

# Hotline to Helpline: Reducing On-call Demands

Skylar Harbour, BA\*  
 Hrijeeta Mukherjee, MS†  
 Steven P. Davison, MD, FACS,  
 DDS\*  
 Michael DiLeonardo, BS\*

**Background:** There is a growing societal trend in plastic surgery patients of viewing their medical care as a commodity product rather than as a healthcare service. Our four-provider private plastic surgery practice noticed this phenomenon through our patients' trend of overusing the emergency after-hours service call line. To affect this behavior, we designed a study educating patients on the emergency service call line's purpose and how to handle nonurgent issues independently.

**Methods:** After a 6-month preintervention phase to categorize after-hours emergency calls, we improved preoperative patient education and implemented in-office protocols for quicker provider responses. Postintervention data were collected for another 6 months and compared statistically with the preintervention data.

**Results:** In the preinterventional period, we saw a total of 236 after-hours phone calls. The intervention led to a 22% significant reduction in total calls ( $P = 0.007$ ). Calls were categorized as nonurgent, urgent, and emergent. While emergent calls remained unchanged ( $P = 0.56$ ), nonurgent calls significantly decreased ( $P = 0.005$ ). The most common nonurgent calls were regarding pain, routine postoperative concerns, and drain care, with the intervention resulting in a significant reduction of routine postoperative swelling/bruising/discomfort calls ( $P = 0.04$ ) but not changing pain ( $P = 0.23$ ) or drain-related calls ( $P = 0.78$ ).

**Conclusions:** We found that targeted preoperative patient education coupled with a real-time action board in the office, to ensure timely response to patient questions during office hours, can positively impact after-hours call use, and improve overall patient outcomes by catching urgent issues earlier. (*Plast Reconstr Surg Glob Open* 2023; 11:e5346; doi: [10.1097/GOX.0000000000005346](https://doi.org/10.1097/GOX.0000000000005346); Published online 16 October 2023.)

## INTRODUCTION

In many business areas, such as banking and airlines, a 24-hour call line is considered the norm. Lately, the cultural expectation of service within the plastic surgery industry has changed to follow suit with other business practices. Most other consumer retail and service industries provide their customers with around-the-clock access to customer service tools that allow immediate answers to every query. The high personal patient costs associated with elective plastic surgery can cause patients to view it as a luxury good, thus altering their relationship with their surgeon to be viewed more as a client than a patient.<sup>1</sup>

Being a hybrid reconstructive and plastic surgical private practice, we have noticed a change in practice

patterns surrounding our designated 24/7 emergency line, which is a live operator service. It is designed as an on-call hotline for emergencies. Despite the availability of a clinical provider 5 days a week for clinical questions, the use of the after-hours emergency call line has changed. The coverage is predominately by the surgeons and occasionally by physician assistants with surgeon backup. We have noticed a growing trend to use what we emphasize as an emergency after-hours call line as a 24/7 hotline. The hypothesized reasons for this are a cultural trend toward immediate support, as is the norm in other industries. Recent surveys have even shown that 90% of customers believe that an immediate response to customer service is either important or very important and that 60% of customers believe immediate service is delivered in 10 minutes or less.<sup>2</sup>

At our surgical practice, a preoperative education appointment, either in person or on Zoom, is conducted with each patient within 2 weeks before surgery. This appointment reviews medical clearances, drain care, NPO guidelines, medication instructions, and postoperative instructions. Caregivers are also encouraged to attend and take notes.

The surgeons who cover this call line have seen a distinct shift in the emergency backup service to a

From \*DAVinci Plastic Surgery, Washington, D.C.; and †Georgetown University, Washington, D.C.

Received for publication June 22, 2023; accepted September 8, 2023.

