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GENERAL DENTISTS, DENTAL SPECIALISTS, OR BOTH? A NARRATIVE REVIEW OF WHO SHOULD PERFORM SPECIALISED DENTAL PROCEDURES SUCH AS DENTAL IMPLANTS AND ORTHODONTIC TREATMENT

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ABSTRACT

Objective: To appraise the evidence and regulatory context on whether specialised dental procedures, including dental implants, orthodontic treatment and complex endodontics, should be performed by general dentists, dental specialists or both.

Methods: A narrative review was undertaken of peer-reviewed comparative studies, systematic reviews, and regulatory and workforce documents relating to provider training and treatment outcomes, with emphasis on the South African context. Findings were synthesised thematically.

Results: Direct comparative evidence is limited, largely observational and heterogeneous. For dental implants, a meta-analysis found no significant difference in failure between specialists and non-specialists (odds ratio 1.24), but failure differed significantly when experience was defined by the number of implants placed (odds ratio 2.18), suggesting that procedural experience matters more than professional title. Single studies in orthodontics and endodontics reported better outcomes among specialists, although case selection and design limitations preclude causal conclusions. South African regulation permits general dentists to practise broadly without formal competence-based credentialing for advanced procedures, while specialists are few and concentrated in the largest urban provinces.

Conclusion: Neither exclusive specialist provision nor unrestricted general practice is supported by the available evidence. A competence-based, risk-stratified, collaborative model is proposed in which general dentists with verified, structured training manage lower-complexity cases, and specialists manage complex cases and act as referral and mentoring partners. Formal scopes of practice, accredited training pathways, referral protocols and outcome audit are needed.

Keywords: Dental Specialisation; Scope of Practice; Dental Implants; Orthodontics; General Dental Practitioner; South Africa

1 INTRODUCTION

Dentistry is unusual among the health professions in that a single graduate qualification confers a broad licence to practise, while many procedures, from the surgical placement of dental implants to comprehensive orthodontic correction, are also the recognised territory of postgraduate specialties. In South Africa, dentists complete a minimum five-year undergraduate degree followed by one year of compulsory community service, whereas specialist training requires at least four further years of government-funded postgraduate study, with only a limited number of posts available [1]. A patient seeking implants or braces may therefore be treated by a generalist whose advanced skills were acquired through short courses, by a specialist, or by a team that includes both.

Regulation does not draw a bright line between these providers. The South African regulations defining the scope of the profession of dentistry describe it broadly, including procedures aimed at fitting or supplying a dental prosthesis or appliance and aesthetic procedures in the oral and peri-oral area [2]. General dentists are therefore not restricted by discipline, although their practice is bounded by the extent of their capabilities, whereas specialists are expected to limit their practice to their registered specialty [3]. Commentators have noted that generalists may upskill through short courses, workshops, study groups or online material that are unstructured, lead to no examination recognised by the Health Professions Council of South Africa (HPCSA), and are sometimes followed by marketing that may mislead the public [3]. A recent commentary describes disputes over scope encroachment between generalists and specialists as intensifying, and attributes them to a vague scope of practice for general dentists and the absence of formal scopes of practice for the specialties [4].

The question is not only professional but also one of public health and equity. Specialists are scarce and unevenly distributed [1]. Reserving advanced procedures for them could therefore leave many patients without access to care, whereas unrestricted provision by insufficiently trained practitioners could expose patients to avoidable harm. Empirical evidence on outcomes should inform who does what, yet, to the author's knowledge, the comparative literature has not been brought together with the regulatory and workforce context of South Africa in a single appraisal.

The objective of this review was to appraise the available comparative evidence, together with the regulatory and workforce context, in order to address whether specialised dental procedures should be performed by general dentists, dental specialists or both, and to propose a practical framework for allocating them. The guiding hypothesis was that provider competence, defined by structured training, procedural experience and case selection, rather than professional title alone, is the principal determinant of outcome.

2 MATERIALS AND METHODS

2.1 Study design

This was a narrative review. It was not a systematic review, was not registered in a review database, and did not follow a formal protocol; reporting was nonetheless kept transparent so that readers can judge how the evidence was assembled.

