

CALLS FOR SERVICE:  
RECENT RESEARCH ON MEASURING  
AND MANAGING THE DEMAND

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## Introduction

The patrol personnel complain because they do not have enough time for patrolman initiated activity. They claim that the demand for service by citizens is so great that they are too restricted to perform what they call preventive patrol.

(Webster, 1970: p. 99)

Calls for police have escalated dramatically in recent decades to the point where the telephone runs most patrol forces, pushing and pulling units from pillar to post each time a citizen calls. Traditionally, prevention and interception activities have been relegated to a secondary status, to be accomplished in that unpredictable amount of time between calls for service....(Sweeney, 1982: p.1)

Since the mid-sixties, there has been an increasing awareness among police administrators and criminal justice researchers of the extent to which citizens' calls for service affect the structure and content of police patrol. Gay *et al.* (1977) designate calls for service "the single most important element for structuring and directing police patrol operations." The current image of the traditional police department envisions a reduced patrol force dominated by ever increasing citizen demands, responding to all calls, and barely able to provide enough manpower for adequate preventive patrol. Such an image suggests that, if not for the calls for service workload, preventive patrol could provide an essential means of controlling or preventing crime. From this perspective, as one commentator put it, the calls for service function has come to seem "the tail that wags the dog," (Gay *et al.*)

More recently, this image has been somewhat modified. Police Department planners and criminal justice researchers have become aware that the calls for service demand can be managed to make time for directed crime prevention activities. Some calls can be delayed; crime reports can be taken by phone or through walk-in; some calls can be referred to other agencies; and civilian paraprofessionals can respond to service-related calls, either through radio-dispatch or by setting appointments with citizens for low priority calls. (Cahn and Tien, 1981; Farmer *et al.*, 1981.) In addition, the early faith in the value of preventive patrol has been shaken--in part, because of the Kansas City Patrol Project's finding that increased preventive patrol had little effect on crime rates, arrest rates or citizen sense of safety (Kelling *et al.*], 1974)--in part, by the growing suspicion that tactical, directed patrol activities based on crime analysis might be far more effective (Gay *et al.*, Cahn and Tien 1981.)

Interest in police response to citizen calls for service began with the advent of the radio-dispatched patrol car, heralded as a means of transforming crime-control procedures (Rubenstein, 1971). With the emerging new technology of the 1930's, it was hoped that police could provide immediate response to reports of crimes-in-progress. Between calls, cruising patrol cars would create the image of an omnipresent police force--a strategy expected, at the time, to create a major deterrent to criminal behavior.

Further interest in calls for service emerged in the mid-60's; in conjunction with efforts by criminal justice theorists to redefine what police actually do (Wilson, 1970; Reiss, 1971.) It had become evident that police behavior included much more than crime control and law enforcement. The calls for service workload provided researchers with a major indicator of what constitutes the bulk of police activity. Workload analyses of calls for service and patrol activities helped theorists redefine the nature of police work, to include substantial service delivery and order maintenance functions. It was argued that police productivity could not be measured by crime related data alone; police activity entailed other central functions to which attention should be paid.

At about the same time, police departments began to consider response time to calls for service (particularly crime-related calls) an appropriate measure of police efficiency and productivity. It was expected that rapid response to citizen calls was strongly correlated with citizen satisfaction with police and with the ability to make rapid, on-scene arrests (Isaacs, 1967.) Emerging technology facilitated shaving valuable seconds off police response time to calls. A number of studies attempted to document the expected relationships between rapid response time, arrest and citizen satisfaction. In the course of these studies, however, it became apparent that rapid response to all calls for service was not necessarily associated with increased arrests and improved citizen satisfaction (Pate et al, 1976; Van Kirk, 1978.) If a crime was "cold", it made little difference when police arrived on the scene. And, for low priority calls, if citizens were told when to expect the police, they were equally satisfied with a delayed response.

Analyses of the calls-for-service workload led to a new awareness that citizen demand for service could be managed and controlled. Immediate response to all calls was not necessary. Police patrol activities need not be dominated by the call for service demand. With the inception of program efforts to manage the calls for service demand, attempts to define what police do came full circle: early workload studies sought to modify the image of police as strict law-enforcers and crime-controllers; the demand management efforts which grew out of those studies helped refocus concern on how police might better perform law enforcement activities. Currently, the calls for service literature reflects increasing interest in methods to reduce the extent to which service calls dominate patrol activities and to create improved crime control strategies.

The following review of literature concerning police response to citizen calls for service is divided into four sections. Section I considers the series of workload analyses which attempt to redefine the police role. Section II reviews studies of police response time to calls for service in relation to arrests and citizen satisfaction. Section III reviews recent literature evaluating calls for service demand management programs. Section IV reviews alternatives to preventive patrol suggested by the calls for service literature as a whole.

### I. Workload Studies

Citizens call police to report a wide range of incidents: crimes in progress; crimes discovered; open windows in businesses, or the homes of neighbors; family disputes; disturbances and annoyances; parking violations; downed power lines or impassable roads; sick or injured persons; missing persons and animals; and the proverbial cat stuck in a tree. Early studies of the kinds of incidents involved in the calls for service workload

clearly established that much of what police do is not immediately related to crime control or law enforcement.

