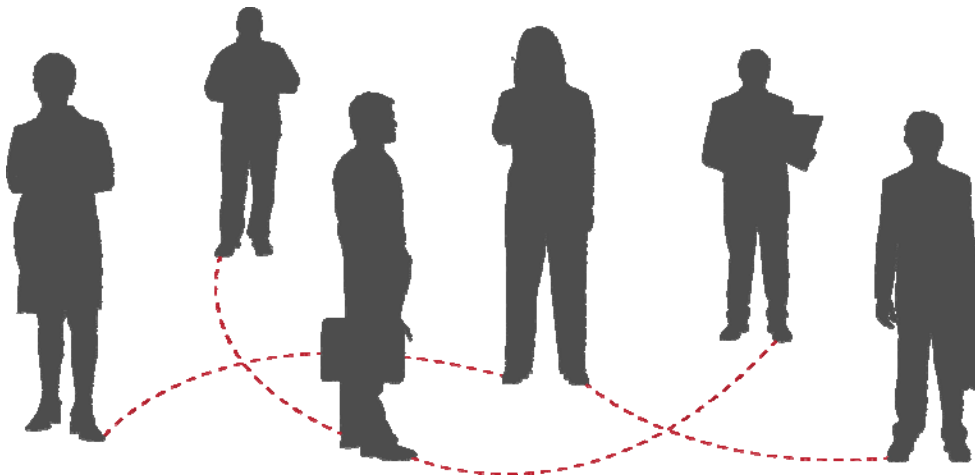


GLG Research Study

Tysabri for Multiple Sclerosis

Views from 245 Neurologists

A GLG Research Study of 245 US-based neurologists about their opinion of Tysabri for the treatment of multiple sclerosis, given continuing occurrences of progressive multifocal leukoencephalopathy (PML), and the FDA's warning that incidence of PML increases with duration of Tysabri therapy. The survey questions for this GLG Research Study were written by GLG with synthesis and analysis of the results by GLG Council Member, **Margie Flagg**.



About GLG Research Studies

GLG Research Studies are surveys and other reports, powered by the unique expertise available in the GLG CouncilsSM and by other relationships that GLG has developed. Studies are built on a foundation of survey-style expert insights gathered through the GLG Survey PlatformSM. They are typically authored by GLG Council MembersSM who help create the questions, moderate the completion of the study, and provide expert analysis, insight extraction, and synthesis of the results. GLG Research Studies are available for purchase. GLG clients can commission custom reports by developing unique survey questions for GLG Council Member populations.

If you have any questions about GLG Research Studies or you want to commission a Custom Report, please contact Sam Jacobs sjacobs@glgroup.com.

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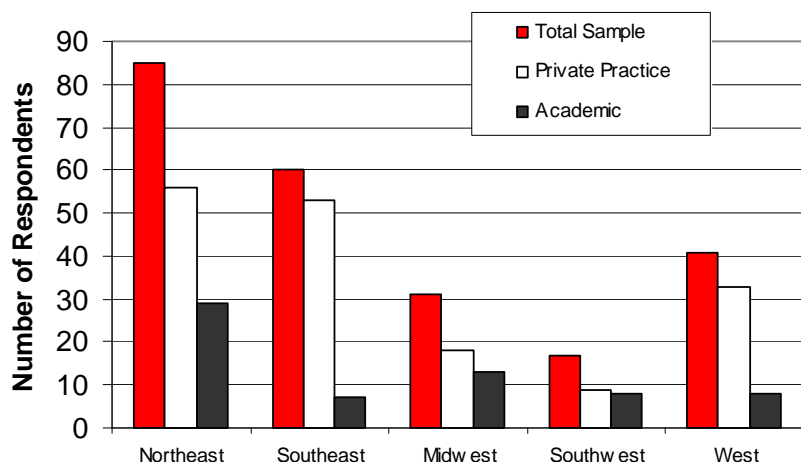
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GLG Research Study Methodology

GLG authored the survey questions and collected survey responses. Margie Flagg [GLG Educator] provided synthesis and analysis of the results.

The GLG CouncilsSM include a population of more than 1,300 US-based neurologists with the potential of reaching thousands more through our partnerships.

Respondent neurologists were geographically concentrated within the Northeast.



