

# Clin-IQ Preparation Toolkit

## *Sample Template*

*by*

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# Clin-IQ Process Description

## What is Clin-IQ (Clinical Inquiries)

Clin-IQ (Clinical Inquiries) is a research process that makes it both possible and mutually beneficial for residents and other trainees, faculty and community clinicians to identify, ask and answer clinical questions through the evidence-based assessment of the published research literature.

### PURPOSE

Clinical graduate and post-graduate training programs have accrediting bodies to which they are responsible. For example, medical residencies (MD and DO) must meet ACGME\* Residency Review Committee requirements, which state that program faculty “must establish and maintain an environment of inquiry and scholarship with an active research component. ... Faculty should encourage and support residents in scholarly activities.

“The curriculum must advance residents’ knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care. ... Residents should participate in scholarly activities,” and “The sponsoring institution and program should allocate resources to facilitate resident involvement in scholarly activities.”

### GOALS

The purpose of Clin-IQ is to fulfill clinical trainee scholarly activities requirements by involving trainees in clinically relevant research.

The specific Clin-IQ process goals are to:

1. Involve trainees in clinically relevant, scholarly research.
2. Develop a collaborative learning community between trainees, faculty and interested community physicians.
3. Create opportunities for presentation and publication of scholarly research.
4. Meet accrediting body requirements for trainee research.
5. Establish a database of clinically relevant research questions.

### OBJECTIVES

Upon completion of the Clin-IQ Process, residents will be able to perform the following:

1. Recognize and construct well-formulated, clinically relevant questions.
2. Access appropriate current literature of the highest level of evidence relevant to a clinical question.
3. Utilize Medical Reference Library consultants effectively.
4. Interpret the results from published literature.
5. Appraise the validity and strength of evidence of the literature selected.
6. Summarize the results for an audience of their peers, faculty mentors, and community clinicians.
7. Synthesize the literature in a written document.
8. Follow instructions for authors for scholarly writing.
9. Produce a publication ready document of their findings.

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\* Accreditation Council for Graduate Medical Education

# Clin-IQ Process (continued)

## ROLE OF THE MEDICAL LIBRARIAN

1. May assist with formulating PICO questions, inclusion/exclusion criteria, search terms and search limits.
2. Should be utilized to perform expert medical literature search for both current relevant review articles and especially for highest level current evidence articles.
3. Must be an author on a publishable Clin-IQ if she/he:
  - a. Performs the literature search that yields the articles used for the Clin-IQ, and
  - b. Reads the final document for publication.

## EVALUATION OF CLIN-IQ PROJECTS:

1. Each document will be peer-reviewed and revised as indicated.
2. Faculty mentors will review the document for accuracy, completeness, and readiness for publication and residents will revise as indicated.
3. A Clin-IQ faculty scholarly activities director will review and designate the document for publication.

## FACULTY/TRAINEE COLLABORATION

Trainee(s) should be paired with a faculty mentor. This serves three purposes:

- (1) It demonstrates the importance of the research process to the trainee.
- (2) It enhances the relationship between faculty and trainee.
- (3) It gives the trainee(s) adequate support working through a scholarly research process.

## SUPPORT ACKNOWLEDGMENT STATEMENT

Any materials, papers, presentations, etc., developed based on this document must acknowledge the grant. A copy of the material(s) should also be submitted to OSCTR ([OSCTR@OUHSC.EDU](mailto:OSCTR@OUHSC.EDU)) for the grant archives and reporting.

Please use the following statement:

**“This [document, paper, presentation, etc.] was supported in part by Oklahoma Shared Clinical & Translational Resources, grant number NIGMS U54GM104938, NIGMS/NIH.”**

## QUESTION BANK

Questions arise in the clinical setting every day. A Clin-IQ Process can capture questions from students, residents, fellows, faculty and community providers. Questions may also arise as part of a research agenda. A process whereby the questions are rated based on relevance to practice and importance to the discipline allows questions to be ranked according to priority. Rating of questions can include students, residents, fellow, faculty and community providers. The more raters, the more likely a sound, well-prioritized bank of questions will be generated.

Once a bank of questions has been prioritized, trainees may select a question based on their interest; a question may also be assigned or even drawn from a bowl. The process of preparing a finished Clin-IQ document begins here.

