

Patterns of Prescribing Antiepileptic Drugs for Bipolar Disorder

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Off-label use of medications is the subject of great debate. Prescribing is influenced by a number of factors, including peer recommendations, pharmaceutical industry marketing, and evidence-based drug effectiveness reports. Understanding prescribing patterns for a particular drug class can inform efforts to provide fair and balanced information to prescribers. This study investigated four dimensions of psychiatrists' prescribing practices for antiepileptic drugs (AEDs) for bipolar disorder: 1) psychiatrists' current use of AEDs, 2) their actual and preferred sources of information on AEDs, 3) their knowledge about the Neurontin lawsuit, and 4) their reactions to sample marketing campaign materials, including key messages from an evidence-based report on the topic. Qualitative methods, including telephone and in-person focus groups and in-depth interviews, were used to explore these dimensions. We found that psychiatrists prescribe AEDs for off-label use, but that they are not using gabapentin as a primary treatment for bipolar disorder. The psychiatrists also reported that they obtained their information about AEDs from professional journals, colleagues, and pharmaceutical representatives. The psychiatrists were asked to review a set of four key messages derived from an evidence-based report on the use of AEDs to treat bipolar disorder. They had misconceptions about the efficacy of the draft messages as they were written, stating that they were oversimplified and erroneous. The messages were revised based on the participants' feedback. However, the core findings from the evidence-based report remained unchanged. Recommendations for developing and disseminating messages and materials for a future corrective marketing campaign to provide fair and balanced information to physicians about gabapentin and other AEDs are discussed. (*Journal of Psychiatric Practice* 2007;14 (suppl 1):35-43)

KEY WORDS: bipolar disorder, antiepileptic drugs, gabapentin, information sources, prescribing patterns

Psychiatrists and others prescribe, in some cases off-label, antiepileptic drugs (AEDs) for a number of indications, including bipolar disorder. The off-label marketing of one AED, gabapentin (Neurontin), resulted in legal action against Pfizer, and its subsidiary Warner-Lambert. In a settlement with the states' attorneys general, funds were made available to develop an advertising program to provide fair and balanced information to prescribers about gabapentin and other AEDs. Researchers at the University of North Carolina at Chapel Hill (UNC) and the Research Triangle Institute International (RTI) were tasked with developing a national countermarketing campaign to provide fair and balanced information about the efficacy of AEDs for treating bipolar disorder. The devised a two-phase study designed to increase understanding of psychiatrists' current prescribing patterns for AEDs for bipolar disorder, identify their preferences for sources of information on prescribing in general and on AEDs in particular, assess their knowledge about the Neurontin lawsuit, and gauge their reaction to sample marketing campaign materials. The design involved

two phases, 1) audience research and 2) development and testing of materials, each of which contained multiple stages. The audience research phase, which is the focus of this article, involved two stages: Stage 1, exploratory research, and Stage 2, concept testing.

PURPOSE

The overall purpose of the study was to develop final messages, and ultimately products, to be disseminated to psychiatrists in order to inform their knowledge, atti-

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tudes, beliefs, and prescribing behavior related to AEDs. Specifically, the research explored the following four dimensions with psychiatrists: 1) their current use of AEDs, 2) their actual and preferred sources of information about AEDs, 3) their knowledge about the Warner-Lambert lawsuit, and 4) reactions to sample marketing campaign materials, including key messages from the evidence-based report. Stage 1, exploratory research, used a qualitative method (focus groups) to examine the knowledge, attitudes, beliefs, intentions, and behaviors of psychiatrists related to the prescription and use of AEDs for bipolar and mood disorders. This research examined major themes and issues raised by the focus group participants. These findings were used to inform Stage 2, concept testing, which consisted of additional focus groups and interviews that involved a more in-depth examination of psychiatrists' communication patterns and reactions to sample materials. Taken together, the findings from Stages 1 and 2 of the audience research will be used to guide the development and testing of materials for physicians, the goal of which is to present fair and balanced information about gabapentin and other AEDs.

