

Literature Search Results

Research question or topic:

“Reviewing current evidence on medical apprenticeships and the effectiveness of using Blended Learning approaches or indeed other approaches in the effective delivery of such training. It is novel for us in England but we know a similar programme is being developed in Edinburgh.”

Name of person/team requesting search:

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Search comments and headlines

There were few examples of medical degree apprenticeship programs with a blended learning component. HEE's plan to build on the part-time programme in Scotland is outlined in the annual report [\[1\]](#) and the information about Edinburgh's program is also available. [\[2\]](#) Over ten years ago King's College London shared their plans for an extended medical degree program to enhance widening participation – “the programme takes six years rather than five because the content of the first two years of the conventional course is spread over three years to produce gradually increasing workloads of 55%, 65%, and 80% of the conventional programme.” [\[3\]](#) More recently Imperial College London trialled a novel Integrated Clinical Apprenticeship, a slightly different example to what was requested, but I felt worth including as a novel apprenticeship approach. [\[4\]](#) The nearest example I found was Hamburg's iMED program [\[5\]](#) an integrated medical degree program including “close integration of theoretical knowledge and practical skills” which is accompanied by “extra-curricular projects” including “using the iMED Textbook as an online learning platform”. Recently another longitudinal elective course (2nd track) was added to include Digital Health. [\[6\]](#) Brandenburg's reformed medical curriculum (study locally, work locally) combines a longitudinal curriculum, problem-based learning and “practical days”. A “decentralised study phase” sees students “complete their clinical training in small groups at selected cooperating hospitals in Brandenburg” – “this phase encompasses not only hospital placements and other local patient-centred courses, but also centralized instruction via video conferencing to assure that basic sciences and clinical theory continue to be covered.” [\[7\]](#) The Oldenberg model has “a modular structure, a highly integrative approach and an early and consistent focus on practical skills and patient-centredness.” [\[8\]](#) I also found an apprenticeship example for medical educators at McGill University in Canada. [\[9\]](#) I found some other blended learning approaches being used in medical education that may also be of interest. One, from New Zealand, explains how eLearning was provided to replace some undergraduate medical studies during the COVID lockdown [\[10\]](#) and an example of an integration of a MOOC into a medical anatomy curriculum at the University of Leeds. The complete results table is available below.


Complete numbered list of results with links

	Citation	Abstract/ key themes	Link
Context			
1	Annual Report and Accounts 2019-20 HEE	HEE is also working with the Medical Schools Council to build on the experience of Edinburgh, who have designed a part-time programme specifically for healthcare professionals living and working in Scotland and understand how this model can be applied across England to widen participation in medical education. HEE is in discussions with two sites, one in Cumbria and one in North East London to consider how a medical degree apprenticeship could be developed and modelled in the area.	Link
Edinburgh – HCPD-Med			
2	About the programme College of Medicine and Veterinary Medicine (Edinburgh Medical School)	<p>A new programme for healthcare professionals seeking to study for a medical degree (MBChB).</p> <p>HCP-Med is a new medical degree programme providing a unique route for experienced healthcare professionals in Scotland to become doctors.</p> <p>For the first three years, you will study part-time and online, while continuing part-time in your current employment. You will also have an attachment to a local GP and three full-time weeks in Edinburgh each year.</p> <p>For years 4 and 5, you will join the main undergraduate MBChB programme full-time and be based in Edinburgh.</p>	Link
King’s College London – extended medical degree			
3	Widening participation in medicine May 2008, BMJ	The extended medical degree programme at King’s College London shows that widening participation in medicine can be successful, but requires appreciable extra commitment by academic staff	Link

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		<p>In 2001, the first year of the extended medical degree programme (EMDP), 10 extra student places were allocated by the Higher Education Funding Council of England. Increases of 10 students a year were approved until the annual intake stabilised at 50.</p> <p>The programme takes six years rather than five because the content of the first two years of the conventional course is spread over three years to produce gradually increasing workloads of 55%, 65%, and 80% of the conventional programme. EMDP students are integrated with the conventional students from the beginning, but in their extra available time they have tutorials in small groups (maximum of 12 students). The three predominantly clinical years are completed in the standard time.</p> <p>Letter: Broadening access to medicine: Is the extended medical degree programme misguided?</p> <p>Letter comment: Broadening access to medicine: The extended medical degree programme at King's</p> <p>Letter: The extended medical degree programme at King's <i>Athens log in required*</i></p> <p>Letter: Is the extended medical degree programme misguided? <i>Athens log in required*</i></p>	
Imperial College London Integrated Clinical Apprenticeship			
4	A novel Integrated Clinical Apprenticeship: transforming medical students into student doctors	<p>The design of the integrated clinical apprenticeship</p> <p>At Imperial College London, we wanted to maximise the integration through the different specialties in year 5 of the undergraduate medical course by developing an Integrated Clinical Apprenticeship (ICA), which is an innovative</p>	<p>Link</p> <p><i>Athens log in required*</i></p>

