



Analysis of Media Coverage of Hormone Therapy for Menopause Management: 2002 through 2007

Introduction

In 2008, the Hormone Foundation (HF) commissioned the Center for Media and Public Affairs (CMPA) to conduct a study of media coverage of hormone therapy (HT) as it is used in the management of menopause. The study was to focus on how the selected media outlets communicated the risks involved with HT and how the media communicated the changing science surrounding HT. The study did not examine the business side of HT production, sales, or marketing.

The study focused on a group of major media outlets selected to provide a meaningful representation of media coverage. The newspapers analyzed included *The Washington Post*, *The New York Times*, and *Los Angeles Times*. The study examined coverage in two weekly news magazines, *Time* and *Newsweek*, as well as National Public Radio broadcasts of “All Things Considered” and “Morning Edition.” On television, the study analyzed coverage on ABC “World News Tonight,” CBS “Evening News,” NBC “Nightly News,” CNN, and FOX “Special Report with Brit Hume.”

The study looked at media coverage beginning July of 2002 when the Women’s Health Initiative (WHI) clinical trial of HT in healthy women was abruptly halted. This particular arm of the WHI was designed to test the hypothesis that HT (in the form of Prempro) conferred some protection from heart disease (as well as hip fracture and breast and colon cancer). Researchers discovered by July of 2002 that not only did HT not provide protection from heart disease, it actually increased the risk. While the increased risk of heart disease from HT ultimately proved to be true only for older women, the risk remained a touchstone of coverage. In addition to increasing the risk of heart attack, long term use of HT appeared to increase the risk of stroke, breast cancer, and blood clots. From this dramatic starting point we followed coverage through the end of 2007. Throughout this report, the term WHI refers to findings from the two controlled trials of HT, one looking at estrogen plus progestin (Prempro), the other assessing estrogen alone.

CMPA researchers selected stories from Factiva, Lexis/Nexis, and other online databases by using the search phrase “menopause or hormone.” This phrase was selected after testing showed that it offered the most complete collection of stories for analysis. Unfortunately, it also captured a large number of stories that were not related to HT. For example, applying this search term to the *Los Angeles Times* initially included over 1,600 stories of which only 62 proved to be relevant.

In selecting stories for analysis, researchers first excluded all stories that did not address hormone use in menopause management. Letters to the editor were also excluded as they do not represent a journalistic product. Finally, to be included in the final sample a story had to contain at least two paragraphs that substantially discussed HT in some way. This guideline eliminated many stories that included only a brief mention of HT.

Research Method

Once the stories were selected for analysis, CMPA researchers employed the social scientific technique of content analysis. The technique of content analysis allows researchers to classify statements objectively and systematically according to explicit rules and clear criteria. The goal is to produce valid measures of program content, and the hallmark of success lies in reliability. Other investigators who apply similar procedures to the same material should obtain similar results, although their interpretations of those results may differ.

Clear rules and standards have to be set for identifying, measuring, and classifying each program. In making each decision, researchers are applying these rules, not expressing their own opinions. If the rules are sufficiently clear, two investigators working independently will come to similar conclusions, regardless of their personal opinions about the subject matter. Thus, a well-done content analysis combines an appropriate system of rules and categories with a successful application of that system to the material under review.

Content analysis is not a panacea. The quality of the study depends on the way the coding categories are constructed, the clarity and appropriateness of the rules that guide coders, and the skill of the coders in applying them. Nonetheless, the difference between content analysis and casual monitoring is akin to the difference between scientific polling and man-on-the-street interviews. Indeed, content analysis is to the study of communications as scientific polling is to the study of public opinion.

There are two basic forms of content analysis. Quantitative analysis measures specified messages in numerical terms. It presupposes the existence of well-defined, mutually exclusive categories that are used to examine the data. Qualitative analysis, sometimes referred to as thematic or emergent analysis, lacks numerical precision, but is more sensitive to the nuances and differences between stories. These two forms of research complement and supplement each other.

CMPA researchers applied both approaches in conducting this study. First, researchers read a significant portion of news coverage taking notes on themes, styles of presentations, and other characteristics that would be useful in understanding media coverage. These notes and observations (along with reading some of the scientific research on HT) were used to operationalize the variables used in this study (i.e., apply concrete definitions and specific indicators to concepts and research questions so that relevant material can be reliably identified in the news stories). In this way, CMPA researchers were able to tailor variables to best describe news media content.

Once the variables for the study were operationalized and tested, the quantitative portion of the study began. In this phase, CMPA researchers examined each story, parsing it on a statement-by-statement basis to identify clear opinions. Among the items our analysis examined were opinions about the harms and benefits offered by HT (as well as the alternatives), quantification of specific risks uncovered by the WHI, the amount of confusion or uncertainty aroused by WHI findings, and advice on how women could manage menopause symptoms. By breaking a story down into individual statements our research is able to reliably measure content in a way that is not possible when taking the story as a whole. As we will discuss in subsequent sections, such a detailed analysis also allows us to capture a great deal of nuance and complexity in arguments. This is useful in supplying a more complete picture of risk communication.

Amount of Coverage

Coverage of HT dropped dramatically over the years of our study (see Table 1). The decision to stop one arm of the WHI study in 2002 drew widespread coverage with 139 stories.

Table 1. Amount of Coverage

Year	Number of Stories
2002	139
2003	49
2004	40
2005	33
2006	48
2007	26
TOTAL	335

These six months of coverage focused heavily on the study results and how they were obtained, but there was also coverage on the roots and evolution of HT over the past 40 years, the impact of the results on menopausal women and their doctors, the efficacy of alternatives, and how to regulate HT in the future.

