EVIDENCE DOSSIER

Ambu® aScope™ 5 Uretero

Ambu

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This document includes published peer-reviewed studies on health economics, elimination of costly repairs, and improving clinical outcomes related to single-use ureteroscopes.

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ABBREVIATIONS

FDA: U.S. Food and Drug Administration

MDRs: Medical Device Reports

fURS: Flexible ureteroscopes

CO_2: Carbon dioxide

SD: Standard deviation

SFR: Stone-free rate

OR: Odds ratio

95% CI: 95% confidence interval

RIRS: Retrograde intrarenal surgery

MDR: Medical Device Report

PREFACE

This dossier gives you an overview of the evidence-based landscape related to the Ambu aScope 5 Uretero, a single-use ureteroscope. The introduction includes a description of concerns related to reprocessing of reusable ureteroscopes and explains the environmental impact of single-use ureteroscopes compared to reusable ureteroscopes.

The main section includes relevant published peer-reviewed studies on health economics, elimination of costly repairs, and improving clinical outcomes related to single-use ureteroscopes. The last section presents the benefits of the Ambu aScope 5 Uretero.

While each study summary is true to the original publication, the original copies can be made available upon request if open access. Should you wish to discuss any publication in this dossier in more detail, do not hesitate to send an enquiry to the Global Health Economics team at Ambu – global_hema@ambu.com.

A literature search on ureteroscopes has been conducted to generate the evidence dossier in order to give the reader the opportunity to obtain a balanced overview of existing literature relevant to disposable ureteroscopes such as the aScope 5 Uretero. The study titles are taken from the publications as they appear in their original form, allowing the reader to make an accurate internet search should they wish to find out more.

We hope this evidence dossier provides you with an understanding of the clinical landscape concerning the aScope 5 Uretero and assists you in your day-to-day evidence-based practice.

While every effort has been made to provide accurate information, we will be pleased to correct any errors or omissions brought to our notice in subsequent editions.

A HISTORY OF BREAKTHROUGH IDEAS

Ambu has been bringing the solutions of the future to life since 1937. Today, millions of patients and healthcare professionals worldwide depend on the efficiency, safety and performance of our single-use endoscopy, anaesthesia, and patient-monitoring and diagnostics solutions. The manifestations of our efforts have ranged from early innovations like the Ambu Bag™ resuscitator and the Ambu® BlueSensor™ electrodes to our newest landmark solutions like Ambu® aScope™ – the world's first single-use flexible endoscope. Moreover, we continuously look to the future with a commitment to deliver innovative quality products, like the aScope 5 Uretero, which have a positive impact on your work.

Headquartered near Copenhagen, Denmark, Ambu employs approximately 4,500 people in Europe, North America, Latin America and the Asia-Pacific region.

For more information, please visit ambuUSA.com.

THE ENVIRONMENTAL IMPACT OF SINGLE-USE URETEROSCOPES

Healthcare services in developed countries are a concerning source of environmental emissions, and the environmental impact of single-use ureteroscopes such as the aScope 5 Uretero may therefore cause concern. However, a comparative study by Davis et al. from 2018 has shown that the environmental impact of single-use fURS and reusable fURS is comparable.

The study showed that the total carbon footprint of a single-use ureteroscope was 4.43 kg CO_2 per case, and the total carbon footprint of a reusable ureteroscope was 4.47 kg CO_2 per case. The total carbon footprint of the life cycle of both single-use and reusable fURS was therefore <5 kg of CO_2 per case, which is favourable compared to other medical equipment and surgical procedures. Thus, the environmental impact of single-use ureteroscopes such as the aScope 5 Uretero is not of specific concern. The scientific paper by Davis et al. can be read here.

Total carbon footprint (kg of CO_2) of components of single-use and reusable fURS[3].

Components of the life cycle	Single-use fURS [b]	Reusable fURS [c]
Manufacturing cost	3.83	0.06
Solid waste	0.3	0.005
Washing/Sterilisation	0.3	3.95
Repackaging	-	<0.005
Repair	-	0.45
Total per case	4.43	4.47

The study by Davis et al. highlights the importance of environmental emissions due to ureteroscopy. Ambu A/S is extending its efforts to minimise negative environmental impact by introducing bio-attributed materials in the handle of the aScope 5 Uretero. This is a significant step forward, and one which aligns with Ambu's commitment to environmental responsibility. In addition to the introduction of bio-attributed material, all secondary packaging components in the aScope 5 Uretero are 100% recyclable. Explore more about Ambu's commitment to sustainability by reading here.

