LITERATURE SEARCH

REVIEW

**NCircle Stone Extractor (Completed Review)**

EU Class: 11a

**Prepared Exclusively For**

**Cook Medical**

Bloomington, Indiana, United States

**Prepared By**

Edward Drower, M.S.

Cite Medical, LLC

**Date**

**Apr 15,2024**

**LITERATURE SEARCH**

**REVIEW**

To address the requirement for GSPR as part of the technical documentation containing information to demonstrate the conformity with the Medical Device Regulation (MDR) 2017/745

**Table of Contents**

# Overview

## Background

**Cook Medical** is conducting a scientific literature search to demonstrate the performance and safety of their device, the NCircle Stone Extractor (Completed Review) as well as to demonstrate its classification to the State of the Art device (None)

The literature search will identify data not held by the manufacturer that are needed for the

clinical evaluation. The literature search will identify potential sources of clinical data for establishing:

* Clinical data relevant to the devices under evaluation and to the similar device(s)
* Current knowledge/ the state of the art.

## Device Description

The NCircle Stone Extractor is a 4-wire tipless nitinol basket available in a range of French sizes, lengths, and basket diameters.

## Target Device

The NCircle Stone Extractor (Completed Review)device or system is the intended focus of this literature search and review.

## Intended Use

The NCircle Stone Extractor is intended for stone manipulation and removal in the urinary tract

## Indication of Use

None Provided.

## Similar Devices

1. Uromed Stonizer Stone Retrieval Basket
2. Escape Nitinol Stone Retrieval Basket

## State of the Art

NCircle Stone Extractor would be compared to the state-of-the-art (SoTA) urinary stone extraction/removal devices Or devices most commonly used to remove stones/calculi from the urinary track. A separate SoTA search would include the use of standard urinary stone extraction/removal devices.

## Safety Claims

No adverse events related to device usage

## Performance Claims

High stone-free rate/ Low residual stone %   
Flexible & easy to use

## Other Info

None Provided

# Literature Search Methodology and Selection Criteria

This review of published clinical data further provides support for the clinical evaluation of the NCircle Stone Extractor (Completed Review).

## Scope

The scope of the literature search includes a query of select adverse event report databases, as well as scientific databases within the timeframe spanning from Dec 23, 2012 to Nov 01, 2022. This period of time is felt to provide sufficient clinical experience with these devices from both a safety and performance perspective. Performance assessments include reports designed to demonstrate that;   
a) High stone-free rates/ low residual stone% was achieved   
b) The device was flexible & easy to use   
c) There were no adverse events associated with the device usage

## Date of Search

Nov 01, 2022

## Name of Person(s) Undertaking Search

Edward Drower, M.S.

## Period Covered by Search

Starting From Dec 23, 2012 to Nov 01, 2022.

## Scientific Databases

### Cochrane

### Pubmed

## Adverse Event Databases

* UK MHRA AEs
* Germany Recalls
* FDA MAUDE
* Germany AEs

## Database Search Details

Because different databases offer different limiting options and search fields, different approaches were taken appropriate to the database. All unique circumstances are identified in the report. All searches are performed through online databases.

# Systematic Literature Review

This Systematic Literature Review searches specifically for evidence of safety and efficacy of the target device. Search terms were adapted for use in the relevant database and were guided by the suggested keywords and inclusion/exclusion criteria detailed in the protocol. In addition to single term word searches, search terms involving multiple words were evaluated using Boolean parameters such as parentheses or quotation marks.

Suggested search terms have been collected including the target and similar devices described above.

State of the Art (SOTA) search terms were included as part of the search parameters to identify devices/systems also used in similar treatments or conditions.

## Focused Search and Review Plan

The resulting number of citations (abstracts) from each database search outlined (less duplicates) is captured and reviewed electronically to determine if further review is warranted. Those articles that satisfy inclusion/exclusion criteria are “retained” for a secondary review. Each “retained” article is subsequently reviewed to assess relevancy and inclusion within the final review.

Search term relevancy criteria is established to promote the most efficient review of appropriate citations for the devices. Searches terms results with citation results in excess of 200 are considered too broad and are excluded from the review process. In contrast, search terms without citation results (i.e., zero) are considered too narrow. All search term citation results regardless of results are tabulated in the final result tables.

The search results (abstracts identified) are reviewed in detail and assessed for relevancy to target device OR target device and similar devices (modify based on the scope of the project) for clinical safety and efficacy. Similar based studies (i.e., no unique safety or efficacy results) are considered duplicate information and only referenced once. The analysis of each study reviewed is conducted based on the criteria below.

In some instances, information obtained from these reviews that fall outside the inclusion/exclusion criteria may be included within the scope of this report if the information obtained provides new or unanticipated safety or performance signals of interest within current device indications or uses.

## Handling of Duplicate Literature References

Duplicate citations found in the search results of the databases are screened and removed prior to any review. The duplicate counts are captured in the final review and summarized in search-term tables.

### How Duplicates Are Identified?

A duplicate citation is identified through electronic signatures based on a match in one of the following fields of information across the databases.

* PubMed Unique Identifier
* PubMed Central Unique Identifier
* Cochrane Library Unique Identifier
* Embase Library Unique Identifier
* Academic Citation (in APA format)

## Selection Criteria

The following criteria are used to assess the suitability of material (articles, reports, etc.) for inclusion/exclusion in the analysis stage of this report.

### Inclusion Criteria

* Citation addresses performance, risks, and/or safety of the NCircle Stone Extractor (Completed Review) or similar device(s).
* Products are used in ways like indications for use of the NCircle Stone Extractor (Completed Review) products.
* Any articles considered relevant to the state of the art/current knowledge identified during this search will be included in the state-of-the-art section.

### Exclusion Criteria

* Articles unrelated to the device of interest, an equivalent device, similar device, accessory, or device component relevant to device
* Algorithm, simulations or bench test relevant to the device of interest or an equivalent device but not in a scientifically validated method/methodology
* Non-peer reviewed articles (e.g. letters to editor, opinions, editorials, press releases, advertisements, books, dissertations, thesis)
* Conference abstracts or proceedings, posters (unless previously unknown benefits, risks/complications are reported)
* Non-human studies (e.g. in vitro, in vivo, animal, cadaver, phantom studies, simulations) that is not acceptable data for safety or performance.
* The device is not used as per the specified intended use
* Duplicate article
* Product usage instructions
* Video publications without significant data availability

Clinical literature were also excluded in situations where multiple papers appear to report on the same study. Consideration was given to the extent of duplication and reported safety or performance outcomes, prior to the excluding of any literature.

