1. Current Antibiotic Use in Korea
- National average: 23.0 DDD/1,000/day, for children under 7: 45.6 DDD/1,000/day in 2003 (KFDA, 2003)
- 90.6% of Korean children received antibiotics to treat acute upper respiratory tract infection (AURI) (Park and Moon, 1998)

2. Antibiotic Resistance: Erythromycin resistance rate: more than 70% and continuously increasing (Lee, 2009)

**Policy Intervention**

- After the People’s Solidarity for Participatory Democracy submitted administrative litigation for the public disclosure of high antibiotic-prescribing health care facilities in 2005, the High Court of Justice ruled that the government was obligated to release the information.
- Since February 9, 2006, the Health Insurance Review & Assessment service (HIRA) has released the AURI antibiotic prescribing rate of health care facilities that have more than 100 patients on a quarterly basis on HIRA’s website.

**Outcome Variable**

- Antibiotic prescribing rate (APR) for AURI is defined by HIRA
  
  \[
  \text{APR} = \frac{\text{total number of antibiotic prescriptions for patients diagnosed with AURI}}{\text{total number of patients diagnosed with AURI and received a prescription}}
  \]

- Acute Upper Respiratory tract Infection (AURI) covers 7 diagnoses according to Korean Classification of Disease
  - J00 (Acute nasopharyngitis, common cold)
  - J01 (Acute sinusitis)
  - J02 (Acute pharyngitis, diphtheria)
  - J03 (Acute tonsillitis)
  - J04 (Acute laryngitis and tracheitis)
  - J05 (Acute obstructive laryngitis and epiglottitis)
  - J06 (Acute upper respiratory infections of multiple and unspecified sites)

- APR data available for all health care facilities with > 100 patients diagnosed with AURI over a three-month period

**Methods**

1. Interrupted time series analysis

\[
\text{APR}_{it} = \beta_1 + \beta_2 \text{Time}_i + \beta_3 \text{Policy}_i + \beta_4 (\text{Policy}_i \times \text{Time}_i) + \alpha_i + \delta_i + \gamma_i + \epsilon_{it}
\]

2. Quantile regression analysis: allows researchers to estimate the heterogeneous impact on the distributional outcomes by estimating quantile treatment effects (QTE) across the outcome variable distribution.

**Data**

- Publicly released APR datasets between Q1 2004 and Q4 2008 based on National Health Insurance claim data
- Dataset of health care facilities in 2005
- 2005 Census: gender, age structure, occupation, education (Korea National Statistical Office)
- 254,432 observations, 15,669 health care facilities at 249 districts and 16 metropolitan areas or states between Q1 2004 and Q4 2008

**Discussion**

- The Internet-based report cards of APR for AURI is an effective policy intervention to reduce antibiotic prescription in Korea.
- Heterogeneous impact of report cards by type of health care facility, specialty, the level of antibiotic prescribing rate.
- Unintended consequences of the public disclosure: diagnosis code shift