[b] LithoVueTM
[c] URV-FTM with a life cycle of 180 uses and 11 repairs

SUPPORTING EVIDENCE-BASED PRACTICE WITH BEST AVAILABLE EVIDENCE

HOW WERE THE STUDIES IN THIS DOSSIER SELECTED?

Two major scientific online databases, PubMed (MEDLINE) and Embase, were searched for all relevant articles up to July 1, 2023. Articles published in the English language within the areas of infection control, workflow, procedure relocation and health economics were included. Commentaries, letters to the editor, book chapters, and publications with no clinical or economic relevance were excluded. To provide the reader with the most up-to-date studies, this document only includes studies published after 2017.

This clinical evidence dossier is updated bi-annually and includes summaries of published peer-reviewed studies related to ureteroscopes and ureteroscopy procedures. Stay up to date with the most recently published literature, abstracts and ureteroscopy-related data by scanning the QR code to visit our Supporting Evidence page at ambuUSA.com/supporting-evidence/uretero

HEALTH ECONOMICS

Cost

Not open access

TAKEAWAY

The study found digital ureteroscope costs to be 1.3-1.4x greater than that of fiberoptic ureteroscopy. The majority of these costs are made up of ureteroscope repairs.

KEY FINDINGS

- **The majority of the cost of ownership for digital and fiberoptic ureteroscopes goes towards the repairs of the ureteroscopes.**
- **The capital cost, or acquisition cost, of the flexible reusable ureteroscopes make up a quarter of the total cost per use, with the cost of reprocessing being the least burdensome.**

Comprehensive Costs Associated with Fiberoptic and Digital Flexible Ureteroscopes at a High Volume Teaching Hospital[1]

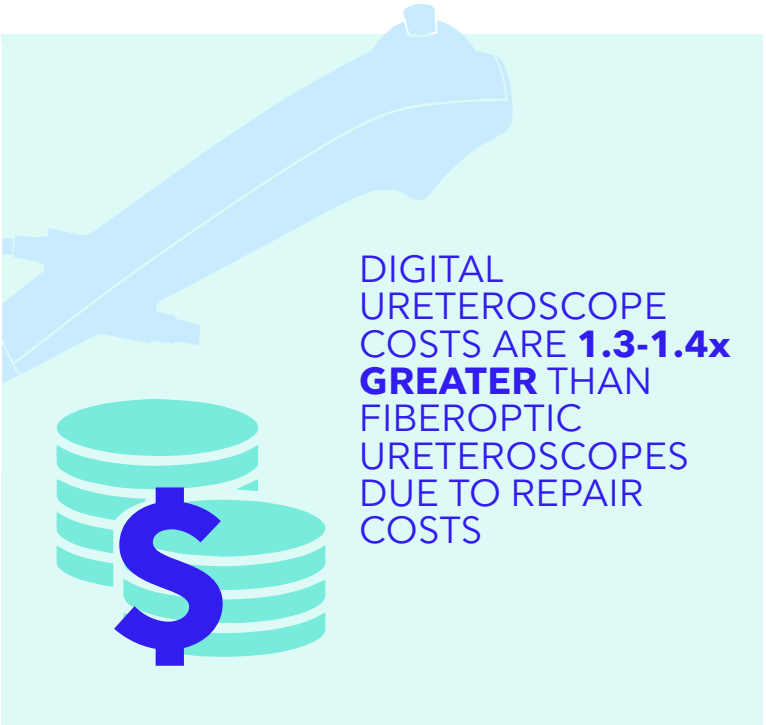
Borofsky et al., 2017

STUDY AIM

The aim of the study was to gain a greater insight into the comprehensive costs associated with modern flexible ureteroscope use, with particular focus on the difference between digital and fiberoptic ureteroscopes.

METHODS

- Retrospective data on digital and flexible ureteroscope repairs from 2011 to 2015 were collected and analyzed.
- Per case reprocessing costs were estimated including disposable items, detergents and reagents, and reprocessing.
- Maintenance costs were estimated by combining the repair costs and reprocessing costs.
- Total flexible ureteroscope costs were calculated including the cost of scope acquisition, repair, and maintenance of a new flexible ureteroscope over its first 100 procedures.



Cost Open access

TAKEAWAY

This study found that reprocessing of reusable flexible ureteroscopes takes on average 229 minutes to complete, and amounted to $96.13 per cycle.

