Where physicians look for information on drug prescribing for children

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BACKGROUND: Despite the important role of drug therapy in children, there is often a lack of readily available information regarding the indications and dosing regimens for medications in paediatrics.

OBJECTIVE: To collect data on where family physicians obtain this prescribing information.

METHOD: A structured questionnaire was mailed to 500 family physicians in Ontario.

RESULTS: Questionnaires were returned by 261 (52%) family physicians, 217 (83%) of whom identified themselves as currently involved in the care of children. Most (87%) reported that the *Compendium of Pharmaceuticals and Specialties* (CPS) was the source that they most commonly consulted for drug information in children. The available sources of information on prescribing for children were thought to be not adequate by 40% and not readily available by 27%. Sixty-one per cent reported being moderately confident (in doubt part of the time) about their decisions regarding drug prescribing in this age group. The majority (70%) had learned most of what they know about prescribing in paediatrics during practice, while 69% and 62% reported they had little or no teaching during undergraduate and postgraduate (internship or residency) medical education, respectively.

CONCLUSIONS: Although it is recognized that for a number of drugs used in children the CPS does not reflect the current standard of care in paediatrics, it is currently the source most commonly referred to by family physicians. Further work should be done in the provision of useful information on paediatric drug therapy to family physicians.

Key Words: Children; Family physicians; Prescribing

Despite the important role of drug therapy in children, there is often a lack of readily available information regarding the indications and dosing regimens for medications in this population. A widely cited estimate is that there is insufficient information on paediatric use for about three-quarters of prescription drugs (1). Labels for new medications often provide physicians with little or no guidance on a product's use in children (2). Indeed, the majority of drugs available in Canada are not labelled for use in this age group. Despite the paucity of evidence-based information on the effects of many beneficial medications in paediatrics, the standard of care requires that many of these medications be prescribed for children regardless of conforming to labelling.

In Canada, family physicians provide medical care for the majority of children in rural areas and for a substantial per-

Où les médecins trouvent de l'information sur la prescription de médicaments pour enfants

HISTORIQUE : Malgré le rôle important de la pharmacothérapie chez les enfants, on remarque souvent l'inexistence de renseignements facilement et rapidement disponibles au sujet des indications et de la posologie des médicaments en pédiatrie.

OBJECTIF : Colliger des données sur les endroits où les médecins de famille obtiennent l'information posologique.

MÉTHODOLOGIE : Un questionnaire structuré a été posté à 500 médecins de famille en Ontario.

RÉSULTATS : Les questionnaires ont été renvoyés par 261 (52 %) médecins de famille, dont 217 (83 %) ont dit participer aux soins des enfants. La plupart (87 %) ont déclaré que le *Compendium des produits et spécialités pharmaceutiques* (CPS) était la source qu'ils consultaient le plus souvent pour obtenir de l'information sur les médicaments chez les enfants. Les sources disponibles d'information posologique pour les enfants étaient jugées comme non pertinentes par 40 % des répondants, et non facilement et rapidement utilisables par 27 % d'entre eux. Soixante et un pour cent ont déclaré être modérément confiants (parfois dans le doute) quant à leurs décisions sur la prescription de médicaments au sein de ce groupe d'âge. La majorité (70 %) ont acquis la plupart de leurs connaissances sur les prescriptions pédiatriques dans le cadre de leur pratique, tandis que 69 % et 62 % ont déclaré avoir reçu peu de formation, sinon aucune, pendant leur internat ou leur résidence, respectivement.

CONCLUSIONS : Bien qu'il soit établi qu'à l'égard d'un certain nombre de médicaments utilisés chez les enfants, le CPS ne reflète pas la norme actuelle de soins en pédiatrie, cet ouvrage est la source la plus consultée par les médecins de famille. Il faudrait poursuivre les travaux sur la transmission de renseignements utiles aux médecins de famille sur la pharmacothérapie en pédiatrie.

centage of children in urban areas (3). Given the important role of family physicians in the drug therapy of children, the objective of this study was to collect data on where family physicians in Ontario obtain information on prescribing medications for the paediatric patients in their practices. To our knowledge this question has not been previously studied.

METHODS

A questionnaire on sources of information regarding the indications and dosing regimens for medications in paediatrics was mailed to family physicians in Ontario. A random sample of 500 physicians was selected from the *Canadian Medical Directory*, 2001 edition (4). The questionnaire was accompanied by a letter explaining the purpose of the study, and providing assurances of confidentiality and a stamped addressed

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TABLE 1
Sources of drug information

Source	Percentage of family physicians	
	Any use (all that apply)	Most commonly used
CPS*	98	87
Community pharmacist	53	1
Dosing manual	46	7
Textbook	43	1
Drug company	41	1
Journal	26	0
Drug information	19	0
Other	12	3
Formulary	8	1
PDR†	7	1
World Wide Web	5	0

*Compendium of Pharmaceuticals and Specialties (5); †Physicians' Desk Reference (10)

return envelope. Three weeks after the initial mailing, a reminder letter and another copy of the survey was mailed to all nonresponders.

