Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Stakeholder perspectives on undergraduate general practice curriculum redesign: A mixed methods study using dual analytic approaches

Fabian Dupont
Saarland University
Ashwini Datt
University of Auckland
Owen Mugridge
University of Auckland
Philip Vogt
Saarland University
Sophie Herrmann
Saarland University
Marie König
Saarland University
Caroline van der wals
Saarland University
Sinan Durant
Saarland University
Ranche Johnson
University of Auckland
Kyle Eggleton
University of Auckland
Rachel Roskvist
University of Auckland
Shomel Gauznabi
University of Auckland
Felicity Goodyear-Smith
f.goodyear-smith@auckland.ac.nz

University of Auckland

Research Article

Keywords: Curriculum redesign, General practice, Education, medical, undergraduate, Mixed methods, Stakeholder engagement, Dual analytical approach

Posted Date: November 12th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11177105/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Background

Strong general practice workforce is key to better population health. However, medical schools face increased challenges in adapting their undergraduate medical curricula to provide students with greater exposure to general practice. At the University of Auckland, we conducted a multi-phase study to inform an extensive curriculum redesign. This paper reports on contextualised findings from extensive stakeholder consultation on the redesigned general practice curriculum with complementary insider and external analytic perspectives.

Methods

We used a mixed methods, dual analytic approach, integrating quantitative survey data and qualitative stakeholder survey and interview data. Two independent teams with different relationships to the curriculum analysed the data, and their findings were subsequently compared to examine convergence, divergence, and the influence of researcher positionality.

Results

There were 315 survey respondents and 29 interview participants comprised of students, postgraduate trainees, academic staff, primary care practitioners and representatives of community care organisations. Six overarching themes were derived. The two analytic teams showed substantial convergence but differed in emphasis, demonstrating how researcher positionality influenced interpretation.

Conclusion

In line with other international research, our stakeholders broadly supported strengthening general practice exposure throughout the medical programme with priority for: longitudinal and authentic community-based learning; strong educational relationships and role modelling; alignment with contemporary primary care practice; strategic use of educational technologies; development of a sustainable teaching ecosystem; and collaborative, flexible implementation approaches. Combining context-rich insider analysis with an independent external perspective provided complementary interpretations and enhanced reflexivity. Dual analytic perspectives may offer a transferable methodological approach for stakeholder-informed curriculum development and evaluation.

Background

Countries with strong primary care have overall better population health, less unnecessary hospitalisation, lower socioeconomic inequality and slower growth in health spending [1, 2]. A well-trained, well-resourced and well-distributed family medicine / general practice workforce is needed to provide quality primary care; however in many countries there are insufficient numbers of family doctors / general practitioners (GPs) to meet the primary care needs of communities [3]. Many medical schools across the western world have set explicit targets for the proportion of their graduates who will pursue careers in family medicine and primary care [4, 5], although these are often aspirational and not attained [6–9].

High-quality, ongoing and authentic general practice / family medicine exposure where students learn from patient contacts in practices, in contrast to non-clinical sessions such as group tutorials on campus, is known to lead to an increased intent to pursue a general practice career [10, 11]. Many medical schools have been developing or adapting their curricula to increase students' general practice exposure during their medical training [12]. The United Kingdom (UK) has seen the opening of new medical schools with more integrated primary care-focused curricula in response to the comprehensive 2016 Wass report [13].

The Department of General Practice & Primary Health Care at the University of Auckland, New Zealand places medical students in Years 2, 4, 5 and 6 in approximately 145 primary care sites in the mid and upper North Island, including general practices, urgent care clinics and rural hospitals. However, faced with declining numbers of general practice placement sites for undergraduate medical students, exacerbated by annual increases in the student intake, and despite modelling and strategies to increase capacity [14], our current curriculum is unsustainable. General practices are largely private rather than state-funded, and hence require renumeration from the university to host students. In 2024 we began a multi-phase study to inform an extensive curriculum redesign. Our curriculum redesign is in response to GP workforce challenges, and an understanding of the importance of undergraduate exposure to general practice in considering this medical speciality as a career choice.

The redesigned programme follows Kern's Six-Step Model of educational theory: (1) identify the problem/s, (2) conduct needs assessment for targeted learners, (3) set goals and objectives, (4) develop education strategy, (5) implement, and (6) evaluate and provide feedback, in line with international best practice [15]. We adopted a three-phase approach.

Starting in 2024, Phase 1 involved an exploratory study investigating how 44 medical schools in Australia, Canada, England, Ireland and Nordic countries provide exposure to GPs within their programmes and create general practice experiences throughout their training. We developed a theoretical framework called EPIC-GP, modified from Harden's SPICES model [16]. A hierarchical cluster analysis using this framework identified three curriculum typologies: hospital-focused programmes with limited GP exposure; GP-focused programmes with integrated, GP-led teaching; and community- or primary-health-care-focused programmes emphasising interprofessional education [17], demonstrating that that there are a variety of approaches to embed general practice in a curriculum beyond traditional

block attachment. Qualitative analysis generated five themes: curriculum organisation; non-clinical patient engagement; authentic general practice experiences; exposure to general practice teacher role-models, and simulation and information technology [18].

In Phase 2 we conducted a literature review and several interactive workshops informed by Phase 1 and literature findings to determine our purpose, vision and mission. This provided us with a conceptual foundation and a set of intended outcomes to guide curriculum redevelopment.

Our third phase built on and contextualised the findings from these two phases with broad external stakeholder consultation, in line with an evidence-based curriculum design approach, which we report in this paper.

Methods

Aim

The aim of this study was to explore stakeholder perspectives on the undergraduate general practice curriculum redesign informed by phases 1 and 2 using a mixed methods approach, with a dual analytic effort examining how internal and external perspectives influence interpretation of qualitative data.

