

Media Category

- Refers to the group of vehicle types (e.g. publications, programs, directories, web sites) used to distribute advertising messages.

- Typical US Media Categories

- Magazines**

- Business Press

- National Newspapers

- News Supplements

- Local Newspapers

- Network TV

- Spot TV

- Cable TV

- Network Radio

- Spot Radio

- Outdoor

- Direct Mail

- Directories

- Specialty

- Cinema

- Web/Online

- Custom Medium

National Ad Spending by Media

Media	Advertising Expenditures		Medium as % of Total
	1998 (000,000s)	%chg	1998
Magazines	\$13,780.2	8.5	6.8
Sunday magazines	1,029.4	1.3	0.5
Newspapers	16,130.9	8.0	8.0
National Newspapers	2,658.2	6.0	1.3
Outdoor	1,727.0	18.1	0.9
Network TV	16,272.0	6.9	8.1
Spot TV	15,486.8	6.6	7.7
Syndicated TV	2,691.6	7.0	1.3
Cable TV networks	6,672.0	15.4	3.3
Network radio	824.0	-4.8	0.4
National spot radio	2,039.0	21.1	1.0
Internet	1,050.0	75.0	0.5
Yellow Pages	11,990.0	5.0	5.9
Total	201,594.0	7.5	100.0

Source: Adapted from *Advertising Age*, September 27, 1999.

Top 10 Magazine Advertisers

Rank 1999	Advertiser	Magazine Advertising 1999 (000,000s)	%chg
1	General Motors Corp.	\$443.5	-24.6
2	Procter & Gamble Co.	390.6	7.5
3	Philip Morris Cos.	370.9	7.4
4	DaimlerChrysler	333.3	-6.7
5	Ford Motor Co.	305.0	1.3
6	Toyota Motor Corp.	171.2	14.8
7	Time Warner	169.4	-3.3
8	Unilever	167.2	27.6
9	L'Oreal	130.6	26.4
10	Sony Corp.	123.3	21.5

Source: Adapted from *Advertising Age*, September 27, 1999.

Magazine Strengths

- Selective audience
- Geographic editions
- High-fidelity color reproduction
- Long issue life
- Pass-along audience (included in readership estimates)
- Controlled circulation of many business magazines

Media Vehicles

- Refers to individual message carriers within a media category.
Some examples:

Media Category

-Magazines

- Business Press
- National Newspapers
- News Supplements
- Local Newspapers
- Network TV
- Spot TV
- Cable TV

Vehicles

-TV Guide, Time, Glamour

- Advertising Age, Marketing News*
- USA Today, Wall Street Journal*
- Parade, Sunday, USA Weekend*
- Orlando Sentinel, Miami Herald*
- ER, Seinfeld
- TV20 News
- South Park, Biography

Message versus Vehicle Audience

- Message audience refers to individuals who see a particular advertisement.
- Typically this is a smaller group than those exposed to the vehicle carrying the message.
- Print media example:
 - Media Category = Magazines
 - Vehicle = *TV Guide*
 - Message = Full-page, four-color ad for SlimFast
- Electronic media example:
 - Media Category = Network Cable Television
 - Vehicle = Comedy Central's South Park
 - Message = 30-second Snapple commercial

Sample Magazine Plan

- Advertiser = Dannon Light Yogurt (See Sample Media Evaluation)
- Target = 192,031,000 US Adults
- Time Frame = January
- Message = Full-Page, Four-Color
- Message Exposure Probability = 45.6, G&R
- Ratings Source = Simmons
- Cost Source = SRDS or MGM

<u>Vehicles</u>	<u>Ratings</u>	<u>Page Cost</u>	<u>Ads</u>
<i>TV Guide</i>	22.97	\$155,200	4
<i>People</i>	19.94	\$131,500	4

Time Frame

- Indicates the period over which a media plan is evaluated.
- Long time frames (e.g., quarterly, yearly) tend to inflate reach and frequency in comparison to current audience exposure levels.
- Monthly, weekly or daily time frames typically support forecasts, since they account for:
 - Target audience forgetting
 - Competitive advertising activity
 - Message quality and effects

Vehicle Ratings

- Percent of target audience exposed to a media vehicle
- One rating point = 1% of target audience
- “Reach” of a single use of a particular media vehicle
- Available from syndicated research services
 - Arbitron (*radio*)
 - MediaMark Research, Inc. (*multi-media*)
 - Mendelsohn (*multi-media*)
 - Nielsen (*television*)
 - RADAR (*network radio*)
 - Scarborough (*multi-media*)
 - Simmons Market Research Bureau (*multi-media*)**
 - Strategic Accuratings (*radio*)

Calculating Vehicle Ratings

- Print vehicle audiences sometimes are presented as total publication issue readership
- Ratings must then be computed
- Vehicle Rating = (Vehicle Readership / Target Audience Size) × 100

TV Guide

$$22.97 = (44.118 \text{ million} / 192.031 \text{ million}) \times 100$$

People

$$19.94 = (38.297 \text{ million} / 192.031 \text{ million}) \times 100$$

Vehicle Ratings in a Sentence

According to Simmons, approximately 22.97 percent of US adults are exposed to the typical issue of the *TV Guide*.

