

Current activities in human sector including public awareness

Human AMR surveillance programs in Japan (NESID and JANIS)

Satowa Suzuki

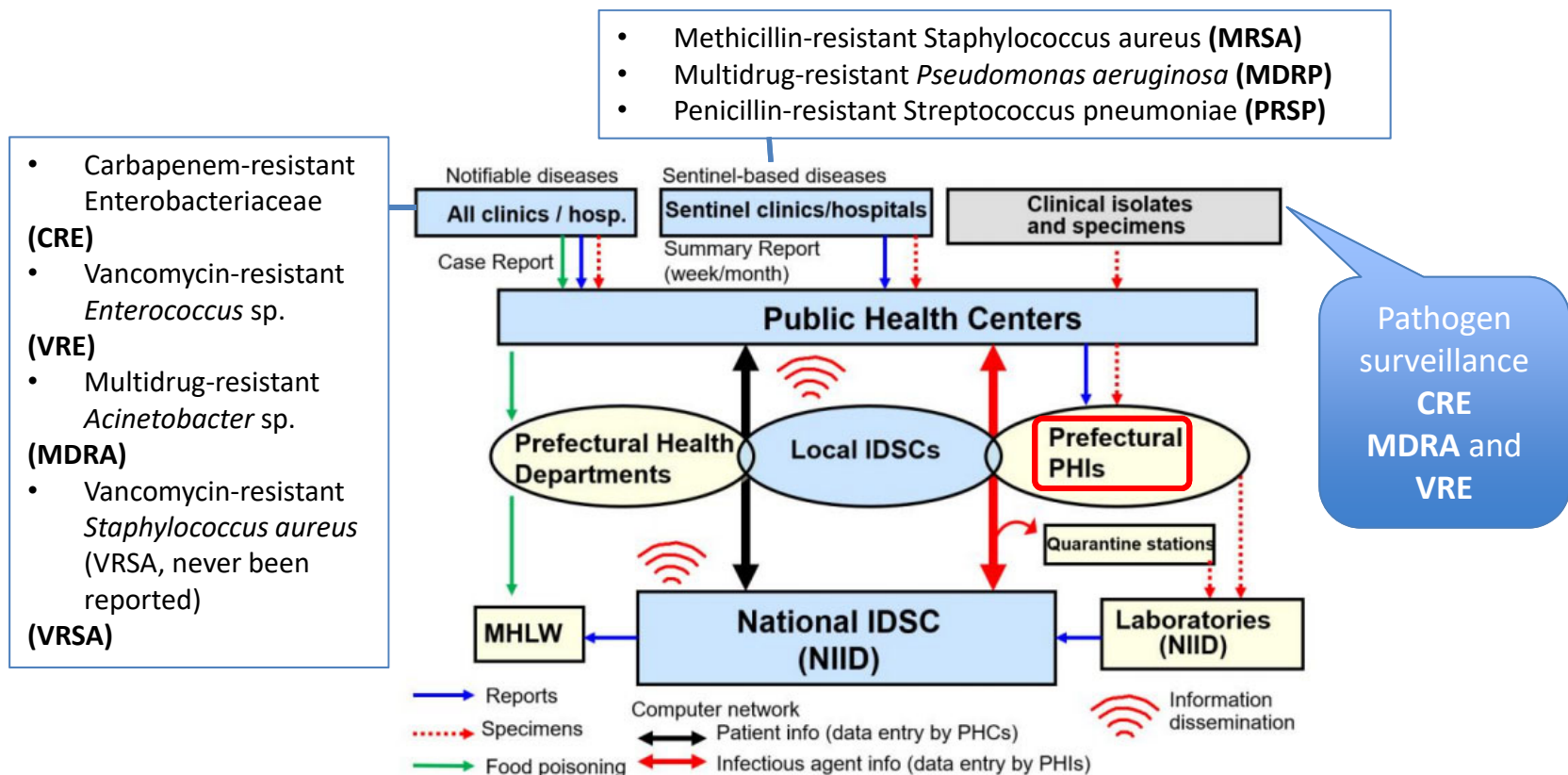
Antimicrobial Resistance Research Center
National Institute of Infectious Diseases,
Japan

