



HONG KONG
ASIAWORLD-EXPO
亞洲國際博覽館

3RD TO 6TH
DECEMBER
2025



Then & Now, was borescoping worth it

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Affiliation: VCU Health



VCU Health

- One college
- Four health sciences schools
- Academic medical center
- Level I trauma center
- Full-service children's hospital
- 800+ physicians
- 200+ specialties



Background

- Centralized all flexible to one department
 - Started in 2012
 - 5 strategically placed rooms
 - 511 different flexible scopes
 - A total of 71 different flexible scope models
 - Two years to be certified (CER, CFER)
 - All staff must attend entry class
 - Initial training is 6-8 months.



Patient Volume

Inpatient Discharges 42,260

ER Visits 110,231

Out Patient Visits 1,080,313

Total Surgeries 30,989

Newborn Deliveries 3,052

Trauma Admissions 4,333



Staffing/Equipment

- Fully Staffed – 33
 - 4 Equipment Technicians
 - 1 Supervisor
 - 1 Coordinator
 - 1 Manager
 - 26 HLD Technicians
 - Assistant Technician
 - Technician
 - Senior Technician
- Equipment
 - AER's – 33
 - Sterilizers – 4
 - Drying Cabinets – 23
 - Automated Leak Testers – 12
 - Automated Flushing Devices – 12
 - Borescopes – 6



Scope Types

GI Models of Flexible Scopes

- Colonoscope
- Sigmoidoscope
- Gastroscope
- Enteroscope
- Duodenoscope
- EUS Linear
- EUS Radial

Other Models of Flexible Scopes

- Ureteroscope
- Cystoscope
- Bronchoscope
- EBUS
- Laryngoscope
- Choledochoscope
- Ventriculoscope
- Pleurascopes
- Intubation scope



Borescope



What is a borescope?



