Lessons from A Volunteer Covid-19 Information Line

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Abstract

Research Question: Based on the experience of volunteers, were the calls predominantly related to infection (symptoms, testing) or alternatively, did questions regarding lifestyle and quality of life (financial status, shelter, legal assistance) predominate? To both quantify and analyze the quality of the calls, this question will be approached through the following four aims:

•   Aim 1: Quantify the number of calls serviced by the UNTHSC call center
•   Aim 2: Assess differences in proportion of medical and non-medical questions
•   Aim 3: Assess sub-categorical differences among non-medical calls
•   Aim 4: Use call logs to identify which types of questions were "difficult to answer"

Background/Significance: During a seven-week period in 2020 that saw the introduction of nationwide COVID-19 testing and executive stay-at-home orders, the Tarrant County Public Health (TCPH) 24-hour information line was established and operated by TCPH staff and University of North Texas Health Science Center (UNTHSC) volunteers. Unfortunately, while crisis hotlines and triage phone centers routinely assess outcomes, retrospective quality studies are rare. Given the transient and unpredictable nature of pandemics, failure to reflect on call center experience limits current process improvement and puts future coordinated efforts at risk for lapses in preparedness and inefficiencies.

Methods: Retrospective analysis of categorical data from Call Summary logs from the TCPH information line. These logs contained a tally of the total number of calls a volunteer answered in a 6-hour shift, categorized as "Testing/Site Referral, Business/Police Non-Emergency Questions, New Positive Case, case daily monitoring, social distancing, and other (with short description)." Call Logs also included space to list any calls/questions that were difficult to answer with the volunteer script.

Results: The volunteer phone bank recorded 8117 total calls during its operation, with 1462 captured in the categorical logs. Medical calls accounted for 64.8% (947) and non-medical accounted for 35.2% (515). Business and non-emergency police calls were nearly half of non-medical calls (44.3%), with social distancing and other nearly even at 27.4% and 28.2%, respectively.

Conclusions: While the social aftermath of previous disease outbreaks has been explored, the current body of literature regarding pandemic preparedness focuses largely on prevention, identification, containment, and treatment of infectious cases. More than one-third of the volunteer calls were classified as non-medical, suggesting a significant opportunity exists to prepare for non-medical community needs during a pandemic. Further analysis of thematic differences of difficult call questions may aid future public health preparedness.

Research Question

Based on the experience of students and health care professionals from a volunteer county health department call center fielding questions about the COVID-19 pandemic, were the concerns expressed by callers predominantly associated with infection (e.g., symptoms, testing) or alternatively, did questions regarding life style and quality of life (e.g., financial status, shelter,

legal assistance) predominate? To both quantify and analyze the quality of the calls, this question will be approached through the following four aims:

a. *Aim 1*: Quantify the number of calls serviced by the UNTHSC call center
b. *Aim 2*: Use call logs to assess for differences in the proportion of calls for medical and non-medical questions
c. *Aim 3*: Assess sub-categorical differences among questions asked within calls for non-medical question calls
d. *Aim 4*: Use call logs to identify which types of questions were "difficult to answer"

Introduction, Significance, and Rationale

The effects of pandemics like the novel 2019 coronavirus (COVID-19) extend beyond healthcare, bringing unforeseen socioeconomic implications[1,2,3,4]. While the social aftermath of previous disease outbreaks has been explored[3,5,6], the current body of literature regarding pandemic preparedness focuses largely on prevention, identification, containment, and treatment of infectious cases[7,8,9,10,11,12]. Public health crises exacerbate current disparities and introduce further barriers to resource access[13,14]. Therefore, identifying the unique needs of a population during a crisis like COVID-19 can aid in public health preparedness for future pandemics.

Public health information call centers facilitate some of the frontline communication efforts during pandemics. Such services educate the community, extend healthcare accessibility, and reduce the burden on formal healthcare operations[15]. During a seven-week period that saw the introduction of nationwide COVID-19 testing and executive stay-at-home orders, the Tarrant County Public Health (TCPH) 24-hour information line was established and operated by TCPH staff and University of North Texas Health Science Center (UNTHSC) volunteers. The community interactions that took place on this information line serve as a unique opportunity to characterize the needed resources and information-seeking behaviors of the Tarrant County population.