Antimicrobial resistance surveillance in Japan

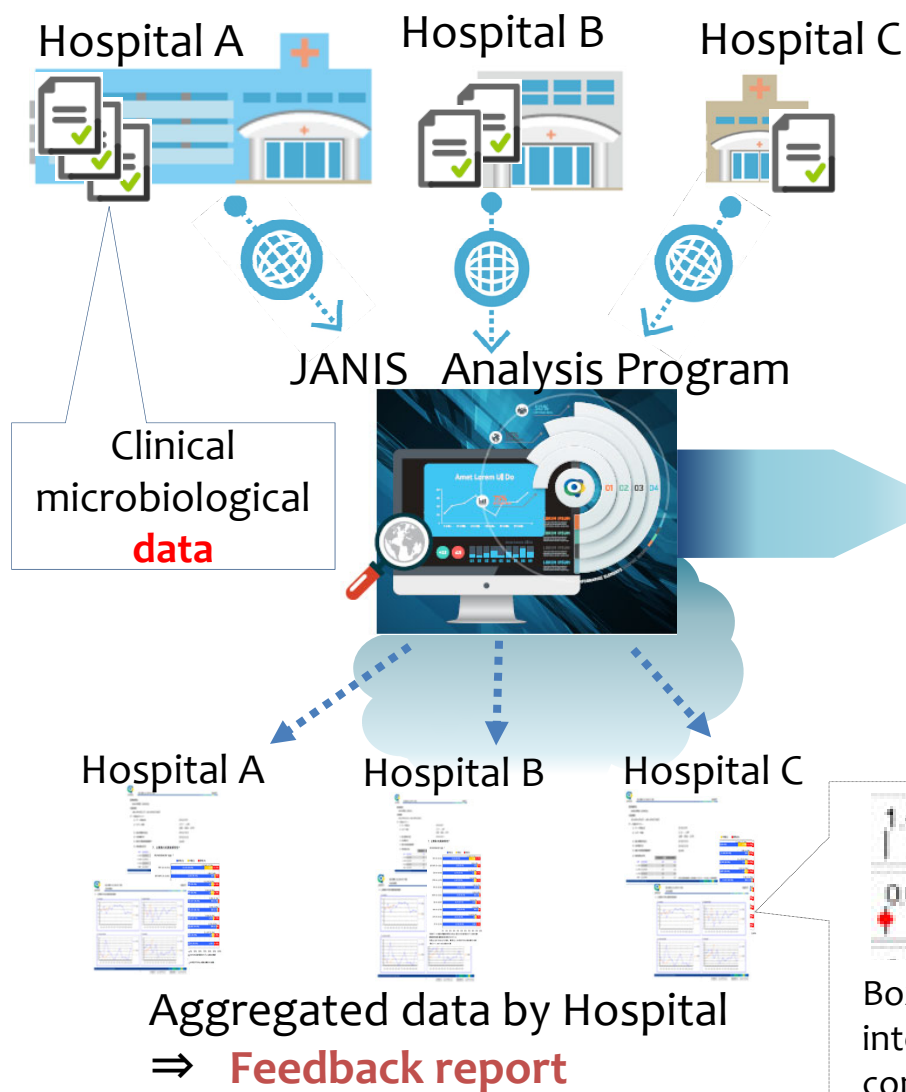
- National Epidemiological Surveillance of Infectious Diseases (NESID)
 - patient reporting
 - pathogen surveillance
- Japan Nosocomial Infections Surveillance (JANIS)
- Antimicrobial Stewardship in Japan

National Epidemiological Surveillance of Infectious Diseases (NESID)

- Based on Infectious Diseases Control Act (Mandatory reporting) for infectious diseases in community (>100 infectious diseases)
- **patient reporting**
- AMR: Symptomatic cases of 7 AMR pathogens
- pathogen surveillance for AMR (Carbapenem resistant Enterobacteriaceae) has been started from 2017

