scotland guidelines are overseen by *NHS Quality Improvement Scotland* and delivered by *Scottish Intercollegiate Guidelines Network* (SIGN). Guidelines for Ambulance Services have recently been updated under the direction of Association of Ambulance Chief Executives (AACE), *UK Ambulance Service Clinical Guidelines 2013*. Guidelines can be found on the following websites:

Ambulance Services

- UK Ambulance Service Clinical Guidelines 2013. Information only. [aaceguidelines.co.uk/]

National Clinical Guidelines

- NICE [www.nice.nhs.uk]
- Evidence Search [www.evidence.nhs.uk] search results can be filtered by *Types of information>Guidelines*
- SIGN [www.sign.ac.uk]

Research

Paramedic Practice has a developing research agenda, following the pattern of emerging disciplines research and research ideas are generated from a variety of sources. The road map for developing research is set out in an article by Siriwardena et al. (2009). Components of the current research landscape would include the following:

- Centre for Research in Emergency Services & Training (CREST)
[crest.hope.ac.uk]
- College of Paramedics - Research and Development Advisory Committee
[www.collegeofparamedics.co.uk/about_us/structure/research_and_audit_committee/]

- Surgical Reconstruction and Microbiology Research Centre
[www.srmrc.nihr.ac.uk/]
- Thematic Research Network for emergency and UnScheduled and Trauma care
[www.trustresearch.org.uk]
- Trauma Audit & Research Network [TARN]
[www.tarn.ac.uk/]
- Wellcome Trust - Health Innovation Challenge Fund - 0512-3a: Minimising the impact of trauma and serious injury
[www.wellcome.ac.uk/Funding/Technology-transfer/Awards/Health-Innovation-Challenge-Fund/index.htm]

Conclusion

This article maps out the landscape of information resources for NHS staff. Changes set in place by NHS reform process in England, including the abolition and formation of new organisations will add new sources of information, research funding and refinements to the research agenda. The constant feature is the NHS Library & Information Services, who are able to offer advice and guidance on where to find the best and most up to date information.

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April 2013

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