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Hormone Therapy Discontinuation: Physician Practices After the Women's Health Initiative

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Abstract

Objective—No guidelines or randomized trials address best practices for hormone therapy (HT) discontinuation.

Methods—We conducted a survey study to explore HT discontinuation practices at Group Health and Harvard Vanguard, large integrated health systems in the northwest and northeast United States, focusing on differences between specialties and study site.

Results—The response rate to the written questionnaire (mailed between December 2005 and May 2006) was 78.5% (736/928); this paper reports the results for 483 eligible physicians. To discontinue oral HT, most physicians (91%) advised tapering, not immediate cessation (8%), and most (60%) suggested decreasing both dose and days per week. Almost 60% of physicians reported no experience with tapering patches. Harvard Vanguard physicians were more likely than Group Health physicians to encourage discontinuing HT, and less likely to recommend resuming HT when a woman's symptoms returned after discontinuing HT. Physicians were most strongly influenced by their own experience (48%), advice from colleagues (25%), and patient preference (19%) when choosing a discontinuation strategy; only 2% relied on research evidence. Physicians endorsed various approaches to manage symptoms after HT discontinuation, most often behavioral changes (44%) and increased exercise (37%), and these approaches were more often endorsed by Harvard Vanguard physicians and obstetrician/gynecologists than Group Health physicians or family practitioners or internists.

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Conclusions—Two health plans, in the northwestern and northeastern United States, had no standard protocol for HT discontinuation. Physicians customized approaches, influenced by their location, colleagues, and specialty. Research is needed to identify other factors and guide approaches to HT discontinuation.

Keywords

Hormone therapy prescribing; attitudes; physician practices; menopause

OBJECTIVE

Publication of the Women's Health Initiative Estrogen plus Progestin (WHI-EPT) and Estrogen only (WHI-ET) trials led to a dramatic decrease in the number of women using hormone therapy (HT).^{1–3} Within eight months, 56% of HT users surveyed at a large California integrated health care delivery and coverage system reported attempting to quit HT,² 74% quit successfully, while 26% resumed HT.⁴ After the WHI-EPT study was published, use of HT declined by 18% per quarter (July 2002 through May 2003) among women age 50–74 years enrolled in the San Francisco Mammography Registry,³ and in a multicenter study, EPT use declined 46% while ET use declined 28% over 12 months (July 2002 through June 2003).¹ It appears that many women are willing to tolerate symptoms rather than take a medication with potential significant risks. However, despite the risks, 8% to 9% of women age 40–80 continue using HT.^{1–5} Most major women's health organizations recommend that HT be used primarily to treat vasomotor symptoms, and that it be used for the shortest possible duration.⁶ Physician recommendations can have a strong impact on women's treatment decisions.⁷ Yet little is known about what HT discontinuation strategies and approaches physicians are recommending.

Physician type has been found to be associated with HT prescribing frequency, with more prescribing among obstetrician/gynecologists than family practice physicians^{8,9} possibly due to more favorable attitudes about HT^{10–17} and a stronger tendency to view menopause as an endocrine deficiency.¹² Regional differences have also been noted. Pre-WHI, the prevalence of HT use had been reported as three times greater in western than in northeast U.S. states.^{18,19} In 1990–1995, the prevalence of HT use was 25% among women age 50–54 at Harvard Pilgrim Health Care in New England—and 57% among women age 50–59 at Group Health in the Pacific Northwest.²⁰ The reasons for these regional differences have never been elucidated.

To further explore practice-based and regional differences related to HT discontinuation, we surveyed primary care physicians and obstetrician/gynecologists, at integrated health plans in the Northwest and Northeast United States, to answer three questions: 1) What attitudes and approaches to HT discontinuation are most common? 2) Do attitudes and approaches differ between primary care physicians and obstetrician/gynecologists? 3) Do attitudes and approaches differ by geographic region of the country? This study builds on our prior qualitative study about post-WHI attitudes and practices that showed that physicians, overall, no longer prescribe HT for prevention and are more likely to suggest HT discontinuation.²¹

METHODS

We conducted this study at Group Health and Harvard Vanguard Medical Associates. Group Health is an integrated health plan in Washington State, with approximately 560,000 enrollees, including more than 88,000 women age 50–80 years. Group Health has physicians who practice under a group model (seeing only Group Health patients) as well as network physicians for whom Group Health is one of several accepted health plans. We included physicians, physician's assistants, and nurse practitioners from both of these practice models. Harvard

Vanguard Medical Associates is a large group practice consisting of 14 health centers in the Boston Metropolitan area that provides care to 300,000 patients insured by the region's major health plans as well as Medicaid and Medicare. The institutional review boards at Group Health and Harvard Vanguard Medical Associates approved the study.

