The Revolution in Science, Delivery Models and Financing Systems: Opportunities for the Oral Health Industry

Paul Glassman DDS, MA, MBA
Professor and Director of Community Oral Health
University of the Pacific School of Dentistry
San Francisco, CA
The US Health Care System is Undergoing Profound Change
Drivers of the Quality Movement in the U.S. Health Care System

1. the skyrocketing cost of health care unrelated to improvement in health outcomes,
2. increasing understanding of the harm and unwarranted variability our fragmented health care system produces,
3. evidence of the profound health disparities that still exist in the population in spite of scientific advances in care, and
4. increasing awareness of these problems in the age of consumer empowerment.
A Profession in Transition:
Key Forces Reshaping the Dental Landscape
National Dental Expenditure Flat Since 2008, Began to Slow in 2002

**Figure 1:** National Dental Expenditure ($ millions)

Source: Centers for Medicare and Medicaid Services; U.S. Bureau of Economic Analysis. Note: National dental expenditure adjusted for inflation using the GDP implicit price deflator.
National Dental Expenditure Flat Since 2008, Began to Slow in 2002

**Figure 2:** National Dental Expenditure per Capita (in constant 2011 dollars)

**Source:** Centers for Medicare and Medicaid Services; U.S. Bureau of Economic Analysis; U.S. Census Bureau. **Note:** Expenditure adjusted for inflation using the GDP implicit price deflator.
Oral Health Expenses

Consumer Price Index (CPI) and CPI for Dental Services (% of 2000 dollars)

Out-of-Pocket Health Expenses

Consumer out-of-pocket health care expenditures in 2008

- Prescription drugs (31.0%)
- In-patient care (8.8%)
- Outpatient/ emergency room care (6.4%)
- Physicians' services (15.9%)
- Medical supplies (7.6%)
- Dental services $30.7 billion (22.2.0%)
- Other professional services (8.1%)
- Out-of-pocket health care total $138.5 billion

Mean US Household Income

Mean Household Income Received by Each Fifth and Top 5 Percent in 2010 Dollars as % of 2000 Dollars

Source: CMS National Health Expenditure Projections 2010-2020
An analysis of dentists’ incomes, 1996-2009

Marko Vujicic, PhD; Vickie Lazar, MA, MS; Thomas P. Wall, MA, MBA; Bradley Munson, BA

Figure 2. General practitioners’ (GPs’) real net income and all explanatory variables index (all variable values indexed to 100 in 2005).
# Dental Expenditures by Income Strata - 2010

<table>
<thead>
<tr>
<th>Family Income</th>
<th>Number (000,000)</th>
<th>% of Population</th>
<th>% with Visit</th>
<th>Expenditures (000,000)</th>
<th>% of Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>46.8</td>
<td>15%</td>
<td>24%</td>
<td>$4,232</td>
<td>7%</td>
</tr>
<tr>
<td>Near Poor</td>
<td>14.5</td>
<td>5%</td>
<td>27%</td>
<td>$1,612</td>
<td>3%</td>
</tr>
<tr>
<td>Low</td>
<td>42.7</td>
<td>14%</td>
<td>28%</td>
<td>$5,468</td>
<td>9%</td>
</tr>
<tr>
<td>Middle</td>
<td>93.0</td>
<td>30%</td>
<td>35%</td>
<td>$17,302</td>
<td>29%</td>
</tr>
<tr>
<td>High</td>
<td>111.7</td>
<td>36%</td>
<td>51%</td>
<td>$31,111</td>
<td>52%</td>
</tr>
</tbody>
</table>

Definitions: Poor = < FPL; Near poor = >FPL-125% FPL; Low = >125%-200% FPL; Middle = >over 200%-400%FPL; high = >400% FPL.


