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Pharmaceutical Industry Online

December 2003

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Welcome to eMarketer

Dear Reader:

eMarketer's latest *Pharmaceutical Industry Online* report takes an extensive look at how pharmaceutical companies are using the Internet alongside traditional, offline channels to promote their products to consumers and physicians.

In addition to covering the latest trends in online advertising and e-detailing, the report includes aggregated survey data that provides insight into how consumers and physicians use the Internet to gather information about health information in general, and prescription drugs in particular.

eMarketer also takes a look at the buying and selling of prescription drugs online, examining the leading companies that sell drugs online and profiling those consumers who turn to the Internet to buy medication.

If you have any questions or comments concerning eMarketer or any of the material in this report, please call, fax or e-mail us.

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Methodology
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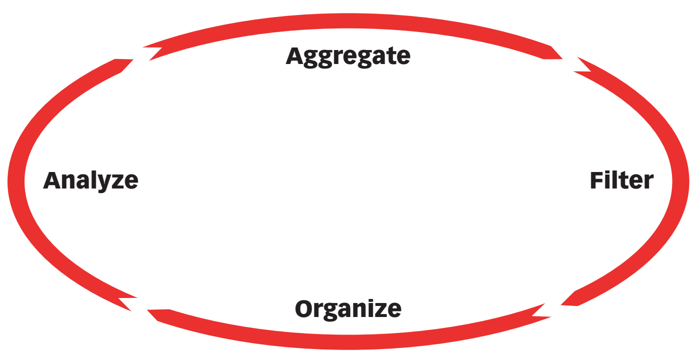
eMarketer's approach to market research is founded on a philosophy of aggregating data from as many different sources as possible. Why? Because there is no such thing as a perfect research study and no single research source can have all the answers. Moreover, a careful evaluation and weighting of multiple sources will inevitably yield a more accurate picture than any single source could possibly provide.

The eMarketer Difference

eMarketer does not conduct primary research, it therefore has no testing technique to defend, no research bias and no client contracts to protect.

eMarketer prepares each market report using a four-step process of aggregating, filtering, organizing and analyzing data from leading research sources worldwide.



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Using the Internet and accessing a library of electronically-filed research reports and studies, the eMarketer research team first aggregates e-business data from hundreds of global research and consultancy firms. This comparative source information is then filtered and organized into tables, charts and graphs. Finally, eMarketer analysts provide concise and insightful analysis of the facts and figures along with their own estimates and projections. As a result, each set of findings reflects the collected wisdom of numerous research firms and industry analysts.

"I think eMarketer reports are extremely useful and set the highest standards for high quality, objective compilation of often wildly disparate sources of data. I rely on eMarketer's research reports as a solid and trusted source."

— Professor Donna L. Hoffman, Co-Director, eLab, Vanderbilt University

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The Benefits of eMarketer's Aggregation Approach

Objective: information is more objective than that provided by any single research source
Comprehensive: gathered from the world's leading research firms, consultancies and news organizations
Authoritative: quoted in leading news publications, academic studies and government reports
All in one place: easy to locate, evaluate and compare
Readily accessible: so you can make quick, better-informed business decisions
Above the hype: accurate projections that business people can use with confidence
Time saving: there's no faster way to find Internet and e-business stats, online or off
Money saving: more information, for less, than any other source in the world

"Benchmarking" and Projections

Until recently, anyone trying to determine which researcher was most accurate in predicting the future of any particular aspect of the Internet did not have a definitive source with which to do this. For instance, over 10 firms predicted e-commerce revenues for the fourth quarter 1998 online holiday shopping season, and yet no single source could be identified after the fact as having the "correct" number. In the Spring of 1999, however, the US Commerce Department finally began measuring e-commerce B2C activity so business people and others could have a benchmark with which they could compare and evaluate projections.

eMarketer has adapted its methodology to recognize that certain government and other respected, impartial sources are beginning to provide reliable numbers that can be consistently tracked over time. Most of these established sources, however, only measure past results; typically, they do not make predictions.

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Today, eMarketer formulates its essential e-business numbers by first identifying the most established, reputable source for a given sector being measured and then adopting that organization's figures as benchmarks for the historical/current period. For instance, eMarketer's US Internet user figures will be based on a combination of the most recent data from the US Census Bureau and the International Telecommunication Union. Using this data as the benchmark for 2000 and 2001, eMarketer will make projections for subsequent years based on the following factors:

- a comparative analysis of user growth rates compiled from other research firms
- additional benchmark data from Internet rating firms, e.g., Nielsen//NetRatings, comScore Media Metrix, which use panels to measure Internet user activity on a weekly and monthly basis
- an analysis of broader economic, cultural and technological trends in the US

Similarly, US e-commerce revenues are being "benchmarked" using historical data from the US Department of Commerce, and broadband household and penetration rate forecasts are being built off baseline data from the Organization for Economic Cooperation and Development (OECD).

Through this benchmarking process, eMarketer will be holding itself – and its projections – accountable.

"When I need the latest trends and stats on e-business, I turn to eMarketer. eMarketer cuts through the hype and turns an overabundance of data into concise information that is sound and dependable."

— Mark Selleck, Business Unit Executive, DISU e-business Solutions, IBM

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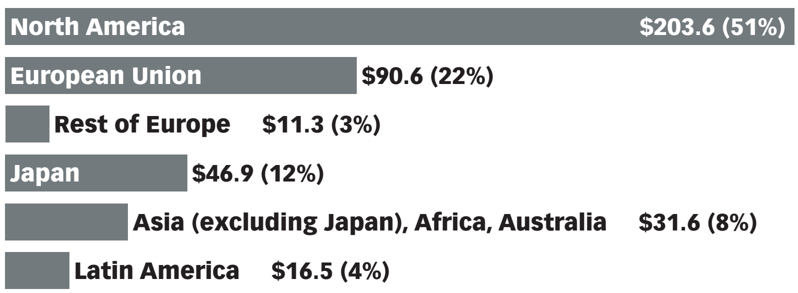
According to data from IMS Health's *World View 2003* report, global sales of prescription drugs reached $400.5 billion in 2002, with North American sales of prescription drugs accounting for a substantial $203.6 billion of total sales worldwide.

Second to the North American market's 51% share of global sales, the European Union accounted for $90.6 billion, or 22% of prescription drug sales worldwide, while the rest of Europe purchased $11.3 billion worth of prescription drugs in 2002.

Japan was the third largest market after the EU with $46.9 billion in sales, followed by Asia, Africa and Australia, with $31.6 billion in sales.

Worldwide Prescription Drug Sales, by Region, 2002 (in billions and as a % of worldwide sales)



Source: IMS Health, 2003; Pharmaceutical Executive, May 2003

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In breaking down worldwide prescription drug sales by company, IMS Health listed Pfizer as having the largest market share in 2002, at 13.8% of global sales. Because Pfizer's merger with Pharmacia had not been completed as of the end of 2002, Pharmacia was ranked separately among the top ten pharmaceutical companies with a 4.1% market share.

Taken together, *Pharmaceutical Executive* magazine estimates that both Pfizer and Pharmacia had combined global prescription drug sales of $40.2 billion in 2002. It should be emphasized, however, that *Pharmaceutical Executive* excludes sales of non-pharmaceutical products in this breakdown of each company's sales.

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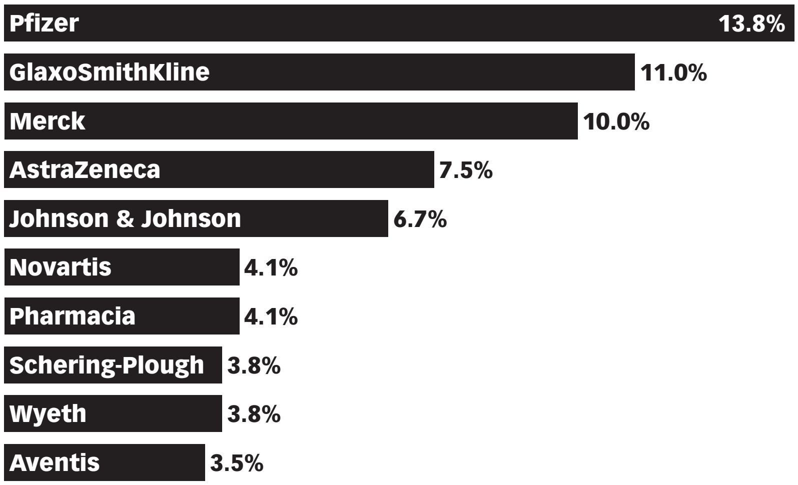
According to these figures from IMS Health, the top 10 pharmaceutical companies accounted for 68.3% of worldwide prescription drug sales in 2002.

Top 10 Pharmaceutical Companies, by Market Share of Worldwide Prescription Drug Sales, 2002 (as a % of total prescription sales)



Source: IMS Health, 2003; Pharmaceutical Executive, May 2003

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When it comes to the top ten prescription drug brands, *Pharmaceutical Executive* lists Pfizer's Lipitor as the top selling drug, with worldwide sales of $7.97 billion in 2002. Merck's Zocor was the second most successful drug, with sales of $5.60 billion, followed by Prilosec, which provided AstraZeneca with revenues of $4.62 billion in 2002.

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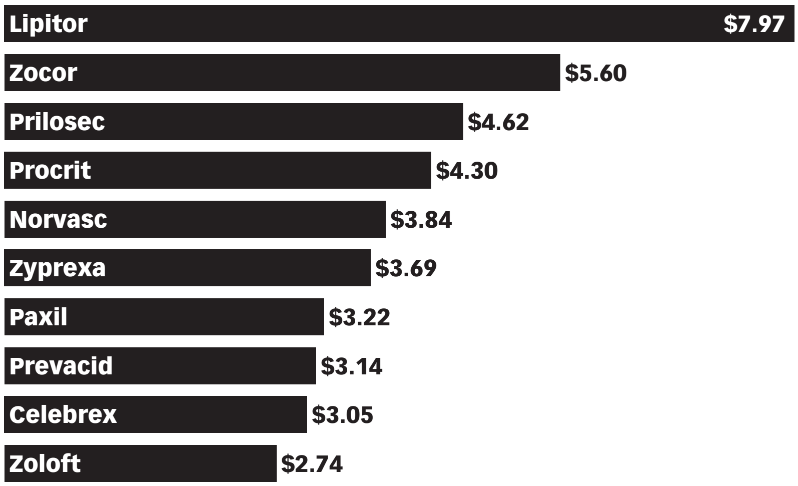
Altogether, sales of the top ten prescription drug brands totaled $42.17 billion, accounting for 10.5% of the estimated $400.5 billion in worldwide prescription sales.

Top 10 Pharmaceutical Products, by Worldwide Sales, 2002 (in billions)



Source: Pharmaceutical Executive, May 2003

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A. How Promotional Spending Breaks Down

According to data from Verispan and Desilva & Phillips, total promotional spending by the pharmaceutical industry has increased 47% in the United States during the past five years, from $8.5 billion in 1998 to $12.5 billion in 2002.

Direct to consumer (DTC) advertising has seen the greatest growth, increasing by about 108% between 1998 and 2002, compared with sales force, or "detailing" expenditures, which have risen by 33.3%.

It is worthwhile to note that DTC advertising spending has increased from a smaller base after direct to consumer advertising was first permitted in the United States in 1997. As of 2002, DTC advertising accounts for a 21.6% share of total promotional spending by the pharmaceutical industry, compared with the 57.6% share for detailing spending, according to data from Verispan.

US Pharmaceutical Industry Marketing Spending, by Medium, 1998-2002 (in billions)

	1998	1999	2000	2001	2002
Detailing	$5.4	$5.8	$6.3	$6.5	$7.2
Direct-to-consumer advertising	$1.3	$1.9	$2.5	$2.8	$2.7
Meetings and events	$1.3	$1.7	$1.9	$2.1	$2.2
Journal advertising	$0.5	$0.5	$0.5	$0.4	$0.4
Total	**$8.5**	**$9.9**	**$11.2**	**$11.8**	**$12.5**

Source: Verispan, DeSilva & Phillips, 2003; Media Business, September 2003

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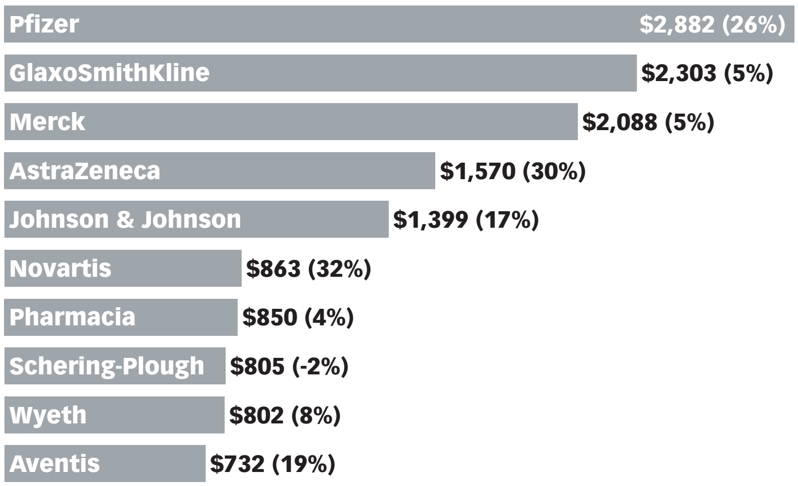
As might be expected, the leading pharmaceutical companies with the highest prescription drug sales also spend the most to promote their products.

According to a combined study from IMS Health, Integrated Promotional Services, CMR and *Pharmaceutical Executive*, Pfizer had the largest promotional spending budget in 2002, totaling more than $2.8 billion. Pfizer was followed by GlaxoSmithKline and Merck, with promotional budgets of $2.3 billion and $2.1 billion, respectively, while Pharmacia spent $850 million.

Novartis and AstraZeneca saw the largest promotional spending increases in 2002, as their budgets increased by 32% and 30%, respectively.

Top 10 Pharmaceutical Companies, by Total Promotional Spending, 2002* (in millions and % change vs. prior year)



*Note: *12 months ending September 2002*
Source: IMS Health, Integrated Promotional Services, CMR, May 2003; Pharmaceutical Executive

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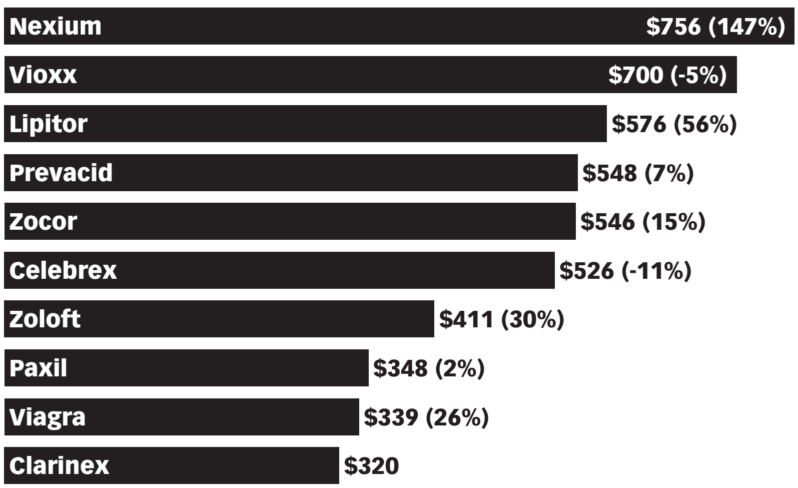
Behind AstraZeneca's jump in total promotional spending was a 147% increase in spending on its Nexium drug brand, which led brand-specific promotional spending at $756 million during 2002, while Merck's Vioxx placed second with promotional spending of $700 million.

Other top ten brands include Pfizer's Lipitor and Zoloft, Takeda's Prevacid, and Merck's Zocor.

Top 10 Pharmaceutical Products, by Total Promotional Spending, 2002* (in millions and % change vs. prior year)



*Note: *12 months ending September 2002*
Source: IMS Health, Integrated Promotional Services, CMR, 2003; Pharmaceutical Executive, 2003

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Altogether, promotional spending by the top ten pharmaceutical companies totaled $14.3 billion in 2002, with the top ten drug brands accounting for $5.07 billion in promotional spending.

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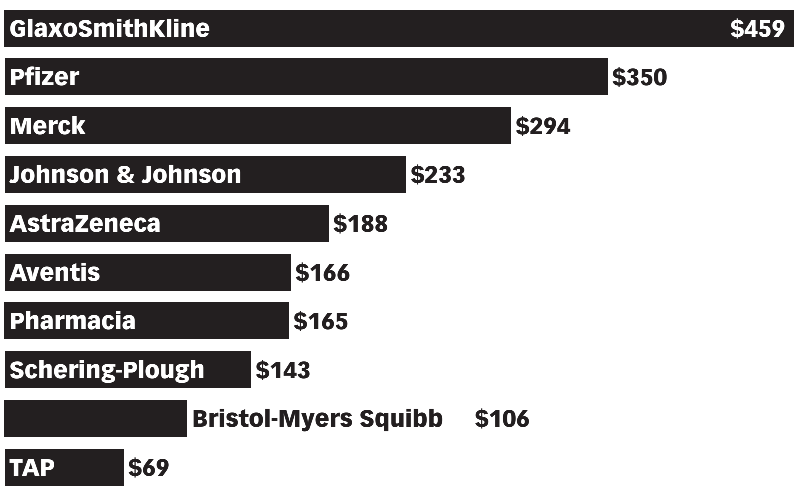
B. Measuring the Impact of DTC Advertising

Pharmaceutical companies have steadily increased their spending on direct to consumer (DTC) advertising over the past several years. In September 2003, MediaPost reported that 80% of all pharmaceutical brands launched between 1996 and 2001 used DTC advertising of some kind.

According to data from Verispan and *Pharmaceutical Executive*, the biggest DTC advertiser among pharmaceutical companies was GlaxoSmithKline, which spent $459 million on DTC promotional spending through the first 11 months of 2002. Pfizer and Merck rounded out the top three, with DTC spending of $350 million and $294 million, respectively.

Top 10 Pharmaceutical Companies, by Direct-to-Consumer (DTC) Promotional Spending, 2002* (in millions)



*Note: *January-November 2002*
Source: Verispan, 2003; Pharmaceutical Executive, May 2003

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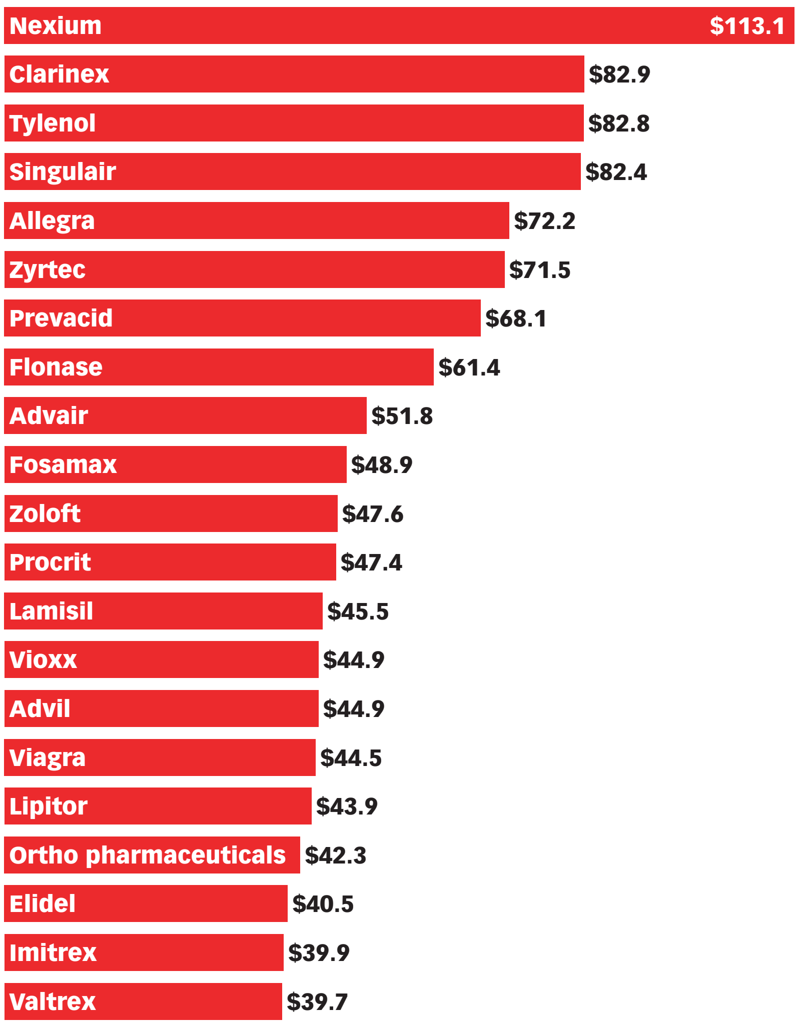
According to *Advertising Age* magazine's ranking of the top 200 brand advertisers in the United States, AstraZeneca's Nexium was the most heavily advertised pharmaceutical brand during the first half of 2003, with an estimated $113.1 million in measured advertising spending through June.

Allergy medications came in second and fourth among the leading pharmaceutical brands, with Schering-Plough spending $82.9 million to promote Clarinex, and Merck spending $82.4 million on its promotion of Singulair.

Leading Prescription and OTC Drug Brands by Measured Advertising Spending in the US, January 2003 - June 2003 (in millions)



Source: Advertising Age, June 2003

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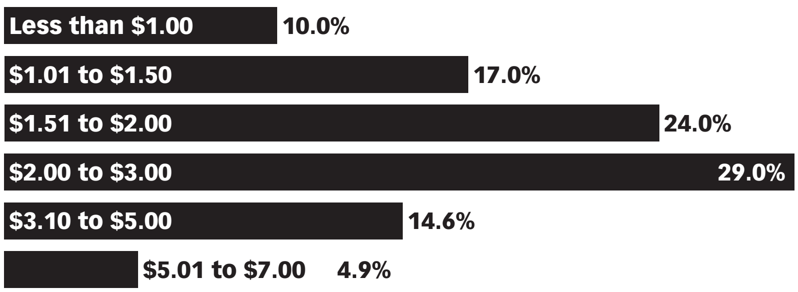
In a recent study of 41 different pharmaceutical advertising campaigns, IMS Health found that 90% of all DTC campaigns produced a positive return on investment. Just over half of the brands it studied delivered an ROI of between $1.51 and $3.00 per $1.00 of advertising spending, while 19.5% of the brands produced an ROI in excess of $3.00 per $1.00 spent on advertising.

The study focused primarily on television and print campaigns conducted between 1998 and 2002.

Pharmaceutical Advertisers' ROI per Dollar of Advertising Spending, 1998-2002 (as a % of brands studied)



Note: n= 41 brands studied
Source: IMS Health Publications, 2003; MediaPost Communications, September 2003

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According to IMS Health, large brands with greater sales tended to achieve a better ROI on their advertising than those brands with lower sales.

For example, pharmaceutical brands with less than $200 million in sales achieved an average ROI of just $1.09 per $1.00 of advertising spending, versus an average ROI of $3.66 for those brands with sales in excess of $1 billion.

Pharmaceutical Advertisers' Average ROI per Dollar of Advertising Spending, by Annual Brand Sales, 1998-2002

Note: n= 41 brands studied
Source: IMS Health Publications, 2003; MediaPost Communications, September 2003

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It is interesting to note, however, that the study's authors also concluded that the effectiveness of a pharmaceutical brand's advertising can be significantly impacted not only by media placement, but by the quality of its creative, with a $20 million to $30 million campaign being capable of producing a similar return to that of a $50 million to $60 million campaign.

"...Improving the quality of the creative is as important or more important than the weight of the media spend."
—David Gascoigne, IMS Health, quoted in MediaPost

After several years of strong growth, survey data from Ipsos PharmTrends indicates that US consumers' recall of pharmaceutical advertising across all media may be leveling off, as 55% of consumers said that they remembered seeing an advertisement for prescription drugs in 2003, compared with 50% of respondents in 2002.

The Ipsos PharmTrends study surveyed more than 25,000 US prescription drug users about their recall of pharmaceutical advertising, with each survey period covering the previous year ending in June.

US Consumers Who Recall Having Seen an Advertisement for Prescription Drugs During the Previous 12 Months, 2002 & 2003 (as a % of respondents)

Note: n= 25,000 adults
Source: Ipsos PharmTrends, October 2003

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Between the 2002 and 2003 survey years, prescription brand recall remained relatively steady, or fell slightly among most prescription drug users.

Allergy sufferers continued to have the best brand recall, followed by people with an interest in behavioral disorders, and then cardiovascular disease.