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	<p>2017, Education for Primary Care</p>  <p>A novel Integrated Clinical Apprenticeship</p>	<p>model of the published versions of the LIC. 'Integrated Clinical' describes continuous and concurrent community and hospital clinical experiences for each student; 'Apprenticeship' reflects the system of educating a new generation of practitioners with on-the-job training to transform medical students to student doctors.</p>	
<h3>Hamburg iMED program</h3>			
<p>5</p>	<p>The Hamburg integrated medical degree program iMED</p> <p>October 2019, GMS Journal for Medical Education</p>	<p>The integrated medical degree program (iMED) was established in winter semester 2012/2013 at the Faculty of Medicine of Universität Hamburg with the aim of improving medical education. The main features of the iMED medical degree program include the close integration of theoretical knowledge and practical skills, scientific orientation and the teaching of psychosocial and communication skills. All these features are commonly found in the modular compulsory core curriculum and elective courses ("2nd Tracks"): The compulsory core curriculum comprises 19 modules which are arranged thematically in seven module groups and cover three stages of a "learning spiral". By comprehensively coordinating the teaching content and the learning objectives of the participating theoretical and clinical subjects, theoretical content is taught on the basis of real patient's medical histories from the first stage of the learning spiral. The elective courses enable students to learn and apply scientific work in a structured curriculum according to their own interests. Relevant practical skills for students future professional routines are taught in the longitudinal training course "Clinical Examination Methods plus Communication" (KUMplusKOM), which runs through the entire curriculum up to the final practical year. Accompanying, extra-curricular projects such as crash courses in the natural sciences or using the iMED Textbook as an online learning platform increase the attractiveness of the iMED degree program. Results of the evaluation show that the introduction and the accompanying optimization of iMED were very successful.</p>	<p>Link</p>
<p>6</p>	<p>Digital Health meets Hamburg integrated medical degree program iMED: concept and introduction of</p>	<p>Digitalization in medicine is transforming the everyday work and the environment of current and future physicians - and thereby brings new competencies required by the medical profession. The necessity for a curricular</p>	<p>Link</p>

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	<p>the new interdisciplinary 2nd track Digital Health</p> <p>2020, GMS Journal for Medical Education</p>	<p>integration of related digital medicine and, in more general, digital health topics is mostly undisputed; however, few specific concepts and experience reports are available. Therefore, the present article reports on the aims, the implementation, and the initial experiences of the integration of the topic Digital Health as a longitudinal elective course (2nd track) into the integrated medical degree program iMED in Hamburg.</p>	
<h3>Brandenburg model</h3>			
<p>7</p>	<p>The Brandenburg reformed medical curriculum: study locally, work locally</p> <p>October 2019, GMS Journal for Medical Education</p>	<p>The Brandenburg Medical School "Theodor Fontane" (MHB) was founded in 2014 by municipal and non-profit institutions in Bernau, Brandenburg an der Havel and Neuruppin to train more physicians for the non-metropolitan region of Brandenburg. Since the 2015 summer term, 48 medical students have been enrolled each year, accepted through the university's own selection process in which the score on the German school-leaving exam (<i>Abitur</i>) and time spent on the waiting list play subordinate roles. Tuition fees can be partially financed through scholarship agreements with regional hospitals if the applicants commit themselves to medical specialist training (<i>Facharztweiterbildung</i>) at a particular hospital. The main places of study are Neuruppin and Brandenburg an der Havel; there is a decentralized study phase from the eighth to tenth semester of study. The Brandenburg Reformed Medical Curriculum (BMM) complies with the model clause contained in the German regulations governing the licensing of medical doctors (<i>ÄAppO</i>). The curriculum is based on problem-based learning (PBL) and focused on competencies and consists of integrated interdisciplinary modules that combine, from the very beginning, basic sciences with clinical and theoretical medical subjects. The focus on general practice is visible in the regularly held "Practical Days" (<i>Praxistag</i>) during which second-year students and above have the opportunity to observe at participating medical practices and familiarize themselves with primary care in Brandenburg. A special focus of BMM is on the acquisition and development of communication and interpersonal skills. These are imparted through a longitudinal curriculum referred to as "Teamwork, Reflection, Interaction, Communication" (TRIK). High value is placed on critical thinking and scientific scholarship and this is reflected in an eight-week academic placement in which</p>	<p>Link</p>

