Forskning og udvikling i sundhedsfaglig uddannelse?

"Uddannelse - Det kan du da ikke skabe dig en fremtid på"

Jette Led Sørensen, MMEd, PhD
Uddannelses ansvarlig overlæge, Postgraduat klinisk lektor
Juliane Marie Centre for børn, kvinder og reproduktion, Rigshospitalet
Studieleder cand scient san,
Sundhedsvidenskabelige fakultet, Kbh Universitet
jette.led.soerense@regionh.dk
www.rigshospitalet.dk/simulation-jmc
Rigshospitalet

Introduktion - Hvem er I?

Faggrupper
- Læger
- Sygeplejersker
- Fysioterapeuter
- Jordemødre
- Andre sundhedsfaglige
- Administrativt ansatte

Forsker - skriver artikler - læser artikler?
- Sundhedsfaglig område
- Medicinsk / sundhedsfaglig uddannelse

2

Citat om at arbejde med Uddannelse & forskning

"There is a remarkable difference in attitude between university staff as teachers and researchers.

As researchers we critically read the newest literature, we think of new approaches and theories, look for empirical verification and submit our work to the critique of others through rigorous peer review.

.....

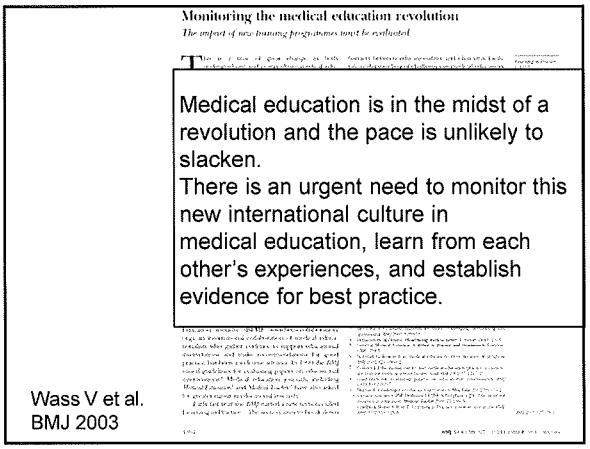
3

.....
The situation seems quite different in education. As teachers we seem to have a different attitude.

We do the things we do, because that is the way we have been raised ourselves and that is the way it has been done for many years, even centuries."

Cees Van der Vleuten. Medical Teacher 2000:246-56

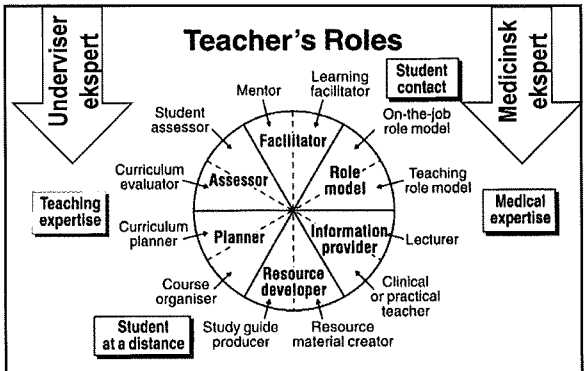
4


Monitoring the medical education revolution

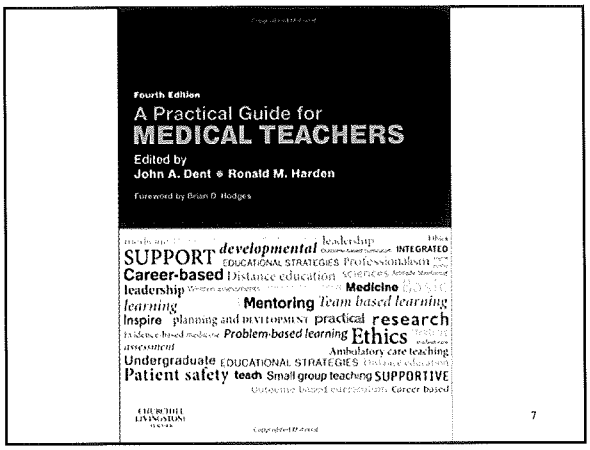
The impact of new training programmes must be evaluated

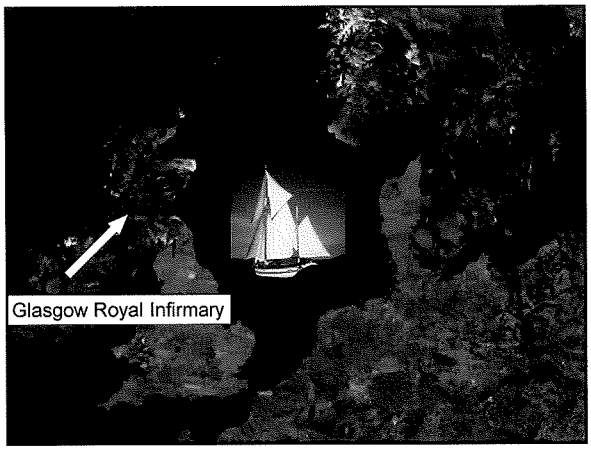
Medical education is in the midst of a revolution and the pace is unlikely to slacken.
There is an urgent need to monitor this new international culture in medical education, learn from each other's experiences, and establish evidence for best practice.

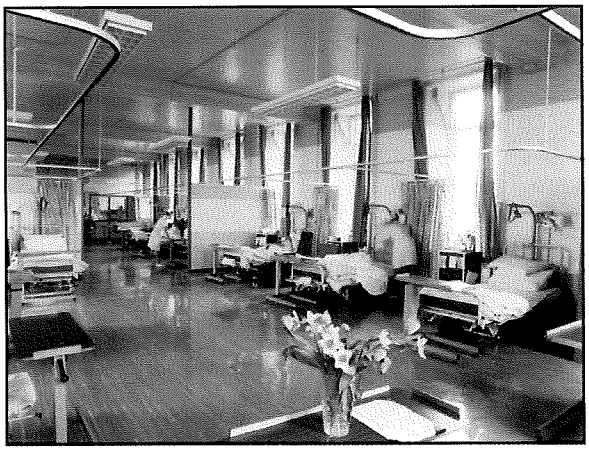
Wass V et al.
BMJ 2003

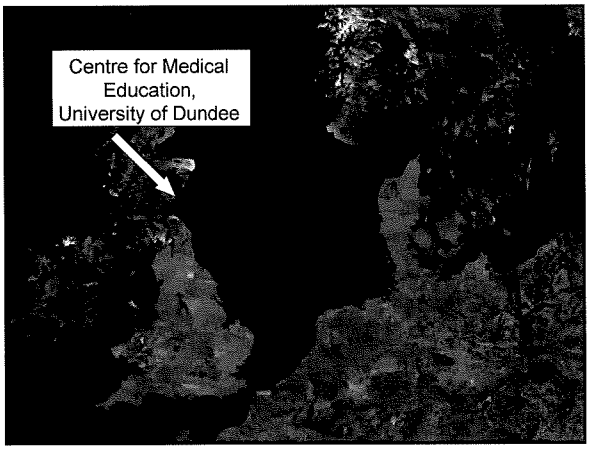


Harden R, Crosby J. The good teacher is more than a lecturer: the twelwe roles of the teacher. Med. Teach 2000; 22: 334-47





