EVALUATION OF CRIME CONTROL PROGRAMS

U.S. DEPARTMENT OF JUSTICE
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National Institute of Law Enforcement and Criminal Justice

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by

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FOREWORD

This monograph is one of a series to be issued by the National Institute of Law Enforcement and Criminal Justice dealing with evaluation of programs of concern to LEAA. This paper describes the problems and procedures involved in evaluating crime control programs. Future monographs will deal with evaluation issues in courts, probation, parole, and corrections programs.

Assessing the value of a crime control program is not a simple task. As with all programs dealing with human behavior, many variables interact in unknown ways to produce changes. Furthermore, these changes may not be permanent because of human adaptability in the face of new conditions. This is especially true in the case of programs for reducing crime, whose effects the criminal will try to neutralize.

This paper discusses many of the problems that are faced by evaluators in determining the effectiveness of crime control programs. It bridges the gap between the theoretical considerations of concern in program evaluation and the practical problems facing the program administrator and evaluator. Concrete examples are given throughout the paper to tie theory to practice.

In disseminating this paper, the Institute hopes to stimulate thinking into new ways to evaluate programs in the criminal justice system. This paper raises more issues than it answers. The problems which it addresses should be answered, but the proposed solutions are suggestions rather than the evaluation procedures to be used in all cases. The paper is, however, a step toward the improvement of crime control program evaluations. It should be of interest to all those concerned with the administration, innovation, and evaluation of programs in the criminal justice system.

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SUMMARY

As increasing sums of money have been infused into criminal justice programs, the need for evaluation guidelines has become more apparent. Evaluations are used at all levels of administration of criminal justice programs, from the Law Enforcement Assistance Administration (LEAA) and State Planning Agencies (SPAs) through local criminal justice coordinating councils and individual agencies. They are useful for a number of purposes: to determine whether to continue, stop or modify a program; to determine whether local funds should be used to support the program after its experimental phase; or to decide whether the program should be promoted in other jurisdictions. Information obtained from evaluations can lead to general principles and guidelines to assist local administrators in setting their priorities for testing and implementing new programs.

This paper discusses some common problems found in evaluating crime control programs. Evaluation procedures are recommended to assist in planning the program, selecting the geographic areas for program implementation, choosing measures of effectiveness, and conducting the evaluation. Examples are given to illustrate these procedures.

Program Planning

No crime control program is effective against all types of crimes and all types of offenders. In planning a program its focus should be defined, with a description of the manner in which the results are expected to be achieved. This program rationale should include a description of the specific crime problem addressed, how it is now treated, how the program will affect it, and possible impediments to program success.

The choice of the program size, the program evaluator, the data needs, and quality control measures are other decisions reached in the program planning phase which affect the evaluation. Care should be taken to ensure that the program is not expanded before it has been evaluated. As explained in Section IID, the evaluation team should come from the agency running the program to the extent possible. Sufficient administrative and evaluative data should be brought together, and quality control checks on the data should be made part of the evaluation plan.

Program Location

Selection of the geographical area in which to implement a program and the area used for control should be based on matching relevant factors.

These factors include the crime rates, demographic data, other programs running in the candidate areas, and the effects of adjacent areas. The primary crime rates considered should be specific to the crime problem addressed, but rates of occurrence of other crimes should be included when possible. The demographic data and the other programs which are considered should be the ones related to the rationale of the experimental program. The area selected for initial implementation of a new program should not be the one with the most severe crime problems: the evaluative phase should be conducted under conditions permitting adequate testing, data collection, and evaluation. Since crime rates and types are affected by the characteristics of adjacent areas, they should also be considered in selecting the location for implementing the program.

Measures of Effectiveness

Two types of effectiveness measures are considered external and internal. External measures relate to the success of the program in countering crime, internal measures relate to the manner in which the program achieved its results. The external measures of effectiveness used most often are the crime rate and the clearance rate. There are problems in using both of these measures without further analysis. Crime rates should be audited to determine whether changes are due to changes in reporting procedures, crime displacements, or other factors not tangibly related to the program. Crime displacements may involve the diversion of offenders to other crimes, to other tactics and targets, or to other areas; all should be accounted for. Crime clearance (i.e., solution) rates should be audited to determine whether changes are due to changes in the way crimes are cleared, in the exercise of police discretion, or in only certain subcategories of the crime under study.

The internal measures of effectiveness to be used depend upon the type of program to be implemented. If the program's success depends upon quick response, then response time should be one of the measures; if it depends upon patrol manpower, then the amount of time spent on patrol should be used. These measures are instrumental in explaining why or how a program worked, but are not indicators of the overall success of the program.

The Evaluation Process

An evaluation requires on-going interaction with the individuals involved in the program, not just statistical analysis of data. Program personnel, from the police chief to the clerks assigned to the program, should be apprised of the progress of the evaluation and questioned about procedures and problems. The evaluation teams should also be aware of the different "styles" of police departments which can affect the transferability of a program; programs successful in one department are not always workable in others.

The results of the evaluation need not be clear-cut to be useful. Sounder program assessments can be made with the added information. Even without conclusive results, the evaluator still has the responsibility of making recommendations concerning the program.

I. INTRODUCTION

A. Background

The past decade has seen a resurgence of public concern about crime; problems not addressed since the early 1930's are again in the foreground of interest. Governmental concern has been manifested in the number of public laws dealing with crime problems and law enforcement assistance.[1] The budget of the Law Enforcement Assistance Administration (LEAA) has risen tenfold in the past three years.[2]

Increased attention and funding for crime problems have encouraged local law enforcement agencies to initiate action-oriented programs which could not have been undertaken without this Federal assistance. As a consequence, innovations have been and are being tried in the state and local agencies comprising the criminal justice system, in all phases of their activities. In police departments, many of the programs have been directed specifically toward the control of crime.

Programs directed at crime control do not have to concentrate on police activity. The victim or target of crime can also be the focus. Many crime targets are poorly or inadequately protected; people who insure their property may become more careless in securing it; city planning, building architecture, and store layouts may violate the most fundamental tenets of designing for security, simply because security was not considered. These causes refer more to the opportunity for crime rather than to the motivation of the offender. Programs in these areas can also be effective in crime control.

B. Objective

This paper describes a methodology for planning and evaluating crime control programs. The term 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

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1. Since enactment of the Omnibus Crime Control and Safe Streets Act of 1968 (P.L. 90-351), a number of crime-related laws have been passed. They include the Bank Protection Act of 1968 (P.L. 90-389), the Juvenile Delinquency Prevention and Control Act of 1968 (P.L. 90-445), the Gun Control Act of 1968 (P.L. 90-618), the Organized Crime Control Act of 1970 (P.L. 91-452), the Comprehensive Drug Abuse Prevention and Control Act of 1970 (P.L. 91-513), and the Omnibus Crime Control Act of 1970 (P.L. 91-644).

2. LEAA's appropriation history: FY 1969, $63 million; FY 1970, $268 million; FY 1971, $480 million; FY 1972, $699 million.

> used in measuring success, determination and explanation of the degree of success, recommendations for further program activity.[3]

To some extent this paper is an elaboration of this definition. It points out the elements of each of these steps, the problems and pitfalls in carrying them out, and the way they relate to the context of crime control programs. It is concerned with programs with short-term results, primarily police-oriented programs.

The ideas discussed herein are not new; many of the problems and procedures have been discussed by others in different contexts. However, in this paper they are focused on crime control programs.

These guidelines are directed primarily toward two audiences. They are designed to give the evaluative researcher an understanding of the characteristics of police operations and data that can affect evaluations. They should also give the police officer an understanding of the intricacies, requirements, and problems of evaluations, without getting too involved in technical and statistical matters.

Recently police administrators have been experimenting with new equipment, patrol techniques, personnel policies, disorder management techniques, and other innovations. Not all were effective, nor were any uniformly effective. And for the most part, they were not evaluated properly. As a result, if a police administrator wished to implement one of these programs on the basis of his own department's priorities, he had no readily available source of information to help him make a rational decision. LEAA can consolidate the individual evaluations into general guidelines. However, it is up to each department which implements a program to develop the evaluative information on how and how well it worked. The potential value of each program will not be realized if it is not evaluated or if its evaluation is kept isolated from similar evaluations in other jurisdictions.

C. Deficiencies in Evaluations

The primary reason for performing an evaluation is to make the best possible decision. A police department needs to determine which programs are effective, whether to continue or modify them. A criminal justice coordinating council or SPA must determine whether the program should be supported after the evaluative phase. An SPA or LEAA must determine the best way to allocate its money among competing problem areas, and among different programs focused on the same problem area. Many of the past evaluations were not adequate for these purposes.

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3. Suchman, Edward A., Evaluative Research, Russell Sage Foundation: New York, 1967, p. 28; he quotes the American Public Health Association's definition of evaluation.

There are several reasons for poor evaluations. Agencies may have been laboring under handicaps for years, and looked upon LEAA as a source of money which would finally enable them to function properly. In such cases the grantee often feels that the evaluation is superfluous, another bureaucratic demand, not requiring serious consideration.

Many evaluations are based on insufficient data sources. It is often assumed that since police records are extensive they must also be adequate; that somewhere within the vast files are all of the right data necessary for the evaluation. When these are not found the evaluator tends to fall back on the existing data, rather than search for more pertinent information.

The nature of the political process sometimes requires that public officials appear omniscient, succeeding in every program they undertake. If the evaluation proves that the program was a failure, a less damning evaluation report may be submitted.

Another reason for poor evaluations is the lack of expertise of those called upon to perform the evaluation. The rapidly increasing budget of LEAA, coupled with the decline of funding in other sectors of government, has brought about an onrush of individuals and firms ready to take on such work, but with inadequate background in evaluating activities in the criminal justice system. Although knowledgeable in performing research and conducting projects, they had little knowledge of peculiarities of the agencies comprising the criminal justice system. Conversely, many of the evaluations were performed by practitioners in criminal justice agencies who had little training in program evaluations. These evaluations may be weak in methodology and may have limited validity, but at least show an understanding of the problem and are free of much of the jargon that makes the former evaluation reports all but unreadable.

D. Scope

The guidelines for evaluation described in this paper do not include factors relating crime control programs to other elements and agencies of the criminal justice system. A crime control program which increases arrests may have an adverse effect on court delay and the workload of probation, parole, and penal agencies. Conversely, programs in judicial, prosecution, and corrections agencies will affect police workload and crime rates. If one were to attempt to include all of the criminal justice agencies' effects in an evaluation, data from all of the agencies would be needed. Furthermore, the data would have to be matched on a case by case, offender by offender basis. This is extremely difficult to accomplish at the present level of coordination of these agencies' statistics; LEAA is

working to improve this situation.[4]

LEAA's program is directed toward the reduction of crime and delinquency; in particular, the reduction of those crimes which engender the most public fear. Thus, white-collar crimes are not within the scope of this paper; nor are the "victimless" crimes of gambling, prostitution, narcotics, and pornography addressed, except as they produce crimes with victims. The approach described herein assumes that a victim exists, is aware he is being victimized, and will report the incident to the police.

Crimes such as murder and assault, except for those committed during the commission of another felony, normally take place between acquaintances and relatives. These crimes are generally outside the scope of the crime control programs discussed herein. The included crimes are considered suppressible by police action.[5]

The experimental application of a new procedure or piece of equipment under operational conditions is usually known as a program or project. A project is considered to be of smaller scope than a program, and may be an element of a program. However, LEAA usage does not distinguish between the two, both being identified as programs. In keeping with this usage, the term "program" will be used throughout to denote both program and project.

Certain aspects of planning and conducting a crime control program affect its evaluation. These aspects are discussed only to the extent that they relate to the evaluation.

These guidelines are not intended as a "cookbook" for evaluations that can be used by an evaluator turning to the appropriate page and following the recipe. It more closely resembles a guide to the kitchen, identifying some of the problems of evaluation (for the police-oriented readers) and some of the problems peculiar to crime control programs (for readers familiar with evaluation). It provides a framework (see Section VIIA) for conducting evaluations, but not all kinds or on all levels of sophistication. Modifications, additions, and deletions will have to be made as evaluations improve and new problems crop up. All suggestions for improving these guidelines will be welcomed.

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4. Under Project SEARCH (System for Electronic Analysis and Retrieval of Criminal Histories), sponsored by LEAA, twenty states are developing computerized criminal justice statistics systems "based on an accounting of individual offenders proceeding through the criminal justice system" [Designing Statewide Criminal Justice Statistics Systems - The Demonstration of a Prototype, Project SEARCH, Technical Report No. 3, California Crime Technological Research Foundation, Sacramento, California, November, 1970]. When such systems are operational they will permit the determination of inter-agency effects with relative ease.

5. Saint Louis Police Department, Allocation of Patrol Manpower Resources in the Saint Louis Police Department, Vol. I, July 1966. A discussion of "suppressible" and "non-suppressible" crimes is found on page 81.

Many particularly thorny problems of evaluation are described only briefly. A prospective evaluator may conclude that these problems are amenable to simple solutions. This is not necessarily true; it is almost always easier to describe the problem than it is to prescribe a viable solution. For example, controlling the quality of collected data is necessary to insure their validity and consistency; data audits will solve this problem. Yet auditing the data can be a major problem in itself, requiring a substantial commitment of resources. To audit a police patrol program it may be necessary at times to place unobtrusive observers throughout a district, to see where and how the patrol is accomplished.

It is not suggested that a complete evaluation should be performed for all programs; it is entirely unrealistic to perform a thorough evaluation of a trivial program. (Unrealistic except, of course, if the results of the evaluation are used to justify major programs). Regardless of the extent of the evaluation performed, one should be aware of the shortcomings of the evaluation to avoid jumping to unsubstantiated conclusions and expensive mistakes.

II. EVALUATION CONSIDERATIONS IN PROGRAM PLANNING

In recent years much has been written on the problems and procedures of evaluating major programs. Some were developed on the basis of experience in the fields of public health,[6] corrections,[7] and poverty;[8] others are based on general evaluative research.[9] These are good references for those interested in pursuing the topic further. Experience in these fields is not specifically applicable to crime control evaluations, but some general principles have been established.

This section describes some of the facets of program planning that are important in evaluation. They include the choice of the type of evaluation to be performed, the justification for selecting the program, the magnitude of the program, the choice of the team to manage and evaluate the program, and the provision for sufficient and reliable evaluative data.

A. Types of Evaluation

The type of evaluation used most frequently has its roots in experimental research. In its simplest form, this model seeks to determine the relationship between two variables. For example, by varying the independent variable (the dosage of a drug), the effect on the dependent variable (pulse rate) is determined, while all other variables and conditions (food intake, mobility) are held constant, constrained, or otherwise accounted for. It is implicitly assumed that the dependent variable does not affect the independent variable. This assumption is true in determining the effect of a drug on a population of white mice. However, it is of less utility in determining the effect of, say, team policing on crime. One can design an evaluation plan in the former case in a fairly straightforward manner. The number of mice can be determined by the degree of accuracy (or level of confidence) desired. Experimental and control samples, both drawn from a population with known characteristics, are given the drug and a placebo, respectively;

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6. Suchman, op. cit. supra at Note 3.