PREVIOUS RESEARCH

Prior to this study, two Evidence-based Practice Centers (RAND in Southern California and the Oregon Health and Science University) conducted a drug effectiveness review project (DERP), the primary goal of which was to compare the effectiveness and adverse event profiles of AEDs in the treatment of bipolar mood disorder, neuropathic pain, and fibromyalgia.¹ The Oregon Evidence-based Practice Center designed the following research questions concerning issues such as populations, interventions, and outcomes in order to define study eligibility criteria:

1. Do AEDs differ in effectiveness in adult outpatients with bipolar disorder or pain?
2. Do AEDs differ in safety or adverse events in adult outpatients with bipolar disorder?
3. Are any of the AEDs more effective or associated with fewer adverse events in subgroups of patients based on demographics (age, racial groups, gender), other medications being taken, or comorbid conditions?

Through a search of the Cochrane Central Register of Controlled Trials and the Database of Abstracts of Reviews of Effects (DARE), Medline/PubMed (1966–2005), and Embase (1974–2005), the researchers identified 110 citations that met the selection criteria, including head-to-head trials, active-controlled trials,

placebo-controlled trials, systematic reviews/meta-analyses, and observational and background studies. After the report was completed, the results were summarized in 10 key concepts, which were then stated as four key messages (for more a detailed discussion of how the key messages were developed, see the article by Carey et al.² p. 28). These messages were then tested as part of the Stage 1 exploratory research and the Stage 2 concept testing. The findings from this testing are presented in this article.

METHODS

Research Design

We used a combination of focus groups and in-depth interviews to address the dimensions to be studied. Use of a mixed or triangulation approach allows researchers to test the consistency of their findings and improve understanding of and credibility of their results.³ Focus groups are a commonly used research method for obtaining information about people's attitudes and behaviors.⁴ Individual in-depth interviews can complement focus groups by giving researchers the opportunity to assess the knowledge, behavior, attitudes, perceptions, and opinions of target audiences in more detail.

A total of 69 psychiatrists participated in the research. The Stage 1 exploratory research involved four telephone focus groups with 29 psychiatrists from 19 states, which were conducted in March 2007. The Stage 2 concept testing involved 10 in-depth interviews and 4 focus groups ($N = 30$). The interviewers and focus groups were conducted in June 2007 in two cities (Chicago, Illinois, and Atlanta, Georgia) and involved a total of 40 psychiatrists.

Eligibility Criteria

This study was open only to post-residency psychiatrists in the United States who were younger than 70 years of age. To be eligible to participate, psychiatrists either had to have no subspecialty or a subspecialty in geriatric or consultation-liaison psychiatry and to primarily treat adults 18 years of age or older. Preference was given to psychiatrists who were board certified in psychiatry, who were members of the American Psychiatric Association (APA), and who treated a population of patients at least 25% of whom had a diagnosis of bipolar I or II disorders. An attempt was made to recruit a mix of males and females as well as psychiatrists who served urban and suburban patient populations.

Recruitment

Psychiatrists were recruited by RTI and two national recruiting and marketing research firms. For the exploratory research, RTI recruited participants from a database provided by the APA that contained 9,010 names. A stratified sample was drawn by randomly selecting 410 psychiatrists based on their postal zip code (270 urban and 140 rural psychiatrists). Next, a second-day delivery letter was sent to the psychiatrists via Federal Express explaining the research study and providing a phone number for interested parties to call. After receiving a low response from the letter, the services of a national market research firm were enlisted. The firm used their existing database to contact potential participants via fax, telephone, and email. Recruitment for the concept testing stage was conducted exclusively by marketing firms. All recruitment staff used the same screener, which contained questions about the eligibility criteria outlined above. Participants in both the exploratory research and the concept testing were sent confirmation letters and reminder calls prior to the research.

Data Collection

Each interview lasted about 1 hour and each focus group met for approximately 2 hours. Participants in the in-depth interviews and telephone focus groups received a monetary incentive for participating. A trained moderator led the interviews and group discussions using a semistructured discussion guide. Audio recordings of interviews and focus groups were made and the tapes were transcribed after the group for analysis purposes.

Analysis

Immediately after the groups ended, the moderator and other RTI staff members held a debriefing session to discuss any salient findings. Because of the relatively small number of participants and the short turnaround time available to conduct the analysis and write the initial report, thematic or ground theory analysis⁵ was done to elucidate participants' thoughts and experiences in as rigorous and detailed a manner as possible. This analysis approach allowed us to compare responses related to the four study dimensions. In this approach, a minimum of two members from the study team reviewed the data to confirm the findings and resolve any disagreements. We then linked data to the identi-

fied research domains in the study in order to capture emerging themes. We reviewed the content in terms of both frequency of themes and correlations, as well as types of causal and logical statements expressed by the participants through metaphors, analogies, and idioms, with the goal of noting regularities, patterns, explanations, possible configurations, causal flows, and propositions contained in the data.