KEY FINDINGS

- **On average, it costs $139.39 in labor to prepare the ureteroscope for repair (excluding repair itself).**
- **Of the steps followed throughout this study, there was a low variance of measurements between steps – with ureteroscope hang-drying showing the highest variance of time.**
- **Reusable ureteroscopes at this academic medical center required a repair every 10 procedures, averaging $9,420 per repair.**

Defining the Costs of Reusable Flexible Ureteroscope Reprocessing Using Time-Driven Activity-Based Costing[2]

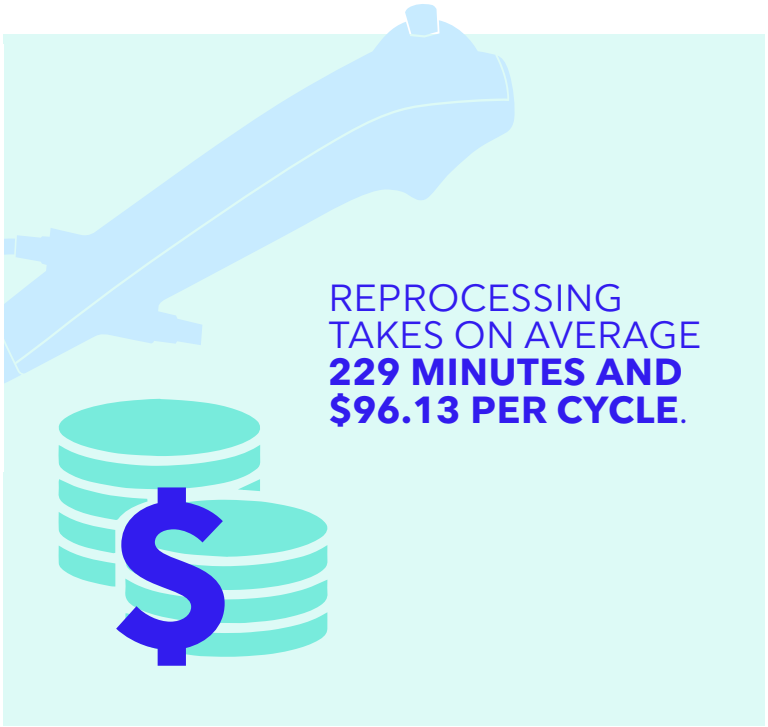
Isaacson et al., 2017

STUDY AIM

The aim of this study was to describe and define the time and costs involved in reprocessing reusable flexible ureteroscopes.

METHODS

- Time-driven activity-based costing was applied to study design.
- Direct observation and timing were performed for all steps in reprocessing of flexible ureteroscopes following procedures.
- Time required for repairs of damaged ureteroscopes were derived from interviews with purchasing staff.
- Process mapping was used to detail the individual step times and variances for reprocessing and repairs.
- Cost data for hands-on labor and disposable use were applied to arrive at a per minute and average step cost.



Cost Open access

TAKEAWAY

The Axis™ single-use digital ureteroscope is equivalent in function and reduces the cost of flexible ureteroscopy procedures compared with digital reusable ureteroscopes.

KEY FINDINGS

- **A total of 93 flexible ureteroscopy procedures were performed with single-use ureteroscopes during the study period.**
- **The utilization of single-use ureteroscopes was associated with an average reduction of $140 per case. When extrapolating the per-case savings over an annual case volume, the total savings were $56,127.**
- **The mean ± standard deviation (SD) score for image quality, mobility and ergonomics was 9.1±1.1, 8.9±1.1 and 9.3±1.1, respectively. The 90-day complication rates were equal to the reusable ureteroscopes.**

Initial Experience with Novel Single-Use Disposable Ureteroscopy: A Prospective, Single Arm 90-Day Trial of the Axis Ureteroscope, Urology Practice, 2020[3]

