

# Hyperbaric Medicine Unit

## Quality Report

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This report describes our judgement of the quality of care at this location. It is based on a combination of what we found when we inspected and a review of all information available to CQC including information given to us from patients, the public and other organisations

### Mental Health Act responsibilities and Mental Capacity Act and Deprivation of Liberty Safeguards

We include our assessment of the provider's compliance with the Mental Capacity Act and, where relevant, Mental Health Act in our overall inspection of the service.

We do not give a rating for Mental Capacity Act or Mental Health Act, however we do use our findings to determine the overall rating for the service.

Further information about findings in relation to the Mental Capacity Act and Mental Health Act can be found later in this report.

### Overall summary

Hyperbaric Medicine Unit is operated by QinetiQ Group Plc. The service has one static Type A decompression chamber with an arched doorway into the main chamber to make access easier for patients. The unit is a category one facility, which allows for patients requiring intensive care support to be treated within the chamber. The chamber can accommodate five people sitting or two lying down or three sitting and one lying down.

Facilities include a two bedded clinical assessment area, helicopter landing site to allow for HM coastguard or air ambulance to quickly transfer patients to the unit and critical care support.

We inspected this service using our comprehensive inspection methodology. We carried out the announced part of the inspection on 27 February 2018. Due to the nature of the service, we did not conduct an unannounced inspection.

To get to the heart of patients' experiences of care and treatment, we ask the same five questions of all services: are they safe, effective, caring, responsive to people's needs, and well-led? Where we have a legal duty to do so we rate services' performance against each key question as outstanding, good, requires improvement or inadequate.

# Summary of findings

Throughout the inspection, we took account of what people told us and how the provider understood and complied with the Mental Capacity Act 2005.

## Services we do not rate

We regulate hyperbaric oxygen therapy services but we do not currently have a legal duty to **rate** them when they are provided as a single specialty service. We highlight good practice and issues that service providers need to improve and take regulatory action as necessary.

We found the following areas of good practice:

There were excellent processes and procedures for ensuring the delivery of safe, effective, high quality care. A range of standard operating procedures existed. Importantly, staff were well-versed and knowledgeable about the content of the operating procedures.

The service was staffed and supported by a range of health-care professionals who were competent and knowledgeable.

Patients were carefully risk assessed before they commenced therapy sessions. A comprehensive pre-assessment review was undertaken during which risks and benefits of therapy were discussed, as well as addressing queries and concerns raised by patients and their relatives.

The unit was visibly clean and well maintained.

Whilst there had been no incidents reported during the preceding twelve months, staff were well aware of their roles and responsibilities in regards to the reporting of, and learning from incidents.

There existed a flat hierarchy, which promoted a mutual respect amongst all health professionals. Individuals knew about their own professional accountabilities and responsibilities but they were also respectful of the roles of others within the team.

The management team promoted an open culture within the service allowing for staff to be candid with one another. There was a focus on learning and service enhancement and improvement.

The Hyperbaric Medicine Unit was a centre of research and was striving to participate in as many research opportunities that capacity and time allowed. There was recognition of the role research played in regards to hyperbaric therapy, especially in the case of elective patients who were referred with chronic conditions.

The service was responsive to the needs of its patients. The environment was fit for purpose with reasonable adjustments having been made to ensure the needs of the whole population could be met.

However,

The provider should look to further enhance its management of risk by ensuring areas such as risk assessments are routinely reviewed and considered within the team governance meeting.

The provider should look to extrapolate service level information from the staff engagement survey to enable exploration of any themes or trends, which may be applicable to the Hyperbaric Medicine Unit.

Amanda Stanford

Deputy Chief Inspector - Hospitals, London and South (Interim)

# Summary of findings

## Our judgements about each of the main services

### Service

#### Hyperbaric Therapy Services

### Rating Summary of each main service

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## Summary of findings

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# Summary of findings

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# Hyperbaric Medicine Unit

**Services we looked at**

Hyperbaric Therapy Services

# Summary of this inspection

## Background to Hyperbaric Medicine Unit

Hyperbaric Medicine Unit is operated by QinetiQ Group Plc. The service opened at its current location at St Richards Hospital in 2010. Whilst the chamber is owned and operated by QinetiQ Plc, the Ministry of Defence funds the provision of the service in support of military diving activities in the United Kingdom.

The main function of the service is to provide acute decompression treatment to naval personnel. However, the unit is also used for the treatment of a range of conditions including but not limited to:

Air or gas embolism

Carbon monoxide poisoning

Enhancement of healing in selected problem wounds

Necrotizing soft tissue infection

Delayed radiation injury

Whilst main funding for the service is by way of Ministry of Defence contracts, a number of treatments are also funded by the National Health Service (NHS).

The Hyperbaric Medicine Unit registered with the Care Quality Commission on 1 October 2010 and is registered to provide the following regulated activity:

Treatment of disease, disorder or injury

The service has had a registered manager in post since 15 November 2013.

## Information about Hyperbaric Medicine Unit

During the inspection, we visited the Hyperbaric Medicine Unit. We spoke with six staff including; registered nurses, medical staff, senior managers (including the Nominated Individual) and also with the lead representative from the Ministry of Defence responsible for overseeing service provision. We spoke with five patients and one relative. During our inspection, we reviewed five sets of patient records.

There were no special reviews or investigations of the service ongoing by the Care Quality Commission at any time during the 12 months before this inspection. The service has previously been inspected two times, and the most recent inspection took place in January 2014 which found that the service was meeting all standards of quality and safety it was inspected against.

### Activity

- In the twelve months prior to the inspection, 15 elective patients were treated, resulting in 550 treatments at pressure. 11 emergency patients (diving disorders requiring compression) were treated resulting in 20 treatments at pressure and 2 other emergency patients were treated, resulting in 4 treatments at pressure.

The most common elective hyperbaric treatments provided were:

Radiation proctitis 36 treatments

Radiation cystitis 118 treatments

Radiation tissue damage 21 treatments

Osteoradionecrosis 68 treatments

Problem chronic wound 310 treatments

Necrotising soft tissue injury 4 treatments

Elective hyperbaric treatments were provided Monday – Friday between the hours of 9am and 1pm..

