Clinical Engineering Workforce Survey 2017 Interim Report

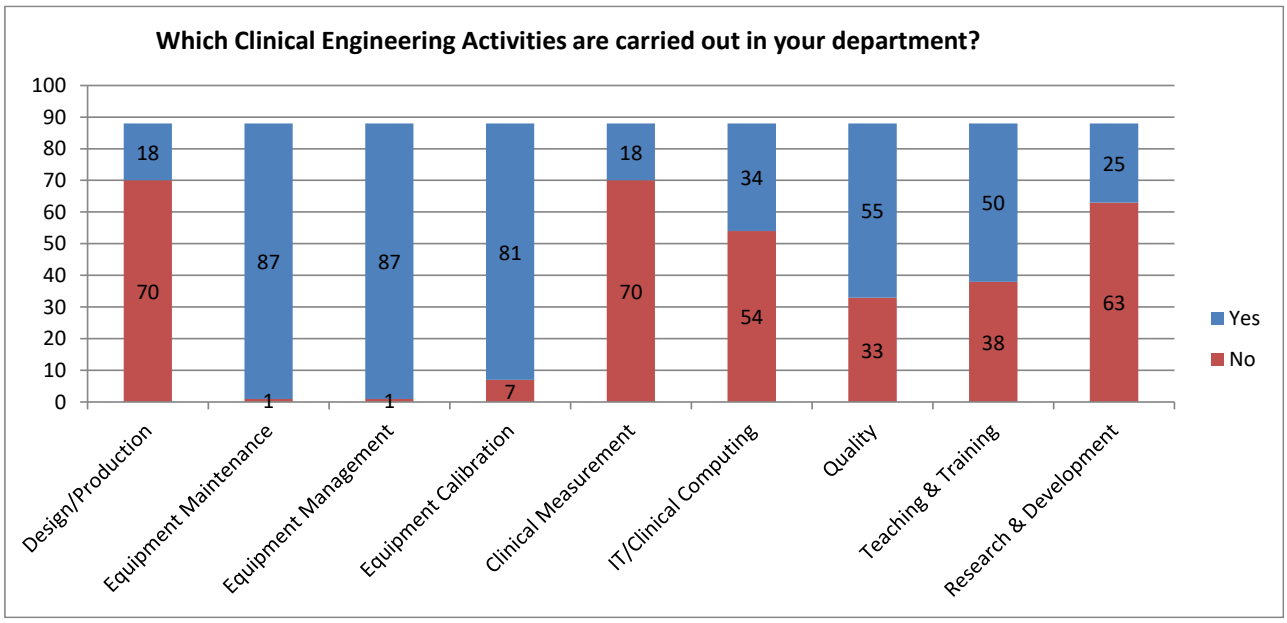
Introduction

In October 2017, the Workforce Intelligence Unit carried out a survey into the Clinical Engineering workforce (excluding rehabilitation engineering). An invitation and request to complete the survey was sent to all Heads of Clinical Engineering in IPEM's Workforce contacts database, or deputies or senior members of staff if no head had been identified at a particular Trust or Health Board. We received 88 responses, from 110 invitations sent. The survey asked a large number of questions, regarding workforce, vacancies, services provided by the department, registration of scientists and accreditation of departments.

