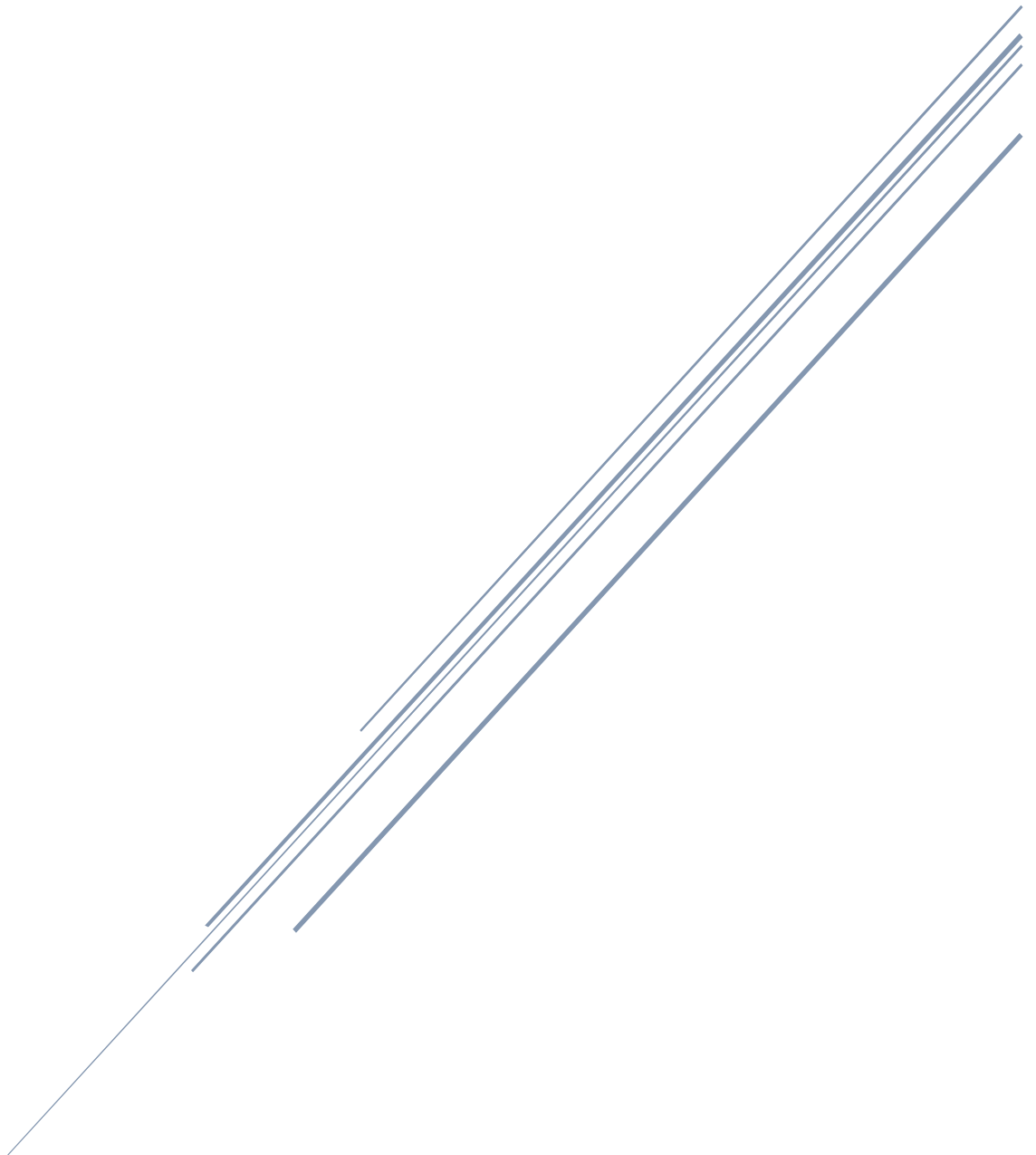


THE UK ECHOCARDIOGRAPHY WORKFORCE



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This is an independent report commissioned by the British Society of Echocardiography and authored by Professor Alison Leary, Chair of Healthcare and Workforce modelling & Dr Geoff Punshon, Independent Analyst. The authors wish to thank members of the BSE for their assistance.

