



September 2009 – SUPPORT Summary of a systematic review

Does specialty board certification improve clinical outcomes?

Specialty board certification status is often used as a standard of excellence. However, the presumed link between certification and better clinical outcomes should be demonstrated.

Key messages

- Only very low quality evidence from USA was available.
- Board certification status is associated with some better surgical outcomes and fewer complications including death.
- Board certification status is associated with some better clinical outcomes.
- Decisions about board certification must be guided by pragmatic factors and local circumstances, including:
 - The proportion of certificated physicians;
 - Feasibility and costs of educational programs and examinations



Who is this summary for?

People making decisions concerning specialty board certification

! This summary includes:

- **Key findings** from research based on a systematic review
- **Considerations about the relevance of this research** for low- and middle-income countries

X Not included:

- Recommendations
- Additional evidence not included in the systematic review
- Detailed descriptions of interventions or their implementation

This summary is based on the following systematic review:

Sharp LK, Bashook PG, Lipsky MS, Horowitz SD, Miller SH. Specialty board certification and clinical outcomes: the missing link. *Acad Med* 2002;77(6):534-542.

What is a systematic review?

A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from the included studies.

SUPPORT – an international collaboration funded by the EU 6th Framework Programme to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries.

www.support-collaboration.org

Glossary of terms used in this report:
www.supportsummaries.org/glossary

Background references on this topic:
See back page

Background

Board certification has become the de facto standard by which the profession and the public recognize physician specialists in many countries. Most hospitals, managed care organizations, and health insurance plans in the USA require board certification for physicians wishing to obtain clinical privileges and join provider panels. The public also uses board certification as a measure of a physician's expertise, despite that board certification is but one of several qualifications to be considered in assessing the quality of a physician's clinical care.

Empirical evidence links measures of clinical care and measures of clinical knowledge and training, which are used to determine board certification. Higher scores on certification examinations correlate with measures of better patient care and ratings in training correlate with clinical knowledge. However, no comprehensive review had explored the relationship between clinical outcomes and board certification.

How this summary was prepared

After searching widely for systematic reviews that can help inform decisions about health systems, we have selected ones that provide information that is relevant to low- and middle-income countries. The methods used to assess the quality of the review and to make judgements about its relevance are described here:

www.supportsummaries.org/methods

Knowing what's not known is important

A good quality review might not find any studies from low- and middle-income countries or might not find any well-designed studies. Although that is disappointing, it is important to know what is not known as well as what is known.

About the systematic review underlying this summary

Review objective: To assess if board certification by a general speciality recognized by the American Board of Medical Specialties (ABMS) correlated with clinical outcomes defined as accepted national standards of care.

	What the review authors searched for	What the review authors found
Interventions	Certification by an ABMS member board requires the physician “to successfully complete an approved educational program” and “pass a rigorous examination process administered by a member board”.	13 observational studies containing separable relevant findings about specialty board certification. Two of them were prospective studies, one case-control and the others retrospective review of data (two of them from national databases).
Participants	Physician with different certification qualifications for one or more of the 36 general specialties recognized by the ABMS	Surgeons, obstetricians, gynaecologists, anaesthesiologists, internists, family physicians.
Settings	Inpatients and outpatients	All studies were from USA. More inpatients.
Outcomes	Accepted USA standards of care similar to those reported in the National Guideline Clearinghouse (NGC), including mortality, morbidity, specific health outcomes, patient evaluation of care, costs for services, and malpractice litigation.	<ul style="list-style-type: none">• No study measured the same outcome within the same specialty, and few involved the same specialty• Most studies pooled patient data across physicians, making impossible the possibility of measuring an individual physician's performance (unit of analysis error).• 33 relevant findings (29 findings with case-mix adjustments):<ul style="list-style-type: none">– deaths– surgical complications– inpatient deaths due to myocardial infarction– surgeons' performances on knee replacements– cardiac catheterization– preventive care, glycosylated hemoglobin levels, exercise for patients discharged from a coronary care unit, clinical skills rated by colleagues– patients' satisfaction– number of prenatal visits or low-birth-weight baby deliveries– caesarean-section rate Professional liability insurance or malpractice claims

Date of most recent search: July 1999

Limitations: This is a good quality systematic review with only minor limitations.

- The most common methodological limitations of its included studies were incomplete verification of board certification status and combining data for physicians from specialties into a single grouping.

Sharp LK, Bashook PG, Lipsky MS, Horowitz SD, Miller SH. Specialty board certification and clinical outcomes: the missing link. Acad Med 2002;77(6):534-542.

Summary of findings

Eleven studies were included and 29 outcomes were analyzed and in more than half the conclusion observed was that board certification is associated with positive clinical outcomes: 16 demonstrated positive and statistically significant associations between certification status and superior outcomes, and 13 demonstrated no evidence of an association.