7. Wilkins, Leslie T., Evaluation of Penal Measures, Random House, New York, 1969; Wilkins, Leslie T., and Don M. Gottfredson, Research, Demonstration and Social Action, National Council on Crime and Delinquency Research Center: Davis, California, March, 1969.

8. Evaluating the War on Poverty, special issue of The Annals of the American Academy of Political and Social Science, 385, September, 1969.

9. American Institutes for Research, Evaluative Research: Strategies and Methods, report of seminar held on 8-9 January, 1970 in Washington, D. C., AIR: Pittsburgh, 1970; Guttentag, Marcia, "Models and Methods in Evaluation Research," J. Theory Soc. Behavior, Great Britain, I, 1, pp. 75-95; Wholey, Joseph S., John W. Scanlon, Hugh B. Duffy, James S. Fukumoto, and Leona M. Vogt, Federal Evaluation Policy: Analyzing the Effect of Public Programs, Urban Institute: Washington, D. C., 1970.

or many experimental samples may be used, to determine the effect of different dosages of the drug. The outcome of the experiment on each mouse is determined, and statistical tests are given the data to determine the outcome.

Although more complex in form, the same model can be used in evaluations of complex programs, e.g., education and public health programs. Experimental and control groups can be selected according to their characteristics. The "treatment" regimes can be administered by the researchers or by those taught by the researchers. The results can be analyzed for their statistical significance. However, since we are dealing with human subjects, certain complications arise. The degree of success may have nothing to do with the efficacy of the program, but only with the way it was introduced or with the personal predilections of the groups involved. There is no "standard" population; human beings are not standardized as mice are for laboratory purposes. A program found successful in one city may be a failure in another.

These considerations also apply in the evaluation of crime control programs. This evaluation is further complicated by another problem. The people whose behavior is to be modified, i.e., the offenders, cannot be "treated" directly or separated into experimental and control groups; they will not stand up and be counted. Although public health programs often encounter this problem, they often deal with physical cause-and-effect links between treatment and improvement. The same is not true for crime control programs. The effectiveness of these programs is normally determined by looking at statistics of reported crimes and arrests, which are more indirect indicators.

In a crime control program, it may be impossible to classify variables as dependent and independent; they may all affect and be affected by each other. Furthermore, because of the difficulty in determining why people behave the way they do, a number of intervening and antecedent variables may go unnoticed. Police programs designed to reduce crime may have their most direct effect on the behavior of the general public toward the police, which in turn affects the crime rate. Many police-community relations programs, for example, are designed with this in mind.

Evaluations are not necessarily restricted to the analysis of objective[10] crime data; they can also include subjective considerations and perceptions. These subjective evaluations can be of significant benefit in augmenting the statistical analyses of the results of the program.[11] They are especially

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10. Police-generated crime data are not entirely objective, since they are based on the perceptions of citizens and police as to what constitutes a reportable crime. (See Section V.) However, they will be considered so in this paper to contrast them with perceptions and opinions about programs.

11. Program evaluations can become overly concerned with quantitative rigor. See Weiss, Robert S., and Martin Rein, "The Evaluation of Broad-Aim Programs: A Cautionary Case and a Moral," in Evaluating the War on Poverty, op. cit. supra at Note 8, p. 133. See also Emrich, Robert L., A New Strategy for Public Policy Research, National Council on Crime and Delinquency Research Center: Davis, California, August 1971.

helpful in assessing why and how a program worked, and whether a statistical outcome is actually evidence that the program was successful. Interviews of participating agency personnel and residents of the area in which the program is run are usually used to supply this information. They can give the evaluator new insight into the actual program operation.

The preceding discussion categorized evaluations in terms of the type of data used, objective and subjective. Other divisions can be made on the level of evaluation required. One author[12] distinguishes five levels: Effort (the amount and kind of input required), performance (how much was accomplished relative to the objective), adequacy of performance (how well the performance met the program's overall goals), efficiency (in essence, cost-effectiveness--the degree of performance relative to the effort expended), and process (why and how the program achieved the results it did; what side effects occurred). Others[13] group these into four categories: project monitoring (effort), project rating (short-term measures of effectiveness), program strategy evaluation (process and cost effectiveness), and program impact evaluation (impact and cost effectiveness).

This paper concentrates on the two latter evaluation types, called "internal" and "external" evaluations, respectively. The words "internal" and "external" refer to whether the evaluation is conducted of the program's inner workings and logic, or whether it is conducted of the external effect of the program, which does not depend on program type. An internal evaluation of a crime control program involving the use of, for example, new police patrol techniques would include the analysis of police response time and how it was effective in controlling crime, or why it was successful in one area and not in another. The external evaluation would focus only on the effectiveness of the program in reducing crime rates or solving crimes, not on how or why or the conditions under which the results were achieved.

B. Program Rationale

Relating the actions taken during the program to the final results is not a simple matter. Statistics cannot and do not substitute for a logical connection between the effect produced and the conditions which produced it. For example, in noting the recent increase in police manpower concomitant with the increase in crime rates, one could illogically conclude that the former caused the latter. It is well known that public pressure due to the increase in crime brought about the increase in police manpower.

Finding the logical connections between cause and effect in crime control programs is made more difficult by the elusive nature of the population being "treated": the offenders. One cannot develop reliable statistics on the effect of the program on their behavior. A program may deter half of the offenders from committing crime while it goads the other half into becoming more predatory.

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12. Suchman, op. cit. supra at Note 3, p. 60.

13. Wholey et al., op. cit. supra at Note 9, p. 94.

A causal connection can be inferred if, say, a reduction in the crime rate is accompanied by an increase in clearances. Even this inference should be verified, by determining how the program contributed to the arrests. The reasons for believing that Program A caused Result B should be specified. Saying, "I don't know how it worked, but it worked and that's all that matters," may satisfy the local administrator for a short time, but it will be of no use in estimating the usefulness of the program under changed circumstances of time, place, or tactics.

In most cases where a crime control program has been implemented a logical thread does exist which forms the rationale for the program. This rationale should be clearly spelled out before the program is implemented. This will be very useful in retrospect, in determining which assumptions were valid and which had to be modified based on the program evaluation. The following outline can be used in most cases to relate the program to the problem being addressed.

1. Crime problem addressed - Its nature, its extent and importance, statistics relating to its occurrence, known information about offender characteristics and tactics which affect the type of program proposed.

2. Present operations - How the problem is presently attacked, deficiencies in this method of attack.

3. Program operations - How the program will operate, how the present deficiencies will be eliminated by the program, anticipated reactions of offenders to the program, how these reactions will affect the program.

4. Evaluative data - Sources of required data and their sufficiency, problems in using these data sources, ways in which data reliability may be affected, steps taken to insure uniform data quality and reliability.

5. Stumbling blocks - Problems which might crop up, assumptions which have not been verified, circumstances which may change.

Care should be taken in developing this rationale. In some cases it is very difficult to explain the logical connection between the problem and the solution. This is especially true when dealing with intuitive assumptions on the part of experienced police officers about the behavior of offenders and their probable reactions to new programs. "Gut feelings" are difficult to translate into cold logic.

The final report of the program evaluation should contain an analysis of this a priori justification of the program. The logic supporting the program should be modified based on the information developed during the program. This will be of benefit in planning future programs of this sort and in determining the extent of the program's effect.

Each program will have its own unique justification based on its own characteristics. The examples given in Section VIII contain justifications which can be used as guides in developing program rationales.

C. Program Size

There is no guarantee that a program meeting with success in one city (or a section of a city) would meet with the same degree of success in another city (or another section). The crime problems vary from city to city (and may vary even more from section to section within a city); different population distributions, with respect to both race and age, are found in different locales, and react differently to similar programs; and the training, motivation, and community support of the police are far from uniform throughout the country or within a city. Thus, a program should be tried in a number of different locales with different characteristics in order to determine how valid the findings are under different circumstances.

However, a limit should be placed on the number of areas selected and the speed of expansion of the program to these areas. A pilot program initiated for evaluative purposes may grow so large before results are forthcoming that it loses its value as an evaluative program. One observer has called this phenomenon "The Iron Law of Political Dispersal."

> "That 'law' states that, in any democracy, there is a strong political pressure to expand every expenditure program to encompass a large number of geographic areas, and to spread the resources in the program across many of those areas, in order to build up a broad political base in support of the program."[14]

Programs initially designed to be tested in small parts of a city may be diffused throughout the city, or to a number of cities. The financial resources may be increased commensurately, but the personnel resources necessary for coordinating program administration and evaluation may not increase sufficiently for the greater workload. The probable outcome of this situation is a large program in which it is impossible to determine its value or under what conditions it achieved that value. Awareness of this problem may foster moderation in planning programs.

D. Choice of Evaluator

Evaluation problems associated with the evaluator were mentioned in Section I - lack of familiarity with police procedures on the part of outside evaluators, lack of research expertise by in-house evaluators. An associated problem is the nature of the relationship between the evaluator and the program being evaluated, and between the evaluator and the agency conducting the program.

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14. Real Estate Research Corporation, Possible Program for Counteracting Housing Abandonment, prepared for the Office of Research and Technology, U.S. Department of Housing and Urban Development, June, 1971, p. 55.

One of the most important determinants of the objectivity of the evaluation is the attitude of the heads of the agency running the program. Some may want a fair evaluation of the program, others may want the program to be proved a success regardless of its merits. In the latter case the evaluation may be of little or no value.

The program evaluator may have preconceived notions about the merit of the program that would color his evaluation[15]. He may be an ardent proponent of the program, or of a competing one. His professional pride or financial interest may be affected by the outcome. These factors do not necessarily preclude unbiased evaluations; however, if they are not clearly revealed by the evaluator, the findings may be open to question despite their validity.

An outside evaluator is usually considered more impartial than one coming from within the agency. The outsider does not have prior prejudices based on long association with the agency, and can judge the program on its merits. An evaluation performed by in-house personnel is neither free of these preconceptions nor free of the influence of the agency administrators.

Outside evaluators are not without their disadvantages, however. They start without sufficient knowledge of the agency's workings; time must be spent getting them to a point where they can contribute to the evaluation. A symbiotic relationship can develop between an agency and an outside evaluator dependent on funds from the agency, in which objectivity is sacrificed in order to stay in the good graces of the agency.

Using a formula for selection of the evaluator will not assure objectivity. The "wrong" conclusion may not be accepted calmly by an administrator; although the messenger bearing bad tidings is no longer killed for his efforts, he frequently has to look for another job or another client.

One of the primary roles of an administrator is to evaluate the efforts of his agency. The agency should develop expertise in this area. If expertise is lacking in the agency, consultants should be retained with the requisite qualifications. However, agency personnel should be included on the evaluation team.[16] They should be as involved in the evaluation as the consultants. Complete reliance on outside consultants to conduct the evaluation will only perpetuate a dependency relationship, while contributing little of permanent value to the agency.

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15. Bend, Emil, "The Impact of the Social Setting upon Evaluative Research," in American Institutes for Research, op. cit. supra at Note 9, p. 109; Suchman, op. cit. supra at Note 3, p. 146.

16. Emrich, op. cit. supra at Note 11, p. 4.

E. Data Sufficiency and Reliability

The evaluation guidelines recommended in this paper cannot be met unless sufficient administrative data are developed during the program evaluation. These data will permit an assessment of the amount of resources expended in the program, and how efficiently and effectively these resources were used. They include the types of personnel assigned to the program, the number of man-hours of each actually spent on the program, the type and cost of special equipment and other inputs employed in the program, and the way each of these resource elements were used.

Another data-related problem concerns the ability of the program personnel. For example, the more competent policemen may be pulled off an experimental program to deal with an emergency situation, to be replaced by fewer or less competent officers. These personnel shifts should be documented in the evaluation report.

Care should also be taken to monitor the data collected for the evaluation on a continual basis, to make sure that the quality of data is good and remains good throughout the evaluation. A decline in the standards of collecting data may appear to be an effect generated by the program. The evaluator should insure that the time, money, and equipment allocated to the program are actually spent on the program. Most commercial businesses submit their books to external audit as a quality control check on their own bookkeeping. Police administrators should also consider this practice, for routine operations as well as for the evaluation of special programs.

Note added in proof: Another good reference on evaluation research is the book, Caro, Francis G., Ed., Readings in Evaluation Research, Russell Sage Foundation: New York, 1971. It includes two papers cited herein, by Weiss and Rein (Note 11) and by Campbell (Note 17).

III. SELECTION OF LOCATIONS FOR PROGRAM IMPLEMENTATION

A number of factors must be considered in selecting the geographic areas in which to implement a crime control program. These factors include the crime rates of the candidate areas, especially of those crimes at which the program aims; and other characteristics, including demographic data, the effects of other programs, and the effects of adjacent areas. In addition, the program implementation strategy also plays a part in selecting the program location.

Other factors are as important as the ones discussed, but cannot be considered as objectively. A new police chief or district commander may not want to initiate a new program until he is more accustomed to his staff. Nor is it always possible to account for the results of a program on the basis of objective data. Slight changes in citizen attitudes toward the police can greatly affect the results. Subjective factors should be included in the evaluation even though they cannot be measured. Description of these factors will allow others to make qualitative judgments and comparisons.

A. Crime Rates

If the program is directed at specific types of crime, the predicted number of such crimes during the study period should be determined on the basis of past data. Other statistics, such as the standard deviation of this predicted number, should also be calculated. From these statistics it is possible to weigh the significance of changes from the predicted number. For example, a 10 percent reduction in crime during the evaluation period is meaningless if the crime rate commonly shows fluctuations of 20 percent during similar periods, but is significant if the fluctuations are about 2 percent. The statistical techniques that can be used are discussed in a number of textbooks.[17]

If no control area is used in the evaluation, there is an implicit assumption that future crime rates can be reliably predicted from past crime data. However, a significant change may be instituted during the evaluation which materially affects the crime rate; an addict treatment program, for instance, could prove effective in reducing crime. Including a control area will account for changes of this sort.

The two areas chosen should have crime rates at the same level, and following the same trends. To the extent possible, this matching should be done for other crime types as well as the target crimes. This will

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17. For example, Wallis, W.A., and Harry V. Roberts, Statistics: A New Approach, Free Press: New York, 1956; Campbell, Donald T., and J.C. Stanley, Experimental and Quasi-Experimental Designs for Research, Rand McNally; Chicago, 1966; Campbell, Donald T., "Reforms as Experiments," American Psychologist, April, 1969.

imply that similar mixes of offender types are operating in the two areas. It cannot be proved that this is the case, but there is no other way to control for the characteristics of the offender population in the areas.

