

How To Evaluate the Services and Care Offered Handicapped Children

HELEN M. WALLACE, M.D., M.P.H.

OFFICIAL State Crippled Children's Programs are now in their 35th year. A number of reports describe efforts to evaluate certain aspects of these programs, but no report of a systematic, planned evaluation of them as a total State program has been published. Nor has any report been published concerning evaluation of the programs provided in State or local communities by voluntary agencies concerned with the care of handicapped children.

About 1.4 million children in the United States under 17 years of age have "activity limitations" (1), and more than 2 million handicapped children require care. Diligent, persistent effort is needed to evaluate their care. The lack of published reports concerning such evaluation can be questioned. Is there lack of interest in evaluation or lack of awareness of the need for evaluation? Or is there lack of knowledge or skill in methods of evaluating the care and services of handicapped children?

Without attempting to answer these questions, certain things are reasonably clear: evaluation is not easy. Evaluation requires skills that most physicians who are public health administrators do not have, simply because these skills have not been sufficiently

emphasized in their training. Evaluation is time consuming and may be expensive. Evaluation needs to be built into a program or service from the time it is planned, which means the inclusion of public health personnel trained in evaluative methods on the staffs of health agencies and their ready availability to program planners. Public health service agencies usually are not so well staffed nor are personnel trained in the methodology of evaluation readily available. Planners and administrators generally favor evaluation, but they need help in doing it.

Developing methods to evaluate the services and care for handicapped children is necessary for a number of reasons: (a) to provide the best possible care for each child and his family, (b) to make the best possible use of available funds and personnel—already suffering considerable shortages, and (c) to assist program administrators in planning new services and in replanning existing services where indicated. These reasons apply not only to the care of handicapped children under the aegis of official Crippled Children's Programs and of voluntary agencies but also to such programs as title XIX of the Social Security Act (Medicaid) and the care provided by individual hospitals and physicians.

I have outlined specific suggestions concerning the evaluation of services and care for handicapped children to promote evaluative

Dr. Wallace is professor and chairman of the division of maternal and child health, University of California School of Public Health, Berkeley.

activities in this field and to assist planners and administrators. A series of studies can be planned over a long period, depending on such factors as major problems in the care of handicapped children and youth in any community at any given time, responsibilities of the individual agency interested in evaluating the care of the handicapped, community interests in particular aspects of care of the handicapped at any given time, and availability of trained personnel in specific areas of patient care.

Defining Evaluation

Evaluation has been defined as the process of determining the value or amount of success in achieving a predetermined objective. It includes at least the following steps: formulation of the objective, identification of the proper criteria to be used in measuring success, determination and explanation of the degree of success, and recommendations for further program activity (2).

The evaluation process described by James (3) consists of a series of steps.

- Goal setting
- Determining a measure of the goal
- Measuring the goal
- Identifying the goal-attaining activities
- Putting the goal-attaining activities into operation
- Appraising the effect of the goal
- Evaluation

Casefinding

The significance of early casefinding is that the earlier the handicapped child is found the earlier his condition can be diagnosed and treatment and rehabilitative measures started. Counseling of parents can be initiated, and parent "shopping around" for services can be reduced. Early casefinding is important so that treatment appropriate to the child's physical and emotional growth and development can be initiated. Complications that can occur from lack of treatment may be prevented. The following examples include criteria or indices that can be used in evaluating the casefinding of handicapped children.

Age of handicapped children when found. A study of age at which selected kinds of handicapped children are found can be useful in determining the ability to identify certain handicapped children within a community. This

study is especially applicable to children with a condition related to prenatal and perinatal causes. The children may have cerebral palsy, mental retardation, birth injuries, congenital malformation, or conditions such as clubfoot, congenital dislocation of the hip, cleft palate or lip, congenital heart disease, congenital amputations, congenital hearing loss, and so on. Because these children have the handicapping conditions at birth or the conditions are largely detectable soon after birth, determining the proportion found with these conditions, by age level, provides valuable information on the effectiveness of casefinding. Useful age levels include (a) birth, (b) first year of life, (c) ages 1 through 4, and (d) after the fifth birthday. A high proportion of children not found until they enter school is one example of significant delay in casefinding. One could expect that, as casefinding improves, an increasingly higher percentage of children would be identified at birth or during the first year of life.

Age at onset compared with age at identification. Comparing age at onset of a handicapping condition with age at identification of that condition provides facts for another aspect of casefinding. Such comparison studies can be made of children handicapped by conditions acquired after birth, such as head injuries, amputations, or other conditions resulting from trauma; hearing loss associated with repeated upper respiratory infections; and cerebral palsy, epilepsy, or mental retardation associated with infections of the central nervous system.

