Potentially Inappropriate Medication Use in the Community-Dwelling Elderly
Findings From the 1996 Medical Expenditure Panel Survey

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I NAPPROPRIATE MEDICATION USE IS A major patient safety concern, especially for the elderly population.[1-4] Researchers have documented widespread inappropriate medication use by elderly persons in hospitals,[5] nursing homes,[6-8] board and care facilities,[9] physician office practices,[10,11] hospital outpatient departments,[12] and homebound elderly,[13] with the estimated prevalence of potentially inappropriate use ranging from 12% to 40%. Two prior studies examined inappropriate medication use in the community-dwelling elderly using population-based nationally representative surveys. Using the National Medical Expenditure Survey (NMES), Willcox et al[14] estimated that 23.5% of the community-dwelling elderly in the United States (6.64 million people) used at least 1 of 20 inappropriate medications in 1987. Using the Medicare Current Beneficiary Survey (MCBS), the General Accounting Office[15] estimated that 17.5% (5.2 million) of the community-dwelling elderly used at

Context Inappropriate medication use is a major patient safety concern, especially for the elderly population. Using explicit criteria, prior studies have found that 23.5% and 17.5% of the US community-dwelling elderly population used at least 1 of 20 potentially inappropriate medications in 1987 and 1992, respectively.

Objectives To determine the prevalence of potentially inappropriate medication use in community-dwelling elderly persons in 1996, to assess trends over 10 years, categorize inappropriate medication use according to explicit criteria, and to examine risk factors for inappropriate medication use.

Design, Setting, and Participants Respondents aged 65 years or older (n=2455) to the 1996 Medical Expenditure Panel Survey, a nationally representative survey of the US noninstitutionalized population were included. A 7-member expert panel was convened to categorize inappropriate medications.

Main Outcome Measure Prevalence of use of 33 potentially inappropriate medications.

Results In 1996, 21.3% (95% confidence interval [CI], 19.5%-23.1%) of community-dwelling elderly patients in the United States received at least 1 of 33 potentially inappropriate medications. Using the expert panel's classifications, about 2.6% of elderly patients (95% CI, 2.0%-3.2%) used at least 1 of the 11 medications that should always be avoided by elderly patients; 9.1% (95% CI, 7.9%-10.3%) used at least 1 of the 8 that would rarely be appropriate; and 13.3% (95% CI, 11.7%-14.9%) used at least 1 of the 14 medications that have some indications but are often misused. Use of some inappropriate medications declined between 1987 and 1996. Persons with poor health and more prescriptions had a significantly higher risk of inappropriate medication use.

Conclusions Overall inappropriate medication use in elderly patients remains a serious problem. Despite challenges in using explicit criteria for assessing inappropriate medications for elderly patients, such criteria can be applied to population-based surveys to identify opportunities to improve quality of care and patient safety. Enhancements of existing data sources to include dosage, duration, and indication may augment national improvement and monitoring efforts.

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least 1 of the same 20 inappropriate medications in 1992.

Most studies of inappropriate medication use in elderly patients, including the 2 nationally representative studies, used explicit criteria developed in 1991 by Beers et al[16] for nursing home patients. Although generally accepted by the medical community[2] and ex-

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pert opinion,[15] the Beers criteria continue to be debated because explicit criteria cannot completely capture all factors that define appropriate prescription decision making.[17] The use of some drugs on the Beers criteria may be justified in a given circumstance because the benefits outweigh the risk for a particular patient.[17,18] Beers et al[16] have indicated that there are limitations to both the sensitivity and specificity of the criteria and that these criteria may be considered a screening test in assessing inappropriate use.[19]

In this article, we report the latest available national estimates from the 1996 Medical Expenditure Panel Survey (MEPS) of potentially inappropriate medication use among the community-dwelling elderly population. This is the first study to derive these estimates using updated criteria specifically designed to be applied to community-dwelling individuals.[19] Because of ongoing controversy surrounding the Beers criteria,[2] we convened a panel with expertise in geriatrics, pharmacoepidemiology, and pharmacy to identify a subset of these drugs that should be avoided, as well as to identify any clinical indications for use of the listed drugs as of 1996. We compared our findings with previously published findings from the 1987 NMES[14] and the 1992 MCBS[15] to examine trends over a 10-year period. Finally, we explored factors associated with inappropriate medication use among elderly patients.