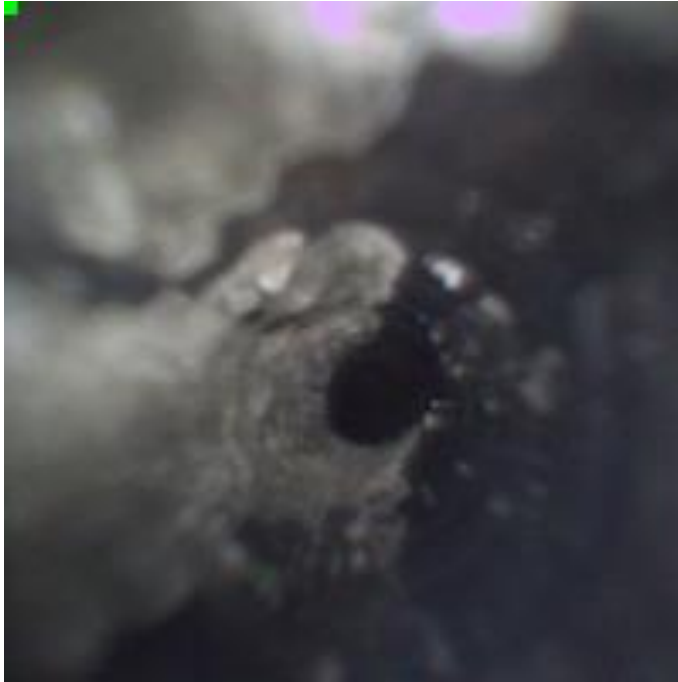
200,000 inspections



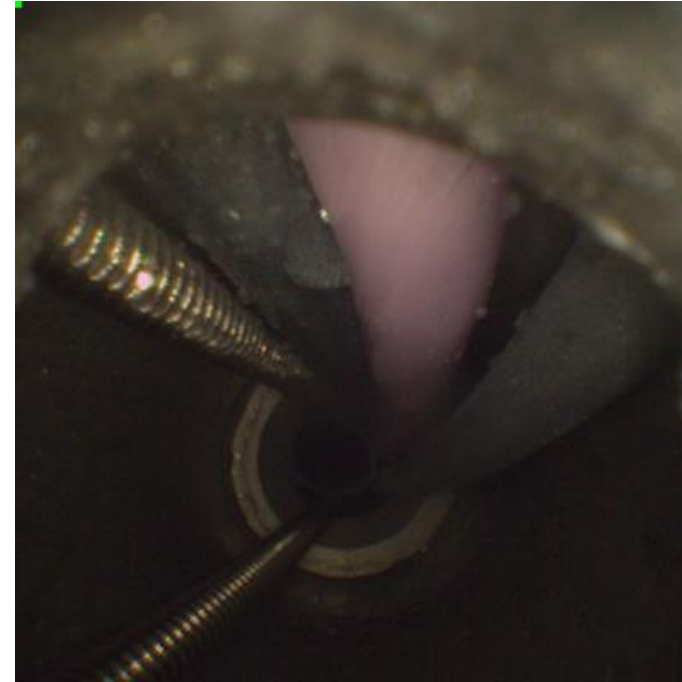
Was it necessary?



Before



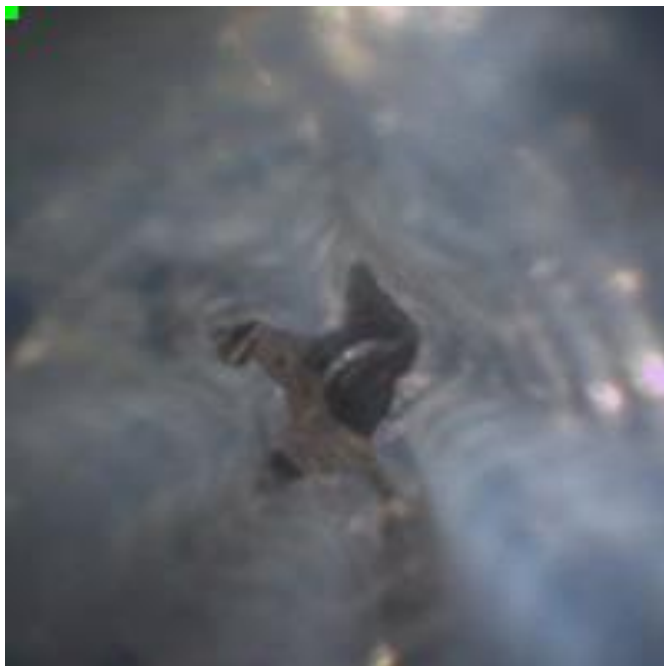
Ureteroscope



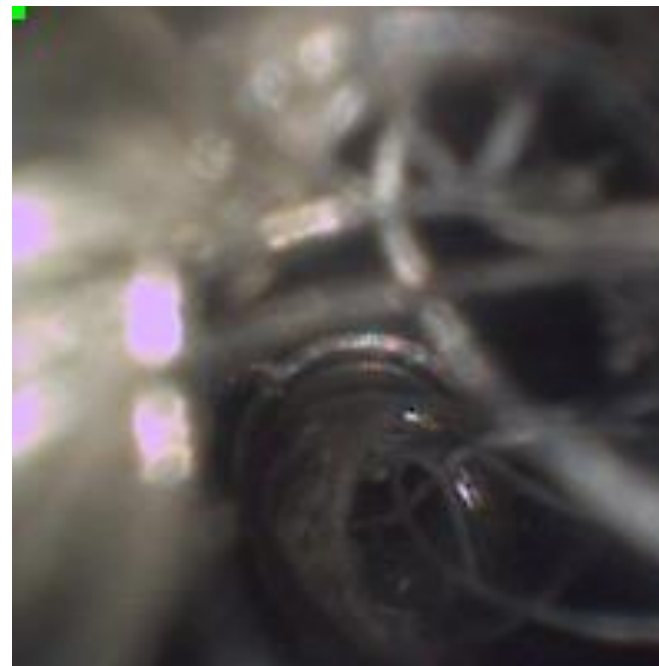
Bronchoscope
(therapeutic)



