



# Prevalence and Dental Treatment Patterns for Amelogenesis Imperfecta and Dentinogenesis Imperfecta in South Korea



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## INTRODUCTION

Amelogenesis imperfecta (AI) and Dentinogenesis imperfecta (DI) are rare inherited disorders that cause defects in the formation and calcification of enamel or dentin. AI and DI patients commonly show severe symptoms such as discoloration, hypersensitivity, fractured teeth, abrasions, and dental caries in all dentition from the primary period. Due to these characteristic symptoms, the patient is affected physically, psychologically and socio-economically, which lowers quality of life and increases the economic burden. The prevalence rates of AI and DI surveyed worldwide were 1:700 - 16,000 and 1:1,100 - 8,000, respectively. However, in South Korea, it is limited to case reports and molecular genetic studies, and the prevalence has not been reported. Therefore, the aim of this study was to determine the prevalence and incidence and evaluate the dental treatment patterns of AI and DI in South Korea.

## MATERIAL AND METHOD

This study used data based on National Health Insurance Service-National Sample Cohort Database (NHIS-NSC 2002 - 2015) and Jeonbuk National University (JBNU) Dental Hospital (2011 - 2020). NHIS-NSC is data from a random sampling of about 1 million people, 2% of the total population of South Korea. The data is based on the Korean Standard Classification of Diseases (6th Revision), which is a revision of the International Classification of Diseases (10th Revision). The prevalence rate per 100,000 population was calculated from NHIS-NSC, and the characteristics of the patients were analyzed. The dental treatment patterns of patients were investigated by analyzing radiographs and clinical charts from JBNU dental hospital data used to include non-reimbursable treatment details.

## RESULTS

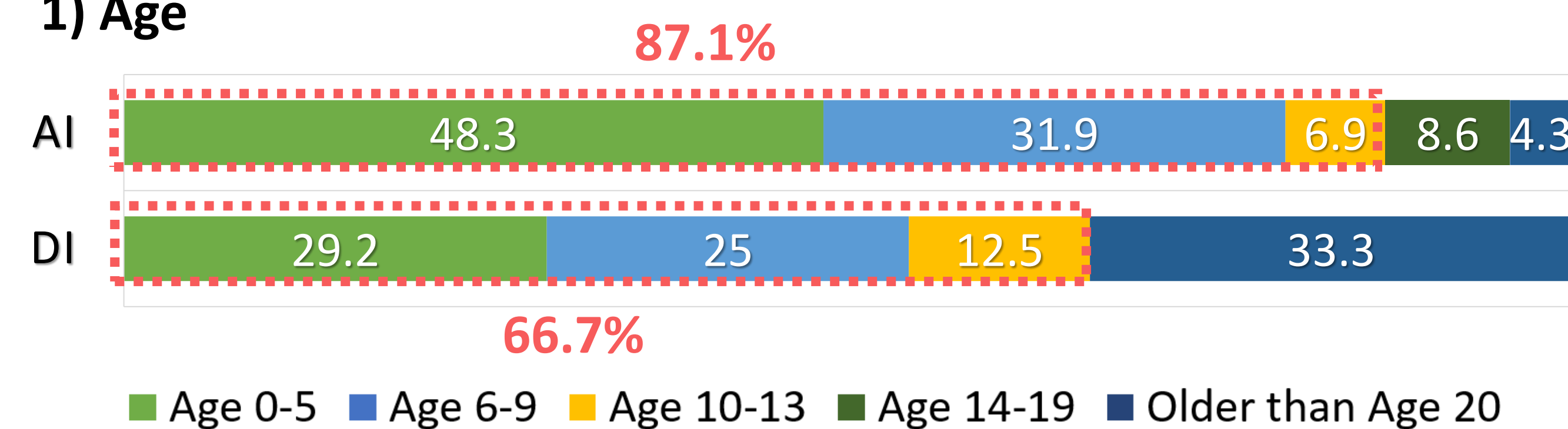
### 1. Prevalence and incidence of Amelogenesis imperfecta and Dentinogenesis imperfecta in NHIS-NSC

KCD code	Number of patients	Prevalence per 100,000 (%)	Incidence per 100,000			
			2013	2014	2015	Mean
K00.50 (Amelogenesis imperfecta)	116	11.6 (0.012%)	1.6	2.3	2.7	2.2
K00.51 (Dentinogenesis imperfecta)	24	2.4 (0.002%)	0.6	0.7	0.3	0.5