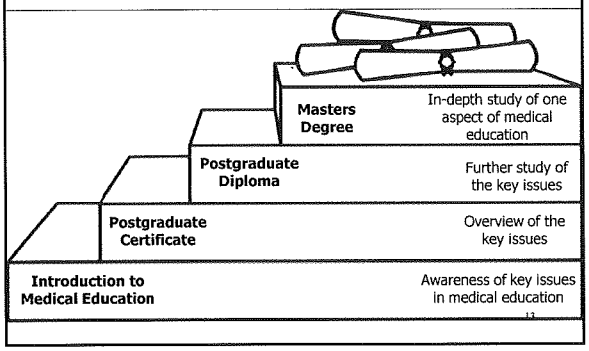




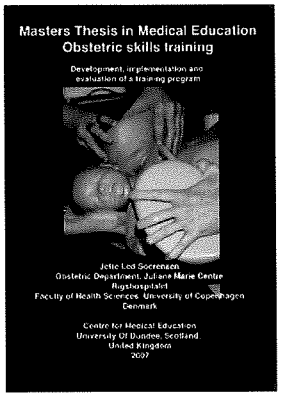
Master in medical education, Dundee, Scotland

12

Postgraduate Certificate, Diploma and Master in Medical Education degree (MMEd)

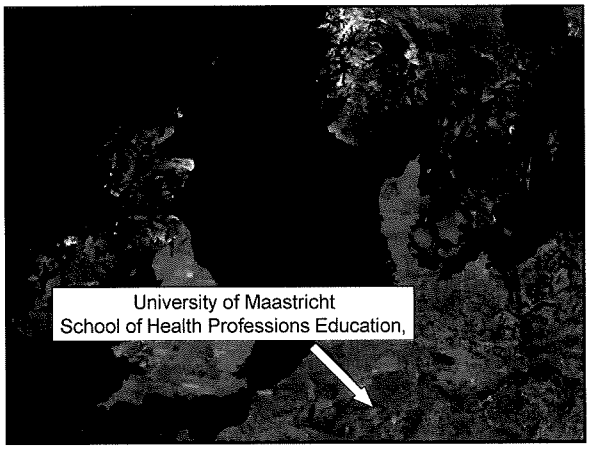


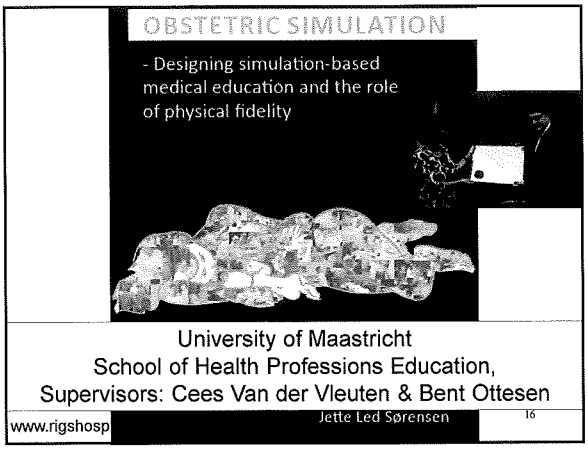
13



www.rigshospitalet.dk/simulation-jmc

14





Disposition

Præsentation
Hvorfor forske i uddannelse
Litteratur om medicinsk uddannelse
Forsknings kompasset
Fremtidens behandling og uddannelse (forske i ....)
Currriculum udvikling
Evaluering
Kompetencevurdering
Om outcome
Tværfaglighed
Strategi og fondsmidler

17

Hvorfor forske i uddannelse?

Overvej det.....

18

Forskning i sundhedsfaglig uddannelse

Uddannelse en kerneydelse - høj udd. kvalitet kræver forskning

Mere end evaluering, audit og effekt måling (lokal aktivitet)

Forske i generelle problemer, fænomener og relationer

Skabe ny viden

Skabe ny forståelse af læring og uddannelse

Teori udvikling af pædagogisk teori – forudsige resultater

19

Holdninger - Modsætninger

Kliniks orienteret sundhedsfaglig uden uddannelses viden

↔

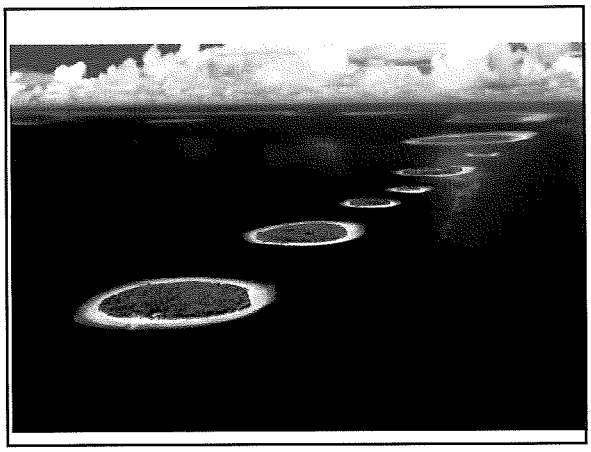
Uddannelses / social / psykologisk viden uden klinisk viden