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		<p>the students independently write a research paper. Several different teaching formats ensure that, along with learning specific subjects, sustained personal development can also take place. BMM's decentralized study phase starting in the eighth semester represents a special part of the curriculum in which students complete their clinical training in small groups at selected cooperating hospitals in Brandenburg. This phase encompasses not only hospital placements and other local patient-centered courses, but also centralized instruction via video conferencing to assure that basic sciences and clinical theory continue to be covered. Knowledge- and performance-based semester assessments, in particular OSCEs, reinforce the practical aspects of the training. These replace the M1 state medical examination in the first study phase. The first medical students are now in their ninth semester as of April 2019, making it still too early for final evaluations. The curriculum, successfully implemented to date, already satisfies core requirements of the Master Plan 2020 for undergraduate medical education (<i>Masterplan Medizinstudium 2020</i>) with the curriculum's organization and structure, curricular content, assessment formats and student admission process. With its decentralized structure, BMM specifically addresses the social and health policy challenges facing rural regions of Brandenburg. This is the first curriculum that has taken on the improvement of healthcare in rural regions as its central aim.</p>	
<h3 style="margin: 0;">Oldenberg model</h3>			
8	<p>The model medical degree programme "human medicine" in Oldenburg - the European Medical School Oldenburg-Groningen</p> <p>2019, GMS Journal for Medical Education</p>	<p>In the summer of 2012 the School of Medicine and Health Sciences at the Carl von Ossietzky University of Oldenburg became the first new medical faculty to be founded in Germany in more than 20 years. The faculty was established within the framework of the European Medical School Oldenburg Groningen, a cooperation project between the University of Oldenburg and the University of Groningen. In addition to the University of Groningen and its faculty of medical sciences (Universitair Medisch Centrum Groningen - UMCG), four hospitals in Oldenburg are involved in the programme as cooperation partners, as well as a network of general practitioner practices that provide training and academic teaching hospitals across northwest Germany. The programme itself is a model medical degree programme with a modular structure, a highly integrative approach and an early and consistent focus on practical skills and patient-</p>	<p>Link</p>

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		<p>centredness. In addition to the early introduction to outpatient care in the first years of study, longitudinal pathways and a strong focus on research with early integration of scientific activities into medical studies are the defining characteristics of this programme. The two faculties in Oldenburg and Groningen coordinated their respective curriculums during the founding phase and recognise each other's study modules as equivalent to their own. This has created the preconditions for students from Oldenburg to obtain Dutch qualifications (Bachelor of Human Life Sciences and/or Master of Science in Medicine) in addition to the German "Staatsexamen" (the state examination in medicine) under certain circumstances. Irrespective of whether they intend to obtain these qualifications, all students from Oldenburg must spend at least a year studying at the partner university in Groningen. In exchange, up to 40 students from Groningen have the option to complete part of their studies in Oldenburg.</p>	
<h3>The Osler Fellowship</h3>			
<p>9</p>	<p>The Osler Fellowship: an apprenticeship for medical educators</p> <p>July 2020, Academic Medicine</p>	<p>PURPOSEAs part of a renewed focus on the physician as healer and professional at McGill University, faculty members were recruited to teach in a four-year, longitudinal doctoring course called Physician Apprenticeship. The goal of this study was to examine the impact of this experience and the accompanying faculty development program on the teachers, known as Osler Fellows. METHODAn interviewer conducted semistructured interviews with 23 clinicians to understand their experiences as Osler Fellows and ascertain their views on how the workshop-based faculty development program, designed to mirror student experiences, differed from other professional development activities. RESULTThe notion of connection and reconnection with the profession emerged as a major theme, consisting of four subthemes: the joy of working with students, the desire to make a difference, the process of reflection and renewal, and the building of community. Distinctive aspects of the faculty development program included the value of a common purpose, content that corresponded with core values, a sense of continuity, peer mentorship, and the emergence of a community of practice. Teachers also reported a sense of honor in being associated with Osler's name and a feeling of privilege in accompanying students on their journeys of discovery. CONCLUSIONParticipating in the Osler Fellowship, an example of</p>	<p>Link</p>