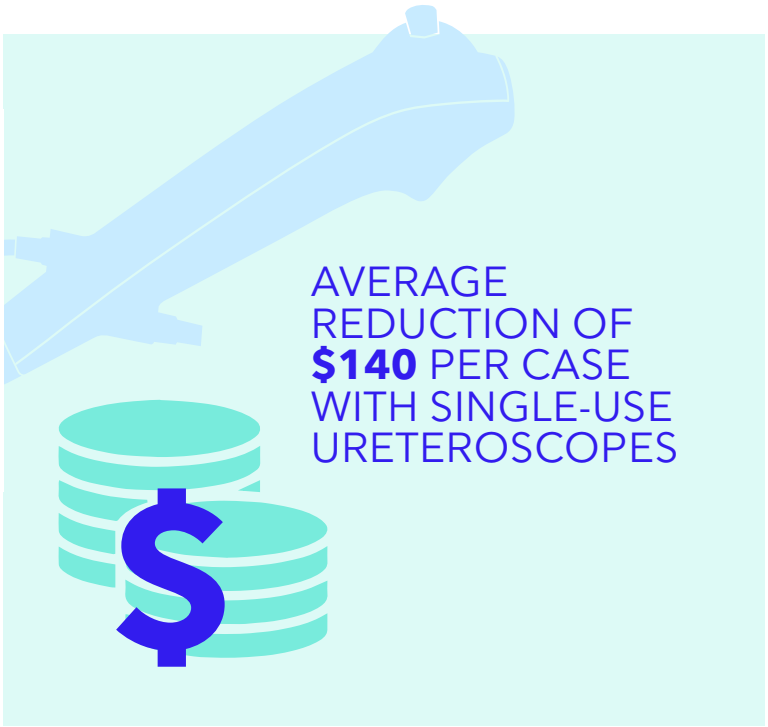
Large et al., 2020

STUDY AIM

The aim of the study was to demonstrate clinical equivalence and evaluate the cost of a single-use digital ureteroscope (Axis™) compared to a reusable platform.

METHODS

- The study was conducted as a prospective single-site 90-day trial with all flexible ureteroscopy procedures completed using a single-use ureteroscope.
- An immediate postoperative REDCAP® survey was used to monitor cases for scope failure, deficiencies, and surgeon satisfaction scores.
- A cost analysis between reusable and single-use ureteroscopes was also performed. The cost of reusable ureteroscopes included the amortized initial purchase, maintenance, and cleaning processing.



Cost Open access

TAKEAWAY

The study showed equal clinical effectiveness of reusable and single-use fURS, and partially overlapping ranges of costs for reusable and single-use fURS.

KEY FINDINGS

- **The comparison of clinical outcomes between reusable and single-use fURS showed no significant difference for overall success rates (81 vs. 87%), stone-free rates (SFRs) (82 vs. 85%), operation time (76.2±46.8 vs. 76.8±40.2 min), radiation exposure time (3.83±3.15 vs. 3.93±4.43 min) or complication rates (7 vs. 17%).**
- **A wide range of repair and purchase costs resulted in a total cost of $1,212-$1,743 per procedure for reusable fURS, whereas the price for single-use fURS was $1,300-$3,180.**

Clinical outcomes and costs of reusable and single-use flexible ureterorenoscopes: a prospective cohort study, Urolithiasis, 2018[4]

Mager et al., 2018

STUDY AIM

The aim of the study was to analyse the clinical outcomes and costs of single-use fURS in comparison with reusable fURS in a tertiary referral center.

METHODS

- 68 procedures with single-use fURS (LithoVue™) and 68 procedures with reusable fURS (Flex-X2S, Flex-XC) were prospectively collected.
- Clinical outcome parameters included overall success rate, complication rates according to Clavien-Dindo, operation time and radiation exposure time.
- The cost analysis was based on purchase costs and recurrent costs for repair and reprocessing divided by number of procedures.

$1,212-$1,743

Total cost per procedure for reusable flexible ureteroscope

Cost Open access

TAKEAWAY

When accounting for costs in labor, consumables and repair, the total cost per ureteroscope procedure was comparable between the reusable URF-P6™ and the single-use LithoVue™ ureteroscope.

KEY FINDINGS

- **The mean total operating-room time was 93.4±32.3 and 73.6±17.4 minutes for URF-P6TM and LithoVue™, respectively (p=0.093).**
- **Labor and consumables during reprocessing of URF-P6™ had a cost of $107. The cost of ureteroscope repair and capital acquisition per ureteroscope procedure using URF-P6™ was $958 and $116, respectively.**
- **The purchase cost per LithoVue single-use ureteroscope was $1500.**

Micro-Costing Analysis Demonstrates Comparable Costs for LithoVue Compared to Reusable Flexible Fiberoptic Ureteroscopes, J Endourol, 2018[5]

