

Necrotising Soft-Tissue Infection

START AS SOON AS POSSIBLE — usually after the first debridement

An adjunct to aggressive surgical debridement and antibiotics, supported by a consistent observational mortality association and by no randomised evidence at all.

TREATMENT PROTOCOL

Pressure	2.0–2.5 ATA. 2.8–3.0 ATA if clostridial myonecrosis is in the differential, using the gas gangrene protocol
Duration	90 min
Frequency	Twice daily for the first few days, then daily once the patient stabilises. Three treatments in the first 24–48 h if clostridial disease is suspected
Sessions	Up to 30. Extension of necrosis is usually halted within 7–10
Review	After 30 treatments

PATIENT SELECTION

Who to treat	Necrotising fasciitis, Fournier gangrene and related polymicrobial or synergistic infections, treated after and alongside surgical source control and antibiotics.
Who not to treat, or when to stop	Surgical source control is primary and is repeated. Hyperbaric treatment must not delay it — but if theatre access is delayed, UHMS advises immediate hyperbaric treatment in a critical-care-capable unit. Only absolute contraindication: untreated pneumothorax.
Mechanism	Bactericidal and bacteriostatic to anaerobes; restores neutrophil oxidative killing in hypoxic tissue; inhibits toxin production; demarcates non-viable tissue.
Outcome measure	Mortality; amputation rate; multi-organ dysfunction.

WHAT THE NUMBERS SHOW

- Hedetoft 2021** (registered meta-analysis, n=48,744): mortality **OR 0.44 (95% CI 0.33–0.58)**; major amputation OR 0.60, not significant.
- Huang 2023** (meta-analysis, n=49,152): mortality **RR 0.52 (95% CI 0.40–0.68)**; multi-organ dysfunction RR 0.21.
- Huang 2026** (Fournier gangrene, 14 studies, 793 patients): mortality **9.55% vs 27.45%, RR 0.33 (95% CI 0.23–0.48)**.
- Hyldegaard 2025** (prospective Scandinavian cohort, n=405): 30-day mortality **7% vs 43%** — adjusted OR 0.27 (95% CI 0.11–0.68), with treatment given routinely in 4 of 5 centres; but **the treated group was less acutely ill** and the authors call it exploratory.
- Brown 1994** (n=54): **30% vs 42%, not significant** — the counterweight.

EVIDENCE BASE

Shape and certainty	No randomised evidence. Cochrane searched specifically and found no randomised or quasi-randomised trial. The best designs available are registered meta-analyses of retrospective cohorts and national databases.
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Study	Design	Result and risk of bias
Levett 2015, Cochrane — PMID 25879088	Systematic review	Zero trials found
Hedetoft 2021, Diving Hyperb Med — PMID 33761539	Registered SR + meta, n=48,744	Positive, OR 0.44; observational
Huang 2023, World J Emerg Surg — PMID 36966323	Meta-analysis, n=49,152	Positive, RR 0.52; observational
Wilkinson 2004, Arch Surg — PMID 15611459	Retrospective cohort, n=44	Positive only in best-subset model (OR 8.9); full model OR 6.7, NS
Brown 1994, Am J Surg — PMID 8185032	Two-hospital cohort, n=54	Null — the counterweight

WHAT THE EVIDENCE DOES NOT SUPPORT

Cautions	Cochrane found no randomised trial, so no trial-level proof exists. Every meta-analysis pools retrospective data confounded by indication, and the confounding runs in both directions — Hyldegaard's treated group was less ill, while other series select sicker patients for treatment. The Copenhagen group behind the favourable meta-analyses explicitly calls for a randomised trial.
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STATUS IN SOUTH AFRICA

Status	Accepted indication in South Africa (SAUHMA Level C, adjunctive) via the cellulitis, abscess and necrotising fasciitis diagnosis-treatment pair.
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Compiled from the **UHMS Hyperbaric Oxygen Therapy Indications Manual, 15th edition (2023)** and the appraised trial evidence held in an HBOT evidence library. All treatments are 100% oxygen. US Navy Treatment Table profiles are named, not reproduced — the US Navy Diving Manual is the operative document at the chamber. Session counts are largely guideline convention rather than dose-finding evidence. This card summarises published parameters and does not replace those source documents or clinical judgement for the individual patient. Generated 03 October 2026. Not a SAUHMA publication and carries no society endorsement.