Hyperbaric oxygen therapy service specification: engagement report

28 November 2024, Version 1

Topic details

Programme of Care	Trauma
Clinical Reference Group	Hyperbaric oxygen therapy
Unique reference number (URN)	170084 – 250116S

1. Summary

This report summarises the feedback NHS England received from stakeholder testing, and public consultation as part of the engagement process during the update of the service specification.

2. Background

The service specification for hyperbaric oxygen therapy services has been updated following the full methods process. The review was led by the chair of the Hyperbaric Oxygen Therapy Clinical Reference Group and the lead commissioner for the service and supported by a Specification Working Group (SWG). Membership of the SWG included a patient representative, clinical leads from current commissioned providers, consultants in public health, and members of the British Hyperbaric Association.

Specialist advice was sought on relevant inter-dependent services including adult critical care, HM Coastguard, adult critical care transfer services and children's services.

Stakeholder testing on the revised service specification took place in July 2024, and public consultation took place during September 2024.

3. Feedback analysis

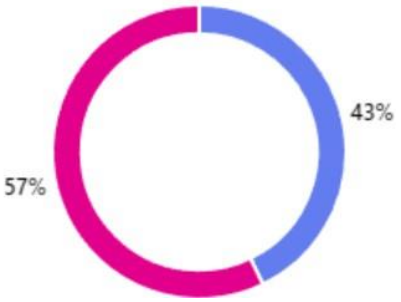
3.1 Stakeholder testing

The service specification was subject to stakeholder testing from 8 June 2024 to 25 June 2024. 14 responses were received, 6 of which were on behalf of organisations and 8 from individuals. A breakdown of the responses for each question is set out below.

3.1.1 Summary of participants

4. Are you replying on behalf of an organisation?

Yes	6
No	8

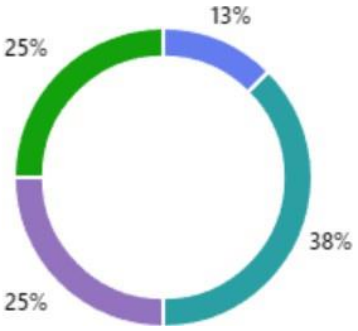


Remit of Organisations:

Provision of regional emergency HBOT services to NHSE
A private Hyperbaric Oxygen Therapy clinic - using 1.4 ATA soft chambe home rentals
Our unit provides 24/7 hyperbaric care for divers and air/gas embolism categories of severity.
Commissioning specialist services
Provider of Hyperbaric medicine
To improve our understanding of altered pressure and gas environment of divers and patients through treatment, research and education

Individual respondent characteristics:

Patient	1
Carer / family member of a patient	0
Clinician	3
Service provider	2
Other	2



It is important to note that only one response was received from a patient.

3.1.2 Responses to questions on service specification changes

- The revised service specification sets out that transfer to the hyperbaric facility closest to the patient place of presentation is the typical pathway. The aim of this is to ensure timely access to treatment in line with best practice guidelines.

  To what extent do you agree that the change to the service specification meets this aim?

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- Additional comments to support previous response.

  "The closest hyperbaric facility may not necessarily be the most appropriate".

  "The nearest hyperbaric chamber may not have the necessary expertise to treat critically ill, ventilated, divers or gas embolism cases. The cost and energy required to train and employ anaesthetists to cover the hyperbaric unit 24/7 is significant. Many of these patients are challenging and the patient could easily be declined as too ill to treat in the hyperbaric chamber. Some of these cases will be acceptable to a unit which has gained experience over many years to deal with such patients".

  "This is, of course, promotes the best outcomes for patients".

  "Agree this should be the default and is in the best interest of patients in terms of reducing time to treatment and convenience. It is also potentially cost saving to the NHS due to transport costs. If all chambers are of equal standard and capability then there should be no reason why a patient should not be referred to the closest chamber, although perhaps geographically closest might not always be closest in terms of travel time."

  "The proposed changes will not improve the timely access to treatment. On the contrary, they will delay/restrict patients access to the service, so only a few chambers, if any, will be able to meet the CAT1 level of care".

- The revised service specification sets out that providers must be able to treat critically ill patients (cox 1 facility). The current service specification sets out that not all providers need to be able to treat critically ill patients (cox 2 facility). The aim of this change is to ensure all providers are operating to the same clinical standards, have the same referral and acceptance criteria, whilst reducing avoidable variation in timely access to appropriate care.

  To what extent do you agree that the change to the service specification meets this aim?

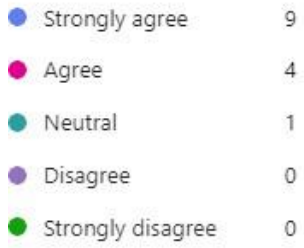
  - Additional comments to support previous response.

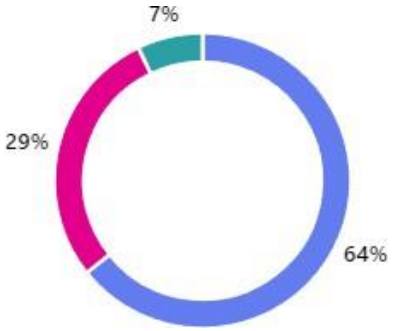
  "It would appear to me that a stand-alone Hyperbaric facility or perhaps one operating in a non-acute private hospital setting with no immediate access to ICU and supporting services cannot operate to the same clinical standards as an acute NHS hospital-based Hyperbaric facility".

  "Although there are several reports of satisfactory outcomes after the delayed treatment of gas embolism, the general consensus is that treatment within 6 to 7 hours has a better chance to have a good outcome. From personal experience in our unit, we have found the best outcome if treatment can be offered within four hours. For this reason, it is essential that every unit should have the capability and willingness to treat these cases".

  "There is simply no way to supply 24/7 critical care cover unless this is properly funded and separately supported by NHSE. To provide this level of care 24/7 is an enormous undertaking and currently not provided by ANY hyperbaric facility, despite what some chambers may claim".

  - The revised service specification sets out that all patients should be offered a follow-up review within 2-3 months of completing HBOT and as part of this a standard qualitative outcome tool should be completed. The aims of this are to ensure monitoring of long-term outcomes for patients.
    To what extent do you agree that the change to the service specification meets this aim?





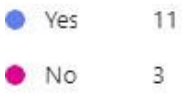
- Additional comments to support previous response.

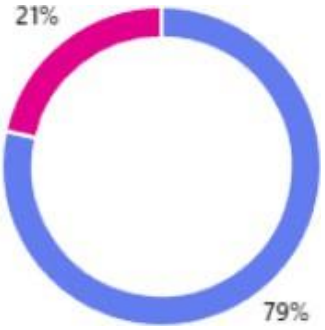
"We currently have a 30-day follow-up which we invariably succeed in doing. Implementing a further follow-up 2 to 3 months after completing HBOT could be instituted".

"It is reasonable to make sure that the treatment has been effective. Patient feedback is always very important for service improvement".

"The advantage of 2-3 months for completion of an outcome measure is that many patients continue to improve with rehabilitation etc, and so immediate outcome measures would miss this".

- Do you agree with the analysis in the equality and health inequalities impact assessment (EHIA)?





- Additional comments to support previous response.

"The proposal not to commission with category 2 chambers is a significant potential change to the delivery of the national emergency service. The statement in the EIHA summery is therefore wrong. If any of the currently commissioned providers are unable to achieve cat 1 status, then there is the potential for longer travel times for patients should NHS England chose not to commission with these providers".

"Agree that the proposed service specification does not make any changes which impact

groups with protected characteristics or those who experience health inequalities".

"Time to treatment is not explicitly referenced in the service specification but reasonably justifies the change to requiring all providers to be cox 1".

