

Hyogo 8020 Survey

- An introduction to integrated oral-medical studies -



Hyogo Dental Association

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“Denta”

A cartoon character of
the Hyogo Dental Association

Hyogo Dental Association

Japan 2005

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We also thank all Hyogo Dental Association members who understood the importance of this Survey and have provided their generous support by collecting and providing survey data to us.

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Background and purpose

While the trend of population ageing is apparent worldwide, Japan is one of the most rapidly ageing societies in the world. According to the report of the Statistics Bureau, Ministry of Internal Affairs and Communications of Japan, the population aged 65 and over reached 25.56 million, 20.0% of the entire population of Japan in 2005 (Table-1).

Table-1. Estimated number of the elderly aged 65 and over and percentage for September 2005

		Total	Age 65+	Age 65-74	Age 75+
Population (in millions)	Total	127.65	25.56	14.01	11.55
	Men	62.23	10.81	6.53	4.27
	Women	65.42	14.75	7.48	7.27
Percentage of total population (%)	Total	100.0	20.0	11.0	9.0
	Men	100.0	17.4	10.5	6.9
	Women	100.0	22.5	11.4	11.1

Source: Statistics Bureau, Ministry of Internal Affairs and Communications, Japan (2005)
'*Toukei Topics No. 14*'.

Population ageing raises many issues in terms of social and public health. It is expected that the social burden and the human resource requirements of care will increase as the population ages. It also presents challenges in terms of the conceptual and practical themes raised by the World Health Organization (WHO), such as "Health Expectancy" and "Active Ageing", which is defined as "the process of optimizing opportunities for health, participation and security in order to embrace quality of life as people age".

Oral health in ageing societies is one of the most important issues in individual and public health. The 8020 Movement was introduced in 1989 with specific relation to oral health and was led by the Japanese Ministry of Health, Labour and Welfare and the Japan Dental Association (JDA). The major objective of this movement was to encourage the general public to achieve the goal of maintaining 20 or more own teeth at the age of 80 through proper oral health approaches including prevention of oral diseases and improvement of oral health from childhood. With the efforts of the Ministry, dental associations, other relevant associations, groups and NGOs, the 8020 Movement became a well-known activity inside and outside of Japan. Proposed by JDA, the 8020 Promotion Foundation was established in December 2000 through the approval by the Minister of Health, Labour and Welfare of Japan. The Hyogo Dental Association also promotes health to Hyogo residents through the key phrases of 'get healthy-start with oral health' and '8020 – long life with good health.'

Maintaining healthy teeth is not only necessary for the masticatory function, but is also important for nutrition intake and communication that are all connected to the quality of life (QOL). This is true through a life-course. Concrete targets to achieve individual and societal health through prevention and treatment of oral diseases in different life stages were documented in Healthy Japan 21 (*Kenko, Nippon:21*), a Japanese central government's health guideline for a period from 2000 to 2010. In accordance with this national guideline, the Hyogo Prefecture introduced their 'Healthy Hyogo 21' scheme by emphasizing the importance of oral health through all life stages. Although oral health has been considered