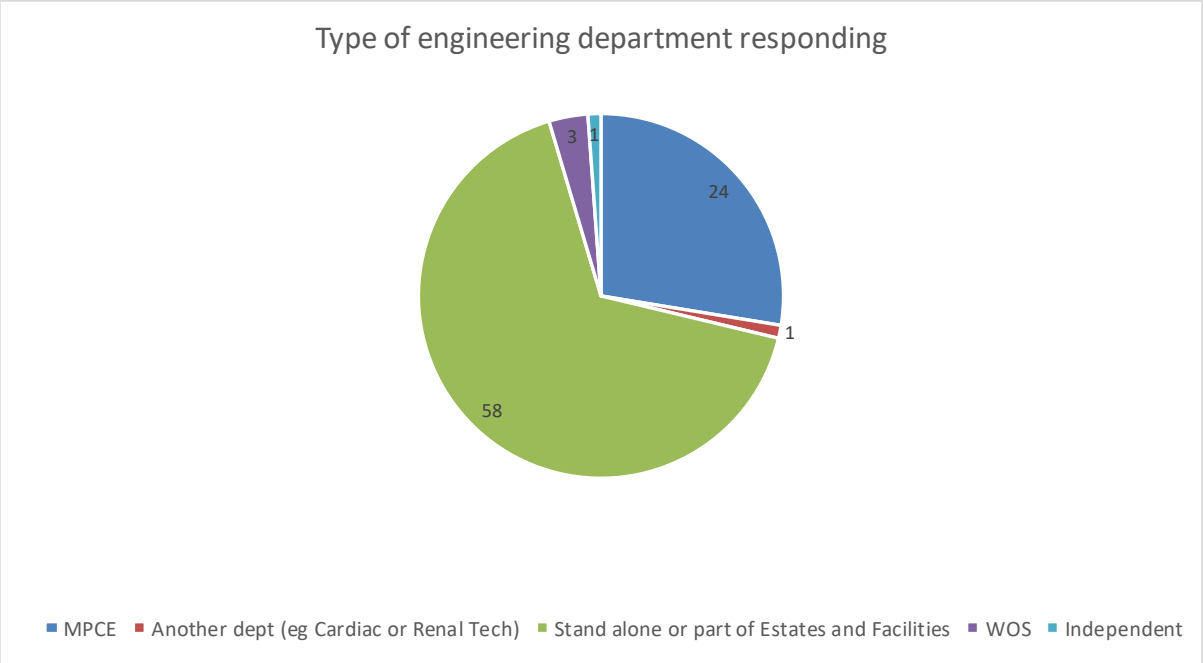
Responding Departments

All but one of the responding departments maintain equipment. The sole responding department that does not was a small, specialised service providing just equipment management and quality services, of the remaining 87, 84 provide technical support for Hospital-based Electromedical equipment, and 68 to Community Based Electromedical Equipment.

Only one of the respondents did not manage equipment, and in this instance the department was a specialised Clinical Measurement department, with Equipment management being carried out by another department in the Trust