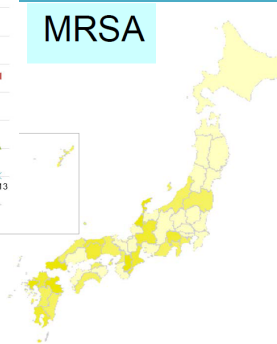
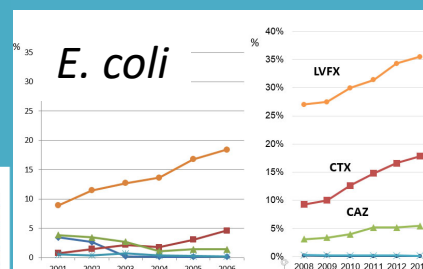
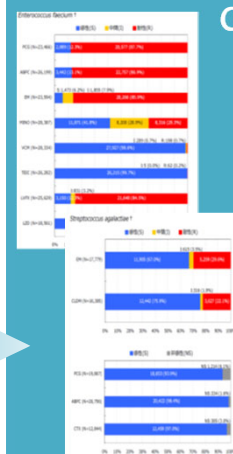


JANIS Clinical Laboratory Division

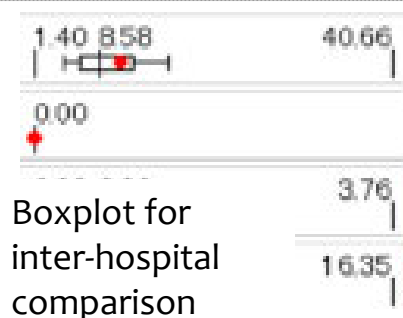


National data

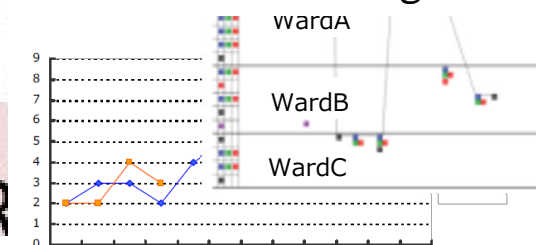
Showing trend and geographical difference of AMR prevalence



Antibiogram for selected bacteria species and antimicrobial agent



Patient-Isolate Tracing tool

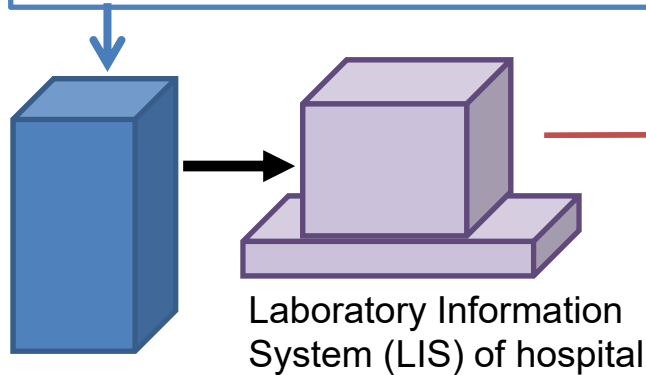


Data submission and Feedback, JANIS Clinical Laboratory Division

Surveillance Site, Hospital Diagnostic labs

<https://janis.mhlw.go.jp/index.asp>

Automated system for bacterial identification and drug susceptibility test



JANIS Data format

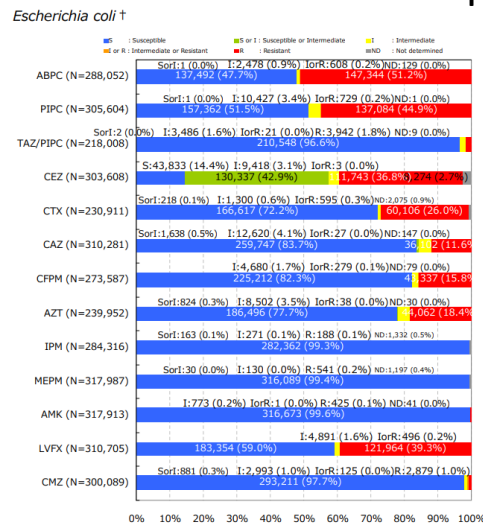
The screenshot shows a table with columns for patient information (e.g., Patient ID, Name, Sex, Age), test results (e.g., Bacterial Identification, Drug Susceptibility), and drug susceptibility (e.g., S, I, R, ND). The data is organized in a structured format for submission to the JANIS website.



