

Single-Use Surgical Arthroscopes

June 2024

Device Overview

Arthroscopies are performed to examine inside a joint and diagnose and treat various conditions, using an arthroscope (a small tube with lenses, attached to a video camera and light). [1] Typically arthroscopes are reusable instruments that provide high quality visualization, require decontamination and sterile processing after each use, and may need repairs which add additional expense. In recent years, multiple single-use arthroscopes have entered the market each with different features. Single-use device suppliers market multiple benefits including time savings, operating room efficiencies, ease of use, and lower risk of infection. [2,3]

FDA Approval

Specific 510(k) approval for individual products can be found by searching the 510(k) Premarket Notification database and can be found [here](#). [8]

Actions for Consideration



ENGAGE KEY STAKEHOLDERS

Discuss potential device use with orthopedic surgeons, OR Director, sterile processing leaders and the value analysis coordinator.

CONSIDER GUIDELINES FOR USE

Develop 'criteria for use' guidelines and changes to workflow related to locations, procedures, or patient populations.

UNDERSTAND CONCERNS

Provide opportunity for questions/concerns prior to final decision. Leverage physician champion for peer support.



SEEK CLINICAL IMPACT

Evaluate available evidence related to outcomes and discuss physician experience of single use versus reusable.

CONDUCT ANALYSIS

Compare cost of current scopes, (maintenance, processing, and repairs) versus single use product to determine impact.

DETERMINE POPULATION

Work with key stakeholders to review all data and determine appropriate procedure and patient use.



EDUCATE AND TRAIN

Provide education plan and on site training and support for new product to help with adoption.

PLAN AHEAD

Communicate plan for implementation, new workflow and ensure supplier support during go live.

FOLLOW-UP FOR FEEDBACK

Create a process for measurement of patient outcomes, and an ongoing feedback loop of initiative. Report out to key stakeholders at scheduled intervals.

Clinical Evidence

There are currently no clinical studies comparing single use arthroscopes amongst different suppliers. There are studies regarding individual products' safety and efficacy. In addition, there are studies evaluating cost considerations and sustainability when comparing reusable and single use scopes. A sampling is provided below.

A 2023 systematic review by Burt et al. (containing 22 studies) reviewed current evidence on the Arthrex NanoScope, a single-use arthroscopy imaging system. It was noted that there is a steep learning curve for use of the NanoScope, namely due to its 0-degree viewing angle, which differs from the conventional 30-degree arthroscope. With a lower fluid flow rate there is the potential for improvements in postoperative recovery “by reducing swelling, range of movement restriction, and pain”, however with a less effective lavage. The NanoScope can also be used under local anesthesia, potentially making it useful for outpatient settings. Authors do note that due to the limited amount and quality of clinical literature currently available more evidence is needed to validate safety and efficacy. [4]

Voigt et al. compare the cost of reusable and disposable equipment for arthroscopic carpal tunnel release procedures using time-driven activity-based costing. The costs of capital purchase, maintenance, reprocessing, and operating room management were considered, as well as the expected lifetime of the equipment. Using disposable equipment was the less costly option compared to reusable equipment costs. However, it is important to note that the study did not include analysis on cost for disposal of single-use equipment and any long-term costs associated with medical waste management. [5]

Namburar et al. attempt to estimate the environmental impact of disposable endoscopes using 278 endoscopies performed across 243 patients and found that if “all endoscopic procedures were performed with single-use endoscopes and accounting for reprocessing, the net waste mass would increase by 40%... net waste generated from reprocessing and endoscope disposal would quadruple with only using single-use endoscopes.” Although reprocessing waste is lower with disposable endoscopes, their net waste is higher than that of reusable endoscopes. Limitations include variation in practice between facilities regarding products used and disposed of.[6]