Private practice neurologists comprised 69% of the surveyed population with the remainder practicing in an academic setting.

GLG EDUCATOR

Margie Flagg is the Owner of Market Research, PRN, a boutique qualitative marketing research company. Ms. Flagg is a career market researcher and experienced moderator, with 27 years tenure in pharmaceuticals, medical devices, OTCs, and packaged goods. Her experience on the client and supplier sides of the business, in a wide range of therapeutic areas (including CNS, Neurology, Virology and Immunology) and practice settings, makes her uniquely suited to provide consultant services. She worked for a number of years at Johnson & Johnson, acquiring experience in all three of their product sectors - consumer, pharmaceutical and medical devices. Her time there provided her with extensive experience in new product development, licensing and acquisition, product launches, and in-line product research. After J&J, she worked for two full service marketing research agencies, where her natural curiosity helped her develop into a gifted qualitative researcher. The combination of client-side experience in a wide variety of therapeutic areas, along with qualitative and quantitative project management experience, makes her an outstanding resource.

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GLG Neurologist Survey Comments

The following summary was provided by Margie Flagg [GLG Educator] in an effort to synthesize the findings of the actual neurologist survey which begins on page 11 of this report.

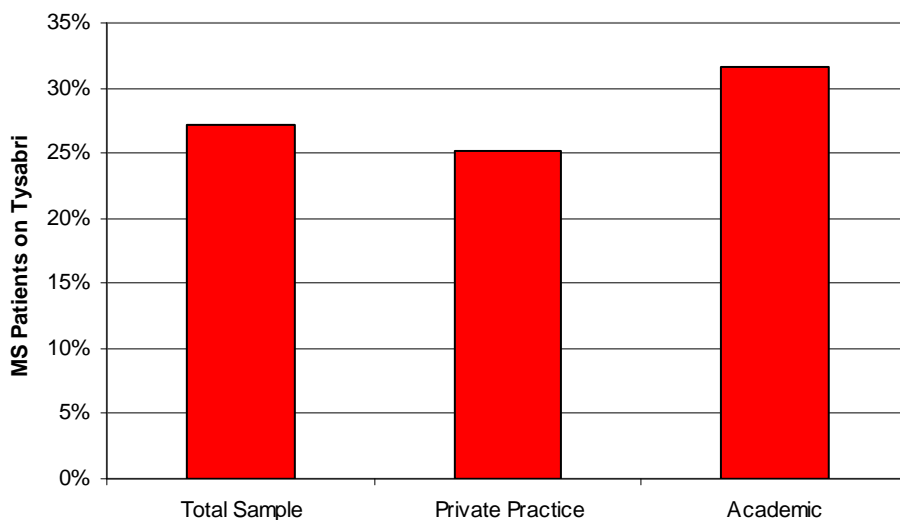
Q4: Number of Patients Treated in a 30-day Period

On average, the neurologists in this sample see 34.5 MS patients in a 30-day period, with a range of 1 to 500 and a median value of 20. Those in an academic practice average 38.3 (range of 1 to 500, median of 15) and those in private practice average 33.8 (range of 1 to 400 with a median value of 25).

Q5: Number of MS Patients Currently Treated with Tysabri

The neurologists in this sample indicate that 27.2% of their patients, on average, are currently being treated with Tysabri. Both groups indicate a range of 0 to 200 patients on Tysabri. Those neurologists in an academic setting indicate a slightly higher percentage of patients on the drug.

