APCO PROJECT RETAINS

Staffing and Retention in Public Safety Communications Centers: A Follow-up Study

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Research Report

APCO International
Leaders in Public Safety Communications℠

APCO Project RETAINS
Responsive Efforts To Assure Integral Needs in Staffing

George Mason University | Center for Social Science Research

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Executive Summary

TOO OFTEN IT TAKES CATASTROPHIC EVENTS to shed light on the urgent contributions public safety communications work makes to our nation's well-being. During more routine moments, public safety professionals labor well out of the public eye and, often, with limited resources and insufficient support. Seeking to assess the conditions under which communications centers are employed, the Association of Public-Safety Communications Officials (APCO) International established Project RETAINS (Responsive Efforts to Assure Integral Needs in Staffing), which resulted in a 2005 report and the Project RETAINS toolkit. This second Project RETAINS study sought to extend APCO International's knowledge of communications center staffing issues not addressed in the first study and to gauge the degree to which Project RETAINS had proved useful.

The findings in this report are based on several types of data collection, including field visits to four communications centers in various regions of the country, in-depth interviews with employees working in these centers, and two different nationally representative surveys, one with 204 communications center directors (which asked about retention, turnover, pay rates, and various organizational policies), and a second national survey of 626 employees. Selected findings are summarized below.

Despite the broad differences between centers of different size, location and type, a number of patterns emerged in this study that hold relevance for the nation's communications centers.

- The overwhelming majority (83 percent) of centers have experienced an increase in the number of dispatched calls in the previous three years.
- Staffing pressures were found in communications centers of varying sizes, though in different ways. Small and medium-sized centers were especially likely to experience an increase in dispatch volume, and small centers were less than half as likely as large centers to report that staffing levels had increased in the previous three years. On the other hand, directors of the large centers reported much more difficulty in keeping their authorized positions filled throughout the year.
- This study found an average retention rate of 81 percent. This retention rate is three percentage points lower than the rate calculated in 2005, and shows greater variation in center experiences.

This report examined communications centers' retention rates, employees' organizational commitment, and employees' psychological distress. A variety of factors were found to impact these outcomes. One relatively obvious point replicated from the 2005 study is that pay matters. Rates of retention are significantly affected by the hourly salary which starting employees receive. This fact may be especially important within centers located in larger urban areas that allow for greater employment alternatives. These findings suggest the need for a more detailed analysis of labor market patterns and parity in compensation levels than this report can provide.

Apart from pay levels, the analysis indicates that flexible work schedules hold particular importance. Indeed, in one form or another, work scheduling impacted all three of the outcome measures used in this report. Thus, frequent reliance on overtime as a staffing strategy, or use of part time employment, were found to materially impact rates of retention. Allowing for flexible

work schedules fostered higher levels of organizational commitment. And allowing employees to bid on shift rotations, or more providing more generous vacation breaks, likewise reduced the distress that employees experienced. All these findings suggest that managerial practices impinging on scheduling hold great importance from the standpoint of employees and employee retention.

Further, the findings draw attention to the need that employees express for greater support, recognition, and appreciation, whether from their supervisors and center directors or from the public at large. This factor, too, impacted all three of the outcome measures used in this report. Thus, favorable management/worker relations affected retention rates, enjoying greater recognition shaped levels of commitment, and deriving a sense of recognition likewise reduced the level of employee distress. This point suggests that management would do well to scrutinize not only its own internal human resource practices (for example, through supervisor training or through employee recognition programs), but should also explore ways of connecting employees with the public whom they serve. The interviews indicated that employees greatly appreciate the gratitude they sometimes receive during calls, but this cannot in itself be enough. Ensuring that public appreciation is fostered and that such appreciation reaches into the centers will help generate more positive environments for center employees.

Finally, we looked at users' experiences with APCO's Project RETAINS. According to program data maintained by APCO International, as of August 2007, Project RETAINS had amassed about 600 users. About two-thirds of the directors who reported using Project RETAINS indicated that it has been "very useful" in predicting staffing needs. Centers that have used Project RETAINS indicated that retention had significantly increased over the past three years.

Section I: Introduction and Background

George Mason University's Center for Social Science Research (CSSR) conducted a systematic study (including survey, interview, and observational data) of communications center employees throughout the United States. The study was commissioned by the Association of Public-Safety Communications Officials (APCO) International, the leading professional association in this occupation. The project was especially focused on the effectiveness of an earlier effort—Project RETAINS (Responsive Efforts to Assure Integral Needs in Staffing)—which APCO International had developed previously, in order to address the chronic problems of understaffing and turnover that exist within this field. The CSSR study was able to build on previous research on staffing and retention issues in communications centers which had been conducted in 2005 by the University of Denver Research Institute (DRI). That study, funded by the National Institute of Justice and the Bureau of Justice Assistance, focused on employee satisfaction and agency retention.

The 2005 study reported a number of useful findings. First, the average national retention rate among communications centers was determined to be 83 percent—a proportion that, given pressure for staffing, and new hire and cross-functional training, translated into sharp pressures on employees to work substantial amounts of overtime and longer shifts. Understaffing was validated as a major issue in the 2005 study, as fewer than half of the managers surveyed (and only 11 percent in the large centers) felt that their centers were fully staffed. Making matters worse, a variety of problems were found to produce increased workload, particularly increasing call volume, excessive overtime requirements, and a lack of responsive processes for determining appropriate staffing levels.

Seeking to pin-point the major determinants of turnover or low retention thus became a matter of great significance. The 2005 study identified a number of factors that were related to the retention rate, including perceived staffing levels, pressures to work overtime, job complexity, pay rates, and levels of satisfaction with the work itself. Employee job satisfaction in turn depended on a number of factors that emerged in the 2005 study, including center performance, access to job training, and perceived recognition and support from supervisors, co-workers, and the public at large.

Using the 2005 research as its point of departure, the CSSR study conducted a follow-up study, beginning in fall 2007 and concluding in summer 2008. This follow-up study takes up issues raised or not yet addressed by the first Project RETAINS study, specifically:

- Current staffing challenges facing communications centers
- Update of retention rates and analysis of the conditions that affect call-taker and dispatcher retention
- Analysis of organizational commitment and psychological distress reported among calltakers and dispatchers

- The degree to which Project RETAINS is known and used by communications centers
- Definition of an optimal workload for the dispatch position
- Guidelines for staffing a dispatch position based upon gauging how many units or radio channels a dispatcher can effectively handle.

The following section briefly outlines the research strategy the CSSR study employed, with more detailed information presented in Appendix A. The report then presents key findings, dealing first with findings on the challenges that communications centers face. The report then turns to factors affecting retention and turnover. It then uses survey data to address the determinants of two aspects of employees' work experiences—organizational commitment and psychological distress—which have been found to impact both job performance and retention. Finally, we offer some suggestions regarding how the dispatch position might best be defined.

Section II: Scope and Methodology

The study used a combination of research methods designed to create a greater understanding of the work situations of calltakers and dispatchers. Because communications centers operate under a wide variety of conditions and contexts, a series of site visits were conducted in four communications centers located in various regions of the United States. During each site visit, data were collected via observation and interviews with center directors, managers, and staff. For confidentiality purposes, the participating centers and staff are not identified.

Building on this field work, two survey questionnaires were designed to capture key aspects of the nature of communications center work. One questionnaire was administered to communications center directors; it aimed to gather data on each center's workload, staffing levels, pay rates, and other aspects of organizational life. The other questionnaire was administered to communications center employees (calltakers and dispatchers[1]), focusing on their perceptions of their jobs, their attitudes and behaviors in relation to their work, and their intentions to stay at their jobs or leave.

The survey questionnaires were developed by CSSR in collaboration with APCO International based upon 1) a review of questionnaires utilized in the first Project RETAINS survey, 2) follow-up questions prompted by the first study, 3) new issues and research questions, and 4) the need to evaluate communications centers' experiences with Project RETAINS toolkit and worksheets since its introduction.

Separate surveys were conducted for communications center managers/directors and center employees, using mail, telephone, and Internet methods. Survey data were collected from January to June 2008.

The topic areas for the director/manager survey include:

- Characteristics of the center (e.g., type of 9-1-1 service, size of area and population served, number of agencies served, functions provided, and call volume)
- Trends (e.g., change in call volume, answer times and staffing levels over three years)
- Staffing data (e.g., number of authorized positions)
- Criteria used for staffing decisions
- Retention data (e.g., number of positions filled, in training, left during training, left after training)

[1] For the purposes of this study, "calltaker" is defined as the person who takes the call from the public, gathers information about the event, determines whether emergency units must respond, and enters critical event information into a computerized system for transfer to the dispatcher. The "dispatcher" is defined as the person who, based on information obtained from a public caller or from the calltaker, dispatches out relevant emergency units, and provides critical information to those units.

- Staffing characteristics (e.g., use of overtime, use of part-time workers, percentage female workers, percentage of workers by race)
- Experience with Project RETAINS
- Descriptions of dispatch position (e.g., number of units, number of radio channels managed, number of voice transactions)
- Training provided to new and continuing employees
- Pay and benefits
- Characteristics of the survey respondent

The topic areas for the employee survey include:

- Job type (e.g., cross-trained or not)
- Description of dispatch position
- Scheduling
- Commitment to the center
- Perceptions of center's staffing levels
- Overtime
- Work-related stress
- Job complexity
- Relationship with co-workers/supervisors
- Recognition
- Pay and benefits

See Appendix C for full print versions of these questionnaires.

To collect data from an unbiased sample of communications centers, a list of all known communications centers in the United States gathered from public information sources was supplied by APCO International. A sample of 287 communications centers was randomly selected from the list and each selected center received a letter and a print copy of the questionnaire from APCO International.

After these letters were mailed, CSSR began calling centers to ask them to participate in the survey. Contacted centers were given the option to participate via mail, internet or phone. Extensive follow up was conducted to reach as many of the centers in the sample as possible, including updating contact information, and conducting follow up phone and email contacts. A total of 204 centers completed the director survey, for a response rate of approximately 72 percent.

Each center that completed a survey was asked to facilitate employee participation, as well. Generally, employees were randomly selected in each center or participation was available to all calltakers and dispatchers in a center. Employees completed the survey online or over the phone, while some requested hard copies of the survey to mail or fax back. A total of 626 employees from 128 different communications centers participated in the survey.

Because centers were randomly selected and the response rate was very high, the

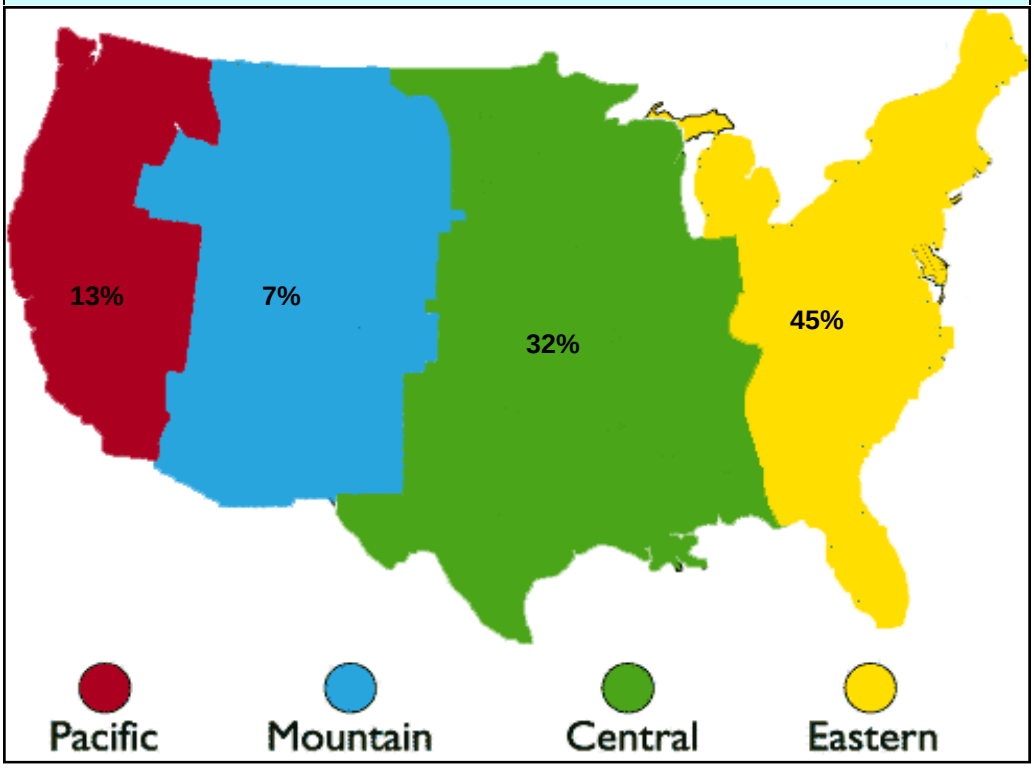
findings represent the larger population of communications centers, within accepted margins of error. For more information on confidentiality levels and methodology used, see Appendix A.

Thus this study combines a number of data sources, and utilizes a multi-method research strategy to unearth some of the key factors that affect the working lives of public safety communications employees. The data should identify important issues that hold relevance for employees, managers, and decision makers in the field.

Section III: Communications Center Characteristics and Trends

Participating communications centers represented all regions of the country. By time zone, 45 percent of the 204 participating centers were Eastern, 32 percent were Central, seven percent were Mountain, 13 percent were Pacific or further west, and three percent did not report a location.

Exhibit 1. Distribution of participating centers by time zone, N = 204



Centers of different size[2] varied significantly on many of the items measured: the number of authorized positions in the center, the number of agencies serviced, the number of consoles, the size of the population served, total incoming call volume, total 9-1-1 call volume, and total incidents dispatched. Centers did not vary by size regarding the number of services provided, the size of the geographic area (square miles), the average answer time, or the average abandoned call rate.

[2] Center size is based on CALEA standards: small = 1-15 employees, medium = 16-75 employees, and large = 76 or more employees.

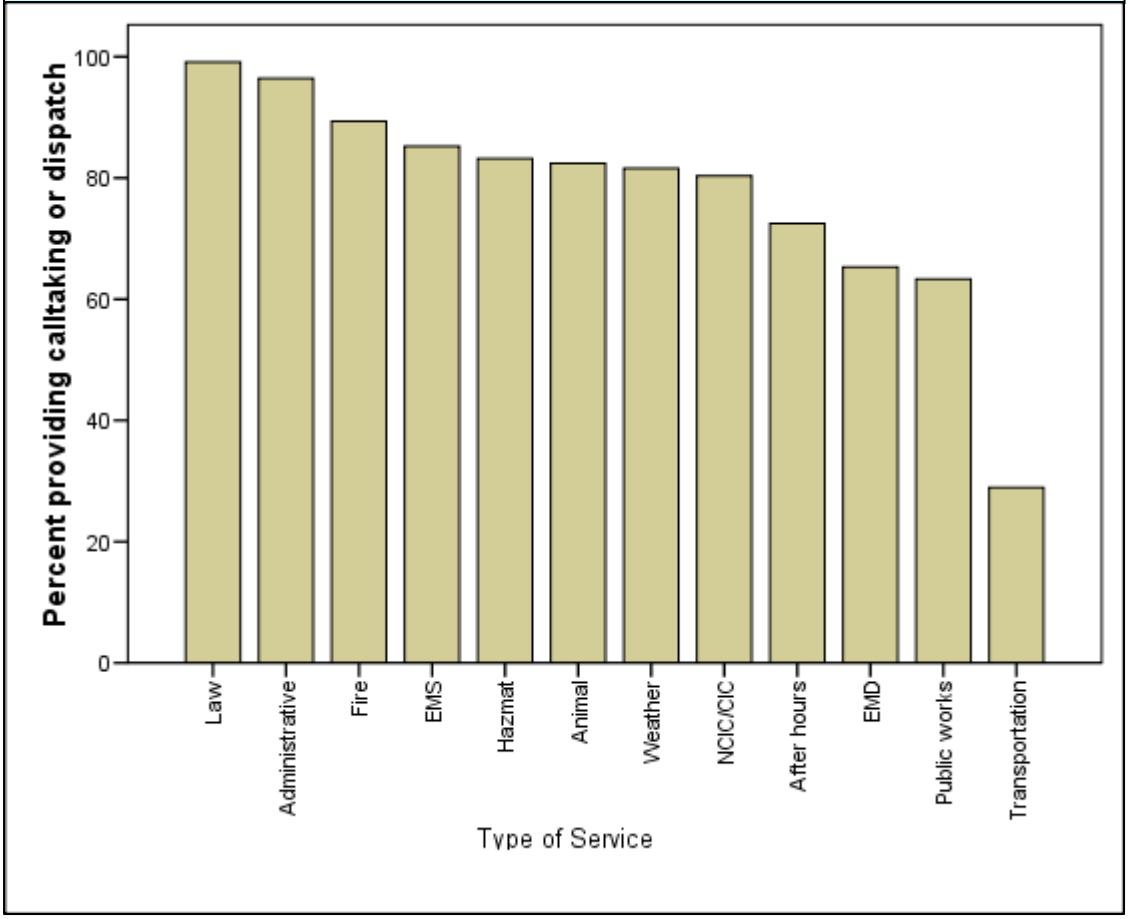
Table 1: Center Characteristics, by size[1]			
	Small Average	**Medium** Average	**Large** Average
Number of authorized positions	8	36	141
Number of agencies served	11	22	32
Number of consoles	3	11	40
Number of services provided	9	9	8
Geographic area (square miles)	1,200	1,100	1,700
Population	47,000	390,000	780,000
Total incoming call volume	69,000	290,000	1,100,000
Total 9-1-1 call volume	15,000	128,000	545,000
Total dispatched	22,000	180,000	790,000
Average answer time (seconds)	12	7	12
Abandoned call rate (per 100)	7	8	6

[1] The number of centers that provided data for these indicators varied by size of center and indicator, since some centers did not answer all questions. In certain cases, such as with large centers, the number of respondents is low, which limits the ability to generalize from this data. See Appendix A for more information, including data on the number of centers responding to each item.

Many communications centers handle response to a wide array of issues in addition to 9-1-1 emergency, while some specialize in one or a few functions. Surveyed communications centers were asked about law enforcement, fire, EMS, EMD, Hazmat, NCIC/CIC, administrative calls, public works or utilities, animal control, emergency weather notification, transit, or transportation information and after hours calls for public agencies. The average number of these **functions served** by emergency communications centers was between eight and nine, regardless of center size.

Law enforcement was the most universally provided service, with most centers providing calltaking, dispatch, or both. Most centers also handle administrative calls, with 94 percent of centers indicating that they provide calltaking, dispatch, or both. Services related to fire are provided by 90 percent of centers, although seven percent provide calltaking only. Similarly, EMS is provided by 85 percent of centers, with 12 percent providing calltaking only. Services related to Hazmat, animal control, emergency weather notification, and NCIC/CIC are provided by approximately 80 percent of centers (see Exhibit 2).

Exhibit 2. Percent of centers providing services by type, N = 201-204



Many communications centers provide services to more than one agency in their jurisdiction. The survey asked "What is the total number of client agencies your communications center provides dispatch services for?" allowing centers to count any type of agency they serve. The average number of **agencies served** was 11 in small centers, 22 in medium centers, and 32 in large centers. The amount of agencies being served can add to the complexity of the job, as in this example:

> "We dispatch for 23 fire departments, 17 police departments, two ambulance companies... We page out all the on-call agencies for after hours. Like if your water main breaks in the middle of the night, we have somebody fix the water main. Sewer department, the same thing -- DA, judge, social services, coroner's [office] -- probably 40 agencies like that. Because we dispatch so many little towns and they all have their own water department, street department."

Of note is the fact that dispatcher and calltaker job complexity generally increases as the number of agencies increase. As in the example above, each fire or police department may have unique procedures or protocols that require special handling.

Furthermore, some states are consolidating communications centers, which may lead to increases in the number of protocols as centers merge. Agencies may not have consolidated their protocols or are making them more complex. Interview data indicate that some managers or external leaders (sheriff, police chief, fire chief, etc.) are adding more unique procedures to dispatcher duties, which can be expected to impact center workloads, training, and job complexity. To respond to this problem, some multi-agency centers have standardized their procedures or are in the process of doing so.

A primary public safety answer point (PSAP) is the first communications center to answer a 9-1-1 call; it may also be the point from which calls are dispatched. A secondary PSAP receives transferred 9-1-1 calls for dispatch or further processing, after screening for a required service by a primary PSAP. The majority (70 percent) of communications centers are **primary PSAPs** or both a primary and secondary PSAP (24 percent), while a small proportion serves as a secondary PSAP only (four percent) (Exhibit 3).

As seen in Exhibit 4, **Enhanced 9-1-1** (E9-1-1) with wireless Phase II (which provides a specific GPS location) predominates in communications centers followed by Enhanced Phase I. Enhanced and basic services are significantly more likely to be found in small centers.

Exhibit 3. Primary and secondary answer points, N = 204

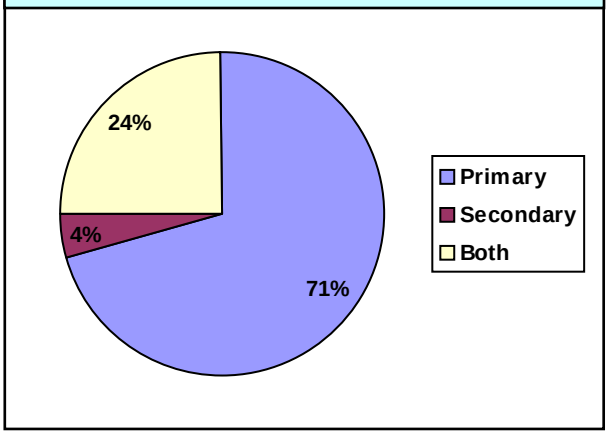
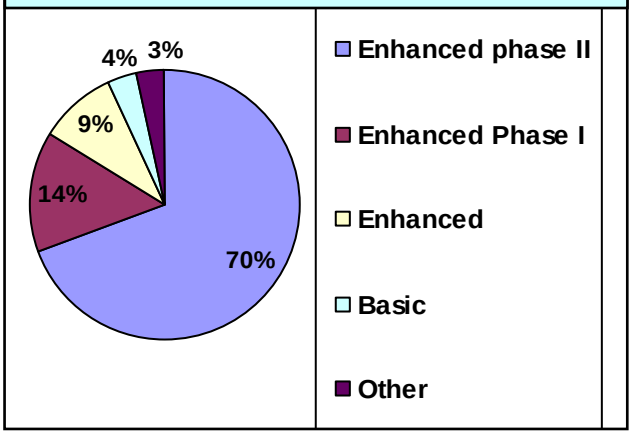


Exhibit 4. Type of 9-1-1 emergency service, N = 198



The **number of consoles** per center ranged from one to over 100, with the number of consoles significantly correlated to the size of the population served. The average number of consoles was three in small centers, 11 in medium centers, and 40 in large centers. The number of consoles primarily dedicated to radio dispatch ranged from zero to 45. The average number was two in small centers, five in medium centers, and 19 in large centers.