The full year of 2003 saw coverage drop to 49 stories. Data from the WHI and other studies kept interest alive as evidence mounted that HT might not provide protection from Alzheimer’s disease and other cognitive conditions associated with menopause. There was also continued exploration of alternatives and how women and doctors were managing menopause one year after the initial WHI findings were released.

In 2004, coverage fell to 40 stories. This drop occurred even as a second arm of the WHI was halted when it was discovered that estrogen-only HT treatments increased the risk of blood clots and strokes in women using this formulation. Even though this study only included women who had hysterectomies, its findings were viewed as another blow to the use of HT in any context. Discussion of alternatives to HT continued to make news as well.

Coverage slid lower in 2005 to 33 stories. Among the HT stories of the year were calls by an NIH expert panel for more research on HT alternatives and a study showing that menopausal symptoms returned once women stopped taking HT.

2006 saw a rebound in HT coverage to 48 stories. The HT news of 2006 included an additional analysis of WHI data, which suggested that the effects of HT on the heart might depend on the age at which a woman started therapy. Younger women (aged 50–59) appeared to have a reduced risk of heart disease from HT use, and older women (ages 70–79) had an increased risk. These findings revived some of the confusion seen in 2002, but by 2006 experts and reporters seemed better able to explain how such outcomes were possible. Experts continued to advise caution and restraint in the use of HT. The commencement of the trial phase in a class action lawsuit against Wyeth (the makers of Prempro) brought attention back to the initial problems uncovered by the WHI. There was also news that some herbal remedies for hot flashes failed to show their efficacy in controlled tests. The year ended with news stories breaking, which carried over into 2007. Cancer rates continued on their downward trend, attributed by some to a drop in HT use.

Coverage in 2007 dropped to just 26 stories. A drop in cancer rates first reported in 2006 continued to make news in 2007. Jury awards to the plaintiffs in the lawsuit against Wyeth also generated a little news. A further analysis of WHI data suggested that younger women with no other risk factors for heart attacks or cardiovascular disease could safely use HT for the relief of menopausal symptoms.

Newspapers provided the most coverage of HT over the years (see Table 2). The three major papers included in the analysis were similar in levels of coverage. *The Washington Post* led with 67 stories total, followed by *The New York Times* (64) and the *Los Angeles Times* (62). Among news magazines, *Time* led with 30 stories while *Newsweek* printed half as many stories (14).

Like newspapers, the television outlets offered similar amounts of coverage. NBC led with 21 stories followed by CBS (19), ABC (18), and CNN (12) over the six years under study. FOX “Special Report” had no coverage of HT during this time period. “All Things Considered” aired 17 pieces while “Morning Edition” aired 10.

As is evident from Table 2, coverage was not evenly distributed across the outlets over the years. All of the outlets followed the general pattern of declining coverage over the years. The differences do not appear to have any significance to the content and reflect either local angles on the HT controversy or other small stylistic differences in the way stories are packaged.

Table 2. Amount of Coverage by Outlet and Year

	TOTAL	2002	2003	2004	2005	2006	2007
<i>The Washington Post</i>	67	29	8	11	8	7	4
<i>The New York Times</i>	64	33	6	6	3	1	6
<i>Los Angeles Times</i>	62	18	15	8	8	9	4
<i>Time</i>	30	16	2	3	3	4	2
<i>Newsweek</i>	14	6	2	2	1	0	3
NBC	21	6	6	2	2	5	0
CBS	19	8	4	2	1	2	2
ABC	18	4	6	2	1	4	1
CNN	12	4	0	3	1	2	2
FOX	0	0	0	0	0	0	0
“All Things Considered”	17	9	0	0	3	4	1
“Morning Edition”	10	6	0	1	2	1	1
TOTAL	335	139	49	40	33	48	26

The Risks and Benefits of Hormone Therapy

The central research question for this project was, how have the media portrayed the risks and benefits of HT? To explore this question the research examined every statement in each story for an assertion that some type of harm or benefit was known or suspected to be linked to HT. Parsing the news at this level yielded almost 2,600 assertions (2,597) that HT held some sort of harm or benefit, an average of nearly eight per story.

This very large number of assertions is a result of the way harms and benefits of HT use were often listed out in a story. A single sentence could easily list several potential harms of HT use. For example, this short passage from *The Washington Post* shows how multiple harms could be presented briefly:

The study was the topic of the day in countless conversations among friends and colleagues as women digested the sobering news that a common combination of estrogen and the synthetic progestin caused some statistically small increases in heart attacks, breast cancer, strokes and blood clots. (Reporters Carol Morello and Valerie Strauss, *The Washington Post*, 7/11/02, pg. B01)

This passage from *The New York Times* goes a little further to also list two of the more common benefits:

Women taking the drug had slightly more cases of breast cancer, heart attacks and strokes than those taking a placebo, and those risks were not counterbalanced by the drug's benefits, a slight decrease in the incidence of hip fractures and colon cancer. (Gina Kolata reporting, *The New York Times*, 8/15/02, pg. A20)

As these examples suggest, these types of very dense statements were common in news coverage.

Of those 2,597 statements, 90 percent discussed estrogen-plus-progestin hormone therapy while the remaining 10 percent addressed harms or benefits linked to unopposed estrogen use (as given to women who have had hysterectomies). There were only nine discussions of progestin as a cause of harm or benefit so for this report we will include them as part of the general discussions of the estrogen-plus-progestin version of HT. However, the key differences between the estrogen-plus-progestin and the estrogen-alone WHI trials indicate that progestin may be an important modifier of the effects of estrogen.