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		situated and work-based learning, resulted in a sense of connection with students, medical education, core professional values, and colleagues. As medical educators continue to develop longitudinal mentoring programs, the authors hope that these findings will offer insights on faculty development, recruitment, and renewal.	
Blended learning and medical education			
10	<p>Provision of e-learning programmes to replace undergraduate medical students' clinical general practice attachments during COVID-19 stand-down</p> <p>July 2020, Education for Primary Care</p>	<p>Senior medical students at the University of Auckland, New Zealand spend most of their learning time in clinical attachments. Experiential apprentice-style training is traditionally recognised as an important aspect of obtaining competency. In March 2020 they were stood down from their general practice placements in the context of a national response to the COVID-19 pandemic. Acute conversion of their general practice education from experiential clinical exposure to online and offsite learning was required. This paper describes the steps taken and the underlying theoretical foundations for our expediently developed online course. Our online learning programme has three online components, reflecting the domains of educational environment theory: asynchronous discussion forums; a symposium facilitating social interactions and teacher presence, and a portfolio facilitating personal goal aspects. The latter is underpinned by a multi-theories model of adult learning, built upon the scaffolding framework that supports our entire medical curriculum. Within this theory, we propose a five-stage model of learning. Learning from this experience contributes to the body of knowledge around online education, particularly in meeting the needs of a clinical attachment traditionally grounded in experiential learning. It is hoped that the mechanisms described here might be useful to other educators facing similar challenges.</p>	Link
11	<p>The integration of an anatomy massive open online course (MOOC) into a medical anatomy curriculum</p> <p>January 2017, Anatomical Sciences</p>	<p>Massive open online courses (MOOCs) are designed as stand-alone courses which can be accessed by any learner around the globe with only an internet-enabled electronic device required. Although much research has focused on the enrolment and demographics of MOOCs, their impact on undergraduate campus-based students is still unclear. This article explores the impact of integrating an anatomy MOOC in to the anatomy curriculum of a year 1</p>	Link

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		<p>medical degree program at the University of Leeds, United Kingdom. The course did not replace any teaching that was already being delivered, and was used to supplement this teaching to support the students' consolidation and revision. Analysis of student feedback indicates a high level of usage, with evidence to suggest that female learners may have approached the course in a more personalized manner. Although the video based resources and quizzes were greatly appreciated as learning tools, significant evidence suggests the students did not engage, or were inclined to engage, with the discussion fora. Furthermore, a significant majority of students did not want the MOOC to replace the existing teaching they received. Given the feedback provided, this research suggests that although the student population believe there to be value in having access to MOOC material, their role as replacements to campus-based teaching is not supported. Details regarding the enrolment and engagement of the general public with the MOOC during the two runs are also documented, with the suggestion that graduates employed in the healthcare sector were the primary users of the course.</p>	
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Appendix

Sources and Databases Searched

Google, NHS Evidence, the British Medical Association (BMA) and the Cochrane Library of Systematic Reviews were searched. Healthcare Databases Advanced Search (HDAS) was used to search the following databases: Medline; EMBASE and HMIC. Google Scholar and PubMed were used to citation match and find further relevant papers.

Search Strategies

Key words included: “medical degree apprenticeship”; “medical degree program*”; “medical doctor apprentice*”; apprentice*; physician*; doctor*; clinician*; trainee*; medical; blend*; “online learning”; “part-time”; flexible; extended

For a complete list of the terms and phrases searched see the strategies embedded below.

HDAS



HDAS%20Strategy%20Medical%20apprenti

Google ["medical degree apprenticeship"](#) 30/11/20 | ["medical degree program" AND blended](#) 30/11/20 | [extended AND "medical degree program"](#) 30/11/20 | ["degree program" AND \(novel OR new\) AND medical](#) 1/12/20

Searching the literature retrieved the information provided. We recommend checking the relevance and critically appraising the information contained within when applying to your own decisions, as we cannot accept responsibility for actions taken based on it. Every effort has been made to ensure that the information supplied is accurate, current and complete, however for various reasons it may not represent the entire body of information available.

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