Initial Dental Education in Europe

A Harmonisation in Progress or Persistent Disparities?

EDSA Dental Education Survey 2024

European Dental Students' Association
Pioneered by Dr Charlotte Carter
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European Dental Students' Association

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Introduction

" In our opinion, the European Union of Health will remain a pious hope if the health professionals circulating in the internal market do not benefit from a minimum of theoretical, practical and, let us insist, clinical training that is common to all countries and in line with the 21st century's developments." — *2022, Joint letter from FEDCAR and ADEE to Thierry Breton, European Commissioner for the Internal Market*

The principle of mutual recognition of diplomas, established within the European Union, allows healthcare professionals to practice freely in multiple countries, thereby implying an equivalence of the skills acquired during university education.

However, dental education in Europe lies at the heart of many academic and political debates, due to existing disparities among the training programs offered across Member States. These disparities are highlighted by the growing number of professionals trained abroad who register to practice in another EU country.

In 2016, a study conducted by the EDSA (European Dental Students' Association) had already revealed significant gaps in the clinical training of dental students. This study raised concerns regarding the actual harmonization of future practitioners' competencies. Since that initial investigation, several European initiatives have attempted to raise awareness among stakeholders and to better regulate this principle of free movement. But have these actions helped reduce the disparities, or do they still persist today? Is Europe truly moving toward harmonized dental curricula, or do structural differences between Member States remain a barrier to the standardization of clinical skills?

It is within this context that the EDSA Dental Education Survey 2024 was conducted, aiming to update the current state of dental education and shed light on the present situation. This report shall explore the framework of the European diploma, highlight some key initiatives taken and assess whether a trend toward harmonization exists—or if significant disparities still remain.

The contents of this report are extracted from the thesis for the degree of Doctor of Dental Surgery of Dr Charlotte Carter at Brest University, France 28 March 2025. Any questions or inquiries can be sent to *ad.charlottecarter@gmail.com*.

I - The European Union and Dental Demographics

1. Number of Dentists and Access to Care

According to Eurostat's "Dentists, physios & pharmacists in the EU in 2022" [2] (Figure 1), there were over 363,000 practicing dentists in the European Union in 2022.

That year, Germany reported the highest number of dentists, with 71,297 practitioners, followed by Italy (52,559) and France (45,989), both of which had over 45,000 active dentists. In contrast, five countries reported fewer than 2,000 active dentists: Slovenia (1,571), Estonia (1,375), Latvia (1,331), Cyprus (1,090), and Malta (270).

	Dentists		Pharmacists		Physiotherapists	
	(number)	(per 100 000 inhabitants)	(number)	(per 100 000 inhabitants)	(number)	(per 100 000 inhabitants)
EU	:	:	:	:	*626,027*	*140.0*
Belgium	8,820	75.5	15,473	132.5	25,757	220.5
Bulgaria	7,663	115.4	6,082	91.6	1,777	26.8
Czechia	7,886	73.9	7,665	71.8	10,146	95.1
Denmark (1)	4,205	71.8	3,401	58.1	10,823	184.8
Germany	71,297	85.1	56,382	67.3	197,000	235.1
Estonia	1,375	101.9	963	71.4	597	44.3
Ireland	*2,330*	*45.1*	*5,717*	*110.7*	5,610	108.6
Greece (2)	13,904	133.2	11,267	108.0	10,077	96.6
Spain (3)	*28,833*	*60.4*	*58,800*	*123.1*	66,178	138.6
France	45,989	67.6	61,900	90.9	100,569	147.8
Croatia	3,697	95.9	3,429	88.9	3,562	92.4
Italy	*52,559*	*89.1*	*80,018*	*135.6*	64,422	109.2
Cyprus	1,090	119.4	968	106.1	1,156	126.7
Latvia	1,331	70.8	1,662	88.4	991	52.7
Lithuania	3,104	109.6	2,743	96.9	2,118	74.8
Luxembourg	:	:	:	:	:	:
Hungary	7,198	74.6	8,138	84.4	6,496	67.4
Malta	270	50.8	806	151.6	642	120.8
Netherlands	10,148	57.3	3,878	21.9	35,059	198.1
Austria	5,565	61.6	6,913	76.5	*15,984*	*176.8*
Poland	34,899	94.8	28,461	77.3	35,187	95.6
Portugal (4)	12,552	120.6	10,589	101.7	:	:
Romania	21,855	114.7	22,600	118.6	2,711	14.2
Slovenia	1,571	74.4	1,553	73.5	1,667	78.9
Slovakia (5)	2,972	54.7	4,633	85.3	2,225	41.0
Finland (1)	3,983	71.9	6,264	113.1	8,767	158.2
Sweden (1)(6)	8,066	77.4	8,151	78.3	13,852	133.0
Iceland (1)(7)	294	78.9	220	59.1	649	174.2
Liechtenstein	48	121.5	27	68.4	95	240.6
Norway	4,792	87.8	3,408	62.5	9,259	169.7
Switzerland (8)	:	:	5,753	66.1	:	:
Montenegro (5)(9)	37	6.0	149	24.1	162	26.3
North Macedonia (1)(5)	1,711	87.6	1,109	56.8	451	23.1
Serbia (10)	1,679	25.0	1,054	15.7	2,967	44.2
Türkiye (5)	42,359	49.9	38,981	45.9	8,310	9.8

(1) 2021.
(2) Dentists: licensed to practise. Pharmacists: professionally active.
(3) Physiotherapists: licensed to practise.
(4) Dentists: licensed to practise.
(5) Dentists and pharmacists: professionally active.
(6) Pharmacists: includes also prescriptionists.
(7) Dentists: definition differs
(8) Pharmacists: 2021.
(9) Pharmacists: definition differs.
(10) Only includes personnel in institutions under the Ministry of Health. Excludes the private health sector.
Source: Eurostat (online data code: hlth_rs_prs2)

eurostat

FIGURE 1: NUMBER OF DENTISTS IN EUROPE (2022)
(SOURCE: EUROSTAT - "DENTISTS, PHYSIOS & PHARMACISTS IN THE EU IN 2022" [2])

