**Training and development of the Assistant Practitioners (APs) in radiography**

**Key words:**

Training, Education, Assistant Practitioner, Development

1. **Introduction**

In 2000 the Department of Health (DH) identified the need for modernising the education and training of many allied health professionals1. At the forefront of the proposed modernisation was widening access; development of inter-professional education and training and promoting academic accreditation of previous experiential learning and vocational pathways into professional education programmes1.

The implementation of the four-tier structure, to support new working practices in radiography was fundamental to maintain effective service and utilise the full potential of skill mix2. However further work was required to evaluate the impact of role changes in radiography on service delivery.

1. **Literature review**

Brown3 explored how opportunities for further learning were influenced by the pressures placed on radiographers through the increased demand for radiography services. The study made use of focus groups to explore the demands on the radiography workforce and examine the influence of skill mix. Results showed that staff were often under pressure due to staff shortages and viewed the introduction of skill mix in radiography as a positive way in which to address these issues. The study however only included a sample of n=10 participants from two hospitals and did not represent the views of the larger radiography population across England. The study did identify three contextual factors that could influence learning in a radiography department: the challenge and value of the work; confidence and commitment; and feedback and support; all three of which will require investigation in relation to the role of the AP in radiography.

The role of support workers in diagnostic imaging was examined by Ford4 who used a questionnaire to determine the views of Radiology Service Managers in the South East of England. The questionnaire used both closed and open ended questions which were analysed by descriptive statistics and thematic analysis yet methods of analysis were not explained or related to the findings. A follow up focus group was held to consider responses to the questions where concerns were raised over the training of support workers and the recruitment crisis. The study identified possible examinations that can be undertaken by the AP in radiography but concerns were raised over the type of patient cohort upon which these examinations might be undertaken. In conclusion the author stated that more work was required to determine the exact nature and extent of duties to be undertaken by the AP in radiography.

Other empirical studies5 in radiography recommend short, but focused training programmes for assistants, composed of sessions on theory underpinned by key competencies relating to practical skills. Naylor5 used content analysis in a qualitative study to examine the positive and negative aspects of the NVQ from the candidate’s perspective. Secondary data was obtained through a literature review that identified five publications, however the method of review and critical appraisal of these publications were not outlined. The author later used two other secondary sources to triangulate the data in an attempt to strengthen the findings. Findings showed that NVQs were mainly viewed in a positive light in relation to gaining confidence and developing skills at work. The study also identified potential limitations for APs who undertook a NVQ training route. Most concerning was the lack of clear progression routes. NVQs enhanced the individual’s career and equipped them for higher education but factors such as age and financial constraints were identified as barriers to further education. The study concluded with a need for further evaluation of progression barriers and identification of support needs.

The first APs in diagnostic radiography who commenced training through the NVQ route were those who were recruited through the National Health Services Breast Screening Programme6 and undertook the Diagnostic and Therapeutic Support Worker NVQ level III. Training was endorsed by the Society and College of Radiographers who suggested APs were educated to NVQ level III7. In the UK standardisation of assistant training was attempted through the National Vocational Qualifications system (NVQ). NVQs were offered at levels 1 (basic) to 5 (advanced) where an assistant practitioner would study at level 3 as a minimum. NVQs focused on the attainment of competencies in practical skills gained in the workplace and the theory underlying these skills.

More recent studies in relation to AP training and supervision in radiography were published by Colthart et al8 who charted the experiences of n=31 trainee APs who successfully undertook a two year training programme. Data only applied to APs completing the Higher National Certificate (HNC) in diagnostic imaging and radiotherapy in Scotland, but provided valuable insight into the challenges and successes faced by the APs during their development journey. The aims of the study were clearly outlined however the methodology and analysis were not described. Support arrangements and working patterns were evaluated and showed that APs enjoyed the practical elements of their work but found the academic programme demanding. The transition from helper to AP was also noted as challenging with many additional skill requirements such as general study and IT skills. Despite these challenges APs strongly endorsed the training programme. Limitations of the study were identified by the author who noted that evaluation was based entirely on self-reporting but added that the baseline data will enable progression of the AP role to be charted over the coming years.

Other educational routes such as Foundation Degrees (Fds) were also used to train and develop APs in radiography. Fds aimed to attract learners who were not previously considered for higher level education in an attempt to widen participation and lifelong learning. Key elements of Fds were employer involvement, accessibility, articulation and progression, flexibility and partnership according to the Quality Assurance Agency (QAA). Fd benchmark statements were first published in 2004 and later revised in 20109. Fds allowed employers to develop a workforce that met their organisational needs whilst closely working with a Higher Education Institution (HEI) in developing the necessary knowledge base. The Foundation Degree Framework10 identified principles to guide providers who developed Fds to ensure the needs of the healthcare sector were met. However the Fd qualification benchmark9 was not designed to be used for regulation or compliance but rather as a reference point in quality assurance to inform and clarify matters concerning intentions, expectations and achievement.

