

MarkeTrak IV: Impact On Purchase Intent Of Cosmetics, Stigma, And Style Of Hearing Instrument

By Sergei Kochkin

Knowles Electronics has conducted three tracking surveys of the U.S. hearing-impaired population (1989, 1990, 1991). The findings of this longitudinal survey, entitled MarkeTrak, have previously been published in *The Hearing Journal*.

This article is the first segment of a multi-part publication on the fourth survey of the hearing-impaired market, MarkeTrak IV. Because of the emergence of a market for completely-in-the-canal (CIC) hearing instruments, research specifically designed to explore this market opportunity will be presented first. Future articles in this series will discuss other subjects, including price elasticity for CIC hearing instruments, significant trends and indices in the hearing instruments market, and consumer satisfaction and benefit from hearing instruments.

The objective of this paper is to determine the impact that cosmetics and stigma have on purchase intent for hearing instruments. Subjects were randomly presented with a picture of one of 13 hearing instrument styles and were asked to indicate their purchase intent and to rate the hearing instrument on 19 image items. Among the questions we will answer with this survey are: (1) Will CICs grow the market? (2) Does it matter if the CIC is at the entrance of the canal, below the entrance, or completely invisible? (3) Is the color of the CIC faceplate important? (4)

What is the image of CICs relative to more established hearing instrument styles? (5) Will the CIC attract a

different type of hearing instrument user? (6) What is the relationship between CIC retail price and sales?

SURVEY METHOD

In December 1993, a short screening survey was mailed to 80,000 members of the National Family Opinion (NFO) panel. The NFO panel consists of households that are balanced to the latest U.S. census information with respect to market size, age of household, size of household, and income within each of the nine census regions, as well as by family versus nonfamily households, state (with the exception of Hawaii and Alaska), and the nation's top 25 metropolitan statistical areas.

The screening survey covered only three issues: (1) physician screening for hearing loss, (2) whether the household had a person "with a hearing difficulty in one or both ears without the use of a hearing instrument," and (3) whether the household contained a hearing instrument owner. This short survey helped identify more than 13,000 households with at least one hearing-impaired person and also provided detailed demographics on those persons and their households. ➤

The data presented in this series of articles, including those on the size of the hearing-impaired market, refer only to households as defined by the U.S. Bureau of Census; that is, people living in a single-family home, duplex, apartment, condominium, mobile-home, etc. People living in institutions have not been surveyed or counted in the sizing of the market in the MarkeTrak survey. These include residents of nursing homes, retirement homes, mental hospitals, prisons, and college dormitories and members of the military.

In May 1994, a survey specifically designed for the CIC market was sent to 2900 hearing instru-

ment owners and 3600 hearing-impaired nonowners, as identified from the screening survey. The response rates for both the owner and nonowner populations were 82%. A second, detailed survey covering the usual MarkeTrak trend information (e.g., distribution, satisfaction) is expected to be fielded in September.

In the May survey, subjects were randomly shown one of 13 colored photographs of an individual wearing different styles of hearing instruments: behind-the-ear (large, mini), in-the-ear (full, half), in-the-canal (regular, mini), and CIC (seven variations). In the CIC pictures, we varied

color (flesh, brown) and presented the CIC at four depths—at the entrance of the canal, below the entrance, at the first bend, and so deep as to be invisible (which was illustrated by an empty ear). All styles of hearing instrument were shown on one male subject. A professional photographer took pictures showing how each hearing instrument would appear to someone looking directly into the wearer's ear from the side and to someone looking into the wearer's ear canal from behind (see Figure 1). For each of the 13 hearing instrument styles, we received back an average of 399 completed survey forms.

