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Part Two: Connecting the Mouth to the Body One of the rallying cries in mental health reform is the indisputable biological fact that the mind and the body are hardwired together from the ground floor up. In the science of oral health, we discover that the *mouth* and the body, too, are wired together in one integrated piece.

It's still an open question whether the mind and the mouth are connected.



That question aside, the professional and social strata of both oral health and physical health remain fragmented in separate systems of care, the consequences of which are not insignificant in terms of patient health. Consider:

A young woman visits her obstetrician regularly for prenatal care but does not see a dentist, although her gums bleed, and she knows she has a number of cavities. She experiences premature labor and delivers a baby weighing only 3¹/2 pounds. Could this situation have been avoided?

A four-year-old is treated for an abscessed tooth and ten other cavities. He has health and dental insurance, but the dentist does not think about contacting the child's pediatrician to assist in helping the mother manage his diet and nutrition.

A physician tries everything to help an adult patient control his blood sugar – everything except look in his mouth. Had he done so, he would have discovered periodontal disease and decayed and infected teeth. Had he seen the same infection on the patient's hand or foot, he would have recognized the relationship to the elevated blood sugar and treated the infection aggressively.

We Are One

What do these three examples have in common? Each demonstrates the disconnect between the mouth – the "oral cavity" – and the rest of the body that contributes to poor health outcomes. This disconnect increases health care costs and, ultimately, contributes to the health disparities among population groups.

We are One. All of us – mind, mouth, body. Fortunately, there is a growing recognition of the relationship between oral health and general health. *Oral Health in America: A Report of the Surgeon General* (2000),⁹ identified oral health as integral to general health. The report brought attention to the need to include oral health in the provision of health care and the design of community programs.

ORAL HEALTH IN AMERICA: MAJOR FINDINGS OF THE SURGEON GENERAL'S REPORT

- Oral diseases and disorders in and of themselves affect health and well-being throughout life.
- Safe and effective measures exist to prevent the most common dental diseases – dental caries and periodontal diseases.
- Lifestyle behaviors that affect general health such as tobacco use, excessive alcohol use and poor dietary choices affect oral and craniofacial health as well.
- There are profound and consequential oral health disparities within the U.S. population.
- ᢞ The mouth reflects general health and well-being.
- Oral diseases and conditions are associated with general health problems.

The need to more closely align oral health and general health care is further supported by the following factors:

Oral health and general health linkages are getting stronger. Drs. Kenneth Shay and Jonathan Ship have summarized a number of research findings on the interrelationship between diabetes and cardiovascular disease and periodontal disease; the implication of gram-negative bacteria in the pathogenesis of periodontal disease, and the predisposition to pneumonia when there is colonization of the oropharynx with gram-negative bacilli. These and other pathogens have been associated with bacteremia, infective endocarditis and brain abscess.3 There have also been several recent studies demonstrating the potential impact of periodontal diseases on preterm birth and low birth weight infants.4

The aging of the U.S. population and chronic disease trends have resulted in increasing numbers of dental patients presenting with multiple medical co-morbidities and prescription medications. It is common for older dental patients to have some form of heart, vascular, immunological or endocrine pathology. It is also increasingly common for medical patients, particularly in the nation's public hospitals and community health centers, to have significant amounts of untreated dental disease.

Lack of access to health care, both medical and dental, is a major issue and is likely to be with us for some time. The number of new dentists in the U.S. is not growing fast enough to keep pace with current population growth.¹A recent forecast suggests that there will be a significant shortage of physicians by 2010.⁸ With the general population continuing to grow and become more diverse, and with a significant rise in the numbers of low-income groups, it will be increasingly important to effectively utilize these highly skilled clinicians.

Purpose of this Report

In spite of the common sense of the Surgeon General's report and our increasing knowledge of, and need for, closer alignment of all aspects of the American health care system, the fields of dentistry and medicine remain very much distinct disciplines and separate professions. Each has its own characteristic education, organizations, financing, licensing regulations, research and care delivery patterns. Each has its own distinct professional culture, and seldom do they meet in common purpose.

The purpose of this background report is to provide a description of the two fields, the issues and barriers to integration – or at least closer collaboration – and several scenarios that might offer opportunities for further work.

Rooted in History: Two Separate Systems

The fragmentation of the American health care system is deeply rooted in history, and has occurred for reasons that often had little to do with good science or health. The separation of dentistry – oral health – and general medicine is no exception.