Use and accuracy of screening procedures. Some screening procedures need to be more widely used and their use evaluated. For example, developmental screening now can be a part of the routine assessment of each child during infancy and early childhood. The proportion of children assessed in physicians' offices, well-child conferences, children and youth projects, day care centers, Head Start programs, nursery schools, pediatric clinics, and pediatric inpatient hospital services can be determined. Other screening procedures that can be studied include auditory screening of newborn infants, preschool children, and children and youth of school age; screening of infants and young children for certain metabolic disorders; and vision screening of pre-

school children and children and youth of school age.

The accuracy of such screening can be determined by comparing the results of the screening procedure with the results of a diagnostic procedure. For example, some children fail a screening test but are found to be normal at diagnostic workup, a false positive response, which represents one source of screening inaccuracy and causes over-referral of children. If this result occurs for a significant proportion of children referred for diagnostic workup, the entire screening process needs to be reviewed and revised. A delay in casefinding caused by false negative responses (that is, the child tests normal at screening but later is found to have an abnormality) also indicates that the screening procedures need reviewing and strengthening.

Certain subjects related to the screening process can be discussed: the environment in which screening is performed (for example, noise in screening for hearing and lighting in screening for vision), training and background of the screener, appropriateness of the screening procedure used for the age level of the child, the value of certain rescreening activities (that is, screening of school children known to have a vision or hearing defect and routine rescreening of all children who fail or have borderline scores in routine vision or hearing screening), and the value of using certain screening procedures at all (that is, routine screening of school children for speech defects as opposed to observation by parent and teacher).

Use of birth certificates. Properly constructed information on certificates of live birth can promote early casefinding of handicapped children. Certain questions or items on the birth certificate (birth weight, complications of pregnancy, labor, delivery, length of labor, type of delivery, condition at birth, delay in respiration, or need for resuscitation) can provide leads to high-risk infants requiring close followup and supervision. Other questions on the certificate, such as the presence of a congenital malformation or birth injury, also provide useful information for followup and casefinding. Thus there is need to be concerned about both the inclusion of such questions on the certifi-

cates and the use of such information for followup purposes (4).

Comparison of known handicapped children with incidence and prevalence data. Another way to evaluate casefinding is to compare the known number of children in various diagnostic groups in a community with the expected number of children, based on incidence and prevalence data from similar studies. If the known number is considerably smaller than the expected number, further studies are needed to determine the reason. One reason might be the need for improved casefinding.

Diagnosis, Treatment, and Rehabilitation

Diagnostic, treatment, and rehabilitation services are most important in the care of handicapped children. They are needed promptly after casefinding, and reevaluation needs to be performed periodically during the child's growth and development in order to modify the details of treatment and rehabilitation as his needs change. Comprehensive care includes medical, dental, social, psychological, and other closely related help such as education, vocation, recreation, and so on. Care by an interdisciplinary team is essential, at least for the moderately and severely disabled child and his family.

Demographic aspects of care. A study of selected demographic aspects provides information essential in determining the extent to which all handicapped children are provided with services. Among these aspects are geographic factors (differences in care among urban, suburban, and rural areas), age factors (differences in care among very young children, school age children, and youth), diagnostic groups (differences between coverage of services for children with certain conditions and for children with other conditions), and socioeconomic groups (differences in coverage of services for children of families in certain socioeconomic groups and economic or eligibility barriers to services).

Results of care. The crucial point of any service for a handicapped child is the end result for the child. Followup studies are needed to determine the long-term status of each child and of groups of children; that is those who have been cured or are improved, the same,

worse, or dead. The various diagnostic types of children cared for and such factors as initial condition of the child, type of treatment, and each treatment facility should be studied.

The average length of inpatient stay and the cost of stays in hospitals and other related institutions need to be investigated for children having the same diagnosis and severity of condition. Where wide differences occur in length of stay, further investigation is indicated.

There is a need for comparing the costs of different types of treatment and the management of children having the same condition and degree of disability.

Various caseloads. The status of handicapped children and youth cared for by individual treatment, rehabilitation agencies, and residential institutions or under the aegis of the Crippled Children's Programs, vocational rehabilitation services, title XIX provisions, special classes or schools for handicapped children, and day care, and the homebound with or without home instruction is important. There is opportunity for team review of children cared for under each of these programs.

All handicapped children should be reviewed at certain landmarks in time; for example on entrance to day care, elementary, or secondary schools or at certain age levels. The status of handicapped children rejected for service by an agency or program should be studied, including the reasons for rejection and whether the child received care of comparable quality from another source. Handicapped children on any waiting list for service need to be studied, including the reasons why they are on the list, the status and needs of each child and his family while on the waiting list, and the availability of alternate types of care.

Handicapped children newly admitted to a service should be studied to determine whether admission to an inpatient service is needed or whether care can be provided on an outpatient ambulatory basis. The interval between admission of a child to a service and completion of his diagnostic workup is important. Reasons for delays and what steps are needed to reduce or eliminate them can be determined. Children who remain in an inpatient service for any length of time should be studied, including the reasons for this stay and the barriers to early discharge

(social and family reasons, housing, lack of alternate services in community, and so on).

