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<td>Author(s)</td>
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Trends in Percentage of Postgraduate Dental Trainees at Dental Clinics

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Abstract

A facilities-group system designed to provide clinical training at dental clinics was developed after postgraduate clinical training became mandatory for dentists in Japan in 2006. As a result, there has been a steady increase in the number of dental clinics collaborating with dental school hospitals under this program. A larger number of dental clinics have also been designated as single-system facilities, program management facilities or collaborating facilities. However, it remains to be determined whether this increase in the number of dental clinics designated as clinical training facilities has led to an increase in the amount of training offered. Therefore, the purpose of this study was to investigate trends in the percentage of postgraduate dental trainees at dental clinics between fiscal years 2006 and 2010. The results showed no significant correlation among (1) the percentage of dental clinics designated as single-system collaborating facilities, (2) the percentage of training programs at dental clinics, and (3) the proportion of training program recruitment offers by dental clinics compared to the total number of recruits. These findings showed that increasing the number of collaborating dental clinics did not lead to an increase in the amount of clinical training at dental clinics. The findings also suggest that increasing the number of single-system or program management dental clinics is important in promoting clinical training at dental clinics.
Introduction

Approximately 80% of postgraduate dental trainees have been consistently recruited into training programs at dental school hospitals since postgraduate clinical training became mandatory in Japan in 2006. In an earlier study, we investigated the number of postgraduate dental trainees enrolled in training programs and the actual number of postgraduate dental trainees receiving training at each clinical training facility in each prefecture. The results showed that due to the clinical training facilities-group system (hereafter referred to as the group system), postgraduate dental trainees had to be dispatched beyond their own prefectures to attend collaborating facilities and that, as a result, differences among prefectures in the number of postgraduate dental trainees have decreased.

Dental school hospitals have been actively conducting training programs under the group system and have acquired a large number of collaborating facilities. This was accompanied by an annual increase in the number of dental clinics designated as collaborating facilities. There has also been an increase in the number of dental clinics designated as single-system clinical training facilities (hereafter referred to as single-system facilities) and program management clinical training facilities (hereafter referred to as program management facilities) in which dental clinics become principals in conducting clinical training and program management. However, the Ministry of Health, Labour and Welfare had no data on the actual number of postgraduate dental trainees receiving training at dental clinics. In particular, it was unclear whether the increase in the number of dental clinics designated as clinical training facilities had led to an increase in the training of postgraduate dental trainees at dental clinics. Therefore, the purpose of this study was to investigate trends in the percentage of postgraduate dental trainees receiving training at dental clinics between fiscal years 2006 and 2010.

Subjects and Methods

In principle, mandatory postgraduate clinical training for dentists is implemented through a one-year training program. All clinical training programs for dentists in fiscal years 2006–2010 were surveyed regarding the number of postgraduate dental trainees at each training facility during each month of each of the fiscal years targeted. The survey was conducted in February of each year by means of e-mail, fax, postal mail, and telephone. The percentage of dental residents receiving training at dental clinics was defined by the following equation:

\[
\text{Postgraduate Dental Trainee in Dental Clinic Index (PDTDC Index)} = \left( \frac{\text{monthly total number of postgraduate dental trainees at dental clinics}}{\text{monthly total number of postgraduate dental trainees at all clinical training facilities}} \right) \times 100 (\%)
\]

A comparison of annual trends was conducted on the basis of the PDTDC Index and the following associated factors:

1. Number of dental clinics designated as single-system/program management/collaborating facilities
2. Number of training programs at dental clinics (single-system/program management facilities)
3. Percentage of number of recruits in training programs offered by dental clinics of total number of recruits

Numerical data published by the Ministry
of Health, Labour and Welfare regarding the number of recruits in each training program and the number of collaborating dental clinics were also used. Statistical processing was conducted using Microsoft Excel 2010 (Microsoft Corporation, USA) and Ekuseru-Toukei 2008 (Social Survey Research Information Co., Ltd., Japan).

**Results**

Responses pertaining to all training programs from fiscal year 2006 to fiscal year 2010 were obtained. The PDTDC Index values for fiscal years 2006–2010 were in the range of 24.4–27.8% and remained at nearly the same level for 5 years (Table 1).