The service is staffed to ensure it can provide emergency treatment at twenty four hours per day, seven days a week.

Four doctors are currently employed under practising privileges, One doctor is employed full time and two are employed part time as formal substantive employees. Three supervising chamber operators are substantively employed full time, one part time and four employed by way of zero hour contracts. Five chamber attendants are

# Summary of this inspection

employed full time, two part time and three on zero hour contracts. One nurse is employed full time and two part time. The service is supported by 7.5 whole time equivalent engineering and support staff.

The service did not hold controlled drugs and so there was no requirement for an accountable officer for controlled drugs to be appointed.

Track record on safety during the preceding twelve months:

- 0 Never events
- 0 reported clinical incidents
- 0 deaths
- 0 serious injuries

0 incidences of hospital acquired Meticillin-resistant Staphylococcus aureus (MRSA),

0 incidences of hospital acquired Meticillin-sensitive staphylococcus aureus (MSSA)

0 incidences of hospital acquired Clostridium difficile (C.diff)

0 incidences of hospital acquired E-Coli

0 complaints

## **Services accredited by a national body:**

- British Hyperbaric Association Accredited

## **Services provided at the location under service level agreement:**

- Clinical and or non-clinical waste removal
- Interpreting services
- Pharmacy
- Laundry
- Imaging and diagnostics
- Safeguarding support
- Maintenance of medical equipment

# Summary of this inspection

## The five questions we ask about services and what we found

We always ask the following five questions of services.

### Are services safe?

We do not currently have a legal duty to rate hyperbaric oxygen therapy services where these services are provided as an independent healthcare single speciality service.

- There was a process for reporting incidents. Whilst staff had not reported any incidents during the preceding twelve months, staff were aware of their responsibilities. Staff were able to describe events which would likely constitute an incident, in line with local policy.
- There was an active culture of learning from when things had gone wrong in the past. There was evidence the service had learnt from serious incidents. Examples included the recruitment of clinical specialists with a background in intensive care, so the service could review its provision of category one critical care. There was a focus on ensuring that where incidents were reported, they were investigated impartially, with an emphasis placed on quality and service improvement.
- The clinical environment was clean and well maintained. There was appropriate levels of equipment which had been assessed as being safe for use within a hyperbaric chamber.
- Patients underwent rigorous pre-assessment checks to ensure they were fit to commence hyperbaric oxygen therapy. Daily health checks were undertaken of all patients to ensure they remained fit for therapy.
- There were sufficient numbers of skilled staff to ensure safe delivery of care.

### Are services effective?

We do not currently have a legal duty to rate hyperbaric oxygen therapy services where these services are provided as an independent healthcare single speciality service.

- Staff used national and international evidence based policies and treatment protocols. There was a process for reviewing treatment protocols to ensure they were delivered in-line with national standards.
- The nutritional needs of patients were assessed and managed. Referral processes existed to enable timely referral where concerns regarding individual nutritional needs were identified.
- There were systems in place for assessing and responding to patients needs in regards to pain management.

# Summary of this inspection

- Patient outcomes were in line with, or better than national benchmarks.
- Staff were highly skilled and competent, with some staff having undertaken additional courses such as wound management to help support patients with chronic wounds.
- Staff were aware of the importance of seeking informed consent from patients.

## Are services caring?

We do not currently have a legal duty to rate hyperbaric oxygen therapy services where these services are provided as an independent healthcare single speciality service.

- Staff were compassionate and they maintained the privacy and dignity of patients.
- Staff had sufficient time to provide emotional support to patients.
- Patients were encouraged to be involved in the planning and delivery of their care, with staff playing a pivotal role in supporting patients to be independent.

## Are services responsive?

We do not currently have a legal duty to rate hyperbaric oxygen therapy services where these services are provided as an independent healthcare single speciality service.

- The provider had ensured the environment was fit for purpose and had been suitably adapted to meet the needs of the population.
- Although patients were clinically prioritised for admission, patients reported minimal delays in commencing therapy once they had been referred in to the service.
- The provider had systems and processes in place for meeting the individual needs of patients. This included the development of processes for assessing patients with complex health needs, via support from clinical specialists from the host NHS trust.
- Whilst there had been no formal complaints received during the preceding twelve months, the provider was able to demonstrate how they had sought feedback from patients so they could further improve the service.

## Are services well-led?

We do not currently have a legal duty to rate hyperbaric oxygen therapy services where these services are provided as an independent healthcare single speciality service.

# Summary of this inspection

- There was a clear management structure which ensured consistent leadership from clinical specialists.
- A flat hierarchy enabled staff to critically challenge one-another in a positive way to further enhance the quality and safety of the service.
- Staff described working in a setting which promoted candour and openness.
- There were arrangements in place for assessing quality and for managing risk. Further developments in how risk management was undertaken should be considered by the provider, however, in the main, staff were aware of the fundamental challenges they faced and of the mitigations in place to address those challenges.

## Detailed findings from this inspection

# Hyperbaric Therapy Services

Safe	
Effective	
Caring	
Responsive	
Well-led	

## Are hyperbaric therapy services safe?

We regulate this service but we do not currently have a legal duty to rate it. We highlight good practice and issues that service providers need to improve and take regulatory action as necessary.

### Incidents

- Whilst there had been no incidents reported within the preceding twelve months, staff were able to describe their roles and responsibilities in regards to the reporting of incidents. Staff could describe how lessons had been learnt from historical incidents. Examples included an overall improvement in the provision of critical care services which was now led by a named Consultant who had been recruited following a serious incident. Additionally, improvements in how information governance was considered when completing discharge summaries so that personal confidential information was protected and not inadvertently shared with external parties.
- There was a triplicate process for the reporting of incidents. Initially, staff were required to report incidents directly on to an electronic incident reporting system. The system was hosted and maintained by the hosting NHS acute trust, with which the provider had a service level agreement in place. Incidents were also reported using the QinetiQ incident reporting system. Thirdly, for incidents which involved Ministry of Defence (Ministry of Defence) personnel or patients, staff were required to report the incident on the relevant Ministry of Defence incident reporting system.
- All reported incidents, were referred back to the Medical Director and Registered Manager at the Hyperbaric Medicine Unit for investigation and root

cause analysis where applicable. Incidents were also independently reviewed by the Head of Site and also by the Compliance and Assurance Manager within QinetiQ. Where incidents involving Ministry of Defence personnel occurred, a memorandum of understanding existed between the Ministry of Defence, QinetiQ and the host NHS acute trust which allowed for relevant information to be shared, in line with Data Protection Act requirements; this allowed for a more robust process of investigation and for the dissemination of lessons learnt across three organisations.