Executive Summary

Echocardiography describes the performance of, and interpretation of, a detailed ultrasonic examination of the heart achieving both structural (anatomical) and functional (physiological) data. It is a complex, safety critical investigation carried out by a highly specialised workforce.

This echocardiography workforce undertakes high intensity, potentially high harm work to patients if done incorrectly and mitigates this risk with a supervised training programme, national accreditation process delivered by the British Society of Echocardiography and continuing professional development. There are also personal risks to workers with a high incidence of musculoskeletal injury reported by this group, due to the physical demands of performing the ultrasonic examinations.

There is significant increased demand for the echocardiography labour market but, as a result of the long lag time to train individuals to the high standards necessary to safely perform the diagnostic test, there is no way to liberalise quickly and safely the supply required. This makes retention of the existing workforce key along with education of the next generation and liberalising the returner labour market.

Echocardiography lacks career structure, job planning and clear routes to progression. This has also resulted in the workforce focussing on direct clinical work and not having the capacity to do important quality assurance and safety work, service development work or train the next generation.

There are issues with workflow into the echocardiography services such as non-standardised referrals and lack of data integration or services to share imaging or clinical information.

Focusing on, and offering attractive and distinct roles to, experienced returners, such as supporting quality improvement, teaching opportunities, and such roles could offer a more predictable workload. Investing in practice facilitation or specific clinical educator posts running parallel 'service' and 'workforce development' lines could be prioritised.

There is an opportunity to help deal with over work issues by introducing skilled supplementary workers and a support workforce in order to redistribute work such as administrative work.

Recommendations

- Support in implementing a formal national career pathway in echocardiography to make services sustainable.
- Recognise the advanced level role of an echo educator
- Enable diagnostics by increasing training capacity and utilising new models such as introducing a slow lane and attracting returners.
- Develop new roles which help distribute work such as administrators, data managers and support workers.

1. Introduction

Echocardiography describes the performance and interpretation of a detailed ultrasonic examination of the heart achieving both structural (anatomical) and functional (physiological) data. The examination is undertaken by a skilled professional who performs and independently reports, study findings. Each examination takes at least 45 minutes to perform but may require up to a one-hour time slot for more complex cases. Echocardiographers require strong clinical, scientific, anatomical and physiological knowledge to interpret echocardiographic findings. An echocardiogram is the most requested inpatient and outpatient cardiological imaging investigation and plays a vital role in general practice, cardiology, acute internal medicine, anaesthetics, oncology and critical care practice.

Many specialty professions such as echocardiography, are vital to the function of the NHS, but are facing the multi-faceted challenge of historical workforce shortages now exacerbated by annually increasing requests for specialist tests, alongside reduced work capacity during the COVID-19 pandemic with the incumbent backlog of diagnostic investigations that has created. The echocardiographer shortages not only result in longer waiting times for patients, but also often delay discharge or the opportunity for patients to receive specific/targeted care (e.g., pre-operation assessment or the need for certain medicines once diagnosis is achieved).

During 2022 several pieces of work were done with the British Society of Echocardiography membership to understand the echocardiography workforce in terms of its scale, its work, workloads, and the experience of its workers. Consideration was also given to the echo workforce pipeline and careers.

Based on this work, this short paper reflects on these findings and alongside these, the current wider workforce perspectives are presented. There is a high demand for echocardiograms with 153,866 people waiting, 41% of whom are waiting more than 6 weeks according to NHS England¹. This demand presents a case for not only investing in the echocardiography workforce but the supplementary workforce, for example echo support workers, administrators, service managers and data managers who can also deal with workloads and mediate demand. This would reflect the diversity of workers in areas such as radiology.

2. The work in echocardiography

The echocardiography workforce performs highly complex work, and this is reflected in a formal system of training and credentialing. The complexity of work can be seen in the labour demands. The work is physically and cognitively demanding. During a cross sectional survey across the workforce, there were frequent reports of occupational injury in the 2022 survey. There is also a high cognitive demand. The work involved not only acquiring dynamic images but the analysis of data in a short period of time, whereby misinterpretation could lead to severe clinical consequences for patients. The work is also interactive with the public which requires relational labour. In short this is complex, dynamic, high harm potential work that cannot be easily substituted at this time.