# Clin-IQ Guidelines for Authors

<b><u>General Format</u></b>	
Double space the entire document.	
Indent the first line of each paragraph. Do not use extra blank lines between paragraphs.	
<b><u>Citing Abbreviations</u></b>	<b><u>Examples</u></b>
<p>The first time you use an abbreviation you must write the complete phrase first and follow the phrase with the abbreviation in parentheses. From then on, use only the abbreviation</p>	<p>The Residency Review Committee (<b>RRC</b>) is the entity that accredits residency training programs. The <b>RRC</b> requires program to conduct faculty/residency collaborative research for accreditation.</p>
<b><u>Numbers in Text</u></b>	<b><u>Examples</u></b>
<p>Spell out numbers one through nine.</p> <p>Except percents (<b>9%</b>)</p> <p>Medication dosages (<b>15 mg BID</b>)</p> <p>Laboratory values (<b>162.4 ml/min</b>)</p> <p>Dates (<b>June 30, 2014</b>)</p> <p>Time frame (<b>39 weeks, 3 years</b>)</p> <p>Ages (individuals <b>13 yrs</b> or older).</p> <p>More than one number in a sentence</p>	<p>In this study, <b>nine</b> children aged <b>4</b> months to <b>2</b> years received ear tubes.</p> <p>In this study, the <b>first 8</b> children received ear tubes and the <b>second 8</b> were placed on Bactrim for <b>2 weeks</b>.</p>
<b><u>Articles from the Medical Literature</u></b>	<b><u>Examples</u></b>
<ul style="list-style-type: none"> <li>• <b>Recent</b> review article(s), no more than 2, on which to base your summary of issues.</li> <li>• <b>Recent</b> evidence articles, 2, on which to base your Summary of Evidence and your answer.</li> <li>• <b>All articles should be from medical journals preferably published in 2008 or newer.</b> If you have problems, <b>consult a trained medical librarian. Be sure to bring this workbook and your Clin-IQ question with you when you consult with the librarian.</b></li> </ul>	<p><b><u>Review article:</u></b> 1. Wilson R, Gazzala J, House J. Aspirin in primary and secondary prevention in elderly adults revisited. [Review] South Med J. 105(2):82-82, 2012.</p> <p><b><u>Evidence article:</u></b> 2. Berger JS, Krantz MJ, Kittelson JM et al. Aspirin for the prevention of cardiovascular events in patients with peripheral artery disease: <b>a meta-analysis of randomized trials.</b> JAMA 301(18): 1909-1919, 2009.</p>

<p><b><u>In Text Citations</u></b></p> <p>If you cite, paraphrase, mention or quote directly from a published article, book, website, etc. you must cite the material in the text (and include the citation information in the Reference List). <b><u>Failure to do so constitutes plagiarism and copyright infringement.</u></b></p>	<p><b><u>Examples</u></b></p> <p>Use of combined oral contraceptives increases the risk of venous thrombosis two-to-six fold.<sup>1,2</sup> Both the estrogen and progesterone of combined oral contraceptives contribute to the increased thrombotic risk.<sup>1</sup> On top of this, smoking doubles the risk of venous thrombosis.<sup>2</sup> It has been established that women over age 35 who smoke should not use combined oral contraceptives due to the risk for cardiovascular disease.<sup>3</sup></p>
<p><b><u>Reference Lists</u></b></p> <p>Reference lists are placed at the end of the paper.</p> <p>References are listed <b><u>in the order in which they are cited in the text of your article.</u></b></p> <p><b><u>TIP: Reference 1 is always 1 no matter how many times it is cited in the text.</u></b></p>	<p><b><u>Examples</u></b></p> <p>Both the estrogen and progesterone of combined oral contraceptives contribute to the increased thrombotic risk.<sup>1</sup></p> <p>... in these 56 women when APC resistance was re-tested 3 months later (mean baseline 2.75 vs. mean three months later 2.47; difference -0.29; 95% CI -0.04 to -0.53).<sup>1</sup></p>
<p><b>Complete Reference Examples (based on the Uniform Requirements for Medical Manuscripts)</b></p>	
<p><b><u>Journal Article Example</u></b></p>	<p>1. Mold JW, Holtzclaw BJ, McCarthy LH. Night sweats: a systematic review of the literature. J Am Board Fam Med 25(6): 878-893, 2012.</p>
<p><b><u>Book Chapter Example</u></b></p>	<p>2. Lim LL, Foldvary-Schaeger N. Sleep Disorders. Ch. 10 In: Carey WD, ed. Current Clinical Medicine, 2<sup>nd</sup> ed. New York: Elsevier (Saunders); 2010:914-921.</p>
<p><b><u>Website Example</u></b></p>	<p>3. Felland LE, Lechner AE, Sommers A. Improving access to specialty care for Medicaid patients: policy issues and options. A Commonwealth Fund Report. Center for Studying Health System Change, June 2013. (Accessed June 27, 2013, at <a href="http://www.hschange.com">www.hschange.com</a>).</p>
<p>Acknowledgment: <b>“This [document, paper, presentation, etc.] was supported in part by Oklahoma Shared Clinical &amp; Translational Resources, grant number NIGMS U54GM104938, NIGMS/NIH.”</b></p>	
<p>A sample completed Clin-IQ, which meets the style, formatting and publication requirements, can be found beginning on page 19.</p>	