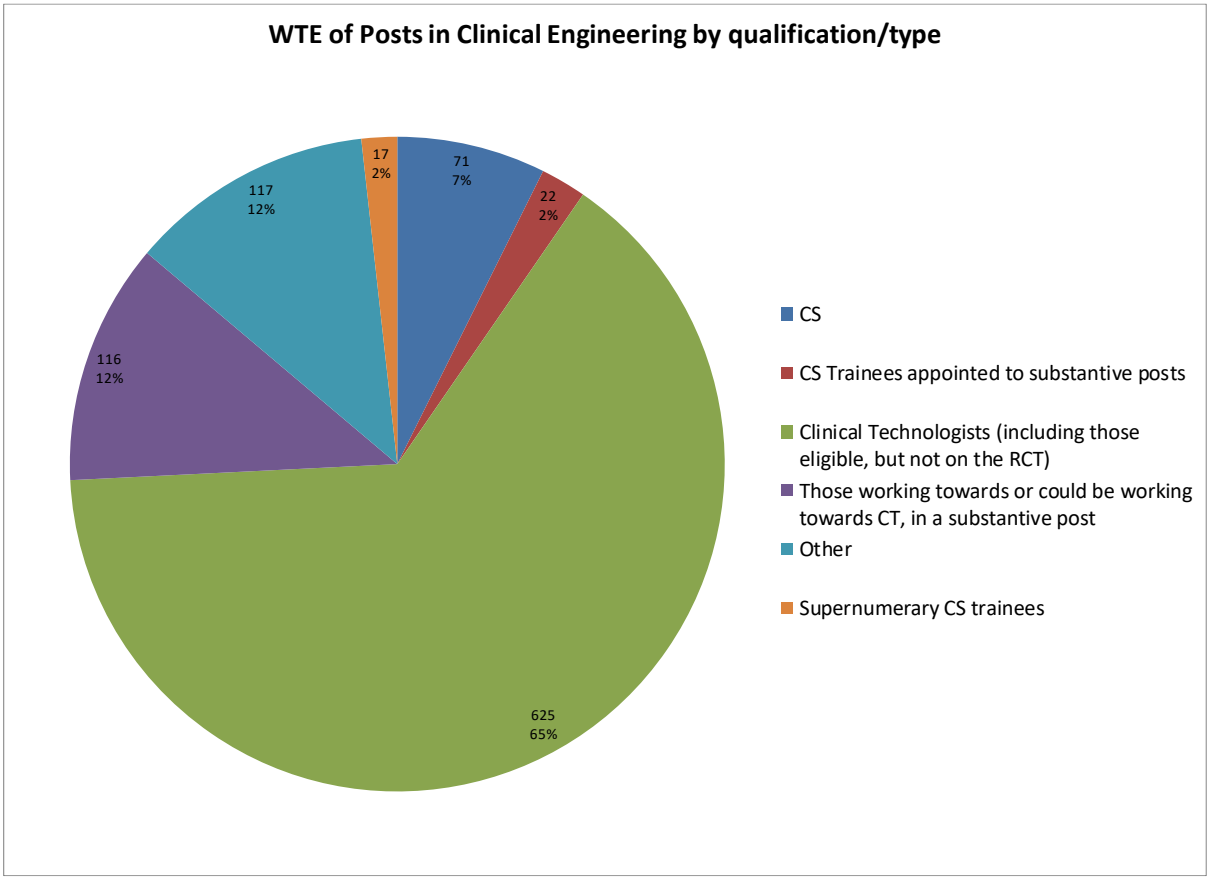


Of the responding departments around 38 are equipment maintenance and management services only, with no design, or research or clinical measurement. 51 describe themselves as "Medical Engineering" rather than "Clinical Engineering" so IPEM is confident that a wide range of services has been reached. The pie chart overleaf shows a break down of management responsibility for the responding departments, with 24 coming under medical physics and clinical engineering, 58 being stand alone, either not stating or failing under estates and facilities, 1 falling under another department, 3 being Wholly-owned subsidiary companies and 1 being independently run outside of the NHS.



Workforce

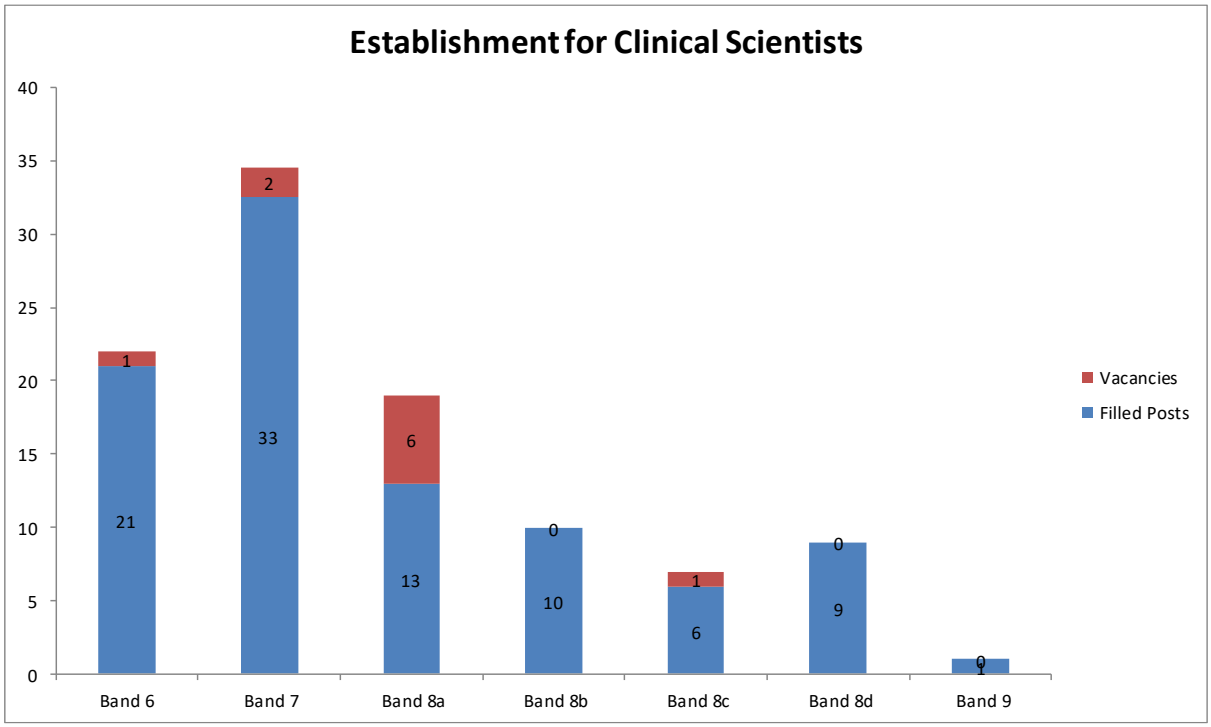
The make-up of the workforce, by WTE is as shown in the pie chart below



75% of the workforce are either technologists, or aspiring technologists, and just 7% are Clinical Scientists. Only around a quarter of departments (21/88) employ clinical scientists, of these, 8 could be described as predominantly equipment management, with no clinical measurement or design services.