Forskning for at gavne praksis

↔

Forskning for at generere teori

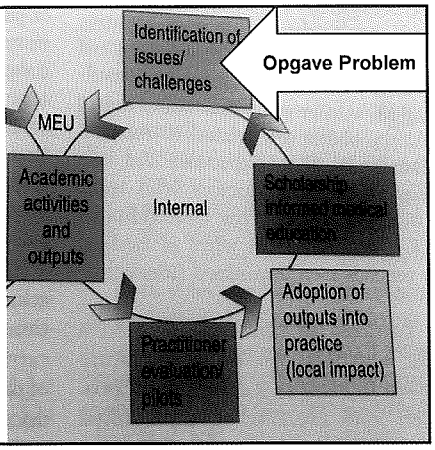
20



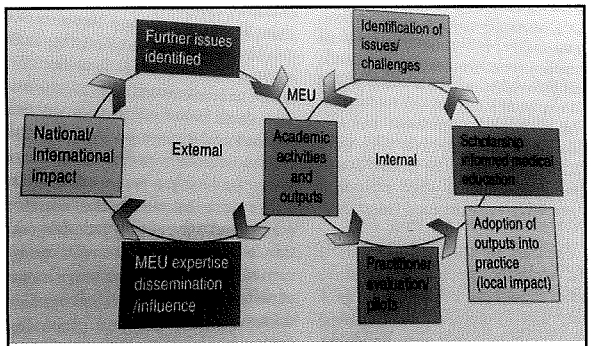
Undervisning

→

Forskning



LIME Scholarship model
A practical Guide for Medical Teachers
2013, chapter 49



LIME Scholarship model
A practical Guide for Medical Teachers
2013, chapter 49

MEU: Medical Education Unit

23

Graduate Medical Education

Theory and Practice in the Design and Conduct of Graduate Medical Education

Brian David Hodges, MD, PhD, and Ayelet Kuper, MD, DPhil

Abstract

Medical education practice is more often the result of tradition, ritual, culture, and history than of any easily expressed theoretical or conceptual framework. The authors explain the importance and nature of the role of theory in the design and conduct of graduate medical education. They outline three groups of theories relevant to graduate medical education: bioscience theories, learning theories, and sociocultural theories. Bioscience theories are familiar to many medical educators but are often misperceived as truths rather than theories. Theories from such disciplines as neuroscience, kinesiology, and cognitive psychology offer insights into areas such as memory formation, motor

Medical education is often result of tradition, ritual, culture, and history

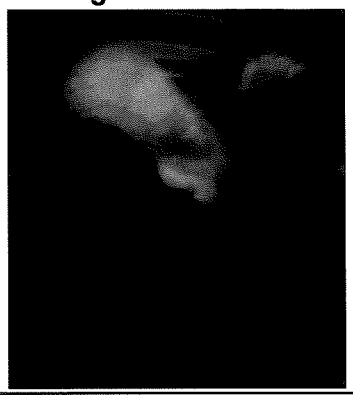
Three groups of theories relevant to graduate medical education:

- Bioscience theories
- Learning theories
- Sociocultural theories

24

Hodges B Academic Medicine 2012

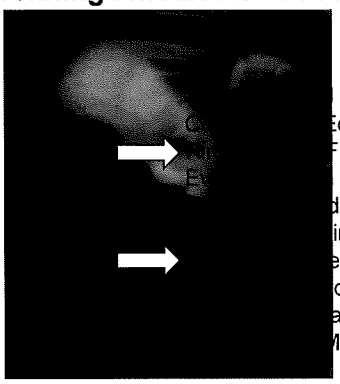
Forskning i medicinsk uddannelse



Knytter an til
Pædagogik,
Psykologi,
Sociologi,
Antropologi
mv

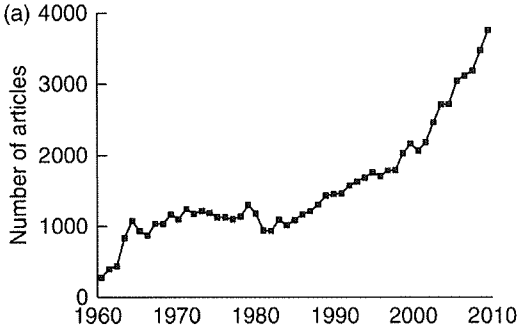
25

Forskning i medicinsk uddannelse



2007
ducation 2008
L 2008
Educatio 2009
Teacher 2010
im Health 2011
d Teacher 2011
d Med. 2012
acher 2013
Med. 2015

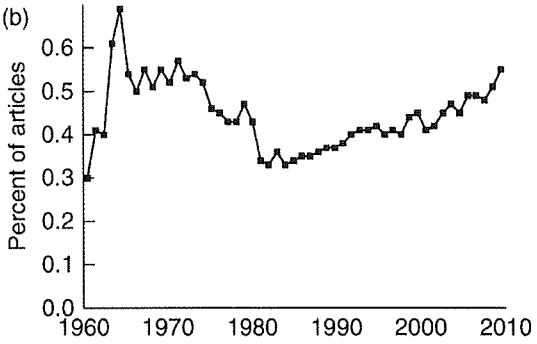
26



Internationalt antal publiceret medicinsk uddannelses artikler/år

Lee K et al Medical teacher 2013

27



Internationalt antal publiceret medicinsk uddannelses artikler i % af alle MEDLINE artikler /år

Lee K et al Medical teacher 2013

28

Konge L et al Ugeskift for Læger 2014

29

Udd. publikationer - metoder

2004-2005 Lancet, BMJ, Med edu, Med Teacher
N=387

Prægraudat	62 %
Postgraduat	11 %
Efteruddannelse (CME)	22 %

Studiedesign

Observationelle	69 %
Kohorte	8 %
Før – efter	8 %
Andre	15 % (3% RCT)

Todres M, BMJ 2007

30

Description, justification and clarification: a framework for classifying the purposes of research in medical education

David A Cook,[1] Georges Bordage[2] & Henk G Schmidt[3]

Artikler publiceret 2003-2004
(Academic Medicine, Advances in Health Sciences Education, American Journal of Surgery, Journal of General Internal Medicine, Medical Education and Teaching and Learning in Medicine)

1459 artikler → 185 → 110 artikler udd. eksperimenter
Klassificeret som:

- Description (What was done?) 16 %
- Justification (Did it work?) 75 %
- Clarification (How and why did it work?) 12 %

Clarification studier anbefales. "How and why does it work?

31

Impact factor of m ...urnals

DSMU.DK → Links

Journal abbreviation	2011
Acad Med	3.524
Adv Health Sci Educ	2.089
Adv Physiol Educ	1.547
Am J Pharm Educ	1.205
Anat Sci Educ	--
Biochem Mol Biol Edu	0.840
BMC Med Educ	1.152
CBE Life Sci Educ	1.191
Eur J Dent Educ	1.183
Indian J Pharm Educ	0.106
J Biol Educ	0.391
J Contin Educ Health	1.521
J Surg Educ	1.376
Med Educ	3.176
Med Teach	1.217
Teach Learn Med	0.748

Azer SA et al.
J Postgraduate Medicine 2015

32

BLOG

The Top-Cited Articles in Medical Education: A Bibliometric Analysis

Sanny A. Azer, MD, PhD, MEd, MPH

27 udd.medicinske tidsskifter
19 generelle tidsskifter (JAMA, BMJ, NEJM, Lancet mv)
10 i psykologiske el generelle udd. tidsskrifter