The **size of the population** served ranged from less than 2,000 to over two million people. The number of square miles in the service area ranged from less than 10 to over 30,000. The majority of centers (approximately half) serve a county or parish and an additional third serve a city, town or borough. About 11 percent serve a region or state.

The total **incoming call volume** in communications centers ranged from about 4,000 calls in 2007 to about three million, with an average of over 150,000 calls. Average annual call volume was significantly higher in large centers (about 1.1 million calls) compared to medium (290,000) and small centers (about 69,000). These aggregate numbers can have a significant impact on calltaker and dispatcher workloads. As one center director mentioned, while his large center had a standard goal of 80 calls per shift per dispatcher, the actual load was approximately 240 calls per shift.

Total **incoming and outgoing call activity** in 2007 ranged from approximately 5,000 calls to almost three million calls, with an average of about 217,000 calls. The average total incoming and outgoing call activity in 2007 was significantly higher in large centers (about 1.4 million calls) compared to medium (365,000) and small centers (102,000).

Total **9-1-1 emergency call volume** in 2007 ranged from zero to about 1.3 million calls, with an average of about 53,000. The average volume of emergency calls was significantly higher in large centers (about 545,000 calls) compared to 128,000 in medium centers and 15,000 in small centers. **Wireless 9-1-1 emergency call volume** in 2008 ranged from zero to almost 780,000, with an average of about 27,000 calls. The average volume of wireless emergency calls was significantly higher in large centers (about 291,000 calls), compared to medium (71,000) and small centers (9,000 calls). The total number of calls in 2007 that resulted in an **incident being created** ranged from 10 to over 1.65 million, with an average of over 75,000. The average number of calls that resulted in an incident being created was higher in large centers (about 790,000) compared to medium (180,000) and small centers (22,000).

The majority (83 percent) of centers have experienced an increase in the **number of dispatched calls** in the past three years. Only 13 percent of centers have experienced steady dispatch volume, and five percent have experienced decreasing dispatch volume. Small and medium centers were significantly more likely to experience an increase in dispatch volume compared to large centers: 81, 83 and 43 percent, respectively.

One-quarter of centers report answering incoming calls in three seconds or less, while half report an average of five seconds or less, and three-quarters report that their average answer time is 10 seconds or less. **Average answer time** was not significantly different in large and small centers. Average answer time was also not related to call volume or number of consoles in the center. Despite widespread increases in call and dispatch volume, only 10 percent of centers experienced an increase in the average answer time over the past three years. For the majority of centers (84 percent), answer time has remained the same; for six percent of centers, it has decreased. Large centers were most likely to report that answer time stayed the same (42 percent) or increased (42 percent); medium centers were most likely to report that answer time remained the same (64 percent), as were small centers (89 percent).

One-quarter of centers report an **abandoned call rate** of one call per hundred or less,

half report a rate of five abandoned calls per hundred or less, and three-quarters report a rate of 10 abandoned calls per hundred or less. The abandoned call rate did not differ significantly between large and small centers, and does not appear to be related to call volume or the number of consoles in the center.

Center directors were asked to summarize three-year trends in three areas: the number of dispatched calls, average call answer time, and staffing levels. According to center directors, the volume of dispatched calls increased in a significantly higher percentage of small and medium communications centers compared to large centers; directors in 81 percent of small and 82 percent of medium centers said that volumes had increased, compared to 43 percent in large centers. Twenty-nine percent of directors of large centers indicated that dispatch volumes had decreased, whereas few directors in small and medium centers reported a decrease. These data begin to suggest that small and medium sized centers have recently experienced increasing work-load pressures to a degree that larger centers have not.

Table 2: Trends in call volume and staffing over past three years

	Small centers			Medium centers			Large centers		
	Increased	Same	Decreased	Increased	Same	Decreased	Increased	Same	Decreased
Number of dispatched calls	81%	16%	3%	82%	11%	7%	43%	29%	29%
Answer time	8%	89%	3%	17%	64%	19%	16%	42%	42%
Staffing levels	23%	68%	9%	40%	47%	14%	55%	41%	5%
Staff retention	19%	56%	25%	26%	57%	17%	50%	41%	9%

Despite an increase in the volume of dispatched calls, average answer times in small centers remained relatively steady overall; 89 percent report that they stayed the same, eight percent experienced an increase, and three percent decreased. Medium centers also remained relatively steady, but were more likely than small centers to experience an increase or a decrease in average answer times over the past three years; 17 percent increased, 64 percent remained the same, and 19 percent decreased. In large centers, 42 percent had a decrease in average answer time, 42 percent remained the same, and 16 percent increased.

According to center directors, large centers were again most likely to see improvements in staffing levels (55 percent) and staff retention (50 percent) over the past three years. Staffing levels in small and medium centers were more likely to have stayed the same over the same time period.

Staffing

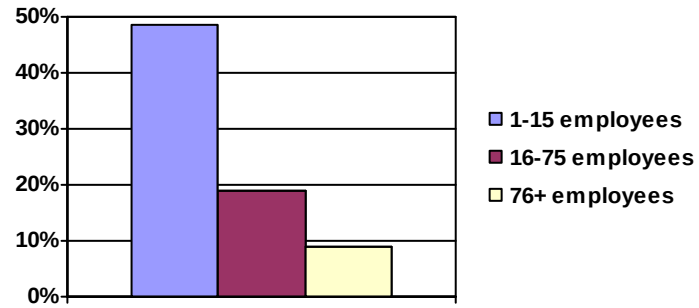
Asked to describe their center's staffing for calendar year 2007, less than one-quarter of directors reported that staffing levels were consistently below authorized levels all year; 35 percent report that staffing was low at times, but met authorized levels for at least part of the year, and 41 percent report that staffing met authorized levels all year.

Which statement best describes the center's staffing for the calendar year 2007?

1. Center was staffed to authorized levels all year
2. Staffing was low at times, but met authorized levels at least part of the year
3. Center was consistently below authorized levels all year

Meeting authorized **staffing levels** appears to be a more substantial challenge for large and medium centers, perhaps owing to the presence of alternative employment opportunities within the labor market areas in which larger centers are located. Almost half (49 percent) of small centers indicated that they met authorized staffing levels all year, compared to 19 percent of medium centers and nine percent of large centers (see Exhibit 5). Interviewees mentioned a variety of barriers to full staffing, including difficulties in recruitment, increasing workloads due to agency consolidation and increased call volume, and the need to cover not just short-term shortages (such as sick days), but even scheduled breaks.

Exhibit 5. Percent of Directors Reporting that Centers Met Authorized Staffing Levels All Year, N = 101 small, 58 medium, 22 large centers



Interviews with supervisors revealed a variety of issues that make staffing centers a challenge. For instance, unrealistic expectations cause recruits to leave the job after experiencing stress or higher than anticipated workloads. In general, supervisors noted the difficulty of finding recruits capable of handling the job complexity. Supervisors noted that efforts to improve staffing levels had included taking over recruitment (from the county human resource department); expanding advertisements; increasing community events where key staff explain the center and recruit potential applicants; identifying certain target populations that have the communication and multi-tasking skills necessary for the job, such as restaurant wait-staff; and increasing pre-hire testing. Training modifications to reduce training time and increase effectiveness, as explained below, also affect staffing levels according to interviews.

Employees were also asked about their perceptions of center staffing levels: "considering the number of employees at your center right now, how sufficient is that number to meet the center's performance goals?" Employees in small centers were significantly more likely to perceive staffing levels as adequate (42 percent) than em-

ployees in medium (23 percent) or large centers (16 percent). About 22 percent of employees in large and medium centers said they were very understaffed, compared to 12 percent in small centers.

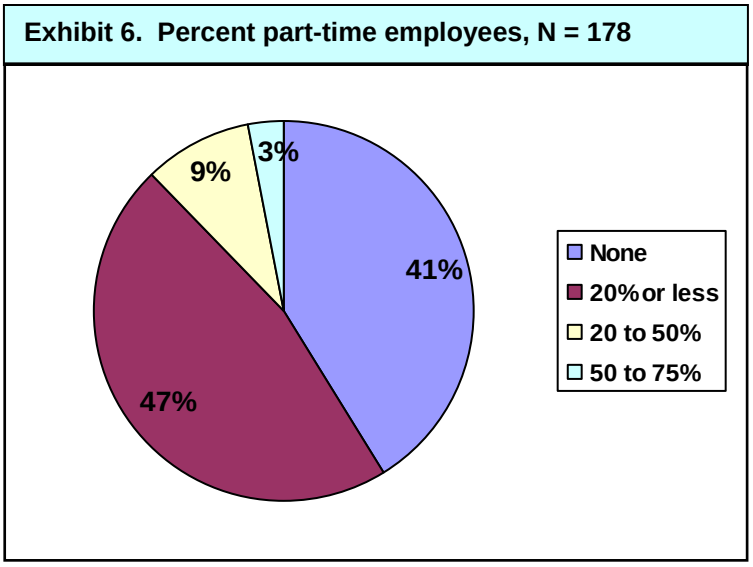
Employee perceptions of staffing levels were significantly in agreement with director reports. In centers in which directors reported that staffing met authorized levels all year for 2007, 46 percent of employees said that there is currently enough staff in the center. When directors said that staffing was low at times in 2007, the percentage of employees who said that staffing levels are currently adequate drops to 35 percent. Finally, when centers directors reported that staffing levels were consistently below authorized levels in 2007, only 12 percent of employees said that staffing levels are currently adequate.

Communications centers use several **criteria to set staffing levels** of calltakers, many of which differ in importance depending upon the size of the center. Large centers most often rely upon multiple metrics of demand and service; 95 percent utilize peak hour call volume, 86 percent utilize total call volume, 86 percent utilize average calls per hour, 82 percent utilize desired service level, and 81 percent utilize average answer times. About 59 percent of large centers also plan staffing levels around budget requirements. Medium size centers tend to utilize total call volume (72 percent), followed by peak-hour call volume (67 percent), budget (67 percent), and desired service level (67 percent). For small centers, the most cited factor in determining calltaker staffing levels is budget (68 percent), followed by desired service level (51 percent) and total call volume (46 percent).

All in all, center directors feel there are too few **qualified candidates** in the community to fill all of the job opportunities available in their centers; 39 percent strongly agree and 36 percent somewhat agree, while 15 percent somewhat disagree and only 10 percent strongly disagree. The perception of a lack of qualified candidates did not vary by either center size or ability of the center to maintain authorized staffing levels. Directors interviewed for this report stated that even with expanded recruitment efforts and extensive pre-employment screening for technical skills and mental maturity, it is hard to find candidates who can successfully complete the necessary training, operate in the fast-paced environment on the communications center floor, and handle the emotionally stressful types of call situations that are regularly faced.

Approximately 58 percent of communications centers use **part-time** calltakers and dispatchers. There are no differences in the use of part-time calltakers and dispatchers between small and large centers. There were no significant differences in reported staffing levels between centers utilizing part-time staff and those that do not. Several interviewed communications center directors commented on the increased use of part-time dispatchers to cover vacation, holiday, and overtime demands. However, they noted that it was hard to recruit capable part-time staff for these shifts. Also, some part-time staff mentioned the challenges of completing training and maintaining certification on complex protocols when working limited hours.

Exhibit 6. Percent part-time employees, N = 178



The **number of authorized positions** ranged from one to over 250, with an average of 17. Large centers have an average of 141 authorized positions, compared to 36 in medium centers and eight in small centers.

Minimum staffing requirements in communications centers are most likely to vary by time of day (50 percent) and day of the week (36 percent), and are less likely to vary by season (21 percent).

Large centers are significantly more likely to have staffing needs that change according to the time of day (96 percent compared to 72 percent for medium centers and 43 percent for small centers), or day of the week (68 percent compared to.35 percent for medium centers and 33 percent for small centers).

Training

One issue identified during this study's interviews was staff training, which impacts staffing and employee retention in many ways. In some cases, new-hire training courses take as long as one year, which creates delays in getting new hires on the work schedule. The complexity of training was also noted by center directors and dispatchers, with new technology compounding job complexity and requiring as many as nine separate training modules. The problem of multiple protocols, mentioned previously, directly impacts training complexity. Training complexity regularly leads to student failure and withdrawal; students failing even one protocol are generally terminated. Unsuccessful or ineffective training leads to wasted time by trainers and delays in meeting authorized staffing levels. These training issues are further complicated when dealing with part time dispatchers or when the dispatcher position is seen as a stepping stone to further advancement outside of the center.

Another major training issue is the guidance provided by experienced trainers during crisis situations. While this area is more subjective than building specific skill sets, a

number of interviewed dispatchers commented on the importance of the training they received for handling stressful situations, such as homicides, attacks on police officers, suicides, rapes, and irate callers. One example was that of a dispatcher who took a call of an eleven-year-old girl who had been raped and had to walk through the data gathering with the girl over the phone; when it was over, his first thought was "You know, that could have been my kid." Effective trainers need to have empathy, insight, and communications skills to help the new hire talk through emotionally traumatic crisis situations. Such training on the emotional aspects of dispatcher work decreases stress and increases the likelihood of new-hire retention.

As mentioned in interviews, effective training addresses critical technical skills and provides sufficient exposure to traumatic situations early enough during the training cycle so that new hires can experience stressful events under a trainer's supervision and see if that type of work fits his or her personality. Per interviews, innovative training programs are attempting to find the right balance between getting new hires on the phones as soon as possible, yet building the basic skills needed to effectively handle calls; more advanced training is combined with continued calltaking, increasing application of material learned. Other innovative training programs are looking closely at skill-based training to reduce training times and increase technical proficiency with today's high technology equipment. Finally, job requirements are being assessed by some centers to allow for training and certification for specific tasks, not the full dispatcher workload. These training improvements have an incidental benefit of providing some staff coverage, which may reduce workloads and stress for other staff. Thus, training is closely linked with workloads, staffing, overtime, and stress for the trainee and other staff, among other issues.

Overtime

Overtime can be a very important component of employee satisfaction and retention. The necessity for overtime hours varied significantly by center size. Center directors in most large centers (96 percent) indicated that overtime is a frequent necessity, compared to 81 percent of medium centers and 61 percent of small centers. Furthermore, the most frequent reason for overtime varies by center size. In large centers, the majority of directors said that the most frequent reason is to meet minimum staffing levels (71 percent), followed by coverage for short notice illness (19 percent). In medium centers, 54 percent said the most frequent reason is to meet minimum staffing levels, followed by short notice illness (35 percent). Directors of small centers were about equally likely to indicate that the reason was to meet minimum staffing levels (36 percent) or short notice illness (33 percent), followed by to cover for employees on vacation (22 percent).

Overtime is voluntary in about one-quarter of centers and mandatory in about one-quarter of centers. Directors in about half of centers indicated that whether overtime is voluntary or not depends on the circumstances. Employees in medium (81 percent) and large centers (76 percent) were most likely to report that they work overtime at least once a month, compared to small centers (68 percent). Employees in small cen-

ters report working an average of 12 hours of overtime a month, compared to 20 hours in medium centers and 19 in large centers.

About 28 percent of employees said that overtime is always voluntary, 64 percent said that it is sometimes voluntary, and eight percent said that it is never voluntary. Employees in larger centers were significantly more likely to have the option of receiving comp time for overtime hours: 72 percent in large centers, 56 percent in medium centers, and 41 percent in small centers. Employees in small centers were significantly less likely to believe that overtime is a frequent necessity because of understaffing; 28 percent in small centers said always, compared to 51 percent in medium centers and 49 percent in large centers.

Respondents expressed mixed feelings about overtime. For some, overtime represents an opportunity to earn significantly more than they otherwise could. When overtime is flexible, employees with particular needs can more easily accommodate its demands, or let other employees who want the extra hours take it. The issue of flexible work arrangements (discussed below) was stressed by one employee we interviewed, who made an obvious but important point: "If it's mandatory and they require for me to work a day that I don't have child care that will become an issue." Other interviewed dispatchers echoed that point, noting that last minute overtime often created scheduling conflicts for family responsibilities.

Dispatcher interview statements about overtime were related to the amount of required overtime, whether it was mandatory or voluntary, and the process for determining who would work the overtime. Some employees have been required to work as much as 35 to 40 hours overtime per month, and some staff regularly worked as much as 80 overtime hours per month. One center with about 45 employees had over 1,200 overtime hours to fill in December 2007. Under older scheduling systems at some centers, mandatory overtime was the norm, with little choice for staff as to when they would do it or how much they would have to do. New scheduling policies and systems in some centers have been designed to increase voluntary selection for staff. In some centers dispatchers are now able to select overtime shifts that better fit their personal schedules, and even give away overtime hours that they don't want. As can be expected, several center directors noted that once they were able to increase staffing to at or near authorized levels, the need for overtime went down; this highlights the relationship between recruitment, training, retention, staffing, and overtime. Increasing part-time staff also can reduce overtime demand and costs, since part-time staff are not paid overtime, as several interviewed directors mentioned.

Several supervisors mentioned the work they do one to three months in advance to schedule workloads and identify overtime requirements based on special events, vacation schedules, etc. In addition, positive improvements to employee morale were noted when centers changed their overtime policies with modifications such as increasing advance notice of overtime, first allowing part-time workers to take as much as they want, scheduling overtime on a daily basis one month in advance (which provides more equity on signing up for overtime), making a small portion mandatory and the balance vol-

untary, and allowing staff to give away or swap overtime hours. In some cases these changes led to radical changes in how overtime is viewed by dispatchers, from widely held dislike to more positive attitudes towards overtime, including increased demand for overtime by those who want to work the extra hours.

One respondent summarizes what appears to be a common sentiment about the effects of overtime, a finding which is underscored by the analysis of factors predicting retention rates (section V):

> "I think that a little overtime is good because it's extra money. I think too much overtime burns people out. And I think it has an inverse effect because then when you're burnt out you get sick and then you call in sick and then cause more overtime."

Closely related to overtime issues is that of being on call. On-call employees are required to come in to work, usually within one hour, whenever there is a staffing gap, such as when someone is sick and no volunteers are available. On-call work is less manageable for staff and creates more scheduling problems, especially for parents with young children, according to dispatcher interviews.

Section IV: Employee and Job Characteristics and Trends

Employee Characteristics

According to the U.S. Department of Labor (2007b), in May 2007 there were 93,670 workers nationwide in the job category "Police, Fire, and Ambulance Dispatchers," which they define as workers who "receive complaints from the public concerning crimes and police emergencies. Broadcast orders to police patrol units in vicinity of complaint to investigate. Operate radio, telephone, or computer equipment to receive reports of fires and medical emergencies and relay information or orders to proper officials." Most of these are employed by local governments (approximately 87 percent). The remainder work for health care services (five percent), state government (five percent), hospitals (one percent), and colleges and universities (one percent).

Civilian/sworn status: Most of manager/director respondents to the center director survey indicated that they were civilians (59 percent). Over one-third (36 percent) were sworn personnel in law enforcement, one percent were sworn personnel in fire departments, and five percent said they had another status. There was no significant difference in manager status by center size.

Most of the employees reported that they are civilians (90 percent), whereas a small percentage indicated that they are sworn personnel in law enforcement (five percent), fire (two percent), or something else (three percent). Those indicating something else included civilians who worked in fire, law, or EMS or otherwise sworn civilians. Employees of small centers were significantly less likely to be civilian (81 percent) compared to employees of medium (94 percent) or large (93 percent) centers.

Almost all civilian managers/directors had employees who were also civilians (97 percent). Sworn managers/directors were most likely to have employees who were civilians (72 percent) but about one-fourth were sworn personnel (24 percent).

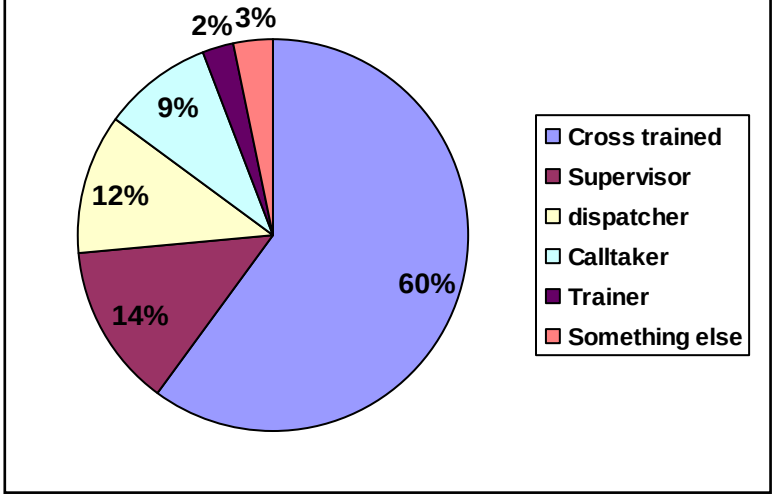
Years of service: Center directors/managers indicated an average of 14 years of service in their communications centers**.** They had an average of eight years in their current position.

Employees reported an average of eight years of employment in their communications centers. Regarding employment in their current position, employees reported an average of 7.5 years. Employees in large centers reported a longer average years of employment in the communications center (8.9 years), compared to employees in small (7.2 years) and medium (7.4 years) centers.

Employment status: Most surveyed employees (96 percent) work full-time. There were no significant differences in employment status by gender or center size.

Primary role: Asked, "Right now, what is your primary role in the communications center?" the majority of respondents said that they are cross-trained as calltakers/dispatchers (60 percent), 14 percent work as supervisors, 12 percent work as dispatchers, nine percent work as calltakers, two percent as trainers, and three percent as something else.

Exhibit 7. Primary role, N = 617



Schedule: Employees were asked to choose a category that best reflects their work schedule. The most common type of schedule is permanent assignment (41 percent), followed by rotation by bid (28 percent). Less common schedules include automatic rotation (16 percent), semi-permanent assignment (eight percent), or something else (six percent).

In a series of follow-up questions, employees were asked for more detail about the shift selection process. About 40 percent of employees said that assignments are made by employee bid, 39 percent indicated that assignments are made by seniority preference, 31 percent said that shifts are assigned by a supervisor, 22 percent said that shifts are made by automatic rotation on a regular basis, and 11 percent said that shifts are customized to meet employee needs. Only about one percent of employees indicated that their centers assign shifts based on random drawing from a pool.

Among employees in centers that do use bids, these are most often determined by seniority (69 percent) or something else (28 percent). Only about three percent said that bids are made by rotating seniority.