## Outputs

All literature citations selected for inclusion are listed as References.

## Data Selection Process

Figure 1 visually outlines the process used in assessing citations retrieved from queries of online databases for suitability for inclusion in the clinical evaluation report.

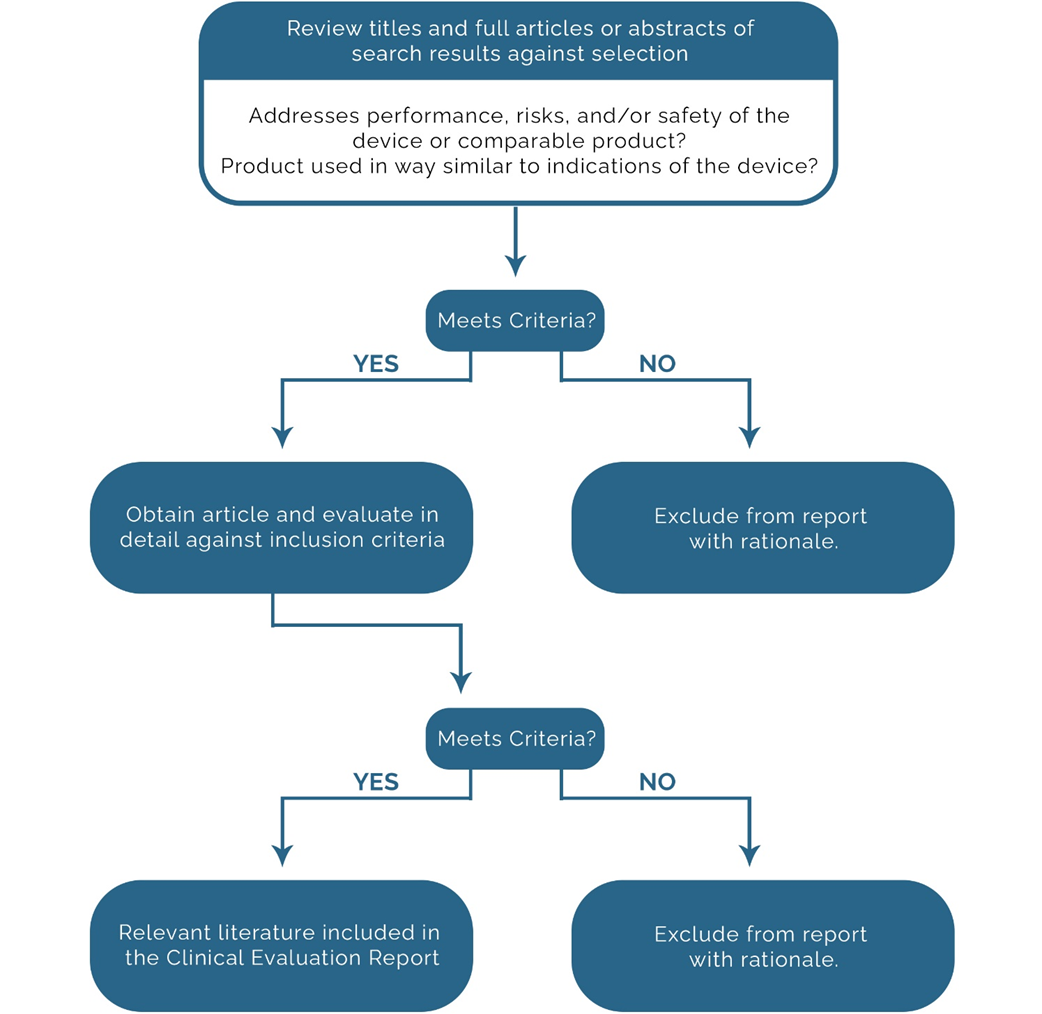


Figure 1 Citation Assessment Flowchart

## Prisma Flow Chart

Records identified through

database searching

N = 38

Additional Records Identified

N = 0

Records after duplicates removed

N = 19

Records screened

N = 19

Full-Text Articles Assessed for

eligibility

N = 3

Full-Text Articles Excluded

N = 0

Studies included in qualitative

Synthesis (meta-analysis)

N = 3

Records Excluded

N = 8

Figure 2 Prisma Flow Chart

| Reason | Count |
| --- | --- |
| Duplicates | 19 |
| Articles unrelated to the device of interest, an equivalent device, similar device, accessory, or device component relevant to device | 2 |
| Algorithm, simulations or bench test relevant to the device of interest or an equivalent device but not in a scientifically validated method/methodology | 3 |
| Non-peer reviewed articles (e.g. letters to editor, opinions, editorials, press releases, advertisements, books, dissertations, thesis) | 1 |
| Conference abstracts or proceedings, posters (unless previously unknown benefits, risks/complications are reported) | 0 |
| Non-human studies (e.g. in vitro, in vivo, animal, cadaver, phantom studies, simulations) that is not acceptable data for safety or performance. | 1 |
| The device is not used as per the specified intended use | 0 |
| Duplicate article | 0 |
| Product usage instructions | 0 |
| Video publications without significant data availablity | 0 |
| Full text not available | 1 |
| Full-Text Articles Excluded | 0 |
| Total | 27 |

Table 1 Reasons of Excluded Articles

# Scientific Databases - SoTA

## Pubmed

https://pubmed.ncbi.nlm.nih.gov/

### Search Strategy

The following filters are to be applied in the search:

* Publication dates: Starting From Dec 23, 2012 to Nov 01, 2022.
* Start Date: 2010-01-01
* End Date: 2022-12-31
* Article Type: Books and Documents,Clinical Trial,Randomized Controlled Trial,Review,Systematic Review,Meta-Analysis
* Age: 80 and over: 80+ years,Adolescent: 13-18 years,Adult: 19-44 years,Infant: 1-23 months,Aged: 65+ years,Adult: 19+ years,Child: birth-18 years,Infant: birth-23 months,Child: 6-12 years,Middle Aged: 45-64 years,Middle Aged + Aged: 45+ years,Newborn: birth-1 month,Preschool Child: 2-5 years,Young Adult: 19-24 years

