Rational for Increasing Roles for Dental Hygienists

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Outline of this presentation:

1. Overview and Demographics
2. Epidemiological, social and professional trends
3. New paradigms in oral health
4. Suggested new roles
5. Evidence for team approach and better outcomes
6. Implications for DH education
7. Implications for DH practice
8. Barriers to change
9. Summary and Conclusion

1. Overview

- What is a dental hygienist ?
- Current Numbers
- Current Clinical Practice

What is a Dental Hygienist ?

- > 30 countries worldwide (20 in EU)
- No clear legal definition
- No harmonization of education or skills in EU
- Scope more similar than dissimilar *Johnson 2003*
- Core skills and knowledge in prevention and periodontal therapies

Proposed Definitions:

“The dental hygienist is an independent preventive professional within the dental healthcare sector, with his/her own responsibility and specific expertise”

Curriculum 2000, ACTA NL

“Dental hygienists to play a key role in changing behavior patterns, thus improving both oral health and quality of life for the patient“

2003 European Workshop on Oral Care and General Health, Münchenwiler

Demographics in Europe

- Estimated in Europe (27 countries) <30 000
- In USA, Japan, Canada, and S. Korea >15x more DHs with same number of dentists and population
- Important questions:
  - What do people need, want or get?
  - Who provides care?

Developments so far

Rise in preventive and diagnostic services

In US: 65% (1996) (56% in 1987)

Manski and Moeller 2002

Insurance payments redirect from emergency to a preventive orientation *Kiyak 1993*

Yet in some countries resistance to development and employment *Luciak-Donsberger 2003*

“Geography is Destiny“

Epidemiological and social trends (1)

More developed (wealthier) countries

- Less caries
- Less periodontal breakdown *Hujuel 2003*
- May reverse due to rise in Diabetes *Preshaw 2008*
- More oral cancer?
- Aging population with natural teeth (root decay etc)
- High maintenance “Heavy metal generation”
- Poor oral-health among socio-economically deprived

Taking a look at…..

Demographics Denmark 2007

Population 5.5 mill HDI 14th
Ratio: Dentist:Population 1:900

Private practice 2464 Employed: 1228

Decline expected:+160 to 170 year 200 retire

DHs since 1972 (1986) official 950; Estimates 1500

Ratios:

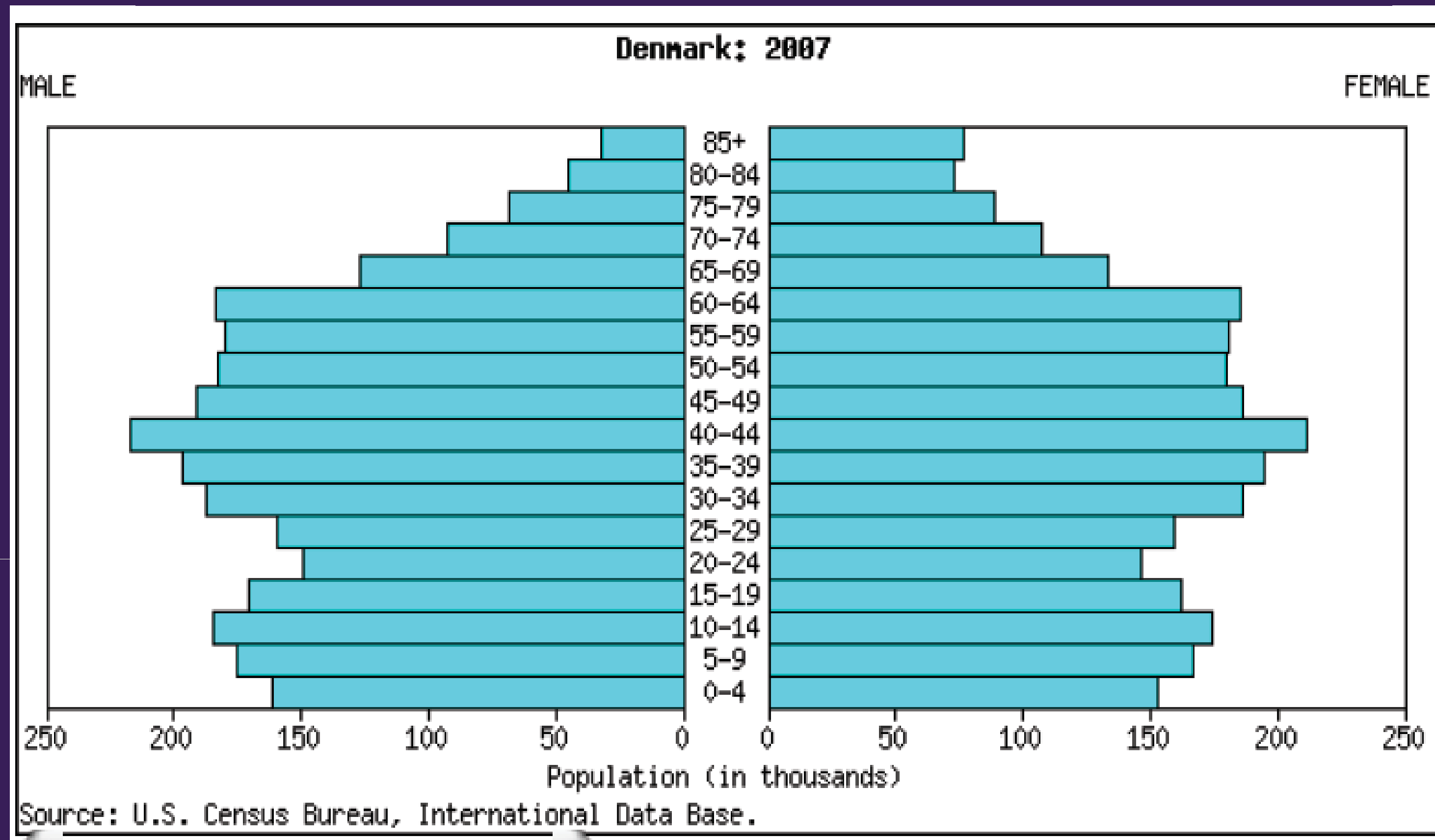
DH:D 1:3 DH:population 1:3100 S 1:1500

2/3 private; 1/3 schools 20 self-employed?

