



# Arbitron's Cell Phone Research and Future Plans

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# Agenda

- Headlines
- Defining the issues—stability and sample size
- Calling cell phone users
- Synopsis of previous Arbitron studies
- The Summer 2005 Arbitron Cell Phone-Only Study
- Arbitron's plans for sampling cell phone-only households

# Headlines

- Arbitron studies show we can place diaries with cell phone-only respondents
- Cell phone-only respondents have different listening patterns than landline respondents
- However, when merged with landline respondents, there is little change to audience estimates
- Our goal is to begin adding cell phone-only sample starting in 2008

# Defining the Issues

- The issues are stability and sample size in younger age demos
- Why cell phone sampling is different
  - Legal restrictions
  - Limitations
  - Universe estimates
  - Weighting
  - Other issues
- Latest national estimates of the cell phone-only phenomenon

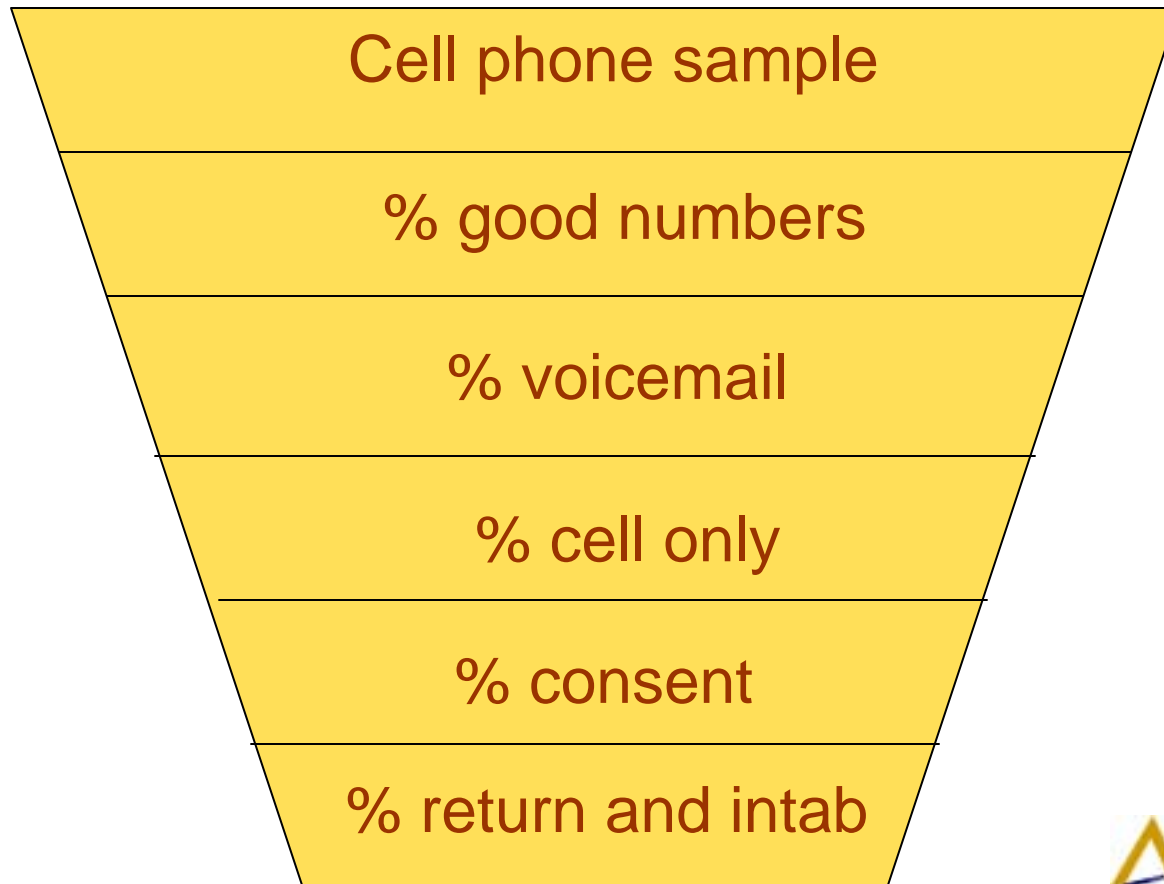
# Legal Restrictions

- Telephone Consumer Protection Act (TCPA) of 1991 governs cell phone calling
- No use of “automatic dialing equipment” for cell phones
  - Exception for previous business relationships
  - No exception for legitimate survey research
- All calling for diary placement must be done by hand