The first question addressed by studies of the calls for service workload concerns what actually constitutes that work load and the extent to which calls to police are crime-related. Although such workload studies generally agree that the proportion of calls that directly involve crime is small (typically 15 to 20%), they vary considerably in the ways in which calls for service are measured (calls to police, calls dispatched to patrol units, or patrol activity);

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1 There are different points at which service calls are measured: as they come into the complaint operator, as they come to the dispatcher, as they are dispatched to patrol units, and as they generate recorded police activity. There may be screening at various points— not all calls are sent to the dispatcher, and not all calls sent to the dispatcher lead to dispatch of patrol units.

the kinds of categories used to distinguish non-crime-related calls for service; and the alternative definition of police activity proposed. A brief review of these early studies demonstrates the extent of these differences:

—Cumming, Cumming and Edell (1965) reviewed 801 calls to police during 24 hours in an unnamed metropolitan police department in 1961. They reported that 18.6 percent of the calls were not dispatchable (information, referable calls or “feedback”); 49.6 percent were calls for support (personal problems, service and other maintenance); and 31.8 percent were calls about “things” (theft or loss, traffic accidents, unlocked doors.) At least two-thirds of the calls were deemed clearly unrelated to the “controlling” function of the police. The study points to the latent social service role of the police, but contends that that role should not be professionalized.

—Misner (1967) examined data about “the ‘field activities’ of patrol personnel in one large city.” He found that 71 percent of dispatched calls for service involved miscellaneous public services; 10 percent involved traffic accidents or control; and 19 percent involved Part I and II crimes. He contends that crime-related data (Uniform Crime Reports) are an inadequate measure of police productivity.

—Goldstein (1968) cited data from a study in progress, reviewing 24 hours of service calls in Chicago (394 calls.) Only 16 percent of the calls were crime-related; 40 percent of the calls were for service and/or information; and 44 percent were calls for assistance (disturbances, intoxicated persons) in which no arrests were likely. Goldstein speaks of two worlds of policing, law enforcement and social service; he contends, however, that the law enforcement role enhances the policeman’s service capability.

—Bercal (1970) reviewed dispatched calls for service in Detroit in 1968 (over 1,000,000 calls). Although only 16 percent of calls received were crime-related, 39 percent of dispatched calls involved predatory crime; 35 percent involved disorder; 12 percent were for negligence or accidents; and 15 percent were service. Apparently, many calls which were not crime-related were screened out before dispatch in Detroit. The proportion of dispatched calls which are crime-related is considerably higher than in other comparable studies, suggesting that the degree of screening in Detroit may have been more extensive

than in other jurisdictions. A large proportion of incoming calls were referred out or solved verbally. Bercal emphasizes the extent to which police function as social service agents.

—Webster (1970) analyzed 599,211 recorded police activities during 54 weeks in a California city of 400,000 people. Time spent on random patrol is not included as recorded police activity, except when specific “on-view” incidents occur during random patrol. Less than 18 percent of police activities involved crimes against persons or property; approximately 7 percent were traffic related; 20 percent of activities were categorized as “on-view” (observed violations, walk and car stops, warrant checks, and vehicle registration checks), 17 percent as social service, and 39 percent as administrative (coffee breaks, meals, report taking, community meetings, errands, court time and serving warrants.) Departments which do not maintain activity records could not generate comparable findings. Webster contends that the policeman is “more social worker and administrator than crime fighter.”

—Wilson (1970) reviewed citizen complaints for which units were dispatched during one week in Syracuse, based on a one-fifth sample of calls. He found that 22 percent entailed gathering information; 37.5 percent involved providing service (accidents, animals, escorts, missing or found persons or property, etc.); 30 percent involved order maintenance (gang disturbances, family problems, assaults, investigations, neighbor trouble); and only 10 percent entailed law enforcement activities. Wilson’s distinction between order maintenance and law enforcement activities is unique in the literature. Other researchers include some of Wilson’s order-maintenance functions (assaults; gang disturbances) under the heading, “crime-related.” In part, this explains why Wilson’s estimate of law enforcement service calls activity is so much lower than other estimates of crime-related calls. He emphasizes, instead, the order maintenance function of the police.

—Reiss (1971) looked at 127,861 incidents of recorded police activity in Chicago in 1966. He found that 17 percent of these incidents were crime-related (16% dispatched calls; 1% on view) and 83 percent non-criminal (77% dispatched calls; 6% on view). Reiss speaks in favor of a “civil police”, which would be accountable to citizens.

In the studies reviewed above, analysis of the calls for service workload was generally presented as a means of determining the extent to which police activity involves functions other than law enforcement. Such studies propose alternative definitions of the police function that includes social service and order maintenance activities.

More recent reviews of calls for service generally accept this position as established and attempt to modify it, in turn. Cordner (1979) reports:

Today, anyone suggesting within informed criminal justice circles that policing is centrally concerned with crime and law enforcement would be summarily dismissed as neanderthal. (p.50.)

