

## Researchers and information specialists collaborating in the development of a guideline on prevention and treatment of postpartum hemorrhage

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### Introduction

Postpartum hemorrhage (PPH) is commonly defined as blood loss exceeding 500 mL following vaginal birth and 1,000 mL following cesarean section. PPH is often classified as primary/immediate/early, occurring within 24 hours of birth, or secondary/delayed/late, occurring from more than 24 hours post birth up to 12 weeks postpartum. Postpartum hemorrhage is the leading cause of maternal mortality<sup>(1,2)</sup>.

In the developing world, several countries have maternal mortality rates in excess of 1000 women per 100,000 live births, and the World Health Organization statistics suggest that 25% of maternal deaths are due to PPH, accounting for more than 100,000 maternal deaths per year. Although maternal mortality rates have declined greatly in the developed world, PPH remains a leading cause of maternal mortality elsewhere. In industrialized nations, PPH usually ranks in the top three causes of maternal mortality, along with embolism and hypertension.

The Italian Obstetric Surveillance System (ItOSS) identified PPH as the leading cause of maternal mortality in six Italian regions (Piemonte, Emilia-Romagna, Toscana, Lazio, Campania and Sicilia) from 2006 to 2012.

Multiple studies suggest that many deaths associated with postpartum hemorrhage could be prevented with prompt recognition and more timely and appropriate treatment.

In 2015, the Italian National Guidelines System, together with the Italian Obstetric Surveillance System, began to develop a guideline on this topic, in order to promote evidence-based care practices for PPH prevention and appropriate treatment.

The guideline, still in progress, is funded by the National Centre for Prevention and Disease Control (CCM) of the Ministry of Health.

### Objectives

In the present contribution the authors wish to highlight the role of information specialists/librarians in supporting evidence-based health care. They have become more and more involved in developing high-quality systematic reviews and may play an important role in the process, thanks to their expertise in information retrieval and analysis. Among the new activities and changing roles of health science librarians, the “Systematic Reviews Librarian” has been identified as an emerging position: possible activities include expert searching, organization and analysis of the information retrieved. The interaction with the investigators to choose and select the appropriate search terms required for a comprehensive search strategy is essential<sup>(3)</sup>. In Figure 1 an

example of a search strategy to find terms related to Co-enzyme Q10 in PubMed is given; it was developed for the Italian National Guideline System “Therapy and Diagnosis of Parkinson Disease” guideline <sup>(4)</sup>. The term “Coenzyme Q10” was searched in the MeSH database, and all the Entry terms were used for searching references in the database.

Search (((((((Coenzyme Q10 [Supplementary Concept]) OR "Coenzyme Q10" [TIAB]) OR "coq 10" [tiab]) OR coq10 [tiab]) OR ubidecarenone [tiab]) OR "co enzyme q10" [tiab]) OR "ubiquinone q10" [tiab]) OR "bio quinone q10" [tiab]) AND Parkinson* Sort by: PublicationDate
Search "bio quinone q10" [tiab] Sort by: PublicationDate
Search "ubiquinone q10" [tiab] Sort by: PublicationDate
Search "co enzyme q10" [tiab] Sort by: PublicationDate
Search ubidecarenone [tiab] Sort by: PublicationDate
Search coq10 [tiab] Sort by: PublicationDate
Search "coq 10" [tiab] Sort by: PublicationDate
Search "Coenzyme Q10" [TIAB] Sort by: PublicationDate
Search Coenzyme Q10 [Supplementary Concept] Sort by: PublicationDate

**Fig. 1. Search terms used for retrieving references on Coenzyme Q10 and Parkinson disease**

It's important to point out the difference between a systematic review and a clinical practice guideline: the first one usually relates to a specific question, while the latter discusses a broader approach to a disease. According to Institute of Medicine (IOM) of the National Academies of Sciences (USA), a systematic review is "a scientific investigation that focuses on a specific question and uses explicit, pre-specified scientific methods to identify, select, assess, and summarize the findings of similar but separate studies. It may include a quantitative synthesis (meta-analysis), depending on the available data." Systematic evidence reviews of comparative effectiveness research to learn what is known and not known about the potential benefits and harms of alternative drugs, devices, and other healthcare services provides the best evidence to inform clinical decisions.

A clinical practice guideline is defined by IOM as "statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options". Trustworthy guidelines should be based on a systematic evidence review, developed by panel of multidisciplinary experts, provide a clear explanation of the logical relationships between alternative care options and health outcomes, and provide ratings of both the quality of evidence and the strength of the recommendations.

A close collaboration with clinicians during the literature review process is crucial in both contexts, as well reported in the literature <sup>(5)</sup>.

## Methods

The methods used for developing the Italian guideline on PPH are described in this section.

First of all a multidisciplinary panel including different health professionals such as gynecologists, anesthetists, midwives, hematologists, radiologists, pathologists, nurses, representatives of the civil society and of the Ministry of Health, and information specialists - was appointed. Panelists identified the clinical queries to be examined in the PPH guideline, focusing on the aspects of **treatment** and **prevention**.

