

911 Center staffing during hurricanes: A survey to determine best practices

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ABSTRACT

Staffing an emergency 911 center is a difficult task. During a hurricane threat, maintaining the appropriate amount of staff and having the preparations in place to support them are more important than ever. Ensuring proper breaks, food, and sleeping accommodations are overlooked by many 911 centers. Taking care of families, having backup facilities, and having support policies in place are essential to success. A recent survey of Florida 911 centers provided the basis for the suggestions and best practices discussed in this study.

INTRODUCTION

A survey regarding 911 centers and hurricane staffing was sent to a number of Florida emergency centers (see Appendix). Thirteen agencies responded to the survey, all of which were in areas evacuated during the 2004 hurricane season. The quantitative intent of the research was to establish a correlation among call volumes, population, and staffing. The qualitative purpose of the survey was to evaluate the treatment of personnel during a hurricane threat. This included issues such as providing food, monetary compensation, and care for their families.

METHODS

The initial hypothesis was, as the percentage change in call volumes increases, so too would the percentage change in staffing. The independent variable was the percentage change in call volumes; the percentage change in staff was the dependent variable. The next hypothesis proposed that the increase in call volume due to a hurricane threat is related to area population. In this second hypothesis, the population was the independent variable, and the change in call

volumes was the dependent variable. Brainstorming for the project was conducted using Inspiration Software (Portland, OR), which generated progressively more concise diagrams to shape the research approach. The diagram in Figure 1 provided the basis for the final written survey.

Sample

The survey (Appendix A) was sent out via e-mail to 68 Florida 911 managers and coordinators. The list of names was obtained from the National Emergency Number Association Web site (www.nena.org). The surveys were sent to Florida centers because they are veterans in this arena, perhaps more so than any other state in North America. They have experienced the pitfalls and rewards of their planning.

A cover letter explained the intent of the survey and the reason for the request. Some of the people who received the e-mail indicated that they were not the person who should have received the survey and forwarded it to the proper individual. After a repeat reminder and several phone calls, 13 surveys were completed and returned, and 12 were used for the purposes of this study. The response was not as many as initially desired; however, the information received was informative and, in some cases, detailed. Two agencies provided additional data—a call volume chart from Hurricane Ivan and a staffing policy. The results were tabulated and then analyzed via a Microsoft Excel spreadsheet.

