

Planning for Effective Patrol

Chief Inspector Sue Woolfenden

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Abstract

Title : Planning for Effective Patrol

Description of Entry

Background

In 1996 it was perceived that our shift system was increasingly failing to meet current demand for police services. This, together with pressure to reduce staffing levels, budgetary constraints and demands for increased service prompted a review of our shift system. A Review Team was established to review the deployment of operational officers to identify the most appropriate system to best effect a match between demand for service and available resources.

Our Analysis of the Problem

Traditional systems of deploying police resources had failed to keep pace with quickly changing patterns of demand and as a result overstaffing and understaffing of patrols is inevitable. We were able to demonstrate the inefficiencies of the current shift pattern and design a new pattern that would distribute patrols proportionate to demand and be considerably more effective.

We also found that there was little appreciation of resource management issues among police managers; there was a lack of management information regarding both demand and the availability of officers and there was a lack of awareness among those working shifts of the health related aspects of shiftwork.

Our Response

Our response consisted of a number of initiatives.

- Appointment of Resource Managers — officers specifically responsible for overseeing all aspects of the patrol function.
- Training in resource management issues.
- A new force shift pattern, adapted by Resource Managers to meet their Area's specific needs.
- Access to management information to enable Resource Managers to respond quickly to changes in their demand profile.
- Introduction of a computerised resource management system to assist in the management and monitoring of the new system.
- Introduction of Performance Indicators to monitor the efficiency of the new system .
- Establishment of a Work Scheduling Unit to undertake the design of new shift patterns; support Resource Managers with data and advice and maintain the momentum of the drive towards even greater efficiency and effectiveness in the area of police patrol.
- The distribution to all shiftworkers of a handbook giving advice on health and lifestyle maintenance for those working shifts.

Our Assessment

Using a computer program we were able to demonstrate the potential benefits of the new shift system prior to its introduction. Retrospective comparisons will be undertaken in 2000 when the system has been in place for 12 months. There is now a far greater appreciation in the force of the need to plan resources more effectively and increasing numbers of officers are being trained in these skills. A greater awareness among officers of the need to consider how they adapt their lifestyle to shiftwork has been achieved, although the benefits of this, for the organisation, will only be seen in the longer term.

Conclusion

We believe that the introduction of this structured approach has the potential to open up vast opportunities for enhancing the management skills of police officers, of achieving more effective deployment of resources and of improving the health of our workforce.

This paper is submitted by Chief Inspector Sue Woolfenden Ph.D. on behalf of the Work Scheduling Unit of Merseyside Police.

Plan ning,for Effective Patrol

Introduction

Patrolling is the largest and most costly component of policing. Whilst it should, therefore, offer the greatest potential for increased productivity, efficiency and cost effectiveness it is sadly the most frequently overlooked as the subject of routine planning and analysis.

Whilst forces spend over half their budget and devote a significant proportion of their personnel to the resourcing of patrols they rarely take time to look for deficiencies or improvements in this function. Although we pay close attention to response times for emergency calls, how often do we ask questions such as:-

- How busy are patrol units?
- How much of an officer's time is, or should be, spent answering calls for service?
- + How much time can we expect officers to have available for proactive or preventative patrolling?

The answer to these questions has invariably been, 'we don't know because we don't have the means to measure such factors with any degree of precision'.

The allocation of resources to meet the demands of patrol work is a complex issue. This in itself has tended to discourage reviews of both resource allocation and the patrol function itself. That complexity, however, can no longer suppress the pressure to address these issues that is coming from :-

- Reduced staffing levels;
- Budgetary constraints, and
- + Demands for increased I improved service.

Background

In 1996 Merseyside Police was faced with all of these pressures, prompting a review of the force's current shift arrangements. A Review Team was established with a remit to:-

" review the deployment of operational officers and associated support staff with a view to identifying the most appropriate shift system(s) to best effect a match between demand for services and available resources."

The Shift Review Team's work soon led it outside its original terms of reference in their search for a solution, the most difficult aspect of which was how to improve service

delivery, with limited resources, whilst having regard to the health, welfare and morale of our officers.