Scheduling procedures do vary according to the size of the center. Employees in small centers were significantly more likely to indicate that shifts are customized to meet employee needs (21 percent vs. nine percent in medium centers and five percent in large centers), or that assignments are made by automatic rotation on a regular basis (28 percent vs. 19 percent in medium centers and 16 percent in large centers). Employees in large centers (55 percent) and medium centers (46 percent) were significantly more likely than employees in small centers (14 percent) to say that assignments are made by employee bid.

Many employees who were interviewed for this study mentioned scheduling as a major issue for them: in some cases they were pleased with their center's schedules, and in others they were displeased, at times very much so. Most staff understood when hired that scheduling requires 24/7 coverage, which means that someone has to work

nights, weekends, and holidays – others stated they did not know that 24/7 work was required until after they started working. One dispatcher noted that scheduling and working holidays were reasons for the high turnover rates at her center. Some staff noted their displeasure with rotating schedules where they had only one full weekend off every six weeks. Overtime, as discussed previously, is also directly related to scheduling issues. The ability to choose their schedule was important to several interviewed dispatchers, since it allowed them to balance childcare, family, school and other commitments.

Unionization: A sizeable minority of employees said that they belonged to a union or collective bargaining unit (42 percent). There was no significant difference in unionization by civilian vs. sworn status or by center size.

Education: Respondent education levels were very similar to those reported in the 2005 study. The largest group had some college (no degree) (41 percent), followed by high school graduates (19 percent), Bachelor's degrees (16 percent) and Associates degrees (13 percent).

Gender: Respondents to the manager/director survey were more likely to be male (60 percent). The majority of employee respondents (74 percent) were female, and 26 percent were male. These findings are quite consistent with the 2005 study, which found that 56 percent of managers/directors were male and 72 percent of employees were female. They are also consistent with manager/directors' responses to the question: "What percentage of all calltakers/dispatchers in your center are women?" The responses, illustrated in Exhibit 9, show that women make up more than 75 percent of calltaker/dispatcher personnel in fully 45 percent of centers and between 50 and 75 percent of personnel in another 31 percent of centers.

Exhibit 8. Education level of employees, N = 585

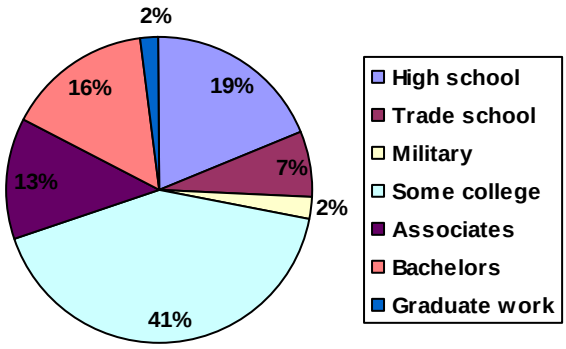
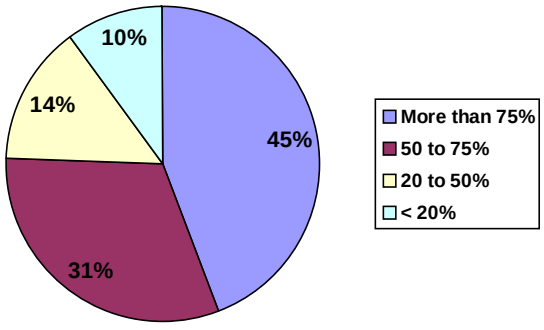


Exhibit 9. Percentage of calltakers/ dispatchers who are women, N = 178

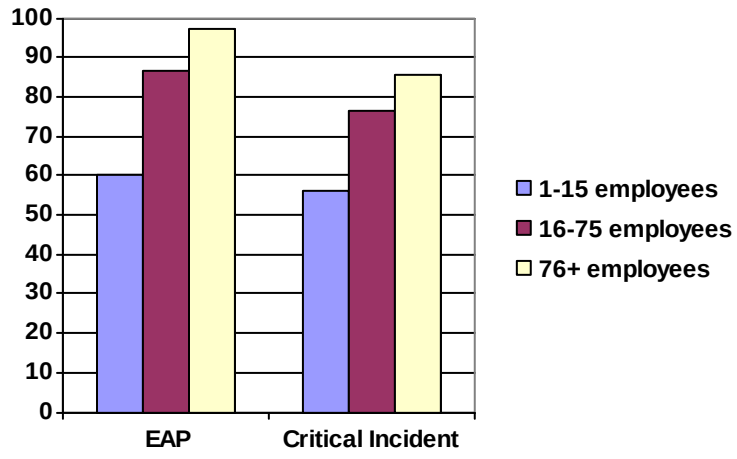


As expected, managers/directors were more likely to be older compared to calltakers and dispatchers. Among managers/directors, 17 percent were 56 or older, 42 percent were age 46 to 55, 30 percent were age 36 to 45 and 12 percent were under age 35. Among employees, seven percent were age 55 or older, 23 percent were age 45 to 54, 32 percent were age 35 to 44, 31 percent were age 25 to 34, and seven percent were under age 25.

Employee Assistance, Benefits and Pay

The majority of employees surveyed said that their centers provide an **Employee Assistance Program** (EAP) (81 percent) and/or a **critical incident stress management** (CISM) (73 percent) as seen in Exhibit 10 on coping resources. Employee assistance programs are "company policies and procedures for identifying, or responding to, personal or emotional problems of employees which interfere, directly or indirectly, with job performance" (Walsh, 1982). Large centers are significantly more likely to provide both of these programs. Almost all (97 percent) employees of large centers said that their centers provide an EAP**,** compared to 87 percent in medium centers and 60 percent in small centers. Eighty-six percent of employees at large centers indicated that their centers provide critical incident stress management, compared to 77 percent in medium centers and 56 percent in small centers. In centers with an EAP, 61 percent of employees stated that they had used the program or know of a coworker who had used it.

Exhibit 10. Percent of employees reporting that their centers provide EAP and Critical Incident Stress Management, N = 176-180 small, 185-187 medium, 166-168 large

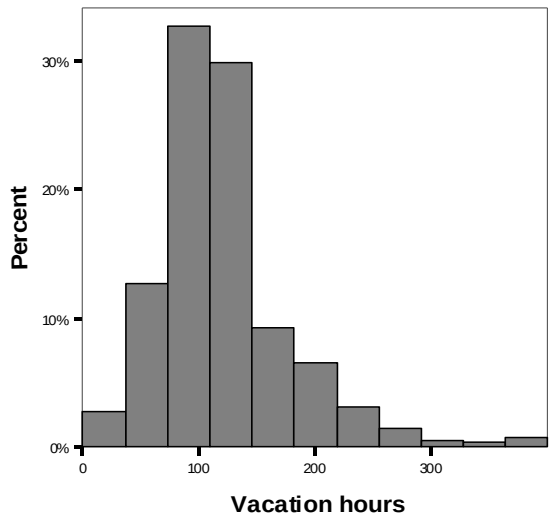


Comments from interviews highlighted some limitations of EAP programs, namely that EAP counseling is usually only accessible several days after the event, by which time the employee has less need of the assistance. According to interviews, immediate responses to critical incidents were usually handled by coworkers who provided peer support, supervisors who would help process the event with the dispatcher, or by specialized counseling teams from the police department or other agencies. Interviewees noted some cases where these support systems worked well and others where no support existed, in which cases blame was usually put on the supervisor. Many interviewed dispatchers mentioned the importance of immediate support after stressful situations, whether taking a break, getting more information about the outcome of the event, or counseling from peers, supervisors, or mental health specialists. The lack of such support increased staff distress and trauma.

Employees in most centers said that their employers provide **health insurance** for them and their dependents that is mostly paid for by the employer (89 percent). An even higher percentage (91 percent) said that their employers contribute to retirement savings or a pension plan. There was no significant difference in whether or not employers provided these benefits by centers size, but part-time employees were significantly less likely to receive these benefits. One-third of part-timers indicated that they receive health insurance (compared to 91 percent of full-time employees). A significantly smaller percentage (about 75 percent) of part-timers receives retirement benefits, compared to 92 percent of full-time employees. There were no significant differences in receipt of health insurance or retirement benefits among unionized and non-unionized employees.

Employees reported that they received from zero to 400 hours of **vacation time** per year, with 25 percent receiving less than 80 hours per year, half of employees receiving from 80 to 140 hours of vacation, and 25 percent receiving more that 140 hours per year. The average number of available vacation hours is significantly lower in small centers (108 hours) compared to medium (124 hours) and large centers (130 hours).

Exhibit 11. Number of vacation hours, N = 550



Asked how many **sick hours** they receive per year, employees responses ranged from zero hours to 340. Half of respondents reported receiving 96 or more sick hours per year, while half received less. There were no significant differences in the average number of sick hours by center size.

Half of full-time employees (excluding those whose primary role was supervisor) earn base pay of $37,000 or more (the median). According to the Bureau of Labor Statistics data on dispatcher wages from May 2007, the median national wage was $32,660 and the average was $34,060. The median hourly wage was $15.70 and the average was $16.38. Average wages varied from $14.76 among dispatchers at ambulatory health care services to $18.03 for state employees. For the highest paying states, average hourly wages reached $23.66 in California (US Department of Labor, 2007).

Average base pay was found to be significantly lower in small centers ($32,000) compared to medium ($43,000) and large centers ($45,000). This difference may be expected due to the fact that large employers tend to pay more than smaller ones (Hope and Mackin, 2007), and is probably also related to the higher cost of living in larger population centers. Base pay was not significantly correlated with call volume per em-

ployee.

The variation in wages from different type of agencies (e.g., local vs. state) and across agencies of the same type (e.g., different counties in the same state) can be a source of discontent for some employees. Many interviewed dispatchers mentioned the disparity in pay between their position and similar 9-1-1 positions in neighboring jurisdictions or with similar positions within their city or county. Many also felt that their pay should be higher given the responsibility involved, the aggravation of dealing with angry callers or the stress involved in dealing with emotionally charged situations.

In some cases, political factors influence employees' perceptions about pay, such as one center where the same local 9-1-1 board members who repeatedly proposed dispatcher pay increases later vetoed those pay increases at county level budget meetings, according to interviews. The increased expectation of raises led to more anger at leaders. A similar problem arises when 9-1-1 agencies with different pay scales merge; several dispatchers interviewed mentioned their displeasure with reductions in pay after a merger.

Other salary issues uncovered in interviews include anger at salaries for new hires that are higher than more senior staff, across the board frozen pay rates, and the lack of performance or seniority raises. Some staff with seniority believed they would never reach their maximum salary step since they only received cost of living allowance adjustments. A number of communications center employees are attracted by the large additional wages that can be earned from working overtime. One interviewed supervisor mentioned that she earned as much as $30,000 to $50,000 extra per year from overtime. Furthermore, she felt she could not afford to change jobs, since she would have such a large drop in income. Based on dispatcher interviews, many employees voluntarily work considerable amounts of overtime – as much as 20 hours per week – which significantly impacts their income and employment decisions.

Employee Experiences and Outlook

Beyond analysis of the social and organizational context in which our respondents are employed, it is important to consider the attitudes and experiences that are commonly found among employees as well. The employee survey questionnaire introduced a number of items that enable us to gauge the work orientations that exist among communications center employees. The general picture that emerges is one in which employees take great pride in their work, identify with their positions, and express a real commitment to their work organizations. Yet evidence of stress and strain is not far beneath the surface, as we report in the analysis presented below.

Most employees indicated that they are **proud** to work in the communications centers that employ them (54 percent strongly agree and 39 percent agree). The large majority can see themselves staying on the job at least five more years (64 percent said very

organization, and 27 percent said that is was somewhat likely. As one interviewed staff member stated: "I enjoy coming to work. I enjoy helping people…. You just can't get satisfaction like that unless you're doing a job in this field."

Two survey items tapping attitudes toward supervisors are revealing, especially inasmuch as supervisory treatment emerged as an important predictor of employee attitudes. Thus, the majority of employees said that their **supervisors are supportive**: 30 percent agreed strongly, 54 percent agreed, 10 percent disagreed and two percent disagreed strongly. Moreover, employees were almost as likely to agree that their supervisors really **appreciate the challenges** they face in their work situation: 28 percent agreed strongly, 51 percent agreed, 17 percent disagreed, and four percent strongly disagreed.

Employee respondents were somewhat less likely to agree that their supervisors often take time to **acknowledge when they have done something well**: 15 percent strongly agree, 46 percent agree, 31 percent disagree and nine percent strongly disagree. Employees were also less likely to agree that their centers have a **recognition program** for outstanding employee performance: 12 percent strongly agree, 38 percent agree, 36 percent disagree and 15 percent strongly disagree.

Employees at small centers were significantly more likely to agree strongly that supervisors often take the time to acknowledge when they have done something well: 21 percent, compared to 10 percent in medium centers and 16 percent in large centers. Conversely, employees at large centers were significantly more likely to indicate that their centers have an employee recognition program: 29 percent agreed strongly, compared to about eight in medium centers and seven percent in small centers.

Overall, employees had very favorable perceptions regarding their co-workers. Almost all said that they have **good relationships with their co-workers**: 39 percent strongly agreed, 57 percent agreed, three percent disagreed and one percent strongly disagreed. Employees in small centers were significantly more likely to say that they have good working relationships: 42 percent, compared to 34 percent in medium centers and 36 percent in large centers.

Similarly, most employees said that when they need help coping with the difficulties of the job, **there are people at work they can count on to help**: 36 percent strongly agreed, 53 percent agreed, 10 percent disagreed and two percent strongly disagreed. Employees generally agree that their co-workers help them **perform their job the best they can**: 27 percent strongly agreed, 65 percent agreed, seven percent disagreed, and one percent strongly disagreed. Employees in medium centers were significantly more likely to agree strongly that their coworkers help them perform the best job they can: 26 percent, compared to 23 percent in small centers and 22 percent in large centers.

Employees were less likely to generally agree that their co-workers **conduct themselves in a professional manner**: 17 percent strongly agreed, 68 percent agreed,

13 percent disagreed and two percent strongly disagreed. Employees in small centers were significantly more likely to agree strongly that their coworkers conduct themselves in a professional manner: 23 percent, compared to nine percent in medium centers and 13 percent in large centers.

Respondent interviews revealed somewhat less skepticism about support from co-workers. Most calltakers and dispatchers interviewed said that a 'shout out' for help would be immediately responded to by someone on their team:

> "We have worked with each other for a long time. And so they know you well enough to know that if you're asking for help, then you seriously need help. And they're really good about jumping in."

Crisis situations may actually bring staff closer together, as another dispatcher noted:

> "I think my coworkers are very supportive. I love to watch - sounds bad, but I love to watch - a big, bad critical incident happen in here, because all the petty stuff just disappears. We all pull together. It is wonderful how we all work together, a great sense of teamwork."

Employees were somewhat divided about prospects for promotion. Most did not feel strongly that there is **opportunity for promotion** to a higher paying or more responsible position: 10 percent agreed strongly, 39 percent agreed, 33 percent disagreed, and 18 percent disagreed strongly. Employees were less likely to agree that their **possibility for advancement or promotion within the next couple of years** is good: eight percent agreed strongly, 28 percent agreed, 37 percent disagreed, and 26 percent disagreed strongly.

Employees' perceptions of likelihood of promotion differed by center size, civilian versus sworn status, union status and education. Employees in large centers were more likely to agree that there is opportunity for promotion to a higher paying or more responsible position: in large centers 76 percent agreed or strongly agreed, compared to 53 percent in medium centers and 19 percent in small centers. Similarly, employees in large centers were more likely to agree that their possibility for advancement in the next couple of years is good.

Employees in civilian status were significantly more likely to agree that there is opportunity for promotion to a higher paying or more responsible position: among civilians 11 percent strongly agreed and 40 percent agreed, compared to six percent and 25 percent respectively for employees in sworn or other status. Employees in non-union centers were significantly more likely to agree that there is opportunity for promotion to a higher paying or more responsible position: among employees in non-union centers, 14 percent strongly agreed and 37 percent agreed, compared to five percent and 42 percent that agreed among employees in union centers. Employees who had completed graduate-level work were significantly more likely than others to agree that their likelihood of promotion in the next couple of years is good.

Interviews with dispatchers supported these findings by noting a number of issues related to promotions. One assistant supervisor noted that as the communications center was expanding, opportunities for promotion would increase, as well. Two center managers noted that some newly hired staff members view the dispatcher role as a first step towards other law enforcement positions, such as Sheriff's deputy. Some dispatchers said that even though they had previous management experience, they wouldn't take a supervisory position at a communications center because attitudes towards management were unfavorable. Others reported a lack of career development and promotion opportunities.

Asked how strongly they agree with the statement that their work is **appreciated by the public**, most responses fall within the middle two categories: 10 percent strongly agreed, 51 percent agreed, 29 percent disagreed and 11 percent strongly disagreed. A similar question was asked in the 2005 study: "Do you think your work is appreciated by the public?" with yes and no as the only answer options. That study found that 41 percent agreed that their work is appreciated by the public. Some dispatchers noted the stress involved when dealing with angry callers, especially those cases where the caller berates and screams at the dispatcher, even when there is no emergency taking place.

Employees were also asked how strongly they agree with the statement that: "My work is **appreciated by the media**." Overall, responses indicated slightly more skepticism in this area: four percent agreed strongly, 46 percent agreed, 37 percent disagreed, and 12 percent strongly disagreed. Nonetheless, this appears to be a substantial increase over the 18 percent who said they felt appreciated by the media in the 2005 study.

There was quite a bit of variation in how often employees feel they must handle **emotionally difficult situations**, with employees in large centers reporting significantly more frequent instances than employees in small and medium centers. In large centers, about 59 percent of employees said they must handle difficult situations once or more per shift, compared to 42 percent in medium centers and 32 percent in small centers.

Significant differences in responses for employees were also observed for the second question: "How often would you say it is true that on your job you have to handle **traumatic situations that are going to end badly no matter what**?" Sixteen percent of employees in large centers say that they handle these situations once or more per shift, compared to seven percent in medium centers and five percent in small centers.

Employees at large centers were significantly more likely to indicate that their centers provide **critical incident stress management** and employee assistance programs. Eighty-nine percent of employees at large centers indicated that their centers provide critical incident stress management, compared to 67 percent in medium centers and 52 percent in small centers. Significantly more employees at large centers (95 percent) indicated that their centers provide **employee assistance programs**, compared to 82

percent in medium centers and 55 percent in small centers.

There was quite a bit of variation whether employees agreed with the statement that the shift selection process allows them to meet **family obligations**: 14 percent agreed strongly and 48 percent agreed, but 25 percent disagreed and 13 percent disagreed strongly. There were no significant differences by sex, but employees in large centers were significantly more likely to agree that their center's shift selection allows them to meet their family obligations. In large centers, 20 percent agreed strongly, compared to nine percent in medium centers and 14 percent in small centers. In medium size centers, employees were least likely to strongly agree that their center's leave policy allows for **personal time** as needed: 22 percent, compared to 30 percent in small centers and 32 percent in large centers.

Most employees agree that their job requires them to **do things just the way they are told**: 33 percent strongly agree, 55 percent agree, 11 percent disagree, and one percent strongly disagree. There was less agreement with the statement that "The amount of **work I do is carefully measured** by the people above me": 18 percent strongly agreed, 43 percent agreed, 31 percent disagreed, and eight percent strongly disagreed. There were no significant differences in responses by center size.

Section V: Retention and Turnover Rates

The Bureau of Labor Statistics provides annual turnover data[3] by industry. For 2007, the total turnover rate was 39.7 percent for all industries, ranging from 15.3 percent in state and local governments to over 71 percent in the leisure and hospitality industries. Regional job turnover rates varied from 31.5 percent in the Northeast to 43 percent in the West (US Department of Labor, 2008).

Thus, turnover varies sharply across industries, occupations and geographical locations. Yet it is important to understand that the consequences of turnover also vary sharply. In branches of the economy where skill requirements are relatively low or where the human and societal consequences of poor performance are relatively limited (as in food service work, for example), the costs of high turnover may themselves be low. In other branches of the economy, a constant hemorrhaging of skilled or motivated personnel may have a rather different and more serious impact.

Calltaker/Dispatcher Retention Rates

The previous Project RETAINS study calculated the turnover rate for each agency as the total number of employees who left employment in the previous year, divided by the total number of current employees. The retention rate was then calculated as the inverse of the turnover rate, multiplied by 100.

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

Retention Rate = [1 – Turnover Rate] x 100

With this methodology the 2005 study found an average retention rate of 83 percent, ranging from 23 to 100 percent (or a turnover rate of 17 percent). This rate, it was noted, was not unlike the turnover rates found in another study of communications centers (16 percent)[4], and turnover rates for other professions, such as nurses and teachers (15 percent).

In order to maintain continuity, the same method is used in this report to calculate the retention rate. Thus, the retention rate calculated for each agency is based on the number of staff that left last year divided by the total number of current employees. In order to calculate the total number of staff that left last year, we added up the numbers provided by center directors for the following two variables:

[3] Turnover here is defined as the number of total separations during the entire year as a percent of annual average employment.
[4] Yearwood, D., 2004. Recruitment and Retention of Public Safety Telecommunicators. *Public Safety Communications*, APCO International: pp. 9-10.

1) How many of the new hires from 2007 “washed out” during the training/ probationary period?

2) How many calltakers and dispatchers who had completed training and probation left the center in 2007?

The present study found an average retention rate of 81 percent using current employees as the denominator, with a range of -100 to 100 percent retention. This retention rate is three percentage points lower than the rate calculated in 2005, and shows greater variation in center experiences. Centers with a negative retention rate—that is, those which actually hired more people in 2007 than they retained—tended to be small and medium sized centers.

Because of the strong effect of a relatively small number of centers with very low retention rates on the mean, it may be more useful to consider the median retention rate. The median retention rate among all centers is 91 percent. The bottom quartile (25 percent) had retention rate of 73 percent or less. The top quartile had a retention rate of 100 percent.

Although there is not a statistically significant difference in retention rates by agency size, we do see that large centers have a higher mean rate with less variation, whereas the retention rate for small and medium sized centers is affected by a small percentage of centers that experienced low or very low retention rates. Small centers had a median retention rate of 92 percent, with a mean of 81 percent. Medium size centers had a median retention rate of 90 percent and a mean of 83 percent. Large centers had a median rate of 90 percent and a mean of 89 percent.