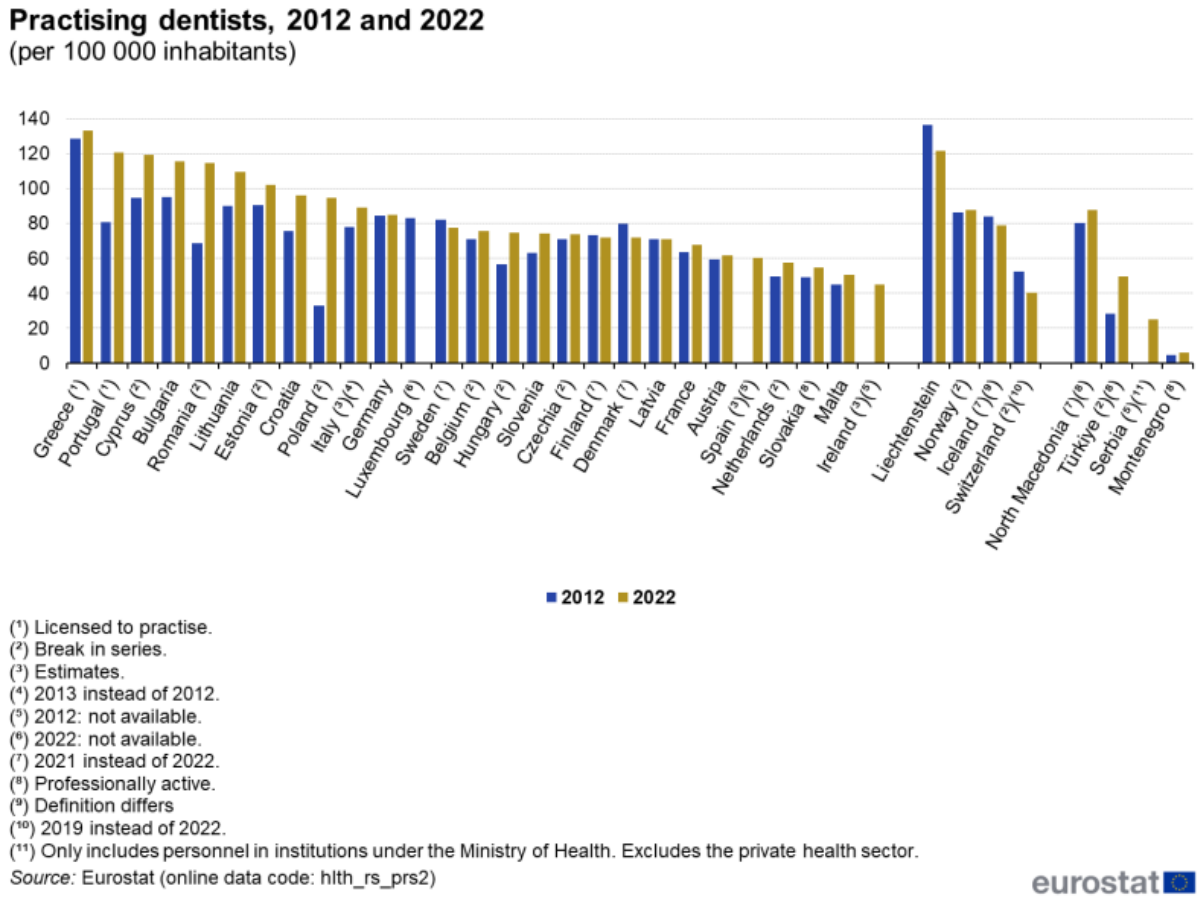

FIGURE 2: DENTIST DENSITY – INTERNATIONAL COMPARISON BETWEEN 2012 AND 2022 (SOURCE: "HEALTHCARE PERSONNEL STATISTICS – DENTISTS, PHARMACISTS AND PHYSIOTHERAPISTS" [3])

Moreover, a comparison between 2012 and 2022 shows an increase in the number of dentists in most European countries, as illustrated in Figure 2. However, this growth is not always sufficient to meet the rising healthcare needs of the population. According to WHO data, the global average density of dentists in 2022 was 3.3 per 10,000 inhabitants, which equals roughly one dentist per 3,030 people [4].

Within the EU, the ageing population, especially the increasing number of people over 65, is placing additional pressure on healthcare systems, particularly for age-related and chronic diseases (OECD and European Commission, 2018) [6]. This leads to a greater demand for dental care. According to the EU Statistics on Income and Living Conditions (EU-SILC), approximately 2.9% of the EU population aged 16 and over reported unmet dental care needs in 2023 due to financial reasons [7]. This rate is nearly three times higher than the percentage of people reporting unmet medical care needs for financial reasons (1.0%).

This gap can be explained, at least in part, by the fact that national healthcare systems often provide limited coverage for dental care, forcing individuals to pay a larger share of dental expenses out-of-pocket or through private insurance.

The professional demographics highlight an imbalance between supply and demand, with declining numbers of dentists in certain underserved areas.

2. Dental Education Units Across Europe

According to Eurostat (Figure 3), the most populous country in the European Union, Germany, had the highest number of dental graduates in 2022, with 2,504 graduates. Approximately 1,900 students graduated in Romania and Spain, while France reported 1,481 graduates (data from 2021) and Poland 1,203. Meanwhile, six countries reported fewer than 100 graduates: Latvia (99), Ireland (90), Slovenia (63), Cyprus (33), Estonia (25), and Malta (0) [3].

	Head count of graduates (number)						Ratio (per 100 000 inhabitants)					
	Dentists			Pharmacists			Dentists			Pharmacists		
	2012	2017	2022	2012	2017	2022	2012	2017	2022	2012	2017	2022
EU	:	:	*14,306*	:	:	*20,806*	:	:	*3.2*	:	:	*4.7*
Belgium	163	255	232	584	538	685	1.5	2.2	2.0	5.3	4.7	5.9
Bulgaria	305	348	518	274	439	415	4.2	4.9	7.8	3.8	6.2	6.3
Czechia	262	352	296	318	324	300	2.5	3.3	2.8	3.0	3.1	2.8
Denmark (1)	123	111	129	157	188	178	2.2	1.9	2.2	2.8	3.3	3.0
Germany	2,376	2,192	2,504	1,929	2,233	2,418	3.0	2.7	3.0	2.4	2.7	2.9
Estonia	23	25	25	69	47	58	1.7	1.9	1.9	5.2	3.6	4.3
Ireland (2)	80	85	90	161	147	200	1.7	1.8	1.7	3.5	3.1	3.9
Greece (1)	176	173	248	279	329	404	1.6	1.6	2.4	2.5	3.1	3.8
Spain	1,533	1,657	1,852	2,631	2,529	2,722	3.3	3.6	3.9	5.6	5.4	5.7
France (1)	1,027	1,283	1,481	3,069	2,911	3,294	1.6	1.9	2.2	4.7	4.4	4.9
Croatia	134	101	196	168	94	179	3.1	2.5	5.1	3.9	2.3	4.6
Italy (3)	820	758	*842*	4,529	5,114	*4,192*	1.4	1.3	*1.4*	7.6	8.5	*7.1*
Cyprus	0	0	33	0	11	215	–	–	3.6	–	1.3	23.6
Latvia	37	63	99	81	53	55	1.8	3.2	5.3	4.0	2.7	2.9
Lithuania	156	176	162	161	181	144	5.2	6.2	5.7	5.4	6.4	5.1
Luxembourg	:	:	:	:	:	:	–	–	–	–	–	–
Hungary	342	308	376	384	309	342	3.5	3.2	3.9	3.9	3.2	3.6
Malta	6	11	0	40	17	23	1.4	2.4	–	9.5	3.6	4.3
Netherlands	230	230	260	170	180	240	1.4	1.3	1.5	1.0	1.1	1.4
Austria	126	184	269	230	308	318	1.5	2.1	3.0	2.7	3.5	3.5
Poland	954	975	1,203	1,222	1,125	1,071	2.5	2.6	3.3	3.2	3.0	2.9
Portugal	593	641	942	1,198	956	868	5.6	6.2	9.1	11.4	9.3	8.3
Romania	1,277	2,080	1,878	1,810	1,564	1,290	6.4	10.6	9.9	9.0	8.0	6.8
Slovenia	:	:	63	:	:	177	:	:	3.0	:	:	8.4
Slovakia	99	138	142	409	370	239	1.8	2.5	2.6	7.6	6.8	4.4
Finland	93	159	181	338	354	322	1.7	2.9	3.3	6.2	6.4	5.8
Sweden (4)	203	293	285	349	346	457	2.1	2.9	2.7	3.7	3.4	4.4
Iceland	6	7	:	20	25	:	1.9	2.0	:	6.2	7.3	:
Liechtenstein	0	0	0	9	6	8	–	–	–	24.6	15.8	20.3
Norway	149	124	103	113	124	97	3.0	2.4	1.9	2.3	2.4	1.8
Switzerland	105	115	108	192	241	263	1.3	1.4	1.2	2.4	2.9	3.0
Montenegro (5)	:	14	22	:	35	27	:	2.3	3.6	:	5.6	6.0
North Macedonia (1)(5)	143	177	125	96	152	115	6.9	8.5	6.4	4.7	7.3	5.9
Serbia	486	432	398	913	728	678	6.8	6.2	5.9	12.7	10.4	10.1
Türkiye	1,083	2,584	4,607	1,016	1,545	2,707	1.4	3.2	5.4	1.4	1.9	3.2

Note: Cyprus, 0 dentistry graduates per 100 000 inhabitants for 2012 and 2017; 0 pharmacy graduates for 2012. Luxembourg does not offer full training in dentistry or pharmacy therefore there are no graduates. Malta, 0 dentistry graduates for 2022. Liechtenstein, 0 dentistry graduates per 100 000 inhabitants for each year.

(1) 2021 instead of 2022.
(2) 2022: break in series.
(3) Dentists, 2017: break in series.
(4) Pharmacists: includes also prescriptionists.
(5) 2018 instead of 2017.