# Limitations

- No preplacements can be mailed
  - No directories exist (urban myth)
    - *Sample must be screened for cell-only households*
    - *We need to ask how many cell phone numbers reach persons 16+ in the household (more on this later)*
    - *We must be cognizant of the cost of the calls to the respondent*

# Screening for Cell Phone-Only



# Universe Estimates

- What percent of the population has no landline but has a cell phone?
  - We have national estimates
- No local estimates exist
- Populations will have to be modeled using national/regional data and Arbitron data from calling

# Weighting

- Probability of selection weighting
- Landline phones are household based
  - Assumed to be one line per household
- Cell phones are personal
  - Multiple phones per household

# Probability of Selection Weighting

- Here's what it means
  - Arbitron samples households
  - With cell phones, many cell phone-only households will have extra chances to be part of the Arbitron sample
  - We must account for this discrepancy in our weighting
  - The net? Diaries from cell-only households with more than one cell phone number will be weighted down

# Other Issues

- How many calls?
- When to call?
- Refusal conversions?
- What is the response rate?
  - Voicemail
  - Phones on and off

# The Scope of the Issue

- What percent of the country is cell only?
- Best data today come from the National Health Interview Survey (NHIS)
- NHIS surveys approximately 40,000 households per year in person
- Questions about the health of Americans
- Telephone availability questions are asked



**Centers for Disease Control and Prevention**  
**National Center for Health Statistics**



# NHIS Results

- For the first half of 2005 (January-June), NHIS reports that 7.4% of households and 6.7% of Adults 18+ were cell only
- Hispanic 8.8%, Black 6.9%, White 6.4%
- Adults 18-24: 16.1%
- Adults 25-34: 8.9%
- Over 7% in every region except the Northeast (4%)
- 24% compound growth rate every six months

# More Government Data

- Consumer Expenditure survey (Bureau of Labor Statistics) says that approximately 6.7% of U.S. households had a cellular telephone bill but didn't pay a landline telephone bill (paper by Tucker, Brick, and Meekins, 2005)
- Arbitron believes that cell-only nationally is about 7% overall and growing

# Arbitron's Cell Phone Studies: A Short History



# Study #1

- Arbitron conducted the first study to call cell phones in the U.S. in October 2002
- Sample size of 200
- Short questionnaire about cell phone usage
- Very few refusals; lots of voicemail
- The result: We could call cell phones

## Study #2

- October 2004
- Revisit earlier work and make a first attempt at placing diaries
  - Longer questionnaire
- Result: Reasonable-length questionnaire can work

## Study #3

- Winter 2005
- First study conducted by an Arbitron phone center
- Goal was to learn the operational issues that arise from sampling cell phone owners
- Standard placement script with additional screening for cell phone-only
- Result: Can be done, but we needed to gain more experience

## Study #4

- Summer 2005, Phases 1 and 2
- Place diaries with cell-only households in six markets
- Determine rough response rates
- Get the first audience data from cell-only persons

