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Progress and challenges in the harmonisation of European undergraduate dental education: a systematic literature review with narrative synthesis.

ABSTRACT

Introduction: Harmonising education to support workforce mobility has been a policy objective for the European Union. However, alignment across varied national contexts presents challenges in dental education.

Methods: A systematic literature review with narrative synthesis. Searches of the electronic databases Embase [Ovid]; MEDLINE [Ovid]; Scopus; CINAHL; AMED and PsycINFO were conducted for relevant material published between 2000 and 2019 on undergraduate curricula, quality standards and learning outcomes in dentistry.

Results: Seventy-six papers met the inclusion criteria. Fifty-three papers were commentaries or editorials, twenty-one were research studies, and two were literature reviews on specific dental subfields. Eighteen of the research studies reported surveys. The literature contains extensive proposals for undergraduate curricula or learning outcomes, either broadly or for subfields of dentistry. Included papers demonstrated the importance of EU policy and educator-led initiatives as drivers for harmonisation. There is limited evidence on the extent to which proposed pan-European curricula or learning outcomes have been implemented. The nature and extent of dental students’ clinical experience with patients is an area of variance across European Union member states. Arrangements for the quality assurance of dental education differ between countries.

Discussion: Harmonisation of European dental education has engaged educators, as seen in the publication of proposed curricula and learning outcomes. However, differences remain in key areas such as clinical experience with patients, which has serious implications if graduate dentists migrate to countries where different expectations exist. Mutual recognition of professional qualifications between countries relies on education which meets certain standards, but institutional autonomy makes drawing national comparisons problematic.

Keywords: harmonisation; curriculum development; learning outcomes; systematic review
INTRODUCTION

The movement of healthcare workers between European Union (EU) member states has been underpinned by a policy logic centred on facilitating citizens’ mobility. One expression of this is through efforts to harmonise educational standards in health professions education across member states. Ensuring professional qualifications are mutually recognised as equivalent across the EU, facilitates the migration of workers between countries by enabling healthcare workers to access labour markets and practise their chosen profession. However, this requires convergence across varied national contexts in the complex field of clinical education, while also accommodating the institutional freedoms of education providers. Therefore, the extent to which such alignment is achievable remains unclear.

In dental education, key landmarks in this European policy agenda included the 1978 Dental Directive, introduced by the European Economic Community, the precursor to the EU. This set minimum standards and required that dental training consist of a five-year full time course of theoretical and practical instruction at a university or equivalent institution, with a view to achieving mutual recognition of dental qualifications. This was followed in 1986 by the Advisory Committee on the Training of Dental Practitioners (ACTDP) of the European Council recommending the establishment of a system of self-assessment and visits to dental schools to assess how far the criteria set out in the earlier directive were being achieved. Throughout the 1990s, further discussions about the progress of harmonisation of standards in dental education continued, both in EU member states and those hoping to accede to the Union in future.

In the early 2000s, the EU pursued efforts to harmonise wider higher education systems, with significant implications for dental training. In particular, the Bologna Declaration saw EU member states agree to pursue a system of higher education based on comparability between countries using the European Credit Transfer System (ECTS). The Bologna Declaration provided the impetus for further efforts to align education provision across Europe including in dental education, describing cycles of higher education, envisaged as three years of undergraduate studies followed by postgraduate studies to masters or doctoral levels. However, the EU recognised that this length of undergraduate studies would not be appropriate for several clinical professions, including dentistry. Consequently, Directive 2005/36/EC further delineated processes for mutual recognition, including of dental qualifications, again drawing attention to issues of educational harmonisation such as the length and content of dental training.