Table 3 provides a breakdown of the effects that were linked to estrogen-plus-progestin version of HT. (Unless otherwise specified, HT will refer to the estrogen-plus-progestin combination). This aggregation of effects provides what might be called a harm/benefit agenda for the news.

Table 3. Major Effects of HT Use Discussed in Media Coverage

Effect	Percent of Mentions	Number of Mentions
Heart disease	20%	465
Breast cancer	14%	332
Menopausal symptoms	14%	328
Strokes	9%	213
Bone loss/fracture risk reduction	8%	193
Blood clots	8%	188
Harmful in unspecified way	5%	105
Alzheimer's	4%	97
Colorectal cancer	3%	75
Staying young/delay aging	2%	48
Vaginal dryness	2%	43
Improve/maintain sexual libido	2%	43
Combat diseases unspecified	2%	42

(continued)

Table 3 (Cont.)

Effect	Percent of Mentions	Number of Mentions
Better hair/skin/appearance	1%	33
Reduce mental decline with aging	1%	33
All other cancers	1%	32
Gallbladder disease	1%	28
All other effects	1%	32
TOTAL	100%	2,330

The pattern of discussion closely follows the findings of each arm of the WHI research. Heart disease and heart attacks accounted for one-fifth of discussions (20%). This was followed by concerns over breast cancer linked to HT (14%) and a collection of menopausal symptoms like hot flashes, night sweats, mood swings, etc., that accounted for another 14 percent of HT discussions. The impact that HT might have on the risk of strokes accounted for nine percent of assertions. The possibility that HT use might prevent bone loss or prevent fractures rounded out the top five assertions with eight percent. The risk of blood clots also accounted for eight percent of discussions.

Beyond the top five lies a wider array of possible effects. Assertions that HT use could be harmful in some unspecified way garnered five percent of the discussion. These discussions were a manifestation of the media's need for introductory narrative in stories. The impact that HT might have on Alzheimer's disease and other forms of dementia accounted for four percent of discussions. These discussions often followed the changing research results. The beneficial effects that HT has on colorectal cancer accounted for three percent of HT discussions. Rounding out the top 10 were discussions of how HT appealed to women's desire to stay young or stave off the inevitable effects of aging (2%).

Looking at this harm/benefit agenda over the course of time, there is significant consistency punctuated by changes linked to new research findings. Table 4 presents the top assertions of harm or benefit in each year. Coverage in 2002 set the basic parameters of HT coverage. The leading point of discussion was risks (and now rejected possible benefits) of HT on coronary health (18%). Attention to coronary health risks remained a touchstone of coverage despite follow-up findings from additional analyses of WHI data that demonstrated no increase in risk for younger women. The relief of menopausal symptoms appeared almost as frequently (16%) as stories pointed out the traditional reason women were taking HT. Discussions of the role HT plays in exacerbating breast cancer accounted for 12 percent of assertions. These discussions are in relation to estrogen-plus-progestin formulations of HT only and do not reflect the discussions and findings from the unopposed estrogen WHI trial; that discussion is in a later section of this report. The nine percent of assertions that dealt with osteoporosis were a direct consequence of the news that HT did not provide benefits to the heart. As with the mentions of menopausal symptom relief, many reports mentioned that HT remained effective in preventing or reducing osteoporosis.

Discussions of the risk of blood clots and strokes accounted for eight percent of assertions apiece. Both of these negative effects were linked to the findings released from the WHI study.

Table 4. Harm/Benefit Agenda Over Time

2002		2003		2004	
Heart disease	18%	Heart disease	16%	Heart disease	19%
Menopausal symptoms	16%	Stroke	15%	Stroke	19%
Breast cancer	12%	Breast cancer	14%	Breast cancer	16%
Osteoporosis prevention	9%	Menopausal symptoms	13%	Menopausal symptoms	10%
Blood clots	8%	Alzheimer's/dementia	9%	Blood clots	10%
Stroke	8%	Blood clots	9%	Osteoporosis	7%
2005		2006		2007	
Heart disease	21%	Heart disease	31%	Heart disease	29%
Breast cancer	18%	Breast cancer	25%	Breast cancer	23%
Strokes	15%	Strokes	10%	Menopausal symptoms	18%
Menopausal symptoms	10%	Menopausal symptoms	9%	Strokes	9%
Blood clots	9%	Blood clots	8%	Harmful unspecified	8%
Osteoporosis	9%				

In the years that follow, heart disease remains the number one point of discussion in covering HT. Even when heart disease was not the central point of the story, the role of HT in raising the risks was mentioned in passing as part of the problem with HT. Again it is worth noting that attention to heart disease risk continued to occupy a significant place in media coverage even as WHI follow-up analyses found no increase in risk among younger women. This dynamic will be discussed more fully in a later section of the report.

The other points of discussion change order from year to year largely in response to research findings. In 2003, there was some discussion of the impact HT might have on Alzheimer's disease, which raised its profile to nine percent of assertions. In 2004, the early termination of the estrogen-alone arm of the WHI increased attention on the risk of strokes among HT users. Stroke risk tied for first place with heart attacks, each accounting for 19 percent of assertions.

In 2006, discussions of breast cancer received a boost in an unusual way. Research found a clear drop in cancer rates including breast cancer. Because the decline began after the release of WHI findings in 2002, some researchers concluded that a decline in HT use led to the drop in breast cancers. These discussions focused attention on this previously identified harmful effect found in

the estrogen-plus-progestin trial on breast cancer risk. There was also research from the estrogen-alone trial suggesting that, in some circumstances, estrogen treatment in women who had hysterectomies might provide protection from breast cancer. In a similar vein, a further analysis of WHI data suggested that younger women using HT might not see the heart disease risk of older women and might even enjoy some protection. This research pushed discussions of heart disease even more into the spotlight as reports tried to explain how the WHI could now have two conclusions.