Excluding the two studies that failed to adjust for case mix, no evidence existed of worse outcomes related to certification.

In all, four studies reported only positive findings, and four demonstrated a mix of positive findings and no evidence of an association.

Studies are grouped into three groups based on how the results were reported: (1) individual specialties, (2) multiple specialties grouped together, and (3) malpractice and licensure databases.

1) Individual specialties

A total of 5 studies comparing board-certified and non-certified physicians were included in this cluster of studies. Only one prospective.

In the performance of orthopedic surgeons on knee replacements for severe osteoarthritis no association was observed with certification status (41 surgeons were board-certified, prospectively compared with only seven who were not).

Two studies based on a national database compared board-certified and non-certified surgeons on three types of surgeries. Findings revealed fewer deaths when certified surgeons performed peptic ulcer surgery, but for stomach cancer and abdominal aneurysm did not differ by certification status.

Using the same database, they also compared internal medicine and family practice physicians based on certification status within specialty. No significant relationship existed between certification status and mortality during cardiac catheterization, but board-certified physicians within both specialties had fewer inpatient deaths due to myocardial infarction than did their non-certified colleagues.

Another study evaluated subspecialty certification in vascular surgery on three procedures: (1) carotid endarterectomy (CEA), (2) lower-extremity bypass graft, and (3) repair of a ruptured abdominal aortic aneurysm (AAA). Patients treated with CEA by board-certified surgeons had lower risk of death or complication and lower risk following treatment for AAA. Certification status did not significantly affect outcomes following lower-extremity bypass grafting.

The fifth study evaluated internists. Four of seven results were associated positively with certification status (preventive care, glycosylated hemoglobin levels for diabetic patients, exercise for patients discharged from a coronary care unit, clinical skills rated by colleagues). Certification status was not associated with blood pressure control nor patients' satisfaction ratings.

About quality of evidence (GRADE)



High: It is very likely that the effect will be close to what was found in the research.



Moderate: It is likely that the effect will be close to what was found in the research, but there is a possibility that it will be substantially different.



Low: It is likely that the effect will be substantially different from what was found in the research, but the research provides an indication of what might be expected.



Very low: The anticipated effect is very uncertain and the research does not provide a reliable indication of what might be expected.

For more information, see last page.

2) Multiple specialties

Four studies grouped physicians from different specialties. One was prospective and self reporting study, and the others retrospective review of data.

Two papers identified positive associations between board certification and outcomes as recommended number of prenatal visits or low-birth-weight baby delivery, while another reported no association between certification status and complications following CEA. One study found that board-certified obstetricians had a higher cesarean-section rate than did a group of physicians from a mix of specialties. Because the study did not adjust sufficiently for case mix, this finding may be attributable to the fact that the certified obstetricians dealt with more high-risk pregnancies.

A well designed study by Norcini et al published after the presented review pooled results for family physicians, internists, and cardiologists. The treatment of acute myocardial infarction was compared for certified and non-certified physicians. After adjusting for hospital resources and other variables, board certification was associated with a 15% reduction in mortality.

3) Malpractice and licensure databases

Four studies used information from malpractice claims and medical licensure databases. One was a case-control study, and the others retrospective review of data.

Out of 11, results demonstrated four positive associations, two negative associations, and five instances with no association.

Professional liability insurance claims in Florida, showed negative associations with certification status for the surgical group of specialties and the combined group of obstetricians—gynecologists with anesthesiologists. The malpractice claims against the medical group of specialists demonstrated no association with certification status. This study performed inadequate case mix adjustments. The certified physicians could have cared for more complicated patient populations than their non-certified colleagues and generated more malpractice claims. In addition, it is acknowledged in these papers using malpractice databases that malpractice claims do not necessarily reflect inferior quality of care.

There is very low quality of evidence that:

- **board certification status is associated with some better surgical outcomes or complications, including death.**
- **board certification status is associated with some better clinical outcomes.**

Patients or population: Inpatients Settings: Hospitals Intervention: Board-certified physicians Comparison: Non-certified physicians			
Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
Risk of death or complications	<ul style="list-style-type: none">• 15% fewer death or complication for CEA• 2% fewer deaths for peptic ulcer surgery• 24% lower risk following treatment for AAA• 3.1% to 15% fewer in hospital deaths of AMI	(4 studies)	⊕○○○ Very Low
GRADE: GRADE Working Group grades of evidence (see above and last page) CEA: carotid endarterectomy, AAA: abdominal aortic aneurysm, AMI: acute myocardial infarction			

