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Shift Scheduling – Permanent versus Rotating  
What is best for the small agency?

A Policy Research Project  
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## **Abstract**

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Most police agencies must provide service to their communities round the clock. In order for this service to be accomplished, many types of shift schedules should be explored, taking into consideration sick time usage, overtime accrual, officer morale and officer injury.

The intent of the research into this area is to answer the following questions; is there a best type of shift schedule for a small police department? Does one shift type have more problems than another? Shift schedules can be greatly impacted when officers do not report for duty.

In order to answer the above questions, we must look at past as well as current trends in shift scheduling. Previous research in the matter is reviewed and law enforcement agencies are surveyed to see if there is a direct correlation between the above problems and a specific shift.

It is learned that shift work impacts officers both on and off duty. Our overall concern is for the service to the community and the safety of the officers. We learn that 20% of employees are not able to adjust in the shift work environment. As administrators, it is our responsibility to identify these employees.

It is recommended for agencies to develop their "first line" supervisors to recognize the on set of any problems with officers shortly after a shift change occurs. Policy and procedure should be developed to promote this recognition system which would enhance the overall effectiveness and efficiency of the organization.

## Introduction

It is fact that law enforcement agencies are required to provide round the clock service to the citizens of the community. To provide this type of service, evaluations of different methods of scheduling should occur. Is there a best type of shift schedule for a small sized department (less than 35 officers)?

The purpose of this evaluation is to answer the above question and to provide accurate and current information that will substantiate if a specific shift schedule is better than another; to determine whether or not there is a direct correlation between officer injury, sick time usage, overtime accruals and low officer morale. The intent is to provide both positive and negative factors concerning both rotating and permanent shift schedules to assist administrators in selecting which is best for their department.

The use of sick time, officers sustaining injuries, the accrual of overtime and low officer morale are all issues of concern for any department. It appears that in smaller departments these problems are more significant and have a greater negative impact than they do in larger agencies. It only takes one officer not reporting for duty to cause a major adjustment to the schedule in a small department. If an officer is not available for duty for an extended period of time, what was once a "fixed" schedule must now be modified and can cause many personnel to be effected. Officers having to cover for others being off of work can cause overtime to accrue beyond budget limitations. Shift schedules can be effected for as long as a year if officer turnover is substantial. The entire above can and will contribute to a lower morale within the staff of the department.

In order to establish an overall view of trends in scheduling, two forms of research are conducted. First, review of current literature concerning different types of scheduling and the positive and negative effects of specific schedules. Second, to survey several law enforcement agencies of similar size asking specific questions concerning their type of scheduling.

It is the intended outcome of this policy research paper, to provide vital information concerning specific types of schedules and the characteristics associated with them. The Azle Police Department will provide clear and concise data pertaining to schedules that will serve in

developing policy concerning which schedule, rotating or permanent is the best. As a result, the formation of a standardized shift rotation would be developed. The key is remembering shift rotations impact a person both mentally and physically.

### **Historical, Legal or Theoretical Context**

There are many factors to take into consideration when making decisions concerning which shift type is best for a specific agency. One must consider sick time usage, injuries, overtime accrual and overall officer attitude. When considering sick time usage, studies have indicated that a permanent shift worker uses more sick time than a rotating shift worker does, and in addition the duration of the sickness is longer (Taylor 328).

In small departments, the loss of one person for any reason can greatly impact shift scheduling, resulting in an increase of overtime usage. Officers, who are called in, to work extra and longer hours, fatigue more easily. Fatigue can be attributed to officer injuries and can also be contributed to sickness.

While the above study indicates that there are more absences based on fixed than permanent shifts, other research does not concur. It is well established that shift work causes a significant reduction in well being, particularly with the night shift (Akerstedt 121). Complaints of sleeping disorders, gastro-intestinal dysfunctions as well as lowered morales are present in shift work environments. In dealing with these issues, officer safety becomes a factor to explore. Some 100 million Americans are seriously sleep deprived and have created a potential hazard to themselves and others (Brody 64).

In dealing with the complaint concerning working the "night shift" we must take into consideration the body's internal clock, the circadian rhythm. The circadian rhythm is the body's biological clock. The rhythm of this clock is associated with the time of day; most importantly the light and dark cycle (Liskowsky 3,047). Research in the circadian rhythm area has indicated that many health problems can be traced to the circadian process (Borbeley 187). If the body has not adjusted to the schedule change, it builds intolerance. Clinical intolerance to shift work has been defined by the existence and intensity of several medical complaints. Sleep alterations where problems exist with falling asleep and staying awake. Persistent fatigue, which does not go away

no matter how long a period of sleep an employee has had. Changes in behavior including irritability, tantrums, malaise or indecent performance. Digestive troubles ranging from dyspepsia to epigastria or peptic ulcers are also recognized (O'Neil & Cushing 10).

Shift work can also effect workers' attitudes and overall department morale. A study conducted by the Laboratory for Clinical Stress Research, Karolinska Institute in Stockholm, Sweden indicated that the abolishment of the night shift altogether resulted in a substantial improvement in mental, physical and social well being (Akertedt & Torvall 355). We realize that in police work this cannot be accomplished; we must provide around the clock protection to the citizens in which we serve.

These contradictions in research pose the difficult question, "Is there a better system; is there a better way?" In dealing with small departments we can only take the information that has been provided to us in the past and develop our own conclusion. These questions have been asked repeatedly, discussions on this issue have dated back to World War II when shift work and time of rotations were discussed concerning wartime production in Britain (Wilkinson 1,425). With the abolishment of the night shift being out of the question, we must now consider and determine the rotation rate when choosing rotating shifts.

It is said that changing shifts from mornings to evenings and from evenings to midnights is the best way to provide 24-hour staffing. It is further suggested that the midnight rotation time should be longer than the morning and evening shift rotation times (Wilkinson 1,425). Not only have we found that there are differences of opinion in research between permanent and rotating shifts, we also see a difference of opinion in how frequent shifts should rotate.

In 1981, a representative of a very large organization stated that unions had been lead to believe that permanent shift schedules were better than rotating shift schedules. He further advised that this was based on scientific findings but did not elaborate on the issue (Wilkinson 1,426). N. Klietman bases most arguments on this issue on basic physiological evidence to support a theoretical argument in the first edition of *Sleep and Wakefulness* written in 1962.

By changing the cycle every week or two, or four, as they do in some parts of the military and naval services, as well as in hospitals with respect to day and night nursing, the individual whose cycle can only be changed with difficulty destroys what progress he has made in a period of reversed routine when he returns to

the normal routine for an equal period of time. He can thus go on changing back and forth for many years without managing to acquire a changed diurnal cycle during the shifted schedule of the hours of wakefulness and sleep. Since and individual's curve of performance follows his body-temperature curve considerations of efficiency in doing work, in addition to purely humanitarian reasons, demands that the service concerned employ for night duty, or other abnormal shifts, only individuals who are capable of shifting or inverting their diurnal body-temperature curves on short notice. Even then several weeks on a certain schedule are better than just one week (Klietman 267).

In Klietman's second edition, he suggests that "when fixed or permanent hours of work are not practical...rotate the shifts as infrequent as possible" (Wilkinson 1,426).

The other point of view concerning how fast the shifts should rotate comes from an investigation by van Loon in 1963, when van Loon reported that "during a nightshift period of several weeks in succession every week appeared to involve a new 'short-term adaptation' taking one or more days; every weekend in between normal day life seemed to cause a turn back. There was only little evidence of a 'long-term adaptation' " (Ergonomics 6,270).

Therefore, past research has pointed out the pros and cons of both the permanent and rotating shifts assignments. It appears from this research that rotating shifts is the best choice, taking into consideration these areas of concern.

## **Review of Literature and Practice**

Before we make a decision concerning shift schedules based on past research, we should look at schedules from other departments of similar size. Take into consideration the problems faced and see if other departments' problems are similar.

A survey was conducted on ten (10) area departments of similar size. Each survey asked the following questions:

1. Does the department provide 24-hour service?
2. Are the 24 hours divided in to two or three shifts?
3. If the department was using the two-shift system, which shift reports the most overtime accrual, sick time usage and lowest officer morale and work output?
4. If the department was using the three-shift system, which shift reports the most overtime accrual, sick time usage and lowest officer morale and work output?
5. If the department was using the three-shift system, which shift reports the lowest overtime accrual, sick time usage and highest officer morale and work output?
6. In using the three-shift system, how often do the shifts rotate?
7. Is there any change in sick time, officer injury or overtime accrual after the first three to four weeks of shift rotation?
8. How many weeks does it seem to take an officer to become acclimated to a new shift?

9. In the past twelve months, how many accidents were officers involved in?
10. How many accidents occurred within four weeks of shift change?
11. Do officers rotate clockwise or counter clockwise?

Question #	1	2	3	4	5	6	7	8	9	10	11
Crowley	Yes	3	N/A	Day	Eve	6mo	No	N/A	0	N/A	CW
Lake Worth	Yes	3	N/A	Mid	Eve	N/A	No	N/A	3	1Y2N	N/A
Wht. Settlement	Yes	3	N/A	Mid	Eve	6mo	Yes	1 - 2 W	2	2N	CW
Samson Park	Yes	3	N/A	Day	Eve	N/A	Yes	2 - 3 W	0	N/A	CW
Wise Co. S. O.	Yes	3	N/A	Mid	Day	4mo	Yes	2 - 3 W	1	1Y	CW
Decatur	Yes	3	N/A	Mid	Eve	6mo	No	N/A	0	N/A	CW
Weatherford	Yes	3	N/A	Mid	Day	4mo	Yes	1 - 2 W	4	3N1Y	CW
Springtown	Yes	3	N/A	Day	Mid	3mo	Yes	3 - 4 W	1	1Y	CW
Everman	Yes	3	N/A	Mid	Eve	4mo	No	N/A	0	N/A	CW
Parker Co. S. O.	Yes	3	N/A	Mid	Eve	6mo	Yes	2 - 3 W	0	N/A	CW

(Survey, 1998)

By looking at the above table we see that other departments of similar size vary in most categories. All departments surveyed provide 24 hour service in a three shift system. Most all departments' shifts are from 7 A.M. to 3 P.M. (Day Shift), 3 P.M. to 11 P.M. (Evening Shift) and 11 P.M. to 7 A.M. (Midnight Shift).

Question four asks, which shift uses the most amount of sick time and which shift has the lowest morale? Seventy percent of the departments report that the midnight shift uses more sick time and seems to have the lowest officer morale. "Many officers working the night shift seem to feel as though they are left in the dark on departmental issues; they feel that they are often ostracized from the rest of the department (Tamakian, A., Phone Interview, 1998). Thirty percent of the departments report that day shift seems to have the most problems and no department has experienced problems of this nature with the evening shift.

Question five asks the opposite question of four, which shift has the lowest call in rate of sickness and seems to have the highest morale? Seventy percent of the departments report that evening shift is the best producing shift and could be directly related to closer comradery between officers. "Evening shift by far is the best shift, officers seem to bond more quickly and have great relations. The evening shift is usually the busiest shift and officers who work this shift are in constant situations that require back up, which builds bonds quickly" (Lemin, C., Personal Interview, 1998).



Departments surveyed on question number six shows that 40% rotate their shifts every six months. Thirty percent rotate every four months, 20% do not rotate and 10% rotate every three months. "We have found that by not rotating the officers, officers get a better feel for their district. They know who is supposed to be there and who isn't. I see a better 'buy-in' (to community oriented policing) with permanent shifts" (Watkins, Phone Interview, 1998). The Crowley Police Department rotates their officers every six months. "We like to keep the schedule permanent, long enough to encompass the college semesters. By rotating our shifts every six months, it is more than enough time to complete a semester. We also allow officers to bid for their shifts, however, they are not allowed to stay on the same shift more than two rotation periods" (Tamakian, A., Phone Interview, 1998).

Sixty percent of the departments believe that overtime, sickness and injuries occur within the first month of rotation. The remaining departments state that they do not see any significant change. A direct result of the overtime could be contributed to the increase in sick time and injuries. New York City Police Department's 115<sup>th</sup> Precinct switched to permanent shifts. They believed that by instituting fixed shifts they would have a healthier police department. This change was studied and as a result, the 115<sup>th</sup> Precinct's absentee rate was 38.8% lower than the borough average. The average man's days lost to illness in this precinct were 4.9 days compared to a precinct in Queens whose rate was 8.01 days (O'Neill & Cushing 55).

Of the departments surveyed, 40% report that question eight is not applicable. Departments report that it takes about two to three weeks for officers to become acclimated, 30% of the time. Twenty percent report it takes about one to two weeks for the acclimation to occur and one department states that it takes up to four weeks for officers to adjust. Most departments report two to three weeks for adjustment, which concurs with circadian rhythms.

The circadian system is only designed to cope with "fine tuning" about one hour a day. The system is unable to adjust with abrupt change in routine. The process is an active one and it may take several days to acclimate to the change (O'Neill & Cushing 18).

These departments report that they had eleven accidents over the past twelve months. Of the eleven accidents, seven occurred within the first three weeks of shift change. Within four

weeks of shift change, three accidents occurred and the other accident occurred within two months of the shift change. Information was not gathered concerning cause of accidents, but one could assume that a contributing factor could be the change in the circadian system. In looking at major accidents over the years: Exxon – Valdez, Three – Mile Island and Chernobyl, each can be attributed to rotation and night work (O'Neill & Cushing 27 – 31).

With the exception of the one department that does not rotate, all others rotate from shift to shift in a clockwise rotation.

### **Discussion of Relevant Issues**

With all the research that has been conducted in the area of shift scheduling, it is learned that approximately one-fourth of the labor force in North America is involved in some sort of shift work (Jamal 282). Studies on shift work have revealed that shift workers do experience a greater frequency in physical health, social interaction, job satisfaction, morale and motivation (Dunham 624).

In considering physical health problems in the work place a much larger problem is at hand. With just one officer out, the entire shift schedule can be greatly impacted. Rotations of shift do impact one's circadian rhythm cycle. With proper time not given for the adjustment period, studies indicate physical problems are certain to occur. These studies have indicated that 20% of the population adjust to shift work with little or no difficulty, 60% have some difficulty adjusting and 20% of the population will never adjust (O'Neill & Cushing 10). This conclusion indicates that 80% of officers in the department will have problems adjusting to rotating shifts.

Social interaction, job and life satisfaction truly dictates morale and motivation. Officers who are experiencing family problems are less likely to have a high work output. Officers who are having health problems in addition to family problems will have a lower morale than others will. When working rotating shifts, it is also difficult for family members to adjust. An officer who works the night shift comes home and ends their day when the rest of the family is just getting started. When officers are starting their day, most other family members are ready for bed. Night officers are hungry for dinner-type meals when they are served breakfast. Needless to say; it is hard for everyone to adjust.

We should also consider officer safety as a factor in shift scheduling. Not only do shift workers experience health problems, they experience fatigue, especially on the night shift. This goes back to the circadian rhythm process. We must not only consider safety of the officer but we should look at the officers' partner's safety as well as the safety of the citizens. Based on evidence gathered from traffic accidents, sleepiness is believed to account for more than 200,000 car accidents and 10,000 deaths in North America annually (Brody 78). A study conducted in the El Paso Police Department revealed that drowsiness and sleepiness while working the night hours caused and increase in clerical errors as well (Gailey 21).

Many officers working for small police departments are experiencing shift work for the first time. They are new to the business and the small agency may be their first job as a police officer. Many are young and have an active social life; shift work will cause their social activities to diminish substantially. New officers who are used to "going out" on the weekends are now working them. New officers who were used to spending time home on holidays are now working during family gathering times. Studies have shown that the holiday season is the number one time of the year for depression and suicide, shift work is just another stressor in a line of many.

In dealing with the stress, officers have often begun drinking, become involved in domestic conflicts and place their physical health and well being on the back burner. "I'll get back to the gym when I get back on a regular shift." Officers who are working the day shift can be heard saying things like, "This shift is almost like having a real job." While shift work is part of the profession that they all have chosen, it does not take away from the fact that physical and emotional well being are effected.

The Shift Work Committee of the Japan Association of Industrial Health conducted one of the most exhaustive studies ever done on the negative impact of shift work. A three-year nationwide study examined 1,235 various types of shifts and examined 173,285 of the employees who worked them. Based on the research the committee reported, "Recourse to night and shift work should be kept to a socially required minimum". The committee recommended, "When the night work or shift work is employed, adequate measures to protect and safeguard the health and life of the workers must be taken" (O'Neill & Cushing 43).

From this research we learn that night shift workers must be looked at for discrepancies in work performance and overall mental alertness. Four points are recommended and considered to be fundamental standards. First, they recommend that constant supervision is needed to evaluate the work environment. An adjustment in the workload could be of benefit to the workers (O'Neill & Cushing 47). Although calls for service cannot be spread out over several shifts, other things could be considered. With the information from the El Paso Police Department, shifting some of the night shift administrative duties to other shifts is advisable.

The second point the committee recommends is to monitor the health of the worker. If health problems arise or sick time usage is up, it should be the department's responsibility to make arrangements for the effected worker. Employees who are sick should be required to visit a physician. If the physician determines that fatigue, gastric problems, hypertension, metabolic disorders or nervous disorders are present, departments should take this into consideration and provide relief for the employee.

The third recommendation suggests that after a half-year or year rotation, employees should have physical exams. This would enable departments to track the employees' adaptability to shift work. Remember that 80% of the population is going to have problems.

The last recommendation by the committee was that departments should have policies in place that promote fitness and educational programs that would inform workers about the effects of shift work and measures to cope with the effects (O'Neill & Cushing 49).

The committee went on to say that it was critical to give workers at least 48 hours between shift scheduling changes. They reported that without this break, the body could not adjust to the new schedule without excessive strain (Gould 61).

### **Conclusion/Recommendation**

It is apparent that citizens need service and protection 24 hours a day. With this fact, shift work is not easily avoided. There are times when officers are assigned to work shifts that they do not desire. There are times that well thought and prepared schedules will have to change, due to employees taking off sick. In this case we must look at the ways to improve our current scheduling habits.

We should agree that officer and citizen safety is the most important issue. There are going to be officers in the 80% group who will have trouble with shift work, remember there are 20% who can never adjust. When shift change occurs, it is the supervisor's responsibility to look for problems that may surface within that adjustment period. Administrators should maintain constant communications with supervisors who have also recently adjusted schedules. The liability of injuries ultimately lies with the administration of the department; therefore taking these prevention steps should assist in early detection of any problems that arise. Officers' attitude, morale, and social interaction should be kept in mind in the first month of shift rotation.

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