**See Reference section
for complete listing of
research sources.**

Physician Insights: HealthTrust Physicians Advisor Network

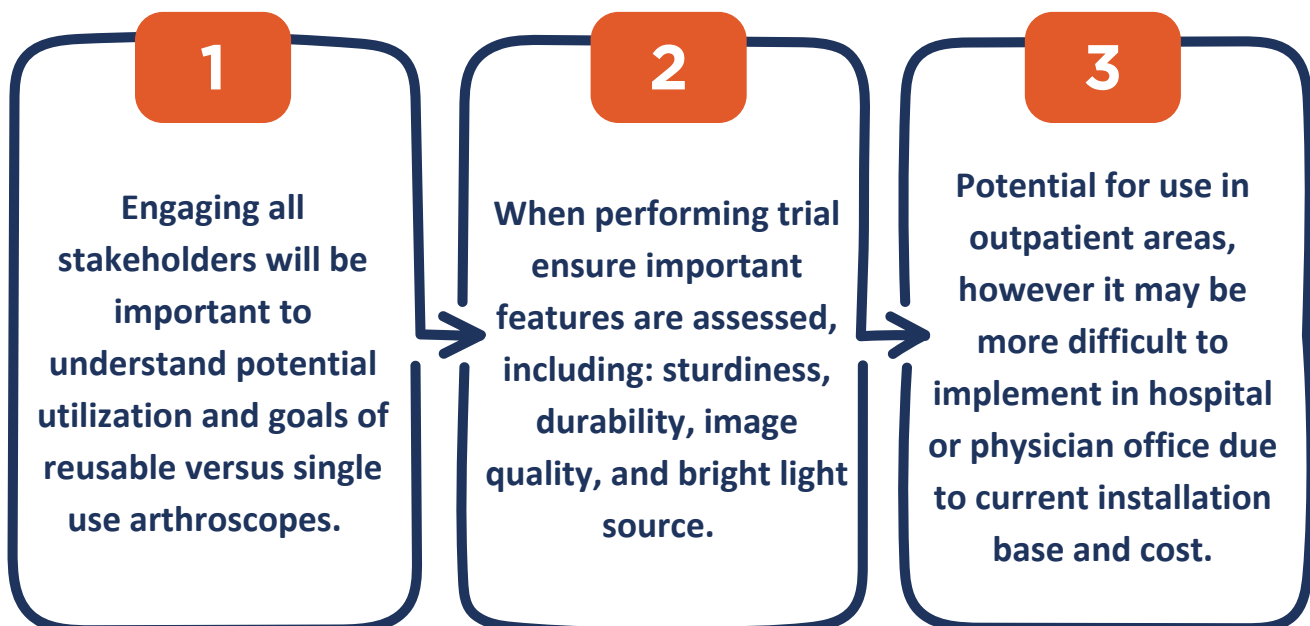
Members of the HealthTrust Physician Advisor Network in the specialty of Orthopedics provided the following insights & experiences using these products. [7]

Physician Insights



- Important features include sturdiness, durability, visibility and bright light source.
- Potential for emerging technology in this space for a simpler, cheaper and straightforward solution to diagnostics and basic problems with large joints.
- Single-use scopes could be beneficial in outpatient areas.
- Could be difficult to convert from a reusable to single use due to current installation base, contracting, and green initiatives with sustainability concerns.
- Opinions varies in regards to potential office diagnostic use.
- Concern regarding the durability and sturdiness of single-use scope.
- Expense can limit physician office use.
- Wide adoption may not be feasible due to cost.
- Could be difficult to convert from a reusable to single use due to current installation base and contracting.

Summary



HealthTrust Clinical Resources

Allow us to connect you with the resources you need. Examples for this category include resources on value analysis and product trials.

ASK A QUESTION

PROVIDE YOUR FEEDBACK

SHARE YOUR VOICE

NETWORK WITH PEERS



PERSONALIZED REQUEST SERVICE & RESOURCE LIBRARY

www.hpginsights.com



PEER NETWORKING

www.huddle.healthtrustpg.com
App store: "HealthTrust Huddle"

References

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2. Pristine Surgical. Simplifying Endoscopy. Pristine Surgical. Accessed June 20, 2024. <https://pristinesurgical.com/>
3. Arthrex. Helping Surgeons Treat Their Patients Better™. synergy.arthrex.io. Accessed June 19, 2024. <https://synergy.arthrex.io/nano-operative-arthroscopy-system>
4. Burt J, Smith V, Gee CW, Clarke JV, Hall AJ. The role of outpatient needle arthroscopy in the diagnosis and management of musculoskeletal complaints: A systematic review of the Arthrex NanoScope. The Knee. 2023;42:246-257. doi:<https://doi.org/10.1016/j.knee.2023.04.003>
5. Voigt J, Seigerman D, Lutsky K, Beredjiklian P, Leinberry C. Comparison of the Costs of Reusable Versus Disposable Equipment for Endoscopic Carpal Tunnel Release Procedures Using Activity-Based Costing Analysis. The Journal of Hand Surgery. Published online November 2020. doi:<https://doi.org/10.1016/j.jhsa.2020.08.019>
6. Namburar S, von Renteln D, Damianos J, et al. Estimating the environmental impact of disposable endoscopic equipment and endoscopes. Gut. Published online December 1, 2021:[gutjnl-2021-324729](https://doi.org/10.1136/gutjnl-2021-324729). doi:<https://doi.org/10.1136/gutjnl-2021-324729>
7. 2024 Physician Advisor Network: Single-use Arthroscope. Collected June 7th, 2024 through June 21, 2024. HealthTrust Clinical Advisor Board Survey. Collected May 17 through May 30, 2023.
8. U.S. Food and Drug Administration. 510(k) Premarket Notification. fda.gov. Published 2019. <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMN/pmn.cfm>