

Cholgate - A Randomized Controlled Trial Comparing The Effect Of Automated And On-Demand Decision Support On The Management Of Cardiovascular Disease Factors In Primary Care

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Automated and on-demand decision support systems integrated into an electronic medical record have proven to be an effective implementation strategy for guidelines. Cholgate is a randomized controlled trial comparing the effect of automated and on-demand decision support on the management of cardiovascular disease factors in primary care.

Hypercholesterolemia is identified as one of the most important risk factors in cardiovascular disease through large multi-centre trials. Treatment with the statin class of drugs effectively lowers elevated serum cholesterol, resulting in substantial reductions in morbidity and mortality. The decision to treat patients with elevated blood cholesterol levels depends on concomitant patient risk factors such as gender, age, cardiovascular disease, diabetes mellitus, smoking, and family history of cardiovascular disease. In order to assist in this decision making process, the Dutch College of General Practitioners (DCGP) issued a cholesterol guideline to assist physicians in managing high risk blood cholesterol in a primary care setting in the Netherlands¹.

The adherence, however, to the DCGP cholesterol guideline in primary practice is low, mainly due to the complexity of the guideline, and interruption of workflow process of the general practitioner (GP).

A number of studies showed an effective strategy for guidelines implementation is integrating guideline based decision support systems, into the electronic medical record (EMR)². The objective of these systems is to help the practitioners in making guideline based healthcare decisions at the point of care. Research shows that integration of computerized decision support system (CDSS) with an electronic patient record facilitates use and acceptance of CDSS in daily practice; as well as improving the actual data recording.

A CDSS can be classified in various ways. One of these classifications points to the way in which a CDSS interacts with the user gathering data in an interactive way – the *inquisitive* model, asking questions when it needs data and the *non-inquisitive* model, silently gathering data relevant to its needs. The implementation of the non-inquisitive model can be *automated* or *on demand*.

In recent years, 90 percent of all GPs in the Netherlands have replaced their traditional paper-based patient records with EMRs, and use the EMR to enter patient data during patient encounters, creating opportunities for the implementation of decision support systems.

A non-inquisitive CDSS needs accurate and complete patient data to function properly. However, the way physicians enter patient data could range from highly structured to free text entries. To assess the effect of CDSS on management of risk factors for cardiovascular disease we firstly analyzed all the DCGP guidelines dealing with cholesterol and cardiovascular disease on eligibility criteria for management of risk factors and formalized it for computer implementation. Secondly, we determined whether it would be possible to generate non-inquisitive feedback in the primary care setting in the Netherlands by classifying patient records according to the DCGP cholesterol guideline's screening criteria in the IPCI database. The IPCI database reflects the routine recording of patient data by GPs. Out of 145866 valid patient records selected 9741 (13.6%) males and 5756 (7.8%) females were identified for active management according to the selection criteria of the DCGP cholesterol guideline, which compares favorably with known Dutch data.

Currently we are building Cholgate, a CDSS based on the DCGP cholesterol guideline. Cholgate will be integrated into EMRs of GPs in the Netherlands. In a randomized trial we will assess the effect of automated and on demand decision support on the management of cardiovascular disease in primary care, compared with using the traditional paper based format. The primary study outcome is the compliance with the cholesterol guideline.

References

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