- There had been no reported never events between January 2017 – February 2018. (Never events are serious, wholly preventable patient safety incidents that should not occur if the available preventative measures have been implemented. Reported never events could indicate unsafe practice).
- Regulation 20 of the Health and Social Care Act 2009 (Regulated Activities) Regulations 2014 is a regulation introduced in November 2014. This Duty of Candour regulation requires the organisation to notify relevant persons (often a patient or close relative) that an incident has occurred, to provide reasonable support to the relevant person in relation to the incident and to offer an apology.
- We saw that there was a process in place for ensuring that where relevant incidents may potentially occur, the regulatory requirement to ensure regulation 20 was discharged existed. Due to the fact that no such incidents had occurred in the preceding twelve months, we were not able to fully assess the provider's compliance with this regulation in its entirety. However, staff were able to describe the requirements of the regulation and also of their roles and responsibilities.

### Cleanliness, infection control and hygiene

# Hyperbaric Therapy Services

- There had been no reported healthcare acquired infections reported during the preceding twelve months.
- All patients referred for treatment within the chamber underwent screening of Meticillin resistant *Staphylococcus aureus* (MRSA). Where MRSA was identified as part of pre-treatment screening, the provider liaised with the infection control team at the local trust to ensure sufficient safeguards were implemented to help mitigate against cross-contamination. A review of five patient records confirmed that this process was in place and operating effectively.
- There were protocols in place for appropriate cleaning and decontamination of the chamber and treatment environment. The clinical assessment area and chamber were both visibly clean. Checklists demonstrated that routine cleaning took place. Staff used specially sourced, non-flammable cleaning solutions within the chamber to reduce the risk of fire within the chamber, whilst also ensuring surfaces and equipment was sufficiently decontaminated.
- To further reduce the risk of fire, the provider had appropriate protocols for ensuring skin could be sufficiently decontaminated before invasive procedures took place (in emergency situations) within the chamber.
- Personal protective equipment was readily available. We observed staff decontaminating their hands at regular intervals and all staff were observed to be following bare below the elbows best practice.
- Representatives from the local acute trust infection control team conducted regular infection control audits, for which we reviewed the results. The most recent audit (September 2017) recorded an overall infection control audit result of 91%; where areas were not found to be fully compliant, it was clear from our visit that action had been taken to address issues including improved labelling of general and clinical waste bins, new needle injury posters and cleaning of the staff fridge.
- Results from a patient questionnaire completed between January 2017 – July 2017 reported that 80% of patients considered the unit to be very clean. 20% of patients did not answer the question.

## Environment and equipment

- There was a robust process for ensuring that action relating to medical equipment received by way of central clinical alerts was taken in a timely way.
- There were detailed, planned, and preventative maintenance schedules available for review during the inspection. Annual health checks of the compression chamber and relevant mechanical plant equipment was undertaken. Risk assessments were in place and were reviewed at least annually to ensure the environment and equipment was sufficiently maintained.
- A service level agreement was in place which ensured that all medical devices were serviced annually. There was provision for more thorough servicing to be carried out by manufacturers where required, for example for the ventilators used within the chamber to support critically ill patients. The provider had sourced two new chamber compatible ventilators therefore ensuring that when planned or emergency maintenance of one ventilator was needed, a back-up device was readily accessible.
- QinetiQ had a very low risk approach when purchasing medical devices and equipment which could be used in the chamber. An offsite laboratory thoroughly tested all new equipment to ensure it was safe for use in the chamber. Some staff reported that whilst it was appropriate to have such safeguards in place, the testing process could sometimes lead to delays in equipment being replaced or upgraded.
- Fire-fighting equipment was readily available and an automated fire suppressant system was in place; these were serviced on an annual basis. A specific fire risk assessment was in place. Fire alarms were tested weekly in line with provider policy.
- Relevant insurance and indemnity certificates were available and valid at the time of the inspection. Pressure test certificates were displayed within the unit.
- There was sufficient equipment available to support category one critical care patients; equipment included updated patient monitoring systems, ventilators, invasive therapy devices and appropriate chamber rated trolleys.

# Hyperbaric Therapy Services

## Medicines

- The provider had a service level agreement in place for the supply of medicines from the hosting trust. The Hyperbaric Medicine Unit had a stock list agreed between the medical and deputy medical director and the senior pharmacist. Medicines were then requested from pharmacy via a stock list and delivered via hospital porters in a sealed green bag. The medicines were received and added to the Hyperbaric Medicine Unit drugs cabinet then added to the stock list. Drugs for disposal were returned to the trust pharmacy for disposal. Resuscitation drug boxes were supplied and maintained by the trust pharmacy.
- Medicines were stored in line with regulatory requirements, including the appropriate refrigeration of items where necessary.
- Regular audits of medicines were carried out by the Registered Manager. A review of the audits confirmed that stock levels of medicines were as they should be and that expiry dates had been checked.
- The Hyperbaric Medicine Unit had two sealed cardiac arrest boxes so that in the event of an emergency, sufficient supplies of medicines were available (there is a risk that during compression, glass medicine ampoules may rupture and so replacements were readily required).
- Doctors in the unit were required to undertake the relevant e-prescribing training before they could be afforded access rights to prescribe medicines within the Hyperbaric Medicine Unit setting.