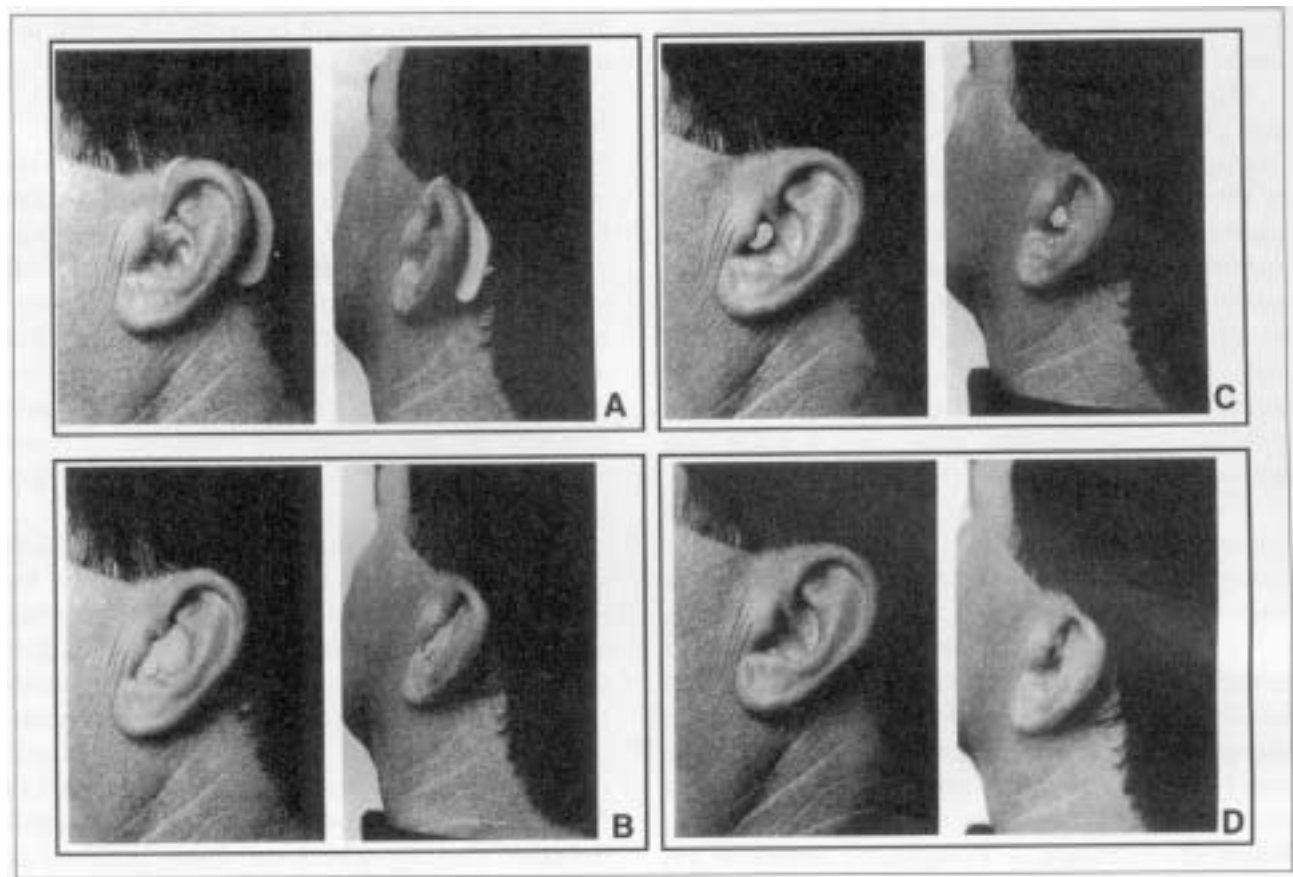


Figure 1. Four of 13 hearing aid styles randomly presented to hearing-impaired subjects: (A) BTE - large, (B) ITE - full, (C) CIC - Entrance - flesh, (D) CIC - 1st bend - brown.

