

**Staffing and Retention
in Public Safety
Communication Centers:
A National Study**

August, 2005

Research Report



**APCO Project RETAINS
Responsive Efforts to Assure
Integral Needs in Staffing**



University of Denver
Research Institute





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APCO Project RETAINS

Dear Public Safety Communications Colleagues:

On behalf of the APCO Project RETAINS Committee, the United States Department of Justice – National Institute of Justice, and the staff at the University of Denver Research Institute, we want to thank you for your interest in public safety communications.

This report, ***Staffing and Retention in Public Safety Communication Centers: A National Study***, summarizes years of research devoted to understanding the issues from a practitioner's perspective. Two companion volumes are available on the APCO website: ***Staffing and Retention in Public Safety Communication Centers: Technical Report***, and ***Staffing and Retention in Public Safety Communication Centers: Effective Practices Guide and Staffing Workbook***.

In addition, when you visit the APCO website, register for and explore the ***Staffing and Retention Tool Kit***, a set of powerful web-based tools that you can use to generate customized reports on Staffing, Retention and Employee Satisfaction for your center. The Tool Kit contains practical resources and links that we think you will find helpful. Visit the APCO website and follow the links to 9-1-1 and Project RETAINS at <http://www.apcointl.org/about/911/retains/>

Again, thank you for your interest. We hope you will find these resources useful. We hope you find this document useful, and look forward to your feedback.

Sincerely

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Executive Summary

This study was conceived and conducted in response to concerns that were brought forth to the Association of Public Safety Communications Officials, International (APCO). Communications center managers and staff expressed concerns about the appropriate number of staff needed to serve the public's needs and expectations for emergency services and they wanted information about practices they could use to increase employee retention. Although such centers are often equated with 9-1-1 emergency call requests and services, 9-1-1 emergency calls are often only a portion of the workload. This study looked at all aspects of staffing and retention in public safety communications centers, not just the 9-1-1 service aspects in those centers.

Methodology: Communication center managers and staff were surveyed (via online and paper forms) on practices that had been identified by the APCO Project RETAINS Staffing Task Force convened in 1999 as potential influences on employee satisfaction and retention. Data were collected over a 12-week period in the spring of 2004, analyzed by the staff at The University of Denver Research Institute and preliminary results were presented at the 2004 annual APCO conference in Montréal. Data from 600 employees and 153 managers were subjected to statistical analyses to determine which factors were related to retention and satisfaction. Among the factors investigated were:

- Agency variables such as agency size, total call volume, size of population served, and number of services provided, and number of client agencies dispatched, etc.;
- Staff variables such as whether the manager was civilian or sworn, gender of managers and employees, education levels, and satisfaction;
- Work variables such as the number of tasks routinely performed by employees, the number of overtime hours worked; and,
- Agency compensation and benefits and processes used to recruit, select, hire, prepare (train), support, and recognize employees.

A second part of the national study, referred to as Study II, gathered information from centers with 76 or more employees to determine whether the experiences of these large centers were similar or different from the small and medium centers that characterized Study I. Managers from 27 large centers responded to a short version of the original manager survey.

Analyses: Several items on the survey asked employees to indicate their level of satisfaction with specific policies and practices; in addition, they were asked to rate their center on several performance criteria. The collective scores were used to calculate an Employee Satisfaction Index score (ESI) for each employee. Managers were asked to provide numbers related to the number of employees in their center, the number who had left in the previous year, call volume, etc. These numbers were used to calculate a retention rate for each center. Comparisons of data from employees and managers within the same center were subjected to a discrepancy analysis (n=114). Most of the analyses presented in this report, however, were based on a

comparison of the manager database (n=153), the employee database (n=600), and the large agency database (n=27).

Retention Rates: The average national retention rate for Study I (all centers) was 83 percent retention (that is, 17 percent turnover). Five factors predicted higher retention rates in Study I centers (in order of influence): 1) employees' perception that the center was fully staffed; 2) average overtime hours per month; 3) job complexity; 4) hourly base pay rate; and 5) employee satisfaction with the work itself. The average retention rate for the large centers in Study II was 85 percent.

It is clear from this research that keeping a center fully staffed is an issue that managers must deal with on a regular basis. Staffing and retention issues require constant attention from communications center managers.

Employee Satisfaction: Eight factors predicted higher employee satisfaction in Study I centers. They were (in order of influence): 1) center performance (a composite score); 2) preparation and ongoing training (a composite score); 3) feeling appreciated by management; 4) satisfaction with the shift selection process; 5) satisfaction with the process for mentoring new trainees; 6) feeling appreciated by their immediate supervisor; 7) the perception that there was a thorough and extensive application and screening process; and 8) feeling appreciated by the media.

This research is the basis of an *Effective Practices Guide and Staffing Workbook* that provides guidance for managers who wish to improve employee satisfaction or their center's retention rate, and want to know where to begin.

Staffing: The impetus for this research was a desire for a more rational and reasoned approach to determining appropriate staffing levels in public safety communications centers. The surveys included questions about factors that were used to determine staffing levels, workload and trends, and managers' perceptions of their current staffing situation. Fewer than half of the managers (48 percent in Study I, 11 percent in Study II) indicated they were fully staffed, which was defined in the survey as "all authorized positions are filled". Among those who indicated they *were* fully staffed, 14 percent said they needed more staff than was currently authorized. In other words, 62 percent of managers indicated they were understaffed all or part of the time. One in three indicated their center could "comfortably handle the workload." Centers that were not fully staffed used more overtime, and experienced more turnover.

Increased workload: Most managers (85 percent in Study I, 92 percent in Study II) reported increased call volume since 2000, but a third of the managers who reported an increase in call volume indicated that their staffing level did not increase (29 percent of all managers).

The data indicate the processes public safety communications centers have used for determining staffing levels have been primarily reactive rather than proactive. There was no process for determining appropriate staffing levels in public safety communications centers that was widely used or accepted. Smaller centers are more likely to need a process and formulas

that are based on coverage needs, whereas larger centers are more likely to need formulas that allow them to respond to the high volume (i.e. number) of calls they process. There is evidence that the assumption that large centers divide the call taking and dispatch functions and smaller centers do not is not correct.

The data indicate staffing decisions are often based on considerations other than need, as defined by the safety of personnel that are dispatched, or specific measures related to coverage needs, workload, or service quality indicators. Two thirds of the managers in Study I indicated staffing allocations were made based on budget alone, and 44 percent indicated the number of consoles in the center determined their staffing levels. When the question was reframed in Study II to ask managers specifically about the formulas they used, 81 percent indicated they used a formula but only 38 percent of them indicated they made an adjustment for employee availability. Although Erlang calculations are often referred to as the most useful formula for determining appropriate staffing levels, only 15 percent of the large centers reported using it.

Staffing formula: The absence of readily useable processes and formulas to determine appropriate staffing levels appears to be a major factor contributing to excessive use of overtime to compensate for lack of adequate staffing. Excessive use of overtime is widespread and is a major contributor to staffing and retention problems in the industry. And we conclude that excessive overtime requirements that result in loss of control over personal time contribute more to employee “burnout” than the emotionally demanding nature of the job.

Estimating the appropriate number of staff for any given center is too complex for a simple formula, but there are measures that can be used for a more rational approach to determining the number of employees needed to handle call taking and dispatch in public safety communications centers. Small-medium centers were less likely to report the use of statistical software packages that help managers track all of the center’s incoming and outgoing calls. A majority of small and medium centers and all large centers used Computer Aided Dispatch (CAD) systems to track emergency calls.

The Influence of Center Size

Overall average retention rates were similar across size categories, although large centers were experiencing slightly higher retention rates. On average, 93 percent of employees were fully trained regardless of center size. Large centers were more likely to indicate they were “chronically understaffed” and that overtime was a frequent necessity because their center was short-staffed compared to small centers. Employees in large centers processed more calls each year; almost twice the number of calls processed by employees in smaller centers. Some of this is due to the differences in the way calls are handled (larger centers were more likely to divide call taking and dispatch responsibilities).

Section I: Introduction and Background

The simplicity of 9-1-1, a three digit number the public can easily and quickly call for assistance with any emergency, masks the complexity that makes the system work. First proposed by the National Association of Fire Chiefs in 1957, and established by the FCC and AT&T as the emergency code throughout the United States just ten years later, it is universally recognized as the number to call for help. In 1973, the White House Office of Telecommunications issued a policy statement encouraging nationwide adoption of 9-1-1 for emergency service calls, and by 2000, the portion of the population using 9-1-1 was estimated to be 96 percent. It is the best known and most frequently used telephone number in the country.¹ What is less well known is what goes on behind the scenes; the people and processes that make the 9-1-1 emergency call system, and the rest of the public safety communications system, work.

The fact that each community developed its own 9-1-1 system means there is tremendous diversity from one community to another. Until recently there was not even a national database of public safety communications centers, and there still is not a directory that provides information about the geographic area served, the number of employees, the services provided, or the size of population served.² Meanwhile, the technology has become more sophisticated, the system has adapted to accommodate an explosion of cell phone users, and concerns about homeland security have expanded the public's expectations for emergency service.³ The world in which public safety communications systems operate has changed and the demands on the systems have increased.

What has not changed is the need for a highly qualified, well-trained human being on the other end of the telephone line to answer every call. Communications center managers across the country are committed to assuring that every center has the quality and number of staff they need to serve their public. The Association of Public Safety Communications Officials International (APCO), and the other professional organizations that provide support for telecommunicators, receive many queries about appropriate levels of staffing for public safety communications centers. These calls come from all states and all different sized entities. Managers call to complain that they are having trouble finding and keeping qualified staff. Managers and others call to find out if the number of staff is enough...or not enough.

These callers fall into five general categories: 1) elected or appointed officials concerned about the budget who want to make sure their center is not overstaffed; 2) public safety directors who want a standard for staffing that is based on call volume; 3) union representatives who want to know how many positions they can demand from the management team; 4) managers who are trying to build a case to fully staff their communications center; and 5) legal counsel or media working on a lawsuit related to delayed services and injury or death that may have been due to understaffing.⁴ Questions about appropriate levels of staffing are complicated by the differences that exist from one emergency call center to another, and attempts to answer this basic question have been thwarted by a general lack of information about all aspects of staffing for this very familiar but largely invisible public safety service. Although staffing formulas and guidelines are

available, they provide approximations rather than the desired specificity.⁵ This research was designed to provide additional baseline data that managers might use to compare their staffing and retention rates and practices to other public safety communications centers across the country.

The absence of national data has raised a host of very basic questions. These questions have raised concern about whether there is a staffing *crisis* in public safety communications centers. Other questions concern the nature and extent of the services provided by communications centers across the country, who works in them, what do they do, and how long do they typically stay. One goal was to arrive at a set of research-based effective practices that managers could use to improve retention and employee satisfaction. There are important questions about what kind of turnover and retention is typical for public safety communications centers and which staffing and management practices allow some centers to do a better job of hiring and retaining an adequate number of qualified staff. Finally, there are questions concerning whether satisfied employees are more likely to stay on the job, and what a manager needs to know and be able to do to assure the center has an adequate number of staff.

These are just a few of the questions and underlying issues that have been addressed by the studies reported here. The need for research-based answers comes from a growing realization that changes in society are changing the demands on public safety communications centers. Increased use of cell phones and increased concerns about terrorism are fundamentally communications issues, and both have made it ever more important to understand the nature of the work and what defines effective management in public safety communications centers.

In an effort to answer some of these questions, APCO convened a Staffing Crisis Task Force in 1999. There seemed to be a consensus: it was getting more and more difficult to find and retain qualified telecommunicators. The Task Force organized a conference so participants could clarify the issues related to staffing problems and share what they knew about practices that seemed to make a difference. A key question was about the number of staff needed to do the job. The results of the conference, a list of effective practices related to staffing and retention, were presented to the APCO Executive Council at the Salt Lake City Conference in 2001.⁶

The list represented the combined experience and wisdom of the participants. They articulated effective practices related to the following:

- Job position (requirements) and classification
- The hiring process (recruitment, testing and selection)
- Compensation (basic and supplemental)
- Staffing (levels and adequacy)
- Recognition
- Working conditions
- Retirement benefits

The Project RETAINS (Responsive Efforts to Assure Integral Needs in Staffing) Committee was established to address questions about staffing and retention and evaluate the validity of the effective practices identified by the Task Force.

The Committee decided to pursue a national survey of employee satisfaction and agency retention. Through APCO, they applied for and received a grant from the National Institute of Justice and the Bureau of Justice Assistance in 2003. The University of Denver Research Institute (DRI) was asked to conduct the study, and collaboration between the Project RETAINS Committee and the DRI Research Team commenced in August of 2003, at the APCO Annual Conference in Indianapolis. In January of 2004, during the mid-year meeting of the Project RETAINS Committee in Orlando, a research design was determined and specific questions were reviewed for the pilot phase of the survey. Preliminary findings were shared with the membership in August of 2004, at the APCO annual conference in Montreal.⁷

This report summarizes all of the findings from the survey, including but not limited to those that were shared in Montreal. Differences between the data presented in Montreal and the data presented here are the result of reanalysis (using different statistical tests and/or different combinations of variables) and more time to review the data.

The primary variables of interest were employee satisfaction and agency retention rates. The survey was designed to explore the relationship between these two variables and management policies and practices that were believed to have an influence on them. In addition, the survey was structured to collect information related to the effective practices generated by the APCO Staffing Crisis Task Force (2001). The questions that guided the research were:

- Is there a staffing/retention problem in public safety communications centers across The United States of America?
- If there is, what is the nature and extent of it?
- What practices relate to high employee satisfaction and/or retention rates in public safety communications centers?
- What factors do centers use to determine appropriate staffing levels?

The second phase of the research, referred to as Study II, was completed in 2005 and included an analysis of large centers. The main question of interest was:

- Do large centers experience retention and staffing issues differently than smaller centers?

The results of the national survey and the additional research activities stimulated by the preliminary findings are the basis for the Effective Practices Guide for managers, a document that summarizes effective practices managers can use to monitor turnover and retention over time, gather information about employee satisfaction, and determine how their staffing levels

compare to centers that are similar in terms of the services they provide, call volume and other key factors that have emerged from the data .

Job satisfaction and turnover (retention) have been studied for decades, but little has been published about staffing and retention in public safety organizations. Most of the comparative information that is available for communications center workers is localized or agency specific studies related to staffing adequacy. To better understand job satisfaction and turnover, a literature search was conducted. The literature that was reviewed, along with condensed research summaries can be found in the Appendix. The following is a brief overview of selected information from the literature review.

Prior Research on Retention and Turnover

For the past several decades, researchers have studied the relationship between job turnover and retention in a variety of occupations. Although these studies have found that job satisfaction is related to turnover and retention, the relationship varies by job category and ranges from weak to moderate (this study found a weak relationship between satisfaction and retention). One reason for low to moderate correlations is that not all employees who are dissatisfied with their jobs actually leave. In addition, job satisfaction and turnover are complex variables that are the result of a variety of personal and organizational factors.⁸

For example, on the personal side, there are individual employee characteristics, values, attitudes, emotions and life situations that lie behind job satisfaction and the decision to stay with or leave a job. Some people are simply easier to please than others and some see a glass half empty where others see a glass half full. Some workers are unwilling to leave their community whereas others are willing to move in pursuit of a better job. On the organizational side, there are work characteristics such as the nature and demands of the job itself, the organizational policies and culture, competence and fairness of management and supervision, and compensation and benefits.

Some researchers have looked more closely at voluntary and non-voluntary turnover.⁹ Involuntary turnover occurs when an employee retires, is too disabled to work, dies, or is fired. Voluntary turnover, when an employee voluntarily quits their job, can be further classified into *avoidable* voluntary turnover (such as better pay or working conditions elsewhere, problems with leadership, employee dissatisfaction) or *unavoidable* voluntary turnover (such as a spouse move to another location, pregnancy).¹⁰ The calculation of turnover (and retention) in this study was based on all employee separations, regardless of reason, that required management to hire an employee and fill a vacancy. Nevertheless, one of the goals of this study was to help communications center managers improve employee retention. To that end, the recommendations in the effective practices guide that accompanies this research report are directed toward strategies that can address *avoidable* voluntary turnover.

In the research on turnover and retention, **job satisfaction** appears to be highly related to personal factors such as a desire for meaningful work and positive relationships with supervisory personnel/management. The literature on job satisfaction and turnover in professions that have work or staff with some similarities to 9-1-1 communication center work and staff (e.g., nursing, police and fire) suggests staffing and scheduling are among the factors that contribute to burnout, job dissatisfaction, and turnover. Some strategies for improving retention have budgetary implications (e.g., salary increases, increased staffing), but researchers have also identified some "no-cost" interventions that appear to have promise for improving retention, increasing job satisfaction, and reducing turnover. Some examples of these "no cost" interventions are related to the quality of communication from management, employee participation in decisions about their work, an effective training program for new and experienced staff, recognition for a job well done, and attention to developing good relations between supervisors and staff.

Some of the elements of a job that are believed to be related to employee *satisfaction* are the job itself, relationships with supervisors, management practices, opportunities for career advancement and job security, physical facilities and availability of resources, compensation and rewards, and positive relationships with co-workers.¹¹ The other side of the coin, employee dissatisfaction, is often cited as the reason behind employees' decisions to leave, but published studies report low to moderate correlations. One theory is that avoidable voluntary turnover is primarily due to problems with the **manager/employee relationship**, a mismatch between managerial actions and the behaviors, skills, and competencies of the employee. If that is the case, the personality attributes of a manager should be taken into consideration when determining which attributes to assess in job applicants, since they help define the management culture.¹²

HR departments report some of the **reasons why people leave** because there are better opportunities elsewhere, it is difficult to work here, never did fit in, can't get ahead, poor management. One recent survey found the top five concerns of employees who were planning to leave were workload, insufficient support from management, concerns about the future, lack of challenge and insufficient recognition.¹³ Correlations reported in the literature between actual turnover and job satisfaction range from -.13 to -.37.¹⁴ A study of the relationship between job satisfaction and supervisor characteristics such as perceived listening and understanding, quality of communication, competence, character, and sociability found very high correlations.¹⁵

Some researchers have shifted their focus from the reasons why people *leave* to the **reasons why people stay**.¹⁶ Such a shift in thinking encourages proactive approaches such as improving employee attitudes about the work itself, increasing supervisor competence, attention to fairness and consistency in treatment, encouraging work group cooperation, providing timely and constructive performance feedback, offering opportunities to get ahead, etc. This means the even though exit interviews can provide important insights, it is also important to obtain feedback from the people who stay.

Research from Related Occupational Fields

A study of ROTC cadets found a strong relationship between the **relevance of training** and cadet satisfaction, commitment to the organization, and motivation to achieve.¹⁷ A 2001 study of the COPS Program reported screening and training time for new police officers of 31 to 43 weeks (shorter in smaller centers), with a washout rate of about 10 percent (higher rates in larger centers). A lack of qualified applicants was viewed as a significant issue and about half of the centers reporting modest staffing problems caused by unanticipated vacancies. More officers serve for shorter periods of time in smaller centers, with two-thirds of the new recruits leaving before five years of service, compared to just one-third leaving during that time period in larger centers.¹⁸ A 1989 study that looked at the reenlistment intentions of Navy enlisted personnel found a strong relationship between intention to reenlist and both job satisfaction and commitment to the organization.¹⁹

A study of police, fire, and ambulance workers in New Zealand compared the influence of **traumatic and organizational stressors** on employee psychological health and job satisfaction. Organizational stressors (organizational hassles) were a better predictor of job satisfaction than were trauma events, suggesting more attention to organizational demands such as paperwork, poor equipment and/or incompetent colleagues.²⁰

Recent surveys of nurses have found decreased job satisfaction, increased pressure to accomplish work, the need to work overtime, and stress-related illness. Turnover rates increased from 12 to 15 percent between 1996 and 2000.²¹ In other studies of staffing and retention among nurses, 56 percent cited **stress and physical demands of the job** as reasons for leaving, and 48 percent reported being dissatisfied with the level of recognition they received from their employer. One in five, 18 percent were seeking higher pay.²² When given a choice in the number of hours they work, the shift schedules they have, and preferences as to working conditions, nurses have higher job satisfaction, organizational commitment, job performance, and retention.²³

Researchers looking at the relationship between the level of hospital nurse **staffing** and patient mortality found increased risk of patient death (31 percent increased risk) if the ratio of nurse to surgical patient doubled (from 4:1 to 8:1 patients per nurse). Each additional patient per nurse increased burnout by 23 percent and job dissatisfaction by 15 percent. Nurses who reported burnout and job dissatisfaction were almost four times as likely to report intentions to leave their current position.²⁴

Research into **work-family conflict**, in fields such as police officer and health care workers, has found that as work-family conflict increases job satisfaction and organizational commitment go down, but there has not been a measurable relationship to retention.²⁵ Work autonomy (independence and discretion in scheduling work and determining work procedures) has a positive effect on performance and workers taking responsibility for their performance, but

heavy workloads contribute to work exhaustion, lack of autonomy, turnover intention, and reduced organizational commitment. As workload increased, job satisfaction declined.²⁶

Rewards have a positive relationship with performance and satisfaction, and when employee's performance is visible to other potential employers (e.g., through media publicity), it results in higher levels of performance.²⁷

Factors that are related to **burnout** and turnover in child welfare workers included supervision, co-worker support, "goodness of fit" between the employee and the demands of the job, employee sense of their value and accomplishments, stress, professional development and worker authority.²⁸ Most studies of burnout have been within organizations and occupations that require working with people. Three commonly studied dimensions of burnout are emotional exhaustion, depersonalization, and reduced personal accomplishment. Burnout is assumed to develop regardless of occupation when job demands are high and job resources are limited due to negative working conditions. This leads to energy depletion and undermines employee motivation. *Job demands* are the physical, social, or organizational aspects of the job that require sustained physical or mental effort, leading to certain physiological and psychological costs such as exhaustion. *Job resources* are physical, psychological, social, or organizational aspects of the job that support achievement of work goals, reduce job demands, and stimulate personal growth and development. External resources provided by an organization such as job control, potential for qualification, participation in decision-making, and task variety and social resources such as support from colleagues, family, and peer groups make a difference. In jobs with high job demands and limited job resources, employees are more likely to develop both exhaustion and disengagement, representing the burnout syndrome.²⁹

Excessive job **demands** and continuous hassles contribute directly to emotional exhaustion, and researchers have found relationships between emotional exhaustion and turnover intentions.³⁰ Emotional exhaustion has been shown to be the key dimension of burnout with respect to turnover, more important than depersonalization and diminished personal accomplishment. It is more likely to occur when an individual feels he or she no longer has sufficient emotional resources to handle the stressors confronting them. It is a function of workload, role ambiguity, role conflict, and stressful events that are part of work demands.³¹

Research in Telecommunications Centers

A study of public safety telecommunicator recruitment and retention strategies in North Carolina, reported average turnover rates of 16 percent, but turnover ranged from zero to 67 percent. The **average vacancy rate** was estimated to be about 8 percent. The majority of centers (58 percent) reported stable turnover rates for the previous three years, but 20 percent of them reported an increase in turnover during that period. A comparable portion experienced decreases. The top two **reasons** respondents offered to explain turnover were poor salaries (58 percent) and shift work leading to stress and burnout (47 percent). Budget restrictions, jobs in the private sector or in other law enforcement agencies also contributed to attrition. The

recruitment strategies that were rated as most effective were word of mouth, newspaper advertising, and local personnel job listings. Less effective but frequently used strategies included posting messages on the Internet, community colleges, auxiliary/reserve force, job fairs, radio/television, and Police Corp.³²

Keeping emergency call centers adequately staffed has been reported as a major concern by many centers. **Staffing studies** conducted for a specific call center often report staffing levels and call volume in neighboring communities. Center specific analyses usually include a review of the current staffing situation, services provided and the nature of the work, trends in the community and public safety call volume, and some calculation of appropriate staffing levels. The process used to conduct a staffing analysis for a communications center in North Carolina was patterned after the process recommended for determining staffing levels in jails. The 10-step process includes:

1. Profile the center and collect background information.
2. Calculate net annual work hours (deduct time off and time devoted to other activities).
3. Develop a master schedule of all activities.
4. Identify the posts and positions that need coverage and the amount of coverage needed.
5. Summarize coverage needs by job classification.
6. Develop a schedule of coverage needs, shift schedules and shift rosters.
7. Evaluate, revise, and improve the plan, repeating this step until the staffing plan is acceptable.
8. Calculate operational costs of staffing in terms of the budget, revise until the cost is feasible.
9. Prepare a report of the staffing plan and justification of needs with data.
10. Implement the plan and monitor results after 6 months, make necessary changes.

A five year longitudinal study of the Emergency Communications Center in Minneapolis found no statistically significant relationship between a particular **schedule** (8 hour vs. 12 hour) and the amount of overtime worked or the use of sick leave. Overtime was correlated with staffing levels. Many employees reported suffering from physical illness due to the stress of the work, so the researcher looked at sick time usage as it related to the implementation of mixed schedules, and found data that suggested the mixed schedule (the option of 8 hour or 12 hour shifts) reduced usage of sick leave. Also, employee satisfaction measures indicated a desire for more flexible scheduling.³³

In summary, research on employee retention and satisfaction has consistently shown low to moderate relationships between satisfaction and retention in a variety of occupational fields that share some similarities to public safety and emergency communications. A number of important factors associated with retention and satisfaction have been identified in the research, such as scheduling, work autonomy and emotional exhaustion (burnout). This prior research

underscores the need for research-based answers to determine which practices are most likely to increase retention and satisfaction in communications centers.

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- 1 National Emergency Number Association (NENA), The Development of 9-1-1, retrieved from http://www.nena9-1-1.org/PR_Publications?Devel_of_911.htm on 01/09/03
 - 2 Some states have up-to-date lists and contact information for all Public Safety Answering Points and 9-1-1 centers in the state, and some make the information available online. For example see the contact list provided by Pennsylvania at <http://www.pema.state.pa.us/pema> (search on 9-1-1 Coordinators), and Virginia at http://www.911.virginia.gov/psap_manager_contacts.htm
 - 3 William A. Cade, Jr., APCO Director of 9-1-1 and Public Safety Communication Center Operations, email communication, 05 January 2005.
 - 4 William A. Cade, Jr., APCO Director of 9-1-1 and Public Safety Communication Center Operations, speaking at a Project RETAINS Committee meeting, Orlando, Florida, 23 January 2004.
 - 5 NENA PSAP Staffing Survey Report, created under the auspices of the NENA SWAT initiative by L. Robert Kimball & Associates and 9-1-1 SME Consulting. The creation of this report included a survey (primarily concerning staffing and budgetary items) of approximately 70 PSAPs, serving populations less than 140,000. In addition to the report, the outcome also includes an initial trial staffing formula worksheet, based on call volume, call duration, and available man-hours per employee. The report (and a staffing worksheet) is available on the NENA Human Resources Subcommittee page. Retrieved on 10/12/03 from <http://www.nena.org/9-1-1OperPractices/HR.htm>
 - 6 Righter, J. (2003) Staffing and Project RETAINS, *Public Safety Communications*, January 2003, 8-10.
 - 7 APCO Project RETAINS, Staffing and Retention in Public Safety Communications Centers: Preliminary Findings. APCO International 70th Annual Conference and Exposition, Palais Des Congrès de Montréal, August 11, 2004.
 - 8 Hom and Griffeth's study of 244 nurses in an urban hospital found that job satisfaction was not significantly related to retention ($r = -.11$). A later longitudinal study of 190 new nurses found no significant correlation at any of three time intervals: ($r = -.05, .12, .01$)
 - 9 Abelson, M. A. (1987). Examination of avoidable and unavoidable turnover. *Journal of Applied Psychology*, 72(3), 382-386.
 - 10 *Ibid.*.
 - 11 Morris. T. (1995) Employee satisfaction: Managing the return on human capital. *CMA Magazine*, 69, 15-17.
 - 12 Kraemer, W. F. (2001). Employee turnover: The role of cultural mismatching. Self-Management Group report. Retrieved on 12/3/04 from http://www/self-management.com/docs/retention_cultural_matching.doc
 - 13 Howe, T. (2003). *To stay or leave: Job satisfaction and turnover*. Retrieved on 11/29/04 from <http://www.charityvillage.com/cv/research/rhr6.html>

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- 14 Ahuja, M., Chudoba, K. M., George, J. F., Kacmar, C., & McKnight, H. (2002). *Overworked and isolated? Predicting the effect of work-family conflict, autonomy, and workload on organizational commitment and turnover of virtual workers*. Proceedings of the 35th Hawaii International Conference on System Sciences.
 - 15 Falchion, R. L., McCroskey, J. C., & Daly, J. A. (1977). Job satisfaction as a function of employee's communication apprehension, self-esteem, and perceptions of their immediate supervisor. *Communication Yearbook, 1*, 363-375. The relationship between job satisfaction and supervisor characteristics such as perceived listening and understanding, quality of communication, competence, character, and sociability found very high correlations that ranged from .79 to .87)
 - 16 Hughes, C. (2004). *Why employees stay*. Dallas, TX: Center for Values Research, Inc.
 - 17 Mathieu, J. E. (1991). A cross-level nonrecursive model of the antecedents of organizational commitment and satisfaction. *Journal of Applied Psychology, 76*(5), 607-618. The correlations between the relevance of training and cadet satisfaction ($r = .65$), between the relevance of training and commitment to the organization ($r = .51$), and between the relevance of training and motivation to achieve ($r = .61$).
 - 18 Koper, C. S., Maguire, E. R., Moore, G. E., & Huffer, D. E. (2001). *Hiring and retention issues in police agencies: Readings on the determinants of police strength, hiring and retention of officers, and Federal COPS program*. Report to the National Institute of Justice. Grant #NIJ 99-IJ-CX-0011. Washington, CD: Urban Institute, Justice Policy Center.
 - 19 Farkas, A. J., & Tetrick, L. E. (1989). A three-wave longitudinal analysis of the causal ordering of satisfaction and commitment on turnover decisions. *Journal of Applied Psychology, 74*(6), 855-868. Longitudinal study (2 months, 8-10 months and 20-21 months) of 440 first-term Navy enlisted personnel. At time 3, job satisfaction and organizational commitment were highly correlated ($r = .78$), and both job satisfaction ($r = .65$) and organizational commitment ($r = .63$) were highly related to reenlistment intention.
 - 20 Brough, P. (2004). Comparing the influence of traumatic and organizational stressors on the psychological health of police, fire, and ambulance officers. *International Journal of Stress Management, 11*(3), 227-244. Brough (2004) argues that more attention should be given to organizational demands such as paperwork, poor equipment and incompetent colleagues because they are predictive of job satisfaction, which has been shown to be predictive of turnover intentions over time for police officers.
 - 21 Scanlon, W. J. (2001). *Nursing Workforce: Recruitment and retention of nurses and nurses aides is a growing concern*. Testimony before the Committee on Health, Education, Labor and Pensions, U.S. Senate. Government Accounting Office Report GAO-01-750T.
 - 22 Heinrich, J. (2001). *Nursing Workforce: Multiple factors create nurse recruitment and retention problems*. Testimony before the Subcommittee on Oversight of Government Management, Restructuring, and the District of Columbia, Committee on Governmental Affairs, U.S. Senate. Government Accounting Office Report GAO-011-912T.
 - 23 Holtom, B. C., Lee, T. W., & Tidd, S. T. (2002). The relationship between work status congruence and work-related attitudes and behaviors. *Journal of Applied Psychology, 87*(5), 903-915.

