Despite Financial Penalties, French Physicians’ Knowledge of Regulatory Practice Guidelines Is Poor

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Objective: To evaluate the level of awareness and knowledge of regulatory practice guidelines (références médicales opposables [RMOs] or regulatory medical references) implemented to control ambulatory care costs among French family physicians.

Design: Observational study. Participants were asked to identify RMO topics among a list of actual and fictitious RMO topics and the RMOs themselves among a list of actual and fictitious RMOs.

Setting: General practice in France.

Subjects: Three hundred twenty-one family physicians.

Main Outcome Measure: Average score of 100 (95% confidence interval [CI]) on the awareness of RMO topics and knowledge of the RMOs.

Results: The average overall score was 55.8 of 100 (95% CI, 53.3-58.3) for the awareness of the RMO topics and 50.5 (95% CI, 48.3-52.7) for knowledge of the RMOs themselves—53.2 (95% CI, 51.1-55.3) for diagnostic RMOs and 47.8 (95% CI, 45.6-50.0) for therapeutic RMOs. Chance would have yielded an expected mean score of 50. A statistically significant difference was noted between the average score for actual (62.2) and fictitious (43.2) RMOs, P < .001. None of the respondents correctly identified all 24 correct answers.

Conclusion: Despite implementation of RMO policy, the awareness and knowledge of RMOs among French family physicians seem weak. The number of RMOs and the difficulties in controlling physicians probably explain these results. Thus, it is doubtful that the RMO policy will have a long-term effect on physicians’ behavior.

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IN AN EFFORT TO control ambulatory care costs, regulatory practice guidelines known as références médicales opposables (RMOs) or regulatory medical references were introduced by law in France in 1993. Regulatory medical references are defined as “recognized scientific criteria that make it possible to define inappropriate care and prescriptions, and the frequency with which such care or prescriptions are received by the patient.” Regulatory medical references are presented in the form of clearly stated, short, prescriptive recommendations, negatively formulated (eg, “it is inappropriate to treat systemic hypertension before having measured blood pressure 3 times over a two-month period”). Regulatory medical references cover medical and surgical topics as well as diagnostic and treatment procedures. Regulatory medical references are selected by representatives of French insurance funds and physicians’ unions from specific guidelines drawn up by a national publicly funded agency, Agence Nationale d’Accréditation et d’Evaluation en Santé (formerly known as the Agence Nationale pour le Développement de l’Evaluation Médicale). These guidelines, based on scientific evidence and expert opinion, are developed by panels that include family physicians and individuals from all relevant medical disciplines. Since the introduction of these RMOs, physicians (family physicians and specialists) who do not comply with RMOs can be fined. The fine is determined by a weighted combination of indexes of redundancy, harm, cost of each RMO, and the number of violations. A list of applicable RMOs is published every year. In 1994, the first year of implementation of the RMO policy, a total of 66 RMOs covering 15 topics was published in the Journal Officiel de la République Française (the French equivalent of the Federal Register). Each year, the list of applicable RMOs is revised and new RMOs about new topics are published. Thus, in March 1997, the number of RMOs applicable for family
physicians reached 197, covering 46 topics (between 1 and 10 RMOs per topic).⁶ In addition to annual publication in the Journal Officiel de la République Française, RMOs are mailed by the major national health insurance fund (the Caisse nationale d’assurance maladie des travailleurs salariés), to the 110,000 French physicians working in private practice. They are also widely published and discussed in French professional medical journals. Thus, each family physician was exposed at least 1 time to the more recent RMOs and 3 times to the oldest RMOs. All RMOs were accepted and endorsed by family physicians’ representatives (unions) before publication in the Journal Officiel de la République Française.

The RMO policy was questioned in 1997 when the reform of the French health system changed the rules.⁷ According to this reform, French physicians working in private practice could also be collectively fined at the end of each year if they overspent the budget prescribed by the French Parliament. On the contrary, they could receive a “bonus” if they stayed within this budget. Many physicians protested that this principle was unethical because a physician should not be rewarded for prescribing less.⁷ This reform created intense conflict among the medical unions, the French government, and the national health insurance fund.

