

Healthcare Science Associate Apprenticeship – End point Assessment Plan (EPA)

Summary of Assessment

The Healthcare Science (HCS) Associate apprenticeship standard at Career Framework Level 4 available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/522687/Health_Care_Science_Associate.pdf was developed with employers who provide healthcare science services in the Life Sciences, Physics, Clinical Biomedical Engineering and the Physiological Sciences to meet the needs of healthcare employers and provide development opportunities for those seeking a career in healthcare science.

This document sets out the end point assessment (EPA) plan describing how an apprentice on the HCS Associate programme is to be summatively assessed to determine that they have met full occupational competency. The primary audience is the Assessment Organisation (AO) intending to offer the EPA but it is envisaged that the content will also be of interest and use to apprentices, parents, employers, professional bodies and other stakeholders.

The EPA is a synoptic assessment, designed to meet the following principles in order to ensure that the apprentice is able to demonstrate full competency. The EPA

- allows an apprentice to demonstrate achievement of competences across all areas specified in the HCS Associate Apprenticeship Standard;
- is conducted in a way that ensures fairness for all apprentices, and produces outcomes that are reliable and relevant for employers;
- is deliverable within the workplace;
- offers a range of methods to afford the apprentice accessible opportunities to demonstrate how the knowledge, skills and behaviours outlined in the Standard have been met;
- provides flexibility for employers and apprentices by being available as and when the apprentice is ready to take the EPA, as judged by the employer and apprentice.

This document does not cover on-programme assessments except for requiring that a full record or log of learning and development throughout the programme (in any suitable format easily accessed by the Assessment Organisation, e.g. in a log or portfolio) is available prior to the EPA for review by the independent EPA assessor in order to inform the Professional Discussion element of the EPA. This record will also enable the employer or nominated training provider to be provided with evidence of competence to determine the readiness of the apprentice to undertake the EPA. In addition, this document does not cover how the Level 4 Diploma in Healthcare Science and L2 English and Mathematics mandatory qualifications must be achieved to meet the Standard.

All three elements of the EPA are equally significant in achieving programme completion and are equally weighted.

Assessment Overview [set out key assessment information]			
Assessment Method	Area Assessed	Assessed by	Grading
Element 1: Vocational Competence Observation (VCO)	<ul style="list-style-type: none"> • Professional Practice • Clinical Care • Communication • Health, Safety and Security • Quality • Technical Scientific Services 	Assessment Organisation	Fail / Pass This element is not graded and should be assessed as an absolute – the apprentice is either able to carry out the task or is not. Whilst some apprentices may be better at any given task than others, the significant aspect for the programme is that the apprentice is able to carry out the task effectively and without putting others or themselves at risk.
Element 2: Professional Practice Test (PPT)	<ul style="list-style-type: none"> • Professional Practice • Health, Safety and Safety • Clinical Care • Audit/Service Improvement • Leadership 	Assessment Organisation	Fail/Pass/Merit / Distinction
Element 3: Professional discussion (PD) about development and achievement, informed by evidence of development over the programme presented (e.g. in a log or portfolio)	All knowledge and skills areas outlined in the Standard and insight into own development	Assessment Organisation	Fail/Pass/Merit / Distinction