Design

A convergent mixed-methods design was employed as part of a curricular redesign process, integrating quantitative survey data and qualitative stakeholder survey and interview data. Analyses were conducted independently by an internal team at the University of Auckland and a context-external research team from Saarland University, Germany, which had no prior involvement in the design or delivery of the Auckland curriculum. The dual-analytic design deliberately juxtaposed a context-rich insider perspective with a context-external perspective. The teams therefore differed in their relationship to the curriculum and the contextual knowledge and assumptions they brought to the analysis. Their independently generated findings were subsequently compared to examine convergence, divergence, and the influence of researcher positionality.

Participants

Key informants were faculty school teaching staff, in both general practice and other disciplines, at both the University of Auckland and the University of Otago (home to New Zealand’s other medical school); medical students; postgraduate trainees in hospitals; general practice registrars; clinical staff (doctors, nurse practitioners, nurses) at general practices and other primary care sites both those who host medical students and those who not, and key personnel in regional and national primary care organisations. Potential participants were approached through trusted networks, outreach, or by responding to email notices and study advertisements. All those who met the criteria for one of the

relevant stakeholder groups were eligible. In addition, key stakeholders whose unique perspectives were valued where approached for interviews.

Survey and semi-structured interview questions

Informed by findings from Phases 1 and 2, and by the general practice components of the current MBChB programme, a 'strawman' curriculum with a number of different options around four aims was developed. These were directed at increasing student exposure to GPs and the status of general practice as an academic discipline across the medical programme with positive and enthusiastic GPs as role models and academic pathways for GP tutors and teachers, and increasing extended attachments for selected students interested in rural generalism, general practice and primary care, while decreasing the overall attachment time for the remaining students.

The survey was developed specifically for this study. Survey questions sought participants' perspectives about the feasibility and acceptability of a range of presented options. Responses included Likert scales, drop-boxes and free text. Most questions were generic, but there were additional questions tailored to specific stakeholder groups (*see Supplementary file #1, Questionnaire for all stakeholder groups*). The Qualtrics platform was used to deliver the surveys. Participants were provided with participant information sheets with electronic checkbox consent before starting the questionnaire.

The interview semi-structured schedule was developed specifically for this study. In-depth semi-structured interviews sought more detailed views on the range of curriculum options (*see Supplementary file #2, Interview questions for all stakeholder groups*). Interviewees were provided with the relevant participant information sheet prior, and their oral consent was recorded at the beginning of the interview.

Quantitative data preparation

Data were extracted from the Qualtrics platform and manually organised by survey question and by stakeholder group. The dataset was cleaned of duplicate and incomplete submissions and irrelevant data columns removed. Data were then collated for each stakeholder group under the same question headings.

Qualitative data preparation

All data were de-identified and coded by data collection mode (S=survey; I=interview), stakeholder type (ST=student or trainee; AS=academic staff; PCP=primary care practitioner; PCO=primary care organisation) and numbered. Interviews were transcribed verbatim using an artificial intelligence (AI)-supported transcription tool (Microsoft Azure AI Services), with subsequent verification. Errors in transcription were amended.

Full-length transcripts were manually organised by interview question and interviewee to facilitate structured group-level analysis. Recordings and transcripts were securely stored on encrypted, password-protected systems, with access limited to approved research team members only. Responses of each question were retrospectively copied into a Microsoft Excel spreadsheet and organised by stakeholder group. Due to the semi-structured methodology and the time limitations for each interview, not all stakeholders answered every question, some questions were targeted at specific stakeholders. Missing data were labelled as not applicable. Interview participants were invited to share further thoughts by email post-interview, if necessary. This dialogue was included in the comments recorded in the spreadsheet.

University of Auckland and Saarland research teams conducted analyses concurrently and independently.

Internal University of Auckland team analyses

Research team members included a professor of general practice with expertise in quantitative and qualitative research methodologies and extensive knowledge of the current curriculum; the Faculty curriculum development manager; GP academics delivering the current curriculum in general practice, community health and rural medicine, and a project manager-researcher who conducted data collection, collation, and contributed to analysis.

Quantitative data were analysed using descriptive statistics. Qualitative analysis was informed by Saldana [19] and Braun and Clarke [20]. Following familiarisation with the data, survey question group were used to generate initial categories. Six GP curriculum experts, actively involved in curriculum development, independently coded interview transcripts. Codes were discussed and compared to identify convergences and divergences during sense-making workshops. Statistical results from surveys were synthesised with findings from the thematic analysis.

External Saarland University team analyses

The research team included a senior academic; post-graduate research fellows; general practice trainees, and medical and nursing doctoral students. The team had previously been involved in developing a new general practice curriculum for Saarland University, but had no knowledge of the University of Auckland curriculum. Saarland team members were appointed honorary research fellows at the University of Auckland for collaboration purposes and ethical requirements.

Saarland team members (MK, NW) analysed the quantitative stakeholder survey data using jamovi (version 2.6.44). Survey responses were organised first by educational element and subsequently by stakeholder group, mirroring the qualitative data structure. Data were analysed descriptively with absolute and relative numbers for categorical variables. For a more standardised comparison, continuous variables were compared by arithmetic mean, median and standard deviation, as well as

distribution properties. Quantitative findings were subsequently considered alongside the qualitative findings during mixed-methods integration.

Qualitative data were analysed using content analysis informed by Hsieh and Shannon [21]. The analysis combined deductive structuring with inductive category development. Three broad organising domains were defined from the study questions: (1) stakeholder perceptions of general practice; (2) evaluations of the current curriculum, including positive (2a) and negative (2b) perspectives; and (3) suggestions for future curricular change, including perceived opportunities (3a) and concerns (3b). Within these domains, codes, categories, and subcategories were developed inductively from the data.

