Physician prescribing practices: What do we know? Where do we go? How do we get there?

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Abstract • Résumé

Although drug prescribing is one of the most important components of medical care, little is known about how prescribing practices are determined and how they can be influenced. Enhancing the quality and effectiveness of drug prescribing requires research and better dissemination of information to physicians and other decision-makers. This requires a collaborative effort and a coordinated action plan. Participants at the Physician Prescribing Practices Workshop, held in Ottawa in October 1995, addressed issues and made recommendations in three areas: current knowledge and issues for research in the field of prescribing practices, and the capacity of Canadian databases to study these issues; strategies for disseminating and implementing knowledge and research findings to enhance the quality of prescribing; and the formation of a network to foster collaboration among stakeholders.

Même si l'établissement d'ordonnances est un des aspects les plus importants des soins médicaux, on ne sait pas trop comment les pratiques d'ordonnance sont établies, ni comment il est possible de les orienter. L'amélioration de la qualité et de l'efficacité des pratiques d'ordonnance passe par la recherche et une meilleure diffusion de l'information aux médecins et à d'autres décideurs. Un effort de collaboration et un plan d'action coordonné s'imposent à cette fin. Les participants à l'Atelier sur les pratiques d'ordonnance des médecins, qui s'est tenu à Ottawa en octobre 1995, ont abordé les enjeux de trois grands domaines et formulé des recommandations en la matière : connaissances actuelles et enjeux de la recherche dans le domaine des pratiques d'ordonnance, ainsi que capacité des bases de données canadiennes pour l'étude de ces grandes questions; stratégies de diffusion et de mise en oeuvre des connaissances et des résultats de recherche afin d'améliorer la qualité des ordonnances; création d'un réseau afin de faciliter la collaboration entre les intervenants.

Participants at the Physician Prescribing Practices Workshop, hosted by the Canadian Medical Association in Ottawa on Oct. 28 and 29, 1995, addressed issues and made recommendations in three areas: current knowledge and issues for research in the field of prescribing practices, and the capacity of Canadian databases to support the study of these issues; strategies for disseminating and implementing knowledge and research findings to enhance prescribing practices; and the formation of a network to foster collaboration among interested individuals and groups. These areas were explored in the previous articles in this series.[1-3]

Background papers and discussion questions were provided to participants before the workshop, and one half-day session was dedicated to each area. In each session a panel of experts framed the issues and stimulated discussion. Small groups addressed the issues and presented their conclusions in a plenary session. On the basis of these discussions participants developed recommendations for each of the three areas. This report summarizes the discussions and ensuing recommendations.

The need for leadership in initiating change was an important issue that arose in each session. As Dr. George

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← For prescribing information see page 1739

Carruthers, chair of the workshop planning committee, said in his opening remarks, "Prescribing is everyone's business and no one's priority. We need to ensure that the quality of physician prescribing practices is a clear priority for those who can make a difference."

Research issues in physician prescribing variability

The first session focused on the development of a drug utilization review (DUR) system. Such a system depends on data from drug information systems, which collect, organize and make available in a user-friendly format accurate and up-to-date information to guide decision making in drug therapy. The participants agreed that the development of a DUR system should involve physicians and other prescribers, private and public payers, pharmacists, medical educators, informatics experts, ethicists, research scientists, regulators, consumers and drug manufacturers.

The participants discussed how DUR criteria should be developed and tested. They concluded that the quality of data currently available is limited by inadequate linkage to diagnostic information. Clinical pharmacologists, medical specialists, family physicians and those involved in developing drug information systems, they continued, should play a key role in the development of DUR criteria. In addition, it was felt that criteria should be based on desired health outcomes and should be developed nationally and validated locally. Once developed, criteria should be tested through pilot programs; once implemented, they should be evaluated periodically through a consultative process involving all stakeholders.

Discussion groups generally agreed that evaluation of a drug information system should be based on the information needs of DURs as well as on health outcomes and should look at the health system as a whole. It was also agreed that the ideal drug information system would address the needs of all stakeholders involved. It would be provincially or territorially based, with linkages to provide a national perspective, and would also ensure that certain core data collected in provincial and territorial databases are standardized so that linkages and comparisons are possible. Participants agreed that the ideal information system would be cost-effective, online and interactive (at least at the provincial or territorial level) and would ensure patient confidentiality.

