The PHAROS system can contribute to acquiring and managing information on patients with infectious diseases for both usual and pandemic situations.

**Title: Platform for Harmonizing and Accessing Data in Real-time Infectious Disease Surveillance (PHAROS)**

**Background:** Last year, we launched 'PHAROS' system, a national project to develop an OMOP-CDM-based integrated infectious disease data management system in South Korea, therefore, we would like to report our progress over a year.

**Result 1:** Data distribution of Infectious Disease CDM of Ajou University Medical Center

**Result 2:** Performance of the BERT model for the de-identification of clinical notes

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**Result 3:** Applications for visualizing patient information

- **Population-level visualization**: Summaries by gender, age group, infection screening tool, region, and severity are displayed.
- **Individual-level visualization**: All records of the individual are presented, including diagnosis, prescriptions, lab measures, and procedures.
- **Time-series trend prediction**: For predicting trends of infectious symptoms, the PHAROS system use ARIMA and Prophet algorithm.

**Methods**

1. **Vocabulary Mapping**
   - Core infectious disease concept mapping
     - Legal communicable disease code
     - Microbial strains
     - Culture & susceptibility test
     - Travel history
     - Chief complaints (National Emergency Department Information System code)

2. **Automated and daily-based Data ETL**

3. **Deep learning-based data de-identification**

4. **Tools and Applications**

**Conclusion:** The PHAROS system will support healthcare providers’ treatment strategy establishment and policymakers’ quick decision-making to respond to pandemics through the collected information. We are building an infectious disease CDM with the same specifications for three hospitals, and it will be linked to the PHAROS platform.

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