Exhibit 12. Agency retention rate by size, N = 86 small, 52 medium, 20 large

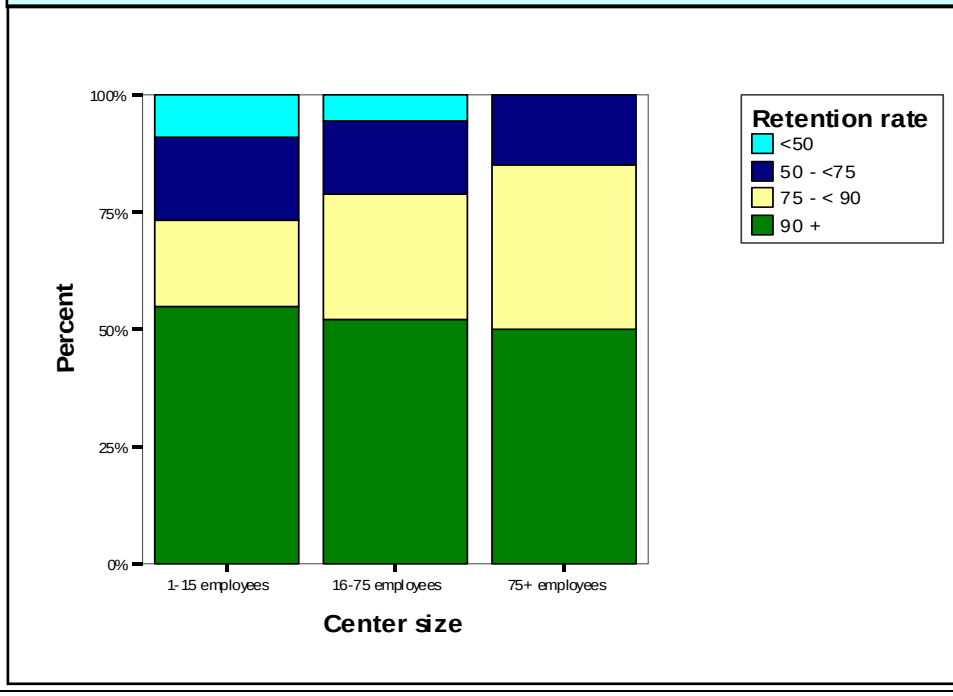


Exhibit 12 compares retention rates by agency size. The bars represent small, medium, and large agencies. Each bar shows the percentage of agencies that fall into various categories of retention rates. Comparing across agency sizes, the graph shows that agencies in all three size groups were about equally likely to have a retention rate of 90 percent or greater, but small and medium size agencies were more likely to have low or very low rates.

The data presented above indicates that, for small and medium size centers, very low retention (or high turnover) can be problematic, but affects a relatively small percentage of centers in a given year. Two possible circumstances would affect how these findings are interpreted. The first is the possibility that all small and medium size communications centers are vulnerable to experiencing very high turnover occasionally. The other is that a small percentage of small and medium centers may consistently lack the resources, organizational culture, management, hiring or staffing policies necessary to retain employees and thus face continuing risk of understaffing. For larger centers, there is less variability, with some centers facing low, but generally, not critical, retention levels.

Asked directly about **turnover trends**, a majority of center directors and managers believed that retention is an issue in their centers: 56 percent indicated that employee retention has decreased over the past three years, 23 percent indicated that retention remained the same and 22 percent said that retention had increased. By size, small and medium centers were significantly more likely to report that staff retention had decreased over the past three years: 56 percent of small centers and 57 percent of medium centers, compared to 41 percent of large centers. Large centers were most likely to report that staff retention had increased during the past three years. One interesting fact from the telephone survey is that employees had worked an average of eight years in their communications center, with an average of 7.5 years at their current position. In general, this is a fairly considerable period of time, but still leads to approximately 13 percent annual turnover. The centers with higher turnover rates (especially over 50 percent) may have a small number of staff who have been long term employees, while also having many new hires who do not remain on the job long. This would help explain the congruence between the relatively high turnover rates and the relatively long average time with the centers.

In reference to the previous year only, directors of small centers were significantly more likely to indicate that their centers met **authorized staffing levels** all year (49 percent of small centers vs. 19 percent of medium centers and nine percent of large center). Large centers were more likely to be staffed consistently below authorized levels (55 percent of large centers vs. 18 percent of small centers and 45 percent of medium centers).

In sum, because of their smaller size, small and medium size agencies appear to be vulnerable to low retention rates in a given year because a few separations can have a dramatic impact on the retention rate. At the same time, most small centers have high retention rates and were more likely to say that staffing levels met authorized levels the

previous year.

Overall, retention rates for communications centers compare quite favorably to other industries, including government. However, given the considerable time and expense needed to train calltakers and dispatchers and the importance of maintaining center staffing levels, communications centers may need to set and keep a very high standard for retention rates and thus make a concerted and continuing effort to retain staff. This report will look in more detail at factors that contribute to employee commitment to the job and highlight some of the areas in which investment in staff recruitment may have an impact on retention rates.

Predicting Communications Center Retention Rates

Data from the director survey were used to create a model to predict center retention rates. The purpose was to predict center retention rates for 2007 using a variety of measured items related to center characteristics, workload, performance, and pay and benefits data. Appendix A provides more detailed information about how the analysis was conducted and statistical findings.

Our analysis revealed several center-level characteristics that help predict employee retention rates. First, retention rates increase as the hourly pay rate for new hires increases. Indeed, a two dollar increase in the hourly pay rate would increase retention rates in a given center by an estimated three and a half percent (a sizeable amount, especially for centers experiencing retention and recruitment issues).

Second, retention rates fall when overtime is a frequent necessity. Indeed, where overtime is a frequent necessity, centers experienced retention rates that were on average an estimated13 percent lower than other centers, even when taking other relevant center characteristics into consideration.

Third, retention rates improve where part-time workers are used with some frequency—a finding we interpret as underscoring the importance of flexible work arrangements (a matter discussed further below), helping to reduce mandatory overtime, and allowing for changes in schedule (for example, when family circumstances change and workers need to reduce their hours).

And finally, the data suggest that retention rates improve when the relationship between management and employees is good.

Although not quite significant, retention rates were lower in centers where the directors more strongly believed that there are too few qualified candidates in the community to fill center vacancies.

Although the models tested were not exactly the same as the models used in the 2005 RETAINS report, the findings are consistent in several respects: overtime and pay rates are strongly related to center retention rates. This analysis, combined with the

findings from the 2005 report, provides a great deal of insight into center conditions that may affect retention rates. Below is a summary of factors found to have an impact on retention rates (items marked with an asterisk were tested and found to be significant in the 2005 report, but not tested here).

1. hourly base pay
2. necessity for overtime or total overtime hours
3. quality of employee/management relations
4. employee satisfaction *
5. use of part-time workers
6. job complexity (number of tasks) *

Section VI: Predicting Organizational Commitment

The concept of organizational commitment is a strong conceptual tool with which to understand both employee retention and motivation. In an influential study of organizational commitment, Angle and Perry (1981: 2) defined the concept in terms of three attitudinal and behavioral elements: (1) employee acceptance of the organization's goals; (2) the employee's willingness to "exert considerable effort on behalf of the organization"; and (3) the employee's intention to remain employed within the organization itself. Similarly, Romzek (1990) defined organizational commitment in terms of loyalty to the organization, shared values, and belief in importance of the agency's mission. Levels of commitment may be related to several outcomes for an agency, including attendance and turnover, as well as performance "'above and beyond' the call of duty" (Romzek, 1990). Angle and Perry conclude that "commitment is not only a predictor of employee retention… but may also be a predictor of employee effort and performance."

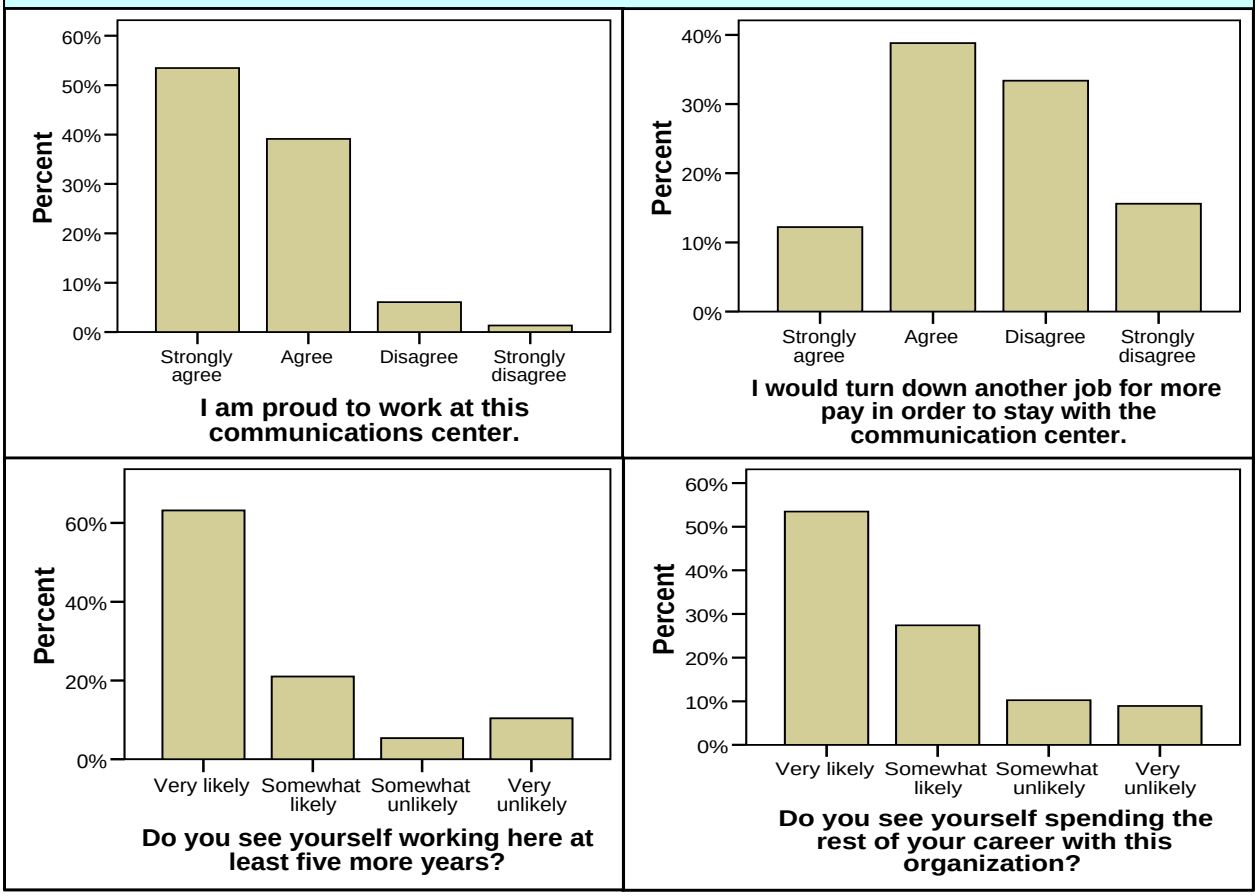
For the purposes of this study, we have drawn on several previous studies that developed useful measures to capture the concept of employee commitment to the organization (Blair-Loy and Wharton 2004; Clay-Warner, Hegtvedt, and Roman, 2005; Lincoln and Kalleberg 1990). Given limitations of space, we have condensed the most ambitious indices, employing the items shown in Exhibit 13.

Exhibit 13. Organizational commitment scale components
I am proud to work at this communications center
I would turn down another job for more pay in order to stay with the communications center.
Do you see yourself working here for at least five more years?
Do you see yourself spending the rest of your career with this organization?

Employees were asked to indicate their responses to each of these items. The possible responses to each question ranged from one (strongly disagree or very unlikely) to four (strongly agree or very likely). To construct a unitary measure of organizational commitment, we summed employee responses to these four questions. This sum functions as an index, with scores ranging from four (the lowest level of commitment) to 16 (the highest score).

The results indicate that communications center workers hold generally high levels of commitment: the average score was 12.5 -- well above the mid point for the index.

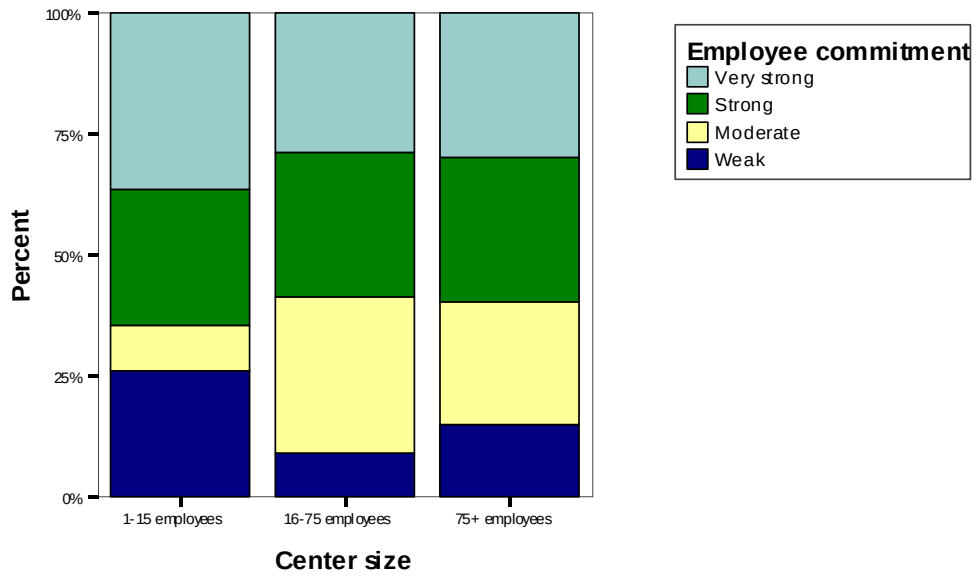
Exhibit 14: Items measuring employee commitment



There were significantly more strongly committed employees in small centers and fewest in medium size centers, although the average employee commitment score did not vary significantly by center size. Exhibit 15 below shows *employee commitment* (grouped into categories of very strong, strong, moderate and weak) by center size. About 36 percent of employees in small centers were in the 'very strong' group, compared to about 26 percent of employees in medium and 28 percent in large centers. However, smaller centers also had the largest percentage of employees with weak commitment: 23 percent, compared to 15 percent in medium centers and 19 percent in large centers.

What is salient from this data is that small centers have smaller proportion of employees who are moderate in their commitment to their organization compared to medium or large centers. The reason for this more extreme valuation of commitment from small center employees bears further study: are there certain work practices or social dynamics that exist in small centers that are conducive to more extreme levels of satisfaction or dissatisfaction by employees?

Exhibit 15. Employee commitment by center Size, N = 179 small, 188 medium, 180 large



The meaning of this last point can be seen at a glance by reviewing employee responses to the individual items, as shown in Exhibit 14. Here we see that most employees are in fact proud to work in the communications centers that employ them (54 percent strongly agree and 39 percent agree). A large majority see themselves staying on the job at least five more years (64 percent see this as "very likely"). Longer-term commitment was also strong: 53 percent said it was very likely that they would spend the rest of their career with the organization, and 27 percent said that was somewhat likely. However, about half of respondents would not turn down another job for more pay just to stay with their current communications center (highlighting the importance of pay rates noted earlier in this report).

The question then becomes: Which aspects of center work most powerfully impinge on employees' levels of organizational commitment? The answers should hold importance for decision makers at various levels within the public safety field.

Our survey questionnaire was designed to incorporate several sets of job and organizational influences that might conceivably impinge on organizational commitment, and which are commonly employed within studies in organizational behavior. First, we included aspects of job design – that is, the characteristics of the tasks that workers must routinely perform. Here we included measures of the substantive complexity of workers' jobs, the closeness of supervision employees encounter on their jobs, and their level of exposure to emotional strain. Second, we included measures of the social

support and appreciation they experience while performing these tasks. In this vein, we included items that tap the degree to which they encounter supportive supervision, supportive relations with their co-workers, and perceived recognition from both their employers and from the public at large. We also included items tapping the resources their jobs provide, including opportunity for promotion and the ability to vary their working schedules (through flexible work arrangements). Finally, the survey questionnaire also included items relating to organizational (communications center) characteristics as such. Here we included variables relating to organization size, the salary level at the center, the presence of a recognized union, knowledge of Project RETAINS, and other such items.

We performed a statistical analysis (known as factor analysis) to test how these various items are related to one another (see Appendix A for a more detailed description). From this larger pool of measured items, we found that nine distinct factors emerged from our survey analysis:

- Supportive supervision
- Co-worker support
- Opportunity for promotion
- Job complexity
- Perceived recognition
- Exposure to emotional strain
- Coping resources
- Flexible work arrangements
- Closeness of supervision.

These factors are described in more detail below.

Supportive supervision

Studies of human relations in the corporate world have long underscored the importance of supervisory patterns that provide recognition and support to front-line employees. Moreover, supportive supervision is likely to be of particular importance to public safety professionals given the stressful and sometimes traumatic nature of their work. This view is supported by the 2005 DRI study of communications center workers, which found that retention rates were significantly affected by supervisory patterns that provided employees with a sense of appreciation and recognition. With these points in mind, the survey questionnaire included four items that were designed to capture employee perceptions of their immediate supervisors.

The four questions in exhibit 16 were combined into one scale measuring how supportive employees perceive their supervisors to be.

Exhibit 16. Supportive supervision scale components
The supervisors I work with are supportive of me.
My supervisor really appreciates the challenges I face in my work situation.
Supervisors often take time to acknowledge when I have done something well.
My center has a recognition program for outstanding employee performance.

Each of the four questions that make up the supportive supervision scale was scored as follows: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Summing across the questions, possible scores on the scale range from four to 16. The most supportive supervision is represented by a score of 16, and the weakest by a score of four. Observed scores ranged from four to 16 with an average of 11.

Co-worker support

Quite apart from levels of support from supervisors, social scientists have also emphasized the importance of peer-based social support. Beginning in the late 1970s, for example, the Institute for Social Research at the University of Michigan demonstrated that levels of peer support often served to protect employees against the adverse impact of harsh, onerous or stressful working conditions. Subsequent studies have shown that social networks have similar effects. Thus, the four survey items shown in exhibit 17 were combined into one scale measuring the quality of relationships and mutual support among co-workers.

Exhibit 17. Co-worker support scale components
My co-workers conduct themselves in a professional manner.
My co-workers help me perform my job the best I can.
I have good working relationships with my co-workers.
When I need help coping with the difficulties of my job, there are people at work I can count on to help.

Each of the four questions that make up the co-worker support scale was scored as follows: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Summing across the questions, possible scores on the scale range from four to 16, with a score of 16 representing the most co-worker support. Observed scores ranged from four to 16 with an average of 13.

Promotion

The structure of opportunity within an organization—that is, its provision of job ladders or policies involving promotion from within—has often been found to have significant bearing on attitudes and behaviors toward work, including retention, motivation, and even physical well being and longevity (Kanter 1977; Cambois 2004). Two survey items regarding employees' perceptions about promotions in their work situation (shown in exhibit 18) were combined into one scale.

Exhibit 18. Promotion scale components
On my job, there is opportunity for promotion to a higher paying or more responsible position.
Your possibility of advancement or promotion within the next couple of years is good.

The two questions that make up the promotion scale were scored as follows: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Summing across the questions, possible scores on the scale range from two to eight. A score closer to eight indicates greater optimism regarding likelihood or promotion. Observed scores ranged from two to eight with an average of five.[5]

Job complexity

Research on job complexity has often shown that this aspect of workers' jobs has long term effects on cognitive styles, self esteem, intellectual flexibility, and other variables (Kohn and Schooler 1983). Some research has also suggested that workers who perform jobs that underutilize their skills are likely to show low levels of organizational commitment as well (Angle and Perry 1983). To determine the importance of job complexity, we utilized three survey items (see exhibit 19).

Exhibit 19. Job complexity scale components
My job requires split-second decision-making.
My job requires that I use a number of different skills
My job requires that I multi-task.

The three questions that make up the job complexity scale were scored as follows: 1 =

[5] It is worth noting that levels of opportunity for promotion are strongly correlated with the size of the center. In large centers, fully 76 percent of respondents agreed or strongly agreed that there is opportunity for promotion to better paying jobs, compared with 53 percent in medium sized centers and only 19 percent in small centers.

strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Summing across the questions, possible scores on the scale range from three to 12. A score closer to 12 indicates greater perceived job complexity. Observed scores ranged from eight to 12 with an average of 12, indicating that most employees strongly agree on all three measures of job complexity.

Perceived recognition

The Human Relations tradition within management theory has long stressed the need for organization to provide employees with symbolic gratifications, including a sense of appreciation, recognition, and belonging. The two items found to best represent perceived recognition are shown in Exhibit 20.

Exhibit 20. Perceived recognition scale components
My work is appreciated by the public.
My work is appreciated by the media.

The two questions that make up the perceived recognition scale were scored as follows: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Summing across the questions, possible scores on the scale range from two to eight. A score closer to eight indicates greater perceived appreciation by the public and the media. Observed scores ranged from two to eight with an average of five.

Exposure to emotional strain

Studies of job stress and worker strain have expanded in recent decades. The literature usually approaches this dimension of work as an aspect of job or task design. Given the nature of communications center work (which often compels workers to handle urgent or even traumatic incidents as a “normal” feature of their working lives), we were keen to include this dimension of workers’ jobs. Our factor results suggest that exposure to emotional strain does emerge as a separate factor, distinct from other features of job design such as the closeness of supervision or the complexity of the job. We used two items to tap this element of the job:

Exhibit 21. Exposure to emotional strain scale components
You likely deal with a wide range of situations every day, from the routine to critical emergencies. On an average day, about how often do you handle situations that are very intense or emotionally difficult?
How often would you say it is true that on your job you have to handle traumatic situations that are going to end badly no matter what?

The first question was scored as follows: 1 = less than once per month or never, 2 = once or more per month, but not every week, 3 = once or more per week, but not every shift, 4 = about once per shift and 5 = several times per shift. The second question was scored as follows: 1 = less than once per month or never, 2 = once or more per month, but not every week, 3 = once or more per week, but not every shift and 4 = once or more per shift. Summing across the questions, possible scores on the scale range from two to nine. A score closer to nine indicates handling difficult situations more frequently. Observed scores ranged from two to nine with an average of six.[6]

Coping resources

Akin to our measures of social support from supervisors and co-workers, our survey questionnaire included items designed to capture the availability of formal policies or programs that might help workers cope with job-induced stresses and strains. Two survey items measuring coping resources made available at the communications centers in which employees work were combined into one scale (see exhibit 22).

Exhibit 22. Coping resources scale components
Does your agency provide critical incident stress management?
Does you agency provide Employee Assistance Programs?