Copyright © 2023 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the [Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 \(CCBY-NC-ND\)](https://creativecommons.org/licenses/by-nc-nd/4.0/), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

DOI: [10.1097/GOX.0000000000005346](https://doi.org/10.1097/GOX.0000000000005346)

Disclosure statements are at the end of this article, following the correspondence information.

convenience call line. Unlike a closed system like Kaiser or an academic center with dedicated coverage, this increases attending demands, which is a leading cause of physician burnout, which currently affects 29.7% of plastic surgeons across America.<sup>3</sup> Physicians bear the weight of patient care and expectations for their medical service, and increases in unnecessary, time-consuming desires escalate physician tiredness and decrease motivation.<sup>4</sup>

Emergency line intervention studies such as the “Right Care, Right Now” study done on 911 calls in Washington, D.C., prove promising in reallocating the time efficiency of the emergency line process. The intervention involved 911 operators asking certain questions of callers to determine whether or not the conditions of a call were life-threatening. When deemed non-life-threatening, calls were transferred to an EMS-trained nurse. Within the first 90 days of intervention, 1103 non-life-threatening calls were diverted to an EMS-trained nurse rather than requiring the typical 911 response.<sup>5</sup>

Plastic surgery patients also experience high levels of anxiety due to their request for elective surgery and other factors. For instance, facial plastic surgery patients have a high correlation with postoperative depression. The association between negative emotions and a patient’s short-term postoperative life increases patient demand from the medical provider to help alleviate their emotions and worries during recovery, leading to unnecessary emergency phone calls despite the matter not being emergent.<sup>6</sup>

As such, this study aims to identify potential solutions to this problem. We will observe the effects of increasing preoperative patient education and ensuring all patient inquiries are resolved in a timely manner during office hours. Current literature suggests that the most common reason for a call involved an “unclear problem,” indicating a need for patients to understand the recovery process better and what is considered normal versus an issue in need of intervention.<sup>7</sup>

The objective of our study was to compare the number of nonemergent patient phone calls before and after the implementation of additional patient education in the form of instructional videos. It was hypothesized that patient education and practice protocol changes could not influence the ratio of emergency to help line calls within this study.

## METHODS

A review and classification of the number and type of calls made outside operating hours (before 8:30 AM and after 5 PM) was undertaken prospectively over a 6-month period. All calls received during office hours were excluded. All calls were recorded, and their data, a log of every call including subject and time, were stored by the answering service over the research periods and then classified as administrative, nonurgent clinical, urgent, or emergent. The definition of a nonurgent call was one that simply required routine patient education or intervention, with no intervention from a provider. Urgent calls were defined as calls requiring medical intervention in less than 12 hours. The definition of an emergent call

## Takeaways

**Question:** Can enhanced patient education and expedited in-office response times impact the number of emergency calls?

**Findings:** We analyzed after-hours call patterns for 6 months to develop targeted preoperative educational resources and implement a real-time action board to expedite call response times. Following our six-month postimplementation period, we found a 22% reduction in total calls ( $P = 0.007$ ). Notably, calls were significantly reduced regarding routine postoperative swelling, bruising, and discomfort ( $P = 0.04$ ).

**Meaning:** Targeted preoperative education and an office action board for timely responses to patient questions can reduce emergency line misuse while improving patient outcomes.

was one that inquired about an issue that would require the patient to immediately go to the ER or need surgical intervention within the next 24 hours. Emergent calls were split into DVTs, hematomas, and wounds/infections needing surgical intervention. Urgent calls were sorted into calls regarding infection, mild seroma/hematoma or excessive bleeding, and allergies. Nonurgent clinical calls included questions related to constipation/nausea, pain, medication, bruising/swelling/routine discomfort, drains, garments, wound care, and dressings.

Having identified areas where patients most needed education, our first initiative was restructuring preoperative appointments. We sought to provide explicit guidelines for patients, outlining postoperative complication symptoms that indicated emergent or urgent issues. Examples of these symptoms discussed were deep vein thrombosis, signs of infection, or hematoma, for which patients were encouraged to call regardless of the hour if experienced. The time frame for after-hours calls was also defined as before 8:30 AM and after 5 PM, emphasizing that after-hours calls are reserved for emergencies or urgent concerns. Patients were given comprehensive instructions on using prescribed medication and a clear delineation of pharmacy hours, reinforcing that refills were impossible outside this time frame, regardless of physician intervention. Furthermore, patients were directed to our website and social media platforms to access educational videos addressing frequently asked questions about their surgery and recovery process.