In the Beginning

The story of the first dental school is instructive. Horace H. Hayden, a physician, who received his Doctor of Medicine degree from Jefferson College of Medicine, teamed with Chapin Harris, another physician, to start the first dental school in the U.S. Dr. Hayden had introduced lectures on dentistry at the University of Maryland School of Medicine between 1823 and 1825. However, he faced "insurmountable difficulty" within the medical school in creating a dental department, which at that time would have become the first recognized specialty of medicine. Nevertheless, Dr. Hayden remained committed to his realizations that knowledge of the entire human biological system was essential to the intelligent diagnosis and treatment of diseases of the teeth.²

In 1830 Dr. Harris moved to Baltimore from Ohio. His practice of medicine had included dentistry services, and his compatibility with Dr. Hayden was a natural development. Having failed to establish dentistry within the medical school, Drs. Hayden and Harris made plans to establish a separate college of dentistry; and on February 1, 1840, the Maryland Assembly granted a charter for the Baltimore College of Dental Surgery. It was apparently the first dental college in the world and had four faculty members – all physicians.

The fields of dentistry and medicine remain very much distinct disciplines and separate professions.

Interestingly, the proposal to integrate medical sciences and dentistry was initiated in 1840 by physicians, who resorted to establishing a separate college of dentistry at the time when the medical profession was not yet ready to recognize specialization of any type.

Similarities and Differences

As dentistry and general medicine evolved into separate and distinct systems over the years, a number of similarities and differences in structure and emphasis emerged. The issue is to what extent these differences contribute to the problem of fragmentation, and to what extent they can be used to leverage positive health outcomes for populations.

Integration boils down to the ability of the individual to receive coordinated care that results in improved outcomes.

Academic Preparation. Academic preparation for both dentistry and medicine is similar. Both are based on completing four years of postgraduate education that includes basic sciences, preclinical and clinical experiences. There are specialty residency programs for both physicians and dentists; however, while almost all physicians complete a residency program, approximately two-thirds of graduating dentists complete a general residency program or specialty training.

Practice Setting. The practice setting is different. The great majority of dentists (80%) are generalists, with nearly 90% in solo practice or with one partner. The practice may have a dental hygienist and one or more assistants. Most dentists do not have hospital privileges and, perhaps because of this, tend to be more professionally isolated than their medical physician counterparts. In contrast, physicians are more likely to have a specialty, work in larger practices and have one or more hospital affiliations.

Financing. The financing of dental and medical care also provides a number of contrasts. For example, a typical dental insurance policy requires payment of a monthly premium of \$30 to \$70, a substantial co-pay for services that increases with the level of complexity, coverage for preventive services and an annual total coverage cap of \$1,000 to \$2,000. Contrast that with medical insurance, which usually has a higher premium (\$250 - \$1,000 per month), wide variation in deductibles and co-pays for services not related to the level of complexity of the service provided, and a much higher (if any) annual coverage cap. As a result, most individuals pay a substantial amount of the cost of dental care out-of-pocket at the time of service. Prepaid medical (HMOs) are more common and accepted than prepaid dental plans. Despite this, there are increasing numbers of both medical physicians and dentists who accept cash only for care rather than participating in insurance programs. This economic behavior is characteristic of a seller's market in which the buyer (patient) has no real bargaining power.

INTEGRATION OR COLLABORATION?

The dictionary definition of integration is "to make whole by combining in systematic order or arrangement the component parts." Collaboration, on the other hand, is defined as "working cooperatively with an agency or instrumentality with which one is not immediately connected."

In discussions with dentists, physicians, other health professionals and insurers, most think of integration not as an end result but as a *process of coordination, cooperation and collaboration* with medicine and dentistry remaining separate and independent. This view is more in line with the collaboration definition. Of course, the emphasis given on each process depends on who talks about it and their own frame and interest.

In its most basic form, and from the patient's point of view, service integration boils down to the ability of the individual to receive coordinated care that results in improved outcomes. However, there are a number of real systemic and practice barriers that must first be overcome.