### Search Results Summary

| ID | Search Term | Publications Yielded | Duplicate Results | Included | Excluded | Unclassified | Not imported  (Out of Range) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Escape Nitinol Stone Retrieval Basket | 1 | 1 | 0 | 0 | 0 | 0 |
| 2 | Nephrolithotomy basket | 5 | 4 | 1 | 0 | 0 | 0 |
| 3 | Tipless nitinol stone basket | 3 | 2 | 0 | 1 | 0 | 0 |
| 4 | "Urinary calculi extraction" | 225 | 0 | 0 | 0 | 0 | 225 |
| 5 | Urinary stone basket | 243 | 0 | 0 | 0 | 0 | 243 |
| 6 | Urinary stone extractor | 9 | 9 | 0 | 0 | 0 | 0 |
| 7 | Urinary stone grasper | 3 | 3 | 0 | 0 | 0 | 0 |
| 8 | Urinary track stone removal | 9 | 0 | 1 | 3 | 4 | 0 |
| 9 | UROMED STONIZER Stone Retrieval Basket | 0 | 0 | 0 | 0 | 0 | 0 |

Table 2 Search Results Summary – Pubmed

## Cochrane

https://www.cochranelibrary.com/search

### Search Strategy

The following filters are to be applied in the search:

* Publication dates: Starting From Dec 23, 2012 to Nov 01, 2022.
* Start Date: 2010-01-01
* End Date: 2022-01-01

### Search Results Summary

| ID | Search Term | Publications Yielded | Duplicate Results | Included | Excluded | Unclassified | Not imported  (Out of Range) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Escape Nitinol Stone Retrieval Basket | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | Nephrolithotomy basket | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | Tipless nitinol stone basket | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | Urinary stone basket | 1 | 0 | 0 | 1 | 0 | 0 |
| 5 | Urinary stone extractor | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | Urinary stone grasper | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | Urinary track stone removal | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | UROMED STONIZER Stone Retrieval Basket | 0 | 0 | 0 | 0 | 0 | 0 |

Table 3 Search Results Summary – Cochrane

# Scientific Databases – Device Safety Performance

## Pubmed

https://pubmed.ncbi.nlm.nih.gov/

### Search Strategy

The following filters are to be applied in the search:

* Publication dates: Starting From Dec 23, 2012 to Nov 01, 2022.
* Start Date: 2010-01-01
* End Date: 2022-12-31
* Article Type: Books and Documents,Clinical Trial,Randomized Controlled Trial,Review,Systematic Review,Meta-Analysis
* Age: 80 and over: 80+ years,Adolescent: 13-18 years,Adult: 19-44 years,Infant: 1-23 months,Aged: 65+ years,Adult: 19+ years,Child: birth-18 years,Infant: birth-23 months,Child: 6-12 years,Middle Aged: 45-64 years,Middle Aged + Aged: 45+ years,Newborn: birth-1 month,Preschool Child: 2-5 years,Young Adult: 19-24 years

### Search Results Summary

| ID | Search Term | Publications Yielded | Duplicate Results | Included | Excluded | Unclassified | Not imported  (Out of Range) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Cook Medical | -1 | 0 | 0 | 0 | 0 | 0 |
| 2 | Ncircle Magnesium | 1 | 0 | 0 | 0 | 1 | 0 |
| 3 | (NCircle Nitinol Stone Extractor) AND (Cook Medical) | 0 | 0 | 0 | 0 | 0 | 0 |

Table 4 Search Results Summary – Pubmed

## Cochrane

https://www.cochranelibrary.com/search

### Search Strategy

The following filters are to be applied in the search:

* Publication dates: Starting From Dec 23, 2012 to Nov 01, 2022.
* Start Date: 2010-01-01
* End Date: 2022-01-01

### Search Results Summary

| ID | Search Term | Publications Yielded | Duplicate Results | Included | Excluded | Unclassified | Not imported  (Out of Range) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Cook Medical | 6 | 0 | 1 | 3 | 2 | 0 |
| 2 | Ncircle Magnesium | -1 | 0 | 0 | 0 | 0 | 0 |
| 3 | (NCircle Nitinol Stone Extractor) AND (Cook Medical) | 0 | 0 | 0 | 0 | 0 | 0 |

Table 5 Search Results Summary – Cochrane

# Search Results

## Search Results - Retained and Included

The following table outlines the articles selected based on predefined inclusion/ exclusion criteria to assist in the final clinical evaluation. The articles selected focused on the medical device or similar device, material composition, and function in order to assess risk and adverse events associated with the intended product use. Articles were also rated and appraised on the data collected and the quality of the data.

**Legend**

* S = State (Retained, Excluded, Duplicate)
* R = Retained
* I = Included
* Y = Yes
* N = No
* E = Excluded
* D = Duplicate

1. **Pubmed**

| ID | Term (Pubmed) | Citation | State | Included | Justification |
| --- | --- | --- | --- | --- | --- |
| 1 | Nephrolithotomy basket | To Be Added: 31 | R | Y | Included |
| 2 | Urinary track stone removal | Bach P, Reicherz A, Teichman J, et al. Short-term external ureter stenting shows significant benefit in comparison to routine double-J stent placement after ureterorenoscopic stone extraction: A prospective randomized trial - the Fast track stent study (FaST). Int J Urol . 2018 25(8):717-722. doi:10.1111/iju.13711 | R | Y | Included |

Table 6 Search Results - Pubmed Citations Retained and Included

1. **Cochrane**

| ID | Term (Cochrane) | Citation | State | Included | Justification |
| --- | --- | --- | --- | --- | --- |
| 1 | Cook Medical | Jasper S, Vedula SS, John SS, Horo S, Sepah YJ, Nguyen QD Corticosteroids as adjuvant therapy for ocular toxoplasmosis. Cochrane Database of Systematic Reviews. 2017 ( 1): doi: 10.1002/14651858.CD007417.pub3 | R | Y | Included |

Table 7 Search Results - Cochrane Citations Retained and Included

## Search Results - All

The following table outlines the articles selected based on predefined inclusion/ exclusion criteria to assist in the final clinical evaluation. The articles selected focused on the medical device or similar device, material composition, and function in order to assess risk and adverse events associated with the intended product use. Articles were also rated and appraised on the data collected and the quality of the data.