Clinical Scientists

Of the small workforce of Clinical Scientists, the AfC banding (or equivalent) if the establishment profile is shown in the chart below. One of the professional issues identified by the survey is that the Protected Title "Clinical Scientist" is not well understood among sections of this workforce. Considerable data cleansing had to take place to ensure that those identified as Clinical Scientists by respondents are likely to actually be registered; others were relocated to the appropriate staff/professional group. There are a high number of Band 6s reported under Clinical Scientists and there remains lack of clarity as to their registration status. This would be a point for the next survey to clarify.



The following comments demonstrate the widespread discrepancy not only between experience and qualifications but between understanding of the clinical scientist role and value:

> *"Specification of healthcare techncology, and standardisation across an organistion, is now of paramount importance. This is time consuming to do properly, and requires in-depth research and development, ideally from a Clinical Scientist. Organisations that don't invest in Clinical scientists will be wasting money on procuring sub-optimal medical technology. Far too many NHS Trusts do not specify Healthcare Technology, instead the Procurement Department are undertaking Shopping rather than Procurement."*

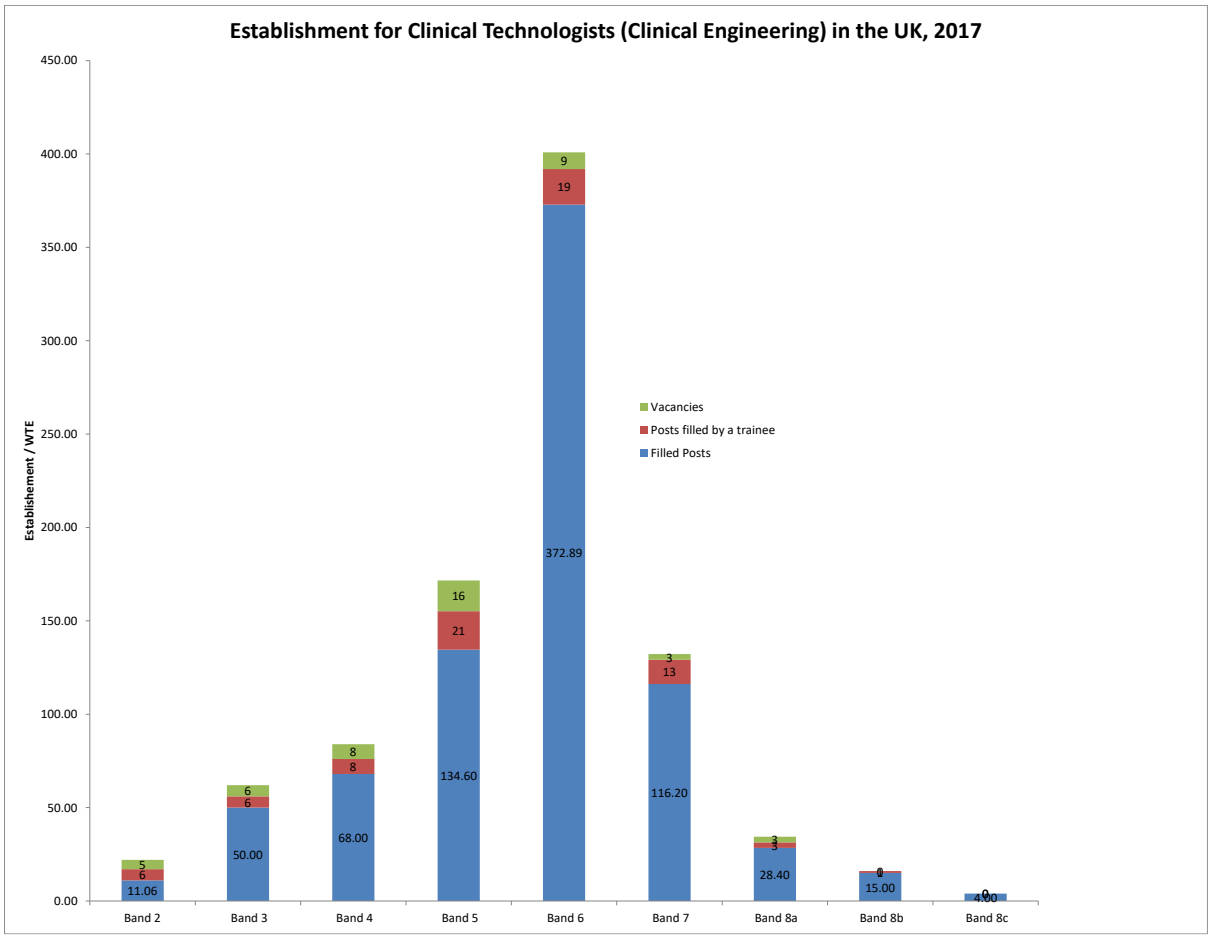
> *"Only one Clinical Scientist - projects and developments are constantly delayed, as is leadership and people management, as the post has become one of almost continual fire-fighting, dealing with extremely urgent issues. It is absurd that an organisation that is a major teaching hospital and strives to be world class has only one Clinical Scientist in Clinical Engineering. Senior management do not recognise Scientific posts, they see Clinical Scientists as managers, so there is no provision made for science."*