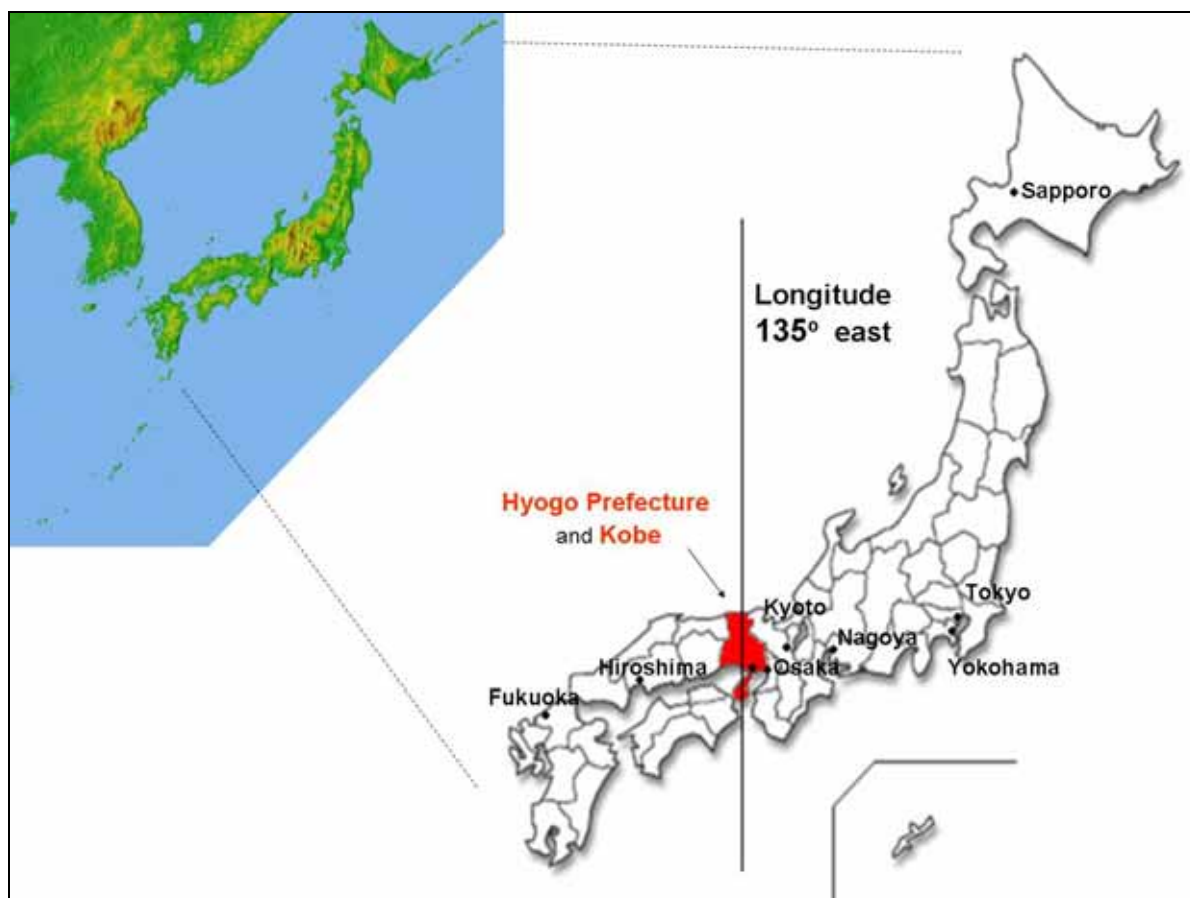
as an important aspect in connection with general health, oral health care is not yet integrated into a national health care scheme.

By keeping the important concept of integrated and comprehensive health care and following the important concept of the 8020 Movement, the Hyogo Dental Association and the National Health Insurance Organization of Hyogo jointly conducted a survey to look at the effectiveness of the 8020 movement. This collaborative work started in 2001. The major objectives of the survey were to: (1) clarify the relationship between oral health and general health through possible analysis and (2) explore the effectiveness of 8020 Movement. By using a variety of data sets of different years, we try to clarify the relationship between oral health and general health.

