
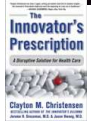
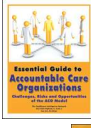


## Disruptive Innovation: On the Road to Value in Health Care and Oral Health Care

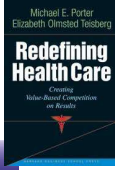
**Paul Glassman DDS, MA, MBA**  
University of the Pacific School of Dentistry, San Francisco, CA  
[pglassman@pacific.edu](mailto:pglassman@pacific.edu)





## The Era of Accountability

VALUE = QUALITY  
COST




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### Drivers of the Quality/Accountability 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.

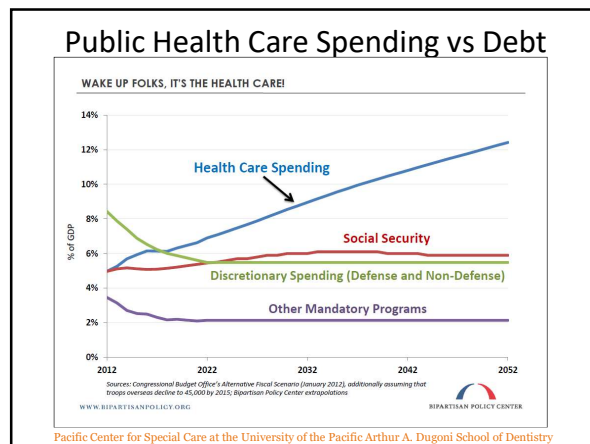
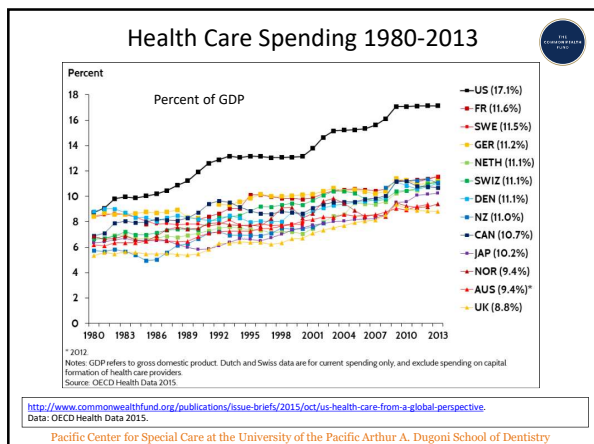


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### Drivers of the Quality Movement #1 – The Cost of Health Care



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## Health Care Spending



**“Medical costs are the tapeworm of American economic competitiveness”**

New York Times. May 6, 2017

**Warren Buffett**  
CEO, Berkshire Hathaway

New York Times: Warren Buffett, at Berkshire Meeting, Condemns Republican Health Care Bill. 5/6/17. <https://www.nytimes.com/2017/05/06/business/dealbook/warren-buffett-berkshire-health-care.html?action=click&contentCollection=Europe&module=Trending&version=Full&region=Marginalia&pgtype=article>

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## Why US Spends So Much More

**The New York Times**

THE NEW HEALTH CARE

### *Why the U.S. Spends So Much More Than Other Nations on Health Care*

Studies point to a simple reason, the prices, not to the amount of care. And lowering prices would upset a lot of people in the health industry.

By Austin Frakt (<https://www.nytimes.com/by/austin-frakt>) and Aaron E. Carroll (<https://www.nytimes.com/by/aaron-e-carroll>)  
Jan. 2, 2018

<https://www.nytimes.com/2018/01/02/upshot/us-health-care-expensive-country-comparison.html>

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### High U.S. Health Care Spending Is Largely Driven by Technology Use, Prices

Health spending more on health care, the United States generally has more health care services than other countries, including higher rates of chronic conditions and short waiting lists. But the U.S. spends more on health care than other countries, including higher rates of chronic conditions and short waiting lists. But the U.S. spends more on health care than other countries, including higher rates of chronic conditions and short waiting lists.

MRI exams per 1,000 people (2013)

Canada	53
U.S.	107

Bypass surgery (2013)

Netherlands	\$15,742
U.S.	\$75,345

Annual physician visits per person (2013 on nearest year available)

U.S.	6.0
U.S. (Median of 14 high-income countries)	6.5

\* Includes 34 member countries of the Organization for Economic Cooperation and Development. <http://www.oecd.org/health/healthspending/>  
Source: D. Tabatsky and C. Anderson, U.S. Health Care from a Global Perspective: Spending, Use of Services, Prices, and Health in 13 Countries. The Commonwealth Fund, October 2016.

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### Health Care and Social Spending as a Percent of GDP 2013

Country	Health care (%)	Social care (%)
FR	12	21
SWE	12	21
SWIZ	11	20
GER	11	18
NETH	12	15
US	16	9
NOR	9	16
UK	8	15
NZ	9	11
CAN	10	10
AUS	9	11

Notes: GDP refers to gross domestic product. Source: E. B. Rosenthal and L. A. Taylor, *The American Health Care Paradox: Why Spending More Is Getting Us Less*, Public Affairs, 2013.

The Commonwealth Fund  
U.S. Health Care from a Global Perspective: Spending, Use of Services, Prices, and Health in 13 Countries <http://www.commonwealthfund.org/publications/issue-briefs/2015/oct/13-us-health-care-from-a-global-perspective>

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## Social Determinants of Health

A PUBLIC HEALTH FRAMEWORK FOR REDUCING HEALTH INEQUITIES  
BAY AREA REGIONAL HEALTH INEQUITIES INITIATIVE

Figure 1: A Public Health Framework for Reducing Health Inequities – Bay Area Regional Health Inequities Initiative

Let's Get Healthy California. Social Determinants of Health. <https://letsgethealthy.ca.gov/sdoh/>

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## The Quadruple Aim

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**REPORT IN BRIEF** Institute of Medicine  
**MARCH 2016**

### A Framework for Educating Health Professionals to Address the Social Determinants of Health

**A FRAMEWORK FOR EDUCATING HEALTH PROFESSIONALS TO ADDRESS THE SOCIAL DETERMINANTS OF HEALTH**

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## National Oral Health Expenses

### U.S. National Dental Expenditures 2000 - 2025 (\$ Billions)

Source: CMS National Health Expenditure NHE Historical and projections.  
<http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html>  
<http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html>