Professional Qualifications			
<ul style="list-style-type: none"> ▪ Level 4 Diploma in Healthcare Science 			
On-programme Assessment [if used]			
<p>It is recommended that there is regular, on-programme assessment in the workplace of the apprentice's development of competency and performance in the workplace to ensure that there is full and sufficient evidence of the apprentice's readiness to undertake the EPA. A variety of assessment instruments are available to assist workplace assessment such as Direct Observation of Practice (DOP) and Case based Discussions (CBD).</p> <p>On-programme assessment could also include evidence of personal and professional development gained from 2 multisource feedback (MSF) exercises conducted at approximately 3 months from the start of the apprenticeship and 4 months prior to completion of the apprenticeship. This allows the apprentice a reasonable time period to reflect and describe what they have learned about their personal and professional behaviours and identify the improvements that they have been able to make in preparation for the EPA's Professional Discussion element. The apprentice may decide to present their reflections and insight into their personal and professional development as written text, video or audio recording or as a reflective mind map; this will inform part of the Professional Discussion.</p> <p>Evidence of on-programme learning and development must be gathered, e.g. in a log or portfolio, and will be required in advance by the assessor to inform the Professional Discussion - Element 3 of the EPA.</p>			
Assessment Gateway			
<ul style="list-style-type: none"> ▪ Achievement of L2 English and L2 mathematics qualifications; ▪ Achievement of the Level 4 Diploma in Healthcare Science; ▪ Evidence, usually recorded, for example in a log or portfolio and signed off by the employer or nominated training provider demonstrating that the apprentice has achieved the skills, knowledge and behaviours set out in the Standard; ▪ Evidence that the apprentice has developed an insight into their personal and professional development as shown by the reflective self-assessment following the MSF exercises. <p>The employer, in discussion with the apprentice, will be responsible for evaluating when the apprentice has achieved all of the above and is ready to attempt the EPA using the processes of the appointed Assessment Organisation. The employer may wish to request progress reports from any trainers/training providers involved in supporting the apprentice throughout the programme to inform their judgement and ensure that they are confident in their assessment of the apprentice's</p>			

readiness to undertake the EPA.

End - Point Assessment

The three elements of the EPA are designed to ensure that the apprentice has the opportunity to demonstrate in a variety of ways that they have achieved the skills, knowledge and behaviours outlined in the Standard.

The knowledge, skills and behaviours will be assessed using the blend of methods outlined in the Assessment Overview and explained in detail below. It is expected that the AO will develop a recording tool such as a matrix, which includes all of the knowledge, skills and behaviours of the Standard, to be used to record and map assessment evidence observed/elicited across all elements and ensure full coverage of the Standard.

Element 1- Vocational Competence Observation (VCO) – 30 mins (10 mins per task) plus 15 minutes for discussion and recording

The apprentice will need to undertake and be observed in three work-based tasks in their workplace that form part of their routine practice as an HCS Associate in that specialism. The tasks will be selected from a list of standardised tasks derived by the AO from the learning guide for the programme, undertaken by the apprentice and observed and assessed by the assessor in the apprentice's workplace. The selected tasks to be observed should be facilitated by the employer/training provider. The assessor will discuss the tasks with the apprentice using a standardised questions schedule (as developed by the AO) in order to assess underpinning knowledge and understanding, meeting any relevant approved clinical standards or procedures. This element is graded as either a pass or a fail, indicating that the apprentice was successful (pass) or not (fail) in performing the tasks.

This element of the EPA will cover the knowledge, skills and behaviours required in the following domains:

- Professional Practice
- Communication
- Health, Safety and Security
- Quality
- Technical Scientific Services
- Clinical Care

There is no compensation across tasks and each of the three tasks must be passed to pass this component of the EPA.

Fail – fails to execute one or more of the specified tasks to a level considered to represent minimal competence at Level 4. This may include failing to complete all elements of a task; failing to complete a task in a timely manner; completing a task with a significant number of minor errors, or one or more major errors, such as failing to pay due attention to the safety, care or confidentiality of patients or colleagues; failing to demonstrate sufficient understanding of the task, or the context in

which the task is performed, while being questioned by the assessor.

Pass – completes all three tasks at a standard that represents minimal competence or above, in a timely manner, and showing due regard to the safety, care and confidentiality of patients and colleagues. Is also able to demonstrate understanding and knowledge of each task, and the context in which each task is performed, under questioning from the assessor.

Element 2 – Professional Practice Test (PPT) – 40 mins for apprentice to undertake the test under exam conditions; 20 minutes for discussion; 15 mins for all responses to be assessed and recorded

For the test, the apprentice will review 8 brief workplace-based scenarios (selected from a bank of scenarios developed by the AO) and describe the actions (in order) they would take in response to the scenario, using a PPT response worksheet (developed by the AO).

The discussion allows the apprentice the opportunity to expand on responses as required so that the assessor can be satisfied that the apprentice has demonstrated competency in the professional practice domains. As part of the discussion, the assessor should elicit which scenario the apprentice considers to be the most and least urgent and the rationale for their response. A standardised questions schedule should be developed by the AO and used for this part of this element.