## Sample "Ask a Librarian" Form

### Ask a Librarian Form

Please fill out as much information as possible. This will make it easier for us to quickly and accurately answer your question.

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First Name:  Last Name:

Email:  Phone:

Status:  College

Department:

Question:

Challenge Question:  $3 + 5 =$

## Other Library Consultation Services

### More Research Support Forms

 **Instruction Request**

Set up one-on-one or group instruction with one of our Reference Librarians for in-depth targeted presentations on library resources...

 **Search Request**

Get started on the right foot by with a targeted search on your topic...



## BUILD A CLIN-IQ

### 1: CHOOSE A QUESTION.

Write the question you have selected on the following lines.

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### 2: DETERMINE IF THE QUESTION IS IN PICO FORMAT; REWRITE IT IF IT IS NOT.

**PICO** is an acronym for the components of a well-built clinical question.

**P**=patient, always your primary focus.

**I**=intervention, what are you proposing to do (not do, e.g., watchful waiting).

**C**=compared to what? Some questions (e.g., causation) won't have a comparison.

**O**=outcome, what do you want to happen.

Read the two questions below.

#### Before – Not Specific

Do myringotomy tubes help children with recurrent otitis media?

#### After – Very Specific, Well-Built

<b>P</b> atient	In infants and children to age 3 (or 4 or 5) with chronic otitis media, are myringotomy tubes better than episodic or prophylactic antibiotics for reducing the incidence and/or severity of disease with fewer side effects (diarrhea, others?)
<b>I</b> ntervention	
<b>C</b> omparison	
<b>O</b> utcome	

Re-write the question you have selected on the following lines.

**P**

**I**

**C**

**O**

### 3: DEVELOP SEARCH TERMS, LIMITS AND INCLUSION/EXCLUSION CRITERIA

Based on your PICO formatted question (above), select search terms for your literature search.

#### PICO Literature Search Strategy Example\*

Patient(s)	Intervention	Comparison	Outcomes
Infant or preschool child ; chronic otitis media	<b>AND</b> myringotomy tubes	<b>AND</b> episodic or prophylactic antibiotics	<b>AND</b> Incidence or severity or side effects

\*Adapted from Kerr J. Abdominal Imaging 33 (Sept): 31-33, 2008)

## Search Terms:

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**Limits:** (e.g., Human, English, Infants or Pre-School Children review, RCT)

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**Inclusion and Exclusion Criteria:** A brief discussion of which articles you chose to **include**, e.g., all clinical trials in humans that compared tubes with other treatments or with watchful waiting that were published in the past 6 years and included an  $n$  (number of subjects) of XX or greater) and articles you chose to **exclude** (children over age 5, adolescents, adults). (See Clin-IQ Example, pages 19-23)

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## 4: SEARCH THE MEDICAL LITERATURE

**Consulting with a Medical Reference Librarian:** Consulting with a medical reference librarian before you do a literature is most likely to yield the highest level of **current** evidence with the least amount of irrelevant materials. You may consult with a librarian or you perform the literature search yourself. If you choose to consult with a librarian, here are some tips to make that interaction more productive.

- Conduct the consultation face-to-face. Medical librarians are trained in “reference interviews” and will ask you questions about your topic that you may not have considered. Or, fill out the “Ask a Librarian” help request from the library webpage (page 7). You may have to do both to get the materials you need.
- Bring your project workbook with you to the consultation. The librarian will then understand the limited nature of your search and be better able to assist you.
- Medical librarians will be able to readily locate relevant review articles as well as evidence articles.
- Medical librarians are well-versed in evidence-based medicine, levels of evidence and study types. They can assist you in identifying which type of study (or studies) will best answer your question.
- You may also consider consulting with a medical librarian about
  - a) Inclusion and exclusion criteria
  - b) Search terms and limits

The medical librarian **must** become an author on a Clin-IQ if he/she:

- a) Performs the literature search that yields the articles used for the Clin-IQ, and
- b) Reads the final document for publication.