Upload to JANIS website

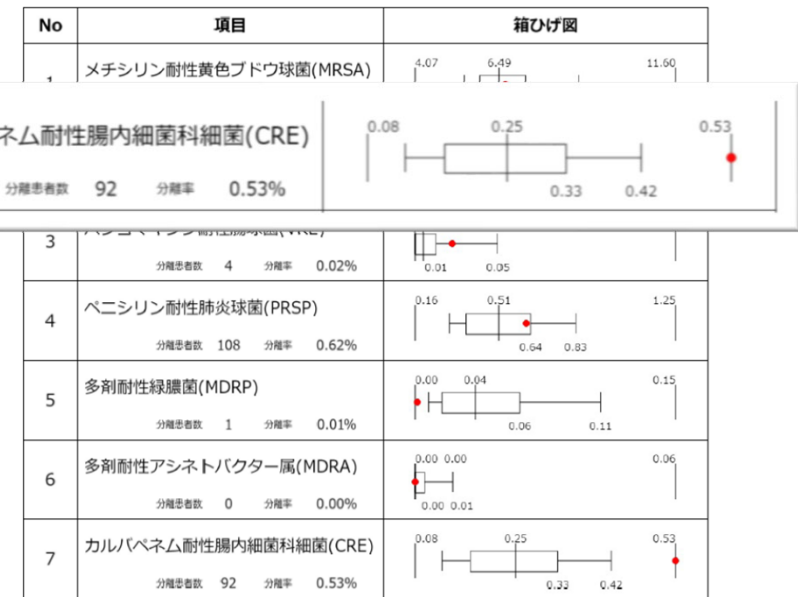
Feedback data

Antimicrobial susceptibility pattern



Evidence for appropriate antimicrobial prescription

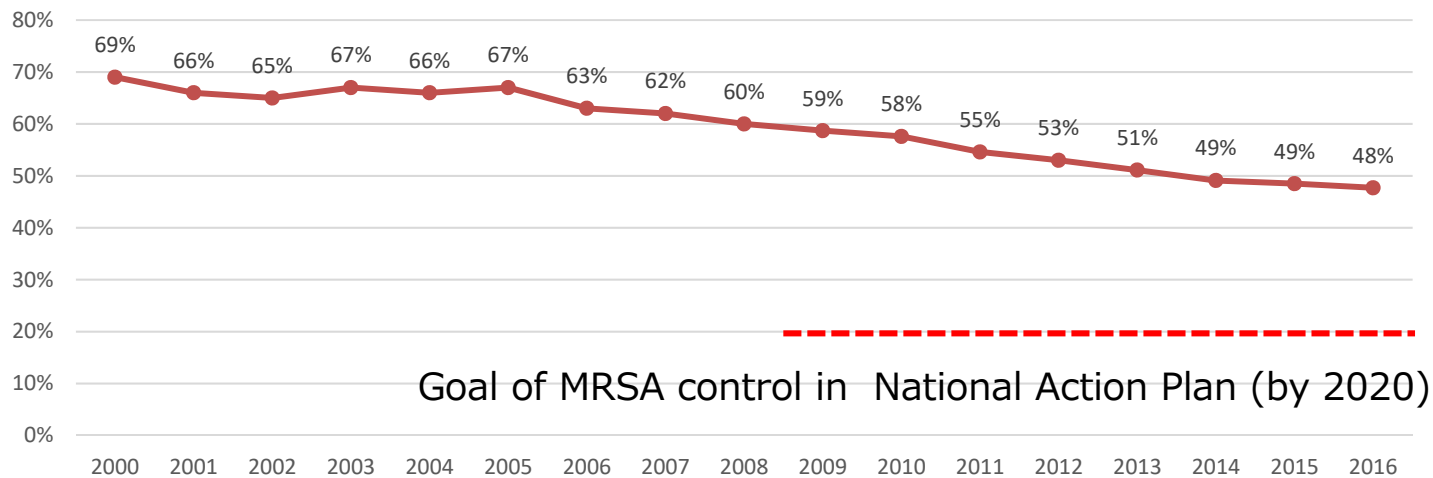
Comparison of 47 prefectures



