Introduction

Japan has a rapidly-changing population structure and a super-aging society. Over the past three decades, many other countries worldwide have also started to experience this phenomenon. The pace of population aging is much faster than in the past.

For these reasons, all countries are challenged with the task of ensuring that their health and social systems are ready to make the most of this demographic shift. Many efforts to deal with global aging have been initiated in various fields of academic research as well as community settings.

Global aging is a celebrated accomplishment that satisfies humanity’s historical desire for longevity. However, it is a well-known fact that aging causes an increase in multimorbidities and mental decline, which presents a financial burden on governments that provide health care to their citizens. In order to maintain a universal health coverage system, people must be provided with more effective and efficient health care. Furthermore, if we want to live lives that are not only long but also dignified and happy, we need to create a society where elderly people feel that they belong and are valued.

World Health Congress 2015

In March 2015, the Japan Dental Association hosted the World Congress 2015 in Tokyo. The congress was co-sponsored by the WHO, and the “Tokyo Declaration on Dental Care and Oral Health for Healthy Longevity” was drafted. Figure 1 shows the program for the event.

The Tokyo Declaration established the following six goals:
1. A concerted effort to accumulate scientific evidence of the contribution of dental care and oral health to longer healthy life expectancy and to formulate health policies based on such evidences.
2. Further investigation to verify the actual state of national dental health care policies and regional health activities supported by such evidences, and share results and related information among the various countries around the world.
3. Recognition that maintenance of oral and dental health throughout life is a fundamental factor for improving QOL, helping protect from NCDs and contributing towards preventing the further aggravation of such diseases. It can also contribute to longer healthy life expectancy.
4. Community dental care providers and institutions to
Life expectancy and healthy life expectancy by age

<table>
<thead>
<tr>
<th>Economic Status</th>
<th>Age</th>
<th>Life expectancy</th>
<th>Healthy life expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-income</td>
<td>62</td>
<td>53</td>
<td>79</td>
</tr>
<tr>
<td>Low-to-moderate</td>
<td>66</td>
<td>57</td>
<td>79</td>
</tr>
<tr>
<td>Moderate-to-high</td>
<td>74</td>
<td>66</td>
<td>70</td>
</tr>
<tr>
<td>High-income</td>
<td>70</td>
<td></td>
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</tbody>
</table>

Source: WHO World Health Statistics 2014

Fig. 2 Life Expectancy and Healthy Life Expectancy by Economic Status

...play a fundamental role in ensuring that in a super aging society, appropriate dental care is provided at all stages of life and that co-efforts to put oral health into practice are made at the national level.

5. Understanding that health policy should focus on how to recognize risks common to both oral diseases and NCDs into a common risk factor approach, prevent oral diseases and tooth loss, and maintain and revitalize oral function by the life course approach.

6. Appreciation that, in order to contribute to preventing NCDs and a decline in oral function in old age, dental and other health professionals create an environment that enables and encourages multi-professional collaborative practice.

Evidence and Strategies for Achieving Healthy Aging and Oral Health

Since 2000, a dramatic increase in global life expectancy, around 5 years, has been achieved. The aging of society is a phenomenon that should be celebrated. However, it brings many challenges. There has been a global population explosion over the past few decades. On the other hand, the global population expansion is predicted to slow down and stop from around 2050 to 2100. The WHO has reported the following key facts pertaining to aging and health:

- Between 2015 and 2050 the proportion of the world’s population over 60 will nearly double from 12% to 22%.
- By 2020, people over 60 will outnumber children under the age of 5.
- In 2050, 80% of older people will be living in low- and middle-income countries.

- The pace of population aging is much faster than in the past.
- All countries face major challenges to ensure that their health and social systems are ready to make the most of this demographic shift.

The WHO has also found that there is an age gap between life expectancy and healthy life expectancy. The chart in Fig. 2 shows that this gap is around 9 years and exists regardless of a country’s economic status.

Non-communicable diseases (NCDs) are known to influence life expectancy and healthy life expectancy, and are also known to be a major reason that people become dependent on others. For these reasons, NCD prevention must be prioritized. In 2013 the WHO published a global action plan to be achieved by 2020 for the prevention and control of NCDs. The global action plan consists of the 9 targets shown in Fig. 3.

Evidence for Achieving Healthy Aging and Oral Health

Since last year, the publication “The current evidence of dental care and oral health for achieving healthy longevity in an aging society 2015” has been available from the JDA and WHO websites. It is a systematic review and summary of evidence from one thousand research articles which survived a careful vetting process. The publication proposes a conceptual pathway from dental care and oral health to healthy life expectancy (Fig. 4) and offers evidence summaries regarding how oral health contributes to healthy life expectancy. For example, a great deal of research has indicated a relationship between number of teeth and life expectancy, and between oral hygiene and NCDs. Furthermore, this evidence summary is a useful resource when making policy decisions, especially when financial resources are limited.