2.2 Information sources and search strategy

Published literature was identified through PubMed/MEDLINE and Google Scholar, and through open-access dental journals including the South African Dental Journal. Regulatory and workforce documents were sought from the HPCSA and from an international comparator regulator, the Dental Council of New Zealand [2,5]. Search terms combined the following concepts in varying arrangements: general dentist, general dental practitioner, specialist, dental implant, implant failure, operator experience, orthodontic treatment outcome, peer assessment rating index, endodontic outcome, scope of practice, and South Africa. Searches were completed in September 2026.

2.3 Eligibility and selection

Sources were included if they compared clinical outcomes according to the training, specialty status or experience of the operator; if they described scopes of practice, regulation of advanced procedures, or the dental workforce; and if they were available in English. Where several sources addressed the same question, priority was given to systematic reviews, larger samples and more recent publications. Editorials and commentary were used only for regulatory and contextual information, not as evidence of clinical outcomes.

2.4 Data extraction and synthesis

For each comparative study, the design, sample, definition of the provider groups and principal findings were extracted and are tabulated. Findings were synthesised thematically by procedure and by regulatory theme. Quantitative pooling

was not attempted because of heterogeneity in procedures, outcomes and definitions of specialist and experienced operator, and study quality was not formally graded; limitations of individual studies are instead discussed in the text.

2.5 Ethical considerations

The review used only published and publicly available information and involved no human participants or identifiable patient data. Ethical approval and informed consent were therefore not required.

3 RESULTS AND DISCUSSION

3.1 Scope of practice versus competence

Regulatory frameworks commonly distinguish the legal scope of a registration from the competence of the individual practitioner. The Dental Council of New Zealand, for example, defines general dental practice as practice in accordance with a dentist's approved education, training, experience and competence, and its specialist scopes caution that areas of practice not included in a practitioner's training should not be undertaken without appropriate further training [5]. South African ethical discourse follows similar logic, but the HPCSA does not at present enforce examination-based assessment of the capability of generalists who take up advanced modalities through short-course training [3]. The practical consequence is that, in South Africa, the professional title a provider holds is only a partial guide to whether that provider is competent to treat a particular case. The more useful question is whether a given practitioner has the training and case experience appropriate to a given level of complexity.

3.2 Overview of the comparative evidence

The comparative studies that most directly address the review question are summarised in Table 1. Direct comparisons of general dentists and specialists were found for orthodontics and endodontics but only as single studies, while the implant literature more often compares operators by experience or training level than by specialty label.

Table 1: Key comparative studies of operator training or specialty status and treatment outcome

Procedure	Study	Design and sample	Principal finding
Implants	Sendyk et al. [6]	Systematic review and meta-analysis; 6 retrospective cohort studies in the quantitative synthesis	Experience defined as specialist status: no significant effect on failure (OR 1.24; 95% CI 0.62 to 2.48). Experience defined as more than 50 implants placed: significantly lower failure with experience (OR 2.18; 95% CI 1.40 to 3.39).
Implants	Findler et al. [7]	Retrospective database study; 26,865 implants placed by 57 board-certified periodontists and oral surgeons in Israel	Early failure 1.3% (periodontists) versus 1.7% (oral surgeons), not significant. Number of implants placed during specialty training predicted early failure. No general dentists included.
Implants	Zoghbi et al. [8]	Clinical series; 265 two-stage implants in 110 patients	Osseointegration 84.0% for the first 50 implants placed during postgraduate training and 94.4% for subsequent implants.
Orthodontics	Abei et al. [16]	Cross-sectional comparison of 196 finished casts (126 specialist, 70 general dentist), scored with the ABO index; Ohio, USA	Mean score 26.0 (specialists) versus 29.6 (general dentists); lower is better; difference significant ($P \leq 0.05$). Alignment showed the largest difference.
Endodontics	Alley et al. [17]	Chart review in three private practices; 350 teeth (195 generalist, 155 endodontist); Alabama, USA	Five-year tooth survival 89.7% (generalists) versus 98.1% (endodontists); significant. Authors describe a limited survey.