Figure 2: % of MS Patients Currently Treated with Tysabri



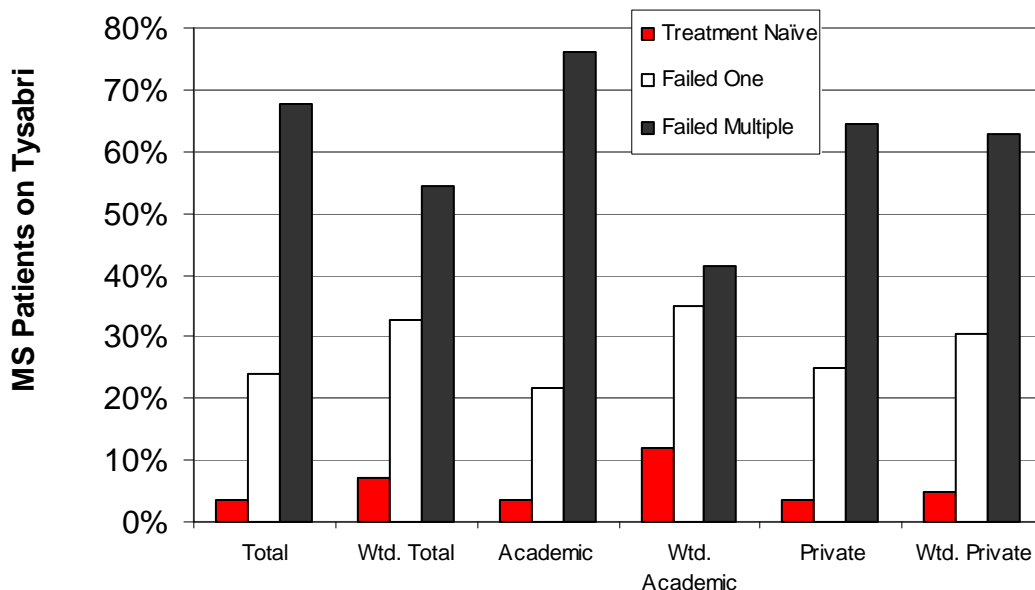
Q6: MS Patients Currently Treated with Tysabri by Stage of Therapy

The following figure displays the percentage breakdown by stage of therapy among patients currently taking Tysabri. The weighted percentages are the result of cross-referencing these percentages to responses in Q#5, the number of patients currently being treated with Tysabri.

In total, only 3.5% of patients currently on Tysabri are treatment naïve. More than two-thirds (67.8%) have failed multiple therapies. When the total is weighted by the number of patients seen, these numbers change slightly to 7% being treatment naïve and 54.4% having failed multiple therapies.

These respondents in the academic setting who see the most patients (the weighted sample), appear to use Tysabri earlier in the course of therapy. These respondents indicate that they have a greater percentage of their treatment naïve patients (11.9% weighted) on Tysabri and a smaller percentage (41.4%) who have failed multiple therapies.

Figure 3: Percentage of Patients on Tysabri by Stage of Therapy (Unweighted and Weighted by Q#5)

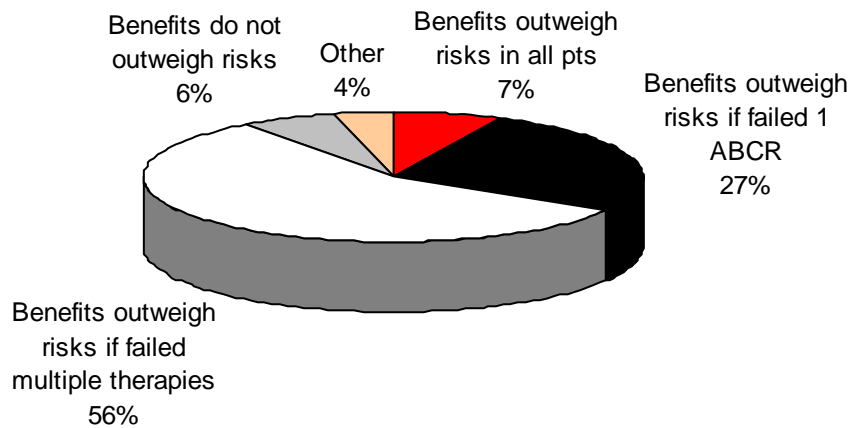


Q7: Perceived Risk/Benefit Ratio of Tysabri Treatment by Stage of Therapy

Physicians were asked where the benefits of Tysabri outweigh the attendant risks, given the FDA's statement that 13 cases of progressive multifocal leukoencephalopathy (PML) have been linked to the use of Tysabri. The FDA has also stated that the risk of PML appears to increase as patients remain for longer periods on the therapy.

The majority of neurologists in this survey feel that the benefits of Tysabri therapy outweigh the risks in patients who have failed multiple ABCR therapies (56%). Another quarter (27%) feel that the benefits outweigh the risks after a patient has failed on 1 therapy.