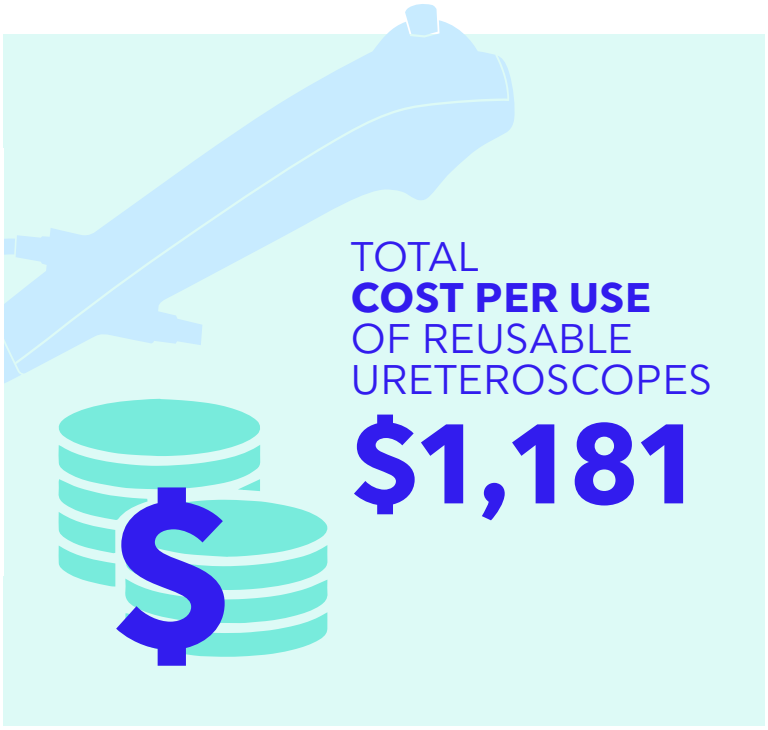
Taguchi et al., 2018

STUDY AIM

The aim of the study was to perform a micro-cost comparison between flexible reusable fiberoptic ureteroscopes (URF-P6™) and single-use digital ureteroscopes (LithoVue™).

METHODS

- The study was designed as a prospective, single-center micro-costing study with all consecutive ureteroscopies performed for one week in July and one week in August 2016 using LithoVue™ and URF-P6™ ureteroscopes, respectively.
- Workflow data included intraoperative events, postoperative reprocessing cycle timing, consumable usage, and ureteroscope cost data.



Cost

Not open access

TAKEAWAY

The financial viability of a flexible ureteroscope depends on case volume, rates of reusable ureteroscope repairs and the market price of single-use ureteroscopes.

KEY FINDINGS

- **A reusable fURS was used in 160 procedures with a total of 11 repairs during the study period.**
- **The average time to failure for reusable fURS was 12.5 procedures.**
- **The cost analysis showed that the amortised cost per use of a reusable fURS was $848, excluding the original purchasing costs.**

The Economic Implications of a Reusable Flexible Digital Ureteroscope: A Cost-Benefit Analysis, J Urol, 2016[6]

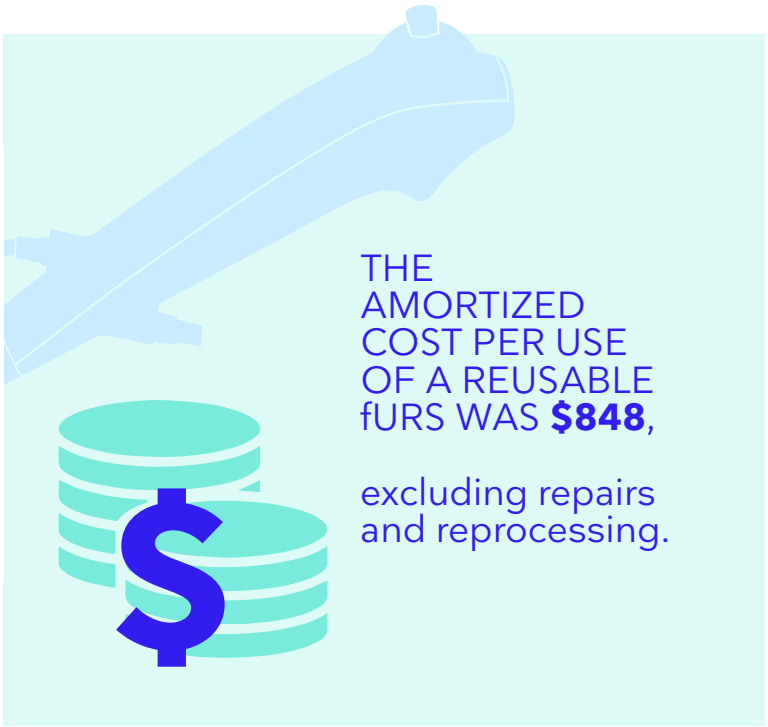
Martin et al., 2016

STUDY AIM

The aim of the study was to estimate the potential economic benefits of single-use flexible digital ureteroscopes compared to reusable flexible digital ureteroscopes.

METHODS

- Ureteroscope procedures performed over a 12-month period from February 2014 to February 2015 were included in the study.
- All flexible ureteroscopy procedures were performed using a Karl Storz Flex-XC™ digital ureteroscope.
- The cost assessment was based on the original purchasing cost and repair-exchange fees divided by number of cases.
- An algorithm including per-case reprocessing costs was made to calculate a benefit-cost ratio.
- The costs of the reusable flexible digital ureteroscope were compared to potential costs of the single-use ureteroscope LithoVue™.