A 13q assessment was completed and discussed at the Patient Public Voice Advisory Group (PPVAG) on 4 July 2024.

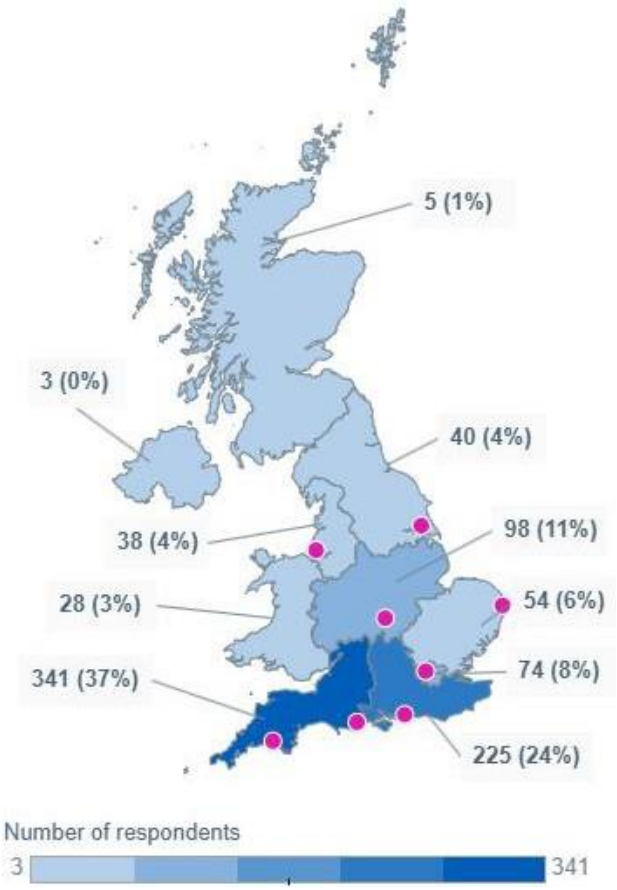
Whilst the changes to the service specification did not meet the threshold for public consultation, it was acknowledged due diligence should be applied given the proposed reduction in the number of services included in the wider service redesign is likely to be contentious and generate significant interest from the diving community.

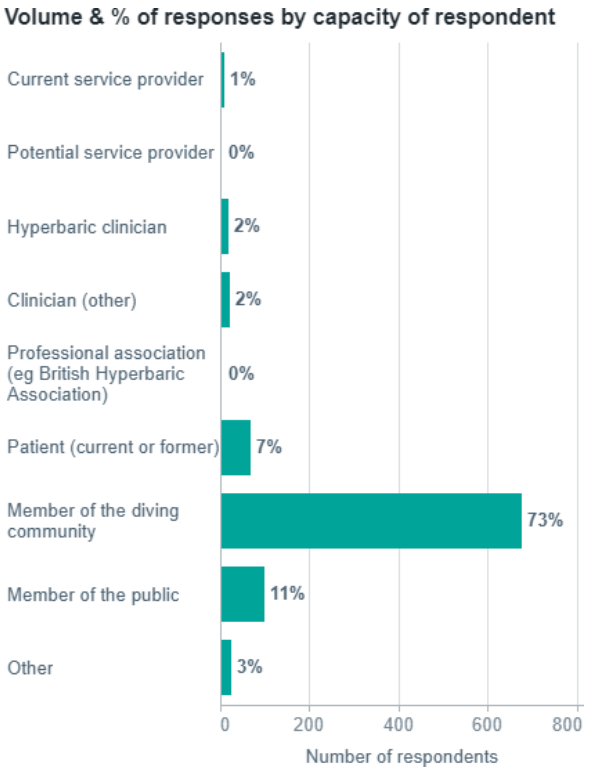
3.2 Public Consultation

Public consultation was carried out for thirty days (from 13 September to 12 October 2024). Extensive feedback from a broad range of stakeholders was received as part of the public consultation process. Four key questions were set out in relation to the proposed service specification updates and the proposed reduction in the number of commissioned providers. Further detail including a breakdown of responses are set out below.

3.2.1 Summary of respondent characteristics (all responses)

A total of 923 individuals responded to the public consultation, from across all regions and devolved nations of the UK, with a range of responses by region from 3 in Northern Ireland to 341 in the South-west. The link to the public consultation was shared widely by diving groups via social media platforms and existing commissioned providers shared the link with patients and referrers, ensuring comprehensive and large volumes of information was submitted. Members of the diving community were the largest cohort of respondents. 6 duplicate responses were removed from the analysis.

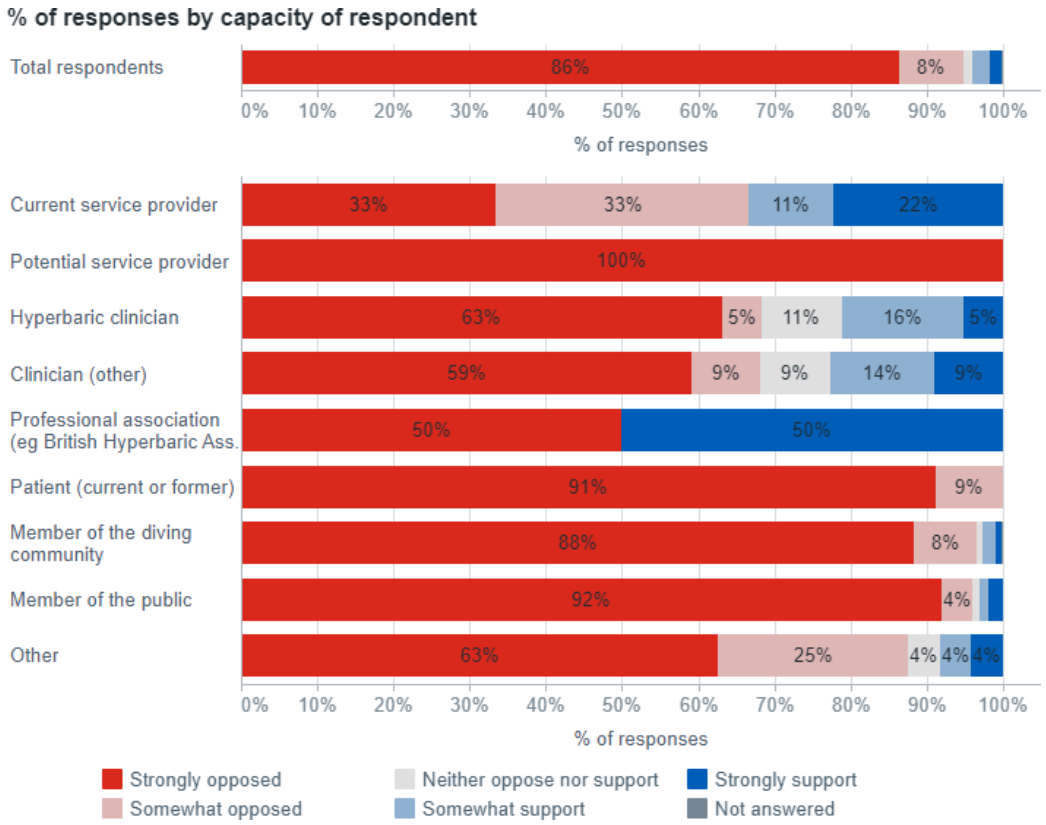




The following sections set out the breakdown of responses by volume and role categories to each of questions and where relevant analysis of the narrative supporting statements have been included.

3.2.2 Question 1: To what extent do you agree that a reduction in the number of centres from 8 to 6 will meet the aims of supporting clinicians in maintaining clinical competency, maintain timely access to treatment and ensure value for money for public funding?

