Some Economics of Direct to Consumer Advertising of Prescription Drugs

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Advertising Has a History of Being Controversial

- *"Advertisements contain the only truth to be relied on in a newspaper."* Thomas Jefferson
- *"Advertising is a racket...its constructive contribution to humanity is exactly minus zero."* F. Scott Fitzgerald[1]
- *"I think I was wrong...On the whole, I think there is a lot of educational benefit (to direct to consumer prescription drug advertising)".* David A. Kessler, M.D., former FDA Commissioner[2]

[1]These and other quotes are shamelessly lifted from Carlton-Perloff [1994], chapter 15, "Advertising and Disclosure," pp. 596-629.
[2] As quoted in the Boston Globe (Mishra [2002]). Words in parentheses added for clarification.

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Direct to Consumer Advertising

1994-2000 (Millions of Dollars)

	1994	2000	% Change
Print & Other	$231	$899	289
Television	$35	$1,570	4386
Total DTCA	$266	$2,470	829

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Direct to Consumer Advertising

- Unlike Physician Detailing, DTCA is Highly Concentrated
- Neslin [2001] Reports That in 1999, of 391 Major Branded Drugs, Only 18% Had Positive DTCA Expenditures, While 95% Had Positive Detailing Expenditures

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Top 20 Drugs Ranked by DTCA Spending in 2000

	Name	Indication	DTCA spending ($ millions)
1	Vioxx	Anti-inflammatory	161
2	Claritin	Antihistimine	114
3	Prilosec	Anti-ulcer	108
4	Paxil	Antidepressant	92
5	Zocor	Antihyperlipidemic	91
6	Viagra	Erectile disfunction	90
7	Celebrex	Anti-inflammatory	79
8	Flonase	Nasal allergies	78
9	Allegra	Antihistimine	67
10	Meridia	Weight loss	65
11	Flovent	Nasal allergies	63
12	Pravachol	Antihyperlipidemic	62
13	Zyrtec	Antihistimine	60
14	Singulair	Asthma	59
15	Lipitor	Antihyperlipidemic	59
16	Nasonex	Nasal allergies	53
17	Ortho Tri-	Oral contraceptive	47
18	Valtrex	Genital herpes	40
19	Lamisil	Toenail fungus	39
20	Prempro	Hormone	38
Top 20 Total			1,466
% of Total Industry DTCA spending			58.6%

Source: Competitive Media Reporting
Notes: DTCA is Direct to Consumer Advertising

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What Are the Perceptions?

- FDA Regulatory Changes Unleashed Major New Force That Drives Drug Spending
- DTCA Represents Major Shift from R&D to Marketing
    "Drug firm's stymied in the lab become marketing machines" (Wall Street Journal, July, 2000)
- DTC Misleads Consumers Causing Expanded Demand and Inappropriate Utilization
    "...the drug industry's strategy is to: first dupe the gatekeeper then delude the patient" (Public Citizen, September, 1998)
- DTCA is an Efficient Market Response to Changing Times.
    "The vast majority of patients are taking medications they would not otherwise have known about, are being treated appropriately and are better off as a result" (Interview, Business & Health, 2001)

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Advertising in a More General Context

- Economic Theory: "… the Welfare Effects of Advertising Are Complex and Depend On the Type of Product and Type of Advertising" and Therefore "Are Generally Ambiguous" (Carlton-Perloff [1994])
- Brand Loyalty May Reduce Price Responsiveness of Demand, but Can Also Reduce Consumers' Search Costs

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DTCA: Historical Note

- Prior to 1938 and 1951 Legislation That Established Physicians As "Learned Intermediaries" and Made Many Drugs Available Only With a Physician's Rx, DTCA Dominated Drug Advertising
- Temin [1980] Estimates That in 1930, 90% of Drug Advertising Expenditures Occurred in Popular Magazines & Newspapers, 2% in Technical Journals, 5% Involved Direct Mail, and 3% Involved Detailing, Samples & Other

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Economics of DTCA for Rx Drugs (1)

- Greater Non-Misleading Information Can Enhance Consumer Decision-Making and Promote Quality and Price Competition
- Moral Hazard: Expansion in Role of Insurance Coverage for Rx Over the Past 20 Years – In 1999, 69% of Rx Spending Up from 26% in 1982
- Physicians as Agents Balance Patient Needs and Wants Given Financial Risk for Rx, Formulary Design and Detailing

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Economics of DTCA for Rx Drugs (2)

- PBMs and MCOs Serve as Purchasing Agents for Populations – Aim to Provide Cost-Effective Rx Coverage
- Manufacturers Seeks to Maximize Profit – Promotion is a Key Strategy
- Dorfman-Steiner Theorem:

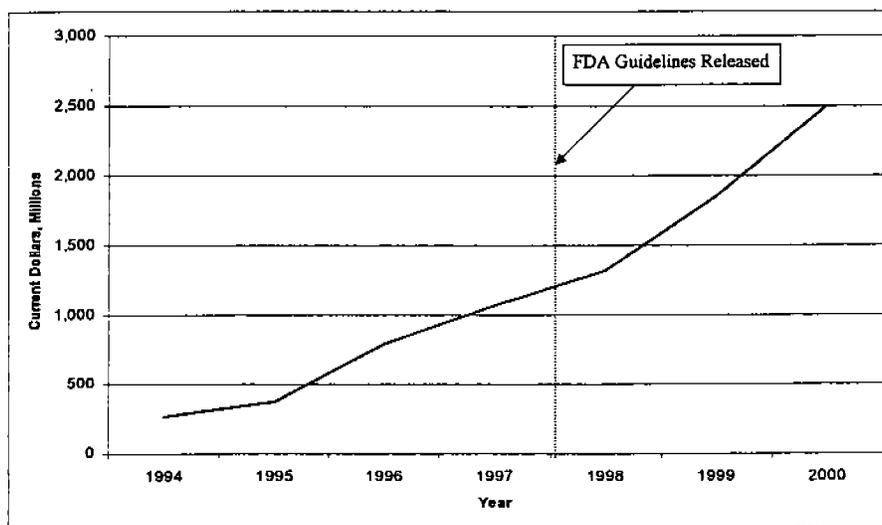*$ Optimal Promotion/$ Sales = Elasticity Promotion/Price Elasticity*

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1997 FDA Preliminary Clarification of Broadcast "Adequate Provision"

- Must Reference Four Consumer Information Sources:
  - Physician
  - Toll-Free Phone Number
  - Print Advertisement
  - Web Site
- Reaffirmed in 1999

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Trend in Direct to Consumer Advertising Spending, 1994-2000

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1999 DTCA vs. MD Promotion

Class	DTCA % of Sales	MD-Oriented Promotion % of Sales
Antidepressants	0.5	14.4
Antihistamines	6.1	12.4
Antihyperlipidemics	1.5	8.7
Nasal Sprays	11.6	24.7
Proton Pump Inhibitors	1.4	11.2
Ratio of Highest to Lowest A/S	23.2	2.8

Data from CMR and Scott-Levin

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1999 DTCA in Antihyperlipidemic Class

	DTCA	Sales	A/S Ratio
All Class	$ 92	$ 6045	1.5%
Lescol	$ 1	$ 255	0.4%
Lipitor	$ 56	$ 2660	2.1%
Mevacor	$ 0	$ 286	
Pravachol	$ 0	$ 1037	
Zocor	$ 35	$ 1807	1.9%

Data from CMR and Scott-Levin

DTCA and Sales are Millions of US Dollars

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Promotion to Sales Ratios 1996-2000

	1996	1997	1998	1999	2000
Detailing	0.046	0.047	0.050	0.043	0.043
Journal Advertising	0.007	0.007	0.006	0.005	0.004
Retail Value of Samples	0.076	0.084	0.081	0.071	0.071
Total Physician Promotion	0.129	0.138	0.137	0.118	0.118
Direct-to-Consumer Promotion	0.012	0.015	0.016	0.018	0.022
Total Promotion	0.141	0.153	0.153	0.136	0.140

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Search and Experience Goods

- When Consumers Can Assess a Product's Quality and Impact Prior to Purchase by Visual, Tactile, or Analytical Inspection, the Product Is Said to Have *Search* Qualities
- If Customer Must Consume the Product to Assess Its Quality and Impact, the Good Is Said to Have *Experience* Qualities
- Nelson [1970, 1974]: Goods With Dominant Experience Attributes Have Greater A/S Ratios Than Do Goods With Dominant Search Characteristics

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Marketing/Sales Ratios for Companies Selling "Search" and "Experience" Goods

Companies Primarily Selling "Search" Goods (1998)

- Home Depot 1.6%
- Phillips Electronics 2.4%
- American Express 3.2%
- Circuit City 4.5%
- Sony 4.7%
- Intel 5.8%

U.S. Pharm. Ind. (1998) 15.3%

Companies Primarily Selling "Experience" Goods (1998)

- Wendy's 16.7%
- Coors 18.8%
- MacDonald's Corp. 21.1%
- Estee Lauder 22.2%
- Revlon 24.0%
- L'Oreal 26.5%