SMRB estimates that 19.94 percent of US adults are exposed to the typical issue of the *People*.

Advertisement Cost

- Expense of a single advertisement
- One-time (*Iti*) or discounted
- Reflects audience, size, position, color, length, etc.
- Available from several sources
 - Agency cost guides
 - Bacon's Directories
 - Marketer's Guide to Media***
 - Media Market Guide*
 - Media vehicles directly
 - Standard Rate and Data Service (SRDS)

Ad Cost in a Sentence

Each full-page, four-color advertisement in *TV Guide* costs \$155,200.

Each full-page, four-color advertisement in *People* costs \$131,500.

Message-Vehicle Ratio

- Percent of target audience exposed to media vehicle who also are exposed to advertisement
- Used to estimate message ratings from vehicle ratings
- Available from syndicated research services
 - **Gallup & Robinson (print and broadcast)**
 - Harvey Research Organization (print)
 - Newspaper Association of America (newspaper)
 - Nielsen (television)
 - Readex (print)
 - Roper-Starch Worldwide (print)
 - Simmons Market Research Bureau (television)

Message-Vehicle Ratio in a Sentence

Approximately 45.6 percent of US adults who are exposed to the typical magazine issue in this schedule also are exposed to the typical full-page, four-color advertisement that it contains.

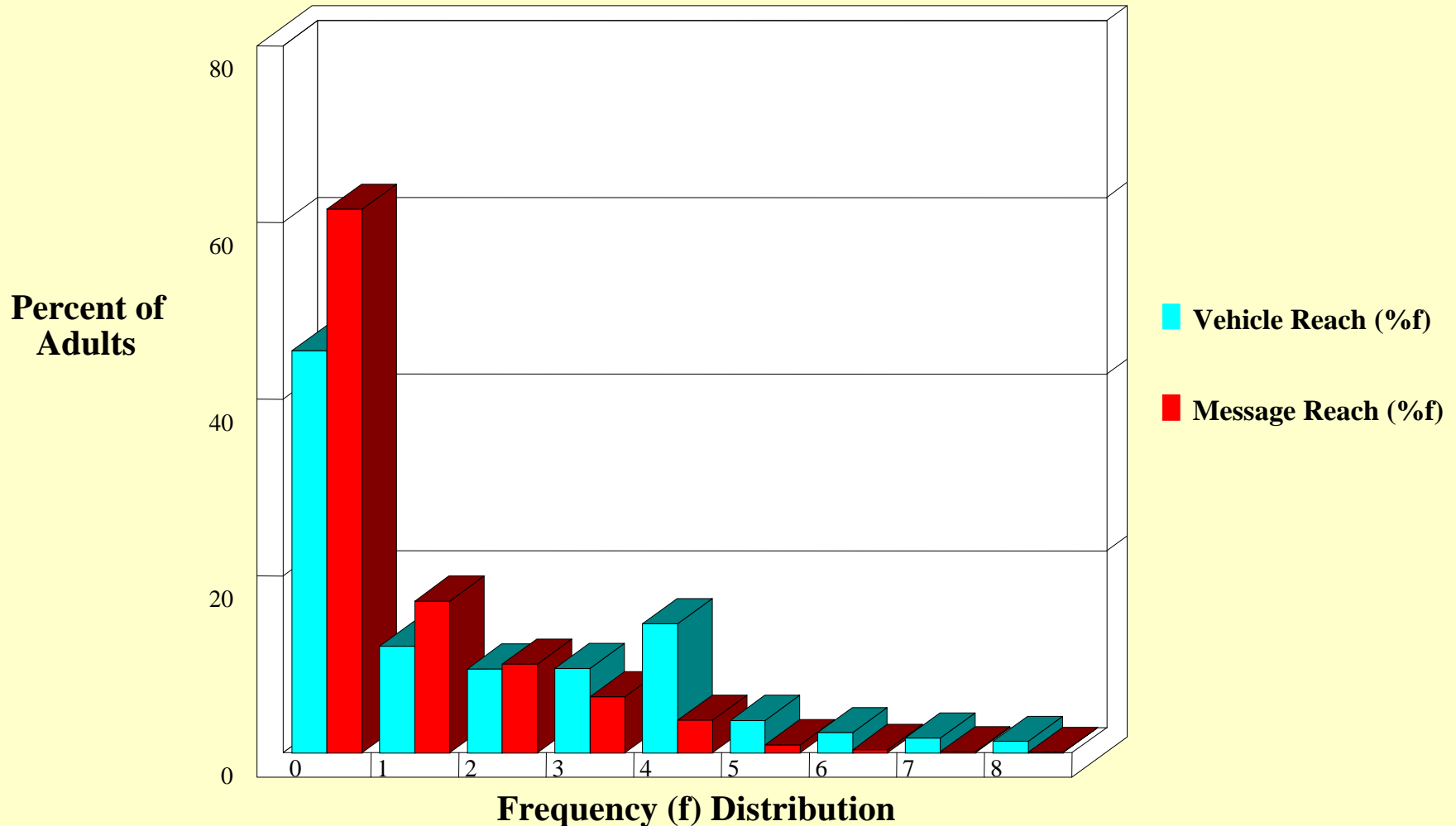
Frequency (f) Distributions (Table)