RESULTS

Call volumes

One of the initial intents of the survey was to

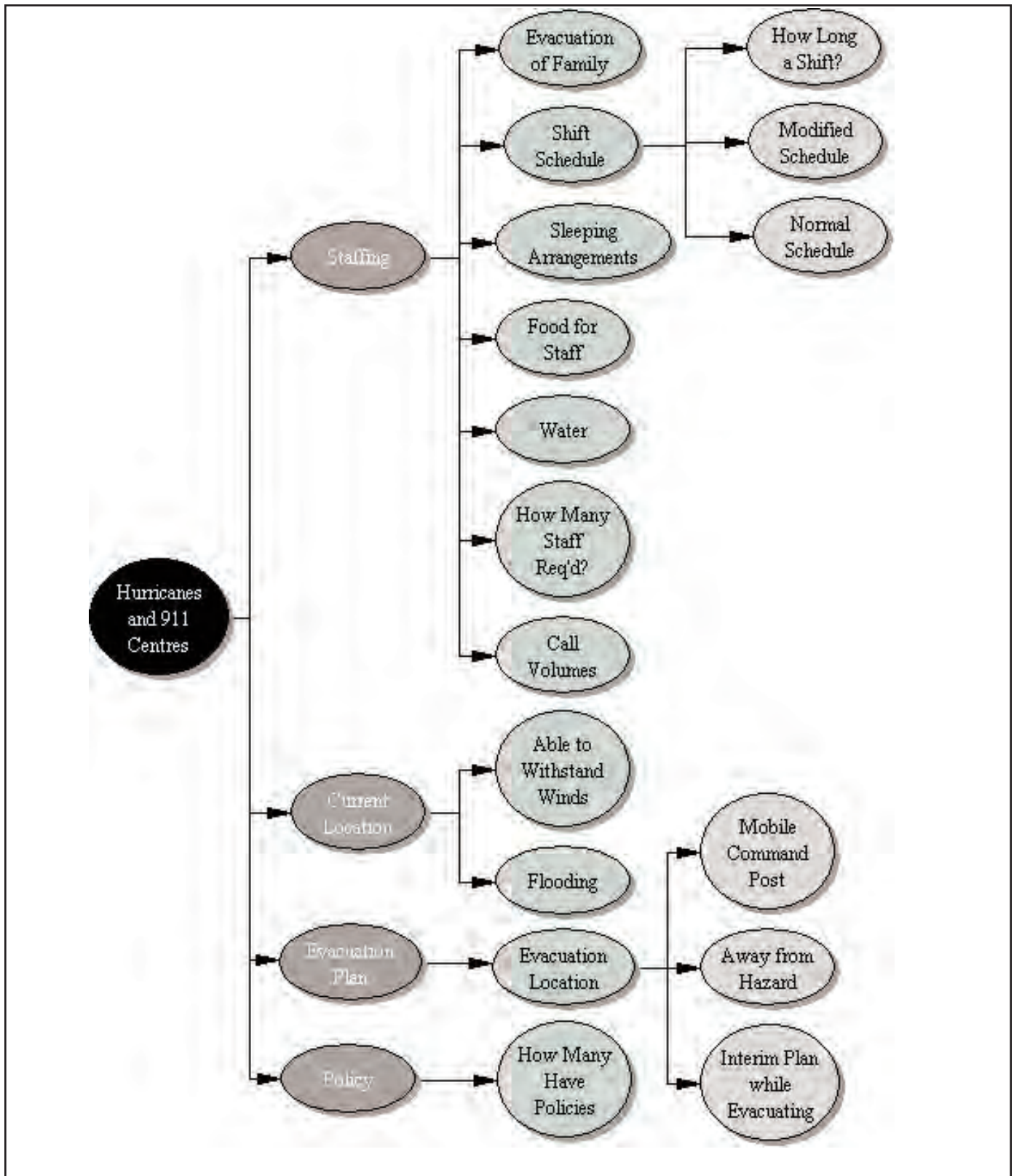


Figure 1. Bubble diagram used to structure the final emergency-center staffing and hurricane survey.