> *"Not sure this service is either well understood by senior management or indeed valued."*

The vacancy rate for clinical scientists is 13%, which is higher than for physics Clinical Scientists, and concerning given the low numbers coming through STP in the first years of operation.

Clinical technologists

The question regarding the technologist establishment requested for information on the establishment and vacancies of “registered technologists or those eligible for registration with the RCT or AHCS”. Responses were received regarding established posts for Band 2 upwards, meaning that not all of these posts are occupied by individuals eligible for registration. However, the response is indicative of the workforce.



The vacancy rate for technologist posts is 5%: a large number are also occupied by trainees but since this workforce is predominantly trained on the job rather than being recruited fully-trained and eligible for registration.

While there are still a number of vacancies the re-invigorated Technologist Training Scheme will hopefully allow for the recruitment of engineers with a suitable engineering background to become trained in additional areas required for technologist practice.

Throughput from TTS

The Practitioner Training Programme

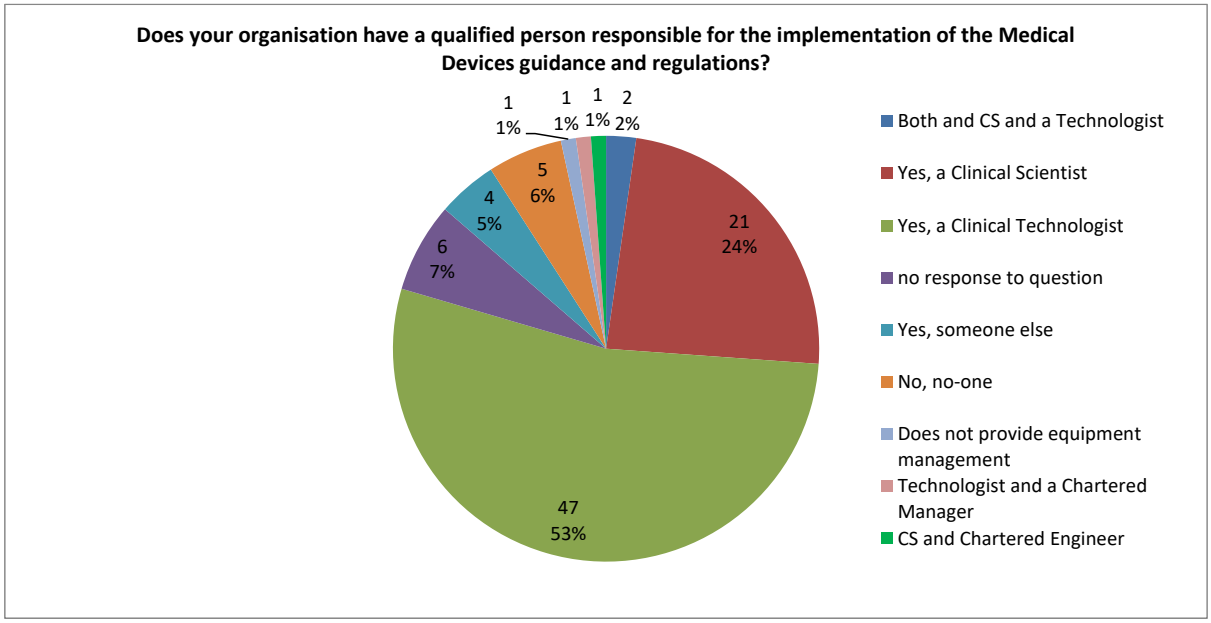
Clinical Engineering Survey Qualifications and Standards-Update November 2017

Implementation of the Medical Devices Guidance and Regulations

This question was part of the Equipment Management Section, so respondents were only asked this if they selected the “Equipment Management” Activity in the early part of the questionnaire.