1. Number of dental clinics designated as single-system/program management/collaborating facilities

The number of single-system dental clinics has steadily increased from 9 to 20, while the number of dental clinics functioning as program management facilities has steadily increased from 4 to 14 (Fig. 1). The coefficients of correlation with the PDTDC Index were 0.240 and 0.230, respectively, which was not statistically significant (Table 2). In addition, the number collaborating dental clinics has steadily increased from 1,166 to 1,656 (Fig. 2). The correlation coefficient with the PDTDC Index was 0.012, which was not significant (Table 2).

![Graph](image-url)

**Table 1 Number of postgraduate dental students, number of postgraduate dental recruits and PDTDC Index values for fiscal years 2006–2010**

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
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<tbody>
<tr>
<td>Monthly total number of postgraduate dental trainees at all clinical training facilities (man-month)</td>
<td>31,593</td>
<td>28,212</td>
<td>27,193</td>
<td>28,387</td>
<td>28,749</td>
</tr>
<tr>
<td>Monthly total number of postgraduate dental trainees at dental clinics (man-month)</td>
<td>8,446</td>
<td>7,453</td>
<td>6,635</td>
<td>7,884</td>
<td>7,587</td>
</tr>
<tr>
<td>Total number of postgraduate dental trainee recruits</td>
<td>3,830</td>
<td>3,737</td>
<td>3,702</td>
<td>3,637</td>
<td>3,608</td>
</tr>
<tr>
<td>Number of clinical training programs offered by dental clinics</td>
<td>115</td>
<td>121</td>
<td>137</td>
<td>154</td>
<td>160</td>
</tr>
<tr>
<td>PDTDC Index (%)</td>
<td>26.7</td>
<td>26.4</td>
<td>24.4</td>
<td>27.8</td>
<td>26.4</td>
</tr>
</tbody>
</table>

![Chart](image-url)

**Fig. 1 Number of dental clinics designated as the single-system/program management facilities and PDTDC Index**

**2. Number of training programs at dental clinics**

The number of training programs at dental clinics has steadily increased from 14 to 33 (Fig. 3). The correlation coefficient with the PDTDC Index was 0.198, which was not significant (Table 2).
The percentage of recruits in training programs offered by dental clinics has steadily increased from 3.0 to 4.4% (Fig. 3). The correlation coefficient with the PDTDC Index was 0.163, which was not significant (Table 2).

### Table 2 Coefficient of correlation with PDTDC Index

<table>
<thead>
<tr>
<th></th>
<th>Coefficients of correlation</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of dental clinics designated as single-system facilities</td>
<td>0.240</td>
<td>0.697</td>
</tr>
<tr>
<td>Number of dental clinics designated as program management facilities</td>
<td>0.230</td>
<td>0.710</td>
</tr>
<tr>
<td>Number of dental clinics designated as collaborating facilities</td>
<td>0.012</td>
<td>0.984</td>
</tr>
<tr>
<td>Number of clinical training programs offered by dental clinics</td>
<td>0.198</td>
<td>0.750</td>
</tr>
<tr>
<td>Percentage of number of recruits in training programs offered by dental clinics of total number of recruits</td>
<td>0.163</td>
<td>0.794</td>
</tr>
</tbody>
</table>

**Discussion**

In this study, a survey was performed of data collected completely over a 5-year period commencing 2006, after postgraduate clinical training became mandatory for dentists. We believe that its findings are important in evaluating the postgraduate dental clinical training system.

Mastering frequently performed therapeutic procedures is one of the objectives of postgraduate dental clinical training\(^3\). For that reason, the Ministry of Health, Labour and Welfare has recommended use of a group system in which clinical training is
performed at dental clinics. As a result, the number of collaborating dental clinics has steadily increased.