Cordner himself observed patrol behavior and reviewed dispatch tapes in an anonymous medium size Midwestern city. He found that only 13 percent of patrol time clearly involved crime; 44 percent of patrol time was spent on administrative tasks and breaks; 4

percent on activity clearly unrelated to crime (service tasks); and 39 percent on activity which he deemed ambiguous in nature (order maintenance activities and service tasks, which might, potentially, involve crime). Cordner argues that previous workload analyses obscured the ambiguity inherent in much police activity.

He contends that it would be wrong to dismiss the law enforcement aspect of police work as irrelevant or unimportant to patrol. Cordner supports the “common sense view” of police as law enforcers and crime fighters and proposes a definition of police patrol work as “the handling of situations and the self-directed use of uncommitted time under circumstances of ambiguity centrally defined by the capability and authority to enforce the law...” (p.59).

Another recent report which considers the patrol workload is more specifically concerned with estimating the extent to which patrol activity involves “control seeking” behavior (any overt attempt to assert police authority) among officers. Sichel *et al.* (1978) observed 2,400 potential police-citizen encounters during seven months (and 3,625 patrol hours) in New York City in 1975-76, as part of an evaluation of the comparative effectiveness of 41 men and 41 women officers on patrol. Sichel *et al.* report that only 13 percent of all incidents permitted likely police citizen confrontations, and only 7 percent of all incidents gave rise to control seeking behavior on the part of the officers. The research found that of 2,400 observed incidents, 42 percent were unfounded or terminated before officers arrived on scene, 12 percent involved past crime reports, 11 percent were in response to noise or argument complaints, and 9 percent involved ambulance dispatch accidents, only a small proportion of incidents involved a crime in progress (1%), potentially dangerous persons (2%), possible crimes (2%), and burglar alarms (3%). All other incidents were service calls, traffic checks, notifications of death or accidents, and service of warrants and summonses (16%).

Another recent study of the calls for service workload also seems to depart from earlier studies, not so much by returning to the previous focus upon crime control and law enforcement, but by presenting new emphasis upon the extent to which calls for service can be diverted. Scott (1981) analyzed over 26,000 calls for service to police operators in three metropolitan areas (Rochester, N.Y.; St. Louis Missouri; and Tampa/St. Petersburg, Fla.) Scott’s findings about the content of calls for service are similar to previous studies. Only 20 percent of all calls were crime-related, 3 percent involving violent crime and 17 percent involving non violent crime. Other calls involved requests for information (21%), assistance (17%), suspicious circumstances (5%), medical assistance (3%), dependant persons (3%) and internal operations (2%). Scott emphasizes the role of the complaint operator as a street level bureaucrat, able to dispose of a large proportion of calls for service before referring them to dispatch. Scott found that approximately half of the calls for service reviewed did not lead to dispatching a unit; complaint operators referred citizens elsewhere, recorded information, provided information and transferred calls to more appropriate police units.

In addition to attempting to analyze the extent to which police work is crime-related, workload studies also consider other questions about calls for service and the patrol work day. Several of the studies reviewed above consider the relationship between calls for service and routine preventive patrol.

Reiss, for example, reports that dispatched calls for service take up approximately 15 percent of patrol time. According to Reiss, most of the patrol day (85%) is spent on preventive patrol. Yet Reiss also acknowledges that the overwhelming majority of recorded police activity results from citizen calls for service (93%). He argues that routine patrol is “markedly unproductive of police matters.”

Other studies suggest that preventive patrol takes up a much smaller proportion of the patrol day than Reiss. Corder's observations of police on patrol led to the estimate that half of patrol time was spent on “free patrol”; a third of “free patrol” time, in turn was spent on unofficial breaks. Corder also reexamined Webster data and suggested that Webster's officers had 28 percent of their time free for random patrol.

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2 This estimate of calls for service seems low, compared to other studies. This may be a function of historical change. In 1966, when Reiss's data were collected, the calls for service demand was considerably smaller than it is today. In addition, studies employ different measures to determine how much of the day is spent on random patrol. Reiss appears to simply subtract calls for service time from patrol time. Other studies can provide more accurate estimates, primarily through direct observation of patrol, like Corder, or through analysis of recorded police activity and total service time. Time spent on breaks and administrative tasks should also be considered in estimating the time available for random patrol.

3 Corder points out that observational studies generally report that police officers spent more time on breaks or “down time” than studies based on dispatch tapes or Activity Records. Rubenstein also focuses on this aspect of the patrol workday.

Misner reports that random patrol takes up 30 percent of the day in urban settings and 60 percent of the day in rural settings (it is not clear what data base he uses to draw such conclusions). These studies do not explicitly estimate the proportion of time allocated to calls for service.

Other literature, not specifically concerned with analyzing the calls for service workload, also provides estimates of time allocation during the patrol day. Gay *et al.* (1977), reviewing the patrol workload in one precinct in an unidentified major urban Police Department, report that 23 percent of time was spent on calls for service, 23 percent of time on administrative matters, 40 percent of time on preventive patrol, and 14 percent of time on self-initiated activity.