US Consumers' Brand Recall of Prescription Drug Ads, by Condition/Interest, 2002 (as a % of respondents and % change)

	% of prescription brand buyers with ad recall	% change (year-over-year) in number of buying households
Allergy	72%	16%
Behavioral disorders	47%	38%
Cardiovascular	42%	22%
Gastrointestinal	39%	19%
Female health	35%	10%

Note: n= 25182
Source: Ipsos PharmTrends, October 2002

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Brand recall among buyers of each category of medication appears to have remained especially flat in 2003, as ad recall among prescription drug buyers increased by less than 10%, while in 2002, brand awareness among such households increased by a range of 10% to 38%.

Ad recall among households that purchase allergy prescriptions actually decreased by 4% in 2003.

US Consumers' Brand Recall of Prescription Drug Ads, by Condition/Interest, 2003 (as a % of respondents and % change)

	% of prescription brand buyers with ad recall	% change (year-over-year) in number of buying households
Allergy	69%	-4%
Behavioral disorders	45%	0%
Cardiovascular	40%	2%
Gastrointestinal	38%	6%
Female health	37%	9%

Note: n= 25000
Source: Ipsos PharmTrends, October 2003

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When it comes to the performance of specific prescription drug brands, the Ipsos PharmTrends survey found that during 2002, Viagra had the best ad recall rate among consumers, with 98% of respondents saying that they remembered seeing an ad for the drug. At the bottom of that year's top ten, Celebrex had an ad recall rate of 78% among consumer drug buyers.

Top Ten Prescription Brand Drugs, by US Consumer Ad Recollection, August 2002 (as a % of respondents)

1. Viagra
2. Imitrex
3. Lipitor
4. Ortho-Tricyclen
5. Prilosec
6. Zoloft
7. Allegra
8. Claritin
9. Detrol
10. Celebrex

Note: n= 25182
Source: Ipsos PharmTrends, October 2002

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Ad recall rates fell slightly in 2003, however, with 90% of consumers saying that they recalled seeing an ad for Viagra, while 80% said that they had seen an ad for Detrol LA.

Top Ten Prescription Brand Drugs, by US Consumer Ad Recollection, August 2003 (as a % of respondents)

1. Viagra
2. Flonase
3. Celebrex
4. Nexium
5. Fosomax
6. Lipitor
7. Allegra
8. Zoloft
9. Imitrex
10. Detrol LA

Note: n= 25,000 adults
Source: Ipsos PharmTrends, October 2003

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Just 21% of respondents to the Ipsos PharmTrends study said that a prescription drug ad had prompted them to visit or speak with their doctor about the drug that they had seen advertised.

On the other hand, Manhattan Research has found that online consumers with chronic health conditions are 20% more likely than their offline counterparts to recall pharmaceutical advertising from any channel. Online consumers are also 1.9 times more likely to request a branded prescription drug from their physician than offline consumers who suffer from a chronic health condition.

Outside the realm of DTC advertising, it is worthwhile to note that other health information sources can be just as influential at persuading consumers to discuss various health issues with their physician.

For example, in an April 2003 study of 1,800 US patients, NFO Healthcare found that nearly half of the people it surveyed took a drug-related action based upon someone else's recommendation. A drug-related action was broadly defined as the decision to take a drug for the first time, switch to a new or different drug medication, request a medication or adding another medication.

NFO Healthcare further noted that patients' receptiveness to outside advice depended upon their condition. For example, more than one-third of depression sufferers changed prescription drug medication due to another person's recommendation, compared with just 13% of patients with high cholesterol.

Among the study's main conclusions, NFO Healthcare has suggested that because of the important role that friends and family can play in a patient's choice of medication, drug advertisers should broaden their advertising to reach these other influencers.

In a separate study conducted by the National Pharmaceutical Council and Harris Interactive, researchers found that friends and family are the leading non-advertising based influencer among US consumers, followed by broadcast and print media.

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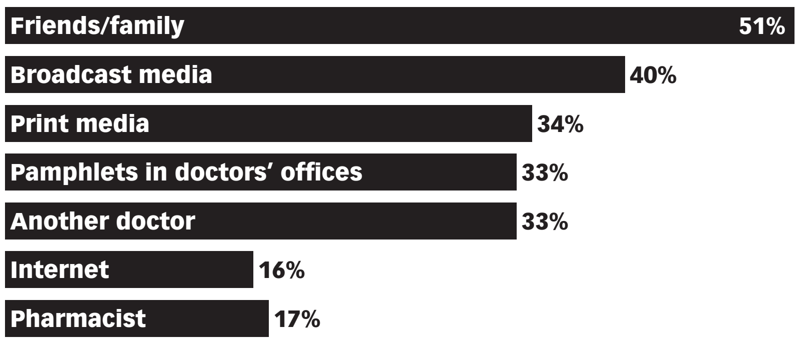
Internet-based media was lowest on this list, with just 16% of respondents indicating that they had been influenced to speak with their physician about a health issue, based upon having read or seen something online.

Health Information Sources (Other than Direct-to-Cosumer Advertisements) that Influence US Consumers' Decisions to Discuss a Health Issue with Their Physician, 2002 (as a % of respondents)



Source: National Pharmaceutical Council; Harris Interactive, February 2003

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Ultimately, survey data indicates that physicians remain the single most important influencer among patients, when it comes to selecting prescription medication.

In a study published in March 2003, AC Nielsen found that 89.3% of all prescriptions drugs had been doctor prescribed, while a smaller 82.7% of new prescriptions had been selected by a patient's doctor as well.

On the other hand, the study also found that patients had requested a significant 17.3% of new prescriptions – a clear indication that DTC marketing does indeed have an impact upon prescription drug sales.

How Brands of Prescription Drugs Are Selected in the US, July-December 2002 (as a % of respondents)

Source: ACNielsen, March 2003

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Survey results from the Boston Consulting Group/Harris Interactive study have found that 24% of online patients have requested a specific brand name drug from their physician, with multiple sclerosis and allergy sufferers being the most likely patients to have spoken with their doctor about a specific medication.

Percent of Online Patients in the US Who Have Requested a Specific Brand-Name Drug from Their Physician, by Condition, 2002

Note: n= 11,323; respondents with allergies 6,093; respondents with MS 86.
Source: Boston Consulting Group (BCG)/Harris Interactive, January 2003

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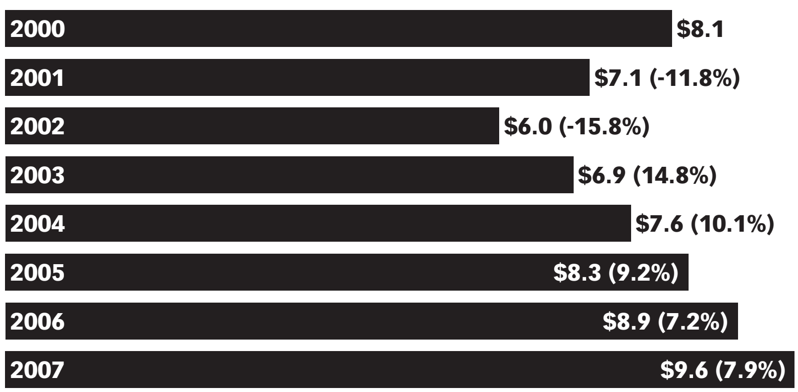
C. Internet-Based DTC Advertising

With as many as three to five years' experience with Internet-based advertising, recent survey data shows that pharmaceutical companies are continuing to expand their use of various online advertising techniques, although they are still behind most other industries when it comes to increasing their use of online advertising as part of their overall media mix.

When it comes to the online advertising industry as a whole, eMarketer believes that after three years of declining online ad spending, a recovery is currently underway, with US online advertising revenues expected to grow by 10.1% next year, to reach $7.6 billion by the end of 2004. This rebound in online ad spending is occurring because of the general increase in advertising spending across all media, along with a gradual shift in offline advertising dollars to the Internet, as more companies include online advertising as part of their cross-media advertising campaigns.

By 2005, eMarketer expects that online advertising in the United States will have surpassed its peak level of $8.1 billion that was last seen during the dot-com boom.

US Online Advertising Spending, 2000-2007 (in billions and as a % increase/decrease vs. prior year)



Note: eMarketer benchmarks its online ad spending projections against the Interactive Advertising Bureau/PricewaterhouseCoopers data, for which the last period measured was Q4 2002
Source: eMarketer, November 2003

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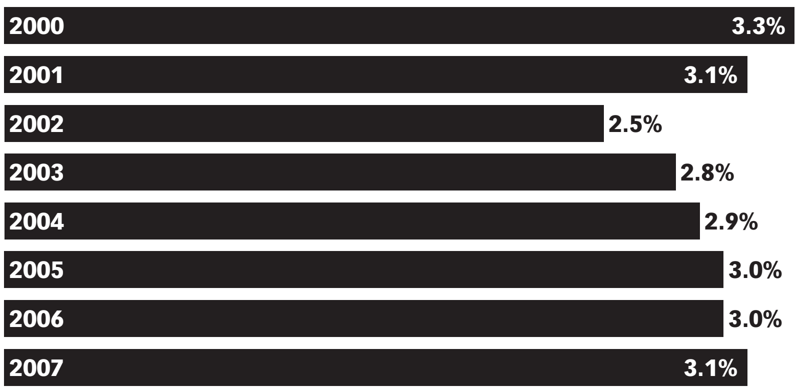
When Internet-based advertising is measured as a portion of total advertising spending, online ad spending has declined from a peak of 3.3% of total ad spending in 2000, to a low of 2.5% of total ad spending in 2002.

Online ad spending is still expected to account for less than 3% of the overall advertising market through 2006, although eMarketer believes that in three years' time, Internet advertising will be better established as a fundamental component of most traditional advertisers' overall advertising budgets.

US Online Advertising Spending, 2000-2007 (as a % of total media spending)



Note: eMarketer benchmarks its US online ad spending projections against the Interactive Advertising Bureau/PricewaterhouseCoopers data, for which the last period measured was Q4 2002; eMarketer benchmarks its total US ad spending projections against Universal McCann, for which the last period measured was 2002
Source: eMarketer, June 2003

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For more information on online advertising spending by industry or ad format, please see eMarketer's July 2003 Advertising Spending report.

In June 2003, *Advertising Age* released its annual survey of the top 100 advertisers in the United States, providing a comprehensive breakdown of leading advertisers' 2002 ad spending, by medium.

Among the top 100 advertisers were 10 pharmaceutical companies, which collectively spent just $41.6 million on Internet advertising in 2002. Online ad budgets ranged from $1.12 million by Novartis, to as much as $9.05 million by the personal care and pharmaceutical products vendor Johnson & Johnson.

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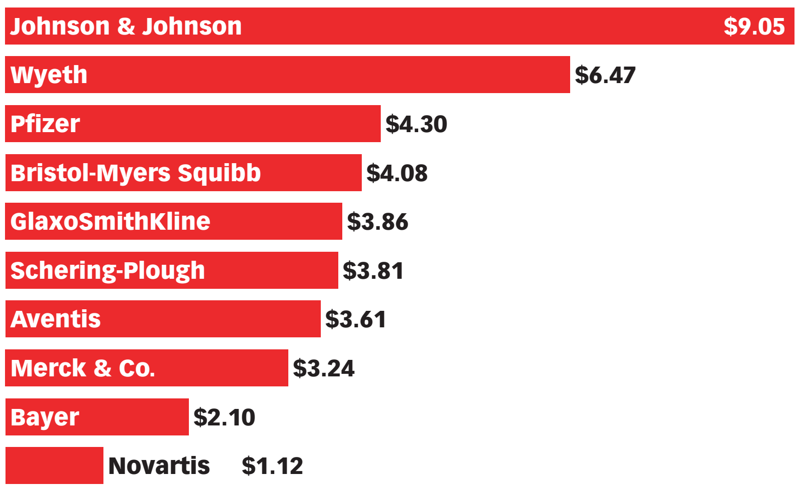
By comparison, the 10 leading retail industry advertisers from the *Advertising Age* study collectively spent $117.8 million on Internet-based advertising during 2002 – almost three times as much as their counterparts in the pharmaceutical industry.

Leading Pharmaceutical Companies' Online Advertising Spending in the US, 2002 (in millions)



Source: Advertising Age, June 2003

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As a group, the top 100 advertisers in the *Advertising Age* study channeled an average 2.4% of their total ad budgets toward Internet-based media in 2002, down slightly from an average 2.8% during 2001.

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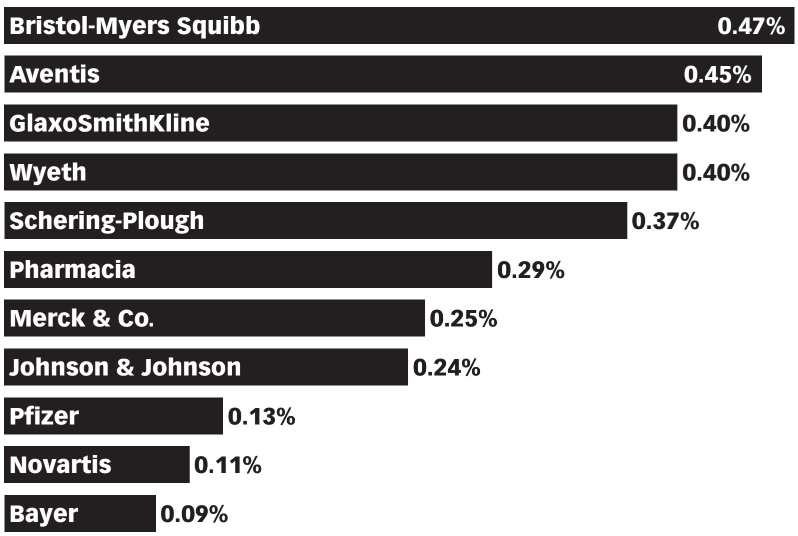
Somewhat surprisingly, every one of the leading pharmaceutical industry advertisers spent below this average, each channeling less than 1.0% of their total ad budgets online during 2002. On the other hand, when compared with their online ad spending in 2001, most pharmaceutical companies did increase their online advertising spending as a percentage of their total ad budgets during 2002, indicating that pharmaceutical companies are nonetheless increasing Internet-based advertising as a part of their overall media mix.

Leading Pharmaceutical Companies' US Online Advertising Spending as a % of Total Advertising Budgets, 2001



Source: Advertising Age, June 2002; eMarketer Calculations, 2002

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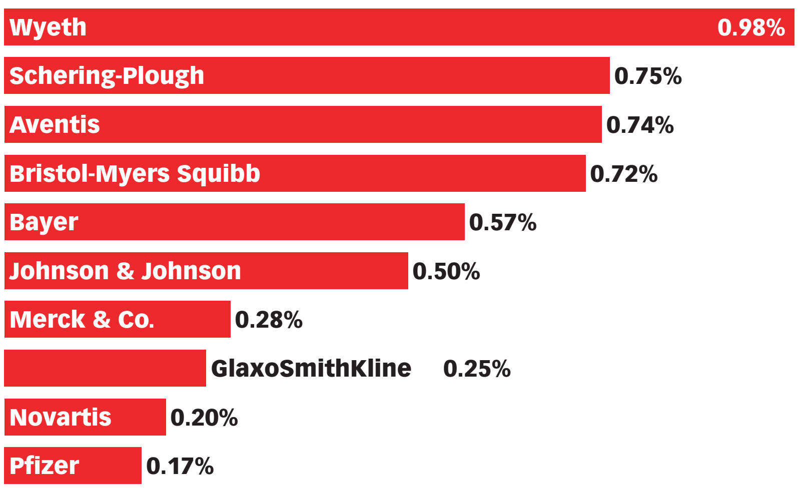
The only notable exception to this trend was GlaxoSithKline, which reduced its online ad spending from 0.40% of its overall ad budget in 2001 to 0.25% of its ad budget for 2002.

On the other hand, Wyeth, Schering-Plough, and Johnson & Johnson each more than doubled their respective shares of online ad spending in 2002, while Bayer saw its online ad spending jump from 0.09% of its total ad budget in 2001 to 0.57% of its spending in 2002.

Leading Pharmaceutical Companies' Online Advertising Spending as a Precent of Total US Advertising Budgets, 2002 (in millions)



Source: Advertising Age, June 2003

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In a more recent *Advertising Age* study examining the leading brands by measured ad spending during the first half of 2003, more than 20 prescription and over-the-counter drug brands were listed among the top 200 most-advertised brands that were profiled.

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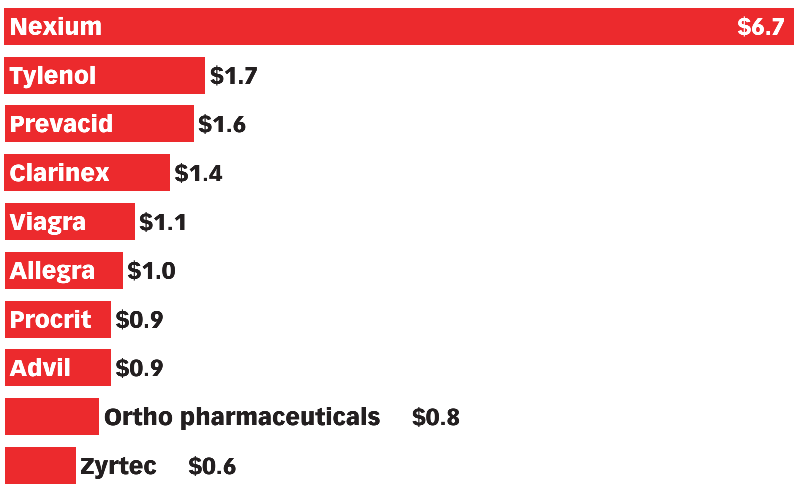
Of the leading 10 pharmaceutical brands that had spent some portion of their overall advertising budgets on Internet-based ads, Nexium was by far the leader, spending $6.7 million on online advertising through June 2003. Five other prescription and OTC drug brands spent more than $1 million on Internet-based advertising, with Tylenol and Prevacid spending more than $1.5 million each.

Leading Prescription and OTC Drug Brands by Online Advertising Spending in the US, January 2003 - June 2003 (in millions)



Source: Advertising Age, June 2003

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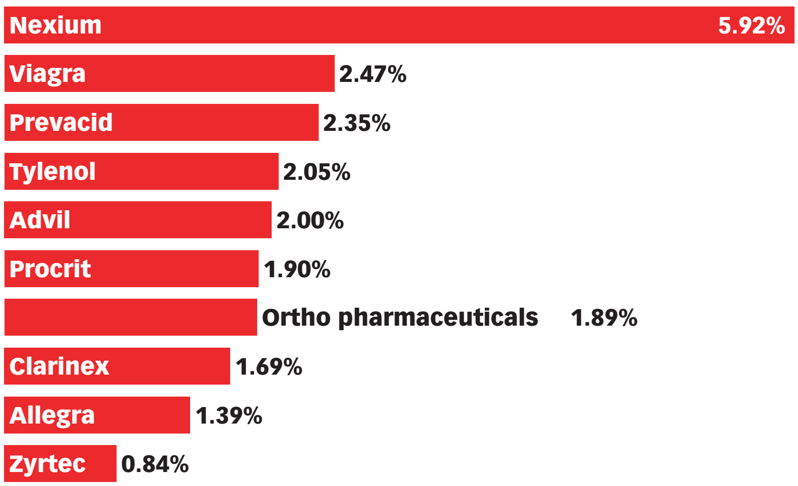
As a portion of its total advertising budget, Nexium saw a significant 5.92% of its spending channeled online, while Viagra, Prevacid, Tylenol and Advil each dedicated more than 2% of their total ad budgets to online media during the first half of 2003.

Top 10 Prescription and OTC Brands by Online Advertising Spending in the US, January 2003 - June 2003 (as a % of total advertising budgets)



Source: Advertising Age, June 2003

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Periodical sampling of the leading health advertisers during 2003 shows that AstraZeneca and GlaxoSmithKline have consistently been among the leading online advertisers, when it comes to measuring the number of online ad impressions that they have purchased.

Top 10 Health Advertisers among At-Home and At-Work Internet Users in the US, Week Ending 2 February 2003 (in thousands of impressions)

Note: All online advertising data excludes house ads which are advertisements run on an advertiser's own Web property
Source: Nielsen//NetRatings AdRelevance, February 2003

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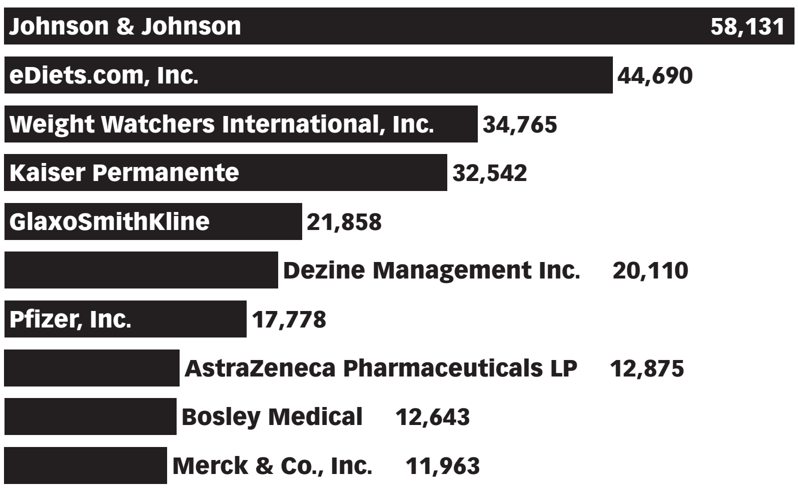
Other key pharmaceutical industry advertisers include Schering-Plough, Pfizer, Merck & Co., Wyeth and Novartis, all of which have also been among the top 10 online health advertisers this year.

As might be expected, seasonal factors, as well as new product releases or new ad campaigns have all been key influences upon the number of ad impressions that each company purchases over any given time period.

Top 10 US Health Advertisers among At-Home and At-Work Internet Users in the US, Week Ending 4 May 2003 (in thousands of impressions)



Note: All online advertising data excludes house ads which are advertisements run on an advertiser's own Web property
Source: Nielsen//NetRatings AdRelevance, March 2003

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Top 10 Health Advertisers among At-Home and At-Work Internet Users in the US, Week Ending 22 June 2003 (in thousands of impressions)

Note: All online advertising data excludes house ads which are advertisements run on an advertiser's own Web property
Source: Nielsen//NetRatings AdRelevance, June 2003

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In an interesting study that examined the media mix used by an unidentified pharmaceutical brand's advertising campaign, online advertising agency DoubleClick found that by slightly reallocating an ad campaign's budget to include more Internet-based advertising, a pharmaceutical company could potentially increase a brand's total prescription sales.

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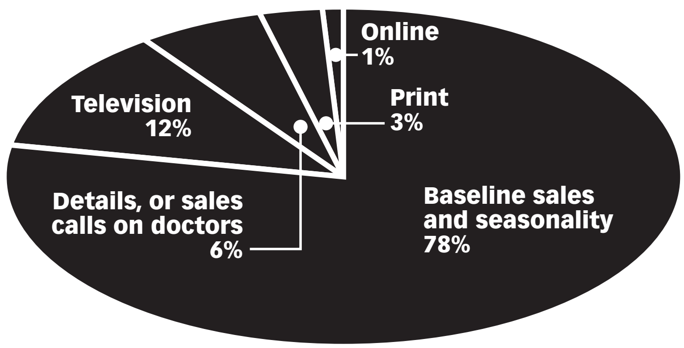
As a starting point, DoubleClick determined that while 78% of a branded drug's sales came from baseline and seasonal sales, an additional 22% of the drug's sales were generated incrementally through various marketing efforts. A significant 12% of total sales were driven by television advertising, while detailing sessions drove 6% of sales, followed by print advertising, and then online advertising which drove 1% of incremental sales.

Breakdown of Select Advertising Channels' Effectiveness at Driving Incremental Prescription Drug Sales, 2002



Note: total marketing efforts generated 22%
Source: DoubleClick, September 2002

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In examining the relative CPMs over a five-quarter period for each advertising channel, DoubleClick found that online advertising came in with the highest average CPM of $8.22, largely due to the relatively high cost of keyword buys, while television advertising had the lowest CPM at $4.01, and print advertising had an average CPM of $5.79.

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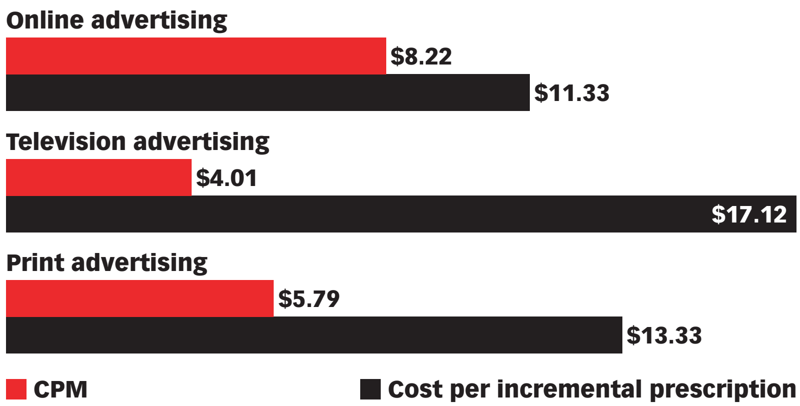
On the other hand, DoubleClick found that online advertising was the most *cost effective* medium for driving incremental prescription sales, with an average cost per incremental prescription of just $11.33, compared with a cost of $13.33 per incremental prescription for print ads, and a $17.12 cost for television advertising.