Following this, we uploaded seven educational videos to our website and social media accounts (YouTube and Instagram). The videos were concise, each under five minutes, and designed to maximize patient attention. They covered various topics, including common postoperative recovery symptoms, identifying urgent situations following surgery, nausea or constipation, surgical garment use, pain management, wound care, and surgical drain care. Examples of the videos can be found at <https://www.davinciplastic.com/after-care>. We made them available as a shared resource for other practices that may choose to incorporate them.

We established an action board to address patient calls in real-time. Calls during office hours are posted on the board as an unaddressed concern, moved to “in action” while clinical staff assists the patient with their concerns, and finally get shifted to the “done” section once completed and noted. The board is refreshed daily, and the surgeons can see all unaddressed calls to respond to urgent or emergent calls promptly. This comprehensive approach ensured that all “in action” concerns were checked by noon, and all inquiries were answered by the end of each day. After the surgery, we initiated a protocol to follow up with patients within 24 hours.

After implementing the intervention plan into our practice for 1 month, we began recording postintervention service calls in the same manner as before for another 6 months. Data were analyzed by counting the frequency of postintervention calls within each category as a control against the postintervention calls. Counts and percentages of change were calculated for each variable, and a Fisher exact test was used in Microsoft Excel to analyze the difference in recorded counts. A value of *P* less than 0.05 was considered statistically significant.

### RESULTS

In the first 6-month period, there were 236 calls after hours (5 PM) on weekdays, weekends, or holidays (Table 1). Of these calls, 88% were from patients, with 68 administrative calls, 118 nonurgent calls, 20 urgent calls, and two emergent calls (Table 1). Of the 140 patient clinical calls, only two (1%) were true emergencies; 20 (14%) were urgent calls; and 118 (82%), the overwhelming majority, were nonurgent calls (Table 1).

The most frequent nonurgent call category was questions about pain and pain medications, followed by questions about bruising/swelling/routine postoperative healing and drain care (Table 2). Analyzing these calls led to an emphasis on education during the preoperative discussion and the creation of focused education videos accessible from home addressing the most commonly asked questions/concerns. During the 6-month interventional period, total patient calls were significantly reduced by 22%, with nonurgent clinical calls significantly reduced by 31% (Table 1). The reduction was most significant in bruising/swelling/routine discomfort and garment-related concerns, seeing a 61% and 81% reduction, respectively (Table 2). There was no significant change in true emergent calls, with the only emergency calls during the study including two wound/infection-related calls and one hematoma-related call (Table 3). From two to five, significance was not met, as it was such a small number. Individual categories of hospital and administrative calls were not analyzed for significance because our interventional methods did not apply to hospital personnel and administrative calls were not directed to on-call physicians after hours.

### DISCUSSION

Patients’ expectations for medical care have changed. Patients now expect an enhanced level of access and response, which mirrors that of comparable service sectors like banking, yet the coverage from helpline to hotline for physicians who are now at work or covering not just emergencies but all manner of inquiries is exhausting. This situation has been exaggerated by the deluge

**Table 1. Incidence of Patient Calls Per 6-Month Period Based on Category of Urgency**

Comprehensive Overview of All After-hours Calls	No. Calls in 2021 (Preintervention)	No. Calls in 2022 (Postintervention)	Percentage Change in No. Calls	<i>P</i> ( <i>P</i> ≤ 0.05)
Hospital/nursing/physician calls	28 (11.9%)	9 (4.9%)	-67%	
Administrative	22 (9.3%)	6 (3.3%)	-72%	
Emergent	1 (0.4%)	1 (.5%)	0%	
Urgent	5 (2.1%)	2 (1.1%)	-60%	
Patient calls	208 (88.1%)	175 (95.1%)	-16%	
Administrative	68 (28.8%)	60 (32.6%)	-12%	
Nonurgent	118 (50%)	82 (44.6%)	-31%	0.005
Urgent	20 (7%)	32 (17.4%)	60%	0.05
Emergent	2 (0.85%)	1 (0.5%)	-50%	0.56
Total calls	236	184	-22%	0.007