While Table 4 provides a sense of the harm/benefit agenda of the news on HT, it does not identify which claims were supported and which were rejected. It also masks some important details of the debate over HT use. The qualitative analysis discovered that there were more than simple dichotomous pro and con statements on each risk. There were statements that clearly labeled HT as harmful and those that clearly labeled it as beneficial. There were opinions that treated the harms or benefits of HT use as a speculative connection. Finally, there were opinions that rejected particular types of harm or benefit. Because of the complex nature of HT use, stating that HT did not provide a particular benefit was not the same as arguing that it caused harm.

For that reason, the next two sections of this report will address the assertions about HT that approached it as a cause of harm followed by assertions that presented HT as a source of some benefit.

Slightly more than half (53%) of all assertions discussed HT in terms of the harms it was known or suspected to cause. Table 5 reflects the major points in the debate and the distribution of opinion on each claim. The study found that media coverage of the harmful effects of HT closely followed the results of various research projects over the years. The most often made assertions concerned an increase in the risk of breast cancer among HT users. Nine out of 10 assertions (91%) linked HT to a rise in breast cancer risk. These risk discussions were in connection to the estrogen-plus-progestin formulations of HT, since the estrogen-alone arm of the WHI trial did not find increased risk. The three percent of opinions that rejected an increase in breast cancer risk were found in 2006 when some research suggested that HT did not increase breast cancer risks for some women—such as those exposed to estrogen plus progestin who had never previously taken hormones, and women with hysterectomies receiving estrogen alone.

Table 5. Assertions of Harm Linked to Hormone Therapy

Effect	Harm Asserted	Harm Rejected	Harm Suspected	Total Number of Assertions
Increase risk of breast cancer	91%	3%	6%	327
Increase risk of heart disease	86%	7%	7%	304
Increase risk of stroke	94%	0	6%	200
Increase risk of blood clots	99%	0	1%	186
Harmful (unspecified)	86%	6%	8%	101

(continued)

Table 5 (Cont.)

Effect	Harm Asserted	Harm Rejected	Harm Suspected	Total Number of Assertions
Alzheimer's/dementia	66%	0%	34%	41
Gallbladder disease	100%	0%	0%	28
Ovarian cancer	81%	0%	19%	16
All other effects	82%	8%	10%	40
TOTAL	90%	3%	7%	1,242

It was briefly noted above that the effects of HT on heart disease were age dependent. When addressing potential harms to the heart, more than four out of five assertions (86%) labeled HT as a risk. The most current data indicates a lack of benefit, but no clear harm to the heart from HT. The dissenting views that rejected the idea of HT as harmful were most often found in 2006 and 2007 as new analysis of WHI data suggested that younger women who took hormones soon after natural menopause had decreased risk of heart disease and older women who took hormones many years after their menopause had increased risks. The remaining assertions about the harmful effects of HT were overwhelmingly supportive of the risks. Only the relationship between HT and Alzheimer's disease or other dementia reflects genuine ambiguity.

Table 6 provides a look at the major points in the HT debate that were addressed in terms of their known or potential benefits. The major claim for the benefits of HT was its ability to relieve the symptoms of menopause like hot flashes, night sweats, vaginal dryness, etc. These claims did not make headlines and were very rarely the central point of a story, but in report after report there was a sentence reminding readers that HT is very effective at relieving the most disturbing symptoms of menopause.

Table 6. Assertions of Benefit Linked to Hormone Therapy

Effect	Benefit Affirmed	Benefit Rejected	Benefit Suspected	Total Number of Assertions
Menopausal symptom relief	88%	1%	11%	366
Osteoporosis risk reduction	76%	7%	17%	188
Reduce risk of heart disease	20%	42%	38%	159
Reduce risk of colorectal cancer	89%	0%	11%	75
Alzheimer's/dementia	14%	32%	54%	56
Improve/maintain sexual libido	56%	34%	10%	41

(continued)

Table 6 (Cont.)

Effect	Benefit Affirmed	Benefit Rejected	Benefit Suspected	Total Number of Assertions
Combat unspecified disease	0%	59%	41%	41
Better hair/skin/fewer wrinkles	76%	9%	15%	33
Reduce mental decline of aging	30%	52%	18%	33
Maintaining youth	28%	28%	44%	32
Healthier, more energetic	14%	41%	46%	22
All other effects	12%	48%	40%	42
TOTAL	60%	18%	22%	1,088

Thus, the research found that 99 percent of assertions about menopause relief either affirmed or suspected a benefit. The benefits of HT in preventing or reducing the risk of osteoporosis, bone loss, or fractures were affirmed three quarters of the time (76%). Since this was the only other approved use for HT, such support is not surprising.

In the number three spot on this table is the flip side of the heart attack discussion. The 58 percent of assertions that suggested or claimed that HT had heart benefits were either drawn from observational studies that continued to show cardiac benefits of HT or occurred in 2006 and 2007 as research showed HT might help younger women. Those opinions that rejected cardiac benefits for HT drew on the central message of the WHI findings in 2002.

That HT had a small protective effect on colorectal cancer risk was a finding of the WHI trials in 2002. Hence, this particular effect was affirmed as beneficial 89 percent of the time. As with some other effects, colorectal cancer was rarely a central point in coverage and most often was found as part of the recitation of WHI results.