Source: Eurostat (online data code: hlth_rs_grd2)

eurostat

FIGURE 3: NUMBER OF GRADUATES
(SOURCE: EUROSTAT – DENTISTS, PHYSIOS & PHARMACISTS IN THE EU IN 2022 [3])

These figures do not reflect:

- The number of students currently enrolled in dental education programs
- The number of students who left their home countries to study abroad

The most recent student census from a dental representative organization dates back to 2015. In that year, the Council of European Dentists (CED) published the EU Manual for Dental Practice, reporting that there were over 70,000 dental students in training within the EU in 2013. Around 12,000 students graduated annually, with 63% being women, compared to 53% in 2003 (Figure 1.6) [9].

	Year	No of schools	Public	Private	Annual intake	Annual graduates	Percentage female	No of females	Course duration
Austria	2013	4	3	1	165	119	65%	77	6 years
Belgium	2012	5	5	0	NK	158	80%	126	5 years
Bulgaria	2012	3	3	0	350	290	50%	145	5.5 yrs
Croatia	2013	3	2	1	148	113	69%	78	6 years
Czech Rep	2012	5	5	0	280	250	38%	95	5 years
Denmark	2012	2	2	0	162	120	76%	91	5 years
Estonia	2013	1	1	0	32	30	87%	26	5.5 yrs
Finland	2013	4	3	1	186	100	68%	68	5 years
France	2011	16	16	0	1,154	917	55%	504	6 years
Germany	2012	30	29	1	2,222	1,813	62%	1,122	5.5 yrs
Greece	2012	2	2	0	250	275	62%	171	5 years
Hungary	2013	4	4	0	310	245	58%	142	5 years
Iceland	2012	1	1	0	7	7	69%	5	5 years
Ireland	2013	2	2	0	86	68	54%	37	5 years
Italy	2013	34	32	2	984	883	47%	415	5 years
Latvia	2012	1	1	0	35	32	87%	28	5 years
Lithuania	2013	2	2	0	161	161	83%	134	5 years
Malta	2013	1	1	0	8	8	38%	3	5 years
Netherlands	2013	3	3	0	243	268	57%	153	6 years
Norway	2013	3	3	0	153	138	75%	104	5 years
Poland	2013	10	10	0	1,231	809	80%	647	5 years
Portugal	2012	7	3	4	716	553	66%	365	5 years
Romania	2013	10	8	2	1,800	1,700	70%	1,190	6 years
Slovakia	2013	4	2	2	117	101	60%	61	6 years
Slovenia	2012	1	1	0	70	50	70%	35	6 years
Spain	2012	17	12	5	1,379	1,379	67%	924	5 years
Sweden	2012	4	4	0	339	200	63%	126	5 years
Switzerland	2013	4	4	0	128	103	60%	62	5 years
UK	2013	16	16	0	1,100	1,052	56%	589	5 years
	2013	**199**	**180**	**19**	**13,816**	**11,942**		**7,522**	
			90%	**10%**			**63%**		
	2008	**196**	**176**	**20**	**14,401**	**11,582**			
			90%	**10%**			**61%**		
	2003	**184**	**174**	**10**	**10,969**	**8,665**			
			95%	**5%**			**53%**		

FIGURE 4: ENROLMENT IN DENTAL EDUCATION INSTITUTIONS (SOURCE: EU MANUAL FOR DENTAL PRACTICE 2015)

The manual also estimated that there were over 200 dental faculties or schools in the EU. These institutions offered initial dental training programs lasting 5 to 6 years, each adhering to national standards and regulations. No official update has been published since 2013, despite evidence of increasing student numbers: 14,306 graduates in 2022, compared to 11,942 in 2013 (CED). **Moreover, there are currently no updated figures on the total number of dental faculties or the number of educators involved in these programs.**

It remains challenging to accurately track the number of students and educational institutions in Europe due to variations in government data collection practices and the presence of both public and private institutions, which are not always integrated into centralized data systems

As a result, authorities lack a complete and reliable overview of the European situation. Regular updates are needed to ensure accurate assessments. To address this data gap, the EDSA (European Dental Students' Association) launched a student census across member countries in 2023 (Figure 1.7). The survey relies on data collected by national EDSA delegates. Like government efforts, EDSA faces difficulties gathering reliable data on both the number of dental faculties (public or private) and the student population in Europe.

Since the association depends on the engagement and responsiveness of national delegates, data quality may vary from country to country.

Number of students estimated per country			
Bulgaria	3000	Montenegro	120
Croatia	1000	Netherlands	1790
Cyprus	455	North Macedonia	1000
Czech Republic	1300	Norway	800
Denmark	no data provided	Portugal	3800
Estonia	170	Poland	4000
Finland	1152	Romania	3000
France	7500	Russia	40000
Georgia	100	Serbia	2850
Germany	15000	Slovakia	1000
Greece	no data provided	Slovenia	400
Hungary	2900	Spain	no data provided
Ireland	500	Sweden	1200
Italy	5500	Switzerland	800
Latvia	450	Turkey	58000
Lithuania	870	Ukraine	no data provided
Malta	80	United Kingdom	5500
Moldova	900	TOTAL =	165137

FIGURE 5: NUMBER OF STUDENTS PER COUNTRY (PROVIDED BY EDSA DELEGATES) (SOURCE: EDSA)

According to EDSA estimates, there are approximately 165,137 dental students across Europe. However, this is likely an underestimation. In 2013, the CED reported around 25,758 students entering and completing dental programs within the EU. Without comprehensive data on all initial dental training institutions, including their public or private status, it is difficult to determine the exact number of future dentists.

As of now, there is no recent consolidated data on the total number of dental students in the European Union, or more broadly, in Europe.

II - The "European Diploma" in Dentistry

1. The Bologna Process

The Bologna Process, launched in 1999, is a European initiative aimed at creating a coherent, harmonized, and globally competitive European Higher Education Area (EHEA). This intergovernmental framework coordinates national education policies without imposing a single system. Instead, it proposes a common structure to align diverse higher education systems while respecting national specificities. Although informal when introduced in 1998, it has since become the main framework for university reforms in over 49 countries, including non-EU member states. [10]

The Bologna Process is built on several core pillars:

- Adoption of a three-cycle system (Bachelor's, Master's, Doctorate),
- Mutual recognition of degrees and study periods abroad,
- Implementation of quality assurance systems to ensure educational relevance and excellence.

These reforms enhance student and faculty mobility, while improving the accessibility, attractiveness, and global competitiveness of European higher education.

EU Member States have aligned their curricula with Bologna guidelines, leading to major transformations in education. This includes:

- The introduction of ECTS credits (European Credit Transfer and Accumulation System),
- Restructuring programs into Bachelor and Master cycles.

By encouraging mutual diploma recognition and mobility, the Bologna Process contributes to the harmonization of skills and training standards, thereby strengthening the professional integration of graduates within the EHEA. [11]

The most recent major update occurred during the European Higher Education Ministerial Conference in Paris (24–25 May 2018).

However, no specific updates related to dental education were adopted at that time.

2. Free Movement and Diploma Recognition

The principle of free movement within the European Union grants citizens the right to travel, reside, study, and work freely across all 27 Member States. This applies to dentists as well, who may practice in any EU country provided their qualifications are recognized.

This right is enshrined in:

- **The Treaty on the Functioning of the European Union** (TFEU) (Articles 21, 45, 49, 56) [12],
- **The Charter of Fundamental Rights of the EU** (Article 45) [13].

This principle: Enhances professional integration, encourages skill sharing and promotes mobility, strengthening healthcare systems and spreading clinical knowledge across Europe.

Although dental education remains primarily a national responsibility, the EU has introduced regulatory frameworks to harmonize diploma recognition. The main legal reference is Directive 2005/36/EC (Professional Qualifications Directive – PQD), revised by Directive 2013/55/EU, which came into force on 18 January 2014. These directives define minimum training standards to ensure the equivalence of qualifications across Member States. For dental education, the PQD sets the following minimum requirements for EU-wide diploma recognition:

- A program of at least five years full-time (or equivalent),
- A minimum of 5,000 hours of theoretical and practical training,
- A curriculum covering the competencies listed in Annex V of the directive (Figure 1.9).