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- 24 Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Journal of the American Medical Association, 288*(16).
- 25 Ahuja, M., Chudoba, K. M., George, J. F., Kacmar, C., & McKnight, H. (2002). *Overworked and isolated? Predicting the effect of work-family conflict, autonomy, and workload on organizational commitment and turnover of virtual workers*. Proceedings of the 35th Hawaii International Conference on System Sciences.

This research looked at whether turnover results were the same or different for remote as compared with traditional information technology (IT) workers. The authors report that research has confirmed that the consequences of work exhaustion include reduced satisfaction, reduced organizational commitment, and higher turnover and turnover intentions. Similarly research has shown that job satisfaction is more predictive of organizational commitment than variables such as age, tenure, education, role ambiguity, role conflict, salary, promotability, or career opportunities. Correlations reported in the literature between actual turnover and job satisfaction range from -.13 to -.37. In some studies job satisfaction has been found to be a stronger direct antecedent of turnover than organizational commitment.

- 26 *Ibid.*
- 27 Allen, D. G., & Griffeth, R. W. (2001). Test of a mediated performance-turnover relationship highlighting the moderating roles of visibility and reward contingency. *Journal of Applied Psychology, 86*(5), 1014-1021.

The sample included 130 employees from a medical services company in the SE US. *Job satisfaction was measured by five scales (pay, promotion opportunities, supervision, co-workers, work itself) of the Job Descriptive Index as modified by Roznowski (1989)*. Correlation results showed that satisfaction was significantly correlated with turnover intentions ($r = -.52$) and actual turnover ($r = -.20$).

- 28 Graef, M. I., Potter, M. E., & Rohde, T. L. (2002). *Why do they stay? Research-based implications for practice*. Lincoln: University of Nebraska.
- 29 Demerouti, E., Bakker, A. B., Nachreiner, F., Schaufeli, W. B. (2001). The job demands – resources model of burnout. *Journal of Applied Psychology, 86*(3), 499-512.
- 30 Judge, T. A. (1993). Does affective disposition moderate the relationship between job satisfaction and voluntary turnover? *Journal of Applied Psychology, 78*(3), 395-401. 234 medical workers (nurses, medical office assistants, laboratory technicians) took an affective disposition scale and measure of job satisfaction. Data on voluntary turnover came from company records 10 months after surveys were completed. Job satisfaction was negatively related to turnover ($r = -.27$)
- 31 Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology, 83*(3), 486-493.

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*(2), 268-279.

In a meta-analysis 42 studies conducted in 36 independent companies, primary findings from business-units (averaging satisfaction scores across various size units) included:

- Average employee satisfaction was positively related to customer satisfaction, productivity, employee turnover, and safety outcomes.
- Correlations between overall satisfaction and turnover ranged between -.30 and -.36.

- 32 Yearwood, D. (2004). Recruitment and retention of public safety telecommunicators. *Public Safety Communications*, July 2004, 8-10, 60.
- 33 Sampson, C. (2004) Action Research for the [Minneapolis, MN] Emergency Communications Center, University of Phoenix action research project. This 5-year longitudinal study suffered from a change in management (and record keeping) during the period studied. Sampson reported no increase in activity/workload over the five years, and persistent understaffing (staffed at about 90 percent of authorized staffing level). The addition of the 12 hour option has only been in effect for 1.5 years at the time of the study. Conclusions about the relationship between schedule and use of sick leave appeared to be contradictory (“no correlation between the schedule and sick time usage” and “change in schedules from 8¼ only to 12 & 8¼ mixed schedule helped reduce the sick usage”). Apparently the ECU’s total sick leave went down after the mixed schedule was implemented, but there was no statistically significant difference between sick leave for people working the 8¼ shift and those working a 12 hour shift.

Section II: Scope and Methodology

Instrument Development

Study I: Manager and Employee Surveys

Questions were developed based on the list of effective practices generated by the APCO Staffing Crisis Task Force in 2001. The final research design and the questions to be included in the surveys were decided in collaboration with the APCO Project RETAINS Committee when they met in Orlando, Florida, in January of 2004. Draft questions were reviewed, revised, deleted or selected for inclusion in the two surveys by members of the Committee. The decision to use a web-based survey was based on an assumption that most communications center staff would have excellent computer skills, the option of being able to complete the survey online would address concerns about the time involved, and it would streamline the data entry and subsequent data analyses processes.

It was decided that the initial letter inviting managers to participate in the survey would contain a URL directing them to the web-based surveys. This letter would be followed by a reminder postcard and a third mailing that would include a hard copy of the two surveys.

The *questions* were piloted using a paper format at the Northwest Regional Conference in Spokane, Washington, in February of 2004. The responses were analyzed and the questions revised to improve clarity.

The *online/web-based process* was piloted with members of the Project RETAINS interest list in April of 2004. They received an e-mail invitation to participate. A total of 79 managers and 199 employees provided information and feedback during the two step pilot process.

Questions were organized into sections, with each section of the paper survey corresponding to a web page in the online version. Sections were designed to minimize the need for scrolling in the online version. The questions included multiple choice, mark all that apply, fill-in and short answer questions.³⁴

The managers were asked to provide most of the information about agency policies and practices as well as agency statistics, such as annual call volumes, number of employees, retention rates, etc. The survey contained some experimental question formats in an effort to obtain a “picture” of the staffing and retention situation within the centers. For example, a manager question about employee length of service seemed straightforward enough since seniority appeared to be a common practice. The hope was that a snapshot of employee length of service might give us some insight into retention over time, but the numbers from too many centers were not internally consistent (e.g., the numbers provided did not total up to the number of current employees in the center). Some experimental questions that seemed promising

during the pilot phase were eliminated in the analysis stage due to such obvious discrepancies in the data.

Managers were not asked to calculate rates or proportions, and all questions about statistics were limited to information they might reasonably be expected to have “on the tip of their tongue.” The manager survey consisted of 280 questions organized into the following sections:

1. General information (about the communications center)
2. Administration
3. Jurisdiction and Services
4. Trends
5. Staff Assignments and Tasks
6. Adequacy of Staffing
7. Authorized vs. actual Staffing
8. Application and Selection Process
9. Selection of Employees
10. Preparation and Training
11. Schedules and Scheduling
12. Overtime
13. Seniority
14. Determination of Staffing Levels
15. Employee Benefits
16. Employee Retention and Turnover
17. Compensation
18. Employee Recognition and Center Performance
19. Respondent Information

No study that attempts to understand the relationship between management or organizational practices and employee satisfaction could be taken seriously if it did not collect information directly from employees. In fact, the dependent variables of interest required an understanding of employees' level of satisfaction with various aspects of their work situation. One of the limitations of the design, however, was that we had to rely on managers to inform employees and facilitate/encourage their participation. Employees were asked to provide information from their own experience: their years of service, their average overtime hours, their base pay rate, their annual income, and their satisfaction with various aspects of their job.

The employee survey had a total of 325 questions organized into the following sections (the sections with an asterisk [*] contained multiple items that were used in computing an Employee Satisfaction Index):

1. General information (about the communications center)
2. Roles and Responsibilities

3. Services and Performance (of the Center)
4. Scheduling and Assignments
5. Overtime
6. The Work Itself*
7. The Physical Environment*
8. Supervision and Management*
9. Staffing
10. Application and Selection Process
11. Experience
12. Preparation and Training
13. Support*
14. Satisfaction*
15. Employee Retention and Turnover
16. Compensation and Benefits*
17. Recognition
18. Retirement Benefits
19. Respondent Information

There was some overlap to allow an analysis of discrepancies between manager and employee perceptions in a variety of areas. Several questions were identical in both surveys. These included questions about satisfaction (with salary and earnings, health benefits, vacation time, family friendly policies and retirement benefits), the staffing situation in the center, comparability of pay, and ratings of center performance. When we had both manager and employee responses from an agency, we could look at the similarities and differences in their responses. There were 114 centers that provided both manager and employee data.

Although the instructions specifically asked for responses from both managers and employees, there were many centers that submitted responses from one or the other but not both, requiring some adjustment in the analysis process.

Study II: Managers of Large Centers

Since 97 percent of the centers in Study I were small or medium sized centers, a second study was conducted to obtain additional information about staffing and retention in large centers.³⁵ Managers from large centers were surveyed using a shorter version of the Study I manager survey. The shortened manager survey consisted of 57 questions organized in the following categories:

1. General Information (about the communications center)
2. Jurisdiction and Services
3. Trends
4. Staffing

5. Employee Retention and Turnover
6. Compensation
7. Center Performance

Sample Selection and Response Rate

Study I: Manager and Employee Surveys

One of the early surprises was that there was no current national contact list for all public safety communications centers in the United States. The most recent FCC Master Public-Safety Answering Point (PSAP) Registry³⁶ lists 8,095 PSAPs (including 400 that have been “orphaned” and are no longer considered primary answering points and 228 are secondary answering points). The best listing available at the time of the national survey was an agency contact database of 7,789 public safety communications centers, which was provided courtesy of Intrado, Inc.

Since the database did not have information about agency size, jurisdiction or number of employees, a simple random sample was selected, and the list was reviewed to assure all states were well represented. A second random sample was selected from states that were underrepresented in the original sample. The survey was mailed to a sample that included 763 centers from all fifty states. Responses were received from 153 managers and 600 employees representing a total of 230 centers, an **overall agency response rate of 30 percent**.³⁷ The manager and employee surveys are available on the APCO Project RETAINS website.

Study II: Managers of Large Centers

The sampling frame for Study II was purposive and used a combination of strategies: 1) the U.S. Census Bureau listing of cities and counties with populations in excess of 100,000 was used to match names and zip codes of communities in excess of 250,000 in the Master PSAP Registry, 2) law enforcement agencies with 500 or more sworn personnel that indicated they provided E9-1-1 services were identified using the National Directory of Law Enforcement Administrators, 3) members of the Major Cities Chiefs were included, and 4) APCO affiliates were asked to send the names and contact information for the five largest centers in each state.

Approximately 217 large centers were invited to participate and a total of 77 manager surveys were returned, resulting in a 35 percent response rate. However, of these, only 27 (or 35 percent) qualified as large centers using the CALEA definition. Since the focus of Study II was large centers, only the results of the 27 large centers are presented in this report. The second survey is also available on the APCO Project RETAINS website.

Data Collection Methods

Study I: Manager and Employee Surveys

Data collection spanned a twelve week period from April 16, 2004 to July 13, 2004. Invitations containing the URL and instructions were sent to managers, and they were asked to complete the manager survey and to encourage their employees and/or to distribute information for how to complete the employee survey.

The website provided additional information about the study and directed respondents to either complete the survey online or download, print and mail completed copies to the University of Denver Research Institute. A follow up reminder card was mailed three weeks later. It quickly became apparent that there were more technical problems than anticipated, such as agency firewalls, limited manager and/or employee access to the Internet, or older equipment that could not process the surveys. This led to initial return rates that were lower than expected.

The Committee anticipated the possibility of low return rates and settled on a strategy that would use APCO Executive Board members from state and regional affiliates to “shake the tree.” In discussions between the DRI Research Team and the Project RETAINS Committee it was theorized that the surveys were not getting to the right people – the surveys needed to be delivered into the hands of the communications center directors and managers.

At this point, the decision was made to use the APCO network to verify contact names and addresses. A protocol was developed and all regional affiliates were contacted. They received a list of center names and contact information and were asked to verify that we had the correct information, and if they contacted the center to let them know they would be receiving the survey. A second invitation was sent to all viable non-responding centers, and included print copies of one manager survey and three employee surveys with a stamped and addressed return envelope. Center managers were encouraged to make additional copies of the employee survey as needed.

Final returns were almost evenly distributed between print and online responses: 48 percent online (managers 54 percent online, employees 47 percent online) and 52 percent paper (managers 46 percent, employees 53 percent).

Study II: Managers of Large Centers

Data collection spanned a four week period from February 21, 2005 to March 21, 2005. Managers received a packet in the mail that contained a letter describing the study, an informed consent form, and a copy of the survey. A second mailing was sent out two weeks following the first mailing as a reminder to managers who had not responded.

Data Analyses

As noted earlier, 153 managers and 600 employees from a total of 230 centers returned surveys. For Study II, 77 managers returned surveys, although only the large centers were analyzed. Data were cleaned and prepared for analyses, and internal reliability was checked. A discrepancy analysis was conducted on the responses from centers that provided data from BOTH managers and employees in Study I. Thus there were four data sets: Study I Managers (n=153), Study I Employees (n=600), Study I Matched Agencies (n=114), and Study II Large Center Managers (n=27).

Agency level data (e.g., statistics related to retention rates, number of personnel, call volumes, etc.) are from the manager data set. All employee measures (e.g., satisfaction levels, pay rates, number of overtime hours worked) are based on the employee data set. Comparisons between managers and employees centers are based on the matched data set (n=114) unless otherwise indicated. Results referring to “large centers” are based on the large agency data set from Study II. The data set that was used for a conclusion is identifiable by looking at the number of respondents (n) reported for the analysis.

Both SPSS and Excel were used for data analyses; hypothesis testing was done exclusively with SPSS. Analyses included calculation of agency retention rates and employee satisfaction (the two dependent variables). Basic descriptive statistics, analysis of variance (ANOVA), Chi-square and t-tests, correlation and regression analyses of the relationship between agency characteristics and practices (the independent variables) were used to look for possible relationships to retention and/or satisfaction. There were statistically significant correlations or differences between groups on both employee and manager items. The results are summarized in the Technical Report.

Analyses included a power analysis (.90 indicated we had a sufficiently large sample); internal reliability analyses (all scales in excess of .70 indicated good internal consistency); an agency level discrepancy analysis (to check for consistency or discrepancy between manager and employee responses); internal consistency checks (participants provided similar responses to similar questions); and a bias study (to determine if there were significant differences between centers that did respond and those that did not). A 95 percent confidence level ($p = .05$) was used for all statistical tests (i.e. results were not considered statistically significant unless there was less than a 5 percent chance that the results could be due to chance), and in situations where a small number of responses violated the basic assumptions for a test, the more stringent 1 percent test ($p = .01$) was used. The use of the word “significant” throughout this report refers to statistical significance.

Calculation of Retention Rate

As might be expected for a study sponsored by Project RETAINS, employee retention is the focus of this report. Related concepts (that focus on the loss rather than what remains) are

turnover and attrition. In this study retention rate is defined as the proportion of the total number of employees who remained with the organization during the previous year. Turnover (or attrition) is the complement of retention. Taken together, retention rate and turnover rate equal the whole (*i.e.* retention + turnover = 1). Turnover and retention were calculated based on manager reports of the total number of employees currently working in the communication center and the total number of employees who left the center for any reason during the previous year.

Researchers who study staffing and retention issues often focus on turnover intention rather than actual turnover (attrition), since it is difficult to calculate actual turnover without conducting a longitudinal study. While this is relatively difficult to measure through a survey, it is an easy number to calculate and one that managers can easily monitor over time.

The retention rate calculated for each agency was based on the total number of current employees and the number of both experienced and probationary employees that left employment with the center in the previous year (see text box for the precise wording of the questions). While this is not a perfect measure of turnover or retention, it provides a reasonable snapshot³⁸ of personnel changes within organizations and allows quick comparisons across centers. This report uses retention as the variable of interest rather than turnover.

The formulas:

Turnover Rate = Number of staff that left last year ÷ Total number of current employees

Retention Rate (expressed as a percentage) = [1 – Turnover Rate] x 100

Measuring Employee Satisfaction

There were six sets of questions (a total of 52 items³⁹) that asked employees to indicate their level of satisfaction with various aspects of the job. They were asked to rate their level of agreement (on a 1 to 5 scale from “strongly agree” to “strongly disagree”) with statements about the work itself, the physical environment, supervision and management, the level of support provided by the agency, scheduling policies and procedures, and compensation and benefits. An Employee Satisfaction Index (ESI)⁴⁰ was created based on these 52 items, and an overall ESI score was calculated for each employee.

ESI scores were the dependent variable, often referred to simply as *employee satisfaction*, that was tested along with retention rates to determine if the policies and practices used within an agency had an impact on retention and/or employee satisfaction.

Since this is the first national survey of public safety communications centers based on a scientifically selected random sample, the data provide our first glimpse of staffing and retention

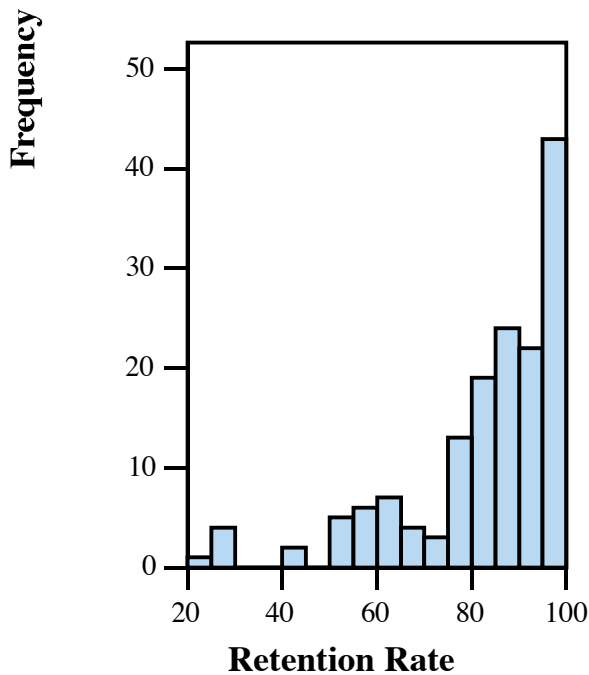
in this field. The survey also collected baseline data about the nature of the work, the diversity of communications center services provided to the public, the gender and educational backgrounds of the people who work in communications centers, etc. The results of this study are reported in the next two sections. Section III presents the data on employee retention and satisfaction, and Section IV presents the baseline data about public safety communications centers and employees.

Section III: Employee Retention and Satisfaction

Retention Rate

The average national retention rate was 83 percent, and ranged from 23 to 100 percent. In other words, on average, centers had a turnover rate of 17 percent and retained 83 percent of their staff. The distribution of retention rate in Exhibit 1 shows most centers clustered at the high end with retention rates in excess of 80 percent.

Exhibit 1. Histogram of overall agency retention rate (with normal curve), N=153



It should be remembered that these data summarizes retention rate for the previous year only, based on data provided by the 153 managers in Study I. While the histogram clearly shows the majority of centers retained over 80 percent of their staff, some centers apparently had a very turbulent year (7 percent lost half of their staff or more).

Is it reasonable to believe that 83 percent is the *real* retention rate? Does a 17 percent turnover rate constitute a crisis? How do these rates compare to rates found in other studies or in other sectors of the economy? A recently completed study of 119 of North Carolina's public safety telecommunications centers (92 percent response rate), found an average

turnover rate of 16 percent (retention rate of 84 percent), and a majority of the centers (58 percent) indicated their turnover rates had been stable for three years.⁴¹

Turnover rates reported in other sectors provide additional perspective. There have been news reports of a nursing crisis. Scanlon⁴² reported a 15 percent turnover rate for nurses (i.e. 85 percent retention) in 2000, compared to a 12 percent turnover rate in 1996.

Concerns about teaching shortages have also made the news. A recent study of teacher attrition and mobility conducted by the National Center on Education Statistics⁴³ reported an 85 percent retention rate among public school teachers, with 15 percent attrition (8 percent moved to another position, 7 percent left the profession).

U.S. Department of Labor⁴⁴ data on national turnover and retention for private business are 73 percent retention (27 percent turnover), and for retail they report 55 percent retention (45 percent turnover). The group with the highest retention rates nationally was government - 90 percent retention (10 percent turnover rate). Turnover/attrition due to retirement and/or death was consistently 2-3 percent for all sectors.

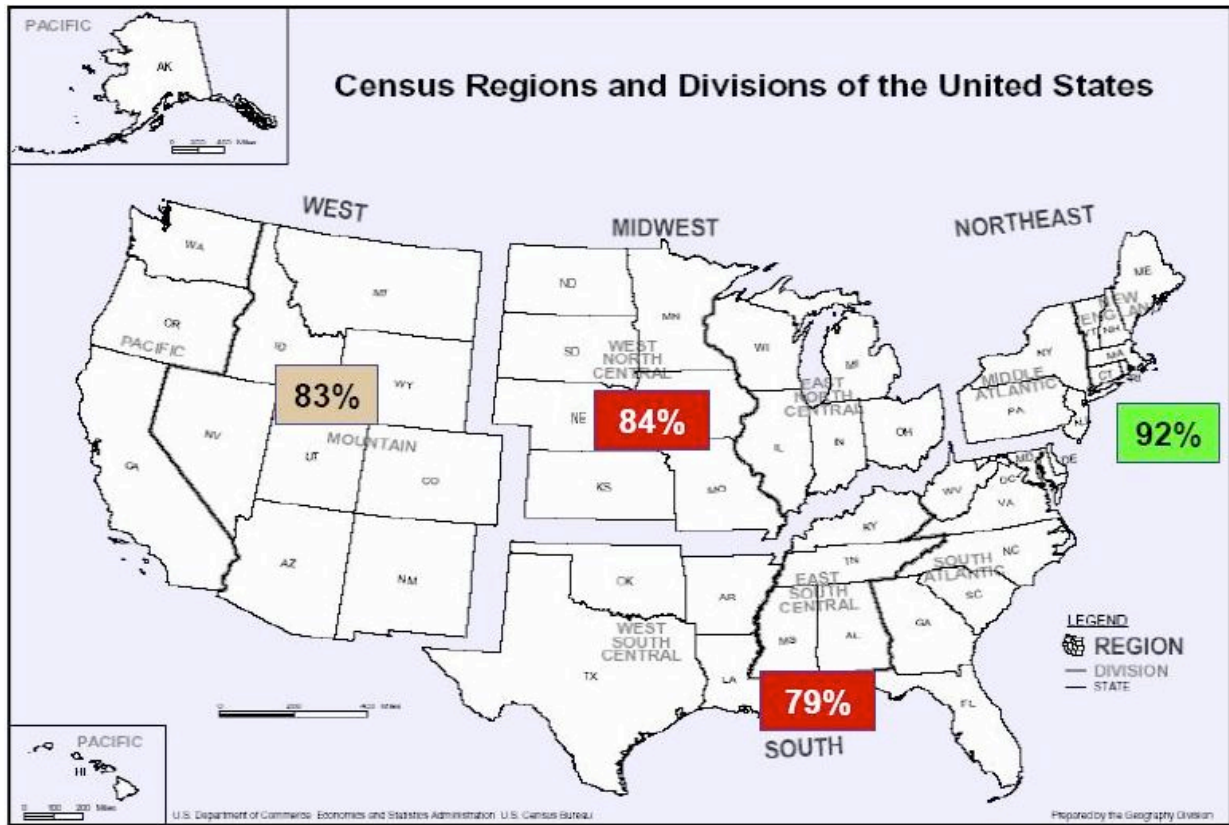


Exhibit 2. Census Regions and Divisions of the United States

There were statistically significant **regional differences** in retention rate. Using the four regions defined by the U.S. Census Bureau⁴⁵ (see Exhibit 2) the highest retention rates were in the Northeast (92 percent) and the lowest retention rates were in the South (79 percent). The rates in the Midwest (84 percent) and West (83 percent) were close to the national average.

There was also a significant relationship between region, retention rate, employee satisfaction, and union membership (summarized in Table 1). Centers in the northeast experienced higher retention rates than in the other regions. ESI scores were lower (indicating higher satisfaction) in the south. Sixty-six percent of the employees in the northeast reported that all were union members at their center. Eighty-five percent of employees in the south reported none were union members at their center.

Table 1. Center retention rates, ESI scores and union membership by region						
Region	n	Average retention N=153	n	Average ESI* N = 600	Yes, all are union members	None are union members
(1) Northeast	18	92%	41	16.23	66%	17%
(2) Midwest	44	84%	143	15.25	25%	61%
(3) South	53	79%	197	14.96	3%	85%
(4) West	38	83%	131	17.38	43%	42%

* *Employee Satisfaction Index: Lower numbers indicate higher satisfaction.*

Additional support for the accuracy of an 83 percent average retention rate among public safety communications centers comes from the pilot phase of the study. The average retention rate for centers that participated in the pilot studies was 82 percent retention (18 percent turnover), and the average rate for the centers that participated in the bias study was 87 percent retention (13 percent turnover). The bias study data suggests the 83 percent average may actually be high. The retention rate reported by large centers in Study II was 85 percent. Taken together, however, these data indicate this retention rate is a reasonable approximation of the actual situation.

The question is not whether an average turnover rate of 17 percent should be defined as a “crisis,” but whether any given agency has a staffing problem. Baseline data provides a reference point for managers. Even though there may be long periods of stability, turnover is normal and planning for it needs to be part of the routine. Very high turnover rates may be a function of changes in the economy, normal life cycle changes (retirement, illness, or maternity leave) or other factors out of a manager’s control. This study looked for factors that are within a manager’s control, or at least influence.

The goal is not to eliminate turnover, but to manage it. Turnover is inevitable, some of it is desirable, and to some extent it is healthy for an organization. But there are costs that balance or offset the benefits associated with replacing workers. The Employment Policy Foundation⁴⁶ (EPF) has estimated employee replacement costs at 25 percent of total annual compensation, a very conservative estimate based on finding replacement staff, covering the vacancy, and training the new employee. The EPF estimate does not account for unique costs of finding and hiring telecommunicators such as the additional costs associated with background checks and an extensive screening process, the length of the training time, reduced productivity of the employee assigned to mentor the new employee (i.e. Chief Training Officers or CTOs), the additional cost of overtime pay for employees who pick up the slack for the new replacement as well as the CTOs, and scheduling implications.

Given the fact that most managers (66 percent) indicated the budget was a key consideration in determining staffing levels, it makes sense they should also know what it costs to replace an employee, monitor their average annual turnover/attrition rates and budget for it.

Extremely low retaining centers were generally smaller than those reporting higher retention rates. The average staff size for low retaining centers (less than 75 percent retention) was 10 employees, compared to an average of 20 in medium and high retaining centers (75 percent retention or more). Small organizations experience the loss of even one employee to a greater degree than larger organizations, and they may have a smaller employment pool to draw from when trying to find the unique combination of skills and temperament needed for the job. Consolidation may be a useful strategy for solving such problems but is not always feasible or desirable. A recent Minnesota study concluded consolidation decisions should be made based on a specific study of the operational details of the PSAP in question as well as community needs and requirements.⁴⁷

When items show a significant relationship with each other, it may be possible to predict one from the other using regression analysis. Regression analysis revealed **five items that predicted center retention rates**. These items were based on employee responses. In order of importance they were:

- 1) employees' perception that the center is fully staffed,
- 2) average overtime hours worked per month,
- 3) job complexity* (number of tasks employees reported as a regular part of their job),
- 4) hourly base pay rate, and
- 5) employee satisfaction with working conditions.*

These differ somewhat from the preliminary results reported in Montreal (the items noted with an asterisk [*] were *not* identified as important influences on retention in the preliminary findings and the level of importance changed for some of the others).⁴⁸

While being fully staffed was the most important of the five predictors, taken together these factors still only predict 14 percent of the variance in retention rates among centers. That means there are other things that factor into decisions to stay or leave. A detailed discussion of the model used for the regression analysis can be found in the Project RETAINS Technical Report, available on the APCO website. See page 60 of this report for a discussion of the reasons why employees leave or stay.