Patients referred for a specific service or patients for whom specific recommendations are made need reviewing to determine if the service was provided or the recommendation was carried out. If not, the reason should be investigated.

Standards of care. The quality of care provided for handicapped children in individual facilities can be compared with the standards recommended for such care by authoritative or accredited organizations. A survey of individual services can be made by an interdisciplinary team of medical and nonmedical specialists, comprising a survey team which supplies consultation services. Among the criteria for quality of care are approval for residency training in various medical specialty areas, qualifications of directors or supervisors of the various program areas and of staff members, staff functions and ability of staff members to work together, admission procedures, frequency of status evaluations of each child, availability of frequent periodic team staff rounds and conferences, size of service and census and percentage occupancy of facilities, number of persons on the waiting list and length of waiting period, accuracy and completeness of patient records, flexibility of visiting hours, and availability of parent instruction.

Another use of standards is a self-evaluation by the agency or service; that is, the staff of a service compares its own program with standards established by an outside authoritative or accrediting group. A self-evaluation form or guide prepared for this purpose is helpful.

Continuity of care. Continuity of care may be studied from several points of view. Is each child seen frequently and periodically throughout infancy, childhood, and adolescence? Is he reevaluated frequently? Is he given a return appointment? If the appointment is not kept, is there a system of followup? Why are appointments broken? Do all children return who should return? Do some children return periodically for appointments who do not need to; for example, children with flat feet? A review of the child's previous medical care may uncover problems with medical and health care—frequency of physician visits, date last seen by

a physician, type of physician providing care, and degree of shopping around from one physician or source to another.

Educational Services

Education is equally as important for handicapped children as for all other children. It should be provided in as normal a setting as possible, preferably in a school with other children. Special transportation may be necessary. Interdisciplinary team services are frequently required, at least for the moderately and severely disabled.

Extent of coverage. Studies of coverage have several aspects. The number of handicapped children known to the school system can be compared with incidence and prevalence data. If the number of handicapped is low, further investigation is indicated.

The known number of handicapped children in and out of school also can be compared. Why are some handicapped children not in school? What types of children are they? What are the barriers to school attendance? Why are some handicapped children rejected for school admission or on a waiting list for school admission?

At what age are handicapped children admitted to school? For the blind, the deaf, and the severely disabled admission to special classes is indicated in the preschool period. Handicapped children of school age at least need to be admitted to school at the age all children are admitted.

At what age are handicapped children discharged from school? Among the points to be studied is the provision for continued education of handicapped teenagers. Educational services in urban and rural areas for handicapped children need to be compared.

School services. Is an evaluation committee, composed of the necessary educational and health specialists, available to evaluate all handicapped children applying for admission to school and periodically while they are in school? If such a committee exists, its membership (special teacher, physician, social worker, psychologist, vocational counselor for teenagers, and nurse) should be reviewed.

Appropriateness of placement. Periodic evaluation of handicapped children of school age is needed in various educational settings

(regular classes, special classes, special day schools, special residential schools, home instruction, or hospitals) to determine if the placement is suitable to their current condition and requirements. If the placement is inappropriate, the reasons will require study.

Progress of the children. The purpose of a planned study of the status of handicapped children in educational placement at the beginning of the school year and at the end of the school year is to determine which children have progressed and might be ready for a less-restricted educational setting and which children have not progressed and require a more appropriate plan. Progress needs to be measured both in terms of education and in independence in self-care.

Determining unmet needs. Among the aspects to be studied are the number of handicapped children rejected or on a waiting list for admission to school, children discharged, recommendations made and not carried out, and children inappropriately placed.

Vocational Services

Vocational assistance (testing, guidance, training, and placement) is an essential part of rehabilitating handicapped youths. It is a major way of promoting independence among the handicapped.

The extent of coverage may be evaluated in several ways. One is by studying handicapped youths in the 11th or 12th grades—their vocational status and needs, the percentage seen by a vocational counselor, and the percentage in any vocational service. Another way is to study the care of handicapped teenagers by the official State Crippled Children's Program—their status and the percentage referred for vocational services. Other handicapped teenage groups that may be assessed include those receiving care under title XIX, Aid to Families With Dependent Children, and Aid to the Disabled or those rejected for service by the official vocational rehabilitation program.

Are vocational counselors in the schools, diagnostic and treatment facilities, and residential services available for the handicapped? The availability of vocational agencies including sheltered workshops, both for the ambulatory or homebound handicapped, should be

reviewed. Other aspects include the extent to which standards have been developed for the medical and health care of the handicapped under the vocational rehabilitation program and the extent to which the standards are being used.

A significant aspect of evaluating a vocational rehabilitation program is the end result for each person. Thus there needs to be continuous study of the percentage of those who have successfully completed their education and training and are employed. Those who are unsuccessful—their status and needs and the reasons for nonsuccess—should also be studied.