Participants suggested that each drug information system establish a board of directors with representation from all stakeholder groups. The board would have a technical advisory committee to provide an overview of the system. Ideally, the system would prevent discrepancies between policy and practice and would also eliminate duplication by making new information available immediately. Concerns about ownership, standards, funding and participation of drug manufacturers were raised but not resolved.

Electronic media were considered to have the greatest potential for disseminating drug information effectively. However, concern was expressed about confidentiality. It was noted that disseminated information should be informative and supportive rather than prescriptive.

Participants agreed that the ethical issues surrounding DUR and drug information systems have far-reaching implications. Issues brought forward included privacy for patients and health care professionals, ownership of aggregate and individual data, the possible obligation to seek approval from providers and patients, and access to information in emergency situations in which it is not possible to obtain consent. Other issues identified were the entitlement of payers (e.g., employers) to gain access to confidential information as well as ethical questions concerning access to and use of information by the private sector. The relative priority of autonomy, beneficence and nonmalfeasance was discussed; it was noted that physicians and other health care professionals are conditioned to make nonmalfeasance their priority and that policymakers usually emphasize beneficence.

Suggested solutions to these issues included setting explicit ethical guidelines and requirements for informed patient consent, establishing graded system access and electronic tracking of all system accesses and legislating penalties for ethical breaches. It was pointed out that although the accuracy of information was not an ethical issue per se, it was critical to the use of the system. Accuracy of information is crucial if the system is to be useful in enhancing prescribing practices.

Participants were asked to rank a list of research issues that are often identified as having high priority in the study of prescribing practice variability and drug information infrastructures. After some discussion, the groups concluded that they could not rank these issues because they are interrelated; priorities would change depending on a number of factors, not the least of which was why, for whom and by whom the research was being done. However, it is crucial to evaluate measures designed to improve the quality of prescribing, as they have the potential to cause unexpected outcomes.

Recommendations that derived from the session on research issues are summarized in Table 1.

Strategies for improving prescribing practices

Discussion groups concluded that research is needed into key factors that shape the quality of prescribing: the paying agency and its coverage policy; patient demand

and behaviour; and payer initiatives (e.g., reference-based pricing and least-cost-alternative policies). The availability of diagnostic and monitoring facilities, physician workload, academic detailing, the use of technology, cost awareness and physician remuneration methods were also identified as factors that shape prescribing practices.

The following factors were discussed, but participants did not agree on their relative importance as issues for research: patient characteristics (sex and ethnic, cultural and sociologic background), prescriber characteristics (academic background, age, location) and patient–physician interaction and feedback. There was also no agreement among participants on the relative importance of research into the influence of public health nurses, nurse practitioners and other health care professionals, the influence of local consultants on family physicians, information feedback and the early provision of unbiased information on new drugs.

Table 1: Research issues in physician prescribing variability: recommendations

Peer groups, professional groups (including pharmacists) and universities should conduct research as soon as possible to identify and validate methodologies to define optimal prescribing practices.
Peer groups, private data sources and provincial and territorial governments, drawing upon valid drug utilization review (DUR) criteria and methods, should provide through existing information systems or alternative mechanisms meaningful feedback with recommendations to prescribers on their prescribing practices and patterns as soon as possible.
Developers of information systems, working in collaboration with key stakeholders, should design systems with the capacity for interactive communication.
Those with access to prescribing data (e.g., provincial, territorial and federal governments, private payers and others) should establish and use provincial and territorial drug information systems with links to the national drug information system.
A steering committee involving key stakeholders should be formed to develop and coordinate a national drug information system; the work of the committee should include defining the purpose, function, criteria and standards for such a system.
The steering committee for the national drug information system should establish an ethics committee that is both reactive (screening ideas) and proactive (raising and investigating issues), is ongoing, includes monitoring among its functions, identifies ethical concerns, including those related to funding sources, and defines the purpose and objectives of the ethics program.
Provincial and territorial governments and stakeholders should establish a demonstration drug information system at a provincial and territorial level (e.g., the Manitoba Drug Use Management Centre).
The Canadian Institute for Health Information, provincial and territorial health departments, medical and pharmaceutical societies and others, in consultation with national, provincial and territorial privacy commissions, should immediately establish databases capable of providing information on health status so that the outcomes of health care, including prescribing, can be monitored.