**5: LOCATE 1 OR 2 REVIEW/BACKGROUND ARTICLES.** Based on search terms, locate 1 or 2 **current (preferably 2008 or newer)** review/background article available (you can do the search yourself or consult with a librarian). Your review article should include:

- **Clinical significance of the problem.**
- **Prevalence.**
- **Relevant issues.**

**6: WRITE A DRAFT OF THE SUMMARY OF ISSUES (WORD COUNT = 200-300)**

Should include how prevalence and clinical significance relate back to your question. You have an example to work from (see published Clin-IQ Example, pages 19-23).

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**7: LOCATE 2 CURRENT (PREFERABLY 2008 OR NEWER) HIGHEST LEVEL EVIDENCE ARTICLES.**

You can do this search yourself or consult with a trained medical librarian (item 4 above). Be sure to identify which type of study qualifies as the highest level of evidence. See Figure 1, pages 15-16, and Figure 2, page 17, for a discussion of levels of evidence.

- Find at least 2 articles relevant to your question that meet the highest level of evidence available as shown on Figures 1 and 2.
- Read the articles
- Send the articles to your faculty mentor

**8: WRITE A DRAFT OF THE SUMMARY OF EVIDENCE (WORD COUNT = 500-700)**

- number of patients or papers, if meta-analysis or systematic review
- type of studies (include data on a table for clarity)
- statistical significance.\*
- intervention of interest
- outcome(s) of interest (morbidity, mortality, quality of life, etc.)
- weaknesses or conflicts
- cite references

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\*An excellent Statistics tutorial can be found at <http://web.med.unsw.edu.au/QMP/QMPHome.htm>

**9: DETERMINE LEVEL OF EVIDENCE OF YOUR BODY OF LITERATURE (See Figure 1, pages 15-16, and Figure 2, page 17)**

Level of evidence for the answer (A, B, or C, see figures): \_\_\_\_\_

**10: ANSWER THE QUESTION.**

Answer: (Circle one): Yes No Inconclusive or 1-2 sentences if that is more responsive.

**11: (OPTIONAL BUT RECOMMENDED) ADD AN ORIGINAL TABLE, FIGURE, CHART OR GRAPH**

- Tables, figures or charts can be added to elucidate data in the Summary of Evidence
- Tables, figures or charts must be original, created based on data available from the articles.
- Place an citation within the text indicating the context of the graphical material.(e.g., Figure 1, Table 2),

**12: WRITE A DRAFT CONCLUSION (WORD COUNT = 50-100)**

- Conclusions (1-2 sentences), to include:
  - Summary of issue (relevance) linked to
  - Summary of evidence, linked to
  - The answer and how you would change your practice based on what you have learned.

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**13: ADD REFERENCE LIST:** You must cite all the materials (books, journal articles, website, etc.) that you used to answer your question. You should only need 1-2 review articles and 2 evidence articles.

1. Review article #1
2. Review article #2 (optional)
3. Evidence article #1
4. Evidence article #2

**14: COMPLETE CLIN-IQ CHECK LIST.** Have you:

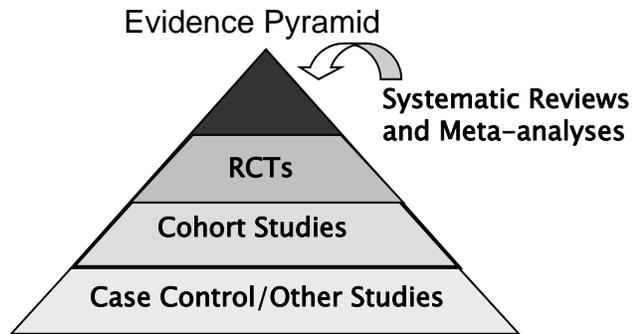
- Answered the question
- Prepared the reference list in proper format.
- Cited sources properly as shown in this Workbook in Guidelines for Clin-IQ Authors (pages 5-6) and Clin-IQ Example (pages 19-23).
- If you included a table, figure or graphic, is it original or adapted sufficiently from the source to avoid potential copyright violation or plagiarism (see A Word About Plagiarism below).
- If you included a table, figure or graphic, have to noted in the text where the table materials is discussed (Table 1, Figure 2, etc.).
- Shared your draft with your mentor and addressed all comments and suggestions.
- Requested a review from additional faculty or peers as suggested by your mentor (review form, pages 25-26)
- Revised draft until mentor feels it is publishable.