According to the Bologna structure, a Bachelor's degree in Dentistry involves three years of study (180 ECTS). However, this conflicts with the EU directive's five-year requirement. To align the systems, two models were proposed:

- A "3+2" structure (180 ECTS for Bachelor's + 120 ECTS for Master's = 300 ECTS),
- A "360 ECTS" integrated model (Bachelor + Master combined).

In September 2005, the ADEE General Assembly adopted the "3+2" structure, resulting in a dental Master's degree after five years of full-time study. [11]

Another essential requirement is language proficiency in the host country. However, this requirement must remain proportional and must not become a barrier to accessing the profession. Article 34 of the directive states that: "Basic dental training must ensure the graduate has acquired [...] adequate clinical experience under appropriate supervision."

Annex V includes subjects such as:

- Basic sciences: Chemistry, Physics, Biology
- Medical/biological sciences: Anatomy, Histology, Physiology, Pathology, Microbiology, Pharmacology, etc.
- Dental-specific subjects: Dental materials, Prosthodontics, Conservative dentistry, Preventive dentistry, Oral surgery, Orthodontics, Periodontology, Ethics, Law, etc.

Despite these standards being last updated in 2014, no major revisions have been made since, despite rapid advances in the field. The current directive remains vague regarding clinical training, failing to specify:

- The type or number of clinical procedures students must perform,
- Any minimum clinical quotas during training,
- Whether "clinical hours" involve patient care, simulation labs, or observation.

This means a student with only one year of clinical practice or mere observation may be considered equivalent to one with three years of hands-on clinical training.

The directive also omits emerging fields such as AI, digital dentistry, environmental awareness, or research advancements studied in some of EU member countries.

As a result, it does not ensure consistent training equivalency between students from different EU countries, particularly in clinical competencies.

3. International Mobility for Work and Education

International mobility for work and education is now seen as a form of economic migration and a public health issue, where individuals move to other countries seeking better jobs or financial opportunities. The shortage of dentists in certain EU countries attracts foreign professionals who wish to fill this gap. [6]

The EU supports Member States in providing high-quality education and training. [15] It also promotes multilingualism by encouraging language learning and mobility among students.

One key initiative is the Erasmus+ program, launched in 2014, which promotes:

- Education, training, youth, and sport across Europe and globally.
- It supports student exchanges, internships, teaching and training placements, and cooperation projects between institutions.

By offering grants and funding, Erasmus+ aims to:

- Enhance participant skills,
- Foster international collaboration,
- Strengthen the sense of European citizenship,
- Promote educational innovation and social inclusion.

However, with the increasing mobility of dental students and professionals within the European Union—driven by growing public health needs—it becomes essential to question the harmonization of degrees and the recognition of qualifications. Do these principles truly guarantee an equivalent standard of training for future healthcare providers across different countries? Is it not time to revise these directives to better address today's challenges?

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III - Previous Initiatives

1. DentEd Project (ADEE) and the Graduating European Dentist Recommendations

Launched in the late 1990s by the Association for Dental Education in Europe (ADEE) with EU support, the DentEd project aimed to assess, compare, and improve dental education across Europe. Its final phase, DentEd III (2004–2007), marked significant progress toward educational harmonization.

Key objectives:

- On-site evaluation of dental curricula across Europe
- Promotion of best practices among dental schools
- Development of recommendations to align academic and clinical standards

One major outcome was the creation of a European Dentist Profile, defining the expected competencies of graduates, including:

- Strong biomedical and clinical education
- Teamwork and communication skills
- Lifelong learning commitment
- Problem-solving and ethical practice

Seven core domains were outlined in the 2009 update (Helsinki):

1. Professionalism
2. Communication & Social Behaviour
3. Fundamental Knowledge & Information Management
4. Patient Record & Data Collection
5. Diagnosis & Treatment Planning
6. Therapeutics
7. Prevention & Health Promotion

This project highlighted training disparities in Europe and established a common educational framework.

In 2015, ADEE launched the **Graduating European Dentist (GED)** working group to revise its curriculum model. The resulting **GED Recommendations (2017)** emphasize:

- **Patient safety**
- **Teamwork**
- **Student-centred education**
- **Pedagogical excellence**

In 2022, the GED curriculum was published online in an **interactive and updatable format**. The original seven domains from DentEd were streamlined into **five modern domains** (Field et al., 2024):

Domain I: Professionalism

- Ethics, regulation, professional behaviour, sustainability

Domain II: Safe and Effective Clinical Practice

- Evidence-based care, risk management, team communication, leadership

Domain III: Patient-Centred Care

- Scientific basis, diagnosis, treatment planning, oral health maintenance

Domain IV: Dentistry in Society

- Public health, disease prevention, demographics, healthcare systems

Domain V: Research

- Research design, data analysis, information literacy

The framework serves as a **flexible educational reference**, not a regulatory requirement. GED recommendations **do not impose clinical procedure quotas**, but propose a set of **core competencies**.

While **not legally binding**, it has been adopted locally—for example, by the **Irish Dental Council** in 2020. The **O-Health-Edu Erasmus+ project (2021–2023)** found that nearly **60% of responding schools** use GED at the local level (Dixon et al., 2024), though only **49.3% of ADEE member schools** responded.

Despite increasing global engagement (7,000+ site visits from 50+ countries in 2023–2024), **GED adoption remains uneven**.

As such, they serve as valuable educational guidelines, but they do not ensure clinical training equivalency, which remains a significant challenge for harmonizing clinical practice across Europe. EDSA promotes these recommendations as a step toward modernizing the dental curriculum. However, it is important for all bodies to emphasize that no unified "European standard" currently exists to effectively verify whether a student has received sufficient clinical training. Further collaboration with stakeholders, including the dental professionals beyond the university field deems necessary to efficiently update the directive.

While research and theoretical knowledge are essential components of dental education, dentistry is fundamentally a manual profession, and clinical training must not be neglected in favour of theory. Therefore, while adopting these recommendations to update the directive is a promising step, it still leaves the EU and national authorities in the same position—without a concrete mechanism to assess and ensure consistent clinical competency across Member States.

2. EDSA Clinical Practice Study – 2016 (Marco Mazevet)

In 2016, Marco Mazevet (former EDSA president) conducted a major survey assessing **clinical training and autonomy** among European dental students. The objective: to evaluate whether clinical experience met **ADEE expectations**.

- Conducted via **LimeSurvey**, translated into 7 languages
- Targeted final-year students and 2015 graduates (23,372 eligible students from 26 countries)
- Survey included:

    1. General student information
    2. Questions on clinical training and evaluation
    3. Self-assessment of experience with **34 core clinical procedures**

Findings from 964 responses (19 countries):

- **10%** reported only **observational clinical activity** during their training
- **25% of procedures** were performed **10+ times** by **60% of students**
- **Two-thirds of procedures** were performed **less than 5 times** by **50% of students**
- **Over 75%** never performed **5 key procedures** (e.g., implant placement, surgical extraction)

Autonomy Results:

- Over **50% felt autonomous** for **28 out of 34 acts**
- **90%+ felt autonomous** for only **7 procedures**, mostly in prevention and basic treatments.

Mazevet concluded that the findings reflected a paradox within European dental education: while the mutual recognition of diplomas suggests a unified standard, clinical exposure varies widely between institutions, with training levels often falling short of ADEE recommendations and EU expectations. This discrepancy raises significant public health concerns, particularly given that 10% of surveyed graduates in 2016 had never treated a patient—directly contradicting EU directives on qualification standards. Mazevet warned that without legislative modernization and a clearer framework for clinical competency, Europe risks producing dental graduates who are underprepared for the realities of patient care. Notably, since his study, no follow-up assessments on clinical equivalency have been published by key stakeholders, leaving the issue unresolved nearly a decade later.

Conclusion

The harmonization and improvement of dental education in Europe have been at the heart of numerous initiatives led by the ADEE, the CED (Council of European Dentists), and other representative organizations. The DentEd project marked a significant step forward by identifying disparities in training and proposing a common core of competencies. Building on these efforts, the recommendations of the Graduating European Dentist (GED) introduced an outcome-based approach, emphasizing patient safety, teamwork, and patient-centred care. These recommendations are now recognized and supported by FEDCAR, which advocates for their adoption at the European level.