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## Health Spending by Condition

### Medical Expenditure Panel Survey - Top 25, 2013

Source: General Health: MEPS: Expenditures by Medical Condition: 2013, Table 3  
[http://meps.aipa.gov/data\\_stats/tables\\_companda\\_03\\_interactive.jsp?SERVICE=MEPSCompandB\\_PROGRAM=MEPSDGM.TC.SAS&F=HCY2013&TAB=HCY2013FNDPSPGFCB\\_Debluc](http://meps.aipa.gov/data_stats/tables_companda_03_interactive.jsp?SERVICE=MEPSCompandB_PROGRAM=MEPSDGM.TC.SAS&F=HCY2013&TAB=HCY2013FNDPSPGFCB_Debluc)  
[http://meps.aipa.gov/reports/tables\\_companda\\_03\\_interactive.jsp?SERVICE=MEPSCompandB\\_PROGRAM=MEPSDGM.TC.SAS&F=HCY2013&TAB=HCY2013FNDPSPGFCB\\_DEBLUC](http://meps.aipa.gov/reports/tables_companda_03_interactive.jsp?SERVICE=MEPSCompandB_PROGRAM=MEPSDGM.TC.SAS&F=HCY2013&TAB=HCY2013FNDPSPGFCB_DEBLUC)  
[http://www.bls.gov/cpi/cpi\\_at.htm](http://www.bls.gov/cpi/cpi_at.htm)

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## Oral Health Expenses

### Consumer Price Index (CPI) and CPI for Dental Services (% of 1990 dollars)

Source: Bureau of Labor Statistics: Consumer Price Index  
[http://www.bls.gov/cpi/cpi\\_at.htm](http://www.bls.gov/cpi/cpi_at.htm)

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## Oral Health Expenses

### Consumer Price Index (CPI) and CPI for Dental Services (% of 1990 dollars)

Source: Bureau of Labor Statistics: Consumer Price Index  
[http://www.bls.gov/cpi/cpi\\_at.htm](http://www.bls.gov/cpi/cpi_at.htm)

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Health Policy Resources Center  
 Research Brief

**ADA American Dental Association**  
 America's leading advocate for oral health

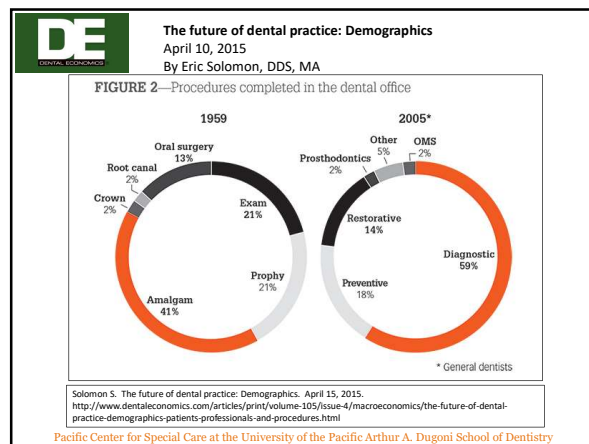
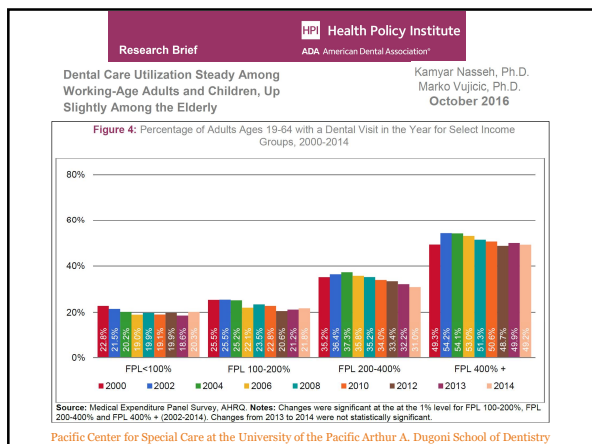
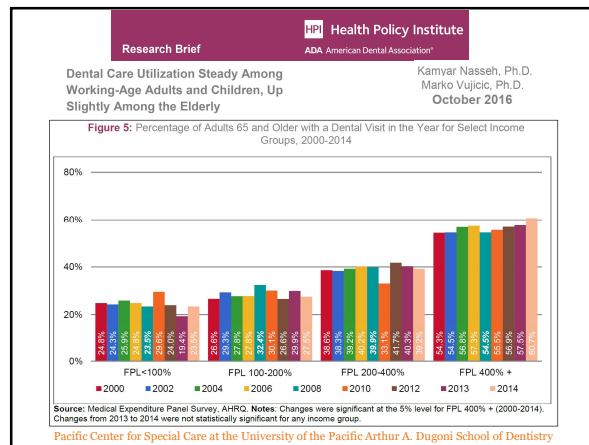
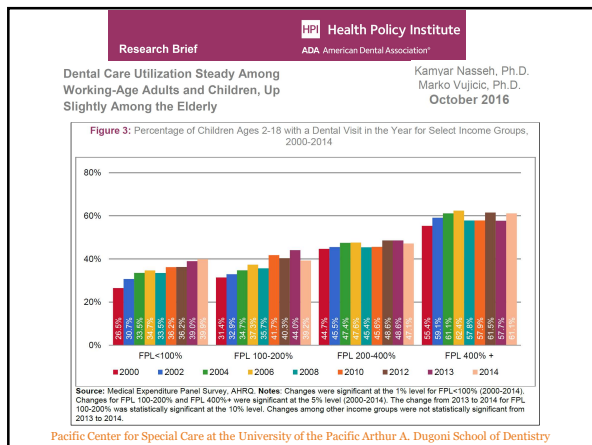
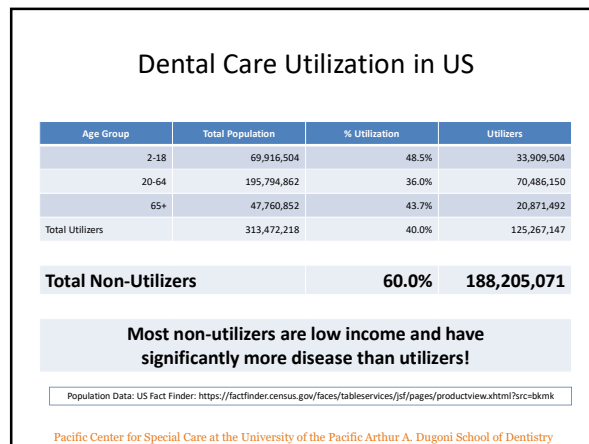
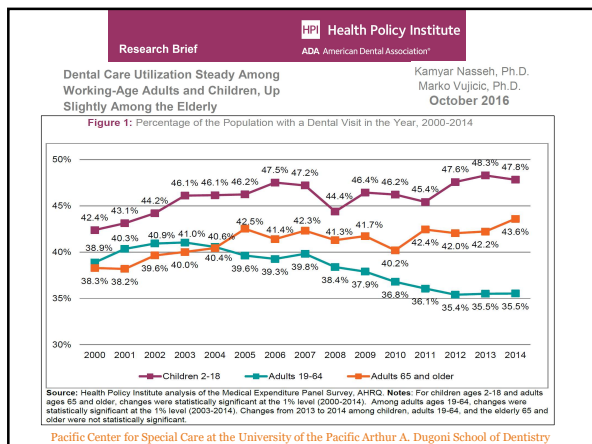
### Fewer Americans Forgoing Dental Care Due to Cost

