



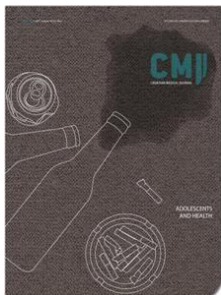
UNIVERSITÄTS
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ACT now: Accuracy, Completeness, and Transparency in health research reporting

Freiburg, 11-12 October 2012

Training for better research reporting



Ana Marušić, MD, PhD

Chair, Department of Research in Biomedicine and Health,
University of Split School of Medicine, Split, Croatia

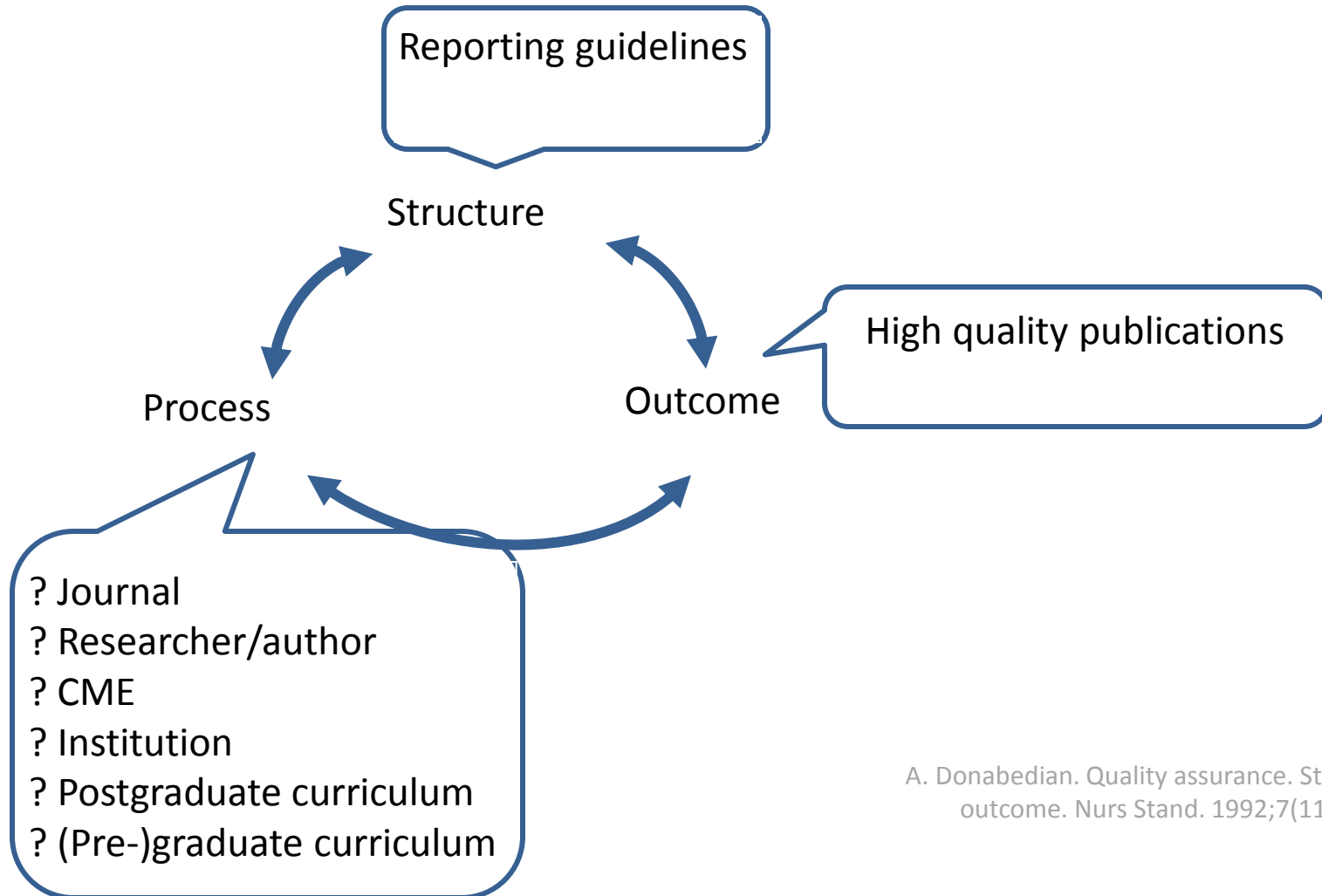


SVEUČILIŠTE
U SPLITU
MEDICINSKI
FAKULTET

Questions for a teacher

- Who to train?
- Who should teach?
- When?
- How?

