*An informal study to test the value of giving souvenirs to stimulate attendance at mobile X-ray units*

# Effect of Souvenir Giveaways on Response To Offers of Free Chest X-rays

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WHEN a chest X-ray bus is placed in the same location on 2 consecutive days, usually a substantial drop occurs in the number of persons X-rayed on the second day. The informal study described here was undertaken to determine if giving a practical souvenir on the second day would prevent a dropoff in attendance, and, if so, to what extent.

The study was incorporated as an accessory activity to a neighborhood X-ray survey program that is conducted in three of New York City's boroughs throughout the year. The intention was to test the possibility of formulating an hypothesis about the value of giving souvenirs in maintaining attendance at the mobile X-ray units, so that a future formally planned and executed evaluation could be based on this hypothesis.

## Study Methods

Eight locations were selected for placement of X-ray buses on 2 consecutive days. At four of these locations, a note pad and a ballpoint pen in a simulated leather folder were given to attendees on the second day. (Funds for the souvenirs were provided by the New York Tuberculosis and Health Association.) At the other four placements, no souvenirs were given on either the first or second day. The free chest X-rays were publicized without mention of the souvenirs.

Each study placement was paired with a control placement which was as closely comparable as possible in regard to socioeconomic, ethnic, residential, travel, and isolation aspects. Additionally, the hours of operating the mobile clinics, the number of clerks working in them, and the hours the health educators spent in supervising them were kept as similar as possible. Volunteers were not used because it was not possible to staff them uniformly in all eight locations. The only difference was the use or nonuse of souvenirs.

One pair of placements (A and E) was in Manhattan, another pair (B and F) in the Bronx, and the remaining two pairs (C and G, D and H) in Brooklyn. While the control placements were as similar as possible to their paired study placements, they were placed far enough away from each other to avoid the giveaway influence.

## Locations

Criteria for similarity between test and control locations were estimates of (*a*) economic status, (*b*) race and ethnic characteristics, (*c*) type of dwellings, (*d*) nearness to bus and subway stops, and (*e*) shopping facilities. The basis for judgment was the many years of experience gained by the borough health education con-

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sultants in placing X-ray buses in their boroughs and their knowledge of the districts under their supervision.

While placements A and E in Manhattan are widely separated geographically, they are reported to be similar in many respects. Both contain large numbers of elderly Jewish people whose middle-aged children have moved to the suburbs, and moving into both are many young Jewish couples who have middle or lower middle incomes. Both areas also contain small but increasing numbers of low-income Puerto Rican and Negro families. Both areas have high-rise apartment buildings, some new but most deteriorating. Both are reported to have a "cosmopolitan flavor," that is, a wide variety of persons of different races and ethnic backgrounds. Both locations are near well-traveled bus and subway lines, and both can be called shopping centers.

In the Bronx, location B and its companion location F are both populated with a large number of lower-middle income, some middle-middle income, and a small number of low-income families. The preponderance of the population is white, mainly Jewish, with the remainder Italian and Irish. While some of the Puerto Rican and Negro families moving in are in the middle-income range, most are of low income. This too is an area of high-rise apartment houses, some new, some quite old. Locations B and F can also be termed "shopping areas," and both are near bus stops and subway stations on well-traveled lines.

The Brooklyn locations were all in low-income areas. The population in locations C and G is predominantly Puerto Rican, possibly 60 percent, with the remainder white and Negro. Both are near low-income housing developments that have only a few stories. The remaining buildings are small, deteriorating tenements and private houses. Both locations are near bus stops, though not on particularly well-traveled lines,

**Table 1. Number of persons X-rayed on 2 successive days and percent drop in attendance in test and control locations on second day, New York City, 1966**

| Borough and day of week | Test (souvenirs given) | | | Control (souvenirs not given) | | |
|---|---|---|---|---|---|---|
| | Location | Number X-rayed | Percent drop in attendance | Location | Number X-rayed | Percent drop in attendance |
| Manhattan: | | | | | | |
| Tuesday | A | 474 | ---------- | E | 424 | ---------- |
| Wednesday | A | 410 | 13.5 | E | 354 | 16.5 |
| Bronx: | | | | | | |
| Tuesday | B | 601 | ---------- | F | 359 | ---------- |
| Wednesday | B | 566 | 5.8 | F | 354 | 1.4 |
| Brooklyn: | | | | | | |
| Tuesday | C | 66 | ---------- | G | 327 | ---------- |
| Wednesday | C | 65 | 1.5 | G | 185 | 43.4 |
| Tuesday | D | 193 | ---------- | H | 158 | ---------- |
| Wednesday | D | 171 | 11.4 | H | 91 | 42.4 |
| Total: | | | | | | |
| Tuesday | ---------- | 1,334 | ---------- | ---------- | 1,268 | ---------- |
| Wednesday | ---------- | 1,212 | 9.1 | ---------- | 984 | 22.4 |

NOTE: The difference between the average dropoff for the study and control locations was tested statistically. First the X-ray data were rearranged into the following contingency table, and then a chi-square test was applied ($X^2=7.45$, $P<0.01$). The difference in attendance between the days when the souvenirs were given and the days when they were not given is significant at the 99 percent level of significance.

| *X-ray days* | *Second day* | | |
|---|---|---|---|
| | *Total* | *Souvenir given* | *Souvenir not given* |
| First | 2,602 | 1,334 | 1,268 |
| Second | 2,196 | 1,212 | 984 |
| Total | 4,798 | 2,546 | 2,252 |