OR, odds ratio; CI, confidence interval; ABO, American Board of Orthodontics.

3.3 Dental implants

Implant dentistry has the most developed evidence on operator effects. A systematic review and meta-analysis of cohort studies found that when experienced surgeons were defined as specialists, operator experience did not significantly affect implant failure (odds ratio 1.24; 95% confidence interval 0.62 to 2.48), whereas when experience was defined as having placed more than 50 implants, less experienced operators had significantly higher failure (odds ratio 2.18; 95%

confidence interval 1.40 to 3.39) [6]. In other words, specialty status did not reliably discriminate between better and worse outcomes, but accumulated procedural experience did. The included studies were retrospective, and the authors called for standardised prospective studies that control for confounders [6].

A large Israeli database of 26,865 implants placed by 57 board-certified periodontists and oral surgeons found early failure rates of 1.3% and 1.7% respectively, a difference that was not statistically significant [7]. Nevertheless, the number of implants placed during specialty training predicted early failure in later practice: periodontists had placed a mean of 128.9 implants during their programmes against 31.7 for oral surgeons [7]. Because that cohort contained only specialists, it cannot be extrapolated to general dentists, and its authors acknowledge that many practitioners worldwide learn implantology through shorter and more limited programmes [7].

Learning-curve data are broadly consistent. Osseointegration was 84.0% for the first 50 implants placed during a postgraduate implant programme and 94.4% for those placed afterwards [8]; earlier work reported a positive effect of surgical experience on second-stage implant survival [9]; and a review concluded that surgeon experience correlates with osseointegration and implant success [10]. The findings are not uniform. A retrospective review of oral and maxillofacial surgery residents reported 91% survival across 175 implants with no significant difference by level of training [11], and a study of residents in periodontology, prosthodontics and oral surgery reported survival of 94.14%, 91.48% and 89.64% respectively [12]. Supervised trainees in specialist programmes therefore achieve good but not perfect results, and the early implants placed by any beginner appear to carry more risk than later ones.

Outcomes also depend on phases beyond placement. Meta-analytic estimates put the weighted mean prevalence of peri-implant mucositis and peri-implantitis at approximately 43% and 22% of patients respectively [13], and early implant loss is generally attributed to biological complications, surgical trauma and impaired healing [14]. Diagnosis, treatment planning, prosthetic design, hygiene instruction and long-term maintenance are all competencies that matter to these outcomes and that are not guaranteed by either title. Taken together, the evidence does not support the proposition that only specialists can place implants safely, and it equally does not support the view that a short course is sufficient preparation. It supports the view that operator volume, mentored training and case selection modulate risk.

3.4 Orthodontic treatment

Orthodontic outcomes can be assessed objectively with occlusal indices such as the Peer Assessment Rating (PAR) index, which was developed and tested for reliability and validity in 1992 [15]. Direct comparisons of general dentists and specialists are scarce. In one comparative study, Abei and colleagues scored 196 finished dental casts, 126 from patients treated by orthodontic specialists and 70 by general dentists, using the American Board of Orthodontics Objective Grading System. Mean scores were 26.0 (standard deviation 11.4) for specialists and 29.6 (standard deviation 12.8) for general dentists, where lower scores indicate better finishing, and the difference was statistically significant, with tooth alignment showing the largest difference between groups [16].

Three points temper this finding. First, the absolute difference of 3.6 points is modest relative to the variability within each group, which implies considerable overlap: many cases treated by general dentists were finished as well as, or better than, the specialist average. Second, the sample was geographically restricted to one county, was collected in the late 1990s, and was scored by a single examiner [16]. Third, a comparison of finished cases cannot exclude differences in case selection or initial severity as contributors to the result. The evidence is therefore consistent with a specialist advantage in the quality of finishing, particularly alignment, but is too limited to define which cases general dentists can safely manage. Orthodontic complexity spans a wide range, from mild anterior crowding to skeletal discrepancies, impacted teeth and growth modification, and it is reasonable to expect that the case for specialist care strengthens as complexity increases, although this proposition rests on clinical reasoning rather than on direct comparative data.