CPM and Cost per Incremental Prescription Sale During a Pharmaceutical Drug's Brand Campaign, by Media, 2002



Source: DoubleClick, September 2002

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During the ad campaign, television advertising accounted for 78% of total marketing spending, while online advertising made up 4.8% of marketing spending.

Because online advertising had a lower cost per incremental prescription than television advertising, DoubleClick put forward a simulated marketing budget in which television ad spending was reduced by 3.1%, with the savings reallocated to online ad spending, thereby doubling the online share of the marketing campaign, without adding to the overall budget.

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Based upon these changes, DoubleClick estimates that by simply reallocating some advertising spending from television to online advertising, prescription drug sales could be increased by 0.1%. For a prescription drug with $1 billion in annual sales, this would represent an increase of $1 million in incremental sales.

Actual and Simulated Pharmaceutical Advertising Budgets, by Media, 2002

	Actual budget	Simulated budget	Change in budget share
TV share of budget	78.0%	76.0%	-3.1%
Print share of budget	17.0%	17.0%	0.0%
Online share of budget	4.8%	7.2%	50.0%
Change in prescription sales	–	–	0.1%

Source: DoubleClick, September 2002

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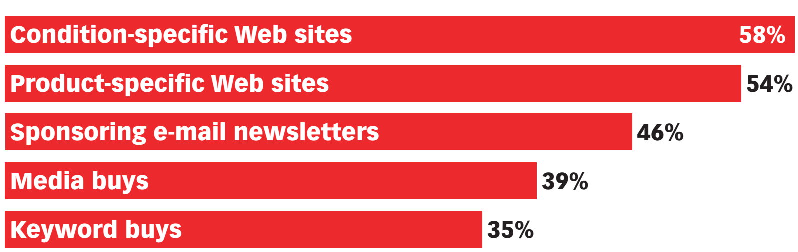
When it comes to examining the broader range of ways in which pharmaceutical companies are using the Internet to market to consumers, Jupiter Research found in a mid-2003 survey of 26 pharmaceutical companies that more than half of respondents had established either condition-specific or product-specific Web sites as a means of reaching out to consumers.

A further 46% of respondents said that they sponsored e-mail newsletters of some kind, while a narrower 39% of the pharmaceutical companies that were surveyed said that they had made online media buys. A similarly low percentage of pharmaceutical companies, at 35% of respondents, had made use of keyword buys, as a means of driving traffic to their condition- or product-specific Web sites.

Leading Online Direct-to-Consumer Marketing Strategies Used by Pharmaceutical Companies, 2003 (as a % of respondents)



Note: n= 26 companies
Source: Jupiter Research, June 2003

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"Despite the evidence that the Internet is the most cost-effective channel for creating consumer demand for prescription medications, most pharma sites are not fully optimized for search engines."

— Lynn Roberts, Erica Schmidt, Pharmaceutical Executive

Indeed, in a study that was published in August 2002, iProspect found that after using a search engine to conduct searches on six separate health-related keywords, more than 6.5 million search results were returned, of which only 4 provided links to Web sites for branded drugs or treatment information.

General health information resources for patients fared somewhat better, although just 125 results led to relevant Web sites, while health information resources for physicians produced only 12 related links.

Search Engine Query Results for Select Health-Related Terms, 2002

Keyword/ phrase	Total search results	Branded drugs and treatment centers	Health information resources - patients	Health information resources - physicians	Health forums and support groups	Non health-related	Research Groups/ Foundations
Cardiac arrest	132,000	0	18	8	1	0	3
Side effects	2,650,000	0	21	4	2	3	0
Headache	1,550,000	0	21	0	1	1	7
Headaches	1,070,000	2	24	0	0	2	2
Dizziness	446,000	1	25	0	2	2	0
Epilepsy	700,000	1	16	0	1	0	12
Total	**6,548,000**	**4**	**125**	**12**	**7**	**8**	**24**

Source: iProspect, 2003; Pharmaceutical Executive, August 2002

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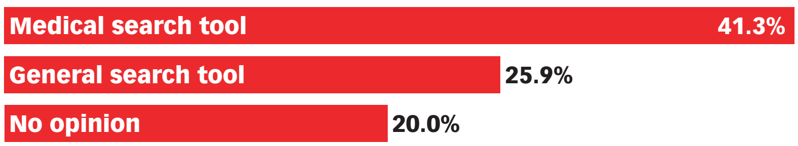
Despite the fact that this survey was conducted prior to the recent attention that has been given to search engine marketing, Jupiter's study from mid-2003 indicates that more than 60% of pharmaceutical companies have not yet adopted search engine marketing as a way of driving traffic to their consumer-facing Web sites.

This is likely to change over the coming months however, as the importance of search engine marketing has been underscored by the fact that, according to *Pharmaceutical Executive* magazine, 65% of consumers begin to look for online health information with health portals, while only 11% start with disease-specific Web sites.

In a separate study of more than 2,500 patients and health care professionals from around the world, the United Nations' Health on the Net (HON) Foundation found that 41.3% of respondents to its survey say that they initially search for health information via a search tool provided by a medical organization or industry group. Another 35.9% of respondents said that they use a general Internet search tool to find health related information.

It is worthwhile to note that nearly 1,300 respondents to this survey were health care professionals, who are much more likely to be familiar with medical industry-supported search tools than the average online consumer.

Preferred Internet Search Tools Among Users of Online Health Information Worldwide, 2002 (as a % of respondents)



Note: n= 2,586 patients and health professionals worldwide
Source: Health on the Net Foundation, June 2002

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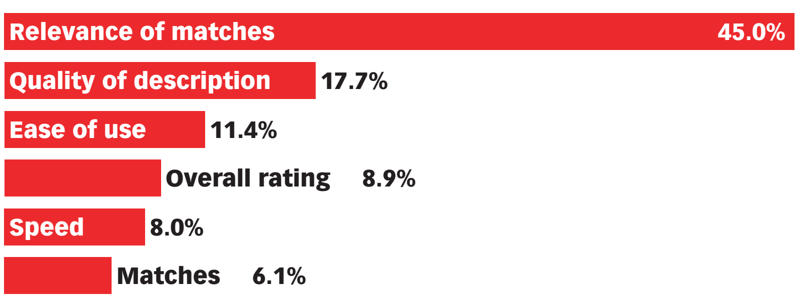
When asked about those search engine characteristics that are of importance to health information users, 45.0% of respondents to the HON study said that the relevance of matches was most important to them, while smaller numbers of respondents said that the quality of a search result's description or a search tool's ease of use were very important as well.

Most Important Characteristics of Internet Search Tools among Users of Online Health Information Worldwide, 2002 (as a % of respondents)



Note: n= 2,586 patients and health professionals worldwide
Source: Health on the Net Foundation, June 2002

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In addition to search engine marketing, e-mail marketing is yet another element of the online advertising mix that stands to benefit from expanded adoption by pharmaceutical companies.

According to a late-2002 survey of 350 pharmaceutical and chemical industry executives, EyeForChem.com found that 64% of respondents expected to increase their e-mail marketing budgets in 2003, with more than 44% of executives planning to increase their budgets by 10% or more.

Pharmaceutical and Chemical Companies' Planned Change in their E-Mail Marketing Budgets for 2003, 2003 (as a % of respondents)

Note: n= 350 pharmaceutical and chemical company executives
Source: EyeForChem, January 2003

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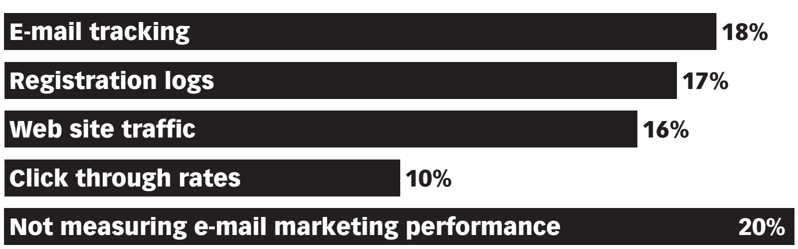
When asked how they have been measuring the success of their e-mail marketing campaigns to date, a surprisingly high 20% of respondents said that they were not measuring performance at all.

Of those pharmaceutical and chemical company executives who did measure their e-mail marketing, 18% used e-mail tracking technology, while 17% simply took note of their registration logs. Another 16% of respondents looked at their Web site traffic, while a narrower 10% measured click through rates.

How Pharmaceutical and Chemical Companies Measure the Success of their E-Mail Marketing Efforts, 2002 (as a % of respondents)



Note: n= 350 pharmaceutical and chemical company executives
Source: EyeForChem, January 2003

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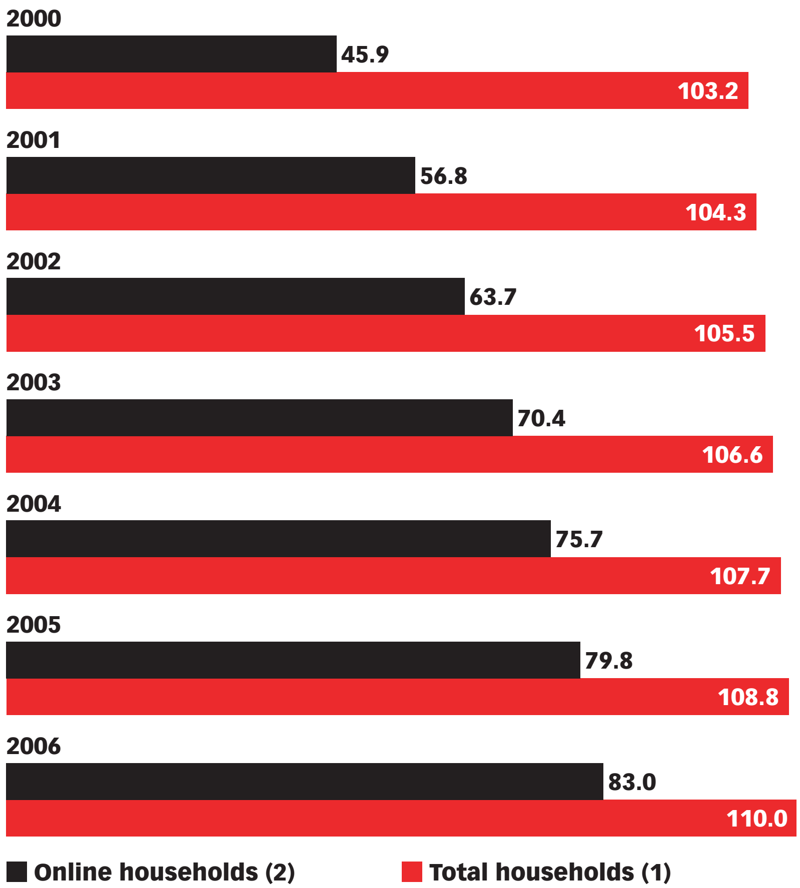
A. Number of Online Health Information Users

Despite the collapse of the dot-com boom in early 2000, Internet use in the United States has continued to increase, with an estimated 70.4 million US households regularly going online in 2003, according to data from the US Census Bureau and eMarketer.

In total, eMarketer estimates that there are 139.3 million Internet users in the United States as of the end of 2003, accounting for 61.1% of all people aged 14 and over.

Total and Online Households in the US, 2000-2006 (in millions)



Source: (1) US Census Bureau, May 1996; (2) eMarketer, October 2003

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Furthermore, as the number of Internet users in the United States has steadily grown, so too has the number of people going online to look for health information.

According to data from Harris Interactive, 67% of American adults claim to be Internet users in early 2003, up from 38% of Americans in mid-1998. Harris Interactive surveyed 1,010 Americans in February 2003, of which 711 respondents said that they were Internet users.

Of those people who regularly use the Internet, 78% said that they have looked for health information online, down slightly from the 80% of Americans who said that they had done so in early 2002.

In total, Harris Interactive estimates that approximately 109 million people in the United States have gone online to look for health information in 2003.

US Adult Internet Users Who Have Searched for Health Information Online, June/July 1998-February 2003 (in millions and as a % of online adults)

	June/ July 1998	June 1999	March 2001	March 2002	February 2003
% of all adults who are online*	38%	46%	63%	66%	67%
% of all those online who have looked for health information	71%	74%	75%	80%	78%
% of all adults who have looked for health information online	27%	34%	47%	53%	52%
Number of adults who have looked for health information online	54	69	97	110	109

*Note: *includes those online from home, office, school, library or other location*
Source: Harris Interactive, February 2003

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Similarly, the Pew Internet and American Life Project estimates that 80% of Internet users, or 93 million Americans, have gone online to research at least one of several health-related topics.

And from a third study conducted by the American Accreditation HealthCare Commission in early 2003, it is estimated that approximately 77 million people, or 66% of Americans with Internet access, have used the Internet to get medical or health information.

By comparison, according to its 2002 *Cybercitizen Health* study, Manhattan Research estimates that 124.7 million Americans were either directly or indirectly influenced by online health information during 2002.

In total, 63.3 million Americans were found to be actively using online health resources, although the impact of online health information has been discovered to be much wider, due to the fact that individuals often share health-related information that they find online with non-Internet users among their friends and family.

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Manhattan Research has also found that nearly 25 million Americans, or 39% of online health information users, had recently used the Internet to search for drug related information, during the three months prior to its survey.

Usage of Online Health Resources by US Consumers, 2002 (in millions)

Actively use online health resources	63.3
Searched for drug information (in the last 3 months)	24.7
Are directly or indirectly influenced by "e-health"	124.7

Source: Manhattan Research, October 2002

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In taking a closer look at online health information users, Manhattan Research estimates that 56.3 million Americans have gone online to look for condition-specific information.

Just over 45 million of those individuals are consumers who themselves suffer from chronic health conditions, while 43.6 million people are estimated to be looking for disease-specific information.

Number of US Adults Going Online to Access Health Information and Services, 2003 (in millions)

Consumers with chronic health conditions	45.2
Consumers searching for disease-specific information	43.6
Total number of consumers seeking condition-specific health information online	56.3

Source: Manhattan Research, April 2003

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According to its February 2003 *ePharma Consumer* study, Manhattan Research estimates that 26.3 million Americans are actively seeking pharmaceutical information online in early 2003, up from approximately 11.6 million consumers who were doing so in mid-2001.

Based upon US Census Bureau figures estimating that the number of American adults over the age of 14 totals 228.0 million in 2003, the 26.3 million online pharmaceutical information users account for approximately 11.5% of all American adults.

Number of US Adults Actively Seeking Pharmaceutical Information Online, 2001 & 2003 (in millions)

Note: n=3,000 adults
Source: Manhattan Research, February 2003

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This estimate from Manhattan Research appears to be in line with data from a separate study conducted by Forrester Research, which found that approximately 10% of North American adults between the ages of 48 and 57 have researched drug information online, while 6% of seniors over the age of 58 have done so as well.

In a later study published in November 2003, Forrester estimated that 69% of people who go online to look for health information have used the Internet to research a specific drug or medication.

Baby Boomers and Seniors in North America Who Have Researched Health-Related Topics Online, 2002 (as a % of online consumers)

	Boomers (ages 48-57)	Seniors (ages 58+)
Have researched a specific health condition online	54%	49%
Have researched a drug online	10%	6%

Note: n=75,369
Source: Forrester Research, December 2002

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A third comparative estimate from the Pew Internet and American Life project discovered that of the 3,900 Americans that it surveyed in late 2002, 34% said that they had searched for prescription or over-the-counter drug information online.

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B. How Consumers Use Online Health Information

Consumers' Opinions of Online Health Information

When consumers go looking for health information, the Internet is one of several resources to which they can turn. However, thanks to the depth of information that individuals are able to find online, and due to factors relating to convenience and privacy, consumers are increasingly using the Internet as either a primary or secondary information resource alongside other, more traditional sources of information.

Indeed, Datamonitor has found that while 76% of American and European consumers turn to their physician for health information, a substantial 57% of consumers said that they use the Internet as a resource as well.

Datamonitor has also found that 36% of those respondents who do not go online for health information simply cannot, because they do not have access to the Internet. Another 27% said that they never considered the Internet as a source of information. Interestingly, just 15% of consumers said that they did not believe that the quality of online information was as good as other sources they might use.

Sources of Health Information Used by Consumers in the US and Europe, 2002 (as a % of respondents)

Note: n=4,531 consumers in France, Germany, Italy, Spain, the UK and the US
Source: Datamonitor, September 2002

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Despite the fact that most consumers do place a certain degree of trust in the information that they find online, the vast majority still places their greatest trust in their physicians.

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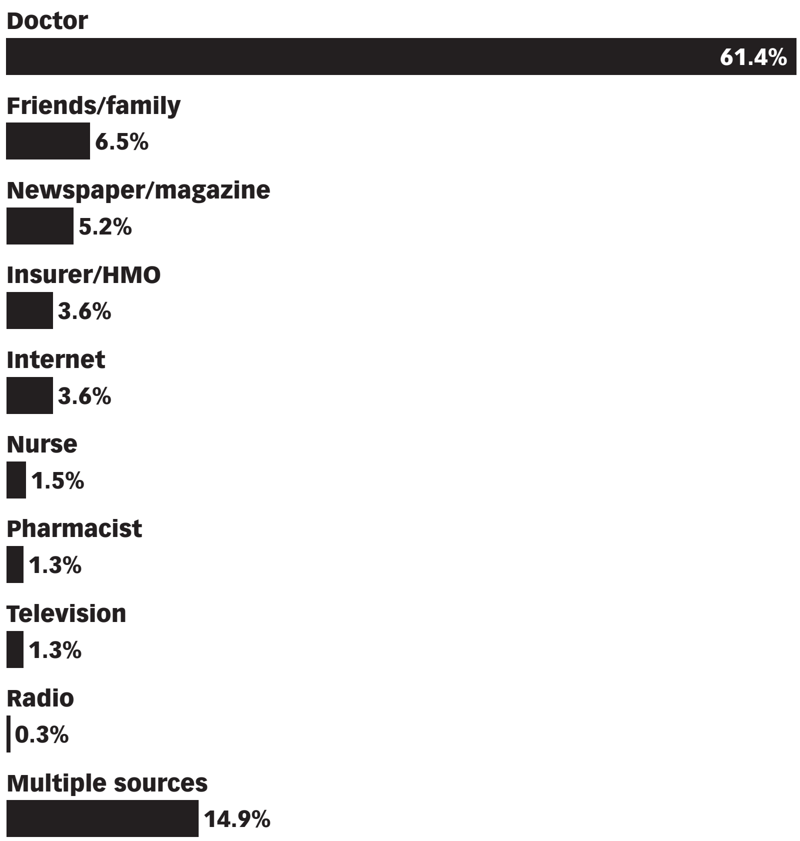
Indeed, Gartner has found that 61.4% of the 9,505 people it surveyed named their doctor as their most trusted source for health information, while friends or family were much farther behind, trusted by just 6.5% of respondents. The Internet was also much lower on this list, ranking fifth, with only 3.6% of Americans naming it as the health information source that they trust the most.

US Consumers' Most Trusted Source for Health Information, 2003 (as a % of respondents)



Source: GartnerG2, October 2003

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Similar results were uncovered by the Pew Internet and American Life Project, which found that 59% of American adults prefer to contact their physician for health or medical information, while 31% say that they prefer to find information online.

As might be expected, regular Internet users are much more comfortable finding medical information online, with 46% of them saying that they prefer to use the Internet, compared with just 8% of non-Internet users.

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Nonetheless, a significant 47% of Internet users still prefer to contact their physician for medical information, while 79% of non-Internet users prefer to do so as well.

Preferred Method Used by US Internet Users and Non-Internet Users to Get Reliable Health or Medical Information, 2002* (as a % of respondents)

	All	Internet users	Non-Internet users
Find it online	31%	46%	8%
Contact medical professional	59%	47%	79%
Some other way	8%	6%	11%

*Note: n=2,092 adults; 1,318 Internet users; numbers may not add up to 100% due to rounding; *September-October 2002*
Source: Pew Internet & American Life Project, December 2002

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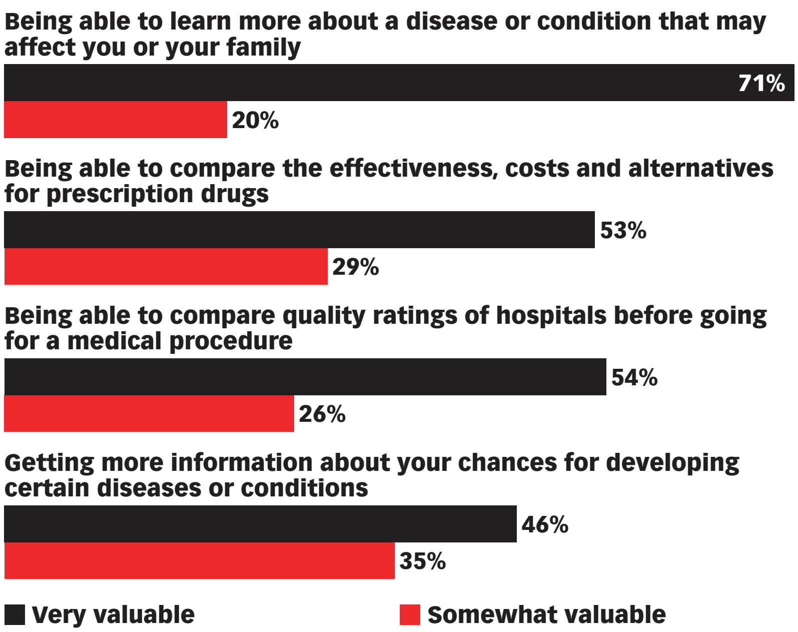
When KRC Research asked American consumers about which Web-based health care services they consider to be the most valuable, 91% gave a positive rating to the ability to learn more about a disease or condition that they or a member of their family might have.

After condition-related information, Internet users expressed an interest in treatment-related information, with 82% of respondents providing a favorable rating to the ability to go online to compare the effectiveness, costs and alternatives to prescription drugs.

Web-Based Health Care Services Considered Valuable by Consumers in the US, 2003 (as a % of respondents)



Note: n= 1,000 consumers surveyed in January 2003
Source: KRC Research/CIGNA, February 2003

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In general, the Pew Internet and American Life project has found that most online health information users believe that the Internet has improved the medical information that they receive.

Not surprisingly, a greater percentage of younger Internet users feel this way, although a significant 61% of health information users over the age of 65 share this opinion as well.

US Health Seekers that Report Their Use of the Internet Has Improved the Health and Medical Information and Services They Receive, by Age, 2002 (as a % of respondents)

Note: n=1,220
Source: Pew Internet & American Life Project, July 2003

As mentioned previously, consumers that go online to find health-related information often use it alongside other trusted information resources. This is supported by the findings of KRC Research, which discovered that a significant 59% of consumers said they use Internet-based information so that they can have a more informed discussion with their physician.

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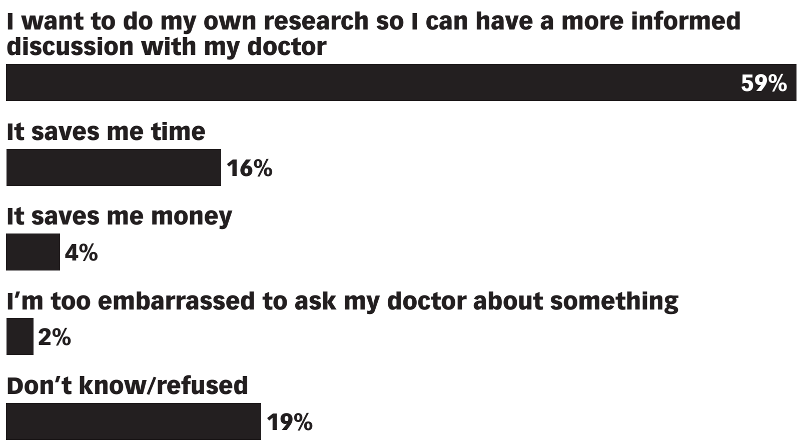
Smaller numbers of people have also said that the Internet helps them save either time or money, while a narrow 2% of respondents to the KRC Research study said that they go online to find information when they are too embarrassed to ask their doctor.

Most Important Reason for Using the Internet for Health Care Information According to Consumers in the US, 2003 (as a % of respondents)



Note: n= 1,000 consumers surveyed in January 2003
Source: KRC Research/CIGNA, February 2003

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Among those consumers who do not go online for health information, a significant 33% told KRC Research that they would rather have their health-related questions answered by a real person.