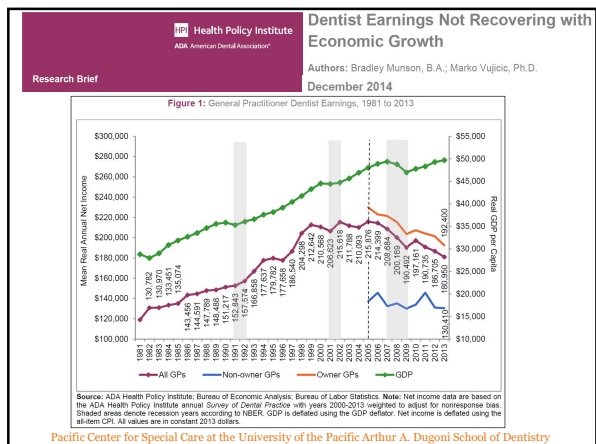
October 2014  
 Authors: Thomas Wolf, M.A., M.B.A., Kamyar Nasseh, Ph.D., Marko Vukob, Ph.D.

#### Figure 1: Percentage of the Population Who Needed But Did Not Obtain Select Health Care Services during the Previous 12 Months Due to Cost, 2000-2013

Source: National Health Interview Survey, National Center of Health Statistics. Notes: Changes from 2000 to 2010 for all services were statistically significant at the 1% level. Changes from 2010 to 2013 for all services were statistically significant at the 1% level. Changes from 2012 to 2013 were not statistically significant.

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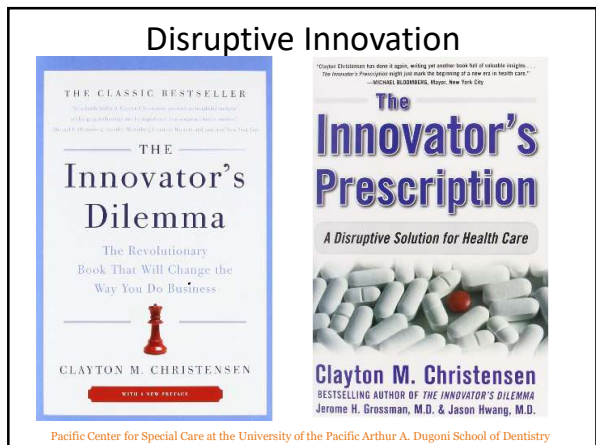




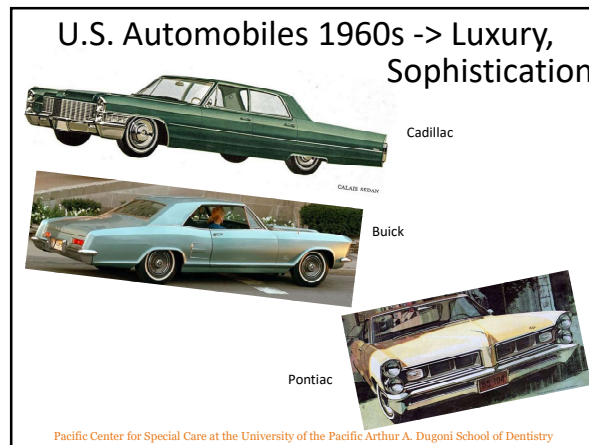
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**The current dental care system primarily serves the wealthiest and healthiest segments of the population**

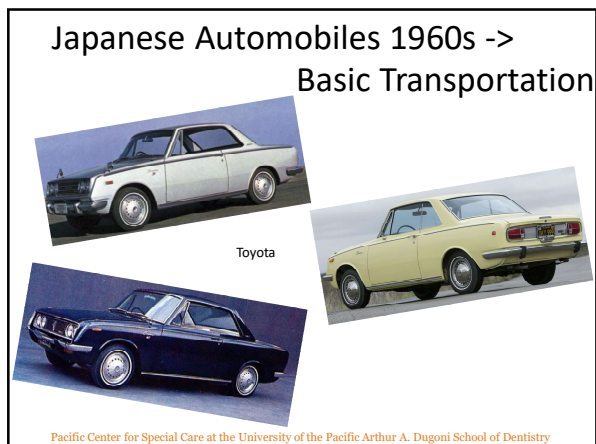
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**Disruptive Innovation**

- Disruptive innovation, describes a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors.

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### Disruptive Innovation

- Companies tend to innovate faster than their customers' needs evolve
- Their products or services become too sophisticated, too expensive, and too complicated for many customers in their market.
- Historically the greatest profitability has been achieved by charging the highest prices to their most demanding and sophisticated customers at the top of the market.