Analysis proceeded through repeated familiarisation with the interview transcripts and open-ended survey responses, line-by-line coding of relevant material, development of initial codes, clustering of related codes into categories and subcategories, and iterative refinement of the resulting category structure. Categories were supported by representative excerpts from the data.

Five researchers (FD, SD, SH, PV, CV) from different professional and career-stage backgrounds, including undergraduate and postgraduate family medicine, academic general practice, and nursing, contributed to the qualitative analysis. This diversity broadened the range of interpretive perspectives brought to the data. The stakeholder-analysis framework described by Brugha and Varvasovszky sensitised the analysis to differences in stakeholder position and perspective but was not used as a fixed coding framework [22].

Coding was conducted in blocks by educational element and stakeholder group. Following each block, researchers documented reflections on stakeholder-specific perspectives and emerging interpretations. Regular analytic meetings were used to compare interpretations, iscuss assumptions, and iteratively refine codes and categories. These activities supported reflexivity throughout the analytic process.

Category development followed an iterative coding process and was complemented by visual mind-mapping to examine relationships between categories and identify broader conceptual patterns. Associative mind-mapping was used as an analytic technique within the qualitative content-analysis process. Qualitative findings were subsequently considered and discussed in the external research team alongside descriptive quantitative results and open-ended survey responses to identify convergence, divergence, and complementarity across data sources.

Final integration

Results from each survey question stratified by stakeholder group were produced and integrated with illustrative quotes from both survey and interview qualitative data for each item (see *Supplementary File #3 Integration of quantitative survey and qualitative interview results*).

The independently generated Auckland and Saarland analyses were subsequently compared. Four themes from the Auckland analysis and ten categories from the Saarland analysis, were examined for

areas of convergence, divergence, and complementary emphasis (*See Supplementary File #4 Synthesis of themes and categories*). Through discussion and synthesis, these findings were integrated into six overarching themes with associated subthemes.

Results

Demographics of participants

The demographic details of survey and interview participants are presented in Table 1. Primary care clinicians were the largest survey group, at 42% (155) participants. Most were general practitioners (129), with smaller numbers of urgent care doctors, rural hospital doctors, nurses, nurse practitioners, and practice managers. Students and postgraduate trainees comprised 21% of survey respondents (66 participants), predominantly Year 6 students (41) and Year 5 students (15). University staff accounted for 18% (56 participants), mainly from the University of Auckland (45 of 56). Representatives of primary care organisations made up 12% of survey respondents (38 participants). In the 29 interviews, university staff were the largest group at 41% (12 participants), most from the University of Auckland. Primary care clinicians 28% (eight interviewees), including GPs and urgent care doctors; 17% were students and postgraduate trainees and 14% representatives of primary care organisations.

Participants represented a range of ages, genders, and ethnicities. Survey respondents were predominantly aged 40–59 years, while interview participants were generally older, with 24% aged over 60 years. The majority of survey respondents (57%) were women, while the majority of interview participants (59%) were men. Most participants identified as European (46% of survey respondents and 48% of interviewees) but with some Māori and Pacific representation as well as a range of other ethnicities.

Overall, the survey captured a broad range of stakeholders although was dominated by primary care clinicians, whereas the interview sample was weighted more heavily toward university staff, ultimately together providing perspectives from both educational institutions and the primary care workforce, as well as students, postgraduate trainees.

Synthesis of quantitative and qualitative results

Summary survey response tables and illustrative quotes from both survey and interview qualitative data can be accessed as Supplementary file #3. See Supplementary file #4 for the process of integrating the analyses from the two independent teams. The analyses showed substantial convergence around authentic general practice learning, supervision, curriculum reform, technology-enhanced learning, and feasibility. Differences were primarily in emphasis: the Auckland analysis foregrounded emerging technologies, change management, stakeholder perceptions, cultural appropriateness, and implementation, whereas the Saarland analysis emphasised longitudinal continuity, role modelling, teacher recognition, collaboration, and student autonomy. The synthesised themes from the integration

of those generated by Auckland and Saarland and universities are shown in Table 2. These complementary perspectives informed the synthesis into six overarching themes:

1. Longitudinal, authentic learning in general practice

1. Educational relationships, supervision and professional identity
2. Curriculum redesign for contemporary primary care
3. Technology-enabled but human-centred learning
4. Sustainable educational ecosystems
5. Collaboration, flexibility and managing change.

Theme 1. Longitudinal, authentic learning in general practice

A strong theme present early on and throughout was that students should experience continuous exposure to GP across the curriculum through meaningful workplace-based learning, continuity of patients and supervisors, and progressively increased responsibility.

Importance of primary care perspectives throughout the curriculum

There was strong support for incorporating a general practice perspective throughout medical training. Eighty-five percent of students and trainees considered a GP perspective important in Years 2–3 (largely pre-clinical), while 92% considered it important in Years 4–6 (clinical). Participants consistently emphasised the need for repeated exposure to GPs and to general practice throughout medical school, rather than isolated placements.

"The main value for me is that it's important to drip general practice experience or primary care experience throughout those years" [IAS6]

"I think we should bend over backwards to make it happen, to have as much touch points as possible in general practice" [IAS7]]

Continuity, timing and duration of placements

Stakeholder perspectives differed regarding whether general practice placements should occur in every clinical year. Support was strongest among primary care providers (73%) and primary care organisations (63%), while student and university staff opinions were more divided. Nevertheless, many respondents emphasised the importance of repeated exposure and continuity of learning.