A 19-item questionnaire on the family physician's practice, sources of drug information in children, previous education on prescribing medications, demographics and previous training was designed. For the two questions regarding which sources of drug information the responding physician consults, a list of possibilities was provided. Family physicians were also asked about the scope of the problem.

The questionnaires were reviewed upon their receipt and the data were entered for analysis into a computer database (Microsoft Excel, Microsoft Corporation, USA). Descriptive statistics were performed, with outcomes expressed as frequencies of responses.

RESULTS

Questionnaires were returned by 261 (52%) family physicians, 217 (83%) of whom identified themselves as currently involved in the care of children. The physicians (69% men), aged 47.0 ± 10.3 (mean $\pm$ SD) years, had been in practice for 18.3 ± 10.5 years. The majority were in group (50%) or single (43%) practice. Seventy-two per cent and 27% described their practice as being comprised of 0% to 25%, and 26% to 50% children (younger than the age of 18 years), respectively. The majority (84%) had graduated from medical school in Canada, 56% had completed an internship and 54% had completed a family practice residency.

Most (87%) reported that the *Compendium of Pharmaceuticals and Specialties* (CPS) (5) was the source that they most commonly consulted for drug information in children. When allowed to check all sources that apply, other sources used included community pharmacists (53%), children's hospital dosing manuals (46%) and paediatric textbooks (43%) (Table 1).

The available sources of information on prescribing for children were thought to be inadequate by 40% and not readily available by 27%. More women than men thought that the available sources of information on prescribing for children were not adequate (women versus men, 58% versus 32%, $P=0.0004$) and not readily available (women versus men, 46% versus 19%, $P<0.0001$). Sixty-one per cent of all respondents

reported being moderately confident (in doubt part of the time) about their decisions regarding drug prescribing in this age group. One-half of the physicians correctly identified that 30% or less of drugs available in Canada are labelled for use in children.

The majority (70%) had learned most of what they know about prescribing in paediatrics during practice, while 69% and 62% reported they had little or no teaching during undergraduate and postgraduate (internship or residency) medical education, respectively.

DISCUSSION

The extent of off-label drug use in children has been documented and is known to be widespread (6), including not only paediatricians but also physicians in general practice (7,8). In clinical practice because new indications or dosing regimens for medications are often accepted long before they are reflected in the labelling (9), referring to the latter is often not helpful in determining the optimal drug regimen for patients, in particular paediatric patients. Most (87%) family physicians who responded to the questionnaire in this study reported that the CPS (5) was the source that they most commonly consulted for drug information in children. However, the CPS (5), which is a collection of product monographs of pharmaceutical products provided by the manufacturers, does not provide prescribing information for children for the majority of medications, and in fact often includes a disclaimer against the use of the specific drug in this age group. This situation is not unlike that in the United States where the *Physicians' Desk Reference* (10), a compendium of package inserts that constitute the drug labels, is the least valuable but best recognized source of information available to practitioners (11).

Because useful paediatric prescribing information is often not available from the product label or the CPS (5), family physicians should be aware of other sources of drug information for children. Other potential references include the peer-reviewed medical literature, paediatric dosing manuals and textbooks, children's hospital pharmacists and the relevant pharmaceutical company, although at times the information provided by these prescribing sources may be more based on expert opinion or local practice and experience rather than rigorous randomized clinical trials.

The majority of family physicians (70%) reported that they had learned most of what they know about prescribing in paediatrics during practice, while 69% and 62% reported they had little or no teaching during undergraduate and postgraduate (internship or residency) medical education, respectively. These results suggest that current teaching regarding prescribing medications for children may be inadequate and that there is an opportunity for improved education in medical school and family medicine residency programs.

The limitations of this type of questionnaire study should be appreciated. Although the response rate of 52% is not optimal, the overwhelming choice of the CPS (5) as the major source of drug prescribing information suggests that a substantial proportion of family physicians rely on this publication for advice. This study's results are based on the self-reporting of physicians; however, given the nature of the questions, it is likely that honest answers were provided. The appropriateness of actual prescribing by family physicians was not examined in this study.

Although it is recognized that for a number of drugs used in children the CPS (5) does not reflect the current standard of care in paediatrics, it is currently the source most commonly referred to by family physicians. Further work should be done in the provision of useful information on paediatric drug therapy to family physicians. Family physicians should be made aware of and have access to the best available prescribing information for children.

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