Badly Damaged



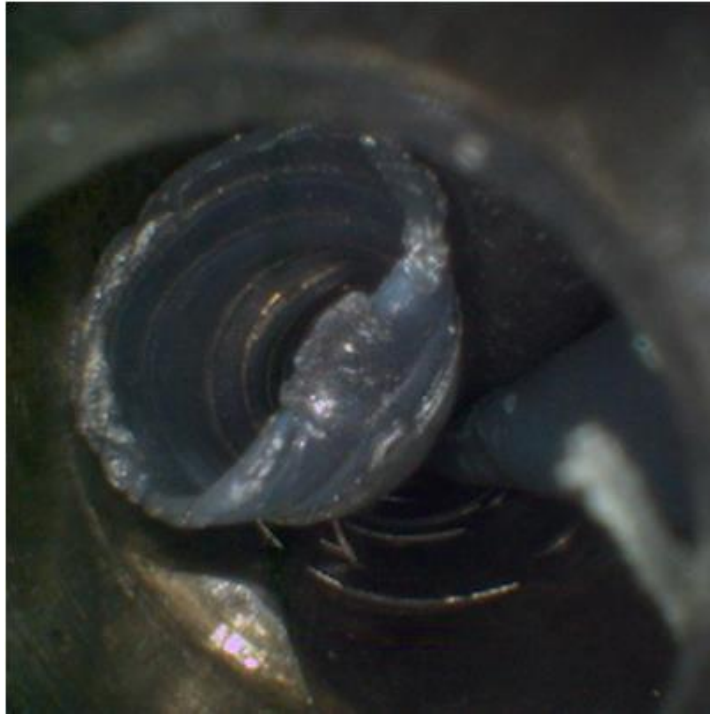
Ventriculoscope



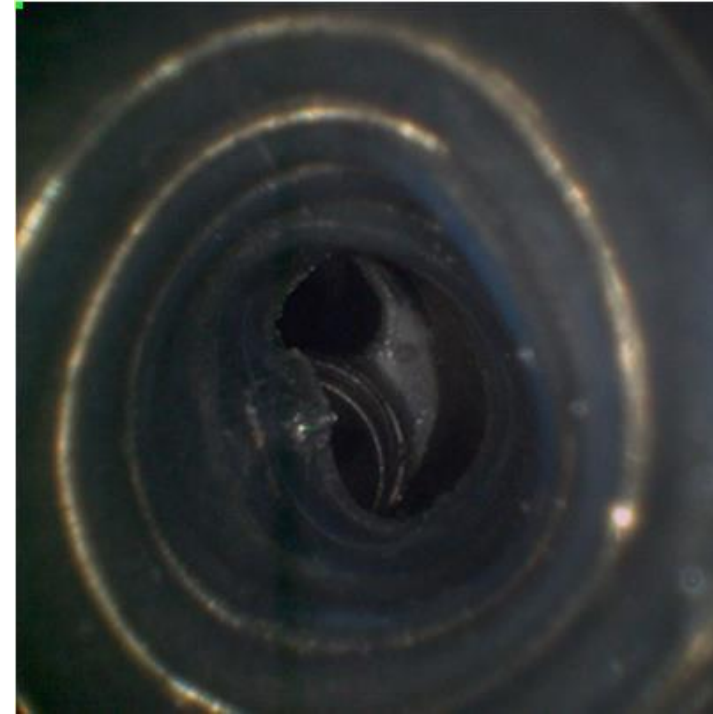
Ventriculoscope



Badly Damaged