# Results



# Sample Performance

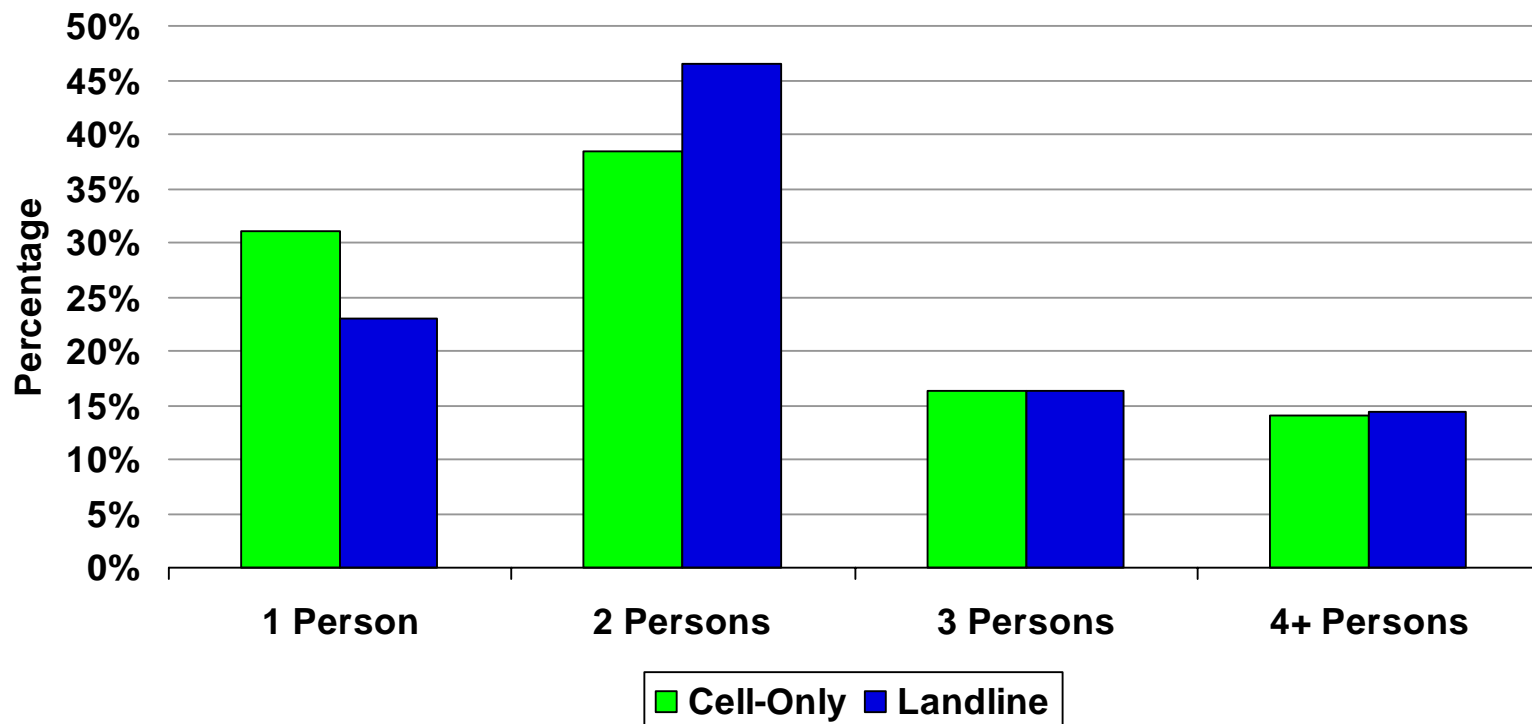
- We called nearly 52,000 cell phone numbers
  - 62% were usable
  - 20% remained unresolved voicemails after eight calling attempts
- 32% of the completed interviews were with cell-only households

**This does not mean 32% of the country is cell phone-only!**

# Sample Performance

- Nearly 17% of the consenting households did not reside in the Metro market where the phone number was based
- The operational return rate was about 35%
  - Lower than standard sample, but not bad
- It would have been nearly 40%, but 249 diaries came from outside the Metros we were calling

# Household Sizes Are Different



# In-Tab Indices: Males

Demo	Actual Proportionality	Cell Phone-Only
Male 12-17	98	46
Male 18-24	57	197
Male 25-34	72	166
Male 35-44	82	74
Male 45-54	114	81
Male 55+	130	36

**Sample Sizes**

Landline: 3,251

Cell-only: 896



# In-Tab Indices: Females

Demo	Actual Proportionality	Cell Phone-Only
Female 12-17	99	89
Female 18-24	64	208
Female 25-34	90	147
Female 35-44	101	76
Female 45-54	128	74
Female 55+	140	30

**Sample Sizes**  
 Landline: 3,832  
 Cell-only: 893



# The Potential Effect on the Index

Demo	Actual Proportionality
Male 18-24	57
Male 25-34	72
Male 35-44	82
Female 18-24	64
Female 25-34	90
Female 35-44	101