To analyse the evidence base on the harmonisation of dental education standards across the EU, this paper synthesises a wide range of literature from the last twenty years. As mutual recognition of
qualifications operates at a national level, this paper focuses on national and cross-national initiatives for education programmes leading to a primary dental qualification. The review focuses on several aspects of dental education: the development, use and comparability of national or cross-national curricula, competences or learning outcomes; the extent and nature of dental students’ clinical experience with patients; and national quality assurance processes for dental education. Covering policy and educational initiatives relating to harmonisation, set in the historical context of dental education in Europe, and examining the extent to which dental education is comparable between countries, this review takes a holistic view of progress towards alignment, identifies the challenges that remain, and the implications for both educators and policymakers.

METHODS

The review, which formed part of a larger study involving mapping graduate learning outcomes and quality assurance arrangements across EU member states through website searches and a questionnaire,7 used a systematic search strategy combined with narrative synthesis. To structure the literature search, key concepts were translated into the SPI(C)E question framing device for qualitative evidence synthesis,8 as follows: Setting - EU member states, Perspective – Dental Education, Intervention – Curricula, and Evaluation - Regulation; quality assurance; learning outcomes.

Literature searches were developed and undertaken by an information specialist (A3). An example search strategy is provided as appendix A. In October 2019, the following databases were searched: Embase [Ovid]; MEDLINE [Ovid]; Scopus; CINAHL; AMED and PsycINFO. Search terms for each concept contained both title and abstract terms plus subject headings. No filters for study type or language were applied, but searches were limited to articles published between January 2000 and the search date. This twenty year period was used to ensure that the searches captured longer-term changes, and was designed to capture literature influenced by the Bologna process discussions of the early 2000s, as well as more recent developments.

Results from individual database searches were downloaded in Endnote and deduplicated to produce a single set of results. Results were independently screened for inclusion by two reviewers (A1&A2) using Rayyan.9 The full texts of articles identified at this stage were obtained and divided equally between two reviewers (A1&A2) for screening; a 10% sample was double screened for calibration purposes to ensure that the two reviewers were applying the inclusion criteria.
consistently. The citations in included papers were also screened for any additional relevant material. The inclusion and exclusion criteria used in the screening process are shown in Table 1.

**[TABLE 1]**

As the review covered the period prior to the United Kingdom’s (UK) withdrawal from the EU, the UK was included as a then member state, to ensure that all countries included the EU mutual recognition agreement at any point during the study period were included. Information about student perspectives on their education was excluded as beyond the scope of the study, unless papers also referred to cross-national curricula or other harmonisation efforts. A data extraction template was developed to capture information related to the topics of interest, and to enable comparison of undergraduate dental education between EU countries, as represented in the literature identified. We also recorded categorical information about the included papers (including the country or countries described; study design; and area of dental education covered). Data extraction was undertaken by two reviewers (A1&A2).

**Synthesis**

A narrative synthesis approach was used to combine information on the key topics identified as the focus of the review: the development of national or cross-national competences and curricula; the extent of clinical experience with patients; and quality assurance processes. The synthesis sought to examine and integrate the information available from the literature, and to establish what is not yet known. In developing this synthesis, further sub-themes were identified in the literature, focusing on the gaps between initiatives and their implementation and the role of educational and professional interest groups in pursuing harmonisation.

The PRISMA checklist was used to ensure that the review was reported in line with expected standards.

**RESULTS**

Findings from the review are reported below. Following a brief description of the characteristics of the included literature, findings are reported grouped around themes identified through the development of a narrative synthesis. These thematic areas are: the importance of the historical context of dental education in Europe as a source of challenges to harmonisation; the involvement of dental educators in harmonisation projects; the development of curricula and learning outcomes
for various subfields within dentistry; the extent of implementation of these curricula and learning outcomes; the extent of clinical experience with patients in basic dental training; and quality assurance in European dental education.

**Characteristics of included literature**

In all, 76 papers were included for review, as described in the PRISMA flow diagram in figure 1, with further details provided as appendix B. These included papers that were international in scope (n=6), pan-European (n=36), compared two or three European countries (UK and Ireland, n=5; Scandinavian countries, n=2; Poland, Sweden and UK, n=1; France and Sweden, n=1), and two that compared Germany to the EU more broadly. Other papers focused on single countries (UK, n=16; Germany, n=3; Netherlands, n=2; Spain, n=2).