..... interessante at læse

Azer SA , Acad. Medicine 2015 33

BLOG

The Top-Cited Articles in Medical Education: A Bibliometric Analysis

Sanny A. Azer, MD, PhD, MEd, MPH

Abstract

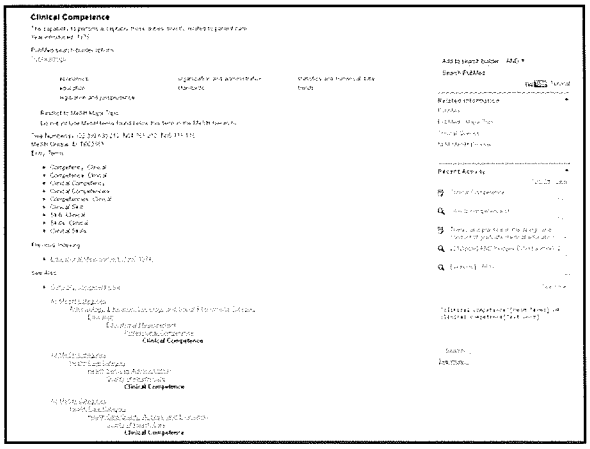
Purpose

Method

Results

Keyword MESH

problem-based learning, casebased learning, team-based learning, medical students, medical simulation, multiple-choice questions, extended matching questions, mini-CEX, OSCE, formative assessment, summative assessment, continuing assessment, online assessment, self-development, staff training, curriculum, curriculum outcomes, program evaluation, self-regulated learning, selfdirected learning, professionalism, medical ethics, clinical skills, simulated patient, standardized patient, medical education, clinical teacher, facilitator, tutor, teaching basic science, learning anatomy, student feedback, feedback, role model, mentoring, clerkship, medical informatics, and e-learning.



Exempler egne oversigtsartikler

1. Sørensen JL, Østergaard D: **Obstetrisk træning – nye metoder.** Ugeskrift for læger 2003; 165: 4521-23
2. Persson CA, Sørensen JL, Amer Wahlin I. **Evaluation and impact of CTG training programmes: a systematic review.** British Journal Obstetric Gynaecology 2011;118:926-35.
3. Madsen K, Grønbeck L, Larsen CR, Ostergaard J, Bergholt T, Langhoff-Roos J, Sørensen JL. **Educational strategies in performing cesarean section.** Acta Obstet Gynecol Scand. 2013;92:256-63
4. Larsen CR, Oestergaard J, Ottesen BS, Sørensen JL. **The efficacy of virtual reality simulation training in laparoscopy: a systematic review of randomized trials.** Acta Obstet Gynecol Scand 2012. Sep;91(9):1015-28
5. Sørensen JL, Termansen, AMB, Rasmussen NL, Laugesen TB, Topperzer MK, Jensen KS, Hansen MMF, Ottesen B. **Der er behov for integration af uddannelsesfaciliteter i planlægningen af hospitalsbyggeri.** Ugeskrift for Laeger 2016
6. Sørensen JL, Østergaard D, LeBlanc V, Ottesen B, Konge L, Dieckmann P, Vleuten CVd. **Design of simulation-based medical education: The pros and cons of choosing the simulation setting?** I proces

36

Technology-Enhanced Simulation for Health Professions Education

A Systematic Review and Meta-analysis

David A. Cook, MD, MHPE
Rose Hatala, MD, MSc
Ryan Brydges, PhD
Benjamin Zendejas, MD, MSc
Jason H. Szostek, MD
Amy T. Wang, MD
Patricia J. Erwin, MLS
Stanley J. Hamstra, PhD

Context Although technology-enhanced simulation has widespread appeal, its effectiveness remains uncertain. A comprehensive synthesis of evidence may inform the use of simulation in health professions education.

Objective To summarize the outcomes of technology-enhanced simulation training for health professions learners in comparison with no intervention.

Data Source Systematic search of MEDLINE, EMBASE, CINAHL, ERIC, PsychINFO, Scopus, key journals, and previous review bibliographies through May 2011.

Study Selection Original research in any language evaluating simulation compared with no intervention for training practicing and student physicians, nurses, dentists, and other health care professionals.

Data Extraction Reviewers working in duplicate evaluated quality and abstracted information on learners, instructional design (curricular integration, distributing learning over multiple days, feedback, mastery learning, and cognitive practice), and outcomes.

RESPONDING TO CHANGING practice environments re-

Cook DA, JAMA 2011

Issenberg, Medical Teacher 2005
McGaghie, Medical Education 2010
Motola, Medical Teacher 2013

37

Technology-Enhanced Simulation for Health Professions Education

A Systematic Review and Meta-analysis

David A. Cook, MD, MHPE
Rose Hatala, MD, MSc
Ryan Brydges, PhD
Benjamin Zendejas, MD, MSc
Jason H. Szostek, MD
Amy T. Wang, MD
Patricia J. Erwin, MLS
Stanley J. Hamstra, PhD

Context Although technology-enhanced simulation has widespread appeal, its effectiveness remains uncertain. A comprehensive synthesis of evidence may inform the use of simulation in health professions education.

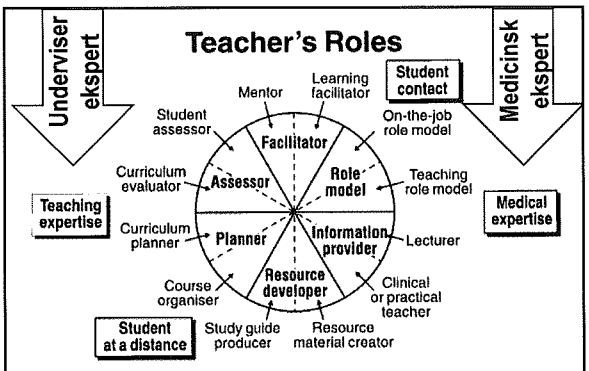
Conclusion:
In comparison with no intervention, technology-enhanced simulation training in health professions education is consistently associated with large effects for outcomes of knowledge, skills, and behaviors and moderate effects for patientrelated outcomes.

RESPONDING TO CHANGING practice environments re-

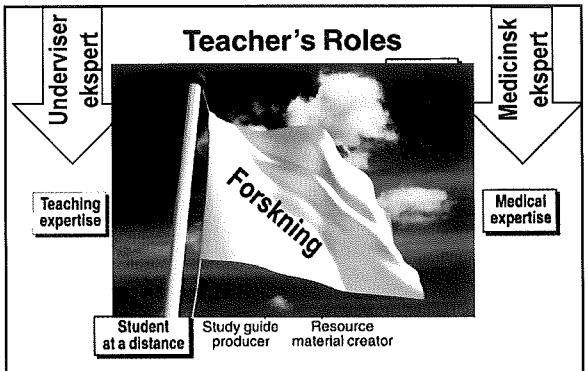
Issenberg, Med Teach 2005
McGaghie, Med Edu 2010
Motola, Med Teacher 2013

Cook DA, JAMA 2011

38



Harden R, Crosby J. The good teacher is more than a lecturer: the twelwe roles of the teacher. Med. Teach 2000; 22: 334-47



Harden R, Crosby J. The good teacher is more than a lecturer: the twelwe roles of the teacher. Med. Teach 2000; 22: 334-47

