**Thirty-day hospital readmission prediction model based on common data model with weather and air quality data**

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**Supplementary Table S1.** Weather advisory and warning issuance standards in Korea

|  |  |  |  |
| --- | --- | --- | --- |
| **Category** | **Criteria for issuing an weather advisory** | **Criteria for issuing an weather warning** | **W-score processing rule in this study** |
| Drying | When the effective humidity of 35% or less is expected to last for more than 2 days | When the effective humidity of 25% or less is expected to continue for more than 2 days | Days with humidity below 35% |
| Cold wave | In October-April, when one of the following is true: 1) When the morning minimum temperature falls by more than 10℃ than the previous day and is 3℃ or less and is expected to be 3℃ lower than the normal value2) The morning minimum temperature is -12℃ or less for 2 days When it is expected to continue abnormally3) When significant damage is expected due to a sudden low temperature phenomenon | In October-April, when one of the following is true: 1) When the morning minimum temperature falls by more than 15℃ than the previous day and is 3℃ or less and is expected to be 3℃ lower than the average value2) The morning minimum temperature is -15℃ or less. When it is expected to last longer than a day3) When significant damage is expected in a wide area due to a sudden low temperature phenomenon | 1) The day when the temperature difference between the minimum temperature and the previous day fell by more than 9 ℃2) The minimum daily temperature is less than -10 ℃ |
| Heat wave | When the maximum daily temperature is 33℃ or higher is expected to last for 2 days or longer | When the maximum daily temperature is expected to last for more than 2 days when the maximum temperature is 35℃ or higher | Days when the maximum daily temperature is 33 ℃ or higher |
| Downpour | When 3 hours of rainfall is expected to be more than 60mm or 12 hours of rainfall is expected to be more than 110mm | When 3 hours of rainfall is expected more than 90mm, or 12 hours of rainfall is expected more than 180mm | It rained, or it didn't rain |

**Supplementary Table S2.** Ambient air quality standards for PM10 and PM25 in Korea

|  |  |  |
| --- | --- | --- |
| **Category** | **Environmental standards****(daily average)** | **Forecast grade (daily average)** |
| **Good** | **Moderate** | **Bad** | **Very bad** |
| PM 2.5 | 35 | 0 ~ 15 | 16 ~ 35 | 36 ~ 75 | 76 ~ |
| PM 10 | 100 | 0 ~ 30 | 31 ~ 80 | 81 ~ 150 | 151 ~ |