ELIMINATION OF COSTLY REPAIRS

Cost/Repair

Not open access

Breakage Costs in Flexible Ureteroscopy: Digital vs. Fiberoptic Modalities[7]

Ito et al., 2022

TAKEAWAY

This study showed a breakage rate of 9.9% for fiberoptic ureteroscopes and 8.8% for digital ureteroscopes, amounting to an average repair cost of $450 and $540 per procedure, respectively.

KEY FINDINGS

- **The study found flexible fiberoptic ureteroscopes required repair more often then flexible digital ureteroscopes.**
- **Fiberoptic ureteroscopes were found to break every 13.4 procedures, while digital ureteroscopes were broken every 12.2 procedures.**
- **The total monthly repair cost for fiberoptic ureteroscopes was higher than digital ureteroscopes, but with significantly more procedures using fiberoptic ureteroscopes, the repair cost per procedure was lower compared to digital ureteroscopes.**

STUDY AIM

The aim of the study was to compare the maintenance costs of digital flexible ureteroscopes versus fiberoptic flexible ureteroscopes to understand the long-term financial impact associated with breakage in a flexible ureteroscopy program.

METHODS

- Data for flexible ureteroscope breakage and repairs was retrospectively collected at a single academic institution from 2019 to 2021.
- Correlation tests were used to evaluate signficant differences in the outcomes measured.
- Cumulative analysis were performed to determine the number of procedures prior to flexible ureteroscope breakage.

FLEXIBLE FIBEROPTIC & DIGITAL URETEROSCOPES HAVE AN AVERAGE REPAIR COST OF

$450-$540 PER PROCEDURE

Cost/Repair

Open access

Repair Rate and Associated Costs of Reusable Flexible Ureteroscopes: A Systematic Review and Meta-analysis, Eur Urol Open, 2022[8]

Rindorf et al., 2022

TAKEAWAY

The study showed a repair rate of 6.5%, equivalent to 15 ureteroscopy procedures before repair, which corresponds to an average repair cost of $441 per procedure. The authors highlight that breakage rates and repair costs should be considered to optimise the use of reusable vs. single-use ureteroscopes.

KEY FINDINGS

- **18 studies were identified through the systematic literature search. These studies included a total of 411 repairs from 5,900 ureteroscopy procedures.**
- **The average repair rate was 6.5%±0.745% (95%CI: 5.0-7.9; I2=75.3%) equivalent to 15 ureteroscopy procedures before repair.**
- **The average cost per repair was $6,808, which corresponds to an average repair cost of $441 per procedure, according to a repair rate of 6.5%.**

STUDY AIM

The aim of the study was to systematically review the existing literature on repair rates of ureteroscopy procedures, and to estimate the total weighted repair rate and the average repair cost per procedure of reusable fURS.

METHODS

- A systematic review search according to PRISMA guidelines was conducted in PubMed, Embase, Web of Science and Cochrane Library databases.
- The average cost of all repairs was extracted from the included studies, and a random-effect model was used to calculate the pooled total fURS repair rate.
- Publication bias was assessed using funnel plots and an Egger's regression test.

$441

AVERAGE REPAIR COST

per procedure with reusable ureteroscopes

Cost/Repair

Open access

TAKEAWAY

Single-use fURS is an alternative to reusable fURS in terms of surgical efficacy and safety for upper urinary calculi. In terms of costs, institutions should consider their financial situation, the number of fURS procedures, the volume of the patient's calculus, surgeon experience and local dealerships' annual maintenance contract when choosing between reusable and single-use digital fURS.

KEY FINDINGS

- **No statistically significant difference was observed between the two group in terms of mean operation time (p=0.666).**
- **Procedures with single-use digital fURS had a shorter mean length of hospital stay than reusable digital fURS (p=0.026), and the incidence of postoperative complications was similar in the two groups (p=0.678).**

Single-use vs. Reusable Digital Flexible Ureteroscope to Treat Upper Urinary Calculi: A Propensity-Score Matching Analysis, Front Surg, 2022[9]

Huang et al., 2022

STUDY AIM

The aim of the study was to compare clinical performance and costs of single-use digital fURS with reusable digital fURS.

METHODS

- A total of 440 patients were treated for upper urinary calculi with a reusable digital fURS, and 151 patients were treated with a single-use digital fURS. Both groups were included in the study.
- Through 1:1 propensity-score matching analysis based on baseline characteristics, 238 patients (119:119) were compared in terms of treatment outcomes.
- The cost analysis was based on the costs of purchase, repair and reprocessing divided by the number of all procedures in each group (450 procedures with reusable digital fURS and 160 procedures with single-use digital fURS).

APPROXIMATELY

$528

AVERAGE REPAIR COST

per procedure for reusable fURS

IMPROVING CLINICAL OUTCOMES

Clinical outcomes

Not open access

TAKEAWAY

This study demonstrates that single-use ureteroscopes are associated with a decreased risk of UTI after stone removal compared to reusable ureteroscopes.