Our Analysis of the Problem

Patrol resources have traditionally been deployed by a system of equal manning of three shifts. The benefits of the system have been in its simplicity. It provides a relatively straightforward approach to scheduling officers duties and officers retain the same supervisor which helps with team building.

Unfortunately, demand is rarely constant and staffing levels ought to be varied to meet workload demands so that staff are deployed proportional to demand. The force's present system did vary starting levels but the Shift Review's finding showed this to be ineffectual as it increased staff when demand was low and reduced it when demand was high. Very little forward planning took place.

Why Plan the Allocation of Patrol Resources

Unless the allocation of police resources is planned some of the most important questions facing a police force will go unanswered or, at best, be addressed in isolation of each other. For example:-

- How should officers be distributed among command units?
- How many officers should be on duty during each shift?
- How do/should patrol officers spend their time when not answering calls?
- How many cars should be available?
- How many hours should officers work?
- What should the shift system look like?

The benefits of routine patrol planning will not only answer these questions but will also give greater control of patrol resources, more efficient service delivery and important information to aid decision making.

The Demand Profile

Although we knew from simply comparing calls for service with the number of officers on duty that the present shift system was not meeting demand efficiently we needed a more comprehensive picture of actual demand in order to identify a more appropriate shift system. Utilising a software package (Staff Wizard) designed specifically to match officer deployments to demand we were able to produce a demand profile for the force. This took into account factors such as geographical size, miles of road, desired response time, service time per call, the number of emergency / non emergency calls, administration activities, etc. This ability to deal with multiple factors simultaneously gave a far more accurate profile that could be obtained manually. When individual Areas

were examined separately the influence of geographical size and road density was evident despite some Areas having similar numbers of calls for service.

The system also gave the option to either allocate time for proactive, self initiated or community orientated activities or allocate no time for such activities thus reducing the number of patrol officers required and thereby freeing up officers who could be dedicate to such activities on a full time basis. As Merseyside Police was embarking on its adoption of Problem Orientated Policing in order to provide an holistic approach to the policing of Merseyside the ability to allocate officers time to specific problems would be a crucial element in that approach.

The system worked by calculating the demand during each hour of each day, the system then allocated the number of officer hours available in the most efficient manner possible, i.e. proportional to demand. This produced a table whereby the number of officers required fluctuated hour by hour and day by day. Naturally officer's tours of duty cannot accommodate such rapidly fluctuating requirement. The system therefore, allocated resources to an optimal shift pattern based on the demand profile and the users choice of:-

- Which variables are most important e.g. response times, amount of uncommitted time desired, likelihood of all units being busy.
- Preferred shift length
- Preferred start times
- Number of patrol groups

The system also produced a numerical score of how well a shift pattern fitted the demand profile. A score of zero indicated a perfect fit. This was then superimposed graphically on the demand profile for ease of comparison. By varying shift lengths and start times we were able to produce shift patterns of varying efficiency. The system was initially used to establish how efficient our current shift system was. A score of 72.58 was recorded indicating a very poor fit between it and the demand profiles.

The Problem

With the wealth of information generated by the computer system and complemented by a survey to obtain the views of both managers and operational personnel the Team quickly realised that simply changing the shift pattern would not of itself bring about the improvements needed. We were able to define the force's resourcing problem as being due to:-

- A poor match between demands from the public and the shift system employed by the force. Increased availability of officers did not match peak demand times. This resulted in a disproportionate workload in that afternoon duty officers, for example, were unable to keep up with demand while night duty officers, during the latter part of the night shift, were hardly called upon to attend any calls.
- There was a lack of management information regarding both demand and the availability of officers_

- There was little appreciation of resource management issues among those responsible for managing patrol officers.
- There was a lack of awareness among those officers working shifts of the health related aspects of shiftwork.

Our Response

Each Area was asked to appoint an Inspector as their Resource Manager. This officer would assume responsibility for overseeing changes to the shift system and the future management and deployment of operational personnel.

