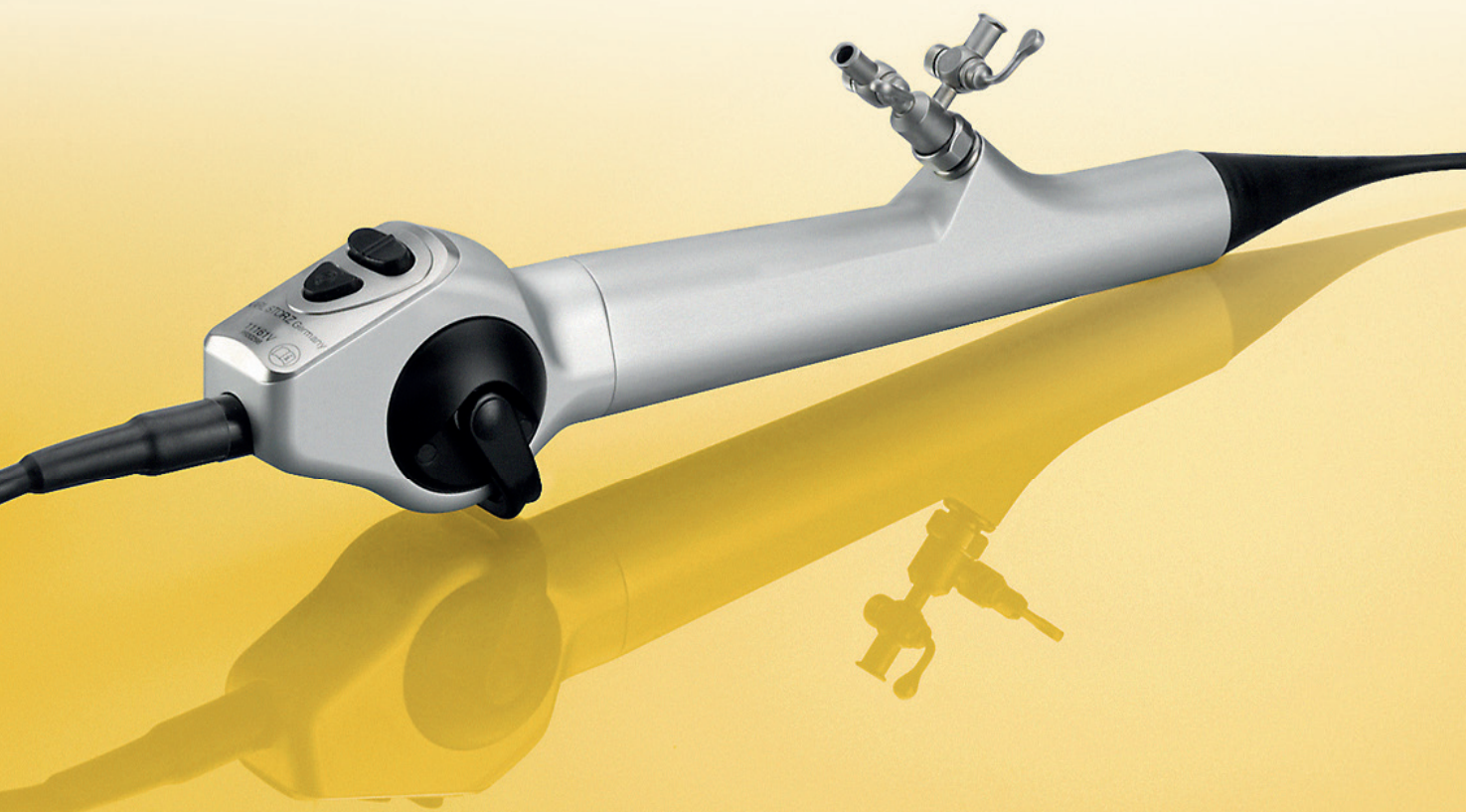


KARL STORZ — Flexible Video Neuro-Endoscope

Offering you the ability to avoid implanting shunts
in your obstructive hydrocephalus patients



STORZ
KARL STORZ — ENDOSKOPE

FOR U.S. USE ONLY

Current Status - Hydrocephalus



Over **1 million** Americans have Hydrocephalus¹

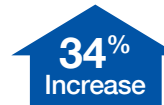


Could potentially be treated with **Endoscopic Third Ventriculostomy (ETV)**



\$30K in savings

Potential hospital stay cost reduction, per patient, with ETV vs. VP shunt²

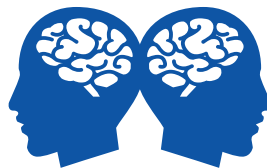


In hospital utilization and LOS* in the US³

Patients with obstructive hydrocephalus are most commonly treated with:

Implantation of a ventriculoperitoneal (VP) shunt –

Implant that drains excess fluid from the brain to another part of the body.



Endoscopic Third Ventriculostomy (ETV) –

Opening created in the floor of the 3rd ventricle allows fluid to flow into another part of the brain.

ETV/CPC –

ETV with the addition of choroid plexus cauterization (CPC).