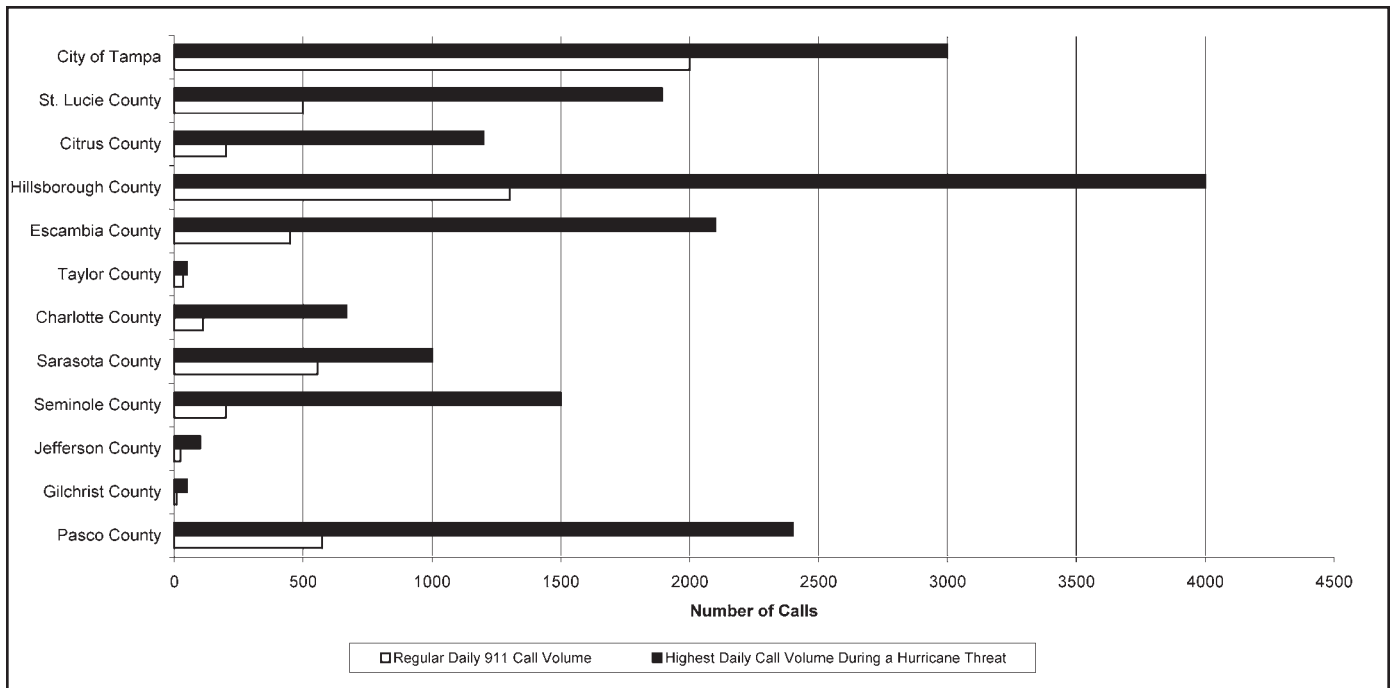


Figure 2. 911 Call volumes during regular peak periods vs. calls made during hurricane threats.

determine differences in call volumes between regular peak periods and hurricane threats. The lowest increase in calls during a hurricane threat was 47 percent, whereas the highest was 650 percent. The average number of calls per day for the agency with a call volume on the low end of the scale was around 34 calls during peak. During a hurricane threat, this same agency received a peak volume of 50 calls. The agency on the high end of the scale received, on average, about 200 calls during a regular peak period day. During a hurricane threat, the agency received 1,500 calls per day. Of the 12 respondents examined, the average increase in calls during a hurricane threat was 309 percent (Figure 2).

There are a number of reasons for the differences in call volumes during regular peak periods compared with call volumes during a hurricane threat. To start with, the severity of the hurricane and subsequent damage dramatically affects call volume. Although many agencies may be under a hurricane threat, the regions that sustain the most damage will have a higher increase in call volume than the regions on the outskirts of the storm. Damage to areas with a larger infrastructure, e.g., more buildings and roads, will

also have an increased call volume as damage will affect more people.

In a similar vein, population of a given area affects call volume. It was hypothesized that an increase in call volume could be directly related to the population of an area. Although population density should have had an impact, once again call volume was related to the severity of the situation. Some areas saw a significant increase in calls per 1,000 people, whereas others saw a very small increase in call volume.

Another factor in this mix is the regular number of 911 calls received. If an area regularly receives a lower number of 911 calls than other areas with similar population numbers, it could be due to a number of factors. Economic conditions, local law enforcement efforts, location of hospitals and fire departments, and a rural versus urban environment all can affect regular call volumes. During a hurricane, few of these factors come into play—the calls are overwhelmingly hurricane-related. Thus, although areas with similar sized populations might experience a similar number of 911 calls during a hurricane threat, their volumes during regular peak periods may be quite different (Figure 3).