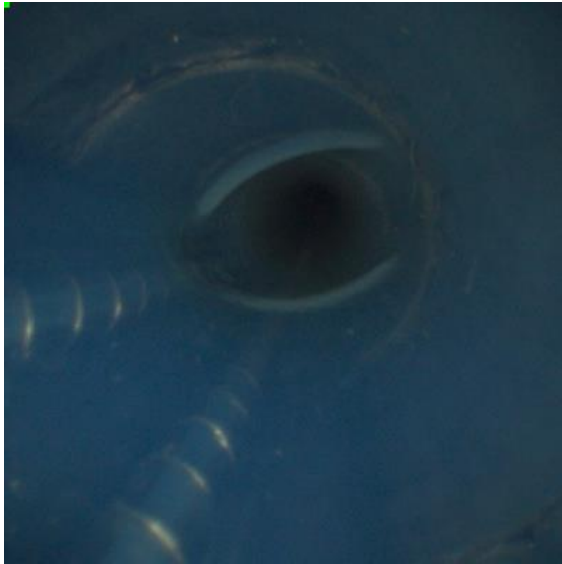
EBUS



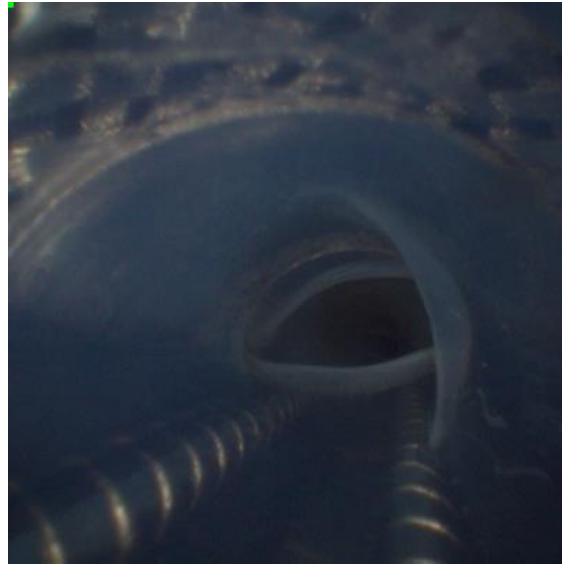
EBUS



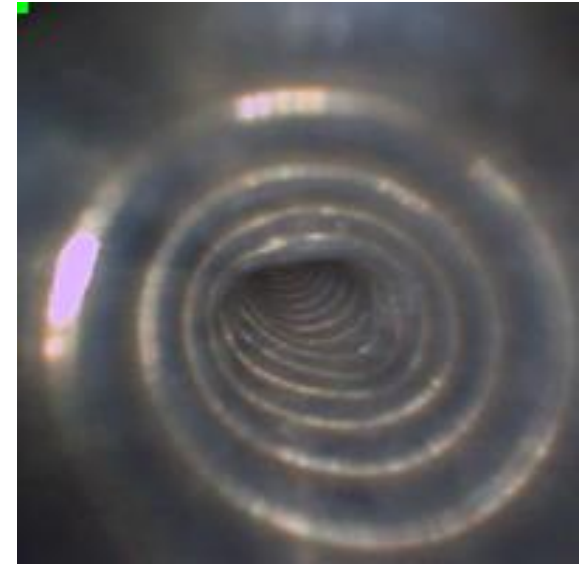
Bent Channel



Cystoscope



Cystoscope