B. Other Characteristics of the Program Implementation Area

The other characteristics that should be matched in crime control programs are, generally, police operations, the types of population policed, the crime rates, and other relevant factors. Selection of a single area "before and after" may simplify this consideration if the population is stable; if the police operating patterns (other than those involved in the program) are the same; if the frequency of occurrence of the target crimes has been changing with regularity; and if no new non-police programs, such as a narcotics treatment facility or a youth employment program, have been started since the beginning of the "before" period. But this is rarely the case; use of a control area is usually indicated.

The socio-economic characteristics of the two areas are normally matched. They include crime and delinquency rates, population density, income distribution, percent non-white, percent home-owners, distribution of housing stock, etc. Added to these characteristics should be indicators of trends, where possible; rapidly deteriorating housing stock or high rates of population turnover are often symptomatic of growing crime problems. Another factor which should not be overlooked is the effect of boundary conditions; a middle-class area surrounded by middle-class areas will have different crime problems than a similar area adjacent to a poverty area.[18] Similarly, the control area should be geographically separated from the experimental area to minimize interaction between them.

The program rationale should be used to determine which characteristics to select. If it is hypothesized that certain demographic factors will affect the program's success, the experimental and control areas should be matched for them. For example, the effectiveness of a program to divert juvenile first offenders from the criminal justice system might be dependent on the religious composition of the affected population.

It should be apparent from this discussion that obtaining a close match between experimental and control areas is a difficult task. However, an effort should be made to match the more important characteristics and account for the differences in the other characteristics.

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18. Boggs, Sarah L., "Urban Crime Patterns," American Socioligical Review, December 1965, p. 899.

C. Program Implementation Strategy

Some crime control programs were given their initial tests in areas which did not have significant crime problems. This has merit; it is a good idea to load the dice in favor of the program when it is first introduced. The implementation of any new program is bound to surface unforeseen problems. If initiated in a high-crime area, the program might be discontinued prematurely because of its lack of immediate contribution and its attendant problems. If initiated in a low-crime area, the kinks and bugs can be worked out at relative leisure while consideration is given to future implementation of the program in a high-crime area.

If the program to be run is an untried or high-risk program, the operating personnel chosen to run the program during the evaluation phase should be chosen and trained to enhance the possibility of success. Individuals with greater ability and adaptability should be employed, for much the same reason that a new airplane is initially flown by a test pilot. When problems crop up, as they invariably do, experienced program personnel will be able to address them with less danger to themselves, the affected population, or the program.

This program implementation strategy was followed in the evaluation of crime control teams in Syracuse, New York[19]. The concept was first evaluated in a police beat that had a cross-section of crime problems, but did not have the highest crime rate or significant racial strife. After achieving some measure of success in its initial implementation, the concept was extended to another police beat. Although its effectiveness was considerably less in this other beat, the differences between the two beats gave some indication of the applicability of the concept to areas with different characteristics, and how to change the crime control team concept to increase its effectiveness.

This procedure will not work in all circumstances. Rapid response by police patrol has been shown to be related to arrest rate[20]; there-

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19. General Electric Company, Crime Control Team, prepared for the National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U. S. Department of Justice, June 30, 1970. See also Elliott, James F., John F. O'Connor, and Thomas J. Sardino, The Crime Control Team: An Experiment in Police Management and Operations, Charles C. Thomas: Springfield, Ill., 1971

20. Task Force Report: Science and Technology, a report to the President's Commission on Law Enforcement and Administration of Justice, U.S. Government Printing Office: Washington, 1967, p. 92.

Throughout this paper reference is made to reports generated by the President's Commission on Law Enforcement and Administration of Justice. They will be cited as shown: Task Force Report: Science and Technology; The Challenge of Crime in a Free Society; Task Force Report: Crime and Its Impact - An Assessment; Task Force Report: The Courts.

fore, this criterion has been used in police program evaluations. One program, which tested a patrol technique designed to reduce response time, was evaluated in a low-crime jurisdiction[21]. The average response time during the year of the evaluation was 40 percent lower than the average response time during the previous year. However, this reduction was achieved in both the experimental zone and the control zone, making one suspect the efficacy of the experimental technique in reducing response time. Furthermore, there was no indication that the improved response time actually resulted in an increased number of apprehensions. Although the patrol technique may have been worthwhile, the evaluation gave no indication of its value or its applicability to high-crime areas.

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21. Bennett, Wayne, and John R. Dubois, The Use of Probability Theory in the Assignment of Police Patrol Areas, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, July 1970.

IV. DISPLACEMENT EFFECTS

In many cases where crime reductions have been measured and attributed to programs, it is unclear whether there has been an actual reduction in crime or whether the crime has been displaced.

The amount of displacement depends to an extent on the characteristics of the offender. Each offender has a different risk-return calculus: for a given return (financial, psychological, etc.) he will take a certain risk. One economist refers to the "risk-avoidance" and "risk-preference" characteristics of offenders.[22]

This behavior can also be described in terms of the elasticity of demand for a product; in this case the product is the fruit of the crime, and the price is the risk he faces. An opportunistic offender can be pictured as having a relatively elastic demand: if the price (i.e., risk) is too high, he will forgo the product (i.e., crime). An addict-offender is typically pictured as having a relatively inelastic demand for the product because of his inelastic demand for drugs: despite the price, he needs the product.

The categorization of differential effects of deterrents can be broadened to include the type of crime as well as the characteristics of the offender[23]. Deterrents may have little effect on perpetrators of "expressive" crimes, that is, crimes in which the perpetrator is emotionally involved and is expressing these emotions. Many assaults and homicides fit this category. On the other hand, deterrents may have a strong effect on "instrumental" crimes, those which are seen by the offender only as a means to an end (usually money). If alternative avenues to the same end are made more attractive by comparison, the offender may well be deterred.

Deterrence may produce a diversion to legal alternatives to crime; it also may cause displacement to illegal alternatives. Three types of this latter form of displacement will be discussed: to other forms of crime, to other tactics and targets, and to other areas.

A. To Other Crimes

There is no immutable law that says that a burglar cannot hold up a liquor store and a robber cannot burglarize a warehouse. If a specific

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22. Becker, Gary J., "Crime and Punishment: An Economic Approach," Journal of Political Economy, March/April 1968, p. 169.

23. Chambliss, W., Crime and the Legal Process, McGraw-Hill: New York, 1969, p. 369.

crime or set of crimes is the target of a crime control program, offenders may decide to avoid the target crimes and ply their trade in other ways. It is not doubted that some offenders will be deterred from all crime if their crime specialty is the object of a crime control program, but the extent of this deterrence should not be overestimated. The statutory categories of crime should not be confused with categories which serve to classify offenders.

In some cases the result of the displacement of offenders to other crimes is beneficial. If the targeted crimes are more serious[24] than the ones to which offenders are diverted, the net effect of the program may be a reduced danger to society. Of course, the converse may also be true; closing off the less vulnerable and more easily protected targets of crime may cause an offender to commit more serious crimes, with a net increase in the danger to society.

In some instances the individual effect may be substantial but the overall effect may be negligible. Protecting a small fraction of premises against burglary will reduce the number of crimes committed against them, but the burglary rate against unprotected premises may go up commensurately. By contrast, the newer automobiles with steering wheel locks appear to have helped slow the rate of increase of auto thefts[25]. The rapid obsolescence of automobiles in comparison to buildings, and the replacement of obsolescent automobiles with new ones having this better protection, is an important factor in this difference.

B. To Other Tactics and Targets

Offenders can change their manner of committing a crime when a new program is established to counter their activity. One example of this took place in 1969 in a section of the Bronx, which was showing a rapid increase in indoor crime. The crimes took place primarily in the evening hours when people were returning from work. The program instituted by the police consisted of intensive sweeps of randomly selected city blocks, coupled with plainclothes police officers patrolling the streets. It succeeded in reducing the number of offenses committed during the evening hours, but at the expense of increasing the number taking place in the late afternoon when patrolmen were taking their lunch hours or were occupied with school crossings or a change of shifts[26].

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24. Sellin, Thorsten, and Marvin E. Wolfgang, The Measurement of Delinquency, Wiley: New York, 1964, p. 4.

25. Charles Kindermann, Statistics Division, National Institute of Law Enforcement and Criminal Justice, LEAA, personal communication.

26. Sidney Cooper, Chief of Inspectional Services, New York Police Department personal communication. See also, Burnham, David, "Bronx Police Aim at Indoor Crime," New York Times, December 24, 1969, p. 1.

The success of a police-operated burglar alarm program[27] was diminished slightly by offenders changing their tactics. Police do not normally respond rapidly to burglar alarms because of their high false alarm rates[28]. This alarm system was so successful in reducing false alarms and calling police to the scene that some burglars would break into a store and wait outside for a few minutes to see if the police would arrive. If the police did show up, an alternate target could be chosen. This forced a change in police tactics to offset the new offender tactics.

In order to reduce the number of robberies and assaults of bus drivers, a number of cities instituted exact fare collection systems[29]. The fares are deposited in a box which cannot be opened by the driver. Passengers who do not have the exact fare deposit a greater amount and are issued scrip redeemable by the bus company. A similar system exists in some cities at all-night or late-night gas stations. In these stations only the exact amont or a credit card is accepted by the attendant. All cash is deposited in a locked safe.

Displacements of this type can be accounted for only if the displacement possibilities are considered beforehand and data collection procedures include provision for them. Care must be exercised in determining the tactics employed. The crime categories used in the evaluation must be sufficiently specific to show the shift to other targets.

C. To Other Areas

The most frequently discussed type of crime displacement is from one area to another. For instance, it has been cynically suggested that the goal of subway police is to chase crime up "into the streets, where it belongs." More seriously, some recent police helicopter program evaluations have been questioned because they did not take possible area displacements into consideration[30].

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27. Cedar Rapids, Iowa, Police Department, Installation, Test, and Evaluation of a Large-Scale Burglar Alarm System for a Muncipal Police Department, prepared for the National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, 1971.

28. Task Force Report: Science and Technology, op. cit. supra at Note 20, p. 14; Small Business Administration, Crime Against Small Business, Senate Document No. 91-14, U.S. Government Printing Office: Washington, 1969, p. 36.

29. Stanford Research Institute and University of California, Reduction of Robberies and Assaults of Bus Drivers, prepared for Alameda-Contra Costa Transit District in connection with U.S. Department of Transportation Demonstration Project CAL-MTD-11, December 1970.

30. Maltz, Michael D., "Evaluation of Police Air Mobility Programs," The Police Chief, 38, 4, April, 1971, p. 34.

One type of boundary which is of interest with regard to crime displacement is the jurisdictional boundary, between cities and suburbs in metropolitan areas. It has been conjectured that the crime reduction experienced in some central cities has been at the expense of the surrounding suburbs, which have experienced increased crime rates. LEAA is presently conducting a national crime displacement survey to determine whether and to what extent increasing suburban crime rates are caused by increasing law enforcement activity in the cities. The primary indicator for this study will be the residence of the apprehended offenders. The number of "crossovers" will be indicative of the amount of crime exported from one jurisdiction to another[31].

An initial study of crime displacement was performed for the Washington, D. C., area[32]. It concluded that, although the decrease in Washington's crime rate was concurrent with an increase in the suburban crime rate, "there is no evidence that the reduction in reported crime in D.C. has resulted in a corresponding crime increase in the nearby suburbs."

The area displacement effect can be measured with some degree of reliability. Three zones can be defined for the purposes of the measurement: the area containing the crime control program (Zone I), a border around this area (Zone II), and the area chosen as the control area (Zone III). (See Figure 1.) The width of the border may depend upon the type of program implemented. If the program involves police helicopters, a quarter-mile wide border may be necessary; for a patrol car, one or two blocks may suffice.

Crime rates before program initiation should be determined, for all three zones. If Zone II records a greater increase in crime than Zone III, while Zone I's crime rate decreases, then the increase in Zone II can be attributed to two factors: the general increase in crime rate,

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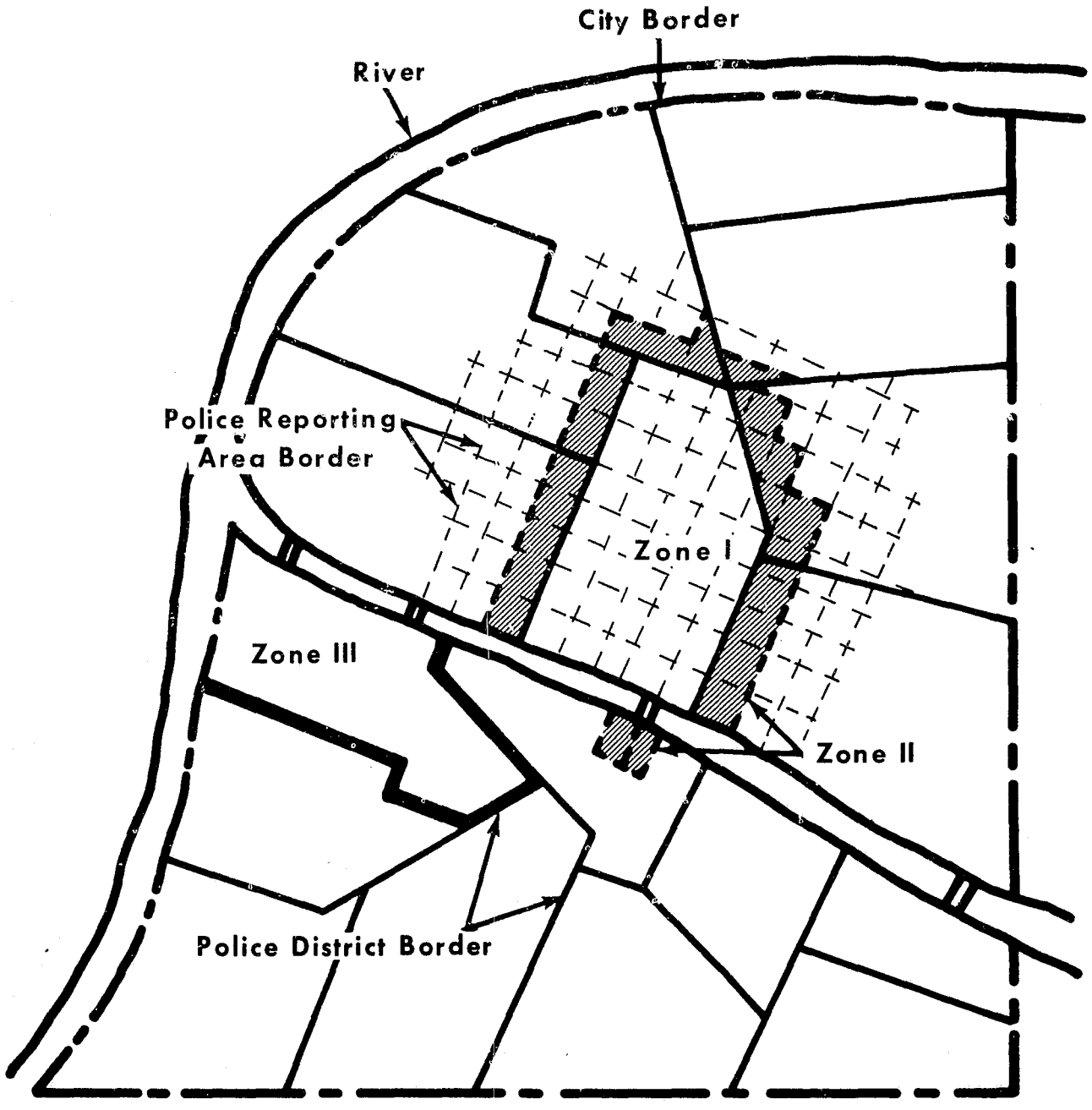
31. If urban crime experiences a decrease while suburban crime is increasing, it does not mean that the first caused the second. Trends in arrest statistics should show how many offenders are crossing boundaries to commit crimes and whether there has been a relative increase or decrease in the number of crossovers. That there is a significant amount of crossover is not doubted; offenders living near the border of a jurisdiction soon learn that it is to their advantage to cross the border to commit their crimes and then return to their home jurisdictions. It is the change in this occurrence that should be monitored to determine whether a displacement has occurred.