There were 922 responses to this question, with most responses opposed this proposal.



There was little regional difference in the level of opposition to this proposal. However, it is notable that the breakdown of responses from the professional association (BHA), clinicians and current commissioned providers differed from the overall response breakdown and the views of members of the diving community or public.

The supporting narrative responses to this question were themed into key categories such as timely access to treatment risk of poor outcomes, variation in treatment for acutely unwell patients, access by emergency services, health inequalities, capacity, and financial impact. Most responses set out concerns regarding quality of service and timely access to treatment as the main reasons for opposing the reduction in the number of centres. The word cloud below highlights the key words used in the narrative responses for this question. For those who supported the proposed reduction, the main reasons for this were time to treatment and improving access for acutely unwell patients.

The most frequent term mentioned was “time to treatment” and this was included in 418 out of 591 narrative responses received. The second most prevalent statement in the

narrative responses to this question was regarding quality and concerns were raised regarding the potential for increased likelihood of morbidity or mortality due to the travel time to access treatment.

However, as part of the commissioning plan, modelling work was undertaken to ensure that the optimal time to treatment guidelines were met by the proposed number of commissioned providers. This modelling sets out that 6 centres in geographically dispersed locations would be able meet these guidelines. Further discussions with HM Coastguard highlighted that for helicopter transfers from sea or from land are not greatly affected by distance due to the speed the craft fly at. The greater issue for air transfers is access to a helipad on site to expedite admission to the service and avoid land transfer from a helipad which is not on the same site as the hyperbaric oxygen therapy centre. When comparing the service model currently in place in Scotland, there is one centre in Aberdeen which serves the majority of the coastline of the country and a second centre in Orkney which treats low-acuity patients from this archipelago.

Concerns regarding capacity to meet demand during seasonal increases in diving activity was mentioned by 81 respondents to this question. However, based on the current busiest provider activity volumes, the centre treats one patient per week, which suggests that there is sufficient capacity across fewer centres to meet very significant increases in activity at any location. The service specification was updated to include a statement that providers must prioritise emergency referrals over retreatments to ensure patients are able to access the service based on acuity and need.

A breakdown of the themes by respondent role is set out below:

	Current service provider	Potential service provider	Hyperbaric clinician	Clinician (other)	Professional association (eg British ..	Patient (current or former)	Member of the diving community	Member of the public	Other
Time to treatment	6	1	13	7	3	42	295	39	12
Quality	4		9	3	2	27	199	18	4
Indication	2		3	2	1	9	57	5	6
Capacity	2			1		5	55	15	3
Finance	4		2	1	1	5	39	8	3
Health inequalities			3	2		6	37	14	
Coastguard / emergency services	2		1			1	29	7	
Acuity	3		2	2		1	4		1

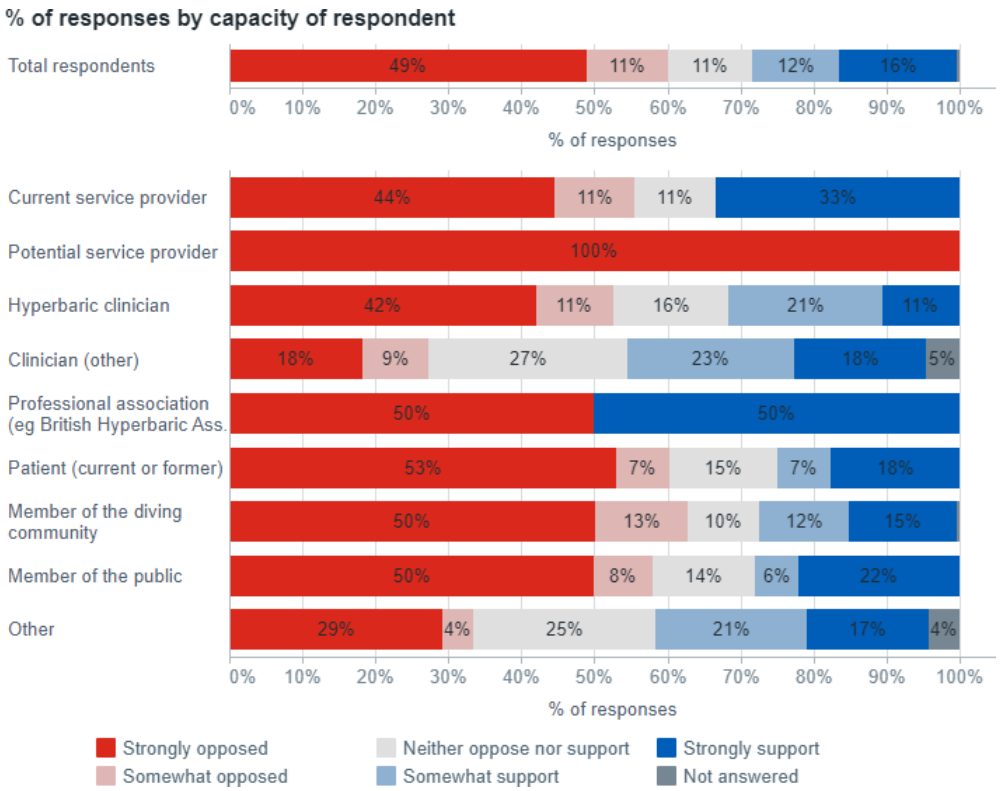
Although the majority of consultation responses received did not support our proposal to reduce the number of centres from 8 to 6 no evidence was presented to suggest this reduction would be in any way unsafe or compromise the quality of patient care. As the commissioner of these services NHS England needs to consider the wider issue of value for taxpayers of the money spent across its whole portfolio of 150 specialised services and the quality-of-care patients receive if clinicians do not perform procedures regularly.

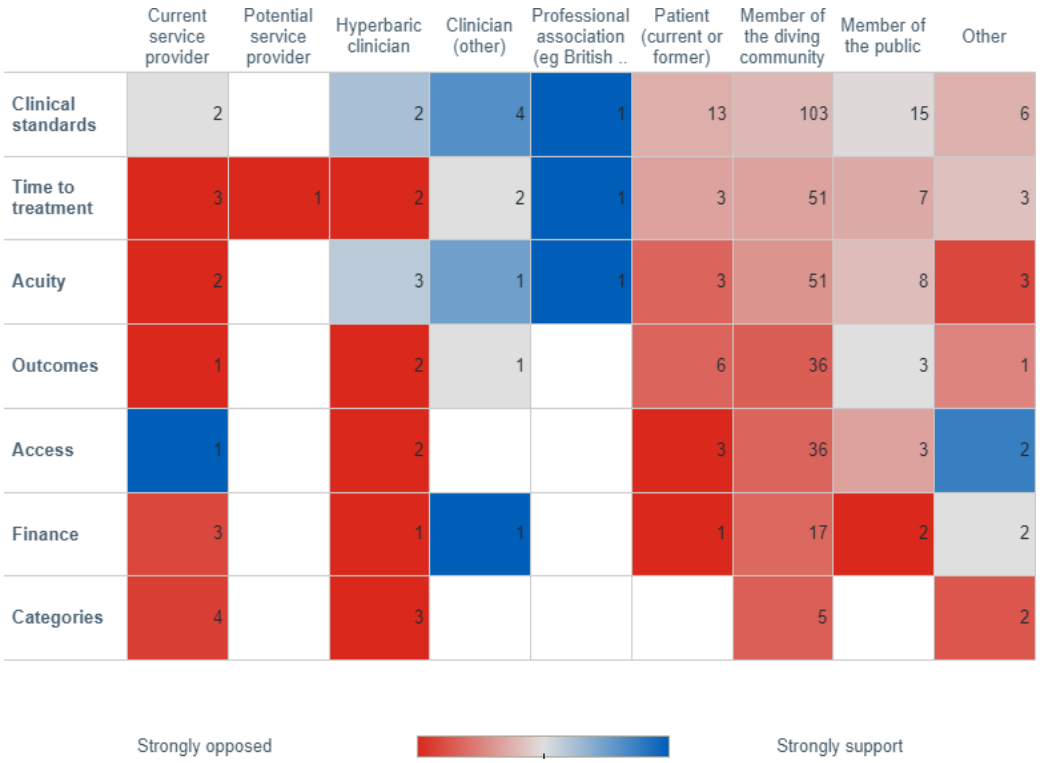
After careful consideration of all the responses we have therefore decided to continue with our proposals to reduce the number of centres from 8 to 6 but have added requirements

into the service specification to ensure system resilience and capacity through the prioritisation of initial emergency treatments and the pathway description that patients should be referred to the nearest commissioned hyperbaric oxygen therapy centre to provide further reassurance for the diving community about timely access, safety and quality of these services.