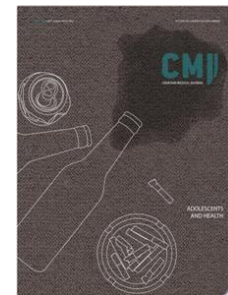
Quality assurance in research reporting



Experience of journal editors from a small research and academic community



University of Split School of Medicine



The beginning

Good Editorial Practice: Editors as Educators

 ROATIAN
MEDICAL
JOURNAL
42(2):113-120,2001

Matko Marušić, Ana Marušić

Croatian Medical Journal, Zagreb University School of Medicine, Zagreb, Croatia

A ACADEMIC MEDICINE, VOL. 78, NO. 12/DECEMBER 2003

Teaching Students How to Read and Write Science: A Mandatory Course on Scientific Research and Communication in Medicine

Ana Marušić, MD, PhD, and Matko Marušić, MD, PhD

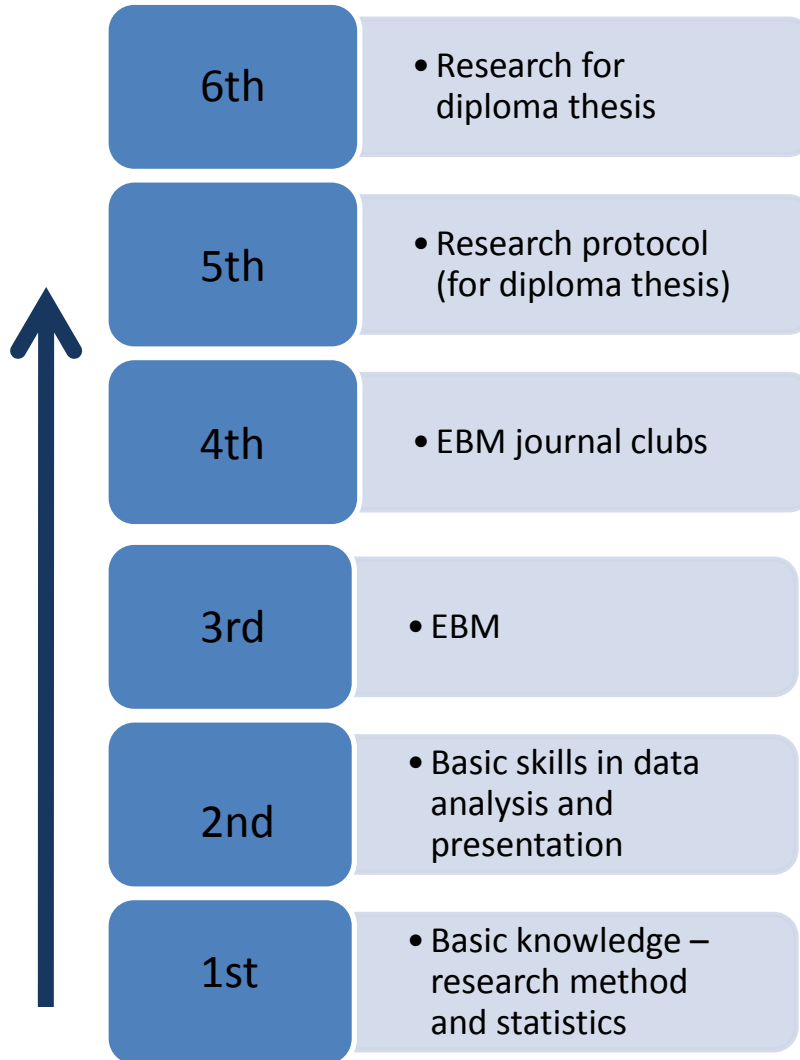
Journal of Investigative Medicine • Volume 58, Number 2, February 2010

Can Teaching Research Methodology Influence Students' Attitude Toward Science? Cohort Study and Nonrandomized Trial in a Single Medical School