Relevance of the review for low- and middle-income countries

→ Findings	▷ Interpretation*
APPLICABILITY	
→ All studies were done in USA. More studies were done in hospital settings and more for inpatients than outpatients.	<p>▷ There are important differences in the structural elements of board certification and recertification systems, on-the-ground realities and constraints between where the research was done and LMIC. In USA the board certification is optional and the patients have access to this data in order to choose their physician.</p> <p>▷ There is a great heterogeneity of practical consequences of board certification on professional practice and requirements of hospitals, managed care organizations, and health insurance plans.</p>
EQUITY	
→ Overall, the included studies provided little data regarding differential effects of the interventions for disadvantaged populations.	<p>▷ Resources needed for educational programmes and examinations may be less available in disadvantaged populations.</p> <p>▷ Disadvantaged populations may not be able to access the certificated practitioners as the more affluent.</p>
ECONOMIC CONSIDERATIONS	
→ Cost-effectiveness was not assessed. The findings summarised here are based on studies in which the levels of organization and support were greater than those available outside of research settings.	▷ Providing adequate support for programmes and examinations is important to ensure effectiveness when scaling up.
MONITORING & EVALUATION	
→ There is little evidence that board certification is effective in USA, but there is no evidence regarding the cost-effectiveness of it. There is no evidence at all in LMIC.	<p>▷ Research is needed in LMIC. The impact of board certification and recertification should be monitored, including impacts on health and health care utilisation. in the whole health system, not only in the institutions with certified specialists.</p> <p>Interrupted time series studies could be an option, when a randomised impact evaluation is not feasible to assess effects on health, overall expenditure, and cost effectiveness</p>

*Judgements made by the authors of this summary, not necessarily those of the review authors, based on the findings of the review and consultation with researchers and policymakers in low- and middle-income countries. For additional details about how these judgements were made see:

www.supportsummaries.org/methods

Additional information

Related literature

Grosch EN. Does specialty board certification influence clinical outcomes? *J Eval Clin Pract.* 2006 Oct;12(5):473–81. Erratum in: *J Eval Clin Pract.* 2006 Dec;12(6):704.

Norcini JJ, Kimball HR, Lipner RS. Certification and specialization, do they matter in the outcome of acute myocardial infarction? *Acad Med.* 2000;75:S68–S70.

Ensor T, Weinzierl S. Regulating health care in low- and middle-income countries: Broadening the policy response in resource constrained environments. *Soc Sci Med.* 2007 Jul;65(2):355–66.

This summary was prepared by

Agustín Ciapponi, and Sebastián García Martí, Argentine Cochrane Centre IECS –Institute for Clinical Effectiveness and Health Policy– Iberoamerican Cochrane Network, Argentina.

Conflict of interest

None declared. For details, see: www.supportsummaries.org/coi

Acknowledgements

This summary has been peer reviewed by: Gabriel Rada, Chile, Jimmy Volmink, South Africa and Elizeus Rutebemberwa, Uganda.

This review should be cited as

Sharp LK, Bashook PG, Lipsky MS, Horowitz SD, Miller SH. Specialty board certification and clinical outcomes: the missing link. *Acad Med* 2002;77(6):534–542.

The summary should be cited as

Ciapponi A, García Martí S. Does specialty board certification improve clinical outcomes? A SUPPORT Summary of a systematic review. March 2009. www.supportsummaries.org

Keywords

evidence-informed health policy, evidence-based, systematic review, health systems research, health care, low and middle-income countries, developing countries, primary health care, board certification, accreditation, clinical competence, outcome and process assessment, specialties, medical standards.

About quality of evidence (GRADE)

The quality of the evidence is a judgement about the extent to which we can be confident that the estimates of effect are correct. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the type of study design (randomised trials versus observational studies), five factors that can lower confidence in an estimate of effect (risk of bias, inconsistency of the results across studies, indirectness, imprecision of the overall estimate across studies, and publication bias), and three factors that can increase confidence (a large effect, a dose response relationship, and plausible confounding that would increase confidence in an estimate). For each outcome, the quality of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE:
www.supportsummaries.org/grade

SUPPORT collaborators:

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is a Collaborative Review Group of the Cochrane Collaboration: an international organisation that aims to help people make well informed decisions about health care by preparing, maintaining and ensuring the accessibility of systematic reviews of the effects of health care interventions. www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking. Focusing on low- and middle-income countries, EVIPNet promotes partnerships at the country level between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the best scientific evidence available. www.evipnet.org

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration aiming to promote the generation and use of health policy and systems research as a means to improve the health systems of developing countries. www.who.int/alliance-hpsr

To receive e-mail notices of new SUPPORT summaries or provide feedback on this summary, go to:
www.supportsummaries.org/contact