3.2.3 Question 2: The revised service specification sets out that providers must be able to treat critically ill patients. The aim of this change is to ensure all providers are operating to the same clinical standards, have the same referral and acceptance criteria, whilst reducing avoidable variation in timely access to appropriate care. To what extent do you agree that the change to the service specification meets this aim?

Again, most respondents opposed this change, however the narrative responses are largely explaining an opposition to the reduction in the number of centres from 8 to 6.

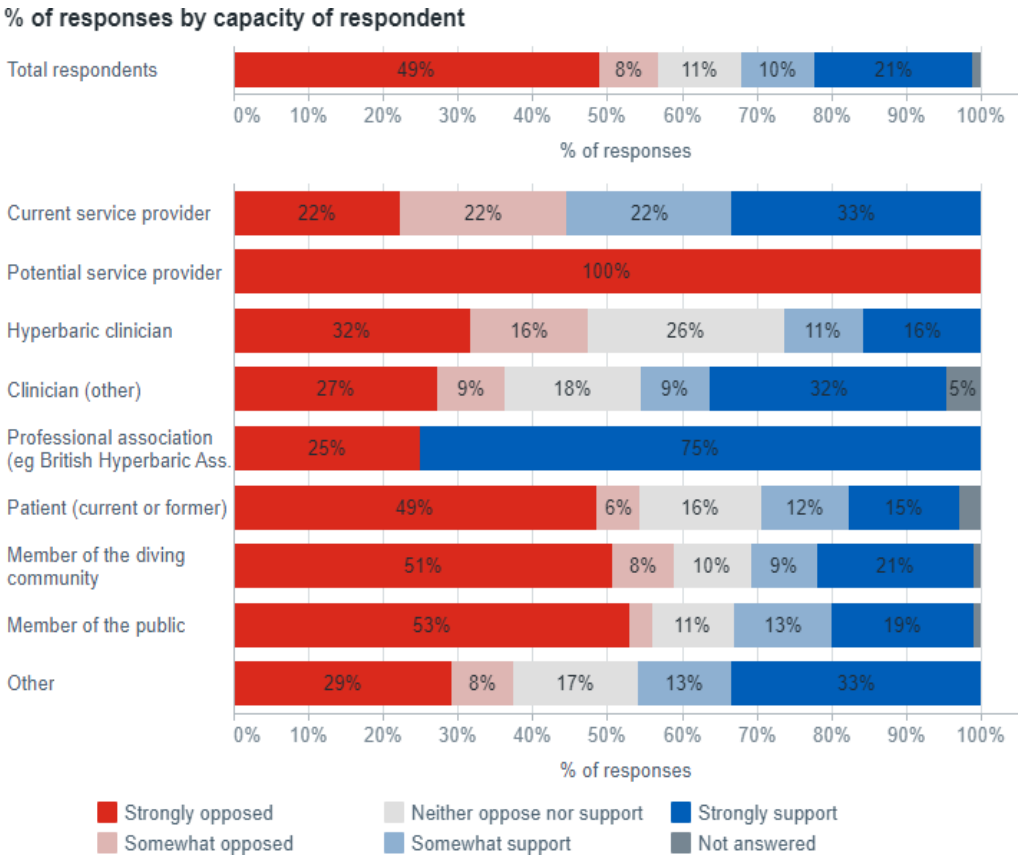


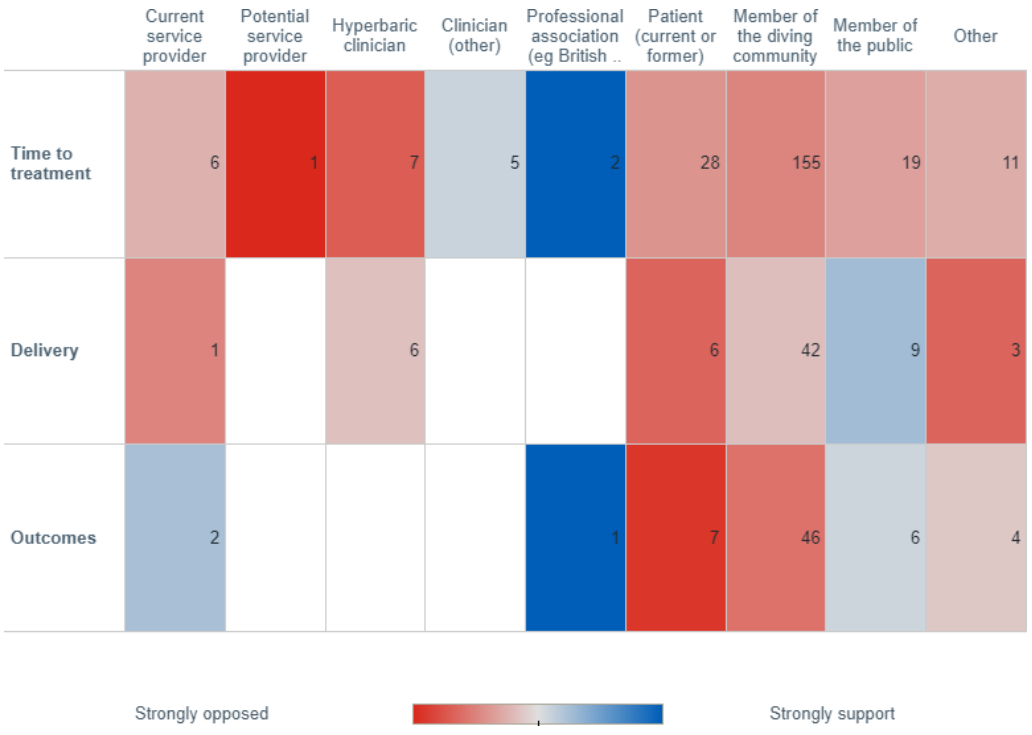


There were fewer opposing responses to this question, with those who supported the proposal citing reasons of improving access, improving time to treatment, and improving clinical standards.

3.2.4 Question 3: The revised service specification sets out that transfer to the hyperbaric facility closest to the patient place of presentation is the typical pathway. The aim of this is to ensure timely access to treatment in line with best practice guidelines. To what extent do you agree that the change to the service specification meets this aim?

