Information for JBI Scientific Writers

JBI Evidence Summaries
Evidence Summaries are short articles (2-3 pages on average) that summarize existing international evidence on common healthcare interventions and care processes. They are on specific clinical topics that are targeted at healthcare professionals (see Appendix 1 for a published example).

Evidence Summaries are based on structured searches of the literature and selected evidence-based health care databases. Each Evidence Summary is developed from the evidence and subject to both internal (JBI) and external (Expert Reference Group) peer review before it is published. Evidence Summaries are specific to particular clinically focused information needs (e.g. Cancer: Non-Pharmacological Pain Management) rather than broad analyses of literature on a general topic (e.g. pain management). They are intended to inform and guide decision making in clinical policy and practice. Therefore, maintaining quality and consistency in the development of each Evidence Summary is central to the JBI mission. To ensure that the evidence base that informs Evidence Summaries is current, these resources are updated regularly (every 12 months); Scientific Writer assists with this process.

JBI Scientific Writers
JBI Scientific Writers are involved in updating the evidence base of JBI Evidence Summaries. Being a Scientific Writer is an opportunity to develop skills and expertise in:

- Searching databases for literature.
- Evaluating the relevance and quality of literature to be included in an Evidence Summary.
- Writing high quality summaries that concisely describe the issue and report the evidence for clinical policy and practice.

Potential professional benefits include:

- Developing a portfolio of work that supports professional development and clinical licensing requirements.
- Contributing to a CV by being named on evidence-based publications.

Scientific Writers follow detailed guidance and search selected databases for recent, relevant, high quality evidence related to the topic, critically appraise the evidence, update the Evidence Summary in line with the evidence and outline the process in a technical development report (see Appendix 2 for further details on the update process).
Where possible we try to match Evidence Summary topics to a writer’s specialty area(s) but this depends on which summaries are due for update. Scientific Writers are expected to work on any topic that is necessary.

To maintain a consistent and rigorous approach to the development of our resources, Scientific Writers are assigned a JBI Research Fellow who will facilitate their work by providing feedback, guidance and advice on work undertaken. The JBI Research Fellow will provide constructive feedback to assist Scientific Writers as they become familiar with JBI methodology. However it is expected that Scientific Writers will already be skilled in the following areas:

- Searching databases
- Understanding different research designs
- Critically appraising the quality of different forms of evidence
- Summarizing evidence in a clear, coherent, and concise manner

Requirements of Scientific Writers

JBI Scientific Writers work externally to JBI, with the work performed remotely. The majority of communication between Scientific Writers and JBI is via email. It is a requirement that JBI Scientific Writers have access to specified databases (see Application Form, Appendix 3) as well as full-text access to a wide range of online journal articles. Generally, this means that writers have institutional access through their place of work or study allowing them subscription access to a wide range of online journals, and access to full-texts of most articles not just the abstract. In some circumstances, access may be able to be provided via the University of Adelaide if you meet the requirements to become a title holder with the university (see [https://www.adelaide.edu.au/hr/recruitment/titleholders/](https://www.adelaide.edu.au/hr/recruitment/titleholders/)).

Payment

Evidence Summaries are usually sent to writers in batches of 10 or 20. For each batch of 10 updates completed, writers are paid AUD $225 (or AUD $450 for 20). Payment will require that Evidence Summaries have been completed to the agreed standards, including changes as required by JBI Research Fellows.

Application to become a JBI Scientific Writer

If you are interested in becoming a Scientific Writer with JBI, please complete the application form (Appendix 3) and return to the JBI Scientific Writer Program Administrator at [jbisciwriter@adelaide.edu.au](mailto:jbisciwriter@adelaide.edu.au), along with a copy of your CV. Applicants must specify their area(s) of clinical/policy expertise to ensure that Evidence Summaries are sent to them in these fields (where possible).
Medication Safety: Smart Infusion Pumps

1 July 2016

Author
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Question
What is the best available evidence regarding the use of smart infusion pumps for intravenous medication administration?

Clinical Bottom Line
Smart infusion pumps are designed for intravenous (IV) medication administration. These devices are equipped with a database of intravenous medications (drug library) and software that includes inbuilt safety features designed to minimize IV medication dose errors.¹,²

• In 2009, the Institute for Safe Medication Practices (ISMP) published guidelines on the safe implementation and use of smart infusion pumps. These guidelines include a wide range of recommendations covering aspects such as implementation planning, staff education, rollout of devices, establishment of the medication library, policy development, and use of information collected by smart pumps.³ (Level 5)
• A systematic review evaluated the impact of smart infusion pumps on medication error rates and assessed both the benefits and negative effects of smart pumps.⁴ (Level 1)
  • The reviewers concluded that smart pumps reduce pump programming errors but do not eliminate them.
  • Benefits of using smart pumps included intercepting pump setting errors, reduction of adverse drug event rates, practice improvements, and cost effectiveness.
  • Negatives associated with smart pump use included low compliance rates of using the pumps, overriding of soft alerts, non-intercepted errors, or possibility of using the wrong drug library.
  • The reviewers identified opportunities for improvement of smart pumps including upgrading drug libraries, developing standardized drug libraries, decreasing the number of unnecessary warnings, and developing stronger approaches to minimize workarounds.
  • The reviewers also highlighted the importance of continuous quality improvement processes to improve smart pump use.
A multi-site observational study investigated the types and frequency of medication errors associated with smart infusion pumps.\textsuperscript{5} (Level 3)

- Despite the use of smart pumps, the study found a high error rate in administration of IV medication, with 60% of infusions having one or more errors associated with their administration.
- The most frequent errors related to use of unauthorized medication, bypassing the smart pump, and incorrect rate of administration, however, the majority of errors were classified as having relatively low potential for harm. Only 0.4% of errors were categorized as more serious errors.
- Many of the observed errors were violations of hospital policy, some not directly related to the use of smart pumps.

