



Brief Report

The Impacts of COVID-19 on Veterans Affairs Catheterization Laboratory Staff During the First Months of the US Response

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Background: The COVID-19 pandemic has altered catheterization laboratory (cath lab) practices in diverse ways. **Objective:** The aim of this study was to understand the impact of COVID-19 on Veterans Affairs (VA) procedural volume and cath lab team experience. **Methods:** Procedural volume and COVID-19 patient data were obtained from the Clinical, Assessment, Reporting and Tracking Program. A mixed methods survey was emailed to VA cath lab staff asking about the COVID-19 response. Descriptive and manifest content analyses were conducted. **Results:** Procedural volume decreased from April to September 2020. One hundred four patients with known COVID-19 were treated. Survey response rate was 19% of staff (n = 170/902) from 83% of VA cath labs (n = 67/81). Reassignment to other units, confusion regarding COVID-19 testing, personal protective equipment use, and low patient volume were reported. Anxiety, burnout, and leadership's role on team morale were described. **Conclusions:** Some teams adapted. Others expressed frustration over the lack of control over their practice. Leaders should routinely assess staff needs during the current and future crises.

KEY WORDS: COVID-19, interventional cardiology, qualitative, veterans

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The data that support the findings of this study are available from the corresponding author upon reasonable request, but they will be subject to the stringent data privacy rules of the VA Healthcare System and US Government.

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The COVID-19 pandemic has altered cardiac catheterization laboratory (cath lab) practices in diverse ways. In the first months of the pandemic, many health-care facilities canceled elective procedures to preserve resources in anticipation of a surge of patients with COVID-19. Cardiology professional societies endorsed these actions while recommending the continuation of urgent and emergent services using appropriate infection control measures.¹ Recent publications have described cardiovascular considerations for patients, healthcare workers, and health systems² as well as trends in procedural volumes during COVID-19.³ However, the impact of preparing and responding to COVID-19 for cath lab members has not been well described. To understand their experience during the first months of the pandemic, we conducted a mixed methods study in the Veterans Health Administration (VA).

Methods

This study is a cross-sectional, convenience sample design conducted in VA cardiac cath labs. We identified patients who underwent any invasive coronary (diagnostic angiography, percutaneous coronary intervention), structural heart (transaortic valve replacement), or electrophysiology procedure in a cath lab from January 2019 to December 2020 and their COVID-19 status within the 2 weeks before the procedure. We obtained procedural data from the VA Clinical Assessment, Reporting and Tracking Program⁴ and patient data from the electronic medical record. Descriptive analyses of the procedural data were conducted in Microsoft Excel v.16.34 (Microsoft Corp, Redmond, WA).

In August 2020, we sent an email invitation with a RedCap⁵ survey link to cath lab nurses, physicians, and technicians with a VA email address. RedCap is a secure web application for building and managing online surveys that include personal health information. A unique ID was created in RedCap that links each employee to a cath lab and ensures confidentiality of responses.

Respondents were asked to describe their medical center and cath lab responses to COVID-19, including adaptations, coping strategies, and concerns. The qualitative survey data were exported from RedCap to ATLAS.ti 9 (GmbH) and analyzed using manifest content analysis.⁶ A structured matrix was developed to code the data. All the text responses were reviewed for content and correspondence. Codes and categories were discussed within the analyst team. Face validity of the categorized results was established by the principal investigator (H.G.). Quotes were used to enhance the credibility of the findings and contextualize the quantitative results. The study was deemed non-human-subjects research by the Colorado Multiple Institutional Review Board (17-1153).

Results

In the first quarter of 2020, 9827 procedures were performed in 81 VA cath labs. This decreased to 5959 procedures in the second quarter and then increased to 9025 and 9092 procedures in the third and fourth quarters, respectively. A total of 104 known patients who were COVID-19 positive were treated, with most occurring in the fourth quarter (Figure).

We received survey responses from 170 of 902 staff (19%) from 67 of 81 VA cath labs (83%), including 110 nurses, 29 technicians, 20 physicians, and 11 other staff. Responses per cath lab ranged from 1 to 10 (mean, 2.5). Three themes were identified: (1) procedural volume and staffing, (2) confusion with COVID-19 testing and personal protective equipment (PPE) guidance, and (3) team morale and leadership.

The reduction, and in some cases, cessation, of interventional cardiology care for veterans during the COVID-19 response was a significant concern and stressor for nearly all participants: "I feel concerned with the volume. A high-cost low volume lab is never good." As the first COVID-19 surge passed, a majority of participants described new challenges: "COVID-19 has impacted our ability to perform procedures as we simply are not doing many.... People are having cardiac issues but where are they?" Multiple participants described staff being reassigned. Although many were "proud to contribute" to the pandemic effort, some reported frustration: "We feel as though we are being farmed out." Although some settled into the current situation, staffing changes were exhausting for many: "The [cath lab] call is becoming overwhelming and causing burnout for many." In summary, participants expressed universal understanding of the need to restrict procedures and reassign staff in the early weeks. However, as time went on, the majority expressed frustrations and concern that the ongoing restrictions and staffing changes would negatively impact employee and veteran health.