Day Care

Day care is an important service for many handicapped children and youth. It gives the handicapped child an opportunity to leave his home and to socialize with other children. It can be a very helpful educational experience. Day care is a way of giving training in self-help and self-care to the handicapped child. It offers some freedom to the parents and also can be an opportunity to teach parents how to care for their child at home.

Extent of coverage in a community can be determined by the number of day care centers accepting handicapped children and youth and the number of children attending the centers. Comparing this information with the estimated number of handicapped children and youth who might benefit from day care yields data on unmet needs. The existence and size of waiting lists for day care centers also furnish evidence of an unmet need.

Surveying existing day care centers for the handicapped, reviewing the content of their programs, and comparing them with an established standard yields information on the quality of the program within each center. Aspects of care include the extent that each child is evaluated and diagnosed before admission and periodically while in the center, provision of staffs in various professions and their qualifications and staff-child ratios, program for training children in the activities of daily living, program for nutrition (meals, snacks, and use in teaching self-feeding), appropriateness of physical plant and equipment to the needs and conditions of the children, the teaching of parents, recording of information about the children, availability of

transportation, and program for health examinations by the staff. The opinions of parents may be helpful in pointing up unmet needs (5).

Foster Home Care

A foster home program is an important community service for some handicapped children and youth. For those young people without a family or unable to remain at home, care in foster homes or adoption represents the means by which they may be able to live and grow within the environment of family life.

The availability and need for foster home care can be studied from several points of view: (a) whether a foster home placement program for the handicapped exists, (b) the number of handicapped children placed and their diagnoses and degree of disability, (c) the number of known handicapped children and youth awaiting placement in foster homes, and (d) the number and types of handicapped children in inpatient facilities who are ready for discharge but are unable to return to their own homes.

The quality of care in a foster home can be studied by surveying the number of homes with handicapped children and the care received by the children living there. Another aspect is the accessibility of these foster homes to other services needed by each child.

Transportation Services

Available transportation means that handicapped children and youth can attend medical treatment facilities, schools, vocational rehabilitation services, recreational facilities, and day care centers. No transportation service frequently means that the handicapped child is unable to use the various services available in his community. To study the extent of coverage one can include the number of handicapped children and youth currently being transported in a community, the list waiting for transportation, and the number of handicapped children and youth homebound because transportation is lacking.

The quality and adequacy of transportation facilities can be evaluated by knowing the type of vehicle used, its safety, and whether it accommodates children and youth in wheelchairs; whether handicapped people are able to travel in the public buses, subways, and other con-

veyances; whether attendant service is provided; the duration of individual trips; and whether special parking facilities are provided for the handicapped. Can some vehicles be modified for the handicapped individual to drive? The insurance coverage of vehicles used to transport the handicapped also requires study.

Residential Care

For some handicapped children and adults, residential care is an essential service. The severely disabled who are at home or in a hospital may need this service on a long-term or a short-term basis.

Extent of coverage includes the number of handicapped children by age group in a residential facility, type of facility, diagnosis, degree of disability, extent of waiting lists, whether handicapped children are rejected for residential care, the reasons for rejection, and disposition of the rejected.

The quality and adequacy of service can be determined by (a) the physical plant or equipment, (b) the staff (number, qualifications, and staff-patient ratios), (c) availability of an active rehabilitation program including a sheltered workshop, (d) whether a careful evaluation is done before admission and periodically thereafter, (e) the discharge rate, (f) the mortality rate and causes of mortality, and (g) the infection rate and causes of infection. Comparing the existing residential care with an established standard is a desirable practice (6, 7). Still another aspect is the question of whether children and adults in a residential facility need to be there or whether another facility could more appropriately fulfill their individual needs.

Housing and Other Facilities

Suitable housing for the handicapped fosters independence and enables them to leave their homes and participate in community activities.

Housing needs and facilities can be studied by collecting data on (a) the number of handicapped ready to be discharged from an inpatient service but unable to go home because of unsuitable housing, (b) the number of handicapped children and youth unable to attend school because of the unsuitable location of their homes

or because of their inability to get in and out of their homes, (c) whether low-cost housing contains a sufficient number of units especially designed and equipped for families having a handicapped member, (d) whether families having a handicapped member are given priority for low-cost housing, (e) length of time between applications by families with a handicapped member for low-cost housing and the actual move into it, and (f) number of families with a handicapped member on the waiting list for low-cost housing.

Prevention of Handicapping Conditions

The ultimate objectives of any program for handicapped children are primary prevention, or preventing the condition from occurring, and secondary prevention, or minimizing the effects of the condition on the child.