Figure 4: Benefit/Risk Ratio by Stage of Therapy



Q8: Physician’s Perceptions of Percentage of Patients Who Would Decline Tysabri in Light of PML by Stage of Therapy

Physicians were asked what percentage of their MS patients, by stage of therapy, who they believe to be candidates for Tysabri would decline treatment once they have been apprised of the risks of PML.

Looking at the weighted total sample, these physicians expect roughly one-third of each patient group (treatment naïve, failed one therapy, failed multiple therapies) is expected to decline treatment with Tysabri once apprised of the risks of PML.

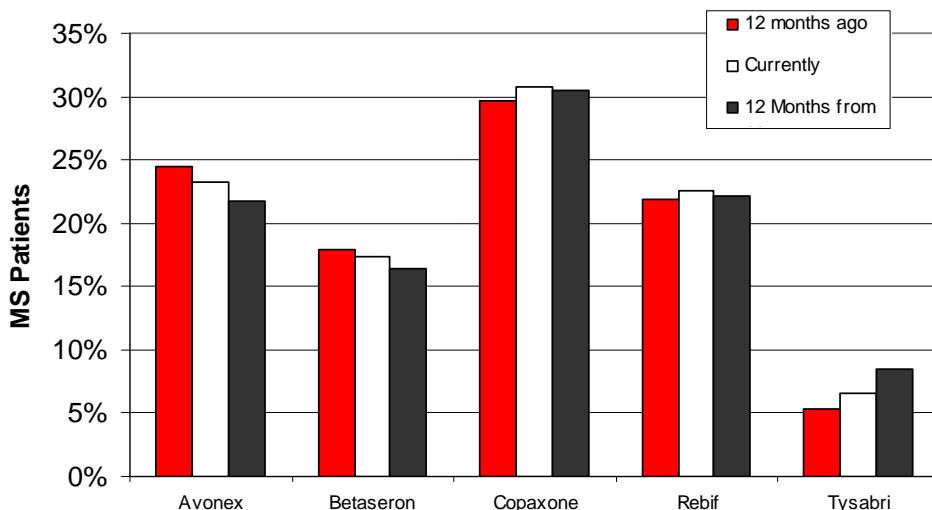
Q9: Percentage of MS Patients on Specific Therapies by Points in Time

Tysabri usage is predicted, among this group of neurologists, to increase slightly over the next 12 months (Q#9).

Based on physician estimates, Avonex and Betaseron usage has decreased over the past year and will continue to decrease modestly in the next 12 months. Copaxone and Rebif usage has remained relatively constant over the last year and will continue to do so over the next 12 months.

These figures represent the mean responses of all participants for each brand and are weighted averages cross referenced to Q#4.

Figure 5: Past, Current and Anticipated Usage of Specific MS Therapies (Weighted by Q#5)



Q10: Percentage of Tysabri Patients Currently on Treatment Holiday

In total, the neurologists in this survey indicated that they have put a (weighted) average of 15.6% of their patients on a treatment holiday in light of the possible increased risk of PML associated with longer treatment duration. This figure does not differ across private practice or academic settings.

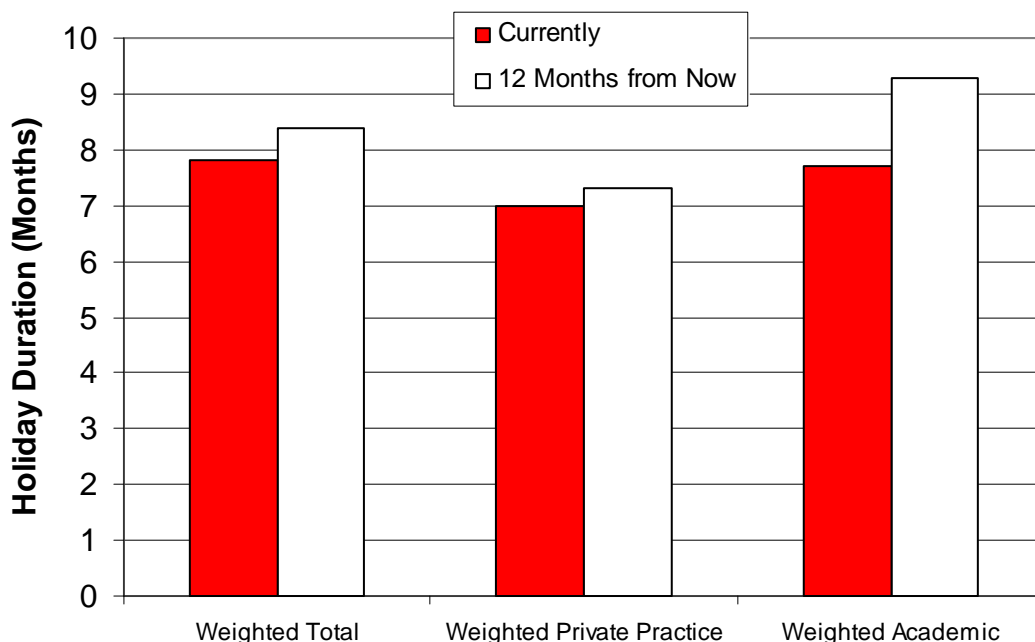
Twelve months from now, that figure is anticipated to be a weighted average of 23.1%, again not differing across segments.