## Records

- Medical records were maintained in line with QinetiQ policy. The provider retained all medical records which were directly attributable to the delivery of hyperbaric therapy.
- Staff reported the gold standard was to move towards an integrated care record which could be accessed by both local National Health Service acute trust staff and QinetiQ staff (where patients were inpatients of the trust). As an interim measure, where patients were also receiving inpatient care at the trust, all notes made during therapy sessions were photocopied and stored in the patients hospital notes.

- The Registered Manager carried out routine audits of medical records to ensure they complied with the provider policy. Audits reviewed whether staff were carrying out the routine referral assessment; that consent had been recorded; discharge letters had been completed and sent to the referring medical practitioner; information was shared with relevant agencies where applicable; information was transferred to relevant agencies where applicable; and that medical notes were completed, signed and legible. Routine quarterly audits demonstrated that in the main, medical notes were compliant with the provider's policy however, there were areas which could be improved such as ensuring staff wrote in black ink or clearly listed their role or designation for example.
- We reviewed five sets of medical notes/ patient records during the inspection. Each set of notes contained comprehensive pre-assessment risk assessments which had been fully completed in each case. These detailed pre-assessments included any pre-existing medical histories, general health and well-being checks; assessment of skin integrity and nutritional status and any contraindications which may prevent a patient from being able to undergo hyperbaric oxygen therapy.

## Safeguarding

- All staff we spoke with understood their roles and responsibilities in regards to safeguarding vulnerable people. Whilst the provider had not routinely treated children, all staff had undertaken both level two and level 3 child safeguarding training. All staff had also completed adult safeguarding training in line with provider requirements.
- Staff were able to describe the escalation protocols which were aligned with the safeguarding policy for the local acute NHS trust and were included as part of a service level agreement between the two providers.

## Mandatory training

- A programme of mandatory training confirmed which training each member of staff was required to undertake. This included manual handling, fire safety and infection control. In addition, QinetiQ had additional mandatory training which included health

# Hyperbaric Therapy Services

and safety awareness and refresher training, export controls, cyber awareness and business ethics (a one off course). All staff had completed these training modules at the time of inspection.

## Assessing and responding to patient risk

- All elective patients referred for treatment underwent a comprehensive pre-assessment screening programme to assess their eligibility for treatment. Assessment of previous medical conditions, current health condition, consideration of any contra-indications, and likelihood of successful treatment were reviewed and recorded within the patient notes. Where contra-indications were identified, patients were referred back to their treating physician advising them that hyperbaric oxygen therapy was not possible.
  - Patients were reviewed by a named consultant or medical practitioner before each treatment session. These reviews were recorded and included general well-being, any complications experienced following the patients previous treatment session; blood sugar level (for specific cases), pulse oximetry (oxygen saturation of blood), blood pressure and spirometry (assessment of how well the lungs work). These checks helped to assess whether the patient was clinically fit for therapy. Patients were also assessed following their therapy and before they were discharged at the end of each session to ensure any complications could be addressed.
  - There were systems and processes in place for managing medical emergencies whilst patients were undergoing active oxygen therapy at pressure. Staff rehearsed clinical scenarios on an annual basis. This included consideration of the most common types of medical emergencies including disorientation, pneumothorax and ear damage. Staff had access to standardised clinical protocols which were located within the chamber room. Staff demonstrated a good understanding of clinical protocols.
- employed on a full time basis. Allocation of staff was assessed by the Medical Director and Registered Manager. Where individual patient needs had recognised additional support during hyperbaric therapy, additional support was provided within the chamber. Each therapy session was supported by a chamber supervisor, chamber attendant and/or nurse and a medical practitioner.
- Where category one (care of patients requiring critical care support) treatment was required, treatments would only be provided when suitably trained and competent medical practitioners were available. There was provision for ensuring patients could be referred to alternative services if sufficiently trained staff were not readily available. No therapy sessions had been cancelled in the preceding twelve months as a result of sufficient staff being available,
  - Turnover of staff within the service remained exceptionally low during the preceding twelve months with only one doctor and one chamber assistant having left the service. Four new members of staff joined the service during the same time period.
  - There had been no reported sickness during the preceding twelve months.
  - An expert diving doctor was rostered to be on-call twenty fours per day, every day of the week. If a junior doctor was first on-call then there was provision for a more senior doctor to be second on-call to provide on-site backup.
  - The provider employed five hyperbaric medical practitioners who were qualified to work independently and who had worked with the unit for at least 12 months. One further practitioner had recently achieved independent status with a further six at various stages of training and so required supervision.
  - All medical practitioners in training worked for at least three months under the supervision of one of the medical practitioners who held full practising privileges. If a doctor did not have a General Medical Council licence to practise compatible with independent practice (such as an entry on the GP

## Staffing

- The service employed a range of health professionals to support the provision of hyperbaric oxygen therapies. Due to the flexible nature of the service, a number of staff were employed via part time or zero hour contracts, whilst a small number of staff were

# Hyperbaric Therapy Services

Register or the Specialist Register) they would continue to have a nominated medical practitioner with full practising privileges rostered to support them with an obligation to attend in person if required.

- In addition, there were four medical practitioners in the team who had extensive experience in diving and hyperbaric medicine, any one of whom could be contacted by telephone. Among these was the Medical Director of the Hyperbaric Medicine Unit and the Head of Diving Medicine at the Institute of Naval Medicine who each were contactable at all times when in the UK.
- 100% of patients reported in a patient satisfaction survey dated January 2017 – July 2017 that there was always sufficient numbers of staff on duty.

## Emergency awareness and training

- The provider had standard operating procedures in place to manage emergency scenarios including fire, power loss, unplanned decompression and other technical emergencies, as well as emergencies of a clinical nature. The operations manual included details of how to undertake procedures including, but not limited to loss of consciousness, cardiorespiratory arrest, pneumothorax, pulmonary oxygen toxicity and decompression illness in both patients and staff.
- The service undertook emergency scenario training annually in which staff rehearsed clinical and mechanical emergency situations including emergency decompression for example.