About Hyogo Prefecture

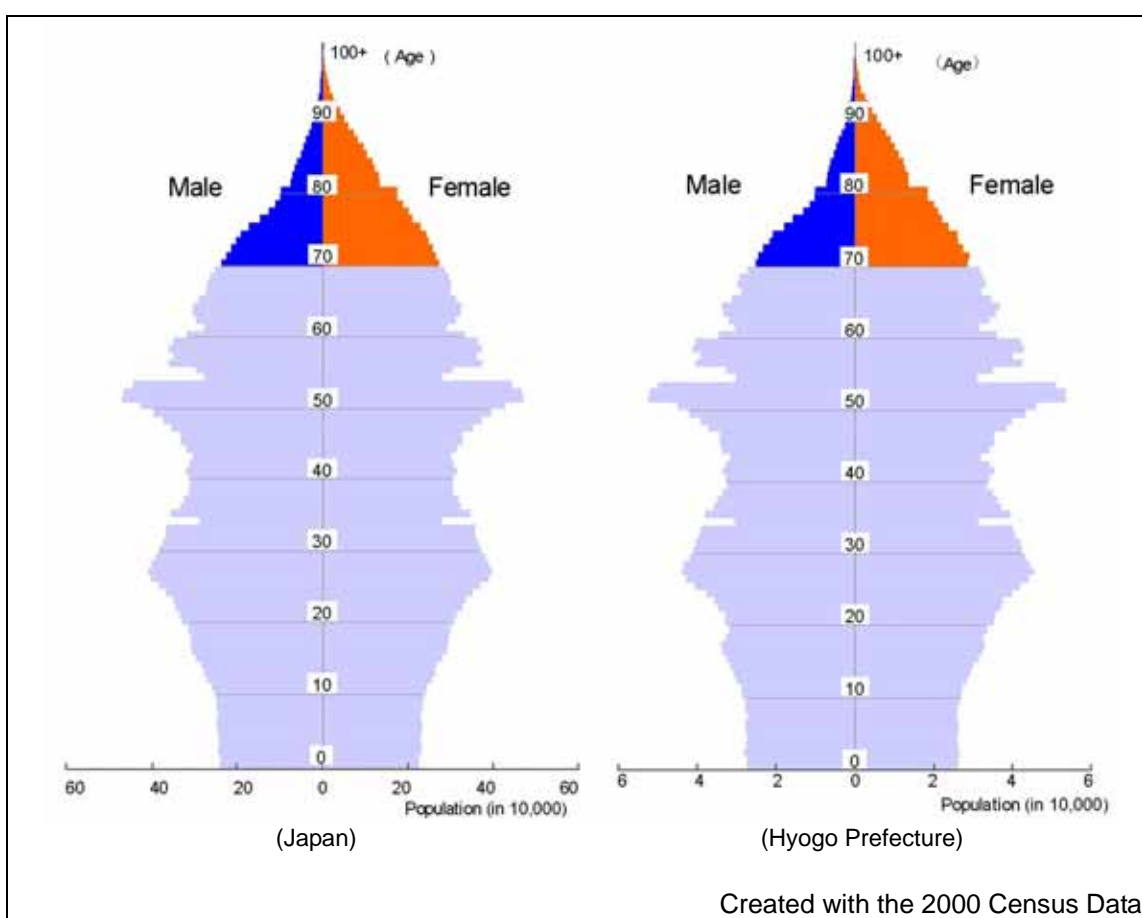
The Prefecture of Hyogo is geographically located very close to the central part of Japan (that consists of four major islands and many smaller ones). Hyogo Prefecture reaches both the Japan Sea in the north and the Seto Island Sea in the south, and is further open to the Pacific Ocean through Awaji Island. Hyogo Prefecture, one of the 47 Prefectures in Japan, has an area of 8,392 square kilometers with a population of approximately 5.6 million in 2005(Figure-1). Although the Prefecture suffered after the Great Hanshin-Awaji earthquake that occurred in January 1995 and killed more than 6,000 people, its economy and demography have steadily recovered.

Figure-1. Location of Hyogo Prefecture



Together with Osaka and Kyoto, Hyogo served as the political and commercial centre of Japan in their region-wide area called Kansai for more than 1000 years until the capital was moved to Tokyo in 1868. To this day, the area has continuously served as an international exchange focal point. Due to its geographic areas and mountains, Hyogo Prefecture provides different climates. The Prefecture consists of a variety of communities ranging from rural villages to large cities like Kobe. Since its location on the longitude 135 degree east, Akashi in Hyogo provides Japanese standard time. In general, the characteristics of Hyogo Prefecture are considered to be close to the average of Japan, including the demographic characteristic (Figure-2) and therefore it has been known as a smaller version of Japan.