**A WORD ABOUT PLAGIARISM:** Plagiarism and copyright infringement occur when an author extracts large portions of materials from a published document. Tables, figures, charts and graphs of any kind must be significantly altered or, preferably, created from data within a published study. Brief material (generally a sentence or two, less than a paragraph) may be quoted provided adequate citations are provided for the sources.

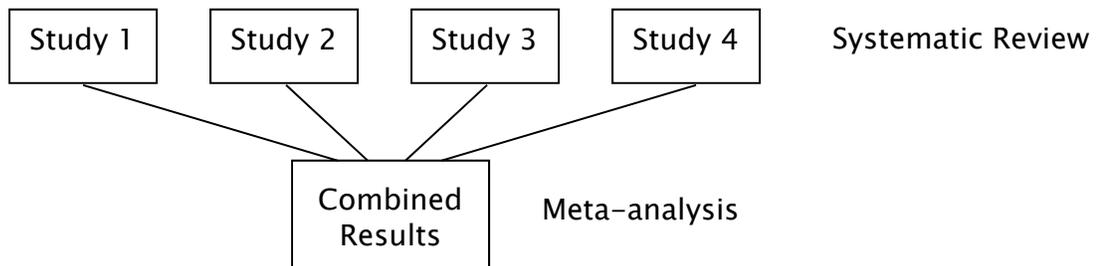
A consult with a medical librarian can help you be re-assured that you have not exceeded copyright limitations or plagiarized material.



**Figure 1. Glossary of Study Types**

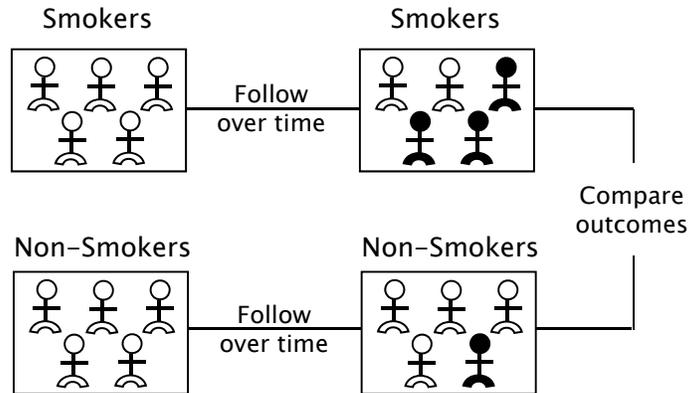


1. Systematic Review: Level 1 Evidence
  - a. A comprehensive survey of a topic in which all the primary studies of the highest evidence (e.g., randomized controlled trials, prospective cohort studies; see below) are identified, appraised and summarized using explicit inclusion and exclusion criteria.
  - b. Results should be reproducible
2. Meta-analysis: Level 1 Evidence
  - a. Similar to a systematic review in that a comprehensive search of the topic is conducted.
  - b. If the results of the review of all included studies are similar enough statistically, the results are combined and analyzed as if they were one study
  - c. Results should be reproducible.