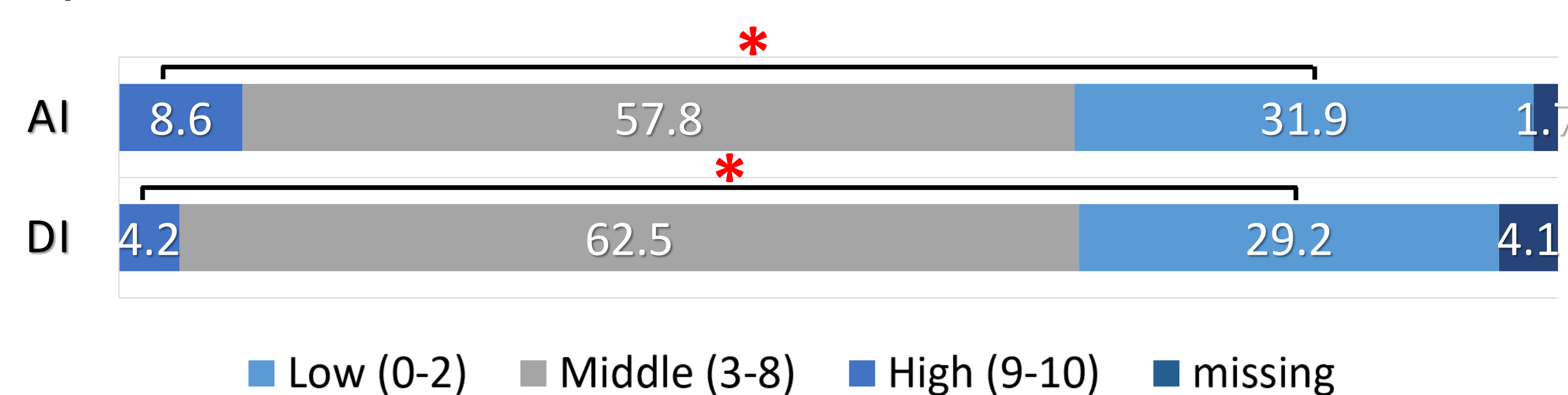
Total population in National Health Insurance Service-National Sample Cohort Database : 997,252