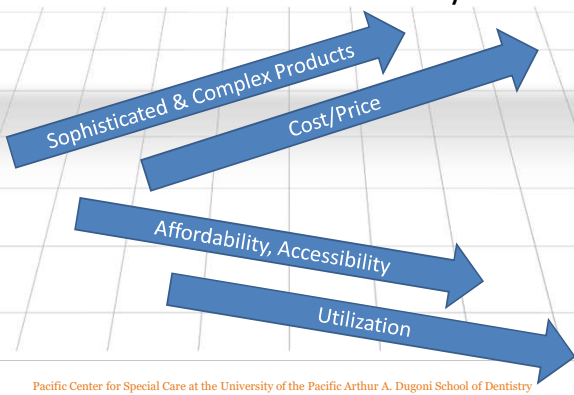
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### Disruptive Innovation

- However, by doing so, companies unwittingly open the door to "disruptive innovations" at the bottom of the market.
- An innovation that is disruptive allows a whole new population of consumers at the bottom of a market access to a product or service that was historically only accessible to consumers with a lot of money or a lot of skill.

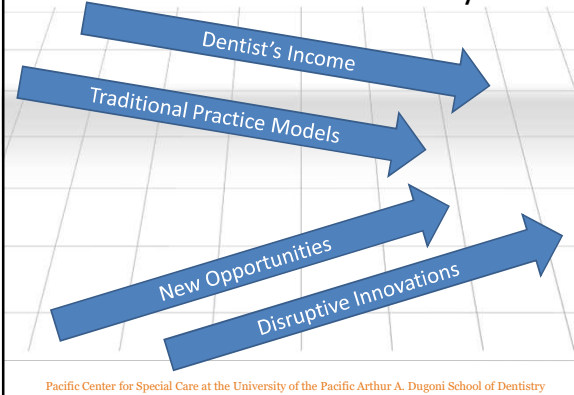
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### The Oral Health Industry



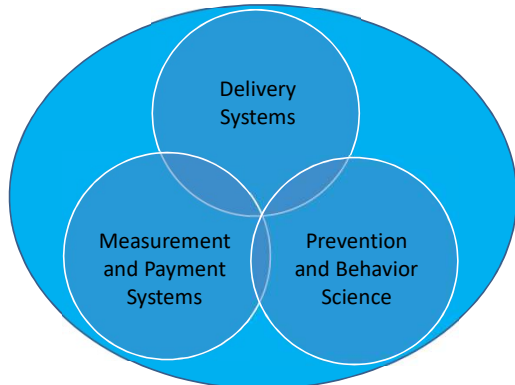
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### The Oral Health Industry



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### Value-Based Care




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Measurement and Payment Systems

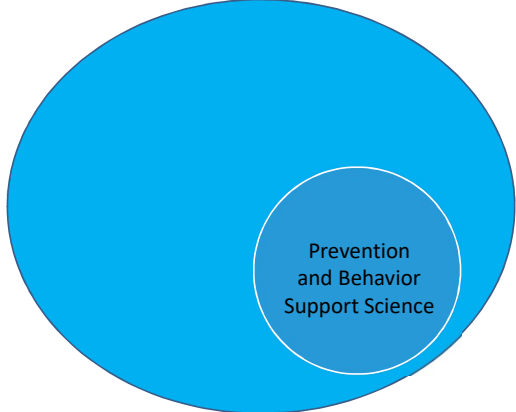
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- DQA
- Payers
  - Dental Benefit Companies
  - Public Payers
- HRSA: Health Center system
- Group Practices

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Prevention and Behavior Support Science

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### The Declining Role for the Dental Drill

**Remineralization**  
**Buffering Agents**  
**Caries Arresting Medications**  
**Sealing Caries**

**Toothpaste, School brushing, Iodine, Arginine,**  
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### Fluoride Varnish





### Silver Diamine Fluoride





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### Sealing Caries


#### Dental Sealants



Deep Grooves in Tooth Surface





Painting Sealant into Grooves




Hardened Sealant

#### Interim Therapeutic Restorations

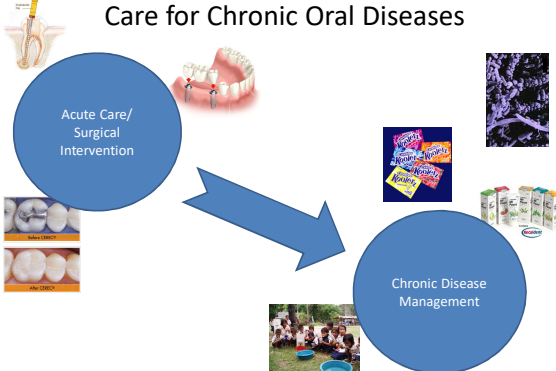
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### Care for Chronic Oral Diseases