As far as it concerns the PPH treatment, the search strategy developed by US Agency for Health Care Research and Quality (AHRQ) in the “Management of Postpartum Hemorrhage” Health Technology Assessment Report <sup>(6)</sup>, was considered (see Figure 2). However, according to panel decisions it was decided to eliminate search terms relating to topics such as “Resource allocation”, “Delivery of Health Care” and “Postoperative Complications”.

postpartum hemorrhage/ct or postpartum hemorrhage/ti,ab or postpartum haemorrhage/ti,ab or (pph/ti,ab and postpartum/ti,ab) or obstetric hemorrhage/ti,ab or obstetric haemorrhage/ti,ab or ((postpartum period/ct or postpartum/ti,ab or post partum/ti,ab) and (hemorrhage/ct or hemorrhage/ti,ab or haemorrhage/ti,ab))  
and  
( management/ti,ab or therapy/ti,ab or therapeutics/ct or treatment/ti,ab or fundal massage/ti,ab or uterine massage/ti,ab or (fundus/ti,ab or fundal/ti,ab or uterus/ti,ab or uterus/ct or uterine/ti,ab) and (massage/ti,ab or massage/ct)) or compression/ti,ab or antishock garment#/ti,ab or gravity suits/ct or fluid therapy/ct or uterotonic/ti,ab or oxytocin/ti,ab or oxytocin/ct or pitocin/ti,ab or oxytocic#/ti,ab or oxytocics/ct or misoprostol/ti,ab or misoprostol/ct or cytotec/ti,ab or methylergonovine/ti,ab or methylergonovine/ct or methergine/ti,ab or ergonovine/ti,ab or ergonovine/ct or ergotrate/ti,ab or ergot alkaloids/ct or ergot/ti,ab or ergometrine/ti,ab or carboprost/ti,ab or carboprost/ct or carboprost tromethamine/ct or pge1/ti,ab or hemabate/ti,ab or fluid resuscitation/ti,ab or isotonic crystalloid#/ti,ab or blood transfusion/ct or crystalloid solutions/ct or ringer lactate/ti,ab or lactated ringer?/ti,ab or ringer's lactate/ct or isotonic saline/ti,ab or blood products/ti,ab or volume replacement/ti,ab or fibrinogen/ct or fresh frozen plasma/ti,ab or plasma/ct or packed cells/ti,ab or intrauterine balloon/ti,ab or cryoprecipitate/ti,ab or uterine tamponade/ti,ab or balloon tamponade/ti,ab or uterine balloon/ti,ab or bakri balloon/ti,ab or uterine balloon tamponade/ct or ((uterus/ct or uterus/ti,ab or uterine/ti,ab or intrauterine/ti,ab) and (pack?/ti,ab)) or bakri balloon/ti,ab or arterial embolization/ti,ab or artery embolization/ti,ab or embolization therapeutic/ct or artery ligation/ti,ab or ligation/ct or arterial ligation/ti,ab or laceration repair/ti,ab or recombinant activated factor VII/ti,ab or rfvlla/ti,ab or factorviii/ct or laparotomy/ti,ab or laparotomy/ct or hysterectomy/ti,ab or hysterectomy/ct or b lynch/ti,ab or suture techniques/ct or suture/ti,ab or suturing/ti,ab or uterine inertia/prevention and control/ct or uterine inertia/therapy/ct or uterine inversion/therapy/ct or uterine rupture/therapy/ct or dilatation and curettage/ct or curettage/ti,ab or uterine exploration/ti,ab or urinary catheterization/ct or catheter balloon/ti,ab or balloon catheter/ti,ab or foley catheter/ti,ab or condom catheter/ti,ab or condom tamponade/ti,ab or (condoms/ct and balloon/ti,ab) or rusch balloon/ti,ab or sengstaken blakemore/ti,ab or (manual removal/ti,ab and placenta/ti,ab) or placenta, retained/therapy/ct

**Fig. 2. Search strategy for the treatment of Postpartum Hemorrhage**

Relating to the topic of PPH prevention the panel decided to update the relevant section of the “Intrapartum Care” guideline produced by UK NICE<sup>(7)</sup>, consequently adopting the same search strategies.

A search strategy for the prevention of PPH was set up, in order to answer the following eight clinical queries:

1. Is the active management of the third stage of labor more effective than the physiological management?
2. Is synthetic oxytocin (syntocinon) more effective than synthetic oxytocin plus ergometrine (syntometrine) in the active management of the third stage of labor?
3. Does delayed cord clamping in the active management of the third stage improve maternal and neonatal outcomes compared to early cord clamping?

4. What is the most effective management of retained placenta in women who have had active management of the third stage of labor?
  - a) with PPH
  - b) without PPH
5. Does the method of management of the third stage of labor affect the outcome?
6. What is the effective management of delay in the third stage?
7. Are there effective ways of identifying women at increased risk of postpartum hemorrhage antenatally and during labor?
8. What is the effective management of women at increased risk of postpartum hemorrhage to minimize this risk?

