Caries Prevalence in Maine Based on College of Dental Medicine (UNE) Findings

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Introduction:

Dental caries is a progressive, irreversible microbial disease affecting the hard tissues of the tooth. It is the most prevalent chronic disease affecting the human race. Once it occurs, its manifestations persist throughout life even when the lesion is treated. It usually begins soon after the teeth erupt into the oral cavity, thus, it is a post eruptive disease. It affects people of both genders, all races, all ages, and all socio-economic groups.

Currently there is limited research regarding the prevalence of caries in the state of Maine, particularly for the adult population. The presence of caries is a major oral health indicator and further research is needed in this area in order to provide better oral health care, especially in the rural areas.

Much of the literature focuses on caries prevalence in children, particularly from a study called the New England Children’s Amalgam Trial. A five year follow-up of this study revealed high risk children continuing to develop new caries even after semi-annual dental care. This finding is alarming and it makes one wonder how the adult population is fairing with caries development as well.

In order to bridge this gap in the literature and determine a more accurate picture of caries prevalence within the state of Maine, this ongoing retrospective study is designed to analyze and record caries prevalence among the patient population at the UNE Dental Clinic using past patient dental records. The DMFT and DMFS indices are epidemiological tools used to measure and classify caries. These two tools were the focus of the data analysis.

The population investigated derived from the UNE CDM patient pool. After IRB approval from the University of New England and de-identification of the patient population, a sample size of 100 dental charts was blindly analyzed and the DMFT (Decayed, Missing, Filled, Teeth) and DMFS (Decayed, Missing, Filled, Surfaces) indices were calculated.

DMFT stands for Decayed, Missing, or Filled teeth and it applies to each tooth within the permanent dentition of an individual. Scores can range form 0 to 28, or 32, depending on if the third molars are included.

DMFS stands for Decayed, Missing, or Filled surfaces and it applies to each tooth within the permanent dentition of an individual. Scores can range from 0 to 128.

Individual DMFT/DMFS:
Total D+M+F=DMFT/DMFS

Group Average:
Total DMFT/DMFS for each individual
Then divide the total ‘DMF’ by the # of individuals in the group

Methods:

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References:


Results:

The mean DMFT was found to be 19.27 and the mean DMFS was 26.08. This can be compared to the National Institute of Health (National Institute of Dental and Craniofacial Research) research on the dental caries present in adults, in which the overall DMFT was 10.33 and the overall DMFS was 30.96. These results suggest that while the state of Maine the overall DMFT index is higher than the national DMFT index.

This is an ongoing study and data will be accumulated and analyzed over time as well as a constant influx of data as new patients begin care at UNE.

The fact that multiple clinicians charted the carious lesions could be considered as a limitation of this study. In addition, DMF index can be invalid in older adults or in children because the index can overestimate caries recorded by cases other than dental caries.

Summary:

Further research and data analysis of a larger sample size is needed to determine the accuracy of these results, however, this initial investigation reveals the need for better oral health care to Maine’s population.

Acknowledgements:

I would like to thank the University of New England College of Dental Medicine for the opportunity, support and funding on this study. I would also like to thank Dr. Vasiliki Maseli for her continual support, guidance, hard work and dedication to this study.

The goal of this retrospective study is to collect information in order to better understand the needs of the Maine residents and provide the appropriate oral health care in the future.

Appendix:

The table below shows the mean DMFT and DMFS scores for different age groups in the study population.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Mean DMFT</th>
<th>Mean DMFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;30</td>
<td>19.27</td>
<td>26.08</td>
</tr>
<tr>
<td>30-40</td>
<td>20.12</td>
<td>27.89</td>
</tr>
<tr>
<td>40-50</td>
<td>21.03</td>
<td>28.72</td>
</tr>
<tr>
<td>50-60</td>
<td>22.94</td>
<td>30.56</td>
</tr>
<tr>
<td>&gt;60</td>
<td>24.85</td>
<td>32.39</td>
</tr>
</tbody>
</table>

The total sample consisted of 100 dental charts, 50 males and 50 females, with a range of ages from 18 to 85 years old.

The mean age of the study population was 51.2 years old with a standard deviation of 13.1 years.

The participants were recruited from the UNE Dental Clinic and included patients of all genders, all races, all ages, and all socio-economic groups.

The study was approved by the UNE Institutional Review Board (IRB) and conformed to the ethical principles of the Helsinki Declaration of 1975, as revised in 2008.

The data was analyzed using the statistical software package SPSS (version 23) and the results were considered statistically significant at a p-value of 0.05.