Figure-2. Population Pyramids

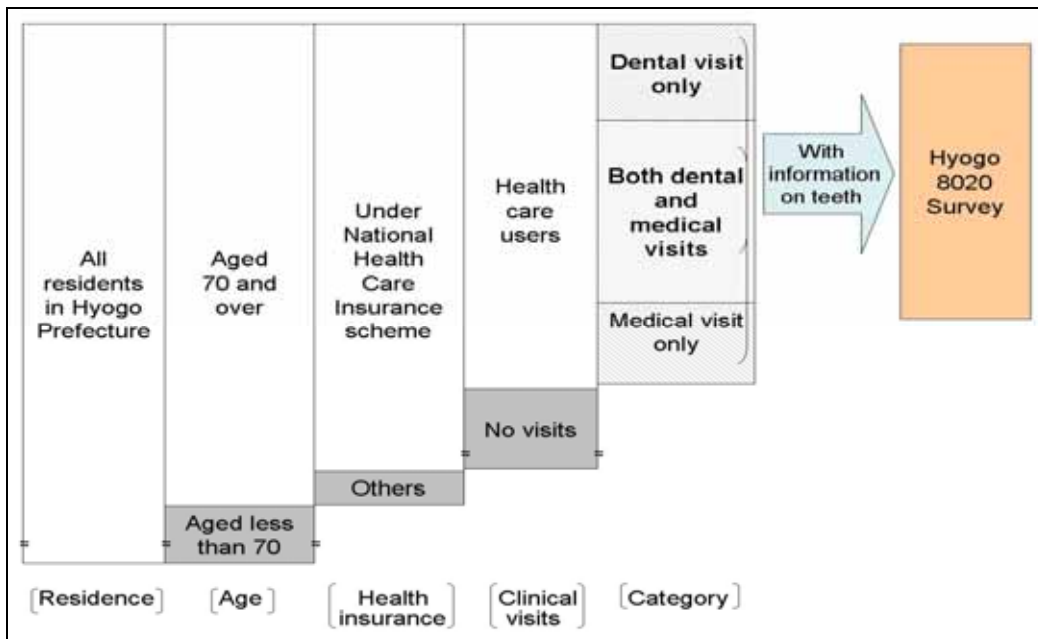


Description of the Hyogo 8020 Survey

The Hyogo 8020 Survey was originally conceptualized and designed by the Hyogo Dental Association and the National Health Insurance Organization of Hyogo in 2001. The basic concept to obtain information for the survey is shown in Figure-3. The total target population for the survey are Hyogo residents who are aged 70 and over at the baseline of the study. Approximately 80 percent of the elderly population that is eligible for the survey are generally under the National Health Insurance Scheme (*Kokumin, Kenko, Hoken*) which covers eligibility for the survey. Basically, those who used an oral health service outside of

the Hyogo Prefecture are not included in the survey. Those that used medical services outside of the Prefecture are also not included in the survey.

Figure-3. Basic concept to collect data for the Hyogo 8020 Survey



In the Hyogo 8020 Survey, two different kinds of studies have been conducted every year (basically based on the study period). One is one-month study and the other is a one-year study. The one-month study covers the month of May. The one-year study covers the period which starts in May and ends the following April (Figure-4). For both studies, oral health information is obtained only for the baseline month (i.e., the month of May).

Figure-4. Data sets of the Hyogo 8020 Survey

	Year	2001	2002	2003	2004	2005
One month data		May (20 teeth or not)	May (# of teeth)	May (# of teeth)	May (# of teeth & Occlusal contact)	May (# of teeth & Occlusal contact)
	One year data	May - April (20 teeth or not)	May - April (# of teeth)	May - April (# of teeth)	May - April (# of teeth & Occlusal contact)	May - April (# of teeth & Occlusal contact)

During the first month of the study period, clinic or hospital visitors for dental care are examined for the number of their remaining natural teeth by the Hyogo Dental Association members. Originally this is not required information to be included in routine work under the National Health Insurance scheme. This information is voluntarily added on the dental service claim forms by the Association members' effort and support