Data on a handicapped children's program can be an index of the effectiveness of a community's total health program, including preventive services. For example, the quality of maternity care can be estimated by incidence and prevalence of cerebral palsy and other birth injuries. The quality of an accident prevention program can be judged by data on incidence of damage to the central nervous system resulting from head injuries or lead poisoning, or on incidence of amputation or paraplegia resulting from injuries. The quality of an immunization program can be studied from data on incidence of congenital defects resulting from rubella or on incidence of residual central nervous damage resulting from measles or encephalitis. Other examples include data on prevalence of amblyopia resulting from strabismus or delay in case-finding or treatment and data on prevalence of hearing loss resulting from upper respiratory infections or delay in medical care.

Another way to evaluate preventive services is to study the extent of application of specific known preventive measures. Such services include the application of rheumatic fever prophylaxis, use of immunization against measles and German measles, use of diet in prevention of mental retardation in children with phenylketonuria, and use of genetic diagnosis and counseling and family planning for families with a known genetically determined condition.

Still another review would include the trends

in incidence and prevalence of certain handicapping conditions over a period of time. For example, disability resulting from tuberculosis, osteomyelitis, and rickets has almost disappeared in the United States; on the other hand, no evidence has been seen that disability resulting from birth injury, cerebral palsy, mental retardation, epilepsy, accidents, or erythroblastosis is decreasing.

Barriers to Use of Services and Resources

Among the barriers to use of services by handicapped children and youth are lack of funds, costs of care, and eligibility criteria, based on socioeconomic levels, that may eliminate some of them. Some children lack transportation to the services, or architectural barriers may prevent their use. A building may be inaccessible to a child because of where he lives. Parents may not be interested in use of the services, and adequate counseling is not always available to direct them. If the parents are interested, they may be forced to "shop around" for aid, and the child may receive inappropriate help. Other barriers are discontinuity of care, no followup of care, lack of home-care teaching, and infrequent appointments for the services. Sometimes incomplete teams try to handle the child; thus effectiveness is decreased by referrals to other services, many visits, and sending reports back and forth between agencies. Older handicapped children and family members of the younger patients have revealed many barriers and gaps in services.

Agency Relationships

Official State agencies for crippled children are in a position of leadership to promote close working relationships with other agencies. They can review the existing community coordinating mechanism to facilitate cooperation, use of similar standards by a number of agencies, use of a uniform method of payment for services and a uniform level of fees by a number of agencies, joint agency review of caseloads, promptness of patient referral, and sharing of information.

Official agencies for crippled children need to work closely with voluntary agencies concerned with the handicapped, official vocational rehabilitation programs, Medicaid, Aid to the Dis-

abled, Aid to Families With Dependent Children, Head Start, children and youth projects, and maternity and infant care projects. All youth in the official Crippled Children's Programs need routine reviews by agency teams before their 21st birthday.

Administration of Program

The quality of administration can be ascertained by determining whether the agency whose program is being evaluated has a qualified director and staff; the qualifications of all staff members are important. Reviewing the functions of the director and staff is also useful; that is, do they perform the functions for which they are best prepared? Can personnel with less training perform these functions as well? Has a professional advisory committee to the agency been established, and how is it being used? It is also important to know whether one or more consultants are employed and how they are used (8).

Use of the planning, programing, and budgeting system is essential in determining cost benefits and cost effectiveness. The system focuses on the primary goals and objectives of each agency, helps to weigh alternatives, and then helps to present the facts as a basis for better decisions (9). Related to expenditures is knowing the proportion of funds spent for inpatient services as compared with outpatient services, whether all handicapping conditions are covered, and the proportion of funds spent on patients with the various handicaps.

Comparison of data on trends in incidence and prevalence of individual handicapping conditions is necessary as compared with data on the trend in the childhood population as a whole. Comparing the geographic location of handicapped children and their families, including their migrations, with the location of available services is helpful in investigating the accessibility of such services (10).

Analyzing the age distribution of the children and youth served determines the effectiveness of casefinding. A program audit of a sample of handicapped children cared for by any agency, performed by an interdisciplinary team, determines how well each child and his family are being served and pinpoints gaps in services and unmet needs. Sending a question-

naire to the families of all handicapped children known to an agency or to a representative sample, requesting information on care received and assistance needed, is helpful in evaluating services that may require development or expansion.

Conclusion

There is great need to evaluate services for handicapped children to determine the extent to which services are available and the extent of coverage. Evaluation is the method of analyzing the care that some handicapped children receive and of uncovering unmet needs. Program administrators need to take a more active role in evaluating services for handicapped children. Programs that train clinicians and administrators need to place greater emphasis on the importance of evaluation and on the design of evaluative efforts.