"I think having it every year is good" [ITR1]

"It's good to continually reinforce general practice every year of the programme for the students understanding" [SAS37]

Others suggested that educational quality was more important than frequency.

"It doesn't necessarily have to happen in every single year, it's all depends on how you do it" [IPCO2]

Across stakeholder groups there was a preference for longer placements as students progressed through the programme. While preferences for Year 4 clustered around two- and four-week placements, support shifted towards six-week and longer placements in Years 5 and 6. Students described requiring sufficient time to establish confidence and become active participants within practices.

"The first week you're a bit nervous... in weeks three and four, that's where I really found my feet" [TR2]

There were also concerns regarding curriculum crowding, particularly in Year 6.

"There is no space in the programme to have a 12 week run without reducing time ... I would say put it in Year five, not Year 6." [IAS1]

Authentic participation through patient consultations

Most stakeholders supported increasing levels of authentic clinical participation. Eighty-five percent believed it would be useful for Year 4 students to consult with patients. Most respondents considered it feasible for Year 5 students to independently consult with five patients daily (65%), whereas views were divided regarding Year 6 students consulting with ten patients per day independently.

"Yes, I think there is value in it" [IPCP2]

"I think (consulting with 10 patients/day) would be really stretching it" [IPCP1]

Participants also stressed that educational quality was more important than patient volume.

"I would prefer students to learn that medicine can be really caring in a professional way" [TR1]

Longitudinal Integrated Clerkships (LICs)

There was substantial support for pursuing an urban LIC focused on Māori, Pacific and other high-needs communities, ranging from 53% among clinicians to 90% among primary care organisations. Participants highlighted continuity with patients, supervisors and teams as central benefits of the LIC model.

Gives them that longer time to feel more as part of the team

"Get to know patients themselves and meet them a few more times through that patient journey" [PCP6]

Students preferred LICs in Year 5 (66%), whereas university staff (74%), clinicians (83%) and organisations (85%) favoured Year 6. Twelve weeks was the most frequently selected duration, although many interviewees suggested this represented a minimum effective length.

“I think 12 weeks would be a minimum” [IPCP2]

Theme 2. Educational relationships, supervision and professional identity

This theme addresses the quality of supervision, mentoring, role modelling and how communities of practice shapes learning outcomes and influences career intentions towards general practice.

Perceptions of general practice and career formation

Student and trainee respondents reported generally positive perceptions of primary care when it was presented by pre-clinical teachers, with 69% reporting positive views. However, perceptions became considerably less favourable when primary care was presented by teachers from other specialties during clinical training, where half reported somewhat or very negative views. Perceptions of general practice as a career were similarly mixed, with 37% reporting negative views compared with 25% positive views. Urgent care and rural medicine were generally viewed more favourably. Participants frequently described tensions between the acknowledged importance of primary care and how it was portrayed within medical education.

“GP was by far the most useful run for developing almost all the skills needed to be a doctor” [SST4]

“It's always been portrayed as GP is a default, or like if everything else fails, like you can be a GP” [IST2]

“How do we make primary care an actual true attractive specialty? Because it is the backbone of the public health system” [IPCP5]

Understanding career pathways

Participants frequently reported that students lacked understanding of primary care career pathways and distinctions between general practice and urgent care.

“I don't hear a lot of people talking about urgent care” [IST2]

“It's really important that students going through understand that there is a difference between general practice and urgent care” [IPCO1]

Near-peer learning and teaching identity

Near-peer supervision received strong support, with 81% of students and trainees endorsing this approach. Participants regarded near-peer learning as reflecting future professional responsibilities and supporting educational development.

“Support near-peer training ... that's where the real learning is” [IPCP2]

“It's best to develop this mindset as soon as you can” [SST7]

However some respondents identified potential risks.

“The students may pick up some bad habits” [IPCO3]

Theme 3. Curriculum redesign for contemporary primary care

Stakeholders emphasised that the curriculum should evolve to reflect modern general practice, incorporating emerging healthcare models, telehealth, business skills, cultural responsiveness, and clearly articulated competencies.

Need for curriculum reform

More than two-thirds (68%) of students and trainees believed changes were needed in how general practice was taught and learned. Participants advocated greater exposure to community-based practice and stronger alignment between curriculum and contemporary healthcare needs.

“We need more of it ... at least half the med school year in a rural or GP placement and primary care settings” [IPCP2]

Preparing students for contemporary primary care

Participants supported expanding curriculum content to better reflect current-day general practice. The most highly endorsed additions included funding systems, telehealth, legislation and policy, business management, interprofessional education and AI-enabled practice.

“People need to have a little bit of understanding of the business model” [IPCP2]

“Telehealth I think should be taught for everybody” [IPCP2]

“Managing uncertainty. The benefits of generalism” [SAS7]

Equity and community engagement

The proposed LIC focused on Māori, Pacific and other high-needs communities was frequently discussed as a mechanism for developing understanding of health inequities and community-oriented practice.

“Everyone should be doing one of these kind of runs ... You really have to understand how inequitable healthcare is” [IPCP6]

“Focus more on health inequities is vital” [IPCO2]

Theme 4. Technology-enabled but human-centred learning

The fourth theme identified that technology should be used strategically to support learning, feedback, simulation, and clinical practice while preserving authentic patient-centred experiences. Most stakeholders believed aspects of community-based education could be effectively delivered online or on campus, although there was consistent agreement that experiential learning in practice settings remained essential.

"Quite a bit could be covered beforehand, so that when they arrive, they can focus on practising these skills" [IPCP2]

"If you truly want to learn about general practice, you've got to be in general practice" [IPCO2]

E-learning modules received the strongest support among technological innovations, while simulation, tele-education and AI-assisted learning were also viewed positively. Views regarding AI patients were more mixed.

