

# Evidence based Medicine Course

(developing systematic reviews)

Implemented in an Endoscopy Residency Program

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**Ecosystem of evidence**

Global challenges for the future

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#EBHC2019





# Clinical Hospital

São Paulo University  
Medical School

2.000 beds

## Wanderley Bernardo

- Thoracic Surgeon
- Medicine Teacher
- Evidence Based Medicine

# Background

A course of systematic review and meta-analysis was implemented within the Endoscopy Residency Program of our medical school's general hospital (six years ago) to improve residents' critical appraisal of literature and quality of academic formation during residency training.

We believed that an orientation toward systematic review and meta-analysis would enable residents to understand the different steps required to generate and interpret evidence, therefore understanding the concepts of EBM.

As a direct result, the number and the impact of studies published by the Endoscopy Residency Program increased, but many other results emerged, which will be discussed.

# Aims

To report the direct results from a systematic review and an evidence-based medicine course implemented six years ago within the Endoscopy residency program of a medical school's general hospital in Brazil.

# Methods

- The course was implemented with the first-year residents part of the Endoscopy residency program in 2013.
- It consisted of sixteen lectures, two per week, given by an EBM teacher for a duration of three months. Lectures covered biostatistics, evidence-based medicine principles, systematic review, and meta-analysis methodologies.
- Then, small groups of four or five residents, including a senior GI doctor and the EBM teacher met over the next nine months during two-hour weekly meetings.
- Each resident was responsible for leading the execution and publishing of a systematic review with meta-analysis.

# Methods

- Queries, literature lacks, and daily problems in Gastroenterology and Gastrointestinal Endoscopy were addressed at the beginning of the meetings, and each theme for a systematic review built through PICOS strategy.
- The themes were registered at Prospero and the checklist of PRISMA was considered.
- Search and selection strategy, critical appraisal of studies, data extraction and synthesis of results were then carried out during subsequent meetings using validated frameworks, like Cochrane Collaboration, Risk of Bias (RoB) and Grading of Recommendations, Assessment, Development, and Evaluations (GRADE).
- Towards the end, each group led by a resident was asked to write a systematic review and meta-analysis according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement, and to submit it for publication.

# Results

Over the past six years, 58 endoscopy residents took part in the course. Twenty-eight systematic reviews with meta-analyses were published, 27 of which are available in Medline. Other former residents have executed another ten meta-analyses which should be submitted for publication in the next few months. The most cited meta-analysis has reached 38 citations in three years (Google Scholar).

# Results

The course also resulted in 8 master's degrees and in two PhDs for the former residents. The course model implemented in the GI residency was also disseminated to other residency programs within the same general hospital (e.g., General Surgery and Gastrointestinal Surgery).

# Results

The evidence-based medicine course and the evidence generated through the meta-analysis also impacted clinical practice inside the institution. Solid evidence-based practices were incorporated into the Endoscopy Unit (e.g., use of carbonic gas for colonoscopy and therapeutic procedures instead of air and methods for detection of early esophageal cancer) and have been summarized in the “Evidence-Based Endoscopy” book published in Brazil at the end of 2017.

# Limits

The quality of evidence was usually low or very low

The residents had about one year to learn and to publish the review

After a while we saw a decline in number of new ideas for questions

Few assistants adhered to the process

Few residents continued in the service after 2 years

We do not have measures for clinical impact or the acquisition of EBM knowledge

The continuity of the course might require the presence of an EBM teacher

# Bottom line

An evidence-based medicine course developing systematic reviews and meta-analysis implemented within the endoscopy residency program, positively impacted residency training, increased scientific production, improved daily practice and dissemination of evidence-based thinking throughout other residency programs.

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