

# PROGRAM EVALUATION: A STRATEGY FOR EFFECTIVE PROMOTION OF COMMUNITY HEALTH

Sheila Zerr

Community health programs may benefit from program evaluation of their effectiveness. Established community health programs which use program evaluation can improve their marketing strategies, and can draw assistance from voluntary agencies with greater success. This project demonstrates the successful results when three agencies, interested in better health programs in the community, worked together to promote quality child care.

## St. John Ambulance Health Care Programs

For many decades, St. John Ambulance, Canada has collaborated with community professionals and volunteers to develop and promote their first aid and health care programs. Health practitioners and educators are consulted to help develop programs, health research specialists are consulted to evaluate them, and a large body of volunteers are used to promote and teach them in the community.

St. John Ambulance offers three home health care programs: child care, family health care, and health care for seniors. They give the lay public sufficient knowledge and skills to provide safe care in the home. Growth of health care is a high priority issue for St. John Ambulance in the 1980s. It will be necessary to document the effectiveness of the health care programs in order to convince the St. John membership of the organization's effectiveness, and to win public support.

The St. John Ambulance "Child Care in the Home" program has been in existence for many years. The content of and teaching methods for this program were revised in 1979. The course helps parents, child care workers, and babysitters. It covers preparation for parenthood, growth and development, health needs, illness, accident, infectious disease, medications, and the responsibilities of the child care worker. The program is unique among other parenting and child care programs offered in the community in that it involves a skill component and an opportunity to practise and be evaluated on child care skills.

Sheila Zerr, R.N., M.Ed. is Assistant Professor in the School of Nursing at the University of Ottawa.
---

## Health program evaluation

It was evident from a review of the literature that the evaluation of community health programs is a complex process. It may range from strict research models to studies of program efficacy or cost effectiveness. Attkisson and Hargraves (1977) demonstrate conceptual models for program evaluation; Weiss and Rein (1970) demonstrate alternatives to experimental designs, and Sinclair, et al. (1981) demonstrate cost effectiveness through program effectiveness. The Canadian Government has developed a unique approach to program evaluation, outlined in the **Guide on Program Evaluation Function (1981)**. Here, program evaluation is viewed as an aid to decision making and management; that is, as a source of information for resource allocation, program improvement, and accountability in government.

Evaluation of the St. John Ambulance home health care programs was first undertaken in 1972 in an examination of the effect of the first aid program on the community (St. John Ambulance, 1972). No systematic evaluation of the effectiveness of these courses had been carried out until Williams, Baker, Wanklin, and Hayes (1981a) evaluated various teaching strategies used in the home nursing program. The Williams, Baker, Wanklin, and Hayes (1981b) study used an experimental design to evaluate various teaching strategies, making the assumption that if participants acquired the knowledge, attitude, and skills for home nursing, they would use them when they were required. The Williams team left the testing of this assumption to future research projects.

### The Project

The evaluation of the "Child Care in the Home" program developed over a period of four years. It began with the revision and publication of the **Child Care in the Home** text in 1979. The teaching protocols were treated with a modular approach with a unit-by-unit presentation of the content and skills. Evaluation of this revised program was initiated in the spring of 1981, in collaboration with the University of Ottawa. Research proposals were developed. Funding was confirmed in February, 1983, and the evaluation was underway.

### The design and research strategy

The design and research strategy for the study were planned to meet the program evaluation research objectives. The general objective was to determine whether or not the "Child Care in the Home" program met its basic goals. More specifically, the evaluative research design, using the Solomon four-group design, was intended to determine the effects of the course on the participants knowledge of, attitude to, and skills in child care. A further analysis (to aid marketing) was done to determine the effects of the course on different age levels of participants.

Reliable measures of the three dependent variables (knowledge, attitude, and skills) were developed and pilot tested for application in the main study. Knowledge was measured by a thirty-six item objective test; attitudes were measured by self-perceptions of the ease or difficulty with which the participant could perform eleven child care skills; and skills were measured by rating performance in the eleven child care skills taught in the course. The outcome measures on the dependent variables resulted in seventeen scores; one score for knowledge, eleven scores for attitude (ratings from ease or difficulty skill performance scales) and five scores for skill (ratings from the four testing stations).

The instruments and their application were adapted for the "Child Care in the Home" program evaluation from the Williams, et al. (1980) study. The instruments consisted of a background questionnaire for socio-demographic information, the knowledge questionnaire, and the measures of attitudes and skills. The Solomon four-group design (1949) was applied to the main study. Analysis of the main study results followed Campbell and Stanley's (1963) recommendations for statistical tests. Each of the three outcome measures (knowledge, attitude, and skills), post-test scores were analyzed for variance and covariance.

It was concluded that the teenage babysitter population would be the best target population for this study. St. John Ambulance has found, from courses previously given in the Ottawa area, that the teenage population has displayed a keen interest in taking the child care course. The criteria for inclusion in the study were established as: ages thirteen to nineteen inclusive, male or female, and a minimum education level of grade six. Subjects could not have taken the St. John Ambulance "Child Care in the Home" course previously. Participants not meeting these criteria were rejected as research subjects, but were admitted to the course.