METHODS
Data Sources
The MEPS is a nationally representative survey of health care use including medications, expenditures, sources of payment, and insurance coverage for the US civilian noninstitutionalized population.[20] The 1996 MEPS sample comprised 195 primary sampling units and 10 597 households, drawn from a sample of all households in the 1995 National Health Interview Survey conducted by the National Center for Health Statistics. The overall response rate for the 1996 MEPS was 70.2%. Our analytical

sample included all 2455 community-dwelling individuals aged 65 years or older, representing 32 294 810 elderly patients in the United States.

The MEPS used a combination of household interviews and a pharmacy follow-back survey to produce its Prescribed Medicines database.[21] Respondents were interviewed 3 times for health-related events during 1996 and 1997 and were asked on every round whether family members purchased or otherwise received (eg, free samples) any prescription medicine and where they obtained it. Respondents were given 2 opportunities to mention whether they received medications: first, in relation to nonprescription health service events, and then later, during the Prescribed Medicines section of the questionnaire. They were also asked to use diaries, pill bottles, and any relevant materials to assist recall.

To reduce underreporting, the 1996 MEPS included a follow-back survey of pharmacy providers frequented by sampled household persons. With signed permissions from respondents, MEPS interviewers contacted pharmacy providers for computerized printouts, when available, and other records for the named respondents (person-pharmacy pairs response rate of 67.1%). The resulting 1996 pharmacy data file was coded using National Drug Codes and a mix of nonproprietary and trade drug names, and released for public use in March 2001. Details on the pharmacy data file are described elsewhere.[21]

Classification of Inappropriate Medications
The 1997 Beers criteria[19] for community-dwelling elderly were the basis for this analysis. Because MEPS does not include sufficient detail on drug dosage, frequency, and duration of administration, we restricted our analysis to a subset of 33 drugs from the Beers criteria potentially inappropiate for elderly patients irrespective of dose, frequency of administration, or duration. We obtained a complete list of drugs reported by the elderly participants in

the MEPS sample and found the matching nonproprietary names for the 33 drugs.

To address nuances regarding prescribing of the medications included in the Beers criteria, we recruited an expert panel of 7 members including geriatricians, a pharmacoepidemiologist, and a pharmacist, all involved in practice or research in medication issues for elderly patients. We used a modified Delphi method[22] with 2 rounds. In the first round, we asked panel members to familiarize themselves with the original Beers criteria,[16] the update,[19] and the NMES-based study,[14] and to independently classify the 33 drugs into 2 categories based on their professional expertise: drugs that (1) should always be avoided by elderly patients or (2) may be appropriate for elderly patients in some circumstances. For those drugs classified in the latter category, we asked panel members to list possible clinical indications. An anonymous summary of the experts' categorization of the medications and clinical indications was then shared with the full panel prior to the second round, conducted via a conference call. During the second round, the panel decided to make an additional distinction between drugs that may not be inappropriate in rare circumstances and those that have some indications in elderly patients. The panel acknowledged that agents in both of these 2 categories are often used inappropriately in clinical practice. As a result of our expert panel input, we classified the 33 drugs into 3 final categories for our analysis: drugs that (1) should always be avoided, (2) are rarely appropriate, and (3) have some indications but are often misused.

Data Analysis
The associations between potentially inappropriate medication use and selected population characteristics were evaluated by analysis of variance and logistic regressions. To assess use of potentially inappropriate medications during the 10-year period from 1987 to 1996, we compared findings from the 1996 MEPS with previously pub-

lished findings from the 1987 NMES and the 1992 MCBS. Although methodologies of these surveys are not identical, all used nationally representative sampling frames to obtain data on a nationally representative sample of individuals.

We reported national estimates for the US noninstitutionalized population using MEPS sampling weights that adjusted for the complex sample design and nonresponse.[20] Data were analyzed using SAS version 6 (SAS Institute Inc, Cary, NC) and SUDAAN version 6 (SUDAAN, Research Triangle Park, NC).

RESULTS

Panel Classification of Drugs

TABLE 1 presents the expert panel's consensus on the classification of the 33 drugs in our study. The expert panel reached consensus that 11 drugs should be avoided in elderly patients, 8 are appropriate in rare circumstances, and 14 have some indications for use in the elderly population.