Unfortunately, while crisis hotlines and triage phone centers routinely assess outcomes, retrospective quality assurance studies are rare[16]. Given the transient and unpredictable nature of pandemics, failure to reflect on call center performance limits current process improvement and puts future coordinated efforts at risk for lapses in preparedness and inefficiencies[17,18,19]. The present study aimed to characterize the quality of calls within the Tarrant County community in the midst of a pandemic to improve the future response to new crises.

Research Materials and Methods

a. Callers: Tarrant County community members
b. Volunteers: 240 students volunteered to work 6-hour shifts at the Tarrant County Public Health's (TCPH) information line across the 7-week period of activity.
c. Call Logs: To characterize information-seeking behaviors within Tarrant County during the COVID-19 pandemic, a retrospective analysis of Call Summary logs generated by the TCPH information line was performed to address the four project aims. These logs were initiated during the 5th week of service and completed by all volunteers thereafter. All logs document calls fielded throughout 6-hour shifts, as categorized across the following topics:
   1. COVID-19 Testing Question/Site Referral

2. Business/Police Non-Emergency Questions
3. New Positive Case
4. Positive case daily monitoring
5. Social distancing questions
6. Other

Volunteers were also asked to document any questions/calls that were difficult to answer. For calls that were referred to Non-Emergency Police assistance, volunteers documented the purpose of the referral. No caller identifiers were collected. Information from Call Summary/ logs was compiled into a spreadsheet, which was be maintained on a secure, password-protected network.

Results

Call Volume and Categorization
The volunteer phone bank recorded 8117 total calls during its operation, with 1462 captured in the categorical logs (Chart 1). Medical calls accounted for 64.8% (947) and non-medical accounted for 35.2% (515) (Flowchart 1; Chart 2). Business and non-emergency police calls were nearly half of non-medical calls (44.3%), with social distancing and other nearly even at 27.4% and 28.2%, respectively (Chart 3).
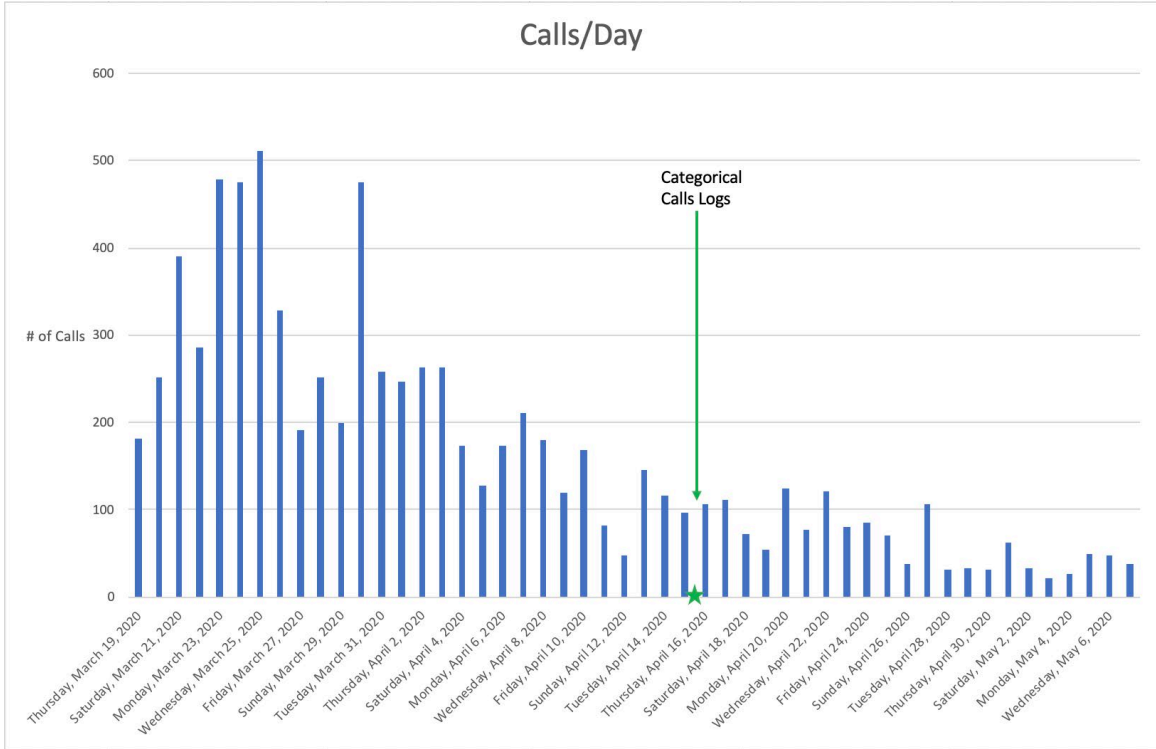
Difficult Calls
78 calls were documented as "difficult to answer." Within these difficult to answer call descriptions, 30 were related to medical questions (38.4%) and 48 to non-medical questions (61.5%). 19 of the non-medical questions referenced the need for language interpreter services, representing nearly 40% of difficult to answer non-medical questions.