# The Potential Effect on the Index

<b>Demo</b>	<b>Actual Proportionality</b>	<b>7% Cell-Only</b>
Male 18-24	57	67
Male 25-34	72	79
Male 35-44	82	81
Female 18-24	64	74
Female 25-34	90	94
Female 35-44	101	99

# The Potential Effect on the Index

<b>Demo</b>	<b>Actual Proportionality</b>	<b>7% Cell-Only</b>	<b>10% Cell-Only</b>
Male 18-24	57	67	71
Male 25-34	72	79	82
Male 35-44	82	81	81
Female 18-24	64	74	78
Female 25-34	90	94	99
Female 35-44	101	99	99

# The Potential Effect on the Index

<b>Demo</b>	<b>Actual Proportionality</b>	<b>7% Cell-Only</b>	<b>10% Cell-Only</b>	<b>15% Cell-Only</b>
Male 18-24	57	67	71	78
Male 25-34	72	79	82	86
Male 35-44	82	81	81	81
Female 18-24	64	74	78	86
Female 25-34	90	94	99	97
Female 35-44	101	99	99	97

# Audience Estimates

- Two ways to view the data
- Landline versus cell-only
- However, in practice, this would not happen
- The relevant comparison is landline versus landline PLUS cell-only
- We'll show some of both
- Overall sample sizes: 7,083 landline; 1,789 cell-only

# 12+ PURs by Daypart

Daypart	Landline	Cell-Only
M-SU 6A-Mid	12.5	14.4
M-F 6A-10A	17.0	19.3
M-F 10A-3P	18.9	21.4
M-F 3P-7P	15.6	18.4
M-F 7P-Mid	5.4	6.1
SA-SU 6A-Mid	8.7	10.5

**Sample Sizes**

Landline: 7,083

Cell-only: 1,789

Overall differences are statistically significant at  $p < .001$  level;  
all dayparts differences are statistically significant

# PURs by Selected Demos

*(All based on M-SU 6A-Mid)*

Demo	Actual	Cell-Only
Male 18-24	13.7 (n=299)	11.7 (n=260)
Male 25-34	13.7 (n=507)	15.4 (n=295)
Male 35-44	14.5 (n=514)	18.0 (n=117)
Female 18-24	12.1 (n=339)	11.3 (n=279)
Female 25-34	11.2 (n=590)	15.2 (n=243)
Female 35-44	11.9 (n=623)	15.9 (n=118)

Differences between F25-34 and F35-44 are statistically significant at  $p < .05$  level

# Comparison: Landline and Cell-Only

- Cell-only listeners spent nearly 11 QHs more with radio on a total week (M-SU 6A-Mid) basis
- Cell-only listeners used more stations (2.9 vs. 2.7)

# Comparison: Landline and Cell-Only

- More listening across all race/ethnic groups
  - Black cell-only: 2.0 rating points higher in total week PUR
  - Hispanic cell-only: 2.1 rating points higher in total week PUR
  - Other cell-only: 1.9 rating points higher in total week PUR

# Rating Difference by Format

*P12+ Total Week (Landline vs. Cell-Only Sample)*

Format	Landline	Cell-Only	Difference
AC	1.4	1.5	+0.1
Alternative	1.1	1.4	+0.3
AOR	1.2	1.7	+0.5
CHR	1.4	2.0	+0.6
Classical	0.4	0.2	-0.2
Country	1.8	2.3	+0.5

**Sample Sizes**  
 Landline: 7,083  
 Cell-only: 1,789

Interaction by format statistically significant at  $p < .001$

# Rating Difference by Format

*P12+ Total Week (Landline vs. Cell-Only Sample)*

Format	Landline	Cell-Only	Difference
News/Talk	1.4	1.2	-0.2
Oldies	0.5	0.6	+0.1
Religious	0.4	0.4	0.0
Spanish	0.7	0.6	-0.1
Urban	0.5	0.6	+0.1
Other	1.3	1.6	+0.3