The 8 drugs that were finally classified as rarely appropriate generated much discussion. The expert panel thought that most use of these agents in elderly patients was inappropriate, but in rare circumstances these medications may not be considered inappropriate. Some expert panel members believed strongly that the 5 muscle relaxants (carisoprodol, chlorzoxazone, cyclobenzaprine, metaxalone, and methocarbamol) should always be avoided for lack of efficacy and for potential adverse effects, but others believed that they may be appropriate for a short course of treatment for an acute episode of back pain in a relatively healthy elderly person. Panel members agreed that propoxyphene should not be started as a new agent for pain, but it might be appropriate to renew a prescription for a patient who has tolerated the drug, is not abusing it, and expresses a strong preference for a prescription renewal. The panel believed that most use of the long-acting benzodiazepines was likely to be inappropriate; however, in rare circumstances, diazepam and chlordiazepox-

ide may be used appropriately for a short treatment course for alcohol withdrawal and for muscle spasm in the case of diazepam.

The panel achieved consensus that the remaining 14 drugs had some clear-cut indications for use in elderly patients, but

are often misused in clinical practice. The panel discussed possible indications for each of the drugs and their judgment about inappropriate uses. For example, amitriptyline in low doses is indicated for the treatment of neuropathic pain and is also occasionally used

Table 1. National US Estimates of Potentially Inappropriate Medication Use by Expert Panel Category and Generic Name*

| Drugs (1997 Beers Criteria and Classification by Expert Panel) | 1996 Medical Expenditure Panel Survey | | 1992 MCBS[15] | 1987 NMES[14] |
	No. of Elderly in Sample	% of Total Elderly Receiving Drugs	% of Total Elderly Receiving Drugs	% of Total Elderly Receiving Drugs
Always avoid	2.6 (2.0-3.2)†			
Barbiturates‡	4	0.14§	0.03	0.15
Flurazepam	7	0.22	0.77	1.25
Meprobamate	5	0.22	0.32	0.82
Chlorpropamide	10	0.37	0.87	2.08
Meperidine	3	0.11§	NA	NA
Pentazocine	1	0.05§	0.14	0.30
Trimethobenzamide	5	0.19	NA	0.27
Belladonna alkaloids	8	0.23	NA	NA
Dicyclomine	18	0.64	NA	NA
Hyoscyamine	10	0.37	NA	NA
Propantheline	4	0.11§	NA	NA
Rarely appropriate	9.1 (7.9-10.3)†			
Chlordiazepoxide	9	0.33	0.60	1.95
Diazepam	32	1.37	2.13	2.82
Propoxyphene	144	6.21	5.63	4.83
Carisoprodol	14	0.50	0.68	0.38
Chlorzoxazone	6	0.23	NA	NA
Cyclobenzaprine	24	1.12	0.59	0.70
Metaxalone	4	0.16§	NA	NA
Methocarbamol	9	0.44	0.40	0.42
Some indications	13.3 (11.7-14.9)†			
Amitriptyline	84	3.36	2.63	3.13
Doxepin	16	0.50	1.72	2.64
Indomethacin	24	0.97	4.09	6.44
Dipyridamole	38	1.51	NA	NA
Ticlopidine	20	0.83	NA	NA
Methyldopa	16	0.63	NA	NA
Reserpine	15	0.65	NA	NA
Disopyramide	9	0.41	NA	NA
Oxybutynin	31	1.34	NA	NA
Chlorpheniramine	12	0.50	NA	NA
Cyproheptadine	8	0.23	NA	NA
Diphenhydramine	26	0.99	NA	NA
Hydroxyzine	34	1.29	NA	NA
Promethazine	37	1.56	NA	NA
Any of 33 drugs	21.3 (19.5-23.1)†			

*MCBS indicates Medicare Current Beneficiary Survey; NMES, National Medical Care Expenditure Survey; and NA, not applicable because medications were not screened in survey.
†Data presented as odds ratio (95% confidence interval).
‡Includes butabarbital, secobarbital, and pentobarbital.
§Relative SE is ≥30%.

in the treatment of urinary incontinence, but amitriptyline usually should not be used to treat depression in elderly patients; antihistamines are appropriate for treatment of allergic reactions and urticaria, but not for sedation; oxybutynin is an appropriate choice for urge incontinence, but not for use as a gastrointestinal antispasmodic; and indomethacin may be appropriate as a short course of therapy for acute gouty arthritis, though better alternatives exist. Some drugs had indications as second-line agents, such as ticlopidine as an antiplatelet agent in individuals intolerant of aspirin or reserpine for hypertension in an individual unable to afford more costly agents but who is appropriately monitored for untoward effects.