**Table 2. Temperature data [1] for test and control locations, New York City, 1966**

| Borough, location, and date | Temperature (° F.) | | |
|---|---|---|---|
| | Maximum | Minimum | Average |
| *Test locations* | | | |
| Manhattan, A: | | | |
| Tuesday, June 21 | 93 | 68 | 81 |
| Wednesday, June 22 | 86 | 68 | 77 |
| Bronx, B: | | | |
| Tuesday, July 5 | 88 | 71 | 80 |
| Wednesday, July 6 | 91 | 71 | 81 |
| Brooklyn, C: | | | |
| Tuesday, July 12 | 99 | 74 | 87 |
| Wednesday, July 13 | 101 | 78 | 90 |
| Brooklyn, D: | | | |
| Tuesday, August 1 | 93 | 65 | 79 |
| Wednesday, August 2 | 82 | 71 | 77 |
| *Control locations* | | | |
| Manhattan, E: | | | |
| Tuesday, June 14 | 89 | 68 | 79 |
| Wednesday, June 15 | 86 | 67 | 77 |
| Bronx, F: | | | |
| Tuesday, June 28 | 93 | 76 | 85 |
| Wednesday, June 29 | 92 | 73 | 83 |
| Brooklyn, G: | | | |
| Tuesday, June 28 | 93 | 76 | 85 |
| Wednesday, June 29 | 92 | 73 | 83 |
| Brooklyn, H: | | | |
| Tuesday, July 5 | 88 | 71 | 80 |
| Wednesday, July 6 | 91 | 71 | 81 |

[1] From the New York Meteorological Observatory in Central Park.

and in both there are some stores. Nevertheless, the areas cannot be called shopping districts.

Location D was paired with location H. Both are poverty-stricken areas in which there are a number of idle males "hanging around" during the day. The difference between these locations is that in D the preponderance is Puerto Rican, possibly 50 percent, with the rest Negro and some white, while location H is almost entirely Negro with a few Puerto Rican and white families. D and H are both areas with deteriorated houses, originally built for one or two families but now greatly overcrowded, and some small deteriorated tenements. Both locations have bus stops but cannot be considered well-traveled, and while there are a few dilapidated stores, these are not shopping areas.

Although the Brooklyn locations C and G are quite alike, at location C only about 65 persons were X-rayed on either day while 327 persons were X-rayed the first day at the companion location G (table 1). The difference is ascribed to the weather. While the temperature was almost constant throughout most of the study, it was unusually high at location C during the 2 days of July 12 and 13, 1966 (table 2). During these days the temperature rose to 99° and 100° F., creating an intolerable situation around the X-ray bus and also emptying the streets of people for the greater part of the day. Usually the X-ray bus is closed whenever the Central Park Observatory reports an official temperature of more than 93° F., but for this study the bus was kept open and personnel were asked to continue work. When the highest temperature reached in any given day is 93° F., there are several reasonably bearable hours in the morning and early afternoon, since it becomes hottest in New York City late in the afternoon. But when it reaches 100° F., the weather becomes unbearable early in the working day. In the opinion of the health educator who supervised the mobile unit at location C on July 12 and 13, had it not been for the souvenirs, not even 65 persons would have had their chests X-rayed.

While the number of placements was small, the number of persons X-rayed was of fair size. The results are shown in table 1.

## Findings

The average drop in numbers of persons X-rayed on the second days of the study placements was 9.1 percent. The average drop in the number of persons X-rayed on the second day of the control placements was 22.4 percent. The difference between these two proportions is statistically significant.

## Conclusions

The use of souvenirs was helpful in reducing dropoff in attendance by stimulating participation. However, this interpretation of the results of the study must be tempered by the following qualifications.

The findings on the effectiveness of the souvenirs were more definitive in Brooklyn than in the other two boroughs. The placements in Brooklyn were all in relatively isolated, so-called hard core areas. In the Bronx the tests were made in low-income, middle-income, and

well-traveled shopping areas. In Manhattan they were set in low-income, middle-income, and also in shopping areas.

The consensus of the health education staff taking part in this study was that the souvenirs were not particularly helpful in middle-income or highly traveled areas, but were very effective in isolated areas with a lower socioeconomic population. It was noted in Brooklyn that "loungers" showed their souvenirs to others and that a number of persons getting an X-ray spoke about the souvenirs as they stepped into the X-ray bus.

A considerable number of those taking the X-ray when the souvenirs were given out commented that the souvenir was "really worthwhile."

An outcome of the study that greatly surprised the staff was that it is possible to operate the mobile clinics in the same location in well-traveled areas for 2 consecutive days with almost no dropoff.

## Doctoral Studies in Disposal of Solid Wastes

The University of Kansas at Lawrence has received a $38,050 grant from the Public Health Service for the nation's first program to train students working toward the doctorate degree in waste disposal of refuse and other solid wastes. The work will be oriented toward teaching and research in solid wastes. The curriculum will be interdisciplinary with participation by the departments of mechanical, industrial, chemical, and civil engineering as well as departments of political science, business administration, and economics.

Seven institutions of higher education already offer solid wastes management training, or soon will offer it, at the master's degree level under programs supported by Public Health Service grants: Drexel Institute of Technology, Philadelphia; University of Florida, Gainesville; Georgia Institute of Technology, Atlanta; University of Michigan, Ann Arbor; Rensselaer Polytechnic Institute, Troy, N.Y.; University of Texas, Austin; and University of West Virginia, Morgantown. Nearly $500,000 has been awarded in training grants.

The Solid Wastes Program in the Public Health Service's National Center for Urban and Industrial Health is seeking to end shortages of technically qualified personnel. Many persons are needed to teach improved disposal techniques, to apply these techniques in government and industry, and to conduct research for future waste management.