Some examples of workplace scenarios are¹:

- 1) A patient with regular appointments asks to see the senior manager to complain that they are very stressed at their appointment being late because they are missing time from work. You know that your manager is engaged in an important telecom and will not be available for another half an hour. Determine the actions required and the urgency of resolving this issue.
- 2) You enter a ward to take some measurements from a patient as requested by the Clinical Scientist and notice that there has been a spillage by the bedside of another patient. Describe the actions you would take and the urgency with which you would carry out each step.

The knowledge, skills and behaviours of the domains identified in the Assessment Overview table, and indicated below for this element, apply across all healthcare science specialisms and define the skills and knowledge domains against which all apprentices' responses for this element are to be assessed:

- Professional Practice (how does the apprentice professionally handle situations and issues)
- Health, Safety and Security (consideration given to safe practices including the security of the patient, own self, others in the workplace)
- Clinical Care (consideration given to patient care and wellbeing)

¹ These scenario examples are intentionally and explicitly the same as those presented in the Level 2 HCS Apprenticeship EPA in order to make the point that a Level 4 HCS Associate will be expected to respond differently to a Level 2 HCS Associate in similar situations, demonstrating greater responsibility for the action taken. Differentiation between the L2 and L4 Professional Practice Tests will be signified through the marking scheme for Level 4 and in the apprentice's depth and complexity of response.

- Audit/Service Improvement (insight and demonstration of implication of actions)
- Leadership (demonstration of initiative and independent working)

With reference to the domains above, the response to each scenario should be assessed as:

Fail – fails to demonstrate sufficient understanding of professional practice requirements in healthcare contexts by describing the scenario in brief and simple terms, with a significant number of minor errors, or one or more major errors of understanding, or is unable to specify actions that are appropriate or correctly ranked in order of urgency to resolve the dilemma in the scenario

Pass - demonstrates a basic understanding of professional practice requirements in healthcare contexts by describing the scenario across a minimum of three of the five domains, with no major errors of understanding, and which includes specifying appropriate actions and a rank order of priority for the suggested actions that is mostly appropriate

Merit – demonstrates a good understanding of professional practice requirements in healthcare contexts by describing the scenario across four of the five domains, with no major errors, and which includes specifying appropriate actions and a rank order of priority for the suggested actions that is appropriate, with some explanation to support the rank ordering

Distinction - demonstrates an excellent understanding of professional practice requirements in healthcare contexts by providing a detailed description of the scenario across all five domains, with no major errors of understanding, and which includes specifying appropriate actions and a rank order of priority for the suggested actions that is appropriate, with a detailed explanation to support the rank ordering and evidence of understanding of the importance/implications of the scenario and its outcomes to patients and the service.

Grading of this element should be determined with reference to the descriptors provided for the end point grading.

Element 3 - Professional discussion (PD) informed by the evidence presented – 30 minutes plus 15 minutes to complete assessment record

The apprentice should gather all appropriate evidence of learning and development (e.g. in a log or portfolio) over the duration of the apprenticeship programme and make it available for the EPA assessor. The Professional Discussion between the apprentice and assessor should take place in a suitable environment in the workplace (arrangements facilitated by the employer/training provider). It is suggested that the AO uses tools that ensure assessment reliability and consistency such as a standardised question schedule and a recording matrix.

The duration of the PD is likely to be around 45 minutes; however, this is guidance only and consideration should be given to accessibility issues including the apprentice's language skills.

This element of the EPA will cover at least those skills, behaviours and knowledge from across the whole Standard not fully covered by elements 1 and 2 plus evidence that the apprentice demonstrates insight into their own development afforded by the MSF exercises and highlighted in the reflective self-assessment piece (written/audio/video or any other format that is comprehensible by the assessor) and will be graded as:

Fail – the evidence of progression submitted in the log or portfolio is incomplete or below minimal

competence for Level 4 in several areas, to the extent that the apprentice is not able to demonstrate knowledge and skill acquisition across the whole of the Standard, and the assessor is unable to discuss progression across the whole of the Standard; or the apprentice is unable to demonstrate any insight to their development, learning from the results of the multi-source feedback (MSF), or their reflective pieces.