Frequency (f) Distributions

	Vehicle		Message	
f	% f	% f+	% f	% f+
0	45.5	100.0	61.5	100.0
1	12.1	54.5	17.2	38.5
2	9.5	42.4	10.0	21.4
3	9.5	33.0	6.3	11.3
4	14.6	23.4	3.7	5.0
5	3.7	8.9	0.9	1.4
6	2.3	5.2	0.3	0.5
7	1.6	2.9	0.1	0.2
8	1.3	1.3	0.0	0.0

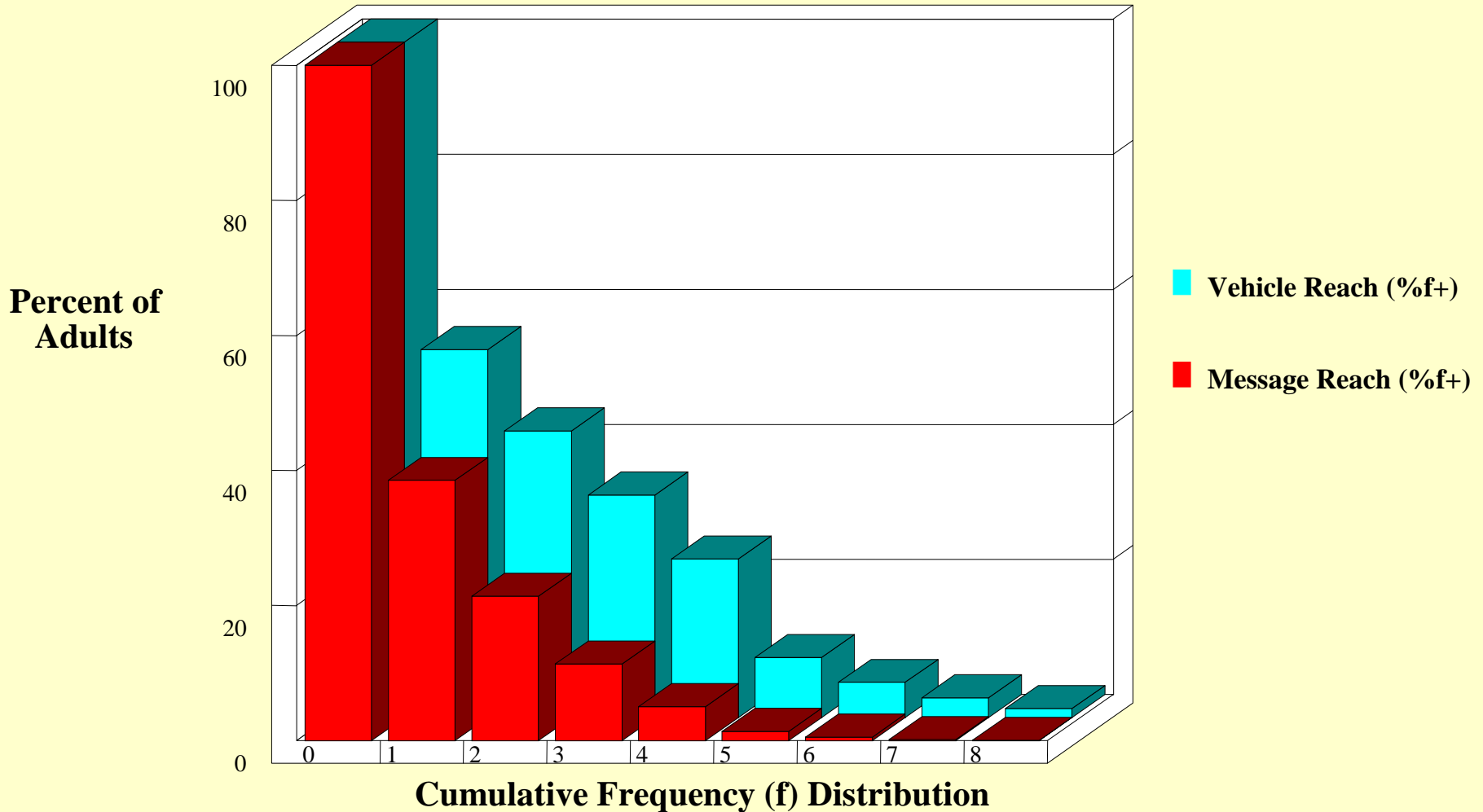
Visual Frequency Distribution

Magazines, Typical Month (\$1,146,800)



Visual Cumulative Distribution

Magazines, Typical Month (\$1,146,800)



Frequency Distributions

- Show portions of target audience exposed to various repetitions of vehicles or messages in a plan
- f ranges from 0 through total insertions in a schedule, typically truncated at 10 or 20 or more uses
- $\%f$ columns show percent of target audience exposed to vehicles or messages at selected row frequency
- $\%f+$ columns show percent of target audience exposed to vehicles or messages at selected row frequency and higher

Row $f=0$ in Sentences

- 45.5 percent of US adults are not exposed to any magazine issues in the plan
- 100.0 percent of US adults are exposed to zero or more magazine issues in the plan
- 61.5 percent of US adults are not exposed to any advertisements in the plan
- 100.0 percent of US adults are exposed to zero or more advertisements in the plan

