

# Abstract

Diabetes mellitus places a major burden on affected patients and the health care system, due to its high and continuously rising prevalence, associated devastating complications and high health care costs. The quality of medical care for patients with diabetes mellitus is far from optimal and must be improved in order to prevent or at least delay late diabetic complications. Benchmarking is an effective method of quality improvement in health care and is used as a quality improvement tool by the members of Forums for Quality Systems in Diabetes Care (FQSD). In this dissertation the effectiveness of quality improvement efforts, as implemented by the FQSD members, was systematically evaluated for the first time. It was shown, that with continuous four-year participation in the FQSD, numerous process and intermediate outcome measures could be improved. Information systems are necessary tools for the effective use of benchmarking in daily clinical practice. In this thesis one such web-based information system, Healthgate Benchmarking and Reporting System (BARS), was developed and deployed over a period of nine years. Web-based applications are well-suited for large multi-sector quality improvement initiatives, since they make powerful tools available to all participants of a quality improvement initiative, irrespective of resources available at local sites, and associated maintenance costs can be lowered. After the introduction of BARS, FQSD members were able to choose between participating in benchmarking either online, using BARS web-based application, or to continue with classical paper-based quality management. The possibility of choosing either method enabled possible additional benefits associated with online benchmarking in diabetes care to be evaluated for the first time. Unfortunately, no additional effects of online benchmarking on process quality and intermediate outcomes could be observed, and the usage of online benchmarking was low. In conclusion, participation in a benchmarking quality improvement system is associated with improved process and intermediate outcomes. Online-only quality management, although representing an indispensable and well-established tool, cannot however replace paper-based quality management in large multi-sector voluntary quality improvement initiatives in Austria and Germany.

**Keywords:** diabetes mellitus, quality management, web based application, internet, evaluation, quality assurance, benchmarking.