### **Pilot study**

A pilot study to test and revise the instruments was carried out. A total of twenty-nine subjects participated in the pilot study, fourteen from a Toronto St. John Brigade unit and fifteen from Elmwood School in Ottawa. The pilot study prompted revision of the instruments and improvement in the testing protocols.

Eight prospective baccalaureate student nurses were recruited and introduced to the course materials and research protocols. Interrater reliability sessions were set up, and an interrater reliability coefficient of  $+0.85$  was obtained. Once the project was implemented and courses were planned with the St. John Ambulance Health Care Committee, Federal District, it became evident that more personnel would be needed to teach the courses and carry out the research. Application for a Canada Summer Student Employment Program grant was successful, and funding was received for students to serve as teachers and research assistants

for the project. The infusion of the energy and expertise of the summer students contributed enormously to the strength and success of the project.

### **Program promotion and publicity**

The promotion and publicity to draw participants to take the course and to participate in the research project was a great challenge. A flyer was developed for distribution. The flyer described the project and contained a participation consent form.

School and community agencies were contacted by telephone to set up appointments, agencies were visited for the distribution of flyers, posters, pamphlets, and consent forms. Whenever possible, arrangements were made to explain the course and project directly to classes or participants.

### **Implementation**

The research design and testing were applied on a week-to-week basis. The recruitment campaign resulted in a series of five weekly courses, three in Ottawa, one in Glen Cairn, and one in Smith Falls.

Subjects were randomly assigned to one of the four groups of the Solomon four-group design, and this resulted in a very high "no show" for the study. When subjects did not receive the assignment they desired, or if they were not assigned to the same group as friends, they simply did not show up for the course. Very few subjects (1.4%) left once they had started the course. Subjects often arrived at incorrect times and had to be rejected as research subjects, but they were still allowed to take the course.

A total of 216 participants registered for the program. Of this number, eighty-four (38.8%) did not show up for their assigned course, three (1.4%) left the course, 29 (13.4%) were eliminated as research subjects. The final number of research subjects was 102 (Table 1).

### **Research Results**

Analysis of the background questionnaire revealed that most participants were similar in background, education, and age. A typical participant was female, between ages thirteen and fifteen, belonging to a family of two adults with two children under sixteen years (including the participant). She would be attending school, and have completed Grades Six or Seven. She would feel that a St. John Ambulance certificate for completion of the course would be important in obtaining employment as a babysitter. Target marketing at individuals, such as with this profile, may attract other age groups in the future.

Table 1

Summary of Registrants

	Registered	Participants	No Show	Did Not Complete Course
Group I	52	31	21	0
Group II	48	26	22	1
Group III	56	29	27	0
Group IV	60	45	15	2
Total	216	131	85	3

The research, using the "Solomon four-group analysis, resulted in sound evidence that the course does meet its goals. The participant scores were set up for analysis as demonstrated in Table 2.

Table 2

Analysis of Post-test Scores for each of the Three Outcome Measures (Knowledge, Attitudes, Skills)

	Pre-and Post-tested	Post-tested Only	
Experimental	Group No. I	Group No. III	Main Effect of Experimental-Control
Control	Group No. II	Group No. IV	
Main Effect of Pre-test			

From the row means, one estimates the main effect of the course, from the column means, the main effect of pre-testing, and from the cell means, the interaction of pretesting with the course.

The main effect of the course was significant on all seventeen scores; the experimental group demonstrating a greater knowledge, more positive attitudes, and superior skills, as compared to the control group. Results of this analysis (for total scores) are presented in Table 3.

Table 3

## Summary of Two-way Analysis of Variance

	Source of Variance	SS	df	MS	F
Knowledge: (score from 36 item questionnaire)	Experimental-Control	1153.390	1	1153.390	55.799*
Attitude Ratings: (total of scores for 11 skills)	Experimental-Control	3567.396	1	3567.399	31.734*
Skill Ratings: (total of scores for 4 skill testing situations)	Experimental-Control	49467.176	1	49467.176	786.572*

\*  $p < .001$ 

Studies conducted to control for the participant's knowledge, attitude, and skills before entering the course virtually replicated the experimental-control differences for the main effect of the course. Results of this analysis (for total scores) are presented in Table 4.

Table 4

Summary of One-Way Analysis of Covariance on Post-test Scores,  
Using Pre-test Scores as Covariate

	Source of Variance	SS	df	MS	F
Knowledge: (score from 36 item questionnaire)	Experimental-Control	651.444	1	651.444	29.054*
Attitude Ratings: (total of scores for 11 skills)	Experimental-Control	1029.389	1	1029.389	31.475*
Skill Ratings: (total of scores for 4 skill testing stations)	Experimental-Control	856.195	1	856.195	327.860*

\*  $p < .001$

Further analysis, to determine the effect of the course on the participants at different age levels, resulted in confirmation that the effects of the course are as consistent for the younger participant in Grades Six or Seven as for those above Grade Seven. Results of this analysis (for total scores) are presented in Table 5.

Table 5

Summary of Two-way Analysis of Covariance on Post-test Scores using Pre-test Scores as the Covariate to Compare Level of Education

	Source of Variance	SS	df	MS	F
Knowledge: (score from 36 item questionnaire)	Experimental-Control	685.218	1	685.218	31.671*
Attitude Ratings: (total of scores for 11 skills)	Experimental-Control	1029.413	1	1029.406	29.959*
Skill Ratings: (total of scores for 4 skill testing stations)	Experimental-Control	878.602	1	878.602	436.935*

\*  $p < .001$

St. John Ambulance may promote the "Child Care in the Home" program in the community with the knowledge that the course is successful in teaching child care knowledge and skills. The course can be promoted to the younger participant in Grades Six and Seven. Results of this study confirm that the course materials are managed successfully by this age group.

### The Future

An important step in promoting the child care program has been taken. Results of this study are being used to direct implementation of the "Child Care in the Home" program, and to assist in its acceptance and use by the public. Community action groups have been encouraged by the results of the study, and they see the course as a reliable means of influencing quality child care in the community. The Junior Service League of Ottawa is presently giving the course in schools and in community centres as part of their service to the Ottawa community. The time and effort invested in program evaluation is being rewarded by effective promotion of the course in the community.

## REFERENCES

- Attkisson, C.C., & Hargraves, W.A. (1977). A conceptual model for program evaluation in health organization. In H.C. Schulburg & F. Baker (Eds.), **Program evaluation in the health fields** (Vol. 2). New York: Behavioral Publications.
- Campbell, D.T., & Stanley, J.C. (1963). **Experimental and quasi-experimental designs for research**. Chicago: rand-McNally.
- St. John Ambulance. (1979). **Child care in the home**. Ottawa: St. John Ambulance.
- St. John Ambulance - Ontario Council. (1972). **Final report facts I. February 3, 1970 to June 30, 1972**. Ottawa: St. John Ambulance.
- Sinclair, J.C., Torrance, G.W., Boyle, M.B., Horwood, S.P., Saigal, S., & Sackett, D.L. (1981). Evaluation of neonatal-intensive care programs. **The New England Journal of Medicine**, 305, 489-494.
- Solomon, R.L. (1949). An extension of control group design. **Psychological Bulletin**, 46, 137-150.
- The Treasury Board of Canada. (1981). **Guide on program evaluation function**. Program Evaluation Branch. Ottawa: Canadian Government Printing Office.
- Weiss, R.S., & Rein, M. (1970). The evaluation of broad-aim programs: Experimental design. Its difficulties and alternatives. **Administrative Science Quarterly**, 15, 97-109.
- Williams, J.I., Baker, M.I., Wanklin, J.M., & Hayes, M.W. (1981a). **St. John Ambulance and the Canadian Red Cross Society, The evaluation of there's no place like home for health care: Appendices and final report of the national study**. Toronto: Health Care Research Unit, University of Toronto.
- Williams, J.I., Baker, M.I., Wanklin, J.M., & Hayes, M.W. (1981b). **The evaluation of there's no place like home for health care: Final report of the national study**. Toronto: Toronto Health Care Research Unit, University of Toronto.



## RÉSUMÉ

### Evaluation de programme stratégique du développement efficace de la santé communautaire

La méthodologie et le plan de recherche de l'étude ont été mis au point dans le but d'évaluer les objectifs à court et à long terme du programme de soin de l'enfant offert par l'Ambulance Saint-Jean. Le concept expérimental basé sur la répartition en quatre groupes de Solomon devait permettre de déterminer les effets du cours sur les connaissances, les attitudes et les aptitudes des participants quant aux soins apportés aux enfants. L'échantillon comprenait 102 sujets de 12 à 19 ans inclusivement, de sexe mâle ou femelle, ayant au minimum 6 ans de scolarité. Les sujets ont été répartis au hasard dans quatre groupes suivant la méthode de Solomon. Deux groupes ont suivi le cours sur le soin de l'enfant (groupes expérimentaux), les deux autres non (témoins). La mesure avant-test n'a été appliquée qu'à un des deux groupes de chaque catégorie, cependant les quatre groupes ont subi la mesure après-test. Les cotes finales pour chacun des trois éléments (Connaissances, attitudes et aptitudes) ont été examinées par une analyse de variance  $2 \times 2$  de manière à déterminer l'effet principal du programme. De plus, une analyse de covariance a été utilisée, chez les échantillons ayant subi les mesures avant-test, afin d'évaluer l'influence des tests initiaux de connaissances, d'attitudes et d'aptitudes. Les résultats des deux analyses indiquent une différence significative entre les groupes expérimentaux et témoins pour les trois éléments et confirment l'efficacité du programme pour apprendre les soins aux enfants dans la communauté. Les résultats de cette recherche sont utilisés pour orienter les stratégies de marketing et promouvoir les programmes.

---

This study was supported by Project Grant No. 6606-2238-35 National Health Research and Development Program Health and Welfare Canada.