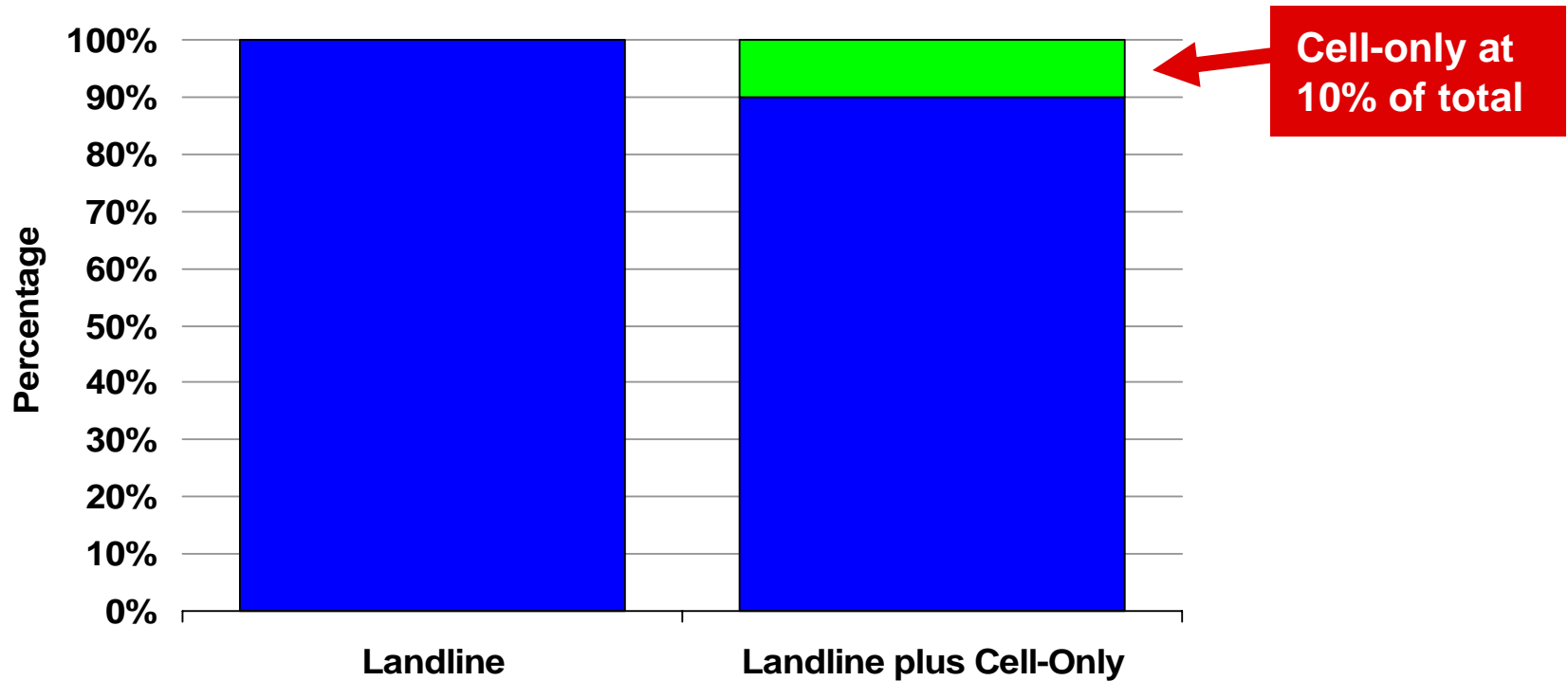
**Sample Sizes**  
 Landline: 7,083  
 Cell-only: 1,789

Interaction by format statistically significant at  $p < .001$

# The Relevant Comparison: Landline PLUS Cell-Only

- We assumed a 10% cell-only universe in the test markets and weighted the data accordingly
- Note: We did not use probability of selection weighting in this analysis

# The Effect of Cell Phones: Assume 10% Cell-Only Sample



# 12+ PURs by Daypart

Daypart	Landline	Landline + Cell-Only
M-SU 6A-Mid	12.5	12.5
M-F 6A-10A	17.0	17.1
M-F 10A-3P	18.9	19.0
M-F 3P-7P	15.6	15.7
M-F 7P-Mid	5.4	5.4
SA-SU 6A-Mid	8.7	8.7