However, despite this progress and a general consensus on the need for reform, the European directive governing dental education has remained unchanged since 1978. The study conducted by EDSA in 2016 by Marco Mazevet highlighted concerns about disparities in the clinical training of dental students, raising issues related to public health and the free movement of professionals. Yet, no legislative update has been made since then to address these inconsistencies. To this day, nobody has proposed a system for verifying the clinical competencies of recent graduates. It appears evident that the training of a dental professional must go beyond that of theoretical goals.

Thus, although significant progress has been made in structuring dental education in Europe, the official recognition of these advances through an update of the European directive remains a key issue. The future of dental education now depends on the stakeholders' ability to continue their efforts to achieve a regulatory framework that reflects the realities and demands of the 21st century.

It is with this goal in mind that the EDSA decided to conduct a new survey among students in 2024 in order to update its data, identify any training disparities, and ensure that the voices of future dental professionals are heard within European institutions.

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IV -Dental Education Survey 2024

The clinical training of dental students in the European Union is the subject of ongoing debate due to persistent disparities between national curricula. In 2016, the European Dental Students' Association (EDSA) conducted a study highlighting the need to modernize minimum training requirements. The objective of this study is to update existing data, assess the persistence of disparities in initial training, and explore students' perceptions of how well their education aligns with current expectations.

1. Materials and Methods

Questionnaire Design

The study is based on a structured questionnaire distributed to dental students across 35 EDSA member countries, offering a broad overview of educational disparities in Europe.

Participation was voluntary and mainly promoted via EDSA, ADEE, CED, FEDCAR, FDI-ERO, and social media.

The results reflect a specific moment in 2024 and are not directly comparable to the 2016 Mazevet study due to differences in format and sample.

Questionnaire:
6 sections covering academic (theoretical) training based on GED recommendations, practical training (preclinical and clinical), international relations, and end-of-studies experiences, including open-ended questions.

Distribution:
After a pre-test, the survey was distributed from March to April 2024 via EDSA, ADEE, CED, FDI-ERO, and FEDCAR.

Translated into 4 languages (French, English, German, Spanish)

Statistical Analysis:
Independent statistical evaluation financed by EDSA.

Ethics:
GDPR-compliant and anonymous.

2. Results

General Information

798 students from 35 EDSA member countries participated in the survey, with a majority being women (69%) and a strong predominance of students from public universities (98%).

Most programs last 5–6 years, though some 3–4 year programs mentioned by students contradict the Bologna Process minimum.

The geographic diversity provides a meaningful representation of dental education across Europe, even if the overall response rate remains low relative to the total number of students concerned.

International Relations

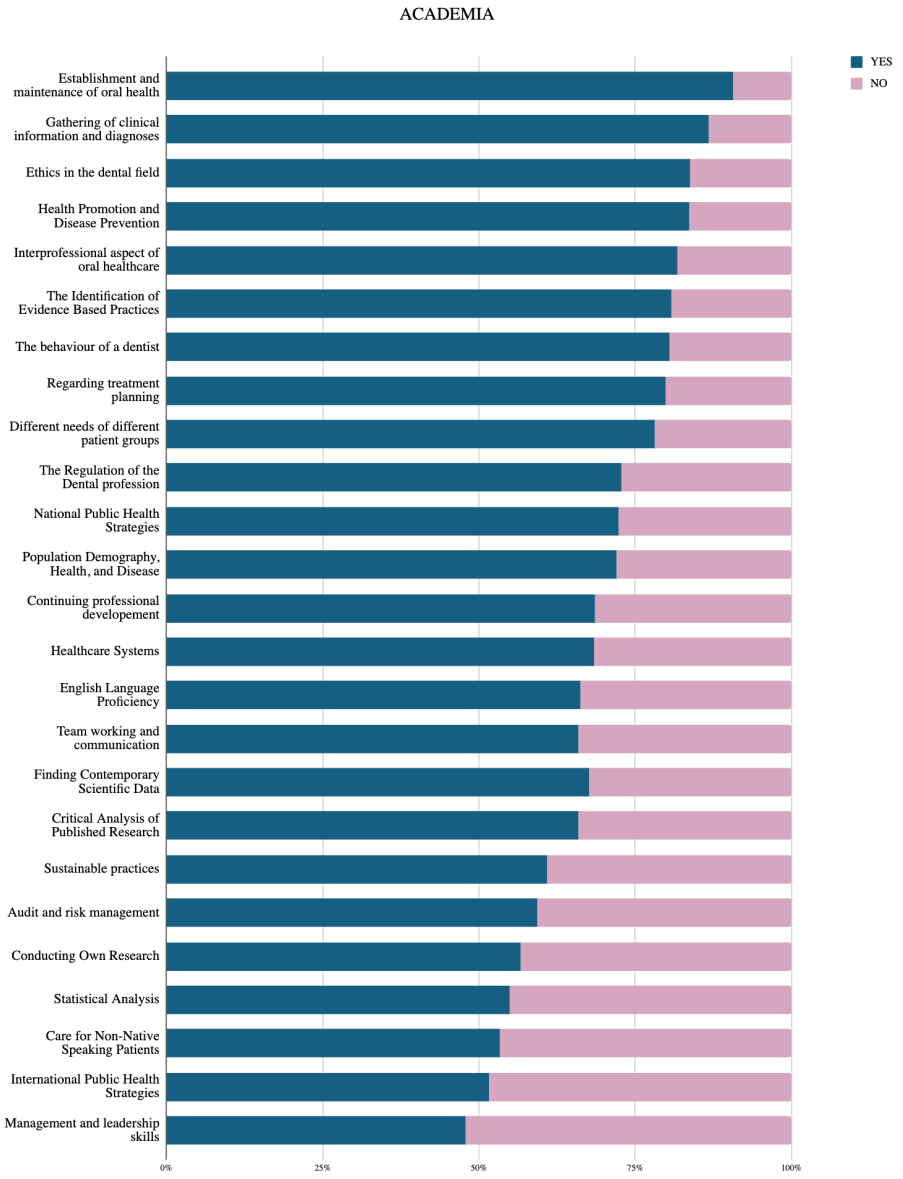
While **64.48%** of students reported that their university takes part in international programs, only **27.38%** felt these opportunities were truly accessible—mainly due to a lack of information and institutional support.

Only **8.57%** of respondents said they were familiar with the ADEE and its GED recommendations.

This low level of awareness (8.57%) reveals a concerning information gap regarding European education standards, which limits students' integration into a harmonized training framework.

Academic Training

When *asked if they considered their training sufficient in the different domains of the GED Recommendations replied:*



Category	Evaluated compétences
A majority of participants consider their training sufficient (More than 75% of participants answered YES)	Ethics in the dental field Professional regulations Dentist's behavior Identification of scientific evidence Treatment planning
Less than half of participants consider their training adequate (Between 50% and 75% of participants answered YES)	Management and leadership Teamwork and communication Interprofessional aspects Healthcare systems and public health Demographics and health promotion
A majority perceive gaps in their training (Less than 50% of participants answered YES)	Sustainable practices Risk management and auditing Critical analysis of scientific literature Statistical analysis Conducting personal research Caring for non-native patients Proficiency in English

Student feedback indicates that while foundational knowledge is well-covered, students are underprepared for practical, interdisciplinary, and global aspects of modern dental care. This indicates a gap between theoretical learning and the broader professional context, such as working in multidisciplinary teams or addressing community-based healthcare needs.

In the open-ended section, students expressed concerns about:

- Lack of practical experience
- Inadequate supervision
- Insufficient resources
- Outdated and unequal teaching
- Poor professional preparation

These findings point to a need to reform theoretical content by integrating essential transversal skills required for modern, evidence-based dental practice that goes beyond hospital walls.