Row $f=1$ in Sentences

- 12.1 percent of US adults are exposed to one magazine issue in the plan
- 54.5 percent of US adults are exposed to one or more magazine issues in the plan
- 17.2 percent of US adults are exposed to one advertisement in the plan
- 38.5 percent of US adults are exposed to one or more advertisements in the plan

Row $f=3$ in Sentences

- 9.5 percent of US adults are exposed to three magazine issues in the plan
- 33.0 percent of US adults are exposed to three or more magazine issues in the plan
- 6.3 percent of US adults are exposed to three advertisements in the plan
- 11.3 percent of US adults are exposed to three or more advertisements in the plan

Frequency Distribution Logic

- Cumulative ($\%f+$) and non-cumulative ($\%f$) distributions are linked.
- $\%f$ column adds to 100
- $\%f+$ column starts at 100
- $\%f+ = \%f + \%(f+1) + \dots + \%(f=\text{Total Ads})$

Frequency Distribution Logic

- $\%f$ column adds to 100

To find only one missing $\%f$, subtract sum of known $\%fs$ from 100.

- $\%f+ = \%f + \%(f+1) + \dots + \%(f=\text{Total Ads})$

To find more than one missing $\%f$, subtract sum of known $\%fs$ from known $\%f+$ that includes only one missing $\%f$.

Frequency Distribution Logic

(See Dannon Example, Missing Values)

Vehicle Distributions (*work from bottom up*):

- $\%(f=8) = 1.3 = \%(f=8+)$
- $\%(f=7+) = 2.9 = 1.6 + 1.3$
- $\%(f=6) = 2.3 = 5.2 - 2.9$
- $\%(f=5+) = 8.9 = 3.7 + 5.2$
- $\%(f=4) = 14.5 = 23.4 - 8.9$
- $\%(f=3+) = 32.9 = 9.5 + 23.4$
- $\%(f=2) = 9.5 = 42.4 - 32.9$
- $\%(f=1+) = 54.5 = 12.1 + 42.4$
- $\%(f=0) = 45.5 = 100.0 - 54.5$

Frequency Distribution Logic

(See Dannon Example, Missing Values)

Message Distributions (*work from bottom up*):

- $\%(f=8+) = 0.0 = \%(f=8)$
- $\%(f=7) = 0.2 = 0.2 - 0.0$
- $\%(f=6+) = 0.5 = 0.3 + 0.2$
- $\%(f=5) = 0.9 = 1.4 - 0.5$
- $\%(f=4+) = 5.1 = 3.7 + 1.4$
- $\%(f=3) = 6.2 = 11.3 - 5.1$
- $\%(f=2+) = 21.3 = 10.0 + 11.3$
- $\%(f=1) = 17.2 = 38.5 - 21.3$
- $\%(f=0) = 61.5 = 100.0 - 38.5$

Summary Evaluation

Summary Evaluation -----	Vehicle -----	Message -----
Reach 1+ (%)	54.5%	38.5%
Reach 1+ (000s)	104,662.2	73,960.2
Reach 3+ (%)	33.0%	11.3%
Reach 3+ (000s)	63,310.8	21,778.3
Gross rating points (GRPs)	171.6	78.3
Gross impressions (000s)	329,602.0	150,298.5
Average frequency (f)	3.1	2.0
Cost-per-thousand (CPM)	3.48	7.63
Cost-per-rating point (CPP)	6,681	14,652
Cost-per-net reach point (CPRP)	21,041	29,776
Cost-per-response (CPR)	0.01	0.02

Reach 1+ (%), (000s)

- Percent (or number) of unique target audience members exposed at least once to vehicles or messages in a schedule
- One reach (1+) point = 1% of target audience (base)
- Accounts for duplication within and between vehicles
- Target members exposed multiple times are counted once
- Reach estimates based on:
 - Ratings (single-insertion and pair-wise)
 - Insertions (uses, ads)
 - Message/vehicle ratio
 - Beta binomial matrix model (BBMD)

Reach (1+) in a Sentence

It is estimated that 54.5 percent of US adults (or 104,662,200) will be exposed to one or more of the eight weekly magazine issues in the schedule.

Approximately 38.5 percent of US adults (or 73,960,200) will be exposed to one or more of the eight full-page, four-color advertisements in the schedule.

Reach 3+ (%), (000s)

- Percent (or number) of unique target audience members exposed at least three times to vehicles or messages in a schedule
- One reach (3+) point = 1% of target audience (base)
- Accounts for duplication within and between vehicles
- Target members exposed three or more times counted once
- Reach (3+) obtained from exposure distributions based on:
 - Ratings (single-insertion and pair-wise)
 - Insertions (uses, ads)
 - Message/vehicle ratio
 - Beta binomial matrix model (BBMD)

Reach (3+) in a Sentence

It is estimated that 33.0 percent of US adults (or 63,310,800) will be exposed to three or more of the eight weekly magazine issues in the schedule.

Approximately 11.3 percent of US adults (or 21,778,300) will be exposed to three or more of the eight full-page, four-color advertisements in the schedule.