[FIGURE 1]

The majority of the included papers were commentaries or editorials (n=53), focusing on describing or discussing the development of shared, cross-national curricula or learning outcomes. There were also two literature review papers, on curriculum development efforts in implant dentistry and special care dentistry. Twenty-one papers reported research studies, with the most common design being surveys (n=18), with one Delphi study, one qualitative observation study, and one mixed methods study. There was no research reporting rigorous evaluation of the implementation of national or cross-national curricula. No papers reporting student views on cross-national curricula were identified.

In terms of subject matter, the included papers addressed dental education or undergraduate curricula or learning outcomes generally (n=26), or focused on particular educational issues in basic dental training (n=8), including assessment, priority setting and quality assurance. Others focused more narrowly on the development of national or cross-national curricula or learning outcomes in particular subfields of dentistry (n=35), including implant dentistry, periodontology and prosthodontics. The remaining papers focused on specific skills or areas of dental education (n=7), such as professionalism, critical appraisal skills, and the stomatological and odontological traditions.

**Historical development of dental education and the emergence of the harmonisation agenda in Europe**
Two major educational traditions have dominated dental training in Europe: stomatological and odontological, and any discussion of harmonisation efforts must consider this context as a driver for the harmonisation agenda, but also as a source of challenges to its development. The stomatological model was prevalent in Central and Eastern Europe,12,13 and also in Spain, Portugal, and Italy prior to their accession to the European Community (EC).13 In this tradition, students first trained as medics then later specialised in ‘stomatology’, or ‘oral medicine’. By contrast under the odontological model, students train from the outset to be dentists, with dentistry positioned as distinct to medicine.12-14 Odontology has been described as typical of dental education in Northern and Western Europe.12,13 The EC’s Dental Directives were based on odontology and required states that had operated the stomatological model to reorganise dental education.13,14 Differences between the traditions have been important in discussions relating to alignment of European dental education. For example, the limited practical clinical training offered under the stomatological model was identified as a concern, particularly during the early 2000s as several Eastern and Central European countries were working towards accession to the EU.13 Conversely, the importance of odontological curricula ensuring students acquire sufficient basic science knowledge alongside practical skills has been noted.13,14

Accession to the EU has been a major driver for countries switching to an odontological educational model. Shanley (2002) covers the history of early EC/EU directives in dental education, stating that questions remained about whether these had genuine impact on ensuring comparable standards in dental education across EU countries.15 Latterly, structural impact at least is evident, resulting from the Professional Qualifications Directive (2005/36/EC), in force since 2007, mandating that dental training be equivalent to three years of undergraduate studies plus two years Masters studies, in line with the timeframes for higher education courses envisaged by the Bologna process. The aims of the Bologna process were to improve standards of higher education and to make Europe an attractive destination for international students, to whom transferable qualifications would appeal.16-18 The EU’s intention was to stimulate cohesion across European higher education systems while also allowing diversity.17 The Professional Qualifications Directive established that dental training should last for five years of full-time education, including both theoretical and practical clinical components, and should be provided by a University or Institute of Higher Education.19

**Educators’ engagement in harmonisation projects**

Concurrent with political efforts to progress harmonisation, educators worked to develop consistency across national borders through a series of collaborative projects. The DentEd projects,
funded by the EU from 1997-2003, created a stakeholder network\textsuperscript{18-20} with the aims of promoting higher standards in dental education in EU member states (and those seeking membership) and enabling the sharing of resources and pedagogical knowledge to bring about improvement and harmonisation, as legislation mandating change was seen as unlikely.\textsuperscript{15} These projects produced the \textit{‘Development of Professional Competences’}\textsuperscript{18} document, proposing a modular structure for dental training in line with the ECTS system.\textsuperscript{19} Subsequently, the Association for Dental Education in Europe (ADEE) continued efforts towards harmonisation, culminating in the \textit{Profile and Competences of the European Dentist} in 2005.\textsuperscript{18,21} Plasschaert notes that ADEE sought to maintain diversity in dental education but within an agreed framework in order to achieve cohesion.\textsuperscript{19} DentEd and ADEE encouraged convergence in undergraduate education to allow mutual recognition of ECTS and qualifications, and to support high standards of dental care across the EU.\textsuperscript{22}