Employee Satisfaction

Exhibit 3. Histogram of Employee Satisfaction Index (with normal curve).
N=600



The ESI scores for the 600 employees ranged from 4.5 to 30 with an average of 15.7 (there were six subscales, each with the possible highest average score of 5). Responses were averaged for each subset of questions prior to calculating the overall scores. The final scores are distributed normally but the curve is more peaked than would be expected from a normal distribution of responses. This may be an artifact of the process used to get the surveys to the employees (we relied on managers to distribute the surveys to employees and may have heard from more employees who were generally satisfied). Note: when interpreting ESI scores it is important to remember that high scores indicate high dissatisfaction; low scores indicate greater satisfaction (an artifact of question structure).⁴⁹ All results in this report are discussed in terms of satisfaction rather than the negative unless indicated otherwise.

Regression analysis revealed **eight measures that predicted ESI scores (employee satisfaction)**. In order of importance they were employees' perceptions with respect to:

- 1) center performance* (a composite score),
- 2) preparation and ongoing training (a composite score),
- 3) feeling appreciated by management,
- 4) satisfaction with the shift selection process,
- 5) mentoring of new trainees,*
- 6) feeling appreciated by their immediate supervisor,
- 7) the perception that there is a thorough and extensive application and screening process, and
- 8) feeling appreciated by the media.*

Taken together, these eight measures predicted 72 percent of the variance in employee satisfaction as measured by the ESI. These also differ somewhat from the preliminary results reported in Montreal (the items noted with an asterisk* did not show up as important influences on satisfaction or were not included in the original model presented in the preliminary findings, therefore, the order of importance changed).⁵⁰

Exploratory factor analysis⁵¹ was used to determine which items should be retained in creating a shorter survey to measure employee satisfaction. The analysis included 52 items included in calculating the ESI plus items related to preparation and training.

The six factor “solution” that emerged from the analysis is consistent with the relationships identified in the regression analysis. The factors that emerged were: 1) recognition and relationships; 2) the work environment; 3) scheduling; 4) salary and benefits; 5) training; and 6) work breaks. Based on the factor analysis, a subset of questions were selected and included in a two-page employee satisfaction survey that is part of the web-based Staffing and Retention Tool Kit.

Relationship between Retention Rate and Employee Satisfaction Index

Conventional wisdom suggests the path to higher retention rates is increased employee satisfaction. A review of the literature on the relationship between employee satisfaction and retention, however, does not support that notion, and low or modest relationships have been found across a variety of organizations.⁵²

The correlation between agency retention rate and the ESI was statistically significant (correlation = -.137, on a scale that ranges from -1 to +1). In terms of practical significance, retention and satisfaction only explained 2 percent of the variance in each other, indicating *other factors explain communication center retention rates better than employee satisfaction, and vice versa*.

Discrepancy Analysis

The purpose of the discrepancy analysis was to determine whether the responses of managers and employees from the same center were similar. Responses to 26 items that were identical in the employee and manager surveys were compared. The common items were related to: 1) employee satisfaction with salary/earnings, health benefits, vacation time, family friendly policies, and retirement benefits; 2) descriptions of the staffing situation at the center; and 3) ratings of center performance on nine criteria.

The results of the discrepancy analysis revealed that generally speaking, managers overestimated employee satisfaction with health benefits and vacation time, but their sense of employee satisfaction with respect to salary/earnings, family friendly policies and retirement benefits were consistent with employee ratings. There were significant differences in employee and manager knowledge about how the centers’ salary schedule and/or retirement benefits compared to other public safety personnel. Managers were generally more knowledgeable about salary schedules and benefits for other public safety personnel.

There were big differences in manager and employee perceptions related to whether or not the center was “chronically understaffed” (17 percent of managers, 37 percent of employees), and whether or not lack of adequate staff was “a serious problem” (13 percent of managers, 25 percent of employees). Managers were less likely to view the level of staffing as a chronic or

serious problem, but there was a relationship between employee perception of a “chronic” or “serious” problem and turnover, but not between managers’ perceptions and turnover. It makes sense that employee’s perception of the staffing situation would be related to turnover, given the fact that they are the ones who absorb the extra overtime (and as the average number of overtime hours per month increased, so did turnover), but the big difference in managers’ perceptions requires an explanation. Research in other occupations suggests these results are consistent with managers’ tendencies to overestimate their effectiveness relative to employees.⁵³

There was a discrepancy between manager and employee evaluations of the “**overall performance of the communications center**” on all but one item, call answering times. Manager evaluations were generally more favorable, but employee evaluations were more likely to be aligned with differences in agency retention rate (the first four items in the list below) and satisfaction (all items). There was a small but statistically significant correlation between overall employee rating and retention rate ($r = -.202$). The check marks (√) in Table 2 identify the specific performance indicators that were significantly related to center retention and/or employee satisfaction scores.

Table 2. Relationships to employee evaluation of center performance		
Retention	ESI	
√	√	Ability to consistently staff necessary positions**
√	√	Employee satisfaction**
√	√	Employee retention*
√	√	Shift management*
	√	Use of overtime*
	√	Ability to train*
	√	Call answering times*
	√	Customer satisfaction*
	√	Efficient call management*

*Statistically significant at $p < .05$ ** $p < .01$ (more stringent alpha for small sample)

In summary, the discrepancy analysis revealed that managers tended to know more about how salary and benefits compared to other public safety service providers, and they had a fairly accurate perception of their employee’s satisfaction with salary and benefits. They either did not recognize or chose to downplay staffing problems. Managers were less likely to view their current staffing situation as chronically or seriously understaffed, and they were more generous in their overall ratings of center performance. As might be expected, employee ratings were more closely aligned with employee satisfaction scores and center retention rates.

NOTES

- 34 The online survey used four basic response options: a) circles or radio buttons and drop down menus for items requesting a single response, b) check boxes for items where respondents were asked to mark all that applied, and c) open response items that asked for a number or short written response. [We discovered that drop down boxes were vulnerable to change if an individual was using a mouse with scroll capabilities since dragging the mouse to the next question could result in changing the selected response. As a result, it was decided drop down boxes would never be used for an online survey again.]
- 35 The center size categories used in this research are those defined by the Commission on Accreditation for Law Enforcement Agencies (CALEA): small (1-15 employees), medium (16-75 employees), or large (76+ employees).
- 36 Federal Communications Commission Master PSAP Registry, v 2.9 (updated 01/06/2005) is available at <http://www.fcc.gov/911/enhanced/reports/psapregistry.html> The information available includes the PSAP registration number, name, city, county and state. It does not provide contact information, mailing addresses or information about the size of the PSAP.
- 37 An additional 72 managers provided information in the bias study (bringing it to a total of 40 percent of the random sample). Although they were not part of the random sample, there were 117 additional managers and 399 additional employees that participated in piloting the surveys.
- 38 There are several ways to calculate turnover and/or retention rates. The formula used by the United States Department of Labor involves a calculation based on the average number of employees over a twelve month period. Requesting such detailed information was believed to impose too great a burden on responders and we chose to use a simpler calculation.
- 39 Reliability coefficients (Cronbach's alpha) were calculated for all items in the six subscales, and four items were deleted because they had low item-total correlations and did not contribute to the scale as a whole. The deleted items are discussed in the technical report.
- 40 ESI: The original survey was set up so that 1= strongly agree and 5= strongly disagree, resulting in higher scores indicating higher levels of dissatisfaction. In the interest of clarity and simplicity, the results in this report are presented in terms of satisfaction rather than dissatisfaction levels. The discussion in the technical report, however, strictly adheres to the format of the questions. The sequence was reversed in subsequent versions of the employee satisfaction survey to make the numbers more intuitive (i.e. higher values indicate higher satisfaction) and facilitate analysis.
- 41 Yearwood, D. (2004). Recruitment and Retention of Public Safety Telecommunicators. *Public Safety Communications*, APCO International, July 2004, pages 9-10, 60. Also personal communications and a review of the survey instrument, July 2004.

This research, conducted by the North Carolina Criminal Justice Analysis Center, focused on recruitment strategies, numbers of applicants/waiting lists, and attrition and retention. Turnover rate was calculated as 100 percent - (total positions occupied – positions vacated ÷ total positions occupied). Turnover rates averaged 16 percent and ranged from 0 to 67 percent. 58 percent of

agencies indicated their turnover had been stable for the previous three years. Length of service ranged from less than a month to 20 years, and on average, termination occurred consistently across groups at about 31 months (2.6 years). Yearwood indicated he thought turnover was frequently due to a combination of rank and prestige issues and opportunities for lateral transfers (to similar jobs in higher paying jurisdictions). The most frequently suggested recommendations for improving recruitment were: increase salaries, education and training, and stricter screening of applicants, but noted the most commonly mentioned barriers were budget restrictions (71 percent) and competition with other agencies (50 percent).

- 42 Scanlon, W. J. (2001). *Nursing Workforce: Recruitment and retention of nurses and nurses aides is a growing concern*. Testimony before the Committee on Health, Education, Labor and Pensions, U.S. Senate. Government Accounting Office Report GAO-01-750T.

Recent surveys of nurses have found decreased job satisfaction, increased pressure to accomplish work, the need to work overtime, and stress-related illness according to Scanlon (2001). Over a quarter of nurses report being somewhat to very dissatisfied with their job and 51 percent were much less satisfied than 2 years ago. Scanlon (2001) cites job dissatisfaction as the primary reason for nurse retention problems and turnover rates increase from 12 to 15 percent between 1996 and 2000. Turnover rates are higher in nursing homes (51 percent) and home health care (24 percent). Lower wages, fewer benefits, and difficult work conditions are also cited as linked to nurse aide turnover. Factors identified as directly affecting nurse aide turnover, many of which are also related to turnover in emergency call center workers, include:

- Adequacy of training
- Methods for managing workload and schedules
- Opportunities for career advancement
- Respect from administrators
- Organizational recognition
- Workloads and staffing levels
- Clarity of roles
- Participation in decision making

- 43 Tabs, E.D. (2004). *Teacher Attrition and Mobility: Results from the Teacher Follow-up Survey, 2000-01*, August 2004, National Center for Education Statistics. (retrieved 12/16/04 from [Http://nces.ed.gov/pubs2004/2004301.pdf](http://nces.ed.gov/pubs2004/2004301.pdf))

Between the 99/00 and 00/01 school years, 85 percent of public school teachers remained at the same school, 8 percent moved to a different school, and 7 percent left the profession. Private school teachers were more likely to leave the profession (13 percent) but the same proportion moved (8 percent). More experienced teachers were less likely to leave or move. The most common reasons for moving to a new school were a better teaching assignment (40 percent), dissatisfaction with administrative support (38 percent), and dissatisfaction with workplace conditions (32 percent). Of those that left the profession, 29 percent retired and 20 percent left to pursue another career and obtain a better salary and/or benefits.

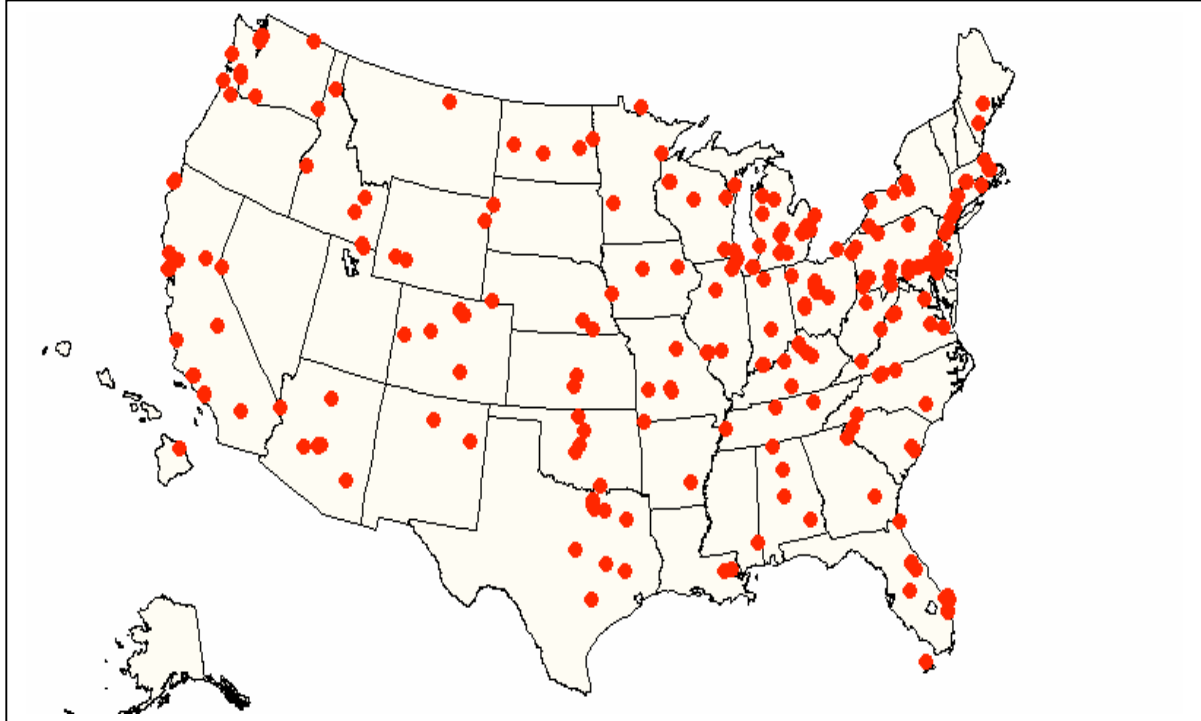
- 44 The Bureau of Labor Statistics has collected job turnover information for over 50 years. It has an ongoing monitoring program. JOLTS: Job Openings and Labor Turnover Survey data along with a brief analysis are released monthly in a press release and are available at <http://www.bls.gov/jlt>

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- 45 The map of the four regions defined by the U.S. Census Bureau was retrieved on 8/3/04 at www.census.gov/geo/www/us_regdiv.pdf
- 46 Potter, E. (Ed.). 2002. Employee Turnover – A Critical Human Resource Benchmark in HRBenchmarks, The Employment Policy Foundation. (Retrieved from www.epf.org on July 15, 2004). Three primary costs of turnover are staffing (cost per hire due to recruiting, screening, personnel search fees, relocation expenses, signing bonuses); vacancy (lowered productivity due to loss of worker and effects of being short handed), and training (replacement time in training, other employee's time to facilitate the transition). The EPF gives a "conservative estimate" of the cost of replacing a lost employee at 25 percent of the annual total compensation amount (including salary and benefits).
- 47 Department of Public Safety, Management Analysis Division. (February, 2004). Public Safety Answering Point Consolidation: Report to the Minnesota Legislature. PSAP consolidation is a "hot topic" in Minnesota, and various factors were considered in addition to cost savings. Analysts note that the biggest operating cost for a PSAP is for personnel, averaging about 86 percent of a PSAP's operating expenses. They concluded that "potential operating cost savings from consolidation quickly diminish above a certain level of activity (20,000 9-1-1 calls and 10,000 events per year). In addition, some of the cost savings resulting from consolidation may be lost as more money is spent on technology and information improvements. In addition, the researchers concluded 1) mandates to consolidate could be ineffective or counterproductive, 2) performance and standards requirements could have a positive impact on consolidation if accompanied by state funding and assistance in meeting requirements, 3) the optimal role for the state seems to be to create a "consolidation friendly" environment, and 4) education and trust was critical to any successful consolidation.
- 48 The extension of the data collection period meant there was not enough time to analyze all of the questions and relationships prior to the preliminary report in Montreal (August, 2004), so that report was based on analysis of a selected subset of questions. The four items from the preliminary report in order of importance were: 1) number of overtime hours, 2) hourly base pay, 3) the center is fully staffed, and 4) training prepared them to be effective in their jobs. Taken together these factors explained 17 percent of employee retention compared to 14 percent in the final model: 1) the center is fully staffed, 2) number of overtime hours, 3) job complexity, 4) hourly base pay, and 5) employee satisfaction with the work itself.
- 49 Response categories were ordered from positive to negative and the Perseus software used for the online version automatically assigned low values to proximal responses, so if the response options of a five point Likert scale question were arranged from "strongly agree" to "strongly disagree", the "strongly agree" was coded as 1 and "strongly disagree" was coded as 5. As a result, the higher the total ESI score, the more dissatisfied the employee.
- 50 The extension of the data collection period meant there was not enough time to analyze all of the questions and relationships prior to the preliminary report in Montreal (August, 2004), so that report was based on analysis of a selected subset of questions. The seven items from the preliminary report were, in order of importance: 1) an effective shift selection process, 2) training prepared them to be effective in their jobs, 3) feeling appreciated by management, 4) agency not chronically understaffed, 5) feeling appreciated by immediate supervisor, 6) an effective screening and application process, and 7) the center was staffed to comfortably handle the workload. Taken together these factors explained 52 percent of the variance in employee satisfaction, compared to 72 percent in the final model.

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- 51 Exploratory Factor Analysis (EFA) assumes a large number of items can be represented by a smaller number of variables (factors). It is commonly used to reduce the number of items in an instrument and to identify items that have a lot in common with each other. Cronbach's alpha coefficients ranged from .72 to .92, indicating relatively high levels of internal reliability for the 52 items used to calculate the Employee Satisfaction Index. Analysis of all the items used in the ESI plus a set of items related to preparation and training, identified six factors: 1) relationships and support, 16 items; 2) the work environment, 8 items; 3) scheduling, 7 items; 4) salary and benefits, 4 items; 5) training, 3 items; and 6) work breaks, 2 items. The six factors accounted for 45 percent of the total variance in ESI scores.
- 52 Hom, P.W. and Griffith, R.W. (1991). Structural equations modeling test of a turnover theory: Cross-sectional and longitudinal analyses. *Journal of Applied Psychology*, 76(3), 350-366.
- 53 McCombs, B. L. (2003). Providing a framework for the redesign of K-12 education in the context of current educational reform issues. *Theory Into Practice*, 42(2), 93-101. (Special Issue on Learner-Centered Principles – B. L. McCombs, Guest Editor).

Section IV: Additional Findings

Exhibit 4. Distribution of Study I respondents, N=153



The Centers

Communications centers vary widely, and the centers that participated in this study are representative of that diversity. Some centers served a single population center such as a campus, a military base or a city, while others served several population centers across a county or a state. The differences are evident in terms of the number of personnel they employ, the number of services they provide, the number of organizations they serve with dispatch services, the size of the geographic area, the size of the population they serve, the total call volume, and/or the number of calls that resulted in dispatching a unit to the scene.

As can be seen in table 3, the average communications center was mid-sized,⁵⁴ with 18 employees serving an average of 12 agencies. For large centers in Study II, the average number of employees was 135, and ranged from 76 to 322. Citizens accessed an average of 7 different services from their communications center. The most common of these services were law enforcement (97 percent), fire (93 percent), and emergency medical (90 percent). Some

Table 3. Differences among Study I centers (national sample, N=153)				
	Average	Median	Minimum	Maximum
Number of personnel	18	12	4	136
Number of services provided	7	8	1	13
Number of agencies they serve	12	6	1	131
Geographic area (in square miles)	770	125	1	40,000
Population served	79,000	35,000	2,162	920,000
Total call volume	238,000	82,000	2,000	9,344,000
Total dispatched to the scene	54,000	26,000	63	650,000

Note: All numbers in this table have been rounded.

centers also took calls for Animal Control (75 percent), administrative services (68 percent), Emergency Weather notification (65 percent), Records (53 percent), Hazardous Materials/HazMat (48 percent), Public Works (47 percent), and a small number of them provide information about transportation or transit systems (8 percent) or a variety of other community services (10 percent). Less than a third of the communities (29 percent) processed 311 or other non-emergency calls.

Agencies served: Some centers provide dispatch services for just one agency or jurisdiction (e.g., law enforcement for a city or campus), but it is more common for them to serve multiple agencies. On average, Study I centers provided dispatch services for about 12 law enforcement, fire and/or EMS agencies/jurisdictions. Just under half of them (45 percent) served five or fewer agencies, but 40 percent of them served more than 10. One center reported serving 131 different agencies and/or jurisdictions. The average number of agencies or jurisdictions served by large centers was 8, less than the average for smaller centers.

Question: Please indicate the number of agencies and/or jurisdictions in each of the following categories for which your communications center provides dispatch services. If you do not provide services for agencies of a particular type, print NA for not applicable.

- _____ Police/Law enforcement
- _____ Combined Fire and EMS
- _____ Fire only (paid and/or volunteer)
- _____ Emergency Medical Services (EMS)

For Study I centers, the **population served** ranged from just over 2,000 to just under a million, and averaged 79,000 citizens. For large centers, the population served ranged from 291,000 to 1,450,000, and averaged 756,427 citizens. The **geographic area** for Study I centers averaged 770 square miles, but more often it was a smaller area (Median = 125 square miles), with the size ranging from one square mile to over 40,000 square miles. Whereas, for large centers, the geographic area served averaged 822 square miles, and ranged from 59 to 8,000 square miles. Most Study I centers indicated they served a city, town or borough (80 percent), but the question allowed managers to indicate all that applied so

there was some overlap for 43 percent of centers that also identified their jurisdiction as a county or parish (59 percent). Some served a whole state (8 percent) or a region (5 percent), and 7 percent served a special jurisdiction such as an airport, island, harbor, park land, fire district or campus.

The **total call volume** handled by the centers averaged 238,000 calls annually, and ranged from two thousand to over nine million calls in 2003. For large centers, the average total call volume was 1,164,699. A substantial number of calls resulted in dispatch to the scene, with Study I centers reporting an average 54,000 calls per year that resulted in dispatch to the scene, although the number of calls that resulted in dispatch to the scene varied considerably by agency (from a low of 63 to a high of 650,000). For large centers, the average number of calls that resulted in a dispatch to the scene was 753,682, a substantially larger average than that of smaller centers.

Most of the centers in Study I were the **Primary Public-Safety Answering Point (PSAP)** for their community (78 percent), but 16 percent indicated they served as both (i.e. they were the primary answering point for some services and the secondary answering point for others). For large centers, 74 percent reported they were the primary PSAP, and 22 percent said they were both primary and secondary PSAP. One fourth (25 percent) of the centers in Study I said they directed calls to one or more secondary answering points. Generally the number of secondary PSAPs was just one or two, but one agency reported it directs calls to ten secondary PSAPs.

Total call volume is one of the factors that many managers and employees feel should be considered when determining the optimal number of staff for a communications center. Researchers from Kimball and Associates conducted a PSAP Staffing Survey for the 9-1-1 Emergency Number Association (NENA, 2000), and looked for a relationship between call volume and staffing levels as a means of determining staffing levels for new PSAPs. They found no relationship. They also found little apparent relationship between the number of staff that were estimated using the formula they developed and the actual staffing reported by centers.⁵⁵

We calculated an **average annual call volume per employee**⁵⁶ and found an overall average of approximately 6,500 calls per year, but the average ranged from as few as 257 calls to over 19,000 calls per employee. The formula used was total call volume divided by total number of current employees. Approximately 75 percent of the centers handled fewer than 10,000 calls per employee per year. For large centers, the average annual call volume per employee was 12,000 and ranged from 6,000 to 22,000.

We looked at the **relationship between annual call volume per employee and agency retention rate** and found that as the workload increased retention rates went down. In other words, as call volume per employee increased so did employee turnover. We did not find a

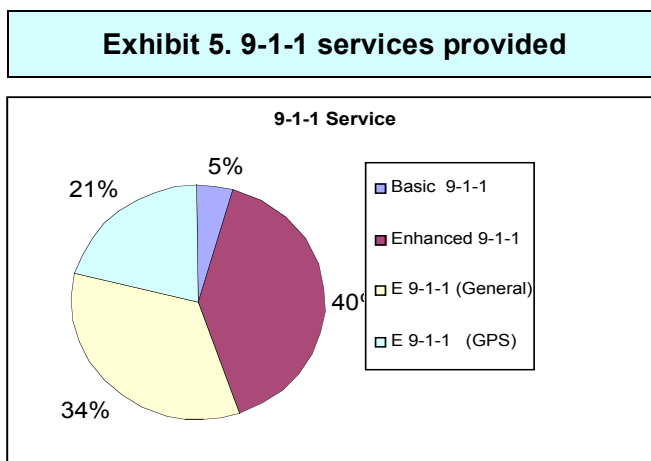
relationship between call volume and employee satisfaction, thus underscoring the finding that the relationship between employee satisfaction and retention rate is not very strong.

We looked at the **relationship between annual call volume per employee and the staffing situation** reported by managers.⁵⁷ On average, employees handled just over 5,200 calls per year in centers where managers indicated their center was “fully staffed at this time (all authorized positions were filled).” Employees in centers that were described by managers as “chronically (almost always) understaffed” handled about twice as many calls at 11,200 per year.

Virtually all of the centers provided **9-1-1 emergency service** (one agency did not), and most (95 percent) provided Enhanced (*i.e.* E9-1-1) service: 5 percent reported Basic 9-1-1, 40 percent offered E-9-1-1 service; 34 percent had Phase I capabilities (general location), and 21 percent had Phase II capabilities (GPS location). Over half of the large centers in Study II (52 percent) reported they had Phase II capabilities. The other 26 percent indicated E-9-1-1, and 22 percent said they had Phase I capabilities.

Most communications centers operate within another agency.

Two-thirds of the managers (66 percent) described their center as a division within another public safety agency (*e.g.*, within a law enforcement agency or fire department), and 28 percent described their center as an independent not-for-profit entity. Just 6 percent indicated they were an independent for-profit entity or used some other arrangement.



Knowing the numbers

We expected managers to know how many calls they received, the number that came from wireless phones, and the number that resulted in dispatching a unit to the scene, but we were wrong. There were a substantial number of managers that did not choose to answer or did not have immediate access to relevant numerical data about their centers. During the pilot process several managers told us that the numbers we asked for were on the tip of their tongue, but there were others who said they had to hunt them down. We included the question because the data was critical to our effort to ascertain appropriate staffing levels. The majority of managers (76 percent) were able to give us numbers for total incoming call volume and 85 percent provided the number of calls resulting in dispatch, but 15 percent of the managers did

not or could not provide *either* of these statistics. The Kimball study noted similar problems with obtaining accurate call data.⁵⁸

The assumption that all 9-1-1 centers use **Computer Aided Dispatch (CAD) systems** to record emergency calls, requests for service, 9-1-1 calls and/or dispatches was also proven wrong. Most of the managers indicated they were using a CAD system (82 percent), but 18 percent said they were not. In large centers, all managers (100 percent) reported they used CAD systems.

Question: Does your center use a Computer Aided Dispatch (CAD) system to record emergency calls/requests for service/9-1-1 calls/dispatches?

Question: Does your center use automated call reporting software that tracks and reports statistics on all incoming and outgoing telephone calls?

When asked if their center was using **automated call reporting software** that tracks and reports statistics on all incoming and outgoing telephone calls, 45 percent of Study I managers indicated they were using it. The majority of managers of large centers (85 percent) reported they were using automated call reporting software.

Trends

There is a perception among communications center managers (85 percent in smaller centers and 92 percent in large centers) that the **total call volume is increasing**. The proliferation of cell phones has increased the call volume in many centers: they often receive multiple calls on an incident where they once may have received only a few, and the fact that it takes additional time to establish a location for cell phones in centers that do not have Phase II capabilities, increases the time required to process each call. Some states have addressed the proliferation of cell phone calls by delegating all wireless calls to a state agency. For example, California and New Jersey route all wireless calls to the highway patrol, a solution that has received mixed reviews.

In contrast, most managers in smaller centers (62 percent) said **staffing levels were about the same**. In larger centers, managers were fairly split as to whether staffing levels had increased (48 percent said yes) or stayed about the same (44 percent said yes). Managers who indicated increases or stability in the retention of qualified staff were from centers with significantly higher retention rates. More managers from larger centers perceived an increase in the **availability of qualified applicants** and the **retention of qualified staff** in their centers (29 percent and 36 percent respectively), compared to managers from the smaller centers in Study I (8 percent and 14 percent, respectively). The trends are summarized in Table 4.

The combination of increasing call volume and level staffing may indicate increased productivity and efficiency, but it may also indicate centers are operating close to their capacity, with a diminished buffer that allows them to accommodate normal turnover and respond to extra-ordinary events.

Table 4. Percent reporting increases in call volume and staffing since 2000

	Study I (Managers, N=153)			Large Agencies in Study II (Managers, N=27)		
	Increased	About the same	Decreased	Increased	About the same	Decreased
Total call volume	85%	12%	3%	92%	8%	--
Wireless call volume	82%	6%	12%	92%	8%	--
Number of dispatched calls	80%	16%	4%	72%	16%	12%
Number of authorized staff	31%	62%	7%	48%	44%	8%
Availability of qualified applicants	8%	37%	55%	29%	42%	29%
Retention of qualified staff	14%	62%	24%	36%	48%	16%

Communications centers are designed to handle the additional work involved in a short term event – and most of them do that on a regular basis. But long term events may stress the system and tip a center into a staffing crisis. Long term understaffing may result from natural disasters, unusual events, or the combined impact of having several employees on leave at the same time due to pregnancy/maternity leave, disability or illness. Even when positions have to be held open and actual staffing level is below authorized staffing, the phone lines still have to be covered. Generally this situation is handled through overtime. Most centers do not have the luxury of back-up personnel.