Pass – the apprentice has provided evidence in their log or portfolio to show minimal competence at Level 4 across most areas of the Standard, and is able to respond to questions about the log or portfolio evidence to demonstrate knowledge and skill acquisition at minimal competence for Level 4. In addition, the apprentice is able to demonstrate some insight to their development, learning from the results of the MSF, and their reflective pieces.

Merit - the apprentice has provided evidence in their log or portfolio to show minimal competence at Level 4 across all of the Standard, and is able to respond to questions about their evidence to demonstrate knowledge and skill acquisition at minimal competence for Level 4, with some evidence of excellence in the evidence and responses to questions. In addition, the apprentice is able to show good insight into their own development, demonstrating some learning from the results of the MSF, and their reflective pieces but not able to draw out the full consequences for their practice.

Distinction - the apprentice has provided evidence in their log or portfolio to show minimal competence at Level 4 across the Standard, and is able to respond to questions about their evidence to demonstrate knowledge and skill acquisition at minimal competence for Level 4, with several examples of excellence in the evidence and responses to questions, with respect to detail and relevance to practice. In addition, the apprentice is able to demonstrate excellent insight into their own development, demonstrating significant learning from the results of the MSF, and their reflective pieces, and able to draw out the implications for their practice.

In relation to all three elements of the EPA, the AO will be responsible for developing the essential tools to assess the apprentice in a consistent and standardised way including:

- standardised question schedules for discussion included in all elements;
- specialism specific lists of routine tasks to be observed for selection by the assessor for VCO;
- bank of generic situational scenarios plus guidance for marking;
- apprentice response worksheet for PPT element;
- assessment matrix to record full occupational competency on every domain of the Standard and marking guidance to ensure consistency and reliability;
- assessor reporting template for rationale of grading for each element and final grading.

The same suitably trained specialism competent assessor should undertake assessment of all three elements of the EPA. This is important, as it will allow the assessor to fully evaluate the apprentice using the range of methods described, providing the evidence to demonstrate that the apprentice meets the Standard and enabling the assessor to determine the final grading.

The Assessment Organisation offering the EPA must be registered on the Skills Funding Agency's Register of Apprentice Assessment Organisations (RoAAO). In accordance with the requirements for entry to this Register, assessors provided by the RoAAO must display recent experience and

knowledge of the specific specialism they are to assess.

Assessors must have a recognised professional qualification in the specialist area that they are to assess and/or registration with a professional body or the Academy of Healthcare Science, or the regulator for healthcare science (Health and Care Professions Council [HCPC]) and a minimum of 1 year of practise-based experience in a healthcare setting, such as the NHS, as well as an understanding of and skills in assessment. Assessment skills can be evidenced through a minimum of 1 year's experience of work-based assessment or by holding a recommended qualification for assessors such as described on the Scottish Qualification Agency) website: <http://www.sqa.org.uk/sqa/48368.html>

The range of healthcare science specialisms is shown in the table below (as provided by the Academy for Healthcare Science).

Healthcare Science Specialisms and Scientific Services

Life Sciences	Physiological Sciences	Physical Sciences and Biomedical Engineering
<ul style="list-style-type: none"> • Analytical Toxicology • Anatomical pathology • Blood transfusion science/transplantation • Clinical biochemistry including paediatric metabolic biochemistry • Clinical genetics/Genetic Science • Clinical embryology & Reproductive Science • Clinical immunology • Cytopathology including cervical cytology • Electron microscopy • External quality assurance • Haematology • Haemostasis and thrombosis • Clinical Immunology • Histocompatibility & immunogenetics • Histopathology • Microbiology • Molecular pathology of acquired disease • Phlebotomy • Tissue banking 	<ul style="list-style-type: none"> • Audiology • Autonomic neurovascular function • Cardiac physiology • Clinical perfusion science • Critical care science • Gastrointestinal physiology • Neurophysiology • Ophthalmic and vision science • Respiratory physiology • Urodynamic science • Vascular science 	<ul style="list-style-type: none"> • Biomechanical engineering • Clinical measurement and Development • Clinical Pharmaceutical Science • Decontamination Science • Diagnostic radiology & MR physics • Equipment management & clinical engineering • Medical electronics and instrumentation • Medical engineering design • Clinical photography • Nuclear medicine • Radiation protection and monitoring • Radiotherapy physics • Reconstructive Science • Rehabilitation engineering • Renal dialysis technology • Ultrasound and non-ionising radiation
	<div style="background-color: #0070c0; color: white; padding: 2px;">Clinical Bioinformatics including</div> <ul style="list-style-type: none"> • Genomics • Physical Sciences • Health Informatics Science • Pathology • Physiological Informatics 	

Many of these specialisms though small in workforce numbers provide highly specialist services. These specialisms are within the health and social care system in the UK inclusive of the NHS, Public Health England and the NHS Blood & Transplant service.