Other Call Categories
The business and police/non-emergency calls were largely reporting business and social distance violations. 189 of the "other" categorized calls had a written description. Further stratifying the written descriptions yielded 14 calls related to food/housing (7.4%), 20 calls related to financial assistance (10.6%), 56 medical calls related both to Covid-19 and other medical concerns (29.6%), as well as 64 calls requesting statistics or availability of other miscellaneous services (33.9%).
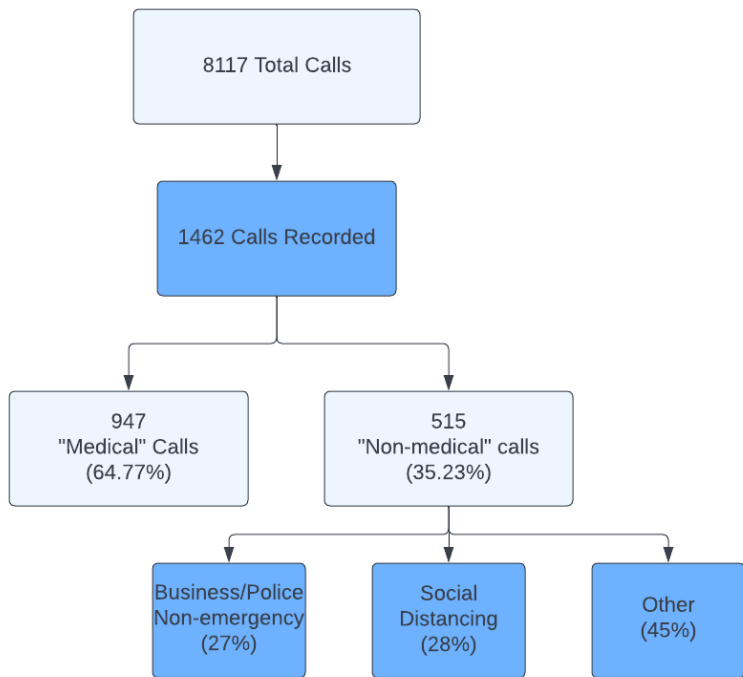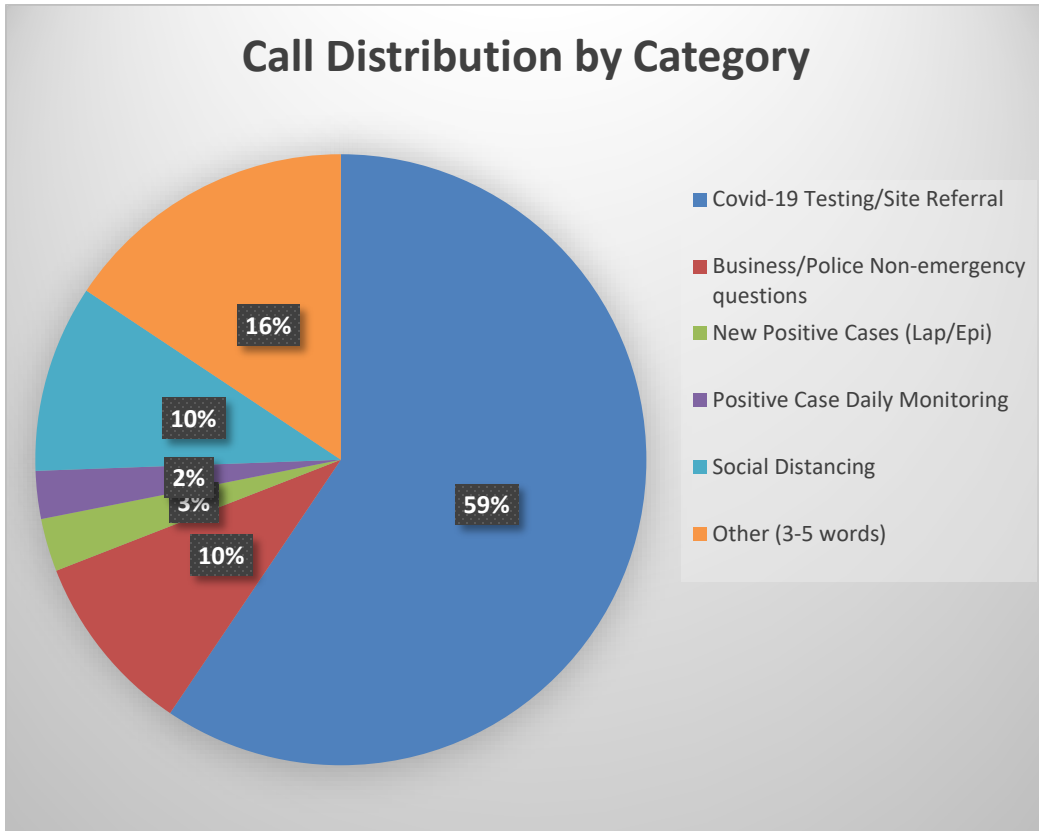
Chart 1