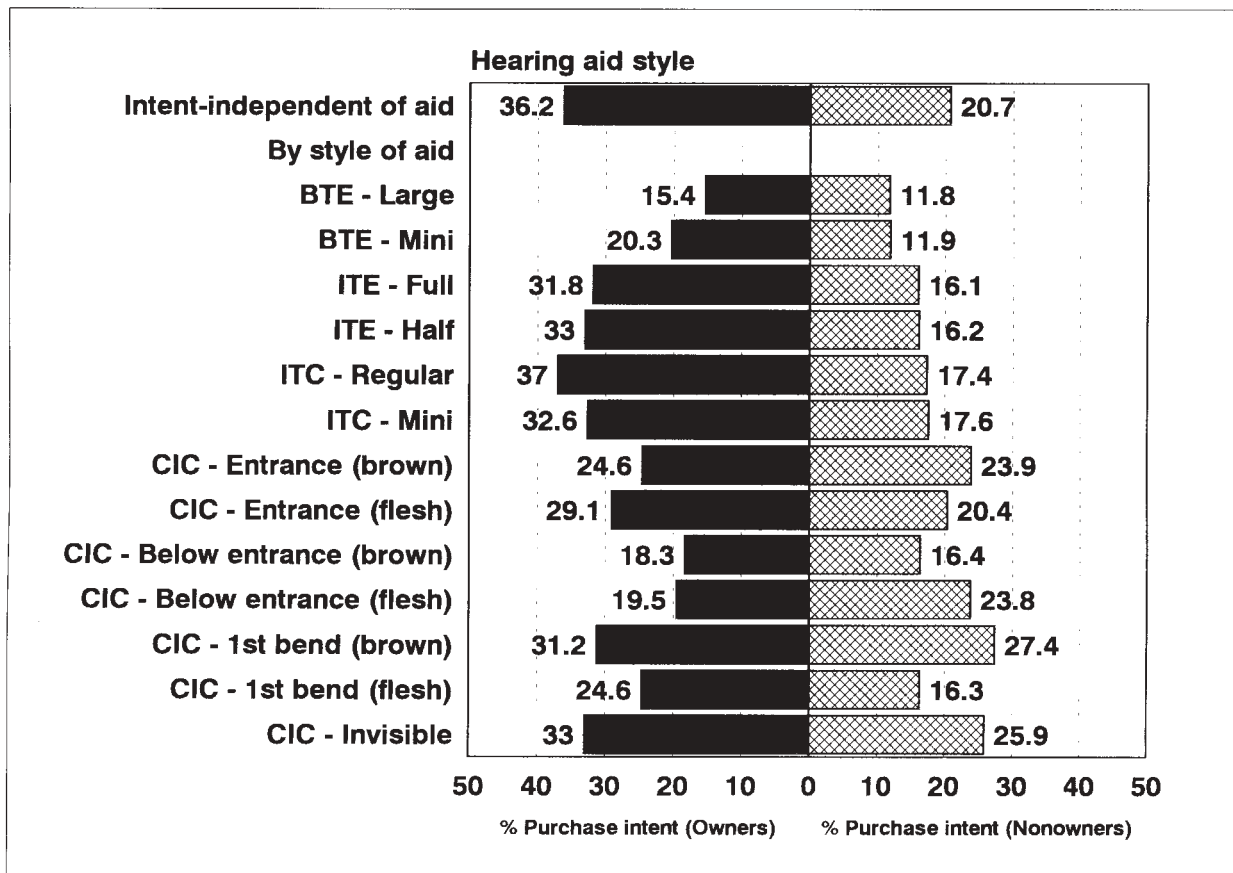


Figure 2. Percent of hearing-impaired market with a positive purchase intent next 5 years by hearing aid style.

We asked the respondents to first give us information about their hearing loss (ears impaired, perception of loss, short form of the Hearing Handicap Inventory for the Elderly-HHIE-S¹⁻²) and their hearing instrument purchase intent over the next 5 years, using an 11-point purchase-intent scale ranging from “Definitely will purchase” to “Definitely will not purchase.” Next, respondents were asked to look at the picture of a hearing instrument randomly assigned to them and to indicate their purchase intent over the next 5 years. Finally, we asked them to rate the hearing instrument on 19 seven-point semantic differential scales (e.g., low technology/high technology).

By randomly assigning hearing instrument styles to subjects, we were effectively able to isolate

the impact that style had on purchase. And, by correlating the image items with hearing instrument style and purchase intent, we were able to glean an understanding of the factors that impacted consumer preferences for hearing instrument styles as well as the relative importance of hearing instrument image on purchase intent.

RESULTS

Purchase Intent By Hearing Instrument Style

Figure 2 graphically portrays the relative purchase intent by both hearing instrument owners and hearing-impaired nonowners (over the next 5 years) for each of the 13 hearing instrument styles. A purchase intent score of 6 or higher on an 11-point scale (0 =

Definitely will not purchase, 10 = Definitely will purchase) was used to calculate a positive purchase intent for this analysis, since it was the cutoff score most closely reflecting actual U.S. hearing instrument sales. For a conservative estimate of growth potential by hearing instrument style, the purchase-intent scores for each hearing instrument style should be compared to purchase intent independent of hearing instrument style (base case). A less conservative analysis would compare purchase intent for ITC hearing instruments and CICs.