"There's a huge role for simulation" [IAS2]

"I'm all for AI" [IPCO1]

"I'd be a bit dubious about the benefit of an AI interaction" [IPCP1]

Theme 5. A sustainable educational ecosystem

Stakeholders identified that successful GP education requires adequate workforce capacity, infrastructure, financing, organisational support, and recognition of teaching as valuable professional work.

Teaching as a professional competency

Most university staff (83%) and a majority of primary care organisations (65%) and providers (56%) supported teaching becoming a core competency of GP specialist training. Participants emphasised that teaching should be recognised, valued and embedded within professional development.

"Yeah, I definitely think it should be part of our core competency" [IPCP2]

"Teaching is good for one's own learning" [SAS13]

"Yes, make it prestigious and sought after" [SAS12] *"Yeah, I definitely think it should be part of our core competency"* [IPCP2]

"I think it should be with registrar training" [IPCP1]

Incentives and barriers to supervision

Remuneration emerged as the strongest incentive for hosting learners. Participants also valued teacher development funding, access to educational resources, honorary appointments and communities of practice. A major theme concerned the practical constraints facing practices, including lost productivity, time pressures and inadequate infrastructure.

“Adequate remuneration ... it's going to take time away from the GP so there's real cost” [IPCO2]

“Money is important in primary care ... there has to be some allowance made for the lack of productivity” [IPCP1]

“The biggest barrier is really just that infrastructure stuff. It's having the room” [IPCO3]

“Space is often the major issue” [SAS45]

Theme 6. Collaboration, flexibility and managing change

Educational reform should be collaborative, flexible and adaptive, involving universities, practices, communities and students while supporting local innovation and learner autonomy. Participants frequently highlighted the need for flexible educational models that balanced educational aspirations with practical realities. Several supported placement pathways tailored to student interests, including longer attachments for those considering primary care careers. Seventy-five percent of students supported making extended placements available as an option rather than requiring them for all learners.

Stakeholders also recognised the importance of interprofessional learning and collaborative approaches to education. Strong support was expressed for curriculum content addressing interprofessional education, and several respondents emphasised community-based and collaborative models of care.

“I'd really like to see more simulation of scenarios that look at collaborative practice" [IAS2]

Views were mixed regarding strategies to expand placement capacity. Only 31% supported students seeing patients together, while 48% opposed this model. Participants weighed the need to increase capacity against concerns about educational quality.

“One supervisor, one student is really the best way” [IPCP1]

Overall, participants expressed considerable enthusiasm for strengthening primary care education but emphasised that successful reform would require collaboration among universities, practices, professional organisations and communities, together with sufficient resources and flexible implementation approaches.

Discussion

Principal findings

This study used a mixed methods approach involving surveys and interviews with a wide range of stakeholders to inform redesign of an undergraduate general practice curriculum. Stakeholders broadly supported strengthening general practice exposure throughout the medical programme and identified six key priorities: longitudinal and authentic community-based learning; strong educational relationships and role modelling; alignment with contemporary primary care practice; strategic use of educational technologies; development of a sustainable teaching ecosystem; and collaborative, flexible implementation approaches. Importantly, while there was widespread enthusiasm for expanding general practice education, stakeholders consistently highlighted the tension between educational aspirations and the capacity constraints currently faced by primary care practices.

The findings also demonstrate the value of incorporating both insider and outsider perspectives in curriculum research. The University of Auckland team was more attuned to implementation issues such as placement availability, workforce pressures, and curriculum crowding, whereas the Saarland University team brought greater attention to conceptual issues including professional identity formation, stakeholder assumptions, and broader educational principles. Together these complementary perspectives generated a more nuanced understanding of curriculum redesign needs.

Comparison with international literature

The strong stakeholder support for longitudinal and authentic general practice exposure aligns closely with international evidence demonstrating that meaningful clinical experiences in primary care increase students' interest in pursuing careers in general practice or family medicine. Studies from the United Kingdom [8, 10, 11] Canada [6, 7], Ireland [9] and Australia [23] have consistently shown that sustained exposure to community-based settings, particularly when supported by positive GP role models, contributes to more favourable attitudes towards primary care careers. The present findings therefore reinforce concerns that insufficient undergraduate exposure may contribute to ongoing workforce shortages in general practice.

The emphasis on continuity of patients, supervisors and learning environments is also consistent with evidence supporting longitudinal integrated clerkships (LICs). International studies have reported that LICs strengthen professional identity formation, encourage patient-centred care, improve understanding of chronic disease management, and foster stronger student engagement with underserved communities [24–26]. Stakeholders in this study similarly recognised these benefits and expressed strong support for a longitudinal programme serving Māori, Pacific and other high-needs populations.

Participants' concerns regarding the hidden curriculum and negative portrayals of general practice during hospital-based training mirror findings reported internationally. Previous studies have identified that disparaging comments from specialists and perceptions of lower professional status can discourage students from considering careers in family medicine.[11, 13, 27]. The observation that

students reported more positive perceptions when taught directly by primary care educators than by teachers from other specialties reflects this well-described phenomenon.

Stakeholder recommendations to incorporate telehealth, AI, business management, policy, funding systems and interprofessional education also align with emerging international trends in medical education. Contemporary primary care increasingly requires competence in digital health technologies, team-based care and management of complexity and uncertainty [28, 29]. Participants therefore recognised the importance of ensuring that undergraduate curricula reflect the realities of modern general practice.

The concerns regarding infrastructure limitations, clinician workload, space constraints and inadequate remuneration echo international reports of mounting pressure on primary care teaching practices. Similar challenges have been documented in the United Kingdom [30, 31], Australia [32] and Canada [33], where increasing student numbers have outpaced placement capacity. These findings suggest that curriculum innovation alone is unlikely to succeed without parallel investment in community-based teaching infrastructure and workforce development.

Including diverse disciplinary and methodological expertise in mixed methods research teams has been identified as providing valuable integrative capacity to address complex problems [34]. Bartunek and Louis's insider/outsider model advocates conducting research through collaboration between researchers who are ‘insiders’ to the setting being studied and those who are ‘outsiders’ to it, to generate complementary insights and produce richer, more credible understandings than either perspective alone [35]. Examples of the use of external and internal researchers in a team include a qualitative study of state hospital nursing conducted by a research team comprising both university researchers (outsiders) and nurses working within the hospital (insiders) to broaden the possible interpretations and increase trustworthiness [36], and a multi-institution qualitative study in the United States to determine the influences of learning communities on professional identity formation in the pre-clerkship phase [37].[39] Our study extends the model to internal and external teams independently analysing the data, with subsequent synthesis of their results.

The AMEE Guide argues that reflexivity is a set of continuous, collaborative, and multifaceted practice, and researchers should repeatedly examine how their personal experiences, assumptions, professional identities, relationships with participants, and social and institutional contexts shape the research process [35]. In our study reflexivity was enhanced through the involvement of researchers occupying different positions in relation to the curriculum (extensive familiarity with the curriculum and its context or no prior knowledge). The juxtaposition of insider and outsider interpretations enabled critical examination of assumptions, challenged taken-for-granted understandings, and enhanced the credibility of the analysis through ongoing dialogue regarding areas of convergence and divergence in interpretation.

Implications for curriculum design

The findings provide several practical directions for curriculum redesign. General practice as a discipline should be visible and exposure should occur across all years of training, allowing students understanding of primary care's role within the health system and to develop progressive competence. Urgent care should also be recognised as a primary care speciality in its own right. Repeated experiences appear more valuable than isolated placements. Secondly, opportunities for authentic participation in patient care should increase over time. Students valued active engagement with patient consultations and highlighted the importance of sufficient placement duration to become confident and effective contributors to the practice team.

Thirdly, greater attention should be given to career development and professional identity formation. Explicit teaching about general practice, urgent care and rural career pathways, together with exposure to enthusiastic clinician role models, may help address misconceptions and increase recruitment into primary care careers. Fourthly, curriculum content should be updated to reflect contemporary practice, including telehealth, AI, health systems, business management, equity, interprofessional teamwork and population health approaches. Finally, implementation planning must address workforce sustainability. Enhanced remuneration, teacher development opportunities, communities of practice, academic recognition and infrastructure support may be required to expand placement capacity and maintain educational quality.

Contribution of dual analytic perspectives

A novel feature of this study was the use of two independent analytic teams with different relationships to the curriculum. The insider team contributed rich contextual understanding, awareness of local organisational realities, and detailed knowledge of stakeholder relationships. The context-external team brought different professional experiences, assumptions, and substantially less contextual knowledge of the Auckland curriculum. Comparing these independently generated interpretations made these differences in researcher positionality analytically visible.

The substantial convergence between the two analyses increases confidence that several findings were evident across different analytic perspectives. Equally informative were areas of divergence and differences in emphasis, which demonstrated how researcher positionality and contextual knowledge shaped interpretation. The dual-analytic approach therefore supported reflexivity by making both convergence and interpretive difference explicit rather than treating one analysis as validation of the other [35].

Strengths and limitations

A major strength of this study is its inclusion of a large and diverse group of stakeholders, incorporating students, trainees, academic staff, clinicians and representatives of primary care organisations. The mixed methods design allowed integration of quantitative and qualitative evidence, providing both breadth and depth of understanding. The dual-analytic approach enabled reflexive comparison of

independently generated insider and context-external interpretations, making areas of convergence and divergence explicit.

Several limitations should be acknowledged. The study was conducted primarily to inform curriculum redesign within a single medical school, potentially limiting transferability of the findings to other educational contexts. Survey participation was weighted towards primary care clinicians, while interviews included proportionally more university staff, which may have influenced findings. As with all voluntary stakeholder consultations, participation bias is possible, with respondents potentially more interested in general practice education than non-participants. There might also be the appeal of the status quo because it is understood, being implemented and functioning. Additionally, the proposed curriculum options were presented within the context of a ‘strawman’ model, meaning responses were influenced by the specific redesign possibilities considered.

Implications and transferability

Although undertaken within the New Zealand context, the themes identified have broader relevance for medical schools internationally that are seeking to strengthen primary care education while managing growing workforce shortages and placement pressures. The findings suggest that successful curriculum redesign requires balancing educational ideals with practical feasibility, fostering strong partnerships between universities and community practices, and ensuring that curricular innovations are adequately resourced.

The study also offers a methodological contribution. Combining stakeholder engagement with independent insider and outsider analyses may provide a useful model for curriculum development and evaluation in other health professions education settings.

Conclusion

Stakeholders strongly supported redesign of the undergraduate general practice curriculum towards a more longitudinal, authentic and community-engaged model of learning. Participants emphasised the importance of continuity, meaningful patient care experiences, positive role modelling, contemporary curriculum content, and stronger support for primary care career pathways. However, achieving these ambitions will require careful attention to teaching capacity, infrastructure and workforce sustainability. The use of complementary insider and context-external analytic perspectives provided additional interpretive depth and made the influence of researcher positionality visible. Independent analyses followed by explicit comparison and integration may therefore offer a useful approach for stakeholder-informed curriculum research and evaluation. Overall, stakeholder-informed curriculum development combined with methodological pluralism offers a robust foundation for strengthening undergraduate general practice education to support the future primary care workforce.

Declarations

Ethical approval and consent to participate

Ethical approval obtained from the University of Auckland Human Participants Ethics Committee (UAHPEC) Ref. UAHPEC30218 on 01/12/2025 for three years.

Consent for publication

Not applicable.

Competing interests

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Author Contribution

FG conceptualised study, wrote draft, secured funding, supervised project. FG, FD, AD developed methodology. OM conducted investigation. FD, PV, SH, CvW, MK, SD conducted external and AD, OM, FG, RJ, RR, KE, SG internal analyses. FD secured external funding. All authors reviewed, edited and agreed to submitted version of manuscript.

Acknowledgement

Thanks to all the participants who completed the surveys or underwent interviews. Thanks also to other members of the University of Auckland research team who were not actively involved in the analyses: Chris Bullen, Susan Wells, Gladys Ko, Pulasthi Mithraratne, Briar Peat, and Maryann Heather.

Data Availability

The datasets generated and analysed during the current study are not publicly available due to ethical and confidentiality constraints. The qualitative data contain potentially identifiable information about participants and institutional practices that cannot be fully anonymised. Participants did not provide consent for public data sharing, and ethics approval restricts access to the research team. De-identified or aggregated data may be available from the corresponding author on reasonable request, subject to appropriate ethical approval.

References

1. 1. Starfield B, Shi L, Macinko J: Contribution of primary care to health systems and health. *Milbank Q* 2005, 83(3):457–502.
2. 2. Macinko J, Starfield B, Shi L: The contribution of primary care systems to health outcomes within Organization for Economic Cooperation and Development (OECD) countries, 1970–1998. *Health Serv Res* 2003, 38(3):831–865.
3. 3. Lawson E: The Global Primary Care Crisis. *Br J Gen Pract* 2023, 73(726):3.
4. 4. Department of Health: Delivering high quality, effective, compassionate care: Developing the right people with the right skills and the right values: A mandate from the Government to Health Education England April 2015 to March 2016. In. London: UK Government; 2013: 40.
5. 5. Peile E: General practice careers: choices and judgements. *Br J Gen Pract* 2013, 63(616):565–566.
6. 6. Bosco C, Oandasan I: Review of Family Medicine Within Rural and Remote Canada: Education, Practice, and Policy. In. Mississauga, ON, CA: College of Family Physicians of Canada; 2016: 68.
7. 7. Vanasse A, Orzanco MG, Courteau J, Scott S: Attractiveness of family medicine for medical students: influence of research and debt. *Can Fam Physician* 2011, 57(6):e216–227.
8. 8. McDonald P, Jackson B, Alberti H, Rosenthal J: How can medical schools encourage students to choose general practice as a career? *Br J Gen Pract* 2016, 66(647):292–293.
9. 9. Kelly M, Redmond P, Cullen W, Foy F, O'Malley B, Rouse M, Quinlan D: Medical student to general practitioner: an urgent call to action. In. Dublin, Ireland: Irish College of General Practitioners & Association of University Departments of General Practice in Irleand; 2023: 96.
10. 10. Alberti H, Randles HL, Harding A, McKinley RK: Exposure of undergraduates to authentic GP teaching and subsequent entry to GP training: a quantitative study of UK medical schools. *Br J Gen Pract* 2017, 67(657):e248–e252.
11. 11. Nicholson S, Hastings AM, McKinley RK: Influences on students' career decisions concerning general practice: a focus group study. *Br J Gen Pract* 2016, 66(651):e768.
12. 12. Gilles J: Undergraduate medical education in Scotland: Enabling more general practice based teaching. In.: Scottish Government; 2019: 82.
13. 13. Wass V, Gregory S, Petty-Saphon K: The Wass Report: By choice – not by chance -Supporting medical students towards future GP careers. In: *MSC 16-73A.* England: Health Education England; 2016: 60.
14. 14. Goodyear-Smith F, Al-Murrani A: Assessment and modelling of general practice and community setting capacity for medical trainees in northern New Zealand. *N Z Med J* 2017, 130(1462):62–70.
15. 15. Kern D, Thomas P, Hughes M: Curriculum development for medical education : a six-step approach, 2nd edn. Baltimore, US: Johns Hopkins University Press; 2009.
16. 16. Harden RM, Sowden S, Dunn WR: Educational strategies in curriculum development: the SPICES model. *Med Educ* 1984, 18(4):284–297.
17. 17. Roskvist R, Gauznabi S, Walker E, Johnson R, Eggleton K, Wells S, Goodyear-Smith F: An international, cross-sectional comparative study of general practice curricula in medical school

programmes. *Int J Med Educ* 2026, 17:109–118.

18. 18. Johnson R, Roskvist R, Gauznabi S, Walker E, Eggleton K, Wells S, Goodyear-Smith F: Teaching general practice to medical students across 44 medical schools: a thematic analysis. *Educ Prim Care* 2026:1–9.
19. 19. Saldana J: The Coding Manual for Qualitative Researcher, 4th edn. Thousand Oaks, CA: Sage Publications Ltd; 2021.
20. 20. Braun V, Clarke V: Thematic Analysis: A Practical Guide. Thousand Oaks, CA: SAGE Publications Ltd; 2021.
21. 21. Hsieh HF, Shannon SE: Three approaches to qualitative content analysis. *Qual Health Res* 2005, 15(9):1277–1288.
22. 22. Brugha R, Varvasovszky Z: Stakeholder analysis: a review. *Health Policy Plan* 2000, 15(3):239–246.
23. 23. Playford D, Larson A, Wheatland B: Going country: rural student placement factors associated with future rural employment in nursing and allied health. *Aust J Rural Health* 2006, 14(1):14–19.
24. 24. Walters L, Greenhill J, Richards J, Ward H, Campbell N, Ash J, Schuwirth LW: Outcomes of longitudinal integrated clinical placements for students, clinicians and society. *Med Educ* 2012, 46(11):1028–1041.
25. 25. Norris TE, Schaad DC, DeWitt D, Ogur B, Hunt DD: Longitudinal integrated clerkships for medical students: an innovation adopted by medical schools in Australia, Canada, South Africa, and the United States. *Acad Med* 2009, 84(7):902–907.
26. 26. Worley P, Couper I, Strasser R, Graves L, Cummings BA, Woodman R, Stagg P, Hirsh D: A typology of longitudinal integrated clerkships. *Med Educ* 2016, 50(9):922–932.
27. 27. Holmes D, Tumiel-Berhalter LM, Zayas LE, Watkins R: "Bashing" of medical specialties: students' experiences and recommendations. *Fam Med* 2008, 40(6):400–406.
28. 28. Fiscella K, McDaniel SH: The complexity, diversity, and science of primary care teams. *Am Psychol* 2018, 73(4):451–467.
29. 29. Kuziemsky C, Liaw ST, Leston M, Pearce C, Jonnagaddala J, de Lusignan S: Towards Equitable and Resilient Digital Primary Care Systems: An International Comparison and Insight for Moving Forward. *Med Inform* 2022, 31(1):47–59.
30. 30. Darnton R, Amey S, Brimicombe J: The nature and prevalence of threats to medical student placement capacity in primary care: a survey of East of England GP practices. *BJGP Open* 2022, 6(4).
31. 31. Harrison KJ, James MP, Spiring W: Medical undergraduate placements in general practice: what factors influence a practice's decision to engage? Data from the Society of Academic Primary Care Placement Capacity Special Interest Group national practice survey of England. *Educ Prim Care* 2026, 37(1):20–28.

32. 32. Dallas A, Hiew WGS, Kay B, Jackson H, Reid K, Presser J, Woodward-Kron R: Medical students value-adding to general practice. *Aust J Gen Pract* 2022, 51(3):152–156.
33. 33. College of Family Physicians of Canada: Preparing and certifying the family physicians that Canada needs. In. Ontario, Canada: CFPC; 2026.
34. 34. Poth C, Georgiou G, Mack E, Kierstead M: Mixed methods research teams: leveraging integrative teamwork for addressing complex problems. *Front Educ* 2024, 9–2024.
35. 35. Olmos-Vega FM, Stalmeijer RE, Varpio L, Kahlke R: A practical guide to reflexivity in qualitative research: AMEE Guide No. 149. *Med Teach* 2023, 45(3):241–251.
36. 36. Thomas MD, Blacksmith J, Reno J: Utilizing insider-outsider research teams in qualitative research. *Qual Health Res* 2000, 10(6):819–828.
37. 37. Yakes EA, Ngo TL, Wenrich MD, Moreno A, Quaintance J, McVancel M, Pfeifer K, Kulkarni-Date M, Hatem D: Fostering connections, psychological safety and meaningful relationships: The role of preclerkship learning communities in professional identity formation. *Med Teach* 2026:1–13.

Tables

Table 1 Stakeholder groups of survey and interview participants

Stakeholder group	Survey N=315	Interview N=29
Students and postgraduate trainees	66 (21%)	5 (17%)
Year 5 students	15	2
Year 6 students	41	1
Postgraduate doctors	3	1
Registrars	7	1
University staff	56 (18%)	12 (41%)
University of Auckland	45	9
University of Otago	6	3
No response / other	5	0
GPs and other primary care providers*	155 (42%)	8 (28%)
General practitioner	129	5
Urgent care doctor	26	3
Rural hospital doctor	8	1
Practice nurse	8	0
Nurse practitioner	1	0
Practice manager	20	1
Other	6	0
Representatives of primary care organisations	38 (12%)	4 (14%)
General practice	14	3
Hauora Māori	2	0
Primary health care / urgent care	13	1
Nursing	1	0
Other	3	0

* Total n > 155 because some participants indicated multiple roles

Table 2 Synthesis of University of Auckland and Saarland University sub-themes and sub-categories

University of Auckland sub-themes	Saarland University sub-categories	Synthesised themes
Positive experiences; practical learning resources; learning beyond seeing patients; exposure to multiple perspectives	Longitudinal exposure; longer placements; workplace-based learning; continuity with patients and supervisors	1. Longitudinal, authentic learning in general practice
Supervision models; communities of practice; placement design; calibre of learners/teachers	high-quality supervision; role modelling; recognition of GP teachers; mentoring relationships	2. Educational relationships, supervision and professional identity formation
curriculum change; vision and mission; telehealth; business skills; cultural appropriateness; contemporary GP practice	structured competency-based curriculum; spiral curriculum; longitudinal curriculum	3. Curriculum redesign for contemporary primary care
AI patients; AI scribes; e-learning; telehealth; virtual simulations and streaming technologies	Blended learning; online modules; virtual learning; digital logbooks	4. Technology-enabled but human-centred learning
Cost; workload; physical resources; affordability; technology infrastructure	Workforce constraints; physical capacity; financial incentives; administrative burden; recognition and support for teachers	5. Sustainable educational ecosystems
Communication and influence; change management; stakeholder perceptions; cultural responsiveness	Inter-university collaboration; interprofessional collaboration; student autonomy; flexible placement models	6. Collaboration, flexibility and managing change

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- SupplementaryFile1Questionnaireforallstakeholdergroups.docx
- Supplementaryfile2Interviewquestionsforallstakeholdergroups.docx
- SupplementaryFile3Integratedquantqualresults.docx
- SupplementaryFile4Synthesisthemescategories.docx