

## ■ Improving the Accuracy of the Patient Classification System through Refinement of Classification Variables

### 1. Introduction

In South Korea, the patient classification system is widely used across various aspects of the healthcare system, including healthcare payment system and claims review. Therefore, to enhance the accuracy of the patient classification system, periodic monitoring is conducted to review and refine classification criteria. In the Korean Diagnosis-Related Groups(KDRG) system, disease groups are categorized into surgical, medical procedures, and medical. For medical disease groups, the ADRG is primarily determined based on the principal diagnosis code. In the case of the medical disease groups R63(chemotherapy) and R67(radiation therapy), current diagnostic coding guidelines allow the assignment of specific diagnosis codes(Z51.0-2) even when chemotherapy or radiation therapy is not performed due to complications. This raises the need for further classification based on actual treatment implementation. Therefore, this study aims to refine the classification of patients in R63 and R67 disease groups by introducing additional classification variables beyond diagnosis codes.

### 2. Method

This study reviewed the current classification variables of similar disease groups in KDRG V4.6. In the E67 (respiratory neoplasms) disease group, classification variables include not only the principal diagnosis code related to malignant respiratory neoplasms but also additional codes generated using charge codes for radiation therapy, injection fees, and chemotherapy drug codes from the billing claims. Following this approach, This research segmented the R63 and R67 disease groups using classification variables and conducted a resource consumption analysis (T-test, ANOVA, Duncan test).

### 3. Results

Currently, the R63 disease group is classified into three subgroups: R631 (with secondary acute leukemia\*), R632 (without secondary acute leukemia), and R633 (without secondary acute leukemia, same-day discharge). When further subdividing the disease groups based on procedure codes and additional codes for classification variables, R631 did not meet the minimum case count criteria.

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Consequently, chemotherapy status was not separated built on the presence of secondary acute leukemia but was instead categorized into a single additional group. Hence, the R63 disease group was classified into four groups, meeting the minimum case count requirement accordingly. The resource consumption analysis revealed significant differences in the average medical costs among the groups, suggesting that further subdivision of the disease groups is feasible. The R67 disease group was subdivided using procedure codes as classification variables, and a resource consumption analysis was conducted. The results met the minimum case count criteria, and the P-value was  $<0.0001$ , indicating a significant difference in average medical costs among the groups. This suggests that further subdivision of the disease group is feasible. Additionally, considering the diagnostic coding guidelines, the disease group names were revised to R63 (Chemotherapy-Related Treatment) and R67 (Radiation Therapy-Related Treatment).

\* Diagnosis Codes: C91.0, C92.0, C92.4–6/8, C93.0, C94.0, C94.2, C94.4, C95.0

#### **4. Conclusion**

By incorporating clinical case-based coding guidelines for primary diagnosis codes, the discriminative power of the classification variables was enhanced, ensuring greater accuracy in the patient classification system. Additionally, this refinement, which differentiates based on actual treatment status, is expected to have a positive impact on various aspects, including the healthcare payment system and claims review processes.