RESULTS

Summary of Main Findings

Current use of AEDs: Most participants prescribe AEDs for off-label uses. They reported that off-label use is the norm in the psychiatric community and that this prescribing pattern is essential in identifying the most appropriately tailored combination for each individual patient. However, most participants said they were not using gabapentin as a primary treatment for bipolar disorder. The participants who had used it for that purpose reported either no longer using it or using it less frequently. Some participants did continue to prescribe gabapentin as an adjunct to other medications or to treat conditions such as anxiety.

Actual and preferred sources of information on AEDs: Participants' primary sources of information about AEDs were, in order, professional journals, colleagues, experts in the field, and pharmaceutical representatives. Participants reported that APA journal articles and conferences sponsored by the APA or Massachusetts General Hospital were considered the most credible sources of information in the field.

Knowledge about the Warner-Lambert lawsuit: Most participants were aware of the Warner-Lambert/Pfizer lawsuit case involving gabapentin. Although their level of knowledge about the case differed, most knew that the case involved the promotion of this agent for off-label use to treat bipolar disorder despite a lack of scientific evidence demonstrating its effectiveness for this indication. Participants said the lawsuit had little effect on their prescribing patterns because they were not using gabapentin as a primary treatment for bipolar disorder.

Reactions to sample marketing campaign materials: Reactions to the key messages from the evidence-based report were mixed. Participants were concerned that some of the clinical information was overstated or inaccurate. This was a particular concern when several

drugs were discussed together in one message. Participants continually noted that patients react differently to medications, making it difficult to draw broad conclusions. They also said it is important to take the type of bipolar disorder (I or II) and the phase of the illness into account when evaluating a drug. Overall, participants stated that they liked draft messages that were clear, simple, and easy to follow. They particularly disliked draft messages that they deemed directive (e.g., involved use of the word “should”).

Participant Characteristics

A total of 48 males and 21 females participated in the research across two different data collection periods (exploratory research and concept testing). The demographic data from the two periods have been combined for descriptive purposes. Table 1 summarizes demographic data on the participants. As part of the screening process, participants were asked to describe their patient load. Participants self-reported seeing a wide number of patients in a week. Estimates ranged from 15 to 300, with the average being 88 patients and the mean 85. When asked approximately what percentage of their total patient population was currently being treated for bipolar I or II disorder, participants’ answers varied, with responses ranging from as many as 100% to as little as 10%, with the average being 36%. Participants were also asked what percentage of their patients with bipolar disorder were prescribed medications in the past 3 months (for nonacute treatment). The average response was 90%, with maximum being 100%, but the minimum as low as 25%.

Study Dimensions

This study explored the four dimensions listed above in interviews and focus groups. A summary of the discussion topics related to each dimension is provided in Table 2, and the research findings concerning each dimension are described in the following sections.

Current Use of AEDs

The discussion of current use of AEDs included topics such as the number of patients with bipolar disorder seen each week, nonmedication treatment options, off-label use of prescription medications, AEDs prescribed most frequently, important factors that determine which medications to prescribe for patients diagnosed with bipolar disorder, and patients’ reactions to using AEDs.

Table 1. Characteristics of the participants (N = 69)^a

<i>Characteristic</i>	<i>Response</i>	<i>n</i>	<i>%</i>
Age	30–39	3	4.4
	40–49	21	30.4
	50–59	29	42.0
	> 60	16	23.2
Years in practice	< 2	0	0.0
	2–10	10	14.5
	> 10	59	85.5
Board certified	Yes	62	89.9
	No	7	10.1
Role ^b	Teach students	1	1.5
	See patients	49	72.1
	Both	18	26.5
Practice Site	Hospital	4	5.8
	Clinic	6	8.7
	Private practice	26	37.7
	Multiple sites	33	47.8
Patient population	Urban	13	18.8
	Suburban	15	21.7
	Both	41	59.4
Gender	Male	48	69.6
	Female	21	30.4

^aPercentages may not add up to 100% because of rounding.

