Patients with hydrocephalus can be spared the devastating effects of infection after being fitted with drainage shunts, a study of more than 100 patients has shown.

In operations to 126 patients, covering 176 shunts over seven and a half years, only one shunt infection was recorded—and that seemed to originate from appendicitis progressing to peritonitis seven months after the operation.

This impressive record was attained by adopting a culture of zero tolerance to infection during the operations, with all staff strictly following detailed and rigorous preventive procedures based on asepsis, antisepsis, prophylactic antibiotic treatment, and—specifically—avoiding haematomas. The operations took place in one dedicated neurosurgery theatre with neurologically trained staff, where entry or exit during the procedure was permitted only in real emergency. All staff were fully gowned and masked, and the protocols went to great lengths to avoid infection from the surroundings, instruments, and implants. All operations were either performed by or closely supervised by the same senior neurosurgeon, and lapses in protocol were not tolerated.

The 126 patients were treated at the neurosurgical department of one UK hospital trust; 33 of them had revisions to implants fitted at other centres.

Reported mortality from shunt infections varies from 1.5 to 22%, and infections occur in 5–5% of procedures, though rates as low as 0.3–5% have been reported. Infection is to be avoided at all costs as survivors can have severely impaired mental and neurological functions, but other studies of how to do so have been inconclusive.