The two questions that make up the stress management resources scale were scored as follows: 0 = no and 1 = yes. Summing across the two questions, possible scores on the scale range from zero to two. A score of zero indicates that neither resource is provided; a score of one indicates that one but not both resources are provided, and a score of two indicates that both resources are provided. It is important to note that these coping resources are significantly correlated with center size: 89 percent of employees at large centers indicated that their centers provide critical incident stress management, compared to 67 percent in medium centers and 52 percent in small centers.

Flexible work arrangements

Studies of the work/family relationship have frequently found the ability to vary one's working days and hours is often a vital component of a desirable job, especially for employees with kinship obligations (not only to children but also to aging or ill parents and other relatives). Our survey questionnaire included items designed to tap employee access to flexible working arrangements. Two survey items regarding center schedule and leave policies/practices were combined into one scale (see exhibit 23).

[6] As expected, there was a significant difference in the mean scale score between employees in large and small centers: the larger the center, the greater the exposure to emotional strain. Workers in larger centers were roughly twice as likely as workers in smaller centers to report having to handle difficult situations on a regular basis.

Exhibit 23. Flexible work arrangements scale components
The shift selection process allows me to meet my family obligations.
My center's leave policy allows for personal time as needed, i.e., family emergency, illness, etc.

The two questions that make up the scheduling and leave scale were scored as follows: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Summing across the two questions, possible scores on the scale range from two to eight. A score closer to eight indicates perception of better leave and scheduling policies. Observed scores ranged from two to eight with an average of six. There was no significant difference in mean score by center size.

Closeness of supervision

Two survey items regarding employees' perceptions of closeness of supervision their work were combined into one scale (see exhibit 24).

Exhibit 24. Closeness of supervision scale components
My job requires that I do things just the way I am told.
The amount of work I do is carefully measured by the people above me.

The two questions that make up this index were scored as follows: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Summing across the two questions, possible scores on the scale range from two to eight. A score closer to eight indicates perception of more regulation. Observed scores ranged from two to eight with an average of six. There was no significant difference in mean score by center size.

Statistical Findings

We tested a statistical model to predict employee commitment (utilizing the employee commitment scale discussed at the start of this section). The model tested the ability of the nine factors describing employee and job characteristics to predict employee commitment. Three of these factors were found to be strongly related to employee commitment.

First, employees who feel they have supportive supervision in the communications centers (whether from supervisors or from coworkers) respond by holding significantly higher levels of commitment to the organization. Second, employees who perceive higher levels of recognition from the public and in the media likewise report higher levels of commitment to their jobs. Third, those who are given greater flexibility in their working schedules –that is, the opportunity to take leave or to vary their working hours

in accordance with family obligations – likewise develop higher levels of commitment.

Discussion

The results of this analysis are highly congruent with results obtained by other researchers looking at the predictors of employee commitment to the organization. Balfour and Wechsler (1996) in a study of the antecedents of organization commitment among public employees, conclude that "public employees are not predisposed to commitment on the basis of personal characteristics. Instead, commitment is influenced by experiences at work, the impact of organizational arrangements, and characteristics of the job itself (270-271)." Insofar as the work experiences of employees as well as institutional arrangements are subject to purposeful change and improvement, this is good news to employers who must maintain employee retention as a high priority.

Looking at the variables that emerge as most important in predicting employee commitment to the organization (and in turn, possibly other important factors such as employee effort and retention), **supportive supervision** stands out as one of the most important. Other researchers have found that supportive supervision plays an important role in employee commitment: "when employees believe that supervisors care about their well-being and trust them to do their work well, they will be more likely to desire to remain with the organization and to make extra efforts on behalf of the organization" (Balfour and Wechsler, 1996: 271). Recall from this study, supportive supervision was measured based upon the employees' perceptions of their supervisors as supportive, aware of the challenges employees face, and forthcoming with positive feedback, as well as whether the employee believed the center had recognition programs. It is worth noting here that small centers did better on the item regarding positive feedback from supervisors; large centers did better when it came to recognition programs; and medium size centers failed to stand out on any of the items measured.

Employee perceptions of **flexible work arrangements**, measured here as scheduling that allow employees to meet family obligations and leave that meets the employee's need for personal time, appears to be one of the strongest predictors of employee commitment. Scandura and Lankau (1997) review some of the advantages to employers of providing flexible work arrangements: lowered stress, increased job enrichment and autonomy, reduced tardiness and absenteeism, and improved job satisfaction and productivity. Some of the disadvantages that they note include increased costs, problems with scheduling and work coordination, difficulties supervising employees, and changes in organizational structure (p. 378). Although other studies have found more of an impact of such policies on female than on male employees (Scandura and Lankau, 1997) we did not examine family status in sufficient detail to make claims in this regard, and our analysis did not find a significant effect of gender.

Dalton and Mesch (1990) analyzed the results of a natural experiment in which one unit of a utility company instituted flexible scheduling while other units did not. They found a significant effect on employee absenteeism but failed to find, within the time-

frame utilized, an effect on employee turnover. Moreover, they note a major reason for the discontinuation of the program was the difficulty of making flexible work arrangements a possibility for all units of the company, many of which required 24 hour coverage and the coordination of work teams – not unlike the situation in communications centers. However, it may be useful for communications centers to seriously examine the ways in which employees' schedules can pragmatically be arranged to afford some flexibility without putting other organizational priorities at risk. For example, significant relationships emerged in the data between shift selection processes and employee commitment. Employees who said that shifts in their centers are customized to meet employees' needs had a higher mean score on employee commitment. Asked what would make her job better, one employee says simply "not rotate, so I can be with my family."

As an interviewee in a communications center noted, scheduling can have a negative affect on retention because of the need to cover holidays and less desirable shifts. "Who wants to work on Christmas and New Years? Who wants to be called at home during a hurricane and be told too bad for your family; if you don't come in here you're fired…. So we are always going to have to recruit and we are always going to have to pay overtime." Although the center this supervisor works in rotates schedules every few months, they do work to make exceptions for employees who need it. Another employee likes the flexibility of the work schedules, but notes that "a lot of people don't realize, it's long hours and just because you come in and prefer a certain shift that doesn't guarantee that you are going to stay on days or nights... So that's the biggest thing. People come into a field like this and they realize that this is a 24 hour a day, seven day a week job."

Interestingly, one of the most salient factors to emerge in our analysis is the importance of employees' perceptions that their work is **appreciated** by the public and the media. Romzek (1985) notes that "employees who perceive that their contributions to the public interest are recognized in the broader civic arena are much more likely to have high levels of organizational involvement. If undue criticism or lack of recognition are the current norm for public servants, the result may be lower levels of organizational involvement among employees at the very time when such attachment is more important than ever" (288). An employee remarks on appreciation and its effect on the work:

> "Even though you are not there, you are like the first responder because you are initiating certain [actions], you know, whether it's first aid or help for that patient. So it is exciting… It's nice to hear people come back and say that you have helped them. It's nice to have a caller actually say thank you so much, even on the call. It's just, it's kind of rewarding. It's not rewarding all the time. There are things that do happen that we just don't have control of, but for the most part it's nice."

One respondent notes how recognition from outside the center has improved and how that affects employees:

“It's only been within the last five or so years that dispatchers are actually getting recognized for doing a good job... Like we get commendation bars for a call that we all worked on instead of it just being the deputy or the people on the outside… It's definitely gotten a lot better, which helps the morale.”

Section VII: Predicting Psychological Distress

A further outcome measure of great interest here, beyond retention or commitment, relates to employee well-being –specifically, levels of psychological distress. Organizational and industrial psychologists have a long history studying the link between occupational conditions and such distress. The literature here has obvious importance in an occupational field where employees are routinely exposed to emergency situations and traumatic conditions. We therefore pay close attention to this outcome measure as well.

Essentially referring to evidence of cognitive and/or emotional strain reported by respondents, the concept of psychological distress is typically measured by items that inquire into the frequency with which employees experience feelings of anxiety, hostility, depression, and poor self-esteem. In this vein, the concept does not refer to symptoms of mental illness, but rather to signs of mental strain.

Although evidence of the link between occupational conditions and psychological distress varies across different types of work settings (e.g., see Karasek 1979; Marchand et al. 2005a), two major points emerge in the literature here. First, most analysts do find some sort of connection, whether it stems from highly intense job demands, work that provides employees with little or no control over the performance of their tasks, or overly harsh patterns of supervision. Second, some literature provides strong indication that the work/distress relationship can be moderated or reduced if compensating conditions (such as the availability of coping resources or social support) are available (Schaufeli, 2004). This literature has guided our analysis in the present study.

Emotional distress of employees is important to consider for both the effect on the well-being of the employee and in regard to consequences in the workplace. Consequences of untreated psychological distress for employees may include serious health and mental health problems (Marchand et al. 2005b).On the other hand, Staw, Sutton and Pelled (1994) summarize some of the findings related to the effects of positive emotion on workplace performance, which include increased task activity and persistence and enhanced cognitive functioning. Other effects include enhanced interpersonal attractiveness, a halo effect by which people with positive emotions are evaluated more positively by others, and increased social influence on others. Further, they note that employees who are in good moods may be more likely to help others. These authors found that employees with more positive emotions received more favorable supervisor evaluations and greater pay after 18 months and received greater supervisor and co-worker support.[7]

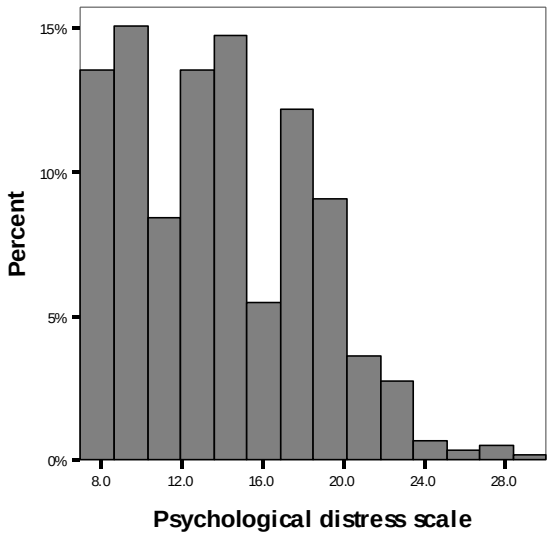
[7] These authors are careful to point out that their findings on the positive workplace outcomes of positive emotions do not preclude some beneficial outcomes of negative emotion, which may include ability to make critical evaluations, enhanced deliberate decision-making, or reduced workplace interruptions by co-workers (Staw et al, 1994).

To measure psychological distress, we have relied on work conducted by Fenwick and Tausig (1994) and Karasek (1979), which in turn rely on measures constructed and standardized by the World Health Organization. Our measure is a condensed index composed of the seven survey items shown in exhibit 25.

Exhibit 25. Psychological distress strain scale components
How often have you experienced the following problems over the last 30 days?
Felt so sad that nothing could cheer you up?
Felt hopeless?
Felt worthless?
Felt like everything was an effort?
How often have you experienced the following problems over the last 30 days while you were working?
Feeling your heart pounding or racing?
Feeling nervous or fidgety and tense?
Becoming very tired in a short time?

Each of the seven questions that make up the psychological distress scale was scored as follows: 1 = none of the time, 2 = hardly ever, 3 = some of the time, 4 = most of the time, and 5 = all of the time. Summing across the questions, possible scores on the scale range from seven to 35. Scores closer to 35 indicate higher psychological distress. Observed scores ranged from seven to 30 with an average of 14.

Exhibit 26. Psychological distress, N = 584



Statistical Findings

As in the analysis of employee commitment, we included the following scale variables in the model: perceived recognition, supportive supervision, flexible work arrangements, exposure to emotional strain, co-worker support, promotion, job complexity, coping resources, and closeness of supervision. We also included several individual and organizational items in the analysis.

The analysis indicates that lower psychological distress is found more often among employees who feel appreciated; older employees; and employees with more vacation hours. Employees who report more stress on the job have more negative psychological outcomes.

Discussion

It is worth noting that some of the same factors found to predict employee commitment emerge as significant in our analysis of the factors that predict psychological distress. Here again, **perceived recognition** for the work that they do plays a key role, and any gains organizations can make in improving this aspect of the job will likely pay off not only in terms of worker commitment and effectiveness, but also in their personal well-being.

Exposure to emotional strain also plays a key role. Data to construct this scale come from self-reported evaluations of how frequently employees face emotionally difficult situations on the job. This, as a subjective measure, most likely reflects a combination of *how often* difficult situations actually arise in combination with how stressful these situations are *perceived* by the employee.

Interventions designed to reduce emotional distress may be targeted to the individual employee or to the organizational level. Interventions designed to help individuals deal with stress may include programs to increase resilience and promote health and well-being (e.g., fitness programs, diet and nutrition programs, relaxation, stress management, and psychological counseling). Organizational-based interventions (e.g., increasing worker control, reducing the workload or improving training) may also hold potential (Danna and Griffin, 1999), although conclusive evidence of the effectiveness of such approaches for reducing worker emotional stress is lacking (Schaufeli, 2004; Reynolds, 1997).

Thus, it is prudent to carefully evaluate the sources of stress and the formal and informal means of dealing with stress within centers. Our survey results found that formal coping resources (employee assistance programs and critical incident stress management) are not uniformly available within agencies. Although formal coping resources provided by the agency did not emerge as significant predictors, formal and less formal support for work-related is something that needs to be built in to the work environment. One supervisor describes the following responses to stressful incidents:

> "We do try to be very cognizant of that. If it's a big incident we try to pull them from their positions as soon as they have finished the call. I will bring them in here or we'll take them outside… or into the break room "so what do you think?", you know, "what are you feeling?". We do offer counseling if they need it and most of all we encourage them to talk to their peers. I think that vocalizing what it is that you experienced, what you feel, is the only way that you are going to be able to comprehend that."

A center director reminds us that employees have highly differential responses to stressful incidents, which may make it difficult to predict which incidents will be stressful for employees over the short or long-term. It helps, therefore, when supervisors know employees well to recognize signs of distress. It is also important to foster an open work environment between employees and between employees and supervisors.

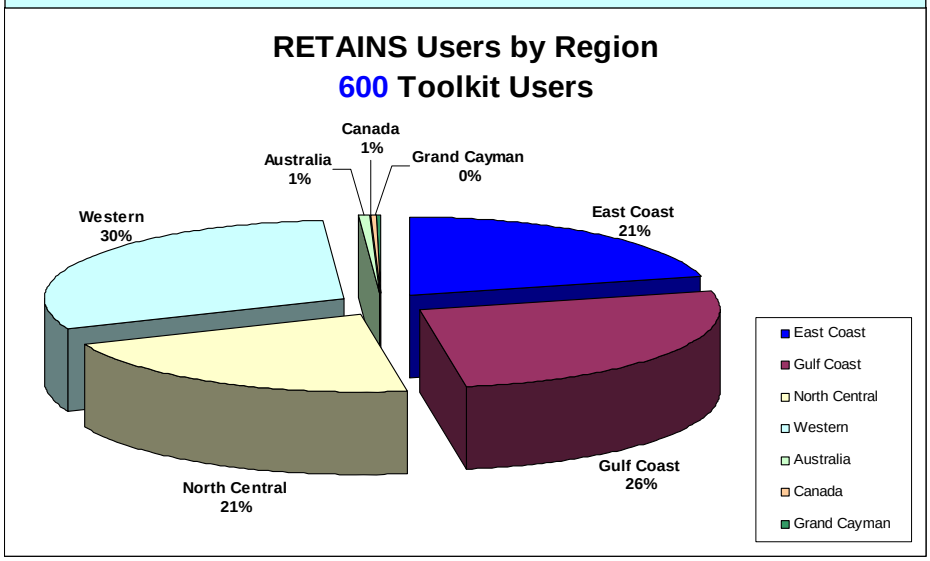
Section VIII: Project RETAINS

In response to many requests by communications centers for guidance regarding appropriate staffing levels, APCO's Project RETAINS committee developed an *Effective Practices Guide and Staffing Workbook* in August 2005. The guide and worksheets were developed to help communications center managers increase the effectiveness of their management practices, thereby improving staffing, retention, and employee satisfaction (APCO, 2005: 16).

The staffing workbook is designed to help centers estimate staffing needs to appropriate levels. Separate formulas are presented for calculating the staffing needed for "coverage" positions and "volume-influenced" positions. The goal for centers using Project RETAINS is to fill all authorized positions and then advocate for the appropriate number of additional positions based upon the estimations provided by the formulas.

Program data show that Project RETAINS had about 600 users as of August, 2007. Exhibit 27 shows Project RETAINS users by region, including a small percentage of international users. Among RETAINS users with known total call volume, the mean call volume was about 408,000 calls and the median was about 273,000 calls (n = 104).

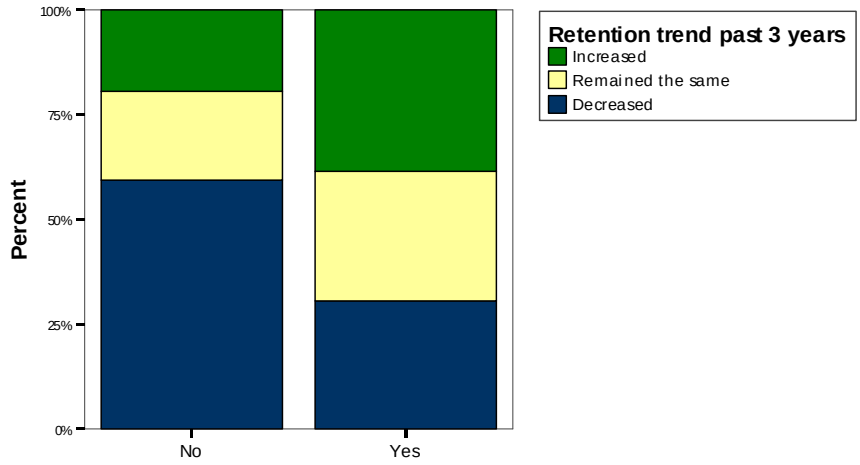
Exhibit 27: Retains Users by Region



The survey findings indicate that currently about 11 percent of communications centers have used Project RETAINS. Large centers were significantly more likely to have used RETAINS: 60 percent, compared to 29 percent of medium centers and four percent of small centers. However, when we look at the characteristics of all the centers in the sample that have used Project RETAINS, most (61 percent) are medium size.

While centers that have used RETAINS are more likely to say that the center was consistently below authorized staffing levels last year, they are also more likely to indicate that retention has increased over the past three years.

Exhibit 28. Retention trend over past 3 years in centers that have and have not used RETAINS, No = 135, Yes = 18



Among centers that have used Project RETAINS, most began using it in 2006. About two-thirds indicate that it has been very useful in predicting staffing needs and the remaining users said that it has been somewhat helpful.[8]

Asked how successful the tools from Project RETAINS have been at justifying staffing needs to governing authorities, most said that it had been somewhat (59 percent) or very successful (22 percent). Those with less positive results indicated that it had been somewhat unsuccessful (11 percent) or very unsuccessful (seven percent).

The centers that have used RETAINS would recommend it to other communications centers: 67 percent said they would be very likely to recommend it and 33 percent would be somewhat likely.

[8] Due to the small number of Project RETAINS users in the sample, this section has a low number of cases (N = 27) and should be interpreted with caution.

Section IX: Defining the Dispatch Position

This section looks in detail at staffing and workload data for public safety dispatchers, whose job it is to receive information from calltakers about individuals who need assistance from fire, police, and EMS agencies and to alert and dispatch the services necessary to respond to the call for help. Dispatchers thus have a variety of duties, including gathering information, dispatching appropriate types of units to the scene of an emergency, responding to field units and monitoring the location, and activities of emergency services personnel.

In response to requests from communications centers to provide guidelines for defining and staffing dispatcher positions, this section seeks to help establish these criteria based upon current practices in communications centers and best practices for staffing and workload. The data for this analysis come from surveys of communications center directors and managers, supervisors, and dispatchers.

Complicating the task of defining the dispatch position and establishing standard criteria for staffing is the wide variety of ways that these positions are structured across communications centers – making the exact work requirements for dispatchers highly contingent on a complex set of local factors. Some of the variations in the position are based upon:

1. Work setting. Public safety dispatchers may work in a centralized communications center, police station or fire station, or hospital, or other setting.
2. Types of service provided. Public safety dispatchers may be responsible for police, fire, or ambulance units or a combination of these. Dispatch for a variety of other services may also be provided (see Table 3).
3. Specialization. Public safety dispatchers may be solely dedicated to dispatch, or they may also have duties such as receiving emergency calls or providing medical instruction to those on the scene of the emergency. Police dispatchers in medium and large agencies may be solely responsible for a channel, frequency, or talk group dedicated to servicing requests for data, tow trucks, other support agencies or interfacing with data networks not available to police units. Dispatchers in these roles typically may be responsible for servicing many more field units but the workload may be less challenging in terms of stress than the primary radio dispatchers
4. Number of units, channels, and frequencies monitored.
5. Fire dispatchers may be responsible for monitoring fire alarm panels and alarm circuits. This workload, in addition to the dispatching functions, could significantly add to a workload within a communications center.

Workload Findings

Our survey findings underscore the differences between dispatcher work requirements in centers of different sizes and settings. Specialization is a very important consideration because dispatchers covering a variety of disciplines are likely to experience greater job complexity. In terms of specialization, large centers were much more likely than small or medium centers to indicate that their employees specialize as either call-takers or dispatchers, rather than being cross-trained to do both jobs. Employees in large centers were significantly more likely to specialize (33%), compared to 12 percent of medium size centers and only one percent of small centers. In addition, dispatchers in large centers are significantly more likely to dispatch within only discipline (e.g., law enforcement, fire): 71 percent of dispatchers in large centers are responsible for one discipline, compared to 47 percent in medium centers and 17 percent in small centers.

Table 3: Centers providing dispatch by discipline, N = 204

	Call taking and dispatch	Dispatch only	Total
Law enforcement	95%	1%	96%
Fire	81%	1%	82%
Administrative calls	77%	2%	79%
EMS medical	72%	2%	74%
NCIC/CIC	69%	4%	73%
Hazmat	69%	1%	70%
Animal control	68%	1%	69%
Emergency weather	63%	3%	66%
EMD medical	53%	1%	54%
After hours calls	55%	0%	55%
Public works/utilities	42%	1%	43%
Transportation or transit	17%	< 1%	17%

Note: this table does not include statistics on centers that provide calltaking only for these services.

Table 3 shows the percentage of agencies providing dispatch services for various disciplines. As indicated by the percentages in the table, communications centers often dispatch for a wide variety of services and, consequently, may be required to cover a number of difference disciplines.

In addition to the issue of specialization, dispatcher workload levels results from the combination of how many units, channels, and frequencies are monitored. These, in turn, are highly dependent upon factors such as call and incident volume, dispatcher experience, and total staffing.