Each Resource Manager received two weeks training covering all aspects of resource management. This included a grounding in the different methods of allocating and deploying police resources (for which the Team are grateful to Dr. William Stenzel of Chicago University for his tuition). Health and welfare issues, health and safety legislation as it applied to the police, relevant police regulations, including the working time regulations and training in operating a computerised resource management systems were also included.

Following the training course each Resource Manager was required to produce a 'Patrol Plan' for their Area adapting the force shift pattern, which had been agreed after consultation with the Merseyside Police Federation, to their Area's specific needs. The 'Patrol Plan' identified:-

- the number of officers required to undertake the patrol function;
- both minimum and desired strengths based on demand and officer safety;
- it established a crewing policy (when and where cars should be doubly crewed);
- it established an annual leave policy;
- it identified where and when officers should be deployed and
- it identified a set of performance indicators to monitor the effectiveness of the new shift system.

Area Commanders and operational officers were consulted in the production of the 'Patrol Plan'. In particular operational officers were asked to advise on issues such as the crewing policy where it was anticipated there would be concerns for officer safety. Operational officers were also closely involved in conducting risk assessments in respect of staffing levels.

On 4th January 1999, the force introduced a new shift pattern. At the same time the Shift Review Team was renamed the 'Work Scheduling Unit' to provide a more permanent reference point for Resource Managers, Area Commanders and individual officers.

To overcome the lack of management information arrangements were made for regular downloads from the Force Command and Control System. This information was then passed on to resource Managers to ensure that they were able to respond quickly

to changes in their demand profile. The system would also provide the data required for some of their performance indicators.

A computerised resource management system (CARM) was also introduced into each Area of the force to assist in the management of the new system and provide management information on past, current and future deployments. The system also provided useful data for performance indicators.

In March 1999 the 'Work Scheduling Unit' compiled and published a handbook which gave advice on health and lifestyle maintenance for shiftworkers. This has now been issued to all shiftworkers in the force, both police and civilian.

Our Assessment

The New Shift System

Prior to the introduction of the new shift pattern we were able to demonstrate graphically (app 1.) and statistically the potential improvements that could be made. We were able to predict the likely improvements in response times for emergency calls (app 2.) and the likely reduction in the number of occasions when no officers were available to respond to a call (app 3.). These predictions were based on data collected over a twelve month period and therefore we do not yet have a full 12 months of data with which to make a comparison. Our methodology has, however, been examined by the District Auditors who commended the initiative. An extract of their report, 'Police Patrol, Phase 3', is attached at appendix 4.

Resource Managers

Since the introduction of the Resource Managers course over 40 officers have been trained, including officers from other forces. A structured debrief is conducted at the close of each course and is used to inform future courses. Feedback has been extremely positive with the majority of participants expressing a greater degree of confidence in their approach to resource management issues.

Many officers blamed poor management for the failure of the previous shift system to meet organisational needs. That criticism can no longer be levelled at today's resource Managers and more junior first line supervisors are now applying for training courses as they begin to appreciate work scheduling as a specific skill.

Patrol Plans

The introduction of Patrol plans has been met by a largely positive response by operational officers who appreciate the direction given by the plan and the predictability of duties that it gives. Some have expressed concern that it restricts them from 'using their own initiative'. The Plans have brought a more even distribution of workload which has benefited all patrol officers. The staffing levels determined by the Plan is monitored and recorded by the computer system. Complaints of understaffing, instances of

unnecessary overstaffing and complaints of unfair distribution of popular or unpopular duties is monitored by each Area as a Performance Indicator.

The Handbook

The handbook has been endorsed by the Chief Constable and the two Staff Associations. It has been welcomed by shiftworkers who appreciate that their interests and wellbeing is taken seriously by the organisation. Given the high incidence of sickness absence and medical retirements from the Police Service, this initiative could have a significant impact on the future health of the Service.

Considerable interest is being shown in the handbook by *other* forces. An extract is attached at appendix 5.

The Work Scheduling Unit

Unlike many projects undertaken by the Police service, the skills acquired by the project team have been retained in the form of the newly established Work Scheduling Unit. The Unit consists of a Chief Inspector and two Sergeants, all of whom also carry out other responsibilities in addition to running the Unit. The unit assists in determining new shift patterns, supports Resource Managers with data and advice, keeps abreast of work scheduling issues and, most importantly, maintain the momentum of the drive towards even greater efficiency and effectiveness in the area of police patrol.

Conclusion

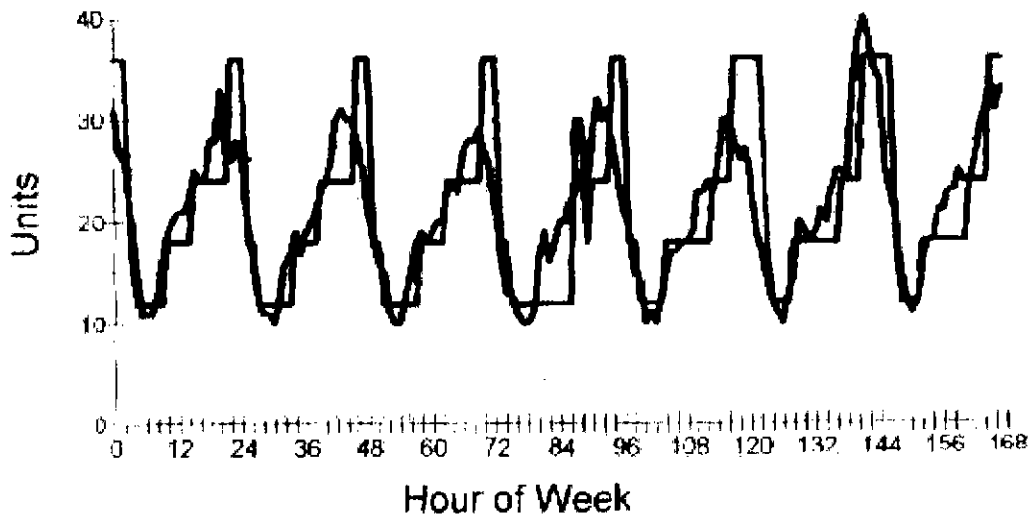
Although we are at an early stage in what has become an ongoing project we believe that our approach has the potential to open up vast opportunities for enhancing the management skills of police officers, of achieving more effective deployment of resources; of improving the health and working conditions of shiftworkers; or even presenting a sound business case for additional resources.

Appendix 1.

Comparison of Officers Required per Hour

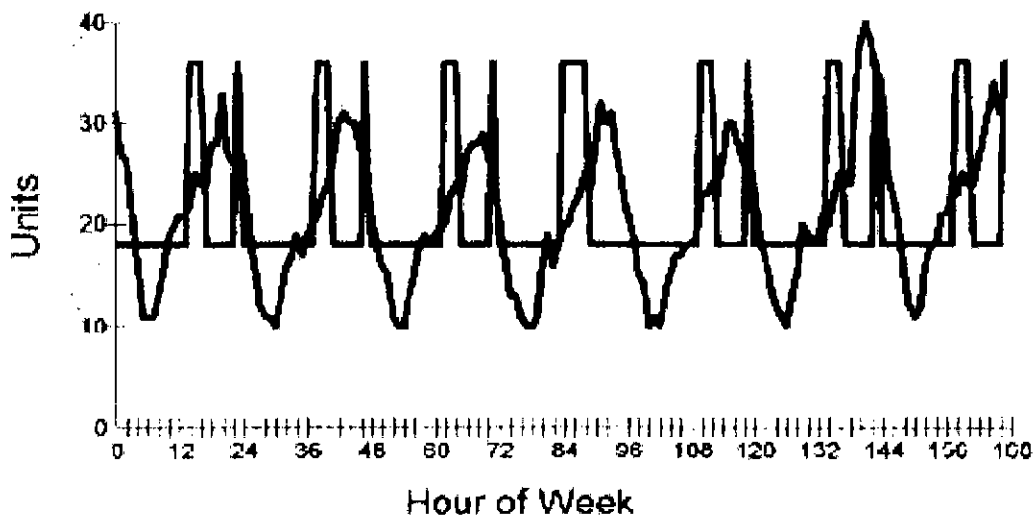
New Shift System (Staff Wizard Score 31.14)

optimum pattern



Previous Shift System (Staff Wizard Score 72.58)

optimum pattern



Appendix 2.

Comparison of Response Times for Emergency Calls (minutes)

New Shift System

Time

14-15	4,63	4.35	4.27	2.30	4.98	4.31	5.07
15-16	7.23	6.03	6.28	2.39	5-15	4.99	5.75
16-17	6.58	8.32	8.54	3.17	6.56	7,00	5.22
17-18	3.78	5.25	4,42	4.52	4.47	4.94	3.73
18-14	430	5.03	4.25	4.65	4.22	3.81	4.16
19-20	449	5.48	4.64	5.71	5.27	6.02	4.98
20-21	5.82	5.28	431.	521	5.02	7.23	5.50
21-22	4.42	5,03	4.83	5.30	2.79	4.28	3.44
22-23	4.22	4,67	4.29	4.39	2.58	3.95	3.11
23-24	2.76	2.51	2.50	5.35	2.68	3,49	3,26
Mesa	4.32	4,41	4.26	3,93	4.20	4.34	4.24

Previous Shift System

Time

14-15	2.11	2.26	2.24	2.30	7,38	2.25	2.39
15-16	2.49	2.37	2.39	2.39	2,41	238	253
16-17	2.41	3.05	3.04	3.17	3.04	3.12	2.42
12-is	5,42	7.80	6,21	6,38	6.36	7.25	5.33
18-19	6.65	7.23	6.15	6.96	6.25	5.49	6.06
19-20	6.95	7.23	6.91	7.23	723	7.23	7.23
20-21	7.23	7.23	6.56	7.23	7.23	7.23	7.23
21-22	6.46	7.23	7.07	7.23	7.04	7.23	7.23
22-23	2,6,5	2.81	2.67	6.39	2.58	3,95	3.11
23-24	2.76	2.51	2.50	5.35	2,68	3.49	3.26
Mean	4.36	4,23	4.00	4.17	4,04	4.24	4,42

***The force target for response times is 10 minutes. With the new system there are far fewer instances in which response time is likely to exceed 7 minutes.**

**Probability of Patrol Officers Being Committed
Percentage of all patrol officers**

New Shift System

Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
14-15	21.29	17.09	16.15	0.40	26.52	15.99	28.49
15-16	57.26	39.02	43.30	0.79	28.66	26.89	37.69
16-17	46.93	47.99	51.26	1.69	29.61	35.87	29.75
17-18	11.35	18.20	8.12	8.97	8.94	14.54	10.61
15-19	21.73	29.23	17.62	24.08	18.30	11.90	16.86
19-20	24,14	34.58	23.72	38.57	32.90	41.86	28.59
20-21	37.18	32.68	21.12	31.36	28.34	63.10	34.18
21-22	20.29	29.11	25.27	32.72	4.40	28.91	14.01
22-23	16.27	23.00	18.22	19.68	2.00	22.64	8.26
23-24	3.69	1.39	1.41	29.97	2.91	14.34	10.91
Mean	17.20	16.48	14.57	12.39	13.31	17.30	17.23

Previous Shift System

Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
14-15	0.43	0.27	0.22	0.40	0.71	0,25	(1.76
15-16	1.40	0.62	0.74	0.79	0.88	0.71	1,66
16-17	0.97	1.01	1.01	1.69	0,99	1.41	0,94
17-18	31.87	44.87	26.02	27.08	28.17	38.98	10.45
18-19	48.24	58.68	41.44	51.91	44.68	33,23	41.33
19-20	.5108	63.91	51.18	69.91	64.10	72.19	57.78
20-21	65.36	63.14	46.01	60.83	56.03	95.69	62.31
21-22	45,61	58.19	51.21	62.74	52.85	94.46	72.81
22-23	2.49	4.12	2.79	44.40	2.00	22,64	8,26
21_24	3.69	1.39	1.41	29.97	2.91	14,34	10.91
Mead	20,01	16.93	1296	16.90	1399	20.39	21.68

- 1) Whilst officers believe such abstractions are well managed by the Force, abstractions for Crown Court appearances continue to pose a burden on patrol officers' time. The disruption caused to shift rotas and leave patterns is unnecessarily high and creates avoidable expense and annoyance when courts are adjourned or cancelled.
- 2) The Force is aware of this issue and conducted a survey amongst patrol officers in Summer 1998 to quantify the problem. The outcome of this survey confirmed that the majority of the delays were down to the courts themselves. Subsequent discussions with the Crown Prosecution Service are still on-going but patrol officers are unaware of any progress being made.
- 21 The Force should continue to monitor abstractions for court duties and report results or any joint initiatives back to patrol officers_

Patrol deployment and staffing levels

- 22 The Force has devoted considerable resources in developing shift patterns based on a systematic analysis of appropriate data linked to demand requirements. New patrol plans (commencing from 4 January 1999) will make a significant difference in identifying when, where and how many officers to deploy.
- 23 Key issues such as minimum staffing, double/single manning of patrol cars and response times for meeting immediate response calls will all be addressed within the new patrol plan.
- 24 Results from our Phase I survey indicated that few officers were deployed on foot patrol (4% in one BCU, nil in the other BCU surveyed) and double crewing was the norm rather than the exception. The new patrol plans balance operational requirements for high visibility and effective policing with officer safety. Current data (February 1999) indicate that 38% of patrol officers are deployed on foot and that 53% of patrol cars are double-crewed. This is a considerable improvement from Phase 1 and further improvements are expected as managers become more familiar with the new shift patterns,
- 25 The approach to shift planning being developed by Merseyside Police is **both** innovative and scientifically based and we commend them for this initiative. We are also pleased to note that its effects on key performance indicators are to be closely monitored by the Force. This includes health and safety aspects of shift working through a joint project with psychologists from Leeds University.

How patrol time is spent

- 26 We noted in Phase 1 that patrol officers had a relatively high paperwork burden, which in one area amounted to 20% of officer time.

FAMILY & SOCIAL LIFE

SOCIAL LIFE

It would be ridiculous to claim that shiftwork does not affect domestic and social lifestyles, Shift work nurses are often unavailable in the evenings and weekends. It affects their family lives. Domestic and social isolation can lead to a state of isolation, depression and moodiness and can affect both the health and the ability to pursue relationships outside work-

TALK ABOUT IT

Often the shiftworkers' children, family and friends have no experience of working shifts themselves, They find it difficult to communicate with those who do not work in shifts.

You should ensure that the social isolation and alienation does not become overwhelming - nobody said shiftwork was easy, but with help such problems can be minimised. Frequently, your children, or those who do not have primary responsibility, like elderly relatives, may not fully appreciate what it means for you to work shifts. Communicate with them, the key.

PLAN TIME TOGETHER

If you have a family, it is often useful to plan at least one meal a day with your partner, plan ahead and make time to be together. Working shifts means you should plan to spend time with your family. Don't leave it to chance,



Remember, shiftwork does not affect altruistic intentions. Even the most selfless intentions may be a fluid idea in personal time.

BE AWARE

You should be aware that you may be irritable and tired. You are not alone. One or two days of sleep debt can be a problem. It is important to make time for yourself and friends during your rest days.

FEMALE HEALTH

There is a growing incidence of miscarriages, which can affect the health of women. Some of the reasons are that the number of miscarriages is higher among shiftworkers than among those who are pregnant. It is important you inform your line manager about this. It is also important to take action to minimise such risk.

CHILDREN & DEPENDANT RELATIVES

It should be appreciated that for some people working shifts it is the only way they can reconcile having a family with full time employment. For others, working shifts can cause difficulties in managing childcare arrangements, DV, and organising your housework and other arrangements so that it is shared. It is possible to do this with other shiftworkers. Think about your welfare and although it can be expensive, consider employing help - particularly if you work nights - to help with sleep. You may find it helpful to plan your days so that you know when the balance between work and home is going to be upset. Plan to anticipate events and seek help from elsewhere, list realistic ways to deal with the effects of shiftwork on your family. You also owe it to your family to be safe at work.