Hydrocephalus is expensive, prevalent and there is no cure. For a segment of the hydrocephalus patient population, ETV and ETV/CPC provides numerous clinical benefits. For providers, the Flexible Video Neuro-Endoscope System makes it possible to perform a full range of endoscopic intraventricular interventions including an ETV and ETV/CPC instead of implanting a VP shunt. The smaller outer diameter (2.90 mm shaft with elliptical endtip that measures 2.42 mm x 3.22 mm) proves to be particularly valuable for treating patients with narrow foramina of Monro and small ventricles.

*Length of Stay (LOS)

Endoscopic Third Ventriculostomy Differentiators

1. Improved Clinical Outcomes

- Significantly lower complication rate⁴
- Lower reoperation rate in the long term^{5,6}
- Lower infection rate, less than 1%^{8, 13}
- Effective and safe^{4, 13}
- Gold standard for treatment of obstructive hydrocephalus^{4,7}
- Patients most likely to succeed with ETV can be accurately identified⁹

	Age Range	Infection Rate	Success Rate	Failure window
VP Shunt	All ages	4.1 to 20.5% ¹⁰	41 to 60% ⁹	Lifelong risk of failure ¹¹
ETV	Over 2 years old	Less than 1% ⁸	70 to 90% ^{4,9,12}	If ETV fails, failure usually happens in 3-6 months ⁴
ETV/CPC	Under 2 years old	Less than 1% ¹³	60 to 80% ¹³	If ETV/CPC fails, failure usually happens in 3-6 months ¹³

2. Reduced Expenses

- Reduced hospital stay cost by \$30K per patient²
- Preventing future shunt infections, an ETV could save up to \$140K per patient in future hospital cost²
- Reduced use of healthcare facilities²

3. Increased Patient Satisfaction

- Patients can be spared the long-term complications of VP shunting
- Likely lead to improved quality of life^{2,9}
- Fewer overall procedures, which results in less disruption to life in society²
- Reduced healthcare cost for individual, family and society²

Why KARL STORZ?

KARL STORZ offers a **reusable visualization** hydrocephalus portfolio to help you **improve efficiency** and **surgeon/patient satisfaction**, and allow you to provide personalized care and treatment options for your patients. **With the added bonus of removing the patient's life-long risk of shunt failure.**

1. Facts and Stats: Hydrocephalus is Common. Website, Accessed January 23, 2019. Hydrocephalus Associations. Available at: <http://www.hydroassoc.org/about-us/newsroom/facts-and-stats-2/>.
2. Poster presented at AANS/CNS peds 2017. Shunt infection rates decreased the popularization of ETV: a retrospective cohort study & cost saving analysis. OHSU
3. The economic impact of ventriculoperitoneal shunt failure, J Neurosurg Pediatr. 2011 Dec; 8(6): 593-599. http://www.theshinelibrary.org/content/publications%20_documents/Jou263.pdf
4. Sonja Vulcu et al. Long-term results of endoscopic third ventriculostomy: an outcome analysis. Journal of Neurosurgery. Dec 2015. <http://thejns.org/doi/pdf/10.3171/2014.11.JNS14414>
5. Kulkarni AV et al. Predicting who will benefit from endoscopic third ventriculostomy compared with shunt insertion in childhood hydrocephalus using the ETV Success Score. J Neurosurg Pediatr 6:310-315, 2010
6. Di Rocco C, Massimi L, Tamburrini G: Shunts vs endoscopic third ventriculostomy in infants: are there different types and/or rates of complications? A review. Childs Nerv Syst 22:1573-1589, 200
7. Yad Ram Yadav et al. Endoscopic third ventriculostomy. Journal of Neurosciences in Rural Practice. May-Aug. 2012;3(2):163-173.
8. Complications of ETV and ETV/CPC. Hydrocephalus Association. Available at: <http://www.hydroassoc.org/complications-of-etv-and-etvcpc/>. Accessed March 9, 2017.
9. Kulkarni AV. et al. Endoscopic Third Ventriculostomy in the Treatment of Childhood Hydrocephalus The Journal of Pediatrics, Volume 155 Issue 2 , 254 - 259.e1
10. Simon TD, Hall M, Riva-Cambrin J, et al. Infection rates following initial cerebrospinal fluid shunt placement across pediatric hospitals in the United States. Neurosurg Pediatr. 2009;4(2):156-65.
11. Michelle Paff et al. Ventriculoperitoneal shunt complications: A review. Interdisciplinary Neurosurgery, Volume 13, Sept 2018, 60-40, <https://doi.org/10.1016/j.inat.2018.04.004>
12. Watkins J, et al. Markedly Improved Success Rate of Endoscopically Assisted Third Ventriculostomy Is Achieved by Routine Placement of External Lumbar Drain. J Neurol Surg Rep. 2017;78(2):e71-e76
13. Stone SS; Warf BC. Combined endoscopic third ventriculostomy and choroid plexus cauterization as primary treatment for infant hydrocephalus: a prospective North American series. Journal of Neurosurgery: Pediatrics. Nov 2014;14(5):439-46.

More than
75
Years

*Shaping the Future
of Endoscopy with you*

STORZ
KARL STORZ—ENDOSKOPE

THE DIAMOND STANDARD

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