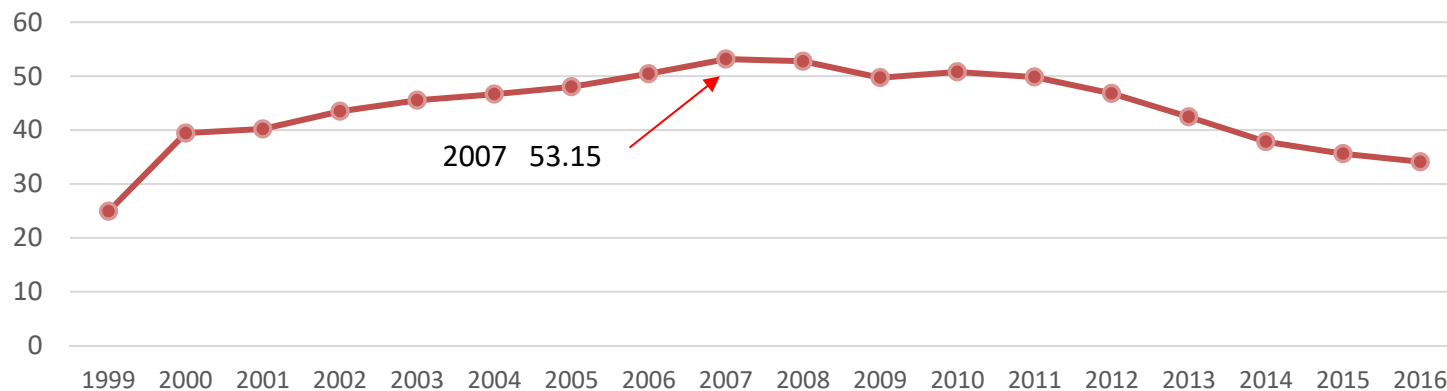
JANIS and NESID-AMR in Human

MRSA: Methicillin-resistant *Staphylococcus aureus*

Proportion of MRSA among *S. aureus* JANIS CL division



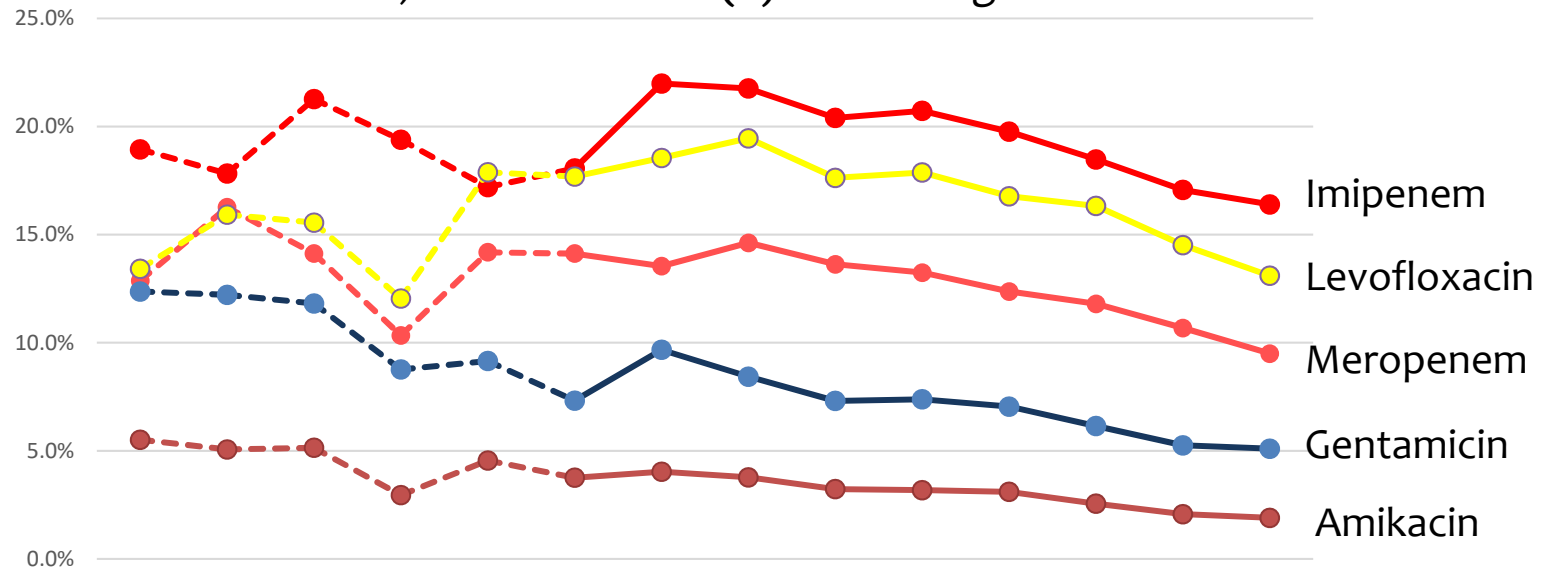