It has been suggested that incentives or penalties could have some influence on physicians’ behavior if they are linked to an explicit clinical objective (eg, to reduce inefficacious procedures).⁸⁹ If any effect of the RMO policy on medical practice is to be expected, physicians must first be aware of the RMOs.¹¹ Thus, we conducted a survey to evaluate the level of awareness and knowledge of RMOs among family physicians 4 years after the implementation of this policy.

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**MATERIALS AND METHODS**

**QUESTIONNAIRE**

Two family physicians involved in the study (B. G. and M. D.) selected 4 RMO topics, 4 diagnostic RMOs, and 4 therapeutic RMOs from the list published in 1997. In addition, they selected a list of 4 topics not covered by the RMOs. Then, 2 of us (P.D. and B.G.) created 4 fictitious diagnostic RMOs and 4 fictitious therapeutic RMOs. Fictitious RMOs were recommended practices that would be reasonable to follow but that had not been selected as RMOs (Table 1). Both actual RMOs and fictitious RMOs concerned clinical problems faced by family physicians (eg, expected high frequency or high cost of prescription).

From a list of 8 topics including 4 actual and 4 fictitious RMOs
in each of 3 sections, participants were asked in yes or no questions to identify the following: RMO topics, diagnostic RMOs, and therapeutic RMOs (Table 1). Participants were unaware of the number of actual items among a total of 24 items.

Respondents were also asked to give brief details about themselves (age and sex), to state whether they received RMOs and read them, how often they consulted them at the time of patient consultation or not during patient consultation, and whether they are a member of a continuing medical education group.

SURVEY

The questionnaire was administered in June 1998 to 3 groups of practicing family physicians:

- Physicians attending a session on guideline development methodology that occurred at a conference on therapeutics in general practice (group 1, n=159).
- Members of a group of physicians who participate regularly in training activities organized by Agence Nationale d’Accréditation et d’Évaluation en Santé at a regional level (group 2, n=120).
- A random sample drawn from the list of members living in the Ile de France region of a national medical society of family physicians (the Société de Formation Thérapeutique du Généraliste) (group 3, n=200).

The questionnaire was distributed to all group 1 physicians attending the session after a short presentation about the study. In groups 2 and 3, the questionnaire was mailed with a cover letter signed by the investigators and a self-addressed stamped return envelope.

DATA ANALYSIS

The questions required yes or no answers. We first considered the 24 items as the unit of analysis to estimate for each of them a percentage of correct answers among the physicians. Then we focused on the physician as the unit of analysis, and individual scores were obtained by totaling the scores obtained by the physician for each item (1 point per correct answer). These individual scores were then divided by the number of items considered and multiplied by 100, thus leading to scores of 100 (95% confidence interval [CI]). Comparisons between groups were made by means of analysis of variance or Fisher exact tests. Comparisons of average scores to the theoretical value of 50 (expected average score obtained by chance) were made using t tests. Let us consider a series of 8 yes or no items (eg, items related to the awareness of RMO topics). Assuming the physician always answers randomly, the probability of being right (and thus obtaining 1 point) is 0.5 for each of the 8 items per section. The score obtained when answer-

### RESULTS

Three hundred fifty-two physicians answered the questionnaire. The response rates were 92.5% for group 1, 78.3% for group 2, and 55.5% for group 3. After exclusion of 31 questionnaires completed by physicians who were not practicing family physicians (retired family physicians and specialists), 321 questionnaires were analysed. Table 2 provides the main characteristics of the respondents in the 3 groups surveyed. Overall, 93.8% of the respondents declared that they received the text of RMOs. Respectively, 44.3% and 80.0% declared that they sometimes read them, either at the time of patient consultation or not during patient consultation. There were more female physicians in group 3 and more respondents who declared that they sometimes used the RMOs in group 2.