Larger centers appeared to have greater stability in their retention rate, probably because they had more personnel and can more readily absorb the extra overtime needed to cover when they were short staffed. The loss of two employees in an eight person center is far more serious (25 percent) than the loss of two people in a center that has one hundred employees (2 percent). Smaller centers also tend to be in more rural areas where the pool of potential applicants may be more limited. In smaller centers (i.e. the majority of centers), a relatively small change in the number of staff can move the center from being fully staffed to a severe staffing shortage. It can become a vicious cycle if increased overtime, employee exhaustion (burnout), and increased turnover, with the additional turnover leading to even more overtime for the remaining staff, etc.

In Study I, the question asked managers for their perception of “the trends in your communications center’s call volume and staffing situation since January of 2000 (increased, decreased, about the same, don’t know)” it did not ask for numbers for previous years. However, in Study II, managers were asked to enter numbers for 2003 and 2004. Therefore, in Study II, based on the numbers provided, we were able to identify those centers that experienced an increase or decrease in call volume. As shown in Table 5, the majority of small centers (75 percent) experienced a decrease in total call volume between 2003 and

2004. For large centers, on the other hand, the inverse was true; the large majority (74 percent) experienced an increase in call volume between the two years. There was an even split for medium centers between those whose call volume increased (47 percent) and those whose call volume decreased (44 percent), with another 9 percent indicating their call volume stayed the same between 2003 and 2004.

Large centers in Study II reported an average increase in total call volume of 134,502 calls from 2003 to 2004.

Table 5. Percent of agencies from Study II that increased, stayed the same, and decreased in their total call volume between 2003 and 2004				
Agency Size and average increase in total call volume	n	Increased	Stayed the same	Decreased
Small (Average = 10,000)	4	25%	--	75%
Medium (Average = 105,000)	32	47%	9%	44%
Large (Average = 134,500)	19	74%	--	26%

Trends since 2000 and the numbers for the two most recent years

In Study II, managers were asked to report their perception of the trend in their communications center's total call volume *since January of 2000*; whether it had increased, stayed the same, or decreased. They were also asked to provide the numbers for *total calls in 2003 and 2004*. Table 6 illustrates the fact that changes in actual call volume between 2003 and 2004 were not congruent with managers' perceptions of the overall trend since 2000. For example, only 92% of the managers who provided numbers that indicated an increase in call volume from 2003 to 2004 indicated the trend since 2000 had been one of increasing call volume. None of the managers indicated that call volume had "decreased" at their center since 2000, although for some, their numbers declined between 2003 and 2004.

Table 6 Changes in call volume from 2003 to 2004 and trends since 2000				
Numbers for 2003 and 2004 indicate...	n	Trend: Increased since 2000	Trend: About the same since 2000	Trend: Decreased since 2000
Increase in call volume	15	92%	8%	--
Call volume about the same	3	100%	--	--
Decrease in call volume	14	64%	36%	--

Communications Center Employees

Directors/Managers: Approximately a third of the centers were managed by sworn personnel (31 percent), but the majority of them were managed by civilians (56 percent). Nevertheless, whether they were civilian or sworn, most of them (67 percent) had a supervisor that was

sworn (see table) for the combinations. One of the theories tested in this study was that tension between civilian and sworn personnel might be responsible for low employee satisfaction and higher turnover rates (i.e. lowered retention).

Both managers and employees were asked if “**different treatment of**

Table 7. Managers: Civilian and Sworn			
	Civilian Supervisor	Sworn Supervisor	Total
Civilian manager	16%	40%	56%
Sworn manager	4%	27%	31%
Total	20%	67%	

Question: Is different treatment of civilian and sworn personnel a source of tension in the center?

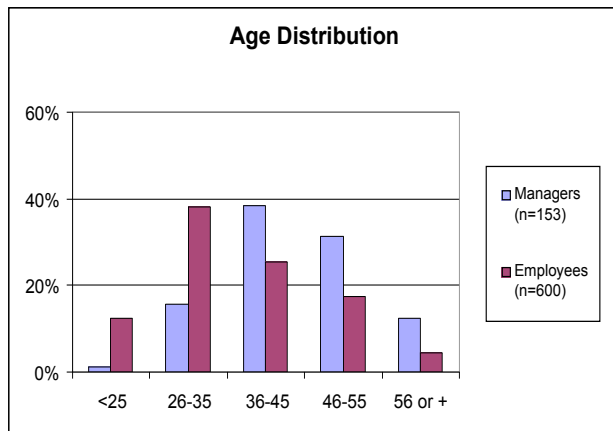
- Yes, civilians seem to get better treatment
- Yes, sworn personnel seem to get better treatment
- No, no difference in treatment of sworn vs. civilian personnel

civilian and sworn personnel was a source of tension in the center.” While 25 percent of the managers indicated they did not know or the question was not applicable, 32 percent of them indicated they thought sworn personnel were treated better and it was a source of tension. Most managers (42 percent) said there was no difference, but 66 percent of employees indicated better treatment of sworn personnel was a source of tension in their centers. But there was no statistically significant difference

in retention or employee satisfaction related to whether the manager was civilian vs. sworn, whether his/her supervisor was civilian vs. sworn, or whether or not managers or employees felt there was tension in the center resulting from different treatment of sworn vs. civilian personnel.

The survey in Study I asked about the process they used to obtain their position as managers. Almost half, 47 percent of them volunteered or were promoted from within, 18 percent were appointed, assigned, or rotated into the position, and 34 percent of them applied through a competitive hiring process. A little over half of them, regardless of the process used to become a manager, were already employees of the center. The knowledge and skills needed to be a good call taker or dispatcher are not the same as those needed to be an effective manager. It would be useful to find out more about the training they may have received to assist them in becoming effective managers, but given the average size of centers, and the fact that most of

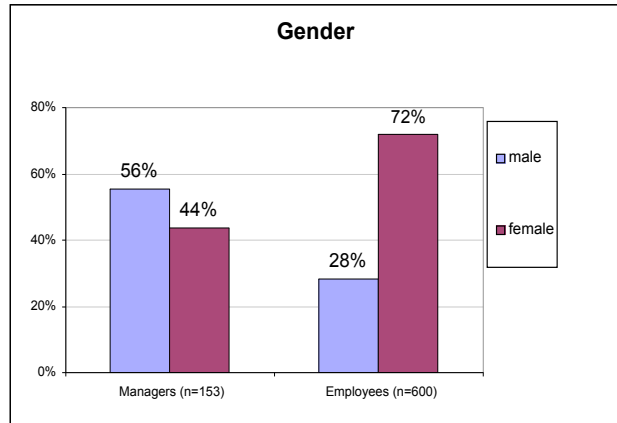
Exhibit 6. Age distribution between managers and employees



those who were promoted from within had been employed an average of ten years, it is probably safe to say most of their training was on-the-job.

There were **age differences** between managers and employees, with a slightly higher proportion of male managers (56 percent male, 44 percent female) and 28 percent male, 72 percent female employees. The difference may be related to the fact that many communications centers operate within law enforcement, fire-rescue or EMS organizations that have historically been male domains.

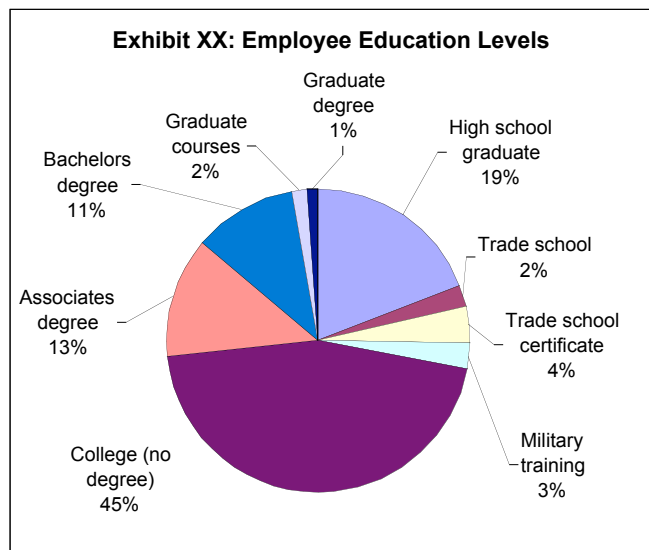
Exhibit 7. Gender distribution between managers and employees



There were significant **gender differences** in employee satisfaction, with male employees expressing higher levels of satisfaction. This may be due to conflicts between the inflexibility of 24/7/365 shift work and the demands associated with child care (often a female responsibility and generally more demanding between the ages of 26 to 45). One center assisted with childcare.

We tested the theory that **educational level** might have something to do with employee satisfaction and/or retention. The fact that a college education is not generally a requirement for work as a call taker or dispatcher was viewed by some managers as one of the factors that attracted people to the job. Almost one in five employees (19 percent) indicated their highest level of education was high school, 81 percent reported some form of post-secondary education.

Exhibit 8. Employee education levels



The majority of communications center employees are college eligible (45 percent attended some college), 14 percent had a baccalaureate or advanced degree, and 13 percent completed an associate degree. These employees clearly had other options, but when we looked for relationships between employee educational levels and satisfaction or agency retention rate, we did not find them.

Both managers and employees were asked about their **plans to continue in their current job** for at least five more years. The options they could select were “probably,” “probably not,” and “not sure.” Employees with Bachelor’s degrees were the group least likely to be planning to continue in the job for five more years. See Table 8.

Table 8. Education level of employees that plan to stay five years (percent)				
Question: Do you plan to spend the rest of your career with this organization?	<u>n</u>	Probably	Probably Not	Not Sure
Education Level:				
(1) Some high school/high school graduate	115	67%	12%	21%
(2) Some trade school/trade school certification	37	56%	22%	22%
(3) Military training	15	60%	33%	7%
(4) Some college – no degree	269	46%	23%	31%
(5) Associates degree	74	52%	28%	20%
(6) Bachelors degree	65	32%	34%	34%
(7) Graduate courses or graduate degree	17	53%	18%	29%

* χ^2 was statistically significant at $p < .05$.

The evidence suggests more educated call center employees have other options if they are dissatisfied. Over half of the employees with advanced degrees, a relatively small group (27 percent) indicated they planned to stay (53 percent), but the proportion that said they were “not sure” (29 percent) was almost as high as those with some college (31 percent) or a Bachelor’s degree (34 percent). Employees with advanced degrees were in mid-management positions (shift supervisor or training coordinator), and those groups tended to be more satisfied as indicated by scores on the Employee Satisfaction Index.

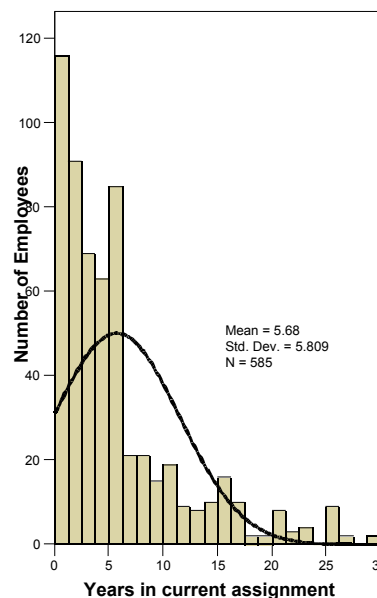
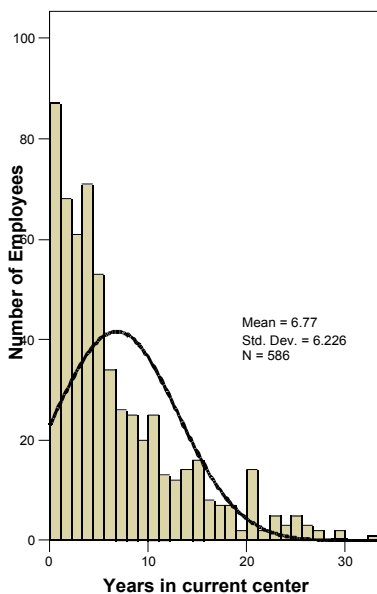
In addition to employees expressed intentions to leave or stay, when employees and managers were asked if they knew the primary reason *why* an employee had left the job, the third most common reason given was that they “left to go (back) to school/college.” Almost a third of the employees (30 percent) and 17 percent of managers said they knew of at least one person who had left the center for this reason. A much smaller number (1 percent) reported knowing someone who left because they graduated, presumably from college (these were not from the special jurisdiction communications centers serving colleges or universities, so those who left because they graduated were not working as telecommunicators at these institutions to pay their way through college). A more complete discussion of reasons for leaving can be found on page 52.

The work is complex and demanding. It clearly attracts people that are academically capable, and for many the job is an attractive alternative to college. There appears to be a tradeoff in hiring people who have attended college, they are more likely to leave (although we do not know how long they stay), thus keeping costs low and providing the beneficial influence of change and fresh perspectives in the center. Conversely, that means there is a need for training the replacements and that often translates into additional overtime due to the time demands of mentoring new employees. Neither of these needs be a problem, if managers know their average turnover and plan for it.

Table 9 Years on the job	
Managers <u>Years employed:</u> Average 13 years (Md 13 yrs) <u>In current position:</u> Average 7 years (Md 5 years)	Employees <u>Years employed:</u> Average 7 years (Md 5 yrs) <u>In current position:</u> Average 6 years (Md 4 yrs)

Both managers and employees were asked about their **experience at the center** (*How many years have you been employed by this communications center?*) and their years in their current job (*How many years have you been employed in your current assignment?*). As expected, managers had more experience than employees: they had been employed by the center for an average of 13 years compared to an average of seven years for employees. Managers had been in their current position an average of seven years, while employees had been in their current position an average of 6 years.

Exhibit 9. Managers' experience in current center and in current assignment



A histogram of employee years at the center reveals a smooth curve, in contrast to the histogram of the number of years in their current position, which reveals a dramatic drop at about 6-7 years. The North Carolina study reported length of service that ranged from one month to 240 months (10 years), and an average termination time at 31 months (2.6 years), regardless of the size of the agency.⁵⁹ Managers in some of the sites we visited reported average lengths of employment of 7-8 years.

The graph on the left in Exhibit 9 suggests the 6-7 year mark may be a critical time for employee decision making. The more dramatic contrast in the graph to the right may be due to the flat structure and limited advancement opportunities within communications centers. One strategy that is being suggested as a tool for reducing turnover is to encourage employees to think of call taking or dispatch in terms of a career.

Simply asking employees if they **plan to stay five more years**, or if they plan to spend the rest of their career with the organization, yielded results that would result in retention and turnover rates similar to those calculated for these centers (i.e. 83 percent retention, 17 percent turnover). Managers were twice as likely to indicate they planned to spend **the rest of their career** “with this organization” (74 percent compared to 50 percent for employees), but the proportion who

Exhibit 10. Career plans of managers and employers - A

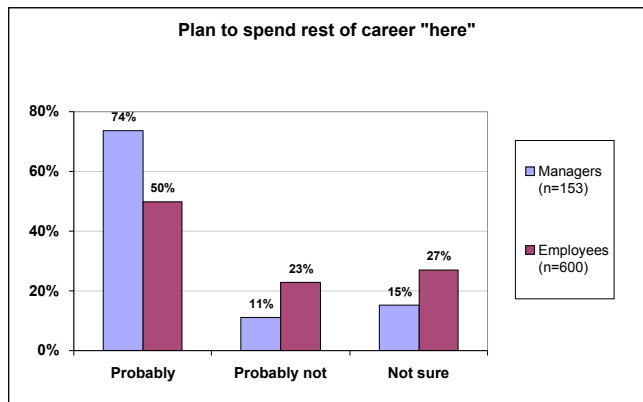
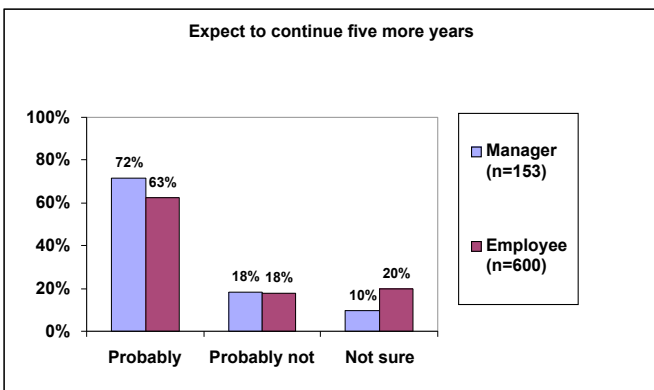


Exhibit 11. Career plans of managers and employers – B



indicated they expected to stay in their current job for at least five more years was only slightly higher (72 percent of managers compared to 63 percent of employees). For both groups the proportion that said “probably not” was very close to the average turnover rate (18 percent for both groups). Employees were almost twice as likely to indicate they were “not sure” whether they would be there in five years (27 percent compared to 15 percent of managers).

Staffing

We asked managers and employees for their **perceptions of the current staffing situation in their centers**. Less than half (48 percent) of the managers indicated they were “fully staffed” (defined as all authorized positions are filled) at the time they took the survey, meaning that 52 percent of the nation’s communications centers were understaffed. The strength (and the weakness) of the staffing question was that it offered a variety of scenarios that were not mutually exclusive. For example, a manager could indicate the center was fully staffed (defined as all authorized positions were filled), but 14 percent of them also indicated they needed more staff than was currently authorized “to safely handle busy periods.” So even though 48 percent of the managers indicated their center was “fully staffed” only 34 percent felt they had adequate levels of staffing to safely handle the workload. That calculation is consistent with the fact that 34 percent of them indicated their staffing allowed them to comfortably handle the workload. The combinations of responses in the matched data set reflected the complexity of the situation.

In Study II, however, managers were asked to describe their current staffing situation by marking only ONE of the four descriptions. The results indicated that the majority of large centers (44 percent) were chronically understaffed; another 30 percent said their current staffing allowed them to comfortably handle the workload, and very few (11 percent) indicated they were fully staffed. Results from both studies are displayed in Table 10.

Table 10. Percent of managers that responded to staffing question		
	Study I (N=153)	Study II (N=27)
The center is fully staffed at this time (all authorized positions are filled).	48%	11%
The current staffing allows the center to comfortably handle the workload.	34%	30%
The center is chronically (almost always) understaffed.	17%	44%
Lack of adequate staff at this center is a serious problem.	11%	15%

Congruence between Managers and Employees’ Staffing Perception

Some of the staffing scenarios were related to employee satisfaction and retention. Table 11 presents the items in the order they appeared in the survey, using results based on analyses of the matched database (*i.e.* the 114 centers with both manager and employee responses).

Managers consistently saw the situation in a more favorable light than the employees. They were more likely to report their center as fully staffed (44 percent of managers compared to 35 percent of employees in the same centers) and they were more likely to say the current staffing allowed them “to comfortably handle the workload (34 percent of managers, 27 percent of employees). There were also statistically significant differences between managers

and employees perceptions about whether their center was “chronically understaffed” (17 percent of managers but 37 percent of employees), or “lack of adequate staff as a serious problem” (13 percent of managers and 25 percent of employees). Perspective explains some of the difference managers may have responded based on the numbers while employees’ responses may have been based on their perceptions of the situation. Additionally, part of a manager’s job is to present the organization in a favorable light.

Table 11. Current staffing situation - managers and employees (percent)						
Staffing Situation	Percent of Managers (n=114)	R	S	Percent of Employees (n=453)	R	S
The center is fully staffed at this time (all authorized positions are filled).	44*	+		35	+	+
We are not fully staffed but expect to be fully staffed soon.	26			28	-	
When fully staffed, the number of positions authorized meets our needs.	35			37		+
The current staffing allows the center to comfortably handle the workload.	34			27	+	+
We need more staff than is currently authorized to safely handle busy periods.	37			42		-
The center is chronically (almost always) understaffed.	17*			37	-	-
Lack of adequate staff at this center is a serious problem.	13*			25	-	-
The center has always been able to cover staffing needs with overtime.	46			40	-	+
There is a pool of qualified candidates waiting for an opening.	12	+		8		+
The center is having difficulty filling authorized positions.	27	-		22		-

* Statistically significant difference in discrepancy analysis, $p < .05$ R= Retention, S= Satisfaction

+ indicates positive relationship (i.e. increase in retention or employee satisfaction)

- indicates a negative relationship, (i.e. item related to a decrease in retention or satisfaction)

But there is some evidence indicating that managers should be paying closer attention to their employees’ perceptions: Manager responses were significant for three of the items related to retention, but there were statistically significant relationships between employee perceptions and satisfaction on nine of the staffing items and retention rates on seven items.

Employees’ perception that their center was fully staffed (all authorized positions filled) was the most important variable for predicting retention rate.⁶⁰ Fully staffed centers were more stable, they were better able to retain employees, and their employees were more satisfied (see discussion on page 10). These centers also had higher proportions of the staff fully

trained. About a third (35 percent) of the employees indicated their center was “fully staffed” and 37 percent said their center was “chronically understaffed.” A common strategy for increasing employee earnings is to assure plenty of overtime hours, but the results of this survey suggest it is a strategy that increases turnover and may negatively impact the efficiency of the center in the long run.

Question: Indicate the factors included in the process your agency uses to determine total call taker and/or dispatcher staffing. Please read through the list and check ALL that apply.

- A factor to account for employee vacation, training, illness
- Available radio frequencies
- Average answering time
- Average calls per hour
- Budget
- Desired service level (e.g., “95 percent of calls answered within 10 seconds”)
- Hourly call volume
- Number of consoles in the center
- Peak hour call volume
- Physical limitations of the center
- Total call volume
- Unique agency or geographic requirements
- Other, please specify: _____

When managers were asked about the **factors used to determine total call taker and/or dispatcher staffing**, the top items selected were the budget (66 percent), the number of consoles in the center (44 percent) and total call volume (also 44 percent) and peak hour call volume (33 percent). Managers were asked to select from a list of 12 common factors, but were also given a chance to comment on any additional factors they might be using. Agencies that indicated they used “available radio frequencies” as a factor in determining staffing had significantly higher retention rates (88 percent compared to the 82 percent for the others). There were no other statistically significant relationships between factor and retention or satisfaction.

Size did not determine the process used. The largest agency in the study indicated they used only one of the factors listed (calls per hour) but that they considered other factors because they were operating with a set of unique requirements (highway patrol). On the other hand, an agency that reported only ten staff indicated they considered eleven different factors to determine staffing levels. There was no clear relationship between the size of the agency and the number of factors that were taken into consideration.

There was also **significant variation in explanations offered for the process used**. Some managers indicated there were “no criteria” or that they simply “take what ever we can get” or whatever was “allowed by town.” Others indicated they were staffed at a minimum level established by “state requirement” or “by contract” or some other agreement. Some used the number of agencies that were dispatched for as a factor, and others made adjustments to accommodate seasonal differences (e.g., a summer tourist area). One manager commented that “staffing is based solely on available budget dollars” and another said it was based on a “non-scientific sense of what is adequate staffing level.” Still another manager noted that “total staffing has not changed in past 15 years...my agency does not adjust staffing levels,” but another indicated his center was “able to increase from 7 to 8 dispatchers 3 yrs ago per common council.” The data indicated the processes public safety communications centers have used for determining staffing levels have been primarily reactive rather than proactive.

There was no process for determining appropriate staffing levels in public safety communications centers that was widely used or accepted. Staffing decisions were not based on need, as defined by the quality of service provided for or expected by citizens, the safety of personnel that are dispatched, or specific measures related to coverage needs, workload, or service quality indicators.

One of the questions raised following the preliminary presentation of these findings in Montreal, suggested that the **proportion of fully trained staff**, not just the total number of staff, that should be considered when determining whether or not an agency was “fully staffed.” Analyses⁶¹ indicated a positive relationship between the percentage of the staff that was fully trained and retention ($r = .266$) and a negative relationship between the percent fully trained and number of annual calls per employee ($r = -.280$). In other words, centers with high turnover (low retention) were more likely to have more inexperienced staff and heavier workloads.

The Work

Call taking and dispatch are the **primary focus of the work** in most centers, and when asked to select which statement best described the portion of call takers/ dispatchers time, managers in 35 percent of the centers said all of their time was devoted to taking calls and/or dispatch, and 62 percent said the majority of their time was devoted to taking calls and dispatch. The inverse was true in larger centers, where 89 percent of managers indicated that all of their call takers/ dispatcher’s time was devoted to taking calls and/or dispatch, and 11 percent said the majority of their time was devoted to taking calls and dispatch. In most centers, non-administrative public safety personnel are **cross-trained** for call taking and dispatch. In 46 percent of the smaller centers, managers said all staff had other duties in addition to call taking and/or dispatch.

Question: Please check ALL tasks that are a regular part of your job (even though you may rotate specific assignments from one shift to another). Check NA (not applicable) for tasks that do not apply to your job on any regular basis.

- Call taking (9-1-1)
- Call taking (administrative)
- Dispatch Law Enforcement,
- Dispatch Fire
- Dispatch Emergency Medical Services
- NCIC and/or state CIC checks
- City/County Services or Public Works
- Animal Control
- Train/mentor new employees
- Other, please specify (online form only)

Job complexity, defined as the number of tasks that employees indicated were a regular part of their job, contributes to employee satisfaction and retention. On average, employees indicated seven of the nine tasks listed were a regular part of their job. We thought increased complexity might add interest and increase retention and satisfaction, but found lower retention rates ($r = -.187$) and lower employee satisfaction ($r = .119$). The survey did not ask questions about the complexity resulting from the increasing technological demands of the

job, but anecdotal evidence suggests the demands associated with adoption of new and more complex technological “solutions” may be another factor that increases stress.

Employee dissatisfaction with some of the policies and practices within their agency was negatively related to agency retention ($r = -.195$). As employee dissatisfaction with the work increased, retention rates decreased.

Four specific work-related **policies and practices** that made a difference were:

- The assigned tasks are usually manageable.
- The arrangement of the work area supports effective performance.
- Scheduled break time away from the console.
- Employees are able to leave the work station for breaks and/or meals.

Additional agency practices that contribute to increased employee retention and/or satisfaction are discussed in the next section.

Center Processes and Performance

Manager’s assessment of the **overall performance of their center** was based on responses to nine items, which were combined into a subscale composite score that ranged from 1 (excellent) to 5 (poor). In Study I the average score was 2.46; in Study II the average score was 2.48, indicating no major differences between managers of small or large centers in their rating of the overall performance of their center. The results are presented in Table 12.

More managers from the large centers (52 percent) rated their center as “excellent or above average” in the **ability to consistently staff** necessary positions, compared to those from smaller centers (38 percent). Significantly more managers from large centers (85 percent) rated their center as “excellent or above average” in the **ability to train** compared to managers from Study I centers (50 percent). In terms of **call answering times**, more managers from Study I centers (75 percent) felt their center was “excellent or above average” compared to managers from Study II centers (56 percent).

Managers from both Study I and Study II centers appeared to rate themselves about the same in terms of **customer satisfaction** and **efficient call management**, with a 60/30 split (roughly) between “excellent or above average” and “average.” Study I centers were rated as “excellent or above average” in the area of **employee retention** by more managers (45 percent), than in larger centers (30 percent).

Table 12. Manager responses to overall performance of the center

Please rate the overall performance of the communications center on each of the following criteria.	All Centers in Study I (N=153)			Large Centers in Study II (N=27)		
	Excellent or Above Average	Average	Below Average or Poor	Excellent or Above Average	Average	Below Average or Poor
Ability to consistently staff necessary positions	38%	50%	12%	52%	37%	11%
Ability to train	50%	40%	10%	85%	11%	4%
Call answering times	75%	23%	2%	56%	28%	16%
Customer Satisfaction	67%	32%	1%	64%	36%	--
Efficient call management	66%	33%	1%	63%	29%	8%
Employee Retention	45%	38%	17%	30%	57%	13%
Employee Satisfaction	29%	57%	14%	31%	54%	15%
Shift Management	39%	54%	7%	42%	46%	12%
Use of Overtime	37%	49%	14%	41%	33%	26%

Table 13. Comparing high and low performance centers (using employee ratings)

Note: Lower ESI scores are better - higher ESI scores indicate increased dissatisfaction; $p < .05$	Retention Rate			Satisfaction (ESI)		
	sig	Rated above average	Rated below average	sig	Rated above average	Rated below average
Ability to consistently staff necessary positions	√	90.18	82.43	√	13.21	17.89
Employee retention	√	89.44	79.30	√	13.80	18.02
Employee satisfaction	√	88.58	82.34	√	11.89	18.61
Use of overtime		87.35	82.97	√	13.42	18.10
Shift management	√	86.08	81.32	√	12.97	19.07
Ability to train		85.87	82.54	√	13.64	19.34
Customer satisfaction		85.68	84.94	√	14.71	20.27
Efficient call management		85.28	82.56	√	14.83	19.44
Call answering times		84.76	83.29	√	15.06	18.37

The majority of managers in both large (54 percent) and Study I centers (57 percent) rated the performance of their center in the area of **employee satisfaction** as “average.” Managers from Study I centers (49 percent) rated the performance of their center in the **use of overtime** as “average;,” whereas most managers from larger centers (41 percent) rated their center as “excellent or above average.”

Everyone likes to be part of a winning team, and this study confirmed the conventional wisdom that employees appreciate a well run organization. One of the most interesting findings from the discrepancy analysis was not the fact that managers viewed the center’s performance more favorably than employees, but that *none of the manager ratings were statistically significant while employee evaluations of center performance were significantly related to agency retention rates on four of the nine items, and employee satisfaction on eight of the nine items.* Table 5 compares the retention rates and average ESI scores in centers that were rated above vs. below average by employees. Overall averages were 83.07 for retention rate and 15.7 for ESI scores.