Gross Rating Points

- Sum of all ratings delivered by a schedule
- One rating point = 1% of target audience (base)
- Ignores duplication within and between vehicles
- Can include single target member multiple times

- Vehicle:

$GRPs = \text{sum of all ratings} \times \text{ads (insertions)}$

$$171.6 = (22.97 \times 4) + (19.94 \times 4)$$

- Message:

$GRPs = \text{vehicle GRPs} \times (\text{message-vehicle ratio}/100)$

$$78.3 = 171.6 \times (45.6/100)$$

$$78.3 = 171.6 \times 0.456$$

GRPs in a Sentence

Combined, the eight insertions in two weekly publications will deliver 171.6 total or duplicated magazine issue rating points against US adults.

This media schedule, consisting of eight full-page, four-color advertisements in two weekly magazines, is estimated to deliver 78.3 gross or duplicated message rating points against US adults.

Gross Impressions

- Express Gross Rating Points (GRPs) as a raw number
- Typically computed in thousands (000s)
- Ignores duplication within and between vehicles
- Can include single target member multiple times
- Vehicle:

$$\text{GI(000s)} = (\text{GRPs}/100) \times (\text{Target Audience Size}/1000)$$

$$329,602.0 \approx (171.6/100) \times (192,031,000/1000)$$

(GRPs rounded down)

$$329,602.0 \approx 1.716 \times 192,031 \text{ (GRPs rounded down)}$$

- Message:

$$\text{GI(000s)} = \text{vehicle GIs} \times (\text{message-vehicle ratio}/100)$$

$$150,298.5 = 329,602.0 \times (45.6/100)$$

$$150,298.5 = 329,602.0 \times .456$$

GIs in a Sentence

Combined, the eight insertions in two weekly publications will deliver 329,602,000 total or duplicated magazine issue exposures against US adults.

The eight full-page, four-color advertisements in two weekly magazines are estimated to deliver 150,298,500 gross or duplicated message exposures against US adults.

Average Frequency

- Mean number of times target members reached (1+) by a schedule are exposed to vehicles or messages
- Must be between 1.0 and total uses in schedule
- If 1.0, then no duplication
- If equal to total uses, then complete duplication
- Vehicle:
$$\text{Average Frequency} = \text{GRPs} / \text{Reach (1+)}$$
$$3.1 = 171.6 / 54.5$$
- Message:
$$\text{Average Frequency} = \text{GRPs} / \text{Reach (1+)}$$
$$2.0 = 78.3 / 38.5$$

Average Frequency in a Sentence

The 54.5 percent of US adults reached by any of the eight magazine issues in the plan are exposed to an average of 3.1 of them.

The 38.5 percent of US adults reached by any of the eight advertisements in the plan are exposed to an average of 2.0 of them.

Cost-per-thousand

- Expense of one thousand vehicle or message impressions for plans or individual vehicles
- Relative measure of efficiency
- Plan Vehicles:

$$\text{CPM} = \text{Plan Cost} / \text{Plan Vehicle GI(000s)}$$

$$\$3.48 = \$1,146,800 / 329,602.0$$

- Plan Messages:

$$\text{CPM} = \text{Plan Cost} / \text{Plan Message GI(000s)}$$

$$\$7.63 = \$1,146,800 / 150,298.5$$

Cost-per-thousand

- Messages within Vehicles: CPM-MSG =

$$\frac{\text{Vehicle Cost}}{(\text{Rating}/100) \times \text{Target}(000\text{s}) \times (\text{M-V Ratio}/100)}$$

TV Guide:

$$\$7.72 = \frac{\$155,200}{(.2297 \times 192,031 \times .456)}$$

People:

$$\$7.53 = \frac{\$131,500}{(.1994 \times 192,031 \times .456)}$$

Plan CPM in a Sentence

It costs \$3.48 to obtain one thousand US adult exposures to any of the eight magazine issues in this plan.

It costs \$7.63 to obtain one thousand US adult exposures to any of the eight advertisements in this plan.

CPM-MSG in a Sentence

It costs \$7.72 to obtain one thousand US adult exposures to the typical full-page, four-color advertisement in *TV Guide* magazine.

It costs \$7.53 to obtain one thousand US adult exposures to the typical full-page, four-color advertisement in *People* magazine.

Cost-per-point

- Expense of one vehicle or message GRP against the target audience
- Relative measure of efficiency
- Plan Vehicles:

$CPP = \text{Plan Cost} / \text{Plan Vehicle GRPs}$

$\$6,681 \approx \$1,146,800 / 171.6$ (*GRPs rounded down*)

- Plan Messages:

$CPP = \text{Plan Cost} / \text{Plan Message GRPs}$

$\$14,652 \approx \$1,146,800 / 78.3$ (*GRPs rounded up*)

Plan CPP in a Sentence

It costs \$6,681 to expose one GRP against US adults to any of the eight magazine issues in this plan.

It costs \$14,652 to expose one GRP against US adults to any of the eight advertisements in this plan.

Cost-per-net reach point (CPRP)

- Expense of one vehicle or message reach (1+) point against the target audience
- Relative measure of efficiency

- Plan Vehicles:

$$\text{CPRP} = \text{Plan Cost} / \text{Plan Vehicle Reach (1+)}$$

$$\$21,041 \approx \$1,146,800 / 54.5 \text{ (Reach 1+ rounded down)}$$

- Plan Messages:

$$\text{CPRP} = \text{Plan Cost} / \text{Plan Message Reach (1+)}$$

$$\$29,776 \approx \$1,146,800 / 38.5 \text{ (Reach 1+ rounded down)}$$

CPRP in a Sentence

It costs \$21,041 to reach one percent of US adults with the typical magazine issue in this plan.