Demand for echo services means high workloads including unpaid work (Fig 1). Looking at work left undone (Fig 2), only 64 (8.7%) of respondents to the 2022 survey stated they could complete all their work in the allocated time. Of the work they didn't have the time or

capacity to do administrative work (54.1%, 397/734), professional development (49.4%, 363/734), research (48.5%, 356/734), quality assurance work (47.1%, 346/734) and teaching (46.6%, 342/734) were most common. Workloads were a concern and in particular the 45-minute scanning window which was considered too short (23.5% 68 out of 289 respondents to the free text question). Workloads were also thought to be increasingly unfeasible due to understaffing (89/289), in the setting of more and more multi-complex heart disease patients and expectations in relation to the delivery of training for future generations. Additionally, there are issues with workflow into the echo services such as non-standardised referrals and lack of data integration or service to share imaging or clinical information. The transfer of images across primary/secondary/independent provider boundaries appears rare and creates duplication of work. This results in likely unnecessary workload intensification.

Although work such as teaching, research and administration is not direct service provision, this work is important for service provision quality and safety but is largely done as unpaid work (Fig 1). To achieve the work across the four pillars of professional practice (clinical, educational, research and leadership or management) the workforce had to do large parts of this activity in their own time.

Figure 1 The unpaid work of the echocardiography workforce

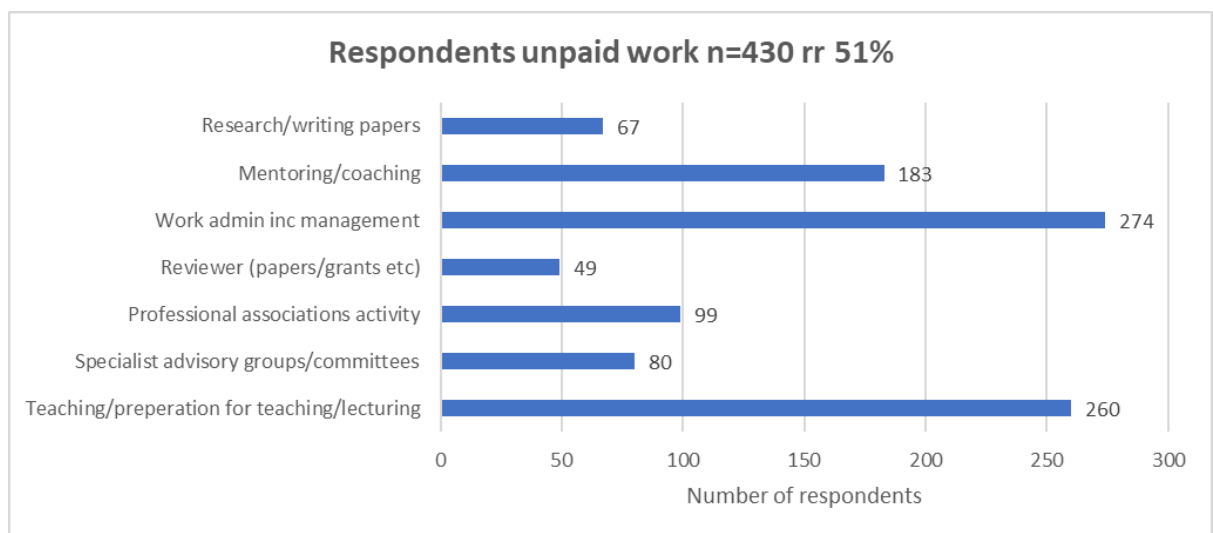
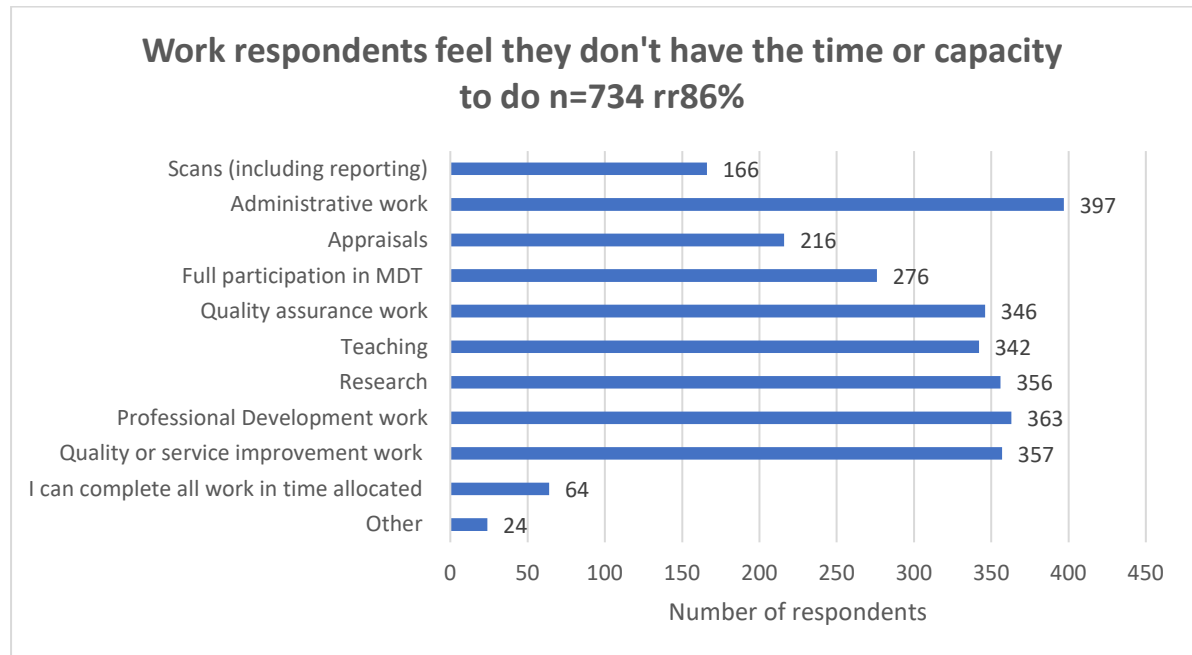