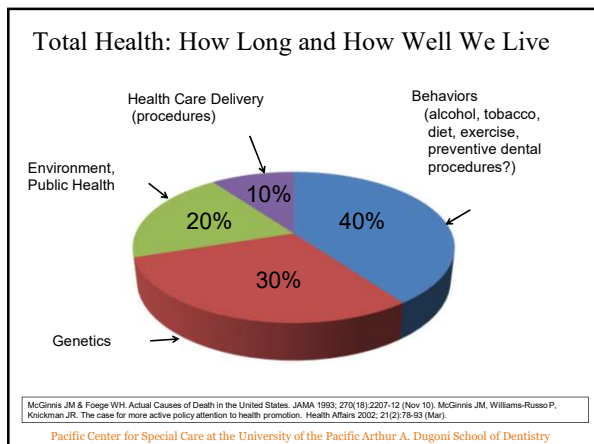


Acute Care/ Surgical Intervention

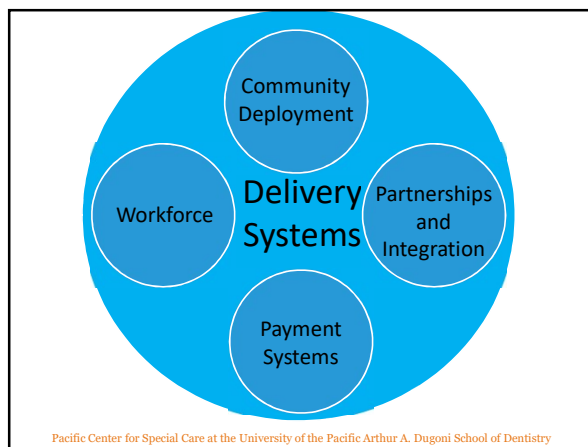
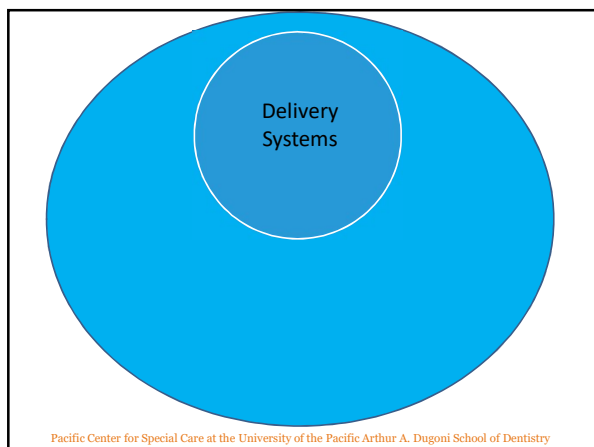
Chronic Disease Management



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- ### Principles of Behavior Change
- Multiple messages from different sources
  - Messages delivered by trusted members of the community
  - Messages targeted to peoples values (Motivational Interviewing)
  - Messages repeated over time
  - Start small and build (Tiny Habits)\
  - Ongoing reinforcement, coaching
  - Peer support
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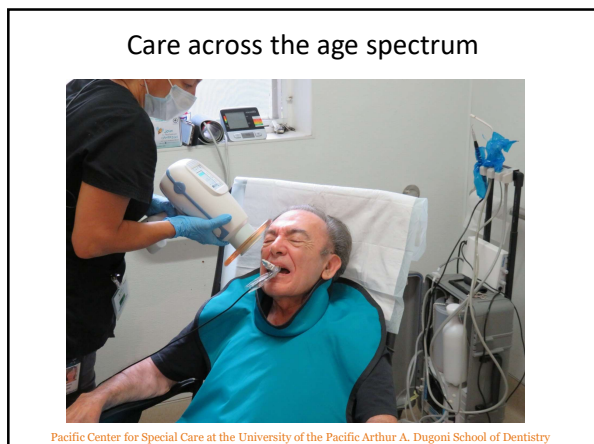
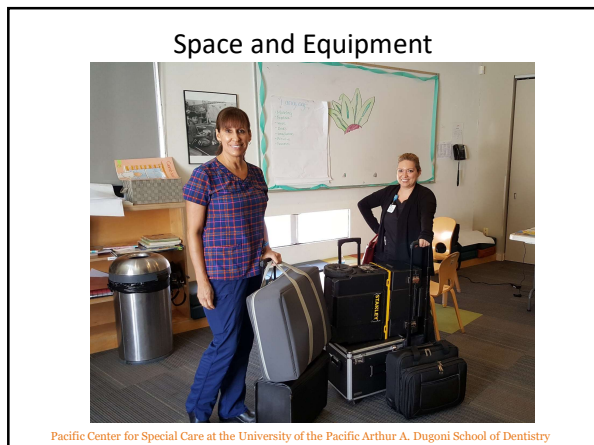
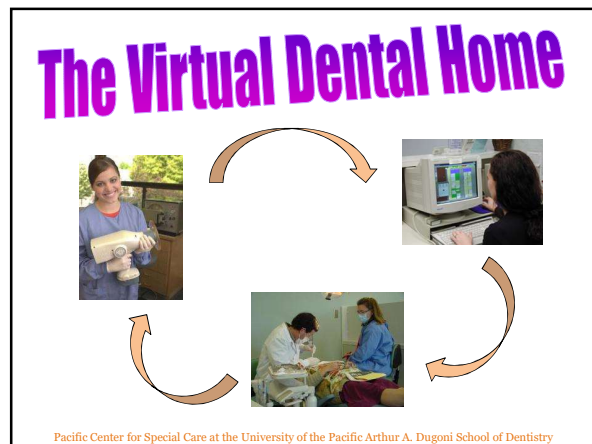
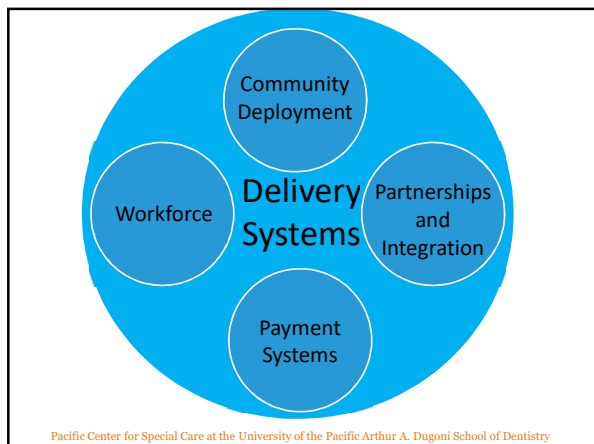
### IOM – Workforce Recommendation

“..support the creation of a diverse workforce that is competent, compensated, and authorized to serve vulnerable and underserved populations across the life cycle.”

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- ### Workforce
- Allied dental personnel
    - Community dental health coordinator
    - Expanded function dental assistants
    - Public/expanded function health dental hygienists
    - Dental therapists
  - Non-dental personnel/interprofessional integration
    - Community-health workers
    - General health professionals – physicians, nurses, etc.
    - Social service professionals
    - Educational system personnel – family advocates, teachers, etc.
- 
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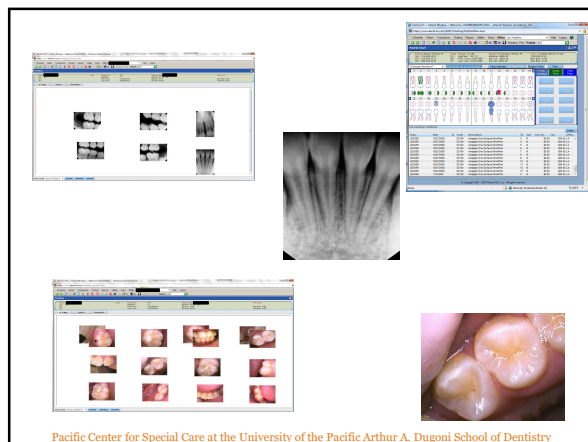