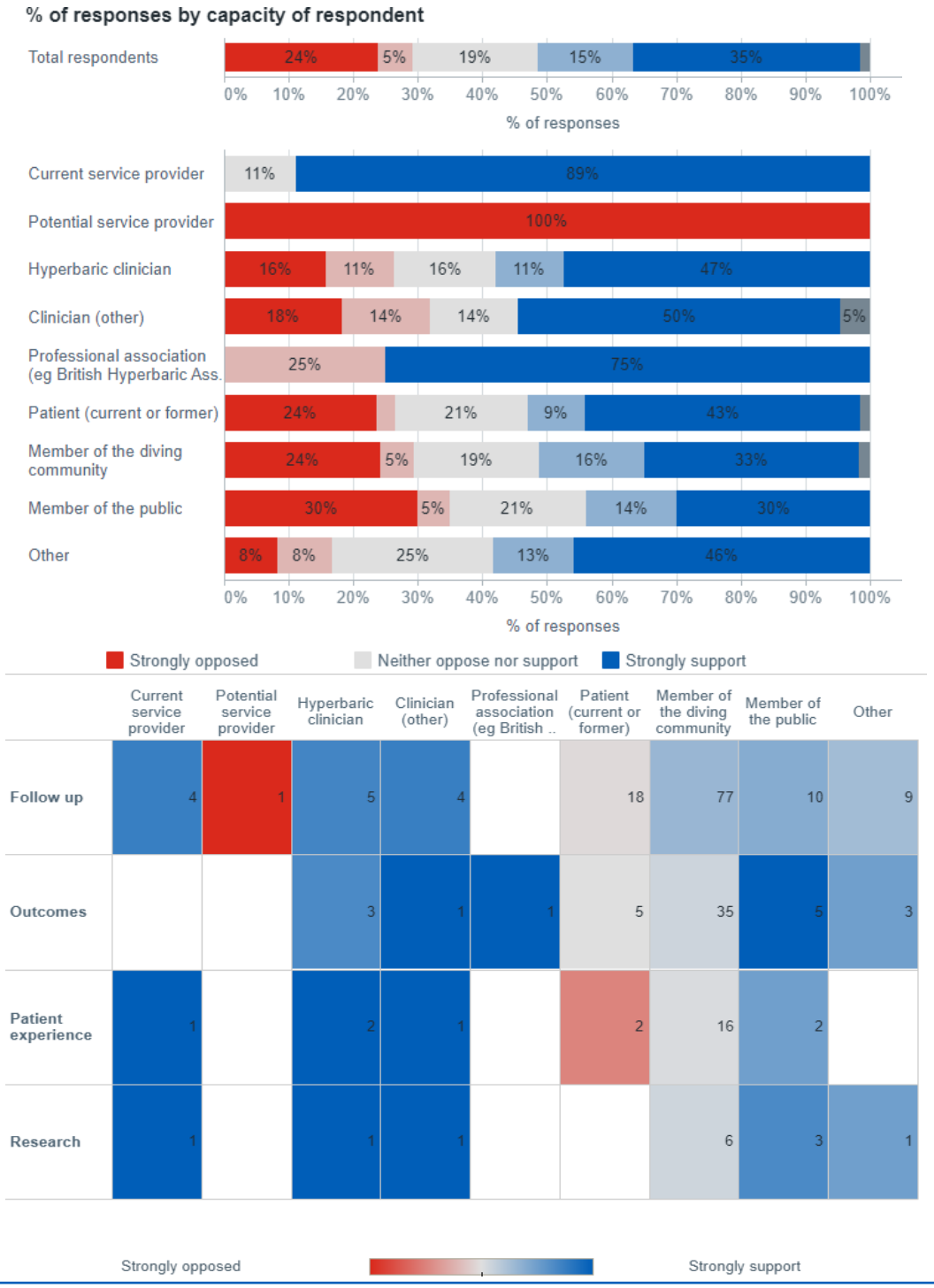
There were 913 responses to the scaling question and 287 responses to the narrative supporting information question. The breakdown of responses to this question was more in support of this change than previous questions, however narrative response themes largely cited the reduction of the number of centres as the main concern.


% of responses by capacity of respondent
Total respondents
49%
8%
11%
10%
21%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
% of responses
Current service provider
22%
22%
22%
33%
Potential service provider
100%
Hyperbaric clinician
32%
16%
26%
11%
16%
Clinician (other)
27%
9%
18%
9%
32%
5%
Professional association (eg British Hyperbaric Ass.
25%
75%
Patient (current or former)
49%
6%
16%
12%
15%
Member of the diving community
51%
8%
10%
9%
21%
Member of the public
53%
11%
13%
19%
Other
29%
8%
17%
13%
33%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
% of responses
Strongly opposed
Somewhat opposed
Neither oppose nor support
Somewhat support
Strongly support
Not answered


Current service provider
Potential service provider
Hyperbaric clinician
Clinician (other)
Professional association (eg British ..
Patient (current or former)
Member of the diving community
Member of the public
Other
Time to treatment
6 1 7 5 2 28 155 19 11
Delivery
1 6 6 42 9 3
Outcomes
2 1 7 46 6 4
Strongly opposed
Strongly support

3.2.5 Question 4: The revised service specification sets out that all patients should be offered a follow-up review within 2-3 months of completing HBOT and as part of this a standard qualitative outcome tool should be completed. The aims of this are to ensure monitoring of long-term outcomes for patients. To what extent do you agree that the change to the specification meets this aim?

There were 909 responses to the scaling question and 178 narrative responses. Most respondents were supportive of this proposed change, citing reasons including patient experience, improving outcomes and research potential. For those who did not support this proposal reasons included patient experience and the potential for long-distance travel to attend this appointment.



4. Impact of Engagement

Following a comprehensive review of the feedback from stakeholder testing further action where appropriate was taken to update the service specification wording and the associated documentation. The comments received via stakeholder testing are appended to this document.

A further subsequent update of the service specification was undertaken based on feedback received via the public consultation. Additionally, a review of the associated activity forecasts, the procurement strategy and further discussions were undertaken to test and validate the proposed options against the feedback received.

No change has been made to the proposed reduction in centres from 8 to 6.

5. How has feedback been considered?

Responses to engagement have been reviewed by the Specification Working Group and the Trauma PoC with some edits made to the service specification to improve clarity.

The full detail of the feedback and changes made are included in appendix 1.

6. Has anything changed in the service specification as a result of the stakeholder testing and consultation?

Yes, edits were made to the service specification proposition as a result of feedback received. The service specification change form is appended to this report.

7. Are there any remaining concerns outstanding following the consultation that have not been resolved in the final service specification?

No.

8. What are the next steps including how interested stakeholders will be kept informed of progress?

The service specification proposition, change form and associated documents will be published as part of the full methods process.