Ana Vujaklija, MD,* Darko Hren, PhD,† Dario Sambunjak, MD,‡ Ivana Vodopivec, MD, PhD,§
Ana Ivaniš, MD,‡ Ana Marušić, MD, PhD,|| and Matko Marušić, MD, PhD||

Principles of adult learning

- 1) Education is provided by researchers who had a deep understanding of research
- 2) The educational programme occurs over an extended period, throughout the curriculum
- 3) Each educational step is formatted as active participation of students in problem-oriented learning
- 4) Each new step builds on students' prior knowledge and integrates new material with familiar ideas
- 5) Students are encouraged to share their experiences
- 6) Educational steps attend to individual developmental differences and learning preferences.



Vertically and horizontally integrated course

Course: Research in Biomedicine and Health

1st year (50 class hours):

- Principles of research in health
- Structure of research article
- Study designs
- Principles of statistics: population and sample, types of data and their description and presentation, estimation, hypothesis testing, interpretation of data, sources of error

Course: Research in Biomedicine and Health

2nd year (25 class hours):

- Data analysis and presentation
- Writing research report

Course: Research in Biomedicine and Health

3rd year (25 class hours):

- Evidence based medicine (EBM)
- EBM steps
- Quality assessment in health care

Course: Research in Biomedicine and Health

4th year (25 class hours):

Journal clubs: critical reading of research papers with different study designs (cross-sectional, cohort and case-control studies, randomized controlled trials, systematic reviews), relevant to clinical rotations

Course: Research in Biomedicine and Health

5th year (25 class hours):

Writing research proposal for diploma thesis (structured proposal addressing background research, research hypothesis, study design, sample size calculation, participants, ethical approval, intervention, main outcome measures, bias and confounding factors, statistical analysis, authorship and publication plan, financial support, conflict of interest declaration)

Course: Research in Biomedicine and Health

6th year (120 class hours):

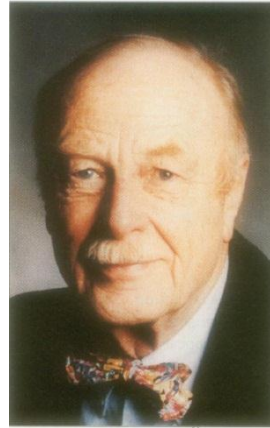
Methodological counselling and support during research for diploma thesis

DR. TOM CHALMERS, 1917–1995:
THE TRIALS OF A RANDOMIZER

Malcolm Maclure, ScD

CAN MED ASSOC J • SEPT. 15, 1996; 155 (6)

757



“The first 2 years of medical school have got to be changed. Students are spending more and more time understanding the difficult aspects of molecular biology, but we are kidding ourselves to think they use their knowledge of DNA — in my day it was the Krebs cycle — in making clinical decisions at the bedside. They do not. They make clinical decisions based on how the last patient did, how their friends are treating patients and what the latest article by an authority says they should do. And we have got repeated evidence now that the authorities are way behind with regard to the data in clinical trials. In medical school, I think we have to just hammer away at evidence and probability theory and general statistics.”

— Dr. Tom Chalmers

**Newsletter of the International Society for Evidence-Based
Health Care
Newsletter 6, January 2012**

Editorials

Not a medical course, but a life course

Paul P Glasziou, Peter T Sawicki, Kameshwar Prasad, Victor Montori, for the International Society for Evidence-Based Health Care

“Not a medical course but life course”

1. Teach early skills in **question recognition and formulation, searching, and critical appraisal**, which should be taught and assessed as seriously as anatomy or pathology.

“Not a medical course but life course”

2. At the bedside, teach the application and integration of these basic skills, for example by giving students "educational prescriptions" – **to formulate clinical questions and find answers before the next teaching session**

“Not a medical course but life course”

3. Teach students to explain **evidence** – about diagnosis, prognosis, treatment and their uncertainties – **to patients**.

“Not a medical course but life course”

4. Prepare students for the challenging task of integrating innovation and research into the realities of their clinics – by teaching them how to **link evidence from systematic research with their personal experience and with patients' individual needs and hopes.**

“Not a medical course but life course”

5. Since medical practice is open-book, to test and foster real world skills, **all exams in all subjects should be open-book** (except for some medical emergencies).