End Point – final judgement

The final judgement about whether the apprentice has passed the EPA and its grading will be made by the independent EPA assessor using the guidance provided below:

- all three parts of the EPA must be undertaken by the apprentice, each of which is equally weighted;
- the assessor will award the grade for each EPA element based on the assessment outcomes (evidenced by the assessment tools to be developed by the AO) and determine the overall grade of Distinction, Merit, Pass or Fail based on the table and criteria shown in the End Point Grading section.

Independence	
<p>The Assessment Organisation must ensure that assessors selected to assess individual apprentices are fully independent of that apprentice. They should not have had any involvement with the recruitment and on-programme training or assessment of the apprentice.</p>	
End-point – Summary of roles and responsibilities	
Assessor	Role
<i>Employer</i>	<ul style="list-style-type: none"> • Selects the Assessment Organisation to administer the EPA • Together with the apprentice, determines when the apprentice is ready to be put forward for the EPA
<i>Training provider</i>	<ul style="list-style-type: none"> • Works in partnership with the employer and selected Assessment Organisation to ensure i. that the apprentice is able to undertake all three elements of the EPA, including gathering the evidence of development and achievement in a suitable format, e.g. in a log or a portfolio; and ii. facilitates the EPA by providing a suitable environment for the Professional Discussion, observation of the selected tasks for the VCO element and access to the PPT element. • Provides regular reports of the apprentice’s progress to the employer to enable them to determine the readiness and timeframe for the apprentice’s EPA • Provides any additional support needed to help the apprentice achieve their learning outcomes and prepare for all elements of the EPA
<i>Assessment organisation</i>	<ul style="list-style-type: none"> • Must be on the SFA’s Register of Apprentice Assessment Organisations (RoAAO) • Devises/administers the EPA according to the EPA plan • Recruits sufficient independent assessors to meet the demand for the EPA in each specialism • Ensures assessors have a recognised professional qualification gained through a formal training or equivalence route in the specialist area that they are to assess or registration with the relevant professional body and/or regulatory authority and a minimum of 1 year of practise based experience in a healthcare setting, such as the NHS, as well as the formal demonstration of an understanding of and skills in assessment, either through a minimum of 1 year of experience of work-based assessment or by holding a recommended qualification for assessors such as described by the SQA.

<i>Independent Assessor</i>	<ul style="list-style-type: none"> • Holds a professional qualification in the specialism in which they are to undertake the EPA or registration with the relevant professional body and/or regulatory authority as well as demonstrate assessment skills and understanding as described above • Undertakes the assessment of the 3 elements of the EPA outlined in this plan • Makes the decision on the grade of each EPA element • Determines the decision on the final grade based on the guidance provided in this plan • Provides a report on their assessment of the apprentice and rationale for their decision on the final grade
Quality Assurance – internal	
<p>The Assessment Organisation must be on the Register of Apprentice Assessment Organisations (RoAAO). The Assessment Organisation (AO) will implement the QA processes and procedures required for acceptance on the RoAAO. The AHCS will ensure AOs offering the EPA have standardised processes and practice in order to ensure consistency across them. It should be noted that AOs are <i>not</i> required to be accepted by the AHCS in order to apply to the RoAAO. The AHCS is only responsible for the processes and procedures adopted by the AO in relation to this EPA.</p> <p>For example, AOs will be required to host training events for their independent assessors annually and monitor grading decisions to ensure consistency and transparency across Independent Assessors, underpinned by a schedule of regular standardisation meetings between verifiers and assessors to ensure that outcome decisions are valid, fair, safe, reliable and equitable. There will also be a schedule of regular meetings between AOs and the AHCS; an accessible process for dealing fairly and equitably with complaints and appeals; an agreed record keeping procedure; an evaluation and improvement procedure and any other processes, systems and procedures designed to ensure and document the quality of the delivery of the EPA by AOs, including the demonstration that the AO is open to obtaining advice from recognised healthcare science specialists and organisations such as healthcare science professional bodies or the National School of HCS.</p>	
Quality Assurance – external	