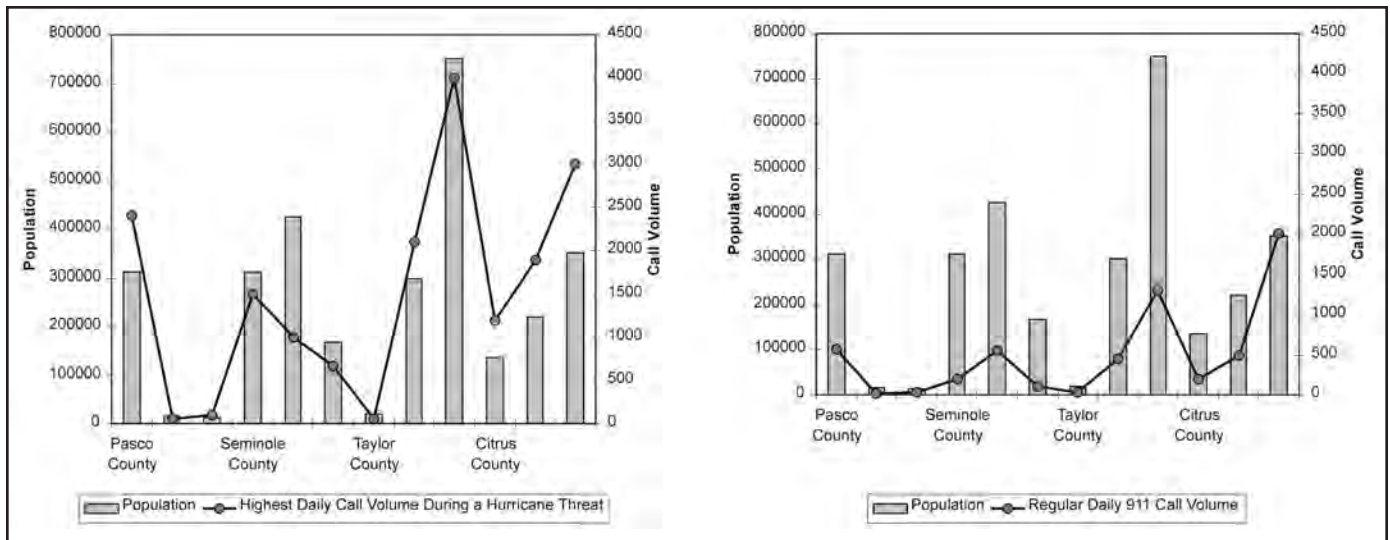


Figure 3. Population and call volume during regular peak periods and during a hurricane threat.

Number of personnel

The survey attempted to examine the number of personnel required to staff a 911 center during a hurricane threat versus regular peak periods. Results were inconclusive, because many 911 centers employed their entire staff during a hurricane threat. All but one of the centers responding to the survey required all staff members to report to work during an emergency.

All but two of the centers modified the number of hours worked and the shift rotation during hurricane threats. An analysis of the figures indicates that some centers did not increase the number of operators on the floor during a hurricane threat, whereas others had a 400 percent increase (Figure 4). On average, respondents indicated an 88 percent increase in staff during hurricane threats—just under double the usual number during peak periods.

When looking at the data, one must remember that only a certain number of operators can actually work at a computer at a time. It depends on the number of workstations a 911 center has at their disposal. If a 911 center has five workstations and, during regular peak periods, all five workstations are manned, the ratio will be the same during a hurricane. Likewise, if a communications center has only six employees, then only six employees will report to work during a hurricane. The increase in the number

of personnel working is dependent not on call volume but on physical and human resources.

Finding employees to work during a hurricane threat

One survey question asked, “Are employees mandated to come to work during a hurricane threat if it falls outside of their regularly scheduled shift?” The answer was an overwhelming yes. Most 911 center employees are designated as essential service providers and, therefore, must come to work during emergency situations if requested. One 911 center manager stated that they “are terminated without discussion if they do not.” Two others indicated that refusal would result in disciplinary action. Not working during an emergency was simply not an option. Staff designated as essential employees know they are expected to work during disaster situations.

Compensation

All of the respondents indicated that staff members were compensated with overtime pay for their efforts during a hurricane threat. There were some differences between agencies in the amount of time compensated, and some agencies provided additional perks. One agency paid overtime and, if the county closed their offices, it was considered a holiday, and all staff were paid for an additional 12 hours. Most agencies provided compensation for the entire time