Discussions of the impact of HT on Alzheimer's disease or dementia in general reflect early hope that HT might stave off or prevent the onset of dementia (68% positive or suspected benefit). Once the research came in that HT did not reduce the risk of dementia, things turned more negative (32%).

The remainder of the items in Table 6 reflect a raft of hopes attached to HT (i.e., combat disease in general, maintain libido) or claims that are difficult to define or research (i.e., better hair and skin, feel younger). In the case of combating disease in general or reducing the mental decline women can suffer as they age, a majority of opinions rejected any benefit.

Comparing the results found in tables 5 and 6, interesting aspects of the tone of the harm/benefit agenda become clear. There was virtually no debate over the potential harms of HT (90 percent of opinions affirmed a harm). Given the strong data available on the harmful effects of HT, such near unanimity is not surprising. Discussions of benefits were more ambiguous and speculative. Three out of five (60%) assertions on benefits affirmed a benefit while two out of five (40%) cast doubt.

The Estrogen Debate

While most of the discussion of HT focused on the combination of estrogen plus progestin, some discussions addressed the risks and benefits of estrogen alone. In 2002 and 2003, the assertions about estrogen were part of explanations of how the hormone affects women's health and bodily systems. While it is possible that sources or reporters who attributed risks and benefits to estrogen alone meant to refer to combination HT, to an uninformed reader it appears as a discussion of estrogen. In 2004, when the estrogen-only arm of the WHI was halted, attention focused on how estrogen contributed to the risk of strokes. Discussions of estrogen alone after 2004 were driven by the results of the estrogen-alone WHI trial.

This level of coverage reflects an imbalance in attention to different forms of HT. Specific discussions of estrogen alone account for only 10 percent of assertions about HT in the media coverage. It is estimated that 26 to 31 percent of women in the WHI age group (50–79 years old) have had a hysterectomy.¹ Thus, the pool of women in the population who might be using estrogen-alone HT is far larger than might be suggested by the media attention to unopposed estrogen use.

Of the 258 discussions of the harms and benefits associated with estrogen, 113 occurred in 2002. Table 7 illustrates the major points of discussion of the activity of estrogen.

Table 7. Assertions of Harm or Benefit Linked to Estrogen Use *

	(Number of Assertions)						
	2002	2003	2004	2005	2006	2007	Total
Increase stroke risk	8	0	27	13	6	0	54
Menopausal symptom relief	33	0	0	0	15	0	48
Increase breast cancer risk	5	0	3	2	27	0	37
Reduce heart disease risk	17	0	0	0	12	0	29
Increase risk of blood clots	2	0	6	3	9	0	20
Increase endometrial cancer risk	11	2	2	1	0	0	16

* Note: No other effects of estrogen use garnered more than 10 assertions

¹ Owe HL (1984) Age specific hysterectomy and oophorectomy prevalence rates and the risks for cancer of the reproductive system. *Am J Public Health* 74:560-3.

The major point of estrogen discussions in 2002 was its beneficial effects on menopausal symptoms (33 assertions). A possible reduction in heart disease risk linked to estrogen placed second with 17 assertions. Most of these claims were part of explanations of previous research that led to the WHI controlled trials. Linkages between estrogen and endometrial cancer (11 assertions) were part of explanations of why women with a uterus receive combination HT, while those who have had a hysterectomy can take estrogen alone.

As can be seen, discussions of estrogen-alone use shifted in 2004 to stroke risk, which was the principal harm found in the WHI estrogen-alone trial, in addition to blood clots. Despite the lack of breast cancer risk and no evidence of harm to the cardiovascular system in the estrogen-alone WHI trial, the tone of discussion was not markedly different than the trends already explored above for HT use.

Adding Some Context

So far, this report has focused on the major points of discussion to get a broad view of which parts of the HT debate the media covered most heavily. To completely answer the initial research question of how well the media communicated the risks of HT it is necessary to look deeper. Medical experts and researchers know that their results are applicable only to certain types of patients in particular circumstances at particular doses or exposures. Those limitations are inherently part of any controlled trial. In translating research results from the medical journal to the popular media, it is most often those specific details that are lost.

This section of the report will examine how well news accounts communicated the limitations and context of research findings. The importance of these details can be seen in two seemingly contradictory findings from the WHI. In 2002, WHI data said HT use raised the risk of heart attack. By 2004, using more follow-up data from the WHI, there was no increase in the risk of heart attacks attributable to HT use. In 2006, a new report out of WHI data said HT might not raise the risk of heart attack for all women and even decreased it in some women (the younger ones closer to natural menopause). As some media reports correctly noted, the 2006 findings applied to younger menopausal women (50-59) and thus did not refute the earlier findings. Rather these new findings began to reconcile the 2002 data with earlier observational and animal studies on HT that supported its potential role as an agent that could protect against heart disease in women. Hence the question of how often these contextual aspects of health claims were included in media accounts.

In the process of identifying assertions about harm and benefit linked to HT, researchers also looked at five contextual factors that are important to understanding the applicability or credibility of the claim. First, researchers identified what type of evidence was used to support the claim. As evidenced by the heart disease findings, some effects of HT only apply to certain groups of women, so the analysis identified any effort to include this detail in the claim. Since the effects of HT are dependent upon how long a woman uses hormones, researchers recorded any discussion of the length of HT use. This study also looked for indication of how large or small a dose of HT was taken by women who experienced a particular effect, as well as whether the dosing was continuous or cyclical. Both of these elements were seen as possible factors in the impact HT has on women's health. And finally, the analysis looked for mentions of how women took HT, since the method of delivery was conjectured to have an impact.