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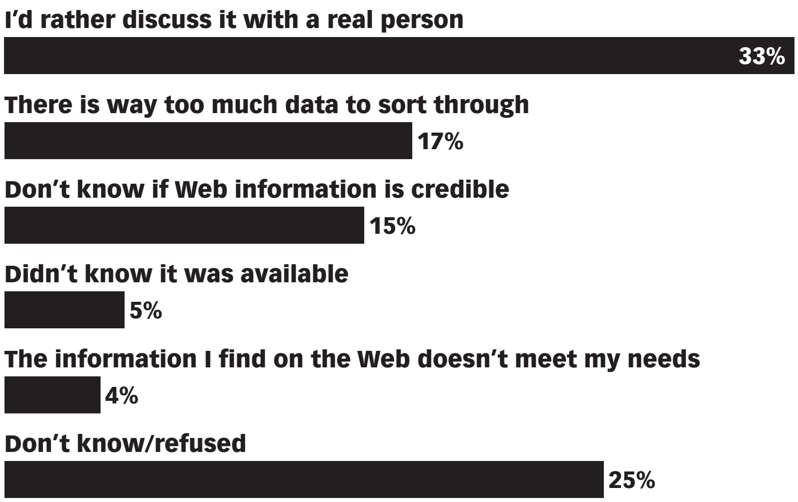
For others, 17% said that they find that there is too much information online for them to sort through, while another 15% said that they have questions about the reliability of information that they might find.

Main Reason US Consumers Do Not Use the Internet to Find Health Care Information, 2003 (as a % of respondents)



Note: n= 1,000 consumers surveyed in January 2003
Source: KRC Research/CIGNA, February 2003

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Somewhat surprisingly, it is the youngest Internet users who are the most skeptical of health information that they find online, while people over the age of 60 were the least likely to believe that Internet-based health information is not credible.

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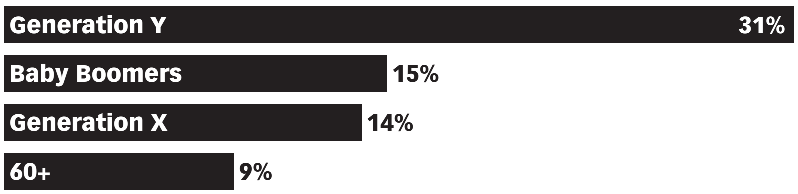
These generational differences are difficult to explain, although they may be due to older consumers' lack of experience with the Internet, or a general mistrust of online information among younger people. It may also be that older citizens are more inclined to go to Web sites that are operated or sponsored by established brands with which they are familiar, while younger people may be less familiar with those Web site operators who provide trusted information, particularly as it pertains to health-related information.

Consumers in the US Who Do Not Believe that Online Health Information is Credible, by Generation, 2003 (as a % of respondents)



Note: n= 1,000 consumers surveyed in January 2003
Source: KRC Research/CIGNA, February 2003

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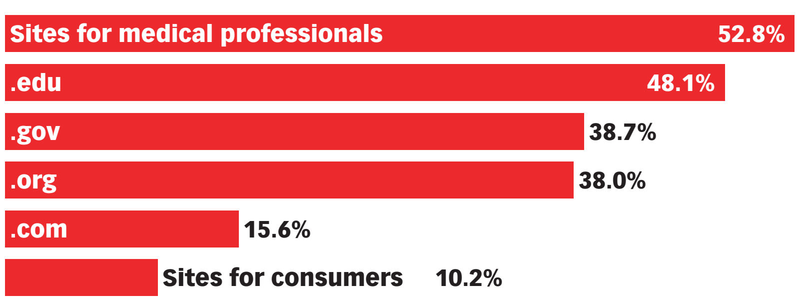
According to an international survey that was conducted by the Health on the Net (HON) Foundation, 52.8% of patients and health care professionals said that they tend to view Web sites targeted at medical professionals as being of a higher quality, while 48.1% of respondents said that academic Web sites registered under the .edu domain appear to be of higher quality as well.

Survey respondents were less likely to view commercial Web sites and Web sites for consumers as being of good quality, although it is important to note that the significant number of healthcare professionals participating in the HON study likely skewed the results away from consumer-focused Web sites.

Web Site Quality Indicators for Users of Online Health Information Worldwide, 2002 (as a % of respondents)



Note: n= 1,318 patients and 1,294 health professionals
Source: Health on the Net Foundation, June 2002

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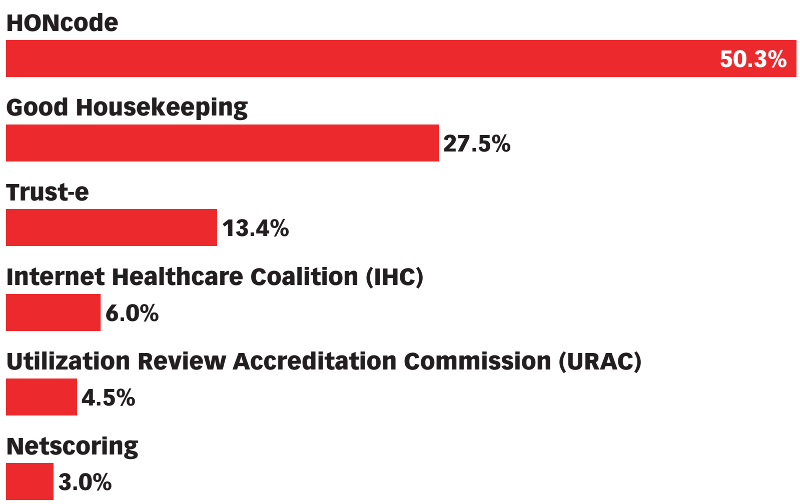
A significant 59.1% of the study's respondents also indicated that they tend to give more credibility to those Web sites that are certified.

Among the leading certifications with which online health information users were most familiar, HONcode was ranked the highest among respondents to the Health on the Net Foundation's own study, with 50.3% saying that they recognized that mark.

Good Housekeeping's Seal of Approval was the second best-known trust mark, followed by Trust-e and the Internet Health Care (IHC) coalition.

Web Site Certification Marks Which Worldwide Users of Online Health Information are Most Familiar, 2002 (as a % of respondents)



Note: n= 1,318 patients and 1,294 health professionals
Source: Health on the Net Foundation, June 2002

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When it comes to comparing consumers' relative trust in online information about pharmaceutical products, Manhattan Research has found that consumers actually place slightly more trust in pharmaceutical information than they do in general health information that they find online.

Nonetheless, a significant 55% of consumers believe that the accuracy of online pharmaceutical information needs to be improved, while another 56% believe that its quality could be improved.

It is worthwhile to consider, however, that these findings may have been shaped not only by consumers' experience with pharmaceutical companies' branded or disease-specific Web sites, but also by the numerous online pharmacies that have sprung up over the past several years – many of which are of questionable repute, and often poor quality.

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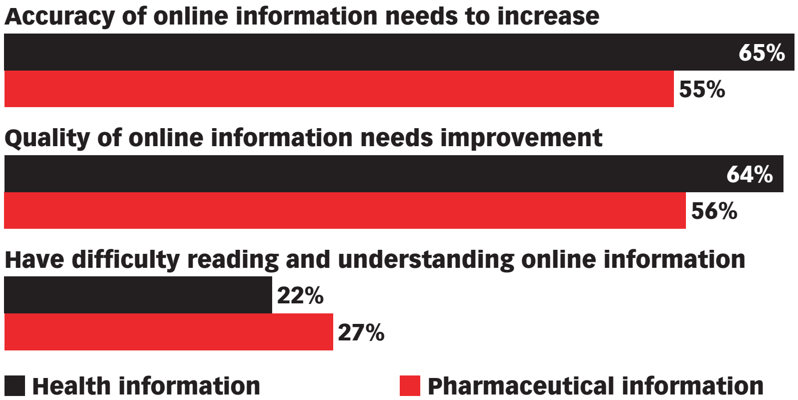
Manhattan Research has gone on to find that 27% of consumers have difficulty reading and understanding the pharmaceutical information that they find online, compared with a narrower 22% of consumers who make the same complaint about online health information, in general.

US Consumers' Views of Online Health and Pharmaceutical Information, 2002 (as a % of respondents)



Note: n= 3,003 online consumers
Source: Manhattan Research, May 2003

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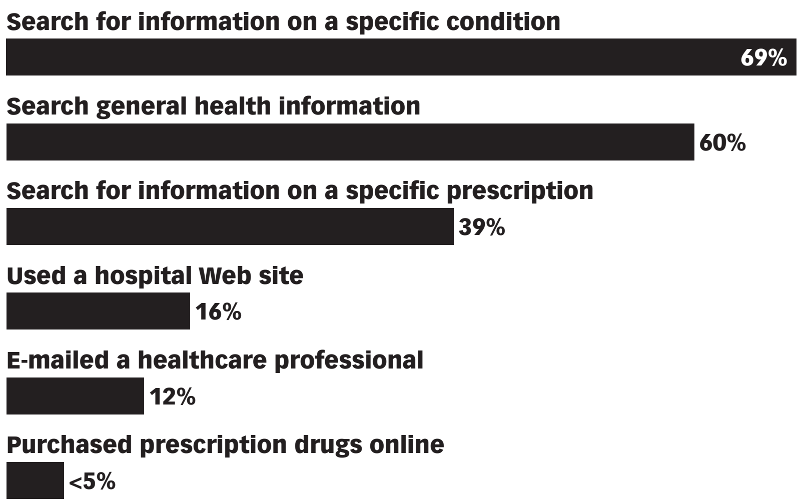
How Consumers Search for Health Information Online

When Internet users go online for health information, more than two-thirds of respondents to a Manhattan Research survey said that they look for information about a specific condition. Another 60% said that they search for general health information, while 39% confirmed that they have searched for information about a specific prescription online.

Interestingly, less than 5% of online consumers said that they have purchased prescription drugs online.

Leading Online Healthcare-Related Activities by US Consumers, 2002 (as a % of respondents)



Note: n=1,224 e-health consumers
Source: Manhattan Research, October 2002

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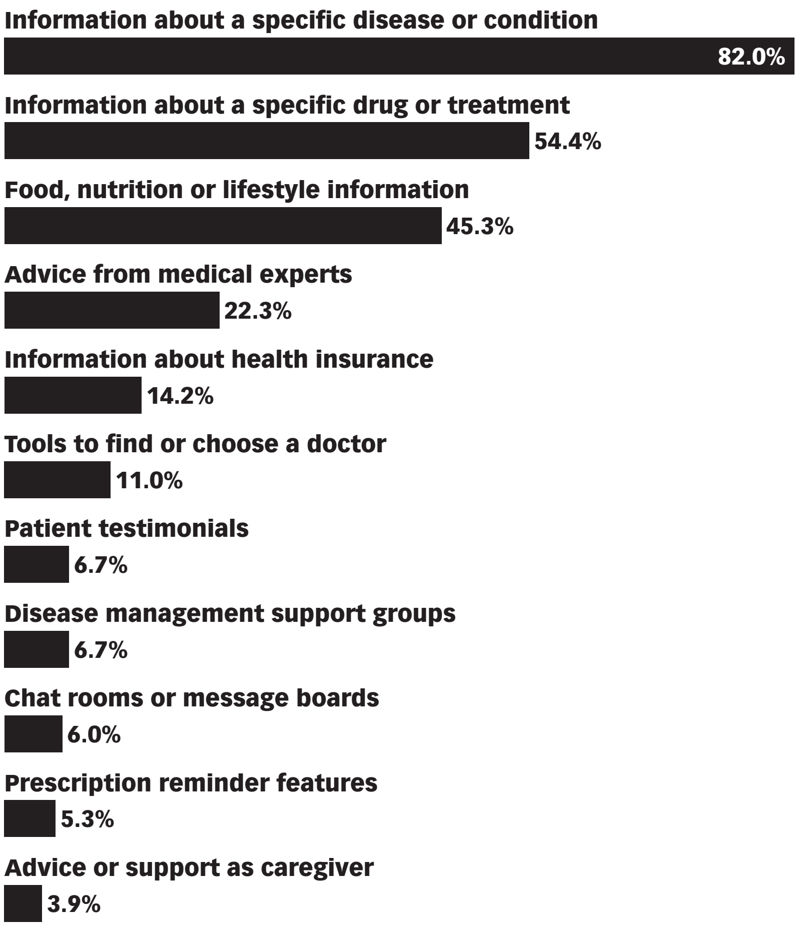
Similarly, Gartner found that 82.0% of respondents to its survey use the Internet for disease- or condition-specific information, while another 54.4% of respondents go online to find information about a specific drug or treatment.

Information That US Consumers Look For When They Go Online for Health Information, 2003 (as a % of respondents)



Source: Gartner, October 2003

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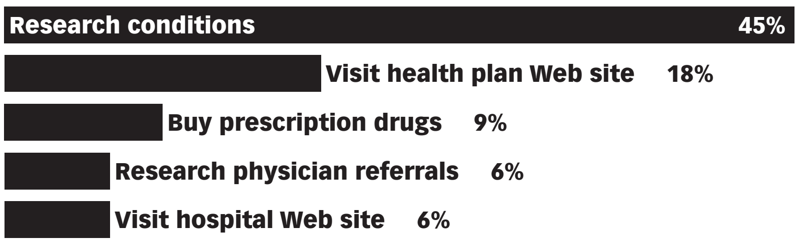
Health care information provider Solucient has also noted that online adults tend to primarily research disease or medical conditions when they use the Internet for health-related information.

Compared with the Manhattan Research study, a similarly low 9% of online adults said that they go online to purchase prescription drugs, while another 18% of respondents to the Solucient survey said that they visit their health plan's Web site.

Leading Online Activities of Online Adults in the US Looking for Health-Related Information, 2003 (as a % of respondents)



Note: n= 25,000 health care consumers
Source: Solucient, 2003

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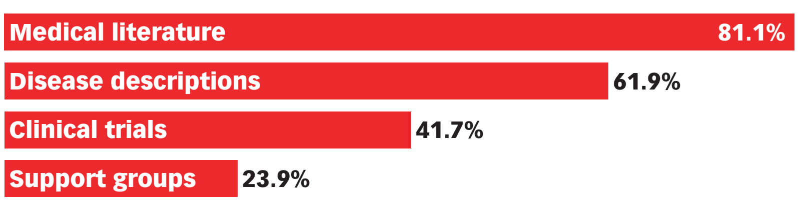
According to the Health on the Net Foundation's international survey of patients and healthcare professionals, 81.1% of respondents said that they most often go online in search of medical literature, while another 61.9% of respondents said that they look for information about diseases.

Of interest to pharmaceutical companies, a significant 41.7% of the patients and health care professionals who were surveyed said that they use the Internet to search for information about clinical trials as well.

Type of Information Searched for "Most Often" by Online Health Information Users Worldwide, 2002 (as a % of respondents)



Note: n= 1,318 patients and 1,294 health professionals
Source: Health on the Net Foundation, June 2002

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According to the Pew Internet and American Life project, a significant 63% of American Internet users have gone online to look for information relating to a specific disease or medical condition.

Other popular health-related search topics include information concerning a specific medical treatment or procedure, information relating to diet or nutrition, and information about exercise or fitness.

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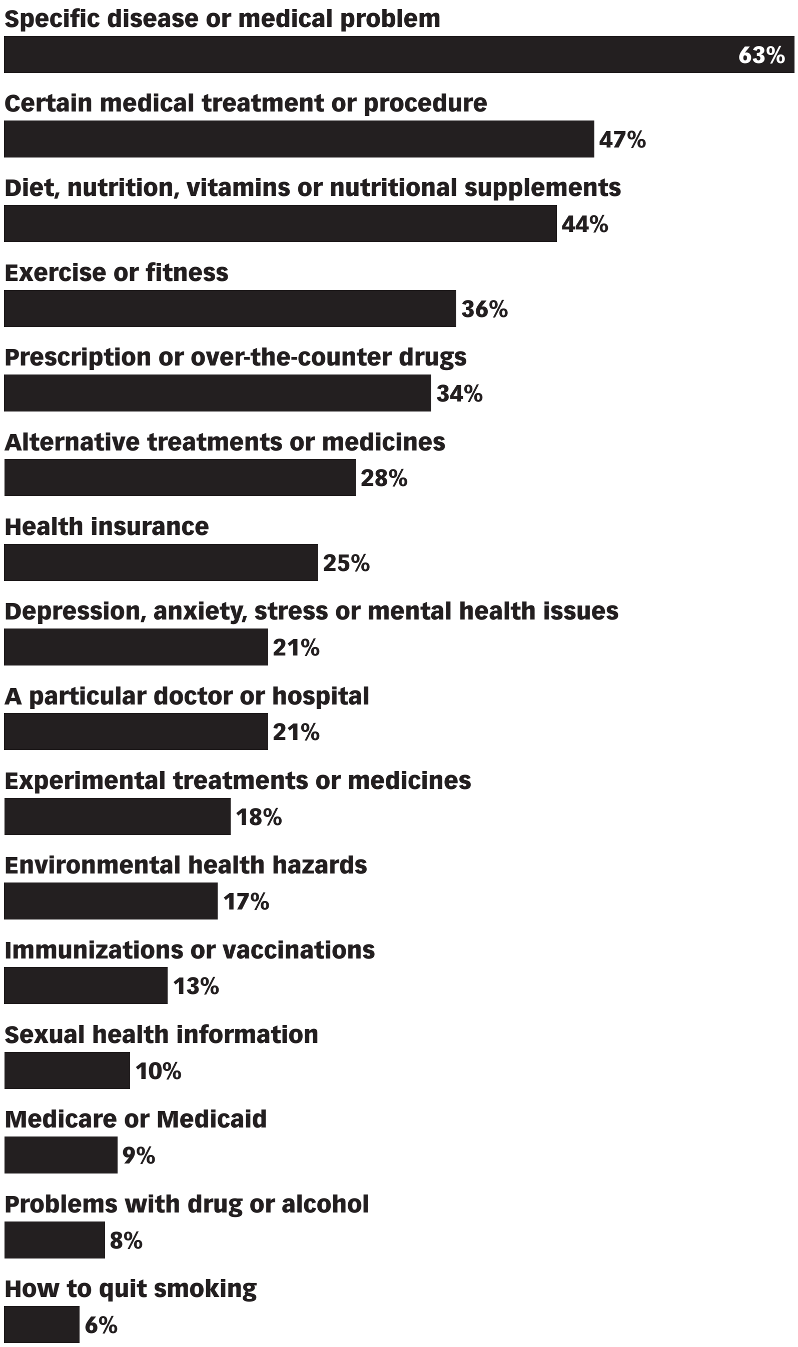
As mentioned previously, 34% of American Internet users have searched for information concerning either prescription or over-the-counter drugs.

Health Topics Searched Online in the US, November-December 2002 (as a % of respondents)



Note: n=1,220
Source: Pew Internet & American Life Project, July 2003

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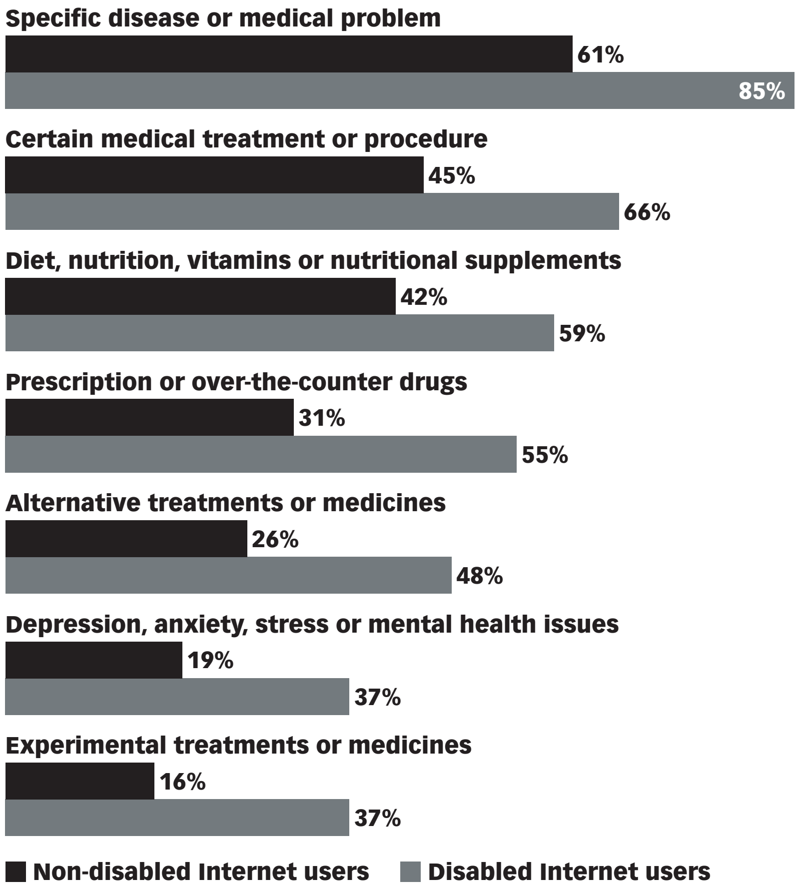
Among those Internet users with a disease or disability, information related to a specific disease or medical problem was searched for the most frequently, followed by information about a specific medical treatment or procedure.

Individuals with a disability were found to be much more likely to look for information on prescriptions or over-the-counter drugs, than those Internet users who have a chronic illness.

Health Topics Searched Online by Americans with a Chronic Illness or Disability, November-December 2002 (as a % of respondents)



Note: n=1,220
Source: Pew Internet & American Life Project, July 2003

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According to results from the Health on the Net Foundation's survey, when patients do go online in search of information about drugs in particular, the vast majority, at 91.1% of respondents, is interested in learning about potential side effects.

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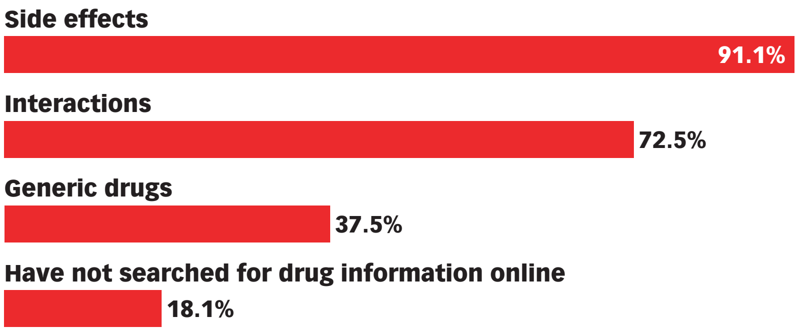
A further 72.5% of respondents to the HON study said that they have searched for information about drug interactions, while 37.5% of patients have looked for information about generic drugs.

Drug Information That Patients Have Searched for Online, 2002 (as a % of respondents)



Note: n= 1,318 patients worldwide
Source: Health on the Net Foundation, June 2002

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Case Study: How Breast Cancer Patients Use The Internet Over Time

As part of an effort to determine the role that the Internet plays in patients' lives over time, a research paper published by Melisa J. Satterlund et al. in the *Journal of Medical Internet Research* examined how breast cancer patients used the Internet during a 16 month period following their diagnosis with the disease.

The study's authors chose to examine the Internet's role as an information source among breast cancer patients, due to the fact that cancer is one of the leading two diseases for which people go online to obtain information. Furthermore, previous studies indicate that more women than men go online for health-related information.

A total of 224 women with various stages of breast cancer were surveyed between August 1999 and September 2002. The study's participants were asked about 10 different information sources that they might likely be using 8 months following their initial diagnosis, with a follow-up survey conducted another 8 months later.

The study found that after the first 8 months following their diagnosis, books, the Internet, and videos were the leading information resources to which women initially turned. However, after 16 months, the Internet had become the leading information resource among breast cancer patients, followed by books and the American Cancer Society.

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"Patients of the 21st century are not like patients of the past – many want to become more informed about their illness, and they want the most current information."

— MJ Satturlund et al, Journal of Medical Internet Research

Indeed, even 16 months after being diagnosed, the Internet remained one of the leading sources used by breast cancer patients for gathering information related to their condition.

Post-Diagnosis Information Sources Used by Patients Diagnosed with Breast Cancer in the US, 1999-2002 (as a % of respondents)

	8 months after diagnosis	16 months after diagnosis
Books	64%	33%
Internet	49%	40%
Videos	41%	13%
Reach a recovery volunteer	39%	11%
American Cancer Society	25%	17%
Look Good Feel Good	14%	12%
Support groups	9%	10%
National Cancer Information Service	9%	8%
Y-Me National Hotline	4%	1%
I Can Cope	2%	–

Note: n= 224 patients at 8 months, 217 patients at 16 months
Source: MJ Satturlund et al, Journal of Medical Internet Research, September 2003

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In addition to the above findings, the study also discovered that the stage of cancer did not play a significant role in determining whether or not women used the Internet for information. Instead, the researchers found that women who had more years of formal education and a higher income were the most likely to go online. Younger women were also more likely to use the Internet than older women.