0.00%   5.00%   10.00%   15.00%   20.00%   25.00%   30.00%

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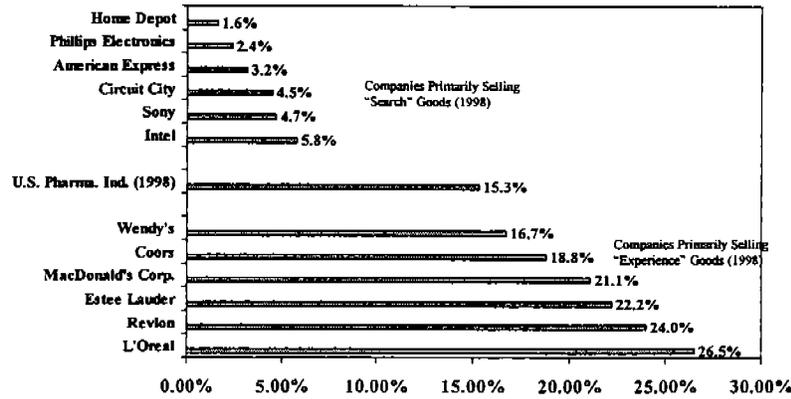
Company data from Advertising Age, Sept. 27, 1999; Pharmaceutical Industry data from CMR and Scott-Levin.

DTC Spending and Sales for Selected Classes

Drug Class	1999 DTC $	%Δ Sales 99-00
Antidepressants	$31.7 million	20.9%
Antihistamine	$237 million	26.0%
Cholesterol	$91.8 million	27.4%
Nasal Sprays	$115.2 million	17.9%
Oral Contracept.	$50.1 million	14.6%
PPI	$80.2 million	20.0%

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Cholesterol DTC Spending and Sales Growth '99-'00

Drug	Approve/Yr	DTC $ '99	%Δ sales
Lescol	1993	0	-6.7%
Lipitor	1996	$55 million	32.3%
Mevacor	1991	0	38.8%
Pravachol	1991	0	16.0%
Zocor	1991	$35 million	22.2%

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Antidepressant DTC Spending and Sales Growth '99-'00

Drug	Approve/Yr	DTC$ '99	%Δ Sales
Celexa	1999	0	106.1%
Effexor	1993	~0	63.8%
Paxil	1992	$32 million	24.5%
Prozac	1987	$1.5 million	4.9%
Zoloft	1991	0	14.2%

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Determinants of DTC Spending

Variable	Any Spending (standard error)	Ln Spending (standard error)
Time Left Patent	0.0013(0.0006)	0.020 (0.001)
(Time Left)^2	$-3.20e^{-7}(1.16e^{-7})$	$3.5e^{-7}$ ($9.3e^{-7}$)
FDA Guideline	-0.041 (2.87)	2.79 (3.43)
FDA x Time	-0.003 (0.211)	-0.21 (0.27)
Media Price	-0.022 (1.27)	-0.42 (0.43)
Order Entry	0.227 (1.27)	-1.87 (0.92)
(Order Entry)^2	0.002 (0.187)	0.27 (0.13)
Intercept	2.753 (67.09)	76.75 (86.37)
R Square	0.16	0.29
F/Wald Test	47.88	19.02

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Consumer Awareness of DTCA

Exhibit 10: Public Awareness of DTCA, 1993-2000

Percent saying they had seen or heard an ad for a prescription medication

Year	Percent
1993 (1)	39%
1997 (2)	63%
1998 (3)	70%
1999 (4)	81%
2000 (5)	91%
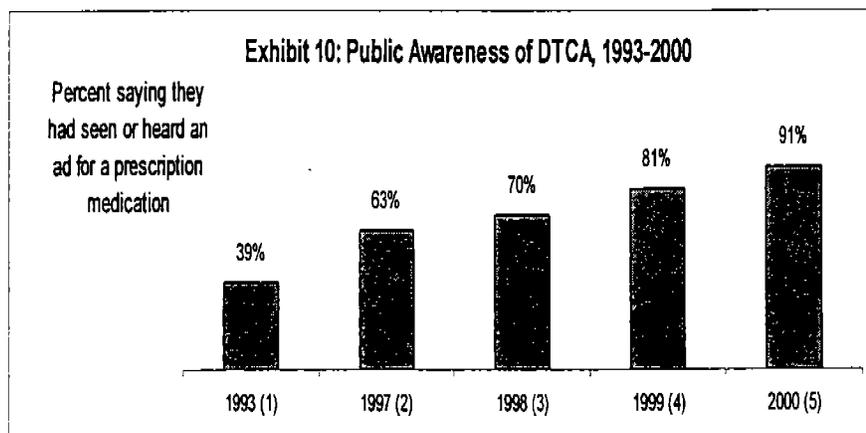
1) Alperstein, Neil and Mark Peyrot. Consumer Awareness of Prescription Drug Advertising. *Journal of Advertising Research* (Jul/Aug) 1993.

(2) *Prevention Magazine* Survey 1997.

(3) *Prevention Magazine* Survey 1998.

(4) *Prevention Magazine* Survey April 1999.

(5) Jim Lehrer Newshour/ Kaiser Family Foundation/Harvard School of Public Health Survey September 2000.