**Characteristics of the Evidence**

This evidence summary is based on a structured search of the literature and selected evidence-based health care databases. The evidence in this summary comes from:

- Literature reviews.\textsuperscript{1,2}
- Clinical practice guidelines.\textsuperscript{3}
- A systematic review including 22 studies, one of which was a randomized controlled trial (RCT).\textsuperscript{4}
- A multi-site observational study conducted in 10 hospitals in the USA, including a total of 478 patients and 1,164 medication administrations.\textsuperscript{5}

**Best Practice Recommendations**

- Smart infusion pumps may be recommended to reduce IV medication dose errors. (Grade B)
- Effective implementation of smart infusion pumps requires the development of policies and procedures around their use. (Grade A)
- Continuous quality improvement processes are recommended to improve smart infusion pump use. (Grade A)

**References**

2. Franklin BD. ‘Smart’ intravenous pumps: how smart are they? BMJ Qual Saf. 2016. (Level 5)
Appendix 2: Evidence summary update process

Scientific Writers follow the JBI approach to updating Evidence Summaries to ensure both a high quality approach and reliable evidence is available for health care practitioners. This involves:

**Step 1: Searching**

Evidence Summaries are based upon searching for the highest level and quality of evidence. Scientific Writers conduct searches for evidence that informs best practice relevant to the topic. While the search should focus on evidence published since the Evidence Summary was last updated, do not discount relevant evidence from the previous five years.

The following electronic databases MUST be searched using a range of keywords and subject headings appropriate to the specific topic:

- JBI Database of Systematic Reviews and Implementation Reports (http://journals.lww.com/jbisrir/)
- Cochrane Library (http://www.cochranelibrary.com/)
- Medline - searched via PubMed (https://www.ncbi.nlm.nih.gov/pubmed/) or another platform such as Ovid, EBSCO, etc.
- CINAHL (Cumulative Index to Nursing and Allied Health Literature - https://health.ebsco.com/products/the-cinahl-database)
- Additional databases may be searched, where relevant, for specific topics e.g. PsycINFO (mental health), Physiotherapy Evidence Database (PEDro), etc.

**Step 2: Technical Development Report**

For each Evidence Summary updated, a Technical Development Report is completed. This report should include:

- The date range of the search (i.e. last 5 years).
- The names of the databases searched.
- Search terms used.
- Appraisal results for new evidence (any new evidence found is assessed for methodological quality using a short, standardized checklist).

**Step 3: Including new evidence in the Clinical Bottom Line**

For each new paper found, add a dot point to the existing Evidence Summary under the ‘Clinical Bottom Line’ section that concisely describes the objective and key findings of the
study. It is important that text is paraphrased (written in your own words), not simply copied verbatim from the paper or abstract.

When reporting the key findings:
- Only report the findings that are relevant to the topic i.e. those that are explicitly related to the clinical question.
- Include some information on the clinical relevance of the results e.g. the conclusions/implications.

### Step 4: The Characteristics of the Evidence

Under the ‘Characteristics of the Evidence’ section, describe what type of study the new evidence is (e.g. systematic review, randomized controlled trial, etc.) and give some brief details about the study (e.g. the number of included studies, study designs, number of participants, etc.).

### Step 5: Best Practice Recommendations

If new evidence is added and/or old evidence deleted, check the ‘Best Practice Recommendations’. Depending on the evidence, it may be necessary to:
- add a new recommendation, or
- remove/amend an old one, or
- modify the Grade of an existing recommendation.

Having looked at the ‘Best Practice Recommendations’ section, decide if any new evidence added to the ‘Clinical Bottom Line’ section warrants an alteration to any of the recommendations or the addition of a new recommendation. The inclusion of new evidence doesn’t necessarily mean that the recommendations need to change.

### Step 6: Referencing

Add new references to the reference list in Vancouver format. If there are less than six authors, list them all. If there are more than six authors, list the first six followed by ‘et al.’

Use sentence case for the article title. Use the abbreviated journal name.

For example:

Appendix 3: JBI Scientific Writer application form

Application Form – JBI Scientific Writer Registration

The following is a brief document to apply for status as a JBI Scientific Writer. Please fill out all sections of this form and return to the Scientific Writer Program Administrator at jbsciwriter@adelaide.edu.au, along with a copy of your CV.

Name:

Email Address:

Phone (incl country and area code):

Profession:

Specialty(s):

Highest Tertiary Qualification:

Current professional or academic registrations:

Do you have access to the following databases:

- JBI Database of Systematic Reviews and Implementation Reports
- The Cochrane Library
- PubMed/Medline
- CINAHL
- Others (please list)?

Do you have full text access to a wide range of online health literature, and if so, through which institution? (i.e. Hospital, University, Health board etc.)

Briefly outline your relevant experience with literature searching, critically appraising studies, and summarizing evidence:

How did you hear about this opportunity?