We designed a self-administered mail survey to elicit information about experiences with HT, including discontinuation, decision making, attitudes, beliefs, and practice changes since the release of the WHI studies. In the first phase of this study we conducted informational interviews with physicians to gather information about HT current practices and attitudes related to HT and HT discontinuation.²¹ We then created a self administered survey, base on the results of these interviews and our prior experience with physician surveys related to HT use.⁸ The questionnaire included questions related to comfort with HT prescribing, the impact of women's characteristics (e.g. past myocardial infarction, family history of breast cancer, smoking) on HT prescribing practices, HT discontinuation practices, views about the scientific evidence related to HT safety and prescribing, impact of the Women's Health Initiatives and the Heart and Estrogen/Progestin Study on HT prescribing practices, and demographic characteristics. We mailed a cover letter describing the study with the surveys and a \$25 pre-incentive between December 2005 and May 2006. Non-respondents received two reminder postcards, a third reminder with another copy of the survey, and an e-mail message with a link to an abbreviated online version of the survey. We report results from family practice physicians, internists, and obstetrician/gynecologists who had worked at the health plan for at least 12 months at the time of the survey (roughly 2½ to 3 years after the release of the WHI-EPT study), and had at least 50 visits per year with women age 45–70 years. Physicians practicing exclusively at emergency or urgent care facilities were excluded. Non-physician respondents (n=109) were excluded from these analyses.

Analysis

These analyses focus on the impact of provider type and study site on responses to study questions about HT discontinuation practices, non-hormonal interventions for vasomotor symptoms, and provider views of women's attitudes about HT discontinuation. Chi-square tests for binary outcomes (percentages) and t-tests for means were used to compare differences among provider types and among study sites. Logistic regression models were used to calculate adjusted odds ratios (OR) and 95% confidence intervals (CI) comparing approaches to HT discontinuation, non-hormonal treatments for vasomotor symptoms, and attitudes about HT discontinuation between sites (Group Health, Harvard Vanguard) and physician types (family practice plus internal medicine vs. obstetrician/gynecologist; analyses of physician type adjust for provider type, and those for physician type adjust for study site. We did not control for any other variables in the logistic models. Interactions between site and physician type were investigated by testing the addition of cross-product terms within these models. In secondary analyses, we examined the impact of sex of provider on HT discontinuation practices, non-hormonal interventions for VMS, and provider view of women's attitudes about HT discontinuation, using logistic regression to control for site and physician type.

RESULTS

We mailed surveys to 938 providers, 708 at Group Health and 230 at Harvard Vanguard (Figure 1). Response rates were 80.1% at Group Health and 73.5% at Harvard Vanguard. We excluded 109 non-physician respondents. We also excluded 144 physician respondents (116 Group Health and 28 Harvard Vanguard) who indicated that they never prescribed HT for menopause symptoms or prevention and never counseled women about HT. These analyses are limited to the 423 family practitioners and internists and 60 obstetrician/gynecologists who responded to our survey.

The mean age of respondents was 48.9 years (Table 1). Among respondents at Group Health, 92.1% were family practitioners or internists and 7.9% were obstetrician/gynecologists, compared to 73% and 27%, respectively, at Harvard Vanguard. Primary care is principally provided by family practice physicians (79%) at Group Health and by internists (99%) at Harvard Vanguard. Significantly more obstetrician/gynecologists than family practitioners/internists were women (67% vs. 41% respectively), and significantly more physicians at Harvard Vanguard than Group Health were women (59% vs. 40%, respectively). Mean years practicing at that institution and percentage employed full- vs. part-time employment were similar by practice type and institution. Among women physicians, 52% indicated they were premenopausal, 18% were in the menopause transition, and 30% were postmenopausal.