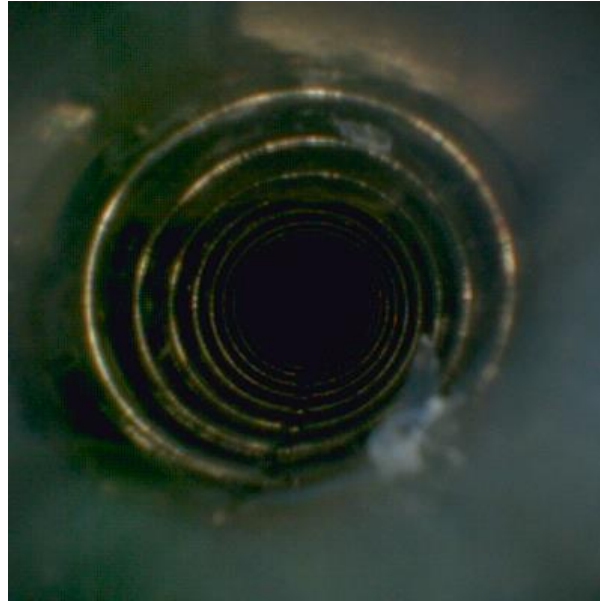
Ureteroscope



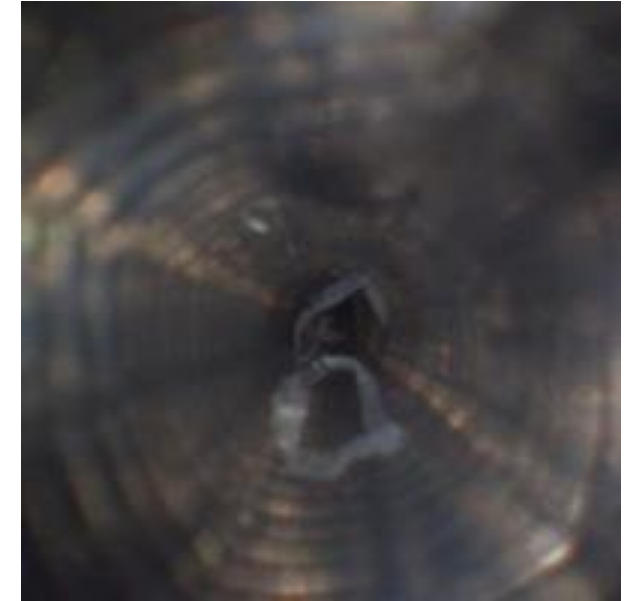
Peeling



Gastroscope



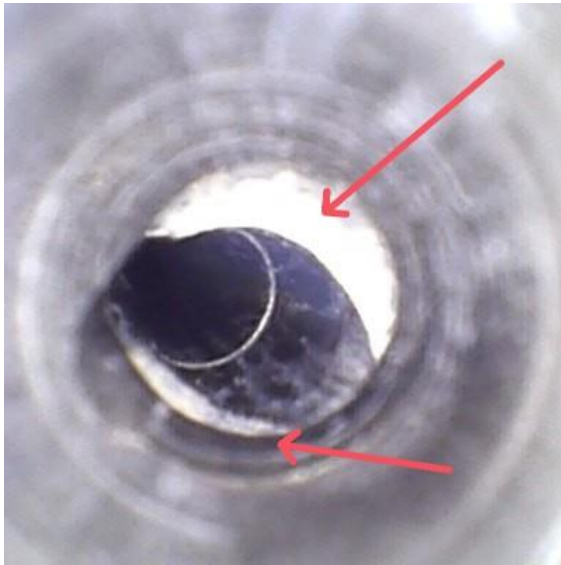
Cystoscope