KEY FINDINGS

- **991 patients were included, of which 50.4% underwent ureteroscopy with a single-use ureteroscope.**
- **Rates of postoperative UTI were lower for ureteroscopic stone removal with a single-use ureteroscope compared to a reusable ureteroscope (6.5% vs 11.9%, p = 0.018).**
- **Use of a single-use ureteroscope was associated with lower odds of postoperative UTI compared to a reusable ureteroscope when adjusting for risk (odds ratio 0.37, p = 0.015).**
- **Use of a single-use ureteroscope was associated with a higher subjective stone clearance rate compared to a reusable ureteroscope (90.0% vs 83.9%, p = 0.005).**

Single-Use Ureteroscopes Are Associated with Decreased Risk of Urinary Tract Infection After Ureteroscopy for Urolithiasis Compared to Reusable Ureteroscopes. J Endourol. 2023[10]

Unno et al.,2023

STUDY AIM

The objective of the study was to compare rates of postoperative UTI after ureteroscopy for urolithiasis performed with single-use ureteroscopes vs. reusable ureteroscopes.

METHODS

- A single-center, retrospective cohort study of ureteroscopy for urolithiasis between June 2012 and March 2021, comparing patients who underwent stone removal with single-use and reusable ureteroscopes.
- Between 2012 and 2015, data were retrospectively extracted from the medical records, and, from 2015 and beyond, all data were prospectively captured in the Registry of Stones of the Kidney and Ureter. The decision as to the type of ureteroscope used during the surgery was at the surgeon's discretion.
- If positive preoperative urinanalysis, a reflex urine culture was performed and treated appropriately. Perioperative antibiotics were given in keeping with AUA best-practice statements. Routine postoperative antibiotics were not given.

> **Rates of postoperative UTI were lower for ureteroscopic stone removal with a single-use ureteroscope compared to a reusables.**

Clinical outcomes

Open access

TAKEAWAY

This meta-analysis demonstrates that single-use fURS have similar effectiveness and better security for treating upper urinary calculi compared to reusable fURS.

KEY FINDINGS

- **Seven studies were identified in the systematic literature review, including a total of 1,020 patients.**
- **A statistical difference was only found in the Clavien-Dindo grade II postoperative complication (OR: 0.47; 95% CI, 0.23-0.98; p=0.04).**
- **No significant statistical differences between single-use and reusable fURS were observed in operative time, estimated blood loss, length of hospital stays and SFR.**

Comparison Between Single-Use Flexible Ureteroscope and Reusable Flexible Ureteroscope for Upper Urinary Calculi: A Systematic Review and Meta-Analysis, Front Surg, 2021[11]

Meng et al., 2021

STUDY AIM

The aim of the study was to compare the clinical efficacy and safety of the treatment of patients with upper urinary calculi between single-use and reusable fURS.

METHODS

- A systematic search following the PRISMA guidelines was performed in PubMed, Embase, Cochrane Library and Scopus databases, and China Academic Journals full-text database, to identify relevant studies published within a period from the date of the establishment of the databases to November 2020.
- The Jadad scale was used to assess the quality of randomised controlled trials, and the Newcastle-Ottawa Scale was used to assess non-randomised controlled trials.
- The results of the meta-analysis were reported as odds ratio (OR) and mean differences with a 95% confidence interval (95% CI) and a p-value. A p-value <0.05 was considered statistically significant.

> **Single-use ureteroscopes have similar effectiveness and better security for treating upper urinary calculi compared to reusables.**

Clinical outcomes

Open access

TAKEAWAY

Single-use fURS is an effective and safe alternative to reusable fURS for the management of renal stones.

KEY FINDINGS

- **A total of five studies, including 772 patients, were included in the meta-analysis.**
- **The pooled results showed that single-use fURS were associated with a higher SFR (OR: 1.50; 95% CI, 1.06-2.12; p=0.02), but a longer operative time (MD: 7.39 min; 95% CI, 1.75-13.03; p=0.92), compared to reusable fURS.**
- **Subgroup analyses showed no differences between single-use fURS and reusable fURS in terms of perioperative complications, stent migration or acute kidney injury.**

Comparison of single-use and reusable flexible ureteroscope for renal stone management: a pooled analysis of 772 patients, Transl Androl Urol, 2021[12]

Li et al., 2021

STUDY AIM

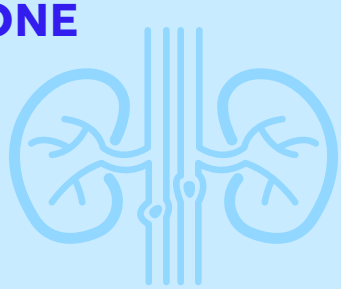
The aim of the study was to systematically assess the effectiveness and safety of single-use fURS compared to reusable fURS when treating renal stones.