\textit{Profile and Competences of the European Dentist} was accepted by EU dental schools as leading guidance on the undergraduate curriculum.\textsuperscript{18} The document was intended to be central to the alignment of dental education across the EU while also recognising socioeconomic and cultural differences between countries.\textsuperscript{18} The proposed five year programme would be worth 300 ECTS, and ADEE envisaged all schools adhering to the profile, its seven domains and major competences, but adjusting supporting competences according to their preferences,\textsuperscript{19} and considering the design of their individual curricula.\textsuperscript{23} \textit{Profile and Competences for the European Dentist} was further updated as \textit{The Graduating European Dentist} in 2017\textsuperscript{24-27} though any implications from this are not yet evident in the literature. \textit{Profile and Competences for the European Dentist} became important in discussions about developing curricula across the EU, however there is a lack of published data on the extent to which its proposed competences have been implemented or are being achieved by students.\textsuperscript{28}

\textbf{Development of curricula and learning outcomes for dental subfields}

Together, the Bologna process, the 2005 EU Directive, and the publication of the \textit{Profile and Competences for the European Dentist} prompted a spate of proposals for curricula or learning outcomes for various dental specialties, either to be used across Europe or seeking to apply the principles of those pan-European initiatives within individual countries or groups of countries. Papers reporting such proposals are summarised in table 2.

[TABLE 2]
Papers reporting these efforts, summarised in table 2, cite a number of drivers and contextual factors. For example, a shift towards public health and disease prevention\textsuperscript{39} and a desire to incorporate scientific and technological advances into healthcare education, including new diagnostic and therapeutic approaches\textsuperscript{36,37} were noted as important to the development of shared curricula for cariology and periodontology respectively.

Many of these papers also reference the importance of EU policies focused on mutual recognition\textsuperscript{35} or educational harmonisation,\textsuperscript{36} and the influence of the DentEd projects\textsuperscript{32,35} and ADEE’s \textit{Profile and Competences for the European Dentist}.\textsuperscript{34-36,41,42,45}

Challenges to harmonisation were also identified within these papers. One, published in 2004 on a UK curriculum for oral pathology, noted the diversity between European countries, which would be increased by the imminent accession to the EU of additional countries before any harmonisation was achieved, but predicted that EU guidance would shape UK curriculum development in future.\textsuperscript{33} Local challenges to achieving alignment with proposed European curricula were identified in relation to various subfields, including differences between dental schools necessitating amendments to proposed curricula,\textsuperscript{34} and difficulties for students in achieving all proposed competences due to available resources.\textsuperscript{46}

\textbf{Cross-national curricula or learning outcomes: the extent of implementation}

As detailed above, the literature is replete with proposals for shared curricula or learning outcomes aimed at supporting educational harmonisation. However, evidence of how far these proposals have been implemented or evaluated is much more limited, and that which is available typically centres on self-report survey data.