**Table 2. Incidence of Patient Calls Per 6-Month Period Based on Nonurgent Category**

Nonurgent Patient Call Logs	No. Calls in 2021 (Preintervention)	No. Calls in 2022 (Postintervention)	Percentage Change in No. Calls	<i>P</i> ( <i>P</i> ≤ 0.05)
Nausea/constipation	4 (3.4%)	2 (2.4%)	-50%	0.32
Pain and medication questions	32 (27.1%)	23 (28%)	-28%	0.23
Bruising/swelling/routine PO discomfort	18 (15.3%)	7 (8.5%)	-61%	0.04
Drain care	18 (15.3%)	20 (24.4%)	11%	0.78
Garments	7 (5.9%)	1 (1.2%)	-88%	0.03
Dressings/wound/incision care	11 (9.3%)	7 (8.5%)	-36%	0.35
Misc	28 (23.7%)	22 (27%)	-21%	0.39
Total nonurgent calls	118	82	-31%	0.005

**Table 3. Incidence of Phone Calls Per 6-Month Period Based on Emergent/Urgent Category**

<b>Emergent and Urgent Patient Call Logs</b>	<b>No. Calls in 2021 (Preintervention)</b>	<b>No. Calls in 2022 (Postintervention)</b>	<b>Percentage Change in No. Calls</b>	<b>P (P ≤ 0.05)</b>
<b>Emergent</b>	2 (9%)	1 (3%)	-50%	0.56
Hematoma/excessive bleeding	0	1	100%	
Wound/infection needing surgical intervention	2	0	-100%	
DVTs	0	0	0%	
<b>Urgent</b>	20 (91%)	32 (97%)	60%	0.05
Wound/infection	9 (40.9%)	25 (75.8%)	177%	0.008
Allergies	5 (22.7%)	2 (6%)	-60%	0.25
Mild seroma/hematoma/bleeding	6 (27.3%)	5 (15.2%)	-17%	0.7
<b>Total urgent/emergent calls</b>	22	33	50%	

of data sent to patients from preoperative visits, hospital or ambulatory surgery center screening, and automated information. The more information that is sent, the less that is read. The addition of Enhanced Recovery After Surgery protocols, particularly with preloading pain medications like gabapentin, can be overwhelming to patients. Moreover, general preoperative anxiety is high in elective surgery, with a recent report showing a 47% prevalence in adults.<sup>8</sup>

This study highlights two important points. The first is that the vast majority of after-hours emergency calls are now “housekeeping calls,” with emergent calls representing less than 2% of calls in this prospective analysis. This finding aligns with a recent study conducted to examine postsurgery emergency after-hours calls in dentistry, which saw only 7.2% of calls requiring ER referral.<sup>9</sup> The second is that an effective education process during the clinical workday can significantly reduce after-hours communication. The nonurgent communications disrupt clinician downtime and add to physician burnout, as per the American Medical Association, taking weekend and after-hours calls “increases your odds of burnout by 3%–9% for each additional night or weekend you spend on call.”<sup>10</sup> A solution provided by the current literature is interceding middle-level providers or nurses to triage the calls, as seen by the Right Care Right Now Act in Washington, D.C.<sup>11</sup> However, this solution is not financially viable or functionally implementable with current nursing staff shortages for small, independent private practices rather than institutions. We found that the real-time action board using Health Insurance Portability and Accountability Act–compliant digital communication during office hours is valuable to reduce after-hours calls and provides patients with clear guidelines on how to independently manage nonurgent issues and notice the signs of urgent and emergent concerns. The implementation of a 24-hour postoperative checkup appeared to contribute further to the reduction in nonurgent calls. This practice demonstrated a reduction in postoperative help-seeking, with a recent study showing a decrease in the complaint range from 28% to 19%.<sup>12</sup> These follow-up calls allowed patients to discuss their experiences with a medical staff member, allowing us to check in on them and hear any concerns they might have. An unintended benefit of this educational intervention is also to catch

urgent concerns quicker, as evidenced by our significant increase in urgent calls, allowing on-call providers to intervene more quickly when indicated medically. In the case of infections, as seen in our data, this allows for the appropriate prescription of antibiotics when indicated rather than contributing to the societal trend of excessive demand for and overprescription of antibiotics.<sup>13</sup> This allows us to continue to be a practice that does not routinely prescribe antibiotics for cases where they are not necessarily indicated in an effort to mitigate the development of broad resistance within patient populations. The one category that was not positively impacted by the study was drain care queries, further intervention, double sewing in of draining line, and a standard drain care handout that was not initially part of the protocol.