**Legend**

* S = State (Retained, Excluded, Duplicate)
* R = Retained
* I = Included
* Y = Yes
* N = No
* E = Excluded
* D = Duplicate

1. **Pubmed**

| ID | Term (Pubmed) | Citation | State | Included | Justification |
| --- | --- | --- | --- | --- | --- |
| 1 | Escape Nitinol Stone Retrieval Basket | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | D | N | None |
| 2 | Ncircle Magnesium | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | U | N | None |
| 3 | Nephrolithotomy basket | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | R | Y | Included |
| 4 | Nephrolithotomy basket | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | D | N | None |
| 5 | Nephrolithotomy basket | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | D | N | None |
| 6 | Nephrolithotomy basket | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | D | N | None |
| 7 | Nephrolithotomy basket | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | D | N | None |
| 8 | Tipless nitinol stone basket | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | D | N | None |
| 9 | Tipless nitinol stone basket | Massoudi R, Metzner TJ, Bonneau B, Ngo TC, Shinghal R, Leppert JT. Preclinical Testing of a Combination Stone Basket and Ureteral Balloon to Extract Ureteral Stones. J Endourol . 2018 32(2):96-99. doi:10.1089/end.2017.0626 | D | N | None |
| 10 | Tipless nitinol stone basket | Bechis SK, Abbott JE, Sur RL. In vitro head-to-head comparison of the durability, versatility and efficacy of the NGage and novel Dakota stone retrieval baskets. Transl Androl Urol . 2017 6(6):1144-1149. doi:10.21037/tau.2017.11.30 | E | N | Non-human studies (e.g. in vitro, in vivo, animal, cadaver, phantom studies, simulations) that is not acceptable data for safety or performance. |
| 11 | Urinary stone extractor | Patel N, Akhavein A, Hinck B, Jain R, Monga M. Tipless Nitinol Stone Baskets: Comparison of Penetration Force, Radial Dilation Force, Opening Dynamics, and Deflection. Urology . 2017 103:256-260. doi:10.1016/j.urology.2017.01.010 | D | N | None |
| 12 | Urinary stone extractor | Xu G, Liang J, He Y, et al. Comparison of two different minimally invasive percutaneous nephrostomy sheaths for the treatment of staghorn stones. BJU Int . 2020 125(6):898-904. doi:10.1111/bju.15031 | D | N | None |
| 13 | Urinary stone extractor | Korman E, Hendlin K, Chotikawanich E, Monga M. Comparison of small diameter stone baskets in an in vitro caliceal and ureteral model. J Endourol . 2011 25(1):123-127. doi:10.1089/end.2010.0312 | D | N | None |
| 14 | Urinary stone extractor | Lucas M, Liem EIML, Savci-Heijink CD, et al. Toward Automated In Vivo Bladder Tumor Stratification Using Confocal Laser Endomicroscopy. J Endourol . 2019 33(11):930-937. doi:10.1089/end.2019.0354 | D | N | None |
| 15 | Urinary stone extractor | Korman E, Hendlin K, Monga M. Small-diameter nitinol stone baskets: radial dilation force and dynamics of opening. J Endourol . 2011 25(9):1537-1540. doi:10.1089/end.2010.0585 | D | N | None |
| 16 | Urinary stone extractor | Tanriverdi O, Silay MS, Kendirci M, et al. Comparison of ureteroscopic procedures with rigid and semirigid ureteroscopes in pediatric population: does the caliber of instrument matter?. Pediatr Surg Int . 2010 26(7):733-738. doi:10.1007/s00383-010-2630-5 | D | N | None |
| 17 | Urinary stone extractor | Wang Z, Sun Z, Luo G, Tian Y, Yang X. Treatment of urinary calculi after Yang-Monti ileal ureter reconstruction: a case report. BMC Urol . 2019 19(1):12. Published 2019 Jan 30. doi:10.1186/s12894-019-0443-y | D | N | None |
| 18 | Urinary stone extractor | Georgescu D, Mulţescu R, Geavlete B, Geavlete P. Intraoperative complications after 8150 semirigid ureteroscopies for ureteral lithiasis: risk analysis and management. Chirurgia (Bucur) . 2014 109(3):369-374. | D | N | None |
| 19 | Urinary stone extractor | Lin CH, Zhang ZF, Wang J, et al. Application of ureterorenoscope and flexible ureterorenoscope lithotripsy in removing calculus from extracorporeal living donor renal graft: a single-center experience. Ren Fail . 2017 39(1):561-565. doi:10.1080/0886022X.2017.1349674 | D | N | None |
| 20 | Urinary stone grasper | Ulker V, Atalay HA, Cakmak O, Yucel C, Celik O, Kozacioglu Z. Smartphone-based stent tracking application for prevention of forgotten ureteral double-J stents: a prospective study. Int Braz J Urol . 2019 45(2):376-383. doi:10.1590/S1677 | D | N | None |
| 21 | Urinary stone grasper | Ulker V, Atalay HA, Cakmak O, Yucel C, Celik O, Kozacioglu Z. Smartphone-based stent tracking application for prevention of forgotten ureteral double-J stents: a prospective study. Int Braz J Urol . 2019 45(2):376-383. doi:10.1590/S1677 | D | N | None |
| 22 | Urinary stone grasper | Ulker V, Atalay HA, Cakmak O, Yucel C, Celik O, Kozacioglu Z. Smartphone-based stent tracking application for prevention of forgotten ureteral double-J stents: a prospective study. Int Braz J Urol . 2019 45(2):376-383. doi:10.1590/S1677 | D | N | None |
| 23 | Urinary track stone removal | Bach P, Reicherz A, Teichman J, et al. Short-term external ureter stenting shows significant benefit in comparison to routine double-J stent placement after ureterorenoscopic stone extraction: A prospective randomized trial - the Fast track stent study (FaST). Int J Urol . 2018 25(8):717-722. doi:10.1111/iju.13711 | R | Y | Included |
| 24 | Urinary track stone removal | Ulker V, Atalay HA, Cakmak O, Yucel C, Celik O, Kozacioglu Z. Smartphone-based stent tracking application for prevention of forgotten ureteral double-J stents: a prospective study. Int Braz J Urol . 2019 45(2):376-383. doi:10.1590/S1677-5538.IBJU.2018.0707 | U | N | None |
| 25 | Urinary track stone removal | Bateman RM, Sharpe MD, Jagger JE, et al. 36th International Symposium on Intensive Care and Emergency Medicine : Brussels, Belgium. 15-18 March 2016 [published correction appears in Crit Care. 2016 Oct 24 20:347]. Crit Care . 2016 20(Suppl 2):94. Published 2016 Apr 20. doi:10.1186/s13054-016-1208-6 | E | N | Algorithm, simulations or bench test relevant to the device of interest or an equivalent device but not in a scientifically validated method/methodology |
| 26 | Urinary track stone removal | Reicherz A, Maas V, Wenzel P, et al. Transient stent placement versus tubeless procedure after ureteroscopy retrograde surgery stone extraction (Fast Track Stent study 2): A randomized prospective evaluation. Int J Urol . 2020 27(9):749-754. doi:10.1111/iju.14291 | U | N | None |
| 27 | Urinary track stone removal | Miernik A, Hein S, Adams F, Halbritter J, Schoenthaler M. Steintherapie morgen und übermorgen [Stone treatment tomorrow and the day after]. Urologe A . 2016 55(10):1309-1316. doi:10.1007/s00120-016-0227-x | U | N | None |
| 28 | Urinary track stone removal | Reicherz A, Maas V, Reike M, Brehmer M, Noldus J, Bach P. Striking a balance: outcomes of short-term Mono-J placement following ureterorenoscopy. Urolithiasis . 2021 49(6):567-573. doi:10.1007/s00240-021-01264-4 | U | N | None |
| 29 | Urinary track stone removal | Reicherz A, Westhues H, Häuser L, Wenzel P, Noldus J, Bach P. A randomized prospective study: assessment of transient ureteral stenting by mono-J insertion after primary URS and stone extraction (FaST 3). Urolithiasis . 2021 49(6):599-606. doi:10.1007/s00240-021-01277-z | E | N | Algorithm, simulations or bench test relevant to the device of interest or an equivalent device but not in a scientifically validated method/methodology |
| 30 | Urinary track stone removal | Song L, Maalouf NM. Nephrolithiasis. In: Feingold KR, Anawalt B, Blackman MR, et al., eds. Endotext . South Dartmouth (MA): MDText.com, Inc. March 9, 2020. | M | N | None |
| 31 | Urinary track stone removal | Wang Y, Xu M, Li W, Mao Y, Da J, Wang Z. It is efficient to monitor the status of implanted ureteral stent using a mobile social networking service application. Urolithiasis . 2020 48(1):79-84. doi:10.1007/s00240-019-01118-0 | E | N | Algorithm, simulations or bench test relevant to the device of interest or an equivalent device but not in a scientifically validated method/methodology |