Q11: Anticipated Length of Treatment Holiday Now and 12 Months from Now

In total, based on weighted averages cross-referenced to question 5, these respondents anticipate a 7.8 month Tysabri treatment holiday currently and an 8.4 month holiday a year from now (Q#11).

Those in an academic setting anticipate a slightly longer, though not significantly so, interval of 9.3 months a year from now.

Figure 6: Weighted Average Number of Months Planned Tysabri Treatment Holiday (Weighted by Q#5)





Q12: Comments on Usage of Tysabri

Respondents were asked to express their thoughts about the usage of Tysabri in their practice and how it has changed, or might change going forward. (Q#12)

Comments by the 216 respondents who answered this question (multiple responses allowed) fell into the following general categories:

Positive Comments	30%
Negative Comments	48%
Neutral Comments	32%

Most commonly mentioned positive comments were:

Tysabri has helped patients with no other options/those with aggressive disease	10%
It's efficacious/Happy with patient response	7%
The benefits outweigh the risks	6%

Most frequently mentioned negative comments were:

Risk of PML limits use/outweighs the benefits/minimal use due to risks	16%
I use only if patient failed all other treatments/multiple therapies	15%

Among neutral comments were:

I don't use it (nonspecific reasons)	7%
I make sure I explain risks fully to patients	6%

Eleven percent of those practicing in an academic setting indicated that they "needed more data"; this comment was not heard in the private practice setting.

A small (6 mentions), but disquieting, number of comments were made regarding a desire for Biogen be more forthcoming in reporting PML cases.

Q13: Other Questions That Should be Asked Regarding MS Patients on Tysabri

One hundred thirty-three respondents brought up additional ideas/questions/desires for more information that should be asked and/or provided regarding patients on Tysabri.

Those mentioned most frequently were:

- The degree of improvement of patients on Tysabri (13 mentions), which would aid in the risk/benefit assessment
- Incidence of other adverse events (13 mentions) besides PML
- Detailed information to augment the risk/benefit assessment (11 mentions), segmented by severity of disease, other therapies tried, etc.
- The patient's risk/benefit assessment (11 mentions), how patients assess these issues—also requested by severity of disease state and stage of therapy
- QOL questions/patient reporting on their response to Tysabri (9 mentions) to aid in the risk/benefit assessment process for both physicians and patients
- How often patients have MRI's/are monitored for PML (8 mentions)
- Whether there is an effective treatment for PML (4 mentions)
- Existence of other opportunistic infections/malignancies seen with Tysabri (4 mentions)



SURVEY RESULTS

1. Are you a U.S. board-certified, attending-level neurologist currently treating patients for Multiple Sclerosis (MS)?

(Totals in parenthesis)

Yes: 100% (245)

No: 0% (0)

2. In what setting do you primarily practice?

(Totals in parenthesis)

Academic: 27% (65)

Private Practice: 69% (170)

Other: 4% (10)

Other Answers: hmo, group model HMO, Semi-academic, Hospital based out/in patient care, multispecialty group, clinic, institutional practice, VA, Both private practice and government hospital, Academic, multiple specialty group

3. In what city and state do you practice?

(Qualitative responses redacted for purposes of this marketing material. Please see analysis.)

6. Of your MS patients that are currently on treatment with Tysabri, please estimate the % in the following stages of therapy.

Please indicate NA if NONE of your MS patients are currently on treatment with Tysabri.