3.5 Endodontics and other procedures

Although the question posed here focuses on implants and orthodontics, the endodontic literature provides a further comparison. Alley and colleagues reviewed more than 3,000 charts from three private practices in Alabama in which general dentists both performed and referred endodontic treatment, and included 350 teeth. Five-year tooth survival was 89.7% for the 195 teeth treated by generalists and 98.1% for the 155 teeth treated by endodontists, a significant difference [17]. The study was a chart review with tooth survival as its only outcome, its authors described it as a limited survey, and, because generalists decided which cases to refer, case mix could have differed between groups in either direction [17]. Endodontics also does not appear among the six categories of registered specialist reported for South Africa [1], so the practical lesson for the South African setting concerns advanced training and referral to appropriately trained colleagues rather than a specialist-only rule.

For other procedures, including surgical periodontics, extensive prosthodontic rehabilitation and third-molar surgery, the present search did not identify direct comparisons of general dentist and specialist outcomes. This absence is itself a finding and a priority for future research.

3.6 The South African workforce and access to care

In 2016 South Africa had an estimated 6,125 general dental practitioners and 481 specialists, of whom 142 were orthodontists, 83 prosthodontists and 57 periodontists [1]. Distribution is highly uneven. In January 2018 roughly two-thirds (64%) of registered dentists and specialists were located in Gauteng and the Western Cape, no specialist in any of the recorded categories was registered in the Northern Cape, and Limpopo, with a population of about 5.8 million, had three orthodontists and one maxillofacial and oral surgeon [1]. About 20% of dentists work in the public sector, which serves almost 80% of the population, and modelling projects a national shortfall of 1,885 to 2,267 dentists and specialists by 2030 depending on the scenario [1].

In this setting a rule reserving every implant, orthodontic or complex procedure for specialists would mean, for many patients, no access at all rather than a choice between provider types. This is the equity argument advanced by generalists in the current scope debate: restrictive scopes entrench inequity when specialist care remains inaccessible to most of the population [4]. Specialists, for their part, argue that such procedures require years of intensive training [4], a position supported by the learning-curve data discussed above [6,8]. Both arguments have merit, and they are reconciled by attention to case complexity and verified competence rather than by a blanket allocation to either group.

3.7 Toward a competence-based, risk-stratified collaborative model

Synthesising the above, a competence-based, risk-stratified and collaborative model is proposed (Table 2). It is the author's proposal, derived from the reviewed evidence and professional reasoning, and is not a validated guideline. Five principles underpin it. First, competence rather than title determines who may treat a case. Second, case complexity determines the tier of care. Third, general dentists working in the lower and intermediate tiers should have documented, structured and supervised training, with a case log and an established referral relationship. Fourth, specialists lead complex cases and serve as mentors and referral partners, and shared-care arrangements, in which the surgical and restorative or the planning and delivery phases are divided between providers, should be used where they improve outcomes. Fifth, informed consent should include the provider's training in the procedure and the option of referral.

Table 2: Proposed allocation of specialised procedures by case complexity and provider competence (author's proposal)

Procedure	Lower complexity	Intermediate complexity	Higher complexity
Dental implants	Single tooth in a healed site with adequate bone and no local or systemic risk factors. <i>Suggested provider: general dentist with structured, mentored implant training and a documented case log.</i>	Multiple implants, immediate placement, minor grafting, or aesthetic-zone cases. <i>Suggested provider: general dentist with advanced verified training and substantial experience, or a specialist; joint planning advised.</i>	Extensive augmentation or sinus grafting, full-arch rehabilitation, compromised bone or systemic risk, or failed implants. <i>Suggested provider: specialist or multidisciplinary team.</i>
Orthodontics	Mild anterior crowding or spacing in adults with no skeletal discrepancy. <i>Suggested provider: general dentist with structured orthodontic training.</i>	Moderate crowding, non-extraction treatment, or adult cases with defined limited goals. <i>Suggested provider: general dentist with advanced verified training and specialist review of the treatment plan, or a specialist.</i>	Skeletal discrepancies, growth modification, impacted teeth, extraction-based space management, or surgical orthodontics. <i>Suggested provider: orthodontist, with a maxillofacial surgeon where required.</i>
Endodontics	Uncomplicated teeth with straightforward canal anatomy. <i>Suggested provider: general dentist.</i>	Molars, curved or calcified canals, or uncomplicated retreatment. <i>Suggested provider: experienced general dentist using appropriate magnification, or a practitioner with advanced endodontic training.</i>	Complex anatomy, perforations, separated instruments, or surgical endodontics. <i>Suggested provider: practitioner with advanced endodontic training (endodontics is not among South Africa's reported specialist categories [1]).</i>

Tiers are illustrative and require individual clinical judgement. The framework has not been validated.