Table 8 Search Results - Pubmed All Citations

1. **Cochrane**

| ID | Term (Cochrane) | Citation | State | Included | Justification |
| --- | --- | --- | --- | --- | --- |
| 1 | Cook Medical | Jasper S, Vedula SS, John SS, Horo S, Sepah YJ, Nguyen QD Corticosteroids as adjuvant therapy for ocular toxoplasmosis. Cochrane Database of Systematic Reviews. 2017 ( 1): doi: 10.1002/14651858.CD007417.pub3 | R | Y | Included |
| 2 | Cook Medical | Ooi CP, Loke SC Sweet potato for type 2 diabetes mellitus. Cochrane Database of Systematic Reviews. 2013 ( 9): doi: 10.1002/14651858.CD009128.pub3 | U | N | None |
| 3 | Cook Medical | Tungpunkom P, Maayan N, Soares‐Weiser K Life skills programmes for chronic mental illnesses. Cochrane Database of Systematic Reviews. 2012 ( 1): doi: 10.1002/14651858.CD000381.pub3 | U | N | None |
| 4 | Cook Medical | Lohner S, Kuellenberg de Gaudry D, Toews I, Ferenci T, Meerpohl JJ Non‐nutritive sweeteners for diabetes mellitus. Cochrane Database of Systematic Reviews. 2020 ( 5): doi: 10.1002/14651858.CD012885.pub2 | E | N | Non-peer reviewed articles (e.g. letters to editor, opinions, editorials, press releases, advertisements, books, dissertations, thesis) |
| 5 | Cook Medical | Flint A, New K, Davies MW Cup feeding versus other forms of supplemental enteral feeding for newborn infants unable to fully breastfeed. Cochrane Database of Systematic Reviews. 2016 ( 8): doi: 10.1002/14651858.CD005092.pub3 | E | N | Articles unrelated to the device of interest, an equivalent device, similar device, accessory, or device component relevant to device |
| 6 | Cook Medical | Van der Roest HG, Wenborn J, Pastink C, Dröes RM, Orrell M Assistive technology for memory support in dementia. Cochrane Database of Systematic Reviews. 2017 ( 6): doi: 10.1002/14651858.CD009627.pub2 | E | N | Articles unrelated to the device of interest, an equivalent device, similar device, accessory, or device component relevant to device |
| 7 | Urinary stone basket | Ordonez M, Hwang EC, Borofsky M, Bakker CJ, Gandhi S, Dahm P, Ureteral stent versus no ureteral stent for ureteroscopy in the management of renal and ureteral calculi. Cochrane Database of Systematic Reviews. ( 2019) | E | N | Full text not available |

Table 9 Search Results - Cochrane All Citations

# Clinical Literature Appraisal

The following section outlines the criteria for suitability and data contribution used to appraise the literature to be included in this clinical evaluation (adapted from MEDDEV 2.7/1, Rev.4).

|  |  |
| --- | --- |
| Criteria | Description |
| CK0 | No SoTA information. |
| CK1 | Establishment of current knowledge/ the state of the art on the medical condition |
| CK2 | Establishment of current knowledge/ the state of the art on alternative therapies/treatments |
| CK3 | Determination and justification of criteria for the evaluation of the risk/benefit relationship |
| CK4 | Determination and justification of criteria for the evaluation of the acceptability of undesirable side-effects |
| CK5 | Determination of equivalence |
| CK6 | Justification of the validity of surrogate endpoints |

Table 10 Criteria for State of the Art

|  |  |  |
| --- | --- | --- |
| Contribution Criteria | Description | Grading System |
| Appropriate device | Were the data generated from the device in question? | D1 Actual Device  D2 Comparable Device  D3 Other Device |
| Appropriate device application | Was the device used for the same intended use (e.g., methods of deployment, application, etc.)? | A1 Same use  A2 Minor deviation  A3 Major deviation |
| Appropriate patient group | Were the data generated from a patient group that is representative of the intended treatment population (e.g., age, sex, etc.) and clinical condition (i.e., disease, including state and severity)? | P1 Applicable  P2 Limited  P3 Different |
| Acceptable report/data collation | Do the reports or collations of data contain sufficient information to be able to undertake a rational and objective assessment? | R1 High quality  R2 Minor deficiencies  R3 Insufficient information |