“Not a medical course but life course”

Unless these skills are taught early, at both the basic and clinical levels, few will learn to adopt them in practice.

Leaving the learning of these skills to chance or to after the initial curriculum is too late.

Basic Medical Education

WFME Global Standards for Quality Improvement

The 2012 Revision

2. EDUCATIONAL PROGRAMME

2.2 SCIENTIFIC METHOD

Basic standard:

The medical school **must**

- throughout the curriculum teach
 - the principles of scientific method, including analytical and critical thinking. (B 2.2.1)
 - medical research methods. (B 2.2.2)
 - evidence-based medicine. (B 2.2.3)

Quality development standard:

The medical school should

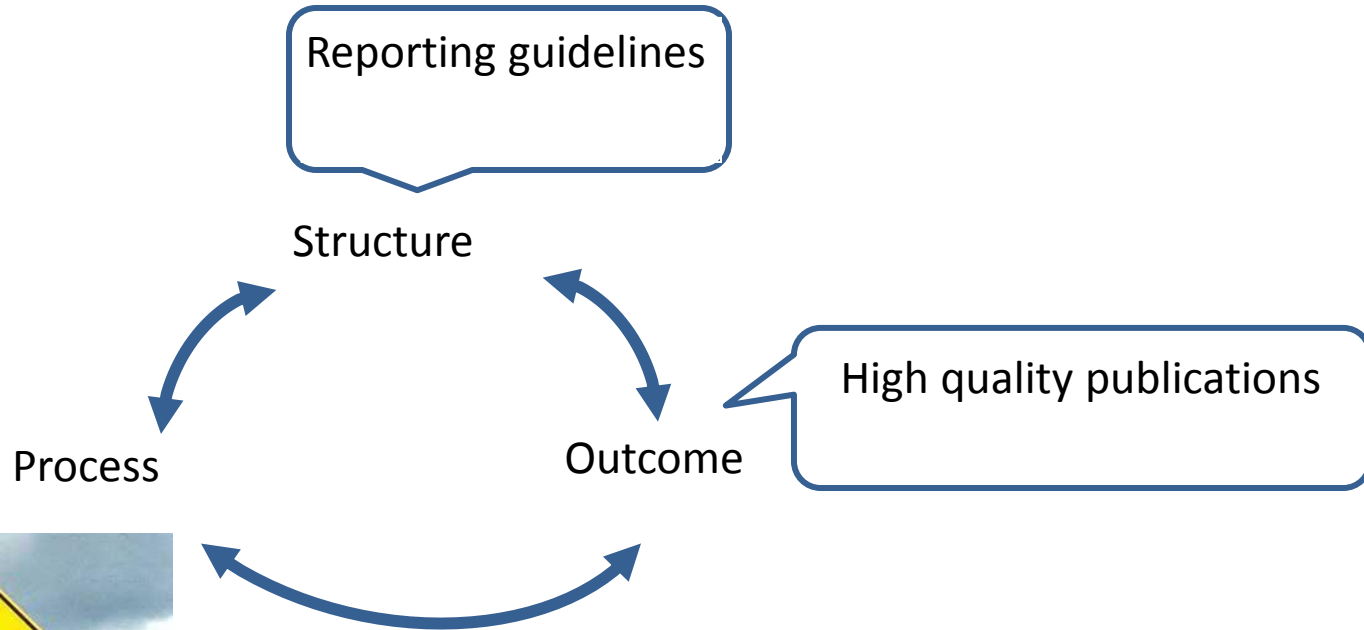
- in the curriculum include elements of original or advanced research. (Q 2.2.1)

Basic Medical Education WFME Global Standards for Quality Improvement The 2012 Revision

Annotations:

- *To teach the principles of scientific method, medical research methods and evidence-based medicine* requires scientific competencies of teachers. This **training would be a compulsory part of the curriculum** and would include that medical students conduct or participate in minor research projects.
- *Elements of original or advanced research* would include **obligatory or elective analytic and experimental studies**, thereby fostering the ability to participate in the scientific development of medicine as professionals and colleagues.

Teaching for better research reporting



= Teaching for research at medical school