When possible, we assessed whether MEPS respondents who used these drugs reported the medical conditions for which these drugs are indicated. Our analysis showed that 14% of those who used amitriptyline had a diagnosis of neuropathy and 42% of those who used indomethacin had a diagnosis of gout. However, because MEPS public release data contain only 3-digit *International Classification of Diseases, Ninth Revision, Clinical Modification* codes and the medical conditions for which a prescription was made cannot be definitively delineated, analyses of disease-drug appropriateness, such as these, were limited.

Prevalence of Inappropriate Medication Use

Table 1 also shows the numbers and national estimates of use by community-dwelling elderly patients of the 33 potentially inappropriate medications in 1996. The national estimates of the percentage of elderly patients using the drugs ranged from 0.05% for pentazocine to 6.21% for propoxyphene. Five drugs were used by fewer than 5 people in the sample. For these drugs, the percentage estimates had a relative SE (the ratio of SE over estimate) of at least 30%, and therefore were not considered as reliable as estimates for other individual drugs, given the sample size

and survey design (Steve B. Cohen, PhD, director and lead statistician for MEPS, oral communication, September 2001). This problem should not undermine the reliability of the aggregate rate.

In 1996, an estimated 6.9 million elderly patients or more than 1 in 5 of the community-dwelling elderly in the United States (21.3%; 95% confidence interval [CI], 19.5%-23.1%) used at least 1 of 33 drugs identified by Beers[19] as inappropriate regardless of medical diagnosis. Twenty-five percent of persons who used at least 1 prescription drug received 1 of these drugs. Nearly 3% (n=840000) of elderly patients used at least 1 of the 11 drugs that the panel believed should always be avoided by elderly patients (2.6%; 95% CI, 2.0%-3.2% for all elderly patients; 3.2% for those with at least 1 prescription). One in 11 elderly patients used 1 of the 8 medications the panel indicated would rarely be appropriate (9.1%; 95% CI, 7.9%-10.3% of all elderly patients; 10.6% of those with at least 1 prescription). Thirteen percent of elderly patients (13.3%; 95% CI, 11.7%-14.9%) and 15.4% of those with at least 1 prescription used 1 of the 14 medications that the panel classified as having some indications.

Changes Over Time

The last 2 columns of Table 1 show the previously reported national estimates of use of inappropriate drugs in 1987[14] and 1992.[15] Of the 15 drugs with prior estimates of use, use of 9 drugs declined from 1987 to 1996, including 5 of the 6 drugs that our expert panel classified as those that should always be avoided by elderly patients. Estimated use of barbiturates remained constant over the 10 years. Two of the muscle relaxants (methocarbamol and carisoprodol) had essentially unchanged use estimates, while another muscle relaxant, cyclobenzaprine, increased in use. Two other drugs (propoxyphene and amitriptyline), classified respectively as rarely appropriate and as having some indications, increased in use between 1987 and 1996.

Since all 3 surveys provided nationally representative samples and shared similar data collection processes,[14,15,20] the estimates of the number and proportion of elderly patients using any single drug in a year obtained independently from the 3 surveys could be directly compared with each other. However, we could not determine the statistical significance of the differences between the estimates of percentages of elderly patients using each drug in 1987, 1992, and 1996, because those studies reporting estimates for 1987 and 1992 did not provide SEs or CIs.[14,15] It should be noted that MEPS added a pharmacy provider survey to supplement medication data reported by household, and therefore MEPS may underreport prescription medications to a lesser extent than NMES and MCBS. As a result, any increase in use of an individual inappropriate medication shown in Table 1 may be due to improved reporting while observation of reduction may be considered a sign of improvement over time. We could not assess the changes in overall use of inappropriate medications (ie, the aggregate estimates of inappropriate medications), because different lists were used by the 3 studies and different sets of inappropriate medications were available at the different survey periods.