Of the 110 patients who said that they had used the Internet to look for information related to their condition, the study's authors found that treatment information was one of the leading topics that women initially looked for online.

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Specific information about breast cancer was also one of the leading topics that Internet users read up on, while 23% of respondents said that they had gone online to look for information about medications, with 13% specifically seeking information on Tamoxifen during the first eight months after their diagnosis.

Most Common Information Topics Sought Online by Patients Diagnosed with Breast Cancer in the US, 1999-2002 (as a % of respondents)

	8 months after diagnosis	16 months after diagnosis
Treatment information	26%	14%
Specific breast cancer information	26%	21%
Medications	23%	20%
Medical institutions/resources	15%	5%
General cancer information	14%	14%
Tamoxifen	13%	9%

Note: n= 110 patients at 8 months, 86 patients at 16 months
Source: MJ Satturlund et al, Journal of Medical Internet Research, September 2003

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After 16 months, patients were found to be less interested in learning about treatment information in general and Tamoxifen in particular, while there continued to be a significant interest in obtaining specific breast cancer information.

These findings confirm that patients are most likely to use the Internet to find treatment and medication information shortly after the initial diagnosis of their disease or condition, but that they also use the Internet as a critical resource to help them stay on top of the latest information about their condition over time.

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Leading Sources for Online Health Information

Among the types of Web sites that patients and health care professionals use for health information, 65.3% of respondents to the Health on the Net (HON) foundation study said that they tend to first go to Web sites for medical professionals. Web sites operated by non-profit organizations and those for consumers were also among the most popular first destinations, while a significant 31.1% of respondents named pharmaceutical or medication-specific Web sites as their first online destination for health information.

Once again, it is important to take note of the significant sample of health care professionals in this study, which has likely introduced a bias toward professional medical organizations in the survey's results.

Types of Web Sites That Worldwide Users of Online Health Information "Go to First," 2002 (as a % of respondents)

Note: n= 1,318 patients and 1,294 health professionals
Source: Health on the Net Foundation, June 2002

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When it comes to choosing among various online health information providers, American consumers list medical associations, hospitals, and Internet health companies such as WebMD as the most commonly used Web sites that they go to for health information.

Pharmaceutical companies' Web sites are currently used by about 32% of online consumers, according to Manhattan Research, as are disease-specific Web sites.

In the future, however, medical centers and disease-specific Web sites should become more frequently used by consumers, as will the Web sites of patients' individual physicians.

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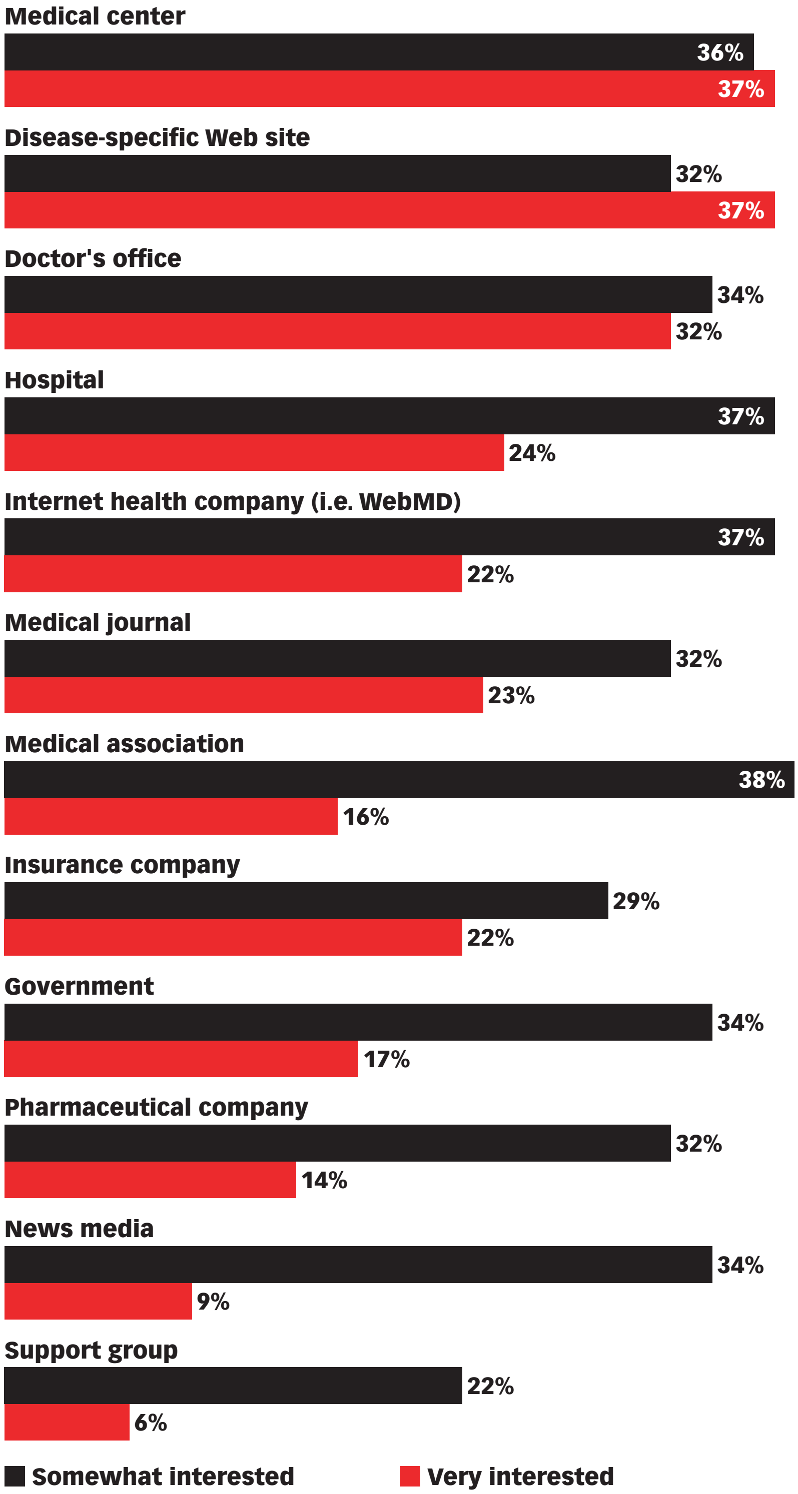
US Consumers' Current and Future Interest in Accessing Health Information via the Internet, by Source, 2002 (as a % of respondents)



Note: n=3,003
Source: Manhattan Research, May 2003

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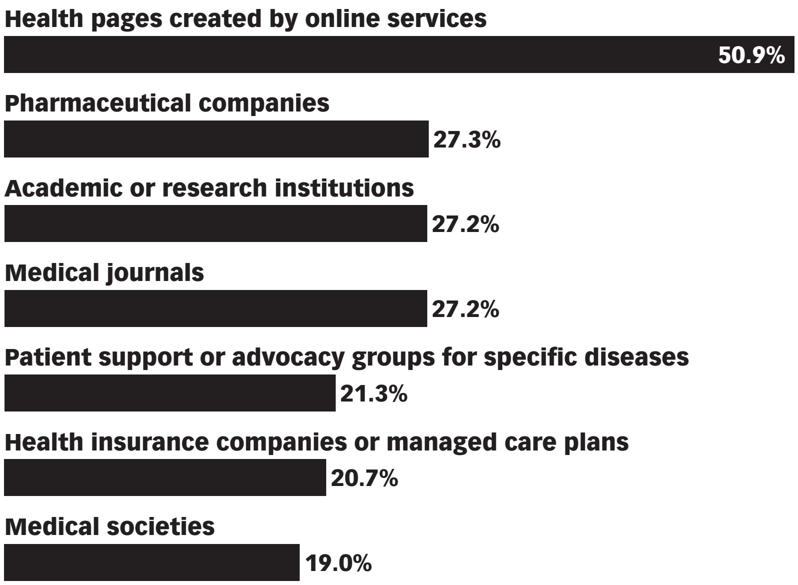
Similar to the findings of Manhattan Research, the Boston Consulting Group and Harris Interactive have found that Internet companies' health pages are among patients' most frequently used sources for health information.

Pharmaceutical companies' Web sites, or those Web sites that are sponsored by pharmaceutical companies, are also among patients' favorites, as are Web sites sponsored by academic institutions and medical journals.

Web Site Sponsors of Online Health Information Sources Used by Patients in the US, 2002 (as a % of respondents)



Note: n= 9,505
Source: Boston Consulting Group (BCG)/Harris Interactive, January 2003

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WebMD continues to be the single most popular health-related Web site among Internet users in the United States, according to survey data from the Boston Consulting Group and Harris Interactive.

After WebMD, consumers tend to go in the greatest numbers to other general information health Web sites run by Internet portal operators MSN, Yahoo! and AOL.

Health care product and prescription drug vendors Drugstore.com and Merck-Medco were the sixth and ninth most popular Web sites among respondents to the BCG/Harris Interactive survey, attracting just 10% and 6% of Internet users, respectively.

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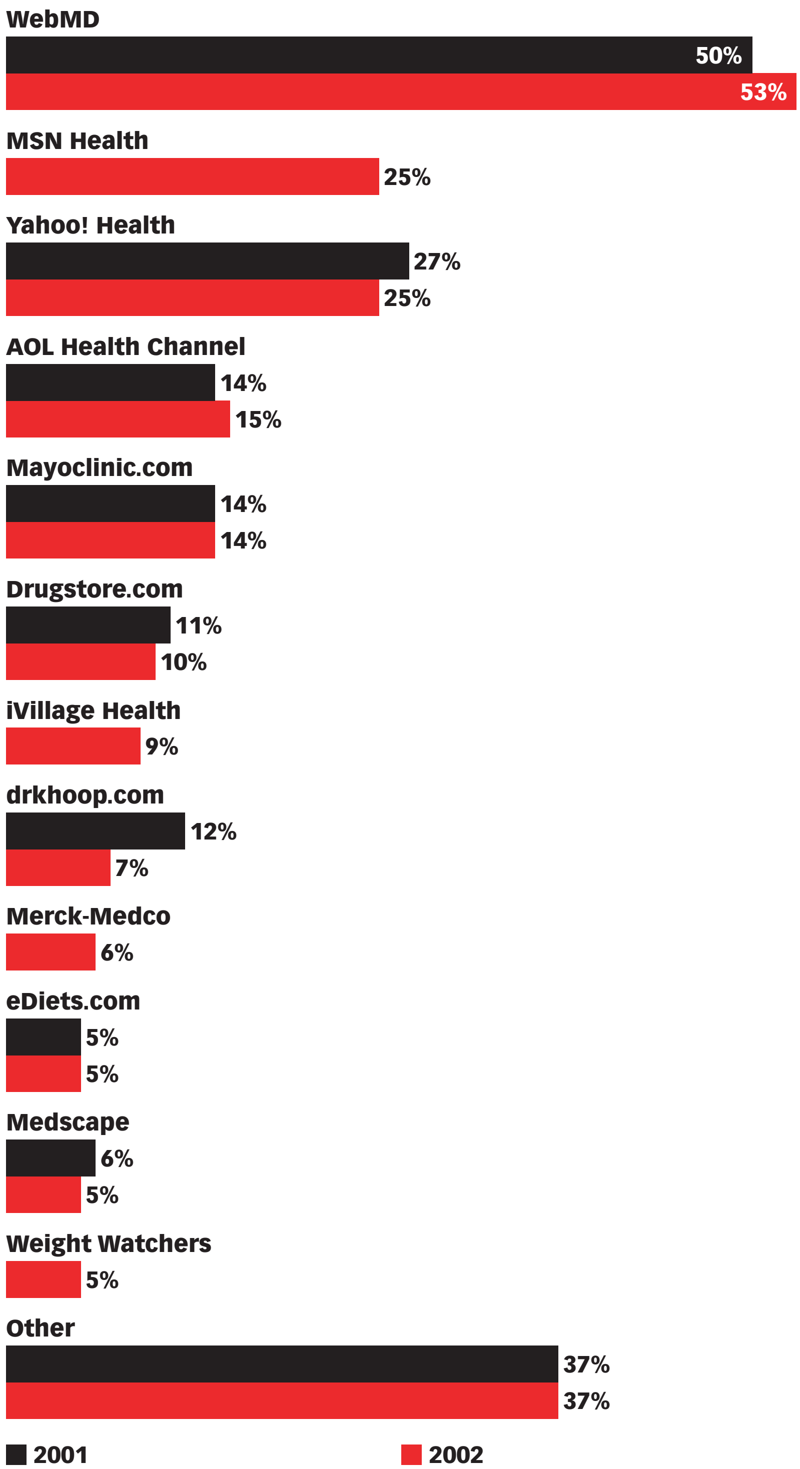
Web Sites Visited Most Often for Health-Related Information by Patients in the US, 2001 & 2002 (as a % of respondents)



Note: n=9,908 in 2001 and 9,505 in 2002; patients were asked to list their top three choices
Source: Boston Consulting Group (BCG)/Harris Interactive, January 2003

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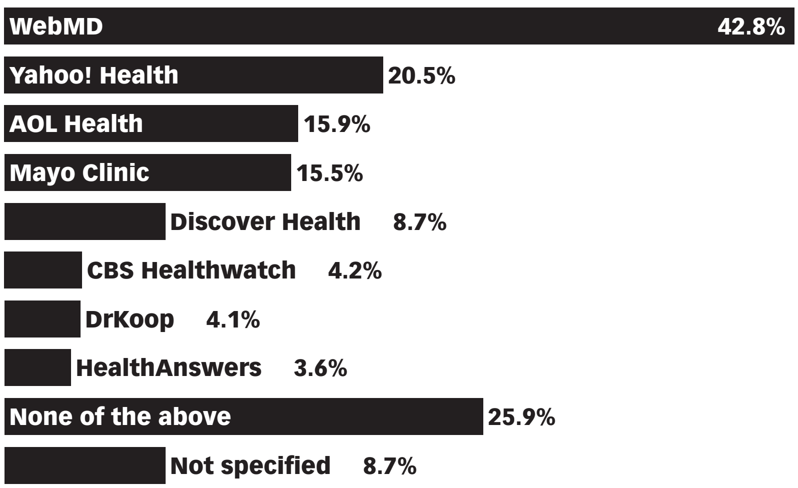
A survey conducted by Gartner in mid-2003 has produced similar results, with 42.8% of consumers confirming that they had visited WebMD during the past 12 months, followed by 20.5% of US consumers who had used Yahoo! Health.

Health and Wellness Web Sites Used by US Consumers During the Past 12 Months, 2003 (as a % of respondents)



Source: Gartner, October 2003

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Web site traffic data from April 2003 also confirms that health-related Web sites run by Internet portal operators typically attract the largest numbers of online health users.

WebMD's Medscape Health Network for professionals attracted the most visitors during the month of April, with just under 6 million users accessing its Web site from their work place. Another 11 million at-home Internet users also visited the Web site.

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The leading pharmaceutical company's Web site was Novartis Pharmaceuticals, which attracted 1.63 million visitors during the month of April.

Health-Related Web Sites Visited by Home, Work and University Internet Users in the US, April 2003 (in thousands of unique visitors)

	Home	Work	University	All locations
Health category total	35,187	18,721	2,955	51,927
WebMD Medscape Health Network	11,012	5,921	946	17,175
AOL Proprietary Health	5,468	1,810	405	7,471
WebMD.com	3,898	2,196	324	6,155
MSN Health with WebMD	2,155	2,058	238	4,207
Medscape.com	602	423	45	1,016
Ediets.com	3,590	2,300	293	6,130
Yahoo! Health	1,952	1,324	272	3,466
Weightwatchers.com	2,330	1,140	140	3,428
MSN Fitness and Recreation	1,262	1,766	198	3,053
Drugstore.com, Inc.	1,696	993	134	2,710
About Health and Fitness	1,496	789	173	2,337
Novartis Pharmaceuticals	1,092	671	58	1,730
Trimlife.com	1,007	610	99	1,631
Realage.com	1,013	566	42	1,540
Total Internet users	**125,379**	**48,690**	**10,173**	**145,588**

Source: comScore Media Metrix, May 2003

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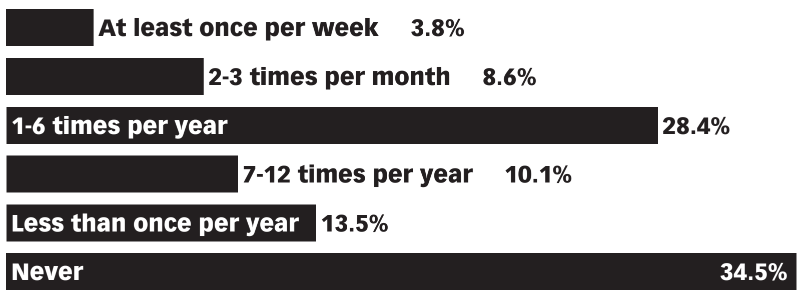
How Consumers Use Health Information Web Sites

Survey data from Gartner indicates that consumers do not go online in search of health information very often, with 28.4% of US consumers saying that they go online for health information between 1 and 6 times per year, while another 13.5% of people use the Internet to find health information less than once per year.

Frequency with Which US Consumers Go Online for Health Information, 2003 (as a % of respondents)



Source: GartnerG2, October 2003

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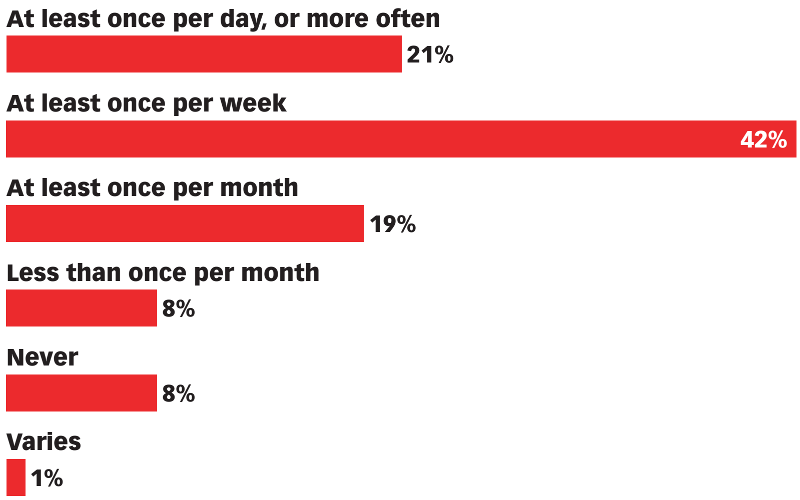
By comparison, Manhattan Research has found that 63% of online health users go online at least once per week to look for information related to goods or services for personal use. Manhattan Research uses a broad definition for this category of goods and services, however, which includes personal care products, such as health and beauty aids or diet information, in addition to the more narrow category of health information, as used in the Gartner survey.

Frequency with which US E-Health Consumers* Go Online for Information on Goods or Services for Personal Use, 2002 (as a % of respondents)



*Note: n= 1,224 *online health users*
Source: Manhattan Research, October 2002

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According to its measurement of Internet users' use of health-related Web sites, comScore Media Metrix has found that consumers spent between 11.8 and 33.8 minutes using these information sources, with younger people spending the least amount of time on such Web sites. With the exception of people between the ages of 55 and 64, most Internet users spent an average of less than 20 minutes on health-related Web sites.

In terms of the number of unique visitors that health-related Web sites manage to attract, comScore has found that people between the ages of 35 and 54 are the largest groups of online health information users, with more than 22 million people from these two cohorts visiting such Web sites in April 2003 alone.

A narrower 2.8 million people over the age of 65 visited health-related Web sites, although this does represent 42.9% of Internet users within this age bracket. The highest reach by health-related Web sites was 48.4%, among Internet users between the ages of 55 and 64.

Visits to Health-Related Web Sites among Home, Work and University Internet Users in the US, by Age, April 2003 (in thousands of unique visitors and % reach)

	Unique visitors	% reach	Average minutes
18-24	6,929	29.9%	11.8
25-34	10,254	38.6%	15.8
35-44	11,020	40.4%	15.8
45-54	11,324	43.3%	16.4
55-64	5,928	48.4%	33.8
65+	2,842	42.9%	20.2

Source: comScore Media Metrix, May 2003

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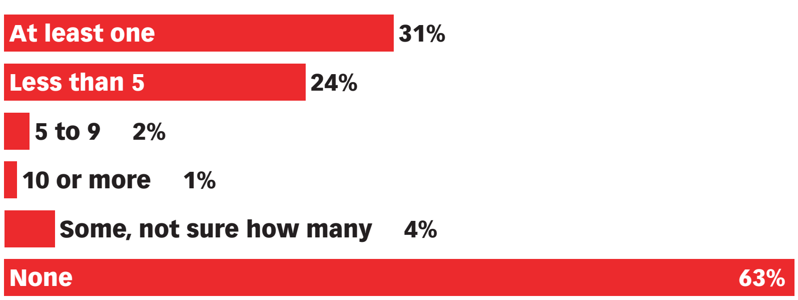
Manhattan Research has found that a significant 31% of online health information users have made use of personalization features on health Web sites, with 24% of respondents to its survey having stored personalized information on between 2 to 4 such Web sites.

Number of Health Information Web Sites Where US E-Health Consumers* Have Personalized Information, 2002 (as a % of respondents)



*Note: n= 1,224 *online health users*
Source: Manhattan Research, October 2002

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However, when it comes to submitting personal information to prescription drug Web sites in particular, 72% of respondents to a Forrester Research study said that they were afraid that they would get unwanted e-mail if they registered on such sites.

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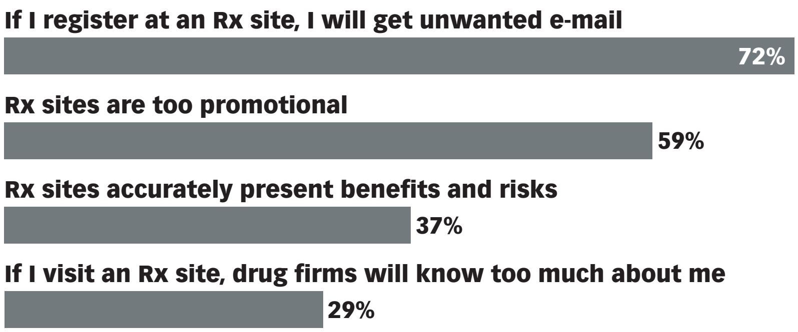
As for consumers' opinions of prescription drug Web sites in general, Forrester found that a significant 59% of the people it surveyed view prescription drug sites as being too promotional, while just 37% of respondents said they believe that prescription drug sites accurately present information about the risks and benefits associated with their drugs.

US Consumer Attitudes toward Prescription Drug Web Sites, 2003 (as a % of respondents)



Source: Forrester Research, November 2003

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Among its recommendations to prescription drug Web site operators, Forrester suggests that they provide independent, medically-reviewed information on their sites. Researchers also found that 53% of consumers said they would like to see side-by-side comparisons of prescription drug information on prescription drug Web sites.

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A. Physicians and Online Health Information

According to an August 2003 report by Manhattan Research, of the 579,000 practicing physicians in the United States, 279,000 routinely go online to access information or services that are either provided or sponsored by pharmaceutical companies.

Such activities include electronic detailing sessions (e-detailing), research of new prescription products, continuing medical education, and access to drug reference databases via a PDA.

In percentage terms, this accounts for approximately 49% of all US physicians, up from 35% of physicians in 2002.

Percent of US Physicians that Regularly Access Online Information Services Offered or Sponsored by Pharmaceutical Companies, 2002 & 2003

Source: Manhattan Research, 2003; American Medical News, September 2003

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In a separate study conducted by the Boston Consulting Group and Harris Interactive, it was discovered that 90% of physicians went online to research clinical information in 2002, while 74% had gone online to read medical journal articles.