Source = AHRQ MEPS Dental Services Expenses General Dentist Visits 2010
http://meps.ahrq.gov/mepsweb/data_stats/tables_compendia_hh_interactive.jsp?SERVICE=MEPSSocket0&_PROGRAM=MEPSPGM.TC.SAS&File=HCFY2010&Table=HCFY2010%5FPLEXP%5FB&VAR1=AGE&VAR2=SEX&VAR3=RACETH5C&VAR4=INSURCOV&VAR5=POVCAT10&VAR6=MSA&VAR7=REGION&VAR8=HEALTH&VARO1=4+17+44+64&VARO2=1&VARO3=1&VARO4=1&VARO5=1&VARO6=1&VARO7=1&VARO8=1&TCOPT1=GEN&_Debug=
The majority of underserved people with the majority of dental disease do not take advantage of the traditional dental care delivery system.
The 2011 IOM Reports on Oral Health
Themes from the 2011 IOM Reports on Oral Health

Improve access to services and oral health through:

• Chronic disease management
• Delivery Systems
  – Telehealth
  – Payment incentives
  – Workforce expansion
• Drive change and accountability through
  – Quality measures and improvement
Deployment of oral health resources

Science of caries and chronic disease management
Care for Chronic Oral Diseases

Acute Care/Surgical Intervention

Chronic Disease Management
Care for Chronic Oral Diseases

**Acute Care/Surgical Intervention**
- Provider-centric model
- Care delivered in fixed offices and clinics
- “Treatment” based on discrete procedure-based episodes of care
- Payment based on discrete procedure-based episodes of care
- Emphasis on surgical interventions

**Chronic Disease Management**
- Patient-centric model
- Care delivered where people are to the extent possible
- “Management” based on maintaining health across the life-cycle of a condition
- Payment based on value of health improvement across life-cycle of a condition
- Emphasis on risk assessment, prevention, and early intervention, using biological, medical, behavioral, and social tools
Incomplete Caries Removal

Increasing numbers of clinical trials have demonstrated the benefits of incomplete caries removal, in particular in the treatment of deep caries.

Teeth treated with incomplete caries removal showed risk reduction for both pulpal exposure and pulpal symptoms.
Interim Therapeutic Restoration (ITR)

Policy on Interim Therapeutic Restorations (ITR)

Originating Council
Council on Clinical Affairs

Review Council
Council on Clinical Affairs

Adopted
2001

Revised
2004, 2008

AAPD Policy on Interim Therapeutic Restorations (ITR)
Atraumatic Restorative Treatment

Two systematic reviews on longevity of ART restorations vs amalgam and pain and fear experienced during restoration.¹,²

• Longevity: In primary teeth there was no significant difference in longevity over 12 and 24 months. In permanent dentition longevity of ART restorations is equal to or greater than that of equivalent amalgam restorations for up to 6.3 years.

• Pain and fear: ART promotes less discomfort for patients, contributing to a reduction of anxiety and fear during the dental treatment. Results also indicated that ART minimizes pain reported by patients

Managing Caries in Virtual Dental Homes Using Interim Therapeutic Restorations

The Pacific Center for Special Care at the University of the Pacific, Arthur A. Dugoni School of Dentistry has developed the virtual dental home (VDH) system, which uses allied dental professionals trained to place interim therapeutic restorations (ITR) under the general supervision of dentists. This paper reviews the scientific basis for the ITR, as used in the VDH system, in managing caries lesions and delivering oral health care to underserved and vulnerable populations.

Science of caries and chronic disease management

Community-based telehealth enabled teams
The Virtual Dental Home
The Virtual Dental Home: Bringing Oral Health to Vulnerable and Underserved Populations

Paul Glassman, DDS, MA, MBA; Maureen Harrington, MPH; Maysa Namakian, MPH; and Paul Subar, DDS, EDD

Abstract Large and increasing oral health disparities in the U.S. population led the Institute of Medicine to call for expanded research and demonstration of delivery systems that test new methods and technologies. These new methods include delivering oral health services in nontraditional settings, using nondental professionals, expanded roles for existing dental professionals and new types of dental professionals, and incorporating telehealth technologies. The virtual dental home is a system that demonstrates the characteristics called for by the IOM.
The Virtual Dental Home Concept Model

Allied Personnel – On-Site
Intake & periodic recall visits, record collection, communication with dentist
EHR: Radiographs
EHR: Photographs
The Virtual Dental Home Concept Model

Allied Personnel – On-Site
Intake & periodic recall visits, record collection, communication with dentist

Cloud-Based Electronic Health Record
Radiographs
Radiographs
Photographs
Photographs
The Virtual Dental Home Concept Model

Allied Personnel – On-Site
Intake & periodic recall visits, record collection, communication with dentist

Dentist – Off-Site
Record review, decision about dental treatment – what & where

Cloud-Based Electronic Health Record
The Virtual Dental Home Concept Model

Allied Personnel – On-Site
Intake & periodic recall visits, record collection, communication with dentist

Dentist – Off-Site
Record review, decision about dental treatment – what & where

Cloud-Based Electronic Health Record

Disease, needing in-person treatment by dentist?