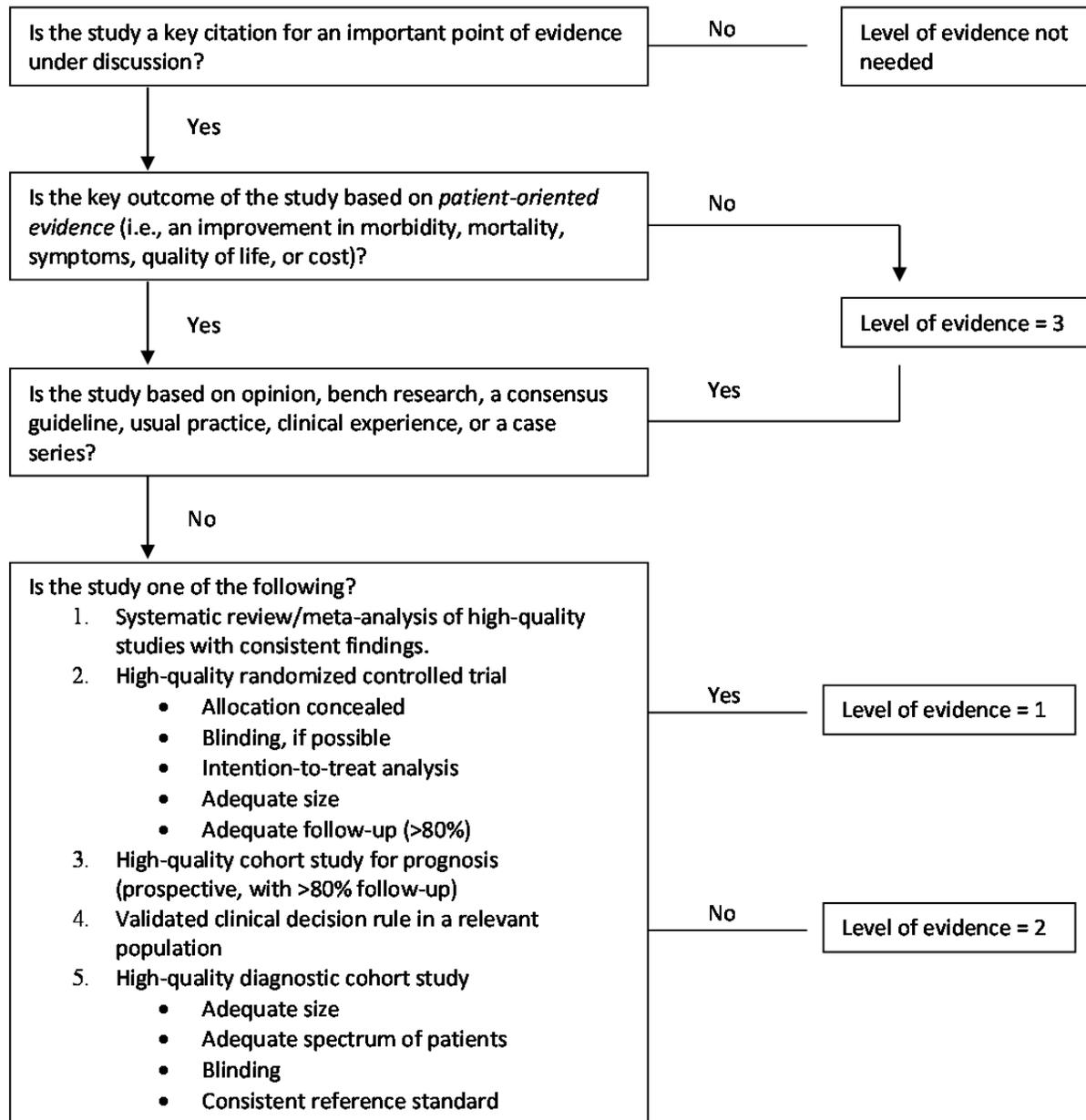
3. Randomized Controlled Trial (RCT): Level 1 Evidence
  - a. 2 groups: 1 treatment group and 1 control group. Treatment group received treatment under investigation. Control group receives either no treatment (placebo) or gold standard treatment.
  - b. Patients are randomly assigned to each group.
  - c. Best type of study to answer questions about therapy.
  - d. Sometimes there can be 3 or even 4 groups (called arms) depending on the study question. Example of a 4-arm RCT: Allergy treatment.
    - i. Claritin alone
    - ii. Flonase alone
    - iii. Claritin + Flonase
    - iv. Placebo

4. Cohort Study: Level 1 or 2 Evidence based on question and study design
- a. A study in which patients who presently have a condition and/or receive a particular treatment are observed over time and compared with another group who do not have the condition being studied.
  - b. Example:



Examples adapted from SUNY Downstate Medical Center (<http://library.downstate.edu/EBM2>)

**Figure 2.**  
**Algorithm for determining level of evidence for an individual study**



**Levels of Evidence**

**A** = Consistent level 1 studies

**B** = Consistent level 2 or 3 studies or extrapolations from level 1 studies

**C** = Level 4 studies or extrapolations from level 2 or 3 studies

**D** = Level 5 studies or troubling inconsistent or inconclusive studies of any level

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Source: <http://www.aafp.org/afp/2004/0201/p548.html>



# Clin-IQ Example

## Clin-IQ Project

Clinical Question: In women over 35 years of age who smoke, does Mirena (levonorgestrel-releasing intrauterine system) reduce the risk of DVTs compared to oral contraceptives?

Authors: M. M., MD (PGY-3) and K. J., MD (PGY-2)

Faculty Mentor: J. L. B., MD

Residency Program: [YOUR PROGRAM NAME HERE]

Answer: Yes

Level of Evidence for the Answer: B

Search Terms: intrauterine device, venous thrombosis, oral contraceptives

Date Search was Conducted: September 2012

Inclusion and Exclusion Criteria:

Inclusion Criteria: Published systematic reviews/meta-analysis, cohort studies, and clinical research trials comparing risk of venous thrombosis in women using a levonorgestrel-releasing intrauterine device versus oral contraceptives.