The data in table 13 are sorted by retention rate, from high to low, with check marks (√) indicating items that were statistically significant. The aspect of the center’s overall performance that was most highly related to the agency’s retention rate was employee ratings

Question: Please rate the following based on the extent to which you feel the screening tests that are currently being used by your center are **important** in helping management identify good candidates. Please respond to each item (very important, somewhat important, not very important, not at all important, not applicable).

- Background check
- Civil service screening
- Drug screening
- Hearing test
- Integrity test
- Interview process
- Keyboarding (speed & accuracy)
- Map reading skills
- Multitasking ability
- Polygraph exam
- Psychological test
- Simulation test
- Voice test/clarity of speech

of the ability (of management) to consistently staff necessary positions. Employee evaluations of a centers’ use of overtime was statistically significant for satisfaction but not for retention rate.

Agency Procedures

The Application and Screening Process

Satisfaction and retention begin with the process used to identify and screen applicants. Being an effective and efficient telecommunicator is a highly specialized job that requires a unique disposition and set of skills. Centers have developed elaborate screening processes for trying to find good people and assure a good fit with the organization.⁶²

Approximately two-thirds (63 percent of smaller center managers and 69 percent of large center managers) felt the screening and application process used by their agency was

effective for selecting the right people for the job. Less than half the employees (47 percent) felt the process used by their center was effective, but those who did feel it was effective were significantly more satisfied and they worked in centers with higher retention rates. In other words, the screening and application process - when perceived as effective by the employees – made a significant difference in employee retention and satisfaction.

There was not a significant relationship between our measure of the **extensiveness** of the screening process used by an agency⁶³ and retention rate ($r = .066$) or employee satisfaction ($r = -.025$). Virtually all centers conducted background checks (97 percent) and interviews (93 percent). Drug screening (62 percent) and testing for keyboarding skill and accuracy (51 percent) were also relatively common practices. Testing for multitasking ability (44 percent), hearing (33 percent), voice/speech (25 percent), map reading (23 percent), or using a simulation test (21 percent) were less common. Polygraph exams were used by 26 percent of the centers.

In centers where employees viewed a specific test as “very or somewhat important” there were generally higher levels of employee satisfaction. Employees from centers that used a hearing test, a keyboarding test, a psychological test, or a simulation test did not have significant differences in satisfaction.

When we asked the question in a slightly different way, however, employees who agreed with the statement, “The **application process was thorough and extensive**” were more satisfied and their centers had higher retention rates. The importance of an effective screening and application process is underlined by the fact that it was one of only eight items that predicted satisfaction in the regression analysis.

A candidate’s **previous experience** was an important consideration for 87 percent of the centers, and certification as an EMD, ENP, EMT or officer was important in 60 percent of the centers. Fluency in a second language was viewed as an important consideration in just 24 percent of the centers.

The person or office responsible for screening and hiring did not appear to make a measurable difference, whether it was done by the communications center management and/or staff, the human resources office (HR), the civil service commission or a combination of these. This may be due to the fact that most centers had already worked out any problems related to who had the authority to recruit, screen, select and hire personnel.

A little more than half of the centers (52 percent) indicated they had current **trainees that were not working independently**. Among those centers that had current trainees the number of trainees was typically low. Large centers were more likely to have employees in training, and the large centers reported that on average they had 7 percent of their current employees in training (not working independently). On average 93 percent of the staff were fully trained (in smaller centers as well as large centers), and in 48 percent of the smaller

centers, managers reported 100 percent of their staff were fully trained. Large centers reported they had an average of five full-time trainers on staff.

How was retention rate affected by new recruits “washing out” of the training or probationary period? On average, **43 percent of turnover was due to new hires** (defined as “non-probationary employees”) leaving. In large centers, 34 percent of turnover was due to new hires that left. In 19 percent of the smaller centers, the entire turnover (100 percent) was due to new hires. Wash out of new recruits is an issue for communications centers, even though 75 percent of managers said that potential employees were given “an opportunity to understand the demands of the job before they begin training” and 47 percent of managers indicated potential employees “spend time in the communications center after they pass an initial screening test and before they begin training.” There is considerable cost savings when managers and potential employees identify a potential mismatch early in the process. It is not uncommon for managers to report that employees who “were borderline” or “iffy” when hired often washed out before they became fully trained.

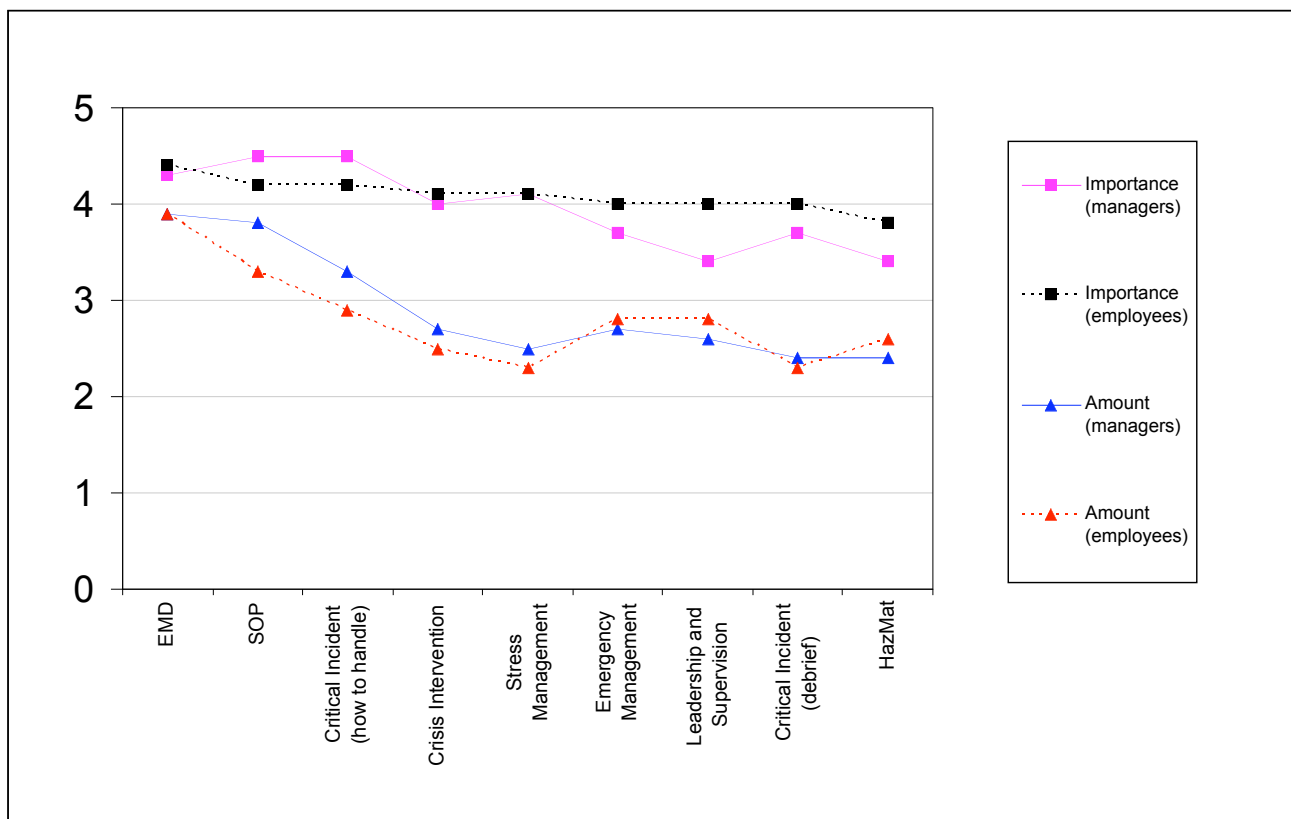


Exhibit 12. Manager and employee ratings of Importance vs. Amount of training

Both employees and managers felt the **amount of training did not match the level of importance** they ascribed to it. The data in Exhibit 12 are sorted based on employee ratings of the importance of the topic. EMD was rated most important, and it was also the area where the amount of training came closest to matching perceptions of the importance of it.

Schedules and Scheduling

There was no difference based on the actual **shift schedule** (whether 8, 10, or 12 hour days or some combination). About half of the employees (49 percent) reported working a 5 day/8 hour shift, but there were many unique combinations of hours. Scheduling is clearly one of the areas where managers have been experimenting with different ways to meet the center's need for coverage *and* employees needs for flexibility.

At least one agency that was studied for this research lost several female employees when the staff voted to switch from an eight hour shift to a twelve hour shift. These young women indicated they loved the work and the job, but did not want to be away from their children for such long hours. The idea of a one-size-fits-all schedule is being revisited. Variation in the workload requires variation in the shift schedule and some larger centers have begun experimenting with combinations of 8, 10 and twelve hour shifts. Although it adds complexity to the scheduling process, the strategy has potential for better alignment between the needs of the center and the needs/preferences of employees.

A recent study of the impact of different schedule configurations in the Minneapolis Emergency Communications Center found no correlation between the length of the shift and the amount of overtime, but the researcher did find **lowered usage of sick leave** under a mixed schedule that included both 8 and 12 hour shift options.⁶⁴

The **length of the rotation** period did not affect employee retention or satisfaction, with one notable exception. There was significantly higher satisfaction among employees who said they were on a weekly rotation. The most common situation was no rotation (43 percent of employees), followed by a quarterly rotation (16 percent of employees), monthly (13 percent), weekly (9 percent) and yearly (5 percent).

Employees that were satisfied with the **shift selection** process were significantly more satisfied and were generally from centers with higher retention rates. Satisfaction with the shift selection process ranked fourth among eight factors that predicted overall employee satisfaction. An effective shift management process contributed to employee satisfaction.

The **method used for determining shift assignments** was related to employee satisfaction – with one exception: employees were more dissatisfied when shifts were assigned by a supervisor (30 percent of employees). This was an area where seniority made a difference. The most common practice was for employees to bid by seniority (40 percent) or be assigned by seniority preference (30 percent). Automatic rotation on a regular basis was reported by 25

percent of the employees, and a customized approach designed to meet employee needs was reported by 14 percent of them.

What seems to be more important is a schedule that is predictable. A recent national survey found the number one employee benefit that employees wanted from their employers was the ability to better manage their work schedule to accommodate their own personal needs whether that was working spouses, child care, commutes, second job, pursuing an education, etc.⁶⁵

Overtime

Two related items appear to be most important for predicting an agency's retention rate. Whether or not an agency is fully staffed (*i.e.* all authorized positions are filled) and the **average hours of overtime influence retention rates**. An agency that is not fully staffed must use overtime to fill the gaps in the schedule, and productivity goes down as new staff are being trained/mentored to fill the vacant positions. Thus starts a negative cycle that may precipitate even more turnover as work hours become less predictable, interference with family and leisure time increases, dissatisfaction increases and employees start looking at their options.

Employees were asked how many hours of overtime they worked in a typical month, and the hours of overtime were correlated to satisfaction scores ($r = .143$) and retention rates ($r = -.218$). The relationship was significant: As overtime hours went up, retention rates and employee satisfaction went down. In fact, for every 12 hours of overtime reported, the retention rate of the center went down by 2 percent. Most employees (69 percent) reported working overtime at least once a month and most reported higher pay rate for overtime (86 percent). Although it is a welcome source of additional income, the ready availability of overtime hours is a perverse incentive that appears to fuel higher levels of staff turnover.

When employees reported **required or mandatory overtime both retention and satisfaction suffered**. The good news is that employees were more satisfied if overtime was entirely voluntary. Employees were also more satisfied if they could use comp time at their discretion. Nevertheless, if overtime was a frequent necessity due to short staffing, both turnover and employee dissatisfaction increased.

Managers were asked what portion of their personnel budget was currently used for overtime pay. About half of them (47 percent) indicated they spent less than 10 percent of their personnel budget on overtime pay, 36 percent of the managers said they spent 10 to 20 percent of the personnel budget on overtime, and 17 percent indicated they spent more than 20 percent on overtime. Less than half of the managers (46 percent), and even fewer employees (40 percent), indicated "the center has always been able to cover staffing needs with overtime." The strategy of relying on overtime to cover staffing needs (often rationalized as a means for enhancing salary and earnings for communications center staff) appears to have mixed results. It allows managers to cover their needs and pump up employee earnings,

but at a long-term financial and personnel cost. (The “hidden” cost of turnover is discussed elsewhere in this report). Deliberate limitations on the use of overtime appear to be a better policy for the long haul.

Compensation

The **average hourly base pay rate** reported by the employees that responded was \$15.35, and ranged from \$7.00 to \$28.85. This is consistent with the average hourly rate of \$15.91 for dispatchers reported by the U.S. Department of Labor.⁶⁶ The average reported by communication center employees included base pay rates reported by all employees that responded to the survey, so it includes shift supervisors and training coordinators as well as call takers and dispatchers. The base pay rates for different positions are summarized in table 6. There was a positive relationship between pay rate and agency retention rate ($r = .115$, as the pay rate increased, so did agency retention rate), but there was not a corresponding relationship between higher pay and employee satisfaction ratings (ESI scores, $r = -.060$). In a question that asked employees to rate their satisfaction with “salary/earnings (*i.e.* base pay)” there was no difference in retention between employees that indicated they were satisfied (54 percent) when compared to those that were dissatisfied (33 percent) or neutral.

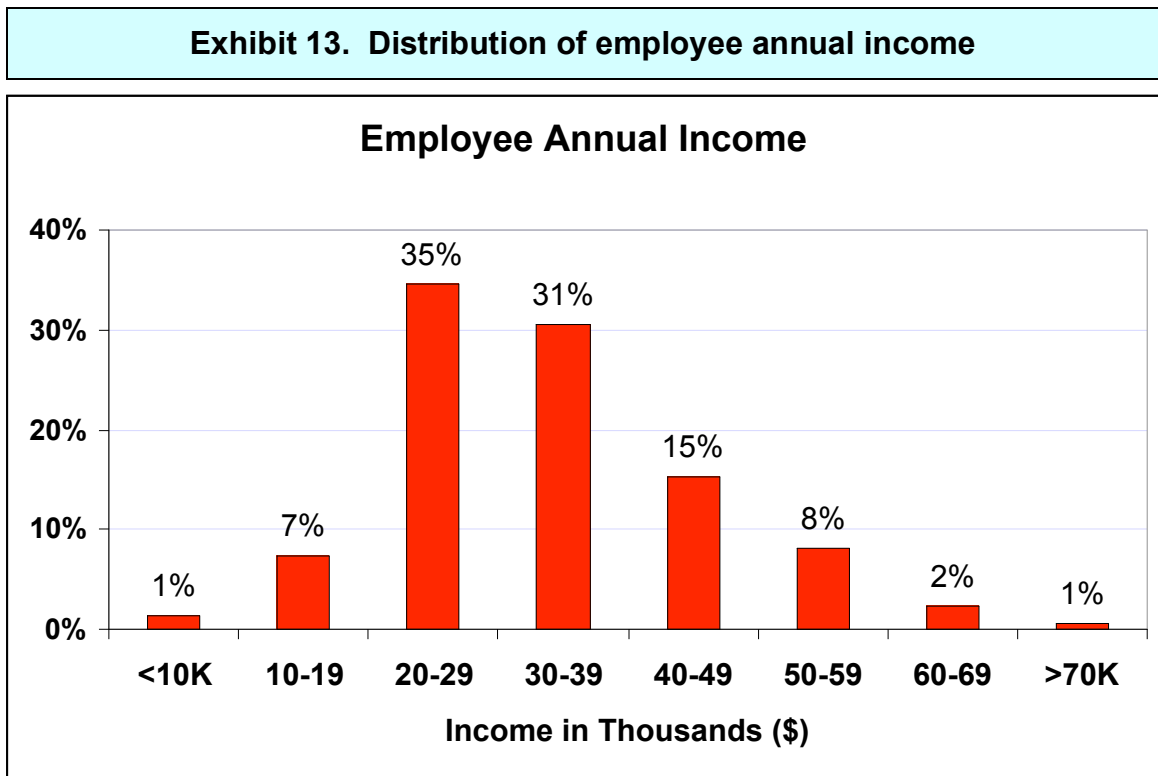
The **base hourly rates for full time entry level staff for different positions** provide some insight into the differences in pay for different jobs, but the differences were relatively small and the difference in pay between call takers and dispatchers was not in the direction expected (we expected the average pay for dispatchers to be higher than pay for call-takers).

Most managers (80 percent) reported the same hourly rates for call taker and dispatcher positions. This was consistent with the fact that 69 percent of the managers indicated employees were cross-trained as call takers and dispatchers. In addition, pay rates were undoubtedly related to the fact that in 3 percent of the centers, call taking and dispatch were secondary to the other duties performed by staff (jail, etc.). The lowest pay rates were generally found in more rural areas and higher rates tended to be in suburban or urban areas. As mentioned earlier, the average pay for employees in centers where all were union members was \$17.83, compared to \$14.21 in centers where none of the employees were union members. Pay was a significant predictor of retention rate.

Table 14. Base pay rates reported by managers (n=153)					
Role	Percent*	Average	Median	Minimum	Maximum
Call taker	32	\$12.71	\$12.20	\$6.36	\$31.00
Dispatcher	34	\$12.61	\$12.10	\$6.36	\$21.14
Call taker/Dispatcher	80	\$13.04	\$12.40	\$6.36	\$30.00
Shift supervisor	59	\$16.79	\$15.65	\$9.17	\$40.00

*Percent of managers who reported a separate hourly rate for this job category

Employee “**annual income** (including overtime or any bonuses) from this job” varied widely but most (66 percent) reported income between \$20,000 and \$40,000 per year (including overtime). Generally speaking, a combination of years in the center and responsibilities as a shift supervisor or training coordinator accounted for annual salaries over \$40,000. When asked about how the salary schedule in their own center **compared with salary schedules for other jobs in the community**, 22 percent of both managers and employees indicated it was low for their community, 42 percent of managers said it was about average for the community (compared to 45 percent of employees), and 9 percent of the managers (15 percent of employees) said they were well paid if overtime was included. Twenty-eight percent of managers (18 percent of employees) said they were well paid even without overtime. Employee satisfaction scores, but not agency retention rates, were significantly more positive if employees thought they were well paid compared to other jobs in the community. They were even more satisfied if they felt they were well-paid even without overtime.



When asked about **salary comparability to other public safety personnel**, 8 percent of the managers and employees said their schedule was higher than other public safety personnel, 31 percent of the managers (27 percent of employees) thought it was comparable and 61 percent of managers (49 percent of employees) said it was lower. Sixteen percent of employees indicated they did not know how salaries compared to other public safety personnel. Both employee satisfaction and agency retention rates were affected by the comparability of their salary schedule to other public safety personnel. Employees who said

“don’t know” and those who knew their salary schedule was comparable, were from centers with higher retention rates. Employees who knew their salary schedule was lower were significantly more dissatisfied than those who either did not know or knew their salary schedule was higher or comparable.

Fewer than half (37 percent) of the managers reported a **pay differential** for hard to staff shifts. Well over half (58 percent) indicated **overtime was a frequent necessity** because the center was short staffed; in large centers, 89 percent indicated the same. Only 4 percent of managers in smaller centers indicated employees were getting a higher rate of pay for working under a long-term understaffing situation. Most centers (77 percent) compensate employees at a higher rate for overtime.

Thirty-nine percent of managers in large centers indicated they “**over-hire**” to accommodate routine turnover and/or unexpected employee absence. This question was not asked of the smaller centers. Among those who reported they over-hired, managers were less likely to report that their center was “chronically understaffed” or that understaffing was “a serious problem” (40 percent compared to 67 percent who did not over hire).

Benefits

Managers were asked to identify all the services or benefits that were available to all full time employees in their communications center (see text box). Some of the benefits were part of the job; others were benefits that add to the cost per employee. The number of benefits was not related to agency retention rate, but employee satisfaction increased as the number of benefits increased ($r = -.193$).

Still there appear to be **some practices that were related to higher retention rates**. The benefits that seemed to make a difference, and the difference in retention between centers that did or did not offer these benefits⁶⁷ were: seniority privileges (6 percent higher retention rate for centers that offered this benefit when compared to centers that did not offer it); difference in pay for different shifts (5 percent higher); shift selection (4 percent higher); and, an exercise room onsite at no charge to employees (3 percent higher). One agency said it provided assistance in arranging for or providing daycare.

Question: Please check ALL of the **services or benefits that are available** to all full time employees in your communications center?

- Assistance or pay incentive for education/college
- Assistance in arranging for/providing daycare
- Dental plan
- Difference in pay for different responsibilities
- Difference in pay for different shifts
- Exercise room (onsite, no charge to employees)
- Days off due to longer work days/schedule structure
- Health care/Medical plan
- Opportunities for advancement
- Recognition program
- Retirement benefits
- Seniority privileges
- Shift selection
- Vacation choice
- Vision Plan

Some of the other services or benefits mentioned by respondents were:

- A neutral dress code
- Ability to trade shifts and or days off, ability to take comp time if they find someone to work or to cover for them, each employee has own chair that is not shared with other shift workers, limits on mandated overtime shifts.
- Compensatory time off, no restrictions on the number of employees who can be off on a shift as long as someone volunteers to cover shift (they get OT pay), entire shift could be on OT pay covering shifts for others.
- Monthly 9-1-1 pay incentive
- Extra pay while serving as CTO (chief training officer) for new employee
- PEHP & Deferred Comp plans available
- Holiday pay
- Disability
- Paid cleaning of uniforms
- Rides to and from work
- Clothes allowance every 2 years.

Almost all (95 percent) of the centers offered a **retirement program**, and 85 percent of the employees indicated they participated in their center’s program. Most who did not participate said it was a personal decision, but there were two small centers that did not offer a retirement program. There were no significant differences between groups in retention regardless of whether employees thought their retirement benefits were higher (5 percent), comparable (58 percent) or lower (25 percent) than the retirement benefits offered other public safety personnel, but employees who said their benefits were lower were less satisfied.

Support and Recognition

Communications center employees are largely invisible, carrying on important work behind the scenes, but mostly invisible to the public until or unless they make a mistake. And sometimes those mistakes result in loss of life. The centers where managers said they thought the communications center **staff was adequately recognized** as important members of the public safety team” (27 percent of the 153 centers) had higher employee satisfaction. There was another 27 percent of the managers who did not answer the question, but employee recognition

Question: Do you think your work is appreciated by:	Yes	No	Not sure
Coworkers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immediate supervisor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sworn officers/officials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agencies you serve?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public and/or elected officials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The media?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partner/family members?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The public?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

appears to be an important contributor to overall employee satisfaction (as measured by the ESI).

Recognition issues contribute to the dissatisfaction of employees (41 percent) in centers where they feel “sworn personnel get better treatment.” And, in all of the categories related to feeling appreciated (see text box), employees who indicated they did feel appreciated were more satisfied than employees who indicated “no” or “not sure.”

Moreover, **feeling appreciated by management** (50 percent of employees), by their **immediate supervisor** (74 percent), and by **the media** (18 percent) were significant predictors of employee satisfaction.⁶⁸

Forty-two percent (42 percent) agreed with the statement “I think that my work is appreciated” but most indicated they felt appreciated by significant others: 83 percent felt they were appreciated by their partner or family, 67 percent felt they were appreciated by coworkers, 56 percent felt appreciated by sworn personnel, and 54 percent by the agencies they served. A smaller proportion of employees (41 percent) felt appreciated by “the public” and just 26 percent felt appreciated by public and/or elected officials. It is not unusual to feel more appreciated by those closest to you, but it may be useful for managers to experiment with strategies for soliciting recognition from audiences beyond the immediate family, colleagues and supervisors/managers.

Virtually all (98 percent) of the employees agreed with the statement, “I am **doing important work**” and 80 percent said they “**get a great sense of satisfaction from doing this job.**” But 45 percent of them admitted they were **concerned that they “may burn out** in this job” (15 percent indicated they strongly agreed they were concerned about burnout, although only 4 percent of the managers reported at least one case of “burnout” as a primary reason for an employee leaving).

To the extent that employee perception of customer satisfaction may be related to feeling appreciated, 47 percent of employees felt their center was excellent or above average in customer satisfaction. What is unknown is whether they were thinking of the public or the personnel they dispatch as the “customer.”

Reasons for Leaving

The most frequently reported reason for leaving was “dissatisfaction” (43 percent of employees knew at least one person who had left because of dissatisfaction compared to 8 percent of the managers). Dissatisfaction could actually cover a lot of very different reasons – it could be dissatisfaction with management, dissatisfaction with shift work, it could be dissatisfaction with the number of hours or the amount of overtime they had to work, the drive to the office was too far, it was too hard to arrange for daycare, etc. Nevertheless, there was substantial disparity between managers’ and employees’ perceptions on this issue. On all

other reasons, with the exception of “burnout” and “interpersonal conflict,” the responses are fairly similar (even when employees were fired).

It is not uncommon for employees to avoid full disclosure with managers during an exit interview or while still on the job, especially in situations where there may be negative consequences (such as a poor reference).

The second most commonly cited reason for leaving was “*higher pay elsewhere*” and although we did not ask for specifics about where those employees may have gone, research from North Carolina⁶⁹ suggests these employees may have made lateral transfers to a higher paying communications center, or moved into a sworn position, as opposed to leaving the profession entirely. The third most common reason cited was “*left to go (back) to school.*”

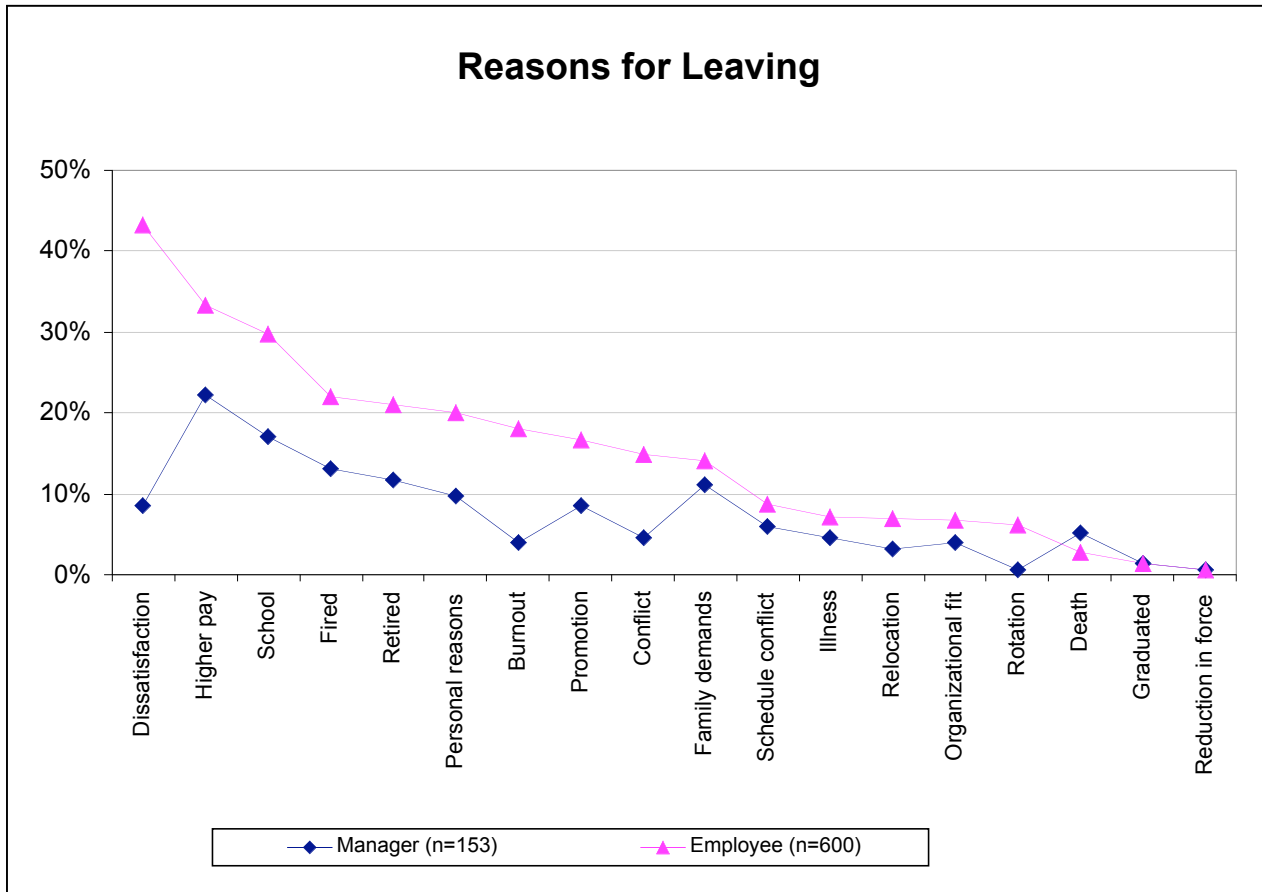
Question: In thinking about the reasons why experienced employees left the center last year, please write in the number of individuals you think left for each of the following reasons. Please limit it to <u>one primary reason per former employee</u> and count only those you are reasonably certain you know why they left . Leave spaces blank that do not apply.		
Reason for leaving (In order of frequency):	Percent of Managers (n=153)	Percent of Employees (n=425)
Dissatisfaction	8	43
Higher salary elsewhere	22	33
Left to go (back) to school/college	17	30
Fired	13	22
Retired	12	21
Personal reasons	10	20
Burnout	4	18
Promotion	8	17
Interpersonal conflict	5	15
Family demands	11	14
Schedule conflict	6	9
Illness	5	7
Relocation	3	7
Organizational fit	4	7
Rotation	1	6
Death	5	3
Graduated	1	1
Reduction in force	1	1

Note: Some of the difference is due to the fact that only one manager but several employees might report on the same employee who left for a specific reason.