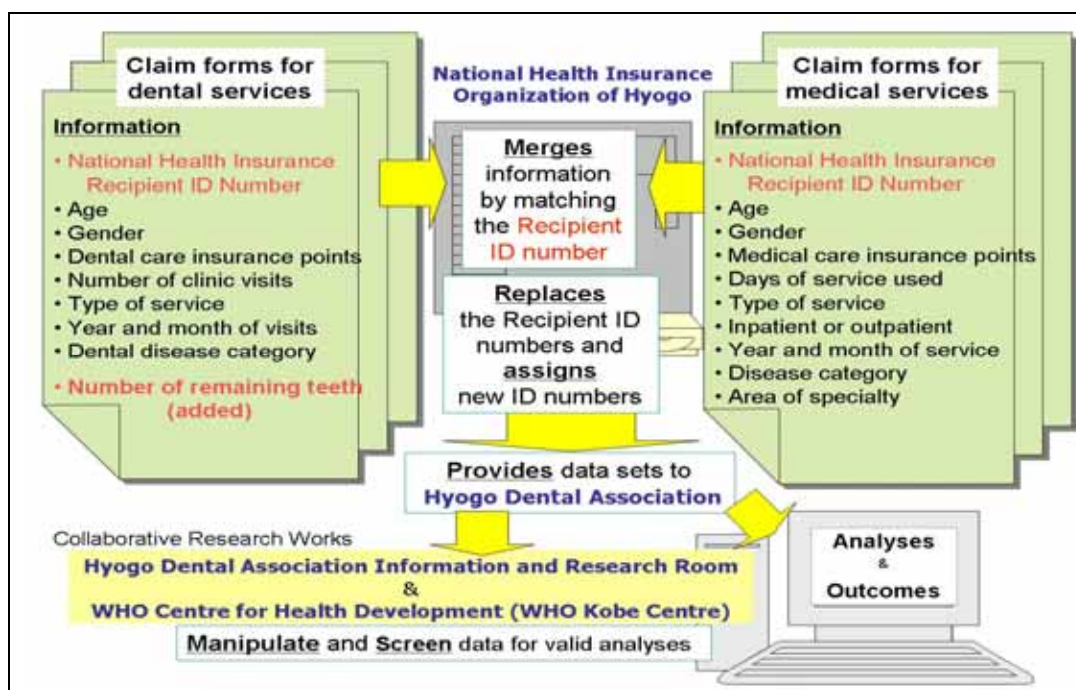
The number of remaining teeth is counted in our established criteria (Table-2). At the time of our initial study in 2001, only information whether 20 own teeth were maintained or not was checked and provided by dentists. Commencing in 2004, the information on occlusal contact (whether chewing position is maintained by the meet of a pair of remaining teeth) has been added in addition to the information on the number of remaining teeth.

Table-2. Criteria to count number of remaining teeth

- Number of remaining teeth counted in the last dental visit of May
- Wisdom teeth (third molars) are included
- Stumps of teeth (including treated root surfaces) shall not be counted.

The Hyogo 8020 Survey utilizes two different National Health Insurance claims: The dental service claim and medical service claim. Both claims of dental services and medical services include a variety of information. Under the National Health Insurance scheme, each individual has a unique identification number which is used for both dental and medical claim forms. Claim forms collected during the study period are selected by matching the unique National Health Insurance Recipient ID Number for both dental and medical insurance claims. All claims that indicate a different survey period, ineligible age and a wrong National Health Insurance Recipient ID number are eliminated from the study. All dental claims without the information on number of teeth are also excluded from the study. The dental and medical information is then merged and connected based on the matched ID number (Figure-5).

Figure-5. Procedure of original data collection and data screening



After the completion of the dental-medical claim information connection, all National Health Insurance Recipient ID Numbers are replaced by the new serial ID number. The purpose of the ID replacement is to protect the private information collected from individuals from misuse and leakage. The whole collection, merging and ID replacement processes are done by the National Health Insurance Organization of Hyogo.

A later merged data set which includes the new ID number (what we call the 'Hyogo 8020 Survey serial ID number') is provided to the Hyogo Dental Association (Table-3). By doing so, the Hyogo Dental Association is no longer able to reach the private information identifying the person.