Appendix 1: Stakeholder feedback and responses

Feedback received	SWG response	Resulting action
The closest hyperbaric facility may not necessarily be the most appropriate. If the closest hyperbaric facility has no track record of regularly treating ICU patients on a regular basis, then they may be considered as unsafe! The typical pathway would be to advise presentation to the nearest acute NHS-hospital based hyperbaric facility.	Level 2: issue has already been considered. The current service model means that some units are not able to treat ICU patients and therefore will never gain or maintain competency in this level of care. The aim of the updated service specification is to reduce variation and ensure all chambers are able to provide timely access to all patients in a safe way. The service specification sets out that providers should be co-located or in close proximity to ICU facilities and there should be SLAs and shared governance arrangements in place.	No update required
It would appear to me that a stand-alone hyperbaric facility or perhaps one operating in a non-acute private hospital setting with no immediate access to ICU and supporting services cannot operate to the same clinical standards as an acute NHS hospital-based hyperbaric facility. Furthermore, it is entirely possible for a category 1 registered and NHS England funded chamber never (or perhaps very rarely) to have ever admitted any ICU patients, and accordingly not have the necessary experience or skills to safely treat these patients. With patient safety in mind, commissioning with category 1 facilities 'In-name-only' should therefore be avoided. The service spec allows for an alternative appraisal option to that carried out by the British Hyperbaric Association. If considered, this should be a UK-based appraisal organisation with knowledge and experience of NHS care standards, rather than a commercial USA-based organisation.	Level 2: issue has already been considered. Category 1 providers are also able to provide category 2 levels of care. Therefore, this does not represent a significant change to the delivery of the service and there is a positive impact on equity of access and reduction in variation of standards of care by implementing this change. Level 2: issue has already been considered. It is important that all providers are appraised using the same standard, irrespective of the organisation appraising the service.	None required
The proposal not to commission with category 2 chambers is a significant potential change to the delivery of the national emergency service. The statement in the EIHA summary is therefore wrong. If any of the currently commissioned providers are unable to achieve cat 1 status, then there is the potential for longer travel times for patients should NHS England chose not to commission with these providers.	Level 2: issue has already been considered. The service will still provide category 2 care for patients who require this. The service specification does not specify the number of providers, it sets out the standards and guidelines to which the service must be provided.	No further action.
Yes. read the draft service specification. Strongly agreed with all proposed changes agree with EHIA.	No further comment	none
The nearest hyperbaric chamber may not have the necessary expertise to treat critically ill, ventilated, divers or gas embolism cases. The cost and energy required to train and employ anaesthetists to cover the hyperbaric unit 24/7 is significant. Many of these patients are challenging and the patient could easily be declined as too ill to treat in the hyperbaric chamber. Some of these cases will be acceptable to a unit which has gained experience over many years to deal with such patients.	Level 2: Issue has already been considered. All commissioned providers will be required to offer treatment against the standards defined in the service specification and demonstrate quality of care to any patient irrespective of casemix acuity.	None

Feedback received	SWG response	Resulting action
Although there are several reports of satisfactory outcomes after the delayed treatment of gas embolism, the general consensus is that treatment within 6 to 7 hours has a better chance to have a good outcome. From personal experience in our unit, we have found the best outcome if treatment can be offered within four hours. For this reason, it is essential that every unit should have the capability and willingness to treat these cases. Alternatively, a robust helicopter transfer service should be in place to take patients to the smaller number of units that regularly treat these cases.	Level 1: incorporated into draft document Noted, specification to be updated to define optimal time to treatment is within 6 hours of symptom onset wherever feasible	Service specification to be updated.
We currently have a 30-day follow-up which we invariably succeed in doing. Implementing a further follow-up 2 to 3 months after completing HBOT could be instituted.	Level 2: issue has already been considered. Noted	None
Basic hyperbaric training as well as ongoing training is clearly essential in the subspecialty where critically ill patients are often managed. Continuous experience in treating these cases is as important as the basic training. Most of our doctors have completed a bespoke level II ECHM/ EDTC training course. We have a robust system of MDT and supervisory support for all new cases. The medical director of the unit has been awarded a level 3 certification and provides continuous education for the team. Each team member has continued regular exposure to clinical cases and regular the beliefs about critically ill patients provide ongoing training. All the doctors in our unit are senior clinicians with more than 10 years' experience in anaesthesia, critical care, and emergency medicine.	Level 2: issue has already been considered. Noted	None
Strongly agreed with the revised service specification sets out that transfer to the hyperbaric facility closest to the patient place of presentation is the typical pathway. This is, of course, promotes the best outcomes for patients. This is how patients are transferred now though, so unsure what this change really is. If, however, the aim of the further changes to the service specification is to reduce the number of chambers in operation, then this will have a severe and negative impact on the outcomes for patients. Strongly agreed with the revised service specification sets out that providers must be able to treat critically ill patients (cox 1 facility).		
Qualitative outcome tool at follow-up: We already do this. Although I am surprised this is not already carried out at all chambers. It should be standard practice.	Level 2: issue has already been considered. Noted	None.
Treatment for DCI rarely (if ever) requires access to critical care, so this level of care is only relevant to AGE patients. Currently there are approx. 10 cases per year and the new spec. claims this may be under-reported. NHS England should not be commissioning an expensive critical care service based on so little information. A nationwide study should be conducted to further understand how many AGE patients there actually are. Once this is understood, it would be more likely that NHS England would fund training and procedural change to stop AGE rather than fund its treatment with its historically poor outcomes. NICE must look at the quality-of-life indicators vs price to treat AGE patients.	Level 2: issue has already been considered. Noted We acknowledge whilst rare, the service needs to be able to provide treatment to any appropriate patient irrespective of acuity. The service is commissioned for DCI and for AGE and as such should be able to provide treatment irrespective of patient acuity.	None

Feedback received	SWG response	Resulting action
If NHS England really wants to promote the treatment of AGE, they would also have to look at the individual chambers ability to reach the treatment and gas management depths required. There is no mention of a chambers ability to reach 6ATA pressure or treat with mixed gas, both critical if NHS England genuinely want to raise the level of standard of care. Being able to treat DCI on deep air tables or with mixed gas is critical if a high-level service is sought.	Level 2: issue has already been considered. The service specification defines the **minimum** chamber capability of being able to deliver oxygen at 2.8ata. There a lack of robust data supporting the use of deeper 6ATA treatment tables or the use of mixed gas treatment tables. (Mitchell SJ. Decompression illness: a comprehensive overview. Diving and hyperbaric medicine. 2024 31 March;54(1 Supp):1−53. Page 32 - 36)	None
The service spec asks for a chamber to be “co-located or close to critical care.” No chamber is currently co located and “close” needs defining, as does what exact critical care support is required.	Level 1: incorporated into draft document to enable the sharing of resources supported by agreed clinical governance arrangements)	None
Current commissioning budgets will not fund this change to the service spec. Anecdotal evidence would suggest it costs at least £1.6 million - £2 million plus to provide critical care in a chamber. My experience in hyperbarics indicates that even at this level, the cover is patchy at best. Is NHS England prepared for this large increase in budget? Or is this actually an exercise in further reduction in service to fewer providers?	Level 4: out of scope. Funding is out of scope of the specification.	Specification wording revised.
Under 7.4 "essential staff groups" the critical care physician is described as having "experience of delivery of critical care in the hyperbaric environment" How would this be possible with such low patient numbers? To cover 24/7 critical care would require either two or three permanently employed critical care doctors: or 8-12 on rotation. How would these doctors become experienced in hyperbarics with such low patient numbers? This is impossible to achieve.		None
7.4 Medical director - insisting that the MD is either a GP or specialist should be removed, or a grandfather clause inserted. This adds nothing to the role. NHS England should make hyperbaric physician a specialty in its own right.	Level 2: issue has already been considered. The essential staff groups set out the accountability and overall clinical governance responsibilities for the service. The mandating of the medical director to be post CCT is to ensure an appropriate level of expertise and responsibility and is in line with other NHS services where a post CCT doctor has overall responsibility.	None
It is my belief that the CAT1 change to the specification is only being introduced in an attempt to further rationalise the current service and number of chambers. Furthermore, the HBO clinical lead (and author(?)) of the CRG is MD of a commercial chamber and the CRG could be in contravention of the Public Contracts Regulations 2015: Principles of procurement	Level 4: Out of scope. All current commissioned providers were invited to join the specification working group and comment on draft documentation. All specification working group members completed conflict of interest forms.	None