Since the publication of the abovementioned document, new evidence has continued to accumulate, including the following findings:

- Missing teeth predict the incidence of cardiovascular events, diabetes, and death.
- Periodontal disease and tooth loss have been shown to be associated with coronary heart disease.
- A relationship between frequency of tooth scaling and reduced incidence of cardiovascular events has been reported.
- A link between obesity and tooth loss has been established.
Recent studies have indicated that eating quickly contributes to weight gain.

Further support for the association between smoking and tooth loss has accumulated.

A systematic review and meta-analysis has confirmed that tooth loss increases the risk of diminished cognitive function.

Evidence is accumulating quickly and continuously, but these studies and findings must not be left to fade away in isolation. Evidence must be collated and shared in order to adopt a more upstream approach and ensure that evidence is translated into policy change.

Japanese Health Policy Through 2025

The 8020 campaign, a community- and clinic-based initiative started in 1989, has contributed to a dramatic improvement in oral health in Japan. This was followed by an accumulation of evidence, which culminated in oral health being integrated into health policy in the form of the Dental and Oral Health Promotion Law 2011, for the purpose of oral disease prevention and general health improvement.
In order to continue this improvement, achieve a sustainable social security system, and fix our national health policy, two essential steps are needed:

a. Prevention and control of NCDs (such as the checkup and health instruction system started in 2008 for prevention of metabolic syndrome among people aged 40–79).

b. Establishment of community-based integrated health care systems by 2025 (effective and high-quality medical care, long-term care, and preventive care provided for all).

Japan has implemented a strategy called “Health Japan 21”, a two-stage plan (2000–2012, and 2013–2022) to improve health which began in 2000 and includes oral health components. The first phase was from 2000–2012 and included oral health targets pertaining to oral disease levels and oral health behavior. The table in Table 1 lists the oral health targets in the first phase of Health Japan 21.

These targets have all been either achieved or greatly improved. Compared to other areas in the Health Japan 21 strategy, for example physical exercise, nutrition, or alcohol consumption, oral health has achieved dramatic improvements.

The second phase also has very clear targets:

1. Prolonging healthy life expectancy and reducing

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Table 1  Health Japan 21, First Phase - Oral Health Targets

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Target</th>
<th>Baseline data</th>
<th>Interim assessment data</th>
<th>Final assessment data</th>
<th>Results</th>
</tr>
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<tbody>
<tr>
<td>Dental caries (preschool children)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Percentage of 3-year children who are dental caries free</td>
<td>80%</td>
<td>59.5% (1998)</td>
<td>68.7% (2003)</td>
<td>77.1% (2009)</td>
<td>improved</td>
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<tr>
<td>Fluoride application</td>
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<tr>
<td>Percentage of 3-year children who get topical fluoride application</td>
<td>50%</td>
<td>39.6% (1993)</td>
<td>37.8% (2004)</td>
<td>64.6% (2009)</td>
<td>achieved</td>
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<tr>
<td>Sweets intake</td>
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<tr>
<td>Percentage of 1.5 year children who consume sweets 3 times or more per day</td>
<td>15%</td>
<td>29.9% (1991)</td>
<td>22.6% (2004)</td>
<td>19.5% (2009)</td>
<td>achieved</td>
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<tr>
<td>Dental caries (school children)</td>
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<td>Preventive factor</td>
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<tr>
<td>Fluoride use</td>
<td></td>
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<tr>
<td>Percentage of school children who use fluoride toothpaste</td>
<td>90%</td>
<td>45.6% (1991)</td>
<td>56.5% (2004)</td>
<td>86.3% (2009)</td>
<td>improved</td>
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<tr>
<td>Oral hygiene behavior</td>
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<tr>
<td>Periodontal disease (adults)</td>
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<tr>
<td>Percentage of persons who contract severe periodontitis (CPI code 3 or 4)</td>
<td>22%</td>
<td>32.0% (1998)</td>
<td>23.8% (2004)</td>
<td>18.3% (2009)</td>
<td>achieved</td>
</tr>
<tr>
<td>Oral hygiene behavior</td>
<td></td>
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<tr>
<td>Percentage of adults who use interdental brush</td>
<td>50%</td>
<td>19.3% (1993)</td>
<td>39% (2004)</td>
<td>44.6% (2009)</td>
<td>improved</td>
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<tr>
<td>Smoking cessation</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Percentage of persons who know the harmful effect of smoking on general health</td>
<td>100%</td>
<td>27.3% (1998)</td>
<td>35.9% (2003)</td>
<td>40.4% (2008)</td>
<td>improved</td>
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<tr>
<td>Tooth loss prevention</td>
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<tr>
<td>Percentage of persons who have more than 20 teeth at age 80</td>
<td>20%</td>
<td>11.5% (1993)</td>
<td>22% (2004)</td>
<td>28.8% (2009)</td>
<td>achieved</td>
</tr>
<tr>
<td>Oral hygiene behavior</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Percentage of persons who receive regular professional tooth cleaning and calculus removal each year</td>
<td>30%</td>
<td>15.9% (1992)</td>
<td>43.2% (2004)</td>
<td>43% (2009)</td>
<td>achieved</td>
</tr>
</tbody>
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Fig. 6  A New Oral Care Plan for Adults – The Adult Oral Health Assessment and Instruction Program of the JDA (2009)
2. Making an all-out effort to prevent people from contracting lifestyle-related diseases and to prevent such diseases from progressing; preventing non-communicable diseases (NCDs such as cancer, cardiovascular diseases, diabetes, and COPD).
3. Maintaining and improving functions required for social life.
4. Establishing social environments that support and protect health.
5. Improving lifestyles and social environments related to nutrition, eating habits, physical activity and exercise, rest, drinking, smoking, and dental and oral health.