Thurgate and Jackson11 evaluated the partnership between a HEI in the South East of England and the Strategic Health Authority (SHA) in developing and delivering Fds in adult healthcare. The authors drew attention to the resource intensive development process of the Fd required to meet the needs of the clinical department. New staff were recruited in both the HEI and clinical department where practice placement facilitators were essential to successful work-based learning. The initial project was well received by the SHA who went on to sponsor a showcase event for 70 senior NHS colleagues in order to share and support workforce leads in its development and subsequent implementation of band 4 APs.

In a different publication Thurgate et al12 used the same study to debate the evolution of the AP role in nursing and its impact on workforce development and Higher Education provision. Even though the results from a case study cannot be generalised the paper provides thought-provoking concepts to be considered across professional groups. The authors insist on joint responsibility between HEI and NHS Trusts to support AP education and training over the next decade. Results showed how managers and team members were involved in the development of the foundation degree curriculum and ensured that the new AP role did not encroach on established professional roles. The new AP role was therefore accepted within the clinical teams which allowed them to redefine their team’s skill mix and address patient needs more efficiently.

The literature review suggests a range of educational routes and training programmes for APs however these studies are limited to individual departments or selected areas. No study has evaluated the educational routes undertaken by APs in radiography or established how APs viewed their training in terms of fitness for purpose and practice. The need exists to create a national picture of clinical practice and training issues experienced by the AP in radiography.

This publication is part of a series of articles that present the findings from a larger study that investigated the role of Assistant Practitioners (APs) in radiography from an AP perspective across England. This publication focusses exclusively on the findings in relation to training and education of the AP in radiography.

1. **Method**

The overall study was conducted over three phases utilising a mixed methods design13,14,15. Phase I was a scoping exercise in which n=112 radiography sites employing APs were identified through telephone contact to map the location of APs across England. A survey in Phase II distributed n=357 questionnaires to APs to investigate their role in radiography. The researcher was responsible for designing the questionnaire, reliability testing, as well as collecting and analysing the data from the questionnaire16. A questionnaire response rate of n=167 (47%) from a total population sample of APs was achieved.

Data from the analysis of Phase II was used to inform the qualitative third phase of the study. Participants who completed the questionnaire in Phase II of the study and were willing to participate in a follow-up interview made up the sampling pool for Phase III. From the n=167 questionnaires that were returned n=77 participants were willing to participate in the interviews. Purposive sampling was used to select a sample of APs for interview. Phase III utilised n=38 semi-structured qualitative interviews to extend the findings of phase II and explore perceptions and experiences relating to role development. Semi-structured interviews allowed the researcher to gather rich data from the participants. Interviews were conducted in the workplace settings, audio-recorded, transcribed and checked. Thematic analysis allowed the researcher to report experiences and meanings for APs, through a process of identifying, analysis and reporting patterns17.

Ethical approval was gained through the National Research Ethics Service (NRES) and Site Specific Approval was gained from the relevant Research and Development offices at each NHS Trust. Written informed consent was obtained from each participant to ensure their rights were protected.

A previous publication18 outlined detailed methods and results from phase I and II where this publication aims to highlight the educational routes followed in the career progression of the AP (phase II) as well as explore their experiences of training and education (phase III).

1. **Results**

Findings in relation to education and training from both phases II and III that have not been published before are outlined in this section.

Findings from phase II questionnaire identified a range of educational routes undertaken by APs in radiography as seen in Figure 1. Levels of education and training for the AP role were explored where respondents were asked to indicate their highest level of educational training to prepare them for the role of AP.

The most common educational programmes listed by APs were a NVQ level 3 n=41 (25%) or a Foundation Degree (FD) n=38 (23.2%). The title ‘Radiography Students’ referred to the group of individuals that were appointed as APs but were training to become radiographers. Their training course was considered their highest educational qualification in relation to AP training. Other categories referred to respondents who completed A levels (n=1); access course (n=1); part of a health degree (n=3); completed degrees in other health science related topics (n=4); dental radiography course (n=1); mammography courses (n=4) and work experience (n=1).

In an attempt to gain a better understanding of career progression APs were asked if they wanted to become radiographers. More than half of the respondents n=88 (53%) indicated that they would like to become a radiographer where others were still unsure n=32 (19%). Variations across professional fields in relation to the importance of becoming a radiographer were categorised and presented in a contingency table in Table 1. A larger percentage of therapeutic radiography APs wanted to become radiographers compared to diagnostic radiography APs.

Table 2 shows the response to the question where APs were asked if they were encouraged to develop their role and educate themselves further. Similar responses were found amongst diagnostic n=43 (37.7%) and therapeutic radiography n=18 (37.5), with the highest overall response in relation to the frequently category n=61 (37.7).