Feedback received	SWG response	Resulting action
"18(1) (2) (3) Prior involvement of candidates or tenderers 41(1) (a) (b)	The HBOT clinical lead has been appointed by NHS England to fulfil the requirements of the role. Conflicts of interests have been declared in an open and transparent manner.	None
The proposed changes will not improve the timely access to treatment. On the contrary, they will delay/restrict patients access to the service, so only a few chambers, if any, will be able to meet the CAT1 level of care.	Level 2: issue has already been considered. The service will still provide category 2 care for patients who require this. The service specification does not dictate the number of providers, it sets out the standards and guidelines to which the service must be provided.	None
Intensive care capability has been indeed necessary, but only for a small number of cases over the years. Intensive care capability is not routinely necessary for the currently approved indications for treatment. The majority, probably more than 99% of cases, require only a standard treatment and are resolved without these capabilities. CAT1 will come with extremely high price tag for a service that has historically routinely provided care for decompression Illness. Most providers will struggle with the new arrangements and will be forced to cease operation, leading to an even more restricted service and suspected discrimination in favour of select few. Reduced number of chambers will mean that patients will need to travel long distances. In most cases, they need several retreats. In that sense, the existing arrangements work much better in the patients' interest, ensuring better accessibility and timely delivery of care. The raises the question whether CAT1 level of care is really necessary and how realistic it is to achieve it.	Level 2: issue has already been considered. Noted. Level 4: out of scope. The number of providers and the funding for the service is outside of scope of the specification. Level 2: issue has already been considered. Whilst only a minority of patients require ICU, the majority of gas embolism patients do require ICU care and should have equitable access to appropriate treatment irrespective of patient acuity.	None None None
Outcome tool at follow-up: It is reasonable to make sure that the treatment has been effective. Patient feedback is always very important for service improvement	Level 2: issue has already been considered. Noted.	None
The proposed CAT1 capability suggests that there are new approved indications for HBOT treatment that would require that all chambers have critical care capabilities. The document reveals that the existing indications (decompression Illness and arterial gas embolism (AGE)) remain unchanged, which raises the questions of why this significant upgrade is necessary now. In my experience, being fully involved with hyperbaric and diving medicine for decades, 99% of the patients did not require this level of care. There is potentially a higher number of unreported AGE cases, but it is worth looking into the actual numbers before committing to transforming a service for cases that are currently less than 10 a year. A point that needs to be considered seriously is that the whole document seems to be the brainchild of a single individual, the current BHA president, who also happens to be the NHS clinical lead for hyperbaric in the UK (unelected position), AND is also a medical director of one of the hyperbaric facilities in the country. There is a conflict of interest, as the whole document is biased with the sole purpose of eliminating and reducing the number of chamber providers in the country. None of	Level 2: issue has already been considered. The indications for HBOT are not subject to review within the service specification. There are no new approved indications for HBOT at this time. Clinicians are welcome to submit requests for policy reviews based on any new evidence following standard NHS England processes. Level 4: Out of scope. All current commissioned providers were invited to join the specification working group and comment on draft documentation. All specification working group members completed conflict of interest forms.	None None

Feedback received	SWG response	Resulting action
the other representatives of the hyperbaric community in the country have been consulted on the proposed changes.	NHS England has appointed the HBO clinical lead to fulfil the requirements of the role. Conflicts of Interests have been declared in an open and transparent manner.	
The proposed document will severely limit an already restricted access to care for the patients that need it the most. Reducing the number of chambers will also further cut down the number of physicians involved, additionally marginalising the industry, and pushing it into a decline.	Level 4: out of scope. The service specification does not dictate the number of providers but the standards of care and facilities to be provided.	None
CAT 1 capability will be also extremely difficult to achieve and maintain 24/7, as it is not quite clear how an already strained intensive care system will be able to cope with an additional patient load.	Level 2: issue has already been considered. The updated specification is not expected to increase the number of individuals requiring critical care, but to ensure all chambers are operating to the same standards of provision.	
There is no clarity on how the hyperbaric providers will engage and co-operate with nearby intensive care units.	Level 4: out of scope. This is an operational issue for service providers to ensure there are appropriate clinical care pathways in place.	None
CAT1 will come with an extremely high price tag for a service that has historically provided routine care exclusively for decompression Illness.	Level 4: out of scope. Funding is out of scope of the specification.	None
Staff training. In house training to the same standards of ECHM-ETDC needs to be recognised as a valid alternative pathway, as proposed by the BHA. There are not enough physician training courses in the country.	Level 2: issue has already been considered. Page 6 of the service specification sets out the learning outcomes, but not the course provider.	
Also, there is no clarity whether the additional critical care physician needs to be permanent member of staff.	Level 4: out of scope. Terms and conditions of employment are outside the scope of service specifications.	
Physician training and medical director. Experience and work in the field of diving and hyperbaric medicine should be a priority. Hyperbaric treatment requires in depth specialised knowledge and experience to provide adequate care to patients. Consultant level qualification in another specialty, ie psychiatrist or GP, with no prior experience in hyperbaric and diving medicine is not a suitable alternative for the position. Grandfather rights after a significant number of years in the industry should be an accepted alternative. According to ECHM-ETDC this is 8 years of full immersion in the field.	Level 2: Issue has already been considered. Physician training and medical director – the updated service specification defines appropriate training for a hyperbaric physician and that the medical director needs “appropriate experience in diving and hyperbaric medicine.” Level 4: out of scope. It would be the GMC/Royal Colleges rather than NHSE to recognise hyperbarics as a distinct clinical speciality.	

Feedback received	SWG response	Resulting action
Another alternative will be to recognise the hyperbaric specialty on its own.		
Strongly agree with this change. Improving access to HBOT for patients suffering from iatrogenic gas embolism should be very high priority as these patients have dramatically better neurological outcomes if treated promptly. It also removes the need for a patient transfer from one HBOT provider to another in the case of a patient deteriorating. It is important that consideration is given by the commissioning team that currently some cox 1 providers do not actually have the capability of caring for critical care patients reliably. It should also be noted that providing 24-hour critical care capability is expensive. Currently there does appear to be a disconnect between the existing service specification and what is provided in some areas, and this was highlighted by some comments in the working group. The new service specification helpfully clarifies equipment and staff requirements but there needs to be a mechanism through procurement and monitoring that providers commissioned to provide critical care are actually able to do so reliably. One way of achieving this may be recording cases of iatrogenic gas embolism patients referred but not treated using the redcap registry, which can be reviewed regularly by the CRG.	Level 2: issue has already been considered. Noted Level 2: issue has already been considered. The aim of the updated service specification is to reduce variation and ensure all chambers are able to provide timely access to all patients in a safe way.	None None
There is a need for follow up for all patients. Using a standardised qualitative tool for monitoring and audit is very appropriate. Some patients will require follow up soon as treatment is completed (perhaps the next day) but others will require it later. Having a backstop at 2-3 months seems very appropriate. Presumably, this would be additional to the follow up around time of discharge rather than replacing it. The advantage of 2-3 months for completion of an outcome measure is that many patients continue to improve with rehabilitation etc, and so immediate outcome measures would miss this.	Level 2: issue has already been considered. Noted. Yes, this is covered in the specification. Noted	None
Agree that the proposed service specification does not make any changes which impact groups with protected characteristics or those who experience health inequalities. Section 6 – Evidence. Time to treatment is not explicitly referenced in the service specification but reasonably justifies the change to requiring all providers to be cox 1. The meta-analysis regarding gas embolism outcomes which is included is an appropriate reference and gives support to the argument that for iatrogenic gas embolism rapid time to treatment (which usually requires critical care capability) improves outcomes. There is no reference to time to treatment for decompression illness in the service specification, so the HSE document is potentially less relevant.	Noted Level 1:iIncorporated into draft document Noted, specification to be updated to define optimal time to treatment is within 6 hours of symptom onset wherever feasible	 Service specification to be updated.
The proposed service specification clearly sets out what is expected of a provider. There is little material change, only clarification. As a provider meeting the service specification in its entirety, I welcome the removal of vague statements (eg “or	Level 2: issue has already been considered. Noted.	None