32. Hall, George E., and S. A. Lindgren, "Washington, D. C. Urban and Suburban Crime Interaction," presented at the Metropolitan Washington Crime Conference, New Carrollton, Md., September 13, 1971.



Zone I: Experimental Area
Zone II: Boundary Area
Zone III: Control Area

Figure 1. Accounting for the Area Displacement Effect by Establishing a Boundary Zone.

represented by Zone III's increase; and the increase caused by a displacement of crime from Zone I. A displacement of this type does not mean that the program is ineffective. It may suggest that the program should be expanded.

An Institute-sponsored evaluation of a helicopter program presently being conducted in Washington, D. C. uses a modified form of this technique[33]. One of six areas covering the city is randomly selected for helicopter patrol. It is patrolled by helicopter for two weeks, at which time another patrol area is selected. A boundary zone is created for each of the patrol areas. The control zone is comprised of the rest of the city (the other five patrol areas), less the boundary zone. In this way the experimental zone changes every two weeks, as do the boundary and control zones. The data collection procedures are somewhat more complicated than usual, but since D. C. data are computerized the complication is not burdensome. This method may prevent offenders from getting "set" in new areas, based on a static patrol schedule or one which is easily predicted. It is hoped that the area displacement effect will be minimized with this strategy.

D. Statutory Displacement

Another type of displacement which can occur, but which is not the effect of a crime control program per se, is the criminalization or decriminalization of a particular mode of behavior. It is mentioned here for reference only, because of the effect it can have on police operations and workload.

For example, alcoholism is now generally considered to be an illness rather than a police problem. But, in the words of former Attorney General Mitchell, "It does little good to remove alcoholism from the purview of the law if you do not substitute a full-dress medical treatment"[34]. Similarly, the criminal justice apparatus frequently has been called upon as a sanction against immoral behavior, or in cases where civil remedies are more appropriate than criminal. As Herbert Packer has pointed out, "Every hour of police, prosecutorial, judicial, and correctional time that is spent on marginal uses of the criminal sanction is an hour lost to the prevention of serious crime"[35].

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33. Institute Grant NI 70-089 to the Washington, D. C., Metropolitan Police Department, "Crime Reduction Through Aerial Patrol."

34. "To Heal, and Not to Punish," an address by John N. Mitchell, Attorney General of the United States, at a testimonial dinner honoring R. Brinkley Smithers, New York City, December 9, 1971, p. 8.

35. Packer, HerbertL., The Limits of the Criminal Sanction, Stanford University Press: Stanford, California, 1968, p. 259.

Compensation for displacement effects must be a crucial part of every crime control program evaluation. Sweeping a problem from one's own doorstep to another's is a stopgap measure at best. The object of these programs should be the reduction of crime, of crime seriousness, and of criminality, not the transfer of problems undiminished from one group to another.

V. PROBLEMS WITH CRIME DATA

A number of problems of crime control program evaluations were discussed in previous sections. They dealt with program planning, selecting program implementation areas, and the displacement effects of the program -- problems that would occur even if the data used in the evaluation were perfect. Unfortunately, crime data are far from perfect.

> "The Government is very keen on amassing statistics. They collect them, add them, refer them to the nth power, take the cube root and prepare wonderful diagrams. But you must never forget that everyone of these figures comes in the first instance from the . . . (village watchman), who just puts down what he damn pleases."[36]

Although these words are not quite so true today as when they were written, they serve as a pointed reminder to those who undertake evaluations using police-generated crime data. The problems in working with presently available crime data are well-known and have been documented by a number of criminologists.[37] Therefore, a complete catalogue of the deficiencies in crime data will not be attempted.

The following discussion will focus on some of the more significant problems relevant to crime control program evaluations. It will cover the method of classifying crimes into separate categories, the extent of unreported crime, the extent of inaccuracy in crime reports, and the method of calculation of crime rates.

A. Crime Categories: Uniform Crime Reports

The dominant factor in the way crimes are categorized is the legal definition of the criminal acts. Thus, robbery is most often distinguished from larceny by the offender's use of threat of force; petty larceny is most often distinguished from grand larceny by the worth of the stolen property; burglary is most often distinguished from unlawful entry or trespass by method of entry and the intent of the person entering the premises.

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36. Stamp, Sir Josiah, Some Economic Factors in Modern Life, P. S. King and Son, Ltd: London, 1929, p. 258.

37. Wolfgang, Marvin E., "Uniform Crime Reports: A Critical Appraisal," U. Pa. Law Rev. III, April 1963, p. 708; Sellin & Wolfgang, op. cit. supra at Note 24, p. 85; The Challenge of Crime in a Free Society and Task Force Report: Crime and Its Impact - An Assessment, op. cit. supra at Note 20; Proposed National Criminal Statistics Center, Hearings before the Subcommittee on Census and Statistics of the Committee on Post Office and Civil Service, House of Representatives, U. S. Government Printing Office: Washington, D. C., 1968; Bureau of the Census, Report on National Needs for Criminal Justice Statistics, U. S. Department of Commerce, August, 1968.

This gives rise to a number of artificial and illogical complexities. The difference between classifying a purse-snatching as a robbery or a larceny depends upon how hard the thief yanked the purse, whether he approached from the front or rear, the victim's perception of the situation, and the fear engendered in the victim. The amount of money or other valuables in a wallet determines whether a pickpocket is to be charged with a grand larceny (a felony) or petty larceny (a misdemeanor). The judgment of the police and prosecutor as to the intent of the offender determines whether he is charged with burglary (a felony) or unlawful entry (a misdemeanor). In other words, minute variations in or interpretations of like criminal acts can be translated into major differences in crime categories. The FBI's Uniform Crime Reports (UCR) are based on this same type of crime classification system. Many UCR categories are too broad for research purposes (e.g., robbery)[38] and some have arbitrary limits put on them (e.g., larceny $50 and over). Stranger-to-stranger crime is an example which fits no single category. It has tentatively been defined by LEAA as those "violent" crimes which take place between strangers while not in a social setting. Thus, some but not all crimes in the robbery, assault, rape, and homicide categories would be classified as stranger-to-stranger crimes.

The Uniform Crime Reports are based on data voluntarily furnished by state and local law enforcement agencies. The UCR statistics have been the traditional source of national crime statistics. They have been broadened steadily in coverage and accuracy since 1930, the year their collection was initiated. The UCR now report on crimes affecting about 90% of the population, and have been able to eliminate many of the improper reporting practices in previous years.[39]

The Uniform Crime Reports were not designed for research purposes. They were designed for, and serve as, a useful barometer of the extent of crime in the United States. The forms and formats for the Uniform Crime Reports were developed and refined when the only means available to handle the quantities of police-generated data efficiently were tabulating machines, which can count and sort, but not much else. Therefore, in recording a crime in which a number of offenses may have taken place, e.g., a robbery compounded by homicide and rape, only the most serious crime, in this case homicide, is counted. Although the FBI presently possesses a strong capability in data processing, many police departments have not progressed beyond the tabulating machine, and most small departments still fill out their FBI returns by hand.

Despite the deficiencies noted, the Uniform Crime Reports have been getting progressively more detailed in their analyses of crimes. In recent years they have been expanded to categorize property crimes by analyzing

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38. Normandeau, Andre, Trends and Patterns in Crimes of Robbery (with special Reference to Philadelphia, Pennsylvania, 1960 to 1966), Ph.D. dissertation, University of Pennsylvania, 1968, p. 4.

39. Hoover, John Edgar, Crime in the United States - 1970, Federal Bureau of Investigation, U. S. Department of Justice, U. S. Government Printing Office: Washington, D. C., 1971, p. 59. Referred to hereinafter as UCR, 1970.

the value of property stolen by type of property; robberies by type of premises robbed; burglaries by type of premises and time of day; and larcenies by amount, by item stolen, and by location from which stolen.

Ten States have taken on the responsibility of collecting UCR statistics for all of their police departments; others will soon join them.[40] The statistics generated by these state systems should be of greater accuracy and reliability because they are statutorily required and contain more provision for quality control. In some States external auditing of the data is required.

B. Unreported Crime

The UCR statistics are based on crimes reported to the police. It is well known that many crimes go unreported. Victimization studies (undertaken by the President's Crime Commission in 1967[41] and by LEAA in 1971[42] can determine the extent of unreported crime and its change from year to year, by area of the country, by types of crime, and by the reasons for failure to report them. But these victimization studies are best suited to determining long-term effects. They are not that well suited to most crime control program evaluations, in which short-term changes must be assessed.

The amount of unreported crime is important, but not in most cases of planning and evaluating crime control programs affecting police activity. The police respond to or investigate only those crimes which are brought to their attention, so the extent of unreported crime is of little significance unless it is affected by the program. If crime reporting is encouraged by a program, the reported crime rate may increase despite the program's effectiveness; if it is discouraged, the program's effectiveness may be exaggerated. Given below are some programs affecting crime reporting.

Paradoxically, a lowered reported crime rate may be the direct result of an increased actual crime rate. Taking reports from victims of crime occupies a substantial amount of a patrolman's time. Many of these crimes are minor and have no potential for solution. In an effort to increase the police department's time on patrol, the police chief may stop the practice of sending a patrolman out to get reports from the victim of a minor crime. This requires the victim to travel to the police station to report the crime. If the crime is minor or is seen by the victim to be unsolvable, or if the theft is not covered by insurance, the victim may decide not to inconvenience himself by

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40. Ibid, p. vi.

41. Ennis, Philip H., Criminal Victimization in the United States: A Report of a National Survey, Field Surveys II, President's Commission on Law Enforcement and Administration of Justice, May, 1967.

42. Dodge, Richard W., and Anthony G. Turner, "Methodological Foundations for Establishing a National Survey of Victimization," presented at the 1971 American Statistical Association Meetings in Fort Collins, Colorado, August 23-26, 1971. To be published in the Proceedings of the Social Statistics Section.

going to the police station to report the crime. As a result, the number of crimes reported to the police may drop. Conversely, an actual decrease in crime due to the increased effectiveness of the police may produce an increase in the reported crime rate.

Crimes which are reported by the public to the police may not be reported by the police to the FBI for its Uniform Crime Reports. One corrective measure which has been successfully used in a number of cities is the centralization of complaint reporting by the public. In the past the commander of a police district, in order to make his district look better, may have buried a number of crimes reported in the district by citizens before sending his report to headquarters. By initially directing all complaints to headquarters rather than to the individual districts, this practice has been all but eliminated.[43]

An example of a (non-crime control) program in which the reporting rate will be affected is the Federal Crime Insurance Program.[44] In the past, many storeowners have been reluctant to report crimes because of the fear that their insurance policies would be cancelled. With insurance underwritten by the government, the reported commercial crime rate may experience a great increase.

C. Inaccuracies in Reported Crime

In most cases it is assumed that the ratio of unreported to reported crime stays about the same from year to year in each category.[45] It is similarly assumed that the definitions of categories remain the same from year to year. This should be verified by checking the reporting practices of the police periodically for consistency. As discussed previously, the dividing line between crime categories is narrow, and a slight shift in interpretation can alter the crime statistics considerably. At one extreme, the police may dislike the program or the chief, and report and even exaggerate every crime. Conversely, the police may be ordered to reduce the crime rate (over which they have little control), and neglect to report every crime or understate the crimes that do occur. Or, a more frequent occurrence, the

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43. Institute of Public Administration, Crime Records in Police Management; excerpted in "Abuses in Crime Reporting, in Wolfgang, Marvin E., Leonard Savitz, and Norman Johnson, The Sociology of Crime and Delinquency, second edition, Wiley: New York, 1970. See also, Levey, Robert F., "Crime Tally Probe Begun by D. C. Chief," Washington Post, August 26, 1971; Valentine, Paul W., "D. C. Crime Reports; What They Mean," Washington Post, October 26, 1971; Task Force Report: Crime and Its Impact: An Assessment, op. cit. supra at Note 20, p. 21.

44. Urban Property Protection and Reinsurance Act of 1968 as Amended, enacted by Housing and Urban Development Acts of 1968 (PL 90-448), 1969 (PL-152), and 1970 (PL 91-609), Federal Insurance Administration, U. S. Department of Housing and Urban Development, 1971. See also "Federal Crime Insurance Program," Federal Register, Vol. 36, July 1, 1971, p. 12517.

45. "Unless it is possible to assume that the hidden and recorded offenses maintain invariable proportions, measurement .... is a vain hope." Sellin & Wolfgang, op. cit. supra at Note 24, p. 2.

police may change their reporting standards and criteria. For example, the reported rate of occurrence of rape in Washington, D.C., increased greatly between 1970 and 1971, due partially to a change in policy for reporting rape cases.[46]

The UCR categories "Larceny $50 and over" and "Larceny under $50" give rise to inaccuracies in crime reporting. The judgment of the police officer as to the value of the stolen property is tempered by the fact that the former category is an Index crime,[47] on which the performance of the department is basically judged, and the latter category is a non-Index crime, which rarely is used to rate the department.

In most cities all crime reports are checked for completeness and accuracy by supervisory personnel. In at least one city (St. Louis, Missouri) the reports are checked even further, by an independent auditing agency. The agency interviews a sample of citizens who reported crimes to the police.[48] The audit serves to motivate the police officers to make reports on all crimes reported to them, and to report them accurately. The practice of independent audits of police reports is spreading.[49]

D. Crime "Rates"

It has been pointed out by many observers that the crime rates, as presently calculated, do not reflect the true situation. The rape rate, for example, should be calculated by dividing the annual number of rape cases by the number of women, since they are the population at risk. One would expect that the rate of occurrence of commercial burglaries would be less in a residential area than a commercial area, when calculated on the basis of "per thousand people"; yet these rates should be obtained by dividing the number of cases by the number of commercial establishments (the population

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46. Barker, Karlyn, "Rise in District Rape Cases Runs Counter to U. S. Trend," Washington Post, November 12, 1971, p. 1.