This estimate is partially confirmed in Larson's study of response patterns of patrol cars in New York City (1969). Larson, during detailed observation of one patrol day for one car during one tour in the Bronx, found that 41 percent of patrol time was spent on calls for service (3.3 hours) and 44 percent (3.54 hours) on preventive patrol. The rest of the patrol day was taken up by meals and trips to the station house. Yet Larson also found great variance in a Queens division as a whole. During two weeks in February in Division 16, non-driving patrol officer filled out detailed timesheets, recording all activities performed on patrol. Larson found that average calls for service time per car ranged from 12 to 30 percent and average preventive patrol time per car ranged from 41 to 64 percent.

Farmer *et al.* (1981) in a review of differential police response strategies (discussed below) report that 40 to 60 percent of the patrol day is spent on calls for service. They claim, in fact, that with the burgeoning of the calls for service workload, dispatchers have come to replace sergeants as the real controllers of the patrol force.

It appears that estimates of how much of the patrol day is spent on calls for service vary greatly. Estimates range from 12 to 60 percent of the patrol day. Analyses of the patrol workload provide no clear consensus on how much of the patrol day is spent on service calls or on the proportion of the day spent on random patrol.

There is, however, apparent agreement that far more recorded police activity pertaining to specific incidents is generated by calls from citizens than by random patrol. Webster reports that only 20 percent of such activity is patrol initiated; he claims that citizens impose the majority of the patrol workload on police. Reiss, based on observations of patrol, reports that only 14 percent of police citizen encounters are police initiated; all others are in response to calls for service. Sichel *et al.* report that 19 percent of observed incidents on patrol were officer initiated, 72 percent radio dispatch, 4 percent civilian request and 5 percent supervisor assignment. Larson (1967), in a study of the police response system in Boston, estimated that 90 percent of all unit dispatches were citizen initiated; only 10 percent of patrol cars were dispatched in response to on-view patrol activity.

Studies also provide estimates of the number of citizen calls which lead to dispatched units and the proportion of dispatched calls which merit emergency or “urgent” status. Cumming *et al.* found the  $\frac{3}{4}$ 's of all calls for support led to dispatch of a patrol unit on a “supply and demand” basis. Based on 1968 data, Bercal reported that 64 percent of service calls in Detroit, and 60 percent of service calls in New York City, led to dispatch of a patrol unit; other calls were referred elsewhere or responded to verbally. Scott, focusing on the complaint operator’s response to calls rather than the dispatcher’s, reported that only 50 percent of all calls for service led to dispatch of a unit. It is apparent that many calls for service (estimates range from 25 to 50%) do not lead to dispatch or add to the patrol workload.

Studies also suggest that most dispatched calls are not “emergencies”. Larson (1969) found that police used their sirens and lights (an emergency response) for only 10 percent of calls dispatched in New York City. Reiss reports that only 18 percent of dispatched calls were urgent. Gay estimates that only 10 to 20 percent of incoming calls are emergencies, requiring immediate response. And Cahn and Tien, in a study of the management of demand component of the Wilmington split force experiment (see Section IV), report that 86.1 percent of incoming calls for service are not critical.

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4 Many crime-related calls which are deemed emergencies do not lead to crime reports. Webster reports that of 28,000 responses to burglar alarms, only 9,000 actual offenses were reported. False emergency alarms create a large part of the emergency call for service workload. Few studies report on the proportion of service calls which are unnecessary or unfounded. Rubenstein suggests that many calls are cleared as “unfounded” under various circumstances some times no one acknowledges having

called the police, sometimes there is no evidence of disturbance, and occasionally patrolmen deem it not worth the trouble to investigate further.

5 Sichel *et al.* reviewing patrol practices in New York City in the mid-70's, report that patrol officers were involved in an average of 5-6 incidents per eight hour tour, of which 72 percent (3.6-4.3) were initiated by calls for service.

Some workload studies also provide estimates of how much time a patrolman spends on a typical service call. Gay *et al.* announce that "(e)very call that can be handled without dispatching a patrol unit permits a department to engage in approximately 40 additional minutes of patrol activity" (p.67); they do not, however, reveal the source of this estimate. Larson (1969), in his New York City study, found that travel and service time together averaged approximately 33 minutes a calls. Cahn and Tien estimated that the average service call, during the Wilmington split force/management of demand effort, took 23.7 minutes for travel and service. Webster found that time spent responding to calls for service varied greatly by type of call: a patrol unit might spend 48 minutes responding to a "bad check" call, but only a few minutes on a more urgent, suspicious person or prowler call.

There are fewer estimates of how many calls per tour patrol units respond to. In Larson's study of patrol response patterns in New York City (1969), he found that the average number of radio runs per car per tour in one precinct varied widely from .14 to 6.45, with a median value of 2.2. In contrast, Cahn and Tien found that during the management of demand experiment in Wilmington, Basic Patrol Units responded to an average of 7.5 calls per day. The discrepancy between Larson's finding and Cahn and Tien's can be explained, to some extent, by the fact that the Wilmington split-force/management of demand experiment was directed at increasing the calls for service productivity of basic patrol units. The historical increase in the volume of calls for service between the time of the two studies may also account for some of the difference.