### EHR: Photographs

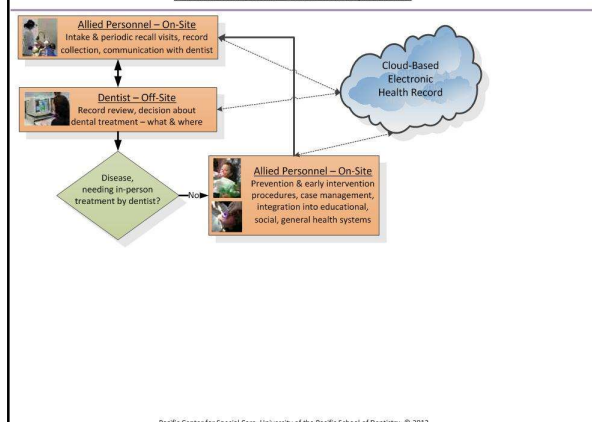


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### The Virtual Dental Home Concept Model



Pacific Center for Special Care, University of the Pacific School of Dentistry. © 2012

### Community-based Prevention and Early Intervention Procedures



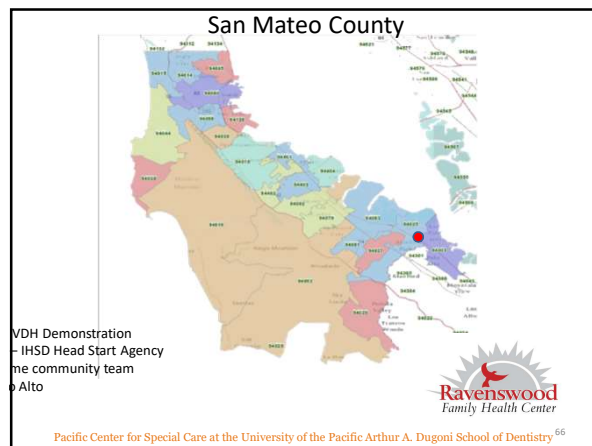
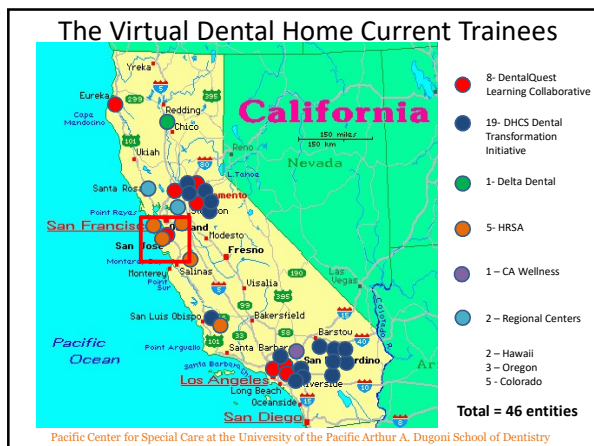
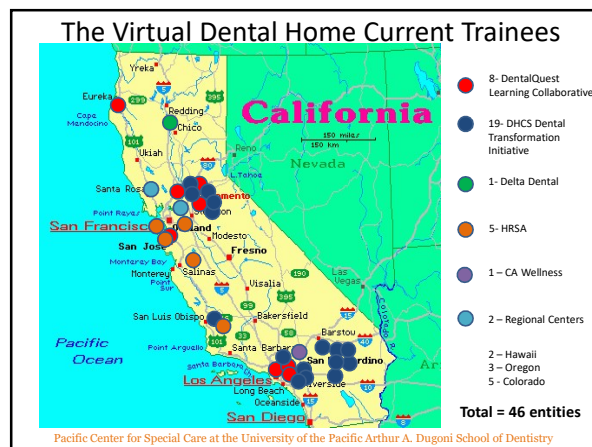
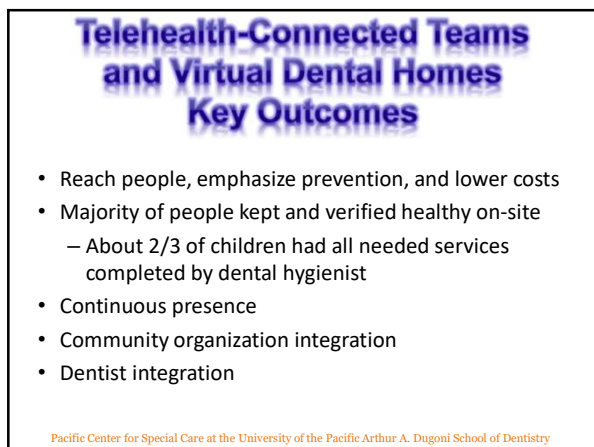
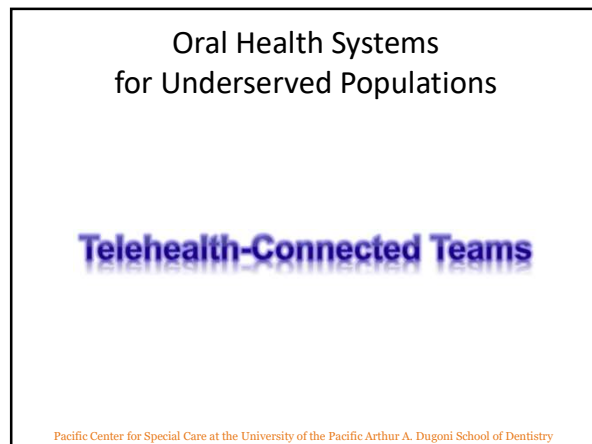
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### Ravenswood Family Health Center



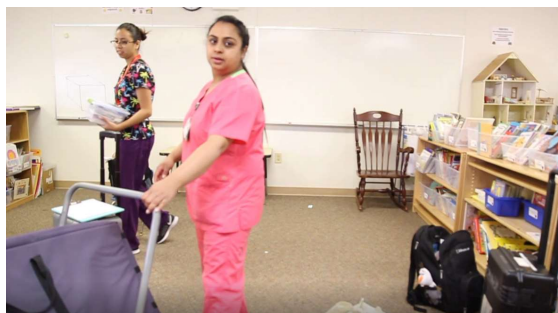
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### Ravenswood Family Health Center



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### Ravenswood Family Health Center