System Barriers to Integration

Graduate Education Programs

Except for the basic science curricula, medical and dental schools are typically separate entities in their clinical training, even when operated within the same institution. There is little attempt to cross train students of each profession. Medical students have little exposure to oral health, and dental students have limited exposure to systemic medical conditions. Most importantly, the separateness introduces professional isolationism. Neither group of students is exposed to the other discipline's body of knowledge or has an opportunity to establish personal relationships. The foundation of separation established in graduate school is seldom overcome in practice.^{7, 11}

Insurance Coverage

Low-income adults are eligible to receive public insurance, but in most states including Arizona, there is a limited dental benefit. Virtually the entire population 65 years of age or older is medically insured through Medicare, but this federally funded program does *not* include a dental benefit. Public programs have historically paid low rates to dental providers, with the result that few are willing to treat significant numbers of publicly covered patients.⁷

Even having both medical and dental insurance is not enough. Most insured patients have a policy that covers medical services and a different policy for dental. This misalignment of coverage makes communication, referrals and effective management of health conditions difficult. It is a particular problem if a person has an oral condition that creates or exacerbates another medical condition – and vice versa.

Reimbursement Structures

A component of the insurance coverage issue, strict reimbursement policies can make it difficult for a medical or dental provider to be paid for a service that is more typically provided in the other field or discipline. Examples might include a dentist providing screening for osteoporosis in a middle-aged woman, or a pediatrician applying fluoride varnish in the mouth of a two-year-old. It is likely that medical insurance would not pay the dentist for the osteoporosis screening, nor would dental insurance pay for the pediatrician for the fluoride varnish.

Legal Concerns about Confidentiality

The confidentiality of patient records is a significant issue within each separate system of practice, let alone across systems of care. There is a need to establish policies that protect individual privacy, while at the same time allowing the health providers access to information that will support good clinical decisions. This issue has been further complicated by the federal regulations found in the Health Insurance Portability & Accountability Act of 1996 (HIPAA), which went into effect in April 2003 for all health care organizations. Model procedures could be developed to address the regulations and the practical concerns about confidentiality, but it's much harder to do across systems that have no ongoing channels of communication and control.

For every adult 19 years or older without medical insurance there are three without dental insurance.¹⁰

The financial reimbursement arrangements reinforce two separate systems of care.

Lack of Technological Infrastructure

Technological systems allow providers to function more efficiently and health planners to assess needs and allocate resources more effectively. There are challenges in getting the clinical, administrative and payer systems to communicate across platforms and organizations in either the medical or dental world. Putting the two together adds to the complexity, but it is critical if oral health and general health care are to be integrated or even more closely aligned.

Practice Barriers to Integration

Differences in Practice Environments

Although there is much talk about every person having a primary provider that encourages health promotion, disease prevention and provides coordinated care for the management of chronic conditions, in actuality the general medical care delivery system in the U.S. tends to be crisis oriented, highly sub-specialized, technology dominated and procedure oriented. The delivery of medical services is accomplished by a variety of providers in 15-minute ambulatory visits, short-term outpatient procedures or high intensity/acuity inpatient care. Time devoted to patient education is frequently fragmented and limited. A great deal of health education is accomplished through public education, and not necessarily through the medical community.

The dental delivery system has traditionally been demand led and patient focused. For the most part, services are performed in a single general dentist's office and take 15-60 minutes. Considerable attention is given to prevention and educating the patient about health promotion, disease prevention and management of dental diseases. Because most dentists practice in solo or small group practices and do not have hospital privileges, they have little opportunity to participate in and influence public education and policy about oral health.

Lack of Effective Communication Systems

There is nearly a complete absence of formal or informal systems of communication that facilitate referrals. When a referral is made, it is frequently done by instructing the patient to *see his physician or dentist*. Referrals within the respective discipline are treated much differently. The referring provider usually refers the patient to a specific specialist, communicates with that specialist either through a formal referral process or by personal contact, and expects a report of the patient contact. This reciprocity is generally lacking between medical and dental providers.

There are several reasons for this separation. On a basic level, medical and dental providers are not usually in the same provider networks, so they lack the most basic directory for referrals across treatment systems. There is also a lack of opportunity to develop individual professional relationships, whether through their training, professional organizations or continuing education activities. Herein lies the most fundamental issue that must be addressed to improve patient care.

There are few, if any, opportunities to develop individual professional relationships between dentists and physicians.

Clinical Training

Dentists and primary care physicians seldom venture into the other's perceived territory, because they lack the clinical training to prepare the way. With increased levels of integration, practitioners in each discipline will require training in specific clinical screenings, assessments and interventions prior to expanding his or her practice. These might include particular procedures, but it also might include models of integration that have been successful in other practice settings. A key to engaging providers in learning new skills is the recognition of the licensing and accrediting bodies that award continuing education credits.

