CPAG Summary Report for Clinical Panel – Hyperbaric Oxygen Therapy (HBOT) for Malignant Otitis Externa (MOE)

The Benefits of the Proposition – HBOT with ciprofloxacin versus ciprofloxacin only			
No	*Metric*	*Grade of evidence*	*Summary from evidence review*
1.	Survival	Not measured	
2.	Progression free survival	Not measured	
3.	Mobility	Not measured	
4.	Self-care	Not measured	
5.	Usual activities	Not measured	
6.	Pain	Benefit determined [B]	Pain was measured according to its severity, degree of improvement or cessation. A pain score of 3 indicated severe pain (preventing patients from sleep and normal activities), a pain score of 2 indicated moderate pain (controlled sometimes with powerful analgesics), a pain scored of 1 indicated mild pain (bearable without analgesics), and a pain score of 0 indicated no pain. The results provide an estimate of the proportion of patients who had an improvement in their pain and to what extent after hyperbaric oxygen therapy (HBOT). Sabra et al reported the following in patients treated with HBOT plus ciprofloxacin (an antibiotic) versus those treated with ciprofloxacin only: an improvement in pain[1] in 86.7% (13/15) vs. 32.1% (9/28) of patients at one month after 15 sessions(no p-value reported); freedom from pain in 46.7% vs. 0% of patients at one month and 93.3% vs. at 28.5% two months (p<0.001 for

[1] These results refer to patients with mild or no pain from having severe pain

			both follow up periods) The results suggest that after one month of HBOT (15 sessions in total – doses administered on alternate days), almost two thirds of patients on HBOT and ciprofloxacin had an improvement in their pain compared to a third of patients taking ciprofloxacin only, and about half of patients were free from pain compared to none taking ciprofloxacin only. At two months, over 90% of patients on HBOT had no pain at all compared to just over a quarter in the ciprofloxacin only group. However, these results should be interpreted with caution as, despite the presence of a control group; the patients were not randomised, also the participants and assessors not blinded, everyone was aware of who was on what treatment. Pain scores were self-reported therefore intra- and/or inter-patient error could not be ruled out. In addition, the rationale for the treatment choice was unclear, for example whether the treatment received was wholly or partly based on severity of clinical presentation and/or prognosis. These results may therefore not be generalisable.
7.	Anxiety / Depression	Not measured	
8.	Replacement of more toxic treatment	Not measured	
9.	Dependency on care giver / supporting independence	Not measured	
10.	Safety	Not measured	
11.	Delivery of intervention	Not measured	

Other health metrics determined by the evidence review for HBOT + ciprofloxacin versus ciprofloxacin only			
No	Metric	Grade of evidence	Summary from evidence review
1.	Purulent ear discharge	Grade B	An ear discharging pus (purulent) is a known symptom and it is usually clinically assessed in patients with MOE. The results provide an estimate of the effect of HBOT with ciprofloxacin therapy compared with ciprofloxacin only on ear discharge. Sabra et al absence of purulent ear discharge in 80% vs. 0%[2] ($p<0.001$) at one month (after 15 sessions) and 93.3% vs. 28.5% ($p<0.001$) at two months. The results suggest 80% of patients who received HBOT no longer had purulent ear discharge after one month of treatment compared to none of those who didn't have HBOT. At two months, almost 95% of those who had HBOT had no purulent ear discharge while only a third of those who didn't were free of ear discharge. However, care must be taken interpreting these results as this was an unrandomised single-centre study and there was no blinding. In addition the rationale for the treatment choices made is unclear therefore the results may not be generalisable.
2.		Choose an item.	
3.		Choose an item.	
4.		Choose an item.	
5.		Choose an item.	

[2] Not reported to one decimal place therefore inconsistent with other results

The Benefits of the Proposition – HBOT with no comparators			
No	*Metric*	*Grade of evidence*	*Summary from evidence review*
1.	Survival	Not measured	
2.	Progression free survival	Not measured	
3.	Mobility	Not measured	
4.	Self-care	Not measured	
5.	Usual activities	Not measured	
6.	Pain	Not measured	
7.	Anxiety / Depression	Not measured	
8.	Replacement of more toxic treatment	Not measured	
9.	Dependency on care giver / supporting independence	Not measured	
10.	Safety	Adverse events identified [C]	Complications refer to side effects (adverse events) associated with HBOT. The Cochrane systematic review did not report any adverse effects. Sabra et al also did not report any adverse effects. Saxby et al (2013) reported that five out of 17 patients (29%) had complications attributable to HBOT: acute pulmonary oedema (fluid collection in the lungs) (n = 2), seizure (n = 1), tympanic (eardrum) membrane perforation (n = 1) and claustrophobia (n = 1). The results of this one case series suggest that a third of patients had complications associated with HBOT. However, these findings should be interpreted with caution as they are from a retrospective uncontrolled case

			series (study without a control group) of 17 patients from a single centre. Without a control arm, it is unclear how this compares to alternative treatments. The single centre also possibly introduces a selection bias. These sources of bias mean that the findings reported may not be valid and/or generalisable to a larger population of patients.
11.	Delivery of intervention	Not measured	

Other health metrics determined by the evidence review for HBOT with no comparators			
No	Metric	Grade of evidence	Summary from evidence review
1.	Disease-free	Grade C	Disease-free refers to when the patient is free of symptoms. The authors did not clearly define this outcome. Saxby et al reported that 12 patients (70%) were considered cured of their disease, being disease-free at follow up. This included four patients who had died from other causes but were free of MOE symptoms at the time of death. The results suggest that over two thirds of patients who received HBOT were disease free at last follow-up (mean follow up 47 months, range 1 to 94 months). However, these findings should be interpreted with caution as they are from a retrospective uncontrolled case series of 17 patients from a single centre. Without a control arm, it is unclear how this compares to alternative treatments. The single centre possibly introduces a selection bias. These sources of bias mean that the findings reported may not be valid and/or generalisable to a larger population of patients.
2.	Mortality	Grade C	Mortality is a measure of the number

			of patient deaths. Saxby et al reported that three patients died from MOE (18%), one after a recurrence of their disease. Only one study reported numbers of patient deaths and these were deaths which were reported to be associated with MOE rather than with HBOT. We therefore do not know if HBOT is associated with death.
3.			
4.			
5.			