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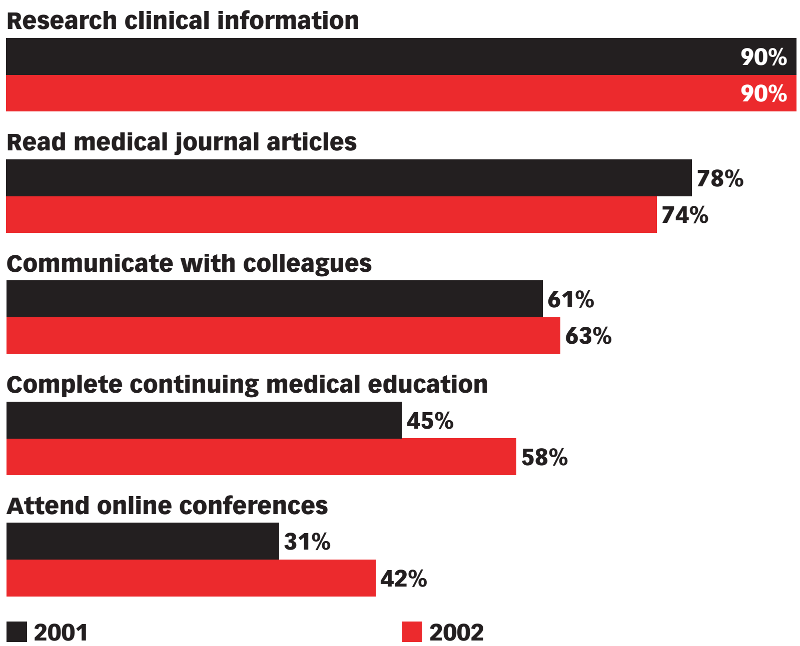
Continuing medical education saw the greatest growth last year, as 58% of physicians said that they had gone online for continuing education in 2002, up from 45% in 2001. The percentage of physicians attending online conferences also saw a significant increase, jumping from 31% of doctors in 2001 to 42% in 2002.

Online Activities of Physicians in the US, 2001 & 2002 (as a % of respondents)



Note: n=356 in 2001 and 385 in 2002
Source: Boston Consulting Group (BCG)/Harris Interactive, January 2003

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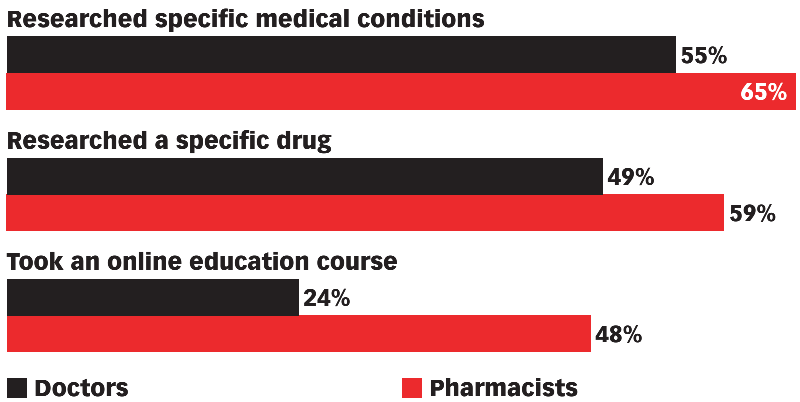
A more recent survey by Forrester Research shows that 55% of US physicians have gone online to research specific medical conditions in 2003, while another 49% have researched a specific drug online.

Online Activities of US Doctors and Pharmacists, 2003 (as a % of respondents)



Source: Forrester Research, September 2003

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By comparison, according to the Health on the Net (HON) Foundation's international survey of 1,294 health care professionals, 83.3% of respondents said that they have gone online to search for information about drugs.

Of those health care professionals who have looked for drug information online, 86.0% said that they had looked for information concerning a drug's side effects, while another 81.4% said that they had searched for information about drug interactions. Just over half of respondents said that they had also sought information about generic drugs online.

Drug Information that Health Care Professionals Search for Online, 2002 (as a % of respondents)

Note: n= 1,294 health professionals worldwide
Source: Health on the Net Foundation, June 2002

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Interestingly, the HON survey asked health care professionals if they had ever purchased drugs from an online pharmacy, finding that just like consumers, a relatively small 9.0% of respondents said that they had purchased drugs online.

Health Care Professionals Who Have Purchased Drugs via an Online Pharmacy, 2002 (as a % of respondents)

Note: n= 1,294 health professionals worldwide
Source: Health on the Net Foundation, June 2002

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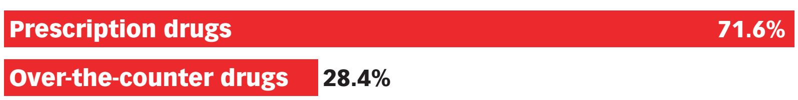
Of those health care professionals who had purchased drugs from an online pharmacy, 71.6% said that they had purchased prescription drugs, while 28.4% said that they had purchased over-the-counter drugs.

Health Care Professionals Who Have Purchased Prescription and OTC Drugs via an Online Pharmacy, 2002 (as a % of respondents who have purchased drugs online)



Note: n= 1,294 health professionals worldwide
Source: Health on the Net Foundation, June 2002

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When it comes to those health-related Web sites that US physicians most frequently use, BCG and Harris Interactive found that WebMD was the most popular commercial Web site in 2002, with 23% of respondents regularly visiting its Web site, followed by Medscape and Physicians Online, which received visits from 14% and 11% of respondents, respectively.

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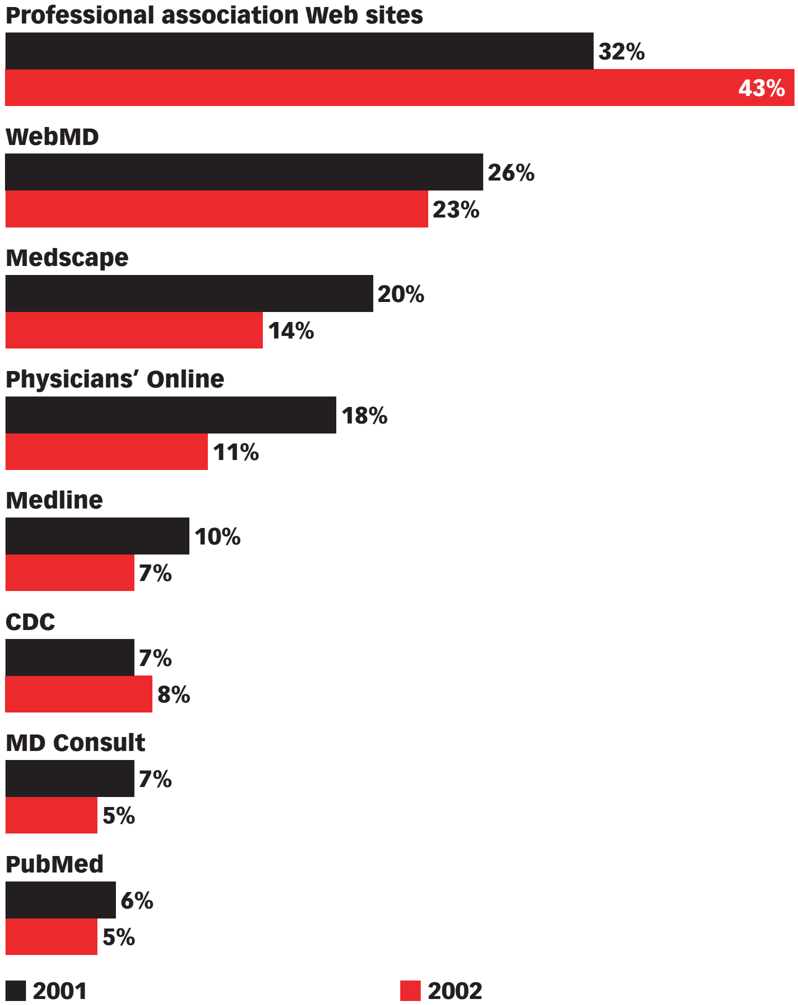
It is interesting to note that most commercial Web site operators saw the percentage of physicians using their Web sites decrease between 2001 and 2002, while regular physician visits to Web sites run by professional associations increased from 32% of respondents in 2001 to 43% of respondents in 2002.

Web Sites Visited Most Often for Health-Related Information by Physicians in the US, 2001 & 2002 (as a % of respondents who regularly visit at least one health-related site)



Note: n=297 in 2001 and 341 in 2002; physicians were asked to list their top three choices
Source: Boston Consulting Group (BCG)/Harris Interactive, January 2003

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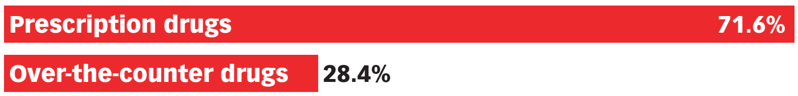
Of particular interest to those companies who operate health-related Web sites, approximately two-thirds of respondents to the HON Foundation study said that they recommended health information Web sites to their patients.

Health Care Professionals Who Have Purchased Prescription and OTC Drugs via an Online Pharmacy, 2002 (as a % of respondents who have purchased drugs online)



Note: n= 1,294 health professionals worldwide
Source: Health on the Net Foundation, June 2002

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In terms of the impact that Internet-based information has had upon physicians' ability to do their jobs, respondents to the BCG/Harris Interactive study indicated that in general, the Internet has had only a minor impact, or no impact at all upon their work.

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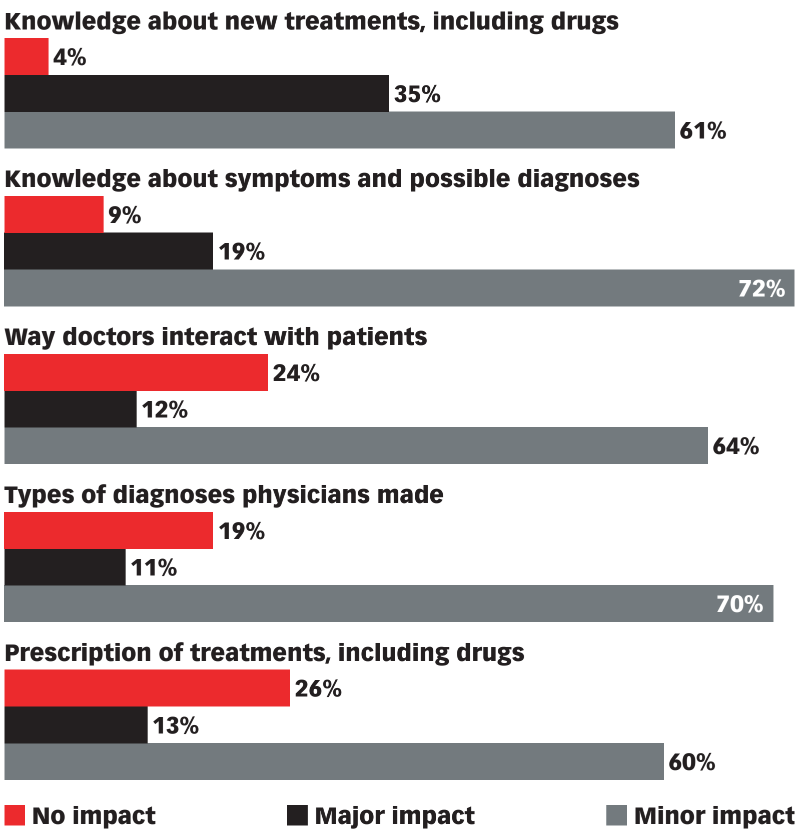
However, a significant 35% of respondents did say that Internet-based information about new treatments and drugs has had a major impact. And although 26% of physicians said that the Internet had no impact upon their choice of treatments, including prescription drugs, 13% said that the Internet had a major impact upon their treatment decisions, while 60% said that the Internet had a minor impact.

Impact of Information US Physicians Find on the Internet, 2002 (as a % of respondents who regularly visit at least one health-related site)



Note: n=338
Source: Boston Consulting Group (BCG)/Harris Interactive, January 2003

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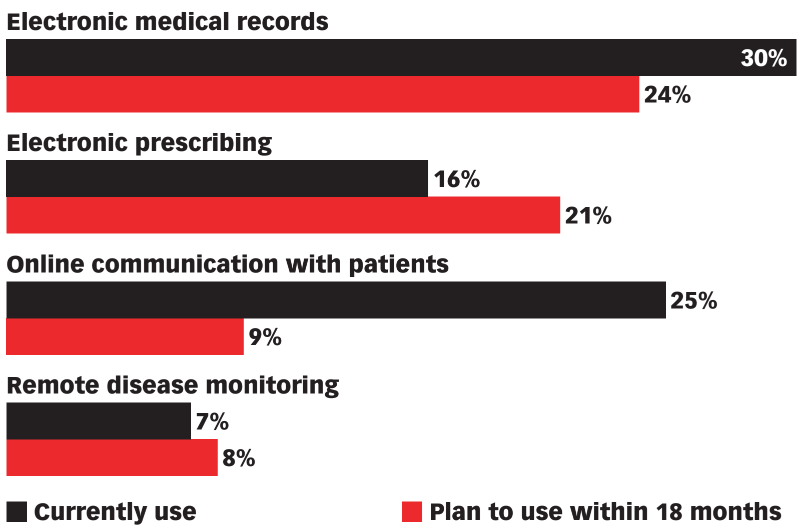
Beyond their use of the Internet as an information resource, American doctors appear to be most interested in adopting electronic medical records and electronic prescribing capabilities within the next two years, according to data from the BCG/Harris Interactive study.

More than half of US physicians indicated that they expect to be using electronic medical records by 2005, while a significant 37% of physicians said that they want to adopt e-prescribing capabilities by then as well.

US Physicians Who Use Online Patient-Care Tools, 2002 (as a % of respondents)



Source: Boston Consulting Group (BCG)/Harris Interactive, January 2003

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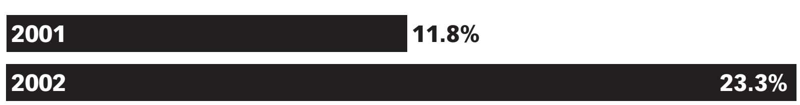
Similar results were discovered by *Modern Physician* and PricewaterhouseCoopers (PwC), which found that just under one-quarter of American physicians were using computer based systems for prescription writing as of late 2002.

US Physicians' Use of Computer-Based Systems for Prescription Writing, 2001 & 2002 (as a % of respondents)



Note: n= 444 physician executives and healthcare IT professionals
Source: Modern Physician/PricewaterhouseCoopers, November 2002

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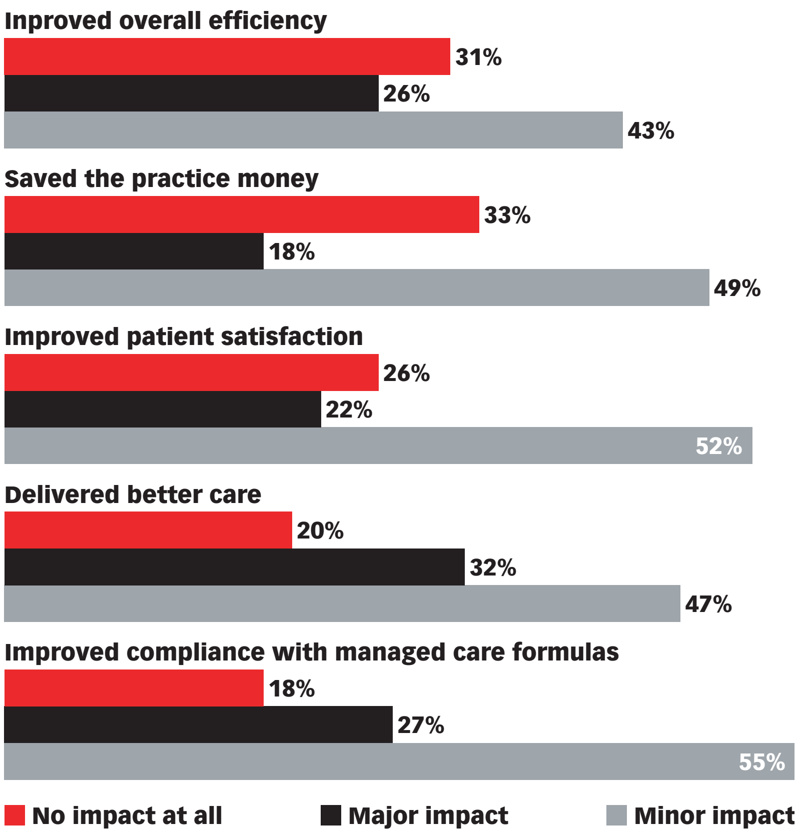
Among those physicians who said that they had already adopted e-prescribing capabilities, 32% said that e-prescribing had had a major impact upon their ability to deliver better care, according to the BCG/Harris Interactive study.

Better compliance with managed care formulas, improved patient satisfaction, and cost savings for their practice were all listed as minor benefits that physicians had managed to obtain as well.

Impact of Electronic Prescribing on Physicians' Practices in the US, 2002 (as a % of respondents)



Note: n=63
Source: Boston Consulting Group (BCG)/Harris Interactive, January 2003

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For those physicians that plan to use their PDAs to communicate electronic prescriptions to their patients' pharmacists, 79% said that they expect that e-prescribing will help reduce medical errors.

As might be expected, significant percentages of physicians also expect to save time, receive fewer pharmacy callbacks, and improve prescription accuracy thanks to PDA-based e-prescribing capabilities, along with an improved ability to select prescription orders.

Leading Reasons Why US Physicians Plan to Adopt E-Prescribing via a PDA, 2002 (as a % of respondents)

Note: n= 1,200 US physicians
Source: Manhattan Research, 2003

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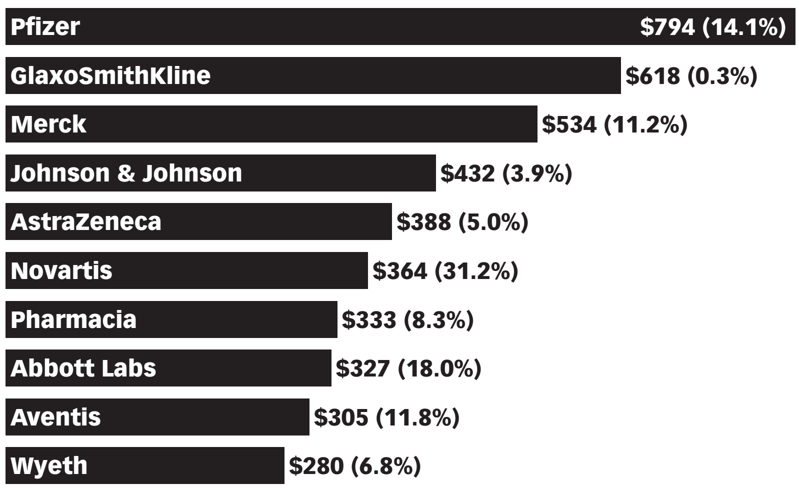
B. Marketing to Physicians Online

According to data from Verispan, Pfizer spent $794 million during 2002 marketing its products through detailing sessions with physicians. GlaxoSmithKline and Merck were the next biggest detail spenders among leading pharmaceutical companies, although it was Novartis that saw the largest increase in its detail spending over the previous year.

Top 10 Pharmaceutical Companies, by Detail Spending, 2002 (in millions and % change vs. prior year)



Source: Verispan, 2003; Pharmaceutical Executive, May 2003

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When each pharmaceutical company is ranked by the size of its sales force, GlaxoSmithKline had the largest number of sales reps in 2002, at 7,144 people, followed by Pfizer and Merck with 6,886 and 6,453 sales reps, respectively.

Top Five Pharmaceutical Companies, by Size of Sales Force, 2002 (in number of reps)

Source: Verispan, 2003; Pharmaceutical Executive, May 2003

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In a more recent study that was published in September 2003, Verispan estimates that pharmaceutical companies spent approximately $14.3 billion promoting their products to physicians during the twelve months ending May 2003.

Of that $14.3 billion just 1.5%, or $214 million, was spent on Internet-based marketing initiatives, including both online advertisements and e-detailing sessions.

Breakdown of Pharmaceutical Online Marketing Spending Targeted at Physicians, May 2002-May 2003 (in billions and as a % of total marketing spending)

Online marketing	$0.21
Online marketing as a % of total spending	1.5%
Total marketing spending	**$14.30**

Source: Verispan, 2003; American Medical News, September 2003

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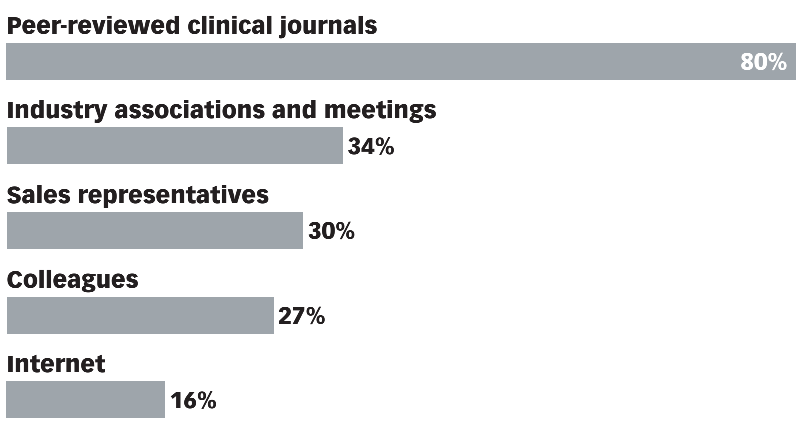
In an assessment of how physicians' prescription decisions are influenced by various media and promotional techniques, Accenture has found that 80% of physicians say they are most influenced by information they read in clinical journals.

By comparison, roughly one-third of physicians say that their prescription decisions are influenced by industry associations and meetings, or through contact with pharmaceutical companies' sales representatives. Just 16% of respondents to the Accenture study said that they were influenced by information that they found via the Internet.

Top Influencers on Prescription Medication Decisions of US Physicians, June 2003 (as a % of respondents)



Source: Accenture, July 2003

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In June 2003, Jupiter Research found that 58% of physicians who go online at least once per week for work-related activities said that they also participated in online detailing sessions. One-fifth of respondents said they did so "often", while the remainder said that they participated in e-detailing sessions "occasionally".

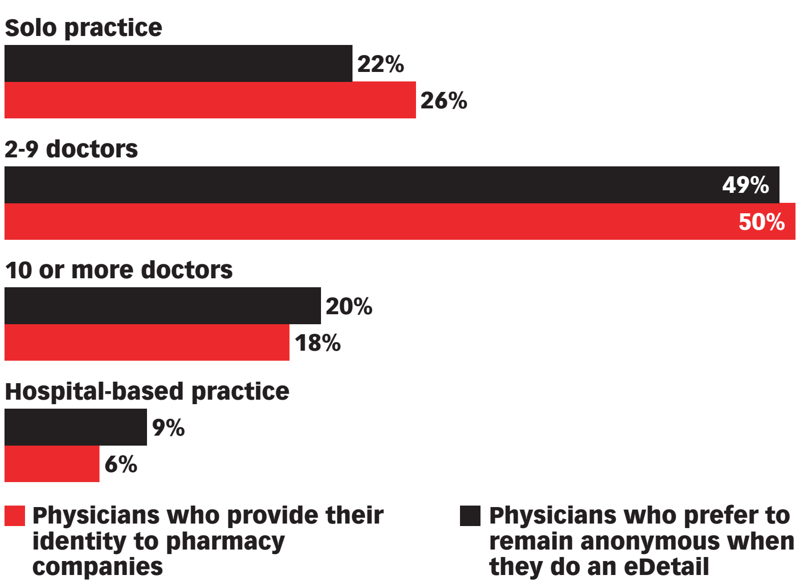
Not surprisingly, 85% of respondents said that adequate compensation would motivate them to increase their time listening to online marketing presentations.

Jupiter went on to find that 65% of physicians agree that e-detailing is both convenient and provides accurate information. And contrary to early predictions that e-detailing would harm doctors' relationships with sales reps, Jupiter notes that physicians that use e-detailing continue to see sales reps as frequently as those physicians who do not participate in e-detailing sessions.

As part of its effort to profile physicians who participate in e-detailing sessions, Forrester Research surveyed 1,820 doctors, dividing them into two separate groups – those physicians who are willing to provide information about themselves and their prescribing activities to pharmaceutical companies, and those who do not.

For the most part, Forrester found very few differences between these two groups of physicians, when it comes to the size of practices from which they come. By far, physicians from small practices with 2 to 9 doctors were the most likely to participate in e-detailing sessions, followed by physicians who operated their own solo practice.

Practice Size of Physicians Who Have Participated in E-Detailing Sessions, 2003 (as a % of respondents)



Note: n= 1,820 physicians who have participated in eDetails
Source: Forrester Research, September 2003

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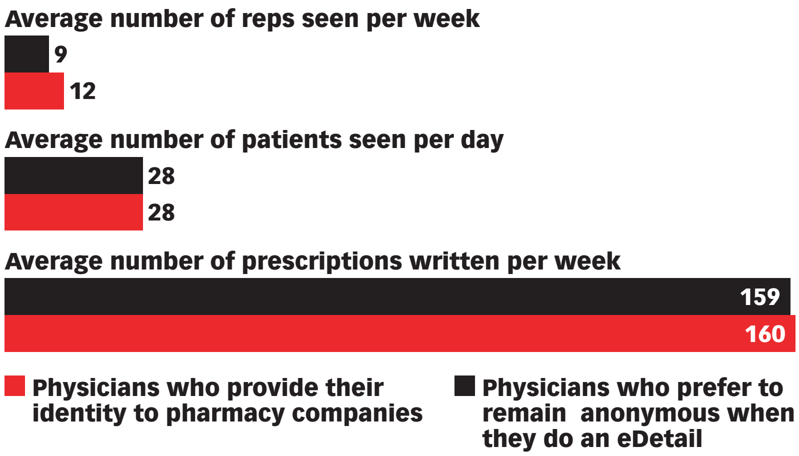
Once again, there was also little difference between each physician group when it comes to their willingness to receive sales reps on a weekly basis, the number of patients that they see on a given day, or the average number of prescriptions that each group writes in a given week.

