Barriers to implementing cardiovascular risk tables in routine general practice

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Design – Qualitative study. GPs were interviewed after analysing two audiotaped cardiovascular consultations.

Setting – Primary health care.

Subjects – A sample of 15 GPs who audiotaped 22 consultations.

Main outcome measures – Barriers hampering GPs from following the guideline.

Results – Data saturation was reached after about 13 interviews. The 25 identified barriers were related to the risk table, the GP or to environmental factors. Lack of knowledge and poor communication skills of the GP, along with pressure of work and demanding patients, cause GPs to deviate from the guideline. GPs regard barriers external to themselves as most important.

Conclusion – Using the risk table as a key element of the high-risk approach in primary prevention encounters many barriers. Merely incorporating risk tables in guidelines is not sufficient for implementation of the guidelines. Time-efficient implementation strategies dealing in particular with the communication and presentation of cardiovascular risk are needed.

Key words: cardiovascular diseases, health plan implementation, practice guidelines, quality assurance health care, risk factors.

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New guidelines for cardiovascular risk management often incorporate risk tables to support the management of patients without established cardiovascular disease (primary prevention). These tables aim to improve the quality of care by rationalising decisions on identification and management of patients at high risk. The cardiovascular risks in these tables are mostly derived from Framingham data (1,2). Examples are: the Sheffield table, the New Zealand table and the joint European and British societies chart (3–6). Although these tables vary in the way they present risks, in the cut-off points for high risk and in the data used to calculate absolute risk, the underlying concepts are largely similar. The tables are used for highly individualised risk calculation, the so-called high-risk approach; various demographic and risk factor data can be integrated to determine a personal risk profile (Box 1). This approach is entirely different from those used in the past, when single risk factors were the starting point (7,8). Another innovative element is that risk tables can support risk communication, which in turn could stimulate patient participation and patient compliance.

As yet, not much is known about the use of risk tables. While their use has been associated with significant reduction in systolic blood pressure (7), barriers relating to their format, and scaling have also been reported (8,9). We aimed to examine the barriers that prevent GPs from adopting the cholesterol guideline with its incorporated risk tables since a systematic inventory is crucial for the development of effective implementation strategies.

METHODS
A qualitative study was conducted in the southern part of The Netherlands. The first 20 consecutive GPs who responded to the recruitment letter were eligible to take part in the study. They were asked to audiotape two consultations in which the cardiovascular risk table was used. The transcripts were used to guide the semi-structured in-depth interviews with the GPs after 1 to 2 weeks. Awareness of the problems they had encountered in implementing, and motivations for deviation of the guideline were standard items for the GPs are advised to use risk tables for an individualised risk calculation in the primary prevention of cardiovascular diseases.

- The high-risk approach in primary prevention encounters many barriers.
- GPs do not regard the risk table as a supportive tool for patient involvement.
- Training of GPs in risk communication is an important part of the required active implementation strategy for risk tables.
Box 1: Key recommendations for primary prevention from the DCGP Guideline on Cholesterol

**General**
- Screening the practice population is not useful.
- Assess the cardiovascular risk of men (18–70 years) and women (18–75 years) visiting the practice.

**Diagnosing hypercholesterolaemia**
- Whether a cholesterol test is indicated can be derived from the risk table.
- Only if there is a chance of an orange or a red square, or if familial hypercholesterolaemia is suspected, is testing useful.
- If fasting blood glucose level is unknown, check it when the patient needs to be tested for cholesterol.
- Test for total cholesterol/HDL-cholesterol ratio, 2 tests within 2–3 weeks, non-fasting.
- If the first total cholesterol/HDL ratio <5.0 mmol/l then a second test is not necessary.

**Treatment of hypercholesterolaemia**
- Cholesterol-lowering therapy is indicated for patients in red or orange squares (if there is also a family history of CHD) (see risk table).
- The indication for statins is based on two conditions: the level of the absolute risk has to be at least 25%, and the treatment has to be cost-effective for the relevant subgroup.