It costs \$29,776 to reach one percent of US adults with the typical full-page, four-color advertisement in this plan.

Cost-per-response (CPR)

- Expense of exposing one target audience member to vehicles or messages in a plan

- Relative measure of efficiency

- Plan Vehicles:

$$\text{CPR} = \text{Plan Cost} / \text{Plan Vehicle Reach } 1+ (\#)$$

$$\$0.01 = \$1,146,800 / 104,662,200$$

- Plan Messages:

$$\text{CPR} = \text{Plan Cost} / \text{Plan Message Reach } 1+ (\#)$$

$$\$0.02 \approx \$1,146,800 / 73,960,200$$

(CPR is rounded up)

CPR in a Sentence

It costs one cent to reach one US adult with the typical magazine issue in this plan.

It costs two cents to reach one US adult with the typical full-page, four-color advertisement in this plan.

Mix Percent

- Percentage of schedule total cost devoted to a particular media category or vehicle
- Describes media mix as proportions of total cost
- TV Guide:*

$$\text{Mix} = (\text{Vehicle Total Cost} / \text{Schedule Total Cost}) \times 100$$

$$54.1 = (\$620,800 / \$1,146,800) \times 100$$

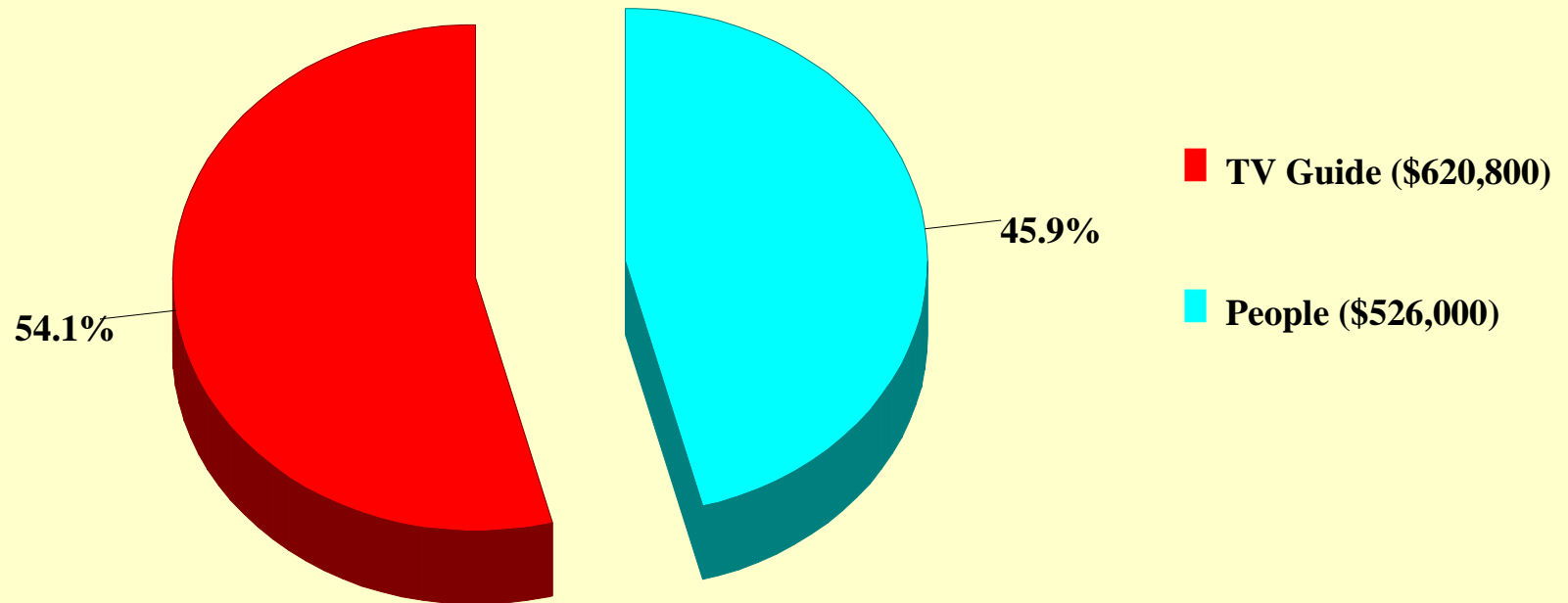
- People:*

$$\text{Mix} = (\text{Vehicle Total Cost} / \text{Schedule Total Cost}) \times 100$$

$$45.9 = (\$526,000 / \$1,146,800) \times 100$$

Visual Media Mix

Magazines Cost, \$1,146,800, Adults, Typical Month



Mix % in a Sentence

TV Guide magazine accounts for 54.1 percent of the schedule's total cost.

People magazine accounts for 45.9 percent of the schedule's total cost.

Sample Media Evaluation

Short Answer Question 2

Question 2: If message effective reach (2+) is correlated with recall, what would a tracking study show after the campaign as the approximate recall level of this schedule as a percent of the target? Briefly explain.