Table 8 provides a broader overview of the frequency with which these contextual elements appeared. Other than citing specific scientific evidence, the overwhelming majority of assertions included little contextual information. Since so much of the discussion of HT was driven by the results of the WHI, it is not surprising that three out of five assertions relied on some sort of scientific evidence. The impact that the duration of HT use has on its health consequences was found in 16 percent of assertions.

Table 8. Use of Contextual Elements in Assertions of Harm or Benefit

	Number of Assertions	Percent of Assertions
Citing scientific evidence	1,572	60%
Duration of use	419	16%
Risk/benefit group	216	8%
Identify dosage	125	5%
Method of delivery	104	4%

Identifying a particular group of women to whom an assertion applied occurred in eight percent of assertions. Mentions of the dosage of HT were found in five percent of assertions. The method of delivery was identified in just four percent of assertions.

Among the citations of scientific evidence, the most common were mentions of the WHI (1,109 mentions) followed by references to unspecified scientific research (236) and observational studies (134). The HERS study was cited 60 times followed by other clinical trials (22). Animal studies were cited five times while epidemiology and *in vitro* studies were cited three times each. The comparatively low profile of the HERS study and almost invisibility of animal studies in media accounts reveals how reporting on the research of the moment can supersede putting data in a meaningful context. In this case, it was results from earlier animal studies that provided important scientific underpinnings for the rationale of the WHI trial design. The earlier HERS study (which examined the role of HT in preventing heart disease in women who already had evidence of disease) presaged the WHI's eventual null findings.

When it came to identifying a group of women who were most likely to benefit or experience some harm from HT, the most common references were to younger menopausal women (67). This is largely a result of the WHI findings that suggested younger menopausal women did not face the same cardiac risks from HT as their older counterparts. With 65 mentions, women with hysterectomies were the second most often mentioned. Again this follows from the structure of the estrogen-alone arm of the WHI, which included only women with hysterectomies. There were 30 mentions of women with a history of cardiovascular disease as a pertinent risk/benefit group. The only other groups of women to be mentioned more than 10 times were older menopausal women (14 mentions) and women at high risk of fractures or osteoporosis (14 mentions).

In addressing the effects that duration of use might have on HT outcomes, the most common references were to specific time periods over five years (175 mentions), followed by more vague mentions of “long term use” (158 mentions). On questions of dosage, there were 85 mentions of a specific dose and 40 non-specific mentions of high or low dose. Whether the dosing was continuous (13 mentions) or cyclical (32 mentions) was a very small part of assertions about HT. The method of administration most commonly cited was pill (78 mentions), followed by patches (21), vaginal applications (14), ring (9), and all of the above (6).

The qualitative analysis of HT coverage revealed that there was more to communicating the risks and benefits of HT use than specific assertions of harm and benefit. On the level of assertions, researchers recorded any mention of groups of women to whom specific assertions applied. At the story level, there were analogous comments about the applicability of WHI findings that suggested limitations. Out of 335 stories coded, 31 included at least one comment about the applicability of WHI findings to the population at large. Table 9 summarizes all of the opinions about limitation in the applicability of WHI findings.

Table 9. The Applicability of WHI Findings

	Number of Opinions	Percent
Women in WHI were generally older than most HT users	13	37%
Applies only to Prempro users	7	20%
WHI findings probably apply generally, but it is uncertain	6	17%
Longer duration of HT use makes results inapplicable	4	11%
Delivery method of HT not applicable to other methods	3	9%
Dosages used in WHI not applicable to others	1	3%
WHI results apply to everyone	1	3%
TOTAL	35	100%

There was only one opinion that WHI results were applicable to all menopausal women without reservations—yet the WHI sample was community based and more likely to resemble a physician’s patients in practice than postmenopausal women from any other study. A more interesting view was that the WHI findings on HT use were probably applicable to women outside the research protocol, but that extrapolation was uncertain. Among specific limitations cited, the age of the women in the WHI was the most common (13 opinions). This became even more important when reanalysis of WHI data suggested that the younger women in the study did not share the same heart disease risks as older women.

Even before that research finding in 2006, some experts were advising caution since the women in the WHI were exposed to hormones at an age that was far older than many HT users. Pointing out that the results were only completely applicable to Prempro users (7 opinions) was often handled dismissively before a story went on to explore the possible implications of WHI findings for all women.

The initial qualitative examination of media coverage also found comments that attempted to quantify or qualitatively evaluate the specific risks associated with HT use. We found that 73 stories (out of 335) included at least one comment qualitatively or quantitatively evaluating the risks of HT use. These comments cover a wide range of statements as can be seen in Table 10. The most common expression was to say that the risks were “small” but significant (44 opinions).

Table 10. Quantifying the Risks of HT Use

	Number of Opinions	Percent
Small but significant risks	44	26%
Miniscule risk to individual women	18	11%
8 additional breast cancers per 10,000 women on HT	17	10%
7 additional heart attacks per 10,000 women on HT	15	9%
Double the risk of Alzheimer’s or other dementia	14	8%
8 additional strokes per 10,000 women on HT	13	8%
23 additional cases of dementia	9	5%
HT increases breast cancer risk 26%	4	4%
18 additional cases of blood clots per 10,000 women on HT	7	4%
6 fewer cases of colorectal cancer per 10,000 women on HT	6	4%
5 fewer hip fractures per 10,000 women on HT	6	4%
Significant public health risk	3	2%
HT use increases breast cancer risk 24%	3	2%
HT use increases heart disease risk 23%	2	1%
HT use increases stroke risk 38%	2	1%
40% lower risk of colorectal cancer	2	1%
1/10 of 1% per year increase in risk of breast cancer	1	<1%
38% increase in gallbladder surgery	1	<1%
0.4% combined risk for heart attack, stroke, breast cancer, and blood clots	1	<1%

(continued)

Table 10 (Cont.)