**Risk table: absolute risk (%) of developing AMI in 10 years**

**Non-diabetic men**

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interview. One of the authors (BvS) executed and audi-taped the interviews that lasted between 30 and 45 min. Two researchers (BvS and TvdW) independ-ently examined the transcripts (consultations and interviews). A constant comparative approach was adopted in which data were collected and analysed concurrently, allowing both expected and emergent themes and ideas to be incorporated and explored in subsequent interviews. All barriers to implementation of the guideline, even if mentioned by only one GP, were recorded. Differences in coding were solved through consensus.

The ethics committee of the University Hospital of Maastricht approved the study and written informed consent was obtained from the patients participating in the study.

RESULTS

Population

Of the first 20 GPs who responded to the recruiting letter, 15 were actually interviewed, because data saturation emerged after 13 interviews and was definitely reached after 15 interviews. The GPs showed sufficient variation in demographic and practice characteristics. GPs interviewed were aged between 37 and 57 years; 2 were female. They worked either in group practices or had a single-handed practice in towns, cities or rural areas. The GPs managed to record 22 consultations within the arranged time (4 weeks). Many non-specific barriers were mentioned that reflect the tension between guidelines and daily practice. GPs seem to act as a conduit within the consultation and regard clinical evidence as a square peg to fit in the round hole of the patient’s life (10).

Twenty-five barriers were identified as being specific for cardiovascular risk management. They were di-vided into three main categories, and several subcate-gories, each comprising a number of barriers (summarised in Table I). Where useful, a quote by the GPs is given to illustrate the barrier.

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<th>Barriers relating to the guideline-Risk table as an instrument (Table I)</th>
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<td>The measuring scale of the risk factors in the risk table was found to be too crude. The scaling should have been continuous instead of categorical or dichoto-mous. Moreover, the table suggests a relatively large health gain from lowering cholesterol levels compared to smoking cessation. This was regarded as disadvan-tageous, because smoking cessation should have the highest priority. The risk table was difficult to understand and should have been introduced through special training. Many GPs did not notice that hereditary predisposi-</td>
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Table I. Barriers (n = 25) relating to the prevention of CVD in primary care.

### Barriers

**Guideline – Risk table as an instrument**

- Scaling is too crude; should have been continuous
- The value of cholesterol as a risk factor is overestimated
- Difficult design at first view, need for training
- Not a supportive tool for health education or decision-making

**Guideline – Content of the risk table (recommendations)**

- Lack of agreement with other (inter)national risk tables
- Cost reduction is not a doctor’s task
- Not up to date, especially for diabetes
- Too rational for test ordering in daily practice

**GP – Attitude**

- Ambivalence about prescribing statins to smokers
- No motivation to spend extra time on explanation
- Negative attitude towards preventive care
- Strategic testing, rewarding weight loss or compliance

**GP – Routines**

- Still managing single risk factors, first reaction is drug prescription
- Flukes; accidental findings induce repeated testing

**GP – Knowledge**

- Lack of knowledge (guideline, risk presentation, high risk approach)

**GP – Skills**

- Risk communication is difficult
- Shared decision-making is only useful in theory

**Environment – Society**

- Impact of mass media, focus on emotions
- Marketing efforts of pharmaceutical industry caused cholesterol hype
- Mounting demand for regular health check-ups
- Defensive medicine to prevent claims

**Environment – Medical profession**

- Difference of primary versus secondary care
- Greater influence of specialists

**Environment – Practice organisation**

- Risk table is too complex for practice assistants
- Risk profiles not fully integrated in the electronic patient record

...
Barriers relating to the guideline – Content of the risk table (recommendations)
The GPs were confused by the lack of agreement with other national risk tables. Although many GPs agreed that costs should be taken into account, some thought that decisions had to be based on medical grounds only, claiming that cost reduction was not the task of a doctor.

It was felt that the guideline was not up to date, already lagging behind current practice, especially for patients with diabetes.

I give all diabetics a statin, regardless of when I made the diagnosis, whether they are male or female, whether they smoke or not. Because I regard diabetes mellitus as a vascular disease (secondary prevention). (GP9)

Some GPs stated that the decision-making concept underlying the recommendations for case-finding was too rational and too restrictive for daily practice. Screening large numbers of patients or repeated testing was not perceived as a problem, since the cholesterol test is cheap and can easily be done with desktop devices. A risk profile without a cholesterol level was incomplete according to them. GPs often used a cholesterol test as part of a strategy to encourage the patient to adopt a healthy lifestyle.