Table 11 Criteria for Data Suitability

|  |  |  |
| --- | --- | --- |
| Accountability Level | Description | Grading |
| Data source type | Was the design of the study appropriate? | T1 Yes  T2 No |
| Outcome measures | Do the outcome measures reported reflect the intended performance of the device? | O1 Yes  O2 No |
| Appropriate follow-up | Is the duration of follow-up long enough to assess treatment effects and identify complications? | F1 Yes  F2 No |
| Statistical significance | Has a statistical analysis of the data been provided and is it appropriate? | S1 Yes  S2 No |
| Clinical significance | Was the magnitude of the treatment effect observed clinically significant? | C1 Yes  C2 No |

Table 12 Criteria for Data Contribution

|  |  |  |
| --- | --- | --- |
| Rank | Types of clinical data and evidence | Considerations / comments |
| 1 | Results of high quality clinical investigations covering all device variants, indications, patient populations, duration of treatment effect, etc | This may not feasible or necessary for certain well-established devices with broad indications (eg Class IIb legacy sutures, which could be used in every conceivable patient population) |
| 2 | Results of high quality clinical investigations with some gaps | Gaps must be justified / addressed with other evidence in line with an appropriate risk assessment, and clinical safety, performance, benefit and device claims. Assuming the gaps can be justified, there should be an appropriate PMCF plan to address residual risks. Otherwise, manufacturers shall narrow the intended purpose of the device until sufficient clinical data has also been generated. |
| 3 | Outcomes from high quality clinical data collection systems such as registries | Is there sufficient evidence of the quality of the data collected by the registry? Are the devices adequately represented? Are the data appropriately stratified? Are the endpoints appropriate to the safety, performances and endpoints identified in the clinical evaluation plan? |
| 4 | Outcomes from studies with potential methodological flaws but where data can still be quantified and acceptability justified | Many literature sources fall into this category, due to limitations such as missing information, publication bias, time lag bias, etc. This applies equally to publications in the peer-reviewed scientific literature. However, for legacy devices where no safety or performance concerns have been identified, these sources can be sufficient for confirmation of conformity to the relevant GSPRs if appropriately appraised and the gaps are identified and handled. High quality surveys may also fall into this category. |
| 5 | Equivalence data (reliable / quantifiable) | Equivalence must meet MDR criteria. It is normally expected that manufacturers should gather data on their own devices in the post-market phase, therefore reliance on equivalence should be duly justified, and linked to appropriate PMCF or proactive PMS. |
| 6 | Evaluation of state of the art, including evaluation of clinical data from similar devices as defined in Section 1.2 of 'MDCG 2020-6' | This is not considered clinical data under the MDR, but for well-established technologies only can be considered supportive of confirmation of conformity to the relevant GSPRs. Data from similar devices may be also important to establish whether the device under evaluation and similar devices belong to the group of devices considered as “well established technologies” (WET). See section 1.2 in 'MDCG 2020-6' for the criteria for WET. Data from similar devices may be used, for example, to demonstrate ubiquity of design, lack of novelty, known safety and performance profile of a generic group of devices, etc. |
| 7 | Complaints and vigilance data; curated data | data; curated data This falls within the definition of clinical data under MDR Article 2(48), but is not generally considered a high quality source of data due to limitations in reporting. It may be useful for identifying safety trends or performance issues. High volume data collected within a robust quality system may provide supportive evidence of device safety. |
| 8 | Proactive PMS data, such as that derived from surveys | This falls within the definition of clinical data under MDR Article 2(48), but is not generally considered a high quality source of data due limitations associated with sources of bias and quality of data collection. It may be useful for Page 22 of 22 identifying safety concerns or performance issues. |
| 9 | Individual case reports on the subject device | This falls within the definition of clinical data under MDR Article 2(48), but is not considered a high quality source of data due to limitations in generalising findings to a wider patient population, reporting bias, etc. It may provide supportive or illustrative information with respect to specific claims. |
| 10 | Compliance to non-clinical elements of common specifications considered relevant to device safety and performance | Common specifications which address clinical investigation or data requirements directly would rank higher in this hierarchy. Common specifications may address clinically relevant endpoints through non-clinical evidence such as mechanical testing for strength and endurance, biological safety, usability, etc. |
| 11 | Simulated use / animal / cadaveric testing involving healthcare professionals or other end users | This is not clinical data, but may be considered evidence of confirmation of conformity to relevant GSPRs, particularly in terms of usability, such as for accessories or instruments. |
| 12 | Pre-clinical and bench testing / compliance to standards | Pre-clinical and bench testing may address clinically relevant endpoints through non-clinical evidence such as mechanical testing for strength and endurance, biological safety, usability, etc |

Table 13 MDCG Ranking

## Criteria For State of the Art

| ID | Citation | SoTA Classification | Exclusion Reason | test sota |
| --- | --- | --- | --- | --- |
| 1 |  | CK2 Establishment of current knowledge/ the state of the art on alternative therapies/treatments | NA | NA |

Table 14 Classifications for State of the Art

## Criteria for Data Suitability - Retained and Included Citations

The following tables summarize the suitability of the clinical literature on the criteria described above.

The articles selected in this table were both Retained for evaluation AND Included for the full review.

| ID | Citation | Device | Application | Population | Report |
| --- | --- | --- | --- | --- | --- |
| 1 |  | D2 | A1 | P2 | R2 |
| 2 | Bach P, Reicherz A, Teichman J, et al. Short-term external ureter stenting shows significant benefit in comparison to routine double-J stent placement after ureterorenoscopic stone extraction: A prospective randomized trial - the Fast track stent study (FaST). Int J Urol . 2018 25(8):717-722. doi:10.1111/iju.13711 | D2 | A1 | P3 | R2 |
| 3 | Jasper S, Vedula SS, John SS, Horo S, Sepah YJ, Nguyen QD Corticosteroids as adjuvant therapy for ocular toxoplasmosis. Cochrane Database of Systematic Reviews. 2017 ( 1): doi: 10.1002/14651858.CD007417.pub3 | D2 | A2 | P1 | R1 |

Table 15 Criteria for Suitability - Retained and Included Citations

## Criteria for Data Suitability Level - All Retained Citations

The following table summarizes the suitability of the clinical literature on the criteria described above.

| ID | Citation | Device | Application | Population | Report |
| --- | --- | --- | --- | --- | --- |
| 1 |  | D2 | A1 | P2 | R2 |
| 2 | Bach P, Reicherz A, Teichman J, et al. Short-term external ureter stenting shows significant benefit in comparison to routine double-J stent placement after ureterorenoscopic stone extraction: A prospective randomized trial - the Fast track stent study (FaST). Int J Urol . 2018 25(8):717-722. doi:10.1111/iju.13711 | D2 | A1 | P3 | R2 |
| 3 | Jasper S, Vedula SS, John SS, Horo S, Sepah YJ, Nguyen QD Corticosteroids as adjuvant therapy for ocular toxoplasmosis. Cochrane Database of Systematic Reviews. 2017 ( 1): doi: 10.1002/14651858.CD007417.pub3 | D2 | A2 | P1 | R1 |

Table 16 Criteria for Data Suitability Level - All Retained Citations

## Criteria for Data Contribution - Retained and Included Citations

The following table summarizes the suitability of the clinical literature on the criteria described above.