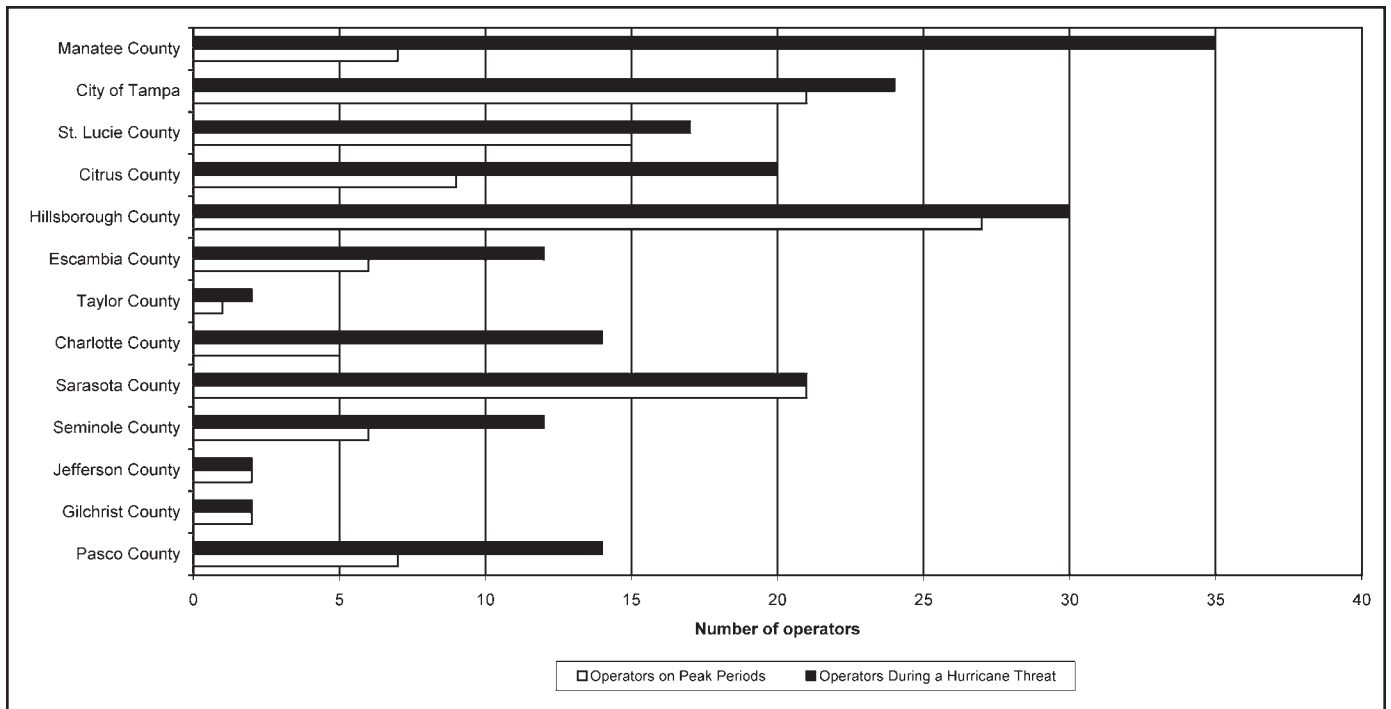


Figure 4. Operators working during peak periods and during hurricane threats.

their employees were at work during a hurricane threat. It did not matter if the employee was actually taking calls, sleeping, or on break. One agency stipulated that employees were to be paid only for time spent working, not while on break, while another agency offered overtime and additional leave.

It appears that paying overtime is standard for all agencies. If a recommendation for best practices were to be made, it would be paid overtime for all hours present during a hurricane threat. Operators with families would likely prefer to be with their families during a stressful event and should be compensated for the time away. Agencies that go over and above this standard no doubt instill a great sense of morale in their employees, and, in turn, the individual employees feel valued by their agency.

Budget considerations

The vast majority of 911 centers surveyed did not set aside additional funds for staff coverage during hurricanes. Many stated that they rely on the Federal Emergency Management Agency (FEMA) to reimburse them for funds spent during a declared disaster. One manager cited that the budget process for his

jurisdiction was more reactive than proactive; in other words, pay out what is required, and find the money after the fact. It may be worthwhile to have an idea of what additional funding sources can be tapped in the event that the existing budget is exhausted by a hurricane.

Families of staff

Another question on the survey was, “What happens to the family members of your staff during a hurricane threat?” The response to this varied. Sixty-nine percent of respondents stated that they looked after family members of staff in some way or another. One county designated a specific school for evacuation of the families of county employees. This same agency indicated that, in all their shelters, a sheriff’s deputy is assigned to maintain peace and order. Many other agencies had similar responses, e.g., “The county provides transportation and shelter,” and “family members stay at the sheriff’s offices.” One region used the county jail as the evacuation site for public safety employees’ families. Two respondents indicated “sheltered as needed,” implying that, in many instances, it isn’t required. Of the four respondents

who indicated they made no provisions for employees' families, one said they were looking into it. Another stated that their current policy of not providing shelter for families caused problems.

The overall recommendation is to provide a designated shelter for employees' families. Whether for public safety employees only or all county employees, the number of people involved and budget considerations should determine how this might be achieved.