Correlates of Inappropriate Medication Use

TABLE 2 presents differences in the rates of inappropriate medication use by sociodemographic characteristics, health status, and geographic factors. Elderly women were more likely than elderly men to receive inappropriate medications when controlling for age, race/ethnicity, education, health status, Medicare eligibility, rural or urban location, and region (odds ratio [OR], 1.3 for receiving 1 of the 33 potentially inappropriate medications [95% CI, 1.1-1.6]; and OR, 2.0 for receiving 1 of the 11 drugs that should always be avoided by elderly patients [95% CI, 1.1-3.8]). Health status was the most important predictor of inappropriate medication use. Controlling for other factors, a per-

son reporting poor health was 6 times more likely to receive 1 of the 33 potentially inappropriate medications (OR, 5.9; 95% CI, 3.4-10.1) or 1 of the 11 drugs that should always be avoided by elderly patients (OR, 6.1; 95% CI, 1.7-21.5) than a person with excellent health. This effect was somewhat reduced but remained significant after controlling for the number of prescription drugs an elderly person received (OR, 2.7; 95% CI, 1.6-4.8 for 33 drugs; OR, 4.2; 95% CI, 1.1-15.8 for 11 drugs). Another significant factor was the number of prescriptions the elderly person received in a year; elderly patients who used more than the median number of prescriptions (14) were 3 times as likely to receive 1 of the 33 potentially inappropriate medications (OR, 2.9; 95% CI, 2.3-3.6) and almost twice more likely to receive 1 of the 11 drugs that should always be avoided by elderly patients (OR, 1.9; 95% CI, 1.0-3.4) than the elderly individuals who received fewer than 14 prescriptions in a year. Whites were more likely than blacks (OR, 1.6; 95% CI, 1.1-2.3) and other minorities were more likely than blacks (OR, 2.1; 95% CI, 1.0-4.2) to receive 1 of the 33 potentially inappropriate medications. However, race or ethnicity was not significantly associated with the use of 11 drugs that should always be avoided. Controlling for other factors, education, Medicare eligibility, rural/urban location, and region were not significantly associated with inappropriate medication use.

COMMENT

Inappropriate use of medications in elderly patients remains a significant problem in the United States. In 1996, approximately 6.9 million community-dwelling elderly individuals (21.3%) received at least 1 of the 33 potentially inappropriate medications listed in the 1997 Beers criteria. Even if one uses our conservative expert panel categorization and evaluates the 11 drugs that should always be avoided by elderly patients, almost 1 million elderly individuals (2.6%) received at least 1 inappropriate medication.

Our estimates are conservative for a number of reasons. As in the Willcox et al[14] and General Accounting Office studies,[15] we did not assess drug-disease interactions, drug-drug interactions, dosage, and drug administration–related problems due to limitations in the data. Given the rate of introduction of new pharmaceutical agents into the market, it is likely that some newer drugs may be potentially inappropriate for use in elderly patients but not covered by existing criteria and our analysis. Therefore, our estimates may represent only a fraction of inappropriate medication use in elderly patients.[2,14]

It is clear that use of some existing inappropriate medications, especially those the expert panel thought should always be avoided by elderly patients, decreased from 1987 to 1996 consistent

Table 2. Use of Potentially Inappropriate Medications by Respondent Characteristics

Characteristics	Sample Distribution, % (N = 2455)	At Least 1 Prescription, %	Used 1 of 33 Inappropriate Drugs, %	Used 1 of 11 Drugs That Should Be Avoided, %
Total population	100	85.6	21.3	2.6
Age, y				
65-69	29	84.7	20.4	2.4
70-74	28	84.2	21.9	3.4
75-79	21	84.0	19.6	1.8
80-84	13	89.0	23.4	2.5
≥85	9	91.4	23.2	2.6
Sex				
Male	41	84.9	19.4	1.6
Female	59	86.1	22.7	3.2
Race				
Black	12	78.8	18.7	3.6
White	86	86.7	21.5	2.5
Other	2	75.0	22.4	0.4
Education				
Elementary school	22	85.4	24.8	2.9
Some high school	18	84.5	21.7	2.6
High school degree	31	85.5	20.4	1.9
Some college	20	87.6	19.2	3.1
College degree	9	85.0	19.6	1.5
Self-rated health				
Excellent	18	73.1	10.3	0.8
Very good	26	84.9	14.0	1.5
Good	29	86.7	22.3	2.8
Fair	19	93.8	34.5	4.8
Poor	8	94.5	38.4	4.5
No. of prescriptions*				
<Median (14)	43	100	15.9	2.0
>Median (14)	43	100	33.8	4.6
Medicare status				
Medicare only	31	79.7	18.6	2.7
Medicare and Medicaid	11	86.0	26.8	6.2
Medicare and private	58	88.5	21.7	2.0
Metropolitan statistical area				
No	25	88.3	25.9	3.0
Yes	75	84.8	19.9	2.4
Census region				
Northeast	22	85.5	18.9	2.3
Midwest	24	85.9	23.2	2.2
South	34	85.6	22.9	3.3
West	20	85.4	18.6	1.9