Table-3. Information which is obtained from the National Health Insurance Organization of Hyogo to the Hyogo Dental Association (Merged information for both dental and medical claim forms)

<p><u>One-month study:</u></p> <ul style="list-style-type: none">• Hyogo 8020 Survey ID Number (serial number)• Age• Gender• Medical care insurance points• Days of service used• Inpatient or outpatient• Disease category• Area of specialty• Number of remaining teeth *• Occlusal contact (whether they have a pair of remaining teeth that meet) ** <p><u>One-year study:</u></p> <ul style="list-style-type: none">• Hyogo 8020 Survey ID Number (serial number)• Age (in May)• Gender• Medical care insurance points• Days of service used• Inpatient or outpatient• Number of remaining teeth *• Occlusal contact (whether they have a pair of remaining teeth that meet) ** <p>(Notes) * Study in 2001 included only information on whether 20 own teeth were maintained or not.</p> <p>** Additionally collected information started in 2004</p>
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Under the current national insurance scheme, insurance points are used for reimbursement for provided health care services. It is multiplied by ten to be equivalent to the value of the Japanese Yen. Disease category is used based on the *Shippeii, shogai oyobi shiin bunrui* (International Statistical Classification of Diseases and Related Health Problems, tenth revision: ICD-10) by the Ministry of Health, Labour and Welfare of Japan. In the Hyogo 8020 Survey, both *dai-bunrui* (equivalent to ICD chapter-based category) and *chu-bunrui* (equivalent to the ICD disease-based category) are included. Area of specialty indicates a categorized medical specialty such as internal medicine, surgery, respiratory diseases, cardiovascular diseases and others.

Obtained data from the National Health Insurance Organization of Hyogo is double-checked by the Hyogo Dental Association. In this process, any claims that came from different months are excluded. Basically, claims with the same Hyogo 8020 Survey IDs within a data set are considered coming from the same person. The claims with the same ID number are then grouped and connected to represent one person with technical advice by the WHO Centre for Health Development. After merging, any inadequate claims (date of claim forms, age, gender etc.) through the whole process of merging information are examined and excluded from the data set. The following criteria are used for the screening of merged data.

Table- 4. Screening of merged data

- | |
|---|
| <ul style="list-style-type: none">• If claims of the same person indicate different continuous ages (e.g., 70 and 71), the higher age is taken through the assumption that the person had a birthday in this month (i.e., the month of May). This action is taken while gender and number of remaining teeth are checked.• If the same person shows inconsistent different ages, the whole information of the claim is to be deleted while checking gender and number of remaining teeth.• If gender of the same person appears differently and only one is different in more than two multiple claims, the gender is adjusted to the rest. If gender difference is seen in two claims -both claim information is to be deleted.• If the numbers of remaining teeth are different by one, the lower number is kept. If the numbers of remaining teeth are different by more than one, the number of the majority is taken. |
|---|

Merged data is checked and screened by following the abovementioned criteria -then each data set is prepared accordingly for further analysis. For statistical analysis, new variables are also created. These activities have been done with the technical assistance obtained from the WHO Centre for Health Development.

To date, different cross-sectional data sets (i.e., one month and one year) have been available annually since 2001 (Table-5). These can be further utilized in a longitudinal setting. With the technical support of the WHO Kobe Centre and operational work of the National Health Insurance Organization of Hyogo, we are currently working to merge these cross-sectional data sets to create longitudinal ones (Figure-6).

Table-5. Obtained data sets of the Hyogo 8020 Survey

(Year)