## Are hyperbaric therapy services effective?

(for example, treatment is effective)

## Evidence-based care and treatment

- A range of national, international and military based treatment protocols existed. Whilst there were a number of different therapy protocols available, the medical team opted to use only a small number of generic protocols so they could ensure consistent therapies.
- Staff had access to standard operating protocols, which were aligned to the standards mandated by the

British Hyperbaric Association. There was representation of the service at the British Hyperbaric Association and so where changes to treatment protocols or best practice guidance occurred, these changes could be considered and adopted at a local level within the Hyperbaric Medicine Unit.

- A records audit was conducted on a regular basis to ensure that people's needs had been appropriately assessed and that care had been planned and delivered in line with national standards. The service had considered and implemented an amendment to the protocol for reaching treatment depth within the given time scale that had led to a reduction in the number of cases of baro-trauma being reported by patients. The clinical team clinically assessed patients before and after each therapy session to ensure they were not experiencing any clinical symptoms associated with the risks of hyperbaric oxygen therapy. The medical director was able to review each patient and each therapy session to ascertain whether any complications had been experienced and to ascertain whether any amendments to treatment protocols were required.
- Because the service was a recognised category 1 chamber, and therefore contracted to provide critical care services, QinetiQ had employed two medical practitioners who were competent and experienced to provide intensive care support and advice. There were sufficient operating protocols in place to ensure the service complied with relevant guidance from the Royal College of Anaesthetists in regards to the provision of care to ventilated patients. Where rotas did not allow for category one treatments to be provided, there were local and national arrangements in place to ensure patients were referred to the most appropriate clinical setting.
- There were arrangements in place for ensuring category 1 patients were admitted to a relevant clinical setting (critical care) before they were accepted by the Hyperbaric Medicine Unit. In addition, there existed protocols for ensuring patients were referred to appropriate clinical teams such as the surgical team in regards to the management of necrotising fasciitis for example. We saw evidence of these arrangements being in place and functioning appropriately at the time of the inspection.

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## Pain relief

- There were arrangements in place for staff to assess patient's pain levels before, during and following therapy sessions. Patients we spoke with during the inspection reported the staff was proactive in managing their pain levels.
- Oral pain medications were readily accessible. Where appropriate, patients were encouraged to self-administer analgesia before their therapy session had commenced as it was recognised by staff that some patients were likely to be at risk of experiencing some pain during therapy sessions.
- There was a protocol in place for ensuring patients were referred back to their referring consultant or to a specialist team where long term changes to analgesia were necessary.

## Nutrition and hydration

- Elective patients were able to access water whilst they were receiving therapy in the chamber. Where patients were identified as being at risk secondary to underlying medical conditions such as diabetes, nursing staff undertook blood sugar monitoring before patients commenced therapy. There were operating protocols in place for managing such patients and we saw that these were enacted at the time of the inspection.
- As part of the initial assessment of needs, patients were assessed against national risk assessment tools in regards to their skin integrity and nutrition and hydration risks. A review of patient notes demonstrated that nutritional hydration risk assessments had been undertaken in each of the five cases we reviewed. There were good examples of escalation where staff had recognised patients had lost weight during the course of their therapies.

## Patient outcomes

- Hyperbaric Medicine Unit reported clinical outcomes to NHS England via the Specialised Services Quality Dashboard for Hyperbaric Oxygen Therapy. 15 areas of data were submitted quarterly to the dashboard and included: mortality rates within 30 days of treatment, percentage of exposures associated with avoidable illness or injury attributable to hyperbaric therapy;

improvement in patient quality of life self-assessment from prior to treatment to three months post treatment and also the number of patients who developed refractive changes as a result of treatment.

- A review of data suggested the performance of the Hyperbaric Medicine unit was in line with or better than national standards in all metrics assessed. A number of standards were reported as null because the question had not been applicable, such as in the case of 30 day mortality; number of exposures associated with adverse events and percentage of exposures associated with avoidable illness or injury as a result of treatment.

## Competent staff

- There were robust processes in place for ensuring staff were competent to deliver a safe and effective service. All staff were subject to a probationary period in which they were trained and competency assessed. We saw evidence of competency assessments being completed for all staff with clear feedback being provided to individuals to help them further develop their skill set. There were arrangements in place for ensuring medical practitioners had appropriate support. We saw that whilst some junior medical staff were supporting the on-call rota, there was provision for additional support by way of a competent senior medical practitioner who was required to provide on-site support out of hours for all cases received by the unit.
- There were opportunities for staff to access professional development courses including wound management for which two nurses had been trained.
- To support the category 1 provision of the service, two nurses held recognise intensive care qualifications, with one member of staff also opting to continue to work clinically within the critical care setting so as to remain competent.

## Multidisciplinary working

- There was strong working relationships amongst the various health professionals working both within the Hyperbaric Medicine Unit and within the local NHS acute trust Service level agreements existed which ensured staff working within the Hyperbaric Medicine

# Hyperbaric Therapy Services

Unit could access support services and allied health professionals such as safeguarding leads, resuscitation teams and critical care teams as patient needs determined.

- There was clear clinical direction from the medical practitioners working within the unit. However, our observation of one therapy session was that there was recognition across all members of the team that no one person was less important than another and that each person recognised their roles and responsibilities.
- Holistic assessments of patient needs were consistently communicated across the clinical team members. The patients we spoke with reported how impressed they had been with the fact clinical members of the team were well versed with their individual health needs. This therefore reduced the burden on patients to persistently repeat their clinical histories to members of the medical team.
- Minutes of team meetings revealed attendance was from across all health professionals, which further supported the concept of a strong multi-disciplinary team approach.

## Access to information

- The clinical team recognised that a move towards an integrated electronic patient record would help improve the transfer of patient information with all health professionals involved in the delivery of a patients care.
- As an interim measure, all therapy sessions and patient records were photocopied and placed into the in-patient record so that other clinical staff had site of treatment protocols and other clinical information.
- It was recognised via an annual patient survey that not all referring clinicians had received discharge summaries from the Hyperbaric Medicine Unit and so the Medical Director had taken action to address this. At the time of the inspection, the Medical Director was re-designing the discharge summary; clinical staff we spoke with were aware of the importance of ensuring referring clinicians were sent copies of discharge summaries.