Flowchart 1

Chart 2

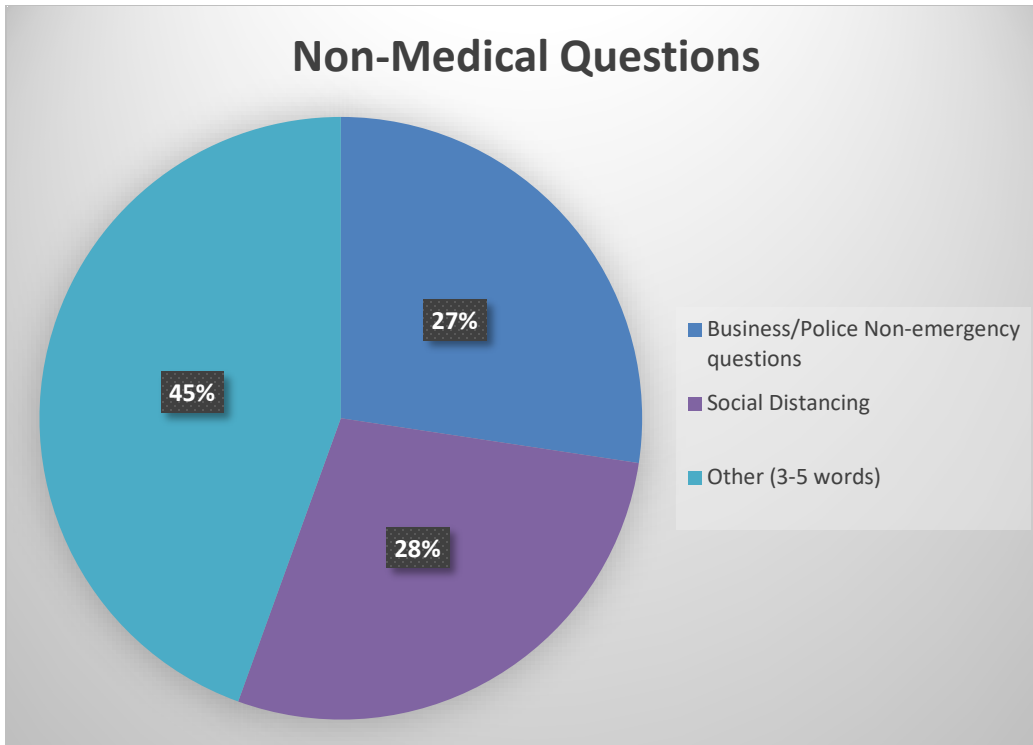

Call Distribution by Category

- Covid-19 Testing/Site Referral
- Business/Police Non-emergency questions
- New Positive Cases (Lap/Epi)
- Positive Case Daily Monitoring
- Social Distancing
- Other (3-5 words)