REFERENCES

- (1) National Center For Health Statistics: Current estimates from the health interview survey, United States, 1967. PHS Publication No. 1000, Ser. 10, No. 52, May 1969, U.S. Government Printing Office, Washington, D.C., p. 15.
- (2) American Public Health Association: Glossary of administrative terms in public health. *Amer J Public Health* 50: 225-226, February 1960.
- (3) James, G.: Evaluation in public health practice. *Amer J Public Health* 52: 1145-1154, July 1962.
- (4) Wallace, H. M., and Fisher, S. T.: Use of congenital malformation data reported on live birth certificates. *Public Health Rep* 81: 631-638, July 1966.
- (5) Wallace, H. M.: Day care for handicapped children. *Young Children* 21: 151-161, January 1966.
- (6) American Association on Mental Deficiency: Standards for State residential institutions for the mentally retarded. Monograph supplement. *Amer J Ment Defic* 68: 1-101, January 1962.
- (7) American Association on Mental Deficiency: Standards for State residential institutions for the mentally retarded. Monograph supplement. *Amer J Ment Defic* 66: 1-192, January 1962.
- (8) Wallace, H. M., Cohen, R., and Siffert, R.: Advisory committees and consultants in programs for crippled children. *Public Health Rep* 83: 652-658, August 1968.
- (9) Spindler, A.: PPBS and social and rehabilitation services. *Welfare Rev* 7: 22-28, March-April 1969.
- (10) Wallace, H. M., Meinert, C. L., and Englund, P. J.: Cerebral palsy in Minnesota. *J Chronic Dis* 17: 153-165, February 1964.

Tearsheet Requests

Helen M. Wallace, M.D., Division of Maternal and Child Health, University of California School of Public Health, Berkeley, Calif. 94720

Seat Belt Campaign Fails

The total failure of a \$51 million advertising campaign to convince people to use seat belts when driving was recently reported in *Marketing/Communications* magazine. Before the big ad drive began early in 1968, the magazine reported that a study showed 63 percent of car owners had seat belts installed, and 35 percent claimed to be using them all or most of the time. By July 1969—18 months and 51,509,034 ad dollars later—65 percent had seat belts in their cars, but only 34 percent were using them all or most of the time. During the same period, seat belt owners who used their belts—hardly ever or not at all—increased from 39 percent to 43 percent. According to the magazine's editors, the seat belt campaign was the startling story of what may be advertising's biggest flop.

MacCORQUODALE, DONALD W. (U.S. Agency for International Development): *Analysis of a family planning program in Guatemala. Public Health Reports, Vol. 85, July 1970, pp. 570-574.*

Effectiveness in a family planning program in 20 health centers in Guatemala in 1967 was highly correlated with effectiveness in other public health activities (0.81) and with population size (smallness) of the municipio (0.72).

A low degree of correlation existed between effectiveness in family planning and degree of urbanization of the municipio (0.28) and ethnic composition of the municipio (0.20).

There was a negative correlation between effectiveness in family planning and literacy (-0.55).

Possible explanations for the correlation between effectiveness in family planning and size of municipio were offered. In larger communities, more people earn enough to pay for medical services than in smaller communities, and one might expect physicians in the larger areas to spend an appreciable amount of

time in their private clinics. A payment the equivalent of US\$2 for each new patient seen in the family planning program would not adequately compensate a physician in a larger community, whereas the same fee could be a genuine incentive in small towns. Furthermore, in small communities the health center physician, frequently the only physician in the area, is more prone to take an active part in community affairs involving the lower social classes, and he probably would have a better relationship with his patients than the physician in a larger community.

McDONOUGH, E. S. (Marquette University), **LEWIS, ANN L., and MEISTER, MORRIS:** *Sporothrix (Sporotrichum) schenckii in a nursery barn containing sphagnum. Control of fungus with a disinfectant. Public Health Reports, Vol. 85, July 1970, pp. 579-586.*

Sporothrix (Sporotrichum) schenckii was isolated repeatedly over a 3-year period from a nursery storage barn in which a man had presumably acquired sporotrichosis. The evidence indicated that *S. schenckii* had been carried from one year to the next in a mixture of sphagnum and soil in drain holes and cavities in the barn's cement floor,

as well as occasionally on moist wood or used sphagnum.

Flooding the drain holes and cavities with a phenolic fungicide reduced the contamination. More complete control was obtained when the walls and ceiling of the empty barn were also sprayed with the disinfectant. Following disinfection, 37 samples taken at random from

all over the floor and from piles of plants were negative for *S. schenckii*.

Failure to isolate *S. schenckii* from used sphagnum which was assayed a year after it was placed outside the barn indicates a need for studying the effect of wintering on this fungus.

Conclusive evidence that the pathogen was introduced into the barn in new bales of the moss was not obtained; nor was it demonstrated that *S. schenckii* was introduced from the surrounding fields.