Activities of Physicians Who Have Participated in E-Detailing Sessions, 2003 (as a % of respondents)



Note: n= 1,820 physicians who have participated in eDetails
Source: Forrester Research, September 2003

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Forrester Research has also discovered that following an e-detailing session, roughly two-thirds of physicians tend to order drug samples, while approximately one-third of physicians request that a sales representative visit them.

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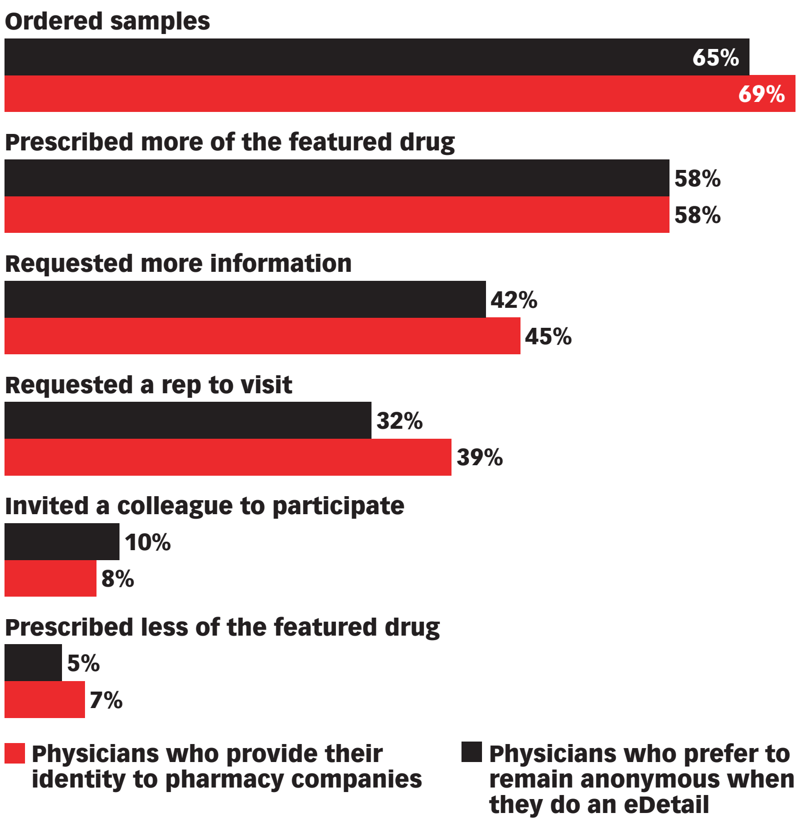
When it comes to the net impact of e-detailing sessions on physicians' prescribing activities, 58% of doctors wound up prescribing more of the featured drug, compared with between 5% and 7% of physicians who wound up prescribing it less.

Post E-Detailing Session Actions of Physicians Who Have Participated in E-Detailing Sessions, 2003 (as a % of respondents)



Note: n= 1,820 physicians who have participated in eDetails; multiple responses accepted
Source: Forrester Research, September 2003

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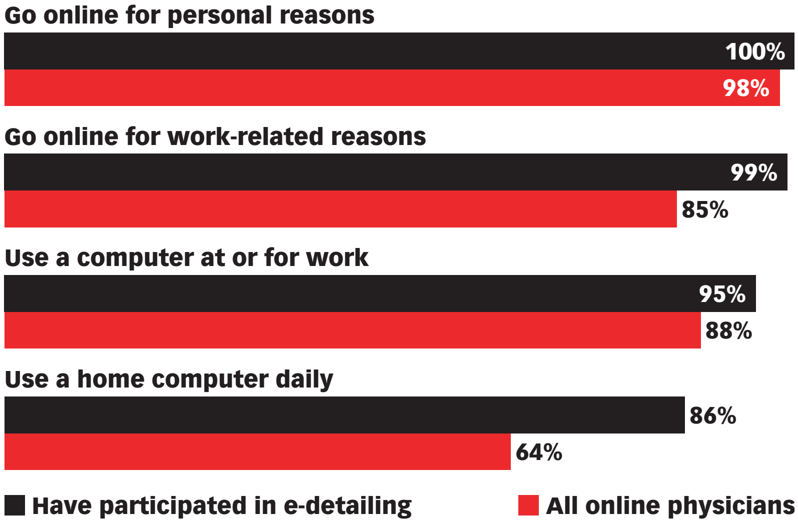
Rounding out its profile of physicians who participate in e-detailing sessions, Forrester Research has found that they are somewhat more likely to use a computer in their office or at home than their online counterparts, while they are also more likely to go online for work-related reasons.

Computer and Internet Use Among US Physicians, 2003 (as a % of respondents)



Note: n= 1,820 physicians who have participated in eDetails and n=135 physicians online
Source: Forrester Research, September 2003

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As further confirmation of their general comfort with new technology, a significant 54% of physicians who have participated in an e-detailing session have also used a handheld computer as a prescription reference tool.

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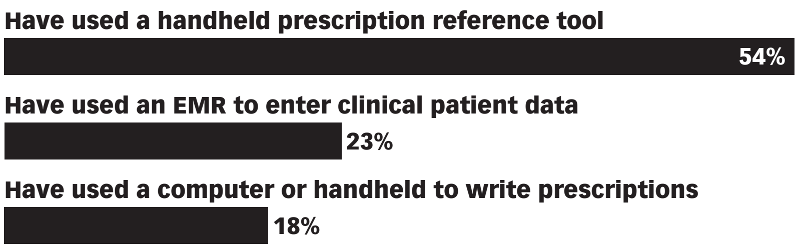
On the other hand, just 18% of these physicians have written electronic prescriptions, and only 23% have made use of electronic medical records. These results, however, are probably more indicative of the early stage of adoption for these latter technologies among physicians in general, than they are of physicians' propensity to participate in e-detailing sessions.

New Technology Solutions Used by Physicians Who Have Participated in E-Detailing Sessions, 2003 (as a % of respondents)



Note: n= 1,820 physicians who have participated in eDetails
Source: Forrester Research, September 2003

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And finally, *Modern Physician* and PricewaterhouseCoopers have found that relatively few physicians are so far using computer-based systems to obtain drug or treatment alerts.

Although just 25.5% of physicians were using such systems in 2002, this is a significant increase from the 15.3% of physicians who were using electronic alerts in 2001.

US Physicians' Use of Computer-Based Systems for Drug/Treatment Alerts, 2001 & 2002 (as a % of respondents)

Note: n= 444 physician executives and healthcare IT professionals
Source: Modern Physician/PricewaterhouseCoopers, November 2002

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A. Buying Pharmaceutical Products Online

Of the 168.0 million Americans who are expected to go online in 2004, eMarketer estimates that 86.5 million people will actually make an online purchase, accounting for almost 60% of adult Internet users.

However, it is worthwhile to note that not every Internet user is an online shopper, nor is every online shopper an online prescription buyer. Indeed, much of the comparative data below show that between 3% and 12.5% of US Internet users buy prescription drugs online, representing a relatively small portion of the overall US population.

US Consumer Online Buying and Shopping Grid, 2000-2005 (in millions and % penetration)

	2000	2001	2002	2003	2004	2005
INTERNET USERS*						
US population ages 14+ (US Census)	221.3	223.2	225.6	228.0	230.5	233.0
Total US internet users	124.0	142.8	152.8	162.0	168.0	171.4
Internet users ages 14+	**102.9**	**120.0**	**131.4**	**139.3**	**144.5**	**155.3**
Online penetration among population ages 14+	46.5%	53.8%	58.2%	61.1%	62.7%	66.7%
SHOPPERS						
% Internet users ages 14+	65.0%	67.0%	71.0%	73.0%	75.0%	78.0%
Shoppers ages 14+	66.9	80.4	93.3	101.7	108.4	121.1
BUYERS						
% Internet users ages 14+	48.5%	53.2%	55.8%	58.3%	59.9%	61.8%
Buyers ages 14+	49.9	63.8	73.3	81.2	86.5	94.9
Average annual purchase per online buyer	$563.99	$538.78	$621.06	$677.76	$838.87	$928.00
Online retail sales	**$28,152**	**$34,382**	**$45,540**	**$55,034**	**$72,599**	**$88,103**
Online travel revenues	$13,400	$17,200	$24,800	$31,900	$37,100	$45,200
Total US B2C e-commerce revenues (incl. online travel)**	**$41,552**	**$51,582**	**$70,340**	**$86,934**	**$109,699**	**$133,303**

*Note: *eMarketer's internet user figures are based on the ITU baseline data from 2000 and 2001; the age 14+ group represents roughly 90% of all users according to the August 2000 Department of Commerce Survey; **eMarketer benchmarks it's B2C retail revenue figures against US Department of Commerce data, for which the last period measured was Q2 2003; the travel component was formulated based on aggregated data*
Source: eMarketer, September 2003; various, as noted, 2000-2003

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In July 2003, Forrester Research published the results of a survey of 50,000 North American households that use the Internet, finding that 41% of all online households were also prescription drug buyers in 2002, meaning that they made prescription drug purchases from either online or offline sources.

Of those households that identified themselves as prescription drug buyers, 12% of respondents said that they had made at least one purchase online during 2002, up from 9% of respondents in 2001.

Percent of US Online Households that Have Purchased a Prescription Online, 2001 & 2002

Source: Forrester Research, June 2003

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Similar results were uncovered by the Health on the Net (HON) foundation, which found that 12.5% of the 1,318 patients it surveyed in 2002 said that they had purchased drugs from an online pharmacy.

Patients Who Have Purchased Drugs via an Online Pharmacy, 2002 (as a % of respondents)

Note: n= 1,318 patients worldwide
Source: Health on the Net Foundation, June 2002

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Of those patients who had made online drug purchases of some kind, nearly two-thirds said that they had purchased prescription drugs from an online pharmacy, while a narrower 36.2% of respondents said that they had purchased over-the-counter (OTC) drugs.

Patients Who Have Purchased Prescription and OTC Drugs via an Online Pharmacy, 2002 (as a % of respondents who have purchased drugs online)

Note: n= 165 patients worldwide
Source: Health on the Net Foundation, June 2002

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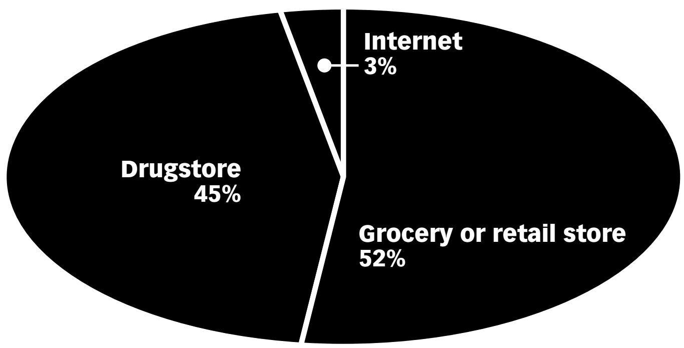
When it comes to buying over-the-counter drugs, research firm Miller Williams found that just 3% of US consumers said that they purchased OTC drugs via the Internet.

Rather than purchasing prescription drugs online, 52% of respondents confirmed that they typically buy OTC drugs from a grocery or retail store, while another 45% of US consumers said that they purchase non-prescription medication from a drugstore.

How US Consumers Purchase OTC* Drugs, by Channel, March 2003 (as a % of respondents)



*Note: n=617 respondents with active pharmaceutical company knowledge; *over-the-counter*
Source: Miller-Williams, June 2003

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As for the percentage of American consumers who purchase prescription drugs from outside of the United States, a September 2003 survey from the Wall Street Journal Online and Harris Interactive found that 7% of respondents had bought prescription drugs via the Internet, by mail, or in person from a foreign country, up from 5% one year before. In total, 2000 people were surveyed in September, with 48% indicating that they would be willing to buy drugs from another country.

Manhattan Research has found that even among those Internet users who regularly go online for health information, very few actually purchase health-related products online.

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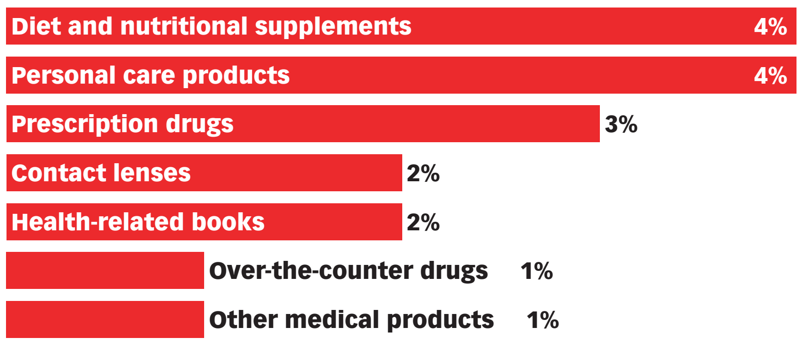
According to its survey of 1,224 online health information users, just 4% said that they purchase diet and nutritional supplements, or personal care products online. Only 3% said that they have bought prescription drugs online, while 1% said that they had gone online to purchase over-the-counter drugs during 2002.

US E-Health Consumers* Who Have Made an Online Purchase, by Product, 2002 (as a % of respondents)



*Note: n= 1,224 *online health users*
Source: Manhattan Research, October 2002

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As for the frequency with which consumers said they purchase health-related products online, 52% of respondents to the Manhattan Research study said that they had bought health products via the Internet less than 5 times during the previous twelve months.

A narrower 14% said that they had made ten or more online health product purchases during the previous year, or a little less than one online purchase per month.

Frequency with Which US Consumers Purchased Health Products Online, 2001-2002 (as a % of respondents purchasing online)

Source: Manhattan Research, October 2002

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Compared with those Internet users who have purchased health-related products online, an even smaller percentage of consumers said that they had gone online to research health related products, prior to purchasing them from an offline store.

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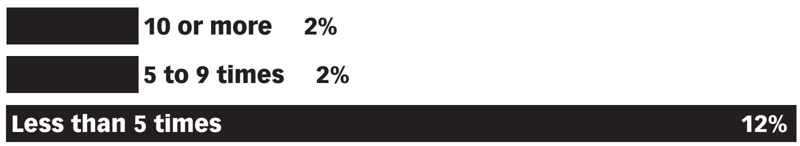
These results should not be surprising, however, since consumers are typically familiar with most personal care products that they purchase on a regular basis, and therefore require little new information about branded health and beauty products in general.

Frequency with Which US Consumers Purchased Health Products Offline After Researching Them Online, 2001-2002 (as a % of respondents purchasing online)



Source: Manhattan Research, October 2002

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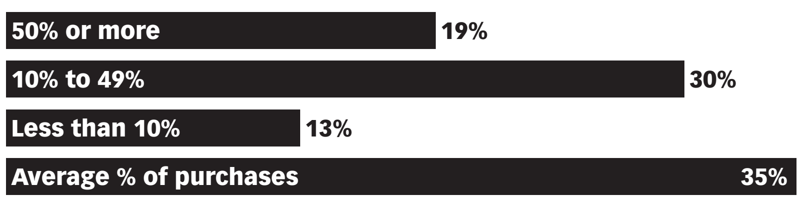
When it comes to breaking out the portion of OTC purchases that consumers make online, Manhattan Research found that on average, people made 35% of their OTC drug purchases via the Internet in 2002.

Few respondents said that they purchased more than half of their OTC medication online, while 30% said that between 10% and 50% of their OTC drug needs were met through online sales.

OTC Drugs Purchased Online in the US, 2002 (as a % of respondents purchasing online)



Source: Manhattan Research, October 2002

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By comparison, a significant 41% of consumers who purchase personal care products online said that they made more than half of such purchases via the Internet.

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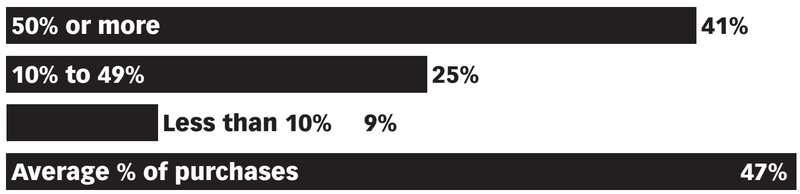
Another 25% of respondents said that they made between 10% and 49% of their personal care product purchases online, with online shoppers buying an average 47% of personal care products from Internet merchants.

Personal Care Products Purchased Online in the US, 2002 (as a % of respondents purchasing online)



Source: Manhattan Research, October 2002

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Because most online shoppers tend to be young people, Forrester Research was surprised to discover that the median age of online prescription buyers is 49. Indeed, Forrester describes online prescription buyers as "older, more affluent, and almost 50% more likely to be retired than offline-only purchasers."

Forrester also found that women are just as likely as men to make online prescription purchases, while online prescription buyers are more likely to have a college degree than those who buy prescription drugs offline.

Demographic Profile of Online Prescription Buyers in North America, 2002

	Bought a prescription online	Online buy prescriptions offline	Bought no prescription, but made other online purchases
Median age	49	43	42
Average household income (USD)	$49,762	$48,268	$45,168
Female	50%	53%	47%
Have a college degree	55%	51%	48%
Retired	15%	8%	7%

Source: Forrester Research, June 2003

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By comparison, Hitwise has found that 58% of online pharmacy Web site visitors are female, and 33% of visitors are over the age of 55. The average household income is $75,000 among 37% of online pharmacy Web site visitors, while 74% of visitors were found to access the Internet from home. Hitwise has also noted that the highest number of online pharmacy visitors were from California, Texas, New York, Florida and Pennsylvania.

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Somewhat surprisingly, Forrester found no significant difference in technology ownership between people who purchase prescription drugs online and those who do not – similar numbers of people from both groups own PCs, mobile phones, or PDAs.

However, online prescription buyers were 31% more likely to have broadband access at home and 11% more likely to be technology optimists than their counterparts who only buy prescription drugs offline.

Technology Adoption of Prescription Drug Purchasers in the US, 2003 (as a % of online households)

	Bought prescription online	Only bought prescription offline	Bought no prescription, but made other online purchases
Technology optimists	72%	65%	68%
Have a PC at home	95%	94%	94%
Own a mobile phone	77%	77%	75%
Have broadband at home	34%	26%	29%
Have a PDA	13%	11%	11%
Receive wireless data services	8%	6%	7%

Source: Forrester Research, June 2003

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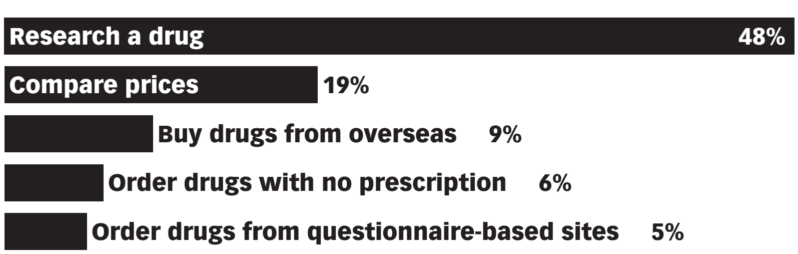
When prescription drug buyers do go online to either shop for or purchase prescription drugs, Forrester found that by far, most people spend time researching those drugs that they want to buy.

Another 19% of respondents said that they go online to compare drug prices, while a narrower 9% of prescription drug buyers said that they purchase their drugs from overseas. Similarly low numbers of people admitted that they purchase drugs with no prescription, or from the more questionable questionnaire-based Web sites.

How US Online Prescription Drug Buyers Use the Internet, 2002 (as a % of respondents)



Note: n= 54,817
Source: Forrester Research, June 2003

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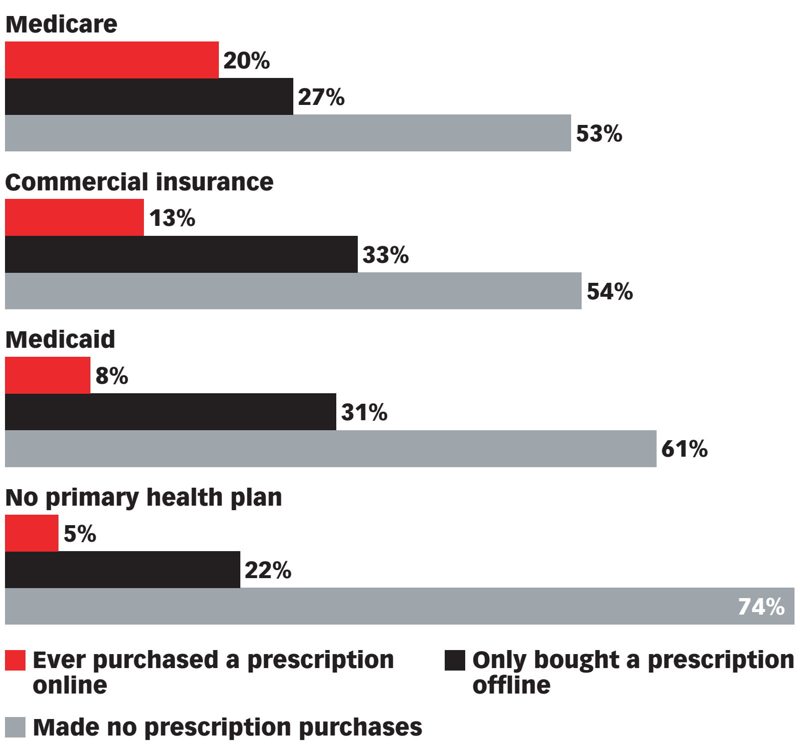
"The people buying online are not who you think. Medicare members looking for deals and diabetics looking for convenient refills lead the charge."

— *Elizabeth W. Boehm, Forrester Research*

Indeed, among members of non-commercial health plans in the United States, 20% of Medicare members who are also online said that they have purchased drugs via the Internet.

This compares with an average 13% of people with commercial insurance, and just 8% of people with Medicaid. As might be expected, people without a primary health plan were the least likely to purchase prescription drugs online, although they were also the least likely group to purchase prescription drugs of any kind.

US Households That Have Purchased Prescription Drugs Online, by Primary Health Care Plan, 2002 (as a % of respondents)



Source: Forrester Research, June 2003

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Among members of commercial medical plans, Forrester Research has found that on the low end, 9% of Humana members said that they have bought prescription drugs online, while at the high end, 17% of Aetna members said that they have purchased drugs online as well.

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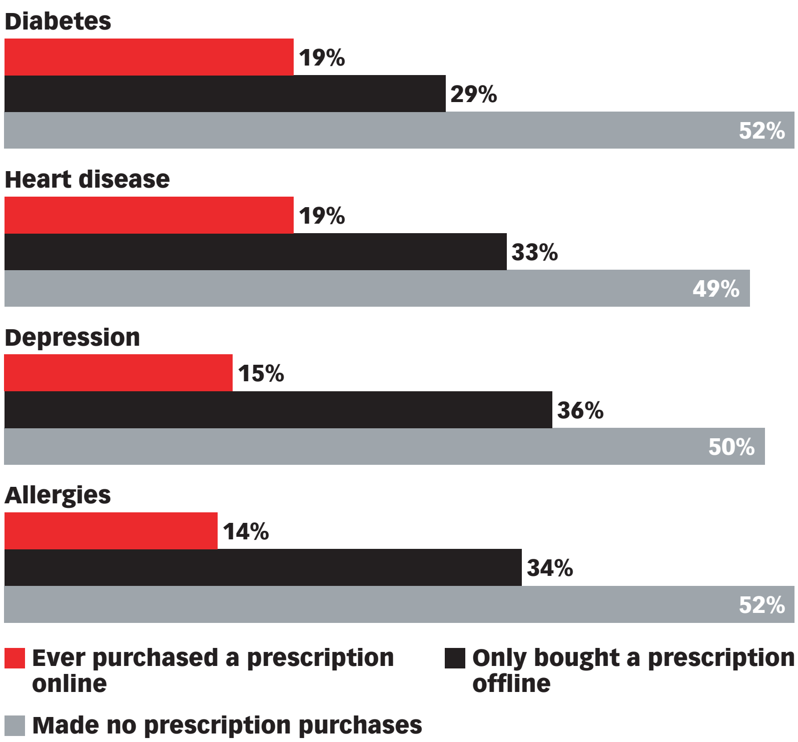
When online prescription drug buyers are broken down by condition, people with diabetes and heart disease are the most likely to go online for prescription medication, with refills accounting for the greater part of their business.