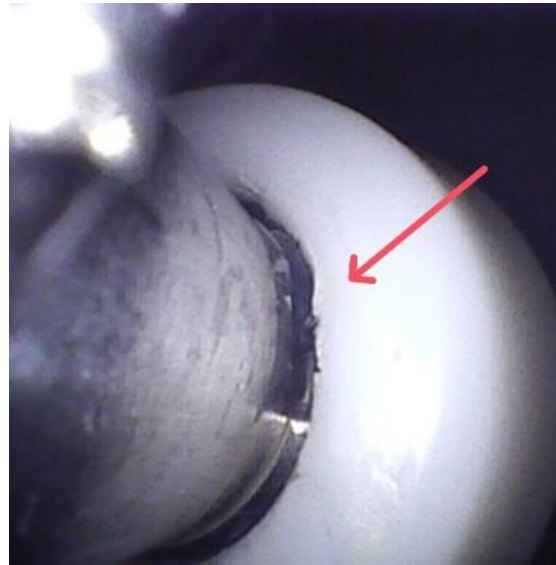
Ureteroscope



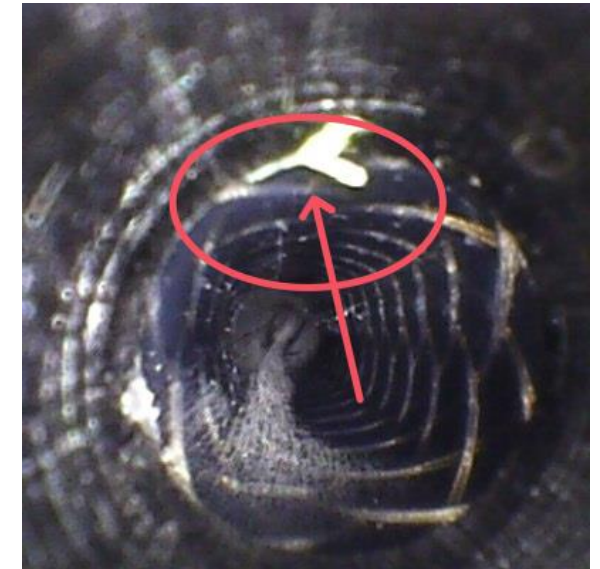
Separation



EBUS



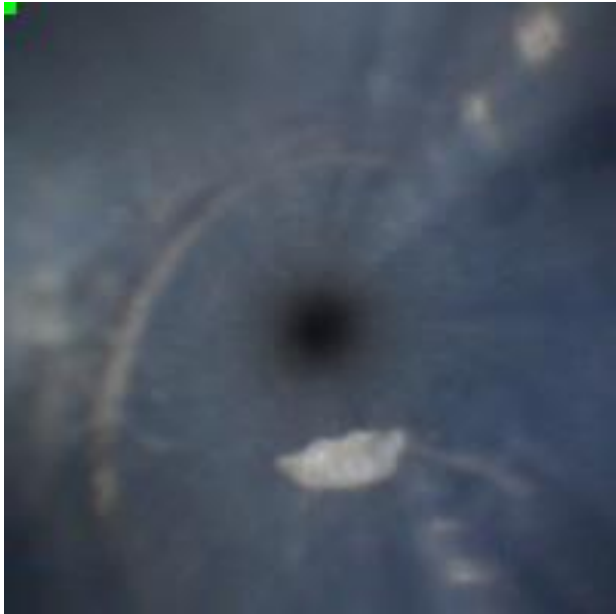
EBUS