*Includes only those persons with at least 1 prescription (n = 2089), where the median number of prescriptions is 14.

with findings by Blazer et al.[23] Of the 33 drugs examined, however, only 14 had use estimates for all 3 time periods from 1987 to 1996. This limited our ability to comment on the overall level of inappropriate use of the 33 drugs. In 1992, upon finding that 17.5% of elderly patients used at least 1 of 20 inappropriate drugs, a decrease from 23.5% in 1987, the General Accounting Office report concluded that there was a reduction in the overall prevalence of inappropriate medication use.[15] It is conceivable that the full extent of inappropriate medication use was not captured by the limited 20-drug list used in the General Accounting Office report. Our results may similarly fall short of capturing the overall use of inappropriate medications by elderly patients.

Defining and disseminating explicit inappropriate medication criteria[16,19,24,25] has been a main strategy to address inappropriate medication use. Our expert panel process underscores some of the challenges in this strategy. In our expert panel as well as in the consensus panels used to develop the 1991 and 1997 criteria, there were notable areas of differing opinions. We also note that the criteria developed by a Canadian expert panel agreed on only 13 of the 33 medications in the 1997 Beers criteria irrespective of diagnosis.[25] Such differences are also seen in guidelines. For example, propantheline, which the expert panel thought should always be avoided in elderly patients, is listed as a treatment option for urge incontinence in the latest issue of *Geriatrics Review Syllabus.*[26(p120)]

There are several explanations for the lack of consensus on some specific agents and persistent use of some potentially inappropriate medications. Because elderly patients have often been excluded from clinical trials both because of age and comorbidity, there is often insufficient evidence regarding the relative risks and benefits of therapeutic agents in this population. There is considerable physiologic heterogeneity in the elderly population and the risk-benefit ratio of a drug will be different depending on the clinical status of the patient. Drugs may be appropriate as a second-line agent for an individual who has failed to respond to or cannot tolerate the preferred agent. Cost may also be a factor in selection of a given agent. At a time when growing attention is being focused on medical errors and given the ambiguity surrounding some of these criteria, the expert panel discussion underscored the need to acknowledge these factors in using and interpreting data on inappropriate drug use among elderly patients. Explicit criteria may be best used as a screening tool to identify elderly individuals at high risk of suboptimal prescribing as well as to identify and prioritize problem areas,[17] rather than a definitive measure of quality of care or performance.

Our study highlights the problem of inappropriate medication use in elderly patients, which is just a component of the larger problem of suboptimal prescribing composed of underuse of effective agents, inappropriate use of drugs that are appropriate in other circumstances, choice of less effective agents, drug-drug and drug-disease interactions, inappropriate dosing and monitoring, and prescription errors. Future studies are needed to assess other types of inappropriate medication use, such as drug-drug and drug-disease interaction discussed by Hanlon et al[25] and "move beyond simple descriptions of prescribing patterns and begin to measure the adverse clinical and economic consequences of poor pharmacotherapeutic decision making in the elderly."[2] Enhancements of existing data sources to include dosage, duration, and indication will facilitate these efforts.

Elderly patients are more likely to be in poor health than the general population and use more medications, both factors associated with increased risk of inappropriate medication use. Efforts to reduce inappropriate drug use in elderly patients are likely to have a substantial impact upon reducing drug-related morbidity. Reduction in suboptimal prescriptions depends on changes in physician prescription behavior, which has to result from improved physician prescription knowledge[27] and an array of enabling forces, such as drug utilization review, computerized reminder systems, and patient education.[28] At a time when the United States is considering the addition of a prescription drug benefit to Medicare,[29] we should recognize the potential for increased inappropriate prescriptions and develop measures to protect Medicare beneficiaries from the harms of inappropriate prescriptions.

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Historical judgment is not a variety of knowledge, it is knowledge itself; it is the form which completely fills and exhausts the field of knowing, leaving no room for anything else.
—Benedetto Croce (1866-1952)