Professional Cultural Differences

Clinicians in medicine or dentistry are not exposed in training, continuing education or practice to the recognition of the interrelationship between oral health and general physical health. Medical providers pay minimal attention to oral conditions, but when identified, the patient is told to "see a dentist."

At the same time, dentists pay little attention to physical health conditions, including those documented as having a relationship with oral health (diabetes, heart disease, drug allergies, pregnancy).⁶ A referral may be made, but it will be similar to the physician's referral to the dentist.

This "culture of isolation" in and of itself results in a lack of communication, referral and ongoing patient management. Awareness, orientation and attitudes are difficult to change, but critical if patients are to receive appropriate care.

IS DENTISTRY PRIMARY OR SECONDARY?

Once a dentist or physician graduates from professional training, the foundation is laid for profound differences in perspective on each other's field, despite the integrated logic of science and the needs of patients. Dentists may see their field as "primary care" in its own right, but to many physicians and other allied health professionals and administrators, dentistry is "secondary care" – almost a specialty within the larger framework of general medicine.⁵

These different perspectives are most evident in the treatment of young children. Dentists may adopt the concept of a "dental home" for children, but most primary physicians would question whether a child needs more than one "medical home." If dentistry is viewed as an independent health system, the child is seen by the pediatric or general dentist even as early as one year of age. But if dentistry is viewed as a secondary system to primary medical care, the physician takes responsibility for a full range of preventive services, including dentistry, and refers to a dentist only when there is a problem that requires specialized knowledge and skill.⁷

Is dentistry primary or secondary? Will the twain ever meet?

There is a culture of isolation.

Options for Change: Three Scenarios

Are there ways of directing the health care delivery system to respond more appropriately to patients' needs for health promotion and joint medical/dental disease management? Can we devise new approaches to helping individuals to change behaviors that compromise their health?

We approach these questions by briefly outlining three scenarios ranging from improving communication and referrals to population-based approaches. The scenarios are not mutually exclusive, but are meant to be a way of framing options for change.

Scenario I: **CONTINUE** Increase Coordination and Improve Referrals

Medical and dental practices work in partnership to establish formal screening procedures, referral systems, procedures for sharing health information and coordination of treatment and staff education:

- Screening procedures might include dentists screening school-age children and youth for immunizations or women for signs of partner abuse (dentists are some of the first health care providers to see signs of domestic violence many victims will not go back to the same physician, but will return to the same dentist); or skilled nursing facility staff might screen elderly for oral mucosal diseases.
- School nurses could screen for vision, hearing and dental conditions.
- Referral patterns might include automatic referrals from medical practitioners for preventive dental care for all pregnant women, oral ulcerations, untreated caries and periodontal diseases; from dental practitioners for cardiovascular disorders, mental health and drug interactions; and cross referrals for oro-facial infections.
- Dentists, through their panograph radiographs, could identify women at-risk for osteoporosis.
- Coordination of treatment or co-management of chronic diseases could include individuals with diabetes, oral infection, HIV, traumatic injuries, facial pain and drug interactions affecting oral mucosa.

The key to this scenario is the development of formal relationships and effective communication between the medical and dental provider groups. Co-location of providers would also be helpful, particularly in long-term care facilities.

Scenario II: 10 Expand Scope Of Practice

In this scenario, all medical and dental providers would expand their existing practice to identify and address the medical and dental needs of their respective patients:

Pediatricians and pediatric nurse practitioners might provide oral screening, parent education and application of fluoride varnish to children under three years of age. (The fluoride varnish is a sticky substance applied to the surface of primary teeth that has been shown to reduce caries by as much as 80% in young children.)¹⁴ In a recent survey, pediatricians reported that they regularly identified untreated dental problems; 74% expressed willingness to apply fluoride varnish to children in their practice.¹³

Staff education might include joint development of infection control and cardiopulmonary resuscitation training programs, laboratory investigation protocols and health promotion materials.

- Staff of assisted living and skilled nursing facilities could regularly assist their frail elderly clients with the use of a chlorhexidine mouthwash. Reducing the refined carbohydrates in client menus would also have a positive impact on oral and physical health.
- General dentists might check medications more closely, monitor blood pressures for hypertensive patients and complete more comprehensive medical histories than they do now.
- Dentists could routinely check patients' vital signs before dental treatment.