+ 130 to140 year
50% dentists employ DH

Cortsen 2007

Denmark 2007



Social Trends DK

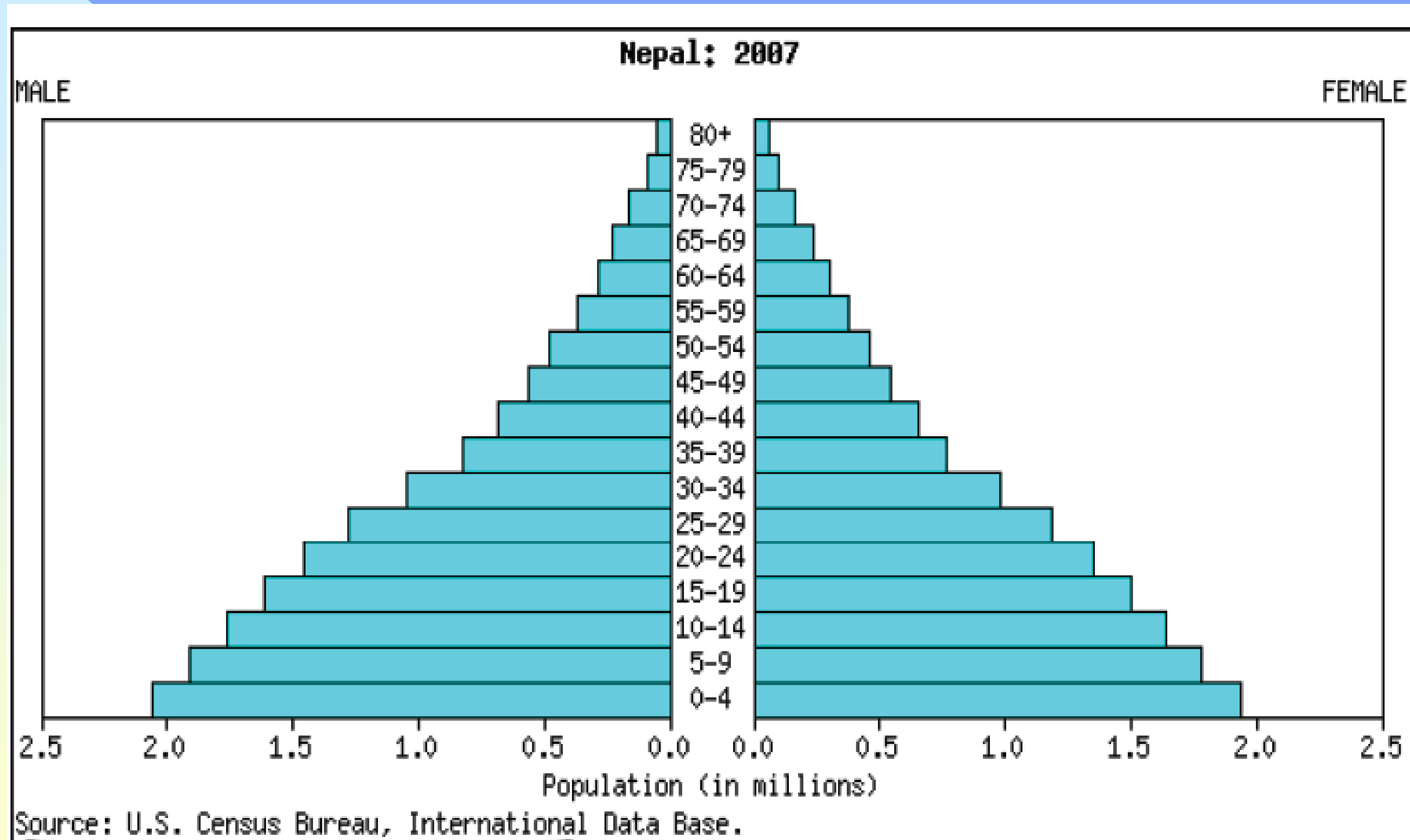
- Dental disease concentrated in children with migrant background
- Not enough access in remote areas
- Aging “restored“ population
- Not enough DHs to visit facilities of permanent care (employees in charge)
- Decline in dental workforce
- Ethics?

Epidemiological and social trends (2)