Implant dentistry is one field in which some assessment of the implementation of European consensus guidelines for undergraduate outcomes, developed in 2008,\textsuperscript{35} is available, though still limited.\textsuperscript{47,48} By 2014, the guidelines had been implemented to varying degrees by dental schools, with barriers to implementation identified as being the availability of time within the curriculum and limited dental school resources.\textsuperscript{48} Also in 2014 it was reported that few institutions had reached the benchmarks set, and robust evaluation and the identification of barriers to implementation were recommended.\textsuperscript{49} In addition, one paper reported variation in pre-clinical skills teaching across Europe, with skills such as communication and team-working less commonly taught\textsuperscript{50} and a 2009 paper on teaching of root canal treatment reported that there was still inconsistency between
dental schools despite harmonisation efforts and the increased movement of dentists within the EU.\textsuperscript{51} These snippets of information are the extent of the evidence on implementation of cross-national curricula or learning outcomes despite the plethora of proposals identified.

\textbf{Clinical experience with patients in basic dental training}

The extent of clinical experience with patients within basic dental training is an important aspect of students’ preparation for practice, however evidence of the extent of students’ exposure to clinical experience with patients across the EU is fragmented. Several papers referenced on-going debates about the appropriate point at which clinical experience with patients should begin, with dental schools needing to decide whether to adopt a contemporary approach featuring early clinical experience, or a more traditional preclinical/clinical model.\textsuperscript{22,44,52}

Again, there was more information about the extent and nature of clinical experience across the EU available in relation to implant dentistry than other subfields.\textsuperscript{47-49} Surveys of 49 European dental schools in 2009\textsuperscript{47} and 33 schools in 2014\textsuperscript{48} found levels of implant related clinical experience offered to students varied considerably. Two papers reported that that clinical experience varied in terms of form as well as extent, with students gaining clinical experience in different ways across schools, including treating patients with one-to-one supervision and chair-side assistance and observation only.\textsuperscript{48,49} The 2009 and 2014 surveys found that in 23\% and 36\% of schools respectively, students could undertake elective studies offering the potential for further clinical experience.\textsuperscript{47,48} However, dental schools can face difficulties in offering students clinical experience, including lack of curriculum time, shortages of trained staff or resources, and insufficient patient flow.\textsuperscript{49}

A 2018 survey of 14 dental schools across 12 European countries, found that the majority offered early contact with patients during the first or second year of studies.\textsuperscript{53} However, this patient contact was typically observational and non-invasive, aiding the cognitive and communication aspects of the transition to clinical practice but not developing procedural skills.\textsuperscript{53} The ‘true’ clinical training phase began in the second and third years but the type of patient contact involved and variation between schools was unclear, though the authors emphasised the importance of the quality and number of patients to whom students are exposed.\textsuperscript{53}

The evidence demonstrates that the extent and nature of students’ clinical experience with patients varies considerably across Europe. The significance of this variance was discussed in a 2011 paper, in
relation to new graduates migrating to work in other countries. Given the requirement in some, but not all, European countries for dental graduates to undertake an additional period of ‘vocational’ training after their initial dental degree, there may be cases in which dentists graduating from countries where no vocational year exists emigrate to practise in a country where such additional training is normally necessary. In these cases, having graduated, the dentist would, under EU regulations, be treated as qualified and could not be required to complete the same vocational training required of those graduating in that country. The paper notes ADEE’s desire to move towards a standardised approach to vocational training in collaboration with national authorities and professional associations.

Quality assurance in European dental education

There was limited information about quality assurance processes for dental education, or how these compare across countries. Early European Directives were reported as being in part aimed at developing a European quality framework. Likewise, the 2005 Directive on professional qualifications has been seen as relevant for quality assurance as it enshrined the automatic mutual recognition of qualifications on the basis of co-ordination of minimum conditions for education. However, within contemporary literature discussing the Bologna process, it was noted that accreditation by an external quality assurance body was not typical in many European countries. The potential for the European Association for Quality Assurance in Higher Education (ENQA) to fulfil this role has been identified, though the literature does not report that ENQA has been tasked with accrediting dental education specifically. Rather, in most European countries, the government or another statutory authority determines all or part of the dental curriculum, though the balance between centralised control and local autonomy for dental schools varies. In 2003, Ireland, the Netherlands, Sweden and the UK were the few European countries with any national form of external quality assurance of dental education. More recent information was not identified within the included literature.