## Consent, Mental Capacity Act and Deprivation of Liberty Safeguards

- Patients were able to describe the risks and benefits of the treatment they had consented to receive. The comprehensive pre-assessment session was used as an opportunity for staff to describe the concept of hyperbaric oxygen therapy and to allow patients to ask questions before they consented to treatment. A review of five patients notes confirmed that completed consent forms were present, detailing the risks and benefits of hyperbaric therapy. Four patients told us the staff were accessible and were happy to discuss any concerns or anxieties they may have either prior to or during their course of treatment.
- 90% of patients reported in the 2017 patient questionnaire that staff were able to answer any questions patients had. The remaining 10% reported they had no questions to ask. 100% of patients reported receiving a good level of information about their condition and treatment options, and the same percentage of patients reported they had enough information to make an informed decision. Treatment plans were clearly presented and described the course of treatment patients were scheduled to receive. Treatment plans were discussed at pre-assessment and were also re-visited prior to each course of treatment. Patients verbally consented to treatment prior to entering the chamber; this was observed during the inspection.
- Staff were able to describe the process of making best interest decisions in cases where emergency treatment was required, specifically in the case of patients who were receiving category one critical care.
- Staff were conversant with the Mental Capacity Act and relevant guidance. Whilst the service was not treating neurological conditions, the pre-assessment session was used as an opportunity to consider individuals mental capacity and to determine whether any triggers or symptoms existed that may prevent patients from making informed decisions based on diminished capability. Although patients subject to a deprivation of liberty safeguard (DoLS) order would not ordinarily be treated within the chamber due to the elective nature of the service, staff were aware of their statutory obligations towards Deprivation of

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Liberty Safeguards; the service had not made any applications pursuant to the Deprivation of Liberty Safeguard guidance during the preceding twelve months.

## Are hyperbaric therapy services caring?

### Compassionate care

- We spoke with five patients during our inspection. There was an overwhelming positive response from those we spoke with regarding the level of care and support they each received both prior to and during their treatment sessions at the Hyperbaric Medicine Unit.
- Each patient we spoke with reported they would recommend the service to their friends and family. Patients said that staff had sufficient time to speak with them as individuals and to sufficiently address any queries or concerns they had about their therapy sessions.
- Throughout our inspection we observed excellent interaction between staff and patients. Both nursing and chamber assistant staff assisted patients, with both compassion and skill. We observed professional interactions between patients and the medical practitioner. The service had adopted a holistic approach to care delivery, treating each patient as an individual.
- Patients reported that the staff went out of their way to care for them; examples included providing additional time for questions and for ensuring patients privacy and dignity was protected at all times.
- Prior to receiving or commencing therapy sessions, patients were assessed to determine whether they would likely experience claustrophobia within the chamber. Where this had been recognised, staff were able to introduce support and coping techniques to help manage individual anxieties.
- The provider undertook twice-yearly patient satisfaction surveys. The results for January 2017 – July 2017 consistently identified that staff were easily identifiable (100%); that there was enough privacy and dignity provided during examinations or treatment (100%); there was enough privacy for discussions on

individual conditions or treatment (100%) and that 70% of patients could express their worries or fears (the remaining 30% of patients stated they had no worries or fears and so the question was not necessarily applicable).

### Understanding and involvement of patients and those close to them

- We spoke with patients who were at different stages of their treatment. Each patient we spoke with described the pre-assessment process as being detailed and that each person had been given sufficient information relating to hyperbaric therapy which included the risks and benefits of the therapy.
- 100% of patients reported in the January 2017 – July 2017 patient survey that at no time, staff provided conflicting information and that 100% of patients felt involved in their care and decisions about their care.
- We observed staff liaising with patients before, during and after their therapy sessions. Both patients and their relatives were afforded opportunities to ask questions or to raise queries throughout the treatment session.

### Emotional support

- Four of the five patients we spoke with during the inspection were extremely positive regarding the emotional support they received from each member of staff they had met during their course of treatment. One patient had only recently been referred to the service and whilst they had only met a small number of staff, they reported their condition and treatment plan was well understood by staff members. This patient reported this had enhanced the confidence the individual had in the service and the people working there and felt their personal, emotional and physical needs would be met.
- Patients were encouraged to speak with staff to discuss their individual treatment plans. One patient described how their treatment plan had been amended so they could continue to work one day during the week; this patient spoke extremely positively about the impact the change in therapy had had on their emotional well-being and more importantly, they had felt empowered about managing their own health needs.

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## Are hyperbaric therapy services responsive to people's needs? (for example, to feedback?)

### Service planning and delivery to meet the needs of local people

- The Hyperbaric Medicine Unit was located on the ground floor of the hospital in which it was hosted and was centrally located near to the hospital emergency department. There was access to the critical care unit via a dedicated patient lift to allow for timely transfer of critically ill patients. The Hyperbaric Medicine Unit was a self-contained unit with two patient toilets, one that had been adapted to support patients with mobility issues or physical disabilities. There were two single-sex changing rooms with secure storage for personal items and clothes. A waiting room was equipped with patient information and advice leaflets; companions were invited to wait in this area whilst patients underwent their therapy session.
- The treatment chamber had been adapted to allow for easier access for those with reduced mobility, including those dependant on wheelchairs for example. The chamber was able to accommodate a range of patients at any one time in a range of configurations including space for two supine patients; one supine and three seated patients or five sitting patients. The unit was located near to a landing site that was large enough to allow HM Coastguard or Ministry of Defence helicopters to land to transfer patients to the unit.
- Whilst the service was commissioned by the Ministry of Defence, QinetiQ had also agreed to provide NHS funded care, from which a small fee was paid back to the Ministry of Defence on an annual basis. The service had been commissioned to provide services for fifteen years, with five years currently remaining. Representatives from the Ministry of Defence were scheduled to commence a value for money assessment of the service later in 2018 to determine the long-term future of the service. The provision of NHS funded care was determined at a national level by NHS England and took into account historical case mix and numbers of patients treated in previous years.