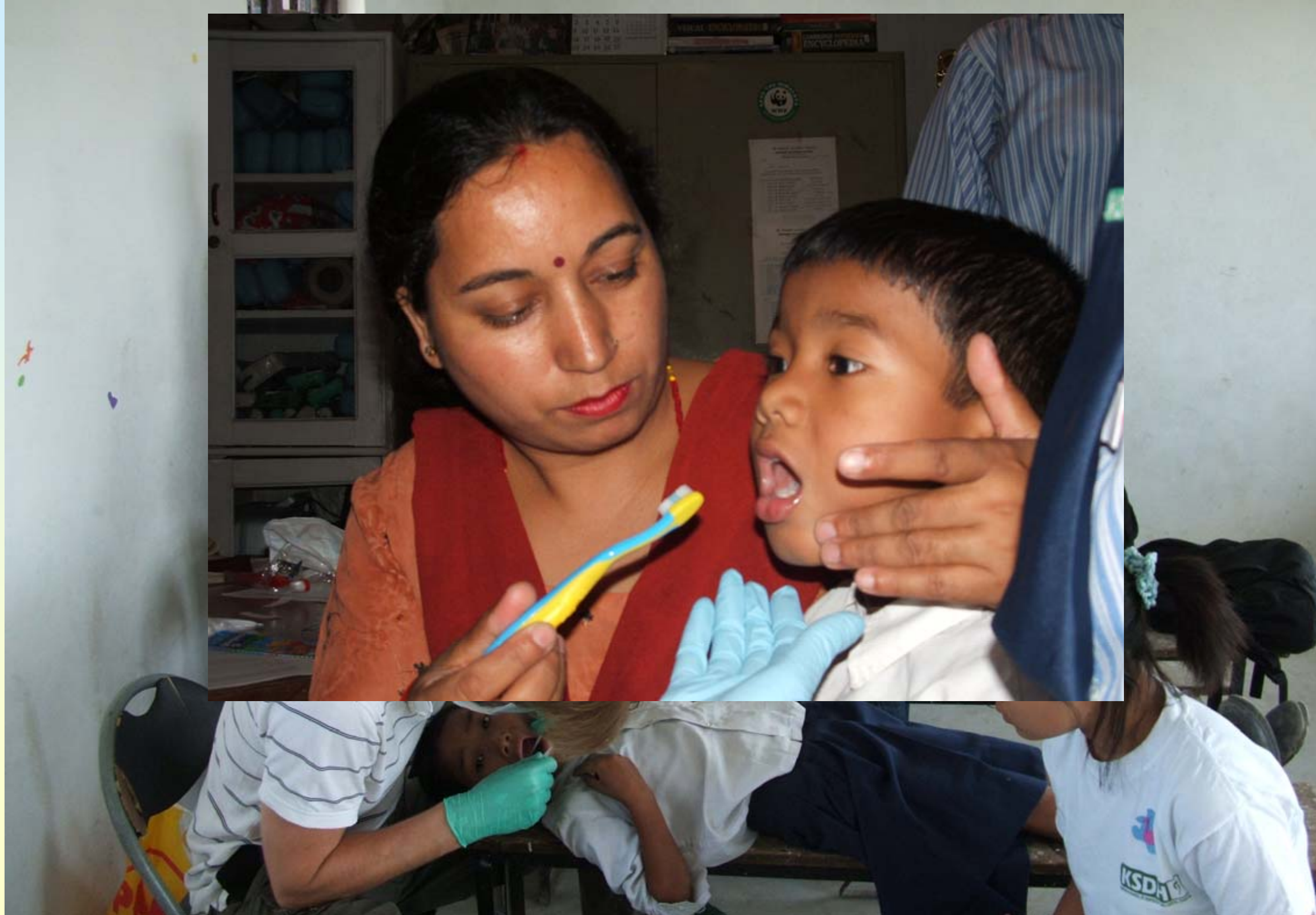
Lesser developed countries:

- High caries prevalence among children
- 90% untreated Robert &*Sheiham 2002*
- Low awareness about
  - Fluoride
  - Cariognic nutrition
  - Oral hygiene measures *Knevel 2006*
- Workforce ratio sometimes 1 to 1 Million
- Other insurmountable problems
- Issues of migration

Nepal 2007



Nepal: HDI 144th
Impact of DH on oral health equity?



3. New paradigms in oral health

- Common risk factor approach
- Integration of oral health into primary health care
- Liaison between medicine/dentistry
- Evidence-based approach
- Access to quality care:
    - Cost-effectiveness
    - Cultural competence
    - Aging
        - Public service
        - Minimal invasive dentistry
        - Implant challenge!

New Roles (2)

Screening for:

- Blood pressure (*Hughes et al.2004)*
- Oral Cancer with brush biopsies
- Diabetes *(Hays & Calderon, 1996)*
- High-needs Children (*Rolland, 2005)*
- Eating disorders *(DeBate et al, 2006)*
- Neglect and abuse of the elderly *(Podnieks, 1993)*

New Roles (3)

- Health educators/counsellors in developing countries *Knevel 2006*
- Policy Advisers (locally and nationally)
- New roles in teaching and research
- Epidemiology
- Primary care providers in public health
- Collaborative research (WHO)
- Ethical alternative

4. Evidence for team approach and better outcomes

- Skills needed:
  - Patient-centric approach
  - Communication
  - Behaviour management and modification
  - EB decision making
  - Alternative provision of care
  - Knowing when to refer

Evidence: Common Risk factors

Patient- centered prevention in general practices in N. Ireland:

Practices with a DH were 5.8 times more likely to provide patient - centered prevention and 5.3 times more likely to have an oral cancer screening policy *Freeman et al. 2005*

DHs need more education in counselling and oral cancer screening *Syme et al. 2006*

Oral hygiene behaviour modification

Evidence: Risk modification

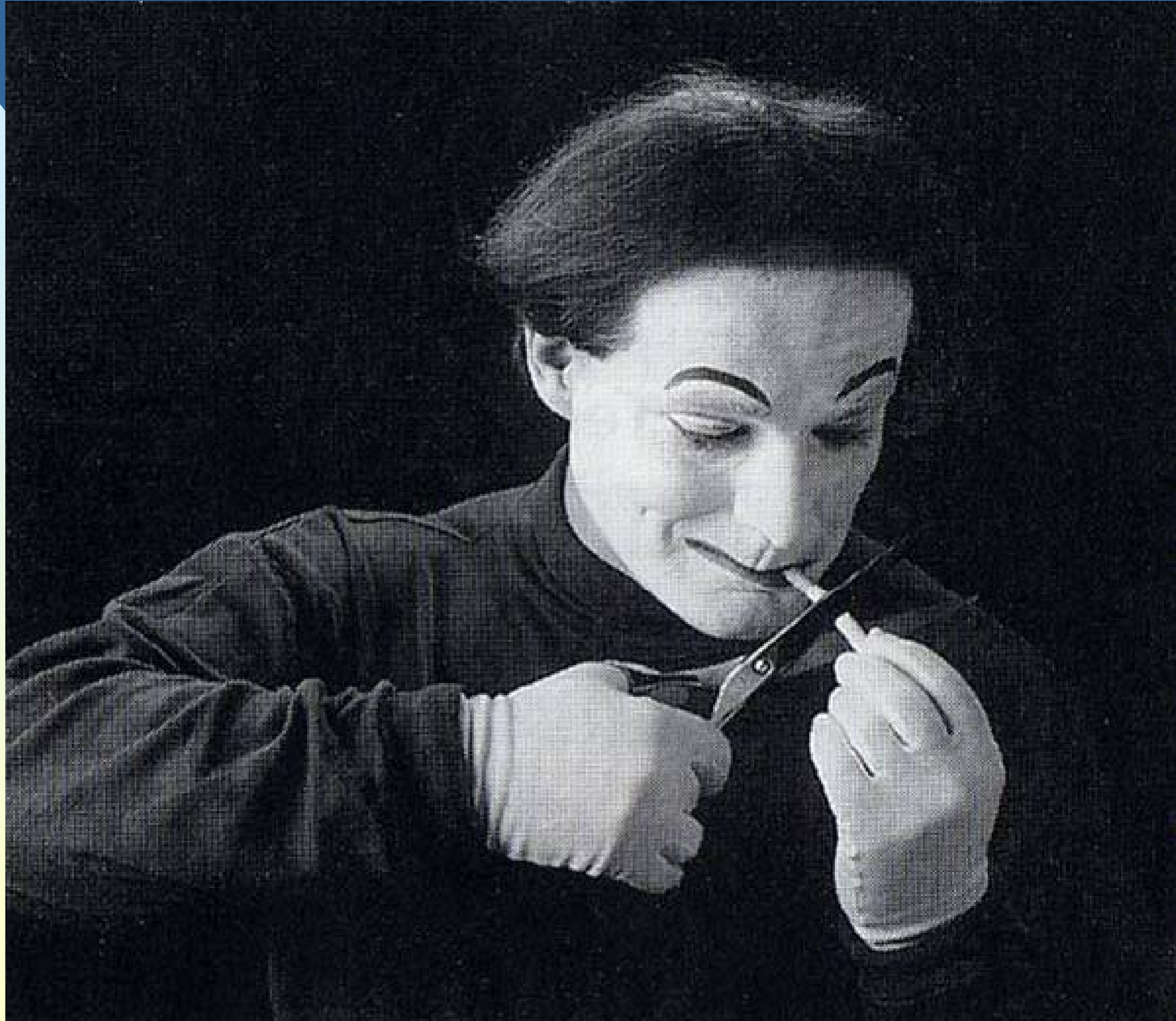
Smoking cessation counseling for patients with chronic periodontitis:

Success rates in quitting smoking (up to one year later) following counselling from dental hygienists better than national quit rates achieved by specialist cessation clinics

Nasry et al. 2006

DH students attitudes positive about smoking cessation training in N. Ireland *McCartan 2008*

Smoking Cessation Counseling



Evidence: EB decision making

Skills required:

Interpret and apply scientific knowledge:

Cochrane Reviews FMT and FMD

- In BA and BS programs have greater EB contents and encourage interpretation of critically appraised evidence

  Chichester 2002

- DH with BS and BA degrees found more in non-traditional settings such as in academia (teaching and research, policy making etc) *Rowe et al. 2008*

- MA and PhDs found to have better job satisfaction, and more career options, greater impact *Jerock 2000*

Evidence - Access to care

Potential of delegation of clinical care:

Data imply that considerable proportion of work can be done by DT and DH

35.3% time on primary caries

43 % clinical time for provision of care

Evans et al. 2007

Evidence - Access to care

- Accuracy of dental hygienists in diagnosing dental decay:

  No patient with a restorative treatment need would have been neglected if dental hygienists had performed the examination and, possibly a more accurate non-restorative treatment need would have been addressed

Ö*hrn et al. 1996*

Evidence: Access to care

- In Norway – in Public Dental Service in a child population with low caries increment, a substantial proportion received all treatment from dental hygienists so that dentist resources were saved for other groups

Wang 1994

Evidence: Access to care

- In Sweden:

  Dental Hygienists substituted for dentists with dental assistants in clinics for children and adolescents providing examinations with radiographs, treatment planning and preventive measures.

  Results – reduction of new carious lesions, arrest of early caries, good benefit/cost ratio *Hannerz and Westerberg 1996*

Evidence Access to care

- Radiographic detection of approximal caries: senior dental and dental hygiene students

  No differences between the groups in terms of sensitivity, dental students showed higher specificity.

Wojtowicz et al. 2003

Evidence: Quality of care

- In two clinical audits of complex periodontal treatment needs, the assessments performed by dental hygienists were consistent with those of a periodontist
- Unlike those of general dentists

Snoad and Eaton 2006

Evidence: Acess to care

- Effective provision of care in mobile units for children in Dominican Republic *Katsman 2007*
- In Norway and Finland majority of DH primary care providers in public service *Tseveenjav et al. 2008*

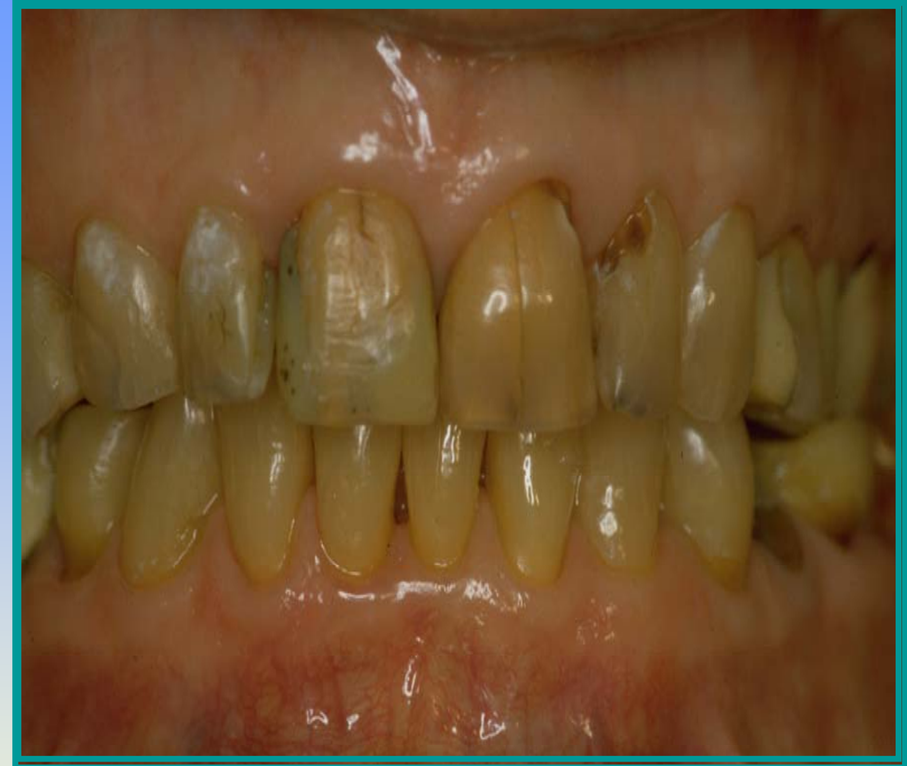
Mobile Dentistry

Evidence: Expanded clinical skills

- DHs effectively place primary restorations and safe time of dentists (Minnesota) *Cooper et al. 2007*
- Administration of Local anesthesia by DH is safe and effective and greatly benefits DH practice *Anderson 2002*
- Minimal invasive dentistry by dental team in mobile dentistry increases access to care for non-mobile population *Chalmers 2006*
- NL, UK, Aus, NZ, RoSA