Feedback received	SWG response	Resulting action
equivalent") which were open to liberal interpretation and explicitly support some clarifications: Service aims: • supporting education and prevention initiatives – providers are well positioned to do this, and it is entirely appropriate for providers to have a remit beyond simply treating patients after an injury • support the return of the service user to their pre-injury level of function (and return to diving assessment) – this should be a normal part of a complete and holistic care Outcomes • it is excellent that the HBOT registry (Redcap) continues to be used and supported by the NHS delivering high quality data for NHS outcome monitoring, audit, and quality improvement • replacement of the SSQD dashboard with the registry would allow data to be only entered once, reducing resource requirement and improving data quality Service Model • I support all providers being cox category 1 • 10 treatments or alternative - Maintaining competency by real world experience rather than simulation is preferable for high quality care. The NHS has long recognised the risks of low volume work. At DDRC we are committed to maintaining the competency of each chamber staff member by them completing at least 10 patient compressions per year. This maintains high standards and adheres to European standards • BHA appraisal or alternative –the alternative was added because a provider disagreed with their BHA appraisal. Unfortunately, this was not resolved by addressing the fundamental safety concerns but by allowing the provider to seek alternative means and developing a 2-tiered system. nb BHA appraisal provides advice for improvement and is not a "pass / fail" system • some providers have consistently demonstrated a reluctance to meet the latest engineering standards. This is difficult to justify for NHS-commissioned facilities. We would support further efforts towards audit using independent auditors to ISO / IMCA D023 / BS EN 14931 standards. DDRC undergoes an annual ISO 9001;2015 audit which is helpful Essential staff groups • medical director – very appropriate the person in overall charge clinically should be post CCT and trained to EDTC/ECHM standards • training of hyperbaric physicians – there is no agreed draft for the BHA proposed "core competency in diving medicine," more than 3 months		

after the meeting to develop it. The requirement for training to EDTC/ECHM standards was explicit in the 2018 service specification but not adhered to by many providers utilising doctors with no formal qualifications in diving medicine. My concern is that referring to this (as yet incomplete) document will not elevate standards; I currently favour stating that doctors must complete externally accredited and formally assessed training meeting EDTC / ECHM competencies. Interdependent services • Co-located or at the very least close to Adult Critical Care services - this allows sensible and pragmatic planning to ensure patients receive high quality critical care. At DDRC we have found advantages to being directly adjacent to (but not within) an NHS hospital. It allows certainty in delivering our contracted NHS service as there is no pressure on space unlike an equivalent hospital facility, allowing greater flexibility and more floorspace to invest in and develop the service. Being a short walk from our neighbouring ICU means we can utilise their resources in uncommon scenarios of unusual or exceptional need. This proximity brings resilience This part of the service specification recognises there are different ways to achieve high quality care, but most important by far is a proven and formalised close working relationship with an NHS ICU.		
1. The option to treat patients at greater depths facilitated by mixed gases (eg helium/oxygen mixes) can lead to better outcomes (patient and cost) and reduced re treatment episodes. Major decompression sicknesses and some treatment resistant DCIs (vestibular) can benefit from this option with quicker resolution of symptoms. 2. The availability of a hyperbaric doctor to respond to patients' needs and monitoring should not be judged by `being on site` but by response time to a call for help. My response time from offsite location is 7-10minutes compared to a large hospital on site response time being longer	Level 2: issue has already been considered. The service specification defines the **minimum** chamber capability of being able to deliver oxygen at 2.8ata. There a lack of robust data supporting the use of deeper 6ATA treatment tables or the use of mixed gas treatment tables. (Mitchell SJ. Decompression illness: a comprehensive overview. Diving and Hyperbaric Medicine. 2024 31 March;54(1 Supp):1−53. Page 32 - 36) The expectation is that being-on site means that the doctor is able to continuously monitor and evaluate the response to treatment and act immediately. The doctor being present onsite is a requirement of the 2018 service specification so is not a change.	None
No guidance on actual timeline expectation (for treatment commencing)	Level 1: incorporated into draft document Noted, specification to be updated to define optimal time to treatment is within 6 hours of symptom onset wherever feasible	Service specification to be updated.

Due to low cases of CAT 1 is there a need for all the chambers to be CAT 1? There is a high cost of achieving this level for the service provider for so few cases. Is the NHS going to increase their tariffs to make this suggested service achievable?	Level 2: issue has already been considered. The aim of the updated service specification is to reduce variation and ensure all chambers are able to provide timely access to all patients in a safe way. Level 4: out of scope. Funding is out of scope of the specification.	None
Outcome tool at follow-up: Already in place so no change?	Level 2: issue has already been considered. Noted	None
Feedback Received	**SWG response**	**Resulting Action**
For so few CATS 1 cases, my suggestion would be to have so many CAT 1's and keep the CAT 2 category. As a patient myself, I was turned away from a CAT 1 facility for mild but debilitating DCI saying I wasn't bad enough, maybe their block contract wasn't going to let me to access the facilities. As a result, I still have nerve damage from that incident. I have concerns on the contract costs to the NHS and to insist CAT1 is putting extra stress on service providers if the tariff is not increased. Also, the CRG lead has a conflict of interest. How can someone who is a lead doctor	Level 2: issue has already been considered. The aim of the updated service specification is to reduce variation and ensure all chambers are able to provide timely access to all patients in a safe way. Category 1 providers are also able to provide category 2 levels of care. Therefore, this does not represent a significant change to the delivery of the service and there is a positive impact on equity of access and reduction in variation of standards of care by implementing this change. Level 4: out of scope. Funding is out of scope of the specification. Level 4: out of scope. All current commissioned providers were invited to join the specification working group and comment on draft documentation. All specification working group members completed conflict of interest forms. NHS England has appointed the HBO clinical lead to fulfil the requirements of the role.	None

of a service provider, chairman of the British Hyperbaric Association be a CRG for the NHS and contribute to the future for other service providers???? Is this service spec designed for financial failure of service providers? There are concerns in the diving industry that access to a chamber will be reduced. With Oban chamber gone 'overnight' I really hope that NHS don't put established, known chambers in a position where they need to reevaluate their existence.	Conflicts of Interests have been declared in an open and transparent manner. Level 4: out of scope. Funding is out of scope of the specification. Level 4: out of scope. The service specification does not dictate the number of providers but the standards of care and facilities to be provided. NHS England is not able to comment on the provision of services in Scotland.	
Typical pathway is treatment at closet chamber: It depends on the size of the provider network. If the number of units are reduced, then that will impact the aims detrimentally	Level 2: issue has already been considered. The aim of the updated service specification is to reduce variation and ensure all chambers are able to provide timely access to all patients in a safe way. Level 4: out of scope. The service specification does not dictate the number of providers but the standards of care and facilities to be provided.	None
Providing any treatment at all in a monoplace chamber is completely inappropriate. Twin lock chambers must be stipulated for all treatments to ensure the ability to directly intervene and provide ALS or other care if so required. Mixed gas capability with deeper treatment tables than 2.8ATA are a valuable necessary option for divers carrying out deeper dives. The Institute of Naval Medicine added a Table 67 mixed gas 30m treatment table option for just this option and providers should have the capability to utilise it when clinically indicated.	Level 2: issue has already been considered. Monoplace chambers are widely used globally and have a good safety record in appropriately risk assessed patients (Clarke R. Monoplace chamber treatment of decompression illness: Review and commentary. Diving and Hyperbaric Medicine. 2020 September 30;50(3):264–272.) The service specification defines the **minimum** chamber capability of being able to deliver oxygen at 2.8ata. There a lack of robust data supporting the use of deeper 6ATA treatment tables or the use of mixed gas treatment tables. (Mitchell SJ. Decompression illness: a comprehensive overview. Diving and Hyperbaric Medicine. 2024 31 March;54(1 Supp):1−53. Page 32 - 36)	None