Scenario III:2 10 Focus On Integrated Health Care Risk Assessment

In this scenario, dental and medical professionals would work within newly established administrative systems as part of a coordinated health team to develop and deliver health promotion and prevention strategies focused on the core causes of oral and medical conditions:

- Common risk factors such as poor diet, poor hygiene, tobacco use, stress, oral bacteria, hypertension and injury are recognized and emphasized in individual patient care and public education. Most of these same risk factors contribute to other chronic conditions such as heart disease, cancer and stroke.
- The application of an integrated health care risk assessment model is likely to be more effective than a disease-specific approach because it tackles causes common to a number of chronic diseases and incorporates oral health into general health. The approach focuses on whole populations rather than disease specific, at-risk groups. It lends itself to policy changes as well as changes in personal or individual behaviors.¹²
- Tobacco is one visible example. Tobacco use is associated with increased risks of lung and oral cancers, periodontal disease and heart and respiratory diseases. Public policy approaches such as "sin" taxes and health education programs to reduce smoking have been effective in improving health outcomes. A less obvious example might be working with food policy strategies to change diet and reduce intake of sugars, fat and salt and increase the natural fiber content, all of which have been shown to have a positive impact on general and oral health.

Medical and dental professionals will need to get out of their comfort zone to work with other professionals who have experience in population-based strategies. It is likely that there will be professional cultural differences in the approaches taken by physicians, dentists, health educators and others. However, the chances for long term success in reducing disparities and improving health are greater than for the current fragmented and professionally isolated approach. In an integrated health care risk assessment approach, oral health professionals might serve in leadership roles to identify common risk factors, set priorities, coordinate strategies, and educate their patients, other professionals and the public.

FOSTERING CLOSER RELATIONSHIPS

The historical and professional forces of separatism are powerful and well entrenched, and the walls separating primary dentistry and primary medical care won't be bridged anytime soon. Nevertheless, there are things we can begin to work on today to foster closer relationships tomorrow:

- Co-mingle graduate education experiences. For instance, dental and medical students who take the basic sciences together would begin to establish relationships at a personal and professional level.
- Establish joint health promotion and disease prevention conferences, as well as annual meetings of professional associations. This might stimulate increased knowledge and practice of risk assessment and disease management within each practice discipline.
- Require medical and dental students to complete clinical rotations in the other's field. Dental students would do pediatric, geriatric, internal medicine and preventive medicine rotations. Similarly, medical students would participate in oral diagnosis, oral medicine, pediatric dentistry and public health dentistry rotations. The goal would be to establish professional interactions during medical and dental education that would result in routine collaborations in patient care.
- Establish joint study groups to analyze and discuss case studies across professions. For instance, a geriatric study group might be comprised of medical and dental professionals with large geriatric practices or who have a particular interest in older adults.
- Utilize new technology and communications systems perhaps web-based to connect primary care medical and dental providers. Work on a common electronic health record that spans both medicine and dentistry.

Next Steps

The three scenarios envision various levels of integration and coordination of medical and dental services. The improvement of professional referral systems in Scenario I, expanding the scope of dental and medical providers in Scenario II, and developing integrated prevention strategies in Scenario III all represent departures from the traditionally isolated dental profession described earlier. Scenario I will require much greater awareness of oral health on the part of medical providers. Scenario II will require dental care professionals to learn medical screening and health monitoring skills. Finally, Scenario III envisions the greatest degree of integration, where dental and medical professionals actually work within new administrative structures to provide seamless health promotion and disease prevention services that address oral, dental and medical conditions simultaneously.

Next steps will require the discussion of the three levels of integration strategies within the various subdivisions of the dental and medical professions. For early life care, most critical will be the integration of pediatric and family medicine with pediatric, public health and general practice dentistry. For elders, integration will need to include geriatric dentistry and medicine specialists, general practitioners of both medicine and dentistry, and public health and preventive medicine specialists. In all of these efforts, state level collaboration may be the most fruitful because health policy and professional regulations are promulgated primarily by state regulatory bodies, state practice acts and state level reimbursement regulatory agencies. This could be fertile ground for a number of pilot projects.

Advancement in pursuing the coordination of patient care strategies as outlined here will lead to improved health care and health status for those populations most at risk. To get there, the dental and medical professions will need to communicate more meaningfully with each other. Drs. Hayden and Harris, who started the first dental school over 160 years ago, might wonder what took us so long.

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Our Mission

To improve the health of people and their communities in Arizona, with an emphasis on underserved populations and building the capacity of communities to help themselves.

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