Respondents were then asked if it was important to be formally trained. Formally trained meant having a recognised AP qualification. A large number of respondents n=148 (87%) felt that it was very important for APs to be formally trained. Similar response rates can be seen in Figure 2 for diagnostic n=108 (89.8%) and therapeutic n=42 (87.5%) radiography. Only a small number of individuals thought it was only somewhat important to be formally trained.

Figure 3 shows the response to question which asked APs if they thought they were adequately trained to perform their job. All n=167 (100%) respondents completed the question and showed that Most APs felt that they were adequately trained to perform their roles n=162 (97%).

Qualitative results from phase III interviews identified a range of emotions portrayed by the participants with regards to their training. Results from phase III are presented as direct quotations that can be viewed in Table 3. Most of their training was done whilst working clinically in the radiography department. Time spent in the clinical department during training was considered an attractive feature of the course. RJ39, 3

The amount of time spent in the clinical department during training allowed the AP to develop their skills and practice. Due to the practical nature of the course participants felt that working in the radiography department daily enabled them to become proficient in radiography practice much sooner. Participant RX40, 51 believed that this method of training provided them with an added advantage compared to that of radiography students.

Clinical support was identified as one of the most positive aspects of training by the participants. Participants viewed their training as a type of apprenticeship where they trained whilst working alongside a practitioner. RH24, 5

Participants felt they did not experience enough academic support during their training. They were not always able to pinpoint the exact level of knowledge required or understand how academic elements fitted together to define and shape their AP practice. RL16, 130-134. They would have valued time spent with other students but also recognised the restrictions associated with small numbers of students. RJ28, 94

A number of developmental challenges were noted in the training and education of APs. Differences in training were noted where some participants followed an academic training programme through a HEI whilst others trained within their clinical department. . They were not able to justify the content of their academic programme in terms of practical use and expressed difficulties with distance learning. RH26, 5-8

Despite the differences in training all these individuals were recognised as APs in their respective clinical departments. For some participants this caused resentment because they were not able to justify the need to study at degree level to obtain the same recognition for training in-house. RS29, 37

Through the introduction of the AP role development and training an entry route was created for those individuals who were previously not able to access radiography training. Participants faced a number of challenges in completing their respective programmes. Despite these challenges most participants were proud of their academic achievements, and felt that a qualification contributed to their recognition in the workplace. RM11, 107

1. **Discussion**

Findings from phase II identified a range of educational qualifications undertaken by the AP prior to radiography training, whereas findings from phase III showed how APs felt that more could be done to prepare the individual for clinical practice thereby increasing their confidence and facilitating role development. This perceived lack of preparation cannot be substantiated or measured without further investigation into the actual methods of preparation for clinical practice. Findings could also be attributed to a personal lack of confidence as shown in other AP studies8. There is no doubt that in order to maintain high standards of radiography practice, APs should receive both theoretical and practical training, therefore their introduction into the clinical environment should be carefully planned and prepared.

Results from the study demonstrated a range of developmental routes and a variety of training methods employed to educate the AP. Training programmes ranged from 1 year for a certificate, 18 months for NVQ level 3, and 2 years for Foundation degrees (Fd) or Diplomas in Higher Education (DipHE). NVQs in Care are approved by the Qualifications Curriculum Authority and claims to offer the opportunity for personal development and enhanced career prospects by providing a career path for the individual to progress. Yet results from this study showed that some APs were not able to determine a clear route of progression to higher level NVQs or other qualifications to enable their progression.

The more recent Education and Professional Development Strategy19 recognised the need for support staff to have access to further development. However, limitations were highlighted for those APs who had a NVQ3 or accredited work-based learning, as advanced standing at HEIs with this level of qualification was unlikely unless they were able to demonstrate learning outcomes equivalent to those within radiography degree programmes. In marked contrast other studies found that nursing and physiotherapy assistants with NVQ3 were able to fast track their training to become registered professionals5. The strategy19 acknowledged possible progression for those APs who held a CertHE, DipHE, or Fd. HEIs could offer advanced standing through mapping the outcomes of the qualification offered against the qualification to be pursued which could then be achieved through a tailored ‘bridging’ programme.

Even though APs are mandated to undertake formal training they are not required to hold a recognised qualification and neither are they professionally regulated. Studies20 have supported the need for APs to undertake a foundation degree due to the poor uptake of NVQs. HEIs were required to develop foundation degrees, in partnership with clinical departments11,12. However results from this study demonstrated the need for standardised training of APs across departments to ensure continuity and consistency of training and development6.

Findings support the need for the development of training programmes that are accredited at national level. The professional body19 suggested that all education programmes be registered and accredited with them prior to recruiting prospective APs. The most recent Scope of Practice for APs21 stated that the minimum educational level requirement should equate to an NVQ level 3 and even though the NVQ level 3 in Health has been discontinued a number of recognised qualifications such as a CertHE, DipHE or Fd were acknowledged. Other training routes such as work-based programmes should however apply for accreditation with the professional body21.