Table 4: Dispatcher workload reported by center directors, by center size[1]

	Small	Medium	Large
Average law enforcement units a dispatcher handles at one time	8	28	31
Average fire/EMS units a dispatcher handles at one time	7	25	38
Number of primary radio channels a dispatcher is responsible for	4	3	1
Number of secondary radio channels a dispatcher is responsible for	4	5	4
Number of voice transactions required to see an incident through for law enforcement	7	7	8
Number of voice transactions required to see an incident through for fire or EMS	7	8	8
Total number of radio transactions per hour	48	260	410
During critical events, at what point do dispatchers in your center struggle to effectively handle radio transactions?	66	185	301

[1] See Appendix A for a version of this table showing number of cases and statistical significance.

There appear to be important differences in dispatcher workload according to the size of the communications center. Dispatchers in large centers appear to handle significantly more law enforcement and fire/EMS units, handle more radio transactions per hour, and can reportedly handle a higher number of radio transactions during critical incidents, but are responsible for fewer primary radio channels. Dispatchers in medium size centers appear to handle a fairly high average number of law enforcement and fire units and also a high number of primary radio channels, but a mid-range of average

radio transactions. Dispatchers in small centers tend to handle a relatively low number of total law enforcement and fire units, with a low average number of transactions, but are responsible for more primary radio channels. Data on dispatcher workload were collected from communications center directors (Table 4) and from dispatchers themselves (Table 5).

Table 5 below shows the responses of employees to the dispatch workload questions. Again, we see that dispatchers in larger centers tend to be responsible for more units, but fewer channels. When asked how many units or channels a dispatcher can effectively handle, the responses closely resembled the average responses in each size category for actual workloads. The first four rows of Table 4 and Table 5 show center director and employee data on the same questions. There is quite a bit of agreement regarding dispatcher workload from these two sources, a good indicator that the data are reliable. Whereas the data from directors should represent a typical workload for each center, the employee data reflects individual workloads, which may vary due to differences in experience and qualifications.

The number of law enforcement and fire/EMS units a dispatcher is responsible for generally increases with agency size. According to employees, the maximum number of law enforcement units handled by dispatchers in small centers was 40, with an average of eight. The maximum in medium centers was 150, with an average of 25, and the maximum in large centers was 100, with an average of 26. Regarding fire and EMS units, employees in small centers reported a maximum of 125, with an average of seven. Dispatchers in medium centers reported a maximum of 300, with an average of 27. Dispatchers in large centers reported a maximum of 350, with an average of 49.

Table 5: Dispatcher workload reported by employees, by center size[1]

	Small	Medium	Large
Average law enforcement units a dispatcher handles at one time	8	25	26
Average fire/EMS units a dispatcher handles at one time	7	27	49
Number of primary radio channels a dispatcher is responsible for	4	3	2
Number of secondary radio channels a dispatcher is responsible for	4	5	3
How many law enforcement units can a dispatcher effectively monitor	8	25	25
What is the maximum number of primary radio channels a dispatcher can effectively monitor	4	3	2

[1] See Appendix A for a version of this table showing number of cases and statistical significance.

The number of primary radio channels a dispatcher is responsible for generally decreases with center size. Dispatchers in small centers reported a maximum of 16 primary radio channels, with an average of four. Dispatchers in medium centers reported a maximum of 14 primary radio channels, with an average of three. Dispatchers in large centers reported a maximum of nine primary radio channels, with an average of two.

Employees were asked to assess how effectively dispatchers in their centers are able to handle the workload: "In your experience, which statement best describes the total units or radio channels covered by dispatchers in your center?" The responses were as follows:

- 28 percent said that dispatchers could handle this number effectively, even during critical incidents
- 57 percent said that dispatchers can usually handle this number effectively, but may be strained during critical incidents
- 12 percent said that dispatchers sometimes struggle to handle this number effectively
- Three percent said that dispatchers often struggle to handle this number effectively

There were no differences in responses to this question by center size, despite the fact that dispatchers in larger centers handle more units.

Staffing Criteria

As illustrated by the findings above, the scope of dispatcher responsibilities can vary not only by center size, but also by job and discipline specialization. Furthermore, centers use a variety of criteria for determining dispatcher staffing levels. The types of criteria that centers use tends to vary by center type.

Table 6: Criteria used to determine dispatcher staffing, by center size[1]

	Small	Medium	Large
Budget	69%	63%	59%
Total call volume	49%	62%	55%
Desired service level	48%	65%	68%
Number of consoles	32%	47%	55%
Peak hour call volume	36%	50%	55%
Average calls per hour	31%	40%	41%
Available radio frequencies	14%	30%	41%
Average answering time	22%	28%	23%
Project RETAINS	3%	16%	9%

[1] N = 99 small, 58 medium, 22 large

Communications centers may combine a variety of metrics to help determine appropriate staffing levels for dispatchers. While budget is one of the most utilized criteria across agencies, our survey finds that medium and large centers are more likely than small centers to use total call volume, average calls per hour, number of consoles in the center, peak hour call volume, and desired service level (see Table 6). Large centers are more likely than small and medium centers to use the number of available radio frequencies or Project RETAINS staffing worksheets or toolkit. Other criteria mentioned by agencies include minimum staffing requirements, qualifications or experience of personnel, and circumstances such as weather, traffic, or special events.

Defining the Dispatch Position

Communications center directors and others in charge of staffing decisions may currently have a hard time finding best practice guidelines for making workload and staffing decisions for dispatchers. As discussed above, the task of standardizing such recommendations is made complex due to the various ways that the dispatcher position, and indeed the communications centers themselves, are organized.

In order to put forth some guidelines that can be used to judge the adequacy of dispatcher staffing, we have relied on an analysis of the current practices reported in the center director and dispatcher surveys, looking specifically at those centers in which dispatchers said that they were able to handle the workload effectively.

The findings indicate that communications centers generally share similar characteristics regarding the overall assessment that dispatchers handle the current call load without major impairment. In line with this finding basic communications center characteristics are reported as a demonstration of current practices which are effective (Table 7).

Table 7: Estimated Workload Guidelines: Units per Dispatcher

	Small	Medium	Large
Law enforcement units handled effectively	8-10	18 - 25	25-35
Fire/EMS units handled effectively	5-9	20-30	30-55

The estimates provided in Table 7 are general ones and cannot take into account the many factors that affect the number of units a dispatcher can effectively handle. Starting with these ranges may be helpful if the following factors are used to make appropriate adjustments:

- Specialization (calltaker/dispatcher)
- Number of services dispatched
- Number of primary and secondary radio channels
- Effectiveness of supervisory support
- Call/incident volume
- Dispatcher experience

Discussion

A variety of statistical analyses on the dispatcher workload data lead to the overall conclusion that current levels of dispatcher staffing meet the needs of most of the communications centers providing data, in terms of handling the level of calls. The assessments of dispatcher effectiveness were highly related to the number of units actually being handled. As both the dispatcher and supervisor estimates of the number of dispatch units being handled are nearly identical and most dispatchers assess their ability to effectively handle the number of units, it appears reasonable to assume that the current staffing levels are sufficient for the communications centers, especially those operating with workloads close to those reported above.

The relatively low number of centers and employees providing complete data on the dispatch position limits our ability to provide definitive conclusions here. Regardless, the data are suggestive of several additional findings. First is that centers in which dispatchers struggle with the workload seemed to have lower employee retention rates. Second, is that several characteristics of the job (as perceived by employees) appear to be related to the ability of dispatchers to handle larger workloads. These include supervisor supportiveness, acknowledgement of effort, and recognition programs in the center.

More data will be needed to get a sharper understanding of optimum dispatcher workloads and best staffing practices for this position. This is especially true given the variation in dispatcher positions, and the large amount in variability among centers and employees reporting their current dispatch workloads.

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Appendix A: Methodology Information

Instrument Development

Survey questionnaires were developed by the Center for Social Science Research in collaboration with APCO International based upon 1) a review of questionnaires utilized in the first Project RETAINS survey, 2) follow up questions prompted by the first study, 3) new issues and research questions, and 4) the need to evaluate communications centers' experiences with Project RETAINS toolkit and worksheets since its introduction.

Separate questionnaires were developed for communications center managers/ directors and center employees. For managers/directors, the survey was programmed into the computer-assisted telephone interview (CATI) program for telephone administration, and a paper version and online version of the same questionnaire were developed. Likewise, the employee survey was entered into the CATI program and an online version was developed.

The survey was piloted by telephone and online with a small number of communications centers and employees in January 2008, and questionnaires were finalized immediately thereafter.

The topic areas for the director/manager survey include:

- Characteristics of the center (e.g., type of 9-1-1 service, size of area and population served, number of agencies served, functions provided, and call volume);
- Trends: change in call volume, answer times, and staffing levels over three years;
- Staffing data (e.g., number of authorized positions)
- Criteria used for staffing decisions
- Retention data (e.g., number of positions filled, in training, left during training, left after training)
- Staffing characteristics (e.g., use of overtime, use of part-time workers, percentage female workers, percentage of workers by race)
- Experience with Project RETAINS
- Descriptions of dispatch position (e.g., number of units, number of radio channels managed, number of voice transactions)
- Training provided to new and continuing employees
- Pay and benefits
- Characteristics of the survey respondent

The topic areas for the employee survey include:

- Job type (e.g., cross-trained or not)
- Description of dispatch position
- Scheduling
- Commitment to the communications center
- Perceptions of center's staffing levels
- Overtime
- Work-related stress
- Job complexity
- Relationship with co-workers/supervisors
- Recognition
- Pay and benefits

Sample Selection and Response Rate

A list of PSAPs gathered from public information sources was supplied by APCO International. A sample of 287 communication centers was selected from the list using systematic random sampling. Because of the difficulty reaching the target participation among larger centers in the 2005 study, oversampling of centers in areas with a population of 400,000 was conducting during the sample selection process.

Each of the 287 randomly selected centers received a letter and a print copy of the questionnaire from APCO international. Immediately following, CSSR began calling centers to ask them to participate in the survey and giving them the option to participate via mail, internet, or phone. Extensive follow-up was conducted, including updating contact information, and conducting follow up phone and email contacts. A total of 204 centers completed the director survey, for a response rate of approximately 72 percent.

Each center that completed a survey was asked to facilitate employee participation as well. Generally, employees were randomly selected in each center or participation was available to all calltakers and dispatchers in a center. Employees completed the survey online or over the phone, while some requested hard copies of the survey to mail or fax back. A total of 626 employees from 128 different communications centers participated in the survey.

Data Collection and Analysis

Directors and managers of a national random sample of communications centers completed questionnaires via mail, phone, and internet from January to May 2008. Telephone interviews were conducted via computer-assisted telephone interview (CATI) software by trained interviewers. Online interviews were conducted using an online survey service with password protected access. Surveys were conducted utilizing structured questionnaires (see Appendix C).

Employees were selected in participating centers and invited to take part in the survey. These surveys were also conducted on the telephone, using specially programmed CATI software, or on a password-protected online survey.

In addition to the director and employee surveys, site visits were conducted at four communications centers in different regions of the country. During each site visit, data were collected via observation and interviews with center directors, managers, and staff. Interviews were transcribed and coded. For confidentiality purposes, the participating centers and staff are not identified. These site visits provided information which helped develop both survey questionnaires and provided qualitative information which supported quantitative findings. Two sites were in Eastern states, one Midwestern and one Western. These communications centers covered a mix of urban and rural populations, and had two to 40 consoles with two to 26 staff on duty at any one time. A total of 37 staff members were interviewed, including 13 managers and 24 calltakers and dispatchers.

Because centers were randomly selected and the response rate was very high, findings are generalized to the larger population of communications centers where appropriate. To ensure an adequate number of large centers in the final sample, centers from counties with a population of 400,000 or more were oversampled. Weights were created for the final dataset so that these centers can be represented in the same proportion in which they appear on the list of all communications centers from which the sample was drawn. Wherever findings are reported that are generalized to all U.S. communications centers, these estimates are drawn from the weighted data file. Among participating centers, 29 percent were part of the oversample of centers in large population areas.

The **confidence interval** for the sample of communications centers as a whole is plus or minus 6.7 percentage points. The confidence interval is larger when looking at subsets of the sample. Because of the large confidence interval, differences between findings among subsets of centers are not statistically significant unless specifically noted and point estimates must be interpreted with caution. Survey data were imported into **SPSS** for analysis. Data on centers was analyzed on its own, and also merged with data on employees.

Throughout the report, agencies are compared by size using CALEA size standards: small = 1-15 employees, medium = 16-75 employees, and large = 76 or more employees. In some cases, data on the number of authorized positions were missing and agencies were assigned to a size category based on the number of consoles in the center: centers with less than three consoles were categorized as small, three to 20 were categorized as medium, and 21 or more were categorized as large. Using this method there were 110 small, 69 medium, and 24 large centers, and one center without size data. When the data file is weighted, the number of agencies is 146 small, 51 medium, and five large. There were 190 employee responses in small centers, 198 medium, 181 large, and 57 with unknown agency size.

To compensate for the oversampling of communications centers in large population areas, weighted estimates are used whenever projections are made to the entire population of communications centers.

Communications Center Characteristics

Differences among centers, by size			
	Small mean/median (N)	**Medium** mean/median (N)	**Large** mean/median (N)
Number of authorized positions **	8 / 7 (101)	36/ 32 (59)	141 / 134 (23)
Number of agencies served **	11 / 6 (106)	22 / 13 (66)	32 / 7 (24)
Number of consoles **	3 / 3 (110)	11 / 10 (69)	40 / 34 (24)
Number of services provided	9 / 10 (110)	9 / 9 (69)	8 / 9 (24)
Geographic area (square miles)	1,200 / 95 (100)	1,100 / 620 (59)	1,700 / 520 (23)
Population **	47,000 / 25,000 (109)	390,000 / 210,000 (61)	780,000 / 740,000 (24)
Total incoming call volume **	69,000 / 38,000 (73)	290,000 / 250,000 (51)	1,100,000 / 983,000 (20)
Total 9-1-1 call volume **	15,000 / 9,000 (78)	128,000 / 71,000 (55)	545,000 / 460,000 (21)
Total dispatched **	22,000 / 14,000 (64)	180,000 / 150,000 (45)	790,000 / 680,000 (18)
Average answer time (seconds)	12 / 5 (75)	7 / 5 (49)	12 / 8 (20)
Abandoned call rate	7 / 3 (54)	8 / 5 (32)	6 / 5 (18)
** Significant < .05			

Trends in call volume and staffing over past three years									
	Small centers (N = 87-99)			Medium Centers (N=47-58)			Large centers (N = 19-22)		
	Increased	Same	Decreased	Increased	Same	Decreased	Increased	Same	Decreased
Number of dis-patched calls **	81%	16%	3%	82%	11%	7%	43%	29%	29%
Answer time **	8%	89%	3%	17%	64%	19%	16%	42%	42%
Staffing levels**	23%	68%	9%	40%	47%	14%	55%	41%	5%
Staff retention **	19%	56%	25%	26%	57%	17%	50%	41%	9%
** Significant < .05									

Predicting Employee Retention

Data from the director survey were used to create a multivariate model to predict center retention rates. The purpose was to predict center retention rates for 2007 using a variety of variables related to center characteristics, workload, performance, and pay and benefits data utilizing a linear regression model. The table below shows a model with significant predictors, controlling for center size. This model, it should be noted, takes only center-level variables into account, leaving aside data gathered from individual employees. Nonetheless, taken together the eight variables in the model account for about 25 percent in the variation in center retention rates.

Regression Analysis Predicting Center Retention Rates, N = 121		
Predictor	**Unstandardized coefficients**	**Sig.**
Hourly rate for new hires	1.867	.005 *
Overtime is a frequent necessity (1 = yes)	-13.352	.025 *
Use part-time workers	10.339	.036 *
Relationship between management and employees (1 = very good, 5 = very poor)	-6.48	.045 *
Too few candidates to fill job vacancies (1 = strongly agree, 4 = strongly disagree)	4.869	.061
Answer time increased over past three years (1 = yes)	-7.639	.338
Staffing (reference = center was fully staffed all year)		
Staffing was low at times	-4.147	.479
Center was understaffed all year	-6.816	.321
Center size (reference = large)		
Small	-14.350	.069
Medium	-9.687	.217
R^2	.249	
Note: Intercept term omitted from table. * significant to the .05 level.		

Predicting Organizational Commitment

To predict organization commitment, an index was creating by combining employee responses to four survey items. The resulting index is a relatively robust and reliable measure: the alpha coefficient (a measure of the index's reliability) was .504, quite respectable by social scientific standards.

To determine how well our survey items captured the items we wished to measure, we entered these general sets of questionnaire items characteristics into a factor analysis. This procedure enables us to determine whether these variables hang together or cohere into meaningful dimensions, or latent constructs, as we hoped. The results largely accord with our intentions, and enable us to sharpen our conceptual and measurement approach, providing more powerful indicators of employees' work situations than single item measures could provide.

Cronbach's alpha was calculated on each scale to measure scale reliability. The results for each factor are: Supportive supervision = .799, Co-worker support = .797, Promotion = .824, Job complexity = .600, Perceived recognition = .819, Exposure to emotional strain = .724, Coping resources = .525, Flexible work arrangements = .555, and Closeness of supervision = .504.

The table below reports the bivariate correlation coefficients between the nine measures just described and the commitment variable. (Correlation coefficients vary in strength from zero to 1, and can be either negative or positive in sign. Put simply, the higher the coefficient, the stronger the relationship.) In order of the strength of the correlation, the following variables appear to be significantly associated with *employee commitment:* supportive supervision, perceived recognition, flexible work arrangements, co-worker support, and promotion. Other variables –most notably, job complexity, exposure to emotional strain, and the closeness of supervision— do not appear to be directly related to organizational commitment.

Bivariate correlations between scale variables and employee commitment

Scale name	Correlation	N
Supportive supervision	.412 **	565
Perceived recognition	.349 **	577
Flexible work arrangements	.351 **	578
Co-worker support	.323 **	578
Promotion	.192 **	574
Coping resources	.084*	560
Job complexity	.058	578
Closeness of supervision	.047	578
Exposure to emotional strain	-.019	579
** Significant at < .000 level. * Significant at < .05 level.		

A multivariate regression model was run to look at the simultaneous effects of the factors described above on the outcome of interest – employee commitment. Because employee observations are not completely independent – that is, because the dataset includes more than one employee from a communications center-- the responses from co-workers are likely to contain less variation than responses from employees in different centers. The regression procedure utilized for the analysis --the modified Huber-White "sandwich" estimator-- accounts for the dependence of errors across individuals within communications centers without assuming a pattern of error variance. This kind of technique reduces the bias presented by having multiple individuals from one communications center within the sample. This technique also allows for communications center characteristics to be included as predictors. Fixed effects multiple regression was performed using information for all individuals from whom there was complete data on variables of interest.

The table below presents the results of the regression model predicting employee commitment. The first model (column 1, the column on the left) includes only employee characteristics, while the second model (column 2) adds several characteristics of the employee's center location. Taken together, the variables in the model account for about 34 percent of the variation in employee commitment.

A final finding here warrants some discussion: Employees' racial and ethnic status also seems to affect organizational commitment. Specifically, minorities (defined here as non-whites) report lower levels of organizational commitment than do their white counterparts. Although the differences here are not major, they are statistically significant. Given the need for organizations to address questions of diversity in a proactive manner, the point is important to address.

Quite apart from any stereotypical notions regarding the work ethic of particular groups (notions which recent social scientific research have generally refuted; see Reskin 2003; Kirschenman and Neckerman 1991), the question is why racial and ethnic minorities should have different and significantly lower levels of organizational commitment. Two possibilities suggest themselves. One is that this finding is partly spurious or coincidental. That is, minority employees may simply be likely to work in urban areas, or in large communications centers, or in cities that provide greater employment opportunities, and thus to be employed under conditions that prompt less commitment among employees generally. There is some evidence that such influences may be at work: Minorities (especially African Americans) are indeed concentrated in more highly urbanized settings, and in larger communications centers as well. Yet this may not be the whole story. A second possibility is that minority employees may experience lower levels of job rewards, or encounter a less friendly or supportive climate than their white counterparts, in turn generating lower levels of commitment on their part. Here, too, we find some evidence to support this view. For example, African Americans report lower levels of support from supervisors, and also receive somewhat less pay than do whites, even though they have comparable levels of seniority. Although our results on this matter are not conclusive, they suggest that more analysis is needed of the role that race and ethnicity play in the industry's communications centers.

Regression Analysis Predicting Employee Commitment, N = 372		
Predictor	**(1) Job Characteris-tics**	**(2) Job and Center Characteristics**
Job/Employee Characteristics		
Supportive supervision	.244*	.241*
Co-worker support	.168†	.165†
Promotion	.017	.066
Job complexity	.093	.091
Perceived recognition	.315*	.308*
Exposure to emotional strain	.081	.110
Coping resources	.128	.146
Flexible work arrangements	.327*	.344*
Closeness of supervision	.001	-.006
Sex (1 = male)	-.288	-.312
Race (1 = white)	.900*	.884*
Education	-.092	-.105
Age group	.192	.174
Years employed at the center	.017	.014
Overtime at least once a month (1 = yes)	.168	.053
Employee perception of center staffing levels (1= enough staff, 2 = somewhat understaffed, 3= very understaffed)	-.186	.015
Employee perception of center staffing change (1 = im-proved, 2 = same, 3 = worse)	-.230	-.241
Communications Center Characteristics		
Unionized (1 = yes)		.395
Overtime always voluntary (1= yes)		.174
Shifts by employee bid (1 = yes)		-.149
Have a quiet room (1 = yes)		.062
Center size		-.140
Hourly wage for new hires		.025
R^2	.338	.345

† $p < .10$, * $p < .05$ (two-tailed tests)
Note: Intercept term for regression equations omitted from table.

Predicting Psychological Distress

The table below reports the bivariate correlation coefficients between the scale items and the index of psychological distress. In order of the strength of the correlation, the following variables appear to be significantly associated with *psychological distress:* perceived recognition, supportive supervision, flexible work arrangements, and exposure to emotional strain, co-worker support, promotion, and job complexity. Other variables –most notably, coping resources and the closeness of supervision— do not appear to covary with psychological distress.

Bivariate correlations between scale variables and psychological distress		
Scale name	**Correlation**	**N**
Perceived recognition	-.264**	572
Supportive supervision	-.238**	566
Flexible work arrangements	-.193**	580
Exposure to emotional strain	.179**	577
Co-worker support	-.164**	579
Promotion	-.135**	576
Job complexity	.119**	579
Coping resources	-.045	562
Closeness of supervision	-.020	579
** Significant at < .000 level.		