Food and sleep

Providing food and sleeping accommodations for employees is a considerable logistical issue during a hurricane threat. Only three agencies reported having no sleeping provisions whatsoever. Of the three that had no sleeping areas, two said that showers were available. Many agencies lacked dedicated sleeping areas; however, they made use of vacant offices, conference rooms, and classrooms. Some respondents indicated that staff members were required to bring their own blankets and sleeping bags. Others provided sleeping cots.

As far as food was concerned, three agencies stated that their employees had to bring their own food. One agency even required that each employee bring enough food to last 72 hours. Two centers stated that food was supplied by either the Red Cross or the Salvation Army. Two others had kitchen facilities with cooks on site. The rest of the agencies surveyed reported that food was either catered, brought in from local restaurants (if open), or the responsibility of the emergency operations center.

Obviously, it is important that critical emergency staff get adequate food and sleep during a hurricane threat. These needs must be met if employees are to be expected to help others. A relatively quiet area to rest, with beds, cots, sleeping bags, or blankets, should be available to operators. Further, it should be the responsibility of the agency to bring in or provide meals on site. When operators are preparing to come to work during a hurricane, they do not need the stress of trying to pack a lunch large enough to sustain them for three days. Food should be the responsibility of the agency rather than the employee.

Backups

Every 911 center surveyed had a backup facility of some sort. Of these, all but two had a mobile command post at their disposal. Other centers reported that their backups were a smaller version of their public safety answering points (PSAPs). One respondent indicated that, although they had a backup facility, they hoped they didn't have to use it, because it needed work. Another specified that their backup facility didn't have true 911 ability because there was no Automatic Number Information/Automatic Location Information (ANI/ALI) information available. One county reported that all of the PSAPs in the county serve as backup communications centers for each other.

Comments about mobile command posts were limited. Mobile command posts are small and, therefore, have limited capabilities in a hurricane situation. Most do not have 911 capabilities—only radio. One agency was working on a 911 laptop computer solution for their mobile command post in an effort to address the lack of ability to take calls.

A backup site is preferred. At the very least, a backup plan for call taking should be required. One of the managers surveyed strongly recommended an emergency backup facility that provides the same technical and communication capabilities as the primary site. The same respondent also pointed out that switching from computer-driven operation to paper is extremely counterproductive. The ability to dispatch emergency services from the field or while en route to a backup site would also be a plus.

Policy

Ten of the respondents had written guidelines pertaining to the staffing of their 911 center during hurricanes. Two did not have policies, although one of these was in the process of developing them. One administrator commented that they had policies in place; however, in light of recent experiences, they were "rewriting the book." Another indicated that a clearer policy for locking down the building (i.e., not allowing employees to leave during a storm) would be helpful. He did not state why specifically, but it is safe to assume his facility encountered a problem in this area. Overall, respondents recommended having some sort of emergency staffing policy in place.