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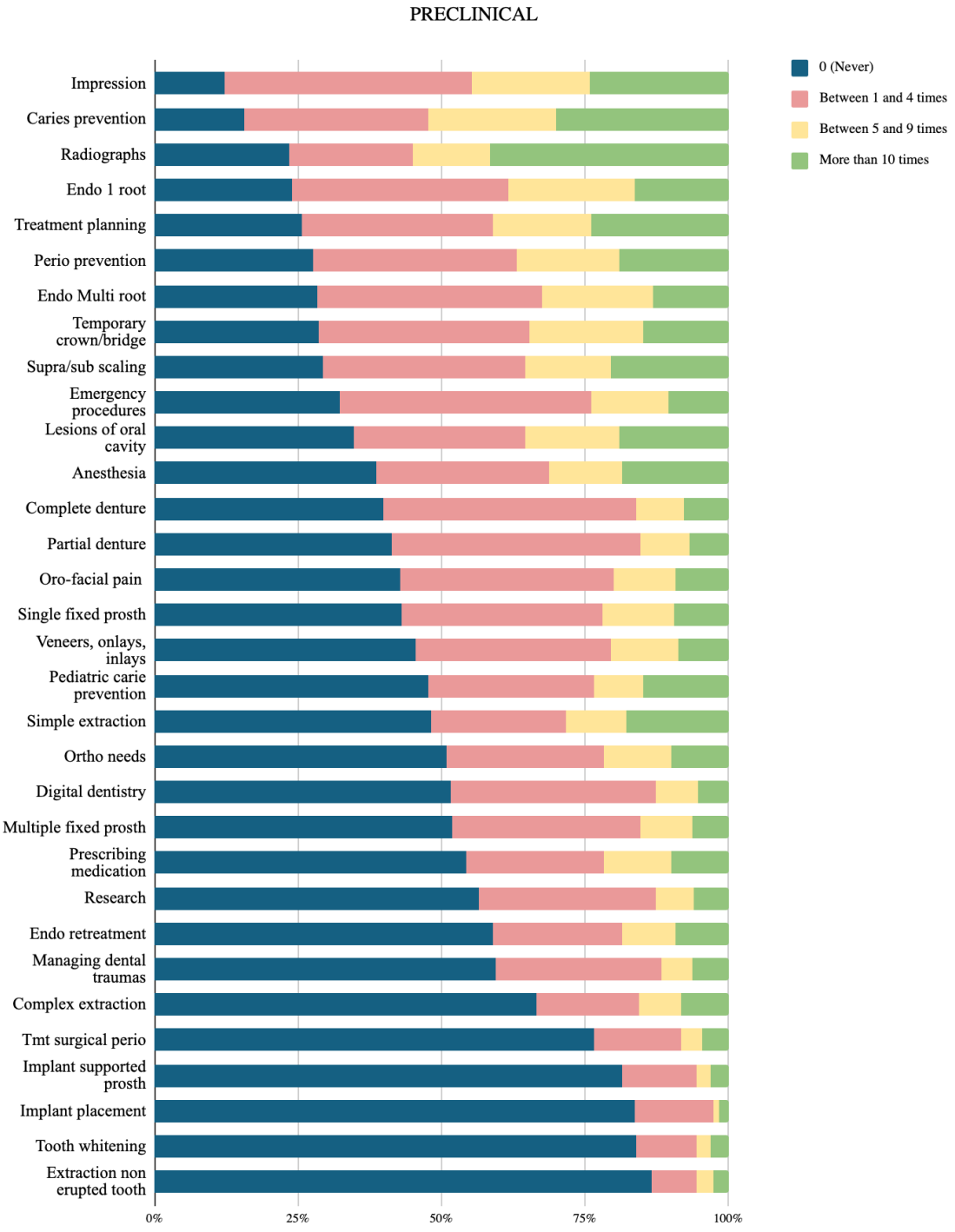
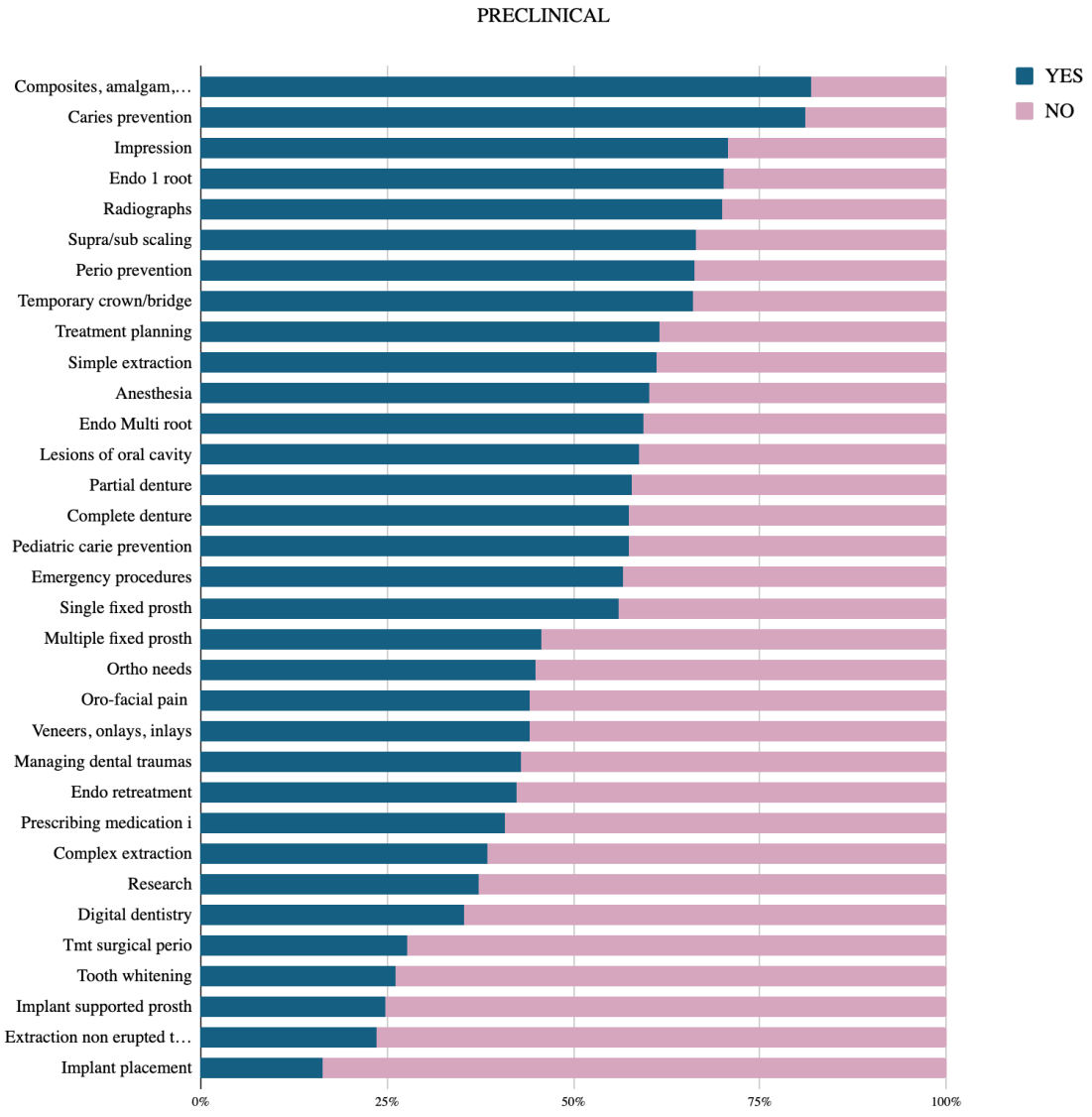
Preclinical Practical Training (Models, simulators)

When asked how many times they practiced a list of 33 clinical procedures students replied:



When asked if they considered their preclinical training sufficient regarding the clinical procedures they replied:



Category	Practical Acts
Domains where the majority of participants feel sufficiently trained (More than 75% of students answered YES)	Performing and interpreting intraoral radiographic images Taking impressions and recording intermaxillary relations Performing local and regional anesthesia Conducting preventive procedures (caries, periodontal disease) Performing direct restorations (composites, amalgams, GIC) Assessing and managing oro-facial pain
Less than half of participants consider their training adequate (Between 50% and 75% of participants answered YES)	Medication prescriptions Treatment planning Endodontic treatments (single-rooted and multi-rooted) Fixed unitary and multiple prostheses Simple extractions Implant surgery (implant placement)
A majority perceive gaps in their training (Less than 50% of participants answered YES)	Complex extractions (alveolectomy or root separation) Performing implant-supported prostheses Managing oral mucosal lesions Handling medical and dental emergencies Managing orthodontic needs Digital dentistry (optical impressions, 3D printing)

59% of students had started or completed their preclinical practical training, but it remains focused on basic procedures such as radiographs or simple restorations, to the detriment of more complex or digital techniques.