Depression and allergy sufferers are also among the top four categories of online prescription drug buyers, with just over one in six patients confirming that they have purchased their medication online.

US Households That Have Purchased Prescription Drugs Online, by Disease or Condition, 2002 (as a % of respondents)



Source: Forrester Research, June 2003

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B. Selling Pharmaceutical Products Online

With consumer e-commerce activity estimated to have reached $45.5 billion in 2002, travel, automotive and computer products are the top three categories of products or services that consumers purchase online.

Way down at the bottom of the list are health and beauty products – the primary category that also includes prescription drug sales. Online sales of health and beauty products totaled just $700 million during 2002, according to estimates from Forrester Research and Shop.org.

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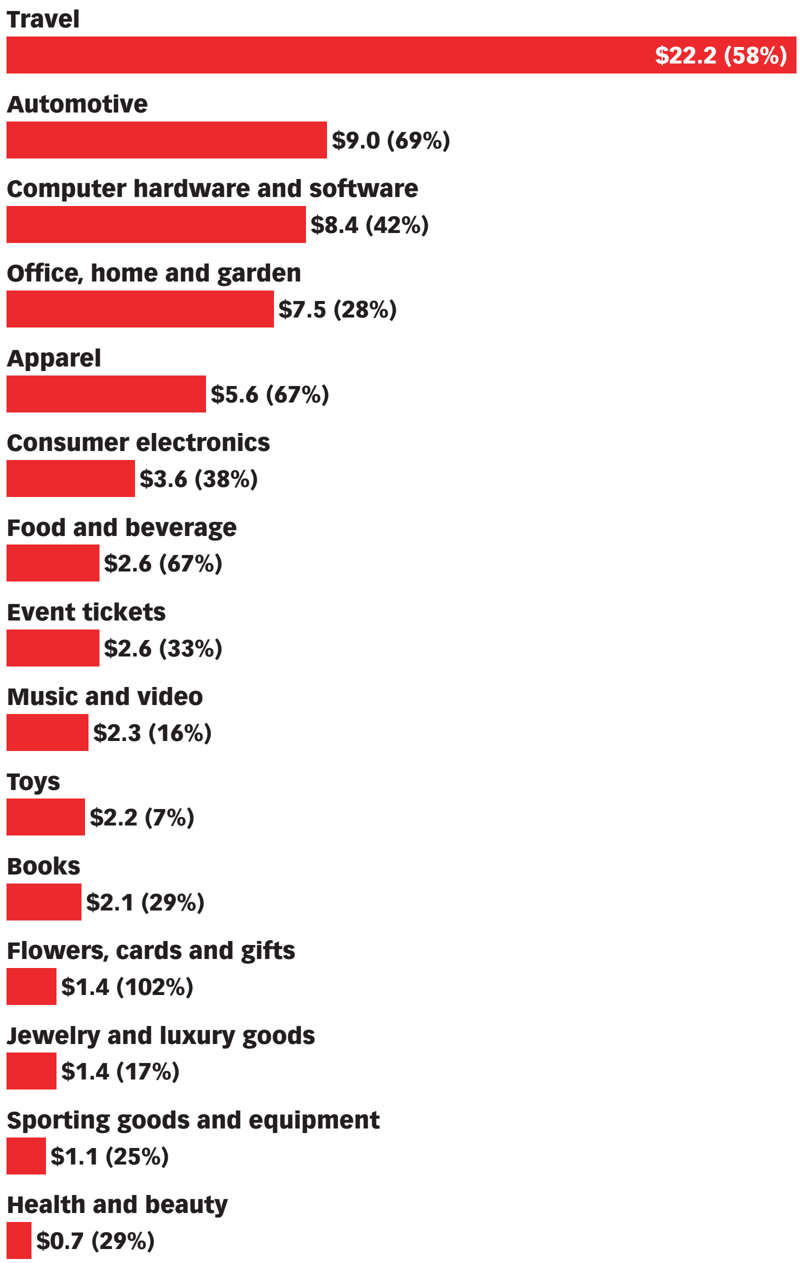
US B2C E-Commerce, by Category, 2002 (in billions and % growth vs. prior year)



Source: Shop.org and Forrester Research, May 2003; Morgan Stanley, June 2003

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By comparison, Jupiter Research estimates that on their own, online sales of prescription drugs from foreign pharmacies totaled $700 million in 2002, accounting for less than 0.4% of the entire US drug market.

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Jupiter believes that total online prescription drug sales will increase from $3.2 billion in 2003, to $13.8 billion by 2007, to account for just 4% of all US prescription drug sales in four years' time.

However, when Web-influenced prescription drug sales are counted, Jupiter projects that as much as 17% of US sales will be made via the Internet, when online orders that are picked-up in-store are included.

Online Prescription Drug Spending in the US, 2003-2007 (in billions and % of US spending)

	2003	2004	2005	2006	2007
Online spending	$3.2	$5.1	$7.4	$10.3	$13.8
Web-influenced spending	$25.7	$31.6	$38.3	$45.5	$53.2
Percentage of US spending	12%	13%	15%	16%	17%

Source: Jupiter Research, November 2003

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According to the Forrester Research/Shop.org study, health and beauty products are currently among those consumer products with the lowest Internet-based sales penetration, with an estimated 1.4% of revenues from health and beauty product sales being generated online.

This compares with an average 2.3% of all retail sales that were concluded online during 2002, for which computer hardware and software posted the highest online penetration rate, at 23.4% of product revenues coming via the Internet.

Online Retail Market Penetration in the US, by Category, 2000-2002 (as a % of total retail market)

	2000	2001	2002*
Computer hardware and software	16.9%	17.9%	23.4%
Books	12.7%	11.1%	13.5%
Event tickets	3.5%	5.6%	9.5%
Music/video	7.0%	7.0%	9.4%
Travel	5.5%	6.3%	8.4%
Toys	7.3%	6.1%	6.8%
Consumer electronics	4.7%	5.3%	6.6%
Flowers, cards and gifts	3.4%	3.5%	4.8%
Apparel	1.5%	2.2%	2.5%
Sporting goods and equipment	1.7%	1.9%	2.3%
Jewelry/luxury goods	1.6%	2.1%	2.2%
Automotive	0.7%	1.2%	2.0%
Health and beauty	0.8%	1.0%	1.4%
Office, home and garden	0.9%	1.0%	1.4%
Food and beverage	0.3%	0.4%	0.6%
Total online retail as a % of total retail	**1.5%**	**1.7%**	**2.3%**

*Note: *projected*
Source: Shop.org and The Boston Consulting Group, June 2002

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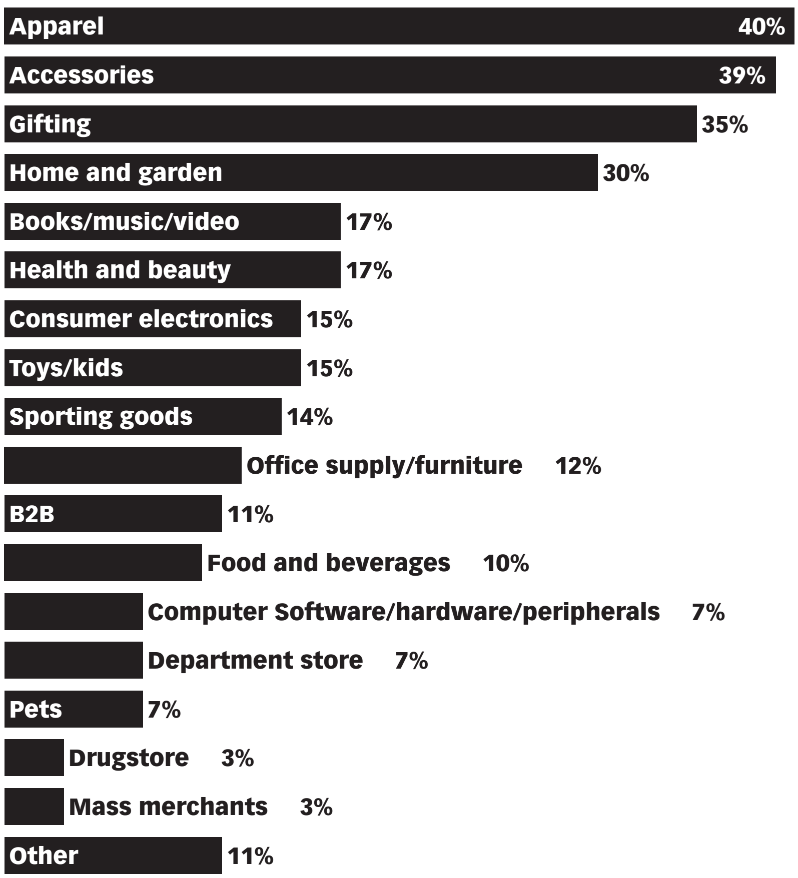
Further evidence of the relatively low penetration of online medication sales comes from an early 2003 study, which found that just 3% of the 200 Internet merchants surveyed by the e-tailing group were operating an online drug store.

On the other hand, the e-tailing group also found that 17% of the online retailers it studied sold health and beauty products online.

Leading Products/Services Sold Online by Retailers in the US, 2003 (as a % of respondents)



Note: n=200 senior executives
Source: the e-tailing group, April 2003

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Despite the relatively poor performance of online prescription drug sales, it is likely that Internet-based sales will steadily increase over time, building upon consumers' growing comfort with purchasing prescription drugs via mail order outlets during the past six years.

Indeed, data from Ipsos-Reid indicates that mail order sales of prescription drugs used in the treatment of chronic conditions have increased at a rate of 88% between 1998 and 2002, well ahead of sales from discount stores or grocery outlets.

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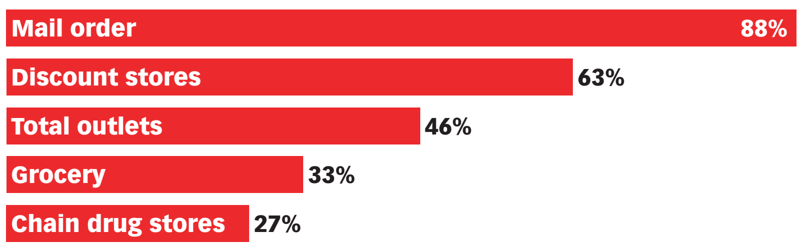
The study's authors have also found that Pharmacy Benefit Managers (PBMs) have actively encouraged patients to increase the size of their mail order prescriptions from 30- to 90-day supplies, particularly for those prescriptions that are used to treat chronic conditions.

In addition to offering discounts and other inducements for patients to adopt their mail order services, PBMs have also been urging their members to use their automated telephone- or Internet-based ordering systems to place orders.

Growth Rate of Prescription Drug Purchases for Treatment of Chronic Conditions in the US, by Sales Outlet , 1998-2002 (as a % of prescription pill volume growth)



Source: Ipsos-Reid, July 2003

As part of the National Association of Boards of Pharmacy (NABP)'s efforts to ensure that online pharmacies meet the same standards as their offline counterparts, the NABP has instituted its Verified Internet Pharmacy Practice Sites (VIPPS) program.

This voluntary program provides online pharmacies operating in North America with the opportunity to obtain VIPPS certification of their policies and procedures, after a rigorous review and inspection.

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Despite the proliferation of hundreds of small, unlicensed online pharmacies, it is perhaps surprising to learn that as of late 2002, there are only 14 VIPPS-certified Web sites selling prescription drugs online.

VIPPS*-Certified Online Pharmacies, 2002

accuratepharmacy.com
AdvanceRx.com
anthemprescription.com
rxrequest.om
clickpharmacy.com
cvs.com
drugstore.com
Eckerd.com
Familymeds.com
medcohealth.com
careforlife.com
rxwest.com
teldrug.com
walgreens.com

*Note: *VIPPS - Verified Internet Pharmacy Practice Sites*
Source: National Association of Boards of Pharmacy (NABP), November 2002

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When online pharmacy Web sites are ranked by the number of visitors they receive, research firm Hitwise found that for the month of October 2003, 15.2% of online pharmacy visitors went to Drugstore.com. Another 13.1% of users went to Medochealth.com, while Walgreens.com attracted 11.3% of online pharmacy visitors.

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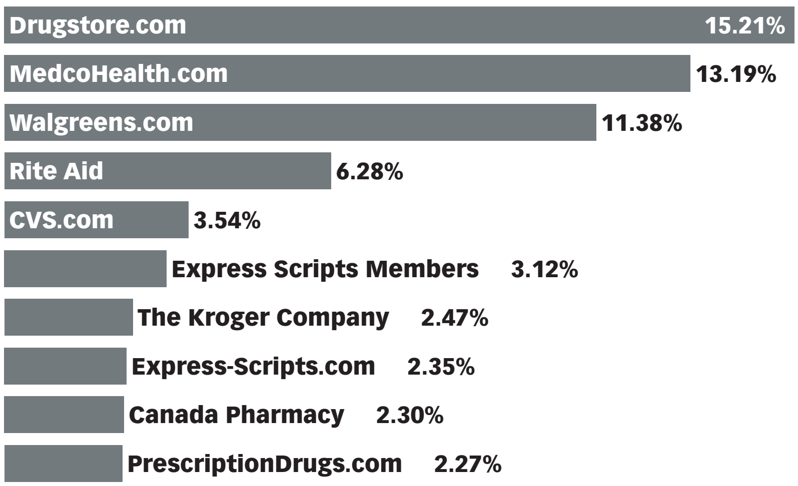
Outside of the top 10 pharmacies, which are dominated by health and beauty retailers, Hitwise notes that several domestic and foreign Web sites primarily dedicated to filling prescriptions were also among the top 20 most-trafficked online pharmacies.

Leading Pharmacy Web Sites in the US, October 2003 (as a % of visits)



Source: Hitwise, October 2003; CyberAtlas, November 2003

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According to its own estimates, MedcoHealth is the largest online vendor of prescription drugs, with sales via its Web site totaling $1.4 billion in 2002 – a 51% increase over its 2001 sales.

In March 2003, the PBM announced that it was currently filling approximately 260,000 online prescriptions per week, after having filled nearly 11 million prescriptions in 2002. The average prescription is for 90 days of medication, according to Medcohealth.com, while its Web site boasts more than 3 million registered users, 60% of whom are over the age of 50.

E-Business Profile: Online Transaction Activity for Medcohealth.com, 2002

Annual sales	$1.4 billion
Number of prescriptions	Approximately 11 million
Number of prescriptions per week	Approximately 260,000

Source: Medco Health Solutions, September 2003

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As part of its effort to improve its online operations, Medcohealth.com also announced that it had redesigned its Web site in March of 2003, by providing improved navigation tools that are larger and easier to read, expanding health-related content that is available on its Web site, and minimizing graphics files, thereby reducing download times for users.

Compared to Medcohealth.com's 2002 sales of $1.4 billion, Drugstore.com rang up online sales of $193.9 million during 2002, including revenues from not only prescription drugs, but health and beauty products as well.

Through the first three-quarters of 2003, Drugstore.com has reported sales of $175.1 million, a 26.1% increase over the same period in 2002. As of the end of the third quarter, there are 1.34 million active customers who regularly use Drugstore.com's Web site, spending an average $76 per order.

E-Business Profile: Net Sales via Drugstore.com, 2000-2002 (in millions)

Source: eMarketer, Drugstore.com, 2003

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Diet products, fragrances and sun care products were the three fastest-growing product categories by unit sales for Drugstore.com during the month of April 2003, when compared with product sales during the previous month.

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Seasonal factors clearly had a significant impact upon various product categories, as consumers prepared for summer weather and purchased fragrance products ahead of Mothers Day.

Top 10 Health and Beauty Product Category Gainers Sold via Drugstore.com, April 2003 (as a % gain in unit sales*)

*Note: *monthly gain in unit sales vs. March 2003*
Source: Drugstore.com, June 2003

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During the third quarter of 2003, sales of OTC drugs increased by 41% year-over-year, with skin care products leading the way with year-over-year growth of 60%.

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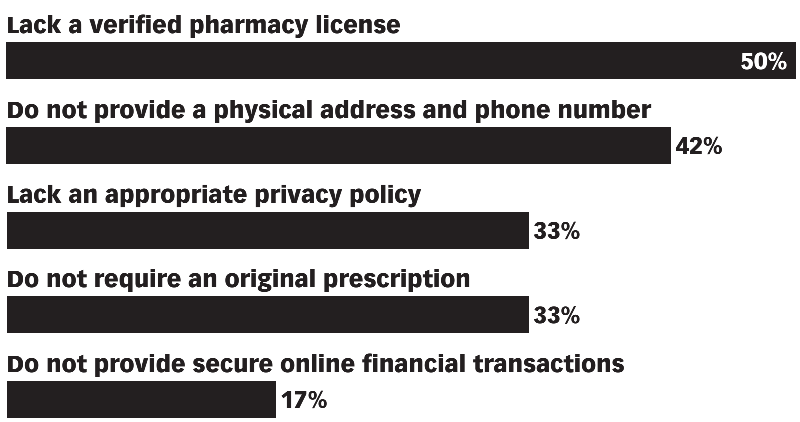
When it comes to Drugstore.com's online pharmacy business, the company posted its highest pharmacy sales ever during the third quarter of 2003, thanks in part to its efforts to grow its mail order volumes. Drugstore.com has also started to offer its online mail order service as an outsourced solution to PBMs, with Destination Rx, US Script, AmeriScript, INTEQ Group and Frontline Pharmaceuticals each having signed on for one-year contracts.

In a broader survey examining the customer service capabilities of 12 online pharmacy Web sites, PharmacyChecker.com found that just 6 of the Web sites it studied dispensed prescriptions via a licensed pharmacist.

As might be expected, most of the Web sites that were surveyed were of questionable repute, with only 7 of the 12 providing a physical address and phone number, while just 2 were able to securely process a financial transaction via the Internet.

Percent of Online Pharmacies that Fail to Meet Key Service Criteria, 2003 (as a % of web sites surveyed)



Note: n=12 Web sites
Source: PharmacyChecker.com, April 2003

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When it comes to the branded Web sites that pharmaceutical companies operate for the purposes of reaching out to current and potential customers, a survey of 65 pharmaceutical companies found that 81% of respondents make minor changes to their Web sites on a monthly basis, while another 23% of respondents said that they make major changes every month.

Extent to Which Pharmaceutical Companies Make Changes to their Branded Web Sites, 2002 (as a % of respondents)

Note: n= 65 companies
Source: Enviz, August 2002

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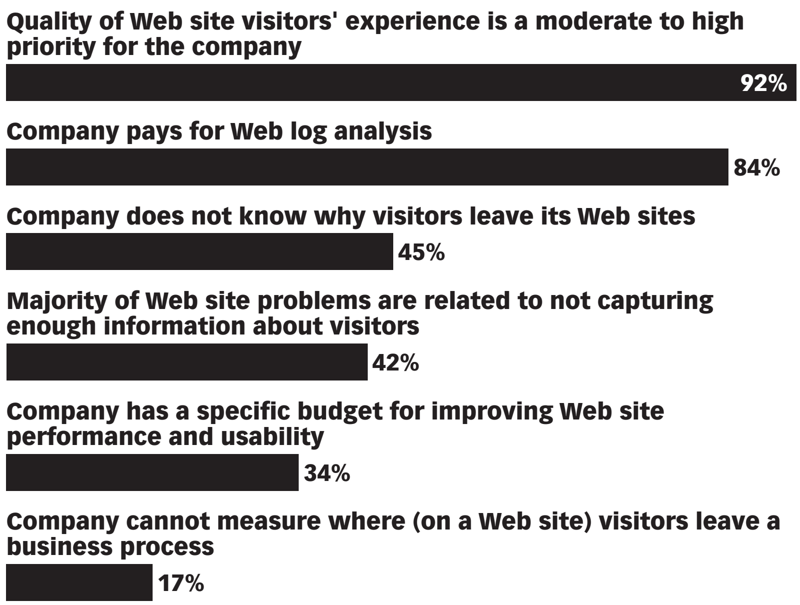
Because branded Web sites are an essential component of pharmaceutical companies' online promotional activities, 92% of respondents to the Enviz study said that they have made the quality of their online visitors' experience a moderate to a high priority.

But although 84% of pharmaceutical companies said that they paid for Web log analysis, 45% said that they did not know why visitors leave their Web sites, while 17% did not know where online visitors left a particular business process.

Pharmaceutical Companies' Evaluation of Their Branded Web Sites, 2002 (as a % of respondents)



Note: n= 65 companies
Source: Enviz, August 2002

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According to the Customer Respect Group's semi-annual survey of pharmaceutical companies' Internet-based customer service capabilities on their corporate Web sites, Abbott Laboratories, Forest Laboratories and Johnson & Johnson provide the best online customer service, as of November 2003.

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The Customer Respect Group scores Web sites based on a scale of 1 to 10, with 10 being the highest score, rating each Web site according to various customer service attributes, including respect for customer privacy, the customer-focus of a Web-site's design and content, transparency of a company's online policies, ease of navigation, and responsiveness to Internet-based customer inquiries.

Leading Pharmaceutical Companies' Online Customer Service Index Score, Spring 2003 (on a scale of 1 to 10*)

Wyeth	8.1
Forest Laboratories	7.9
Abbott Laboratories	7.5
Allergan Inc.	6.8
Merck & Co.	6.8
Amgen	6.6
Barr Laboratories	6.5
Biogen	6.4
Johnson & Johnson	6.1
Schering-Plough Corp.	6.0
Genzyme Corp.	5.6
Bristol-Myers Squibb	5.5
Watson Pharmaceuticals	5.4
King Pharmaceuticals	5.3
Chiron Corp.	5.1
Pfizer Inc.	4.2
Eli Lilly and Co.	4.1
Ivax Corp.	2.7
Industry Average	**5.9**

*Note: *where 10 is the highest possible score*
Source: The Customer Respect Group, Spring 2003

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Taken together, the 18 pharmaceutical company Web sites surveyed by the Customer Respect Group improved their average score from 5.9 in the spring of 2003, to an average 6.1 in the fall.

Leading Pharmaceutical Companies' Online Customer Service Index Score, Fall 2003 (on a scale of 1 to 10*)

Abbott Laboratories	8.5
Forest Laboratories	7.8
Johnson & Johnson	7.8
Bristol-Myers Squibb	7.6
Chiron Corp.	7.3
Allergan Inc.	7.0
Barr Laboratories	6.6
King Pharmaceuticals	6.4
Genzyme Corp.	6.2
Schering-Plough Corp.	5.6
Biogen Inc.	5.4
Wyeth	5.3
Amgen, Inc.	5.2
Merck & Co.	5.1
Ivax Corp.	4.8
Watson Pharmaceuticals	4.7
Eli Lilly and Co.	4.6
Pfizer Inc.	3.4
Industry Average	**6.1**

*Note: *where 10 is the highest possible score*
Source: The Customer Respect Group, Fall 2003

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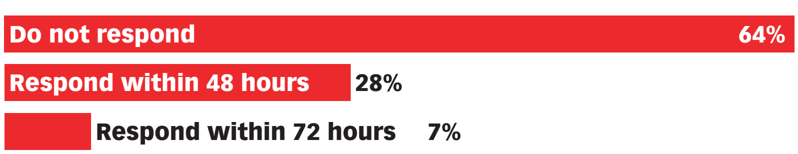
This slight increase was largely due to an overall improvement in responsiveness to online customer inquiries, as fewer pharmaceutical companies did not respond to e-mail inquiries in the Customer Respect Group's most recent survey.

Pharmaceutical Companies' E-Mail Response Times to Online Customer Inquiries, Spring 2003 (as a % of firms studied)



Note: n= 18 pharmaceutical companies
Source: The Customer Respect Group, May 2003

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On the other hand, researchers also found that pharmaceutical companies took longer to respond to e-mail based inquiries, with 38% of companies taking more than 3 days to reply to customers.

Pharmaceutical Companies' E-Mail Response Times to Online Customer Inquiries, Fall 2003 (as a % of firms studied)

Note: n= 18 pharmaceutical companies
Source: The Customer Respect Group, Fall 2003

Just over one-third of pharmaceutical companies, or 36% of the Web sites studied, used autoresponder technology that automatically acknowledges customer e-mail inquiries. Of those initial e-mail inquiries that received such a reply, 80% were followed up later with a full response.

Pharmaceutical companies did the best when it came to their Web site's ease of navigation, with an average index score of 8.2 among the 18 firms that were studied. They were also found to be good at articulating their companies' privacy policy, with 94% of pharmaceutical Web sites providing explanations for how customers' personal data might be used, along with their privacy policies.

However, just 50% of pharmaceutical company Web sites provided a keyword search function on their Web site, while only 22% of pharmaceutical companies provided offline contact information such as phone numbers or postal addresses.

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