47. UCR, 1970, op. cit. supra at Note 39, p. 63.

48. Saint Louis Police Department, op. cit. supra at Note 5, Vol.I, p. 83.

49. "Outside Audit of D.C. Crime Figures Set," Washington Post, October 14, 1971, p. 1.

at risk) in each area.[50]

The victim or target is only one aspect of the crime. The offender can also be calculated into the rate. For example, the potential offenders in stranger-to-stranger crimes are usually considered to be males between 16 and 25. Thus, one would expect fewer of these crimes in a city full of pensioners and retirees than in a city of the same population but with a higher proportion of young men.

This latter fact is of minor importance in evaluating crime control programs, since the age distribution of people in a city or a section of a city does not normally change greatly over the evaluation period. However, the former factor (i.e., population at risk of becoming victimized) can be misleading if it is not taken into account. If possible, crime rates in experimental and control areas should be compared with respect to the population which risks becoming victims of the target crimes.

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50. Boggs, op. cit. supra at Note 18.

A recent example of this is found in Burnham, David, "A Wide Disparity is Found in Crime Throughout City," N.Y. Times, February 14, 1972, p. 1.

"While accurate and complete in themselves, the statistics can be misleading. All three of the city's major business districts, for example were among the precincts with the highest rates [i.e., per resident] of robbery.

"But because the First Precinct, covering Wall Street, the 14th Precinct, covering the garment district, and the 84th Precinct, covering Brooklyn Heights and Downtown Brooklyn, have small residential populations and enormous daytime populations, these rates do not present a true picture of the relative risk of being robbed.

"The extent of this distortion becomes clear from an Army Corps of Engineers estimate, made in 1963, that Manhattan's daytime population is 4.5 million, more than two and a half times its residential population." [Typos have been corrected]

VI. MEASURES OF EFFECTIVENESS

The goals of the program determine the criteria which are used to measure its effectiveness. These goals and criteria should not be seen as confining; the evaluator should be amenable to broadening the criteria, especially if the program to be evaluated is a new one.

For example, the program might be beneficial in some unforeseen way, wholly outside the original criteria. Conversely, the program may be an overall failure but a success according to the evaluation. For example, it may be that the specified measures were the wrong ones to use for the program or should not have been used alone.

Clearly, programs aimed at controlling crime should not be evaluated solely for their effect on crime. Most programs cannot, by their very nature, focus on one specific objective alone. They normally are multi-faceted in their effect and should be evaluated with respect to all of their facets. Similarly, the measures of effectiveness discussed in this section may not be adequate for every crime control program, but they comprise some of the more useful measures that can be employed.

Evaluating how well a program achieved its goals is not the only purpose of an evaluation; how and why the results were achieved are of equal importance. External measures relate to the former evaluation; internal measures are concerned with the latter. A discussion of the difference between the two was given in Section II A. Two examples will further serve to highlight the differences between these measures.

Many crime control programs are dependent on good public or community relations in order to achieve their goals. In these cases a public relations campaign is often instituted concurrent with the crime control program. The success of the PR campaign should not be interpreted as success for the program. It may be a necessary part of the program, but it does not substitute for the results of the program in controlling crime. Testimonials from people involved in the program should also be considered only as supplementary to the evaluation based on external measures.

A study undertaken for the President's Crime Commission showed that, for certain types of incidents, the probability of arrest increased as the response time decreased[51]. As a result of this finding many

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51. Task Force Report: Science and Technology, op. cit. supra at Note 20, p. 92.

police departments purchased new equipment or tried novel techniques to reduce response time, without first determining whether their workloads included enough of the type for which quick response is useful. If this measure (response time) is to be employed, it should be recognized as an internal measure and not substituted for the external evaluation.

Each program will have its own internal measures of effectiveness, based on the logical elements of which it is constituted. Section II B contains an outline for development of the program's rationale, from which the internal measures can be developed. This section covers only the external measures of effectiveness which are common to most crime control program evaluations. The measures covered include the crime rate, clearance rate, arrest rate, crime seriousness index, and consideration of the fear of crime.

A. Crime Rate

The crime rate, the number of a specified type of crime committed per resident in a specified time period, is normally considered to be a measure of deterrence. If the crime rate decreases, it is presumed that potential offenders have modified their behavior to some extent and have committed fewer crimes. This is based on the supposition that the program has made the target crimes unattractive: by increasing the actual risk of apprehension, or by increasing the perceived risk of apprehension; by reducing the expected return from the crime (or the perceived return); or by making alternative forms of behavior more attractive than the target group of offenses.

These deterrent effects employ different means for their accomplishment. Most crime control programs are police-oriented and concentrate on the risk-related aspects of deterrence. Victim-oriented programs focus on reducing the expected return. Many social and recreational programs deal with making alternatives more attractive. Regardless of the orientation of the programs, their deterrent effects are determined by measuring reported crime rates.

Reported crime rates can be changed by a number of factors, some of which are misleading. The public may feel that the police are becoming less effective in dealing with crimes and, therefore, report them less often[52]. Conversely, if the public perceives that the police are becoming more effective, they may begin to report crimes that previously would have gone unreported. Another apparent crime rate reduction may be due to the police not recording crimes that have been reported to them[53]. Displacement effects, which can produce misleading crime rate reductions, are discussed in Section IV.

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52. Ennis, op. cit. supra at Note 41, p. 44.

53. Institute of Public Administration, op. cit. supra at Note 43.

There may also be an actual reduction in crime due to the deterrent effect of a program. In some cases the reduction in crime can be attributed to psychological deterrence. That is, the police department may have instituted some change (say, painting all police cars canary yellow) that has no effect on the actual risk of apprehension, but the very fact that a change has been made in preexisting patterns of operation may cause a change in the behavior patterns of potential offenders. This type of deterrence is rarely long-lived.

On the other hand, there may have been a change instituted by the police that has had the desired effect of increasing the actual risk of apprehension and, therefore, reducing the number of target offenses. An example of this is the police-operated burglary alarm program instituted in Cedar Rapids, Iowa[54]. The risk to burglars of commercial establishments in the experimental program was increased almost tenfold, compared to the (non-alarmed) control establishments. There was one capture in 36 control-group burglaries (2.8%), while there were twelve captures in 46 experimental-group burglaries (26%). Crime displacements, to other crimes, tactics, targets, and areas, reduced the actual effectiveness of the program, but this example shows that a significant change can be made in the actual risk of apprehension. Preliminary results indicate that the rate of increase of commercial burglaries has been decreased from about 15% per year to about 0%, at the expense of a greater increase in residential burglaries[55].

It is difficult but useful to distinguish between actual deterrence (due to an actual increase in risk) and deterrence that is purely psychological in nature (due to a perceived increase in risk). If it is suspected that part of the deterrent effect may be transient, a long-term study would be of benefit. In this way the "half-life" of the psychological deterrence can be gauged, which can give some indication of the extent to which resources should be committed to the program.

Some forms of psychological deterrence are almost entirely counterproductive. They may appear effective to those who would not commit crime and ineffective to those who are "in the business" and study the presumed deterrent more closely. A tear gas pen, for example, may give a person a sense of security that is entirely without foundation, and may be dangerous to him if he actually attempts to use it when faced with an assailant.

One investigator has pointed out[56] that for a given criminal situation non-delinquents perceive a higher risk of apprehension than

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54. Cedar Rapids Police Department, op. cit. supra at Note 27.

55. Chief George Matias, Cedar Rapids Police Department, personal communication.

56. Claster, Daniel S., "Comparison of Risk Perception Between Delinquents and Non-Delinquents," J. Crim. L., Crim., and Police Sci., 58, 1, p. 80.

do delinquents; in all probability the delinquents have a more realistic assessment of the situation. A purely psychological deterrent may have the unfortunate effect of making only a cosmetic improvement. This gives the general population the impression that there has been a change for the better, while in reality the situation may not have changed, or may have changed for the worse because of the diversion of resources to a nonexistent solution.

The crime rate can be used as a measure of effectiveness. However, the evaluator should delve into the determination of the crime rate to see if any change in the rate reflects a change in reporting procedures, a displacement of crime, a presumed deterrent effect, or an actual deterrent effect (with tangible evidence).

B. Clearance Rate

Clearance rate is normally considered to be a measure of the ability of police to solve crimes. A cleared crime is one in which the police have identified the offender and have sufficient evidence to arrest him[57]. The clearance rate is the percentage of total crimes that were cleared.

This measure of effectiveness should be used with care. A decreasing clearance rate may not mean that a police department is becoming less effective, and an increasing clearance rate may not mean that it is becoming more effective. This is due to a number of factors, chief among them the public's conception of the role of the police with respect to crime and the present method of collecting crime data.

Often overlooked in discussions about crime is the role of the public in assisting the police. Police rely on community support to legitimize their authority as well as to help them carry out their work. If a segment of the community becomes alienated from the police (for whatever reason) and offers them little assistance in pursuing offenders, crime rates in these areas may rise. However, it is not only alienation of community groups that reduces the ability of the police to deal with crime; the profit motive is also to blame. Many owners of stores which have been robbed refuse to give their clerks time off (with pay) to aid the police in their investigation. They absorb the loss of a robbery easily (it rarely comes close to the amount lost from shoplifting, employee theft, and damaged goods) and are unwilling to increase it by assisting the police. They may feel that the prospects of apprehending the offender are too slim; they may be afraid of retribution if the offender discovers their assistance; or they may be afraid that their insurance will be cancelled[58].

57. UCR, 1970, op. cit. supra at Note 39, p. 30.

58. Denenberg, Herbert S., "Appendix F; Insurance Study," in Small Business Administration, op. cit. supra at Note 28.

Investigative techniques used by some police departments can affect the clearance rate. A detective will attempt to clear as many crimes as possible, since this is an indication of his effectiveness. An offender who admits to more crimes than the one for which he was arrested will clear those crimes for the detective. In return for these clearances, the detective may press fewer or more minor charges in arresting the offender[59]. Investigators may also "save" clearances from month to month to smooth out the bump and dips in the clearance rate, so as to reflect on their consistency and competence.

The way crimes are categorized also has an effect on the clearance rate. It has been pointed out that the crime "robbery" includes such diverse acts as, at one extreme, one schoolboy strong-arming another in the schoolyard for his lunch money and, at the other extreme, a bank robbery or a truck hijacking. Some of these types of robbery are by their nature more "clearable" than others: if the increase in robberies is largely in the type that is difficult to clear, the clearance rate will drop despite the best efforts of the police.

To compensate for these problems, clearance rates may be inflated, especially in the category "Larceny $50 and over". Since the FBI's Uniform Crime Reports include larcenies in their crime index only if the loss is $50 or more, unrecovered losses due to larceny may be valued at less than $50[60]. Recovered losses may be valued at more than $50, in order to reflect as high a clearance rate as possible for "Larceny $50 and over."

If a police department begins a drive to increase its clearance rate, the increase may be forthcoming without any real change in police effectiveness. A survey of three cities' police departments found that arrests for felonies were not made by the police in about 43% of the cases in which there was probable cause, while the police were accompanied by observers[61]. Making arrests in all such instances would inflate the

59. Skolnick, Jerome H., Justice Without Trial, Wiley: New York, 1966, p. 164.
This practice may be changing: "The Cedar Rapids Police Department is extremely conservative in recording clearances. First, because of fear of harm to the case they avoid any interrogation not directly related to that specific crime. Second, they do not clear cases on the basis of similar modus operandi or 'hunches' even though they strongly suspect many more cases could be cleared. This is a somewhat unusual situation and points out one of the deficiencies in crime reporting as well as one of the effects of the Miranda decision. In other words, the clearances shown are very direct clearances with definite proof and totally uninflated." From Cedar Rapids Police Department, op. cit. supra at Note 27, p. 25.

60. Levey, Valentine, op. cit. supra at Note 43.

61. Reiss, Albert J., Jr., The Police and the Public, Yale University Press: New Haven, 1971, p. 134.

clearance rate quite easily. However, it should be noted that the police officer has a great deal of discretion in the exercise of his power of arrest. He may feel that it is to the overall benefit to the community not to make an arrest, or he may feel that the arrest charges will not hold up. One measure of the arrest quality is the percentage of arrests lead to prosecutions.

One researcher[62] has identified a measure of effectiveness for detectives that appears to be more useful than clearance rate. Called the "Detective Arrest Index", it is based on many of the same considerations on which the clearance rate is based, but is more specific and minimizes some of the problems described above.

In sum, clearance rate can be a useful measure for determining the effectiveness of crime control programs. Its utility can be increased by careful selection and specification of the crime categories which are studied, by determining the manner in which the crimes were cleared, and by determining if there has been a change in where the police "draw the line" in the exercise of their discretion.

C. Arrest Rate

Another measure of effectiveness that is often used as a determinant of crime control effectiveness is the arrest rate, calculated either per police officer or per resident for a specified time period. Most of the considerations concerning clearance rate, discussed above, also apply to arrest rate. It is distinguished from clearance rate, however, by an additional factor: it is not related to the total number of offenses.

For example, the number of arrests for drug violations has risen considerably over the past few years. This increase, however, is indicative of the extent of the problem, not of the effectiveness of the solution. It has been described[63] how drug arrests may be traded off against arrests for other offenses, and vice versa, especially when informal arrest quotas are established. When the charge of "resisting arrest"[64] is lodged against an arrestee, it may not be possible to ascertain the validity of the original charge for which he was arrested.

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62. Greenwood, Peter W., An Analysis of the Apprehension Activities of the New York City Police Department, New York City Rand Institute, Report No. R-529-NYC, September, 1970.

63. Skolnick, op. cit. supra at Note 59, p. 129.

64. Chevigny, Paul, Police Power: Police Abuses in New York City, Vintage: New York, 1969, p. 26.

Another difficulty with the use of arrest rates stems from the operation of the rest of the criminal justice system. A misdemeanor may be elevated to a felony by the arresting officer because he knows that the plea bargaining[65] will reduce the charge to a misdemeanor, and bringing the misdemeanor charge alone might result in no prosecution, or at worst, probation. Some of the problems associated with clearance rate also apply here.

The use of arrest rate by itself, therefore, does not appear to be appropriate as a measure of effectiveness for most crime control programs.

D. Crime Seriousness Index

Among the many criticisms of crime statistics is the contention that, even if the data were reliable and complete, we would still have only a count of the number of incidents without an indication of their relative seriousness. The "crime seriousness index" was proposed by Sellin and Wolfgang[66] to include some of the major disutilities of crimes typically committed by juveniles. Crimes are weighted according to the degree and nature of injury to the victims: whether they were intimidated and the nature of the intimidation, whether premises were forcibly entered, and the kind and value of property stolen. The weights were determined by requesting a sample of people to estimate the relative seriousness of various crimes.

All of the factors used to determine the weights are (or should be) included in offense reports. It would not be very difficult to calculate an incident seriousness score based on these reports, either for a specific evaluation or as a matter of course. Use of the seriousness index has also been proposed to measure the relative performance of law enforcement agencies[67].