APs felt it was important to have formal training and a recognised qualification as shown in the results of both phases II and III. APs felt proud that they were able to complete a training programme but were disappointed when not recognised by all members of the radiography team. Findings also showed the importance of having a recognised and standardised qualification as AP also noted in other professions such as Certified Occupational Therapy Assistants (COTA) who felt cheated that OT qualifications were accepted at face value as an indicator of competence but their NVQ training was not22.

The integration and alignment of AP training with existing radiography training programmes are essential for the future training of APs in radiography but this can only be achieved if programmes are nationally accredited as previously suggested. Even though the SCoR19 suggested they take responsibility for accreditation of all programmes they cautioned against the embedding of AP training programmes within that of graduate radiographer training programmes. Justification for this caution is not provided other than stating that the needs of both groups (APs and student radiographers) are to be met. Findings from this study provide the first anecdotal evidence of training and developmental needs required by APs in radiography.

Although a range of training pathways were reported by APs in radiography, results from phase III showed that not all training programmes were considered equal. Concerns were raised over the value of in-house clinical department programmes compared with external programmes undertaken at university level. Inconsistencies in training and education have resulted in diversified practice across the workforce. Diversified practice could also result from the need to develop APs for specific departmental requirements and flexible working. The need for a diversified workforce does not constitute diversified training which could impact on standards of care and skill requirement. Inconsistencies in training programmes resulted in further challenges for the APs in radiography due to the fact that their training was not recognised by clinical departments or educational institutions in other geographical areas of the country. Thus hindering their transfer across service boundaries unless they were willing to re-train.

Training whilst working in the clinical department was considered an attractive feature as APs felt comfortable with practical hands-on training. According to some participants, additional time in the clinical department enabled them to become proficient much sooner than their radiography student colleagues. However results showed that APs required more time to acquire the necessary academic knowledge to underpin their clinical practice. More time can be gained through changes in patterns of working where specific academic and clinical days were identified for AP training8. Work-based learning however can only be accomplished through clear guidance and open communication between all parties to ensure that the expectations are met11. More time for academic understanding does not necessarily imply an increase in training time. The implication for future training is careful planning to ensure an adequate balance between the academic time required to gain the necessary knowledge and the clinical time to become competent in practice.

Findings suggest radiographers lacked understanding of AP training and assessment similar to other professional groups such as nursing23. However other studies reported a fear by professionals that the presence of APs would lead to an increased workload with specific regard to induction, education and supervision responsibilities24. APs in radiography did not report these concerns themselves but indicated their learning became more apparent as they progressed. This identified the need for more clinical support initially which could explain the resistance of some professionals. Interestingly, results also showed that a large number of APs were frequently encouraged to educate themselves further and develop their roles thus ultimately leading to increased workload for their supervisors.

The perceptions of APs changed in their role from trainee to practitioner, developing their confidence and ability to question practice25. It is therefore essential to support clinical training with educational support to oversee the training and development of the AP in radiography. Results from this study showed that APs were supported by their mentors or direct supervisors yet no mention was made of associations with practice educators which could potentially enhance their clinical training experience.

Findings from this study show that a clearer link with the current radiographer training syllabus accredited by the SCoR, would allow those responsible for training the AP to familiarise themselves with the limitations of the AP role and provide a greater understanding of the AP scope of practice. A national standardised curriculum would enable the acquisition of adequate skills and knowledge to provide the desired quality of care and result in a more uniform approach to practice for the AP in radiography. The standardisation of training and education should be balanced against existing Radiography training to ensure developmental routes for APs who wish to progress in their career.

1. **Conclusion and recommendations**

A national review of educational programmes for APs in radiography is suggested in light of the findings from this study. A joint review of the existing accredited training programmes in relation to the needs of service delivery in radiography should be done in order to achieve a flexible workforce that would address the service needs.

The review needs to clarify the justifiable methods of training and differentiate between recognised educational qualifications21 to enable informed career development decisions by APs and their employers26. Findings from the review could be used to establish a national standardised programme to be adopted by all educational institutions. A training review would establish inconsistencies in training content and delivery which in turn could be used to standardise AP training across England. Standardisation of training could include core curriculum content in line with the recognised AP Scope of Practice21 where training could then be adapted to meet departmental needs.

A national standardised training programme and clear pathways of career progression will enable employers to manage registration and subsequent AP practice. Recommendations based on the findings from this study suggest policy guidance on standards of education and practice for all AP roles at national level to help shape the future workforce. Standardisation will result in greater coherence amongst the AP group and strengthen the role of the AP within the radiography workforce through enhanced integration.

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