**Sample Sizes**

Landline: 7,083

Landline plus cell-only: 8,872



# Rating Difference by Format

*P12+ Total Week (Landline vs. Landline plus Cell-Only Sample)*

Format	Landline	Landline + Cell-Only	Difference
AC	1.4	1.4	0.0
Alternative	1.1	1.1	0.0
AOR	1.2	1.2	0.0
CHR	1.4	1.5	+0.1
Classical	0.4	0.4	0.0
Country	1.8	1.7	-0.1

**Sample Sizes**

Landline: 7,083

Landline plus cell-only: 8,872



# Rating Difference by Format

*P12+ Total Week (Landline vs. Landline plus Cell-Only Sample)*

Format	Landline	Landline + Cell-Only	Difference
News/Talk	1.4	1.4	0.0
Oldies	0.5	0.5	0.0
Religious	0.4	0.4	0.0
Spanish	0.7	0.7	0.0
Urban	0.5	0.5	0.0
Other	1.3	1.3	0.0

**Sample Sizes**  
 Landline: 7,083  
 Landline plus cell-only: 8,872



# There's More...

- So far, the analysis has been at the 12+ level
- As we've shown, the cell phone-only phenomenon skews young
  - Greater effect on 18-34
- We processed the format data based on Persons 18-34
  - Once again, assuming an overall cell phone-only penetration of 10%

# Rating Difference by Format

*P18-34 Total Week (Landline vs. Landline plus Cell-Only Sample)*

Format	Landline	Landline + Cell-Only	Difference
AC	1.2	1.2	0.0
Alternative	1.8	1.8	0.0
AOR	1.4	1.4	0.0
CHR	2.3	2.4	+0.1
Classical	0.1	0.1	0.0
Country	1.6	1.6	0.0

**Sample Sizes**

Landline: 1,735

Landline plus cell-only: 2,812



# Rating Difference by Format

*P18-34 Total Week (Landline vs. Landline plus Cell-Only Sample)*

Format	Landline	Landline + Cell-Only	Difference
News/Talk	0.8	0.8	0.0
Oldies	0.2	0.2	0.0
Religious	0.3	0.3	0.0
Spanish	1.4	1.2	-0.2
Urban	0.6	0.6	0.0
Other	0.9	0.9	0.0

**Sample Sizes**

Landline: 1,735

Landline plus cell-only: 2,812



# Arbitron's Plans for the Future

- Based on our research, there is a difference in the listening habits of persons in cell-only households
- However, even at a 10% cell-only rate, the effects on the overall estimates are slight
- Arbitron believes the trend is for cell-only growth to continue
- The time is right to start the process to add cell-only sample to the Arbitron sample frame

# Arbitron's Plans for the Future

- Adding cell phone sampling requires multiple changes in our systems
- From a personnel standpoint, the calling volume will increase
  - More interviewers needed
- Systems have to be redesigned for sampling, weighting and reporting

# Arbitron's Plans for the Future

- Universe estimates, response rate calculations have to be devised
- We need to work on the economics of measuring cell phone-only sample
- Response rates will decline
- More testing between now and 2008

# Arbitron's Plans for the Future

- Our goal is to start calling cell phones in some diary markets beginning in 2008
  - PPM<sup>SM</sup> in Houston includes cell-only households
  - PPM going forward will include cell-only households in all new markets
- Graduated rollout over the next couple of years beyond 2008 as our capacity to handle the calling is ramped up and our experience increases

# Arbitron's Plans for the Future

- We believe this will be a key improvement in the quality of the diary service
- As well as a first in U.S. survey research

# Summary

- We've learned a great deal about calling cell phone sample over the past years
- The respondents listen to radio differently
  - Generally listen more
  - May prefer certain formats
- Cell phone numbers will be added to the sample frame in some markets beginning in 2008
  - With more markets rolled out over time

## For More Information Cell Phone Research & Plans

Visit: [www.arbitron.com](http://www.arbitron.com)



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