59%
16%
10%
10%
3%
2%

Chart 3

Non-Medical Questions

- 27% — Business/Police Non-emergency questions
- 28% — Social Distancing
- 45% — Other (3-5 words)

Discussion and Innovation

The efforts within the spontaneous volunteer information line provided crucial support to the Tarrant County community in a time of uncertainty and significant need. Moreover, it provided multiple lessons that future volunteer surge hotlines can utilize. The recorded call volume timeline demonstrated an uneven distribution, with a higher volume towards the beginning of the volunteer efforts. Future phone lines may be able to account for an anticipated initial surge in calls by staffing additional phone lines early in a crisis. Additionally, preparing a system to record the quality of calls from inception will allow the operators to capture critical information that was otherwise lost in the interval of the current study.

More than one-third of the volunteer calls were classified as non-medical, suggesting a significant opportunity exists to prepare for non-medical community needs during a pandemic. Further, 61.5% of the "difficult to answer" calls were non-medical. This data can reflect either the phone line scripts primary emphasis on medical questions, or the prevalence of unforeseen needs that arose in the early pandemic. Of note, nearly one-fourth (24.3%) of difficult call descriptions mentioned interpreter services, the majority referencing Spanish language needs. This highlights the challenge of staffing a volunteer phone line while also trying to account for the calls from a diverse, multilingual population. Additionally, many volunteers noted calls related to financial and housing/food assistance. The distribution of calls supports an overarching theme of the pandemic creating and exacerbating non-medical concerns alongside the overt medical crisis.

Future Directions

Further analysis of thematic differences of difficult call questions may aid future public health preparedness. Further research that utilizes call recordings or more extensive/detailed call logs would allow public health efforts to identify where resources and communication stand to improve during crises like the novel coronavirus pandemic. Both future information lines and community resource efforts could benefit from further information on needs that were particularly difficult to address. Lastly, while multiple cited studies on information lines have recommended implementing systems for quality assurance, the persisting lack of research utilizing public information line quality assurance demonstrates a potential lapse in identifying specific community needs and information-seeking behaviors during times of crisis. The data from this study supports the need of public health information lines to implement quality assurance measures.

Conclusions

More than 3 years have passed since the origin of the coronavirus pandemic and many advances have spawned as a result of the worldwide infection. However, the Tarrant County volunteer call logs serve as a unique window into early days of crisis and provide insight to unique challenges call center volunteers faced. In order to build on the experience of this information line, future pandemic preparedness should include conscious efforts to record real-time data, access interpreter services, housing assistance, up-to-date public health statistics, current public guidelines, and police services, in addition to testing center information. Of these recommendations, the authors believe real-time call data acquisition from inception represents the most crucial provision, as this allows public hotlines to capture and adapt to unforeseen needs.

Compliance

This study was deemed minimal risk and approved by the TCU Institutional Review Board (TCU IRB) on October 26th, 2021. The IRB protocol number is 2021-207.

References

1. Nelson, L. M., Simard, J. F., Oluyomi, A., Nava, V., Rosas, L. G., Bondy, M., & Linos, E. (2020). US Public Concerns About the COVID-19 Pandemic From Results of a Survey Given via Social Media. *JAMA Internal Medicine*. doi:10.1001/jamainternmed.2020.1369

2. Amadasun, S. (2020). Social Work and COVID-19 Pandemic: An Action Call. doi:10.31124/advance.12116418

3. Osewe, P. L. (2017). Options for financing pandemic preparedness. *Bulletin of the World Health Organization, 95*(12). doi:10.2471/blt.17.199695

4. Bortel, T. V., Basnayake, A., Wurie, F., Jambai, M., Koroma, A. S., Muana, A. T., . . . Nellums, L. B. (2016). Psychosocial effects of an Ebola outbreak at individual, community and international levels. *Bulletin of the World Health Organization, 94*(3), 210-214. doi:10.2471/blt.15.158543