Figure 2 The work left undone in echocardiography.



Traditionally there have been no set job plans for the echocardiography workforce. With this in mind, when considering workforce planning, echo roles should have specific job plans including activities that are non-scanning but essential to the service such as management functions, research, and education of the next generation. These tasks should also carry a specific weekly time allocation. To retain and sustain the workforce and maintain the quality of the service, consideration should be given for protected time for these activities.

In healthcare, workforce planning is often driven by supply of staff and financial envelope, rather than based on demand for labour. This leaves a deficit in areas of high volume and high intensity work. Division of labour approaches are also common (dividing up complex work into contextless tasks) but this comes with risk. This appears to be the case in diagnostic services with NHS England promoting a workforce model of data collectors and data interpreters. This is a risky model, particularly in a dynamic activity such as echocardiography. Frequently the course of the examination will need to be altered due to the findings detected. Without the knowledge of interpretation and clinical adaptability, these investigations would be suboptimal and useless. Data collection without interpretation is not flexible or responsive and can thus miss red flags or create hand off gaps/lack of continuity. Roles that are only interpretation are likely to be unattractive.

3 Possible solutions: Redistribution of workloads and supplementary workforces.

Looking in detail at the work of echocardiographers a number of possibilities to redistribute workloads were evident. The work is complex and not easily substituted by other workers but there are opportunities to redistribute workloads utilising other roles.

In the 2022 survey the role of a support worker was described and 72.3% (490/678) thought a support worker would be very useful. The most popular other role which might help with respondents workloads was an echo trainer role (61.8%, 482/780) followed by IT/Tech

support (42.2%, 329/780). 32.7% (255/780) felt a QA facilitator might help with a similar 32.6% (254/780) for a QI facilitator. 21% (164/780) thought a data manager would help. Registered nurses (13.3%, 104/780) was the least selected option.

An echo training role seems to offer several opportunities. It is explored in the next section.