Emphasis on HT discontinuation was represented by mean scores on a five-point scale, where 1 = encourage women to discontinue HT as soon as possible and 5 = let women use HT as long as they want), (Table 2). Mean scores differed between physician types and between sites. Primary care physicians (mean 2.2) were more likely to encourage women to discontinue HT than were obstetrician/gynecologists (mean 2.9); and Harvard Vanguard physicians (mean 2.0) were more likely to encourage women to discontinue HT than Group Health physicians (mean 2.4). Women physicians (27%) were almost twice as likely as male physicians (17%) to encourage women to discontinue HT as soon as possible, (OR 1.9, CI 1.2–3.0, adjusted for site and physician type).

Most physicians (91%) chose tapering rather than immediate cessation (8%) as their main approach to discontinuing oral HT, and a majority (60%) combined strategies of decreasing dose and days per week (Table 2). Harvard Vanguard physicians were more likely to taper pills (96%) versus trying immediate cessation, compared to Group Health physicians (89%). Very few physicians (<5%) switched women to patches to assist with HT discontinuation. There was no difference in tapering versus immediate cessation by provider sex, however women physicians (69%) were somewhat more likely than male physicians (53%) to decrease both dose and days per week (adjusted OR 1.9, CI 1.3–2.8).

Physicians reported far less experience with tapering HT patches; 57% at Group Health and 58% at Harvard Vanguard reported no experience with tapering HT patches (60% family practitioners/internists and 41% obstetrician/gynecologists). Among those with experience tapering HT patches, 21% of family practitioners or internists, and 40% of obstetrician/gynecologists reported cutting up patches, while 71% of family practitioners or internists and 52% of obstetrician/gynecologists reported increasing the days between patches. Among Group Health physicians, 18% reported cutting up patches and 73% reported increasing days between patches. Conversely, among Harvard Vanguard physicians, 48% reported cutting up patches, and 48% reported increasing days between patches ($p=0.0002$ Group Health vs. Harvard Vanguard). Site by provider type interactions were not significant ($p>0.05$).

When asked what most strongly influenced their approach to HT discontinuation, physicians' responses differed by study site but not by practice type. For Group Health and Harvard Vanguard, respectively, 52% vs. 36% used the strategies they found most helpful, 17% vs. 49% relied on advice from a colleague or specialist, 23% vs. 7% followed patient preferences, 2% vs. 5% relied on an institutional protocol, and 2% vs. 1% relied on guidance from research literature, with the remainder replying "other" or "don't know" ($\chi^2 = 52.89$, $p<0.0001$).

We asked about a variety of approaches that may be used when a woman's hot flashes return after trying to discontinue HT (Table 3). The approaches most frequently endorsed were behavioral changes (44%), increased exercise (37%), black cohosh (28%), and adding soy to the diet (26%). Overall, only 19% of physicians recommended resuming HT; however, responses varied by both physician type and study site. Obstetrician/gynecologists were more

likely to recommend drug therapies, including resuming HT (43%) or starting gabapentin (7%) or clonidine (12%), than were primary care physicians (15%, 1% and 5% respectively). Obstetrician/gynecologists were also more likely to recommend behavioral changes, exercise, mind-body approaches and acupuncture than were primary care physicians. With the exception of starting selective serotonin reuptake inhibitors (SSRIs) or clonidine, the proportion of physicians recommending each of the suggested alternative therapies was greater at Harvard Vanguard than at Group Health; however, these differences were not significant for black cohosh, exercise, phytoestrogens, supplements, or mind-body therapies. Women providers were more than twice as likely than male providers to recommend almost all non-hormonal approaches after adjusting for site and provider type, including (OR, 95% CI): SSRIs (2.1, 1.3–3.6); SNRIs (3.2, 1.7–5.9), behavioral changes (4.9, 3.3–7.4), increasing exercise (2.1, 1.4–3.2); black cohosh (3.0, 1.9–4.6), soy diet (2.6, 1.7–4.0), phytoestrogens supplements (2.1, 1.2–3.6); and mind-body approaches (3.8, 2.1–7.0);

Physician impressions of patient's attitudes about HT varied by physician type and study site. Among obstetrician/gynecologists, 53% agreed or strongly agreed that most women who are using HT want to come off, compared to 38% of family practitioners/internists (Table 4). Group Health physicians were more likely (45%) to agree or strongly agree that women wanted to discontinue, compared to Harvard Vanguard physicians (23%). Obstetrician/gynecologists (20%) were less likely than primary care physicians (38%) to agree or strongly agree that women would discontinue HT on their own. Physicians at Harvard Vanguard (10%) were less than half as likely as physicians at Group Health (25%) to believe that women with hot flashes want to try approaches other than HT for symptom relief, even though the proportion of physicians recommending alternative therapies was higher at Harvard Vanguard than at Group Health. There were no sex-based differences in views of women's attitudes and behaviors around HT.