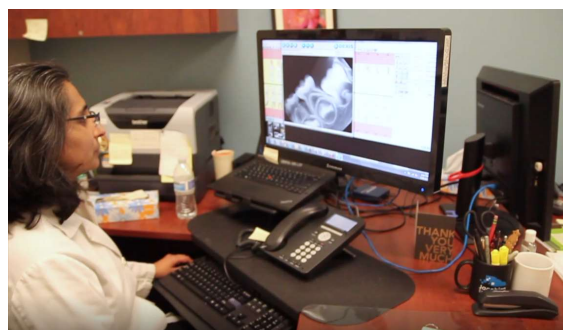
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### Ravenswood Family Health Center



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### Ravenswood Family Health Center

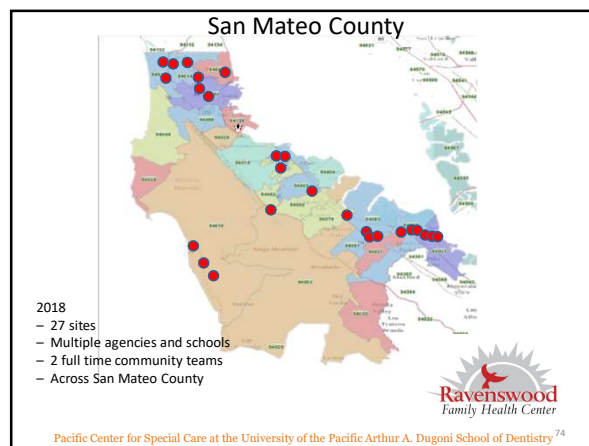


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### Ravenswood Family Health Center



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White Paper

UNIVERSITY OF THE PACIFIC  
Arthur A. Dugoni School of Dentistry  
Pacific Center for Special Care

**Teledentistry**  
Improving Oral Health Using  
Telehealth-Connected Teams

Prepared by: Paul Glasman DDS, MA, MBA  
University of the Pacific Arthur A. Dugoni School of Dentistry  
San Francisco, California August 2016

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### The Legal and Regulatory Environment

There are a number of legal and regulatory issues to consider when designing or implementing a telehealth-connected system of care. These issues are briefly described here.

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### Legal and Regulatory Environment

**Ability to use telehealth**

- Scope of practice laws, regulation, interpretation
  - Ability of allied personnel to collect diagnostic records prior to a patient being seen by a dentist
  - Ability of allied personnel to perform procedures in locations separate from dentists
  - Understanding that dentists can develop a diagnosis and treatment plan without an in-person visit with the patient

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### Dentist Examination

- ADA Definition
  - (CDT 2016) defines a dental examination. It is a “thorough evaluation and recording of the extra oral and intraoral hard and soft tissues. It may require interpretation of information acquired through additional diagnostic procedures.”
  - There is additional definition of “Clinical Oral Evaluations” which is “the codes in this section recognize the cognitive skills necessary for patient evaluation. The collection and recording of some data and components of the dental examination may be delegated; however, the evaluation, which includes diagnosis and treatment planning, is the responsibility of the dentist.”

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### Legal and Regulatory Environment

**Ability to be paid for services performed using telehealth technologies**

- Principle: consider telehealth technologies as communication tools, distinct from the health services that are being provided.
- Require payors to pay for covered services whether performed in-person or with the use of telehealth technologies
- Include store-and-forward as well as real time

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### Legal and Regulatory Environment

**Ability to be paid for services performed using telehealth technologies**

- Suggested language:
- “face-to-face contact between a health care provider and a patient is not required for services performed using real time or store-and-forward teledentistry.”

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### Community Engaged Dental Care System



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### What is a dental practice?

High cost surgical suite




Low cost community site



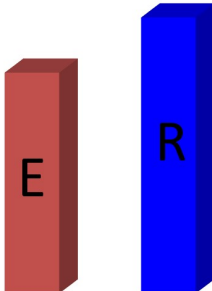
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### Economic Calculations in Dental Practice