Over **50%** of participants reported that their preclinical work was assessed using both qualitative and quantitative methods, while **3%** stated that their preclinical practical training was not assessed at all.

Student feedback highlights a lack of infrastructure, high equipment costs, and a pedagogical approach that is often more medically oriented, with little emphasis on private practice. The financial burden on students and unequal resource allocation exacerbate disparities between institutions.

The use of **simulators** in preclinical practical training was highlighted as beneficial by students.

These disparities suggest a need for: A clearer definition of core competencies at the preclinical level; Minimum standards for exposure to both basic and emerging practices (e.g., digital dentistry). ; A harmonized European framework that ensures all students, regardless of country, graduate with a comparable level of preclinical readiness.

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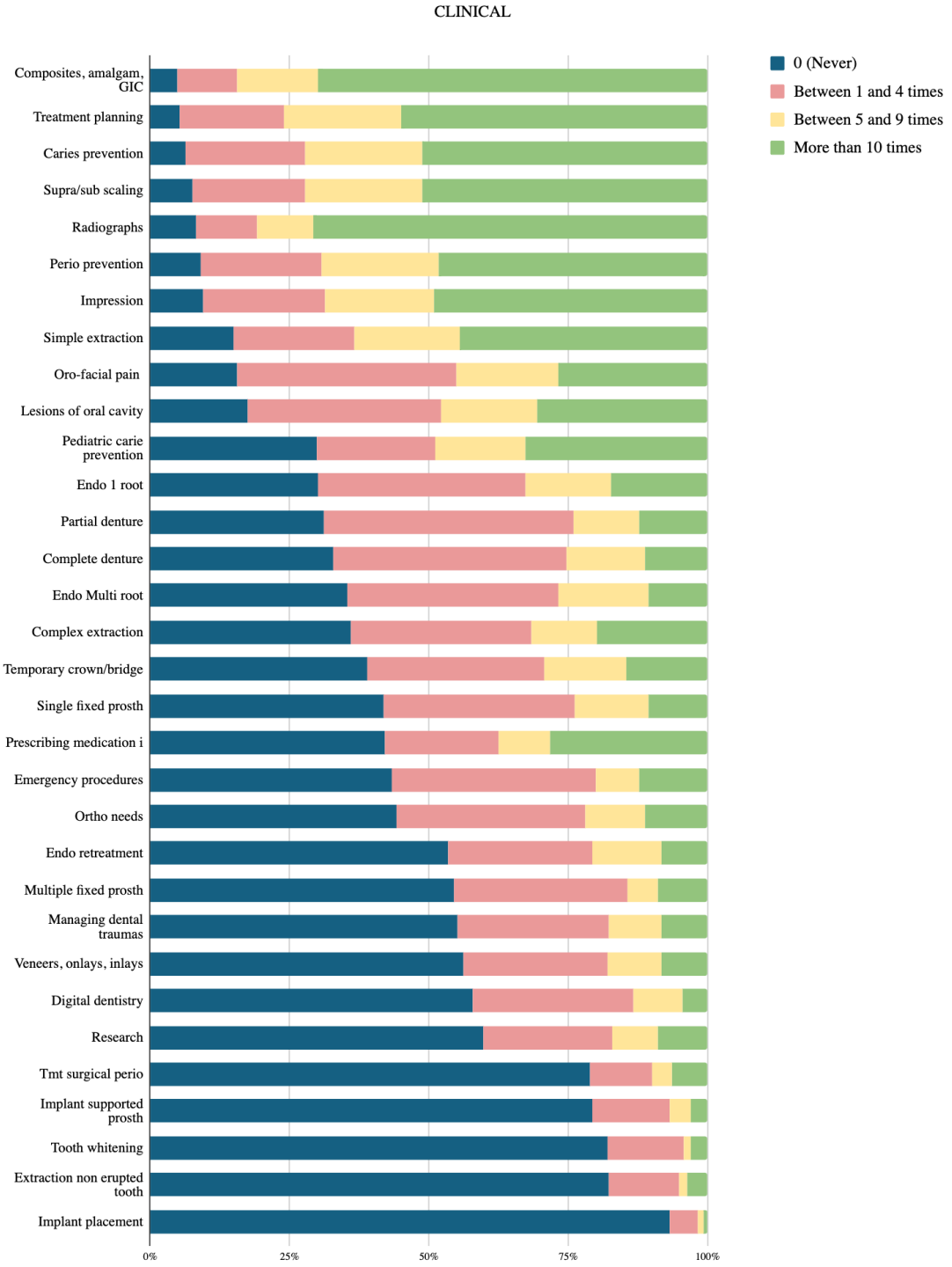
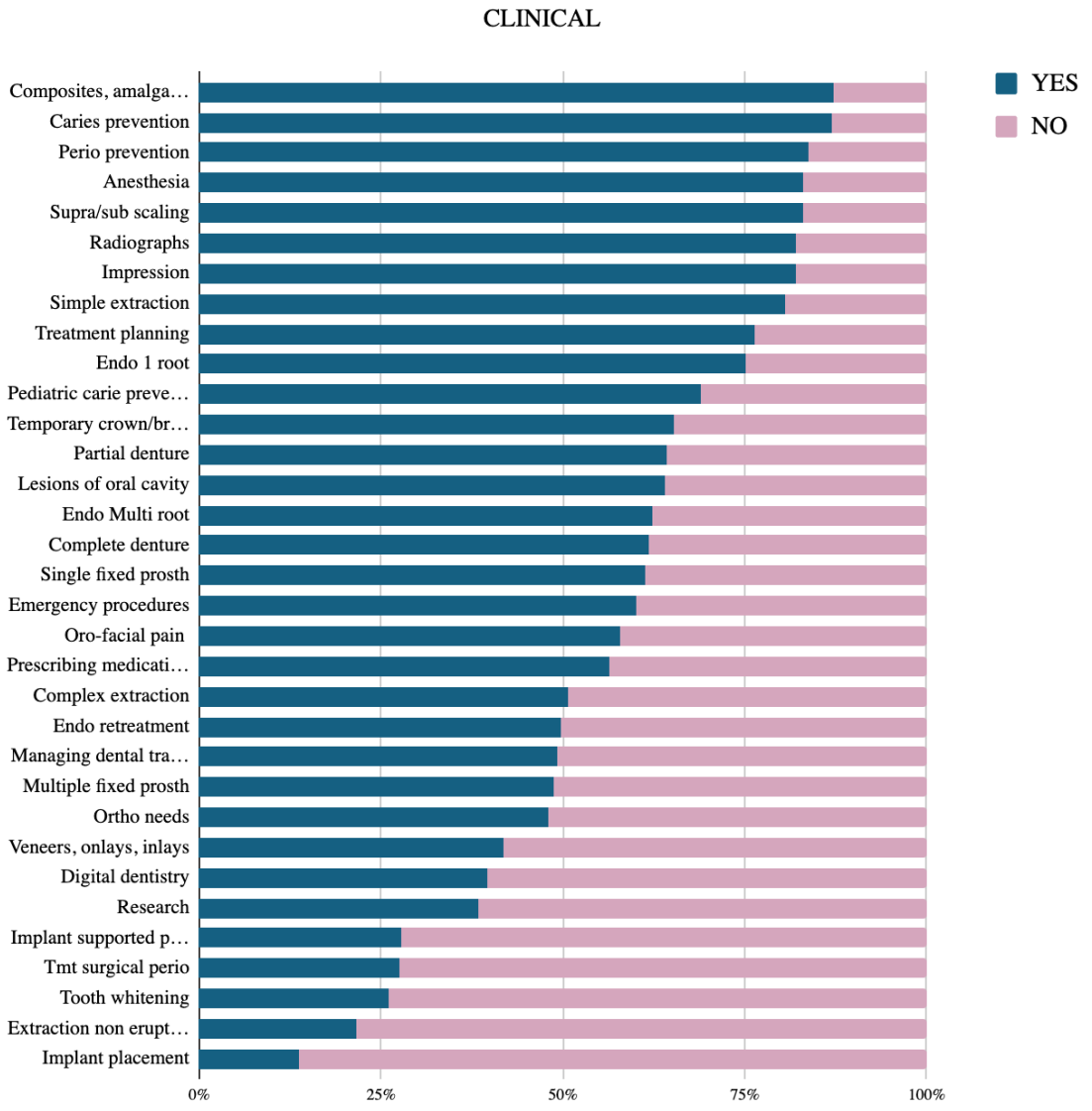
Clinical Training