4. The echocardiography workforce pipeline

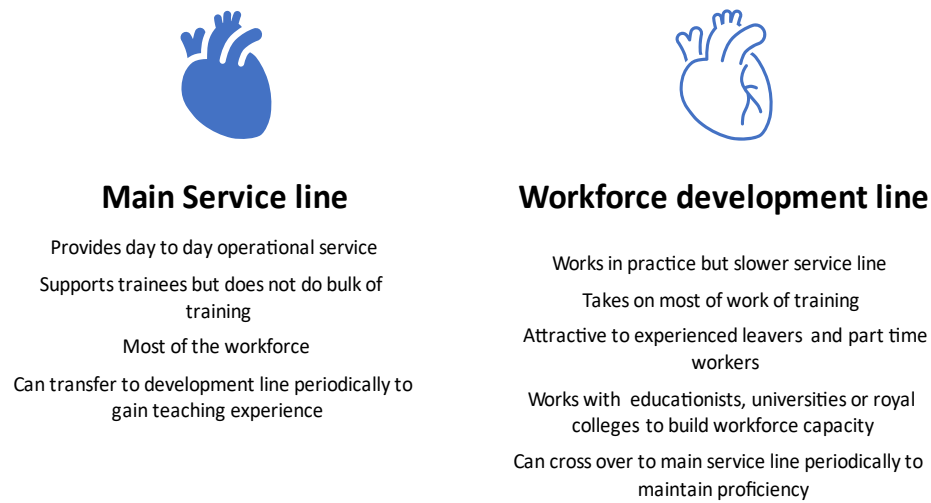
In terms of pipeline, the most common previous role was cardiac physiologist (71.6%, 503/702) followed by a medical training post (8.1%, 57/702) and a scientist training programme (6.7%, 47/702). The workforce had an appetite for professional development. In the 2022 survey clinical skills study days (54.4%, 400/735), specialist update study days (54.3%, 399/735), clinical short courses (49%, 360/735) and advance practice courses (41.9%, 308/735) were the most common choices.

Regarding future plans, 50.9% (376/739) of respondents planned to stay in echo at the same hours. 21.9% (162/739) planned to stay but reduce their hours. 5.1% (38/739) planned to stay but increase hours. 6.5% (48/739) planned to leave echo for other work while 7.8% (58/376) planned to retire in the next three years. 301 (47.6%) of respondents didn't intend to leave. Of respondents who did select a main factor in retention (What would make you stay?) 31.1% (103/331) opted for less intense workloads and 24.8% (82/331) for improved rates of pay.

There were concerns about the lack of time for teaching the next generation and this was expressed in several ways throughout the survey responses. This activity is key to the sustainability of the workforce and the safety and quality of care. There are several opportunities here such as dedicated trainer posts, attracting recent leavers to return to support services and offering more flexible hours or contracts. Like many healthcare workforces echo is reliant on locum/agency provision which causes issues around inconsistency and perception of pay inequality.

A mixed workforce which can sustain services but also create a learning environment supported by a conjoined workforce could offer a solution and make the work more attractive. The development of a "slow lane"³ (Fig 3) has been effective in a number of industries particularly with returners and promoted the growth of skilled novice workforces.