Independent of hearing instrument style, owners and nonowners reported significant purchase intent over the next 5 years (36.2% and 20.7%, respectively, for owners and nonowners). These figures are not far off U.S. hearing

instrument sales when they are weighted for size of the hearing-impaired market (25.8 million), binaural rates (50%), and incidence of hearing instrument ownership (22%).³ The resulting figure is approximately 1.8 million hearing instruments a year.

With respect to hearing instrument owners, no CIC purchase intent rating exceeds their base-case purchase intent rating of 36.2%. In fact, the "invisible" CIC achieved a purchase-intent rating of 33% compared to 37% for ITCs and 33% for ITEs. Thus, it is unlikely that CICs, even if they were completely invisible, would stimulate incremental sales among current hearing instrument owners. Perhaps this is because the

majority of owners have largely resolved the stigma issue as evidenced by their ownership of hearing instruments. However, this does not mean when it is time to repurchase that current hearing instrument owners, especially younger ones, will not switch to CIC instruments. Future articles in this series will explore the type of owner who is interested in switching to CIC hearing instruments.

With respect to nonowners, the least preferred hearing instrument was a large BTE (11.8% purchase intent) and the most preferred was a brown CIC at the first bend (27.4% purchase intent). Four CIC purchase-intent ratings for hearing-impaired non-owners exceeded the non-owner base-case

purchase-intent rating of 20.7%: CIC (brown) at the entrance (23.9%), CIC (flesh) below the entrance (23.8%), invisible CIC (25.9%), and CIC (brown) at the first bend (27.4%). Hearing instruments fit below the entrance are perceived to be nearly equivalent to completely invisible hearing instruments by hearing-impaired nonowners.

Based on the purchase-intent ratings for a brown CIC fit by the first bend, a nearly invisible CIC could attract more than 1.3 million new customers to our industry. Of significance is that nonowners indicated a 56% increase in purchase intent for a brown CIC at the first bend compared to an ITC hearing instrument.