Exclusion Criteria: Women less than 18 years of age

Summary of the Issues

Use of combined oral contraceptives increases the risk of venous thrombosis two-to-six fold.<sup>1,2</sup> Both the estrogen and progestogen of combined oral contraceptives contribute to the increased thrombotic risk.<sup>1</sup> On top of this, smoking doubles the risk of venous thrombosis.<sup>2</sup> It has been established that women over age 35 who smoke should not use combined oral contraceptives due to the risk for cardiovascular disease.<sup>3</sup> Therefore, in this subset of patients, other forms of contraception with other routes of administration are being evaluated to see if they have reduced risks.

The levonorgestrel-releasing intrauterine device (LNG-IUD) is a T-shaped plastic contraceptive that is inserted in the uterine cavity where it continuously releases the progestogen levonorgestrel.<sup>2</sup> More than eight million women have used the LNG-IUD worldwide. Plasma levels of levonorgestrel during use of a LNG-IUD are lower than during the use of progestogen-only pills. Studies of progestogen-only pills suggest that there is little or no increased risk of venous thrombosis, therefore it is expected that LNG-IUD will have little thrombotic risk. The thrombin generation-based activated protein C (APC) resistance assay is a global coagulation test that enables quantification of the net prothrombotic effect of combined oral contraceptives and can also be used to predict the thrombotic risk of the LNG-IUD.<sup>1</sup>

#### Summary of the Evidence

A 2009 study assessed the thrombotic risk of the LNG-IUD. In this study, the thrombotic risk was evaluated by comparing the APC resistance before and after insertion of a LNG-IUD in 56 women. High resistance to APC is associated with an increased risk of thrombosis. In contrast to combined oral contraceptives which increase APC resistance, it was observed that the use of the LNG-IUD slightly decreased the resistance to APC in these 56 women when APC resistance was re-tested 3 months later (mean baseline 2.75 vs. mean three months later 2.47; difference -0.29; 95% CI -0.04 to -0.53).<sup>1</sup> In women who switched from a combined oral contraceptive to the LNG-IUD, there was an even larger decrease in resistance to APC (difference -1.48; 95% CI -0.85 to -2.11). This decrease in APC resistance suggests that the LNG-IUD does not have a prothrombotic effect and suggests that it does not increase the risk of venous thrombosis. The non-randomized design is possibly a limitation of this study. In this study, researchers compared resistance to APC before and after insertion of an IUD in the same women so the comparison groups were equal except for the studied intervention which is the IUD. However, due to the non-randomized design, the

observed decrease in APC resistance after insertion of the LNG-IUD can only be attributed to the intrauterine device.<sup>1</sup>

In 2010, analyses were done on a large case-control study on risk factors for venous thrombosis. Risk factors for venous thrombosis associated with non-oral contraceptives including injectable depot-medroxyprogesterone acetate (DMPA) and LNG-IUDs were evaluated for this specific analysis. The original study was a large population-based case-control study on risk factors for venous thrombosis where patients younger than 70 years with a first episode of deep venous thrombosis or pulmonary embolism were analyzed from the files of six anticoagulation clinics in the Netherlands. For this specific study, premenopausal women were selected, aged 18 to 50 years, who were not pregnant nor within four weeks postpartum and were not using oral contraceptives. In this study, 446 patients and 1146 controls were included. The use of injectable DMPA contraceptives was associated with a 3.6-fold increased risk of venous thrombosis compared with nonusers of hormonal contraceptives. The use of a LNG-IUD was not associated with an increased risk (odds ratio 0.3; 95% CI, 0.1 to 1.1). Further adjustment for BMI, positive family history of deep venous thrombosis, or smoking habit only marginally affected the risk estimates. It was concluded that LNG-IUD seems to be the safest option regarding the risk of venous thrombosis; however the study was limited to first thrombotic events.<sup>2</sup>

A 2012 cohort study was done to assess the risk of venous thrombosis in users of non-oral hormonal contraception. Participants included all Danish non-pregnant women aged 15-49 free of previous thrombosis or cancer who were followed from 2001 to 2010. In this study, 1,626,158 women contributed to 9,429,128 woman years of observation, during which time 3,434 first ever venous thrombosis events were confirmed. Risk of thrombosis of users of transdermal, vaginal, intrauterine, and subcutaneous hormonal contraception was compared to users of oral contraceptives and non-users of

contraception. It was concluded that compared to non-users of hormonal contraception, transdermal patches increase the risk of venous thrombosis eight times, vaginal rings increase the risk of venous thrombosis 6.5 times, but the LNG-IUD did not cause any increased risk of venous thrombosis and may even be protective (relative risk 0.6, 95% CI 0.4 to 0.8) (see Table).<sup>4</sup>