There is general agreement in literature on the calls for service workload that the volume of such calls has increased dramatically over the years. Yet, it also appears that many calls are dealt with without dispatching a patrol unit, with out formal demand management programs in operation.

A review of workload studies reveals that the time patrol units generally spend in response to service calls varies greatly from jurisdiction to jurisdiction. It is unclear what the maximum utilization of patrol units should be in order to maintain a sufficient, potential emergency response force. It appears, however, that in spite of the complaint that many patrol units are hard pressed to meet the calls for service demand, in some jurisdictions, where patrol units respond to two or three service calls per day, or spend on average less than 20 percent of patrol time on such calls, the calls for service workload may in fact be less demanding than the literature leads us to believe.

## II. Response Time, Arrest, and Citizen Satisfaction

Given the expanded definition of police function proposed by criminal justice theorists and the concomitants rejection of crime-related data as the sole measure of police productivity, patrol ability to respond rapidly to calls for service came to seem a more appropriate indicator of how well police departments performed. The ability to

respond rapidly to calls seemed related both to the power to control crime and make on-scene arrests and to the quality of police service to citizens-order maintenance and public assistance functions. The development of a professional police department, utilizing the latest technology to provide the fastest possible response to calls for service, became a major concern of police departments in the late sixties and early seventies.

In a recent review of early studies concerning the relationship between response time, arrests and citizens satisfaction, Kelling (1978) reports that:

(e)valuators became so convinced that there would be a causal link between response time and police effectiveness. . . that response time itself became an outcome variable, an indicator of police effectiveness. (p.177).

Kelling sees the emphasis upon rapid response to calls for service as incompatible with various efforts (team policing, tactical patrol) which entail “out of service” (off the queue) activities. He also reports that computerized dispatch and automatic vehicle locator systems have failed to demonstrate that they can reduce response time and that there is no evidence that reductions in response time achieve expected goals.

Yet the earliest studies of the relationship between response time and arrest did support the expected relationship. In an influential article published by the President Commission on Law Enforcement and Criminal Justice, Isaacs (1967) found that faster response time to crime related calls was associated with more cases ending in arrest for all designated categories of urgency. Isaacs analyzed the relationship between response time and arrest for 4,704 crime-related cases from two Los Angeles divisions in January, 1966. He excluded calls which did not result in crime reports from analysis. Isaacs found that police response time averaged 6.3 minutes for cases not subsequently solved and 4.1 minutes for cases ending in arrest.

Isaacs’ findings have been criticized on two counts. First, it is argued that Isaacs’ sample produced fewer actual arrests-and fewer actual crimes-than a truly representative sample of Los Angeles calls (Spelman and Brown, 1981). Second, it has been pointed out that rapid response is only associated with arrest; there is not a clear causal relationship. It may be that police respond more rapidly in cases where arrest seems most likely.

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6 Isaacs reports that calls which merit the most immediate response often do not result in crime-reports, because so many involve silent burglar alarms and prove unfounded. Whereas 37 percent of the non-emergency, crime-related calls studied led to crime-reports, only 25 percent of the emergency calls did so.

Clawson and Chang (1977) reviewed the relationship between response time and arrest in Seattle as part of that city’s Patrol Manpower Allocation Project. They gathered computer based data from dispatch tapes on the activities of 170 patrol units for three eight-hour shifts from April, 1974 through March, 1975. Of 25,000 dispatched calls, 5,875 involved reported crimes, and 1,214 resulted in arrests. Unfortunately, computer tapes recorded response times for only 2,532 of the crimes and 507 of the arrest cases. Clawson and Chang found that there was no relationship between dispatch time and arrest, but that there were significant relationships between travel time and arrest and between response time as a whole (dispatch time plus travel time) and arrest.

The reliance upon computer records, rather than observation, impaired Clawson and Chang's study somewhat. Not only were half the data missing, but also dispatch tapes did not adequately reflect real dispatch and travel time; instead, they indicated when dispatch or on-scene arrival were reported. Reported time and actual time may have differed. In addition, Clawson and Chang admit to uncertainty about whether police simply responded more rapidly to calls in which arrest seemed likely. These early studies of the relationship between response time and arrest failed to provide definitive evidence that speedier response increases arrest capability, although they determined that there was an association between the two.

The Kansas City Patrol Project's exploration of the relationship between response time and arrest cast earlier positive findings into doubt. Reporting on these findings, Van Kirk (1978) reports that a large proportion of Part I crimes to which the police were called to respond were not susceptible to the impact of rapid police response. Many crimes were not discovered and reported until considerably after they had occurred.

The Kansas City Study explored the outcomes of 949 Part I crimes reported over nine months in 1975 through observation of patrol and analysis of dispatch tapes. Of these crimes, 62 percent were reported by citizens after commission ("discovery" crimes) and 38 percent were reported while they were on-going ("involvement" crimes.) Of the 113 sample cases ending in arrests, in only 35 cases (3.7% of sample cases) were arrests actually response-related (arrests which could not have been made if police had not arrived quickly.) Response-related arrests were far more likely for "involvement" crimes (7.7%) than for "discovery" crimes (1.3%). The Kansas City study found that citizens' crime reporting delays were often so long that rapid response could only affect the chances of arrest for a small proportion of crimes; reporting time was generally longer than the time it took to dispatch a call or to travel to the scene.

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7 Arrests were deemed not "response-related" if the suspect had been apprehended by a security guard or citizen before police arrived, if a victim or witness knew the name of the suspect, if the suspect turned himself over to the police, or if the suspect was rendered totally immobile by injuries during commission of the crime.

The Kansas City findings so contradicted the "conventional wisdom" about the relationship between response time and arrest, that they were frequently discredited by police departments as not generalizable. Spelman and Brown (1981) undertook a three-year study in four cities (Jacksonville, Fla.; Peoria Ill.; Rochester, N.Y.; San Diego, Calif.) which essentially confirmed the Kansas City findings. The study explored outcomes in 3,300 serious crimes and, involved interviews with 4,000 victims and witnesses. It found that rapid police response was not necessary for three out of every four serious crimes; only a quarter of the sample were "involvement" crimes.

Spelman and Brown confirmed that citizen reporting time was the major component of delay in police response, and that "conflict" delays among citizens (deciding how and if to report crimes) accounted for the greatest proportion of "missed arrests." Without such delay, response related arrests could be increased from 2.9 percent to 4.6 percent. Spelman and Brown report that

...response related arrest is very unlikely unless the crime is reported either in progress or else within three to five minutes after it has been committed-and then, of course, only for involvement crimes. (p.63)

They contend that reducing citizen reporting time through media campaigns or improved communications systems could have only a marginal impact on arrest rates, and that impact would be limited to involvement crimes only.

Spelman and Brown's findings, along with the findings of the Kansas City Study, posed a strong challenge to those who expected a direct relationship between response time and arrest. Without evidence of such a relationship, it appeared that the emphasis upon developing new technology to reduce response time was misplaced.

The Kansas City Study also served to demonstrate that the relationship between response time and citizen satisfaction was more complicated than expected. Pate *et al.* re-analyzed data collected during the Kansas City Patrol Experiment from October, 1972 through September, 1973. Data was drawn from questionnaires, administered during the patrol observation period (1106 questionnaires), a smaller "encounter" survey of citizens (146 questionnaires), and two citizen surveys (585 questionnaires); each sample included information on response time and citizen satisfaction. Pate *et al.* found that response time was not strongly related to the outcome of the incident, citizen satisfaction, satisfaction with patrol officers or attitudes toward the police. They report that:

Citizen expectation about response time was an intervening variable; the difference between citizen expectations and the response time they observed was the most significant predictor of their satisfaction with response time in all three surveys for which data were available. (p. xiv)

Other recent studies confirm the Kansas City findings about the relationship between r time and citizen satisfaction. Tien and Valiante (1979) argue that if citizens are told when to expect the police for non-critical calls, they are satisfied if police respond as predicted. Tien and Valiante report that a formal delay procedure was instituted and examined as part of the Wilmington split shift/management of demand experiment. Evaluation of calls-for-service data over a one-year period revealed that nearly 10 percent of all calls could be formally delayed, with no impact on citizen satisfaction. Exploratory interviews with nearly 400 respondents suggested that citizens were far less likely to be dissatisfied with a 30 minute delay (34% unacceptable) than with a 40 minute delay (64.5 unacceptable). There was no difference in the satisfaction level of citizens who did and did not receive formal delays to low priority calls for service.

Similarly, Percy (1980) examined citizen satisfaction with police response, based on the data from the Police Services Study of calls to complaint operators (see also Scott, 1981, above). Percy drew upon a citizen survey of 12,000 interviews in three cities. He found that there were 5,000 reported victimizations among 29 percent of the households interviewed. In 55 percent of the victimizations, a response time of less than ten minutes was reported; in 21 percent of the households, response time was over 20 minutes. Percy found that the strongest determinants of citizen satisfaction were outcome (arrest made), and whether police offered comfort and reassurance. Percy confirms early findings that expectations are centrally involved in satisfaction with response time.

Studies of police response to calls for service and their relationship to arrests and citizen satisfaction over the past decade have done too much to dispel the assumption that rapid response is necessary to all calls for service. It was found that citizens could be satisfied with a delayed response to low priority calls if they were told when to expect the police, and that rapid response had little impact on arrest activity for most Part I crimes. These findings had major influence on the development of efforts to manage the demand for calls for service through alternative response and the development of alternative strategies to preventive patrol.

### III. Management of Demand Programs

In their evaluation of the Wilmington management of demand experiment, Cahn and Tien report:

Currently computer-aided dispatch systems do little more than automate former manual operations... An “intelligent” computer-aided MOD (management of demand) system would provide decision assistance to the complaint taker, the dispatcher and the call back officer... (p.10-6.)

There is growing interest in efforts to develop systems to control calls for service demand in order to free patrol manpower for directed crime control and order maintenance activities. This section reviews recent literature recommending strategies to reduce the calls for service workload and evaluating programmatic efforts directed to such ends.

Sweeney insists that the traditional rapid response to all calls for service is inappropriate. He recommends systematically referring calls away from patrol, prioritizing and delaying low—priority calls (for from 30 to 45 minutes), and diverting calls to non-sworn paraprofessionals. Sweeney speaks briefly of a Yonkers effort—which established a clearing code in lieu of officers filling out an official report for low-priority and “unfounded” calls. This permitted “closing out” 70 percent of all calls and returned 15,000 patrol hours, which would otherwise have been spent on administrative duties, to the Yonkers police.

Sweeney recommends proactive strategies for reducing the calls for service demand, such as developing sanctions for repeat “false burglar alarm” reports. He also suggests that patrol units can be assigned varying degrees of responsibility for calls for service—some units responding to urgent calls only and devoting large blocks of time to directed patrol, other units responding to all calls.

Tien and Larson (1976) report on the effectiveness of a Worcester MOD program which employed paraprofessionals to respond to some designated calls for service to reduce the patrol workload and decrease police department costs. Police service aides were employed to respond to a wide variety of complaints; car alarms, fire alarms, disorderly children, rubbish complaints, snow complaints, recovered and/or lost property reports, defective street/walk/wire complaints, missing persons, sick or injured persons, auto accidents and abandoned cars. Police service aides were unarmed, uniformed civilians in marked vehicles, performing non-crime related activities that would normally have been performed by sworn officers. Tien and Larson report that such aides were generally

accepted and appreciated by fellow officers and were able to free time for sworn officers to focus on crime-fighting activities.

Another MOD program grew directly out of the Wilmington split-force experiment, in which patrol units were split into two groups—a basic patrol force of 27 units to respond to calls for service and perform mostly random patrol, and a structured patrol force of 16 units, to perform directed crime prevention, deterrence and apprehension, with minimal calls-for-service responsibility. According to Cahn and Tien, the split-force experiment proved to be a “productive separation of responsibility”, increasing both call-for-service and arrest related productivity. They report that during the split-force experiment the reported crime rate decreased 6.1 percent and the clearance rate for the patrol division (basic and structured) increased by 1055 percent.

The MOD program developed in response to the findings of the split-force evaluation, as an effort to determine whether alternative response strategies within the basic patrol force might cause a further increase in calls for service productivity. The program designated distinct complaint-takers and call-back officers (sworn personnel) with separate responsibilities in relation to calls for service. Complaint-takers were advised of five possible responses to calls for service: to dispatch patrol directly, if units were available; to advise of a 30 minute delay for low priority calls; to phone adjust calls for information; to suggest walk-in crime reports; and to refer ambiguous calls to the call back officer for assignment. Call back officers in turn could dispatch units; phone adjust; suggest walk-in crime reports; take a phone report; or schedule an appointment with a specialist patrol unit, which would be responsible for handling delayed service calls only. The goals of the program were to maintain citizen satisfaction, decrease the number of dispatched complaints, decrease the basic patrol force responding to calls for service, increase calls for service productivity and maintain an “average basic patrol unit utilization factor of 33.5 percent,” (the proportion of patrol time spent on answering calls for service.)

Cahn and Tien’s evaluation of the Wilmington MOD program relied on a quasi-experimental pre-test, post-test design. It was not a controlled experiment. They gathered data on the number of calls for service before and during the program, conducted personnel surveys and before/during surveys of citizens, and analyzed calls for service and crime data.

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8 The 33.5 percent figure was based on the utilization factor maintained during the split-force experiment. It is not a scientifically determined “maximum efficiency” estimate.

They found that many strategies to reduce the calls for service work-load were underutilized by complaint takers. Nevertheless, dispatches were reduced by over 20 percent (phone adjust, 3.5%; walk-in, 1.6%; phone report, 11.2%; specialist appointment, 2.6%; delay, 3.6%.) Cahn and Tien also found that the MOD program caused no decrease in citizen satisfaction and no unanticipated increase in crime rates during program operations. Based on before-during measures, it was found that the volume of dispatched complaints was reduced nearly 19 percent; the number of basic patrol units were reduced 21 percent; average basic patrol unit use was maintained at approximately 34 percent of patrol time; and overall calls for service productivity (the ratio of “out- put”-calls

handled-to “input”-eight hour officers employed) increased approximately 16 percent. Even with major under utilization of alternative calls for service strategies, the Wilmington MOD program achieved its major goals.

Cahn and Tien recommend that operators be trained to make fuller use of MOD strategies, particularly walk-in and specialist appointments. They also recommend development of proactive strategies to reduce calls for service, such as sanctions against “career clients”-those who call five or more times with the same complaint (apparently a significant proportion of the Wilmington calls for service workload.) They also report that the “current legalistic, crime-based orientation in classifying calls.... is inadequate: and call for an explicit, response oriented scheme of call-classification for use in further MOD program development.

Farmer et al. seem to respond directly to Cahn and Tien’s recommendation to develop differential police response strategies not based on legalistic, crime-based categories. Farmer et al. reviewed literature, surveyed 200 police agencies, and conducted in-depth explorations of calls for service practices in four cities (Birmingham, Ala.; Peoria, Ill.; Hartford, Conn.; and San Jose, Calif.) They recommend that calls be categorized according to the degree of injury and/or property loss involved, as well as the temporal characteristics of the incident reported (in progress, proximate or cold.)

In their telephone survey of 200 police departments, Farmer et al. found that 80 percent of the departments interviewed already used some form of alternative response (telephone larceny reports, walk-in bad check reports) but few made use of the full range of alternatives possible for demand management programs. They also report that there was little systematic response to calls for service and recommend use of their own proposed differential response model to determine whether calls merit an immediate, expedited or routine response.

#### IV. Management of Demand and Alternative Patrol Strategies

The strategies reviewed above generally emphasize reducing the calls for service workload in order to free patrol forces for more crime-related activity. After the Kansas City Patrol Experiment, the literature recommending such strategies recognized that random patrol was the least effective use for such time.

Gay et al. instead recommend guaranteeing patrol units small, discrete blocks of time (30 to 60 minutes) in which to engage in directed patrol activities, based upon crime-analysis. Broader use of inter-sector, and possibly inter-precinct, dispatching would facilitate such a strategy.

Gay et al. also recommend that every department strive for 25 percent of patrol time to be set aside for directed patrol activity. They insist that a combination of crime analysis and street knowledge be employed to help define appropriate prevention and deterrence strategies for each precinct. They recommend saturation patrol; decoys and stake-outs; field interrogation and suspect search; directed burglary patrols (location and time determined by crime analysis); and directed traffic control, based on analysis of traffic patterns. Because Gay et al. also point out that calls for service demand and criminal activity generally peak at the same times, they recommend that patrol force

allocation take this “double peak” effect into account, to permit sufficient calls for service and directed patrol personnel to operate simultaneously.

A strategy such as the Wilmington split force, in conjunction with management of demand efforts, might be the most effective means of meeting these ends. Efforts to use demand management to create blocks of free patrol time without restructuring the patrol force might not permit deploying directed patrol units when and where they are most needed. Wilmington split force strategy affords greater flexibility than simple management of demand efforts in themselves.

The Wilmington experience indicates that there may be some resistance to new structures. In the Wilmington management of demand experiment, basic patrol units were assigned to fixed posts during periods in which they were not responding to calls for service. It was thought that fixed posts would permit limited surveillance, citizen access, and blocks of time in which to complete administrative tasks. Yet patrol units complained that they felt like “sitting ducks” at their fixed post and began random patrol of the surrounding area on their own initiative.

Cahn and Tien also report that, during the management of demand experiment, the structured patrol force (the other half of the split force) was stripped to provide personnel for a sting operation which had recently been put into effect. The results of the sting operation were still unknown at the time Cahn and Tien wrote their report. Because of the on-going sting operation, however, there was no discernible crime impact due to structured patrol during the demand management program; structured patrol had proved effective during the split force experiment. There were apparently not enough resources in Wilmington to permit both routine structured patrol activities and a sting operation at the same time.

Other directed patrol strategies have not focused solely upon improved crime-control efforts. Some have a complementary community orientation as well. Gay et al. speak of the San Diego Community Oriented Policing (COP) program, which is based upon the assumption that each patrol beat or community within a city has unique social and law enforcement problems that can only be adequately addressed when patrol officers have a clear understanding of these problems. (p. 127.)

In COP, each patrol unit becomes familiar with a Beat Profile, and has access to a community resource manual listing social service agencies that can be drawn upon. Officers are assigned “handi-talky” units which permit greater citizen interaction and allow foot-patrol activity-in which officers’ park and walk with hand-held radios without going “out-of-service.” Such measures are thought to counteract the frequently alienating impact of random patrol. Police no longer seem an outside force patrolling an assigned neighborhood, but become in integral part of the area to which they are assigned.

The Kansas City directed patrol schedule, on the other hand, (also reviewed by Gay et al. involves a combination of community oriented and crime-specific activities. In contrast to San Diego, beat boundaries are regarded only as administrative mechanisms and officers can readily be deployed across sectors to accommodate “short-term service demands and crime trends.” Yet the directed patrol effort also includes such community-oriented activity as crime information displays, involvement in community meetings,

security surveys, block watches and “operation identification” programs, for valuable possessions.

It is increasingly recognized in the calls for service management of demand literature that community-police inter-action is reciprocal. Police need the public to provide crime information and support. By providing community service and returning to neighborhood-policing strategies, police can cement ties to the public, and ensure contact with the major source of crime information.

The Wilmington experience as a whole and the growing body of management of demand literature makes it clear that calls for service need not continue to dominate the structure of patrol activities. Service calls can be referred out, delayed, and responded to by phone; and calls for service productivity can be increased.

Yet it is difficult to determine the maximum number of calls for service that a basic patrol unit should be expected to respond to. In Wilmington, the basic patrol force spent about a third of the patrol day responding to calls for service and the rest of the time on administrative tasks, fixed post assignment and random patrol. This time scheme was thought necessary in order to maintain an adequate reserve emergency response force. It is not clear however, if raising

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