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Consumer's Experience with Physician Responses

MD Welcomed My Rx Question   81%

MD Discussed the Rx With Me   79%

MD Mentioned an Alternative   54%
(Non-Rx) Treatment
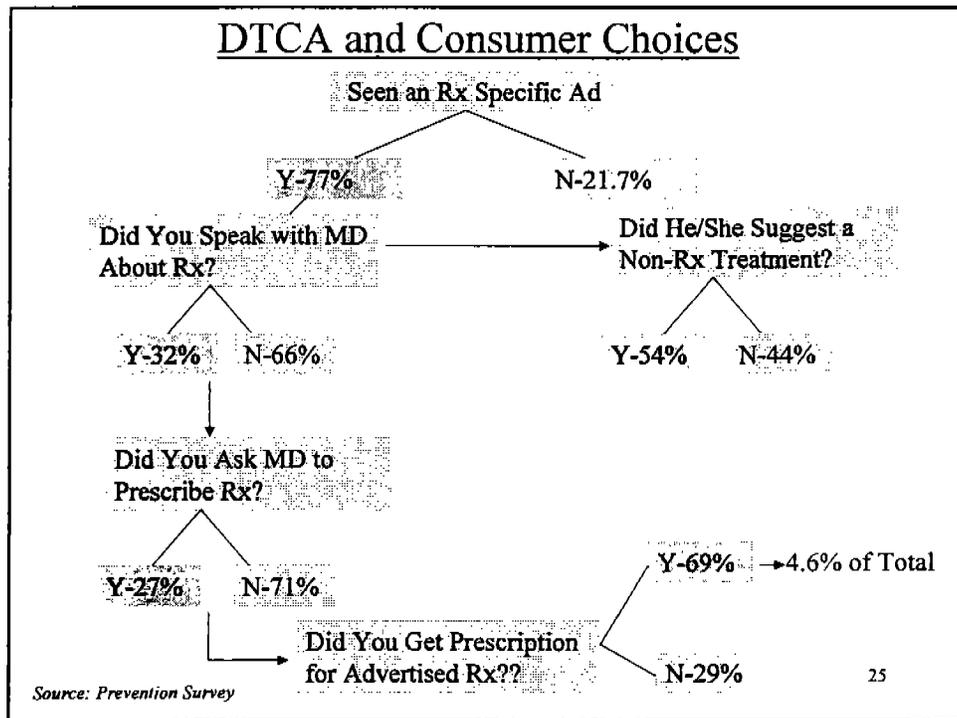
Sources: FDA Survey and Prevention Survey

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Consumer Responses

	Agree	Disagree
Advertisements Make Drugs Seem Better Than They Are	58%	25%
Advertisements Help Me Make Better Choices	46%	37%
Advertisements Do Not Give Enough Information on Risks – Negative Impacts	58%	30%
Advertisements Don't Give Enough Information on Benefits	46%	41%

Source: Prevention Survey

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DTCA and Consumer Choices

Seen an Rx Specific Ad

Y-77%   N-21.7%

Did You Speak with MD ————————→ Did He/She Suggest a
About Rx?   Non-Rx Treatment?

Y-32%   N-66%   Y-54%   N-44%

Did You Ask MD to
Prescribe Rx?

                                                      Y-69% →4.6% of Total

Y-27%   N-71%

            Did You Get Prescription
            for Advertised Rx??   N-29%   25

Source: Prevention Survey

Knowledge and Consumer Action

- Nearly 30% of Consumers Seeing At Least One Specific Ad Did Not Know What Illnesses Any of the Drugs Treated

- People With Conditions Treated By Advertised Drugs Were More Likely to Ask MD About Drug and Ask for Drug

- People That Know Conditions Treated By Advertised Drugs Were More Likely to Ask MD About Drugs and Ask For Drugs

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Reduced Form Product Quantity

Variable	Ln (Product Quantity)
Time Left Patent	0.0004 (0.0001)
$(\text{Time Left})^2$	-9.11e^{-8} (1.9e^{-8})
FDA Guideline	0.308 (0.716)
FDA x Time	-0.027 (0.058)
Media Price	0.021 (0.120)
Order Entry	0.727 (0.095)
Intercept	28.16
R Square	0.67
F	184
N	986

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Conclusions

- DTCA Has Grown Rapidly But Remains Small Part of Promotion

- Promotional Share of Drug Dollar Has Not Changed Much

- FDA Actions Facilitated Existing Trends But Did Not Create Trend

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Conclusions

- Awareness is High and Has Affected MD – Patient Interactions – Generally for the Good

- Consumers Appear to be Somewhat Skeptical About Balance of Information in Ads

- Impact on Overall Demand and Appropriateness Needs to be Assessed

- Comparison & Contrast with Recent Hospital Advertising (Barro-Chu [2002])

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