Barriers relating to the GP – Attitude
All GPs commented on the ambivalence they felt when prescribing statins to smokers, since smoking cessation would make prescribing statins unnecessary in many cases. Pressure of time and high workload resulted in lack of motivation to spend extra time explaining the individual’s cardiovascular risk and counselling. After all, most patients come up with the same questions again and again.

But if I decide not to test them, it just means you spend 10 minutes explaining why it’s not necessary. Three months later they turn up at your office and say they want it anyway. That annoys me, especially since I’ve spent an extra 10 minutes on them. I’ve given up fighting it. (GP8)

The attitude of GPs to primary prevention of cardiovascular diseases varied. It was not always perceived as their task or it was regarded as too expensive from the societal perspective. Some GPs failed to see the health gain anyhow.

If we’d really do primary prevention, you’d have to follow hundreds of people for maybe ten or thirty years to prevent one event. And you don’t know who it’s going to be, which is a big problem because it results in lots of tension and disappointment. Let the local health authorities take care of that, that’s fine with me. (GP10)

Barriers relating to the GP – Routines
For some GPs it was difficult to accept the fact that a single risk factor, in this case cholesterol, is no longer the starting point for risk management. They were still focused on managing raised cholesterol levels instead of absolute risks of CVD. Often their first reaction was prescription of statins, as this is not time-consuming and easier than changing an unhealthy lifestyle.

If you see a cholesterol level of 8 in a 48-year-old man, your first reaction is a statin. But then, if you check the table, it may turn out he doesn’t need one. That is a different approach. But in the back of your mind you still think: what if he gets a heart attack and it then turns out he had a cholesterol level of 8 all the time and nothing was done about it? (GP6)

Some GPs justified their overuse of diagnostics with the argument that they had occasionally found low-risk people with a moderately elevated cholesterol level. According to them, such accidental findings (flukes) showed that the guideline does not offer 100% certainty.

Barriers relating to the GP – Knowledge
Understanding the epidemiological concepts incorporated in the risk table was felt to be a problem. Besides, GPs were simply not aware of some of the recommendations, such as the fact that there is a more aggressive approach to secondary prevention, or that repeated (annual) testing after a normal test result is unnecessary.

Barriers relating to the GP – Skills
Risk communication, i.e. translating the absolute 10-year cardiovascular risk into ‘patient language’ is difficult. The GPs’ explanations were often too complex, not tailored to patients’ needs, or they failed to check the patients’ understanding. The cardiovascular risk was very frequently overestimated. In some cases this was done on purpose as a strategy to change unhealthy behaviour.

Most GPs felt they were in the best position to evaluate the pros and cons of different interventions and to decide on the right one. Shared decision-making was regarded as a theoretical model for which there was no time in daily practice, and no patients need to be involved in decision-making. Hence, the risk table was not seen as a supportive tool for the process of shared decision-making.

If you have to start explaining these numbers you have to take your time and talk about costs as well. All those arguments pro and con, and percentages and all that, that’s a bit too complicated for me. What does it mean to these people if I tell them “You run a 17% risk and this treatment will reduce it to 13%”? That’s not an easy one, I can tell you. (GP16)
Barriers relating to the environment – Society
The popular mass media and the marketing efforts of the pharmaceutical industry, for instance by distributing free digital risk tables and desktop analysers, focus mainly on emotions and less on facts. As a result, the general public have unrealistic ideas about the contribution of cholesterol to the absolute cardiovascular risk, and the topic is fraught with anxiety.

This whole cholesterol story is based on people’s anxiety. If you’re anxious, get your cholesterol level tested. It used to be: get your blood pressure tested. It’s all to do with anxiety. It is linked to something it shouldn’t be linked to. (GP5)

Cholesterol screening is not uncommon in the business community, and insurance companies often demand it. Employees with elevated cholesterol levels, based on a single test, are prematurely labelled as at high risk and sent to their GPs for follow-up. The GPs then often have to reassure them, since in most cases there is nothing to worry about, as apart from the slightly elevated cholesterol level the patient has a low risk profile. Sometimes the GP’s motivation to prescribe statins or order cholesterol tests stemmed from defensive medicine, i.e. to prevent claims in the near future.