Contraception type	Relative Risk (95% CI)
Non-use	1.00 (reference)
COC with levonorgestrel and oestrogen	3.21 (2.70 to 3.81)
COC with norgestimate	3.57 (2.98 to 4.27)
Levonorgestrel IUD	0.57 (0.41 to 0.81)
Patch	7.90 (3.54 to 17.65)
Vaginal ring	6.48 (4.69 to 8.94)

\*Adapted from Lidegaard and Hougaard, 2012.<sup>4</sup>

(For all results above,  $p < 0.05$ .)

### Conclusion

Based on our research of literature, we conclude that in women over 35 years of age who smoke, Mirena (levonorgestrel-releasing intrauterine device) reduces the risk of deep vein thrombosis compared to oral contraceptives. The LNG-IUD was found to decrease the resistance to APC which indicates that this device does not have a prothrombotic effect. In all studies reviewed, the LNG-IUD did not cause any increased risk of venous thrombosis. This information will indeed change the way we practice; we will advise women over age 35 who smoke to consider Mirena for contraception.

### Reference List:

1. Vliet H, Tchaikovski S, Rosendaal F. The effect of the levonorgestrel-releasing intrauterine system on the resistance to activated protein C (APC). *Thromb Haemost* 2009; 101: 691-695.

2. Veljkovic M. Contraception for women with medical disorders. *Acta Facultatis Medicae Naissensis* 2009; 26 (4): 211-216.
3. Hylckama Vlieg A, Helmerhorst F, Rosendaal F. The risk of deep venous thrombosis associated with injectable depot-medroxyprogesterone acetate contraceptives or a levonorgestrel intrauterine device. *Arterioscler Thromb Vasc Biol* 2010; 30: 2297-2300.
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## CLIN-IQ PEER REVIEW FORM

Reviewer: \_\_\_\_\_

Authors \_\_\_\_\_

Brief Title (first few words) \_\_\_\_\_

### General Instructions to Reviewers

- Objective is to help authors improve the manuscript.
- Suggest how to make the manuscript more clear, concise and relevant.
- Identify possible areas of confusion for the reader and make specific suggestions.
- Verify that at least one reference is accurately interpreted.
- Identify any glaring grammatical or format problems, in a supportive manner.
- Sprinkle PRAISE along with recommendations for change.

### **Answer:**

**Does the answer accurately represent the evidence given?** [ ] Needs improvement [ ] Yes

Reviewers Comments.

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### **Level of Evidence:**

**Does the level of evidence accurately represent the references cited?**

[ ] Needs improvement [ ] Yes

Reviewers Comments:

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**Summary of Issues:** Clinical significance, prevalence and relevance based on recent review article(s).

**Is the writing clear and logical?** [ ] Needs improvement [ ] Ready to publish

**Is the length appropriate (200-300 words)?** [ ] Needs improvement [ ] Ready to publish

Reviewers Comments:

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Continue

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**Summary of Evidence:** Describes studies, outcomes, interventions. A figure or table will be added.  
Evidence articles should be cited.

**Is the writing clear and logical?** [ ] Needs improvement [ ] Ready to publish

**Is the length appropriate (500-700 words)?** [ ] Needs improvement [ ] Ready to publish

**Review at least one evidence article and comment:**

- Is the information appropriated represented in the text? [ ] Needs improvement [ ] Yes
- Have the statistics been accurately represented and explained? [ ] Needs improvement [ ] Yes
- If present, do the figures or tables accurately present the data and contribute to your understanding of the material? [ ] Needs improvement [ ] Yes

Reviewers Comments:

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**Conclusions:** Conclusion should be clinically relevant and wrap up evidence.

**Is the writing clear and logical?** [ ] Needs improvement [ ] Ready to publish

**Is the length appropriate (50-100 words)?** [ ] Needs improvement [ ] Ready to publish

**Does the conclusion state clearly how the answer will impact practice?**[ ] Needs improvement [ ] Yes

Reviewers Comments:

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**Reference List:**

**Are all references cited in the body of the report according to the instructions in the Workbook (superscripted numbers)?** [ ] Needs improvement [ ] Yes

**Is the reference list in order numerically according to the order the articles are cited in the text?**  
[ ] Needs improvement [ ] Yes

Reviewers Comments:

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Additional comments to the author

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