^bResponse from one participant is missing.

Most participants reported seeing a minimum of 20 patients with bipolar disorder per week, with a range of 12–60 patients. When asked about alternative options to the use of prescription medications for the treatment of bipolar disorder, participants recommended individual and group psychotherapy and education for patients and their families.

Participants were in favor of off-label use and reported that prescribing medications for off-label use is generally accepted within the profession. In fact, most participants suggested that off-label use is the norm and is essential in treating this patient population. One participant stated, “I use off-label medication all the time and I’d have a difficult time treating patients if I only went by the official FDA indication of medications.” However, a few participants noted that, although off-label use can help patients, psychiatrists need to be careful because of the threat of lawsuits.

Table 2. Summary of focus group and in-depth interview discussion topics by dimension

Key dimension

Discussion topics

1. Current use of AEDs

- Number of patients with bipolar disorder seen per week
- Nonmedication treatment options
- Off-label use of prescription medications
- AEDs prescribed most frequently
- Factors affecting prescribing patterns
- Patient reactions to AEDs

2. Actual and preferred sources of information on AEDs

- How to stay up to date on available bipolar medications
- Opinions on current continuing medical education credits, Internet, and journal articles
- Use of pharmaceutical representatives, colleagues, and conferences/seminars for information on AEDs
- Preferred sources of information on AEDs
- Credible sources of information on AEDs
- Use of technological information sources (i.e., PDAs, ePocrates, Internet)

3. Knowledge about the Warner-Lambert lawsuit

- Awareness of legal settlements concerning gabapentin
- Reactions to the lawsuit
- Effect of the lawsuit on AED prescribing patterns

4. Reactions to sample marketing campaign materials, including key messages from the evidence-based report

- Reactions to two sets of key messages
- Preference of message sets (i.e., one set versus the other)
- Message effectiveness to change prescribing patterns (ranking activity)
- Reactions to a draft website

Participants in the focus group identified valproic acid/valproate as the medication they prescribe most frequently for bipolar disorder. In addition, most participants said they also prescribe gabapentin almost exclusively as an adjunctive therapy for the treatment of anxiety and sleep disorders for patients in general. For example, one participant reported using gabapentin

when patients "...have comorbid anxiety along with bipolar disorder or if they have issues of chronic pain." A few participants reported that they use gabapentin as an adjunctive therapy to stabilize mood in patients with bipolar disorder.

Participants reported that the comments they receive from patients concerning their use of AEDs vary depending on the side effects they experience, particularly related to weight gain. There was a general consensus among the participants that valproic acid is associated with weight gain (and hair loss), that lamotrigine is considered to provide good control of the manic stage of bipolar disorder without weight gain, and that topiramate is linked to weight loss and patient complaints of "cognitive blunting" or foginess of cognition.

Actual and Preferred Sources of Information about AEDs

When asked how they stay up to date with medications available to treat bipolar disorder, participants in the interviews and focus groups said they used the Internet less frequently than other sources; however, those who did use the Internet as a regular source of information tended to use Medscape and/or Medline as their sources. Other sites included the Physicians' Desk Reference (PDR) site and pharmaceutical companies. A few participants said that, although they have witnessed a steady growth in reliance on technology (e.g., the Internet, personal digital assistants [PDAs]) for health information, they remained reluctant to use these sources because it is too time consuming to learn how to use them or because they are not convenient to use (i.e., they cannot carry the computer around with them).

The most common source of information mentioned was journal articles (research studies). All of the participants felt that the research studies in journal articles were either a primary or secondary source for obtaining information on medications to treat bipolar disorder. Most of the participants indicated that journal articles were the most credible source of information. They considered the most credible articles to be peer-reviewed, evidence-based publications by recognized leaders in the field of psychiatry.

Participants were asked to discuss which sources of information (journals, conferences, peer-to-peer experiences, pharmaceutical representatives, and information technology sources) they preferred and deemed credible. (See Table 3 for a detailed list of sources rated as primary, secondary, and creditable information sources by participants.)

Most participants reported that they used journals and other publications from American Psychiatric Publishing (APPI) (*American Journal of Psychiatry*, *Psychiatric Services*, *Psychiatric News*, and *FOCUS*). Other journals mentioned included *Journal of the American Medical Association (JAMA)*, *Annals of General Psychiatry*, and *Archives of General Psychiatry*. Most of the participants expressed a strong preference for conferences sponsored by the APA as well as those sponsored by Massachusetts General Hospital. Participants said that they liked having the option of attending conferences online. Some participants also reported that they took advantage of opportunities to hear and interact with leaders in the field (e.g., a national expert well known to them).