Figure 3 Parallel but intersectional sustainability model

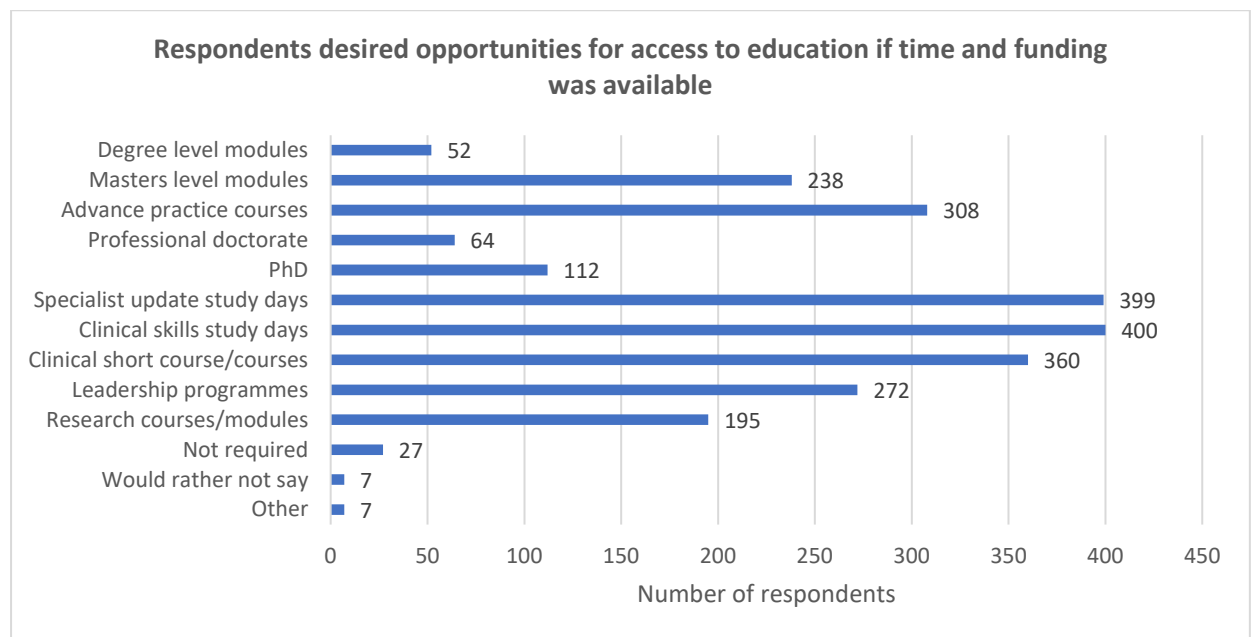


5. A career framework for echocardiography

Both the 2022 survey of work and the workforce census showed variability in pay, job titles and opportunities for progression.

The echo workforce is currently unstructured with several different levels of practice in the clinical workforce, and the non-clinical workforce largely unknown. Job planning would provide the opportunity for echocardiographers and their managers to agree the proportion of each role that will be attributed to clinical care and other specified supporting clinical activities. It is an opportunity for echocardiographers to describe the activities they are delivering that may not be patient-facing but that add value for patients. These non-clinical tasks also provide added value and learning opportunities for the future generations. CPD and lifelong learning are necessary for the development of everyone who works in health and social care and for the experience of service users. They support a workforce that is capable of designing, delivering, evaluating and improving high quality care and services. CPD and lifelong learning in line with regulatory, professional and UK health and social care system requirements (as well as any statutory and compulsory training requirements) are an essential part of the role. Job planning enables individuals and Trusts to show how they are meeting this requirement. Within echocardiography, there was an appetite for further professional development and study (Fig 4). At the time of the Summer 2022 survey, 38.2% (286/748) of respondents were currently participating in specialist education/CPD. 44.1% (330/748) had accessed specialist education/CPD within the last year. However, 151 respondents (20.2%, 151/748) felt it was hard to find funding and 137 (18.3%, 137/748) hard to obtain study leave.

Figure 4 Desired opportunities for education and development.



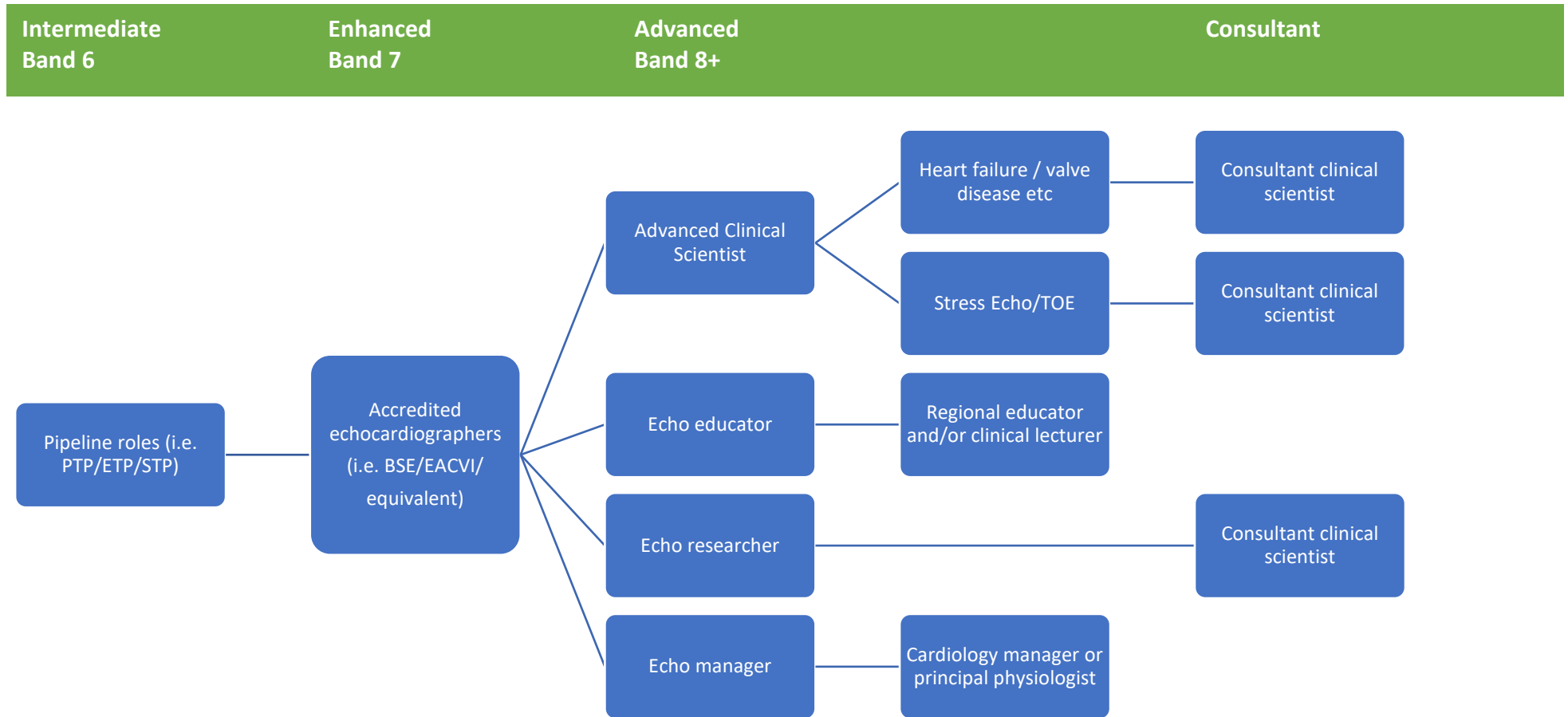
The survey in 2022 identified that there were different levels of practice and that initiatives like the enhanced and advanced practice apprenticeships could be leveraged to increase accessibility and supply. A proposed structure is suggested below (Figure 5) using the modelling done for Health Education England in 2019 as a guide².

