

Correlation analysis between dental and medical costs



Oral health supports systemic health

Former DENSO Health Insurance Society
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COI Disclosure

Speaker: Toshiaki AKATSUKA

The speaker has no financial conflict of interest to disclose concerning this presentation.

DENSO Corporation Company profile



Established	December 16, 1949	
Capital fund	¥ 187.4 billion	
Net sales	consolidated	¥ 4,060 billion
	non-consolidated	¥ 2,491 billion
Ordinary income	consolidated	¥ 419.6 billion
	non-consolidated	¥ 299.3 billion
No. of employee	consolidated	144,390 people
	non-consolidated	39,007 people
Consolidated subsidiaries	188 <small>(Japan 68, North America 28, Europe 35, Asia/Oceania 51, others 6, Affiliates under the equity method +32)</small>	
Main products:	• Automotive parts • Industrial robots • Eco-Cute • QR code devices	

In March 31, 2014

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Main Products of DENSO

Environment

Gasoline engine management system,
Diesel engine management system,
Products for electric and hybrid vehicles
Starter, Alternator, Radiator and others.

Comfortable

Car air conditioning system
Bus air conditioning, Air purifiers and others.



Safety

Sensing system for driving assistant system,
Actuator & computer for ABS/ESC,
Headlamp control system (AFS),
Sensor & computer for air bag,
Monitoring system around a car,
Combination meter, Wiper system and others.

Convenience

Car navigation system, ETC in-vehicle unit,
Remote security system,
Remote touch controller, smart key,
Advanced vehicle operation system (AVOS),
and others.

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Outline of DENSO health Insurance Society

- Offices ··· Total 55 offices belonging DENSO Corp. and its grouping companies in Japan
- Members ··· Insured 70,000 persons (Ave.39 years old)
The dependents 80,000 persons
- Budget scale
··· \ 43 billion



QR Code

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Policy and approach of dentistry in DENSO Health Insurance Society

1. Basic role of DENSO Health Insurance Society as an insurer (mission)

- ① Improvement of QOL of the insured person
- ② Fulfilling of payment as a safety net
- ③ Fiscal consolidation

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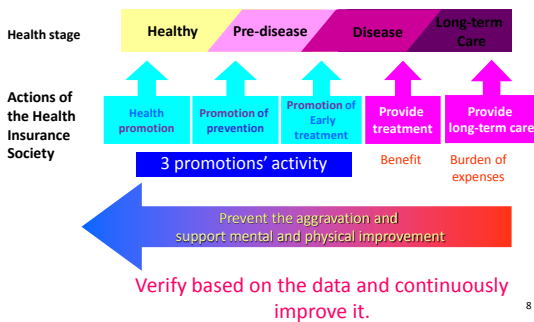
Policy and approach of dentistry in DENSO Health Insurance Society

2. Long-term approach and role of DENSO Health Insurance Society (vision)

- ① Make an efforts to health promotion and prevention and contribute to early detection and prevention of severe condition
- ② Verification of cost-effectiveness of insurance service and always improve it
- ③ Verification is based on data and evidence

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◁Reference▷ **Functions and roles of the Health Insurance Society**



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Policy and approach of dentistry in DENSO Health Insurance Society

3. Concrete approach based on the vision

- ① The database of medical checkups and health insurance claims has been made and verified for 20 years, promoting Japan's first and the best insurance service
- ② 10-year, and 20-year follow-up study of matching data analysis in health checkup data with medical data has been conducted and has been verified for 5 years in the project of ministry of Health, Labor and Welfare

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Policy and approach of dentistry in DENSO Health Insurance Society

3. Concrete approach based on the vision

③ The efficacy of 30-year follow-up of dental checkups on medical data was verified in 2012

As a result of analysis from 15-year follow-up in insured 70,000 people, dental health checkups have been verified that it greatly contributed to the optimization of total medical costs including the improvement of QOL

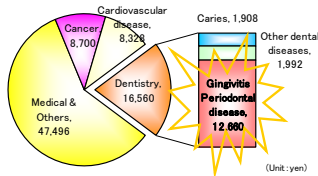
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1. The relationship between periodontal disease and medical costs

(1) Breakdown of dental costs in the total medical costs

Medical and dental costs breakdown per capita in insured people of DENSO Health Insurance Society (2008)

Total sum of Medical and Dental Expenses = 81,084 yen, n = 71,811

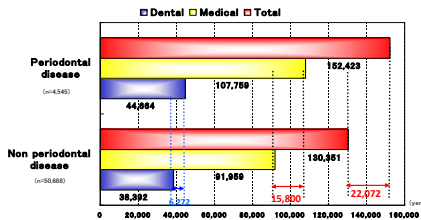


Periodontal disease out of total medical costs is the first place (16%). The more expensive than medical costs from cancer and cardiovascular !