The bibliographic searches were carried out by the Documentation Service of the Italian National Institute of Health (ISS), whose staff is composed of skilled information specialists, trained to develop search strategies for systematic reviews and guidelines.

Bibliographic searches were carried out using the following databases:

- **MEDLINE** (Medical Literature Analysis and Retrieval System Online). Produced by the U.S. National Library of Medicine (NLM), it covers worldwide literature on biomedical topics. It contains records from 1946 to present including records for citations covered in Index Medicus, Index to Dental Literature, International Nursing Index, the HealthSTAR database, and OLDMEDLINE (1946-1965).
- **EMBASE** (*Excerpta Medica* Database). Produced by Elsevier, one of the world's largest publisher of scientific and technical information, it covers the worldwide literature on biomedical and pharmaceutical fields.
- **CINAHL** (Cumulative Index to Nursing and Allied Health Literature). It is produced by EBSCO, and it provides indexing for more than 3,075 nursing and allied health journals. Literature covers a wide range of topics including nursing, biomedicine, health sciences librarianship, alternative/complementary medicine, consumer health and 17 allied health disciplines.

These databases were accessed through STN International (Scientific & Technical Information Network International, FIZ Karlsruhe (Fachinformationszentrum Karlsruhe; available online: <http://www.stn.org/stn/>) and BIBLIOSAN platforms. The latter is the network of libraries belonging to Italian Biomedical Research Institutions. The searches were restricted to 2014-2015. In addition the results were limited to clinical guidelines, systematic reviews, randomized controlled trials and meta-analysis as publication types.

The titles and abstracts of the articles were screened for relevance in respect to the key question; if it was not possible to assess their relevance, the full text was read and selected, if pertinent. The articles were appraised for eligibility, in accordance with the inclusion/exclusion criteria. Data extraction was performed independently by two researchers; any disagreements were resolved either by consensus among researchers or by arbitration by an additional independent researcher. Data were extracted from the selected studies by completing data extraction tables.

## Conclusions

As shown in the previous sections of the present paper, information specialists/librarians contribution in supporting evidence-based health care is not an easy task as it requires multidisciplinary skills, including medical terminology, information science and technology.

For this reason it is important that their contribution is not underestimated and that their role is acknowledged also for the authorship of systematic reviews and guidelines. In fact, information specialists/librarians who conduct the searches for systematic reviews should be skilled, as mistakes made in the search process might eventually result in a biased or incomplete evidence base for the review.

The authorship of the Italian National Institute of Health - Documentation Service staff has always been acknowledged so far, mostly as information specialist, in some cases as member of the experts panel. A project recently set up by the National Rare Diseases Center has provided the opportunity to expand and test new skills: the information specialists contributed to assess guidelines retrieved in a set about rare hematologic diseases. The evaluation was carried out according to the AGREE II (Appraisal of Guidelines for Research & Evaluation) methodology. It was an excellent opportunity to increase collaboration with researchers and raise the staff's awareness of the Documentation Service's role within the Italian National Institute of Health.

## References

1. Smith JR. Postpartum hemorrhage [Internet]. Available from <http://emedicine.medscape.com/article/275038-overview>
2. Sentilhes L, Vayssiere C, Deneux-Tharoux C, Antoine Guy Aya A, Bayoumeu F, Bonnet MP et al. Postpartum hemorrhage: guidelines for clinical practice from the French College of Gynaecologists and Obstetricians (CNGOF) in collaboration with the French Society of Anesthesiology and Intensive Care (SFAR). *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2016; 198 12–21.
3. Cooper ID, Crum JA. New activities and changing roles of health Sciences librarians: a systematic review, 1990-2012. *Journal of Medical Library Association*. 2013; 101(4) 268-77.
4. Gruppo di lavoro SNLG, Mele A, D'Angelo F, Lacorte E, Locuratolo N, Vanacore N. Diagnosi e terapia della malattia di Parkinson. Sistema nazionale per le linee guida (SNLG) 2013;24. Available from: [http://www.snlg-iss.it/lgn\\_Parkinson](http://www.snlg-iss.it/lgn_Parkinson)
5. Cruse P, Protzko S. Librarian contributions to clinical practice guidelines. *Medical Reference Services Quarterly*. 2014;33(3):327-34.
6. Agency for Health Care Research and Quality [Internet]. Management of Postpartum Hemorrhage. 2015 April; Number 151. Available from: <http://www.effectivehealthcare.ahrq.gov/ehc/products/552/2078/hemorrhage-postpartum-report-150427.pdf>
7. National Institute for Health and Care Excellence [Internet]. UK. Intrapartum care for healthy women and babies. 2014 Dec; Available from: <https://www.nice.org.uk/guidance/cg190/resources/intrapartum-care-for-healthy-women-and-babies-35109866447557>