DISCUSSION

In the post-WHI era it is recommended that HT be used at the lowest possible dose and for the shortest possible time,⁶ and thus the issue of HT discontinuation has taken on new significance. In this cross-sectional survey study, we explored HT discontinuation practices within Group Health and Harvard Vanguard, large integrated health care delivery systems in the northwestern and northeastern United States, respectively, focusing on specialty and site differences. We found both health plans lacked a standard protocol for HT discontinuation, and physicians customized approaches influenced by their personal experiences, their location, advice from colleagues, patient preferences, and other unknown factors. These findings highlight a need to create an evidence-based approach to HT discontinuation.

Physicians at Harvard Vanguard were more likely than those at Group Health to encourage HT discontinuation—and less likely to recommend resuming HT when a woman's symptoms returned after discontinuing HT. These findings are consistent with prior studies showing higher use of HT in the western than northeastern United States.^{18, 19} In a 2003 U.S. survey conducted by the American Medical Association (AMA) (n = 1614, 54% response rate), 82%, 54%, and 42%, respectively, of obstetrician/gynecologists, family practitioners, and internists indicated they would offer estrogen-progestin therapy for short-term relief of menopause symptoms.²² The difference we observed between institutions might reflect the disparity in the types of providers offering primary care at the two sites. However, our analyses showed quite similar responses from both family practitioners and internists at Group Health (data not shown).

We also observed more favorable attitudes about HT among obstetrician/ gynecologists than among family practitioners/internists. In the AMA survey, obstetrician/gynecologists were

almost twice as likely as other physicians to prefer an indefinite duration of therapy, and they were more likely to view estrogen-progestin therapy as beneficial for a variety of chronic conditions including ischemic heart disease, Alzheimer's disease, and colon cancer,²² a finding supportive of our observed differences between obstetrician/gynecologists and family practitioners/internists. Further light is shed on our findings by a report from the American College of Obstetricians and Gynecologists, which surveyed their fellows in December 2004 to May 2005.²³ In this study, 49.1% of respondents did not find the combined EPT results of the Women's Health Initiative convincing (58.8% men, 39.5% women); although overall they reported a reduction in HT prescription practice relative to their practices in 2000.

Recommendations for HT discontinuation varied between provider types and between health plans; however, most physicians at both institutions favored tapering pills over immediate cessation and tapered dose first, followed by decreasing days per week. Almost 60% of physicians had no experience with tapering patches. Patches do not have the first-pass hepatic effects associated with inflammatory and coagulation responses to HT,²⁴ thus warranting a better understanding of how to successfully taper patches for HT cessation. The slightly higher cost of HT patches relative to oral HT may discourage their use. We did not gather information about gels and creams.

Physicians endorsed a variety of approaches to manage vasomotor symptoms that return after HT discontinuation. Behavioral changes and increased exercise were the most frequently recommended alternatives, more often by Harvard Vanguard and obstetrician/gynecologists than by Group Health or family practitioners/internists. Alternative therapies, including black cohosh and dietary soy, were recommended more often than were SSRIs or selective norepinephrine reuptake inhibitors (SNRI), a finding at odds with the current evidence, which suggests lack of benefit of black cohosh²⁵ and soy,²⁵ compared to the 50% to 60% decrease in symptoms found with some SSRIs and SNRIs relative to a 30% decrease with placebo.²⁶ However, the proportion of physicians endorsing these therapies was similar to those reported by Israeli and U.S. gynecologists surveyed in 2000; about 22% reported using phytoestrogens; 23% and 12%, respectively, reported using selective estrogen receptor modulators; and 6.3% and 16.1%, respectively, reported using antidepressants to manage menopause symptoms.²⁷ In our study, obstetrician/gynecologists more often endorsed alternative therapies that have not shown benefit²⁸ than did family practitioners/internists. All provider types equally used SSRIs that randomized controlled trials have shown to be beneficial alternatives.²⁶ Evaluating regional differences, compared to Group Health, Harvard Vanguard physicians endorsed non-HT therapies more frequently (with the exception of SSRIs which were recommended equally in both regions), perhaps reflecting the lower inclination of northeast physicians to recommend HT.