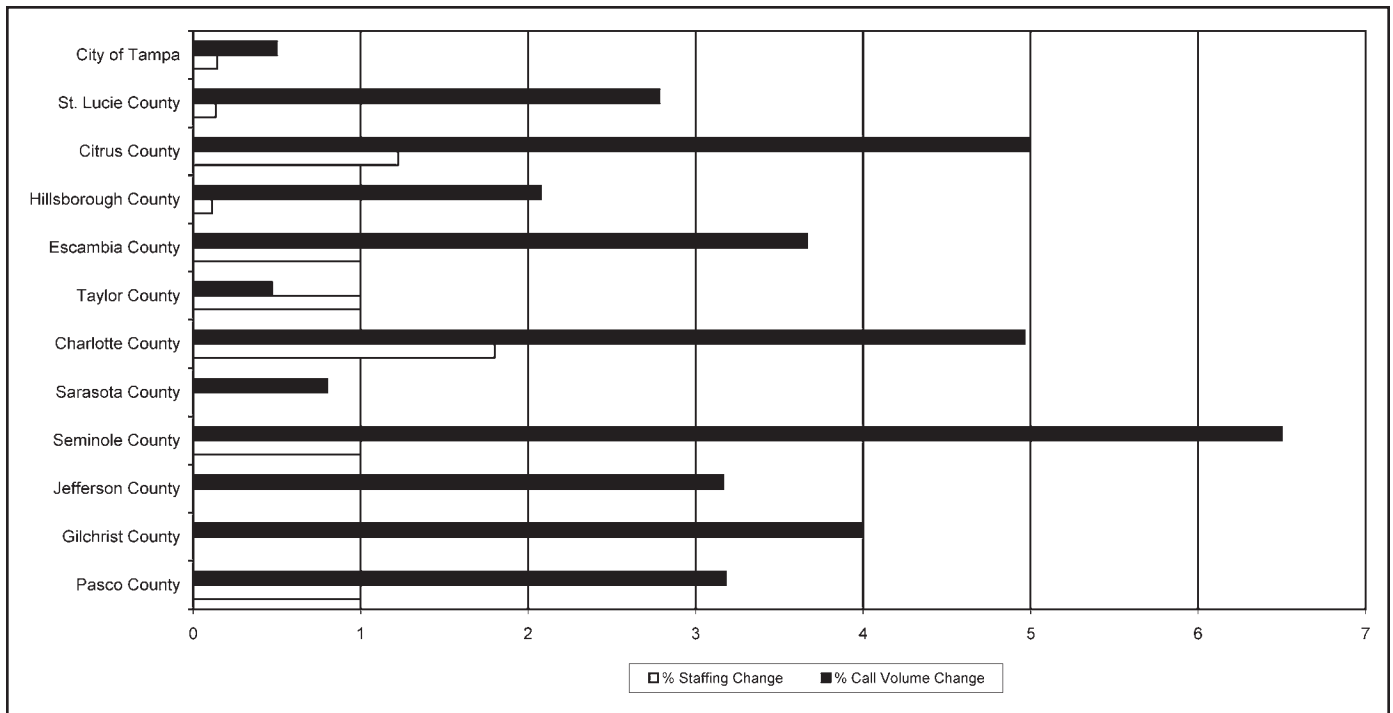


Figure 5. Change in staff vs. call volume.

Other recommendations

Many respondents provided additional information and suggestions for staffing-related issues during hurricanes. Two agencies stated that hurricane call volumes are actually low during the hurricane itself. People have secured themselves and are riding out the storm. It is after the storm, when people are assessing the damage and straightening things out, that injuries and destruction are reported and call volumes increase. Two county managers suggested that, in anticipation of the increase in calls received immediately after a hurricane, it would be a good time to have fresh call takers and dispatchers ready to respond.

Mentally preparing staff for the rigors of call taking and dispatching during a hurricane is often overlooked. One agency manager suggested better mental preparation for his staff as well as the availability of critical incident stress debriefing (CISD) teams to help staff members cope with the emotional trauma related to the disaster.

Operators have families and property to worry about. One manager suggested providing time for staff to prepare before the hurricane strikes. He also

suggested that time be granted for staff to tend to their families and clean up after the storm. This is obviously not an easy suggestion to implement, but it goes along with the suggestion of rotating staff just before and after a storm. Clean up would not necessarily have to be immediately after the hurricane passes—just as soon as reasonably possible, and dependent on the amount of staff available.

CONCLUSION

This research looked at the relationship between changes in call volumes and changes in staff between regular peak periods and times when hurricanes threatened. No significant relationship was found between the two. Many factors affect call volumes during a hurricane (Figure 5); economics of an area, infrastructure, prior mitigation and preparedness efforts, and recovery work all affect the number of 911 calls a center receives. Increased staffing did not solely correlate to anticipated call increases. Emergency centers can only staff operators for whom workstations are available. Although additional staff can be called in, call taking activities are still limited to the number of available workstations.

Best-practice recommendations gleaned from the survey results can be, for the most part, easily adopted:

- Emergency operators are essential employees. They must report to work during disaster situations unless otherwise notified. Overtime should be paid for all hours that an operator is present at work during a hurricane threat, regardless of whether they are taking calls or resting.
- Managers and administrators should know what sources of funding exist to offset unanticipated hurricane-related staffing expenses (e.g., FEMA grants).
- Family members of employees should be provided with a safe evacuation location. Beds, cots, sleeping bags, and/or blankets should be provided for operators not working but required to be present.
- Food should be provided for emergency employees, whether it is catered, cooked on site, or provided by relief agencies.
- All 911 centers should have a backup plan.
- All 911 centers should have a backup facility in the event that evacuation is required.