While training at dental clinics, postgraduate dental trainees have the opportunity to perform therapeutic procedures on a larger number of patients than they would have done at single-system/program management facilities, most of which are hospitals. In terms of general dental practice, postgraduate dental trainees who completed their training at dental clinics reported higher training satisfaction than those who trained at dental school hospitals. With regard to community-based dental practice training, dental clinics are clearly more suitable than dental school hospitals. In addition, since there are dental school hospitals in only 19 out of 47 prefectures, there is a marked regional bias. Training within dental clinics is also important from the perspective of the “community-based education” shown by Harden et al. in the SPICES model of medical education. However, to our knowledge, no other studies to date have investigated the actual extent of training received by postgraduate dental trainees at dental clinics.

In the group system for postgraduate dental clinical training, postgraduate dental trainees are dispatched to different collaborating facilities on a monthly basis. Therefore, the actual duration of training received by a postgraduate dental trainee at dental clinics must be recalculated on a monthly basis. This suggests that the PDTDC Index used in this study reflects the actual training status of postgraduate dental trainees at dental clinics.

Under the training program offered by single-system dental clinics, postgraduate dental trainees are, in principle, trained at dental clinics for 12 months. In addition, postgraduate dental trainees on training programs conducted at dental clinics designated as program management facilities receive 3–9 months of training. Therefore, the number of dental clinics designated as single-system/program management facilities was used as an explanatory variable. Furthermore, because the group system allows postgraduate dental trainees to be dispatched only to collaborating facilities, the number of dental clinics designated as collaborating facilities could also be used as an acceptable explanatory variable.

Meanwhile, because a single-system or program management facility can offer multiple training programs, our findings suggest that the number of training programs provided by such facilities reflects training practice at dental clinics more accurately than the number of dental clinics. Accordingly, the number of training programs conducted at single-system or program management facility dental clinics was also considered an explanatory variable.

In training programs, the number of postgraduate dental trainees actually recruited by each dental clinic was usually <10. In training programs at dental school hospitals, the number of recruits can reach or even exceed 100. Therefore, the percentage of the number of recruits in training programs offered by dental clinics of the total number of recruits may also merit investigation.

No significant correlation was found between the percentage of postgraduate dental trainees at dental clinics and the number of single-system/program management/collaborating dental clinics. However, compared to the number of collaborating facilities, the number of single-system/program management facilities had a greater correlation coefficient with the PDTDC Index. These findings suggest that determining how to increase the number of single-system/program management facilities would be more effective in promoting training at dental clinics than simply increasing the number of collaborating dental clinics. However, the validity of this hypothesis remains unclear because the actual number of single-system/program management facility dental clinics is small.

The number of training programs carried out at single-system or program management facility dental clinics showed no significant correlation with the PDTDC Index. Although a single-system or program management facility can conduct multiple training programs, only a small number of postgraduate dental trainees can be recruited by dental clinics.
Therefore, an increase in the number of training programs alone is less likely to lead to a rise in the number of opportunities for postgraduate dental trainees to receive training at dental clinics.

The percentage of recruits in training programs conducted at dental clinics of the total number of recruits was not significantly correlated with the PDTDC Index. As mentioned earlier, because dental clinics can recruit only a small number of postgraduate dental trainees, the percentage of recruits into these training programs is as low as 3.0–4.4%. To increase the percentage of recruits into training programs conducted within dental clinics, the number of single-system/program management facilities must first increase.

The dispatch period of the training programs under the group system was not examined in this study. Because the dispatch period varies widely (range, 3–9 months), it is likely to affect the duration of training at collaborating dental clinics. However, because this was taken into account in the PDTDC Index calculation, it was not adopted as an explanatory variable in this study. The dispatch period duration in each training program requires further study.

The present findings show that the policy of increasing the number of dental clinics designated as collaborating facilities has not promoted clinical training at dental clinics. Meanwhile, because of the currently low absolute number of recruits in training programs at dental clinics, the increase in their percentage of the total number of training programs has had little effect on the percentage of postgraduate dental trainees at dental clinics. An increase in the number of single-system/program management facility dental clinics is needed to promote clinical training at dental clinics, and will naturally lead to an increase in the percentage of recruitment of postgraduate dental trainees at dental clinics. The amount of training conducted at dental clinics may increase in the future if the number of single-system/program management facility dental clinics increases.

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