The second theme was confusion regarding COVID-19 testing and PPE guidance. A few labs conducted preprocedural COVID-19 testing, but the majority indicated they treat every patient as positive. For labs that routinely test patients, delays in workflow became an issue because "COVID testing prior delays the procedure start due to the wait time." Respondents conducting outpatient procedures discussed issues for veterans obtaining COVID-19 tests and quarantining before elective procedures: "The hospital is saying COVID tests are good for 3 days and patients are supposed to quarantine until their procedures, but we all know not all patients are following these guidelines." Guidance for use of PPE was "confusing," and availability was an ongoing concern: "We hid our PPE because it was being stolen." Once PPE guidance was clarified, training became a concern: "We had no help from any 'experts' watching our PPE use to ensure we were doing it right. Would

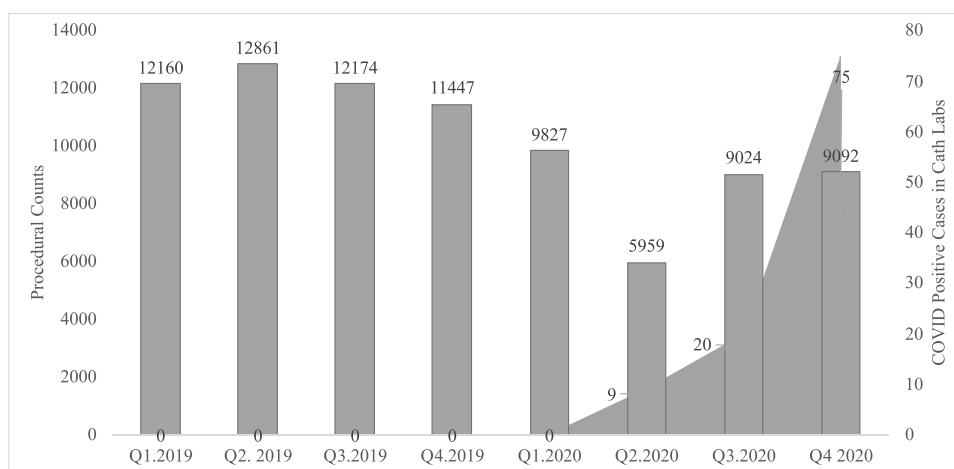


FIGURE. Cardiac procedural volume and COVID-19-positive case counts in the Veterans Health Administration healthcare system, 2019–2020.

have appreciated more help.” Several participants acknowledged that “it is hard to have a face shield, N95, ... glasses, head covering, lead and a gown and gloves on. It is hard to see, breathe, and causes many headaches.”

A third theme was team morale and leadership. For a few labs, COVID-19 “...pulled everyone closer together as a team” because “...we took an all-hands-on-deck approach.” However, other teams reported worsened team morale due to the “COVID-19 unknowns,” “long-standing staffing issues,” “the surge that never came,” and “leadership failures.” Inconsistent or absent leaders negatively impacted cath lab staff. Reports of leadership going “overboard” with closures and reassignments, and “disappointing communication” were noted. Additional risk factors for poor experiences during COVID-19 included “concerns for personal safety” and poor relationships with colleagues. Strategies that positively impacted staff experiences included focusing on “treating our Veterans,” “providing support to each other,” and “excellent [cath lab or hospital] management.” Leaders who “kept an open-door policy to address questions or concerns” or who “kept [staff] well informed on the evolving situation through frequent meetings” helped staff feel “prepared for COVID-19 cases.” Labs that reported treating a patient with COVID-19 reported being “well equipped and trained for COVID patient care.”

Discussion

The results demonstrate that geographically dispersed cath labs reported similar experiences and stressors, whether or not they treated a patient with COVID-19, or their facility experienced a surge of patients. The risk factors and strategies identified are in line with existing literature,⁷ which acknowledges healthcare organizations experienced a lack of guidance in the early weeks of COVID-19 that negatively impacted team morale.

However, strategies that focused on teamwork, leadership, and a sense of purpose enabled many to adapt and cope during a time of unprecedented demands.

The primary method for cath lab leaders to support teams during crises is through communicating clear consistent messages in an empathetic manner.⁸ Communication should be frequent, timely, and accurate.⁹ Important issues should be shared face-to-face (or virtually) with time for discussion and active listening. Asking a group what they need and how they are doing, then listening, and acknowledging their concerns can build understanding and a sense of community. Last, cath lab leaders should be visible and present, share more rather than less, and connect with the team rather than dictate.¹⁰ The sources of anxiety during COVID-19 varied, and there have been no easy solutions.¹¹ During times of crises, leaders are not expected to have all the answers, but being present and asking, listening, and acknowledging requests can go a long way.

The study has multiple strengths. Procedural volume was derived from cath lab clinical documentation, COVID-19 status was derived from the electronic medical record, and the survey responses represented 83% of cath labs in a national healthcare system. Study limitations included the 19% response rate and inability to validate reports of reassignment, PPE, and COVID-19 testing guidance. Future research investigating the long-term impact of COVID-19 on cath lab volume, clinical processes, and staff well-being are planned. We will use the longitudinal data to highlight the impact of cath lab closures, staffing reassignments, and changes in processes during the current crisis and beyond.

The study findings are informative for we learned that providing care during COVID-19 was uniformly challenging for VA cath labs. As routines return and COVID-19 prevention becomes the new normal, it is important for cath lab leadership to appreciate the powerful impact of the pandemic on individual teams.

Cath lab staff will need help to grieve, recover, and rebound. Healthcare leaders and managers will play a crucial role in supporting or restoring the well-being of staff during the current and future crises.

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