MEDICAL TEACHER

AMEE GUIDE

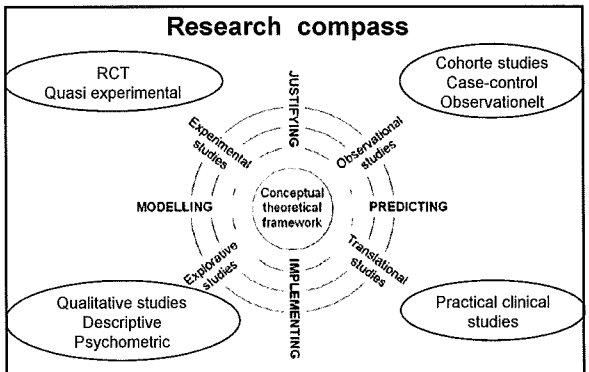
'The research compass': An introduction to research in medical education: AMEE Guide No. 56

CHARLOTTE RINGSTED[1], BRIAN HODGES[2] & ALBERT SCHERPBIER[3]

Abstract

This AMEE Guide offers an introduction to research in medical education. It is intended for those who are contemplating conducting research in medical education but are new to the field. The Guide is structured around the process of transforming ideas and problems into researchable questions, choosing a research approach that is appropriate to the purposes of the study, and considering the individual researcher's preferences and the contextual possibilities and constraints. The first section of the Guide addresses the rationale for research in medical education and some of the challenges posed by the complexity of the field. Next we

41



Ringsted C et al. The research compass. An introduction to research in medical education. AMEE guide no. 56 Medical Teacher 2011

42

Disposition

Præsentation
Hvorfor forske i uddannelse
Litteratur om medicinsk uddannelse
Forsknings kompasset
Fremtidens behandling og uddannelse (forske i)
Currriculum udvikling
Evaluering
Kompetencevurdering
Om outcome
Tværfaglighed
Strategi og fondsmidler

43

Fremtidens behandling

Færre indlæggelser
Kortere indlæggelsestider
Samme-dags kirurgi
Hjemmebehandling
Indlagte pt. sygere – sværere at bruge til læring
Flere ambulante patienter
Mere 'produktion' – hurtigere patient 'turn-over'

Norman G. Perspect Med Edu 2012;1:6-14
Ugeskrift for læger 2012 tillæg 26-33
Sørensen JL et al Ugeskrift for Læger 2016

44

45

Fremtidens behandling

Færre indlæggelser
Kortere indlæggelsestider
Samme-dags kirurgi
Hjemmebehandling
Indlagte pt. sygere – sværere at bruge til læring
Flere ambulante patienter
Mere 'produktion' – hurtigere patient 'turn-over'

⇨ **Konsekvenser for uddannelse**

Norman G. Perspect Med Edu 2012;1:6-14
Ugeskrift for læger 2012 tillæg 26-33
Sørensen JL et al Ugeskrift for Læger 2016

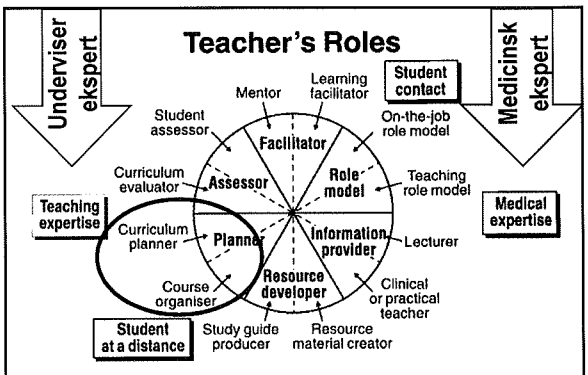
46

Fremtidens uddannelse - Trends

- **Curriculum udvikling / strategi - involvering "brugere"**
- **Vurdering af kurser og læringsudbytte**
- **Kompetencevurdering**
- Internationalisering og standardisering
- Sammenhænge prægraduat → postgraduat → CME
- **Tværfagligt & Tværdiciplinært**
- Rekruttering og udvælgelse
- Ledelse, styring og professionalisering
- Læringsmetoder - læringsstrategier:
  - Simulations baseret læring
  - Team træning
  - Deltager aktiverende undervisning
  - Transmission – Telemedicin - E-læring (IKT)
  - Hybrid-kurser (tilstedeværelse & online)

A practical Guide for Medical Teachers 2013, chapter 1
Sørensen JL et al Ugeskrift for Læger 2016

47



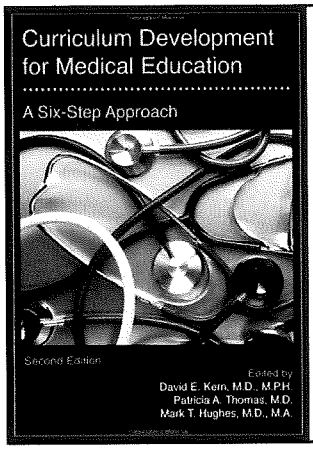
Harden R, Crosby J. The good teacher is more than a lecturer: the twelwe roles of the teacher. Med. Teach 2000; 22: 334-47

Planlægning af curriculum / kursus

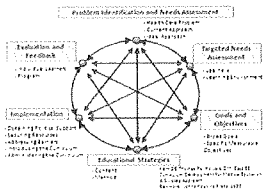
1. Behov
2. Mål
3. Indhold
4. Organisering af indhold
5. Uddannelsesstrategier
6. Læringsmetoder
7. Evaluering
8. Kommunikation
9. Uddannelsesmiljø
10. Proces

Hardens 10 key questions

Harden R. 10 key questions to ask when planning a course or a curriculum. Medical Education 1986, 20, 356-365.

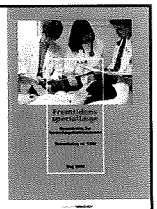


Kern's six-step approach



50

De syv roller



A TAXONOMY FOR LEARNING, TEACHING, AND ASSESSING

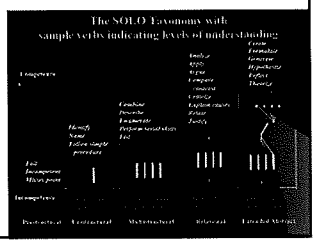
A REVISION OF BLOOM'S TAXONOMY OF EDUCATIONAL OBJECTIVES

LORIN W. ANDERSON AND DAVID R. KRATHWOHL

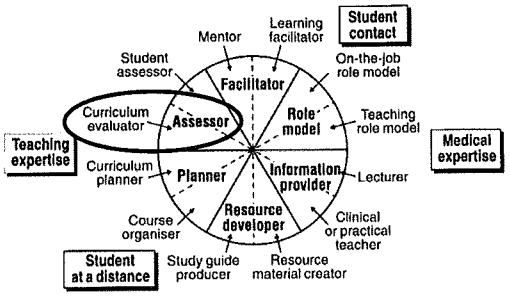
PETER W. AIRASIAN, KATHLEEN A. CRUIKSHANK, RICHARD E. MAYER, PAUL R. PINTRICH, JAMES RATHS, MERLIN C. WITTROCK