The Sellin-Wolfgang crime seriousness index is not the ultimate weighting scheme[68]. The seriousness appears to be calculated more from the viewpoint of the offender and the event than from the viewpoint of the victim or society. For example, most people would consider the murder of a robbery victim by his assailant to be more serious than the murder

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65. Task Force Report: The Courts, op. cit. supra at Note 20, Appendix A.

66. Sellin & Wolfgang, op. cit. supra at Note 24, Appendix F.

67. Cheilik, Philip, and W. Jay Merrill, "Indices for Measurement of Law Enforcement Agency Performance," paper presented at the annual meeting of the American Association for the Advancement of Science, December 27, 1971

68. Gibbs, R.J., "Crime Seriousness: A Review of the Literature in Relation to Possible Police Use", Police Scientific Development Branch, Home Office, London, England, June 1970.

of one spouse by the other.[69] With regard to property loss, there is a difference between the loss suffered by an individual who is insured and one who is not covered[70].

The loss relative to the individual's income is also an important factor; the theft of a $100 television from a low-income family may have much greater impact than the theft of $10,000 of jewels from a wealthy family. Perhaps a better index of the relative value of property loss to the victim would be the value of the loss in relation to the amount of the individual's discretionary income (that is, income not used for the basic necessities of life). Of course, such information is not available on police crime reports.

The intimidation of victims is treated collectively in the Sellin-Wolfgang index. Thus, holding up twenty people in, say, a subway car and netting a total of $100 from them is considered as serious as holding up one person and taking $100 from him. Since each person has been intimidated to some extent, it would seem reasonable to include some factor relating to the number of victims. Similarly, more intimidation results from being confronted with a gang of assailants than with a single assailant.

Some of the shortcomings in the index have been pointed out by Sellin and Wolfgang. For example, a thirty-point murder is not "equal" in seriousness to a thirty-point rape or robbery; and different police departments may score the same incident differently. Changes will doubtless be made in the crime seriousness index over the next few years. But developing an index is an academic exercise if it is not applied. No police department has implemented this index or any simpler one to determine the seriousness of the crime problem in its jurisdiction.

The St. Louis Police Department recently conducted a study to determine the applicability of the Crime Seriousness Index to their operations[71]. Two months of crime data were used as the data base. A

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69. "...[T]he fear of crimes of violence is not a simple fear of injury or death or even of all crimes of violence, but, at bottom, a fear of strangers." The Challenge of Crime in a Free Society, op. cit. supra at Note 20, p. 52.

70. "Among businessmen, to a significant degree there has been undue reliance upon insurance in lieu of precautions against crime." From Small Business Administration, op. cit. supra at Note 28, p. 15.

71. Heller, Nelson B., and J. Thomas McEwen, "The Use of an Incident Seriousness Index in the Deployment of Police Patrol Manpower," Board of Police Commissioners, St. Louis Police Department, prepared for the National Institute of Law Enforcement and Criminal Justice, January, 1972.

handbook was written to assist in the coding of incidents, which included a much more detailed categorization of crimes than is normally used. Among the findings was the fact that the clearance rate, when weighted according to seriousness, can decline even though the unweighted clearance rate is increasing[72]. However, this was only a pilot study and no full-scale implementation is planned. The Montreal Police Department has incorporated a version of the crime seriousness index on its crime reporting form, but has not implemented it either[73]. The incorporation of a modified form of the index by a police department, as the permanent legacy of an evaluation, would be a significant step toward improving crime data.

E. Fear of Crime

It has been pointed out that the perceived risk of crime is greater than the actual risk of crime, and that this perceived risk does not seem to be correlated with the actual crime rate[74]. Unless the public feels safer in proportion to its increased actual safety, the full potential of the improvements will not have been reached. Therefore, the goal of a crime control program can be broadened to include not only improved public safety (deterrence) and effectiveness (clearance rate), and reduced crime impact (seriousness), but improved, more accurate, public perceptions of safety as well.

Measurements of perceived safety can be both direct and indirect. Public opinion surveys with regard to perceptions about crime and safety have been made frequently[75]. It is also possible to gauge the effect of this fear using indirect measures by observing what people do rather than what they say. The number of downtown stores that stay open at night, the number of patrons of downtown movie theaters and restaurants at night, or other observations of this type of activity could be used

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72. Ibid., Vol. I, p. 169.

73. Guy Tardif, Department of Criminology, University of Montreal, personal communication.

74. Ennis, op. cit. supra at Note 41, p. 74; The Challenge of Crime in a Free Society, op. cit. supra at Note 20, p. 52.
However, another study (Furstenberg, Frank F., "Public Reaction on Crime in the Streets," American Scholar, Autumn, 1971) suggests that perceived and actual risk of crime are correlated, but public concern about crime is not correlated with actual risk.

75. Almost two hundred surveys of crime-related topics have been identified in Biderman, Albert D., Susan S. Oldham, Sally K. Ward, and Maureen E. Eby, "An Inventory of Surveys of the Public on Crime, Justice and Related Topics" interim report to the National Institute of Law Enforcement and Criminal Justice, October 1971, on grant NI 71-098.

to gauge the fear of crime[76]; long-term trends, such as the growth of suburban shopping centers, economic trends, etc., would have to be taken into account. A side benefit of this type of evaluation would be an estimate of the business losses suffered due to crime, as part of the total cost of crime.

A reliable measure of the public's perception of public safety has not been developed yet. Additional research is being done and needs to be done before this type of measure of effectiveness can be used with confidence.

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76. Ennis, op. cit. supra at Note 41, p. 72, shows that people have changed their habits in response to crime.

VII. CONDUCT OF THE EVALUATION

Throughout this paper emphasis has been placed primarily on the collection of data and information for the evaluation, while taking into consideration the factors which affect the data collection. In this section a greater emphasis will be placed on the "style" of the evaluator and the police department, and the manner in which it affects the evaluation and the viability of the program under changed circumstances. The evaluator's style relates to the need to maintain liaison with the persons involved in the program's operation. The police department's style affects the transferability of the program. The extent of program transferability can be determined to some extent by the validity of the assumptions which were made to justify the program (Section II B). These factors are discussed in this section.

A. Liaison With Program Personnel

An evaluation should not be conducted at arm's length from the agency or program, or from the vantage point of an ivory tower. Program evaluations can fail when the evaluation team does not maintain a strong and continuing liaison with the agency running the program.

In programs conducted in police departments, the support of the police chief is vital to the success of the program and the evaluation. Lack of support from the chief can lead to the assignment of low priority and inferior personnel to the program, and can hinder the collection of data essential for the evaluation. Agency administrators may look upon evaluation efforts with suspicion, concerned that someone is checking up on them; or they may see the evaluation as obstructing them from performing the program. The maintenance of strong and continuing liaison with the agency administrators is a necessity to ensure a viable program and evaluation.[77]

Agency coordination should not be restricted to the top levels. The patrolman who implements the program should be asked his views on its effectiveness, as should the field supervisor. Field personnel not directly involved should be queried for their reactions to the program. The complaint clerks and dispatchers should be asked if they see any problems with the conduct of the program, as should the head of the data processing unit. If special procedures

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77. Glaser, Edward M., and Samuel H. Taylor, Factors Influencing the Success of Applied Research, final report to the National Institute of Mental Health, U. S. Department of Health, Education, and Welfare, January, 1969, p. 5.

must be implemented by these individuals for the evaluation, they can be implemented more easily if personal contact smooths the way for the request coming "through channels."

Maintaining personal contact with the personnel assigned to the program allows the evaluator to check the data for consistency and errors during the collection period. Ambiguities and problems can be resolved early in the course of the program. It allows the evaluator to monitor secondary and unpredicted effects, and to revise or expand the course of the evaluation should a change be warranted. Non-quantifiable effects can be assessed more readily when the evaluator maintains liaison with the police department.

For example, one of the most difficult aspects of an evaluation may be in getting the police officers to fill out different or new reports for collecting evaluation data. In some cases this task can be made easier by giving them something in return (such as paid overtime for an extra work), but in most instances this is not possible; all the evaluator can do is insist that the police perform the task, showing appreciation when they do it properly and convincing them to improve when they do it improperly. Maintaining the quality and consistency of the data cannot be done without maintaining close liaison with the program personnel.

Evaluation criteria and methods can be pretested by asking the program personnel beforehand if they anticipate problems with them. However, an evaluator should not follow the advice of agency personnel without checking on its validity. Otherwise he may find that the implemented procedures are those which mean the least additional work for the personnel consulted, or that the results he comes up with are strikingly similar to the ones promoted by the agency.

The above statements should be obvious to all concerned. However, they are worth mentioning in this paper because of the frequency with which they are violated. In evaluating complex programs, especially programs dealing with behavior, one cannot simply collect the data and publish the results, and expect to achieve a useful evaluation.[78]

B. Program Transferability

Programs which are successful in one police department may be complete failures in another. These same programs may not even be continued in the same police department after the evaluation is finished. In both cases the problem is one of transferring the program from one environment to another: in the former case from one department to another, in the latter case from the hothouse environment of an experimental program to the "real world" as an operational program.

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78. Weiss & Rein and Emrich, op. cit. supra at Note 11.

One researcher has identified three distinctive police styles or strategies, which he has labeled the watchman style, the legalistic style, and the service style.[79] These styles reflect the relative emphasis of the department on citizen complaints for order maintenance, law enforcement, and service calls, respectively. Watchman-type departments tend to be paternalistic; they use a great deal of discretion in dealing with their "clients," especially juveniles. Legalistic-type departments go "by the book," invoke formal procedures rather than informal ones, and generally allow their police officers little latitude in dealing with offenders and offenses. Service-type departments are found primarily in homogeneous, middle-class communities where there is a common definition of public order; police discretion is employed often (so that arrests are avoided when possible), but the discretionary "rules" are laid down and administered by the chief in consonance with the wishes of the community.

These are just a few of the more salient differences among police departments. It should be obvious that initiating the same police program, for example team policing, in one of each type of department would result in greatly divergent effects and effectiveness. The "market" for this program would differ greatly among the departments; differences in community support among the departments would greatly affect the way the programs are implemented; the police in different departments would view the goals of the program differently. Some programs that work in one city could not even be contemplated in others. One of the reasons for performing an evaluation is to predict the value of similar programs in other departments; therefore, the evalutation should not be considered complete without giving consideration to the transferability of the program to other departments.

As in the case of interdepartmental transferability, the evaluation should consider the requirements for transferring the experimental program to an operational one within the same department. Many of the programs that have been run in police departments (and in educational systems, corrections agencies, and public health departments) have been technical successes but overall failures; technical successes in that the program's goals were achieved, overall failures in that the programs were discontinued after the departure of the evaluation team (and external financial support). There are a number of reasons for this occurrence. In some cases the program was seen only as a vehicle for infusing money and equipment into the department, and the chief had no other real commitment to the program. In some cases, unanticipated side effects of the program may have reduced the overall value of the program to the department. In other cases, the chief might have been satisfied with the program and the results it achieved, but was unaware of how to convert it from an experimental program to an ongoing one.

The program evaluation team should try to ensure that some permanent change results from the program and evaluation, aside from new equipment that may have been purchased. A new reporting form, new reporting procedures or organizational structures, or a new way of looking at the department's goals and objectives might make the transition from experiment to routine operations. It is disheartening to see substantial efforts maintained during the life of a

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79. Wilson, James Q., Varieties of Police Behavior, Harvard University Press: Cambridge, 1968.

program dry up and blow away after the period of experimentation and evaluation has run its course,

C. Verification of Program Rationale

In Section IIB it was recommended that the program planning include a description of the assumptions and logic underlying the choice of the program. During the course of the evaluation these assumptions should be tested and verified. In particular, it should be ascertained whether there is evidence that the program's results were due to the program, or to some quirk of the measurement process.

1. Antecedent variables - Although it may have intitially appeared that factor A produced effect B, closer inspection may reveal that factor C produced both A and B. For example, a decrease in the time available for police patrol may have been accompanied by an increase in crime rate, leading to an assumption that more patrol time would mean less crime. However, both may have been caused by a change in the characteristics of the population.

2. Intervening variables - Although it may have initially appeared that factor A produced effect B, change C, occurring with the introduction of factor A, may have actually caused B. Thus, an increase in clearance rate may appear to be attributable to a crime control program, but was actually due to a change in reporting procedures introduced with the program.

Other similar problems in statistically relating cause to effect can be described. Suffice it to say that the evaluator should strive to identify the mechanism which relates the two and should explain discrepancies in the logic underlying the program. He should not hesitate to go beyond the formal evaluation and discuss why things are not as they seem. All evaluative data should be presented, whether self-explanatory or contradictory. The evaluator should, in the manner of devil's advocate, propose and deal with all possible explanations for the results, challenging the postulated relationships. In the end the evaluation may say, "We are not certain but we think that factor A produced result B; however, factors C, D, and E, should be investigated further to determine if they had a part in producing B." This may not be the most positive statement, and may be looked upon skeptically by an administrator who wants a definite yes or no, but it is the only way to make sure that the results are not misinterpreted. The indeterminate nature of the results should not be sprung on the administrator at the conclusion of the program evaluation; he should be initially informed of the chances of such an occurrence, and should be kept informed of the progress of the evaluation during its performance.

However, the agency administrator still needs to make decisions concerning the program: whether to continue it, whether and how it should be modified, etc. The evaluator, who has had an overall view of the program, is in the best position to give the administrator guidance. Despite the lack of clear-cut or statistically significant results, the evaluator should draw conclusions and make recommendations concerning the immediate disposition of the program. Recommendations should also be made regarding further research and evaluative efforts to be pursued to improve the program and its evaluation.

VIII. OVERVIEW OF EVALUATION PROCEDURES

The factors which should be considered in conducting an evaluation have been covered in previous sections. This section contains a summary of these factors, in the form of an outline of the steps which should be taken to evaluate a crime control program. In addition, three examples of crime control programs are described in this section. The internal logic and assumptions which have been used to justify the program are spelled out in some detail. Those aspects of the program justification which appear to require validation are made part of the internal evaluation, and measures of effectiveness relating to these factors and to the external evaluation are described.

The examples do not give a step-by-step procedure for developing an evaluation. To do so would be equivalent to writing a full evaluation report for each example, which is well beyond the scope of this paper. Instead, the examples are used to amplify upon the evaluation considerations which are not common to all programs -- the program rationale and the internal measures of effectiveness.

The first example is a program to increase the number of hours patrolled by the police in an effort to reduce response time and increase the deterrence of crime. The second example is a program to increase the effectiveness of burglary investigations and to increase their clearance rate. The third program is an evaluation of the effect of street lighting on crime. The first and third programs have been tried in many jurisdictions but rarely evaluated well. The other program, investigative improvement, has never been attempted.