Most discussion of external quality assurance processes referred to Ireland and the UK, and particularly the roles of the General Dental Council and the Quality Assurance Agency for Higher Education in setting standards for education provision in the UK. While the UK appears in the literature as one of the few countries with a clear process of external quality assurance, a 2010 survey on complete denture teaching in UK dental schools found a majority of respondents felt that the quality assurance processes then in place did not necessarily ensure learning outcomes were met. However, more recent papers have positively emphasised the importance of external monitoring processes in the UK and Ireland for assuring standards in dental education.
DISCUSSION

This paper has reviewed efforts to develop harmonisation of undergraduate dental education across the EU over the last twenty years, identifying areas of progress and remaining challenges. Our findings highlight the importance of both political initiatives and those developed by dental educators as drivers. The accession of new countries to the EU, and policies favouring mutual recognition of qualifications to enable freedom of movement, brought a need for greater consideration of how dental qualifications, and the education leading to them, compared between countries. This is especially important when noting the historical context of considerable divergence between countries with odontological and stomatological traditions previously. Engagement from educators, professional associations and special interest groups has been crucial in further developing approaches to and tools for harmonising dental education. The DentEd and ADEE projects producing the Profile and Competences of the European Dentist were central in providing a framework for educators across various subfields of dentistry, who worked to translate the overarching learning outcomes for their own specific fields. While there were also other motivations to produce or update curricula and learning outcomes, including technological innovations in dentistry and a shift towards public health and disease prevention, these were allied with the harmonisation agenda to drive development. The large body of work focused on developing learning outcomes in various fields, reflects a shift from focusing on educational inputs to looking at learning outcomes as the focus of alignment, identified in the late 1990s.

However, despite considerable work having been done to develop learning outcomes, we also found that evidence on the extent to which proposed curricula and learning outcomes have been implemented is lacking, including in the form of robust evaluative studies. This absence of post-implementation data makes it difficult to establish whether the harmonisation agenda and educators’ efforts to achieve it have moved beyond aspiration into practice. Educators as academics should seek to evaluate curriculum initiatives they introduce within their institutions, and where these have been introduced with reference to harmonised curricula or learning outcomes should seek to report the impact of using these frameworks. However, comparative studies looking across institutions and across countries would be more challenging and require significant resources. The limited data available in the literature on dental education in Europe identified in our review was also noted in a recent scoping review, arising from the O-HEALTH-EDU research programme which aims to better understand the current state of oral health education and its quality assurance across
Europe. As it progresses, this research may offer additional insights into the extent of progress with harmonisation efforts.

Another major challenge is to establish how far dental students’ direct clinical experience with patients is comparable across Europe. Although the review identified only limited information about the extent of such clinical experience, a number of key issues emerged. The literature suggested that ensuring adequate and appropriate clinical experience for students can be a challenge for dental schools. Due to the need to expose students to cases featuring varied dental issues, schools need to be able to ensure a certain level of patient flow and case variety as well as staffing and other resources. These potential inconsistencies across countries were identified as potential challenges in relation to migration between countries post-graduation, as destination countries’ expectations may vary.