Blooms Taxonomy

SOLO Taxonomy

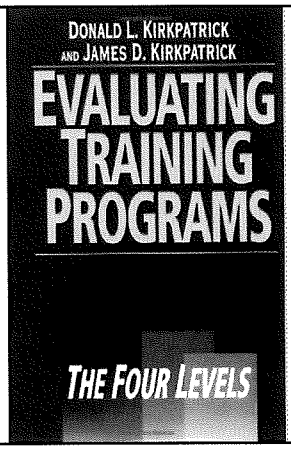


Teacher's Roles

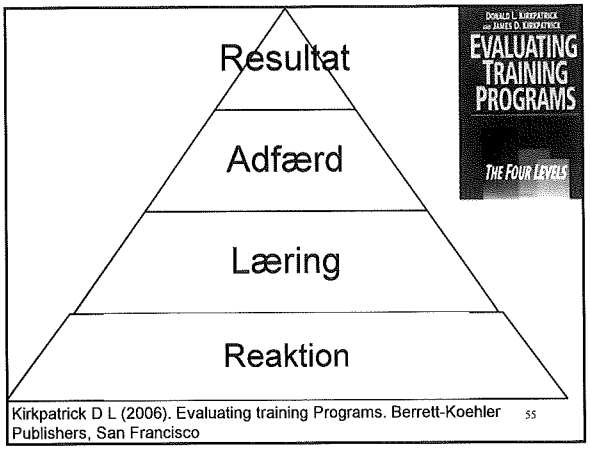


Harden R, Crosby J. The good teacher is more than a lecturer: the twelwe roles of the teacher. Med. Teach 2000; 22: 334-47

53

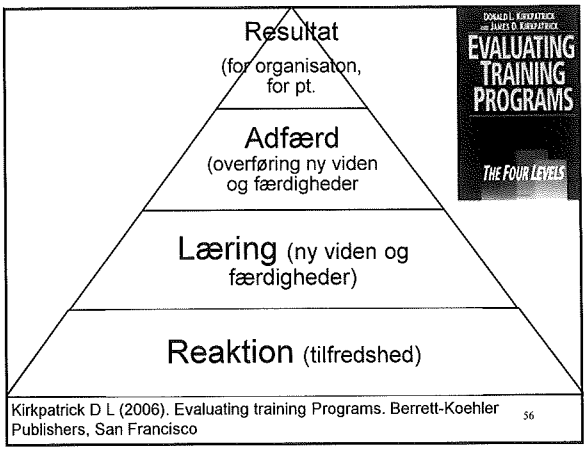


54



Kirkpatrick D L (2006). Evaluating training Programs. Berrett-Koehler Publishers, San Francisco

55



Kirkpatrick D L (2006). Evaluating training Programs. Berrett-Koehler Publishers, San Francisco

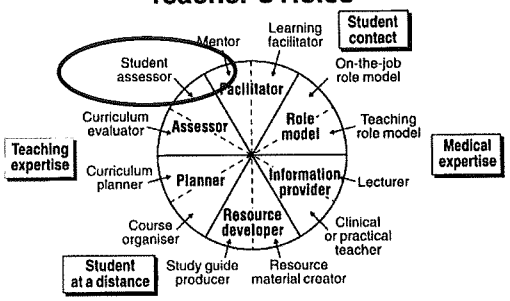
56

Disposition

Præsentation
Hvorfor forske i uddannelse
Litteratur om medicinsk uddannelse
Forsknings kompasset
Fremtidens behandling og uddannelse
Currriculum udvikling
Evaluering
Kompetencevurdering
Om outcome
Tværfaglighed
Strategi og fondsmidler

57

Teacher's Roles

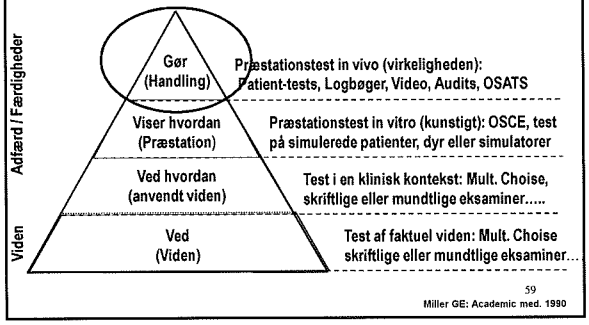


Harden R, Crosby J. The good teacher is more than a lecturer: the twelwe roles of the teacher. Med. Teach 2000; 22: 334-47

58

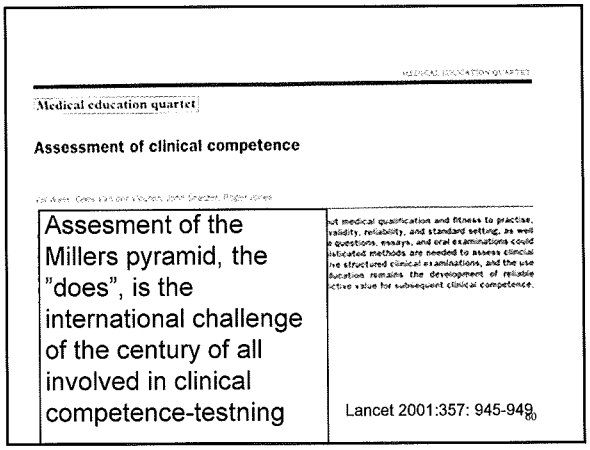
Kompetencevurdering

Millers trekant om kompetence: viden, færdigheder, holdninger



59

Miller GE: Academic med. 1990



Medical education quartet

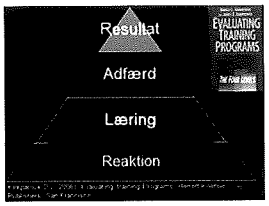
Assessment of clinical competence

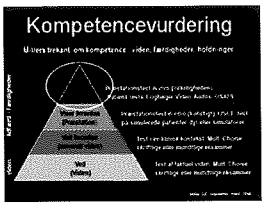
Assesment of the Millers pyramid, the "does", is the international challenge of the century of all involved in clinical competence-testning

Lancet 2001:357: 945-949

60

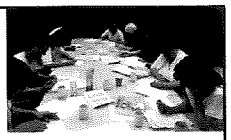
Hvad måler vi på ? Outcome?





