UNDERSTANDING THE FULL PICTURE OF ENVIRONMENTAL IMPACT & SINGLE-USE URETEROSCOPY

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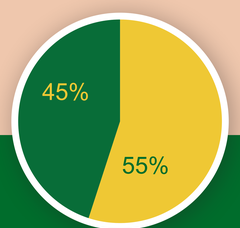

Figure 1

ARE YOU AWARE OF BIOPLASTICS?

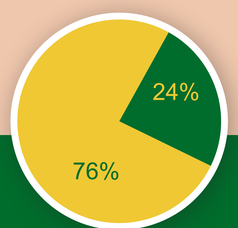

Figure 2

INTERESTED IN A RECYCLE PROGRAM? (FOR SINGLE-USE ENDOSCOPES)

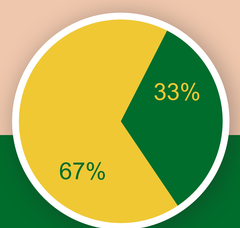

Figure 3

DO YOU HAVE AN ENVIRONMENTAL METRIC?

Aware Not Aware | Not Interested Interested | Yes No

Introduction:

- As single-use (SU) endoscope utilization continues to grow across specialties, including urology, so too has the emphasis on understanding the environmental impact of these disposable devices.
- A 2023 study by Haislip et al. surveyed urologists across the United States (U.S.) and identified "environmental impact coming from SU ureteroscopes" as a main barrier to utilizing SU.
- As a result of this growing emphasis, research comparing reusable (RU) and SU endoscopy practices has become more prominent, governing bodies and health systems have begun instituting sustainability initiatives, and manufacturers have implemented materials changes aimed at mitigating overall impact.
- This study aimed to identify the awareness of sustainability efforts across U.S. urology facilities.

Methods:

- To evaluate the awareness of ongoing sustainability efforts across healthcare facilities and manufacturers, 87 board-certified urologists and 16 clinical administrators were surveyed in the U.S. from December 2023 through June 2024.
- Survey questions focused on barriers to and drivers of SU adoption, awareness of environmental metrics in healthcare facilities, bioplastics used in manufacturing and recycling programs for SU.
- Results were analyzed and proportions of responses were calculated.

Results:

- Results from the U.S.-based survey can be found in figures 1 through 3, left.
- The main barriers to SU utilization from the urologist perspective included:
  - **Environmental impact**
  - **Cost of SU scopes**
  - **Image quality of SU scopes**

Conclusion:

- Despite clinical and workflow advantages that may be presented by a SU platform, the environmental concern around increased SU endoscope utilization is a major barrier to SU endoscope adoption in the U.S.
- More than half of respondents noted their facility did not have an environmental metric in place at that time and were unaware of bioplastics in general, despite this environmental concern growing across healthcare.

Discussion:

In terms of waste generation, published literature shows SU endoscopy produces less waste mass than RU endoscopy, which is driven by the reprocessing of RU.[1] Additionally, SU endoscopy has shown to consume less water per procedure compared to RU endoscopy.[2] Publications reviewing the life cycle of both SU and RU urological endoscopes, from material procurement through end of life of the scope, found comparable environmental footprints.[3,4] It is of note, some SU manufacturers have begun incorporating bioplastics into their production of their endoscope handles and reducing the overall carbon footprint of scope handle production, which may have not been considered in these recent publications. Physicians and facilities should continue to investigate and consider the environmental impacts of all endoscopic practices, while developing quantifiable environmental metrics that are aimed at tracking total mass waste generation and water consumption within their system.

References:

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3 Wani M, Madaan S, Brown G, Steggall M, Nabi G. Carbon footprinting and sustainability impact assessment in urological surgical practice – A systematic review. Scottish Medical Journal. 2024;69(3):88-98. doi:10.1177/00369330241280206

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