The citations selected in this table were both Retained for evaluation AND Included for the full review.

| ID | Citation | Was the design of the study appropriate? | Do the outcome measures reported reflect the intended performance of the device? | Is the duration of follow-up long enough to assess whether duration of treatment effects and identify complications? | Has a statistical analysis of the data been provided and is it appropriate? | Was the magnitude of the treatment effect observed clinically significant? |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | Bach P, Reicherz A, Teichman J, et al. Short-term external ureter stenting shows significant benefit in comparison to routine double-J stent placement after ureterorenoscopic stone extraction: A prospective randomized trial - the Fast track stent study (FaST). Int J Urol . 2018 25(8):717-722. doi:10.1111/iju.13711 | T2 | O2 | F2 | S2 | C2 |
| 2 | Jasper S, Vedula SS, John SS, Horo S, Sepah YJ, Nguyen QD Corticosteroids as adjuvant therapy for ocular toxoplasmosis. Cochrane Database of Systematic Reviews. 2017 ( 1): doi: 10.1002/14651858.CD007417.pub3 | T1 | O2 | F1 | S2 | C1 |

Table 17 Criteria for Data Contribution - Retained and Included Citations

## Data Extraction Results – Detailed

The following section contains expanded detail on extracted data of all Retained and Included citations.

| S. No | Bibliography | Study design/Objective | Treatment Modality/ Indication/Comparator (I/O) | Study Result/Conclusion (O) |
| --- | --- | --- | --- | --- |
| 1 | Bach P, Reicherz A, Teichman J, et al. Short-term external ureter stenting shows significant benefit in comparison to routine double-J stent placement after ureterorenoscopic stone extraction: A prospective randomized trial - the Fast track stent study (FaST). Int J Urol . 2018 25(8):717-722. doi:10.1111/iju.13711  **Data Suitability**  D2, A1, P3, R2  **Data Contribution**  T2, O2, F2, S2, C2  **MDCG Ranking**  Rank 01 | **Study Design**  Who reads the design anyways?  **Objective**  Objective of the study was to test efficacy of the device.  **Total Sample Size**  Sample size N=100  **Other**  NA | **Device Name**  Non-standard device  **Indication**  Indication desription here  **Treatment Modality**  The treatment modality was X | **Performance**  Device performed as expected  **Safety**  No safety issues reported.  **Adverse Events**  None reported.  **Study Conclusions**  The study didn't conclude anything useful for us.  **Demo Extraction Field**  Yay demos! |
| 2 | Jasper S, Vedula SS, John SS, Horo S, Sepah YJ, Nguyen QD Corticosteroids as adjuvant therapy for ocular toxoplasmosis. Cochrane Database of Systematic Reviews. 2017 ( 1): doi: 10.1002/14651858.CD007417.pub3  **Data Suitability**  D2, A2, P1, R1  **Data Contribution**  T1, O2, F1, S2, C1  **MDCG Ranking**  Rank 03 | **Study Design**  Nobody reads the study protocols, come on!  **Objective**  Objective is to show this extraction field!  **Total Sample Size**  100 Patients  **Other**  Other section for extra text, thoughts or comments. | **Device Name**  Test Device for Demo  **Indication**  Stone removal  **Treatment Modality**  No treatment modality listed. | **Performance**  The device performed as intended.  **Safety**  No safety issues reported .  **Adverse Events**  No Adverse events reported.  **Study Conclusions**  This is a demo study, we didn't actually read it!  **Demo Extraction Field**  New field was added! |

Table 18 Data Extraction Results – Detailed

## Retained Citations Not Appraised (Device)

### 

All retained citations were appraised.

# References for Retained and Included Citations

|  |  |
| --- | --- |
| ID | Citation |
| 1 |  |
| 2 | Bach P, Reicherz A, Teichman J, et al. Short-term external ureter stenting shows significant benefit in comparison to routine double-J stent placement after ureterorenoscopic stone extraction: A prospective randomized trial - the Fast track stent study (FaST). Int J Urol . 2018 25(8):717-722. doi:10.1111/iju.13711 |
| 3 | Jasper S, Vedula SS, John SS, Horo S, Sepah YJ, Nguyen QD Corticosteroids as adjuvant therapy for ocular toxoplasmosis. Cochrane Database of Systematic Reviews. 2017 ( 1): doi: 10.1002/14651858.CD007417.pub3 |

Table 19 References for Retained and Included Citations

# Adverse Event Databases / Recalls

## US FDA MAUDE (USA)

<https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfRES/res.cfm>

http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfmaude/search.cfm

### Date Range

Starting from Nov 06, 2021 to Nov 01, 2022.

### Search Strategy

The safety database and recall search will be based on the 3-letter FDA product code and represents all similar medical devices classified within the device type.

If the number of safety event results exceeds the download limitation of 500 for the range of years searched, a year-by-year download of the events will be captured and reviewed to assess relevance or new events related to the current medical device class.

### Search Terms

* FFL
* Urinary track stone removal

### Adverse Event Summary

Devices and other related devices are associated with the same code (listed above). A summary of the associated deaths, injuries, malfunctions, or other reported incidents is expressed in the table below for the specified date range. (Table 20 )

Summary of MAUDE Reported Events for date range. If more than 500 events are reported, the searches will be conducted by year.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date Range | Death | Injury | Malfunction | Other/NA | Excluded |
| 2022-11-01 - 2021-11-06 | 0 | 0 | 5 | 0 | 0 |

Table 20 Summary of MAUDE Reported Events

Death: 0 deaths were reported. None of the deaths were associated with the target device or system.

Injuries: 0 injuries were reported. None of the injuries were associated with the target device or system

Malfunctions: 5 malfunctions were reported. None of the malfunctions were associated with the target device or system.

A more detailed review of these events was conducted based on the target device or system (NCircle Stone Extractor (Completed Review) devices) reviewed and the associated device or system (['Uromed Stonizer Stone Retrieval Basket', ' Escape Nitinol Stone Retrieval Basket']) for each of the past years reviewed included in the search range starting from Nov 06, 2021 to Nov 01, 2022.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Death | Injury | Malfunction | Other/NA |
| 2020 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 |

Table 21 Summary of MAUDE Reported Events by Year

Only one malfunction event was collected. This event referenced some procecude that isn't related. Or it is....