SAID, MOHYI-ELDIN (University of Alexandria, Egypt), **GOLDSTEIN, HYMAN, KORRA, AHMAD, and EL-KASHLAN, KHALIL:** *Prevalence and causes of blindness in urban and rural areas of Egypt. Public Health Reports, Vol. 85, July 1970, pp. 587-599.*

A house-to-house survey of a 4 percent random sample of households in urban and rural areas in and around Alexandria, Egypt, was conducted. This sample consisted of approximately 11,000 persons of all ages and socioeconomic levels. Attempts were made to examine all members of such households for visual acuity with best correction and, where appropriate, for field of vision. A total of 326 persons had diagnoses of blindness confirmed by an ophthalmologist.

No significant difference in specific affection or etiology prevalence rates in urban areas was observed between males and females.

Significant differences were noted in the rates between males and females for all affections combined or for all etiologies combined—specifically for keratitis (infectious diseases) and cataract (senile degeneration) prevalence rates in the rural areas. In all these affections, rates among females exceeded those of males.

Significant differences for males were observed between urban and rural blindness prevalence rates for all affections combined and specifically for myopia (prenatal influence and unknown) and keratitis (infectious diseases) prevalence rates; in all these affections, except myopia, rural rates exceeded urban rates.

There were significant differences for females between urban and rural rates for all affections combined or for all etiologies combined. Rural rates exceeded urban rates for keratitis (infectious diseases) and for cataract (senile degeneration). For myopia (prenatal influence and unknown) the reverse was true.

KELLY, SALLY (New York State Department of Health), **KATZ, SELIG, BURNS, JEAN, and BOYLAN, JEANNE**: *Screening for galactosemia in New York State, Public Health Reports, Vol. 85, July 1970, pp. 575-578.*

In conjunction with New York State's mandatory screening program for phenylketonuria, 141,402 infants born in 1968 and 1969 were also tested for galactosemia.

The tests were carried out by incubating dried blood samples on filter paper disks in the depressions of trays for 3 hours or longer. Each

depression contained 0.2 ml. of substrate. Aliquots of the incubation mixtures were spotted on filter paper and, if nonfluorescent, spotted again 18-20 hours later. The spots were examined under long-ray ultraviolet radiation when dry.

The annual cost of the program

was approximately \$10,000 for 70,000 samples.

Ninety-seven percent of the newborns had normal transferase activity. Of 143 whose samples failed to fluoresce, samples from 132 were tested a second time. Of those, 110 were considered normal.

Seven infants had persistent transferase deficiencies, and four of these were homozygotes or "double heterozygotes." The incidence of galactosemia at birth was considered one in 35,000.

BENSON, W. W. (Community Studies Pesticides Project, Boise, Idaho), **MARR, THOMAS A., and GABICA, JOE**: *An apparent case of pesticide poisoning, Public Health Reports, Vol. 85, July 1970, pp. 600-602.*

During the fall of 1968 a well apparently was polluted with Thimet from an unknown source, and four members of a household were exposed to contamination. This contamination probably would not have been noticed if the physical condition of the father who was receiving

renal dialysis treatment had not been adversely affected.

The family's private water supply was found to contain *Escherichia coli* which was first considered to be the source of the father's difficulty. Chlorination of the water supply did not prevent a subsequent attack, and

further testing of the water supply revealed the presence of Thimet (phorate, diethyl methyl phosphorodithioate). Although the source of the Thimet contamination could not be found, we assumed that Thimet apparently was the cause of the acute illnesses that the father experienced. A new, deep well providing a safe source of water eliminated further acute illness associated with the father's dialysis.

HREHOROVICH, VICTOR R. (Division of Communicable Diseases, Pennsylvania Department of Health), **SCHRACK, WILLIAM D., Jr., HALL, DAVID A., LONGENECKER, ROBERT E., and GRATCH, ISAAK F.**: *Influenza surveillance in Pennsylvania. December 1968-January 1969. Public Health Reports, Vol. 85, July 1970, pp. 603-609.*

The Pennsylvania Department of Health set up a statewide surveillance system to delineate the extent of an influenza outbreak in the State, to facilitate early laboratory confirmation of suspected cases, and to elucidate the clinical and epidemiologic characteristics of influenza infections. The system was designed to monitor daily absenteeism in representative schools and industrial plants and to make such information available to laboratories and clinical institutions.

The 13 surveillance sites, distributed so as to monitor the population in all six geographic areas, usually were located at State health centers and supervised by public health nurses. Excluding Pittsburgh and Philadelphia, which had separate, municipally administered surveillance systems, the total population

under surveillance was 8,079,500. Of this total, a sample of 101,613, or 1.2 percent, was included in the daily absence monitoring.

Monitoring began December 2, 1968, and ended January 31, 1969. Absence reports were received for a total of 42 days and reviewed daily. There were no reports for 16 weekend days, December 25 and 31, and January 1. Schools did not report from December 23 through January 1. Daily reports were received from 15 reporting units comprising 37 primary schools with a population of 23,938, and 17 units comprising 26 secondary schools with a population of 37,930. The total of 22 plants reporting had a population of 39,745.

The average number of plants reporting was 15.6 per day, or about 71 percent of those participating. The average number of schools reporting

per day was 57, or about 91 percent of the 63 participating.