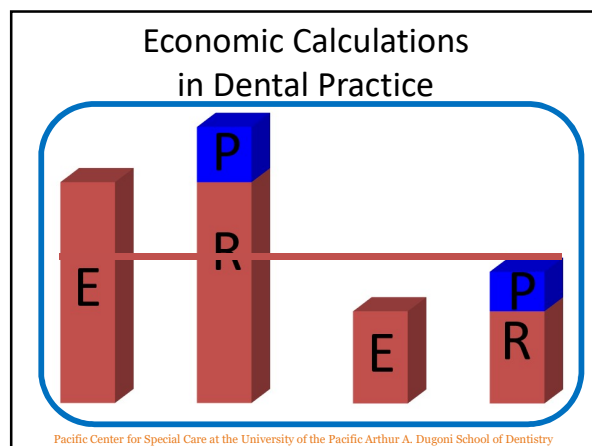
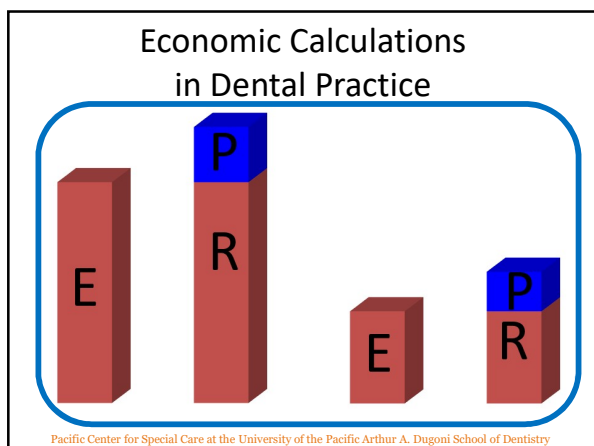
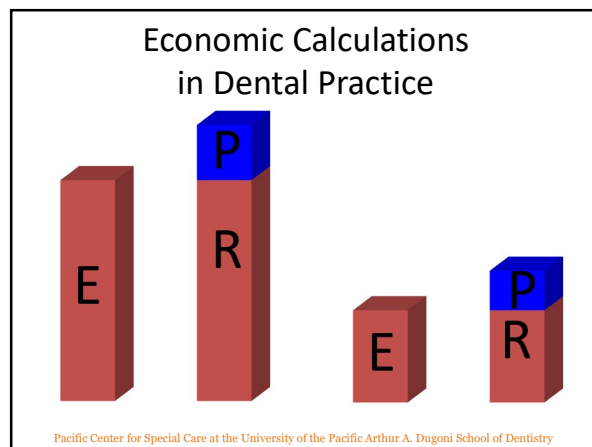
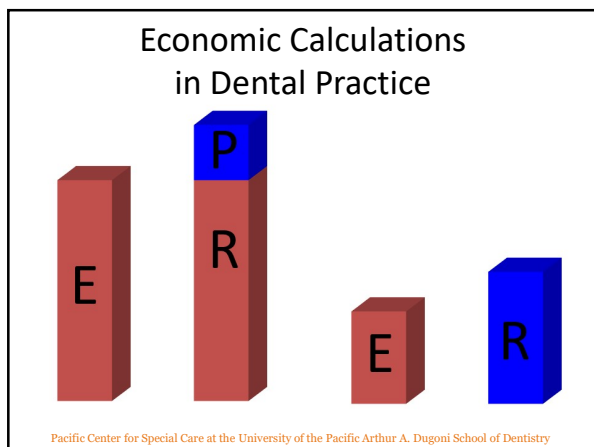
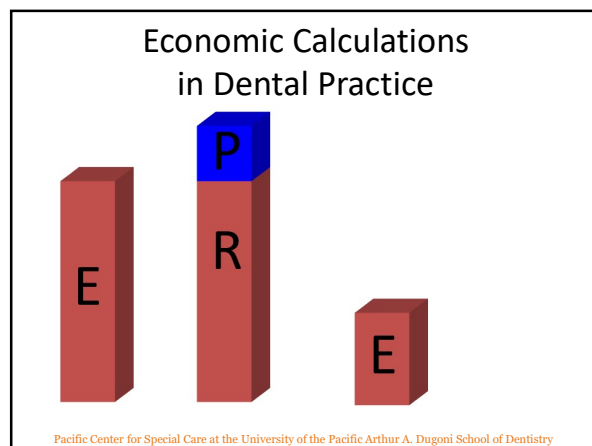
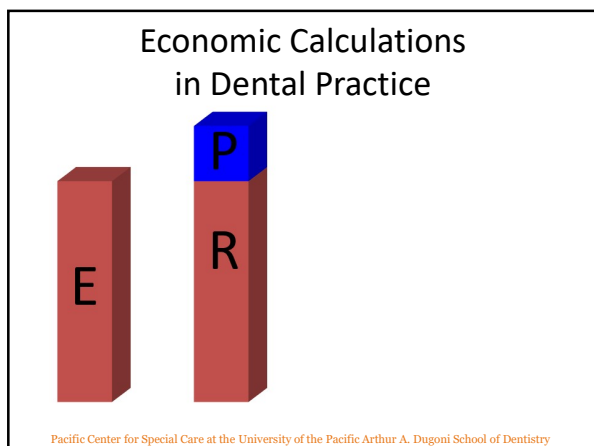
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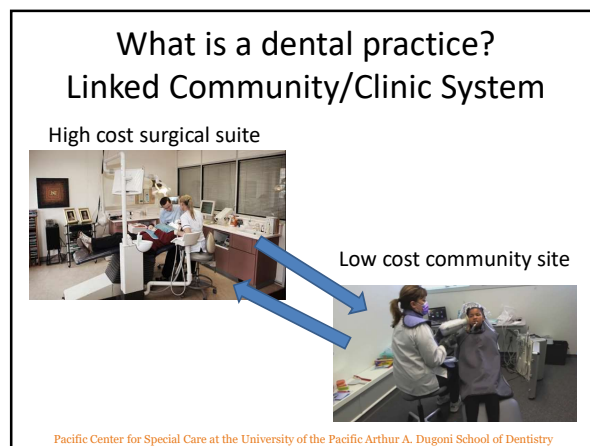
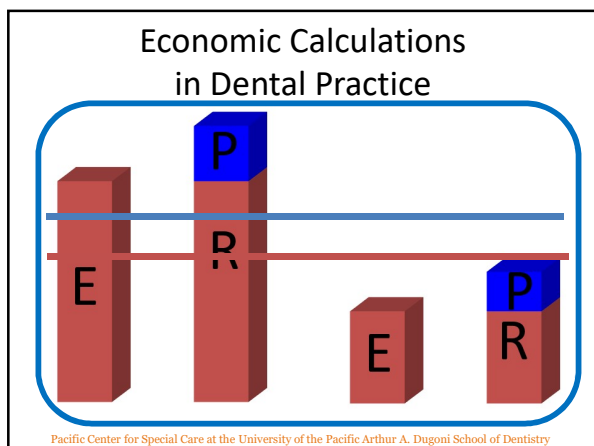
### Economic Calculations in Dental Practice



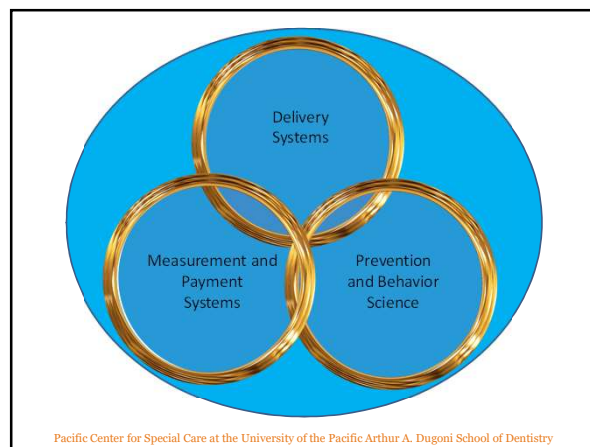
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- ### Dental Care in the Future
- Dental Practice =
    - Geographically distributed
    - Telehealth enabled
    - Oral health teams
  - Chronic disease management
    - using biological, medical, behavioral, and social tools
  - Integrated with general health, educational, and social service systems
  - Interacting with the majority of the population
  - Focused on oral health outcomes in the **Era of Accountability**
- 
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### Disruptive Innovation: On the Road to Value in Health Care and Oral Health Care

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