The following events were reviewed and marked as ‘Included’ and relevant to the NCircle Stone Extractor (Completed Review).

|  |  |  |  |
| --- | --- | --- | --- |
| Manufacturer | Term | Event Type | Description |
| MC3 INC. | Urinary track stone removal | Malfunction | DURING THE ECMO PROCEDURE, AFTER 5 MINUTES, DRIPPING FROM THE GAS OUTLET BEGAN. INLET PRESSURE = 207 MMHG, OUTLET PRESSURE = 195 MMHG, FLOW 4.3 L/MIN, NORMOTHERMIA. Manufacturer Narrative: REVIEW OF PRODUCTION RECORDS FOUND THAT THE DEVICE PASSED ALL MANUFACTURING INSPECTIONS. THE DEVICE WAS RETURNED FOR ANALYSIS AT MANUFACTURER. VISUAL EXAMINATION SHOWED EVIDENCE OF BLOOD LEAK ON THE MANIFOLD CAPS. NO OTHER VISIBLE DEFECTS NOTED. THE DEVICE IS CURRENTLY ON TEST WITH PRESSURIZED HYDROGEN PEROXIDE AND NO LEAK HAS BEEN OBSERVED (DEVICE HAS BEEN ON TEST FOR 1 DAY) AT THIS POINT. |

Table 22 Included (Relevant) MAUDE Reported Events

## Maude Recall Event Summary

### Date Range

Starting from Nov 06, 2021 to Nov 01, 2022.

### Search Strategy

The safety database and recall search will be based on the 3-letter FDA product code and represents all similar medical devices classified within the device type.

The product RECALL database is also organized by product codes, and other related devices are associated with this code. The following recall classifications are defined as:

Class 1 - a situation in which there is a reasonable probability that the use of, or exposure to, a violative product will cause serious adverse health consequences or death.

Class 2 - a situation in which use of, or exposure to, a violative product may cause temporary or medically reversible adverse health consequences or where the probability of serious adverse health consequences is remote.

Class 3 - a situation in which use of, or exposure to, a violative product is not likely to cause adverse health consequences.

### Search Terms

### Recalls Results

No recall data by year to display.

NCircle Stone Extractor (Completed Review) products were not associated with any recalls.

## Germany AEs

https://www.bfarm.de/SiteGlobals/Forms/Suche/EN/Expertensuche\_Formular.html?nn=708434&cl2Categories\_Format=kundeninfo

### Date Range

Starting from Nov 06, 2021 to Nov 01, 2022.

Searches included Device Safety Information reports in all medical specialties.

### Search Strategy

Searches included Device Safety Information reports in all medical specialties. The safety database consists of a keyword search based on the following terms. If compound terminology is not permitted by the database, simple text searches are conducted per term.

### Search Terms

* Escape Nitinol Stone Retrieval Basket
* Nephrolithotomy basket
* Tipless nitinol stone basket
* Urinary stone extractor
* Urinary stone grasper
* Urinary track stone removal
* UROMED STONIZER Stone Retrieval Basket

### Search Results

No adverse events, product alerts, or field reports related to NCircle Stone Extractor (Completed Review) or comparative state-of-the-art devices were identified from these searches.

## UK MHRA AEs

https://www.gov.uk/drug-device-alerts

### Date Range

Starting from Nov 06, 2021 to Nov 01, 2022.

Searches included Device Safety Information reports in all medical specialties.

### Search Strategy

Searches included Device Safety Information reports in all medical specialties. The safety database consists of a keyword search based on the following terms. Compound terminology is not permitted by the database, simple text searches were conducted manually per each term. Due to the ‘simple’ nature of the MHRA database search engine, single-word terms were consolidated in order to provide the most targeted search possible.

### Search Terms

* Escape Nitinol Stone Retrieval Basket
* Nephrolithotomy basket
* Tipless nitinol stone basket
* Urinary stone extractor
* Urinary stone grasper
* Urinary track stone removal
* UROMED STONIZER Stone Retrieval Basket

### Search Results

No adverse events, product alerts, or field reports related to NCircle Stone Extractor (Completed Review) or comparative state-of-the-art devices were identified from these searches.

## Germany Recalls

https://www.bfarm.de/SiteGlobals/Forms/Suche/EN/Expertensuche\_Formular.html?nn=708434&cl2Categories\_Format=kundeninfo

### Date Range

Starting from Nov 06, 2021 to Nov 01, 2022.

Searches included Device Safety Information reports in all medical specialties.

### Search Strategy

['Searches included Device Safety Information reports in all medical specialties. The safety database consists of a keyword search based on the following terms. If compound terminology is not permitted by the database, simple text searches are conducted per term.']

### Search Terms

* Escape Nitinol Stone Retrieval Basket
* Nephrolithotomy basket
* Tipless nitinol stone basket
* Urinary stone extractor
* Urinary stone grasper
* Urinary track stone removal
* UROMED STONIZER Stone Retrieval Basket

### Search Results

No adverse events, product alerts, or field reports related to NCircle Stone Extractor (Completed Review) or comparative state-of-the-art devices were identified from these searches.

Summary

# Technical Sheets

All Technical Sheets will be attached via Zip file and included with this submission.

# Search Verification

All search results have been exported from each relevant Database and included via Zip file for verification purposes.

An extensive verification process is conducted to ensure the validity of all search results. Results are validated on an individual search basis and are recorded in such a way that any other party could easily duplicate results.

All searches are conducted on 3rd party databases that are subject to change in their literature availability. We are not responsible for future changes/modifications to a public database that could affect previously conducted searches.

|  |  |  |  |
| --- | --- | --- | --- |
| Scientific Databases | Searches Verified  Yes / No | Method of Verification | Backup Files |
| Cochrane | Yes | Export Files and Exact Search URL | Full Results Attached (Zip File) |
| Pubmed | Yes | Export Files and Exact Search URL | Full Results Attached (Zip File) |

Table 23 Search Verification

# Acknowledgment and Agreement

SEARCH PERFORMED AND WRITTEN

By:

Name: Edward Drower, M.S.

Title: Medical Writer (CV Attached)

Date:

CITE MEDICAL, LLC

By:

Name: Edward Drower, M.S.



Date:

Cook Medical

By: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name:

Title:

Date: