



Community-Based Oral Health Promotion Programs: Collaborative Roles of Dentistry, Nursing, and Public Health

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Abstract:

Community-based oral health promotion programs play a crucial role in addressing oral diseases and improving overall health outcomes in diverse populations. These programs rely on the collaborative efforts of dentistry, nursing, and public health professionals to provide comprehensive care and promote preventive practices. Dentists contribute their expertise in diagnosing and treating oral conditions, while nurses play a pivotal role in patient education and outreach, empowering individuals to maintain good oral hygiene and understand the importance of oral health in overall wellness. Public health professionals help design, implement, and evaluate these programs, ensuring they meet the community's specific needs through data collection and analysis. This interdisciplinary approach fosters a holistic framework that can significantly enhance the effectiveness and reach of oral health promotion initiatives. The collaboration among these disciplines also helps bridge gaps in healthcare access, particularly in

underserved communities. By integrating oral health into broader health initiatives, community-based programs can address social determinants of health that impact both oral and overall health. For instance, public health initiatives can work to eliminate barriers to dental care, such as financial constraints and lack of transportation, while nursing outreach programs can facilitate education and awareness on oral disease prevention. Furthermore, multidisciplinary teams can engage in advocacy efforts to promote policy changes that support oral health access and education. This collective action not only strengthens the community's oral health infrastructure but also enhances the capacity of each profession to deliver impactful, culturally competent care.

1. Introduction

The pursuit of health has long been characterized by specialized disciplines operating within well-defined boundaries. In the landscape of healthcare, this siloed approach has historically manifested as a stark separation between medical and dental care, a division that is both artificial and increasingly untenable in the face of contemporary health challenges. Nowhere is the limitation of this paradigm more evident than in the realm of oral health. Despite being recognized as an integral component of overall health and well-being, oral diseases—primarily dental caries (tooth decay) and periodontal disease—remain among the most prevalent non-communicable conditions globally, imposing a significant burden on individuals, healthcare systems, and societies at large [1]. This burden manifests not only in physical pain and suffering but also in diminished quality of life, lost school and work hours, and substantial economic costs. The global prevalence of untreated dental caries in permanent teeth alone affects billions of people, making it the most common health condition worldwide, a statistic that underscores the colossal failure of traditional, treatment-focused approaches to achieve population-level oral health [2].

This burden is not distributed equally across populations; it follows a predictable and distressing pattern of health inequity, disproportionately affecting vulnerable and marginalized groups. Rural communities, ethnic minorities, the elderly, individuals with low socioeconomic status, and immigrant populations consistently bear the heaviest burden of oral disease while simultaneously facing the greatest barriers to accessing care [3]. These populations encounter a complex interplay of obstacles that extend far beyond individual behavior. Provider shortages are acute in rural and underserved urban areas, creating vast geographical expanses designated as dental health professional shortage areas where access to a dentist is a luxury rather than a given [4]. Financial constraints are equally prohibitive; for the uninsured and underinsured, even a routine dental examination can represent an insurmountable expense, forcing individuals to delay care until

problems escalate into painful, costly emergencies. Limited health literacy further compounds these issues, as individuals may not understand the connection between oral health and systemic health, the importance of preventive practices, or how to navigate a fragmented and confusing healthcare system [5]. For refugees and recent immigrants, these barriers are magnified by linguistic and cultural divides, as well as a fundamental lack of familiarity with the structures and expectations of a new country's healthcare system [6]. The persistence of these stark disparities signals a fundamental failure of conventional, chairside, treatment-focused models and underscores an urgent and undeniable need for a paradigm shift towards prevention, equity, and community-engaged action.

The limitations of a purely clinical approach to oral health are multifaceted and deeply embedded in the structure of healthcare delivery. Traditional dental practice is predominantly reactive, designed to wait for patients to recognize a problem and present with symptoms, by which time disease is often advanced and intervention is more invasive, complex, and costly. This model inherently favors those with the resources, knowledge, and mobility to seek care, while systematically excluding those who lack these advantages. Furthermore, dental services are frequently concentrated in urban and affluent areas, creating a geographic maldistribution that leaves vast rural expanses and inner-city neighborhoods with inadequate provider capacity [4]. For individuals in these dental health professional shortage areas, even a routine check-up can necessitate travel over long distances, incurring significant costs in time, transportation, and lost wages. For homebound elderly individuals, those with disabilities, or caregivers with limited flexibility, this logistical burden can make accessing dental care virtually impossible. Consequently, oral health is often deprioritized until it reaches a crisis point, leading to preventable suffering, complex and costly emergency interventions, and a disproportionate reliance on hospital emergency departments for dental complaints that could have been easily managed with routine preventive care [7]. This reactive, inequitable, and fragmented system demands a

fundamental rethinking of how oral health is conceptualized, promoted, and delivered.

In response to these persistent and systemic challenges, a powerful counter-movement has gained significant momentum over recent decades, one that champions the integration of oral health into the broader healthcare continuum and the mobilization of community resources to promote wellness where people live, learn, work, and age. This movement is firmly grounded in the core principles of public health, which emphasize population-level interventions, primary prevention, and a deep understanding of the social determinants of health—the conditions in which people are born, grow, live, work, and age that shape their health outcomes. It recognizes, based on a growing body of scientific evidence, that the mouth is not an isolated entity but is intricately and bidirectionally connected to the rest of the body. Oral diseases, particularly periodontal disease, have been linked to a range of systemic conditions, including diabetes mellitus, cardiovascular disease, adverse pregnancy outcomes such as preterm birth and low birth weight, and aspiration pneumonia in the elderly [8]. This understanding of the mouth-body connection has provided a powerful impetus for the development of community-based oral health promotion programs that are designed to be proactive, culturally sensitive, and readily accessible to those who need them most. These innovative initiatives move decisively beyond the traditional dental clinic to establish a visible and trusted presence in schools, community centers, places of worship, nursing homes, and even virtual spaces, leveraging technology to bridge geographical and linguistic gaps and reach populations that have historically been left behind.

The cornerstone of this transformative approach is interprofessional collaboration. The complex, multifaceted nature of oral health disparities, rooted as they are in a confluence of biological, behavioral, social, economic, and systemic factors, demands an equally multifaceted and coordinated response, one that far transcends the capacity and scope of any single profession operating in isolation. It requires a deliberate, structured, and synergistic partnership between the clinical expertise of dentistry, the holistic patient-centered approach of nursing, and the population-level perspective and strategic acumen of public health. Dentistry brings to the table specialized knowledge in the diagnosis, prevention, and treatment of oral diseases, providing the clinical foundation upon which all oral health efforts are built [9]. Nursing, consistently ranked as the most trusted of professions, offers a unique and invaluable ability to integrate oral health into general health

assessments and patient education across the entire lifespan, from prenatal care and early childhood to geriatric and palliative support, acting as a crucial bridge between medical and dental care. Public health provides the essential framework for understanding the epidemiology and distribution of oral diseases within populations, identifying the root causes of disparities, designing and rigorously evaluating community-based interventions, advocating for evidence-based policy change at local, state, and national levels, and coordinating efforts across diverse sectors and stakeholders. When these three fields converge in a spirit of mutual respect and shared purpose, their combined expertise creates a whole that is far greater than the sum of its parts, enabling the development of comprehensive, sustainable, and genuinely effective programs that can reach and empower populations traditionally marginalized by the healthcare system [10].

The necessity for such collaboration is increasingly recognized and championed by leading health organizations, academic institutions, and government agencies. A recent white paper from the CareQuest Institute for Oral Health, co-authored in partnership with nineteen academic institutions across the United States, asserts unequivocally that interprofessional education and collaborative practice are essential to "break down traditional silos that have separated dental care from general health care" and to prepare a future workforce capable of meeting the complex needs of diverse populations [1]. This sentiment is echoed in a growing number of initiatives and research projects across the globe, from rural communities in Florida and Texas to schools in Ireland and refugee resettlement programs in the United States, where practitioners, educators, and researchers are actively developing, implementing, and testing innovative models of collaborative, community-based care. These emerging models, which creatively integrate school-based nurse training, teledentistry platforms, community health worker programs, and culturally tailored health literacy interventions, are demonstrating measurable and meaningful success in improving access to care, enhancing oral health knowledge and behaviors, and ultimately, reducing the burden of disease in some of the most underserved communities [4]. They represent a fundamental paradigm shift from a singular, narrow focus on clinical treatment to a broader, more ambitious mission of health promotion, disease prevention, and the pursuit of health equity for all.

2. The Theoretical Foundations of Interprofessional Collaboration in Oral Health

The shift from parallel, isolated practice to integrated, coordinated action in oral health promotion is not merely a pragmatic response to service delivery challenges; it is underpinned by a robust theoretical framework that recognizes the complex, multidimensional nature of healthcare delivery and the profound influence of social determinants on health outcomes. Interprofessional collaboration, as a concept and a practice, is far more than simply different professionals working in the same vicinity or on the same case. It is a deliberate, structured, and dynamic process of interaction and decision-making where individuals from diverse professional backgrounds, each with their own distinct knowledge base, skill set, and perspective, come together to pool their expertise, share responsibility, and solve complex problems in order to provide comprehensive, coordinated, and truly patient-centered care [11- 15]. This approach is fundamentally grounded in the understanding that the multifaceted challenges that prevent optimal oral health—such as poverty, food insecurity, low health literacy, deeply ingrained cultural beliefs and practices, systemic discrimination, and structural barriers to access—cannot be adequately understood or addressed by any single discipline operating within its traditional boundaries. The deliberate and intentional collaboration between dentistry, nursing, and public health creates a comprehensive, multi-level model of health promotion that is capable of intervening simultaneously and synergistically at multiple points, ranging from the individual patient encounter and family-level education to the broader community environment and the policy landscape that shapes population health.

Dentistry's role within this collaborative framework is foundational and indispensable, providing the specialized clinical expertise required for the accurate diagnosis, effective treatment, and evidence-based prevention of complex oral diseases and conditions. Dental professionals—dentists, dental hygienists, and dental therapists—are uniquely and rigorously trained to perform a wide range of clinical procedures, including restorative treatments such as fillings and crowns, surgical interventions such as extractions and periodontal surgery, and the placement of sealants and application of topical fluorides for prevention. They are also skilled in the early identification of oral pathologies, including oral cancer, which can be life-saving. However, within a community-based collaborative model, the role of the dental professional evolves and expands significantly. The dentist or dental hygienist is no longer solely the provider of direct clinical care to individual patients in a private office setting. Instead, they also become

a clinical expert, a consultant, an educator, and a leader within a larger, interdisciplinary team [12]. For example, in the innovative interprofessional initiative implemented in rural Florida, which integrated dental education with school-based nurse training, the reach of preventive services was dramatically extended far beyond the capacity of any single dental chair [12]. Dentists and dental hygienists in such integrated models often serve as the primary trainers and clinical supervisors for non-dental professionals, such as nurses and community health workers. They provide the essential clinical guidance, protocols, and quality assurance necessary for these colleagues to deliver safe, effective, and evidence-based preventive care, such as the application of fluoride varnish to the teeth of young children or the provision of basic oral health education in classrooms and community settings. This strategic delegation of specific, protocol-driven tasks, guided and overseen by dental expertise, is absolutely essential for scaling up preventive efforts to reach large populations, particularly those with limited or no access to a traditional dental home.

Nursing's contribution to this collaborative framework is equally vital and, in many ways, uniquely positioned. Nurses, including public health nurses, school nurses, nurse practitioners, and community health nurses, are often the most accessible, visible, and trusted healthcare providers for vulnerable and marginalized populations across the lifespan. Their professional training is deeply rooted in a holistic, patient-centered approach that considers the individual not as a collection of symptoms or organ systems, but as a whole person within the complex context of their family, their community, their environment, and their unique social circumstances [16]. This holistic perspective makes nurses ideally and uniquely positioned to integrate oral health seamlessly into routine general health assessments and ongoing health promotion activities. The Irish quality improvement initiative, which focused on preschool children, provides a powerful and compelling demonstration of this principle in action [3]. This study showed that public health nurses, after receiving a relatively brief and focused period of training, were not only fully capable of accurately identifying cavitated dental decay in young children during their routine, scheduled school visits, but their involvement also proved to be more cost-effective and resulted in significantly higher program uptake rates compared to a traditional model that relied solely on dentists conducting screenings. By skillfully incorporating a brief oral health promotion session and a simple visual intra-oral check into their existing, established workflow, these nurses were able to

efficiently identify young children at high risk for dental disease and successfully connect them with appropriate dental services for follow-up care. In this model, the nurse acts as a crucial and effective bridge between the community and the dental profession, a role that no other professional is as well-suited to fill. In prenatal care settings, nurses can educate expectant mothers about the critical importance of maintaining good oral health during pregnancy and its potential impact on fetal development, while also proactively linking them with a dental home before their baby is even born [14].

Public health serves as the essential strategic architect, the epidemiological compass, and the rigorous evaluator of these collaborative efforts. The discipline of public health provides the indispensable tools and frameworks for understanding the distribution and determinants of oral diseases within populations, for identifying the root causes of persistent disparities, and for designing and implementing interventions that are not only evidence-based but also contextually appropriate, culturally sensitive, and sustainable over time [17]. Public health professionals bring a unique and essential skill set to the collaborative table, including expertise in epidemiology for tracking disease patterns, biostatistics for analyzing data and measuring impact, health promotion theory for designing effective behavior change programs, and program evaluation for rigorously assessing whether interventions are actually working and providing value. They are trained to analyze data from multiple sources to pinpoint communities and sub-populations with the greatest, most urgent need, such as the "maternity care deserts" in rural West Texas where oral health education and referral were successfully embedded into a novel telehealth-based prenatal care platform [4]. Furthermore, public health practitioners are highly skilled in building, nurturing, and maintaining the complex community partnerships and multisectoral coalitions that are the bedrock of any successful, large-scale community-based program. They work strategically to align the efforts of a diverse range of stakeholders—from healthcare providers and hospital systems to schools, social service agencies, community-based organizations, faith-based institutions, and policymakers—to create a coordinated, comprehensive, and unified response to oral health challenges. As seen in the exemplary leadership of figures like Dr. Elías Morón, a dental professional who also holds a Master of Public Health degree, the deep integration of public health principles and population-level thinking into clinical training and program design is absolutely critical for fostering a

workforce that is equipped not only to treat individual disease but also to understand and address systemic barriers and to actively advance the cause of health equity for entire communities [18].

The synergy created by the deliberate and structured integration of these three professions—dentistry, nursing, and public health—creates a powerful, dynamic, and mutually reinforcing force for health promotion that is far more effective than any single profession could be alone. In this collaborative triad, dentistry provides the "what"—the essential clinical and scientific knowledge of what specific actions and interventions are needed to effectively prevent, diagnose, and treat oral disease. Nursing provides the "who" and the "how"—the unparalleled access to populations across the lifespan and the holistic, patient-centered communication skills and trusted relationships necessary to deliver care and education in a way that is acceptable, understandable, and empowering. Public health provides the "where," the "why," and the "so what"—the critical population-level perspective to target interventions strategically to those most in need, to understand the underlying social and systemic causes of disease, and to rigorously measure, evaluate, and communicate the ultimate impact of collaborative efforts on the health of the community as a whole. This powerful and complementary partnership ensures that collaborative interventions are not only clinically sound and evidence-based but also accessible, acceptable, and truly responsive to the needs and preferences of the communities they are designed to serve, and are strategically designed to produce measurable, sustainable, and equitable improvements in population health. It is this deep theoretical and practical integration that fundamentally distinguishes modern, effective, community-based oral health promotion from the fragmented, episodic, and often inequitable care of the past [19- 22].

3. Key Models and Settings for Collaborative Oral Health Promotion

The compelling theoretical benefits of interprofessional collaboration are brought to life and made tangible through a diverse and growing array of practical models implemented in the very settings where people naturally congregate and live their daily lives. These innovative programs are intentionally designed to overcome traditional barriers to accessing care by bringing preventive services, education, and connections to care directly into communities, creatively leveraging the existing infrastructure and trusted relationships found in

schools, long-term care facilities, community health centers, and increasingly, virtual networks. The specific settings, target populations, and intervention strategies vary widely, reflecting the unique needs and resources of different communities, but they are all unified by a common and essential thread: the deliberate, strategic, and effective integration of dental, nursing, and public health expertise.

One of the most prevalent, well-established, and demonstrably effective settings for collaborative oral health promotion is the school environment. School-based and school-linked health programs are uniquely and powerfully positioned to reach a large and captive segment of the pediatric population, effectively circumventing many of the most common barriers to care, such as parents' work schedules, lack of reliable transportation, the difficulty of navigating a complex and fragmented healthcare system, and the simple fact that children do not typically seek care on their own [19]. A comprehensive scoping review of oral health community engagement programs identified school-based initiatives as a primary and highly promising category of intervention, noting their documented success in positively shaping the oral health understanding, attitudes, and perceptions of both children and their caregivers [19]. These programs most often involve a structured partnership between dental professionals, who provide the essential clinical training, oversight, and protocols, and school nurses or public health nurses, who are already a trusted, familiar, and accessible presence within the school environment and the broader community. The previously mentioned Irish initiative serves as an exemplary model of this approach in action [23]. In this program, public health nurses, after receiving targeted and competency-based training from dental professionals, successfully conducted oral health promotion sessions for young children and their parents, and performed simple visual screenings to identify those with obvious decay. This model not only proved to be highly effective and more cost-efficient than traditional dentist-led screenings, but it also creatively leveraged the nurse's pre-existing, trusting relationship with the school, the children, and their families, leading to significantly higher participation rates and greater community acceptance. In the United States, programs like Virginia Health Catalyst's School-Based Oral Health Program Learning Collaborative take this concept to an even larger scale by actively equipping dental safety-net clinics to form sustainable partnerships with local schools [10]. This enables them to provide a comprehensive package of preventive services, including fluoride

varnish applications and dental sealants, to tens of thousands of students annually, demonstrating the remarkable potential for scalability and systemic impact when such partnerships are supported and nurtured.

Rural and other geographically underserved communities, which often grapple with acute and persistent shortages of dental providers, vast geographic distances that make travel prohibitive, and higher rates of poverty and uninsurance, require equally innovative and often more intensive collaborative solutions. The 2025 Compendium of Best Practices in Rural Oral Health, a collaborative effort developed by the National Rural Health Association and the CareQuest Institute, showcases a wide variety of programs from across the United States that are successfully and creatively tackling these formidable challenges [24]. A recurring and powerful theme throughout this compendium is the strategic integration of oral health into broader, existing healthcare delivery systems. For instance, the Texas A&M Rural and Community Health Institute successfully embedded oral health education, screening, and facilitated referrals into a telehealth-based prenatal care platform that was specifically designed to serve women living in "maternity care deserts"—areas with little to no access to obstetric care [4]. In this innovative model, community health workers, who are a key and trusted component of the public health workforce, play a crucial role by proactively following up with at-risk patients after their telehealth visit to provide navigation support, answer questions, and help them overcome any barriers to accessing the dental care they need. This creates a seamless, warm handoff and a genuine connection between the medical and dental care systems. Another essential strategy for reaching rural populations involves intentionally expanding and diversifying the oral health workforce by training and employing local individuals. The partnership between Virginia Health Catalyst and community colleges to launch a satellite dental assistant training program in the underserved region of Central Appalachia directly and creatively addresses the chronic shortage of dental providers [24]. By creating a pipeline of skilled professionals who are already rooted in the community, this approach not only fills critical workforce gaps but also builds local capacity, creates economic opportunity, and fosters a sense of ownership and sustainability that is often lacking in programs that rely on outside providers.

The unique and often complex oral health needs of older adults, particularly those who are frail, functionally dependent, homebound, or institutionalized in long-term care facilities, are

being addressed through another vital and rapidly evolving model of interprofessional collaboration. The geriatric population carries a disproportionately high burden of oral diseases, which can significantly exacerbate chronic systemic conditions like diabetes and cardiovascular disease, contribute to life-threatening aspiration pneumonia, and profoundly diminish quality of life, nutritional status, and social engagement. The Discipline of Gerodontology at the National and Kapodistrian University of Athens has developed a comprehensive and multi-faceted program that thoughtfully integrates service learning and interprofessional education to effectively meet these complex needs [11]. Their established model involves weekly, structured visits by teams of dental students and faculty to nursing homes, where they conduct comprehensive oral examinations, provide hands-on training to both nursing home residents and their formal and informal caregivers, and distribute appropriate oral hygiene products. Crucially, this program involves a formal collaboration with the Department of Nursing from another university, creating a structured interprofessional education experience where dental and nursing students learn with, from, and about each other as they work together in teams to provide holistic, patient-centered care to residents. This "service learning" model provides immense benefits to both groups of students, who gain invaluable real-world experience in teamwork, communication, and the complexities of geriatric care, while also providing comprehensive and much-needed attention to the residents, who benefit from the combined expertise of both professions. Furthermore, the program extends its reach beyond the walls of the nursing home and into the broader community through strategic partnerships with local social service agencies and Alzheimer's day centers, delivering tailored educational workshops for people living with dementia and their caregivers—a population with profoundly complex and often neglected oral care needs [11].

Finally, addressing the distinctive needs of culturally distinct, marginalized, and often traumatized populations, such as refugees and recent immigrants, demands a model of collaboration that is not only interprofessional but also deeply culturally sensitive, linguistically appropriate, and fundamentally rooted in community engagement and trust-building. A groundbreaking and highly successful initiative in Texas specifically targeted Afghan refugee women, a population facing considerable and intersecting barriers to care, including limited English proficiency, low literacy levels in any language, a profound lack of familiarity with the U.S.

healthcare system, and the lingering trauma of displacement and resettlement [22]. An interprofessional team of researchers, including dental and public health professionals, recognized that a standard, clinic-based approach would be ineffective. Instead, they collaborated directly and respectfully with community advocates and leaders from the refugee community to deeply understand the women's specific challenges, cultural norms, and communication preferences. Through this authentic engagement process, the community itself identified WhatsApp as their preferred and most accessible platform for receiving information. In direct response to this community insight, the team created a series of culturally tailored oral health messages in multiple languages (English, Pashto, and Farsi) using the accessible Canva design platform and systematically disseminated them via a dedicated WhatsApp group. This was creatively combined with in-person, hands-on demonstrations of proper oral hygiene techniques at community gatherings. The results of this community-engaged approach were striking and sustained, with statistically significant improvements in both oral health knowledge and self-reported behaviors documented six months after the intervention concluded [12]. This program is a powerful and inspiring example of how technology, when deployed not as a top-down solution but with genuine cultural humility, deep respect, and in true partnership with the community, can be an extraordinarily potent tool for reaching and empowering populations that are all too often invisible to, and underserved by, traditional health systems. It powerfully underscores the fundamental public health principle that effective interventions must be patient-centered, community-engaged, and co-created with the people they are intended to serve, not merely designed and imposed from outside by well-meaning professionals.

4. Enabling Factors: Technology, Policy, and Workforce Development

The successful implementation, widespread adoption, and long-term sustainability of collaborative, community-based oral health programs are not accidental occurrences; they are actively enabled and accelerated by a confluence of critical factors, including the strategic and thoughtful use of technology, the establishment of supportive policies and financing mechanisms, and intentional investment in workforce development and diversification. These essential elements act as powerful catalysts, transforming innovative ideas and promising pilot projects from small-scale, grant-dependent efforts into sustainable, system-

wide changes that can reach and benefit large populations over the long term [25]. Technology, and in particular the rapidly evolving field of teledentistry, has emerged as a critical and transformative enabler for dramatically expanding the reach and scope of oral health services, especially in rural, remote, and other underserved areas where provider shortages and geographic barriers have long been insurmountable obstacles. By creatively leveraging digital communication tools, including secure video conferencing, store-and-forward imaging, and remote patient monitoring, teledentistry can help overcome these longstanding geographical barriers, significantly reduce patient travel time and associated costs, and mitigate the impact of chronic workforce shortages by connecting patients in distant locations with dental providers located elsewhere [13]. The applications of teledentistry are remarkably diverse and continue to expand. The National Network for Oral Health Access (NNOHA), as part of its Teledentistry for Access Learning Collaborative, has actively supported community health centers across the country in successfully integrating virtual dental visits into their standard clinical workflows for a variety of purposes, including patient triage to determine the urgency of needed care, post-operative follow-up visits to monitor healing and address concerns, and even synchronous clinical exams conducted in real-time via video link. Since the collaborative began in 2020, participating health centers have reported conducting over 85,000 virtual visits, a staggering number that powerfully demonstrates the immense and largely untapped potential of this modality to increase access to care [13]. The Afghan women's health literacy project in Texas provides another compelling and innovative example of technology's power, in this case not for direct clinical consultation, but as a highly effective tool for culturally tailored health promotion and community education [22]. By creatively using a familiar and accessible platform like WhatsApp and creating all educational content in the community's native languages, the project effectively bridged profound gaps in literacy, language, and trust, demonstrating that technology's greatest strength in public health may ultimately lie in its ability to facilitate authentic communication, build relationships, and empower communities. The successful integration of telehealth into the prenatal care platform for women in rural Texas maternity care deserts further illustrates how technology can be used to seamlessly weave oral health into the very fabric of general medical care, creating a more holistic, integrated, and patient-centered experience [4]. Supportive public policies and strategic

workforce development initiatives are equally crucial for creating a sustainable and enabling environment in which interprofessional collaboration can not only survive but truly flourish. The existence of programs like the Fulfilling Iowa's Need for Dentists (FIND) Project, which offers substantial student loan repayment as a financial incentive to dentists who make a binding commitment to practice for a specified number of years in designated underserved rural areas, powerfully demonstrates how thoughtfully designed policy incentives can directly and effectively address the persistent problem of workforce maldistribution [4]. By strategically pairing this financial incentive with clinical support, such as hospital-based pediatric services, such programs help to build a sustainable infrastructure for care in communities that would otherwise remain oral health deserts. At a national level, the growing and formal recognition of interprofessional education by major academic institutions and professional accrediting bodies is a profound policy shift with far-reaching implications for the future of healthcare. The finding that an overwhelming 96% of dental schools in the United States now actively engage in some form of interprofessional education activities, regularly collaborating with other academic units such as nursing, pharmacy, medicine, and social work, signals a fundamental and lasting change in how the next generation of health professionals is being trained and socialized [26]. This early and sustained exposure to collaborative practice during the formative years of professional training helps to systematically break down professional silos and stereotypes from the very beginning, fostering a culture of mutual respect, open communication, and genuine teamwork that graduates will carry with them throughout their careers. However, as the CareQuest Institute white paper wisely notes, for interprofessional education to reach its full potential and truly transform practice, there is an ongoing and pressing need for the development of improved, more rigorous assessment tools and for more flexible, yet still standardized, implementation strategies that can be adapted to different institutional contexts [27]. This important observation points to the significant amount of work that remains to be done to fully align educational practices with the evolving demands of a truly collaborative healthcare landscape. Finally, the intentional expansion, diversification, and empowerment of the oral health workforce itself is a key and essential enabling factor. The traditional, long-standing model of oral healthcare delivery, which has relied almost exclusively on dentists and dental hygienists as the sole providers

of care, is fundamentally insufficient to meet the complex and growing needs of the entire population. Innovative programs are therefore increasingly focusing on creating entirely new categories of oral health workers and thoughtfully expanding the scope of practice of existing ones to maximize their contribution to population health. Training community health workers, who are trusted members of the communities they serve, to provide basic oral health education, conduct outreach, and offer navigation support to help individuals connect with dental services, as was so effectively demonstrated in the Texas prenatal program, creatively leverages a pre-existing, trusted workforce to dramatically extend the reach of professional dental providers [4]. Similarly, training nurses and other non-dental healthcare professionals to apply fluoride varnish to children's teeth or to conduct simple visual screenings, as was successfully implemented and rigorously evaluated in Ireland and has been advocated for in Australia, is a highly efficient, cost-effective, and practical way to embed essential preventive oral health services into the many settings where children and families are already regularly present, such as well-child visits, schools, and WIC clinics [3, 14]. The dental assistant training program in Central Appalachia is a prime and inspiring example of the "grow your own" workforce strategy, creating meaningful economic opportunity for local residents while simultaneously and directly addressing a critical local workforce shortage [4]. These diverse and creative strategies collectively represent a fundamental paradigm shift away from a singular, narrow focus on dentists as the sole and exclusive providers of oral health care, and towards a more flexible, resilient, and truly team-based model of care delivery, where each member of the team is empowered to practice at the very top of their license and to contribute their unique skills and perspectives to the shared, overarching goal of improving the oral health and overall well-being of the entire population.

4. Challenges and Barriers to Implementation

Despite the compelling and accumulating evidence base and the growing momentum behind interprofessional, community-based oral health programs, their widespread adoption, long-term sustainability, and scaling to a level that could meaningfully impact population health are significantly hindered by a range of persistent and deeply entrenched challenges. These formidable barriers are not superficial; they are deeply embedded in the very structure of healthcare systems, in long-standing professional cultures and

identities, and in outdated and misaligned funding and reimbursement mechanisms. Overcoming them will require deliberate, sustained, and multi-level effort from all stakeholders involved [28].

One of the most formidable and pervasive barriers is the persistence of rigid professional silos and the deeply ingrained cultural norms, stereotypes, and power dynamics that actively reinforce them. Despite the encouraging push for interprofessional education within academic institutions, the vast majority of healthcare professionals are still largely trained in isolation from one another, with little to no meaningful exposure to the perspectives, skills, and roles of other disciplines during their formative years [25]. This siloed educational experience can inadvertently foster professional stereotypes, misunderstandings, a lack of appreciation for the unique contributions of other fields, and even active mistrust. In clinical practice, this can manifest as significant resistance from dental professionals who may be understandably hesitant to delegate clinical tasks to nurses or community health workers, often citing legitimate concerns about quality of care, patient safety, or potential violations of their professional scope of practice as defined by state regulations. Conversely, medical and nursing professionals may not readily see oral health as falling within their sphere of responsibility, viewing it as a separate, highly specialized, and technically demanding field that is outside their professional purview and training. This fundamental lack of a shared mental model—a common understanding of the problem and a collective vision for the solution—can severely impede communication, trust-building, and effective collaboration on the ground. Furthermore, a community-based oral health project implemented in Indonesia highlighted that even when programs are established, internal miscommunication among team members regarding the selection and recruitment of target participants, as well as understandable public hesitation and skepticism towards health checks, were significant challenges that had to be addressed through a more intensive educational and persuasive community engagement approach [15]. These important findings powerfully underscore that effective collaboration is a complex skill that must be actively and continuously cultivated, and that building genuine trust—both between different professional groups and between professionals and the communities they aim to serve—is an essential prerequisite for any successful program.

Logistical and financial hurdles are equally daunting and often prove to be insurmountable obstacles for programs that lack robust institutional support and sustainable funding streams.

Community-based programs, by their very nature and design, operate entirely outside the traditional, well-established clinical setting, which immediately creates a host of complex and often unanticipated logistical challenges. Coordinating the busy and often conflicting schedules between school nurses, volunteer dentists from private practice, and public health officials who may be spread across a large geographic area requires a significant and ongoing administrative effort that is rarely budgeted for. Ensuring the reliable availability of portable dental equipment, managing complex supply chains for items like fluoride varnish, gloves, and masks, and establishing clear, compliant, and effective referral pathways from the community setting to a dental clinic that is willing and able to accept new patients are all practical, day-to-day challenges that can overwhelm and derail even the most well-intentioned and carefully planned program. Financially, these programs often struggle to find any source of sustainable, long-term funding. They are frequently forced to rely on short-term grants, soft money from foundations, or the goodwill of volunteer professionals, all of which are inherently unreliable and make it extraordinarily difficult to plan for the long term, retain trained staff, or scale up successful pilots to reach larger populations. The dominant fee-for-service reimbursement model that still underpins healthcare financing in the United States and many other countries is fundamentally and profoundly ill-suited to preventive, community-based, and collaborative models of care. It simply does not reimburse for the time a nurse spends on oral health education during a well-child visit, for a community health worker's efforts to help a family navigate to a dental appointment, or for a teledentistry consultation conducted by a dentist in a distant city. This creates a powerful and perverse financial disincentive for integration, actively punishing innovative models while rewarding the fragmented, episodic, and procedure-focused care of the past. While programs like the one in Ireland proved to be lower-cost when led by nurses, the initial investment required for training, program setup, and coordination can still be a significant and often insurmountable barrier for cash-strapped public health departments and community-based organizations [3].

Finally, a significant and persistent barrier lies in the relative paucity of robust, high-quality evidence and the complete absence of standardized evaluation frameworks for interprofessional, community-based practice. While there is a small but growing body of literature, consisting largely of descriptive case studies, pilot projects with small sample sizes, and qualitative analyses, large-scale, longitudinal studies that rigorously demonstrate the

long-term cost-effectiveness, sustainability, and measurable health outcomes of these collaborative models are still remarkably scarce [9]. The scoping review on rural oral health programs astutely noted a "growing appreciation for the significance of qualitative data" in understanding the complex processes and community dynamics that contribute to program success or failure, but it also implicitly, and importantly, highlighted the urgent need for more rigorous, quantitative, and diverse forms of evidence to convincingly persuade policymakers, payers, and potential funders to invest in these approaches [29]. The CareQuest Institute white paper explicitly calls for the development and validation of improved assessment tools for interprofessional education and practice, and for a significant increase in the representation of oral health in the broader interprofessional research agenda [30 -31]. Without clear, standardized, and widely accepted metrics to rigorously measure the process, outcomes, and impact of collaboration—such as improved rates of referral completion, demonstrable reductions in dental caries prevalence in a community over time, or documented cost savings from prevented emergency room visits—it remains extraordinarily challenging to build a compelling and irrefutable business case for the systemic changes and sustained investment that are needed. Developing, validating, and promoting these essential evaluation frameworks is a critical and urgent task for the public health research community, as it will provide the evidence base needed to advocate effectively for the policy reforms, sustainable funding streams, and systemic support that interprofessional, community-based oral health promotion so clearly deserves.

5. Conclusion

Community-based oral health promotion programs, built upon the foundation of authentic, synergistic, and well-structured collaboration between the professions of dentistry, nursing, and public health, offer a powerful, pragmatic, and increasingly validated alternative to the failed models of the past. By intentionally and creatively moving beyond the narrow confines of the traditional dental clinic and embedding themselves deeply into the very fabric of community life—into schools where children learn and play, nursing homes where our elders receive care, prenatal clinics where new families are supported, and virtual spaces where communities connect and share information—these innovative initiatives are providing compelling, real-world proof that accessible, equitable, and truly effective oral health care for all is not merely an aspirational goal, but an achievable and

measurable reality. The evidence, while still evolving, is clear and converging: public health nurses can be effectively trained to successfully screen young children for dental disease, community health workers can serve as trusted guides to connect vulnerable families to needed care, and teledentistry can bridge vast geographic distances to bring specialist expertise to those who need it most. These are not futuristic fantasies; they are proven, replicable models that are already improving lives and communities today.

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