No

Pacific Center for Special Care, University of the Pacific School of Dentistry, © 2012
Study on
Telehealth vs In-Person Decision Making
In-Person Versus “Virtual” Dental Examination: Congruence Between Decision-Making Modalities

MAYSA NAMAKIAN, MPH; PAUL SUBAR, DDS, EDD; PAUL GLASSMAN, DDS, MA, MBA; ROBERT QUADE, PHD, MBA; AND MAUREEN HARRINGTON, MPH

ABSTRACT This study evaluated the agreement of a dentist’s conclusions reached through an in-person versus a virtual examination. The dentist determined whether a patient was healthy enough to be treated only by allied dental personnel in a community setting or whether the patient needed to be seen by a dentist. The study concludes that a virtual examination is a strong substitute for an in-person examination and validates the application of telehealth-enabled examinations.
The Virtual Dental Home Concept Model

Allied Personnel – On-Site
Intake & periodic recall visits, record collection, communication with dentist

Dentist – Off-Site
Record review, decision about dental treatment – what & where

Cloud-Based Electronic Health Record

Disease, needing in-person treatment by dentist?
No

Allied Personnel – On-Site
Prevention & early intervention procedures, case management, integration into educational, social, general health systems
Community-based Prevention and Early Intervention Procedures
The Virtual Dental Home Concept Model

**Allied Personnel – On-Site**
Intake & periodic recall visits, record collection, communication with dentist

**Dentist – Off-Site**
Record review, decision about dental treatment – what & where

**Disease, needing in-person treatment by dentist?**

- **Yes**
  - **Allied Personnel – On-Site**
    - Prevention & early intervention procedures, case management, integration into educational, social, general health systems

- **No**

**Cloud-Based Electronic Health Record**

**Community On-Site Allied Personnel Care**
(least expensive, most cost avoidance)

**University of the Pacific**
Program management

Pacific Center for Special Care, University of the Pacific School of Dentistry, © 2012
The Virtual Dental Home Concept Model

Allied Personnel – On-Site
Intake & periodic recall visits, record collection, communication with dentist

Dentist – Off-Site
Record review, decision about dental treatment – what & where

Disease, needing in-person treatment by dentist?

No

Allied Personnel – On-Site
Prevention & early intervention procedures, case management, integration into educational, social, general health systems

Community On-Site
Allied Personnel Care
(least expensive, most cost avoidance)

University of the Pacific
Program management

Community On Site
Dentist Care
(moderate expense, moderate cost avoidance)

Yes

Dentist – On-Site
Disease treatment

Dentist – Dental Office
Disease treatment

Dentist – Dental Clinic
Disease treatment

Cloud-Based Electronic Health Record

Pacific Center for Special Care, University of the Pacific School of Dentistry, © 2012
The Virtual Dental Home Sites

[Map of California showing locations of Virtual Dental Home Sites]
Oral Health Systems for Underserved Populations

Geographically Distributed

Telehealth Enabled

Oral Health Care Team
Science of caries and chronic disease management

Community-based telehealth enabled teams

Financial incentives aligned with oral health outcomes
Considerations in Supporting Workforce Models

- The system that supports care (placement, payment, incentives) is more important than the person or the duties

- Variables to consider include:
  - Characteristics of the population to be served
  - Availability of current oral health providers
  - Geographic location of potential services
  - Current and potential scope of practice laws
  - Service regulations (4 walls, telehealth)
  - Reimbursement regulations (telehealth, hygiene billing)
  - Political realities
The Revolution in Science, Delivery Models and Financing Systems: Opportunities for the Oral Health Industry

Paul Glassman DDS, MA, MBA
Professor and Director of Community Oral Health
University of the Pacific School of Dentistry
San Francisco, CA