Permeability characteristics of otological tampons
S Bola, M Rashid, S Hickey
Torbay Hospital

Background
Otological tampons (otowicks) are used to treat otitis externa with significant ear canal oedema. They ensure close contact between administered drops and the canal skin. The differential permeability of the otowick to medication has not been investigated.

This in vitro study aims to investigate:
1) The permeability of an otological tampon to commonly used ear drops.
2) Bacterial penetration through the tampon.

Methods
1) Sterile 15mm fenestrated otowicks were inserted into mock ear canals fabricated from plastic pipettes. These were held vertically over pseudomonas-seeded agar plates whilst Gentisone HC or Ciloxan™ drops were administered.

2) Pseudomonas-seeded otowicks were inserted into plastic pipettes and treated with saline or antibacterial drops. The penetrating drops were observed for bacterial growth on sterile agar plates.

Results
1) It took 6-8 drops before penetration occurred. Thereafter, otowicks treated with Ciloxan™ showed delayed penetration after five days when compared with Gentisone HC.

2) Otowicks were permeable to bacteria as demonstrated by bacterial growth from displaced saline drops. However, when Gentasone HC or Ciloxan™ were applied, displaced drops showed no bacteria growth on the corresponding agar plate.

Conclusion
Otowicks need preloading to achieve instant delivery of medication. Bacterially contaminated otowicks still transmit effective treatment at five days which allows possibility for otowicks to be left in situ for longer than the accepted 24-48 hours. However, the permeability of otowicks to Ciloxan™ decreases after this time which should be considered when instructing application of drops to patients.