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(2) The difference of medical costs by with or without periodontal disease

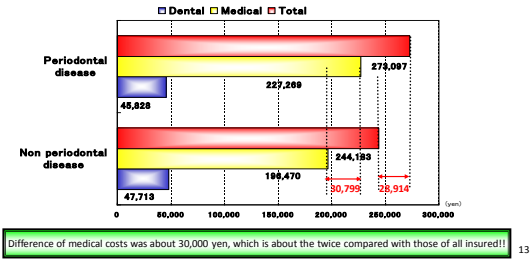
Subjects: All insured (55,233 people)



Dental +6,272 yen, Medical +15,800 yen, total +22,072 yen (+17%)

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Subjects: 60 years of age or older in the previous slide data

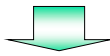


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(3) Verification of relationship between periodontal diseases and diabetes

Comments from Dr. Okubo, President of JAPAN Dental Association

“It has been found that periodontal diseases affect the blood sugar control in diabetes”

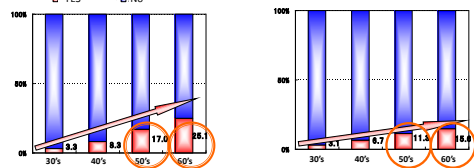


It will be verified by the health insurance claim of the insured in DENSO Health Insurance Society, and then will be reflected to future health service

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The results of verification: The % of people with diabetes health insurance claim in those who have dental health insurance claims

- ① The % of people with diabetes health insurance claims in those who **having** periodontal diseases claims
- ② The % of people with diabetes health insurance claims in those who having dental insurance claims **without** periodontal diseases claims



The % of people having both periodontal disease and diabetes has become to increase from their 40's

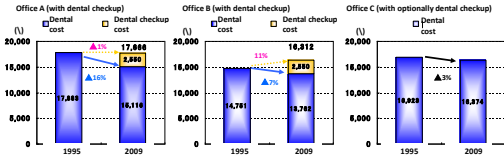
- One out of four with periodontal diseases has diabetes in their 60's
- Over their 50's, 1.5 times of more people having both diabetes and periodontal diseases when compared with those who without periodontal diseases

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2. Verification of cost-effectiveness of dental health checkup (15-year follow-up study)

(1) Effects of dental health checkup on dental costs

Trends in annual dental costs of insured with or without the employee dental health checkups by the offices



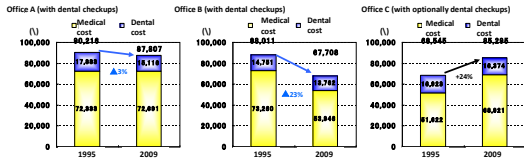
There have been significant reduction of dental costs in office A and B which had dental checkups when compared with those in office C which did not have dental checkups in those 15 years. The total health care expenditure including dental checkups have increased or remained the same level.

Effect I: Although the total health care expenditure have increased, dental costs have reduced and dental QOL has been improved.

Dental checkups have been also conducted in the employee medical checkups from 1997. Dental checkups cost a 12,350 per person.

(2) Effects of dental health checkups on medical costs

Trends in annual medical and dental costs in the offices on the previous slide. (Excluding both medical and dental health checkup costs)



Annual medical and dental costs in the offices having dental checkups have reduced, while those in the office not having dental checkup has increased considerably.

Effect II: Regular dental checkups has contributed to health maintenance of the body (improvement of QOL).

3. Summary of the verification results

- The composition ratio of periodontal diseases cost out of specialties in insured people

The composition ratio is 16%, which is the highest in any other composition ratios (higher than those in cancer and cardiovascular)

- Association of periodontal diseases and diabetes complication

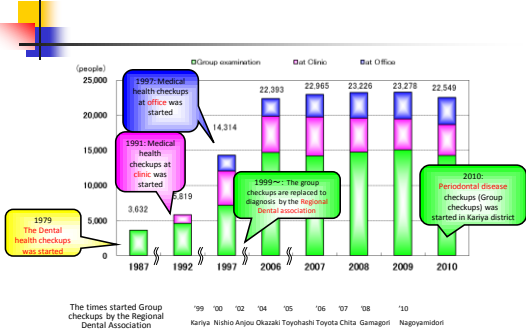
Their complication ratio increases after the age of 50's

- The effects of dental health checkups

Continuous consultation leads to health maintenance of the body and the reduction in medical costs

Maintenance of dental health considerably contributes to improvement and maintenance of QOL in insured and adjustment of overall medical expenses

<Reference> Trends in the number of insured who took dental health checkups in DENSO Health Insurance Society



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Challenge about dental health checkups

1. Creating a database from the results of health checkups
 - Analysis of matching data of dental checkups with medical checkups
2. Verification of causal relationship between dental and medical condition
 - Medical verification of the effects of dentistry on medical costs
3. Creating system of these approaches through these actions
 - Incorporation of dental checkups into the system of specific health checkups and guidance

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