Increased absenteeism, probably caused by influenza, crossed the State in about 5 weeks. Beginning in Philadelphia, absenteeism spread rapidly to the southeast corner of the State, and then almost sequentially progressed first to the northeast and north-central portions and later to the south-central and western areas.

Identification of areas with probable influenza activity facilitated collection of specimens for laboratory studies. State laboratories made more than 700 isolations of virus similar to A₂/Hong Kong/68 influenza virus during the epidemic. As a result of autopsies, 26 deaths were confirmed by viral studies as due to influenza.

The department issued eight reports on the status of the epidemic. These reports, distributed to medical organizations and summarized in the press, alerted the public to the presence of the epidemic and stressed the need for vaccinating persons in high-risk groups.

BALL, JOHN C. (Temple University Health Sciences Center, Philadelphia), **THOMPSON, WILLIAM O.**, and **ALLEN, DAVID M.**: *Readmission rates at Lexington hospital for 43,215 narcotic drug addicts. Public Health Reports, Vol. 85, July 1970, pp. 610-616.*

Readmission rates for all addicts discharged from the Public Health Service Hospital, Lexington, Ky., since 1935 were calculated. During this 32-year period, 1935-66, there were 43,215 addicts treated at Lexington and these patients had a total of 77,076 admissions. Because many patients relapsed to abuse of drugs and returned for further treatment, the recorded number of admissions is greater than the number of patients.

After admission and discharge data pertaining to all 43,215 addicts were retrieved and computerized, readmission rates were calculated by

both the cohort and probability methods. The second procedure was deemed preferable as it controlled for years at risk since discharge.

Of the 43,215 addicts, 70 percent were voluntary patients and 30 percent were Federal prisoners. The voluntary patients could leave the hospital at will; the Federal prisoners could not. The readmission rate for the male voluntary patients was 40.0, and the rate for the male prisoners was 36.1. Thus, voluntary patients were more likely to be rehospitalized for their addiction than

the Federal prisoners. In addition, the younger addicts had higher readmission rates; among white male voluntary patients under 21 years, the rate was 52.6.

Length of hospital stay for voluntary patients showed little relationship to the probability of readmission. The readmission rate for those addicts discharged as cured was 37.4, while the rate for those who left against medical advice before 31 days was 39.9, and the rate for those who stayed longer was 42.3.

We concluded that a positive association exists between relapse to drug abuse and both the youthfulness of addicts and the inadequacy of brief periods of voluntary hospital treatment.

MORTON, WILLIAM E. (University of Oregon Medical School, Portland): *Demographic redefinition of Hispanos. Public Health Reports, Vol. 85, July 1970, pp. 617-623.*

Discovery of a major ethnic classification error in a heart disease survey among school children in Denver, Colo., led to investigation and improvement of the U.S. Census Bureau's Spanish-surname method of estimating membership of the Hispano ethnic group. Limitations of this crude but useful social measurement method are discussed.

Formerly, the problems of Hispanos of Mexican descent were of

interest only in the States originally settled by Spaniards from Mexico. Today, however, these problems are of nationwide concern, since this population group represents a major proportion of the seasonal agricultural labor force throughout the country.

In the Denver study, the classification error had systematically exaggerated differences in socioeconomic distribution between Hispanos

and other whites and had failed to count 17.5 percent of the Hispanos. Additional cross checking also disclosed an unexpected tendency for underrecognition of nonwhite racial categories. Prevalence rates recomputed with the corrected population data showed a uniform ethnic distribution of children with a history of rheumatic fever, in contrast to the previous erroneous ethnic difference. Prevalence rates of rheumatic and congenital heart disease by ethnic group remained relatively unchanged by the ethnic error correction.

BAER, GEORGE M. (National Communicable Disease Center, Lawrenceville, Ga.), and **ADAMS, DEVIL BILL**: *Rabies in insectivorous bats in the United States, 1953-65. A review, Public Health Reports, Vol. 85, July 1970, pp. 637-645.*

Of the 1,869 rabid insectivorous bats reported from 47 States from 1953 through 1965, 65 percent were identified as to species. There was a notable concentration of rabid bats from May to October; 88.2 percent of rabid bats were reported during these months.

Of the identified bats, 59 percent were recorded in 20 colonial species, and the remaining 41 percent in five free-living species. The species with the widest geographic distribution was the free-living hoary bat, *Lasiurus cinereus*; cases were reported by 24 States. There were more

cases (223) of rabies in the free-living red bat, *Lasiurus borealis*, than in any other species.

In the colonial Mexican freetail a comparatively low prevalence of rabies infection has been noted, together with a concurrent high prevalence of rabies antibody; violence is rare in this species. Violence has, however, been observed in three free-living species—the hoary bat, the red bat, and *Lasiurus intermedius floridanus*, the yellow bat.