Mutual recognition of professional qualifications between countries rests on the notion that education will meet certain minimum standards, and the operation of mutual recognition processes is typically within the purview of national regulatory organisations or competent authorities for dentistry. However, our review has demonstrated the major challenge of mutual recognition of qualifications being judged at the national level, when there are considerable differences between education provision leading to the award of the recognised qualification between countries, and also between dental schools within countries. The aim of the harmonisation agenda, encapsulated within the Bologna Declaration, was to promote cohesion plus diversity, but this aim encapsulates an inherent tension between the desire to achieve comparable educational outcomes across countries whilst maintaining institutional autonomy. While such autonomy no doubt facilitates pedagogic innovation, it presents a challenge when mutual recognition focuses on the national level and may not be sensitive enough to recognise and assess the potential impact on students’ education of differences between dental schools’ approaches. Dental schools’ freedom to develop or revise curricula in pursuit of harmonisation may be mediated by their university and by their national regulator. Furthermore, the absence of robust external quality assurance processes for dental education in some European countries, involving regulatory observation visits to dental schools and mapping their curricula to defined graduate learning outcomes for example, means it is difficult to be confident that requisite minimum standards are being achieved consistently. ADEE, following the DentEd projects, undertakes visits to European dental schools on request and following a self-assessment exercise, offering a form of external educational quality assurance but on an opt-in basis and without any regulatory power. Such visits may, however, demonstrate the extent of adoption of and adherence to the framework for educationally harmonised basic dental training.
provided in the *Graduating European Dentist*, the 2017 update to the *Profile and Competences of the European Dentist*.

Our review is inevitably limited by the quality of the evidence available, and this is particularly weak around implementation and evaluation. The published literature may not fully reflect the extent of progress towards harmonisation. The review also did not extend to considering implementation of curricula or learning outcomes within individual schools unless this was accompanied by discussion of the national or cross-national level. This restriction was driven by our focus on the implications of harmonisation for the mutual recognition of qualifications at national level. However, in order to elucidate the relationship between institutional autonomy and mutual recognition, further work might usefully look specifically at how far individual institutions have adopted pan-European or cross-national learning outcomes, and also at how far these have been adopted by national regulators when setting the learning outcome requirements that dental schools in their country must meet. Moreover, further research on the extent and form of EU dental students’ experiences of clinical work with patients would also be a valuable addition to the literature.

**CONCLUSION**

This review offers an overview of the European harmonisation agenda in dental education over the last twenty years, bringing together a large and diverse literature on this theme that has not previously been synthesised. The review found that extensive progress has been made in terms of proposed cross-national curricula and learning outcomes, but that challenges remain, especially demonstrating effective implementation and ensuring that comparable levels are achieved in key areas such as clinical experience. In addition, tension remains between ensuring dental education is comparable across Europe while also maintaining institutional and national autonomy. Institutional autonomy concerning curricula potentially constitutes a challenge to mutual recognition of qualifications being set at the national level, especially in the absence of robust external quality assurance processes.

**REFERENCES**


### Table 1: Inclusion and exclusion criteria

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<tr>
<th>Category</th>
<th>Inclusion</th>
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<tr>
<td>Topic</td>
<td>Content or structure of undergraduate dental curricula at a national level within any EU member state (including comparison or description of the domains, stage of clinical experience etc)</td>
<td>Postgraduate, Continuing Professional Development or speciality training</td>
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<td></td>
<td>Content or structure of undergraduate dental curricula within an institution within any EU member state and which also discusses how this relates to the national / regulatory framework governing that institution.</td>
<td>Views of dental students or graduate dentists on the curricula or their competence (unless cross EU country comparisons are made and the discussion relates to the national / regulatory frameworks)</td>
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<td>Quality assurance of undergraduate dental curricula at a national level within the EU</td>
<td>Quality assurance methods or curriculum mapping within a single institution</td>
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<td></td>
<td>Quality assurance of undergraduate dental curricula within an institution within the EU and which also discusses how this relates to the national / regulatory framework governing that institution</td>
<td>Evaluation of an educational intervention or curricula or teaching or learning activities delivered within a single institution</td>
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<td>Attempts to harmonise undergraduate dental curricula across EU member states</td>
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<td>2018&lt;sup&gt;44&lt;/sup&gt;</td>
<td>Oral anatomy, histology, and embryology</td>
<td>Europe</td>
</tr>
<tr>
<td>2018&lt;sup&gt;45&lt;/sup&gt;</td>
<td>Oral medicine</td>
<td>Ireland and UK</td>
</tr>
</tbody>
</table>
Figure 1: PRISMA flow diagram