- Mobile command posts with high-tech communications capabilities should be considered, although their small size may limit usage in large-scale emergencies.
- All 911 centers should have clear policies for staffing during hurricane threats.
- Managers should plan for shift changes immediately after the hurricane passes, when call volumes typically increase.
- Managers should prepare staff mentally, and CISD teams or counselors should be available after an event.
- Managers should provide staff with an opportunity to prepare their families and properties for the hurricane, if possible.
- Managers should provide staff with clean-up time after the event, if possible.

Best practices can help 911 centers provide better service to their staff members and, consequently, to the community at large.

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APPENDIX: 911 CENTER STAFFING AND HURRICANES SURVEY

Thank you for participating in this survey. Research is being conducted to determine appropriate staffing levels and policies for 911 emergency call centers in hurricane-prone regions. Questions concerning this survey can be directed to the author.

Instructions: Please answer the following questions as completely as possible. If the information is not available or unknown, please indicate.

Identification:

Your name: _____ Your position or title: _____

Address: _____

E-mail: _____ Phone: _____

Municipality or county your center serves: _____

Population of area served: _____

General Staffing:

1. What is the personnel breakdown of your 911 center?

a. full-time:_____ b. part-time:_____ c. supervisors:_____ d. managers:_____ e. total employees:_____

2. What sort of shift arrangement do you have? (Please provide a brief synopsis; i.e., four shifts, 12 hours each shift, four days on/three days off, part-time employees on call as needed, etc.)

3. How many operators are on shift at one time during peak periods (e.g., on a typical Friday night)?

4. How many operators are on shift at one time during slow periods (e.g., on a typical Sunday morning)?

5. How many supervisors are usually working at a time? _____

6. What is the average daily 911 call volume for your center (an estimate is fine)? _____

Staffing during hurricane threats

7. How many operators work at a time during a hurricane threat? _____

8. How many supervisors work at a time during a hurricane threat? _____

9. What members of management are present during a hurricane threat? _____

10. Are the hours of work of the staff modified during a hurricane threat? If yes, how so? (For example, normally they work a 12-hour shift; during a hurricane threat, they work six hours on, six hours off).

11. Are replacement personnel readily available? If yes, how so? (For example, the entire staff is present, but half are on break and half are working).

12. During a hurricane threat, do you have sleeping facilities for the staff either at or close by the center (specify which)?

13. How do you feed your staff during a hurricane threat (e.g., rations on hand, through local restaurant, etc.)?

14. What happens to the family members of your staff during a hurricane threat? Do they evacuate? Are they sheltered? Please explain.

15. Do you provide additional compensation to your staff for their presence during a hurricane (e.g., overtime, standby pay, special allowances)?

16. Are staff mandated as part of their employment agreement or legislation to work during a hurricane if it occurs outside of their regularly scheduled shift (please specify)?

17. If the answer to question 16 is "no," is it difficult to get staff to work during a hurricane?

18. Are additional funds budgeted in for hurricane staffing (e.g., additional overtime time, food allowances, lodging)?

19. Does your center have a back-up communications center in the event that evacuating your center becomes necessary?

20. Does your center have a mobile command post for communications purposes in the event of an evacuation?

21. In the event of an evacuation of your 911 center, do you rely on other 911 centers to take your calls?

22. Have you ever had to evacuate your center due to a hurricane threat?

23. On scale of 1 to 5 (where 5 is "excellent"), how would you rate your staffing plans for a hurricane (circle one)?

1 2 3 4 5

24. On scale of 1 to 5 (where 5 is "excellent"), how would your call takers and dispatchers rate your staffing plan for a hurricane (i.e., would they say they like it and that it works for them)?

1 2 3 4 5

25. Has your area or region either experienced a hurricane or been evacuated due to a hurricane threat (circle one)?

Yes No

If you answered "no" to question 25, please skip to question 29.

26. Which is the most recent hurricane, and what year?

27. What was the highest daily call volume during that hurricane threat?

28. What was the lowest daily call volume during that hurricane threat?

29. Do you have documented policy or procedures regarding staffing during hurricanes?

30. If you could make any improvements to your plans, what would they be?

31. Please provide any additional comments that you feel may be relevant to this survey.

Thank you for taking the time to assist with my research. I would be happy to share the results of my findings. Please indicate if you would like a copy of my final report.

Yes No