Thirteen percent of centers reported employees left because they were *fired*. Although not as glaring as the differences related to dissatisfaction, there is a substantial disparity between managers and employees regarding the number of employees that left due to *burnout*. Interpersonal conflict was probably interpreted as conflict between manager and employee, but it also could have been read as conflict between two employees, or conflict at home.

Family demands, scheduling conflicts, illness, organizational fit, relocation, and rotation out of the position, graduated (probably from college) and reductions in force accounted for a small percentage of reasons for leaving the job. The question was exploratory, an attempt to gain insight into the decision to leave process. It provides us with some basic descriptive information, and the results raise some interesting questions. But the data should be approached with caution. Even with exit interviews, where they are utilized, the story an employee tells a coworker may be quite different from the information provided managers or the HR department in a formal exit interview. Exit interviews conducted after some time has passed give employees time to reflect on their decision and may yield different information than those conducted right at the time of separation. In addition, the results of this study support the notion that exit interviews may be useful, but it may be even more important to find ways to listen to staff before they reach the point of handing in their resignation.

Exhibit 14. Manager and employee reports of reasons why others left



Comparing the Centers in Study I and Study II

The following is a summary of the ways in which the cross section of centers in the national sample from Study I was similar to or different from the large centers in Study II. The national sample was predominantly small and medium-sized centers, and contained only four centers that qualified as large. In addition, some of the questions were modified between Study I and Study II. The results for items that were sufficiently similar to report comparisons are presented here.

CALEA Size categories:

Small: 1-15 employees

Medium: 16-75 employees

Large: 76 or more employees

Large Agencies were Similar to Small Agencies in...

- The average retention rate for large centers was 85 percent, compared to 83 percent for the national sample.
- Three quarters (74 percent) of large centers and 78 percent of small centers were the primary PSAP for their community.
- Most managers felt their center had an effective screening and application process (69 percent of managers from large centers and 63 percent of managers from small centers).
- Average overall center performance ratings were very similar: 2.48 for large centers and 2.46 for small centers (based on a 1-5 scale, *excellent* to *poor*).
- A similar proportion of managers rated customer satisfaction and efficiency of call management as *above average* or *excellent*.
- A similar proportion of managers gave their centers average ratings for employee satisfaction and shift management.
- The proportion of employees who were fully trained and working independently was the same in both groups, with 93 percent of their employees fully trained.

Large Agencies were Different from Small Agencies in...

- Twice as many of the large center managers reported enhanced 9-1-1 wireless, phase II service: 52 percent compared to 21 percent of Study I centers.
- On average, large centers provided services for about ten times as many people.

- Large centers were almost twice as likely to report the use of automated call reporting software, and all large centers use a CAD system (compared to 82 percent of the Study I centers).
- Large centers served an average of 8 centers or jurisdictions compared to 12 for the sample in Study I.
- More of the large center managers reported a trend toward increased *availability of qualified applicants* and increased *retention of qualified staff*. Perhaps this is a reflection of reduced competition from “dot com” businesses.
- The majority of the large center managers reported they were chronically understaffed, whereas the majority of all centers reported they were fully staffed.
- Large center managers were more likely to indicate that overtime was a frequent necessity because the center was understaffed.
- Most of the large center managers said that *all* of their CT/D time was devoted to taking calls or dispatch; most small centers said that the *majority* of their CT/D time was devoted to taking calls or dispatch.
- More of the large center managers indicated the current process used to determining shift assignments worked well.
- More of the large center managers indicated they had implemented strategies that had a positive impact on employee retention.
- Most large centers indicated that *some* employees in their center were union members, while the majority of Study I centers indicated that *none* were union members.
- More of the large center managers rated the overall performance of the center in the ability to consistently staff necessary positions and the ability to train as *excellent or above average* compared to Study I centers.
- More Study I managers rated the overall performance of the center in call answering times as *excellent or above average*.
- Most managers of large centers rated the overall performance of the center in employee retention as *average*, while Study I centers were split between *excellent or above average* and *average*.
- Most large center managers rated overall performance of their center in use of overtime as *excellent or above average*, while most Study I centers rated their center as *average*.

- Employees in large centers, on average, handled almost twice as many calls per employee annually compared to the employees in Study I.
- Large center managers reported numbers that indicated significantly lower percentages of their turnover was due to *new hires* that left.

NOTES

54 The Standards Manual for the Public Safety Communications Accreditation Program (CALEA) classifies centers into three size categories: small centers with 1-15 personnel, mid-sized centers with 16-75 personnel, and large centers with 76 or more personnel. The Standards for Public Safety Communications Agencies, January 1999, Commission on Accreditation for Law Enforcement Agencies, Fairfax, VA.

55 NENA PSAP Staffing Survey Report (2003). The Kimball study reported the following range of call volumes for small (A), medium (B), and large (C) centers.

	Pop served	Ave. Call volume/staff	Minimum	Maximum
A. Small	< 19,000	1,341	260	6,500*
B. Medium	19,000-100,000	3,518	400	10,250
C. Large	100,000-140,000	4,004	1,600	10,000

* Minimum and maximum numbers have been rounded

Researchers compared the number of employees required using the formula they developed and the actual number of staff reported by centers. They restricted this analysis to those centers that reported call volume based on statistical software of a management information system, but did not report the correlation for call volume/staff. They did report the percentage of actual employees/estimated required staff size. Agencies reported staffing levels ranging from 67 percent to 271 percent of the estimates. Curiously, the lowest and highest centers also reported very similar call volumes.

Agency	Call volume	Actual/Estimated	Calls/staff	Cost/call*	Cost/dispatch**
B1	69,589	68 percent	6,158	\$6.45	\$21.50
B30	66,203	271 percent	1,902	n/a	n/a
Average (B)	n/a	117 percent	3,518	\$17.18	\$22.36

*cost/call calculated using total PSAP operating costs divided by number of incoming calls.

**cost/dispatch calculated using total PSAP operating costs divided by number of calls dispatched.

56 Annual calls per employee were calculated by dividing the total call volume for 2003 by the total number of current employees. Although not a precise measure (because the total number of current employees included managers, shift supervisors and new trainees, so some employees handled more calls and some handled relatively few), it does provide a rough indicator of the relationship between the number of personnel and the workload.

57 These calculations were based on the data provided by 116 managers who provided total call volume (76 percent of the managers).

58 The Kimball study reported 70 valid responses, with 32 of the 70 (46 percent) that reported "call volume that was not estimated, but automatically produced by statistics or management information systems at the PSAP."

59 Yearwood, D. (2004). personal communications.

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- 60 A regression analysis revealed five items that predicted 14 percent of retention: In order of importance they were: 1) the center is fully staffed; 2) overtime hours worked month; 3) job complexity (number of tasks employees report as a regular part of their job); 4) hourly base pay rate; and 5) satisfaction with the work itself. Being fully staffed was the most important of the five predictors, but taken together, these factors still only predict 14 percent of the variance in retention rates among centers, suggesting other factors determine most of the decisions to stay or leave.
- 61 Percent fully trained was determined by calculating 1 minus the number of current trainees not working independently divided by the total number of current employees. On average, centers that had only 60-90 percent of their staff fully trained had an average retention rate of 74 percent compared to an average retention rate of 86 percent for centers that had 90 percent or more of their staff fully trained. In addition, a managers who said they were “fully staffed” were more likely to have staff that was fully trained (95 percent of fully staffed centers were also fully trained compared to 92 percent in the centers that were not fully staffed).
- 62 A manager survey question about the assessment of interpersonal skills was too vague and was not included in the analyses.
- 63 The extensiveness of the screening process is defined here as the number of items a manager checked from a list of thirteen items indicating they were part of the screening and application process used in their agency. Employees were supplied with the same list but they were asked to indicate whether each item was very or somewhat important or not very important or not important at all.
- 64 Sampson, C. (2004). Action Research for the [Minneapolis, MN] Emergency Communications Center, University of Phoenix action research project.
- 65 Souder, S. (2004) personal communication.
- 66 U.S. Department of Labor, Bureau of Labor Statistics, August, 2003. National Compensation Survey: Occupational Wages in the United States, July 2003. Average hourly pay for all dispatchers nationally was reported as \$15.91, for full time dispatchers it was \$16.06. Full time correctional institution officers were paid an average \$16.74/hour; Full time police and detectives, public service averaged \$23.63/hr; sheriffs, bailiffs and other law enforcement officers averaged \$18.64/hr; and full time firefighting personnel averaged \$18.66/hr.
- 67 The mean retention rates for centers that did or did not offer these benefits were: seniority privileges (86 percent vs. 80 percent for centers that did not offer this benefit); differences in pay for different shifts (86 percent retention rate vs. 81 percent); shift selection (85 percent vs. 81 percent); and, an exercise room onsite at no charge to employees (85 percent vs. 82 percent).
- 68 Rank in the stepwise regression analysis with Beta weights and variance for these items are as follows: feeling appreciated by management (3rd; $\beta = .19$; $R^2 = .57$), by immediate supervisor (6th; $\beta = .11$; $R^2 = .71$), by the media (8th $\beta = .09$; $R^2 = .72$).
- 69 Yearwood, D. (2004). personal communications.

Section V: Conclusions

This report began with a set of overarching research questions and concludes with a brief summary of the answers to those questions.

Question: Is there a staffing/retention problem in public safety communications centers across The United States of America? If there is, what is the nature and extent of it?

Yes, although not all centers are experiencing turnover and retention problems. There were a few communications centers that had unusually high turnover (low retention) in the previous year, mostly small centers with fewer than 10 employees, but this was not restricted to small centers. Such high turnover, where it occurs is clearly a problem. Overall national retention rates in the field (83 percent retention, 17 percent turnover) are lower than retention rates reported for other public service jobs (such as teaching and nursing), but they are in line with other research that has reported retention rates in the public safety communications field.

Although the Project RETAINS studies produced national data on retention rates, it is too early to determine whether overall retention is increasing or decreasing. Public safety communications centers now have national data that allows them to compare the retention/turnover rate in their center with national and regional averages, and the field will be able to determine whether rates are increasing or decreasing relative to 2004-2005. There is some evidence of increasing retention, possibly related to changes in the economy and/or in the technology sector. Regardless of the national average, employee retention and turnover are clearly issues of concern for managers. There are special challenges associated with finding and retaining qualified employees for these jobs, but our data indicate turnover is more likely to be the result of excessive mandatory overtime, low pay and poor working conditions than emotional burnout resulting from the nature of the work. The data also show that there are management practices that can make a difference, and the centers where managers use those practices enjoy higher retention rates and higher levels of employee satisfaction.

Question: What practices relate to high employee satisfaction and/or retention rates in public safety communications centers?

Five factors predicted higher *retention rates*, in order of influence: 1) employees' perception that the center is fully staffed; 2) average overtime hours per month; 3) job complexity (number of tasks employees reported as a regular part of their job); 4) hourly base pay rate, and 5) employee satisfaction with working conditions.

Eight factors predicted higher *employee satisfaction* (in order of influence): 1) center performance; 2) preparation and ongoing training; 3) feeling appreciated by management; 4) satisfaction with the shift selection process; 5) satisfaction with the process for mentoring new trainees; 6) feeling appreciated by their immediate supervisor; 7) the perception that there was a

thorough and extensive application and screening process; and 8) feeling appreciated by the media.

Question: What factors do centers use to determine appropriate staffing levels?

The data indicate the processes public safety communications centers have used for determining staffing levels have been primarily reactive rather than proactive. There was no process for determining appropriate staffing levels in public safety communications centers that was widely used or accepted. Smaller centers are more likely to need a process and formulas that are based on coverage needs, whereas larger centers are more likely to need formulas that allow them to respond to the high volume (i.e. number) of calls they process. There is evidence that the assumption that large centers divide the call taking and dispatch functions and smaller centers do not is not correct.

The data also indicate staffing decisions are often based on considerations other than need, as defined by the safety of personnel that are dispatched, or specific measures related to coverage needs, workload, or service quality indicators. Two-thirds of the managers in Study I indicated staffing allocations were made based on budget, and 44 percent indicated the number of consoles in the center determined their staffing levels. When the question was reframed in Study II to ask managers specifically about the formulas they used, 81 percent indicated they used a formula but only 38 percent of them indicated they made an adjustment for employee availability. Although Erlang calculations are often referred to as the most useful formula for determining appropriate staffing levels, only 15 percent of the large centers reported using it.

The absence of readily useable processes and formulas to determine appropriate staffing levels appears to be a major factor contributing to excessive use of overtime to compensate for lack of adequate staffing. Excessive use of overtime is widespread and is a major contributor to staffing and retention problems in the industry. And we conclude that excessive overtime requirements that result in loss of control over personal time contribute more to employee “burnout” than the emotionally demanding nature of the job.

Question: Do large centers experience retention and staffing issues differently than smaller centers?

Yes. There are many similarities between large centers and the small and medium sized centers that were so prominent in Study I, and size contributes to some of the most significant differences. Large centers reported slightly *higher* retention rates than smaller centers overall, and the numbers suggest they were less likely to lose recruits during the probationary year. Although they are retaining a larger percentage of their staff, on average, the fact that large centers have so many employees virtually assures they will be dealing with turnover on a regular basis. None of the large centers reported no turnover (compared to almost one fourth of the small and medium sized centers), although 41 percent of them had retention rates of 90

percent or more. Turnover rates among large centers that ranged from 2 percent to 57 percent suggest there are issues other than size that have the greatest influence on employee retention and turnover.

APPENDIX A:

LITERATURE REVIEW and RESEARCH SUMMARIES

RESEARCH SUMMARIES

Prepared by Barbara McCombs, Ph.D.

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Project RETAINS

Research Summaries

NOTE: Most studies find a *modest* relationship between job satisfaction and retention because this is a complex phenomenon and there are other variables that contribute to both satisfaction and retention.

Topic: Working Conditions and Center Performance

Buckley, J., Schneider, M., & Shang, Y. (2004). *The effects of school facility quality on teacher retention in urban school districts*. Posted by the National Clearinghouse for Educational Facilities at www.edfacilities.org

The quality of school facilities was investigated by Buckley, Schneider, and Shang (2004) as a way to impact teacher retention in difficult urban school environments. Since working conditions is a potential factor in the retention of emergency call center employees, this study has implications given similar levels of job complexity and stress levels in dealing with human problems and issues. Of the model tested, the most important predictors of the decision to remain at the present school were pay, grade given to the facilities, satisfaction with the community, longevity at same school, and age. Improving the quality of the facilities was more important than increased pay in terms of its relationship to retention.

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Farkas, A. J., & Tetrick, L. E. (1989). A three-wave longitudinal analysis of the causal ordering of satisfaction and commitment on turnover decisions. *Journal of Applied Psychology*, 74(6), 855-868.

Farkas and Tetrick (1989) studied the use of applied structural equation methodology to examine models of turnover decisions; using longitudinal data from 440 first-term Navy enlisted personnel. Turnover was assessed at the end of the 4 year enlistment. Of the variables examined, commitment (global attitude about the organization as a whole) and satisfaction (affective response to specific facets of the job) were included. Job satisfaction was measured by two items that assessed general satisfaction with the Navy. Organizational commitment was measured by the short form of Porter et al.'s (1974) Organizational Commitment Questionnaire. Intention to reenlist was measured by two items that captured intentions to reenlist and to pursue a naval career/ A 9-item scale assessed various "met expectations" – intrinsic and extrinsic aspects of work in the Navy. All items used a 5-point response scale ranging from strongly disagree to strongly agree. These variables were all assessed at 3 time periods (2 months into enlistment, 8-10 months after the beginning of recruit training, and 20-21 months when serving in first duty station in their occupational specialty). It was expected that met expectations would relate to job satisfaction as well as organizational commitment, and that both of these latter variables would be related to intention to turnover. Correlation results indicated that reenlistment intention at time 3 and only other time 3 measures (i.e. no measures from time 1 or time 2) were significantly related to turnover (job satisfaction at time 3 was correlated at .20 with turnover, with the best correlation with reenlistment intention at time 3 with turnover of .27). At time 3, job satisfaction and organizational commitment were highly correlated ($r=.78$), and both job satisfaction ($r=.65$) and organizational commitment ($r=.63$) were highly related to reenlistment intention. The structural equation methodology supported the links between satisfaction and commitment and suggested that the intention to remain in an organization is a developmental process in which satisfaction and commitment are reciprocally related.

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Hayenstein, P. (1999). Understanding turnover. *Advantage Hiring Newsletter* (retrieved 12/06/04 from http://www.advantagehiring.com/newsletter/n99Q4_1.htm)

Hayenstein (1999) presented a model of turnover with the following components:

- The Economy – sets the stage for alternative employment opportunities.
- Industry Trends – interacts with the general economy to establish or remove opportunities.
- Organizational Characteristics – presence of enlightened practices or certain workforce demographics (e.g., age of workforce, part-time vs. full-time employees).
- Company Culture – Comprised of skills, leadership, rewards/recognition, and communications which together are strong determinants of turnover intentions.
 - Skills – training expenditure is negatively correlated with turnover.
 - Leadership – good interpersonal skills and fairness negatively correlated with turnover.
 - Rewards/Recognition – better pay, positive feedback, formal recognition programs, changing job titles, and special project assignments are associated with low levels of turnover.
 - Communication – formal communications and information sharing have a positive impact on turnover as well as positive informal communication (what employees say about the organization).
- Job Characteristics – Those documented by a body of research to be most commonly associated with job satisfaction:
 - Variety – greater variety, higher satisfaction
 - Autonomy – more freedom and choice, higher satisfaction
 - Identity – high sense of ownership and personal accountability, high satisfaction
 - Feedback – intrinsic feedback on quality of performance, higher satisfaction
 - Significance – jobs perceived as important, higher satisfaction

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Holtom, B. C., Lee, T. W., & Tidd, S. T. (2002). The relationship between work status congruence and work-related attitudes and behaviors. *Journal of Applied Psychology, 87*(5), 903-915.

In this study, Holtom, Lee, and Tidd (2002) confirmed that when employees have choice in the number of hours they work, the shift schedules they have, and preferences as to working conditions, they have higher job satisfaction, organizational commitment, job performance, and retention. This is in keeping with work status congruence theories that have been prevalent in the literature since the early 1970's. The sample for the study were 500 employees of a community-based hospital, including nurses, administrators, and other hospital staff. Correlations between turnover and satisfaction were -.24. *Job satisfaction was measured by a survey (5 point Likert scale from strongly agree to strongly disagree (that assessed satisfaction with supervisor, schedule, shift, pay, match of job with training and education, choice of whether to work part or full-time).*

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Hom, P. W., Caranikas-Walker, F., Prussia, G. E., & Griffeth, R. W. (1992). A meta-analytical structural equations analysis of a model of employee turnover. *Journal of Applied Psychology, 77*(6), 890-909.

Hom et al. (1992) contended that employee turnover is one of the most durable topics of academic inquiry but there are no adequately valid conceptualizations of factors that lead to turnover. Mobley's model that thoughts of quitting result from job dissatisfaction and lead to job search decisions and intentions to quit seems to have received a lot of support, but research has not been conclusive regarding model pathways. This study sought to combine meta-analysis and structural equation modeling to more thoroughly and validly test Mobley's theory and past research. A rigorous methodology was applied, including the comparison of various moderator variables associated with different occupations (turnover base rates, measurement lags, unemployment rates, and job-specific effects associated with military and nursing samples). 17 studies (specific occupations included nurses, salespersons, clerks, military personnel; measures were not stated) were selected (5,013 employees) and average correlations were calculated for the following variables:

- Job satisfaction – thoughts of quitting (-.60)
- Job satisfaction – search intentions (-.47)

- Job satisfaction – quit intentions (-.49)
- Job satisfaction – probability of alternatives (-.14)
- Job satisfaction – turnover (-.18)
- Thoughts of quitting – search intentions (.63)
- Thoughts of quitting – quit intentions (.69)
- Thoughts of quitting – probability of alternatives (.22)
- Thoughts of quitting – turnover (.27)
- Search intentions – quit intentions (.72)
- Search intentions – probability of alternatives (.22)
- Search intentions – turnover (.26)
- Quit intentions – probability of alternatives (.27)
- Quit intentions – turnover (.36)
- Probability of alternatives – turnover (.14)

In the model testing, the most parsimonious model confirmed many of Mobley's relationships and paths but eliminated the importance of the probability of alternatives variable in turnover. The best model was that job satisfaction is related to thoughts of quitting, search and quit intentions, and these are what are directly related to turnover.

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Hom, P. W., & Griffeth, R. W. (1991). Structural equations modeling test of a turnover theory: Cross-sectional and longitudinal analyses. *Journal of Applied Psychology*, 76(3), 350-366.

Hom and Griffeth (1991) maintained that although Mobley's explanation for the psychological processes underlying withdrawal have dominated theory testing, it rests on frail empirical underpinnings. To overcome shortcomings in past research two studies were undertaken, a confirmatory factor analysis was used via structural equation modeling to (a) differentiate component constructs and (b) evaluate an alternative conceptualization. Subjects for Study 1 were 244 nurses in an urban hospital. *Job satisfaction was assessed by having participants rate 40 job aspects and derive a composite score.* Results from the cross-sectional study found that job satisfaction was not significantly related to retention ($r = -.11$); however a series of items on the expected utility of withdrawal were negatively related to retention (r^2 s ranged from $-.21$ to $-.29$). Intentions to quit were most highly correlated with retention ($r = -.40$), along with intentions to search for another job ($r = -.33$) and frequency of job-search activities ($r = -.14$). For the longitudinal study, an additional 190 new nurses were recruited. Results again indicated that job satisfaction was not significantly correlated with retention at any of 3 time intervals ($r = .05, .12, .01$). Variables that were significantly related to retention were job search at time 1 ($r = .17$), withdrawal cognitions at time 2 ($r = -.35$) and time 3 ($r = -.55$), expected utility at time 2 ($r = -.29$) and time 3 ($r = -.26$), and job comparisons at time 3 ($r = -.22$). Job satisfaction was related to withdrawal cognitions ($r = .79$) which in turn were related to retention ($r = -.40$). Expected utility of withdrawal and subsequent job search and comparison of alternatives formed the other strong strand predicting retention. Hom and Griffeth (1991) conclude that although job dissatisfaction may stimulate a general predisposition to withdraw, a more complex conception is needed.

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Howe, T. (2003). *To stay or leave: Job satisfaction and turnover*. Retrieved on 11/29/04 from <http://www.charityvillage.com/cv/research/rhr6.html>

Howe (2003) argued that people need to be put first to impact turnover because people don't quit companies, they quit managers. People in HR departments report that people leave because: There are better opportunities elsewhere, it is difficult to work here, never did fit in, can't get ahead, poor management. In a recent survey conducted by Towers Perrin and reported by Howe (2003), the top 5 concerns of employees who plan to leave their jobs were:

1. Workload
2. Insufficient support by management

3. Concerns about the future
4. Lack of challenge
5. Insufficient recognition

To be proactive and help reduce turnover and retain key staff, the following was recommended:

- Provide recognition
- Measure job satisfaction
- Treat employees professionally

The factors that are conducive to job satisfaction include:

- Mentally challenging work
- Equitable rewards
- Supportive working conditions
- Supportive colleagues
- Job Involvement
- Organizational commitment

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Huselid, M. A., & Day, N. E. (1991). Organizational commitment, job involvement, and turnover: A substantive and methodological analysis. *Journal of Applied Psychology, 76*(3), 380-391.

A particular challenge in the prediction of turnover is the methodological estimation of statistical models with binary dependent variables. Huselid and Day (1991) argued that nonlinear logistic regression is the appropriate estimation procedure for models with dichotomous dependent variables. They demonstrated that choice of estimation technique can influence both the pattern and significance of results. The three major problems in using ordinary least squares regression to estimate a binary dependent variable are (p. 383):

1. Predicted values can fall outside the 0-1 boundaries, yielding meaningless results
2. Heteroscedasticity and nonnormality of the errors invalidates the coefficient t tests
3. Estimates of the marginal effects of an independent variable are biased because they depend on the mean value of the dependent variable

A study was conducted with 241 managers in a nationwide home-products retailing firm to examine the hypothesis that organizational commitment and job involvement interact in the prediction of turnover. Questionnaires and data collection from company records were used to assess organizational commitment, job involvement, and turnover. Control variables were age, sex, job tenure, job performance, perceptions of job mobility, the degree to which expectations were met by the job, perceptions of employee-group cohesion, perceptions of management-group cohesion, perceptions of opportunity for advancement, perceptions of pay equity, educational attainment, and whether the individual had recently refused other job offers. The correlation results showed that the variable most related to turnover (a binary variable) was perceived opportunity for advancement (-.32), followed by yearly performance appraisal (-.27), continuance commitment/job involvement (-.26), and age (-.24). The ordinary least squares regression showed that job involvement, attitudinal commitment and their interaction predicted turnover but did not show that a continuance-commitment main effect or a continuance commitment by job involvement interaction exists. The logistic regression showed considerable support for an attitudinal commitment by job involvement interaction and did not overstate the influence of job involvement, commitment, and their respective interactions on turnover. The authors thus conclude that the logistic regression approach is necessary in turnover research.

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Lee, K., Carswell, J. J., & Allen, N. J. (2000). A meta-analytic review of occupational commitment relations with person- and work-related variables. *Journal of Applied Psychology, 85*(5), 799-811.

Prior research has identified five forms of work commitment (work itself, career, job, organization, union), but organizational commitment has been the most extensively studied along with its corollary, occupational commitment, according to Lee, Carswell, and Allen (2000). Part of the reason for this focus has been the potential links of occupational commitment to retention and work performance. Since no quantitative synthesis of what is known about various relationships of occupational commitment to a range of person and work variables, Lee et al. (2000) conducted a meta-analytic study of 76 samples that included measures of occupational commitment, job involvement, overall job satisfaction, satisfaction with the work itself, coworker satisfaction, pay satisfaction, work ethic endorsement, career satisfaction, three measures of burnout (emotional exhaustion, reduced accomplishment, depersonalization), and turnover variables. *Job satisfaction was measured by a variety of surveys, typically having multiple scales.* Occupations ranged from professionals (accountants, lawyers, registered nurses, physicians) to non professionals (office personnel, bank tellers, park rangers). Relevant findings included the following:

- Occupational commitment was strongly correlated with job involvement (.52), overall job satisfaction (.44), satisfaction with the work itself (.53), career satisfaction (.44), organizational commitment (.48), emotional exhaustion (-.44) and reduced accomplishment (-.43).
- Occupational commitment was moderately correlated with work ethic endorsement (.34), supervisor support (.34), coworker support (.34), locus of control (-.22, with externals expressing lower commitment than internals), and depersonalization (-.37).
- Of the turnover variables, occupational commitment was most strongly related to occupational turnover intention (-.62), with more moderate relationships with organizational turnover intention (-.30) and actual organizational turnover (-.21).
- Job satisfaction was more strongly related to organizational turnover intention (-.58) than to occupational turnover intention (-.35).

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Morris. T. (1995) Employee satisfaction: Managing the return on human capital. *CMA Magazine*, 69, 15-17.

Morris (1995) has identified seven elements of employee satisfaction:

1. The job itself, including content, variety, and training.
2. Supervisor relationships, particularly as they are related to respect, recognition, feedback and fairness in evaluation.
3. Management beliefs that are related to trust, information sharing, and valuing employees.
4. Opportunities for career advancement and job security.
5. Work environment in terms of physical facilities and availability of resources.
6. Pay, benefits, rewards.
7. co-worker relationships and the presence of cooperation, teamwork, positive communications.

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Ostroff, C. (1992). The relationship between satisfaction, attitudes, and performance: An organizational level analysis. *Journal of Applied Psychology*, 77(6), 963-974.

Ostroff (1992) reported that meta-analytic studies show the true correlation between satisfaction and performance to be .17. To explore this further, a study of 298 secondary schools and 13,808 teachers within these schools was conducted to allow an organizational look. Satisfaction and attitude measures were collected at the individual level and aggregated to the school level; measure was a 9-item survey with a 5-point Likert scale ranging from very dissatisfied to very satisfied. Other measures included organizational commitment, adjustment to the school, and job stress. School characteristics were used as control variables: proportion of nonminority students in the schools, governing structure of the school, age of school building, proportion of students given free or reduced lunches, ratio of students to teachers, and the average per pupil expenditure for the current school year. Five areas of organizational performance were assessed (academic achievement, student behavior, student satisfaction, teacher turnover, and

administrative performance). At the organizational level, satisfaction was highly correlated with teacher intentions to quit (-.54) as was commitment (-.60), adjustment (-.50), and stress (.42). Ostroff (1992) concluded that relationships were somewhat stronger at the organizational than individual levels, particularly for satisfaction.

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Wiley, J. W., & Brooks, S. M. (2000). How workers describe top-performing units. (Pp. 177-191) In N. M. Ashkanasy, C. P. M. Wilderom, & M. F. Peterson (Eds.). *Handbook of organizational culture and climate: The high-performance organizational climate*. Thousand Oaks, CA: Sage Publications, Inc.