Participants reported informal interactions (e.g., impromptu telephone calls, emails, fax communications, and/or lunchtime talks) as ways to obtain information from colleagues. In addition, most of the participants discussed having a relationship with one or more pharmaceutical representatives. The number of office visits made by pharmaceutical representatives ranged from 2 to 15 per week, with only 2 (private practice) participants reporting that they did not have any visits from pharmaceutical representatives because of office or hospital policy. Participants said the most influential material left behind by pharmaceutical representatives was journal articles. Even so, the participants expressed mixed feelings about the journal articles: some stated that the articles are biased because they show the representative's medication in a positive light, while others stated that, despite this bias, the articles are still informative and increase their knowledge about currently available prescription medications.

Some of the participants were actively using ePocrates software on a PDA, and a few were using this software on their personal computers or their cell phones. In general, most of the participants who were not currently using informational technology such as ePocrates expressed little interest in doing so in the immediate future. Reasons for the lack of interest in using this technology included cost, time, the small size of the screen, and the fact that they are already using the PDR either in hard copy or online.

Knowledge about the Warner-Lambert Lawsuit

Participants were asked if they were aware of any legal settlements related to gabapentin. Participants who reported they were aware of the case were asked about their reaction to it and whether it had had an effect on

Table 3. Primary, secondary, and credible information sources^a

Sources	Primary	Secondary	Creditable
Professional journals	19	7	18
Medical conferences	4	2	5
Colleagues/experts in the field	5	5	3
Drug representatives	5	5	0
Internal meetings/lectures	0	3	2
Continuing medical education	5	3	3
Books	2	2	3
Computer/internet	4	2	2
Other	2	1	2

^aSome participants gave multiple answers, while others gave no answer.

how they prescribed AEDs. Overall, most participants across the groups had at least heard about the Warner-Lambert/Pfizer case involving gabapentin. Participants reported learning about the lawsuit in a variety of ways, such as reading about it in the newspaper or seeing it on the news or on an investigative news program such as "Primetime Live" or "20/20." A few said they had heard about the lawsuit from pharmaceutical representatives.

Participants' reactions to the lawsuit were mixed. Although participants in general were in agreement with the lawsuit ruling, some were concerned about the effect the lawsuit might have on the pharmaceutical industry as a whole. One participant said, "Really what's happening, I think, is that the industry, to be safe, to avoid getting sued, is actually doing things that are ultimately bizarre. You know, for example,...you can't attend an industry-sponsored talk and have somebody say... 'This randomized placebo controlled trial that was done by NIH has been published,' ...that's illegal now."

Most participants said that the lawsuit had had no effect on their patterns of prescribing gabapentin because they had not been prescribing it as a primary treatment for bipolar disorder. These participants agreed that gabapentin should not be used as a first-line treatment for bipolar disorder regardless of the lawsuit. A few of the participants who did report some use of gabapentin said that they had stopped using it to treat

Table 4. Key Messages about antiepileptic drugs (AEDs) derived from AED Key Concepts*

<i>Key Messages</i>	<i>Refers to Key Concept #</i>
1. There remains no scientifically acceptable clinical trial evidence which supports use of either gabapentin or topiramate in bipolar mood disorder, either as monotherapy or as an adjunct to other therapies.	8
2. Research supports the use of three AEDs—1) carbamazepine, 2) valproic acid/valproate, and 3) lamotrigine—in achieving and maintaining remission for adult outpatients with primary diagnoses of bipolar I disorder. Evidence of efficacy is less clear for these treatments for bipolar II disorder.	1, 2, 3, 4
3. Carbamazepine, valproic acid/valproate, and lamotrigine work as well as lithium in achieving and maintaining remission in bipolar I disorder, but the strength of the evidence supporting this conclusion is low, and additional research is needed to clarify the relative roles of these agents in bipolar disorder.	5
4. The types of adverse events vary among AEDs and lithium. There is insufficient evidence to determine if the overall risk of adverse events differs among AEDs. Unlike the AEDs, lithium poses a significant risk when taken in an overdose.	6, 7

**Key Concepts 9 and 10 refer to specific subpopulations that are not included in the Key Messages.*

bipolar disorder as a result of the lawsuit. In some cases, participants who knew about the lawsuit said that they continued to prescribe gabapentin if they had a patient who was already receiving it and doing well.