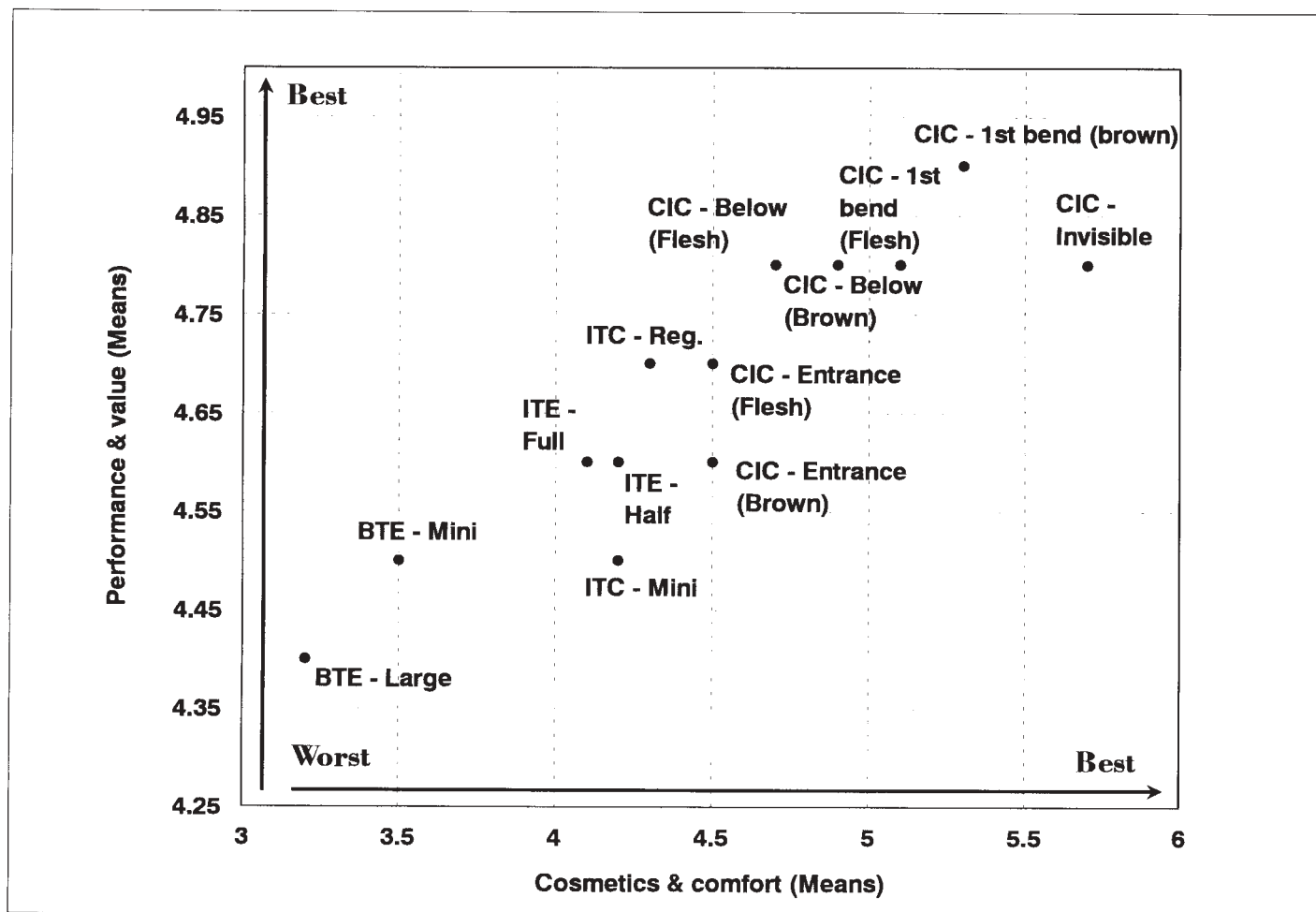


Figure 3. Hearing-impaired nonowner perceptions of 13 hearing aid styles on key purchase decision factors.

Table 1. Perceptions of hearing instruments as a function of style (% positive image).

Image of hearing aid	BTE		ITE		ITC		CIC - Entrance		CIC - Below entrance		CIC - First bend		CIC Invisible	Chi-square (df=24)
	Large	Mini	Full	Half	Regular	Mini	Brown	Flesh	Brown	Flesh	Brown	Flesh		
Cosmetics/stigma														
Attractive	14	21	28	34	34	34	41	42	63	53	64	52	75	723 **
Not embarrassing	30	38	47	51	53	52	58	59	74	63	74	66	78	509 **
Old age image	30	36	46	45	52	56	56	58	68	62	69	60	79	435 **
Visible	16	23	33	34	34	34	47	46	71	60	81	63	84	996 **
Product features														
Reliable	46	46	48	52	53	46	48	49	43	50	47	47	48	26
Comfortable	28	35	47	46	54	46	57	52	60	53	59	58	61	300 **
Nuisance	27	33	42	41	47	46	56	49	59	56	56	60	64	333 **
Sound quality	32	37	38	41	44	36	44	42	46	46	43	43	41	56 **
Natural sound	34	38	38	41	44	41	43	45	46	44	50	45	47	69 **
Safe	48	52	58	60	62	59	63	61	62	60	60	58	63	53 *
High technology	35	43	52	55	58	57	65	64	69	71	72	65	74	359 **
Economics														
Affordable	26	30	29	31	29	26	30	29	33	31	32	28	31	25
Worth expense	28	34	35	35	38	33	39	37	39	40	41	39	43	56 **
Expense to maintain	35	37	38	38	41	34	39	40	42	38	42	38	39	33
Utility and value														
Benefit (improves hearing)	46	54	59	61	63	53	60	60	59	60	61	58	59	59 *
Value	29	35	37	39	39	42	43	42	43	45	45	41	46	60 **
Noisy situations	39	38	41	41	45	36	45	43	46	47	49	46	47	64 **
Quiet situations	45	50	60	57	58	52	56	58	62	57	60	58	57	64 **
Large group situations	30	34	35	35	37	37	41	39	44	43	47	46	46	91 **

*p <.001, ** p<.0001

Note: All percentages are based on the percentage of hearing-impaired persons rating the hearing instrument a 5 or higher on a 7-point semantic differential scale. In comparing hearing instrument style differences use these general rules, which are based on an average N of 341:

- 1) a 8% point difference is generally significant at the 95% confidence level.
- 2) a 6% point difference is significant if one of the hearing aid styles is below 25% or above 75%.