The Academy for Healthcare Science (AHCS) will be responsible for the External Quality Assurance (EQA) of the EPA. The AHCS acts as the representative professional body for the whole of the healthcare science profession. Through its Council of Professional Bodies it will work with relevant healthcare science specialist Professional Bodies that may wish to be involved in this work. The AHCS will conduct the EQA for the EPA as a non-profit-making exercise. It, therefore, meets the Trailblazer requirement for providing an EQA of the process as a professional body. Moreover, the AHCS was established by the UK Health Departments and HCS professional bodies to regulate the HCS workforce and quality assure its education and training. Apprentices who achieve the Standard will be eligible to apply to join the AHCS's Professional Standards Authority [PSA] accredited register of trained Healthcare Science Associates, although there will be no requirement for them to do so.

End-point - Grading

The end-point grade will be based on the outcomes of each part of the EPA as shown below.

Award	Grading
Fail	Fail any EPA element
Pass	Minimum 3 passes (pass in each element of the EPA)
Merit	Merit achieved in either or both elements 2 & 3
Distinction	Distinction achieved in either or both elements 2 & 3

The grading criteria provided below should be used to determine the end-point grading:

Fail (applicable to all EPA elements)

The apprentice has not demonstrated sufficient understanding, skill, knowledge or competence in one or more elements of the assessment, and is not yet operating at the level of a Healthcare Science Associate, or has not yet developed the behaviours specified in the Standards for a Healthcare Science Associate.

Pass (applicable to all EPA elements)

Across all elements of the assessment, the apprentice has demonstrated understanding, knowledge, skill, competence and behaviours that are commensurate with those specified in the Standard for a Healthcare Science Associate.

Merit

The apprentice has demonstrated a good application of understanding, knowledge and skills and developed behaviours commensurate with the Standard. In addition, they have demonstrated some insight into their personal development as a result of reflecting on feedback. They have shown both good competence in the performance of work-based tasks and a good understanding of the personal and professional behaviours that are required in workplaces, having received a rating of 'distinction' in at least **two** of the eight professional practice scenarios.

Distinction

The apprentice has demonstrated an excellent application of the understanding, knowledge and skills and developed behaviours commensurate with the Standard. In addition, they have

demonstrated excellent insight into their personal development throughout their programme as a result of reflecting on feedback. They have shown both outstanding competence in the performance of work-based tasks and excellent understanding of the personal and professional behaviours that are required in the workplace to ensure optimal outcomes for patients, having received a rating of 'distinction' in **four** or more of the eight professional practice scenarios.

The independent assessor will decide the final grade for the EPA based on the guidance provided above.

Implementation

As the apprentice is required to demonstrate the skills, understanding and behaviours described in the Standard the recommended EPA can be undertaken in any healthcare science employment setting, large or small, public or private.

Assessment of all of the elements of the EPA can be carried out in the workplace with prior agreement with the employer, or their nominated training provider (thus keeping costs to a minimum). Given the breadth and depth of the EPA and the importance of ensuring that these HCS apprentices are fit for practice in clinical scientific settings, including understanding the impact of their work on patients, it is envisaged that the assessment proportion of the apprenticeship will be 20% of allocated funding to this apprenticeship programme.

It is expected that AOs will recruit healthcare science specialism specific assessors as recommended with the professional qualifications and assessment experience described above, utilising the existing healthcare science workforce which is nationally distributed in service organisations such as the NHS. The AO quality assures the EPA by developing the tools for use in assessing the EPA elements and ensuring consistency and standardisation across assessors in any employment setting.

The Academy for Healthcare Science (AHCS) will maintain a register of HCS Associates who have successfully completed this Trailblazer Apprenticeship programme.

The expected uptake of this apprenticeship programme is 1000 per annum.