Reactions to Sample Marketing Campaign Materials, Including Key Messages from the Evidence-based Report

Participants in the interviews and focus groups discussed their reactions to two sets of draft key messages—an original set created in January 2007 and an alternative set created in June 2007. Each set included four key messages concerning the use of AEDs. These draft key messages were developed to summarize the current evidence on AEDs based on the AED evidence-based report.¹ Although the content of the two sets of draft messages was generally the same, the messages were designed to communicate the information differently. Message 1 in each set conveys that there remains no scientifically acceptable clinical trial evidence to support the use of gabapentin or topiramate for bipolar disorder. Message 2 supports the use of carbamazepine, valproic acid/valproate, and lamotrigine to achieve remission in patients with bipolar I disorder. Message 3 acknowledges that these three AEDs (carbamazepine, valproic acid/valproate, and lamotrigine) work as well

as lithium for achieving and maintaining remission in bipolar I disorder. Finally, message 4 states that adverse effects vary among these three AEDs and lithium when they are used to treat bipolar disorder, but that there is insufficient evidence to determine if the overall risk of these adverse events differs, with the exception of a lithium overdose.

Participants reviewed and provided feedback on the draft messages, indicating their preferences for one version or the other and ranking the messages on their potential effectiveness in changing behavior. The draft key messages were finalized based on the findings from this report (see Table 4). The revisions to the draft messages were limited to contextual changes that were made to clarify the findings from the evidence-based report. These revisions did not alter the meaning of the scientific findings from the evidence-based report. Participant feedback about the messages was similar for the two sets of draft messages. Overall, participants said that the draft messages were clear and had a positive tone but contained subtle inaccuracies. For example, participants reported that certain AEDs are effectively used to treat patients with bipolar I but not bipolar II disorder and that other AEDs may be useful for the treatment of acute episodes but not for maintenance. Thus, some participants said the draft messages were oversimplified. Most participants said message 1

did not present any new or profound information regardless of the version.

Participants adamantly disliked the use of the phrase “Physicians should avoid” in the draft messages they reviewed (Note: this phrase was removed from the final messages). They preferred a more positive, less directive tone that supported independent decision-making. A few participants disliked the use of the terms “acceptable evidence,” “insufficient evidence,” and “works as well as” to describe clinical evidence and effectiveness, stating they were too vague and broad. Conversely, most participants liked the phrase “Research supports the use of...”

Although a few participants liked the fact that the draft messages endorsed the use of lithium in message 3, several participants commented on the need to include information about the adverse risks of lithium compared with AEDs in message 4 (Note: this information was added to the final set of messages).

The majority of participants said that neither set of draft messages as written would affect their prescribing patterns. Participants reported that they are already applying these principles when they prescribe medications. Participants did report that the draft messages might be useful for other providers such as primary care physicians. When participants were asked which message would be most effective in encouraging them to change their prescribing patterns, message 2 had the highest mean average and message 4 was ranked the least effective. These findings were consistent for both versions of the draft messages. Table 5 presents a summary of the ranking results.

DISCUSSION

Findings from the exploratory research and concept testing stages of this project provide an understanding of psychiatrists’ attitudes and behaviors regarding the use of AEDs for the treatment of bipolar I and II disorder. This research also allowed us to evaluate draft versions of the key messages based on the evidence-based review report. These data will be used to develop, refine, and disseminate materials (i.e., physician products)

that provide information about gabapentin and other AEDs. Two findings are of particular interest with regard to the next steps in developing materials: 1) participants’ misconceptions regarding the efficacy of the draft messages, and 2) the role of technology in information dissemination.

