Status of Robotic-Assisted Surgery (RAS) and the effects of Coronavirus (COVID-19) on RAS in the Department of Defense (DoD)

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Purpose: The purpose of this study is to update the available literature with information on the current use of robotic-assisted surgery (RAS) in the Department of Defense (DoD) compared to the civilian world, and how the coronavirus disease 2019 (COVID-19) pandemic impacted RAS in the DoD. RAS is becoming more popular. We wanted to continue evaluating its trend in the military and see how covid affected its trend. The arrival of COVID-19 in the United States significantly decreased the use of RAS in the DoD as well as in the civilian sector in all surgical specialties because it led to postponement or cancellation of many non-emergent surgical procedures.

Materials and Methods: RAS data from the DoD data was obtained from "The Department of Defense Robotic Surgery Dashboard." This database of information is managed by Ft. Detrick, MD, and it is published quarter-annually to DoD surgeons who are involved with RAS. It includes information about RAS being performed at DoD institutions to include case volume for surgeon, specialty, and location. 10,759 RAS cases between 01 October 2017 and 31 December 2020 were examined, met criteria, and used for this study. Cases from all surgical specialties performing RAS were included.

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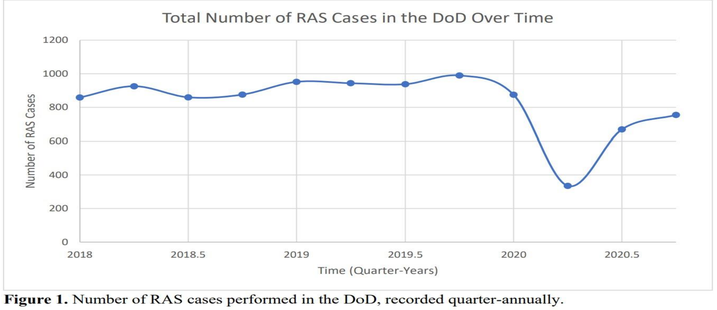


Figure 1. Number of RAS cases performed in the DoD, recorded quarter-annually.

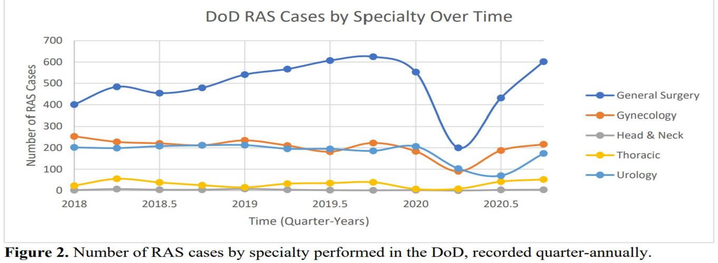


Figure 2. Number of RAS cases by specialty performed in the DoD, recorded quarter-annually.

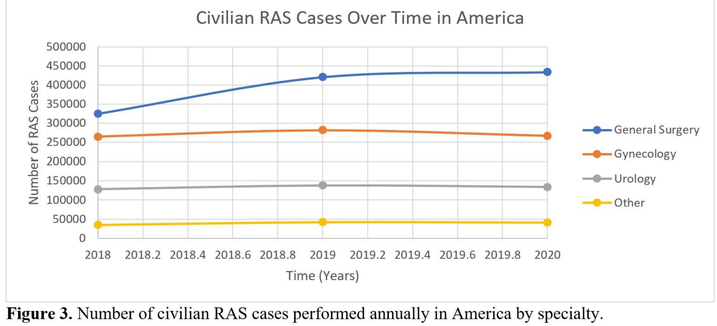


Figure 3. Number of civilian RAS cases performed annually in America by specialty.

Results: There were 3,712 cases performed in 2018, and 4,117 cases performed in 2019, demonstrating a 10.91% increase in RAS use in the DoD. This trend was on the path to continue until COVID-19 when most elective surgeries were postponed starting quarter 2 (Q2) of 2020. The number of RAS cases decreased from 875 cases to 335 cases. This decrease in an upward trend of RAS cases can also be seen in the civilian sector. The number of RAS cases in 2020 were 876,000, demonstrating a 0.79% decrease from 2019 amidst COVID-19. Since the reopening of elective surgical procedures, the DoD has since seen an increase in RAS cases starting at quarter 3 (Q3) 2020. The number of cases increased from 335 during Q2 to 669 during Q3, and again to 755 during quarter 4 (Q4). General surgery continues to be the specialty that performs the most RAS in the DoD since Q4 2015. RAS use in DoD general surgery had an increase in use from 2018-2019 by 28.71%.

Conclusions: In conclusion, since the release of Volume I of RAS in the DoD, the use of RAS has continued to increase, and general surgery cases continue to constitute most of these cases. Since the COVID-19 pandemic began, there has been a more significant decline in RAS cases in the DoD compared to the civilian sector.