The first example was chosen to demonstrate that even a familiar police program can and should be evaluated properly. The second program was included to demonstrate that it is not impossible to preplan an evaluation for a program which has never been tried before. The third program represents a familiar non-police effort to reduce crime. The three programs also represent three different aspects of crime control: Police patrol aims at reducing crime by increasing the risk of immediate apprehension by the police; investigative improvement aims at reducing crime by increasing the clearance rate through better investigation after the fact; and street lighting improvement aims at reducing crime by altering an environmental characteristic related to crime.

A. General Evaluation Framework

1. Develop the program rationale (see sections II B and VIII BC).

2. Select the evaluation team (II D, VII A).

3. Select areas for implementing the program and for control (II C, III).

4. Choose external measures of effectiveness (VI) and internal measures of effectiveness (II AB, VIII BCD).

5. Determine data requirements (with quality control checks) for the measures of effectiveness and the displacement effects (IV), compensating for the inadequacies of official crime data (V).

6. Develop baseline data and information for the experimental, control, and boundary areas (III AB).

7. Collect and analyze data after a short period of operation, and develop preliminary results (VII A).

8. Modify the program, the assumptions and rationale, the data collection procedures, and the measures of effectiveness, as necessary (VII A).

9. Complete the collection and analysis of data and information, and develop and interpret the results.

10. Verify the program rationale in the light of the findings (VII C).

11. Describe the permanent changes that have resulted from the program (VII B).

12. Determine the transferability of the program and recommend the best means to effect the transfer (VII B).

B. Example 1: Increased Police Patrol

This type of program has been attempted in most major jurisdictions at one time or another. It may have been called "putting more cops on the beat," adding a fourth platoon, or creating a tactical patrol force, but the result is normally the same: increasing the strength of the patrol force in the high-crime areas during the high-crime hours.

This program has met with varying degrees of success. Unfortunately, there have been almost no evaluations of such programs despite their widespread adoption[80]. This means that a police administrator has limited

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80. The only analysis of such a program of which I am aware is S. James Press, Some Effects of an Increase in Police Manpower in the 20th Precinct of New York City, New York City Rand Institute, Report No. R-704-NYC, October, 1971. Unfortunately, the analysis was conducted long after the program and was of necessity based only on statistics; it was not a full evaluation.

evidence on which to challenge or support public pressure for more patrolmen. There is a definite need to know how this program will work under varying conditions of different policing styles, populations, offender types, and crime types.

Program Rationale

1. Crime problem addressed - The crimes addressed by this program are those considered suppressible by police patrol and those requiring rapid police response: auto theft, robbery, mugging, purse-snatching, assault and other crimes occurring on the street or in public areas; and in-progress crimes -- robberies, burglaries, etc. -- in which the police are notified during or immediately after their commission. The frequency of occurrence of these offenses should be given.

The tactics of importance regarding "in-progress" crimes relate primarily to the response time of the police. The sooner the police are notified, and the greater the number of police available to respond to the scene, the shorter will be the response time. Street crimes and auto theft occur in places patrolled by the police.

2. Present operations - During the evening hours, when the police are busiest responding to calls for service, there are frequently times when no police are available to respond to crimes in progress. Little if any patrolling takes place, since the minute a patrolman reports the completion of one incident he is usually assigned to another. Crimes which take place during these hours are more successful than they should be. Robbery and burglary alarms are useful in notifying police immediately upon the occurrence of a crime, but their effectiveness is diminished by their high false alarm rate. Most false alarms are due to poor operational procedures rather than equipment problems.

3. Program operations - Reduced police response time will have a marked effect on increasing the clearance rate of "in-progress" crimes; increased police patrolling can reduce the frequency of occurrence of street crimes. The amount of time presently devoted to patrol during the evening shift will be determined by analyzing the present workload of the police. The amount of patrol time should be increased during the program to twice its previous level, and the number of additional patrolmen and patrol cars necessary should be calculated. The greater number of patrol cars should also significantly reduce the response time to in-progress incidents. As part of the program, clerks in every commercial establishment having a silent alarm will undergo training in its use.

The reactions of the police to the program can diminish the anticipated increase in patrol time. Incidents which were not responded to previously, because of the shortage of patrol resources, may fill in some of the "slack".

Patrolmen may take more time in handling incidents, where previously they were unable to do a thorough job. They might become less diligent in clearing incidents, since other patrolmen are available to handle calls. Therefore, it may be necessary to overestimate the predicted increase in patrol time by about 30-50% to achieve the desired level.

The training program for clerks could increase the utilization of silent alarms, but may also serve to increase the number of false alarms. A retraining session may be necessary for those who use the alarm improperly. It might be necessary to enact a city ordinance permitting the police to issue a summons (carrying a nominal fine) for a false alarm.

With respect to in-progress crimes, the offenders may select targets which are known not to have alarms. Once this becomes known, it can increase the use of alarms by small businesses. With respect to street crimes and auto theft, the offenders may begin committing more crimes in lobbies and parking lots, out of the full view of the street. Should this happen, the patrol strategy can be revised to include inside patrol and plainclothes patrol.

4. Evaluative data - Sources of data required for the evaluation will include the complaint cards (see Appendix, especially Section H, for the data to be obtained from them), offense reports, and arrest reports. In order to determine police response time (an internal measure of effectiveness) it will be necessary to record the time the patrol car arrives at the crime scene; if this information is not normally collected, special provision will be made to do so during the evaluation, in both experimental and control zones. If the complaint cards do not include the final disposition, this information will be obtained from the offense and/or arrest reports.

Source data for police patrol workload will be the complaint cards and cards associated with other activity (e.g., for lunch or car maintenance). It may be necessary to validate the workload data by employing unobtrusive observers at times during the evaluation, in both experimental and control zones. Time actually spent patrolling is a measure of the resource input to the program.

Crime and clearance rates will be determined for the specified crimes. These are the external measures of effectiveness. Data sources to be used include the complaint cards, offense reports, and arrest reports. Crimes will be categorized by type and by initiating circumstance, the latter to determine those for which rapid response was indicated. Statistics for these crimes will be collected in the experimental, control, and boundary zones, to determine area displacements.

Anticipated displacements to other crimes, tactics, and targets will be accounted for using data obtained from offense reports. These will include investigation of auto thefts from parking lots, indoor crimes, robberies and burglaries of non-alarmed premises, etc., to determine if changes in these crime rates can be attributed to the program.

The number of patrolman-initiated incidents and arrests in each zone will be used as a measure of patrol effectiveness, but the fact that this is being used should not be communicated to the patrolmen. The patrolmen participating in the program will be asked for their views of the program's effectiveness, as will the patrol supervisors, complaint clerks, dispatchers, victims, and other affected groups. Qualitative profiles of the experimental and control zones will be prepared, as will a description of how the program was implemented. Other measures of effectiveness may be incorporated based on these perceptions of the program after it has started.

The age, rank, length of service, service record, and peer assessment of each officer in the experimental and control zones will be used as source data for developing a proficiency profile of the patrol forces. Other administrative data to be collected will include man-hours worked by each officer (in their respective zones); standard overhead and fringe benefit costs for personnel on the program; equipment used in the program, and its direct and indirect costs prorated by the time it was assigned to the program; and other costs, such as the cost of training clerks in proper alarm use, associated with the program. The program cost can be calculated from these data.

5. Stumbling blocks - It is difficult to run a controlled experiment of any program involving police activity. Changing priorities or a large-scale emergency may dictate the reduction in the number or quality of the police officers or equipment assigned to the program. To account for this possibility, data on the type and quality of resources used in the program will be collected.

The primary unverified assumption is that increasing police patrol can reduce street crime. Although many police departments employ this tactic, the extent to which it is useful has not been determined. Similarly, it is unknown to what extent the patrol force has to be expanded to achieve a given reduction in average response time.

C. Example 2: Improved Burglary Investigations

This example of a crime control program has not been attempted in any jurisdiction. Its objective is to increase the clearance rate of burglary; its method will be to increase the manpower and resources of the police crime laboratory.

It has been shown that, on the average, police investigators and crime technicians collect less than 10% of the evidence available at the crime scene[81]. In important cases, of course, all of the available evidence is collected, but the importance of the case is unrelated to the availability or adequacy of evidence. The program will consist of augmenting the police crime laboratory with sufficient equipment and manpower to collect and analyze evidence useful in clearing crimes. A major emphasis will be on the accumulation of "non-belonging" latent fingerprints from the crime scene and their juxtaposition with fingerprints from other crime scenes in the same neighborhood or in which a similar modus operandi (MO) was used. Tool marks and other evidence at the crime scene will also be categorized by neighborhood and MO.

Program Rationale

1. Crime problem addressed - The 1970 clearance rate for burglary was 19% and has remained at about that level for the past few years. The rate of occurrence of burglary has increased 113% in the past decade to its present level of 1068 burglaries per 100,000 population[82].

When an offender finds an MO that "works" or a neighborhood comprised of good targets and escape routes, he is inclined to commit a number of crimes with essentially the same methods or in the same neighborhoods. This is especially true of "amateurs" who commit most of the burglaries. These offenders are usually not too careful about leaving physical evidence at the scene, especially fingerprints. Most of these offenders have been apprehended by police at one time in their career, and their prints are on file locally.

2. Present operations - Burglary investigations consist, for the most part, of recording the manner in which the crime took place and the items that were stolen. Except in unusual circumstances (e.g., a newsworthy case) evidence is not collected or, if collected, is not used. This results from the fact that there is rarely enough evidence from a single case to identify the offender. Another reason is the increased paperwork burden it puts on the investigators, due to the need to preserve the chain of evidence, when it is rarely of any use.

3. Program operations - Let us assume that on the basis of previous statistics, it is estimated that 2000 burglaries will occur in the implementing city this year, of which 1000 are of the type that can be grouped together by virtue of the MO used or the location of the offense. For this number of burglaries five detectives and two crime lab technicians

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81. Peterson, Joseph L., The Perception, Control, and Utilization of Criminalistics Services by the Police: An Analysis of the Physical Evidence Collection Process, D. Crim. Dissertation, University of California, Berkeley, 1971.

82 UCR-1970, op, cit. supra at Note 40, pp. 19, 21, 64.

might be assigned to the program. They should be thoroughly trained in the evidentiary and laboratory techniques relevant to burglary cases. A new burglary investigation form should be developed that will cover all aspects of the evidence-gathering process. One of its features will be the need to justify not gathering evidence or not collecting it properly; it is hoped that this will serve to promote the proper collection of relevant evidence.

The evidence from those cases which are felt by the detectives to be linked - by similar MO's, by evidentiary clues, by proximity - will be looked upon as possibly coming from the same offenders. For example, by pooling evidence it may be possible to get a complete set of fingerprints of an offender.

4. Evaluative data - Primary source data for number and type of burglary offenses will be the offense reports, with additional information supplied by the complaint cards and arrest reports. This information will be useful in determining the crime rate for the target crimes, the offender's tactics and possible changes in tactics resulting from the program. All reports relating to the evidence found at the crime scene will be analyzed for indications of MO or location patterns.

The clearance rate for the specific type of burglary addressed by the program is the obvious external measure of effectiveness to use. The offense and arrest reports will furnish sufficient data to calculate this measure. The method of clearing crimes in the prior time period and during the program period will be compared to see if there has been any change in the relative frequency of types of clearance, with special attention paid to cases in which evidence was collected. Reports from cases in which no evidence was collected will be analyzed to determine the reasons for this occurrence.

Other measures of effectiveness specific to the program will be used. They will include the amount and type of evidence found at each crime scene; the length of time taken to collect and process it; the ability to relate cases to the same offender, the relationships used and the degree of confidence in the relationships; the ability to identify the offender based on the evidence; and other measures which will help in explaining how the program works. The views of the program on the part of the affected groups (patrolmen, investigators, lab technicians, victims, offenders, prosecutors) will be solicited to determine the way it affects them, its success in operation and how it might be improved, and the type and impact of side effects caused by the program.

Each case investigated under the program will have the following administrative data collected: number of man-hours worked by each officer and technician, types of lab equipment and procedures used, length of time

each piece of equipment was used. In addition, standard police manpower costs will be furnished, as will projected operating and lifetime costs of the equipment. These data will permit the determination of the program cost, and the cost by case and by type of case.

5. Stumbling blocks - This program is based on a number of unverified assumptions which should be examined during the program evaluation. It is unclear how much evidence can be found at a burglary scene and how much value the evidence will have. It may be difficult to tell the difference between real evidence and false clues; there may be such a high proportion of false clues that the true evidence is completely masked. Even if a full set of prints is developed, it may be difficult to trace them to the offender. The evidence linking the crimes may be considered too circumstantial for prosecution on all of them. Offenders may simply become more careful about leaving evidence as a result of the program. These are some of the more salient issues that should be addressed in the evaluation.

D. Example 3: Street Lighting

Many feel that increased street lighting deters nighttime stranger-to-stranger crime. However, this hypothesis has never been rigorously tested using a controlled research design. The Institute is presently sponsoring a study in Kansas City, Missouri, to determine the impact of street lighting on crime[83]. It will attempt to determine the relationship between neighborhood characteristics and street lighting effectiveness. This example is based on certain aspects of that study.

Program Rationale

1. Crime problem addressed - Nighttime stranger-to-stranger crime creates more fear than almost any other crime. The President's Crime Commission stated, "People stay behind the locked doors of their homes rather than risk walking in the streets at night"[84]. Offenders who commit crimes at night rely on the absence of adequate street lighting to reduce their risk. Under the cover of darkness escapes are made easier and identification is made more difficult. Fewer people are on the street at night than during the day, making escape even easier.

2. Present operations - Increased police patrol is usually employed to deter these crimes (see Example 1). Both uniformed and plainclothes patrol tactics are used, as are decoy patrols in which the police officer is dressed to resemble a victimized group. Uniformed patrols are too

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83. Institute Grant NI 71-132-G to the Kansas City, Missouri, Public Works Department, "Impact of Street Lighting on Night Street Crime."

84. The Challenge of Crime in a Free Society, op. cit. supra at Note 20, p. 52.

easily spotted and are too busy with called-for services to spend much time patrolling the streets. Plainclothes and decoy patrols are more effective in deterring crime. However, since there is a minimum height for policemen in most cities, offenders may begin to victimize only short people.

3. Program operations - Selected neighborhoods will have new and brighter street lights installed, while other similar neighborhoods will not have newer ones installed.

Offenders may react to this program by shifting to neighborhoods with lower illumination levels. Within the well-lit neighborhoods they may spread their activity throughout the day, since lower illumination levels are no longer an advantage. More crimes may be committed indoors. If area displacement predominates, it may show the need for expanding the program.

4. Evaluative data - A matched sample of neighborhoods will be developed based on a social typology of neighborhoods. This typology will include indexes of economic status, racial status, family disorganization, and housing mix. The source of this information will be census data. Data on street light illumination levels will be collected during the evaluation. Crime rates (by number and by seriousness), population distribution, and land use patterns will also be matched, to control for the population of potential offenders and victims.