### 2. Characteristics of patients of Amelogenesis imperfecta and Dentinogenesis imperfecta in NHIS-NSC

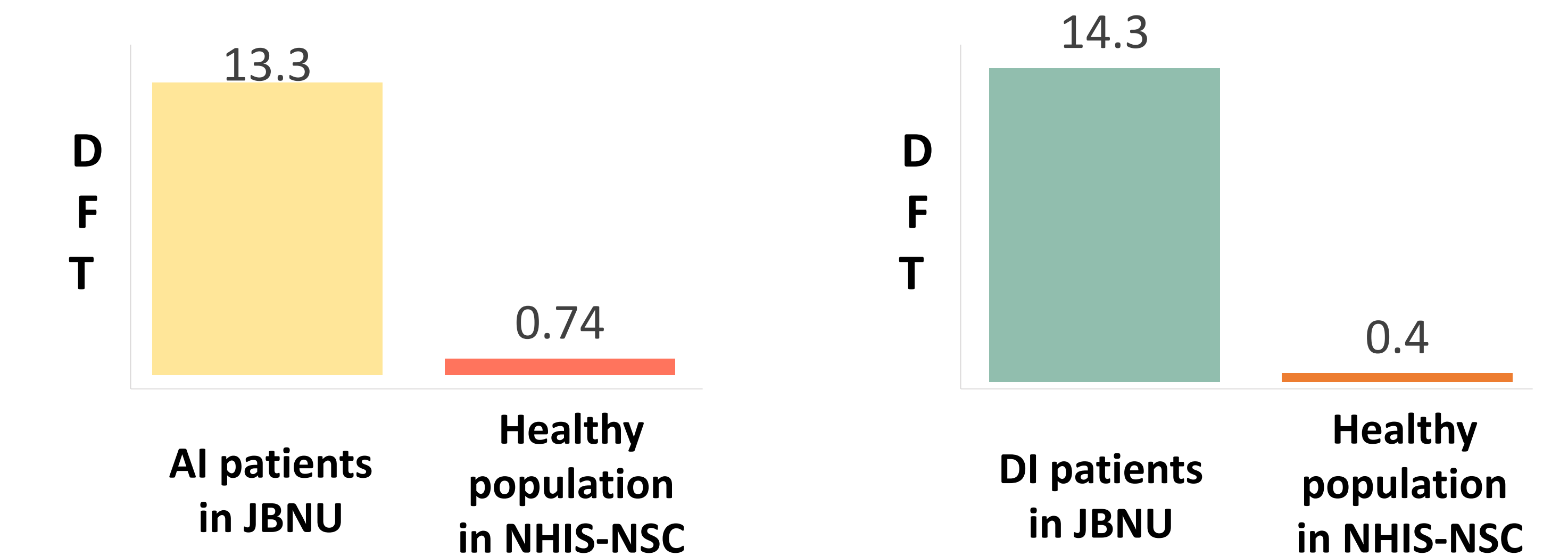
#### 1) Age



#### 2) Socioeconomic level

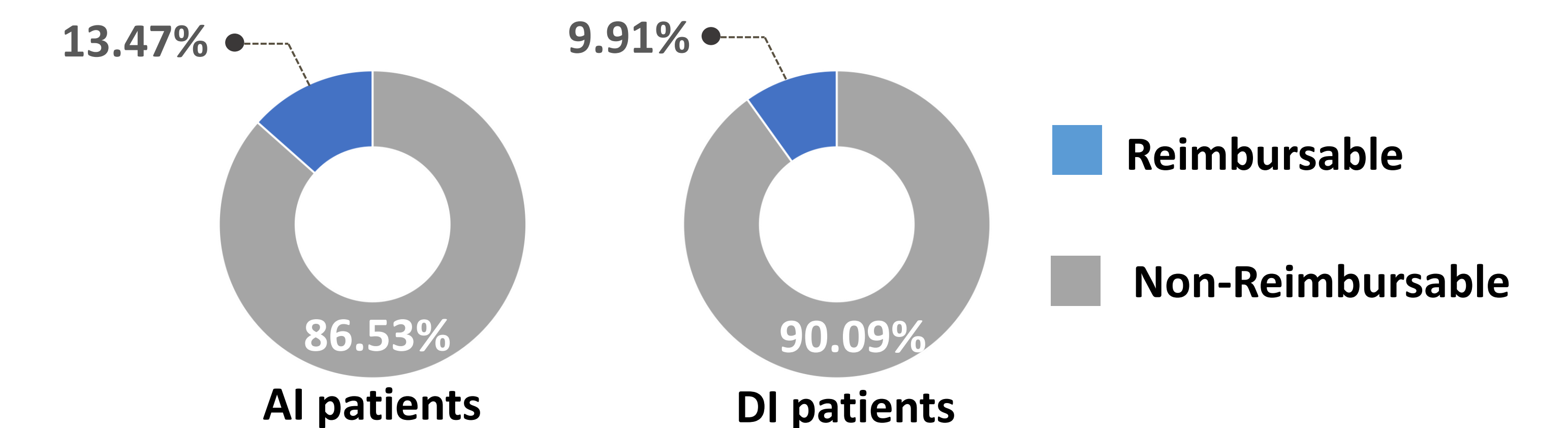


### 3. Comparison of decayed-filled teeth index in primary and early mixed dentition with Amelogenesis imperfecta, Dentinogenesis imperfect patients in JBNU dental hospital and NHIS-NSC



The mean age of AI and DI patients in JBNU dental hospital : 5.0 and 3.7, respectively  
Decayed-filled teeth index(DFT) : The number of decayed teeth and filled teeth

### 4. Proportion of the reimbursable and non-reimbursable cost for Amelogenesis imperfecta and Dentinogenesis imperfecta patients in JBNU dental hospital



## CONCLUSION

The NHIS-NSC analysis showed prevalence of AI and DI were 11.6 and 2.4 per 100,000 people, respectively. The annual incidence of AI and DI for 2013 - 2015 were 2.2 and 0.5 per 100,000. In the patient analysis of the JBNU dental hospital, AI and DI patients received more dental treatment than other patients since childhood. In addition, proportion of the reimbursable and non-reimbursable cost for AI patients were 12.1% and 87.9%, while DI patients accounted for 18.6% and 81.4%.