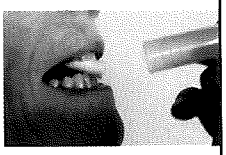
61

OUTCOME



Individ

MCQ: Multiple Choice Questionnaire
SAQ: Safety Attitudes Questionnaire
Stress: Spyt cortisol
Stress trait anxiety (STAI)
Cognitive appraisal (CA)
IMI: Intrinsic motivation inventory
Evaluering

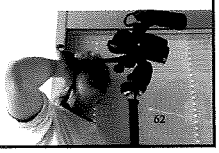


Team

TEAM
Team performance video-assessed

Organisation

Forslag til forandringer (SEIPS)



Sørensen JL et al. Trials 2013 (protokol)
Sørensen JL et al. Acta An Scand 2015 (MCQ)
Sørensen JL et al BMJ Open 2015 (RCT)

62

Perspective: **Reconsidering the Focus on "Outcomes Research" in Medical Education: A Cautionary Note**

David A. Cook, MD, MHPE, and Colin P. West, MD, PhD

Abstract

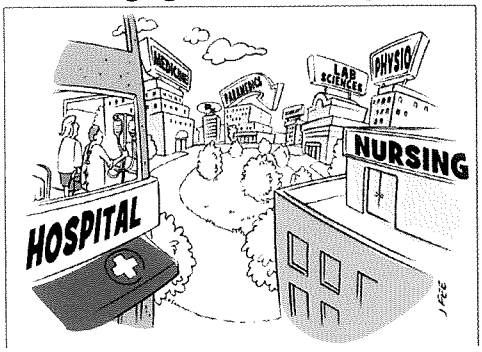
Researchers in medical education have been placing increased emphasis on "outcomes research," or the observed impact of educational interventions on patient care. However, although patient outcomes are obviously important, they should not be the sole focus of attention in medical education research. The purpose of this perspective is both to highlight the limitations of outcomes research in medical education and to suggestions to facilitate a proper balance between learner-centered and patient

.... Proper balance between learner-centered and patientcentered assessments....
... nonpatient outcomes continue to hold value, particularly in theory-building research and in the evaluation of program implementation.

Cook D et al Academic Medicine 2013

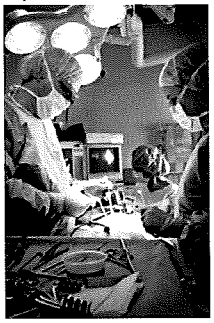
63

Tværfaglig & Tværdiciplinær



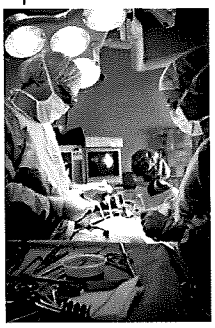
64

Fra erhvervspraktikanter til ekspertuddannelser



65

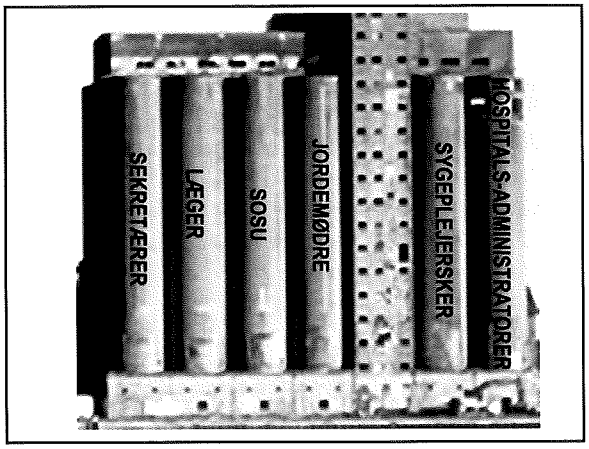
Fra erhvervspraktikanter til ekspertuddannelser

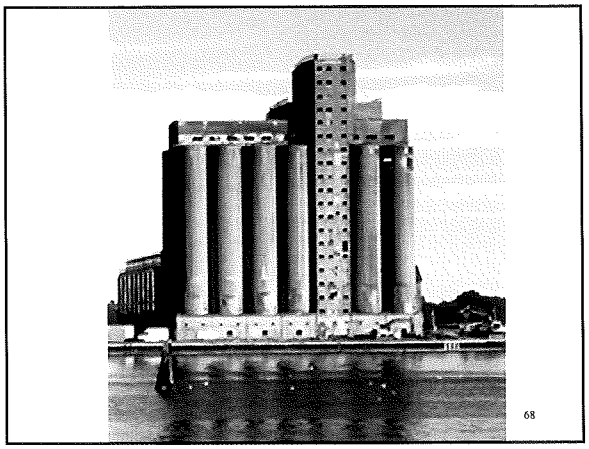


Sygeplejersker
Jordemødre
SOSU
Læger
Sekretærer
Bioanalytikere
Ergo- fysioterapeuter
Psykologer
Pædagoger
Soc. Rådgivere .....

38 lægelige specialer

66





Tværfaglig

Multi-professional education is the process by which a group of students or workers from the health related occupations with different educational backgrounds learn together during certain periods of their education, with interaction as an important goal to collaborate in providing preventive, curative, rehabilitative and other health related services

World Health Organization. Framework for Action on Interprofessional Education & Collaborative Practice. 2010. 70

Tværfaglig

Multi-professional education is the process by which a group of students or workers from the health related occupations with different educational backgrounds learn together during certain periods of their education, with interaction as an important goal to collaborate in providing preventive, curative, rehabilitative and other health related services

World Health Organization. Framework for Action on Interprofessional Education & Collaborative Practice. 2010. 71

Tværfaglig

Inter-professionel, multi-professionel and multidisciplinært .....

Inter-disciplinært og multi-disciplinært er bredere og omfatter alle sundhedsfaglige fra varierende fag og specialer

Ohena et al, Educ Health 2001; Hammick M. Med Teach 2000; Nancarrow SA, Hum Resour Health 2013 72

Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes (Review)

Zwarenstein M, Goldman J, Reeves S

1999

THE COCHRANE COLLABORATION®

2009

73

Journal of Interprofessional Care, May 2010; 24(3): 230–241

informa healthcare

The effectiveness of interprofessional education: Key findings from a new systematic review

SCOTT REEVES[1], MERRICK ZWARENSTEIN[2], JOANNE GOLDMAN[1], HUGH BARR[3], DELLA FREETH[4], IVAN KOPPEL[5], & MARILYN HAMM

Despite some useful progress being made in relation to strengthening the evidence base for IPE, the paper concludes by stressing that further rigorous mixed method studies of IPE are needed to provide a greater clarity of IPE and its effects on professional practice and patient/client care.