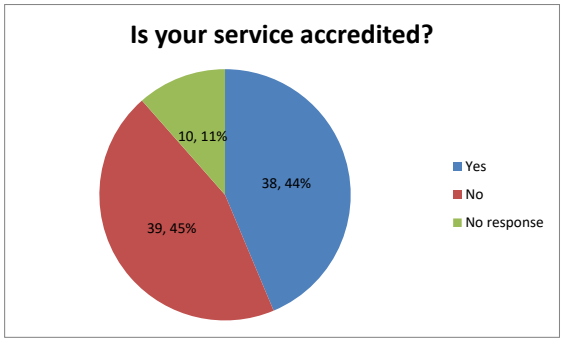
Respondents were asked if their organisation had a qualified person responsible for the implementation of the Medical Devices guidance and regulations, and If so, what staff group they were. They were also asked if their service was accredited, and if so, to what standard.

Of the 88 survey responses, one did not answer the question as the service does not provide equipment management. A further 6 skipped, or did not respond to the question. Only 6 (7%) of services have no-one qualified responsible for the implementation of the Medical Devices guidance and regulations. The remaining services either have a Clinical Scientist (24%), a Clinical Technologist (53%) both (2%), a combination of a Clinical Scientist/Technologist and another person, or a designated other person (usually the Head of Facilities, EBME or in one case, the Medical Devices Safety Officer).

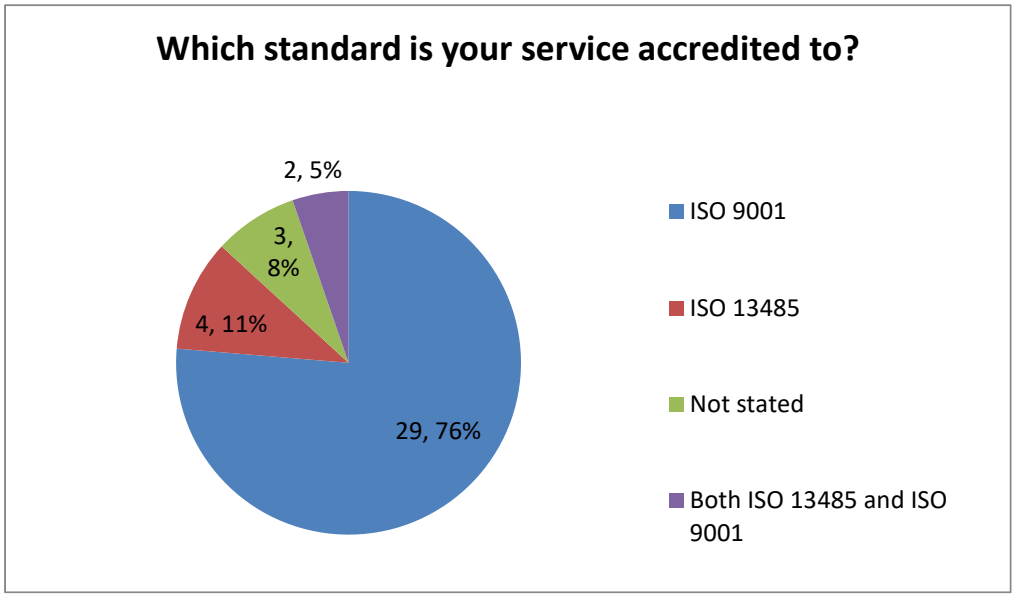


Accreditation

This was in the Equipment Calibration section, which had 87 responses. Of these, 38 are accredited, 38 stated that they were not (including one working towards accreditation). One stated that their service was accredited, with the “Contractor traceable to National Standards”. Since the national standards were not specified this response was included in the “no” and a further 10 did not answer the question.