The level of street use will also be compared in these areas, and correlated with temperature as well as lighting. Victims will be questioned on their ability to identify offenders in outdoor crimes. The perceptions of safety by citizens in experimental and control areas will be investigated. Patrolmen will be asked for their views on the effect of the lighting, as will offenders.

Crime rates and crime seriousness rates in the experimental and control areas will be compared before and after the installation, by type of crime and by location, indoor or outdoor. This information will be obtained from police data.

The cost of this program will be calculated using the initial cost of the new light posts, prorated over their lifetime; and the electricity, maintenance and repair costs in excess of those incurred by the control areas.

5. Stumbling blocks - This program is based on a number of assumptions which should be investigated. People do not stroll in the streets at night as much as in the past. Is this due to their fear of crime, or is it due to television? The decreased night use of the streets (and increase in street crime) can probably be correlated with television ownership and use patterns.

Other factors may be as prominent as low light levels in contributing to crime. For example, average temperature has the same annual variation as daylight. In colder weather fewer people are on the streets, making those who are outside more "visible" to potential assailants. In colder weather there may also be fewer evening recreational alternatives for the potential offender, by default pointing him toward criminal activity. Furthermore, there is evidence (see Section IV B) that light levels may not be an important factor to all types of offenders.

IX. CONCLUSION

This paper has attempted to distill from past crime control evaluation efforts some general evaluation principles. It has traced the processes which should be followed in the evaluation of a crime control program, from the program's initial conceptualization to its transfer from experimental to operational status.

Deficiencies in the available data present some significant problems in crime control evaluations, but they are not insurmountable. Monitoring the data quality, more careful analysis of the data, and the collection of additional data will minimize the problems. These steps should be planned from the outset of the program to achieve maximum utility.

Among the more important considerations in conducting an evaluation is the need to maintain strong liaison with the groups within the police department which are affected by the program. This will be of assistance in uncovering problems while they are still incipient, and will ease the transition of the program from the experimental phase to the operational phase and to other cities. Finally, the assumptions and logic which were initially used to justify the program should be tested and verified during the course of the evaluation.

A well-grounded evaluation will help both LEAA and the agency which is implementing the program to obtain a more valuable appraisal of the program's worth. Even if the program is unsuccessful, it can provide useful information for planning within the department and for other departments considering the same program. To achieve the greatest benefit the tools of evaluative research should be applied realistically, with full knowledge of the unique characteristics of crime control program evaluations.

APPENDIX. DATA SOURCES IN POLICE DEPARTMENTS

The reports and records of police departments comprise one of the primary sources of data for evaluating crime control programs. The purpose of this appendix is to describe the attributes of this police-generated information which are of use in evaluations of crime control programs.

Police data are normally not sufficient for an evaluation. First, they are collected by the police departments for police purposes, not research purposes. Second, different programs will require differing kinds of supplemental data, such as citizen surveys, land use data, zoning information, or census data, to be used in conjunction with the police data.

There are many different types of police information systems, almost as many as there are police departments. However unique they all might be in the specific procedures used, data collected, and formats employed, most of their characteristics relevant to evaluation are standard throughout the country.[85] The following is a description of these characteristics as they pertain to crimes within the scope of this paper.

A. Initial Communication With the Police

The police are notified of the occurrence of most crimes by telephone (although "walk-ins," on-site police observations, and even mail account for some small percentage): an incident occurs which is communicated to the police by the victim or a witness. Most police departments tape the telephone calls coming in to them on their emergency number, for future verification and for legal purposes. The telephones are manned by complaint clerks, who may be civilians, police officers, or cadets; different police departments feel differently about the relative merits of the types of personnel to be assigned to this duty.

In larger cities the telephone communications center may be divided into separate zones. Each zone serves a number of contiguous telephone exchanges, thus giving the complaint clerk an indication of the part of the city from which the call is coming. With "911" gaining popularity as the universal emergency number, and with concurrent emphasis on Automatic Number Identification,[86] it may be possible to *a priori* specify the location from which

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85. A number of articles and reports have appeared recently on police communication, command and control systems. Many of them can be found in Law Enforcement Science and Technology, Vols. 1-3, the Proceedings of the three National Symposia on Law Enforcement Science and Technology. Vol. 1, Academic Press, 1967; Vol. 2, IITRI: Chicago, 1968, Vol. 3, IITRI: Chicago, 1970.

86. Reviews of the present status of 911 and ANI include: National Service to Regional Councils, "Emergency Telephone Communications Workshop: Summary of Proceedings," 1971; and Reinke, Roger W., "911 Grows up: Four Years Old and Acting It," in The Police Chief, November, 1971.

the call originated to an even greater extent. However, this advantage may be at the expense of a few more seconds time delay, in order to sort the police calls from those requiring assistance from the fire department, the ambulance company, the poison center, and the other public service agencies that respond to emergencies. Even with their own police emergency telephone number, the police frequently get calls for these other agencies, as well as for the utility companies, welfare department, tax department, and others.

B. Information Collection

The way the information is collected varies considerably from department to department, depending on the department's size and degree of automation. The following description is applicable to large departments with some, but not complete automation.

The type of information collected by the complaint clerks does not vary greatly from department to department. The location and type of incident, the time of the call, the name and address of the caller or of the person to be seen, the description of the offenders and getaway car, and the direction of escape are of primary importance. The information is usually written on a computer-type card, called a complaint card,[87] by the complaint clerk. The specific patrol beat in which the incident occurred is added by the complaint clerk, by looking it up in an address book or by experience.

An identifying number for the complaint clerk handling the call is also put on the card. This enables the complaint clerk supervisor to make a quality control check on how well each clerk fills out the cards.

C. From Complaint Clerk to Dispatcher

From the complaint clerk, the information is then transferred to the police dispatcher for transmission to the appropriate radio patrol car. The method of transferring the information from clerk to dispatcher varies. In small departments the dispatcher is usually the same person who answers the telephone. In large cities there are a number of radio channels used for dispatching patrolmen, each corresponding to a separate geographical area. Each channel has its own dispatcher.

The selection of the appropriate geographical area (and therefore radio channel, and therefore dispatcher) is made in a number ways. The most common is to have a number of narrow card conveyor belts operating in parallel, in front of the complaint clerk; the clerk puts the card on the belt which will carry the card to the proper dispatcher. In Chicago the telephone zones correspond to the radio zones, so the same person who answers the telephone can dispatch the appropriate car.

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87. Or radio run card, dispatch ticket, incident card, communication message ticket, etc.

Other systems are also in use. In Detroit, for example, the complaint clerk first ascertains the appropriate geographical area (and dispatcher), then connects an "electric pen" into a circuit running to that dispatcher. While he records the information with the pen on a piece of paper, the motion of the pen is electrically transmitted to a similar device in front of the dispatcher, on which the information is written simultaneously. In this way the dispatcher is apprised of the incident as soon as the information is written down. The dispatcher has two such devices to reduce the queuing time if more than one incident is directed toward him at the same time. The potential saving in communication time is somewhat reduced by the usual practice of the complaint clerk to jot the information down on scrap of paper before he transmits it using the transmitting pen. [Similar time delays, and for the same reason, will probably be experienced by the clerks who have to type the information directly into a computer.]

In many departments the complaint cards containing the incident information are serially numbered; in some departments the complaint clerk or dispatcher assigns a serial number to the complaint card; in some departments no serial number is given the complaint card. The serial number, if assigned, is referenced in all succeeding reports, allowing a researcher to trace all of the information about a particular incident with relative ease. In cases where no such number is assigned, a researcher would have to search through all complaint cards transmitted during a given time period in order to track down a single card related to a specified offense or arrest report.[88] In a small department this search poses no great problem because of the light workload; in computer-operated systems a serial number will automatically be assigned to every incoming message, and the search can be conducted automatically.

D. Dispatch

Upon receipt of the message (by computer or by card), the dispatcher notes the patrol car beat in which the incident took place, and determines if the car assigned to that beat is "clear" (i.e., free, unoccupied) or is on another assignment. If the latter is the case, he selects a clear patrol car from a nearby beat to assign to the incident. After selecting a car, the dispatcher reads the nature and location of the incident to the patrolman, records the number of the patrol car sent (by typing it into the computer or by writing it on the dispatch card or in the log book), and stamps the time on the card. He also writes his name or dispatcher number on the card, for supervisory purposes.

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88. In some cases even the serial number does not eliminate the need to search for a card. The cards may be filed chronologically or haphazardly rather than be serial number.

If a patrolman initiates an incident on his own, he calls in to the dispatcher to inform him of the nature of the assignment. The dispatcher normally fills out a complaint card for the police-initiated incident, and handles it in the same way as he would a citizen-initiated incident.

E. Car Status

The card is then filed in a card rack, in a slot corresponding to the patrol car dispatched. This is the way the dispatcher keeps track of which cars are occupied and which are not: if the slot corresponding to the car has a card in it, the car is on assignment or otherwise unavailable; if empty, the car is clear. In most of these card racks a switch is activated when the card is put in a slot, turning off a light (corresponding to the patrol beat) on a status board in front of the dispatcher. The status board is ostensibly to allow the dispatcher to monitor car availability, by seeing which lights are on. In most cases this display is not used by the dispatcher, who tends to rely on the card rack and his memory for patrol car status.

F. Additional Interim Information

Some departments require the patrolman to call in upon reaching the scene of the incident. The dispatcher stamps the time of this call on the card and returns it to the rack. This is done for two reasons: it provides the officer with a measure of safety, and it is used to compute response times. If an arrest is made, or if the incident requires other actions to be taken (such as a trip to the hospital), the patrolman so notifies the dispatcher who records the information and time on the card. However, this practice is far from universal.

G. Clearing the Call

Upon completion of the call, the patrolman calls the dispatcher to clear his car for general patrol or for another assignment. This time is stamped on the card. When calling clear, the patrolman may give information relating to the actual nature of the incident and the final disposition: the patrolman may have been assigned to what was described over the phone as a disturbance, but the actual nature of the incident might have been anything from a gang fight to two drunks yelling at each other; the final disposition may run anywhere from an arrest to "unfounded." Many cities are transmitting codes to describe the types of incidents and dispositions that recur with regularity, so that the dispatcher can record this information on the card.

The dispatcher then pulls the card out of the rack and sends it to the data analysis unit, where it is checked for completeness and consistency and to insure that any reports filled out by the patrolman reference the proper serial number. The card may or may not be used as a source document for collecting statistics, depending upon the amount of information collected this way and through patrolman-generated reports.[89] The card is then filed away, either by serial number or by time, and saved for a variable amount of time, in most cases at least a year.

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89. It originally was always used as a source document: "In large departments where the case sheet is not filled in by the person who takes the call, notes are made on a complaint memo....which is then filed with the case." From Wilson, O.W., Police Records, Public Administration Service: Chicago, 1942, p. 48.

H. Summary of Data Collected on the Complaint Card

The list below summarizes the data which are normally found on the complaint card. Data which may not always be included, either because they are not available or because they are not collected by the department, are listed in parentheses.

1. (Serial number);

2. Location - incident location (address of complainant), patrol car beat in which the incident occurred, number of the patrol car dispatched;

3. Time - (time incident occurred), time of complaint, time of dispatch, (time car arrives on scene), (time of intermediate dispositions - e.g., trip to police station, to hospital), time car calls clear;

4. Incident - incident type as reported by complainant, (incident type as reported by patrolman), (description of offenders, of car), (urgency of call, priority);

5. Disposition - (intermediate dispositions), (final disposition), (type of follow-up needed and/or reports to be filled out);

6. Identification - name or number of the complaint clerk and of the dispatcher handling the call.

To recapitulate, then, the police may collect data on type of incident responded to, its a priori urgency, how long it took to get there and to complete the call, and what the incident actually was as well as final disposition, all on the complaint card. By analyzing all of the complaint cards in a district one can reconstruct the district's workload, the length of time required to service calls of different types, the relative frequency of different types of calls, and other baseline measures of importance in evaluation programs.

They are also useful as the source of the population of incidents which are under study in the evaluation program. For example, if some burglaries are responded to by a specially equipped burglary team (under evaluation) while the others are responded to normally by the burglary detectives, analysis of the complaint cards can determine whether there is any difference in the initiating circumstances of the calls handled by the two methods. An analysis of this sort is even necessary when the control for the evaluation is the "before" of "before and after." For example, tactics may change due to the new program.

The information on the cards should not be considered "hard" just because of its apparent specificity. This is especially true of the time data. The patrolman may decide to write up his report before calling clear, to save himself time at the end of his tour of duty. He may stop for a coffee break, especially on a busy night when he has no other free time. In some cities where there is no paid overtime, a patrolman may not call clear within a half-hour of the end of his tour for fear of getting stuck with an incident that will take him beyond his normal quitting time. These realities

tend to give an inaccurate picture of the workload and the average service time.

I. Automated and Manual Systems

More sophisticated computer-operated communication systems will collect essentially the same data, but the collection process will be automated to a great degree. For example, when the location of the incident is typed into the computer, the correct patrol car beat can automatically be selected; since the computer will store the status of each patrol car, it can recommend assignment of the closest patrol car that is available. The times and the sequence number will also be entered by the computer. Data retrieval for evaluative purposes is greatly simplified, since all of the data can be searched automatically.

Less sophisticated communication systems for small cities are also spared some of the data collection problems described above, especially where the telephone clerk and the dispatcher are the same person, and where there is only one radio channel for the city. In such systems a log book serves as the record and the dispatcher's memory usually serves as the indicator of car status.

J. Offense Reports

If the incident to which the patrolman has been dispatched is a criminal incident, and after the patrolman has done what he can to make an apprehension, he fills in an offense report. In some cities there are different reports for each type of crime, in others the same general reporting form is used for most crimes. The information collected on the form is fairly standard: Name and address of the victim and/or witnesses; type of crime; where, when, and how it was committed; type, value, and identifying characteristics of the property stolen; injuries sustained; descriptions of the offenders and/or getaway car; name of the patrolman taking the report; serial number of the complaint card originating the incident.

K. Other Reports

Follow-up reports may be made by detectives, describing the nature and extent of their investigations. Reports may be furnished by the crime lab, relating to evidence collected at the scene of the crime. If an apprehension is made, an arrest report is made out at the time the suspect is booked.

Arrest reports are easily correlated with the offense reports that generated the investigation. However, tracing back from these reports to the originating complaint card may be quite difficult, especially if there is no sequence number on the complaint card or if the sequence number is not recorded on the offense and arrest reports.

Offense report data can be useful in determining if there are differences between the experimental and control groups. The nature of the offense is

more clearly described on this report, so that more realistic comparisons can be made between the two groups of incidents. Data from these reports and from other investigative and follow-up reports are useful in determining the reasons for the success or lack of success of a crime control program. If the evaluation confines itself to statistics alone, without consideration of how the program worked and why the results were obtained, little benefit will be obtained from the evaluation to aid in improving the program and increasing its yield and applicability.

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