Given that participants said that the draft key messages did not present any new information to them, the fact that they had misconceptions about the efficacy of the draft messages is of particular interest. Upon reviewing the two sets of draft messages, participants stated that the messages contained subtle inaccuracies. The messages were designed to summarize the data from the full comprehensive evidence-based report on the use of AEDs in the treatment of bipolar disorder, and the core scientific findings remained unchanged in the final set of messages. Since the report itself is not conducive to wide dissemination, the writers of the report developed the key messages to convey the most important findings. This task was complicated by the fact that there is inconclusive evidence regarding the use of all AEDs, including gabapentin, to treat bipolar disorder. In finalizing the messages, changes were made to more clearly convey the findings from the evidence-based report. Participants emphasized that patients react to medications differently and that no one drug works well with all patients. Participants reported that to improve the draft messages, the text needed to be more specific about which AEDs are capable of achieving and maintaining remission, as adjuncts to other drugs or by themselves, and which are successful in the treatment of bipolar I versus bipolar II disorder.

Table 5. Ranking of the Key Messages based on focus groups and interviews combined (N = 33^a)

<i>Message number</i>	<i>Rank 1</i>	<i>Rank 2</i>	<i>Rank 3</i>	<i>Rank 4</i>	<i>Average rank</i>
Original messages					
1	7	11	8	7	2.45
2	17	9	7	0	1.70 (most effective)
3	8	10	11	4	2.33
4	1	3	7	22	3.52 (least effective)
Alternate messages					
1	3	8	7	15	3.03
2	16	12	4	1	1.70 (most effective)
3	13	11	7	2	1.94
4	1	2	15	15	3.33 (least effective)

^aOnly participants in the concept testing stage (N = 40) were asked to rank the messages. Seven of the 40 respondents were omitted because of incomplete answers.

Subsequent message and marketing research will address these concerns.

The use of technology, particularly in medicine and science, is ubiquitous today. Therefore, it was surprising to learn that few of the participants in the interviews and focus groups accessed medical information through technological devices such as PDAs, ePocrates software, and Internet websites. Various factors, such as age, geography, years in practice, size and type of practice, and perhaps race and ethnicity, could play a role in how often psychiatrists use technological devices. For example, participants did report that their younger colleagues and the residents they work with regularly using PDAs and ePocrates (the mean age range of our participant sample was 52.7 years). These findings have implications for how the materials being developed will be disseminated to psychiatrists. To be effective at any level, materials must first reach their intended audience. Thus, our findings indicate a website or an ePocrates program may not be the most effective way to relay educational messages to mid-career psychiatrists but may be successful in reaching younger ones. Printed materials such as journal articles, particularly in APA journals, may be a better use of limited funds to reach a wider audience.

RECOMMENDATIONS

To inform the future research we are planning (i.e., the development of educational materials based on the evidence-based *Drug Class Review on Antiepileptic Drugs in Bipolar Mood Disorder, Neuropathic Pain, and Fibromyalgia*¹), we provide the following recommendations:

- Create multiple educational materials. Psychiatrists expressed different preferences for how they obtain educational materials (e.g., Internet, conferences, and peers). For example, most psychiatrists did not state a preference for using websites or other technological devices (e.g., PDA alert) to obtain information about AEDs. Multiple approaches must be used to reach psychiatrists with different demographics. In the concept testing phase, more research will be needed on preferences for, and barriers to, the use of different kinds of educational materials between different subgroups of psychiatrists.
- Consider the source of the materials. When reviewing educational materials, most participants reported that they placed a lot of emphasis on the source of materi-

als, study authors, and potential biases due to relationships between sponsors and authors. Educational materials need to come from a nonbiased source that psychiatrists will trust. More research is needed on which sources are most trusted for which information and on how to attract and retain interest in messages, information content, and products/channels.

- Develop materials that are relevant for the target audience. Participants' willingness to use and frequency of using a PDA or ePocrates software may be a function of age. Therefore, if information is to be distributed through these means, it would be beneficial to target the messages to a younger audience (i.e., using a different tone, different graphics, and different messages). Possible audience segments may include psychiatry students and residents, faculty, and newly board-certified psychiatrists.
- Use appropriate dissemination channels. Participants named journals, colleagues, experts in the field, and conferences as their main sources of information. Materials should be developed for these channels as a means of reaching the largest possible audience. Pharmaceutical representatives were also mentioned as a common source of information. Journal articles, a speakers bureau, and conference sessions are possible ways to reach members of the target audience. The main journals of interest mentioned by participants were journals sponsored by the APA as well as other peer-reviewed journals (e.g., *American Journal of Psychiatry*, *JAMA*, *Annals of General Psychiatry*, and *Archives of General Psychiatry*).

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