	Number of Opinions	Percent
HT increases blood clot risk 100%	1	<1%
33% fewer hip fractures	1	<1%
23 additional negative outcomes	1	<1%
2.5 times less likely to develop Alzheimer's	1	<1%
TOTAL	172	100%

These comments most often occurred when discussing the initial WHI findings. A similar idea can also be found in comments that viewed the risks uncovered by the WHI as “miniscule to individual women” (18 opinions). Following these general comments on the risks of HT, comments turned very specific and mimicked the results published by the WHI. There were 17 mentions of the eight additional cases of breast cancer attributed to HT use and 15 mentions of the seven additional heart attacks attributed to it. Doubling the risk of Alzheimer's disease was a finding of later WHI research. The only other quantified risks to break into double digits were mentions of the eight additional strokes that could be attributed to HT use.

Characterizing Reactions to WHI Findings

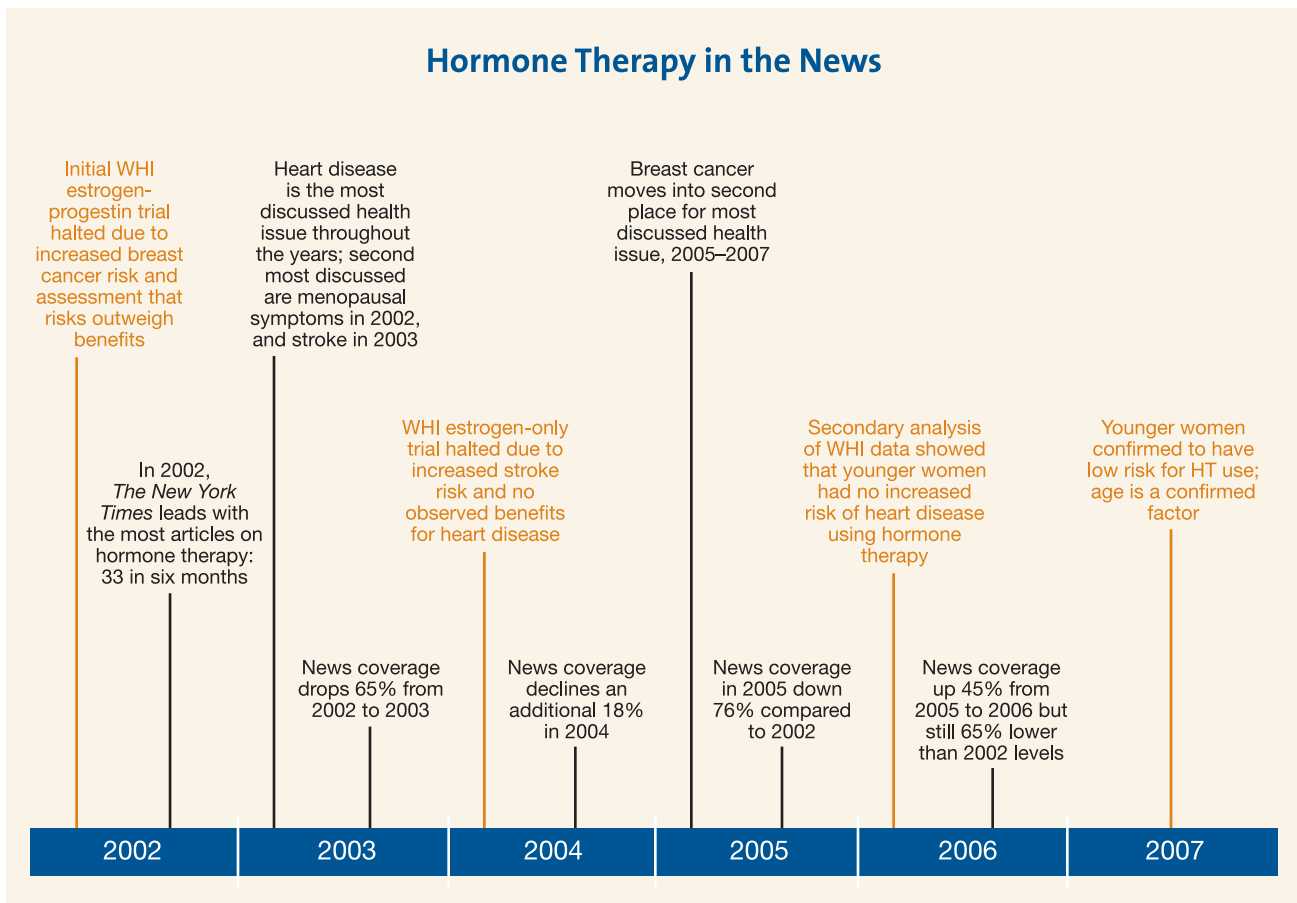
The initial qualitative analysis of media coverage of HT revealed two characterizations that were made about reactions to the flood of data presented from the WHI. There were opinions on the confusion caused by the WHI findings and observations about the surprising nature of the WHI results.

The idea that WHI results had caused confusion among women and doctors was one of the more memorable aspects of early coverage of HT use. Overall, 12 percent of stories had at least one opinion on the confusion caused by WHI findings. There was no debate on this point—all 60 sources that expressed an opinion felt that people were confused in the wake of the WHI results. The idea that research findings caused confusion was revisited in a small way in 2006 when a reanalysis of WHI data suggested that younger women did not face the same risks of heart disease from HT that was found in the entire WHI sample group.