Answer: 21.4% of US adults are exposed to two or more messages within the month of January. Since effective reach 2+ is correlated with recall, it is estimated that approximately 21.4% of US adults will recall the Dannon advertisements at the end of the campaign.

Vehicle Diagnostics

		2-Use/X-Pair			

Vehicle List	Rating	Reach/Source	Ads	Total	
-----	-----	-----	---	-----	
TV Guide	22.97	29.66 - E	4	36.0	
People	19.94	26.31 - E	4	32.5	
			-----	-----	
Total			8	54.5	

Cross(X)-Pair

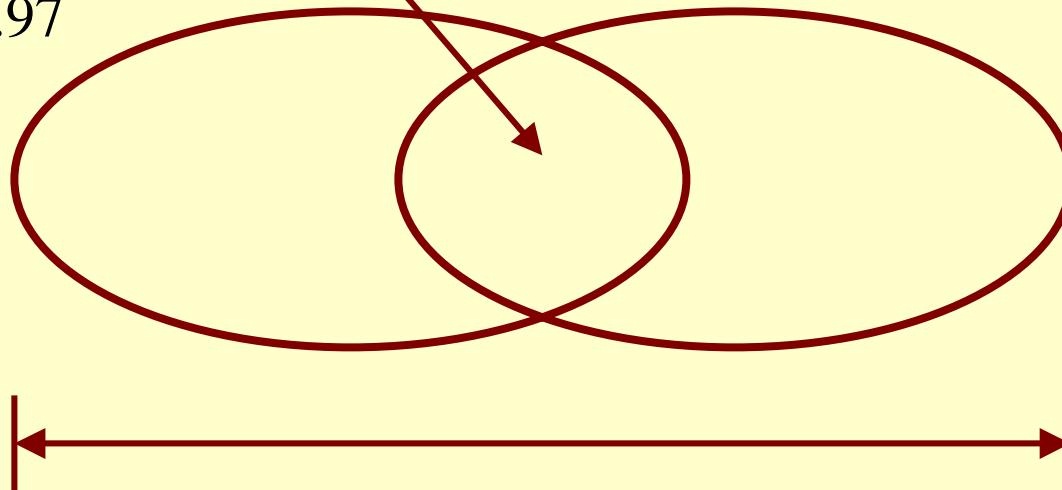
TV Guide - People 34.47 - E

Self-pair (2-Use) Reach

TV Guide
Rating = 22.97
Use 1

$$\text{Duplication} = \text{GRPs} - \text{Reach}$$
$$16.28 = (2 \times 22.97) - 29.66$$

TV Guide
Rating = 22.97
Use 2



2-Use Reach = 29.66

Source: Simmons, Volume M-4

Self-pair (2-Use) Reach in a Sentence

Approximately 29.66 percent of US adults are reached by two typical issues of *TV Guide*.

Approximately 26.31 percent of US adults are reached by two typical issues of *People*.