Tværfaglig Arbejds gruppe

Obs & AnOP Klinikker JMC, Rigshospitalet

Christina Corell	Op.sygeplejerske
Pernille Schou	Op.sygeplejerske
Kristine Sylvan	Jordemoder
Pernille Langhoff-Roos	Jordemoder
Marianne Flindt	Anæstesi sygeplejerske
Charlotte Glob	Anæstesisygeplejerske
Charlotte Albrechtsen	Anæstesil overæge
Kim Ekelund	Anæstesil afd.æge
Berit Woetmann	Obstetrisk afd.læge
Marianne Johansen	Obstetrisk afd.læge
Jette Led Sørensen	Obstetrisk og udd. ansvalig overlæge

Sørensen JL et al BMJ open 2015 (open access)

75

Ob-an-op. fællestræning, JMC, RH

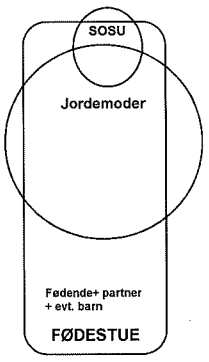
Overordnet formål med fælles træning Obstetrisk Klinik & Anæstesi- og Operationsklinikken JMC, RH:

- Optimere obstetriske patienters akutte forløb, der involverer flere faggrupper og specialer
- Skabe øget viden og forståelse mellem faggrupper og specialer for hinandens forskellige roller og ansvar
- Styrke den interprofessionelle kommunikation, kliniske viden og færdigheder i flg. akutte obstetriske hændelser:
  - postpartum blødning
  - svær præeklampsi / eklampsi
  - akut sectio
  - livstruende hændelser hos gravide og fødende

+ Detaljerede mål for specialer og faggrupper, se hj.side www.rigshospitalet.dk/simulation-jmc

76

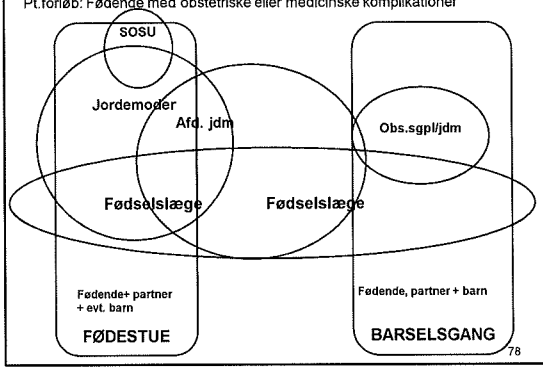
PATIENT FORLØB: FØDENDE → BARSLENDE



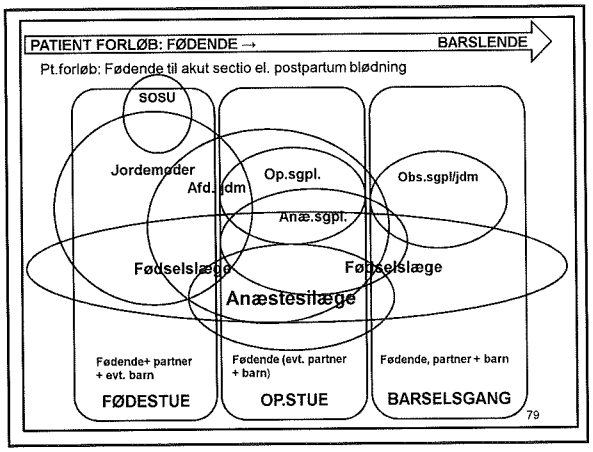
77

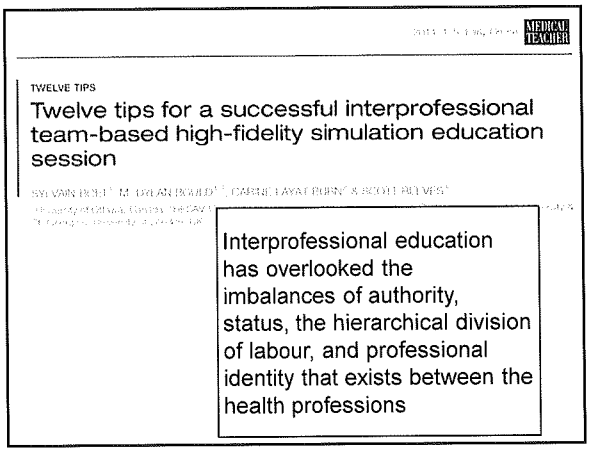
PATIENT FORLØB: FØDENDE → BARSLENDE

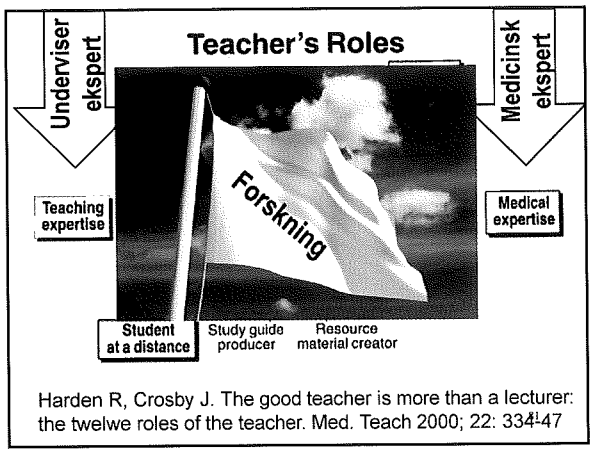
Pt.forløb: Fødende med obstetriske eller medicinske komplikationer



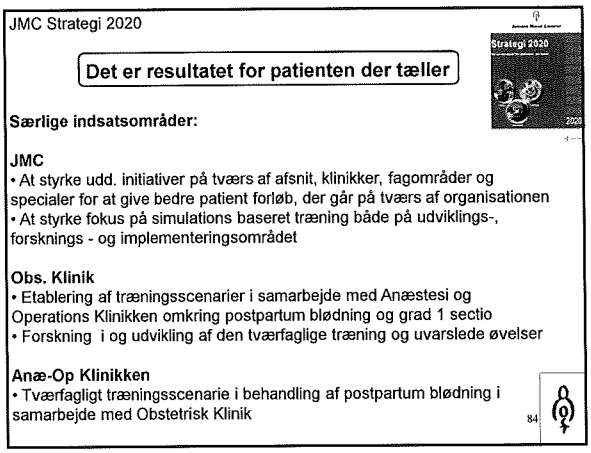
78







Harden R, Crosby J. The good teacher is more than a lecturer: the twelwe roles of the teacher. Med. Teach 2000; 22: 334-47



Fremtiden

- Patientbehandling & pleje, forskning & uddannelse skal udgøre en integreret hele
- Fortsat professionalisere uddannelse
- Uddannelse lokalt forankre - centralisere
- Prioriter uddannelsesforskning
- Mere og bedre uddannelses forskning
- Større studier – samarbejde – multicentre

jette.led.soerense@regionh.dk
www.rigshospitalet.dk/simulation-jmc

85

Hvorfor forske i uddannelse?

Overvej det……

86