### AWARENESS OF RMO TOPICS

The average overall awareness score was 55.8 of 100 points (95% CI, 53.3-58.3). Group 3 performed worse than the other two groups (mean score, 47.8 points compared with 59.5 for group 1 and 60.0 for group 2). The percentage of awareness per topic varied from 26.8% (95% CI, 22.0-31.6) to 88.5% (95% CI, 85.0-92.0) (Table 1). The topic “medical treatment of arteriosclerosis of peripheral arteries” (actual RMO topic) had the highest percentage of recognition in the 3 groups of physicians, and the topic “insulin-dependent diabetes” (fictitious RMO topic) had the lowest percentage in the 3 groups.

### KNOWLEDGE OF RMOs

The average overall knowledge score was 35.9 of 100 points (95% CI, 33.3-38.3). Group 3 performed worse than the other two groups (mean score, 32.1 points compared with 52.9 for group 1 and 53.8 for group 2). The percentage of knowledge per topic varied from 26.8% (95% CI, 22.0-31.6) to 88.5% (95% CI, 85.0-92.0) (Table 1). The topic “medical treatment of arteriosclerosis of peripheral arteries” (actual RMO topic) had the highest percentage of recognition in the 3 groups of physicians, and the topic “insulin-dependent diabetes” (fictitious RMO topic) had the lowest percentage in the 3 groups.
Results of the 3 groups are listed in Table 3. Again, the results of group 3 were worse than those of the 2 other groups for diagnostic and therapeutic RMOs.

Only 3 diagnostic and 1 therapeutic RMOs were identified by more than 75% of the respondents. These 4 RMOs were published for the first time in 1994. They concerned the following subjects: tumor markers (76.6% correct; 95% CI, 72.0-81.2), diagnosis of osteoarthritis (84.1% correct; 95% CI, 80.1-88.1), diagnosis of non–insulin-dependent diabetes (86.3% correct; 95% CI, 82.5-90.1), and treatment of hypertension (90.0% correct; 95% CI, 86.7-93.3). Less than 25% of the correct answers was observed in 1 diagnostic and 1 therapeutic sentence: diagnosis of urinary tract infection (24.4% correct; 95% CI, 19.7-29.1) and antibiotic treatment in otitis and pharyngitis (20.6% correct; 95% CI, 16.2-25.0), respectively. These fictitious RMOs were identified as true by most of the respondents (Table 1). These results did not differ among the 3 groups surveyed.

When the 24 questions were considered together, divided into actual and fictitious RMOs, we observed a significant difference in the average (SD) scores, 62.2 points (19.5) for actual RMOs compared with 43.2 points (25.0) for fictitious RMOs (P<.001). None of the respondents correctly identified all 12 correct items. Fifteen (4.8%) of them correctly identified the 8 RMO topics, but none correctly identified the 16 items concerning the RMOs themselves. There was no difference in the average scores of physicians who indicated participation or not in a continuing medical education group (52.4 points [16.5] vs 54.2 points [16.4], P=.43) or who declared that they sometimes used the RMOs during patient consultation (52.0 points [16.8] vs 53.7 points [16.8], P=.32).

### Table 3. Mean Score of Correct Answers per French Family Physician

<table>
<thead>
<tr>
<th>RMO1 Variable</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness of RMO topics</td>
<td>59.5 (21.0)¶</td>
<td>60.0 (21.4)¶</td>
<td>47.8 (23.4)§</td>
<td>55.8 (24.1)¶</td>
</tr>
<tr>
<td>Knowledge</td>
<td>53.8 (20.0)¶</td>
<td>58.5 (17.7)¶</td>
<td>48.4 (19.7)¶</td>
<td>53.2 (22.4)¶</td>
</tr>
<tr>
<td>Of diagnostic RMOs</td>
<td>50.6 (20.5)¶</td>
<td>51.0 (17.2)**</td>
<td>45.3 (23.5)¶</td>
<td>47.8 (26.9)¶</td>
</tr>
<tr>
<td>Of therapeutic RMOs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¶P = .02, t test.
**P = .05, t test.
¶P = .35, t test.
*P = .75, t test.
**P = .58, t test.

*The possible maximum score was 100 points; this being the difference from the score of 50 points that would have been obtained by chance.

RMOs indicates regulatory medical references; RMO policy indicates guidelines on regulatory medical references; RMOs policy on the awareness and knowledge of RMOs among French family physicians.