5. Medina, M. (2016). Pandemic Influenza Planning for the Mental Health Security of Survivors of Mass Deaths. *Advanced Sciences and Technologies for Security Applications Exploring the Security Landscape: Non-Traditional Security Challenges,* 79-100. doi:10.1007/978-3-319-27914-5_5

6. Shultz, J. M., Althouse, B. M., Baingana, F., Cooper, J. L., Espinola, M., Greene, M. C., . . . Rechkemmer, A. (2016). Fear factor: The unseen perils of the Ebola outbreak. *Bulletin of the Atomic Scientists, 72*(5), 304-310. doi:10.1080/00963402.2016.1216515

7. Oppenheim, B., Gallivan, M., Madhav, N. K., Brown, N., Serhiyenko, V., Wolfe, N. D., & Ayscue, P. (2019). Assessing global preparedness for the next pandemic: Development and application of an Epidemic Preparedness Index. *BMJ Global Health, 4*(1). doi:10.1136/bmjgh-2018-001157

8. *Pandemic Influenza Preparedness and Response: A WHO Guidance Document*. Geneva: World Health Organization; 2009.

9. Singh N, Pandey A, Mittal S.K. Avian influenza pandemic preparedness: developing prepandemic and pandemic vaccines against a moving target. *Expert Rev Mol Med*. 2010;12:e14. Published 2010 Apr 29. doi:10.1017/S1462399410001432

10. Pandemic preparedness: different perspectives. How ready are we for the next pandemic?. *Vaccine*. 2006;24(44-46):6800–6806. doi:10.1016/j.vaccine.2006.06.066

11. Woodul R.L., Delamater P.L., Emch M. Hospital surge capacity for an influenza pandemic in the triangle region of North Carolina. *Spat Spatiotemporal Epidemiol*. 2019;30:100285. doi:10.1016/j.sste.2019.100285

12. Dewar B, Barr I, Robinson P. Hospital capacity and management preparedness for pandemic influenza in Victoria. *Aust N Z J Public Health*. 2014;38(2):184–190. doi:10.1111/1753-6405.12170

13. Bouye, K., Truman, B. I., Hutchins, S., Richard, R., Brown, C., Guillory, J. A., & Rashid, J. (2009). Pandemic influenza preparedness and response among public-housing residents, single-parent families, and low-income populations. *American journal of public health*, *99 Suppl 2*(Suppl 2), S287–S293. https://doi.org/10.2105/AJPH.2009.165134

14. Phibbs, S., Kenney, C., Rivera-Munoz, G., Huggins, T., Severinsen, C., & Curtis, B. (2018). The Inverse Response Law: Theory and Relevance to the Aftermath of Disasters. *International Journal of Environmental Research and Public Health, 15*(5), 916. doi:10.3390/ijerph15050916

15. Boyce, M. R., & Katz, R. (2019). Community Health Workers and Pandemic Preparedness: Current and Prospective Roles. *Frontiers in Public Health, 7*. doi:10.3389/fpubh.2019.00062

16. Uscher-Pines, L., Bookbinder, S. H., Miro, S., & Burke, T. (2007). From Bioterrorism Exercise to Real-life Public Health Crisis. *Journal of Public Health Management and Practice, 13*(1), 16-22. doi:10.1097/00124784-200701000-00004

17. Fortune, T. (2001). Telephone triage: An Irish view. *Accident and Emergency Nursing, 9*(3), 152-156. doi:10.1054/aaen.2001.0238

18. Mishara, B. L., Chagnon, F., Daigle, M., Balan, B., Raymond, S., Marcoux, I., . . . Berman, A. (2007). Comparing Models of Helper Behavior to Actual Practice in Telephone Crisis Intervention: A Silent Monitoring Study of Calls to the U.S. 1-800-SUICIDE Network. *Suicide and Life-Threatening Behavior, 37*(3), 291-307. doi:10.1521/suli.2007.37.3.291

19. Lowe, G., Evans, M., & Myers, P. (2000). Commentary. Help - we need a helpline! A public health audit case study. *Journal of Public Health, 22*(2), 129-132. doi:10.1093/pubmed/22.2.129