OVERALL IMAGE OF HEARING INSTRUMENTS

Table 1 documents consumer ratings of each of the 13 hearing instrument styles on 19 image factors. Scores of 5 or higher on a seven-point semantic differential scale (e.g., low technology/high technology) are expressed in percentages for the total hearing-impaired population weighted by the representation of hearing instrument owners and hearing-impaired nonowners. The last two columns of Table 1 indicate the strength of the relationship between the image item and style of hearing instruments. The larger the chi-square measure, the stronger the relationship.

There are a few interesting ways of looking at this table. One can compare positive image ratings: (1) between the least preferred hearing instrument (large BTE) and the most preferred (CIC—in-

visible or at the first bend), (2) between the previous least visible hearing instrument (ITC) and CICs, and (3) between image items within a particular hearing instrument style.

In general, differences of 8% are significant at the 95% confidence level and differences of 6% are of this significance for percentages below 25% or above 75%.

All but three of the image items (reliable, affordable, expensive to maintain) are significantly related to the style of hearing instrument. The factors most associated with size of hearing instrument are cosmetics and stigma factors (attractive, not embarrassing, old age image, visible), comfort, nuisance factor, and perceptions of technology. CIC hearing instruments are also rated significantly higher than larger hearing instruments on such important factors as sound quality

and ability to perform in noisy and large-group situations. Apparently the smaller the hearing instrument, the more likely potential consumers are to believe that it has superior technology.

NONOWNER IMAGE OF CICs

Because the major growth opportunity for the hearing industry is the population of 20 million nonowners,³ this section will concentrate on the image nonowners have of CIC hearing instruments relative to other styles of hearing instrument.

Figure 3 shows a two-dimensional perceptual map of each of the 13 hearing instrument styles as rated by nonowners on the two key purchase decision factors—performance and value and cosmetics and comfort. These two dimensions were derived from the results of a factor analysis

of all 19 image items. (Note: the factor performance and value is the mean rating of all product feature and utility items in Table 1 with the exception of comfort and nuisance. The factor cosmetics and comfort is the mean rating of nuisance, comfortable, and all cosmetics/stigma items in Table 1).

CICs below the entrance of the canal are positioned the highest on both factors, CICs at the entrance are positioned between the low-profile CIC and ITC instruments, while BTEs are positioned the lowest. In general, the nonowner views a brown CIC at the first bend as being as attractive as a completely invisible hearing instrument.

But, how important is CIC image on purchase intent? Table 2 ranks each item from lowest to highest image rating. Also shown is the strength of the association (chi-square) between the image item and the purchase intent. All 19 items are significantly related to purchase intent at the 95% confidence level or higher. In growing the market, items

concurrently rated low with relatively high correlations to purchase intent would seem to be the most promising areas for market intervention. An evaluation of the chi square measure of association indicates only minor variability in the 19 item correlations with purchase intent. This is probably because consumers are evaluating the product on only a few dimensions. Factors receiving the lowest ratings are affordability, expense, sound quality, value, and performance in noisy/large group situations.

The factor with the highest relationship to purchase intent is benefit (improves hearing). An even higher relationship was found between perceptions of handicap, as measured by the short-form Hearing Handicap Inventory (HHIE-S), and intent to purchase a CIC (df=14, chi-square=169).

SUMMARY

Thirteen hearing instrument styles, ranging from a large BTE to a completely invisible hearing

instrument, (illustrated by an empty ear) were randomly assigned to 6500 hearing-impaired subjects. The subjects were asked to indicate their purchase intent for the hearing instrument and to rate the instrument on 19 image items. The key findings are as follows:

- Among hearing-impaired non-owners, the less visible the hearing instrument the higher the purchase intent.
- The low-profile CIC (brown, at the first bend) is estimated to attract an incremental 1.3 million customers into the U.S. market.
- We are estimating there will be few incremental sales (above and beyond their normal purchase rate) among current hearing instrument owners because their purchase intent for CICs was lower than their overall purchase intent and their purchase intent for ITCs. However, a significant number of owners are projected to switch to CIC hearing instruments.
- With respect to the color of CICs (brown versus flesh), the brown CIC received significantly higher image ratings when it was below the entrance of the canal. Color did not appear to affect image ratings when the CIC was placed at the entrance of the canal.
- Overall, CICs received significantly higher ratings than larger hearing instruments on 16 out of 19 image items assessed in this study. Strong ratings were received on items related to perceptions of visibility, attractiveness, stigma, comfort, and technology. Apparently there is a general belief that smaller instruments have superior technology.