## CONCLUSIONS

Maintaining a 24/7 emergency call line for less than 2% of genuine emergencies can be burdensome for physicians or become costly if middle-level providers are utilized. A more cost-effective option is developing succinct, organized educational materials that are easy to access and understand and directly communicating the information from those materials in a one-on-one preoperative education appointment with patients. Standardized responses to common concerns and a culture of real-time management of patient daytime calls helped reduce after-hours calls by 31%. This study shows that intervention can modify patient demands and alleviate the after-hours call load.

Steven P. Davison, MD, FACS, DDS  
3301 NM Ave, Suite 236  
WA, DC 20016  
E-mail: [spdplastic@gmail.com](mailto:spdplastic@gmail.com)

## DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this article.*

## ACKNOWLEDGMENTS

*We thank the staff of DAVinci Plastic Surgery for the support in collecting data for this research. The study involving human participants was reviewed by BRANY IRB (IRB No. 22-15-853-1269)*

## REFERENCES

1. Ramsey A, et al. Cosmetic surgery procedures as luxury goods: measuring price and demand in facial plastic surgery. *Mary Ann Liebert Inc.* 2002; 4:105–110.
2. Lisa F, et al. Customer service stats, facts, quotes and more. *Groove Blog*. 2022. Available at <https://www.groovehq.com/blog/customer-service-statistics>. Accessed March 19, 2022.
3. Qureshi HA, Rawlani R, Mioton ML, et al. Burnout phenomenon in U.S. plastic surgeons: risk factors and impact on quality of life. *Plast Reconstr Surg.* 2015;135:619–626.
4. Patel RS, Bachu R, Adikey A, et al. Factors related to physician burnout and its consequences: a review. *Behav Sci (Basel).* 2018;8:98.
5. Maia J, Sophie B, Ivy G. Washington, DC pilots 911 nurse triage line to increase quality of care. *Results for America.* 2018.
6. Nellis JC, Ishii M, Byrne PJ, et al. Association among facial paralysis, depression, and quality of life in facial plastic surgery patients. *JAMA Facial Plast Surg.* 2017; 19:190–196.
7. Møller TP, Ersbøll AK, Tolstrup JS, et al. Why and when citizens call for emergency help: an observational study of 211,193 medical emergency calls. *Scand J Trauma Resusc Emerg Med.* 2015;23:88.
8. Bedaso A, Mohammed A. Preoperative anxiety among adult patients undergoing elective surgery: a prospective survey at a general hospital in Ethiopia—patient safety in surgery. *BioMed Central.* 2019;13:18.
9. Kofina V, Lindholm D, Harunani A, et al. Post-surgical emergency after-hours calls: prevalence, concerns, and management. *J Dental Edu.* 2022;87:814–822.
10. Dyrbye LN, Shanafelt TD, Sinsky CA, et al. Burnout among health care professionals: A call to explore and address this underrecognized threat to safe, high-quality care. *NAM Perspectives.* Discussion Paper. Washington, DC: National Academy of Medicine; 2017. Available at <https://nam.edu/burnout-among-health-care-professionals-a-call-to-explore-and-address-this-underrecognized-threat-to-safe-high-quality-care>. Accessed September 22, 2023.
11. Yu E. D.C. Wants ambulances used only for emergencies. But who decides what's an emergency? *WAMU.* 2018. Available at [wamu.org/story/19/07/15/d-c-wants-fewer-people-to-take-ambulances/](http://wamu.org/story/19/07/15/d-c-wants-fewer-people-to-take-ambulances/). Accessed June 10, 2022.
12. Daniels SA, Kelly A, Bachand D, et al. Call to care: the impact of 24-hour postdischarge telephone follow-up in the treatment of surgical day care patients. *Am J Surg.* 2016;211:963–967.
13. Yates TD, Davis ME, Taylor YJ, et al. Not a magic pill: a qualitative exploration of provider perspectives on antibiotic prescribing in the outpatient setting. *BioMed Central.* 2018;19:96.