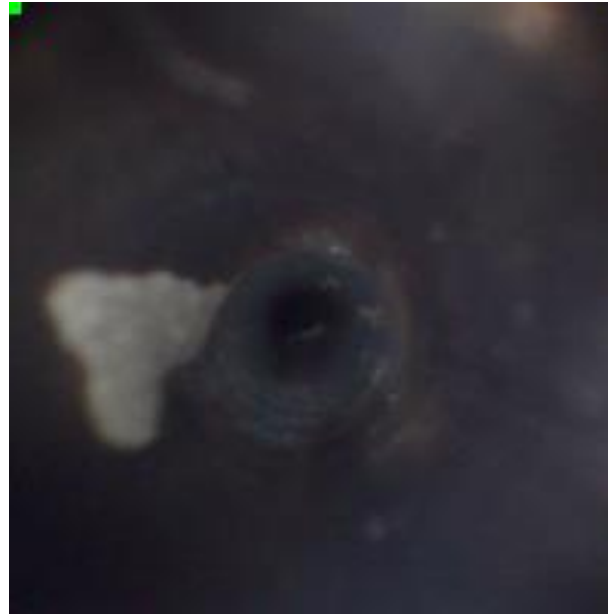
Gastroscope



Debris



Ureteroscope



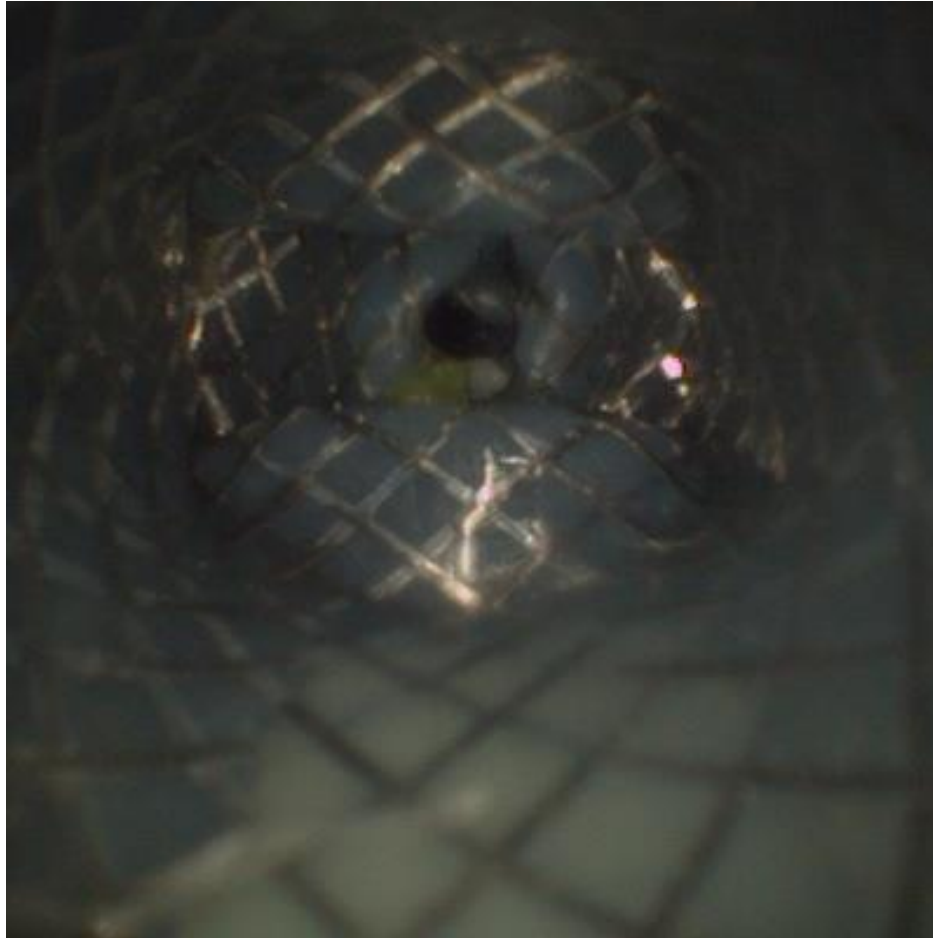
Gastroscope



Gastroscope
(therapeutic)



