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Progress Report I:

Cell Phones in the Radio Sample: Challenges and Directions

This is the first in a series of updates on Arbitron's efforts to address the issue of cell-phone-only homes in the sample frame used to produce our radio ratings.

We have witnessed many changes in the telecommunications industry over the past several years. The explosion in the number of cell phone users is one such change. With the increase in cell phones comes another change that could have a significant effect on the survey research industry. Consumers are beginning to "cut the cord," giving up their hard-wired landline and choosing to go with a cell phone as their only telephone service.

The move to total reliance on cell phones has evolved from a curiosity to a full-fledged trend. Arbitron has not only closely followed the growth of cell-phone-only homes for the past three years, but we've also been in the forefront in conducting our own research in analyzing the impact this could have on our radio ratings surveys. We are especially aware of those formats targeted at the younger demographics, and we want to address concerns about our efforts to include cell-phone-only listeners in our surveys.

This progress report will review what Arbitron has been doing to date and our plans for the future to deal with cell-phone-only households.

The Magnitude of the Trend

From all available industry reports, it is likely that the number of cell-phone-only homes will grow in the future. At this time it is difficult—if not impossible—to predict what that rate of growth may be and its velocity.

There are very few studies with reliable data on the percentage of households that now use only cell phones for their telephone service. The best study to date was conducted in February 2004 by the U.S. Bureau of the Census as part of the Current Population Survey. This national study had a sample size of more than 30,000 households, reached by phone and in person. Based on this study and with input from other experts in the field, our best reasonable estimate is that 7% of all American households are cell-phone-only, and that estimate rises to 20% of persons age 15 to 24.

Impact of the Trend on Research

Any growing reliance on cell phones presents a clear challenge to research companies that rely on landline telephone-based sample frames. There are significant operational, methodological and legal challenges that must be addressed in order to integrate cell-phone-only homes into our radio survey samples.

Our analysis leads us to believe that the growing number of cell-phone-only homes may be a contributing factor to the lower young male proportionality figures we are seeing in many markets.

And there is a ripple effect to these lower young male proportionality numbers. To adjust for the lower in-tab numbers, we may need to apply larger weights relative to the other demographic groups. More weighting leads to more bounce in the data.

We are also presented with another conundrum. We don't know if those living in cell-phone-only homes have different listening patterns than those living in landline homes. More specifically, do young males in cell-phone-only homes have different listening patterns than their counterparts in landline homes? If the answer is no, then the exclusion of cell-only homes does not lead to any nonresponse bias. If the answer is yes, then there may be a bias.

While adding cell-phone-only homes would have the obvious benefit of providing a broader, more complete sample frame, we need to assure the industry and the Media Rating Council® (MRC) that the inclusion of these cell-phone only households will result in a net improvement in the quality of our estimates.

Consider some of the possible downsides to adding cell-phone-only households into the sample:

- Potentially lower response rates
- Potentially lower quality in diary reporting
- Potentially poorer response from other members of the household
- Lack of universe estimates to determine how many cell-phone homes should be in the sample versus landline homes

The reality is that no one knows how our estimates will be affected by the inclusion of cell-phone-only homes in our samples and we believe we have an obligation to inform the industry of these impacts before we move ahead with such a significant change to our methodology.

Arbitron's Actions to Date

Since 2002, we have completed three studies on cell phone homes, and a fourth study is planned for Summer 2005. From what we have heard from other researchers, we believe we have done more research in this area than any other survey research company in the United States.

Our initial study of cell phone homes was conducted in 2002 to determine if we could even reach a sample of cell phones. A second study with a far larger sample was conducted in 2004, and we recently completed our third study during the Winter 2005 survey.

The principal goals of the latest studies were to get a rough estimate of consent rates for placing Arbitron diaries with respondents called on their cell phone. These studies also

help us understand the operational difficulties that will arise from including cellular telephone numbers in general in our current landline-based sample frame.

Our cell phone studies have provided the following important insights:

- Cell-phone-only homes can be reached
- Respondents of all age groups and of differing race and ethnicity can be reached
- Consent rates are lower

Our fourth study, which is scheduled for Summer 2005, will enable us to investigate the possible differences in radio listening estimates to the syndicated report in these markets. Radio diaries will be sent to consenting homes and processed just as they are in our current syndicated service. With these data, we will be able to assess whether we are adequately representing the radio listening behaviors of those households not currently reached in our landline-based sample frame.

Challenges of Including Cell-Phone-Only Homes

We want to be able to include every household in our surveys. However, current legal, operational and methodological challenges must be met.

- ***Restrictions on Calling Cell Phones for Research***

The Telephone Consumer Protection Act (TCPA) of 1991 prohibits calling cellular phones using an “automatic telephone dialing system” without prior express consent of the called party. As a result, survey researchers generally have concluded that calls may be placed to cell phones by manually dialing the cell phone numbers. Since most telephone survey operations, including Arbitron, use automated telephone dialing equipment, the inclusion of cell-phone-only homes in a sample frame by manually dialing those cell phone numbers will have a major impact on efficiency, dialing error rates and, ultimately, costs.

- ***Lack of Universe Estimates***

One of the least obvious but most important issues is the lack of estimates for the percentage of cell-phone-only homes at the market level. The best estimate we have is only at the national level.

There are no published statistics on what the percentage of cell-phone-only households might be in New York, Los Angeles, Bismarck, or any of the other nearly 300 Metros measured by Arbitron.

Arbitron plans to initiate discussions with the MRC and other survey research companies about creating an industry-accepted set of universe estimates. This, however, will take time.

- ***Geographic Controls***

The Arbitron sampling system uses zip-code-level geographies in many markets for high-density areas, balances and other county splits. Landline telephone exchanges generally conform quite well to these sampling units. Cellular

exchanges, however, are assigned to much larger geographic areas. For example, a cell phone exchange in Atlanta, while allocated to Fulton County, may be assigned to subscribers who live throughout the Metro. Much of our geographic precision at the early stages of the sample process would be lost with a cell phone sample frame.

To add to this problem, cell phone numbers are entirely portable and move with cell phone owners, whether they relocate across the Metro, the state, or clear across the country. While the cell phone exchange may be from Atlanta, the cell phone owner may be residing in Anchorage. In fact, 10 percent of the people we contacted in our first two cell phone studies lived in different states from the geographic base of their cell phone number.

- ***Weighting***

While we recognize that some households have more than one landline, for our surveys we treat each home as if only one landline number can be reached there.

Cell phones turn this world upside down. The cell phone is primarily a personal device, and individuals, rather than households, have the phone number. This requires us to use something called “probability of selection weighting,” which compensates for the fact that cell-phone-only households with multiple phone numbers have a much greater chance of being called than those with only one cell phone number. The practical effect of this type of weighting is simple. If the home can be reached by three different cell phone numbers, then diaries returned from that household will be worth only one-third prior to any sample balancing.

- ***Separate Samples***

While this may not seem to be a major issue, the need for a separate sample for cell-phone-only homes adds another layer of complexity to our survey process. Currently, we draw one set of samples for each Metro at the county or subcounty level (as well as sample for other non-Metro counties). The addition of cell phones would require an entire duplication of this process, because these samples must be handled separately from the landline sample, if for no other reason than to ensure that the cell phone sample is hand-dialed. In effect, this is the equivalent of potentially selecting and managing another group of 3,500 sampling units during a Spring or Fall survey.

- ***Software***

Including cell-phone-only homes in the radio survey sample of our syndicated services will require significant changes to our software systems. We are developing time lines to make the required changes as part of a comprehensive project plan.

- ***Response Rates***

Based on our own research, we expect that it will be much more difficult to recruit respondents from a cell-phone-only sample than from a landline sample.

The addition of cell phones to our sample frame is, therefore, likely to negatively impact response rates. We just don't know by how much at this point. The industry and the MRC will need to understand and accept any resulting trade-off for improved sample proportionality that could result from including cell-phone-only households.

- **Cost Consideration**

An additional cost issue related to adding cell-phone-only homes to the current sample frame is whether to make a payment of token amounts to cell phone users in recognition that they may incur fees from the cell phone carrier for time spent talking to Arbitron on the cell phone call.

Arbitron's Actions Going Forward

Our fourth test of cell-phone-only homes, which will get under way shortly, has been designed to provide us with the crucial data we need to understand the impact of including these homes in our sample.

Specifically, we will be looking to:

- Quantify any impact on response rates
- Determine the impact, if any, on the quality of the data
- Assess the differences, if any, on listening estimates
- Assess the operational changes we need to make

This research will help the industry evaluate how the inclusion of cell-phone-only homes in the radio survey sample might change the overall radio listening estimates. It will also enable the industry and the MRC to evaluate any trade-offs between response rates and sample proportionality.

In addition, we will have data from our Portable People Meter (PPMSM) panel in Houston that can be used in conjunction with the Summer 2005 test as we analyze the media behaviors of cell-only and landline households.

Improving Young Male Proportionality

As we work on answering the question of whether including cell-phone-only homes in our samples will result in an overall improvement in research quality, we are beginning to take other steps to address the decline in young male proportionality figures.

As early as the Fall 2005 survey, we will look to expand some of our survey treatments aimed at improving young male proportionality across all race and ethnicity categories. The specific treatments, and our implementation plans, will be announced later in May following a meeting with the MRC.

In addition to new treatments, we also are looking at speeding up the introduction of a Web-based alternative to the paper-and-pencil diary. Our tests to date indicate a positive reception to an electronic or online diary. Test respondents have found it logical and easy to complete.

Concluding Summary

Addressing the issue of cell-phone-only households is one of Arbitron's highest priorities. We've been working on this challenge since 2002.

Our testing later this year will give us the empirical basis—as required by the MRC minimum standards—for determining if the inclusion of cell-phone-only homes in our radio surveys will result in an overall improvement in the quality of our listening estimates. Assuming that the research evidence supports the inclusion of cell-phone-only homes, we are laying out the legal, operational and methodological challenges that we will have to meet before we can make the change.

We need to proceed carefully. There are many questions yet to be answered, and a lot of consultation with the industry and the Media Rating Council that needs to take place. You need to understand what the impact will be on station ratings before we make the change.

We will keep you informed and share the results of the Summer test and analysis of cell-phone-only PPM respondents later this year.

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