3.8 Implications for regulation, training, audit and research

Several implications follow. In regulation, formal scopes of practice for general dentists and for each specialty would remove the ambiguity that fuels the current dispute [4], and consideration should be given to competence-based endorsement or credentialing for advanced procedures such as implants and orthodontics, given the absence of examination-based assessment for generalists who train through short courses [3]. Standards on the use of the title specialist and on advertising would protect patients from misleading claims [3].

In training, accredited and structured programmes with supervised case numbers are preferable to unstructured short courses, and the learning-curve data suggest that the first 50 or so implants placed by any operator carry the greatest risk and should be mentored [6,8]. Referral and shared-care pathways should be formalised so that generalists can hand over complex cases and specialists can support them.

In audit, outcome measures are already available for some procedures. The United Kingdom, for example, has issued guidance for commissioners to audit orthodontic treatment outcomes using the PAR index [18], and similar practice-level audit of orthodontic, implant and endodontic outcomes could be adopted locally regardless of provider type. Finally, in research, prospective, case-mix-adjusted comparisons that include general dentists, that define experience by training and case volume rather than title, and that generate South African outcome data are the most important gap.

Limitations

This review has several limitations. It was narrative rather than systematic, so relevant studies may have been missed and selection bias cannot be excluded. The comparative evidence is small, largely retrospective and observational, and vulnerable to confounding by case selection. Definitions of specialist and of experienced operator vary between studies, and most direct comparisons come from the United States and Europe, which limits their applicability to South Africa. Workforce figures date from 2016 to 2018, and the regulatory environment is evolving [4]. The proposed framework is based on synthesis and professional judgement and has not been tested. Finally, the author is a general dental practitioner, which is declared below.

4 CONCLUSION

The evidence reviewed does not support either of the two simple answers to the question of who should perform specialised dental procedures. Specialist status by itself did not reliably predict implant outcome, whereas operator experience did, and single studies in orthodontics and endodontics favoured specialists in ways that may partly reflect case selection. In South Africa, the scarcity and uneven distribution of specialists make specialist-only provision impractical for many patients, while the absence of competence-based credentialing leaves generalist provision of advanced procedures dependent on individual judgement and unstructured training.

The most defensible position is that both general dentists and specialists have a role, allocated by case complexity and verified competence rather than by title. Realising this requires formal scopes of practice, accredited training pathways with supervised case experience, structured referral and shared-care arrangements, outcome audit, and prospective comparative research. Until such measures are in place, practitioners of every category should treat the limits of their own training as the boundary of their practice and refer accordingly.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The author is a general dental practitioner in private practice in South Africa, a professional position that could be perceived as an interest in the question addressed. The author declares no financial relationships with any dental manufacturer, training provider, specialist body or referral network, and no other competing interests.

REFERENCES

- [1] Tiwari R, Bhayat A, Chikte U. Forecasting for the need of dentists and specialists in South Africa until 2030. *PLoS One*. 2021;16(5):e0251238. doi:10.1371/journal.pone.0251238
- [2] Health Professions Council of South Africa. Regulations defining the scope of the profession of dentistry [Internet]. Pretoria: HPCSA; 2009 Mar 6 [cited 2026 Sep 29]. Available from: https://www.hpcsa.co.za/Content/upload/professional_boards/mdb/regulations/Regs_defining_the_scope_of_the_profession_of_dentistry_6_March_2009.pdf