When participants were asked to list the key requirements for effective, acceptable and feasible mechanisms for improving the quality of prescribing, there was general agreement on the need for (a) the expansion or inclusion of clinical pharmacology, critical analysis and cost–benefit analysis in undergraduate curricula, maintenance-of-competence programs and continuing medical education, (b) a multidisciplinary approach using interventions focused on consumers and prescribers and (c) health outcomes evaluation. It was noted that the involvement of drug manufacturers and the commitment of resources had not been raised in this discussion.

The need for effective collaboration was an important theme throughout the workshop. Participants were asked to suggest strategies that would enable governments, providers, manufacturers and the public to collaborate in the implementation of programs to improve the quality of prescribing.

Discussion groups working on this question suggested that stakeholder groups should be defined more broadly. Participants recognized that collaboration would need to begin with the identification of common interests and areas of mutual benefit and could then be strengthened through effective communication. It would also be necessary to develop both monetary and nonmonetary incentives for involvement. Questions of appropriate leadership, cost implications and financing were raised and discussed at length.

When discussing how the impact of programs to improve the quality of prescribing should be evaluated, participants generally agreed that a framework for evaluation should be set before a program is implemented to enable all stakeholders to buy in to this process. The need for a high-quality design as assured by the involvement of trained evaluators before and after implementation was also pointed out. Participants also agreed that there should be a greater emphasis on evaluating the impact of programs to improve prescribing on health outcomes rather than on costs, although cost containment was also deemed important. Some felt that repeat evaluations were important to measure sustained effects over time. Others identified the need for physicians to have access to their own data for self-evaluation, the importance of control groups and the value of stakeholder feedback.

The recommendations that followed from these discussions are summarized in Table 2.

Developing a Canadian prescribing practices network

Discussion groups were invited to consider the following goals for a national prescribing network:

- Develop and disseminate prescribing information databases.

- Test DUR criteria.
- Carry out advanced research on the effectiveness of drugs in clinical practice.
- Develop, apply, evaluate and report on interventions to improve prescribing.
- Work with regional databases to improve the quality and consistency of outcomes measured across the country.
- Carry out cost-effectiveness analyses.
- Communicate with stakeholders across the country.
- Develop expertise in informatics, including medical computing, knowledge engineering and health care telecommunications, to support these goals.

Although there was general agreement that these goals were reasonable as a vision, participants thought that for practical purposes they needed to be scaled down. Participants expressed the need to identify an organization to assume leadership, one that would be acceptable to the medical community as well as to other stakeholders — a champion to initiate the implementation process. When asked what kind of funding and management structure they would recommend to address these goals, participants opted for a public and private mix. Some felt that the network should first be tested on a smaller scale before being set up nationally. One outcome of the pilot test would be to develop an understanding of the "added value" a network would provide to practitioners and of how practitioners might use the network.

Table 2: Strategies for improving the quality of prescribing practices: recommendations

A steering committee on physician prescribing practices, in consultation with practising physicians, should coordinate and encourage research into factors that influence the quality of prescribing.
The CMA should support measures to improve availability and dissemination of information on optimal, evidence-based disease management that can be adapted for local conditions.
Universities should put greater emphasis immediately on teaching the principles of clinical pharmacology, critical appraisal and economic evaluation in their undergraduate, postgraduate and continuing medical education curricula; Medical Council of Canada qualifying examinations and specialty examinations should test candidates' knowledge and skills in these fields.
All stakeholders should collaborate and coordinate their efforts to identify mutual interests, priorities and goals for improving the quality of prescribing practices, and develop and evaluate incentives and other initiatives based on these goals. Evaluation should address the following: process (e.g., drug costs and use); outcomes (e.g., health status, overall costs); and effects on the patient, the prescriber and their interaction. Data must be made available to assist this process.
Major stakeholders should introduce a continuous process to review and modify standards of practice based on new knowledge. This process should be interactive so that individual physicians' prescribing practices are part of the evidence and there is ongoing and experiential feedback into the system.

The possibility of setting up an e-mail network to facilitate communication among stakeholders across the country was discussed. The possibility of holding a conference to explore networks and joint ventures currently in place in other fields also received attention. The importance of including care maps in drug information systems and of addressing concerns about the possible purchase or management of health information by pharmaceutical manufacturers was also mentioned.