Group Health physicians were more likely than Harvard Vanguard physicians to believe most women want to come off HT and to try other methods; yet somewhat paradoxically, Group Health physicians were also more likely to encourage HT and less likely to endorse other approaches to managing menopause symptoms. In a 2003 U.S. survey of randomly selected Fellows of the American College of Obstetricians and Gynecologists (n= 705, 28% response rate), Power and colleagues found that over 90% of physicians reported that patients were less likely to request HT following media coverage of the WHI findings in 2002 and were more likely to discontinue once they started. By contrast, in our survey, only 36% of physicians believed women would discontinue HT on their own. Compared with family practitioners and internists, obstetrician/gynecologists were less likely to believe women would discontinue HT on their own but more likely to believe women want to discontinue HT. Given our earlier findings that half of women who discontinued HT did so without consulting their provider, providers may be unaware of the degree to which women make independent decisions about HT use.

Lastly, we observed some sex-specific differences in approaches to HT discontinuation including stronger inclinations to encourage women to discontinue HT as soon as possible, to use combined approaches to HT discontinuation, and to recommend non-hormonal approaches to manage menopause symptoms. These findings were independent of study site and provider practice type. The reasons for these differences are unknown, but they may indicate greater distrust of HT among female physicians in the wake of the WHI, and greater comfort with approaches to treatment besides HT.

CONCLUSION

Although caution must be used in generalizing data from two health plans to larger regions, our findings about HT practices and beliefs support national statistics that showed greater HT use in the Northwestern than in the Northeastern United States. HT discontinuation practices were characterized by tapering of both dose and frequency of oral HT, whereas physicians were less knowledgeable about discontinuation using HT patches. Physicians, especially obstetrician/gynecologists and physicians in the Northeast, endorse the use of a wide variety of behavioral, pharmaceutical, and alternative therapies in lieu of HT. Further research is needed to guide HT discontinuation practices and to provide evidence about alternatives to HT for vasomotor symptoms.

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References

1. Buist DS, Newton KM, Miglioretti DL, et al. Hormone therapy prescribing patterns in the United States. *Obstet Gynecol* 2004;104:1042–1050. [PubMed: 15516400]
2. Ettinger B, Grady D, Tosteson AN, Pressman A, Macer JL. Effect of the Women's Health Initiative on women's decisions to discontinue postmenopausal hormone therapy. *Obstet Gynecol* 2003;102:1225–1232. [PubMed: 14662208]
3. Haas JS, Kaplan CP, Gerstenberger EP, Kerlikowske K. Changes in the use of postmenopausal hormone therapy after the publication of clinical trial results. *Ann Intern Med* 2004;140:184–188. [PubMed: 14757616]
4. Grady D, Ettinger B, Tosteson AN, Pressman A, Macer JL. Predictors of difficulty when discontinuing postmenopausal hormone therapy. *Obstet Gynecol* 2003;102:1233–1239. [PubMed: 14662209]
5. Newton KM, Buist DS, Miglioretti DL, et al. The impact of comorbidities on hormone use. After the 2000 release of the Women's Health Initiative. *J Gen Intern Med* 2005;20:350–356. [PubMed: 15857493]
6. NAMS. Recommendations for estrogen and progestogen use in peri-and postmenopausal women: October 2004 position statement of The North American Menopause Society. *Menopause* 2004;11:589–600. [PubMed: 15545786]
7. Newton K, LaCroix A, Leveille S, Rutter C, Keenan N, Anderson L. The physician's role in women's decision making about hormone replacement therapy. *Obstet Gynecol* 1998;92:580–584. [PubMed: 9764632]
8. Newton KM, LaCroix AZ, Buist DS, Anderson LA, Delaney K. What factors account for hormone replacement therapy prescribing frequency? *Maturitas* 2001;39:1–10. [PubMed: 11451615]
9. Ringa V, Legare F, Dodin S, Norton J, Godin G, Breart G. Hormone therapy prescription among physicians in France and Quebec. *Menopause* 2004;11:89–97. [PubMed: 14716188]
10. Newton KM, LaCroix A, Buist D, Delaney KM, Anderson LA. Women's responses to a mailed hormone replacement therapy workbook. *Menopause* 2001;8:361–367. [PubMed: 11528363]