Cross(X)-pair Reach

Duplication = GRPs - Reach

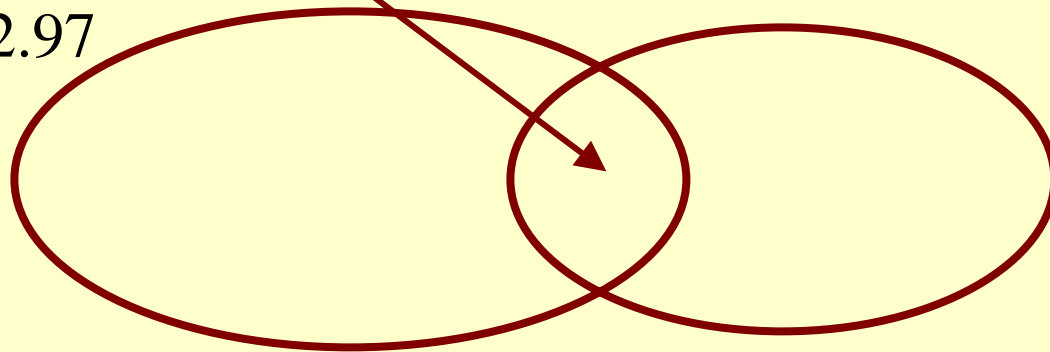
$$8.44 = (22.97 + 19.94) - 34.47$$

TV Guide

Rating = 22.97

People

Rating = 19.94



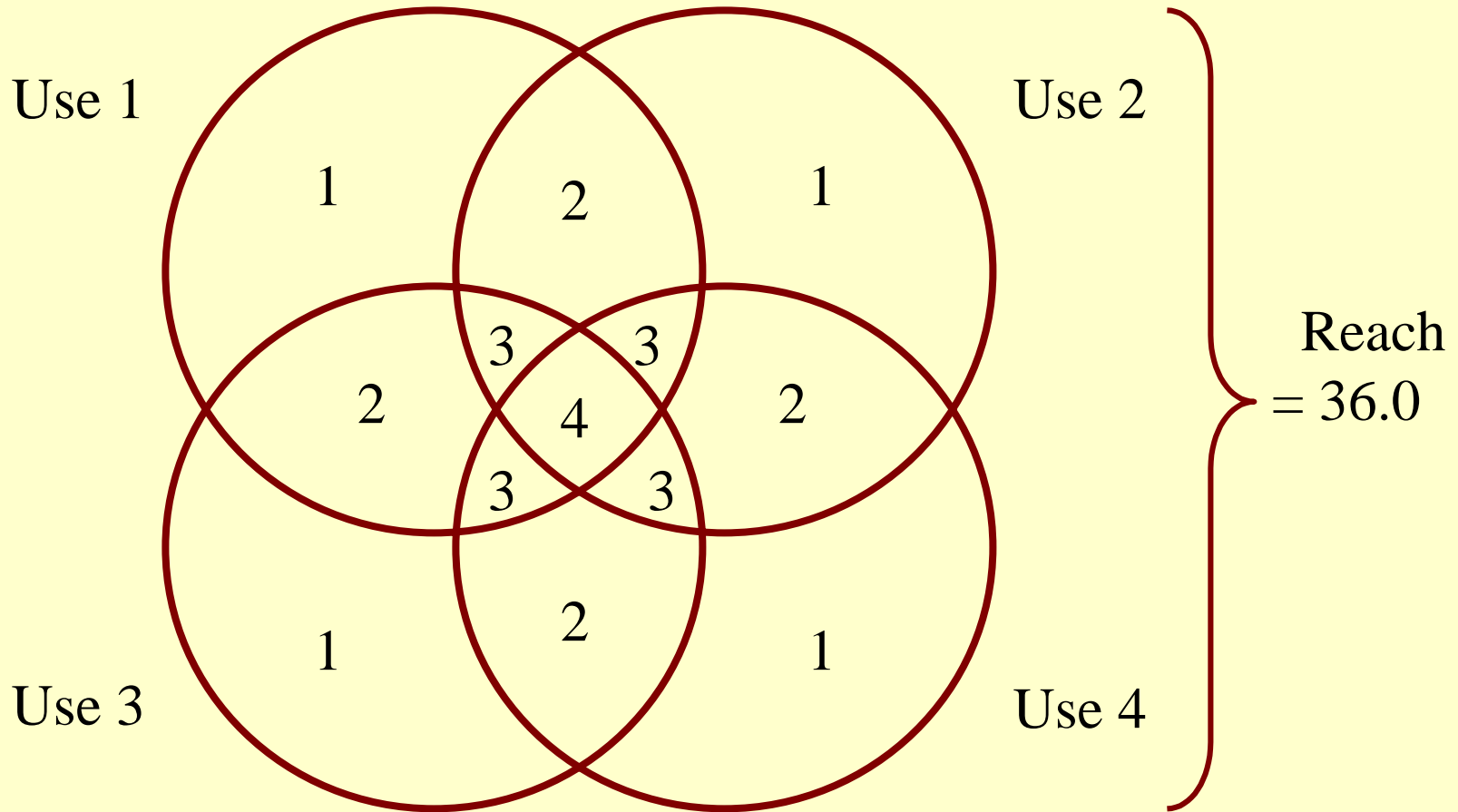
X-pair Reach = 34.47

Source: Simmons Volume, M-4

Cross(X)-pair Reach in a Sentence

Approximately 34.47 percent of US adults are reached by one typical issue of *TV Guide* plus one of *People*.

TV Guide Distribution



Quintile Analysis of Vehicle Reach (Table)

Vehicle Quintiles	Reach %	Frequency		GRPs	
		#	Index	#	%
Heaviest 20%	10.9	5.7	180	61.9	36.1
Next 20%	10.9	4.0	127	43.6	25.4
Next 20%	10.9	3.2	100	34.3	20.0
Next 20%	10.9	1.9	61	20.9	12.2
Lightest 20%	10.9	1.0	32	10.9	6.4
Total	54.5	3.1	100	171.6	100.0

Quintile Analysis of Vehicle Reach in Sentences

The heaviest vehicle reach quintile:

- Contains US adults exposed to the largest number of the magazine issues in this plan.
- Includes 10.9 percent of US adults.
- Was exposed to an average of 5.7 magazine issues.
- Had 80 percent greater average vehicle frequency (5.7) than the mean (3.1) for all US adults reached by this plan.
- Accounts for 61.9 magazine GRPs.
- Accounts for 36.1 percent of all magazine GRPs delivered by this plan.

Quintile Analysis of Message Reach (Table)

Vehicle Quintiles	Reach %	Frequency		GRPs	
		#	Index	#	%
Heaviest 20%	7.7	3.9	193	30.2	38.5
Next 20%	7.7	2.5	122	19.0	24.3
Next 20%	7.7	1.8	87	13.7	17.4
Next 20%	7.7	1.0	49	7.7	9.8
Lightest 20%	7.7	1.0	49	7.7	9.8
Total	38.5	2.0	100	78.3	100.0

Quintile Analysis of Message Reach in Sentences

The heaviest message reach quintile:

- Contains US adults exposed to the largest number of full-page, four-color advertisements in this plan.
- Includes 7.7 percent of all US adults.
- Was exposed to an average of 3.9 full-page, four-color advertisements.
- Had 93 percent greater average message frequency (3.9) than the mean (2.0) for all US adults reached by this plan.
- Accounts for 30.2 advertisement GRPs.
- Accounts for 38.5 percent of all advertisement GRPs delivered by this plan.