These results do not yet control for the possible effects of other variables or enable us to separate out the effects uniquely attributable to each variable in the table. The multivariate analysis in the next section will help determine the relative contribution each distinct variable makes to the level of psychological distress.

The same fixed effects multiple regression procedure (the Huber-White "sandwich" estimator) described above was performed here using information for all individuals from whom there was complete data on the variables of interest. The table below presents the results predicting psychological distress scale scores for employees. Again, the first model includes only employee characteristics and the second model adds characteristics of the communications center. These models also show that only employee characteristics predict psychological outcomes; none of the communications center characteristics predict psychological effects of working in a communications center.

Taken together, the variables in the model account for about 22 percent of the variation in psychological distress.

Regression Analysis Predicting Psychological Distress, N = 372		
Predictor	**Employee Characteristics**	**Employee and Center Characteristics**
Employee/Job Characteristics		
Supportive supervision	-.140	-.140
Co-worker support	.025	.025
Promotion	-.140	-.140
Job complexity	-.233	-.220
Perceived recognition	.727*	.762*
Exposure to emotional strain	-.390*	-.403*
Coping resources	-.122	-.413
Flexible work arrangements	.039	.092
Closeness of supervision	-.454†	-.388
Sex (1 = male)	.585	.664
Race (1 = white)	.465	.469
Education	-.105	-.126
Age group	.623*	.530*
Years employed at the center	-.009	-.016
Overtime at least once a month (1 = yes)	-.428	-.607
Vacation hours	.537*	.512*
Staffing	.137	-.014
Staffing change	-.022	-.075
Communications Center Characteristics		
Unionized (1 = yes)		.468
Overtime always voluntary (1= yes)		-.316
Shifts by employee bid (1 = yes)		.797†
Have a quiet room (1 = yes)		.070
Center size		.176
Hourly wage for new hires		.028
R^2	.203	.215
† p < .10, * p < .05 (two-tailed tests). Note: Intercept term for regression equations omitted from table.		

Analysis of the Dispatcher Position

Data on the dispatcher position were collected from center directors and employees, and combined together whenever possible. There was a large variation in the number of employee responses per center. In order to reduce bias in the calculations on employee responses, responses were weighted within center size categories so that each center in a category has the same number of cases after weighting.

In many cases, when asked for a number (such as the number of law enforcement units monitored) employees reported a range instead of a single number in response to the items. In this case, a midpoint in the range provided was utilized.

Dispatcher workload reported by center directors, by center size

	Small mean/median (N)	**Medium** mean/median (N)	**Large** mean/median (N)
Average law enforcement units a dispatcher handles at one time **	8 / 6 (92)	28 / 21 (50)	31 / 26 (22)
Average fire/EMS units a dispatcher handles at one time **	7 / 5 (72)	25 / 15 (39)	38 / 40 (12)
Number of primary radio channels a dispatcher is responsible for **	4 / 3 (92)	3 / 2 (56)	1 / 1 (22)
Number of secondary radio channels a dispatcher is responsible for	4 / 4 (85)	5 / 3 (49)	4 / 2 (18)
Number of voice transactions required to see an incident through for law enforcement	7 / 6 (69)	7 / 6 (36)	8 / 8 (13)
Number of voice transactions required to see an incident through for fire or EMS	7 / 6 (67)	8 / 6 (37)	8 / 6 (12)
Total number of radio transactions per hour **	48 / 38 (64)	260 / 83 (24)	410 / 241 (11)
During critical events, at what point do dispatchers in your center struggle to effectively handle radio transactions? **	66 / 35 (40)	185 / 96 (18)	301 / 150 (7)

** Significant < .05.

Note: statistics were calculated where the response to a question was one or greater indicating that the center actually handles the discipline referred to.

Dispatcher workload reported by employees, by center size			
	Small mean/median (N)	**Medium** mean/median (N)	**Large** mean/median (N)
Average law enforcement units a dispatcher handles at one time **	8 / 6 (156)	25 / 20 (122)	26 / 25 (83)
Average fire/EMS units a dispatcher handles at one time **	7 / 5 (130)	27 / 15 (90)	49 / 30 (43)
Number of primary radio channels a dispatcher is responsible for **	4 / 3 (163)	3 / 2 (130)	2 / 1 (88)
Number of secondary radio channels a dispatcher is responsible for**	4 / 3 (155)	5 / 3 (121)	3 / 2 (73)
How many law enforcement units can a dispatcher effectively monitor **	8 / 6 (39)	25 / 20 (33)	25 / 25 (29)
What is the maximum number of primary radio channels a dispatcher can effectively monitor **	4 / 3 (39)	3 / 2 (34)	2 / 2 (30)

** Significant < .05.

Note: statistics were calculated where the response to a question was one or greater indicating that the employee actually handles the discipline referred to.

Notes on Statistical Significance

The table below shows the results of statistical significance tests for relationships presented in the body of the report as statistically significant. They are presented in the order in which they appear in the report.

***X^2* (Chi Square)** is a test of the existence of a relationship between two categorical variables. When chi-square is statistically significant ($p < .05$) there is a relationship between the variables.

Pearson's R is a measure of the strength of relationship between two numerical variables.

ANOVA is a test of the difference in means (averages) between three or more groups.

A p value of < .05 indicates that there is less than a 5 percent chance that the relationship observed in the sample is due to chance. A relationship with $p < .05$ is considered statistically significant, indicating it is likely to occur in the larger population.

Statistical Significance Tests[1]
Type of 9-1-1 service, by center size: X^2 = 18.854, df = 6, p < .004
Number of consoles, by population size: Pearson's r = .668, p < .001
Number of dispatched calls, by center size: X^2 = 20.068, df = 4, p < .001
Changes in average answer time, by center size: X^2 = 27.758, df = 4, p < .000.
Change in the volume of dispatched calls, by center size: X^2 = 20.068, df = 4, p < .000.
Trends in staffing levels, by center size: X^2 = 27.302, df = 4, p < .000.
Employee perceptions of staffing levels, by center size: X^2 = 34.778, df = 4, p < .000.
Center director assessment of staffing levels, by employee assessment of staffing levels: X^2 = 51.805, p < .000.
Overtime as a frequent necessity, by center size: X^2 = 13.731, df = 2, p < .001.
Employees work overtime at least once a month, by center size: Anova p < .000.
Option of receiving comp time for overtime hours, by center size: X^2 = 33.034, df = 4, p < .000.
Overtime is a frequent necessity due to understaffing, by center size: X^2 = 28,982, df = 4, p < .001.
Civilian employee status, by center size: X^2 = 29.471, df = 6, p < .000.
Manager/directory civilian status, by employee civilian status: X^2 = 47.697, df = 6, p < .000.
Shifts are customized to meet employee needs, by center size: X^2 = 23.804, df = 2, p < 000.
Shift assignments made by automatic rotation on a regular basis, by center size: X^2 = 8.452, df = 2, p < 015.
Shift assignments made by employee bid, by center size: X^2 = 73.278, df = 2, p < 000.
Center provides an Employee Assistance Program, by center size: X^2 = 80.617, df = 2, p < .000.
Critical incident stress management provided, by center size: X^2 = 40.463, df = 2, p < .000.
Health insurance, by part-time vs. full-time employee: X^2 = 66.328, df = 1, p < 001.
Retirement benefits, by part-time vs. full-time employee: X^2 = 6.359, df = 1, p < 012.
Vacation hours, by center size: Anova p < .007.
Base pay, by center size: Anova p < .000.
Percentage of 'strongly committed' employees, by center size: X^2 = 20.270, df = 6, p < .002.
Supervisors take the time to acknowledge when they have done something well, by center size: X^2 = 15.310, df = 6, p < .018.
Employees report that their center has a recognition program, by center size: X^2 = 76.961, df = 6, p < .000.
Employees have good relationships with their co-workers, by center size: X^2 = 17.539, df = 6, p < .007.
Co-workers help them do the best job they can, by center size: X^2 = 15.819, df = 6, p < .015.
Co-workers conduct themselves in a professional manner, by center size: X^2 = 23.574, df = 6, p < .001.
Employees believe there is opportunity for promotion, by education: X^2 = 44.749, df = 9, p < .000.
How often employees handle emotionally difficult situations, by center size: X^2 = 33.080, df = 8, p < .000.
How often employees handle traumatic situations that are going to end badly, by center size: X^2 = 37.893, df = 6, p < .000.
Employees report that their centers provide critical incident stress management, by center size: X^2 = 54.294, df = 1, p < .000.
Employees report that their centers provide employee assistance programs, by center size: X^2 = 78.434, df = 2, p < .000.
Center's shift selection allows employees to meet their family obligations, by center size: X^2 = 12.970, df = 6, p < .044.
Employees report that their centers' leave policy allows for personal time as needed, by center size X^2 = 14.780, df = 6, p < .022.
Changes in staff retention, by center size: X^2 = 10.445, df = 4, p < .034.
Met authorized staffing levels all year, by center size: X^2 = 27.302, df = 4, p < .000.
Used Project RETAINS, by center size: X^2 = 31.068, df = 2, p < .000.
Employee specialization, by center size: X^2 = 21.805, df = 2, p < .000.
Specialization in discipline, by center size: X^2 = 27.897, df = 2, p < .000.

Appendix B: RETAINS Glossary and Acronyms

Abandoned calls – See Call Abandonment.

Annual Call Volume (ACV) – is the total number of calls processed by a communications center in a year. It is often reported as incoming calls only but a more accurate measure includes all call activity: incoming, internal transfers, and outgoing calls. Duplicate calls for a single incident, such as multiple wireless calls for the same car accident, should also be considered for inclusion in total call volume since they require a response and consume call–taker time.

ANOVA — A statistical test of the difference in means (averages) between three or more groups.

Average Speed of Answer (average answer time) – A common quality measure in communications centers; it is the time it takes a calltaker to pick up from first ring in the communications center.

Bivariate — A type of statistical analysis that looks at the relationship between two variables.

Busy time – The time when a calltaker is actually talking on the telephone or the dispatcher is actually talking on the radio. It is the time recorded by most software programs and does not include any additional time associated with a particular call or incident.

CALEA – The Commission on Accreditation for Law Enforcement Agencies, Inc., in conjunction with APCO developed Standards for Public Safety Communications Agencies, and published The Standards Manual of the Public Communications Accreditation Program in January of 1 999. CALEA defines size for stand–alone centers as the total number of authorized full–time personnel. They use three center size categories: A (1–15 personnel), B (16–75 personnel) and C (76 or more personnel). These categories are referred to as small, medium and large size centers in all Project RETAINS documents.

Call Abandonment – An incoming call that is abandoned when the caller hangs up before the call is answered. The number of abandons and the abandon rate are good quality indicators and generally related to speed of answer.

Call completion time — the non–telephone time spent processing a call. It includes all additional time related to a call; time spent entering data in to the CAD system, handling the call internally, transferring calls, dispatching a unit to the scene, address verification, etc.

Call Volume – A common term for the number of calls. Usually used with a time delineated qualifier such as annual call volume, or hourly call volume. Call volume is not about the length of calls or the nature of the calls. It is simply the number of calls and it is used to determine workload. Centers where each employee handles telephone and radio activity, may want to add the number of incidents dispatched to the number of telephone calls to obtain a more accurate indication of workload (number of CAD entries or incidents dispatched is considered a more realistic indicator than number of push–to–talk events).

Calltaker – The person answering the call at a Public Safety Answering Point (PSAP). See

also Position.

Center/agency size – see CALEA

Chi Square (X^2) — A test of the existence of a relationship between two categorical variables. When chi-square is statistically significant ($p < .05$) there is a relationship between the variables.

Client agencies – those agencies which are served by the communications center. These include fire, police, EMS, public utilities, etc.

Communications Center – A centralized location for processing telephone calls. See Public Safety Answering Point (PSAP).

Computer-Aided Dispatch (CAD) – Computer software that provides dispatch related services such as records management, mobile data, 9–1–1, links to NCIC and state databases, and interfaces to jail, property, personnel records, etc.

Confidence Interval – Because statistical estimates generated from sample data are not likely to be exactly equal to the value of the larger population we are interested in, a confidence interval is constructed to delimit the upper and lower range of values that likely contain the actual population value. This range is affected mostly by the size of the sample from which the estimate is generated.

Console – The physical space where a calltaker or dispatcher works, also called a work station or post.

Correlation Coefficient — A statistical measure of the strength of the relationship between two numerical variables. The close to 1 (or -1) the stronger the relationship is, or the more power one variable would have in predicting the value of the other.

Coverage Position – A job category in which the number of employees is determined by the need to provide service regardless of the workload. The "coverage" may refer to a particular task, a specific work station, post, or console that must be staffed or "covered" for a given length of time, usually continuous service 24/7/365. This position type is most closely equated to minimum staffing. This position is discussed more in-depth in the first APCO Project RETAINS study. See the Effective Practices Guide for more details.

Critical Incident Stress Management – A process used to help employees get through highly stressful, traumatic times. This process is designed to lessen the overall impact of an event and accelerate recovery. This short term process focuses solely on an immediate and identifiable problem to enable the individual(s) affected to return to their daily routine(s) more quickly. It is designed to help people deal with their trauma one incident at a time by allowing the individual to talk about the incident when it happens without judgment or criticism.

Cronbach's alpha — A statistic that measures how well a set of variables or items, taken together, measure a single underlying concept. The closure the measure is to 1, the greater the reliability of the set of items.

Dispatcher – The person who receives information from the calltaker about individuals who

need assistance from Firefighters, Police Officers, and Emergency Medical Services. Once this information is obtained these dispatchers activate the services necessary to respond to the nature of the call for help. See also Position.

Employee Availability – is a measure of the actual number of hours employees are available to handle a task. It is calculated by subtracting the total hours an employee is on leave or in training from the total work hours (i.e. the number of hours in a year for a "full time" employee).

Employee Commitment – see Organizational Commitment.

Full Time Equivalent (FTE) – The number of full time staff it takes to cover a position for one shift. If a center schedules two half–time employees to cover one position, the two employees make up one full time equivalent, or one FTE. Each half–time employee would be .5 FTE.

Huber-White "sandwich" estimator — A specialized regression procedure that accounts for the dependence of errors across individuals in a dataset without assuming a pattern of error variance. This kind of technique reduces the bias presented by having multiple individuals who share certain characteristics within the sample.

Incident – An emergency event requiring a response from Police, Fire, EMS or combination thereof.
Incoming Call Volume – The total number of incoming wireless and wire-line calls received in a given time period.

Linear regression model — A model for looking at the independent effects of one or several independent variables on an outcome or dependent variable using a least squares function. The regression model allows us to predict a value of the dependent variable based upon the value(s) of the independent variable(s).

Minimum Staffing – The minimum number of staff scheduled at any time during a given period of time based on experience, contract, legal requirements or previous staffing studies.

Multivariate model — A way of analyzing data so that we compute the independent effects of several predictor or independent variables on one outcome or dependent variable.

Organizational Commitment – An outcome measure used in this report. It was created by combining responses to four survey questions on pride about one's job, willingness to turn down an between paying job, intention to stay at the organization five more years, and intention to spend the rest of one's career with the organization.

Over hire – Some centers are authorized to hire additional employees, beyond their authorized levels, to accommodate predictable changes in employment levels due to turnover, FMLA, etc.

Pearson's R — A measure of the strength of relationship between two numerical variables.

Performance Targets – Quality indicators that serve as a proxy for communications center performance. Common indicators are the percentage of calls that are answered within ten seconds, the percentage of calls answered within three rings, the call abandonment rate, the average speed of answer (ASA), blocked calls (busy signals), etc.

Position – A job in a communications center that has specific requirements and duties. For example, some centers have a calltaker/dispatcher position in which all employees do both call taking and dispatch whenever they are on duty: the two tasks are not separated and each employee handles all calls from pick up to completion. Some centers use the term "telecommunicator" to signify the union of these duties, but whatever the name, the position is the same. Some centers divide the task into separate positions, with some individuals designated as "calltakers" and others designated as "dispatchers." The position is "calltaker" or "dispatcher" even though the individual employee who is filling that position at any given time may be cross–trained and move easily from one job to the other. The term position does not refer to rank or salary classifications. The different positions within a communications center are typically based on function, coverage needs, or call volume. Staffing for combined calltaker/ dispatch positions may be based on either coverage or volume–influenced calculations, depending on the size and distribution of incoming calls in the center. Dispatch positions tend to be based on coverage needs. Some centers use a combination of 8–hour and 10–hour positions.

Primary public safety answer point (PSAP) – The first communications center to answer a 9-1-1 call; it may also be the point from which calls are dispatched.

Probationary – Staff that has been recently hired or is still in a "probationary" period that usually includes intensive training and/or mentoring. Also referred to as "new hires".

Project RETAINS – See RETAINS.

Psychological distress – An outcome measure used in this report. It was created by combining the responses to survey questions on experiences of sadness, hopelessness, worthlessness, feeling like everything is an effort, heart pounding or racing, nervousness and tiredness.

Public Safety Answering Point (PSAP) – A facility equipped and staffed to receive emergency calls requesting police, fire, emergency medical and other public safety services via telephone and other communications devices. Most PSAPs also dispatch field units for these service providers. In addition, many handle calls for public entities and provide call taking and dispatch services for public works or public utilities, etc. Most PSAPs handle 9–1–1 calls; some also handles calls from 7/10 digit emergency service lines.

Public Safety Communications Center – see public safety answering point (PSAP)

Recruit – A newly hired employee, typically still in training or within the probationary period. Recruiting is an area of great interest to managers who have difficulty finding employees who can handle the work and finding enough to comfortably handle the amount of work.

RETAINS, Project RETAINS (Responsive Efforts to Assure Integral Needs in Staffing) – an APCO initiative that has conducted national studies on staffing and retention in America's public safety communications centers. The first generation Project RETAINS research was completed in 2004. For more information on the first generation study, please read the Effective Practices Guide.

Retention – The ability of an organization to keep its employees, as opposed to losing them as a result of voluntary or involuntary departure decisions. Retention is the opposite and complement of turnover.

Retention Rate – Percentage of employees that remained with an organization during a given period of time (usually annually). Calculated as [1 – Turnover Rate] x 100 (100 – minus turnover)

Scheduling – The process of assigning employees to specific time slots. Staffing is the determi-nation of the number of employees needed, while scheduling is the allocation and deployment of available employees.

Secondary public safety answer point (PSAP) – Receives transferred 9–1–1 calls for dispatch or further processing, after screening for a required service by a primary PSAP.

Selection – The process of screening and selecting potential employees who are highly qualified and/or a good fit with the work.

Staffing – Staffing is a broad terms that includes the process of determining the number of employees needed to handle a specific set of tasks and/or a given workload, finding, hiring and keeping the appropriate number of employees. It differs from scheduling in that staffing is about the number of employees needed to handle the work load, whereas scheduling is about the allocation and deployment of those employees.

Telecommunicator – A term used to describe those communications professionals who perform calltaking and dispatching duties. A public safety telecommunicator may be assigned to call taking only, dispatching only or may perform both functional responsibilities, as defined by the dynamics of the communications center.

Total Call Volume (TCV) – is used to estimate staffing needs for volume– influenced positions. Call volume is simply the number of calls; it is not about the length or nature of the calls. All calls should be counted, incoming, lateral or transfer calls, and outgoing calls contribute to the total number of calls handled. As long as a call requires time, it should be included in the total. Note that Total Call volume can be for any time period, and it can be for any position, as long as the data is available in that format.

Turnover Rate – The ratio of the number of workers who had to be replaced in a given time period to the average number of workers. Project RETAINS research calculated turnover as the percentage of all current positions that required replacement workers. This includes the total number of staff that leave employment in a given year, for any reason (i.e. both voluntary and involuntary separations), divided by the total number of employees that year.

Volume–influenced positions – Jobs within a communication center that require different levels of staffing based on the workload; positions that require additional employees to accommodate daily, weekly or seasonal variations in call volume. Job categories or tasks where the number of employees on any given shift is determined by the activity level (“volume”) of incoming calls and/or incoming calls and dispatch. This position is discussed more in-depth in the first APCO Project RETAINS study. See the Effective Practices Guide for more details.

Acronyms and Abbreviations

CAD	Computer-Aided Dispatch
CALEA	Commission on Accreditation for Law Enforcement Agencies
CATI	Computer-Assisted Telephone Interviewing
CIC	Crime information center (state specific)
CSSR	Center for Social Science Research at George Mason University
EMD	Emergency Medical Dispatch
EMS	Emergency Medical Services
FTE	Full Time Equivalent is the number of employees needed to staff one full time position: one full time employee or two halftime employees equal one FTE.
GMU	George Mason University
NCIC	National Crime Information Center
PSAP	Public Safety Answering Point
SPSS	Statistical Package for the Social Sciences
TCV	Total Call Volume is the total number of calls processed in a designated time period.

Appendix C: Manager and Employee Survey Questionnaires

Manager/Director Telephone Survey

This questionnaire is part of a study by George Mason University on behalf of APCO International's Project RETAINS. Your communications center has been randomly selected to participate in a survey about staffing and retention issues at public safety communications centers. We ask that you take about 25 minutes to answer some questions as part of a research study. You may also complete this survey on the internet (see instructions on last page).

Participation in this study is voluntary and you can choose not to answer any questions. All responses will be kept confidential and your answers will not be seen by others at your comm. center. Your name will not be identified in any publications. There are no penalties if you decide not to participate.

Please check one response for each question below.

1. What type of 9-1-1 telephone services does your center currently have in place?

   - ☐ Basic 9-1-1
   - ☐ Enhanced 9-1-1 (E 9-1-1)
   - ☐ Enhanced 9-1-1 with wireless Phase I (with a general location)
   - ☐ Enhanced 9-1-1 with wireless Phase II (with a specific GPS location)
   - ☐ None

2. Is your center a primary center to receive emergency calls in your jurisdiction, or a secondary center that receives calls directed to it from another agency, or both?

   - ☐ Primary
   - ☐ Secondary
   - ☐ Both

3. What is the largest area served by your communications center?

   - ☐ State
   - ☐ Region
   - ☐ County or Parish
   - ☐ City, town or borough
   - ☐ Special jurisdiction (such as an airport, island, harbor, parkland or campus)

4. Please check the functions your center provides next to each discipline that your communications center provides services for.

5.

Emergency Calls	**Call Taking**	**Dispatch**
Law Enforcement	☐	☐
Fire	☐	☐
Medical (EMS)	☐	☐
Medical (EMD)	☐	☐
HazMat	☐	☐
NCIC/CIC	☐	☐
Other:	☐	☐
Non-emergency Calls	**Call Taking**	**Dispatch**
Administrative Calls	☐	☐
Public Works/Utilities	☐	☐
Animal Control	☐	☐
Emergency Weather Notification	☐	☐
Transportation/Transit Information	☐	☐
After hours (for public agencies)	☐	☐
Other: __	☐	☐

Please write in the number for each of the questions below. Where an exact number is not available, please provide the best estimate.