Going forward, there are a number of current and planned nationally-funded programs that involve the provision of dental care and oral health services as a part of NCD policy:

- Health Japan 21 (Phase II) includes dental and oral health as basic components of initiatives to promote national health policy (2013–).
- Cooperation between medical and dental fields for cancer treatment (2013–).
- In the dementia health policy called the New Orange Plan (2015–2025), community-based dental care plays a role in early diagnosis and prevention of dementia (2015–).
- The national policy for the prevention and control of diabetic nephropathy (an NCD) includes an oral health program designed to control periodontal disease and improve eating behavior (2016–).
- An oral health component will be added to the system of prevention and control of metabolic syndrome (2018–; currently being discussed in government advisory boards).

**Dental Workforce Resources and Access to Clinics**

In Japan, thanks to universal health coverage established in 1961, people can easily visit dental clinics and receive most dental care under their health insurance. The 8020 Promotion Foundation carried out research in 2015 to establish the reason for participants’ most recent dental visit. This report shows that around 63% of patients visited a dentist due to pain. Around 25% visited for a routine checkup, and the remaining 10% visited for a routine checkup but also had a problem. The survey showed that though around 35% of patients attended for preventive purposes, while 65% still only attend in response to problems. The dental workforce should
change its practices so that it can be utilized to a greater capacity to prevent of oral disease. This should include a risk-based framework that allows risk-appropriate recall intervals to be suggested to patients.

The Adult Oral Health Assessment and Instruction Program of the Japan Dental Association started in July, 2009. It is a risk-based framework, as seen in Fig. 6. This program aimed to find and reduce risk factors for prevention and control of oral disease as well as contribute to NCD prevention and control through the common risk factor approach targeting both oral health and NCDs. In addition, this program can be implemented various healthcare fields, facilitating collaboration between and among health professionals. This is a very useful and effective approach for tackling the disease burden under the financial limitations of a sustainable social security system.

The questionnaire stage, Fig. 7, assesses common risk factors for NCDs.

**Summary and Conclusion**

Reducing the global burden of oral disease and disability should be one of the goals of an effective health program in an aging society. Furthermore, doing so simultaneously contributes to the prevention and control of NCDs.

Oral health policies should involve integration of oral health into national and community health programs, and oral health should be promoted as an essential, effective, and efficient part of policies designed to promote socioeconomic development. Common risk factors of oral diseases and NCDs should be specifically targeted.

Evidence that shows how dental care provisions yield systemic health improvements, and that clarifies the medico-economic effects of dental and oral health policies, should be accumulated and analyzed.

In order to continue achieving improvements to oral health and thereby healthy longevity, researchers, policymakers, and clinicians should collaborate to make preventive, upstream changes that are based on reviews of the available evidence.

As we face the rapid aging of our population, which is proceeding at a rate never before experienced by humankind, many efforts to deal with this problem have been initiated in various fields of academic research as well as in medical, health, welfare, and community settings. In order to realize a society where elderly people can live life in peace and with dignity, it is essential to develop health and medical care systems that provide appropriate healthcare services at the national and community level.

Developing oral health policies that are based on the integration of oral health into national health policy and community health programs, and promoting oral health as an essential, effective, and efficient part of policies designed to promote socioeconomic development is needed.

**References**