Of the 38 accredited services, 29 were accredited to ISO 9001 (14 to 2008, 6 to 2015 and 9 did not specify). Four services were accredited to ISO 13485 and two to both ISO 9001 as well as ISO 13485. Three did not state accreditation standard.

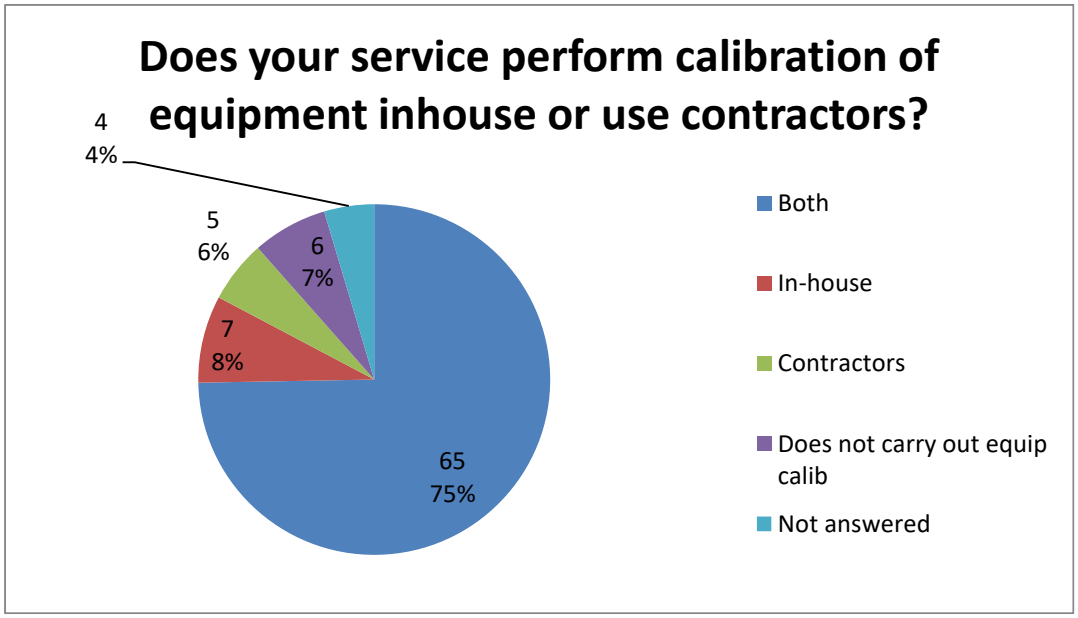


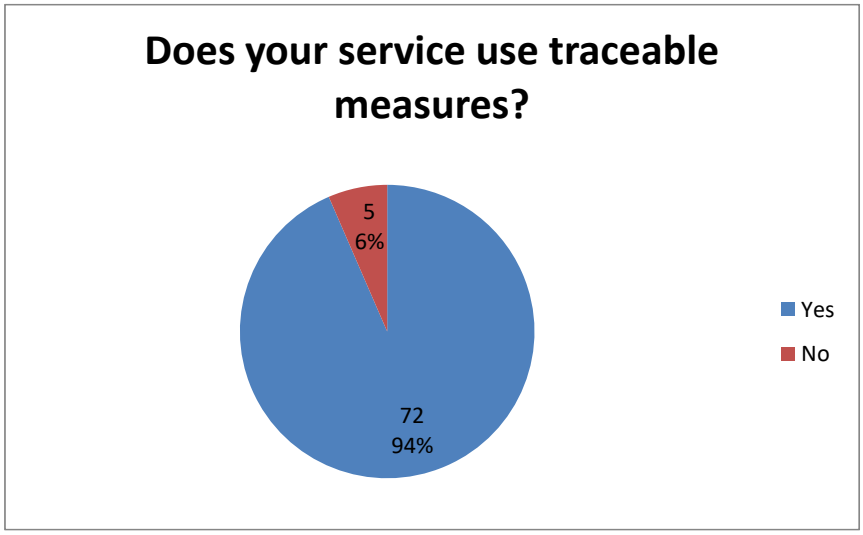
Equipment Calibration

Inhouse or contractors

The equipment calibration question was answered as follows, with 6 services not carrying out equipment calibration, and a further 4 not getting far enough through the survey to answer the questions. 75% both carry out calibration in-house and through contractors, and respectively 7 and 8% carry all calibration out in-house, or through external contractors.