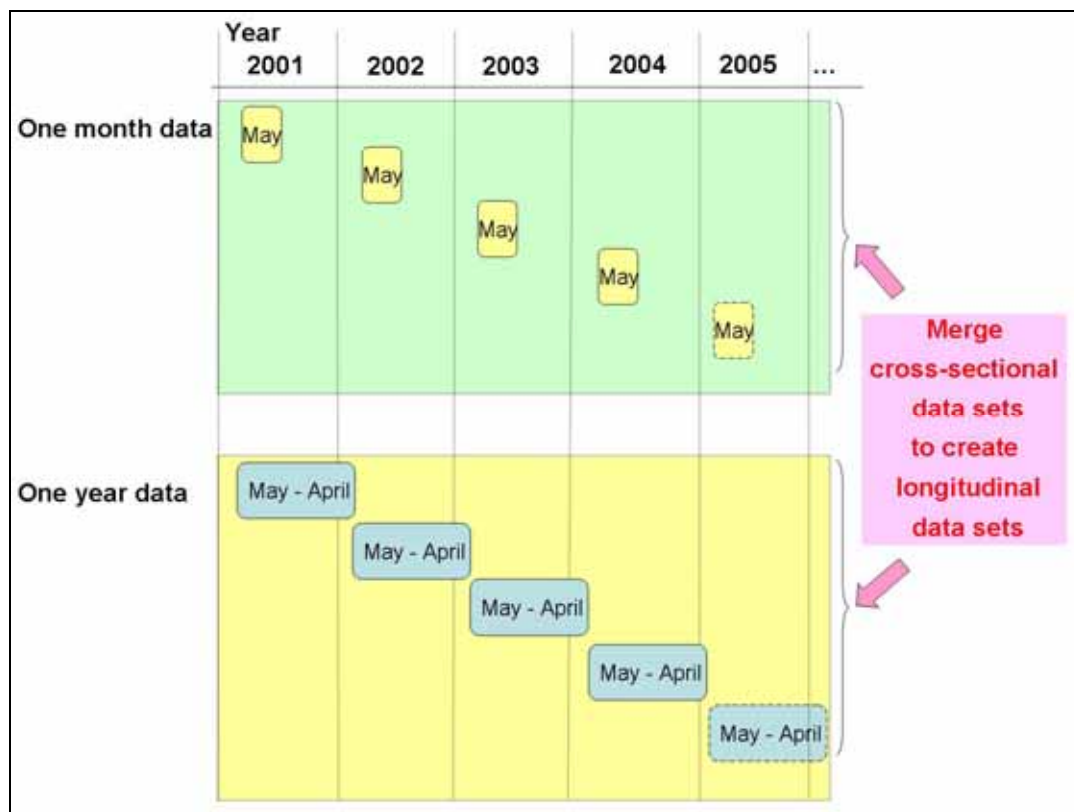
2001	One-month study *	Total number of claims	Claims with teeth info.	ID matched claims	Number of persons	Valid number of persons
	Dental	68,564	27,472	47,128	27,472	27,472
	Medical	743,411				
	One-year study **	Total number of claims	Claims with teeth info.	ID matched claims	Number of persons	Valid number of persons
	Dental	68,564	27,472	555,724	26,533	26,533
	Medical					
2002	One-month study	Total number of claims	Claims with teeth info.	ID matched claims	Number of persons	Valid number of persons
	Dental	75,311	41,529	71,283	35,931	35,931
	Medical	790,893				
	One-year study	Total number of claims	Claims with teeth info.	ID matched claims	Number of persons	Valid number of persons
	Dental	75,311	41,529	833,474	41,526	41,526
	Medical					
2003	One-month study	Total number of claims	Claims with teeth info.	ID matched claims	Number of persons	Valid number of persons
	Dental	85,239	36,146	62,320	31,251	31,251
	Medical	844,701				
	One-year study	Total number of claims	Claims with teeth info.	ID matched claims	Number of persons	Valid number of persons
	Dental	85,239	36,146	734,591	35,979	35,979
	Medical					
2004	One-month study	Total number of claims	Claims with teeth info.	ID matched claims	Number of persons	Valid number of persons
	Dental	92,765	32,743	55,469	27,112	27,112
	Medical	871,183				

(As of October 2005)

* One-month study covers the month of May.

** One-year study covers dental information for the month of May and medical information from May to April.

Figure-6. Creation of longitudinal data sets



It is anticipated that outcomes from the Hyogo 8020 Survey will produce scientific evidence and provide rich information on the relationship between oral health and general health. We believe that the Hyogo 8020 Survey will contribute to achieving a better quality of life for the elderly and further contribute to the community and society as a whole.

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Annex

The Hyogo 8020 Survey was introduced and its outcomes were reported through a variety of ways. The outcomes have also been reported in some news articles, oral health relevant journals and others. Our publications and presentations are shown below.

Publications (only available in Japanese)

- Hyogo Dental Association and National Health Insurance Organization of Hyogo. (June 2005) 8020 undou jisseki chosa no houkoku ni tsuite (A report of Hyogo 8020 Survey (in Japanese)) – Outcomes from the May 2004 study.
- Hyogo Dental Association and National Health Insurance Organization of Hyogo. (June 2004) 8020 undou jisseki chosa no houkoku ni tsuite (A report of Hyogo 8020 Survey) (in Japanese) – Outcomes from the May 2003 study.
- Hyogo Prefectural Government and Hyogo Dental Association. (March 2004) 8020 tasseisya no kenko jotai chosa houkokusho – zanzon shisuu bunrui niyoru hikaku (A report on the health status among 8020 achievers: A comparative study based on the classification of remaining number of teeth) (in Japanese) – Outcomes from the May 2003 study.
- Hyogo Dental Association and National Health Insurance Organization of Hyogo. (June 2003) 8020 undou jisseki chosa no houkoku ni tsuite (A report of Hyogo 8020 Survey) (in Japanese) – Outcomes from the May 2002 study.
- Hyogo Dental Association Information and Research Room. (March 2003) 8020 jisseki chosa houkoku to iryouhi – Heisei 14 nen5 gatsu shinryobun reseputo no shukeiyori (Report of the Hyogo 8020 Survey and medical expenditure: Outcomes from the study of May 2002) (in Japanese) – Outcomes from the May 2002 study.
- Hyogo Dental Association. (May 2003) 8020 to iryouhi no kankei – Heisei 13 nen tsuunen ika reseputo no shukei (The relationship between 8020 Movement and medical expenditure: results from the 2001 one-year study) (in Japanese)) – Outcomes from the 2001 one-year study.
- Hyogo Dental Association and National Health Insurance Organization of Hyogo. (May 2002) 8020 undou jisseki chosa no houkoku ni tsuite (A report of Hyogo 8020 Survey) (in Japanese) – Outcomes from the May 2001 study.
- Hyogo Dental Association. (March 2002) 8020 undou to iryouhi no kankei (The relationship between 8020 Movement and medical expenditure) (in Japanese) – Outcomes from the May 2001 study.

Presentations

- Kanda, M., Namba, K., Matsumura, T., Hashimoto, T. and Ueda, H. (June 2005) “8020 Survey in Hyogo Prefecture, Japan” at the meeting on Oral Health in Ageing Societies: Integration of Oral Health and General Health, 1-3 June 2005, WHO Centre for Health Development, Kobe, Japan - an oral presentation
- Kanda, M., Namba, K., Matsumura, T., Hashimoto, T. and Tamagawa, H. (November 2004) “8020 undouu to iryou ni tsuite: Hyogoken Shikaishikai to Hyogoken Kokuminkenkouhokenndantai rengokai no torikumikara (8020 Movement and medical care)” at the Japanese Stomatological Society Kinki Local Committee, 20 November 2004, Kobe, Japan - an oral presentation in Japanese
- Kanda, M., Namba, K., Matsumura, T., Hashimoto, T. and Tamagawa, H. (October 2004) “8020 undouu to kokuminiryō no kankei: Hyogoken Shikaishikai to Hyogoken Kokuminkenkouhokenndantai rengokai no torikumikara (8020 Movement and medical care)” at the 20th General Meeting of the Japanese Association for Dental Science, 29-30 October 2004, Yokohama, Japan - a poster presentation in Japanese
- Kanda, M. (June 2004) “8020 undou jisseki chosa kekkakara: Heisei 14 nen 5 gatsubun ika deita karano shukei - chosagaiyo to bunsekikekka houkoku (A report of the Hyogo 8020 Survey: Outcomes from the May 2002 study)” at the 21st Hyogo Dental Congress, 13 June 2004, Kobe, Japan - an oral presentation
- Kanda, M., Namba, K., Matsumura, T., Hashimoto, T. and Tamagawa, H. (March 2004) “Elderly with twenty or more teeth need less hospital care” at the 82nd General Session of the IADR/AADR/CADR, 10-13 March 2004, Hawaii, United States of America - a poster presentation

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