The career pathway for the workforce (echocardiographers) is shown in Figure 6.

Figure 5 A possible model for the whole echocardiography workforce across the four pillars of practice⁴

Level of practice	Example roles	Academic range From	To	Leadership	Professional Development	Research/Clinical academic careers
Advanced to consultant	Consultant /systems leadership roles	Masters/PhD or Professional doctorate	Post-doctoral specialist qualifications	Systems Leadership	CPD	Clinical lectureship Post-doctoral/PI/Senior clinical lectureship/Chair
Advanced Practice Role	Echocardiographer/echo educators	Post grad diploma/Masters Degree	PhD or Professional doctorate	Service leadership	CPD Accreditation	Clinical lecturer Research studentships
Enhanced Practice Role	Trainee roles e.g. ETP/STP IT and data	Post qualifying/Graduate certificate/Diploma	Masters	Service leadership	CPD	Studentships for example NIHR Evidence based practice
Intermediate Role	Pipeline roles PTP Senior admin roles, IT and data managers	CPD and Study days	Post qualifying/Graduate certificate/Diploma	Leadership of self and others	CPD	Studentships i.e. NIHR Masters Evidence based practice
NQ preceptored role	Pipeline roles such a newly qualified Cardiac Physiologists	Degree or baseline qualification for role.	CPD and Study days	Leadership of self and others	CPD/preceptorship Registration or membership	Evidence based practice
Assistant/Associate practitioner	Associate roles, Administrative roles	Certificate of Higher Education	Foundation degree	Leadership of self and others	In house CPD	Evidence based practice
Senior supportive roles	Senior echo support worker Administrative roles.	GCSE 14-19 Advanced Diploma/Principal Learning	Certificate HE	Leadership of self and others	Care certificate/Skills development	Research awareness & evidence based practice
Supportive roles	Support worker, facilities roles	GCSE 14-19 Higher Diploma BTEC Firsts	Care certificate	Self-awareness	Care certificate/Skills development	Evidence awareness in practice
Apprentice entry level (non-clinical staff)	Non clinical admin and facilities roles	GCSE 14-19 Foundation Diploma BTEC Firsts	BTEC Higher or similar	Self-awareness	Learning and skills development	

Figure 6 The proposed echocardiography career structure.



6. Recommendations

It is clear from the work undertaken that urgent attention should be given to factors which will stabilise the current workforce and give it sufficient latitude to train the future pipeline. On that basis we recommend the following priority actions:

- Support in implementing a formal national career pathway in echocardiography to make services sustainable and promote retention.
- Recognise the advanced level role of an echo educator.
- Enable diagnostics by increasing training capacity and utilising new models such as introducing a slow lane and attracting returners.
- Develop new roles which help distribute work such as administrators, data managers and support workers.

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