When asked how many times they practiced a list of 33 clinical procedures students replied:



When asked if they considered their clinical training sufficient regarding the clinical procedures they replied:



Most students started clinical practice in the **3rd or 4th year**, but **exposure varies significantly.**

Seven students reported having no clinical experience at all. In their final year, more than half of the students reported having less than 10 hours of clinical practice per week, with highly variable workloads ranging from 0 to 35 hours.

Category	Clinical Procedures
Domains where the majority of participants feel sufficiently trained (More than 75% of students answered YES)	Taking and interpreting intra-oral radiographs, Taking impressions and intermaxillary recordings, Local and loco-regional anesthesia, Performing endodontic treatment on single-rooted teeth, Performing direct restorations (composites, amalgams, GIC), Performing single and multiple fixed prostheses, Performing simple extractions, Performing medical and dental emergency care
Less than half of participants consider their training adequate (Between 50% and 75% of participants answered YES)	Evaluation and management of oro-facial pain, Treatment planning, Performing supragingival and subgingival scaling, Performing endodontic treatment on multi-rooted teeth, Performing a removable partial denture, Performing periodontal surgical treatment
A majority perceive gaps in their training (Less than 50% of participants answered YES)	Performing tooth whitening, Performing indirect restorations (Inlay-Onlay, veneers), Performing complex extraction (requiring alveolectomy or root separation), Performing supra-implant prostheses, Implant placement, Management of oral mucosal lesions, Management of orthodontic needs, Digital dentistry (optical impressions, 3D printing), Participation in dental research

Despite the broader exposure in the clinical phase, students might feel more confident in preclinical for a few reasons:

- **Preclinical training is often more structured and supervised**, with simulated exercises repeated under guidance.
- **Clinical training is highly variable**, often depending on access to patients, availability of instructors, and faculty resources.
- **Preclinical procedures** are mostly basic and repetitive (e.g., impressions, radiographs), so students may feel more competent.
- In contrast, **clinical procedures include more complexity**, less repetition, and less standardized exposure, which can undermine perceived confidence.

Although some faculties use clinical quotas to ensure skill validation, others rely solely on theoretical assessment or student-obtained patients, creating inconsistencies.

Forty-five percent of students consider supervision insufficient, which undermines training quality and professional readiness.

National disparities in supervision and evaluation systems further complicate the recognition of clinical skills.

Some students also mentioned a negative clinical environment being an obstacle to training.

These finding supports the need for better structure and equity in clinical education, along with minimum practice standards across Europe as:

- Competence is qualitative and subjective: Saying a student is "competent" does not specify how often or under what conditions the skill was demonstrated.
- Two students may be deemed competent in, say, performing an extraction—one after performing it 10 times, another after observing it twice and doing it once under supervision.

- Without a quantitative reference (number of procedures, level of autonomy, case complexity), "competence" can be interpreted very differently between faculties.

If there is no standardized minimum requirement—such as the number of clinical procedures performed or the level of autonomy achieved—**dental faculties across Europe may declare students "competent" under vastly different conditions**. This inconsistency could create inequity between graduates, complicates diploma recognition, and undermines mutual trust between EU Member States. In countries with limited clinical resources or weaker infrastructure, students may complete their studies with minimal practical experience and still be considered competent, despite being underprepared for real-world clinical practice.

In pressured educational systems facing high student numbers or staff shortages, competence-based evaluation can be used to justify graduation after only minimal hands-on training. For instance, a student may be certified competent in endodontics after performing a single supervised root canal, while another has completed 20 independently—yet both are equally validated on paper.

Furthermore, if institutions are not required to document and report student exposure (in terms of procedures, hours, or case diversity), there is no way for external bodies to verify whether training meets safe and consistent practice standards. This lack of transparency limits accountability and makes it difficult for national authorities or the EU to monitor, compare, or improve the overall quality of dental education.

End of Studies

Only **51%** of students reported mandatory private practice internships, resulting in unequal levels of clinical readiness. While **66.19%** intend to work in another EU country, disparities in training and recognition of clinical skills present major barriers.

Despite the strong desire to work abroad, students from countries with less clinical exposure may struggle to integrate into stricter healthcare systems, highlighting the need for stronger harmonization.

Conclusion of the survey

The EDSA 2024 survey highlights the urgent need for greater harmonization in dental education across Europe. Significant disparities remain in clinical training, supervision, and institutional resources. Establishing a binding European reference framework would help standardize qualifications and validate both academic and clinical outcomes. This would also ease diploma recognition and professional mobility within the EU.

Key challenges include a shortage of qualified instructors and outdated clinical infrastructure. Increased investment in equipment and the recruitment of experienced educators are essential. Curricula must also evolve to reflect technological and scientific advances in dentistry.

Student interest in cross-border practice underscores the need to ensure consistent clinical competence across EU graduates. Without a common framework, some programs may inadequately prepare students for clinical work, posing risks to patient safety. Stricter oversight of initial training and qualification criteria is necessary.

Finally, gaps in initial education push many young dentists toward private postgraduate training, where quality and regulation vary. A European accreditation system for continuing education could help ensure consistency and patient safety by setting minimum pedagogical standards and reducing educational disparities.

Conclusion

The African proverb *"It takes a village to raise a child,"* attributed to Igbo and Yoruba cultures, highlights the importance of a collective environment in education. Similarly, the training of a dentist depends on the support of educators, the professional world, and fellow practitioners. **But today, can we truly be certain that the training provided to dental students across Europe is sufficient to ensure both their competence and the safety of European patients?**

The EDSA Dental Education Survey 2024 reveals that, despite the mutual recognition of diplomas within Europe, significant disparities in the initial training of dental surgeons remain a cause for concern. While progress has been made through the GED recommendations and ADEE initiatives, these efforts have primarily focused on modernizing academic curricula. **They do not, however, resolve the issue of clinical skills recognition between countries. The lack of common standards and uniform oversight of clinical training weakens the goal of harmonizing professional practice and hinders cross-border mobility.**

The opening of new dental schools may address demographic needs, but without adequate infrastructure, sufficient funding, and enough qualified instructors and clinical supervisors, there is a risk of compromising training quality. In the long term, this could negatively impact the quality of care and exacerbate inequalities within the EU.

Furthermore, professional mobility—an aspiration shared by many students—is obstructed by these disparities. Some graduates may benefit from rigorous supervision, while others may complete too few clinical procedures to achieve true autonomy, threatening both diploma equivalence and patient safety in countries with higher standards. **A shared system for validating clinical competencies could be developed among Member States—not only to guarantee a standardized level of clinical practice, but also to progressively harmonize national requirements for initial, continuing, and specialist training.**

Nevertheless, these challenges are not insurmountable. The growing awareness among European stakeholders, ongoing modernization efforts, and a shared commitment to improving initial education are all levers that could, over time, strengthen the quality and consistency of dental education across Europe. In this context, EDSA should pursue policy papers focused on the future of dental education and training. **In collaboration with key European stakeholders, a proposal for an EU-wide accreditation system could also be beneficial.**

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