Regulatory medical references were widely distributed and nationally endorsed, but diffusion alone has been proven to be ineffective. As an example, in Canada, Lomas et al found that 67% of obstetricians were aware of guidelines on cesarean delivery, widely disseminated by the Canadian Society of Obstetricians and Gynecologists, 1 year after their release. However, only 3% of them could correctly identify 4 recommended actions and 4 nonrecommended actions. Similarly, Fowler et al showed that 51% of British general practitioners reported having received guidelines on smoking cessation counseling, 28% of them reported having read it but only 9% could name the 3 major recommendations of the guidelines. In the case of RMO policy, the difficulties of physicians in remembering these RMOs are probably explained by the number of topics (n=46), the number of RMOs (n=197), and their 4-fold increase from 1994 to 1997. The fact that awareness and knowledge of RMOs was highest for those published in 1994 and lowest for recent RMOs published in 1996 (Table 1) reinforces this hypothesis.

The 3 groups recognized significantly better actual RMOs than fictitious RMOs (average score of 62.2 points [19.5] vs 43.2 points [25.0], P<.001). This could mean that physicians see the RMOs as overly intrusive and they overidentify them. This result is consistent with the belief that when this policy was implemented in 1994, physicians anticipated the controls and spontaneously limited their prescriptions, leading to a reduction of drug expenditures estimated in 1995 to be about Fr337 million.19 The threat of financial disincentives using RMOs could have an effect on physician behavior even if physicians do not know these RMOs. However, it is also possible that physicians paid no attention to RMOs and answered with their current practice patterns that happened to be in agreement with the true and the fictitious RMOs. In other words, when they are unable to discriminate, physicians assume the more restrictive option.

A recent study showed that the influence of the RMO policy on drug expenditures that was observed in 1994 was not observed for therapeutic RMOs published after 1994. The long-term results of financial disincentives on physicians' behavior de-
pend on trust, legitimacy, and the quality of controls. Most French physicians resent the financial penalties. In 1998, 60% of French physicians declared that the RMO policy could affect the quality of care. However, at the end of 1997, only 151 physicians (0.14%) had been fined. It has been stressed that, due to the lack of pertinent information systems, it took 300 hours to check prescriptions ordered by 1 physician over a 2-month period. Thus, the difficulty of controlling family physicians limits the credibility of this policy, which was not perceived by physicians as a real threat.

Our study has some limitations. The RMO topics and RMOs chosen to be included in the questionnaire concerned problems faced by French family physicians. However, it is impossible to know if the results would have been different if we had chosen other RMOs. Another limitation of our study is that the 3 groups of physicians surveyed are not representative of the whole French physician population. They are probably more representative of French physicians interested in continuing medical education activities. The physicians in group 1 were interviewed before attending a session on guideline development methods, some of the physicians in group 2 participated in the development of RMOs, and the members of the Société de Formation Thérapeutique du Généraliste (group 3) have been involved in medical practice evaluation for years. The response rate of group 3 to our questionnaire was low (55.5%) compared with the response rate of the 2 other groups (92.5 and 78.3%, respectively). The members of this society are probably less enthusiastic about RMOs than the 2 other groups. However, considering the characteristics of the sample of physicians we had chosen, it is probable that the results would have been worse if we had surveyed a less selected population of French family physicians.

Lastly, the fact that French physicians surveyed were unable to correctly identify RMOs does not mean that their actual practice is inappropriate. It is possible that, since the content of most RMOs were not subject to criticism, they were considered by family physicians as too close to their actual practice. The usefulness of some RMOs has also been questioned. In a study on prescription of vasodilator agents in peripheral occlusive artery diseases (actual topic of RMO correctly identified by 88.5% of our population), it has been shown that 80% of prescriptions of a population of French physicians surveyed was appropriate according to the RMO 1 year before its release.

Four years after the implementation of the RMO policy, French family physicians are unable to correctly identify topics of RMOs or the RMOs themselves. The number of RMOs and the difficulties of controlling physicians probably explain these results. Thus, it is doubtful that this policy could have a long-term effect on French physicians' practices.

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