Damaged Scope



Therapeutic Bronchoscope

Physical Damage





Published Study

BI&T
Biomedical Instrumentation & Technology

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Research Article | 2024



Impact of Borescope Inspections on Endoscope Repair Frequency and Costs

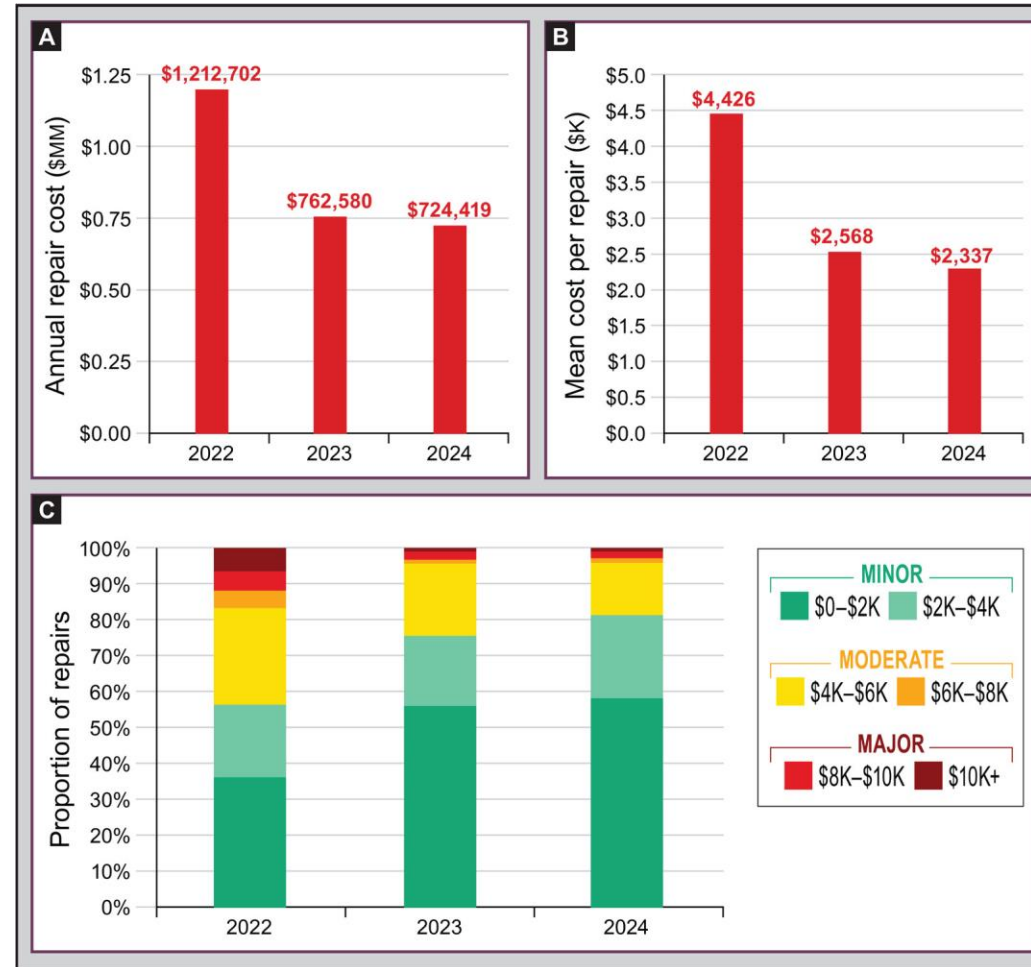
Authors: Cori L. Ofstead, MSPH, Abigail G. Smart, MPH, Larry A. Lamb, AGTS, and Frank E. Daniels, MSHA, MPH, CFER, CER, AGTS, CSPDT, CRCST, CIS, CSPM, CHL | [AUTHORS INFO & AFFILIATIONS](#)

Publication: Biomedical Instrumentation & Technology • <https://doi.org/10.2345/0899-8205-58.4.88>



Cost Analysis

Decreased almost
\$500K



Decreased \$2K

Major Repairs
Decreased



Repairs

Scope Type	No. Repairs per Scope			Mean Cost per Repair (\$)			Mean Turnaround (Days)			Mean Uses between Repairs		
	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024
Bronchoscope	0.83	0.71	0.87	4,088	2,702	2,477	24	15	13	33	44	36
Intubation	0.08	0.13	0.50	2,892	901	2,487	10	9	11	64	65	78
ENT	0.37	0.38	0.45	2,443	1,834	861	20	12	10	54	83	85
Cystoscope	0.84	0.92	0.87	3,432	2,240	2,983	24	14	13	53	41	40
Ureteroscope	1.2	1.9	1.8	4,728	3,327	3,657	15	14	13	18	14	18
Gastroscope	0.29	0.35	0.63	4,418	3,192	2,677	37	23	24	41	94	159
Choledocoscope	1.0	0	0.33	382	0	5,202	24	NA	17	34	NA	68
Colonoscope	0.37	0.20	0.41	5,397	3,000	3,709	58	23	24	46	98	206
ERCP	0.40	1.0	0.86	9,983	2,413	1,585	48	21	30	68	80	63
EUS	0.43	0.71	0.45	17,413	2,792	1,984	65	28	23	44	38	63
Neuroendoscope	0	1.0	0.5	0	7,343	1,247	NA	52	22	NA	28	14



Overall Stats

Damaged through routine inspections

18.8% to 7.4%

Rejected return from repair

21% to 7.7%

Rejected new

25.2% to 24.1%



Overall Benefit



Overall cost

Decreased over \$600K



Total Repairs

Increased (More minor, less major)



Repair Time

Decreased Time Scope is out for Repair



Questions



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