Wiley and Brooks (2000) stated that in reviews of the literature up through 1996, strong linkages were shown between leadership practices, employee results, and where relevant, customer results and business performance. Of relevance to the Project Retains study, leadership dimensions of (a) customer orientation, (b) quality emphasis, (c) employee training, and (d) employee involvement/empowerment were the most important in terms of producing positive employee results. Employee results most important to top-performing units were high levels of (a) information/knowledge, (b) teamwork/cooperation, (c) overall satisfaction, and (d) retention. More recent studies have shown the importance of climate variables such as aligning members of an organization around key objectives in terms of increasing employee morale. Other important leadership variables included recognition for service, flexibility in working conditions, strong communication strategies, setting clear quality standards, modeling quality performance, rating individual and work group quality, involving employees in decisions and using their good ideas, providing clear vision and direction, keeping employees informed about issues, encouraging teamwork, emphasis on training and continual improvement of skills, and getting ongoing measures of job and workplace satisfaction.

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Williams, L. J., & Hazer, J. T. (1986). Antecedents and consequences of satisfaction and commitment in turnover models: A reanalysis using latent variable structural equation methods. *Journal of Applied Psychology, 71*(2), 219-231.

Among the early studies that show links between job satisfaction and organizational commitment, Williams and Hazer (1986) were able to use structural equation methodology to obtain further support for this relationship. Data from prior studies with samples from a community mental health center and large insurance company. They also found that commitment was an important determinant of turnover intentions and recommended that both satisfaction and commitment be used as intervening variables in turnover models.

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Wright, T. A., & Bonett, D. G. (2002). The moderating effects of employee tenure on the relation between organizational commitment and job performance. *Journal of Applied Psychology, 87*(6), 1183-1190.

Wright and Bonett (2002) sought to explore the role of tenure on the relationship between organizational commitment and job performance in a meta-analysis of over 3,600 participants compiled from 27 studies. Tenure was treated as a quantitative rather than categorical variable and controls were used for employee age, type of performance measure, type of tenure, and type of commitment measure. In this case attitudinal or affective commitment was studied, defined as the strength of an employee's emotional attached to an organization as well as his/her acceptance of organizational goals and values. It was hypothesized that more tenured workers may increasingly become more burned out and contribute to negative relationships between tenure and organizational commitment, thereby misspecifying the true correlation between organizational commitment and job performance. The average correlation was .14, with a range from -.26 to .62. The transformed correlations were the dependent variable in a linear regression model, controlling for employee age. Findings indicated that the correlation between organizational commitment and job performance is greatest for new employees and decays exponentially

over time. Correlations were .44, .16, and .04 for 1, 5, and 10 years of tenure, respectively. Employee age had a small moderating effect on the commitment-performance correlation. There was no evidence that differences in type of performance, type of tenure, or type of attitudinal commitment had an effect on the results. Type of jobs studied was not specified.

Topic: Staffing – Center is Fully Staffed

Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Journal of the American Medical Association, 288*(16).

A study by Aiken, Clarke, Sloane, Sochalski, and Silber (2002) found that with inadequate staffing and increase in workload, the risk of death increased by 7% for surgical patients. When the patient to nurse ratio is 8 to 1, patients have a 31% greater risk of dying than when the ratio is 4 to 1. In terms of emotional exhaustion and job dissatisfaction, with each additional patient per nurse, there was a 23% increased risk of burnout and a 15% increase in the risk of job dissatisfaction. If nurses report burnout and job dissatisfaction, 43% intend to leave compared to 11% who are satisfied with their current position. The study concludes that increasing staffing will reduce turnover by decreasing job dissatisfaction and burnout.

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Dispatch Monthly (2004). *Staffing and shifts*. Retrieved on 12/3/04 from http://www.911dispatch.com/shiftwork/staffing_config.html

A recent issue of Dispatch Monthly (2004) stated that public safety comm. centers continue to suffer a staffing shortage due to fewer and fewer applicants and the fact that many veteran dispatches are retiring. A formula was given for determining total staffing that includes a relief factor to handle days-off, vacation, and other leave. The more complex issue was configuring shifts, as there are two primary issues:

- The overall policy on days-off and shifts (8-10-12 hours per shift and 2-3-4 or varying days off)
- Within each shift how the 24-hour day is staffed (3 non-overlapping, 5 overlapping, etc.)

The most popular shift is the 10-hour shift because it allows 3 days off, followed by the 12-hour shift. In terms of shift selection, most agencies allow dispatchers to select the shifts they want but in most cases, shift selection is done in seniority order. Mandatory rotations are typically used, allowing selection of days off by seniority. One suggestion for a staffing formula is to take the busy hour, transcribe all calls, determine if the average handling time was appropriate, and go to two-tier answering service if necessary. This maintains good customer service and specifies that the call take has (for example) 2 minutes to complete the call and then it is transferred to a small unit of more skilled personnel below the level of supervisor.

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Griffiths, K. (2004). 9-1-1 center operations: Challenges and opportunities. *Inquiry Report, 36*(6), 3-19.

Griffiths (2004) offered guidelines to address call center issues ranging from technology capability to quality assurance and continuing education for dispatchers. Although 98% of US citizens have access to the 9-1-1 lifeline through approximately 97,000 employees, local facilities vary widely in their services. There has been a dramatic increase in the use of 9-1-1 and the rapid proliferation of cell phones, requiring call centers to define the limits of emergency services. Services differ depending on whether the PSAP is primarily a call center that forwards calls to proper emergency services or whether the primary PSAP handles the call processing, notification, incident tracking, record keeping and two-way radio communication for one or more public safety services. Many primary PSAPs may be a combination of these models such as in large urban districts. New technologies have assisted in helping both primary and secondary PSAPs to manage their calls, but Griffiths maintained that more strategic planning and

future system design will be required along with new roles and responsibilities for those managing and using these systems. There are widely established and well-documented standards and curricula for training and certification for telecommunicators and emergency medical dispatch, as well as guidelines and standards for continuing dispatcher education. The standards-setting organization is the American Society for Testing and Materials (ASTM) as well as an emergency medical dispatch priority reference system (EMDPRS) "... which is a systematized set of caller questions, dispatcher actions, response-level coding, and pre-arrival instructions for use in all emergency medical call taking and dispatch prioritization decisions" (p. 5).

On the issue of staffing, Griffiths (2004) stated that personnel costs make up the largest part of an operating budget for PSAPs. Many centers divide staff into call takers and radio dispatchers, although in some cases one person performs both jobs. Adding complexity to staffing issues, some centers must rely on part-time workers, the use of scheduled overtime, or on-call workers. Griffith also maintained that many centers are currently experiencing "acute" shortages of qualified staff, in large part due to high stress, lower compensation than other public-safety positions, difficult shift work, and confined working environments. To address staffing issues, Griffith (2004) listed the following factors:

- Call Load – gathering and examining historical data on call load by day of week and hour of day. This can reveal a distinct pattern of peak and off-peak call times.
- Call Duration – computing the duration of the average phone call and combining it with call-load data to calculate peak-hour needs at call answering positions. Both mean and median durations and percentile groupings should be measured.
- Fixed vs. Variable Positions – counting fixed positions and then adding in variable positions needed to meet call load increases for specific hours of the day and days or the week to determine what positions must be staffed.
- Shift Duration and Start Times – determining what alternative shift schedules and flexible staffing plans are needed to address fluctuating call load, continuity of work flow at shift change, and staff work-schedule preferences. Typical shift patterns, although the least flexible, are series of 3 8-hour shifts with specified start times. Most day-shifts start between 6-8 am, swing shift starts between 2-4 pm, and graveyard shifts start between 10 pm and midnight. Many systems use 10, 12, and 24 hour shifts,
- Specialized Skills and Training – determining what skills are needed for call takers in terms of whether they handle law enforcement and medical related calls. If multiple functions are performed, staffing plans must specify the various skills and training needed for individual employees.
- Staffing during Disasters and Situations of Extreme Overcapacity – preparing contingency plans for extreme weather, major airplane or train disasters, terrorist attacks, and other events with mass casualties so that staffing and management of queued incoming calls can be handled efficiently and effectively. Plans might include inactive or makeshift consoles that can be activated, and situation rooms or emergency command centers.
- Planning for the Future – developing flexible plans for staggering shifts, staffing hour by hour on the basis of need and historical call load, consolidating service, and planning for new roles and responsibilities for existing staff based on historical changes in call load will be a starting point. Strategic plans should include staffing and budgeting proposals for future system development and expansion.

According to Griffiths (2004), to realize the goal of a high level of service, a well-designed quality management plan is needed not only to improve service and control risk, but also to protect the system from political, legal, and public relations disasters. The 11 elements of a comprehensive quality management process include (p. 7):

- Protocol selection and implementation
- Dispatcher/telecommunicator/staff selection
- Dispatcher/telecommunicator orientation programs
- Training program(s)
- Dispatcher/telecommunicator certification

- Quality oversight
- Continuing dispatch education
- Dispatcher/telecommunicator recertification
- Case evaluation and performance feedback
- Data collection and performance feedback
- Data collection analysis, and feedback
- Suspension, decertification, or termination

Specific recommendations are provided by Griffiths (2004) for each of these elements, but the main feature emphasized in on going evaluation and auditing of all these processes. Importantly, Griffith stated that personnel policies involved in hiring, training, certification, and continuing education are key elements that often get overlooked but are key to a call center’s effectiveness. Equally key to effectiveness is call-processing time, but this can be counterproductive if not properly evaluated. It is defined as the elapsed time from the moment an emergency call is received until the closest available responder has been notified with all necessary information to respond. Specific guidelines are provided along with the recommendation that state-of-the-art technology, adequate training, and enforcement of established policies, protocols and procedures be used. Additional recommendations are provided for risk management associated with negative case outcomes, negative media and community perceptions, and the risk of service disruption. The use of decision support systems software and automated quality assurance can greatly reduce many risk factors. In addition, a list of the types of center technology is provided to help managers know the best systems.

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Hall, M. (2004, November 29). Police, fire departments see shortages across USA. *USA Today*.

Staffing shortages in police, fire, and 9-1-1 emergency centers are being reported nationally as budgets are cut (Hall, 2004). Although SAFER did allocate some funds for firefighters, President Bush did not request any money for the program in his 2005 budget. State and local budgets are expected to cover these costs and also focus on getting better recruitment, training, and equipment – a key national issue.

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Liebert, D., & Miller, R. (2003). *Staffing analysis workbook for jails*. (Second Edition) Washington, DC: U.S. Department of Justice, National Institute of Corrections.

Liebert and Miller (2003) made the point that problems associated with staffing include those relevant to emergency call centers:

- Unexpected overtime costs
- Excessive amounts of compensatory time earned by staff
- Overworked staff who burn out
- Staff turnover
- Frequent understaffing and unfilled positions
- Inability to supervise staff properly or provide needed programs and services
- Inability to provide required breaks for staff
- Lack of proper staff backup to handle emergencies
- Over-reliance on part-time and reserve staff
- Inability to provide adequate staff training because time cannot be scheduled
- Too few authorized full-time positions to provide enough actual staff hours to cover needs

A staffing analysis process is recommended that Schaefer (2004 – see later abstract) claimed is highly relevant and useful for 9-1-1 call centers. This is a 10-step process that includes:

11. Profile the center by collecting background information for the staffing analysis.
12. Calculate net annual work hours, including analyzing time off data to insure the accuracy of the final staffing analysis.

13. Develop a facility activity schedule that is the master schedule of all activities.
14. Develop the staff coverage plan which identifies the posts and positions that need coverage and the amount of coverage needed.
15. Complete a staff survey that will summarize coverage needs by job classification.
16. Develop a schedule that posts the coverage needs into various shift schedules and shift rosters.
17. Evaluate, revise, and improve the plan, repeating this step until the staffing plan is acceptable.
18. Calculate operational costs of staffing in terms of the budget, revising the plan until the cost is feasible.
19. Prepare a report of the staffing plan and justification of needs with data.
20. Implement the plan and monitor results after 6 months, making necessary changes.

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National Fire Protection Association (2004, June 4). *NFPA president testifies in support of SAFER Act*. Retrieved on 12/3/04 from <http://www.nfpa.org/itemDetail.asp?categoryID=651&itemID=18999&URL=Resarch%>

In recent testimony before the Committee on Science, U.S. House of Representatives, the NFPA President testified that at least 65% of US cities and towns don't have enough fire stations to meet response-time guidelines (NFPA, 2004). To staff the number of fire stations required means 25-35,000 more career firefighters are needed. In addition, lack of adequate staffing has contributed to several firefighter fatalities in recent years. There are also shortfalls in training, certification, equipment, and other apparatus. A plea was made to support the Staffing for Adequate Fire and Emergency Response Firefighters Act of 2003 (SAFER).

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Schaefer, P. (2004). *Drafting a staffing analysis*. Presented at the 2004 APCO North Central Regional Conference.

Based on a literature review and data collected from extensive site visits and interviews, Schaefer (2004) reported that keeping emergency call centers adequately staffed is a major concern and an increase in staff positions is warranted, particularly for center work stations but also for supervisory positions. In determining staffing levels for the Henderson County Telecommunications Center, Schaefer (2004) recommended (1) an exploration of the current overtime situation, (2) an analysis of the current call volume, (3) an analysis of the county's population growth, (4) a determination of the net annual work hours needed to efficiently staff the center, (5) discussions with current supervisory staff, and (results from a quality of work employee survey. Also recommended is that each center increase the current number of telecommunicators on each shift by one and hire an additional person to work in a floating position. Without acting on this recommendation, Schaeffer contended that overtime budgets will continue to be overextended, staff will be over worked, and critical emergency situations may not be handled in a prompt and efficient manner. In terms of job satisfaction, 80% were satisfied with the overall working conditions in their jobs, but didn't like being under staffed, required to work overtime, and not being allowed to go to training. On the average, 2/3 of the telecommunicators worked 12-36 overtime hours per month. 47% indicated they did not receive enough training to maintain their job skills.

Topic: Overtime Hours/Month – Shift Selection Process

Allen, G. (2002). *Comprehensive guide to comm center staffing shortages, origins and solutions*. Retrieved on 12/03/04 from http://www.911dispatch.com/shiftwork/staffing_solution.html

One of the most important solutions for what is called the current staffing crisis in communication centers, according to Allen (2002), is to review agency work schedules and conditions. Employees should be invited for their suggestions and feedback. Also important are working hard on the issues of overtime, mandatory overtime, canceled vacations and refusal of time-off requests. Policies and procedures must be fair and apply to all workers. It is also important to obtain feedback from supervisory staff (and

employees) on how various procedures are working. Different schedules and forms of staffing should be considered (e.g., 4x10, 12x3, etc.) as well as using officers, deputies or firefighters.

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Priest, M. (2004, July 7). PA state nurses association points to groundbreaking new research in support of opposing mandatory overtime. Press release retrieved on 12/6/04 from http://www/psna/org/c_pr_7.8.04.htm

Priest (2004) reported on a study of hospital staff nurses that found not only does mandatory overtime contribute to higher errors, but it is not conducive for quality care or increasing job satisfaction and retention among nurses.

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Sampson, C. (2004). *Action research for the Emergency Communication Center (ECU)*. University of Phoenix. Unpublished manuscript.

Sampson (2004) sought to examine correlations between schedules and overtime rates in The Minneapolis Emergency Communications Unit composed of 68 operators and dispatchers. No significant correlations were found between these two variables. Satisfaction measures indicated that areas in need of improvement were more and effective training, fairness and consistency of management, effectiveness of communication, and more flexible scheduling. Because many employees reported suffering from physical illness due to the stress of the work, a comparison of sick time usage, overtime usage, and change in schedules was undertaken. Changes in schedules from 8 ¼ only to 12 & 8 ¼ mixed scheduled reduced sick time usage.

Topic: Job Complexity – The Work Itself

Abelson, M. A. (1987). Examination of avoidable and unavoidable turnover. *Journal of Applied Psychology*, 72(3), 382-386.

In one of the early studies of turnover, Abelson (1987) studied a taxonomy that distinguished avoidable from unavoidable voluntary turnover. Other studies of turnover models (including Mobley's model) used individual characteristics and attitudinal variables but were able to account for at most 20% of the statistical turnover variance. Prior research had suggested that those who leave for organizational avoidable reasons (e.g., better pay or working conditions elsewhere, problems with leadership) are different from those who stay and who leave for organizationally unavoidable reasons (e.g., spouse imposed move to another location, pregnancy). Abelson (1987) hypothesized that stayers are more like unavoidable leavers than avoidable leavers, with higher job satisfaction and commitment and less job tension than avoidable leavers. The sample was 191 nursing personnel from five nursing homes in rural setting, using measures of job satisfaction, job tension, supervisory style, withdrawal cognitions, and turnover (followed up 1 year later, with 9 leaving involuntarily, 30 leaving for avoidable reasons, and 16 leaving for unavoidable reasons – the 9 leaving involuntarily were excluded from analyses). *The job satisfaction measure had employees compare aspects of their current job with aspects of jobs of their significant others.* Correlations were not computed multiple discriminant analyses were performed. Results indicated significant differences on overall satisfaction, commitment, and job tension. Avoidable leavers were less satisfied and less committed and experienced greater withdrawal cognitions than stayers and those who left for unavoidable reasons. Job tension was significantly greater for avoidable leavers than stayers, with no difference between unavoidable leavers and avoidable leavers or stayers. The discriminant analysis explained 84.1% of the common variance, using withdrawal cognition, satisfaction, commitment, and job tension. This analysis classified over 96% of the stayers accurately, and 43% of the avoidable leavers. Unavoidable leavers were predicted accurately only 12% of the time, primarily due to the similarities between unavoidable leavers and stayers.

Ahuja, M., Chudoba, K. M., George, J. F., Kacmar, C., & McKnight, H. (2002). *Overworked and isolated? Predicting the effect of work-family conflict, autonomy, and workload on organizational commitment and turnover of virtual workers*. Proceedings of the 35th Hawaii International Conference on System Sciences.

In describing the literature on precursors of turnover intention, Ahuja et al. (2002) point out that the most important are low levels of job satisfaction and organizational commitment. Although this research looked at whether turnover results were the same or different for remote as compared with traditional information technology (IT) workers, the findings are instructive in identifying some factors that are similar to those working in emergency call centers. The authors point out that research on organizational commitment has found that it is predicted by job satisfaction and organizational commitment had a direct relationship either to turnover intention or turnover itself. In the model studied, work exhaustion was considered to be caused by long-term involvement in demanding situations that have too many pressures, conflicts, and demands but too few rewards, acknowledgements, and successes. The authors report that research has confirmed that the consequences of work exhaustion include reduced satisfaction, reduced organizational commitment, and higher turnover and turnover intentions. Similarly research has shown that job satisfaction is more predictive of organizational commitment than variables such as age, tenure, education, role ambiguity, role conflict, salary, promotability, or career opportunities. Correlations reported in the literature between actual turnover and job satisfaction range from -.13 to -.37. In some studies job satisfaction has been found to be a stronger direct antecedent of turnover than organizational commitment.

The variable of work-family conflict has been found in fields such as police officer and health care workers to be negatively linked to job satisfaction and organizational commitment, but not directly linked with retention. Work autonomy (independence and discretion in scheduling work and determining work procedures) has been shown to primarily influence levels of performance and responsibility workers take for performance. Research on workload has shown it to be related to work exhaustion, lack of autonomy, turnover intention, and reduced organizational commitment. Unreasonable workloads and deadlines are particularly related to work exhaustion and would be expected to have a direct negative effect on job satisfaction. In Ahuja et al.'s (2002) study with 172 virtual IT workers, job autonomy was the strongest predictor of job satisfaction ($r=.56$); workload ($r=-.55$) and work/family conflict ($r=.24$) predicted work exhaustion; work exhaustion predicted job satisfaction ($r=-.40$); job satisfaction predicted organizational commitment ($r=.82$) and turnover intention ($r=-.31$); and organizational commitment predicted turnover intention ($r=-.40$). The authors concluded that job satisfaction and organizational commitment are as important to virtual workers as to traditional workers.

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Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands – resources model of burnout. *Journal of Applied Psychology*, 86(3), 499-512.

Demerouti et al. (2001) claimed that the study of burnout has primarily been within human services organizations where most authors believe burnout can be attributed to occupations that require working with people. Their research sought to broaden this view and provide evidence of burnout outside the human services. Within the job demands-resources (JD-R) model, burnout is assumed to develop irrespective of occupation when job demands are high and job resources are limited due to negative working conditions. This leads to energy depletion and undermines employee motivation. The three commonly studied dimensions of burnout are emotional exhaustion, depersonalization, and reduced personal accomplishment. More generally, these three dimensions can also be related to stress related exhaustion, cynicism, professional efficacy. In the JD-R model of burnout, job demands are the physical, social, or organizational aspects of the job that require sustain physical or mental effort, leading to certain physiological and psychological costs such as exhaustion. Internal or external job resources are the physical, psychological, social, or organizational aspects of the job that help achieve work goals, reduce job demands, and stimulate personal growth and development. In this study, the focus was on external resources provided by the organization (job control, potential for qualification, participation in decision making, and task variety) or social sources (support from colleagues, family, and peer groups).

The research involved 374 employees in Germany in one of 21 different jobs in three occupational Fields: Human services (teachers and nurses), industry (assembly line workers), and transport (air traffic controllers). Individual burnout was assessed by a 15-item questionnaire with 4 response categories (totally disagree to totally agree) with exhaustion and disengagement subscales. Job demands and job resources were also assessed in questionnaire as well as by an observer who used a job description checklist to assess the same working conditions as in the questionnaire. Results of importance were that the JD-R model of burnout explained 82% of the variance in exhaustion and 52% of the variance in disengagement. The best fit of the model was for the human services subsample; however, the model also predicted differences between occupations. For the human service (teachers and nurses) and industry (assembly line workers) samples, physical workload was most related to job demands; for the transport sample (air traffic controllers), physical environment and problems with the shift-work schedule were most related. Performance feedback was important as a job resource for human service and transport sample; job control was more important in the industry sample. The authors concluded that burnout is generalizable across occupations but manifests itself in different ways. A specific constellation of working conditions were found to be related to the development of burnout symptoms:

- When job demands are high, employees experience increase exhaustion but not disengagement
- When job resources are lacking, high levels of disengagement but not exhaustion occur
- In jobs with both high job demands and limited job resource, employees develop both exhaustion and disengagement, representing the burnout syndrome

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George, J. M., & Jones, G. R. (1996). The experience of work and turnover intentions: Interactive effects of value attainment, job satisfaction, and positive mood. *Journal of Applied Psychology, 81*(3), 318-325.

A majority of models of turnover place turnover intentions as the immediate precursor to actual turnover, including Mobley's psychological process model of turnover (George & Jones, 1996). According to George and Jones (1996), a major influencer of turnover intentions is the way people experience work, captured in attitudes like job satisfaction. They further argue that the job satisfaction concept needs a closer and more detailed look in that individuals' phenomenological experience of work is multifaceted. It involves values and their attainment in the work situation, moods or affective states when engaged in actual work activities and organizational commitment that results from all of these factors plus job satisfaction. To test these variables and their relationship to turnover intention, George and Jones set to expand Mobley's model that posited job satisfaction as triggering the turnover process. A sample of 306-336 (a range for analysis because of missing data) professional and managers in the US printing industry responded to questionnaires that measured job satisfaction, value attainment, positive mood, and turnover intentions. *Job satisfaction was assessed on a 20-item scale on which they indicated very dissatisfied to very satisfied on a 5-point scale with reference to their present job.* Results from moderated regression analyses found all three variables predicted turnover intentions with an R squared of .24. Turnover intentions were highest for individuals with low job satisfaction, values not attained, and high positive mood; next highest were those with low job satisfaction, values not attained, and low positive mood. Lowest turnover intentions were for individuals with high job satisfaction, values attained, and high positive mood. The correlation between job satisfaction and turnover intentions was .36; for value attainment the correlation with turnover intentions was -.33; and for positive mood, the correlation with turnover intentions was -.23 (all significant at the $p < .01$ level). George and Jones argued that the findings with high positive mood and turnover can be explained by findings from other research showing those who experience positive moods at work have higher self-esteem for obtaining a more satisfying and fulfilling job and may be more optimistic about future prospects than those with low positive moods.

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Mathieu, J. E., & Farr, J. L. (1991). Further evidence for the discriminant validity of measures of organizational commitment, job involvement, and job satisfaction. *Journal of Applied Psychology, 76*(1). 127-133.

To understand how job satisfaction can help define employee reactions to the work itself, a study by Mathieu and Farr (1991) is instructive. In this study 194 bus drivers and 311 engineers were used to collect data on organizational commitment, job involvement, and job satisfaction. The 20-item Minnesota Satisfaction Questionnaire was used to assess job satisfaction; a 9-item short form of the Porter et al. organizational commitment scale was used, and role strain was assessed with 12 items that tapped role conflict and role ambiguity. Results indicated that the three-factor solution was the best fit for both populations studied, i.e. there was good discriminant validity between the constructs of organizational commitment, job satisfaction, and job involvement. Other variables that were significantly related to job satisfaction were role strain (-.77), job scope (.64), job tension (-.60), and supervisor performance appraisal (.35).

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Thorensen, C. J., Kaplan, S. A., Barsky, A. P., Warren, C. R., & de Chermont, K. (2003). The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin*, 139(6), 914-945.

According to Thorensen et al. (2003), the past two decades have seen an increased emphasis on links between positive and negative affect and attitudinal variables such as job satisfaction, organizational commitment, the intent to quit, and job-related burnout. Given the role of all of these variables in turnover, this study sheds some important light on how affect may also relate to turnover as well as its attitudinal antecedents. Positive affect generally is characterized by feelings such as enthusiastic, alert, active, and energetic. Negative affect generally is characterized by anger, guilt, fear, nervousness, and subjective stress. In specifically looking at job satisfaction, Thorensen et al. (2003) stress the role of trait and state affect in the appraisal process of examining the job or job experiences. Given that positive versus negative affect can impact correlations between job satisfaction and other predictors of turnover, it is important to understand implications for selection, training, changes in working conditions, etc. In their meta-analysis, 205 studies were examined, resulting in 62,527 pairwise correlations between positive and negative affect and attitudinal variables. Major findings were that positive affect was strongly and positively related to personal accomplishment, organizational commitment and job satisfaction (average correlation was .34), and negatively related to emotional exhaustion, depersonalization, and turnover intentions (average correlation was -.17). Negative affect was strongly and positively correlated with emotional exhaustion, depersonalization, and turnover intentions (average correlation was .28); and was negatively related to job satisfaction (average correlation was -.34), organizational commitment, and personal accomplishment.

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Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology*, 83(3), 486-493.

Wright and Cropanzana (1998) defined emotional exhaustion as a chronic state of physical and emotional depletion that is associated with a variety of physical difficulties such as headaches and sleep disturbances. Excessive job demands and continuous hassles contribute directly to emotional exhaustion and prior research has found relationships between emotional exhaustion and turnover intentions. In addition, emotional exhaustion has been shown to be the key dimension of burnout, being more important than depersonalization and diminished personal accomplishment in terms of job turnover. It is more likely to occur when an individual feel he or she no longer has sufficient emotional resources to handle the stressors confronting them and occurs as a function of workload level, role ambiguity, role conflict, and stressful events that are part of work demands. Wright and Cropanzana (1998) studied the role of negative and positive affectivity in emotional exhaustion, turnover, performance, and satisfaction with 52 social welfare workers in a large urban city on the West Coast. *Job satisfaction was assessed on 5 items (work itself, co-workers, supervision, promotional opportunities, pay) on a 5-point scale from very unsatisfied to very satisfied.* Findings included that job satisfaction was not significantly correlated with turnover (5=-.05), but emotional exhaustion was correlated .34 with turnover, job performance was correlated -.37 with turnover, and only negative affectivity has a significant correlation with turnover

($r=.25$). Job satisfaction was significantly related to positive affectivity at $r = .36$. In regression analyses, all variables but job performance predicted voluntary turnover, accounting for 14% of the variance.

Topic: Compensation and Benefits – Hourly Base Pay

Employee Retention Strategies (2004). *Myths of employee morale keep companies off track*. Retrieved on 11/29/04 from <http://www.employeeRetentionStrategies.com/article3.htm>.

Employee Retention Strategies (2004) argued that one of the prevalent myths is that people most often leave for more pay. This is the reason people frequently give because it is easiest compared to describing causes related to dissatisfaction with company policies and procedures, quality of supervision, working conditions, and relationship with immediate supervisor. According to the article by Employee Retention Strategies (2004), pay does matter but only very low income workers leave for more money because for them it is a survival issue. For the rest, the primary issue is fairness. People are dissatisfied with pay when they feel they are being paid less than other comparable workers in their company or industry. This article stresses that to increase employee satisfaction and retention, it is necessary to work on a sense of achievement, recognition, respect, competence and growth, and ways to provide choices about how work gets done.

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Kaye, B., & Jordan-Evans, S. (2003). How to retain high-performance employees. *The 2003 Annual: Volume 2, Consulting*. New York: John Wiley & Sons, Inc.

Kaye and Jordan-Evans (2003) reported that in a 1998 study by the Hay Group, pay was the least important retention factor. Factors that were most important included challenging and meaningful work, having autonomy and a sense of control over one's work, opportunities to learn and grow, the sense of being part of a group or team, and having a good boss who communicates well and often and helps to create a sense of purpose. In describing the "good" boss, Kaye and Jordan-Evans (2003) listed that they pay attention to the fit of an employee's skills and personal interests with the job, include them in decision making provide frequent and honest feedback, reward good performance, are trustworthy and supportive, promote the physical and mental health of employees, reduce overload and job stress, demonstrate flexibility in terms of work hours, help encourage employee growth and career development, including providing coaching and mentoring.

Topic: Training and Preparation – Mentoring New Trainees, Managing Organizational Stress

Ashcroft, J., Daniels, D. J., & Hart, S. V. (2004, July). *Hiring and keeping police officers*. Washington, DC: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.

Ashcroft, Daniels, and Hart (2004) studied police agencies between 1996 and 1999 to determine hiring and retention trends. One of the most serious problems across large and small agencies was finding enough qualified applicants. Screening and training typically took 8-11 months (longer than previously reported) and 90% of the recruits successfully completed their training. Overall attrition rates were reported at about 8 %, with new hires (those serving 5 years or less) being the most difficult to retain. In spite of the Justice Department's Office of Community Oriented Policing Services (COPS) program efforts to add police officers, staff retention rates of COPS grant recipients are fairly consistent with retention patterns during the 20 years prior to this program. Higher recruiting standards (e.g., requiring a college degree) may be contributing to applicant shortages.

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Brough, P. (2004). Comparing the influence of traumatic and organizational stressors on the psychological health of police, fire, and ambulance officers. *International Journal of Stress Management*, 11(3), 227-244.

A study of 686 police, fire, and ambulance service workers in New Zealand was conducted by Brough (2004) to identify traumatic and organizational stressors. Prior research had shown that organizational stressors have a greater influence with emergency services populations in terms of individual health outcomes. Since an important implication is the provision of additional staff/resources/reduced workloads to reduce organizational stressors, additional work is needed. In addition there are implications for the content of staff training programs, the provision of supportive supervisors, and mentoring. Measures in the study included a daily hassles scale, impact of trauma events scale, a job satisfaction measure and a general health questionnaire. *A 15-item job satisfaction scale with a 7-point Likert scale measured satisfaction with various job component in terms of their intrinsic and extrinsic value to employees (chance for promotion, amount of variety, physical working conditions, job security).* Findings included that psychological strain and job satisfaction is different for police officers as compared with fire and ambulance officers. Organizational and traumatic stress reactions predicted psychological strain to a similar extent for police and fire officers but organizational stressors were not predictive of strain for ambulance officers. Job satisfaction was predicted to a greater extent by organizational stressors (organizational hassles) rather than trauma events. Brough (2004) stated that more attention should be given to organizational demands such as paperwork, poor equipment and incompetent colleagues in that they are predictive of job satisfaction, which has been shown to be predictive of turnover intentions over time for police officers.

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Foster, D. (2004). *Job satisfaction and employee retention*. Major Legal Services. Retrieved on 11/29/04 from http://www.lawplacement.com/employee_retention.html

One of the best ways to increase job satisfaction and retention across all types of jobs, according to Foster (2004) is to establish a solid orientation program. This program should provide expectations of work performed, explain how work is delegated, and direct employee on who to see when there is a problem with the work or other issues. The orientation should also cover benefits, performance criteria, the basis for salaries and bonuses, and what company resources are available. Employees should also know the structure for advancement. To address training issues related to satisfaction and retention, attentions should be given to making sure employees know how to not only perform the work but how meaningful the work is in terms of its value. Cross-training should be done when possible to allow movement of people to fill needs as workload changes. Mental health meetings are also recommended to help employees know they are valued contributors. Continuing education should be provided and supported for all levels of employees.

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Hughes, C. (2004). *Why employees stay*. Dallas, TX: Center for Values Research, Inc.

Hughes (2004) makes the case that the reasons people stay are as important as the reasons for leaving. One of the reasons the correlation between job dissatisfaction and turnover is low is that many of those who stay may also be dissatisfied. Job satisfaction and satisfaction with the working environment are related to the employee's personal value system and the management's value system. According to Hughes, a disparity between personal and organizational values reduces the desire to stay. Improving employee retention is a more powerful and effective strategy than simply reducing turnover. For Hughes the key is to improve employee attitudes about the work itself, supervisor competence, fairness of management, work group cooperation, consistency in treatment, performance feedback, opportunities to get ahead, and other positive aspects related to the work context. A strong recommendation is that organizations continually measure employee attitudes toward critical job aspects that can be changed (as compared with more difficult things like pay, benefits, facilities and other content or environmental factors. Exit interviews with those who leave will not be as helpful as continually checking with those who stay.

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Mathieu, J. E. (1991). A cross-level nonrecursive model of the antecedents of organizational commitment and satisfaction. *Journal of Applied Psychology*, 76(5), 607-618.

Survey responses from 588 ROTC cadets were used by Mathieu (1991) to examine antecedents of organizational commitment and satisfaction, including perceived training characteristics. Prior factor analytic studies have confirmed that although highly correlated, job satisfaction and organizational commitment are different concepts. Since both are related to actual turnover and turnover intentions, it is important to know what antecedents might be influenced to reduce turnover. Satisfaction was measured by the 20-item version of the Minnesota Satisfaction Questionnaire, with four subscales (satisfaction with working conditions, satisfaction with leadership, satisfaction with responsibility, satisfaction with extrinsic rewards). Findings of relevance were that training relevance was correlated at .65 with satisfaction and .51 with organizational commitment; training characteristics were correlated at .61 with achievement motivation. In addition, to the extent ROTC cadets perceived that their training was adequate, they felt less role strain. Given the negative impact of role strain on job satisfaction, intervening with an emphasis on training would be an effective strategy that would also be expected to impact turnover and retention.

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Syptak, J. M., Marsland, D W., & Ulmer, D. (1999). Job satisfaction: Putting theory into practice. *Family Practice Management*. Retrieved on 11/29/04 from <http://www.aafp.org/fpm/991000fm/26.html>.

Although directing their recommendations to family physicians, Syptak, Marsland, and Ulmer (1999) provide some thoughtful comments about the importance of attending to job satisfaction in order to not only reduce absenteeism and staff turnover but also to increase productivity, creativity, and organizational commitment. There also may be benefits in terms of increasing customer satisfaction when job satisfaction goes up. In looking at Frederick Herzberg's theory (from the late 1950s), the two dimensions of job satisfaction that must be addressed are motivation (related to achievement, recognition, the work itself, responsibility and advancement – all of which fill needs for meaning and personal growth) and "hygiene" (related to company policies, supervision, salary, interpersonal relations and working conditions). Addressing issues in the motivation area will promote job satisfaction and encourage productivity whereas addressing issues in hygiene area will increase dissatisfaction if they are absent or mishandled. Points made that may be relevant to effective practices in emergency call centers include:

- Although employees want to be paid fairly, money is not an effective way to motivate individuals.
- Employees need a reasonable amount of social interaction on the job.
- Employees need some degree of personal space to diffuse tension and improve working conditions.
- Practices should address hygiene issues before tacking the motivators.
- If hygiene issues are ignored, excellent employees will seek jobs elsewhere and mediocre employees will stay behind.
- The key to motivating employees is to help them believe their work is meaningful.
- Eliminate unnecessary tasks so employees can focus on tasks that matter.
- Provide ongoing feedback and adequate challenges to enhance job achievement.
- Recognize good work immediately.
- To increase employees' sense of responsibility give them some freedom and authority.
- Help employees advance their professional lives by promoting them and encouraging continuing education.
- Make printed copies if all organizational policies to encourage dialogue and make sure policies are fair and apply equally to all.
- Choose supervisors based on leadership skills and the ability to treat all employees fairly; teach supervisors to use positive feedback whenever positive and establish an employee evaluation and feedback process to assess their reactions.
- Consult salary surveys to ensure salaries and benefits are comparable to similar jobs in the area; make sure policies are clear related to salaries, raises, and bonuses.
- Make sure there are opportunities for a reasonable amount of socialization (e.g., on breaks, over lunch) and that there are clear guidelines for appropriate behavior and comments between employees.
- Keep facilities and equipment up to date; insure each employee has personal space.
- Emphasize how employee work is important and makes a real difference.

- Set clear, achievable goals and standards for each position and make sure employees know what they are; provide regular, timely feedback on how they are doing and whether they feel adequately challenged.
- Take the time to acknowledge good work immediately and publicly thank employees for handling a situation particularly well.
- Give employees ownership of their work by allowing freedom and authority to add challenging and meaningful work.
- Reward loyalty and performance with advancement, a new title, and/or opportunities to pursue further education.

Topic: Support – Appreciated by Management and Immediate Supervisor

Bernthal, P. R., & Wellins, R. S. (2004). *Retaining talent: A benchmarking study*. Bridgeville, PA: Development Dimensions International, Inc.

Bernthal and Wellins (2004) described results of a retention survey of 745 employees with human resources organizations. In this field, one-third expected to leave for another job within the year. Voluntary turnover rates were 19.3% for non-management positions and 10.3% for management positions. The #1 factor affecting an employee’s decision to stay or leave was the quality of relationship with their supervisor or manager. Employees also rate highly the ability to balance home and work life, the amount of meaningful work and the feeling of making a difference, level of cooperation with coworkers, and the level of trust in the workplace as very important determinants of staying or leaving. Managers did not have a clear picture of what their employees considered as important for staying in the job. From the managers’ perspectives, the top reasons were (in this order): opportunities for growth and advancement, quality of compensation package, amount of job stress, quality of relationship with supervisor or manager, and ability to balance work and home life. Nearly half of the organizations (40%) had no formal strategy for addressing retention. The top five most-valued retention interventions in the HR field were (p. 3):

1. Conducting internal studies (surveys, focus groups) to understand why employees leave/stay.
2. Improving selection practices.
3. Conducting exit interviews.
4. Improving the openness of communication between management and employees.
5. Expanding or improving training and development opportunities.

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Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology, 87*(3), 565-573.

Given that employee perceptions of organizational support has been shown to contribute to retention, Eisenberger et al. (2002) sought to show that employee perceptions of supervisor support would also be positively related to retention. In addition, some evidence exists that positive supervisor support leads to positive organizational support in the eyes of employees. The perceived organizational status of a supervisor was also thought to be a moderator of the relationship between perceived organizational support and perceived supervisor support. Three studies were conducted to explore these relationships. In study 1, 312 employee from a variety of organizations (including public health and communication) were used to study the temporal relationship between perceived supervisor support and perceived organizational support. Although a positive relationship was found between supervisor and organizational support, a temporal relationship was not found between the two which makes it difficult to know the direction of the relationship. In study 2, 300 employees who worked for large discount electronic and appliance stores were used to study the moderating effect of perceived supervisor status on the supervisor support-organizational support relationship. In addition to finding a positive relationship between supervisor and organizational support, but supervisors with high perceived organizational status were seen to more completely embody the organization’s characters and led to a stronger relationship between supervisor and organizational support. Finally, in study 3, 493 employees of the same

organizations in study 2 were used to examine whether positive organizational support was a mediator of perceived supervisor support-employee turnover. Regression analyses showed that perceived supervisor support leads to perceived organizational support by strengthening felt obligation toward the organization and affective organizational commitment.

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Falchion, R. L., McCroskey, J. C., & Daly, J. A. (1977). Job satisfaction as a function of employee's communication apprehension, self-esteem, and perceptions of their immediate supervisor. *Communication Yearbook, 1*, 363-375.

Falchion, McCroskey, and Daly (1977) did some of the early work in trying to examine correlates of job satisfaction that would generalize across organizational types and suggest interventions. They built on work showing that job satisfaction is more a function of affective variables than cognitive or rational variables. This earlier work showed that opportunities to participate in decision making, job enlargement, job enrichment, working conditions, the individual's perceptions of his or her success, and the feedback received for performance all had some effect on job satisfaction. Not examined in these earlier studies were individual self-esteem, perceptions of the immediate supervisor, and orientations toward communication. In terms of immediate supervisor perceptions, dimensions included credibility, degree of support or bond, similarity of background and values, perceived listening and understanding, and quality of communication. *Job satisfaction was measured on 5 scales pertaining to work, pay, promotions, co-workers, and supervision – the Job Descriptive Index developed by Smith, Kendall, and Hulin, 1969*. A total of 400 employees (federal workers, teachers) were included in the study. Main findings were that there were moderate correlations between communication apprehension (r's ranged from -.12 to -.24) and self-esteem variables (r's ranged from .20 to .32) with job satisfaction. For variables defining supervisors, however, correlations ranged from .11 to .87, with the strongest correlations with job satisfaction being with the supervisor variables of perceived listening and understanding, quality of communication, competence, character, and sociability (r's ranged from .79 to .87).

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Graef, M. I., Potter, M. E., & Rohde, T. L. (2002). *Why do they stay? Research-based implications for practice*. Lincoln: University of Nebraska.

Graef, Potter, and Rohde (2002) explored reasons for staff burnout and turnover in child welfare work. In an examination of current research, they found a list of factors related to worker turnover from which they also specified implications for intervention. Among those relevant to the 9-1-1 call center context include:

- Enhanced supervision – interventions include specifying the knowledge, skills, and other abilities that are critical for enhancing employee satisfaction and productivity; also providing effective training, coaching, and mentoring.
- Coworker support – interventions include team building, peer mentoring, case collaborations, and the use of informal rewards.
- Goodness of fit with job demands – interventions include job placement based on analysis of different specialized functions.
- Self-efficacy and sense of accomplishment – interventions include identifying and removing barriers to performance, training staff to improve knowledge and skills, and providing meaningful performance feedback.
- Stress/burnout – interventions include creating a culture of support, encouraging short breaks and time off, increasing perceptions of fairness, increasing opportunities for professional development, and formal job rotation.
- Professional development – Interventions include establishing career ladders and succession plans, encouraging attendance at training and conferences, and allowing and supporting job rotation or lateral moves.
- Authority – interventions include providing decision support systems, broadening worker discretion, and exploring reasons why workers want more authority.

Kraemer, W. F. (2001). Employee turnover: The role of cultural mismatching. Self-Management Group report. Retrieved on 12/3/04 from http://www/self-management.com/docs/retention_cultural_matching.doc

In distinguishing between turnover and retention, Kraemer (2001) argued that turnover results primarily from job dissatisfaction based on problems with the manager/employee relationship. Retention is more related to commitment to the organization. If employees are dissatisfied with their immediate supervisor, it is typically due to a mismatch of managerial actions and the behaviors, skills, and competencies of the employee. Typically, the eight reasons employees terminate (based on a study by John Sullivan at the College of Business at San Francisco State University) were:

1. Bad management practices
2. How people are treated on the job
3. Communication
4. Challenge and exciting work
5. Continual opportunities to grow and learn
6. Being recognized and rewarded for performance
7. Having some control over their jobs and life
8. Knowing their work matters

Based on these findings, Kraemer (2001) recommended that retention begin with recruitment in the sense that people are hired that fit the job. They are not only competent but they fit the organization in terms of style, values, and work preferences. Not only has research supported that supervisor-subordinate attitudinal and value similarity is associated with higher subordinate performance, but it mediates intention to terminate. A case was made for using tools that match manager and organizational qualities with employee selection and recruitment criteria. Knowing the personality attributes of a manager helps define the management culture and is a way to determine what attributes should be assessed in job applicants.

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Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology, 87*(4), 698-714).

From work in the field of organizational support theory, Rhoades & Eisenberger (2002) examined the antecedents and consequences of perceived organizational support. Antecedents include

- fairness,
- supervisor support,
- organizational rewards and job conditions,
- recognition, pay, and promotions,
- job security,
- autonomy,
- role stressors,
- training,
- employee personality and demographic characteristics, and
- organization size.

Consequences include

- organizational commitment,
- job related affect,
- job involvement,
- performance,
- psychological and psychosomatic reactions to stressors (strains),
- desire to remain, and,
- withdrawal behavior

A literature review and meta-analysis allowed a path analysis to examine the relative contributions of the three major positive organizational support antecedents (fairness of treatment, supervisor support, and rewards/favorable job conditions). Results confirmed that fairness had the greatest relationship with perceived organizational support, followed by supervisor support, and with rewards/favorable job conditions having a weak but statistically significant relationship. In looking at results for perceived organizational support consequences, affective commitment had the strongest link, with moderate negative relationships with strains and strong positive relationships with job satisfaction and positive mood. Relationships of perceived organizational support and withdrawal were small to moderate (average correlations were -.11 for turnover and -.45 for turnover intentions). Average correlations between job satisfaction and perceived organizational support were .59.

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Sullivan, J. (1998). *The manager's toolkit for retaining IT professionals*. Retrieved on 11/29/04 from <http://www.drjohnsullivan.com/articles/1998/net89.htm>

Although describing what works in the information technology field in general, Sullivan (1998) offered many helpful guidelines that are relevant to emergency communication centers. The tools he believes have the most impact on reducing turnover are in 6 categories: communication, challenge, growth, recognition, worker autonomy, and knowing that their work makes a difference. Although compensation is important, it is rarely the sole reason for turnover. Sullivan (1998) argued that there is a direct correlation between employee satisfaction and customer satisfaction, leading to high payoffs for a focus on retention. Managers may also be the major catalyst for employee turnover, and Sullivan recommended they be trained in effective strategies in the 6 big categories related to retention. Included in the managers' toolbox were the following:

- Creating an overdue for promotion list
- Creating an under-challenged list
- Developing a dissatisfied with their rewards/pay list
- Developing a job rotation program
- Increasing challenge/growth/learning for all

Topic: Thorough and Extensive Application and Screening Process

____ (2002). Recruiting physicians today. *New England Journal of Medicine*, 10(4), 1-4.

In this recent article, the point is made that in high visibility, high stress, and people/community oriented jobs, recruitment strategies should mirror factors known to enhance retention. Some effective approaches include having the employee meet and visit with other employees prior to beginning employment. This allows for the building of personal relationships and a chance to see the job setting and demands. Having a mentor and coach also helps maintain long-term commitment. Another potentially effective strategy is to do some active marketing in the community in terms of subsequent efforts that will aid in recognition from community agencies and media.

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Backman, A. (2000). *Job satisfaction, retention, recruitment and skill mix for a sustainable health care system*. Report to the Deputy Minister of health for Saskatchewan.

In reviewing effective recruiting strategies to solve shortages of health care workers, Backman (2000) recommended offering job security, addressing issues of pay equity; demonstrating there are opportunities for career development, and ensuring there are adequate professional development and training opportunities. To address issues of retention and job satisfaction, the following were relevant to 9-1-1 call centers:

- Show employees they are valued

- Treat employees with respect
- Treat employees like professionals
- Build organizational commitment by
 - Involving staff in planning and decision making
 - Creating and supporting opportunities for professional development and growth
 - Showing appreciation by recognizing employee efforts
 - Establish systems of peer support and mentoring

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Brown, J. (1999). Introductory topics for the telecommunicator. *Telecommunicator Certification Course Manual*. Salemburg, NC: North Carolina Justice Academy, pp. 6-7.

Brown (1999) identified the following unique characteristics of telecommunicators that should be part of the screening and application process:

- Desire to be helpful with all types of people, responding to the need and not the behavior.
- Ability to think clearly and act promptly in emergencies and under pressure, including handling numerous tasks simultaneously.
- Ability to speak clearly and distinctly at all times to produce concise and accurate messages.
- An inquiring mind, desire to learn, and desire to do a good job.
- Knowledge of the geography, policies and procedures, and jurisdictions of agencies served by the center.
- Thorough understanding of the capabilities of the center.
- Adequate understanding of the technical operation of equipment to allow for intelligent reporting of equipment failure.
- Recognition of the importance of the job, as the one most contacted by citizens and often their only link with help.
- Courtesy and businesslike manner.
- Predisposition toward emergency services work, including learning to think like a field unit, analyzing a situation accurately, and taking/suggesting an effective course of action to best serve the public and emergency responders.

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Heinrich, J. (2001). *Nursing Workforce: Multiple factors create nurse recruitment and retention problems*. Testimony before the Subcommittee on Oversight of Government Management, Restructuring, and the District of Columbia, Committee on Governmental Affairs, U.S. Senate. Government Accounting Office Report GAO-011-912T.

Heinrich (2001) reported that recent studies show job dissatisfaction to be high among nurses for a variety of reasons, including staffing, heavy workloads, use of overtime to address staffing shortages, having a voice in decisions, respect and recognition, and wages. Stress and physical demands of the job were expressed by 56% as reasons for leaving as compared with 18% who wanted more money. 48% also report being dissatisfied with the level of recognition they received from their employer. Overall job dissatisfaction was a primary reason cited for nurse retention problems. Improving areas of the workplace environment was given as the best strategy for retaining nurses.

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Judge, T. A. (1993). Does affective disposition moderate the relationship between job satisfaction and voluntary turnover? *Journal of Applied Psychology*, 78(3), 395-401.

Judge (1993) reported that empirical work has stabled a corrected correlation between job satisfaction and turnover of -.26, thereby leaving room for significant moderator variables. One such variable is an individual's predisposition to be satisfied in general. It was hypothesized based on prior models of turnover (including Mobley's psychological process model published in 1977) that this variable becomes important because for those with a negative disposition (e.g., the "grippers") will have a smaller relationship

between job satisfaction and turnover than those who are generally satisfied (dissatisfaction with the job is no more meaningful than other dissatisfying life events for those with a predisposition to be dissatisfied). To test the hypothesis, 234 medical workers (nurses, medical office assistants, laboratory technicians) took an affective disposition scale and measure of job satisfaction. Data on voluntary turnover came from company records 10 months after surveys were completed. Job satisfaction was negatively related to turnover ($r=-.27$) and affective disposition was positively related to turnover ($r=.23$) when combined with job satisfaction. By itself, affective disposition was correlated with turnover at only $r=.05$). Judge (1993) concluded that affective disposition is an important moderator in that job dissatisfaction is a significant factor in turnover decisions for employees with positive dispositions.

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Kieffer, J. M., Schinka, J. A., & Curtiss, G. (2004). Person-environment congruence and personality domains in the prediction of job performance and work quality. *Journal of Counseling Psychology*, 51(2), 168-177.

Kieffer, Schinka, and Curtiss (2004) sought to investigate whether (a) the well-researched five-Factor Model of personality dimensions (Emotional Stability, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) was related to job performance and work quality; (b) examine whether secondary constructs of consistency, differentiation, and congruence also had a relationship to job performance and quality; and (c) determine whether gender has an influence on the amount of variance accounted for by the predictor sets. The sample included 514 individuals from a large national organization (not named). Hierarchical multiple linear regression analyses were used and main findings of relevance are that between 9-10% of the variance in work performance and quality was accounted for by the total set of predictors in the overall sample. For men 28% of the variance in work performance and 23% of the variance in work quality was accounted for by predictor variables; for women they accounted for 17% and 15%, respectively. This study highlighted the importance of looking at different predictor sets for men and women as they tend to be differentially predictive of dependent variables of interest. Implications also include that different person-environment matches may be important to consider during the hiring and selection process.

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Koper, C. S., Maguire, E. R., Moore, G. E., & Huffer, D. E. (2001). *Hiring and retention issues in police agencies: Readings on the determinants of police strength, hiring and retention of officers, and Federal COPS program*. Report to the National Institute of Justice. Grant #NIJ 99-IJ-CX-0011. Washington, CD: Urban Institute, Justice Policy Center.

Koper et al. (2001) stated that the process of screening and training new officers takes between 31 to 43 weeks depending on whether it occurs in small or large agencies, respectively. The number that successfully complete all training ranges between 89-92%, with fewer reported in large agencies. A significant issue was lack of qualified applicants, with nearly half of all agencies reporting modest staffing problems caused by unanticipated vacancies. More officers served for shorter periods in smaller agencies, with 2/3 leaving after 5 or less years of service as compared with 1/3 in large agencies.

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Rabkin, N. J. (2003). *Federal law enforcement: Selected issues in Human Capital Management*. Testimony before the Committee on Government Reform, Subcommittees on Civil Service and Agency Organization and Criminal Justice, Drug Policy and Human Resources, House of Representatives. Government Accounting Office Report GAO-03-1034T.

Rabkin (2003) reported that employee turnover is a complex and multifaceted problem. Even though pay was often cited as a primary reason for turnover, non-pay factors such as age, job tenure, job satisfaction, and job location also effected decisions to leave. Practices recommended for improving retention include:

- Ensure top leadership qualities
- Establish coherent mission and strategic goals
- Focus on key set of principles and priorities

- Establish quality communication strategy
- Involve employees in generating ideas and gaining ownership

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Scanlon, W. J. (2001). *Nursing Workforce: Recruitment and retention of nurses and nurses aides is a growing concern*. Testimony before the Committee on Health, Education, Labor and Pensions, U.S. Senate. Government Accounting Office Report GAO-01-750T.

Recent surveys of nurses have found decreased job satisfaction, increased pressure to accomplish work, the need to work overtime, and stress-related illness according to Scanlon (2001). Over ¼ of nurses report being somewhat to very dissatisfied with their job and 51% were much less satisfied than 2 years ago. Scanlon (2001) cited job dissatisfaction as the primary reason for nurse retention problems and turnover rates increase from 12 to 15% between 1996 and 2000. Turnover rates were higher in nursing homes (51%) and home health care (24%). Lower wages, fewer benefits, and difficult work conditions were also cited as linked to nurse aide turnover. Factors identified as directly affecting nurse aide turnover, many of which are also related to turnover in emergency call center workers, include:

- Adequacy of training
- Methods for managing workload and schedules
- Opportunities for career advancement
- Respect from administrators
- Organizational recognition
- Workloads and staffing levels
- Clarity of roles
- Participation in decision making

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Tamosaitis, W. L., & Schwenker, M. G. (2002). Recruiting and retaining technical personnel at a contractor-operated government site. *Engineering Management Journal*, 14 (1), 29.

Tamosaitis and Schwenker (2002) reported an ongoing study of factors most effective in recruiting and retaining technical personnel. Factors (motivators) most related to recruitment and retention included working relationships (teamwork), flexible work schedules, and quality of life. Final study results are still pending.

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Yearwood, D. (2004). Recruitment and retention of public safety telecommunicators. *Public Safety Communications*, July 2004, 8-10, 60.

Yearwood (2004) described the North Carolina studies done to address major issues being faced by its public safety personnel. This particular study focused on recruitment and retention, with a 22-item survey sent to 130 telecommunication agencies ranging from large to small. A total of 119 surveys were returned that asked respondents to identify recruitment issues, suggestions for improvement, possible barriers to recruiting more qualified applicants, and turnover rates. Results indicated that the most effective recruitment techniques were (in order), word of mouth, newspaper, personnel listing, internet, community college, auxiliary/reserve force, job fairs, radio/television, and police corp. The perceived effectiveness of retention techniques (didn't say whether these were managers or employees) from most to least were: annual pay increase, irrespective of performance, education/training at agency's expense, favorable work shift, formal awards/recognition, annual performance-based pay increase, and promotions. Recommendations included:

- Implement aggressive recruitment efforts with intense public-relations campaigns to educate the public and professionalizing the duties and responsibilities.
- Implement more in-service training programs that specifically address stress and burnout within the profession.

- Implement more basic and in-service training courses and opportunities in telecommunications at community colleges, etc.
- Research the effects of shiftwork on the telecommunicator position, comparing and contrasting 8-hour and 12-hour shifts and different personnel-scheduling patterns and techniques, emphasizing how to mitigate stress and burnout.
- Initiate discussion about intensifying/tightening applicant screening with an emphasis on cognitive-skills, as well as continued discussions of the feasibility and costs of requiring all telecommunicators to complete basic training prior to employment.

Topic: Appreciated by the Media

Allen, D. G., & Griffeth, R. W. (2001). Test of a mediated performance-turnover relationship highlighting the moderating roles of visibility and reward contingency. *Journal of Applied Psychology, 86*(5), 1014-1021.

Allen and Griffeth (2001) studied the effects of rewards and visibility as moderators of the relationship between job performance and voluntary turnover. They sought to expand the typical model that has only included perceived alternatives and job satisfaction as the main predictors of turnover. The sample included 130 employees from a medical services company in the SE US. Measures of job performance, job satisfaction, perceived alternatives, reward contingency, visibility, turnover intentions, and actual turnover were collected. *Job satisfaction was measured by the five scales (pay, promotion opportunities, supervision, co-workers, work itself) of the Job Descriptive Index as modified by Roznowski (1989).* Correlation results showed that satisfaction was significantly correlated with turnover intentions ($r = -.52$) and actual turnover ($r = -.20$). Rewards moderate the relationship between performance and satisfaction, with more rewards associated with higher satisfaction and performance. Similarly if employee's performance is visible to other potential employers (e.g., as through media publicity), it results in higher levels of performance.

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Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*(2), 268-279.

Although not dealing directly with the topic of being appreciated by the media, the study by Harter, Schmidt, and Hayes (2002) has important implications for changes in management practices that increase employee satisfaction as well as customer satisfaction. In a meta-analysis 42 studies conducted in 36 independent companies, primary findings from business-units (averaging satisfaction scores across various size units) included:

- Average employee satisfaction was positively related to customer satisfaction, productivity, employee turnover, and safety outcomes.
- Correlations between overall satisfaction and turnover ranged between $-.30$ and $-.36$.
- Both employee satisfaction and engagement are related to meaningful business outcomes, implying that a focus on employee satisfaction may result in high levels of community satisfaction and support (including positive media coverage) in the case of 9-1-1 call center employees.