DH visiting nursing home

Foto: Gaba Schweiz

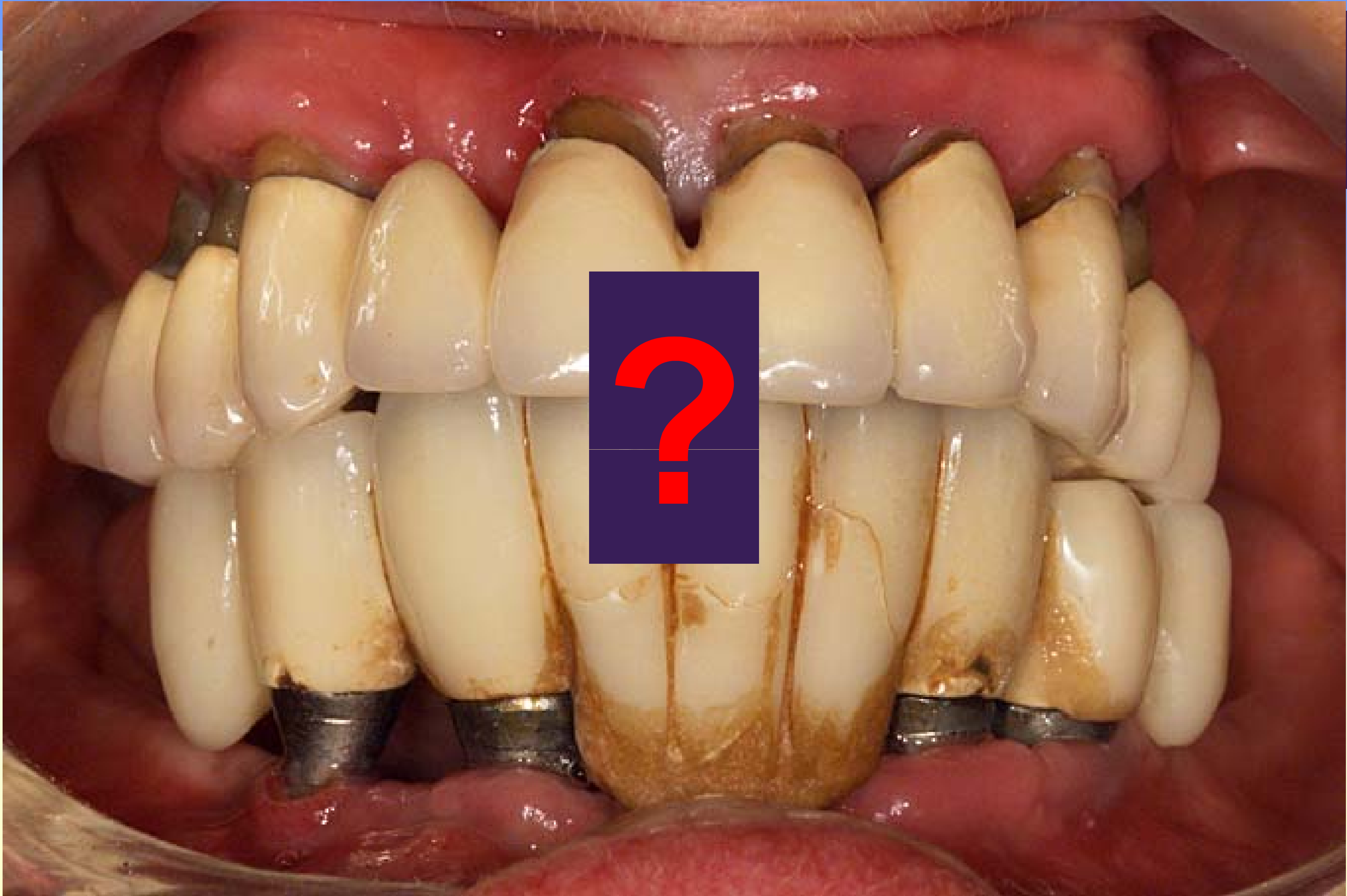


In NL 2020: 80% retain own teeth
Need for minimally invasive dentistry

Or they need more:

- Implants estimated 1.5 million per year worldwide
- 15-20% increase per year
- Germany 2006: 600000
- Difficult to clean
- Portuguese dentist 35 million year
- What will future bring?

http://www.zahnwissen.de



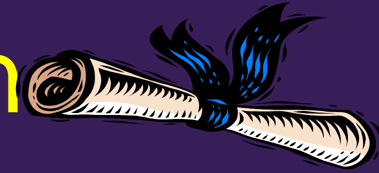
Evidence: Liaison Medicine/Dentistry

- **DH students provided effective dysphagia management (muscle tension) in Japanese nursing home** *Nishimura et al. 200*
- **AETNA study shows that people in preventive dental care have lower medical costs** *2007*
- **Conservative periodontitis treatment improved endothelial function** *Tonetti et al. 2007*
- *……………*

Conclusion:

All these studies support the increased employment of dental hygienists and the concept of extended roles for dental hygienists and other team members, after appropriate education

Implications for Education



- EB practice and extended functions require academic orientation *Cobban 2004*
- Trend toward higher education
- BAs in Austr, Can, Czech R.* FL+, I, Jordan, Hungary,* R.Ire*, Lith, NL+, Nepal, NZ+, N+, Pl, Portugal, Saudi Arabia, SK+, RSA, RoK, S, USA and the UK
- MA programs in NL,NZ, I*, S, N,* SA, Can, US
- PhD Sweden, Norway*

Implications for Education

New areas to learn:

- Collaboration with and communication between health community
- Digital data sharing
- Interpret health information on cards
- Identify risk factors
- Interpret and conduct research to participate in EB practice
- Cross-cultural competence
- New skills

Challenges in Education

- Harmonization in EU (ECTS)
- Find qualified instructors
- Distance and e-learning
- Difficulties in funding new or expanded training courses
- General resistance to changes in curriculum
- Legislation
- Barriers (fears of drill and fill)

Barriers to Change

- Irrational fears – loss of income, loss of face, loss of control, loss of status, etc.
- Lack of understanding of exactly what dental hygienists and therapists can do

Ross 2007

Gallagher & Wright 2003

Autonomy and Supervision

Best access through independent practice *Nathe 1999*

- 1/3 in NL
- Barrier fear of business ownership?
- Gender Issues *Luciak-Donsberger 2003*
- In UK, will Dental Hygienists “employ” Dentists?
- Ethics *Hadden 2008*

Summary and Conclusion

- Existing evidence supports the view that most DHs could fulfil a far wider range of roles both in oral and general health than traditional scope
- Emphasis on EB approach to practice and on a stronger public health orientation, with a focus on modifiable oral risk behaviours
- The need for a strong educational process comining clinical skills with EB decision making (NL)

Acknowledgements

- My thanks to the organising committee for inviting me
- Especially to Birthe Cortsen and Ole Marker for their kind assitance
- To Prof. Kenneth Eaton for his advice and support

Tak for opmærksomhed!

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