- At the time of inspection, NHS funded care was provided on an adhoc, individual basis for those patients meeting specific criteria. The management team provided updates to referrers on the progress of individuals to ensure the therapy remained clinically relevant. It was acknowledged by the clinical team that due to the nature and lack of formalised research in regards to hyperbaric therapy, it was not always immediately possible to determine whether patients were benefitting from the treatment. For this reason, staff undertook regular assessments of patients, including self-reported assessments of benefit, to determine the impact of treatment.

### Access and flow

- The majority of elective referrals were received from specialist doctors. The clinical team undertook an initial case review to determine the suitability of patients before patients were invited for an extended pre-assessment session with a member of the nursing staff. During the inspection we spoke with five patients. Each patient reported the waiting time between referral and commencement of treatment was acceptable and in each case, contact with the service had been made in less than four weeks.
- Feedback from those patients treated under the elective pathway during 2017 was that in five out of six cases, the length of wait for contact from referral had been less than one month. One patient reported waiting between one and two months. No patients had waited longer than this before contact had been made.
- In 2017, six patients reported the waiting time to commence therapy had been appropriate whilst one patient considered they should have been admitted sooner. The service had considered this feedback and considered cases were triaged according to clinical need and so high risk patients were prioritised. In 2017, five patients had been given a choice of start dates. This was consistent with what we found having spoken with four of the five patients receiving therapy at the time of the inspection. One patient had been commenced on therapy as a result of an acute medical condition and so was not afforded an elective start date as it was considered they should commence therapy without delay.

# Hyperbaric Therapy Services

- For the majority of elective patients, a course of treatment was recommended lasting up to eight weeks, with daily attendance being required Monday to Friday. Patients were able to describe how the provider had made amendments to their treatment regimens to allow individuals to undertake personal activities or work during the week, and had therefore adapted the total duration of treatment to accommodate such requests. This had been seen as a positive outcome for one patient we spoke with as they felt they had gained some independence and were supported to manage their own health needs.
- During 2017 no planned sessions had been cancelled.
- The service provided a 24 hour seven day a week on call service. At the time of inspection, two specialist doctors were working for the service in order that category one care could be provided. There were local and national arrangements in place for ensuring that when these doctors were not rostered to be on-call, patients requiring category one care were transferred to the next nearest hyperbaric service for treatment. As well as an on-site service being provided out of hours, specialist medical doctors were also available to provide telephone support and advice.
- The chamber and unit in general had been adapted to meet the needs of patients with disabilities. This included level access into the chamber, appropriate toilet facilities equipped with emergency pull cords and arm supports for example.
- A comprehensive, three hour pre-assessment session was mandated for all elective patients before treatment could be commenced. This allowed staff an opportunity to describe the service, the risks and benefits of therapy and to answer any concerns the patient or family may have. Our discussions with four elective patients confirmed they considered the pre-assessment session to be extremely helpful in terms of explaining the therapy. The pre-assessment took account of long-standing health needs and considered the psychological needs of patients, including those with concerns regarding claustrophobia (a fear of being in confined spaces). The service had a protocol in place for managing such cases and there existed a process of referring patients for psychological support where it was deemed to be required.
- Whilst there was no formal patient user group, three patients we spoke with reported they had had an opportunity to speak with patients who had undergone therapy and who could therefore describe what could be expected during the course of therapy sessions. This was considered as a positive by those three patients as they were able to gain first hand experiences and reflections from previous service users.

## Meeting people's individual needs

- There were arrangements in place with the host trust to support staff when patients with complex needs were referred to the service, including those with challenging behaviours as an example. The service was accessible to all patients where contra-indications were not present. We observed during the inspection that additional staff had been provided to support the needs of patients as the chamber was at full capacity with five patients, with one patient having acute complex needs. Where an assessment of needs was required because it was identified a patient was living with learning disabilities or dementia, staff would refer to the specialist nursing leads located at the local hospital, to help with the assessment. This was to allow the service to determine whether they could meet the full needs of the patient and to consider additional support measures to ensure treatment could be provided.

## Learning from complaints and concerns

- Four patients reported that due to the personal and approachable nature of staff working at the Hyperbaric Medicine Unit, there was no requirement to raise complaints as staff had been extremely responsive to their individual needs. This was further supported from feedback in the 2017 patient questionnaire in which 100% of patients reported they did not feel the need to have to complain about their care and treatment.
- In response to the 2017 patient survey in which only 30% of patients reported seeing leaflets or posters explaining how to complain, further emphasis had been placed on the information available to patients,

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including reference being made to the complaints section within the patient information pack which was provided during pre-assessment. The service had not received any complaints during the twelve months prior to inspection. We noted that there was information readily accessible to patients and relatives that described the process for raising concerns.

- The response rate for 2017 (January to July) was 77%. The management team recognised that more could be done to seek further feedback from patients. The very nature of the service meant the overall through-put of patients on an annual basis was limited. However, each patient who had received treatment at the Hyperbaric Medicine Unit had been sent a patient feedback questionnaire on completion of their therapy sessions as the service considered it important to gain the views of patients.

## Are hyperbaric therapy services well-led?

### Leadership and culture of service

- The day-to-day management of the service was by way of the Registered Manager. A substantive Medical Director and a corporate lead who was also the Nominated Individual for the service supported this post holder. In addition, a senior officer from the Royal Institute of Naval Medicine who attended the unit on a frequent basis further supported the service.
- We observed a highly professional workforce that was committed to providing high quality care to patients. During the inspection, we observed all members of the team adopting a professional and approachable manner; our discussions with patients confirmed that these behaviours and values demonstrated by staff were continuously consistent. Patients described the team as being highly knowledgeable and passionate about providing safe and effective care.
- All patients who submitted responses to the patient feedback questionnaire in 2017 reported having confidence and trust in the team. All patients reported they would recommend the service and 100% of patients rated the care they received as excellent.
- The Medical Director and Registered Manager were specialists in their fields and were committed to the service they provided. Both post holders reported

having a personal obligation for ensuring the safe running of the service and were always responsive to feedback when they received it. This ethos was seen across the team we observed during the inspection. There was mutual respect amongst each of the health professionals who were responsible for providing care on the day of the inspection. There was recognition that no one health professional was less important than another. Each member of the team was aware of their own responsibilities but also they were aware of the roles other members of the team played in ensuring the service they provide was safe and effective.