Table 2. Nonowner perceptions of CIC hearing instruments (% positive image) and the relationship to purchase intent.

Image of CIC Hearing Instrument	% Positive Image	Relation to Purchase? Chi-square (df=4)
Affordable	30	25 **
Expense to maintain	38	33 **
Worth expense	40	52 **
Sound quality	42	30 **
Value	42	38 **
Natural sound	44	37 **
Large group situations	44	27 **
Reliable	46	23 **
Noisy situations	47	45 **
Attractive	55	31 **
Nuisance	55	37 **
Comfortable	55	32 **
Quiet situations	56	36 **
Safe	59	27 **
Benefit (improves hearing)	60	78 **
Old age image	63	26 **
Visible	66	11 *
Not embarrassing	66	28 **
High technology	69	32 **

* p<.05, ** p<.0001.

Note: All percentages are based on a rating of 5 or higher on a 7-point semantic differential scale. The population is all nonowner ratings for all CIC styles with the exception of CIC - first bend (flesh). The total N for this analysis is 1,353.

- Despite the CIC's superior ratings from hearing-impaired nonowners compared to traditional instruments, CICs still received very low ratings on key factors shown to be related to purchase intent: affordability (30%), worth the expense (40%), sound quality (42%), and value (42%).

Consumers generally believe that smaller hearing instruments are superior on most image items assessed in this study. This is good news for the CIC market. Unfortunately, consumers also believe BTEs, because of their size, have the lowest technology. Because innovative technology tends to be introduced into larger hearing instruments first, this finding has serious implications for market acceptance of larger hearing instruments, regardless of their level of sophistication in signal processing. Indeed, potential consumers do "judge a book

by its cover." Because of the BTE's appearance, consumers are predicted to choose cosmetics over potential "hearing solutions" in many situations. Therefore, for larger, more visible hearing instruments to realize their full market potential, we must: improve the overall image of larger instruments in the marketplace, teach dispensers how to sell "optimum hearing solutions" over cosmetics, or reduce signal processing and components to fit into nearly invisible hearing instruments.

The CIC, especially if it is placed below the entrance of the canal, has a strong potential to significantly grow the market. The CIC receives significantly higher ratings on cosmetics and stigma factors than do traditional instruments. However, as shown in previous research,⁴ stigma and cosmetics are only two key factors in a hearing-impaired person's purchase decision.

This research confirms that perceptions of need, benefit derived from a CIC, product performance, and the ability to afford CIC hearing instruments all play a significant role in determining whether or not a particular person will come into the marketplace. Future articles will explore some of these other factors in greater detail.

REFERENCES

1. Lichtenstein MJ, Bess HB, Logan SA: Validation of screening tools for identifying hearing-impaired elderly in primary care. *JAMA* May 20, 1988;259(19):2875-2878.
2. Weinstein BE: Validation of self-assessment scales as outcome measures in hearing instruments fitting. *Semin Hear* 1993;14(4):326-337.
3. Kochkin S: MarkeTrak III: Higher hearing instruments sales don't signal better market penetration. *Hear J* 1992;45(7):47-54.
4. Kochkin S: MarkeTrak III: Why 20 million in US don't use hearing aids for their hearing loss. *Hear J* 1993;46(1):20-27;46(2):26-31;46(4):36-37.

Sergei Kochkin, PhD is Director of Market Research and Market Development at Knowles Electronics, Inc. He is also an officer on the Board of Directors of the Better Hearing Institute and a member of the Collaborative Marketing Committee. Correspondence to Dr. Kochkin at Knowles Electronics, 1151 Maplewood Drive, Itasca, IL 60143.