11. Newton KM, Buist DS, Keenan NL, Anderson LA, LaCroix AZ. Use of alternative therapies for menopause symptoms: results of a population-based survey. *Obstet Gynecol* 2002;100:18–25. [PubMed: 12100799]
12. Saver B, Taylor T, Woods N, Stevens N. Physician policies on the use of preventive hormone therapy. *Am J Prev Med* 1997;13:358–365. [PubMed: 9315268]
13. Exline J, Siegler I, Bastian L. Differences in providers' beliefs about benefits and risks of hormone replacement therapy in managed care. *J Womens Health* 1998;7:879–884. [PubMed: 9785314]
14. Nilsen S, Fredriksen T, Iversen O, Moen M. Attitude to and practice of Norwegian gynecologists concerning hormone replacement therapy in climacteric. *Tidsskr Nor Laegeforen* 1998;118:2940–2943. [PubMed: 9748831]
15. Utian W, Schiff I. NAMS-Gallup survey on women's knowledge, information sources, and attitudes to menopause and hormone replacement therapy. *Menopause: The Journal of the North American Menopause Society* 1994;1:39–48.
16. Cauley J, Cummings S, Black D, Mascioli S, Seeley D. Prevalence and determinants of estrogen replacement therapy in elderly women. *Am J Obstet Gynecol* 1990;163:1438–1444. [PubMed: 2240084]
17. Langenberg P, Kjerulff K, Stolley P. Hormone replacement and menopausal symptoms following hysterectomy. *Am J Epidemiol* 1997;146:870–880. [PubMed: 9384207]
18. Keating N, Cleary P, Rossi A, Zaslavsky A, Ayanian J. Use of hormone replacement therapy by postmenopausal women in the United States. *Ann Intern Med* 1999;130:545–553. [PubMed: 10189323]
19. Brett KM, Madans J. Use of postmenopausal hormone replacement therapy: estimates from a nationally representative cohort study. *Am J Epidemiol* 1997;145:536–545. [PubMed: 9063344]
20. Newton K, LaCroix A, Leveille S, Rutter C, Keenan N, Anderson L. Women's beliefs and decisions about hormone replacement therapy. *J Womens Health* 1997;6:459–465. [PubMed: 9279834]
21. Bush TM, Bonomi AE, Nekhlyudov L, et al. How the Women's Health Initiative (WHI) influenced physicians' practice and attitudes. *J Gen Intern Med* 2007;22:1311–1316. [PubMed: 17634782]
22. Sangi-Haghpeykar H, Poindexter AN. Physicians' views and practices concerning menopausal hormone therapy. *Maturitas* 2007;56:30–37. [PubMed: 16797148]
23. Power ML, Schulkin J, Rossouw JE. Evolving practice patterns and attitudes toward hormone therapy of obstetrician-gynecologists. *Menopause* 2007;14:20–28. [PubMed: 17019376]
24. Potts RO, Lobo RA. Transdermal drug delivery: clinical considerations for the obstetrician-gynecologist. *Obstet Gynecol* 2005;105:953–961. [PubMed: 15863530]
25. Newton KM, Reed SD, LaCroix AZ, Grothaus LC, Ehrlich K, Guiltinan J. Treatment of vasomotor symptoms of menopause with black cohosh, multibotanicals, soy, hormone therapy, or placebo: a randomized trial. *Ann Intern Med* 2006;145:869–879. [PubMed: 17179056]
26. Rapkin AJ. Vasomotor symptoms in menopause: physiologic condition and central nervous system approaches to treatment. *Am J Obstet Gynecol* 2007;196:97–106. [PubMed: 17306645]
27. Kaplan B, Aschkenazi-Steinberg S, Yogev Y, Nahum R, Sulkes J, Phisher M. Gynecologists' trends and attitudes toward prescribing hormone replacement therapy during menopause. *Menopause* 2002;9:354–359. [PubMed: 12218724]
28. Low Dog T. Menopause: a review of botanical dietary supplements. *Am J Med* 2005;118 Suppl 12B: 98–108. [PubMed: 16414334]

Figure 1.
Study Recruitment

Table 1
Characteristics of Physicians Participating in Survey at Group Health and Harvard Vanguard