Were the results of the WHI research a surprise or a shock? One in 10 stories included at least one comment on this idea. Of the 37 opinions on the surprising nature of the WHI results, 92 percent expressed surprise. Most of these comments merely stated that the results were surprising (70%), but 22 percent specifically found the data on cardiac risks surprising. While HT had long been associated with increased risk of breast cancer and even blood clots, many observational studies and other research made a plausible case that HT would protect women's hearts. It came as surprise to both experts and lay observers that HT in a controlled trial had the opposite effect of the hypothesis.

Putting It All Together

The following timeline links developments in the WHI research with noteworthy points in media coverage over the years. The high water mark for media coverage occurred in 2002 with the news that the estrogen-plus-progestin arm of the WHI trials was being halted since HT did not provide a heart disease benefit and increased the breast cancer and blood clot risk. The last six months of 2002 accounted for 41 percent of all HT coverage. Coverage of HT was dominated by the three newspapers, and *The Washington Post* held a narrow lead over other papers with 67 articles over the study period. In 2002, *The New York Times* offered the most coverage with 33 stories.



Heart disease risk was the most discussed issue over the years, with variations in the remainder of the risk/benefit news agenda driven by new research results. In 2002, the relief of menopausal symptoms took second place, while in 2003 it was the impact HT might have on strokes.

News coverage dropped 65 percent in 2003 and then dropped another 18 percent in 2004. This decline came as the estrogen-alone arm of the WHI trials was halted due to an increased risk of stroke in estrogen-alone HT users.

In 2005, news coverage of HT was down 76 percent from its high point in 2002. While heart disease risk was still the most discussed effect in 2005, breast cancer risk moved into the number two spot where it would stay for the next two years.

In 2006, a secondary analysis of WHI data showed that younger women (50–59 years old) had no increased risk of heart disease from HT use. This news pushed the amount of coverage up 45 percent from 2005, but the number of stories was still 65 percent lower than in 2002. Further study results released in 2007 confirmed that younger women faced low risks from HT use.

Conclusion

This study examined five and one-half years of major media coverage of the health effects of hormone therapy as a part of menopause management. After the initial flurry of attention to the results of the WHI trials, there was a steep drop in coverage. The last six months of 2002 offered more stories than the following three years combined. All of the outlets in the study followed a similar pattern in the amount of coverage. Coverage of HT was dominated by the newspapers which accounted for 58 percent of coverage.

Despite this drop in coverage, this study found that the harm/benefit agenda of the news was fairly stable. Items in the harm/benefit agenda changed order in response to new research, but the focus hewed closely to the central points in the original WHI results. The increasing risks of heart disease, breast cancer, strokes, and blood clots always placed in the top five effects of HT. The beneficial effects of HT on typical menopausal symptoms and its effects on preventing bone loss were also usually in the top five or six effects.

Media discussions of harms and benefits linked to HT were empirically driven by WHI and other research results and reflected those concerns reasonably well. Where media accounts fell short was in reporting the qualifiers and caveats that are part of every research design. Other than identifying the type of scientific evidence used to bolster assertions of harm and benefit (found in 60% of assertions), no other contextual element could be found in more than 16 percent of assertions.

What emerges is a picture of media coverage that did a good job of identifying the risks and benefits of HT. So women knew what to be concerned about from media coverage, but they would have a hard time determining if the research results and opinions applied to them. With infrequent reference to important qualifiers like the age of the women in a study or the amount of time they were on HT, readers and viewers would be stymied in their efforts to determine if a result applied to them. ■

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COLLABORATING ORGANIZATIONS

The Hormone Foundation

www.hormone.org

Established in 1997 by The Endocrine Society as its non-profit public education affiliate, The Hormone Foundation serves as a resource for the public by promoting the prevention, treatment and cure of hormone-related conditions through outreach and education. The Hormone Foundation draws from the expertise of The Endocrine Society, the oldest and most influential organization of endocrinologists in the world, to develop and implement authoritative and reliable educational programs on endocrine disorders for the public.

The Endocrine Society

www.endo-society.org

Founded in 1916, The Endocrine Society is the world's oldest, largest and most active organization devoted to research on hormones and the clinical practice of endocrinology. Today, The Endocrine Society's membership consists of more than 14,000 scientists, physicians, educators, nurses and students in more than 100 countries. Society members represent all basic, applied and clinical interests in endocrinology. The Endocrine Society is based in Chevy Chase, Maryland.

Center for Media and Public Affairs

www.cmpa.com

The Center for Media and Public Affairs (CMPA) is a non-partisan research and educational organization that conducts scientific studies of news and entertainment media. CMPA's goal is to provide an empirical basis for ongoing debates over media coverage and impact through well-documented, timely, and readable studies. Since its formation in 1985, CMPA has emerged as a unique institution that bridges the gap between academic research and the broader domains of media and public policy. CMPA campaign news studies have played a major role in the ongoing debate over improving the election process. CMPA is also one of the few groups to study the role the media plays in communicating information about health risks and scientific issues.

Statistical Assessment Service

www.stats.org

Since its founding in 1994, the non-profit, non-partisan Statistical Assessment Service (STATS) has become a much-valued resource on the use and abuse of science and statistics in the media. The goals of STATS are to correct scientific misinformation in the media resulting from bad science, politics, or a simple lack of information or knowledge; and to act as a resource for journalists and policy makers on major scientific issues and controversies. STATS' work has been featured on NBC's "Nightly News," "The News Hour with Jim Lehrer," and ABC's "20/20," and in publications such as *The New York Times*, *The Wall Street Journal*, *The Washington Post*, *U.S. News and World Report*, *New Scientist*, and *New England Journal of Medicine*.