6. What is the total number of client agencies your communications center provides dispatcher services for?
   # of agencies _____

7. How many square miles are in your communications center's service area?
   # of square miles _____

8. What is the population of your service area?
   # in population _____

9. How many total consoles are in the communications center?
   # of consoles _____

10. Of your total, how many consoles are primarily dedicated to radio dispatch?
    # of consoles dedicated to radio dispatch _____

11. What was the total <u>incoming</u> call volume in calendar year (CY) 2007?
    # of incoming calls _____

12. What was the total incoming and outgoing call activity in CY 2007?
    # of incoming and outgoing calls _____

13. What was the total 9-1-1/emergency call volume in CY 2007?
    # of 9-1-1/emergency calls _____

14. What was the total number of incoming 9-1-1calls that were wireless?
    # of wireless 9-1-1 calls_____

15. What was the total number of calls in CY 2007 that resulted in an incident being created?
    # of calls that resulted in an incident being created _____

16. What was the average answer time for 9-1-1 calls in your center in CY 2007?
    Average answer time in seconds _____

17. What was the 9-1-1 abandoned call rate for CY 2007?
    # of abandoned calls _____ out of each 100 received

For the questions below, check the one best answer and provide the percent change, estimating where necessary.

18. How much has the number of dispatched calls in your center changed in the past 3 years?

    - ☐ Increased (percentage _____)
    - ☐ Remained the same
    - ☐ Decreased (percentage_____)
    - ☐ Don't know

19. Has that answer time increased or decreased in the past 3 years?

    - ☐ Increased (percentage _____)
    - ☐ Remained the same
    - ☐ Decreased (percentage _____)
    - ☐ Don't know

20. How have your staffing levels changed in the past 3 years?

    - ☐ Increased (percentage _____)
    - ☐ Remained the same
    - ☐ Decreased (percentage _____)
    - ☐ Don't know

21. Do staff in your center work primarily as calltakers or dispatchers, or are they cross-trained to do both?

    - ☐ Work primarily in one job
    - ☐ Do both

22. Do dispatchers in your center generally cover one discipline at a time, such as law enforcement or fire, or more than one discipline?

    - ☐ One discipline
    - ☐ Cross-trained for multiple disciplines

Please write in the number for each of the questions below. Where an exact number is not available, please provide the best estimate.

23. How many authorized positions do you have in your center? Include only calltakers/dispatchers and supervisors.

    # of positions _____

24. How many of these authorized positions are filled and considered to be in training status?

    # of positions filled and trained _____
    # of positions in training _____

25. How many authorized positions does your center currently have in the following categories, whether they are filled or vacant?

    # authorized cross-trained calltaker/dispatcher _____
    # authorized as calltaker only _____
    # authorized as dispatcher only _____
    # authorized shift supervisors _____

26. How many of your authorized positions are currently vacant?

    # vacant positions _____

27. Do the minimum staffing levels required for your comm. center vary substantially by:

	Circle yes or no for each	
Time of day	yes	no
Day of the week	yes	no
Season/time of the year	yes	no

For the following questions, please check one response

28. Which statement best describes the center's staffing for the calendar year 2007?

    - ☐ Center was staffed to authorized levels all year
    - ☐ Staffing was low at times, but met authorized levels at least part of the year
    - ☐ Center was consistently below authorized levels all year

29. Does your center use part-time calltakers and dispatchers?

- ☐ Yes
- ☐ No

30. What percentage of calltakers and dispatchers work part-time?

- ☐ None are part time
- ☐ 20% or less
- ☐ 50% or less, but more than 20
- ☐ 75% or less, but more than 50
- ☐ More than 75%

31. Please state whether your center uses each the following indicators to determine <u>calltaker</u> staffing:

	Circle yes or no for each	
Total call volume	yes	no
Average calls per hour	yes	no
Number of consoles in the center	yes	no
Peak hour call volume	yes	no
Budget	yes	no
Desired service level	yes	no
Average answering time	yes	no
Available radio frequencies	yes	no
Peak hour call volume	yes	no
Project RETAINS staffing worksheets/toolkit	yes	no
Other __	yes	no

32. Please state whether your center uses each the following indicators to determine <u>dispatcher</u> staffing:

	Circle yes or no for each	
Total call volume	yes	no
Average calls per hour	yes	no
Number of consoles in the center	yes	no
Peak hour call volume	yes	no
Budget	yes	no
Desired service level	yes	no
Average answering time	yes	no
Available radio frequencies	yes	no
Peak hour call volume	yes	no
Project RETAINS staffing worksheets/toolkit	yes	no
Other ___	yes	no

33. What percentage of all calltakers and dispatchers in your center are women?

- ☐ None
- ☐ 20% or less
- ☐ 50% or less, but more than 20
- ☐ 75% or less, but more than 50
- ☐ More than 75%

34. Thinking about your workforce, what percentage of workers would you say are represented by the following racial/ethnic categories? (Should add to 100%)

White ____%
Black ____%
Hispanic ____%
Asian ____%
Other ____%

35. How strongly do you agree or disagree with the statement: There are too few qualified candidates in the community to fill all the job vacancies that occur in the center.

- ☐ Strongly agree
- ☐ Somewhat agree
- ☐ Somewhat disagree
- ☐ Strongly disagree

36. Have you used Project RETAINS worksheets or toolkits?

- ☐ Yes
- ☐ No **skip to question 40**

37. When was Project RETAINS first used in your center?

Month _____ Year _____

38. In your opinion, how useful have the tools from Project RETAINS been at helping to calculate staffing needs?

- ☐ Very useful
- ☐ Somewhat useful
- ☐ Not very useful
- ☐ Not useful at all

39. How successful have the tools from Project RETAINS been at justifying staffing needs to governing authorities?

    - ☐ Very successful
    - ☐ Somewhat successful
    - ☐ Somewhat unsuccessful
    - ☐ Very unsuccessful

40. How likely would you be to recommend the Project RETAINS tools to other communications center directors?

    - ☐ Very likely
    - ☐ Somewhat likely
    - ☐ Somewhat unlikely
    - ☐ Very unlikely

Please write in the number for each of the questions below. Where an exact number is not available, please provide the best estimate.

41. During 2007, what was the highest number of calltakers and dispatchers employed at your agency?
    Highest # employed _____

42. How many calltakers and dispatchers were hired in your center in 2007?
    # of hires _____

43. How many of the new hires from 2007 "washed out" during the training/probationary period?
    # washed out _____ *of* _____*total new hires*

44. How many calltakers and dispatchers who had completed training and probation left the center in 2007?
    # left after completing training _____

45. How many experienced employees left your center due to relocation, retirement, illness or death?
    # left due to relocation, retirement, illness or death _____

46. How many of the employees left due to burnout, organizational fit or other job-related difficulties, such as salary, scheduling, dissatisfaction or conflict?
    # left due to job-related difficulties _____

47. How many experienced employees left calltaking/dispatching functions due to promotion, rotation or reallocation in the center?
    # left due to promotion, rotation or reallocation _____

48. Has retention of qualified staff increased, decreased or remained about the same in the past 3 years?

    - ☐ Increased
    - ☐ Decreased
    - ☐ Remained the same

49. Approximately what percentage of the center's personnel budget is currently used for overtime pay?

    % for overtime _____

For the questions below, please check one response

50. Is overtime a frequent necessity in your center?

    - ☐ Yes
    - ☐ No

51. What is the <u>most frequent</u> cause of the overtime?

    - ☐ To meet minimum staffing levels
    - ☐ Provide coverage for short notice illness
    - ☐ FMLA
    - ☐ Military
    - ☐ Vacation
    - ☐ Training
    - ☐ Special Assignments

52. Is overtime in your center completely voluntary, or is there some mandatory overtime?

    - ☐ Mandatory
    - ☐ Voluntary
    - ☐ Depends

Please write in the number for each of the questions below. Where an exact number is not available, please provide the best estimate.

53. On average, how many total law enforcement units does a dispatcher in your center handle at one time?

    # units _____

54. On average, how many total fire and/or EMS units does a dispatcher in your center handle at one time?

    # units _____

55. On average, how many primary radio channels is a dispatcher in your center responsible for managing?

    # channels _____

56. On average, how many additional/secondary radio channels is a dispatcher in your center responsible for monitoring?

    # channels _____

57. On average, how many voice transactions are required to facilitate a dispatch through clear of an incident? (this measurement can be completed manually through use of a stop watch if your technology does not provide this information)

    # of transactions for law enforcement _____

    # of transactions for fire/EMS _____

58. On average, what is the total number of radio transaction per hour?

    # transactions _____

59. During critical events, at what point do dispatchers in your center struggle to effectively handle radio transactions?

    # transactions _____

60. Do you provide classroom or academy training for each new hire

    ☐ Yes (# of weeks _____)
    ☐ No

61. How many hours of continuing education or training are provided for each current or tenured employee?

    # hours _____

62. What is the average cost to train a new hire at your center? (cost of salary, cost of trainers, cost of overtime to cover training time, etc.)

    # average cost in $ _____

63. Do supervisors in your center function as working supervisors, i.e., working as a calltaker or dispatcher while supervising at the same time?

    ☐ Yes
    ☐ No
    ☐ Depends

64. Which best describes how closely calltakers and dispatchers are supervised as they do their work?

- ☐ No supervision
- ☐ Small amount
- ☐ Moderate amount
- ☐ Large amount
- ☐ Complete supervision

65. How would you rate the relationship between management and employees generally at your center?

- ☐ Very good
- ☐ Good
- ☐ Neither good nor bad
- ☐ Poor
- ☐ Very poor

66. What is the base hourly rate for full-time, entry level new hires?

$ hourly rate _____

67. Do you generally hire entry-level radio dispatchers?

- ☐ Yes ($ hourly rate _____)
- ☐ No

68. Are radio dispatchers promoted from calltakers?

- ☐ Yes ($ hourly rate of newly promoted dispatchers _____)
- ☐ No

69. What is the hourly rate of new shift supervisors?

$ hourly rate _____

70. How would you rate your agency's health care benefit package?

- ☐ Very good
- ☐ Good
- ☐ Neither good nor bad
- ☐ Poor
- ☐ Very poor

71. How many hours of vacation do entry-level employees receive each year?

hours _____

72. What is the maximum number of vacation hours that can be accrued by a tenure employee in your center? (write NA if there is no maximum)

hours _____

73. Does you agency provide retirement benefits other than social security?

- ☐ Yes. Please describe _____
- ☐ No

74. Does your center provide any of the following?

	Circle yes or no for each	
Differences in pay for different shifts	yes	no
Seniority/longevity compensation or privileges	yes	no
Support healthy lifestyle, i.e., onsite exercise, discounted gym memberships, etc	yes	no
A quiet room where employees can de-stress after a difficult incident	yes	no
A recognition program for outstanding employee performance	yes	no

75. Are employees in your center members of a national labor union or local bargaining unit?

- ☐ Yes, all are members
- ☐ Yes, some are members
- ☐ No organized labor

76. If yes, please write the name of the union(s):

Finally, we have a few questions about you:

77. How many years have you been employed by this communications center?
    # of years _____

78. How many years have you been employed in your current position?
    # of years _____

79. Are you civilian, sworn personnel in law enforcement, sworn personnel in the fire department, or some other status?

- ☐ Civilian
- ☐ Sworn personnel –law
- ☐ Sworn personnel-fire
- ☐ Other

80. Which age group are you in?

- ☐ Under 35
- ☐ 36 to 45
- ☐ 46 to 55
- ☐ 56 or older

81. Do you see yourself working here for at least five more years? Would you say very likely, somewhat likely, somewhat unlikely, or not very likely?

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Somewhat unlikely
- ☐ Very unlikely

82. Do you see yourself spending the rest of your career with this organization? Would you say very likely, somewhat likely, somewhat unlikely, or not very likely?

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Somewhat unlikely
- ☐ Very unlikely

83. Your gender

- ☐ Male
- ☐ Female

Center Name: _____ County: _____ State: _____

Thank you very much for completing the survey. Please return it to:

Project RETAINS
Center for Social Science Research
George Mason University
4400 University Drive, MS 1H5
Fairfax, VA 22030

APCO Employee Survey

Thank you for taking the survey! Please read the information below before proceeding.

INFORMED CONSENT FORM FOR SURVEYS OF CALLTAKERS AND DISPATCHERS: APCO Project RETAINS Staffing and Retention Study

RESEARCH PROCEDURES
This survey is being conducted by George Mason University on behalf of APCO International's Project RETAINS. Your call center has been selected to participate in a survey about staffing and retention issues at public communication centers. Within your call center, you have been randomly selected to participate in this survey. We ask that you take about 20 to 25 minutes to answer some questions online as part of a research study.

RISKS
There are no foreseeable risks for participating in this research.

BENEFITS
There are no direct benefits to you as a participant in this study.

CONFIDENTIALITY
All responses will be kept confidential and your answers will not be seen by supervisors or managers at your call center. Your name will not be identified in any publications. While it is understood that no computer transmission can be perfectly secure, reasonable efforts will be made to protect the confidentiality of your transmission.

PARTICIPATION
Participation in this study is voluntary and you can choose not to answer any questions or to end at any time. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled.

CONTACT
This research is being conducted Dr. Steven Vallas and Dr. Emily Zimmerman of the Center for Social Science Research at George Mason University. They may be reached at 703-993-2127 or 703-993-2993 for questions or to report a research-related problem. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

CONSENT
The George Mason University Human Subjects Review Board has waived the

requirement for a signature on this consent form. However, if you wish to sign a consent, please contact Emily Zimmerman at 703-993-2993 or ezimmerm@gmu.edu.

Communication Center name_____
State _____

How many years have you been employed by this communications center?

How many years have you been employed in this position?

Which of the following best describes your current employment status? Is it full-time, part-time, volunteer, or something else?

- ☐ Full-time
- ☐ Part-time
- ☐ Volunteer

☐ Other (please specify)

Of the following job responsibilities, which do you perform at least some of the time? [check all that apply]

- ☐ Calltaker
- ☐ Dispatcher
- ☐ Cross-trained calltaker/dispatcher
- ☐ Supervisor
- ☐ Trainer
- ☐ Other (please specify)

Right now, what is your PRIMARY role in the communications center? [check one]

- ☐ Calltaker
- ☐ Dispatcher
- ☐ Cross-trained calltaker/dispatcher
- ☐ Supervisor
- ☐ Other (please specify)

As a dispatcher, how many total law enforcement units do you usually handle at one time?

As a dispatcher, how many total fire and/or EMS units do you usually handle at one time?

As a dispatcher, how many primary radio channels are you responsible for monitoring?

On average, how many additional/secondary radio channels are you responsible for monitoring?

In your experience, which statement best describes the total units or radio channels covered by a dispatchers in your center?

☐ Dispatchers can handle this number effectively, even during critical incidents

☐ Dispatchers can usually handle this number effectively, but may be strained during critical incidents

☐ Dispatchers sometimes struggle to handle this number effectively

☐ Dispatchers often struggle to handle this number effectively

In your opinion, how many total units can a dispatcher effectively monitor?

In your opinion, what is the maximum number of primary radio channels a dispatcher can effectively monitor?

Which of the following best describes the schedule you work?

☐ Permanent assignment

☐ Semi-permanent assignment

☐ Automatic rotation

☐ Rotation by bid

☐ Other (please specify)

How are shift assignments determined in your center? [check all that apply]

- ☐ Customized to meet employee needs
- ☐ Automatic rotation on a regular basis
- ☐ Assigned by supervisor
- ☐ Assigned by seniority preference
- ☐ Random drawing from a pool
- ☐ Employee bid
- ☐ Other (please specify)

Are bids determined by seniority, rotating seniority, or something else?

- ☐ Seniority
- ☐ Rotating seniority
- ☐ Bids are not used
- ☐ Other (please specify)

Do you belong to a national labor union or a local bargaining unit?

- ☐ Yes
- ☐ No

Are you civilian, sworn personnel in law enforcement, sworn personnel in the fire department, or some other status?

- ☐ Civilian
- ☐ Sworn personnel –law enforcement
- ☐ Sworn personnel-fire
- ☐ Other (please specify)

Which of the following best describes your immediate supervisor?

- ☐ Civilian
- ☐ Sworn personnel –law enforcement
- ☐ Sworn personnel-fire
- ☐ Other (please specify)

Do you see yourself working here for at least five more years?

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Somewhat unlikely
- ☐ Very unlikely

Do you see yourself spending the rest of your career with this organization?

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Somewhat unlikely
- ☐ Very unlikely

Please respond how strongly you agree or disagree with the following statements.

I am proud to work at this communications center.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

I would turn down another job for more pay in order to stay with the communications center.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My work is appreciated by the public.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My work is appreciated by the media.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

Considering the number of employees at your center right now, how sufficient is that number to meet the center's performance goals? In your opinion, is there enough staff to meet performance goals, or is the center somewhat understaffed or very understaffed?

- ☐ Enough staff
- ☐ Somewhat understaffed
- ☐ Very understaffed

Considering the number of employees needed to meet the center's performance goals, have the staffing levels in your center improved, remained about the same, or gotten worse since the previous year?

- ☐ Improved
- ☐ Remained about the same
- ☐ Gotten worse
- ☐ Not employed in the center last year

Do you work overtime at least once a month?

- ☐ Yes
- ☐ No

How many hours of overtime do you work in a typical month?

Is overtime work entirely voluntary?

- ☐ Always
- ☐ Sometimes
- ☐ Never

Do you have the option of comp (compensatory) time rather than additional pay for overtime?

- ☐ Always
- ☐ Sometimes
- ☐ Never

Do you believe overtime is a frequent necessity because the center is short staffed?

- ☐ Always
- ☐ Sometimes
- ☐ Never

You likely deal with a wide range of situations every day, from the routine to critical emergencies. On an average day, about how often do you handle situations that are very intense or emotionally difficult?

- ☐ Several times per shift
- ☐ About once per shift
- ☐ Once or more per week, but not every shift
- ☐ Once or more per month, but not every week
- ☐ Less than once per month or never

How often would you say it is true that on your job you have to handle traumatic situations that are going to end badly no matter what?

- ☐ Once or more per shift
- ☐ Once or more per week, but not every shift
- ☐ Once or more per month, but not every week
- ☐ Less than once per month or never

Please respond how strongly you agree or disagree with the following statements.

My job requires that I do things just the way I am told.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

The amount of work I do is carefully measured by the people above me.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

When the situation allows, I can choose to leave the work station during scheduled or approved times.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My job requires split-second decision-making.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My job requires that I use a number of different skills.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My job requires that I do the same things over and over.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My job requires that I multi-task.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

Technology in my center is a help.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My co-workers conduct themselves in a professional manner.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My co-workers help me perform my job the best I can.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

I have good working relationships with my co-workers.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

When I need help coping with the difficulties of my job, there are people at work I can count on to help.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

After a stressful incident at work, there is a quiet space or quiet room in the center I can go to until I feel able to continue working.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

The supervisors I work with are supportive of me.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My supervisor really appreciates the challenges I face in my work situation.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

Supervisors often take time to acknowledge when I have done something well.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My center has a recognition program for outstanding employee performance.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

On my job, there is opportunity for promotion to a higher paying or more responsible position.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

Your possibility of advancement or promotion within the next couple of years is good.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

The shift selection process allows me to meet my family obligations.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

My center's leave policy allows for personal time as needed, i.e., family emergency, illness, etc.

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

Does your agency provide critical incident stress management?

- ☐ Yes
- ☐ No

Does you agency provide Employee Assistance Programs?

- ☐ Yes
- ☐ No

If yes, have you or any of your co-workers that you know of used their services?

- ☐ Yes
- ☐ No
- ☐ Not applicable -- no Employee Assistance Program

How often have you experienced the following problems over the last 30 days?

Felt so sad that nothing could cheer you up?

- ☐ None of the time
- ☐ Hardly ever
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

Felt hopeless?

- ☐ None of the time
- ☐ Hardly ever
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

Felt worthless?

- ☐ None of the time
- ☐ Hardly ever
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

Felt like everything was an effort?

- ☐ None of the time
- ☐ Hardly ever
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

How often have you experienced the following problems over the last 30 days while you were working?

Feeling your heart pounding or racing?

- ☐ None of the time
- ☐ Hardly ever
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

Feeling nervous or fidgety and tense?

- ☐ None of the time
- ☐ Hardly ever
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

Becoming very tired in a short time?

- ☐ None of the time
- ☐ Hardly ever
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

Do you receive health insurance for yourself and your dependents that is fully or mostly covered by your employer?

- ☐ Yes
- ☐ No

Does your employer contribute to your retirement savings or contribute to a pension plan?

- ☐ Yes
- ☐ No

How many paid vacation/personal hours are you currently entitled to per year?

- ☐ None
- ☐ 40 hours
- ☐ 80 hours
- ☐ 120 hours
- ☐ Other (please specify)

How many paid sick hours are you currently entitled to per year, in total?

- ☐ None
- ☐ 40 hours
- ☐ 80 hours
- ☐ 120 hours
- ☐ Other (please specify)

What is your annual base pay rate in dollars?

Which category includes your annual salary from this job for the most recent year? Include overtime and any bonuses you may have received in addition to base pay.

- ☐ Under $10,000
- ☐ $10,000 to $19,999
- ☐ $20,000 to $29,999
- ☐ $30,000 to $39,999
- ☐ $40,000 to $49,999
- ☐ $50,000 to $59,999
- ☐ $60,000 to $69,999
- ☐ $70,000 to $79,999
- ☐ $80,000 to $89,999
- ☐ $90,000 or more

Which age group are you in?

- ☐ Under 25
- ☐ 25-34
- ☐ 35 to 44
- ☐ 45 to 54
- ☐ 55 or older

Which of the following best describes the highest level of education you have completed?

- ☐ Some high school or less
- ☐ High school graduate
- ☐ Post secondary/Trade school
- ☐ Military training
- ☐ Some college
- ☐ Associate degree
- ☐ Bachelors degree
- ☐ Graduate courses
- ☐ Graduate degree

Which best describes your race or ethnicity?

- ☐ Caucasian
- ☐ Black
- ☐ Hispanic
- ☐ Asian/Pacific Islander
- ☐ More than one
- ☐ Other (please specify)

Gender

- ☐ Male
- ☐ Female

Thank you for taking time for this survey. This research is being conducted Dr. Steven Vallas and Dr. Emily Zimmerman of the Center for Social Science Research at George Mason University. They may be reached at 703-993-2127 or 703-993-2993 for questions or to report a research-related problem. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.