	Overall N	Family Practitioners and Internists N=423	Obstetrician/ Gynecologists N=60	P- value	Group Health N=369	Harvard Vanguard N= 114	P- value
Characteristics							
Age: mean $\pm$ SD	473	48.6 $\pm$ 8.5	50.6 $\pm$ 8.1	0.10	49.2 $\pm$ 8.4	47.7 $\pm$ 8.9	0.09
Gender (% female)	480	41%	67%	0.0002	40%	59%	0.0005
Years practicing: mean $\pm$ SD	459	18.8 $\pm$ 9.3	20.2 $\pm$ 8.7	0.28	19.3 $\pm$ 9.2	17.8 $\pm$ 9.4	0.14
Years at this institution: mean $\pm$ SD	413	12.7 $\pm$ 8.5	12.9 $\pm$ 8.6	0.84	12.8 $\pm$ 8.4	12.6 $\pm$ 8.8	0.85
Full time (vs. part time) employment	409	48%	60%	0.09	50%	48%	0.76
Menopause Status (women only)	200						
Pre-Menopausal		64%	47%		61%	60%	
Menopausal Transition		14%	24%	0.16	14%	19%	0.64
Post-Menopausal		22%	29%		25%	21%	

P-values from t-test compare means and chi-square tests compare percentages.

SD = Standard Deviation

Table 2

Approaches to Oral HT Discontinuation: Family practitioners or internists vs. obstetrician/gynecologists and Group Health vs. Harvard Vanguard.

	Total	Family Practice/Internists vs. OB/GYN		Group Health vs. Harvard Vanguard Medical Associates		
		Family Practitioners & Internists (Reference)	OB/GYNs	Odds ratio and 95% CI	Group Health (Reference)	Harvard Vanguard
Approach to HT - denominator	478	418	60		366	112
Attitude to HT discontinuation (% encourage to discontinue as soon as possible vs. other response)	104 (22%)	24%	8%	4.7 [†] (1.8, 12.6)	19%	30%
Approach to Discontinuation - Denominator	479	419	60		367	112
Immediate Cessation	36 (8%)	7%	8%	-	9%	4%
Taper	435 (91%)	91%	92%	0.8 (0.3, 2.2)	89%	96%
Other	8 (2%)	2%	0%		2%	0%
Approach to Tapering HT - denominator - denominator	477	417	60		365	112
Decrease Dose	124 (26%)	27%	20%	0.7 (0.4, 1.5)	27%	21%
Decrease Days/Wk	48 (10%)	10%	10%	1.0 (0.4, 2.6)	10%	10%
Decrease Dose Then Days / Week	287 (60%)	60%	60%	0.9 (0.5, 1.6)	59%	65%
Switch to patches	3 (1%)	0%	5%	-	0.3%	2%
Other	1 (0.2%)	0.2%	0.0%	-	0.3%	0.0%
No Experience	14 (3%)	3%	5%	2.5 (0.6, 9.6)	3%	2%
						0.4 (0.1, 2.1)

Odds ratios and confidence intervals (CI) from logistic regression with main effect of physician type and main effect of site in model.

OB/GYN Obstetrician gynecologists, HT Hormone Therapy, SD Standard Deviation,

* p≤0.05,

[†] p≤0.01,

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$p \leq 0.001$

* $p \leq 0.05$,
† $p \leq 0.01$,
‡ $p \leq 0.001$

Table 4
Percentage of physicians who strongly agree/agree vs. disagree/strongly disagree with patient beliefs and behaviors regarding HT.

	Total	Family Practitioners and Internists vs. OB/GYN			Group Health vs. Harvard Vanguard Medical Associates		
		Family Practitioners & Internists (Reference Group)	OB/GYN	Odds Ratio 95% CI	Group Health (Reference Group)	Harvard Vanguard	Odds Ratio
	N=483	N=423	N=60		N=367	N=112	
Most women who are on HT want to come off.	40%	38%	53%	2.8 [‡] (1.5, 5.2)	45%	23%	0.3 [‡] (0.2, 0.5)
Most women who wish to come off HT will do so on their own without my recommendations.	36%	38%	20%	0.4 [‡] (0.2, 0.8)	35%	36%	1.2 (0.8, 2.0)
Most women who experience hot flashes want to try methods other than HT for symptom relief.	21%	22%	19%	1.1 (0.6, 2.4)	25%	10%	0.3 [‡] (0.2, 0.7)

Odds ratios and confidence intervals (CI) from logistic regression with main effect of physician type and main effect of site in model.

* p≤0.05,
‡ p≤0.01,
‡ p≤0.001