METHODS

- A literature search following the PRISMA guidelines was carried out in PubMed, Web of Science, Cochrane Library and EMBASE online databases to identify relevant studies up to September 2019.
- The methodological quality of non-randomised controlled trials was assessed using the Newcastle-Ottawa Scale, and the methodological quality of randomised controlled trials was evaluated using the Jadad scale.
- For binary outcome variables, odds ratios (ORs) were reported; for continuous parameters, mean differences were reported.
- Chi-squared test and I^2 statistic were used to assess heterogeneity among included studies. Pooled estimates were calculated with a fixed-effect model in cases where heterogeneity among studies was not detected, and a random-effect model was used when there was evidence of heterogeneity.

HIGHER STONE FREE RATE

with single-use ureteroscopes compared to reusables.



Clinical outcomes

Open access

TAKEAWAY

The single-use ureteroscope LithoVue™ is a feasible alternative to a reusable ureteroscope, with a low rate of scope failure compared to reusable ureteroscopes.

KEY FINDINGS

- **A total of 115 ureteroscopy procedures were performed using LithoVue™, and 65 procedures were performed with a reusable ureteroscope.**
- **Patient demographic, surgical indication, stone size, location, total stone burden, composition, procedural outcomes and complications were comparable between groups.**
- **Single-use flexible ureteroscopes had a shorter procedure duration compared to reusable. For all cases, LithoVue™ procedures lasted 54.1±25.7 min compared to 64.5±37.0 min for reusable scope procedures ($p<0.05$), and for stone removal cases 57.3±25.1 vs. 70.3±36.9 min, respectively ($p<0.05$).**
- **Scope failure occurred in 4.4% of procedures using LithoVue™ and 7.7% of procedures using a reusable ureteroscope ($p=0.27$).**

A Prospective Case-Control Study Comparing LithoVue, a Single-Use, Flexible Disposable Ureteroscope, with Flexible, Reusable Fiber-Optic Ureteroscopes, J Endourol, 2018[13]

Usawachintachit et al., 2018

STUDY AIM

The aim of the study was to compare LithoVue™ with reusable flexible fibre-optic ureteroscopes in patients undergoing ureteroscopy for upper urinary tract pathology.

METHODS

- The study was designed as a prospective case-control study at a single facility.
- Clinical outcomes between two groups of patients undergoing flexible ureteroscopy for upper urinary tract pathology were analysed.
- In the first group the single-use ureteroscope LithoVue™ was used, and in the second group a reusable fURS was used.
- Differences in procedural outcomes, operative time and time spent in the hospital were analysed using two-tailed t-tests, Chi-squared tests and Fisher's exact tests.

Shorter procedure time with single-use ureteroscopes compared to reusables.

REPROCESSING

Reprocessing Open access

Reprocessing Effectiveness for Flexible Ureteroscopes: A Critical Look at the Evidence[14]

Ofstead et al., 2022

TAKEAWAY

This study reviews ureteroscope reprocessing methods and summarizes evidence on reprocessing effectivenss, and documented outcomes associated with the use of damaged or inadequately cleaned ureteroscopes.

KEY FINDINGS

- **One included study assessed 16 flexible ureteroscopes that had been cleaned and sterilized with hydrogen peroxide at 2 hospitals, and found that 100% of scopes had high levels of residual proteins, 63% had detectable hemoglobin and 13% harbored culturable microbes.**
- **An outbreak of multidrug resistant P. aeruginosa was identified due to the unusual resistance of the pathogen, and subsequently matched to a contaminated flexible ureteroscope used on patients, infecting 14 of the 40 patients who underwent ureteroscopy with the device.**

STUDY AIM

This study aimed to describe ureteroscope reprocessing methods and summarize the evidence on reprocessing effectiveness and documented outcomes associated with the use of damaged or inadequately cleaned and sterilized ureteroscopes.

METHODS

- PubMed and the Clinical Trials Database were used to identify peer-reviewed evidence on ureteroscope reprocessing, returning 760 unique publications.
- After review, authors included only 5 articles that described reprocessing methods, outbreaks, contamination and injuries related to fully reprocessed ureteroscopes.

One study found 16 resuable ureteroscopes sterilized with hydrogen peroxide

100% CONTAMINATED

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Ambu, Inc.
6721 Columbia Gateway Drive, Suite 200
Columbia, Maryland 21046
Tel. 800 262 8462
Fax 800 262 8673
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