- The registered manager reported that no whistleblowing concerns or complaints from staff had been received in the preceding twelve months. However, staff were able to describe the process by which such complaints could be raised. Staff reported the culture within the unit as being open with mutual respect for one another, but for the ability to challenge team members where there was a differing of opinion or where advancements in treatments had been recognised and required to be adopted.
- Whilst there had been no reported incidents in the preceding twelve months, there was consensus amongst the team that there existed a culture of candour within the service. Staff recognised their own professional obligations and acknowledged their own accountabilities. Staff could describe historical incidents where learning had taken place and changes made without blame being apportioned to individual members of staff. This culture, as reported by staff, encouraged individuals to raise concerns as necessary.
- One commissioner of the service described the team and services provided at the Hyperbaric Medicine Unit as being “Gold standard” in terms of the delivery of hyperbaric therapy in England.

### Vision and strategy for this core service

- The vision of the Hyperbaric Medicine Unit was closely aligned to the wider values of QinetiQ, which had been launched in 2017 and were aligned to integrity, collaboration and performance.
- The ethos of the service was very much based on pursuing best practice in safety and quality. This was achieved by improving the overall service where

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internal or external assessments had recognised scope for improvement or where clinical staff had identified changes to best practice through attendance at national or international meetings.

- Staff were well sighted on the vision and strategy for the service and each member of the team reported how they had influenced the developments of the service in order that the vision was delivered.

## **Governance, risk management and quality measurement**

- A monthly multi-disciplinary team meeting, co-chaired by the Medical Director and Registered Manager took place with good, consistent attendance. The meeting had standard agenda items including risk, operational performance, health and safety, audit, research, staff development, clinical effectiveness, staffing and workforce and facilities, equipment and processes.
- Some discussion points had been repeated on a monthly basis such as the provisional verbal feedback received by the unit following an external review by the British Hyperbaric Association in November 2016. The subsequent report from the external review had been delayed. However, the service had commenced with actioning the points raised within the verbal feedback.
- External reviews were seen as an opportunity to further develop the service. There was evidence that where such reviews had taken place, the provider had responded professionally to feedback and had made amendments to protocols and procedures. Feedback from the 2016 British Hyperbaric Association accreditation visit was that some policies were not available. The management team considered that whilst procedures were in fact available, they could not be located on the day of the visit and so they revised the location and storage of protocols so they were more easily accessible.
- Whilst risk was an area for discussion, it was not clear how elements such as risk assessments were re-visited and considered by those in attendance at the governance meeting. QinetiQ employed a health and safety assessor who visited the service on a regular basis. However, a review of the monthly meetings dating from July 2017 to November 2017 listed health and safety as “No outstanding actions”.

Whilst the service had a range of risk assessments including the operation of the recompression chamber, the period for review was unclear, with the last review of the above risk assessment having taken place on 16 May 2016. Whilst the approach to risk assessment was multi-disciplinary there was no clear audit trail to describe how an annual review of the assessments, was overseen by the the governance meeting. The team meeting allowed an opportunity for staff to consider national alerts issued by organisations such as the Medicines and Healthcare products Regulatory Agency (MHRA) and to determine whether any alerts were pertinent to the Hyperbaric Medicine Unit; we saw evidence of this process being enacted within the governance team meeting.

Learning from incidents was considered and the team meeting was used as the steering group for ensuring actions were implemented and then communicated to team members accordingly. Whilst one significant incident had happened some years previously, there was evidence that continued service development and learning had continued to happen to ensure risks of a similar event happening again in the future were reduced or mitigated as much as was reasonably practicable.

## **Public and staff engagement**

- The provider acknowledged that further work was required to capture patient feedback. At the time of the inspection, there was no formalised patient representation group. However, three patients we spoke with reported they were able to speak with, and meet previous service users, prior to commencement of their therapy. The small scale nature of the service also meant that informal feedback could be considered and changes implemented immediately if the management team considered it was in the best interest of patients and the wider service.
- QinetiQ is a large multi-national organisation, employing some 5,000 staff. The Hyperbaric Medicine Unit at St Richards Hospital is the only hyperbaric chamber operated by QinetiQ and so the workforce supporting the service are niche in regards to the wider operating model of QinetiQ. Despite the small nature of the service, staff were able to describe the Employee Engagement Group who were established to represent the views of the wider QinetiQ workforce.

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A representative from the Employee Engagement Group had been asked to help support staff to bid for an increase to on-call allowances as the wider QinetiQ policy had previously not been designed for the type of on-call service provided by the team at the Hyperbaric Medicine Unit. With the input from the EEG representative, changes were made to the on-call and bank staff allowances.

- Whilst there was no local staff engagement initiative, QinetiQ undertook annual staff surveys. It was not possible from the data submitted to extrapolate the engagement scores for the Hyperbaric Medicine Unit.

## **Innovation, improvement and sustainability**

- The Medical Director was keen to further progress the research of hyperbaric therapy medicine and was continuously seeking new research programmes to

participate in. Whilst the service had participated in a range of research programmes, the data was still at the stage of being analysed and so outcomes were not immediately available at the time of the inspection.

- There was recognition that due to the elective nature of the service and extended periods of non-operational time, there was an opportunity for the Royal Navy to further utilise the rich resource of the chamber, facilities and staff knowledge to help educate naval personnel in the management of decompression sickness. Close relationships with the Institute of Naval Medicine existed with individuals looking to consider whether the service could be used as an education and training centre during operational down-time. These considerations were at an early stage at the time of the inspection.

# Outstanding practice and areas for improvement

## Areas for improvement

### Action the provider SHOULD take to improve

#### Action the provider SHOULD take to improve

- The provider should consider how it reviews risk assessments and how the output of risk assessments are considered and actioned within the team meeting.
- The provider should consider how it can extrapolate service level data from the staff engagement survey to help further improve and enhance the quality, safety and effectiveness of the Hyperbaric Medicine Unit.