In the background paper for this session it was noted that "the main barrier to the success of a completely computerized network is the lack of computerization in physicians' offices. Only 10% to 20% of Canadian physicians are estimated to use computers in their offices for purposes other than billing."[3] Participants were asked to consider how physicians could be persuaded to participate in and commit themselves to a national prescribing practices network.

One group noted that there should be a clear understanding of the cost and effort involved in setting up a network. Other groups commented that the network should be simple, user friendly, efficient and educational as well as useful in day-to-day practice (e.g., in providing warnings about allergies and interactions). It was also emphasized that the network should be designed to recognize and address issues of control. Physicians need to be persuaded that neither their autonomy nor the confidentiality of their information will be threatened. Participants also commented that the network should provide correct drug information and enhance continuity of care by providing access to clinical notes and information about interventions in which other physicians (e.g., specialists) are involved. Furthermore, the network should have provincial and territorial or national standards for data quality as well as standardized software. Participants noted that the network should support the integration of electronic networks into undergraduate education.

Networks need resources. Participants recognized this fact in their suggestions relating to funding models. Most agreed that a blended (private and public) funding model would be desirable. Some thought that start-up funding should come from governments and commercial interests such as manufacturers and insurance companies. It was also suggested that funding for maintenance, upgrades and improvements should come from governments and third-party payers, overall cost savings or the sale of data.

The final discussion question concerned how a national prescribing practices network could help to ensure that pharmaceutical research in Canada addresses the nation's most pressing health problems. This question prompted groups to expand the list of stakeholder groups suggested earlier in the workshop. Participants discussed ways that stakeholder groups could work with

the pharmaceutical industry in a broad sense. It was suggested that incentives be developed to attract the participation of drug manufacturers.

Participants discussed a recommendation that pharmacy networks, provincial and territorial governments and payers plan linkages between prescribing databases and patient databases to support utilization management activities on a local, regional, provincial and territorial or national level. This discussion did not result in a firm recommendation.

Liability issues were discussed throughout the session. Although no clear recommendation emerged, participants recognized the importance of these issues in a number of areas and emphasized the need to consider them seriously.

The recommendations agreed upon by participants in this session are summarized in Table 3.

Table 3: Developing a Canadian prescribing practices network: recommendations

All national stakeholders, such as the Federal/Provincial/Territorial Advisory Committee on Health Services, the Pharmaceutical Policy Committee, the Canadian Coordinating Office for Health Technology Assessment, the Canadian Institute for Health Information, the CMA, the Federation of Medical Licensing Authorities of Canada, the National Health and Research Development Program (NHRDP), the Medical Research Council (MRC) of Canada, the Canadian Pharmaceutical Association, the Pharmaceutical Manufacturers Association of Canada, the Canadian Society for Clinical Pharmacology, the Royal College of Physicians and Surgeons of Canada and relevant national specialty societies, should be invited to form a national coalition for the purpose of establishing a Canadian prescribing practices network, defining terms of reference and developing national standards.
The national coalition should determine the costs that flow from the above recommendation and decide who within the group should bear these costs.
The national coalition should address issues such as the security, reliability and flexibility of the system, the simplicity of its use, the validity and quantity of data and physician confidentiality; the various components of the system should be added incrementally.
The NHRDP should provide seed funding for the national network.
The national coalition should analyse the feasibility of developing a core drug information system and providing accurate and up-to-date information on drug characteristics, prices and interactions; at a later stage (within 2 years) guidelines, care maps and DUR criteria should be added to the system. A pilot project focusing on the most commonly used drugs would be necessary.
The CMA and the College of Family Physicians of Canada should undertake (with funding) a needs assessment of the information technology required for physicians' offices, based on currently existing computer hardware and software. Participants identified this item as urgent and suggested that it be addressed within 6 months.
In setting priorities for funding, national, provincial and territorial research funding agencies (e.g., the MRC, the NHRDP and the Alberta Heritage Fund) should immediately target health services research related to pharmaceuticals and their use.

Summing up

In his closing remarks, Carruthers thanked participants for their contributions, which had exceeded his expectations. In his view, the workshop provided a set of recommendations to act as a driving force in enhancing the quality of drug prescribing in Canada. The recommendations from this workshop provide a starting-point for ensuring that in health care, prescribing is not just everyone's business but is also a priority for the stakeholders described in this report.

One of us (A.O.C.) closed the workshop by confirming the CMA's commitment to take the first steps in disseminating these recommendations and bringing people together to consider them.

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