- [3] Sykes LM, Mmutlana TI. Special-IST versus Special inter-IST. *S Afr Dent J*. 2022;77(3):172-3. doi:10.17159/2519-0105/2022/v77no3a8
- [4] allAfrica. South Africa: SA has an oral health crisis, new HPCSA oversight boards need to step up urgently [Internet]. 2026 Jan 14 [cited 2026 Sep 29]. Available from: <https://allafrica.com/stories/202601140225.html>
- [5] Dental Council (New Zealand). Scopes of practice [Internet]. Wellington: Dental Council; [cited 2026 Sep 29]. Available from: <https://dcnz.org.nz/i-practise-in-new-zealand/dentists-and-dental-specialists/scopes-of-practice>
- [6] Sendyk DI, Chrcanovic BR, Albrektsson T, Wennerberg A, Zindel Deboni MC. Does surgical experience influence implant survival rate? A systematic review and meta-analysis. *Int J Prosthodont*. 2017;30(4):341-7. doi:10.11607/ijp.5211
- [7] Findler M, Chackartchi T, Mann J, Platner O, Bernstein Y, Shefer R, et al. The effect of type of specialty (periodontology/oral surgery) on early implant failure: a retrospective "Big-Data" study from a nation-wide dental chain in Israel. *Clin Oral Investig*. 2022;26(10):6159-63. doi:10.1007/s00784-022-04565-z
- [8] Zoghbi SA, Alves de Lima LAP, Saraiva L, Romito GA. Surgical experience influences 2-stage implant osseointegration. *J Oral Maxillofac Surg*. 2011;69(11):2771-6. doi:10.1016/j.joms.2011.03.031
- [9] Lambert PM, Morris HF, Ochi S. Positive effect of surgical experience with implants on second-stage implant survival. *J Oral Maxillofac Surg*. 1997;55(12 Suppl 5):12-8. doi:10.1016/S0278-2391(16)31192-2
- [10] Jerjes W, Hopper C. Surgical experience, workload and learning curve vs postoperative outcome. *Eur J Oral Implantol*. 2018;11(Suppl 1):s167-78. PMID: 30109307
- [11] Melo MD, Shafie H, Obeid G. Implant survival rates for oral and maxillofacial surgery residents: a retrospective clinical review with analysis of resident level of training on implant survival. *J Oral Maxillofac Surg*. 2006;64(8):1185-9. doi:10.1016/j.joms.2006.04.014
- [12] Sonkar J, Maney P, Yu Q, Palaiologou A. Retrospective study to identify associations between clinician training and dental implant outcome and to compare the use of MATLAB with SAS. *Int J Implant Dent*. 2019;5(1):28. doi:10.1186/s40729-019-0182-6
- [13] Derks J, Tomasi C. Peri-implant health and disease. A systematic review of current epidemiology. *J Clin Periodontol*. 2015;42(Suppl 16):S158-71.
- [14] Tomasi C, Derks J. Etiology, occurrence, and consequences of implant loss. *Periodontol 2000*. 2022;88(1):13-35. doi:10.1111/prd.12408
- [15] Richmond S, Shaw WC, O'Brien KD, Buchanan IB, Jones R, Stephens CD, et al. The development of the PAR Index (Peer Assessment Rating): reliability and validity. *Eur J Orthod*. 1992;14(2):125-39.
- [16] Abei Y, Nelson S, Amberman BD, Hans MG. Comparing orthodontic treatment outcome between orthodontists and general dentists with the ABO index. *Am J Orthod Dentofacial Orthop*. 2004;126(5):544-8.
- [17] Alley BS, Kitchens GG, Alley LW, Eleazer PD. A comparison of survival of teeth following endodontic treatment performed by general dentists or by specialists. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2004;98(1):115-8. doi:10.1016/j.tripleo.2004.01.004
- [18] British Orthodontic Society, Clinical Standards Committee. Guidelines for Primary Care Trusts and Local Health Boards to assess the treatment outcome of patients treated by specialist orthodontists or dentists using the Peer Assessment Rating (PAR) index [Internet]. London: British Orthodontic Society; 2009 Jul [cited 2026 Sep 29]. Available from: <https://archive.bos.org.uk/Portals/0/Public/docs/Research%20and%20Audit/BOSPARguidelines20July09.pdf>