94% of services carrying our calibration use traceable measures.





Consequences of no professional lead

Setting Professional Standards in Clinical Engineering and Medical Devices

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The workforce part of the survey identified a number of issues and concerns around professional standards in Clinical Engineering.

The following comments exemplify the type of concerns:

> *"There is no framework for what qualifications are required at each level. There are heads of service with minimal academic qualifications and no professional status that can't justify the position they hold, experience or time served should not be exclusively acceptable for promoting to senior levels. In other industries and medical disciplines chartered status and MSc is considered minimum qualifications for senior posts. The advice, planning and strategic decision making at these levels can have a huge impact on patient care and should only be made with suitable qualification to reinforce it"*

> *"Every department in the UK is doing what they want to, with nobody inspecting or checking how they are operating.*
> *DOH will not invest in developing standards and criteria to follow, MHRA will not cross the boundary of stating requirements just stick to offering advise. "*

> ***"Perhaps IPEM should step up and provide a set of standards that lay out clearly what a hospital should be providing, how it should be structured and how it is best practice to implement MHRA medical devices policy. ISO9001 does nothing to introduce consistency between hospitals, so if IPEM can provide a minimum set of operating requirements, which can be used by the inspecting authorities then to check compliance we might see training and qualifications being addressed as corner stone of delivering a quality service."***

> *"It has worked with QA, everywhere we have clear guidance on what is expected and how can do it, there is no reason it can't be applied to training and competence in departments."*

Other responses show that this concern is not misplaced and there is widespread discrepancy not only between experience and qualifications but between understanding of the clinical scientist role and value:

> *"Specification of healthcare techncology, and standardisation across an organistion, is now of paramount importance. This is time consuming to do properly, and requires in-depth research and development, ideally from a Clinical Scientist. Organisations that don't invest in Clinical scientists will be wasting money on procuring sub-optimal medical technology. Far too many NHS Trusts do not specify Healthcare Technology, instead the Procurement Department are undertaking Shopping rather than Procurement."*

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IPEM, as the professional body for Clinical Engineers, with a strategic objective to "Set and influence standards and best practice " is best placed to set out standards to advise commissioners, not only of the benefit of professional qualified and registered engineers, but also to aid senior department leaders in providing an argument for continuing training and education.

This is particularly important in the current climate where Wholly Owned Subsiduary companies are being created to house for estates and facilities functions, which not infrequently incorporate Clinical Engineering functions. Issuing advice on good practice, and setting standards to be adhered to, is a key part of ensuring that patient safety and clinical excellence is not compromised during this structural reorganisation.

Further, it is recognised that the new EU regulations for Medical Devices (MDs) and in vitro diagnostics medical devices (IVDs) that have come in to force since May 2017, will have significant impact on how healthcare institutions manage this compliance especially for in-house manufacture. The Engineering Advisory Group are of the opinion that this will require the skills of the Clinical Engineer to take senior level responsibility for healthcare technology management, regulatory compliance and quality management of medical devices under ISO13485. To this end a working party is currently under consideration by the Finance and Business Planning Committee to take forward the proposal that such a lead person should be recognised as a "Clinical Engineering Expert" and as such should be able to achieve this through the accredited scientific practice route under the healthcare science training programme.

A Policy Statement on the role of Scientists and technologists in Clinical and Medical Engineering is needed to ensure that healthcare organisations have sufficient workforce to advise and support in these matters. Such a position statement would underpin the current IPEM policy statement on Leading MPCE Departments in which the importance of professional interactions and a critical mass are laid out. Another document for consideration would be a similar document aimed at commissioning bodies.

Actions:

- I ask that PSC request to CESIG (via SRIC) that such a Policy Statement is written. The WIU will, of course, provide all the information gained in the CE survey
- I ask that PSC consider writing a document aimed at commissioning bodies detailing the legal requirements of the 2017 MDs and IVD regulations and the benefits of employing Clinical Scientists and technologists in Medical Engineering

What happened to these?

"There is no framework for what qualifications are required at each level. There are heads of service with minimal academic qualifications and no professional status that can't justify the position they hold, experience or time served should not be exclusively acceptable for promoting to senior levels. In other industries and medical disciplines chartered status and MSc is considered minimum qualifications for senior posts. The advice, planning and strategic decision making at these levels can have a huge impact on patient care and should only be made with suitable qualification to reinforce it"

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