Mean responses in **bold**:

Treatment naive : **3.47%** (Weighted Avg.*: 7.68%) || High: **75**; Low: **0**; Standard dev.: 10.65

Failed on one therapy : **24.02%** (Weighted Avg.*: 32.72%) || High: **100**; Low: **0**; Standard dev.: 27.94

Failed on multiple therapies : **67.82%** (Weighted Avg.*: 54.37%) || High: **100**; Low: **0**; Standard dev.: 34.11

* Weighted average is cross-referenced to question 5.

7. According to the FDA, 13 cases of progressive multifocal leukoencephalopathy (PML) have been linked to the use of Tysabri. The FDA has also stated that the risk of PML appears to increase as patients remain on Tysabri.

Please select the choice that best represents your opinion of the therapy.

(Totals in parenthesis)

The benefits outweigh the risks in all patients: 7% (16)

The benefits outweigh the risks only in patients who have failed one ABCR therapy: 27% (67)

The benefits outweigh the risks only in patients who have failed multiple ABCR therapies: 56% (136)

The benefits do not outweigh the risks: 6% (15)

Other: 4% (11)

“Other” Answers: ., the benefits outweigh risk if they failed a therapy or cannot tolerate injection, there are certain high risk patients where Tysabri is appropriate, Overall benefits outweigh risks, but extremely important to weigh disease and risk of therapy patient by patient, and to discuss risks with patient, I use it now to bridge patient until newer ms drug comes out, benefits outweigh risks in MOST patients, MA, Benefits outweigh risks in selected patients.

8. What % of your MS patients who you believe to be candidates for Tysabri decline treatment once you have described the risks of PML? Please break down for the following categories.

Please enter NA if you do not have MS patients you believe to be Tysabri candidates.

Mean responses in **bold**:

Treatment naive : **29.63%** (Weighted Avg.*: 32.93%) || High: 100; Low: 0; Standard dev.: 41.45

Failed on one therapy : **35.75%** (Weighted Avg.*: 36.84%) || High: 100; Low: 0; Standard dev.: 35.2

Failed on multiple therapies : **37.36%** (Weighted Avg.*: 31.57%) || High: 100; Low: 0; Standard dev.: 34

* Weighted average is cross-referenced to question 5.

9. What % of your patients with MS were/are/will be on the following therapies at the following points in time?

The figures in the table below represent the mean responses of all participants for each item

	Avonex	Betaseron	Copaxone	Rebif	Tysabri
12 months ago	26 (24.5*)	18 (17.87*)	29 (29.64*)	21 (21.88*)	4 (5.41*)
Currently	25 (23.16*)	17 (17.33*)	30 (30.72*)	21 (22.63*)	5 (6.47*)
12 months from now	23 (21.76*)	17 (16.37*)	30 (30.51*)	21 (22.06*)	7 (8.53*)

* weighted averages cross referenced to question 4.



10. What % of your Tysabri patients have you put on a treatment holiday in light of the possible increased risk of PML associated with longer treatment duration?

Please enter NA if you have no patients on Tysabri.

Mean responses in **bold**:

Currently : **12.39%** (Weighted Avg.*: 15.58%) || High: 100; Low: 0; Standard dev.: 24.73

12 months from now : **21.10%** (Weighted Avg.*: 23.05%) || High: 100; Low: 0; Standard dev.: 31.51

* Weighted average is cross-referenced to question 5.

11. If you have or plan to put Tysabri patients on a treatment holiday how long into their therapy have/will they be? In MONTHS please.

Please enter NA if you have/will not put Tysabri patients on treatment holidays.

Mean responses in **bold**:

Currently : **9.53** (Weighted Avg.*: 7.76) || -- High: 100; Low: 0; Standard dev.: 15.47

12 months from now : **10.20** (Weighted Avg.*: 8.41) || -- High: 100; Low: 0; Standard dev.: 12.67

* Weighted average is cross-referenced to question 5.

12. Please comment on your general thoughts about the usage of Tysabri in your practice and how it has changed or might change going forward.

(Qualitative responses redacted for purposes of this marketing material. Please see analysis.)

13. What other questions should we be asking about MS patients on treatment with Tysabri?

(Qualitative responses redacted for purposes of this marketing material. Please see analysis.)