Suppose he gets a myocardial infarction in the future and then they find a cholesterol level of 8.0. There will always be someone who says: “You mean to say he never checked your cholesterol?” (GP15)

Barriers relating to the environment – Medical profession
GPs stated that specialists often ignore the existing local consensus. There seems to be a difference in current practice between primary and secondary care, especially as regards the threshold for prescribing statins, which seems to be lower in secondary care. Specialists have greater influence, in the sense that changing the treatment initiated by a specialist is very difficult for a GP.

There are lots of people who’ve been to see the cardiologist for an a-typical angina, who didn’t actually have angina, but a transiently abnormal lipid spectrum, and who comes back with a statin. You just try and reverse that. It’s impossible. (GP1)

Barriers relating to the environment – Practice organisation
Some GPs mentioned that delegating tasks to the practice assistant was not possible because of the complex character of the risk table and the lack of authority for this task.

Insight into existing data about the patient’s risk profile is a prerequisite for efficient care. So far, however, reminder systems, risk tables and guideline recommendations have not been properly integrated into the electronic patient record.

DISCUSSION
Risk tables are intended to rationalise identification and management of people at high risk for CVD. The feasibility of risk tables is open to doubt, since many barriers to adherence to the risk table in the Dutch cholesterol guideline and its recommendations were identified. The majority of GPs regarded barriers relating to the mass media and the pharmaceutical industry as important. From the GPs viewpoint, it leads to demanding patients and increased pressure for tests and pharmaceutical interventions. A more defensive attitude towards cholesterol testing and statin prescription is another barrier. Not surprisingly, frustration was a recurrent theme in the GPs’ comments. Barriers relating to the content and format of the risk table were also present. Often in discussing the various options for intervention with patients, the risk table raised more questions than it answered, with the integrated cost-effectiveness considerations in particular hampering the GPs’ work. Lack of skills in risk communication were not recognised as barriers by the GPs themselves but were observed in the audiotaped consultations.

The GPs who took part in this study varied on the major personal and practice characteristics. They were possibly more experienced in cardiovascular prevention compared to the average GP, although some of the GPs expressed that their motivation to participate was fed by a negative attitude towards cardiovascular primary prevention. We expect that the barriers in this perhaps more motivated group can be generalized to other GPs. The data saturation indicated that we seem to have covered the relevant barriers perceived by GPs in working with the guideline.

The high-risk approach to primary prevention was not always clear to the GPs, this often being a ‘clinically grey area’, as some have called it (11). Barriers relating to the GP’s attitude and the difference between primary and secondary care (10), as well as to differences in practice organisation, have also been reported by others (12,13). Time constraints were indeed identified as one of the major profession-related barriers (14). Complying with all guidelines on primary prevention would take several hours a day (15).

What do these results mean for the implementation of the risk table? The roles of the media and the pharmaceutical industry are hard to deal with in an implementation strategy. Many GPs had difficulties with prescribing statins to persistent smokers owing to medical–ethical considerations. However, these considerations are difficult to incorporate in the guidelines. Redesigning the format of the risk table and a larger focus on reducing unnecessary repeat tests rather than on reducing unnecessary diagnostic tests.
could be helpful, since most patients want to know their ‘number’. The decision of when to perform a diagnostic test may also rest on considerations such as patient preferences (16).

Training GPs in risk communication is important, e.g. to neutralize the inflated risk perception and patient expectations. It might be worthwhile to try to empower the role of the patients by preparing them for the consultation by developing materials that do not induce fear (17,18). This may increase the GP’s perceived effectiveness in changing patient behaviour, which in turn is associated with improved preventive care efforts of patients (19,20).

This qualitative study has yielded some essential input for the development of a risk communication tool that can be given to the patient to be read at home to prepare for discussing one’s cardiovascular risk during the consultation.

The present study also revealed that further research should focus on the conditions for risk communication to patients. Insight is needed into the cognitions, perceptions and preferences of patients in this respect, if we are to foster successful cardiovascular prevention in the GP’s office.

ACKNOWLEDGEMENTS
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REFERENCES