NESID Number of Reported cases of MRSA infection per sentinel site



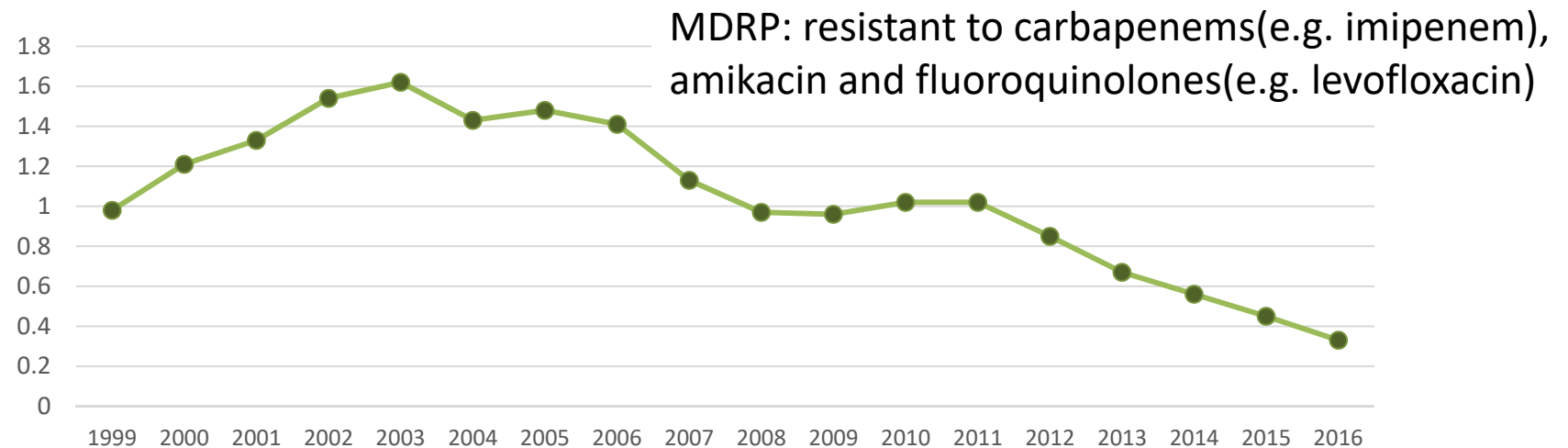
JANIS and NESID-AMR in Human

Multidrug-resistant *Pseudomonas aeruginosa* (MDRP)

JANIS CL division, resistance rate(%) of *P. aeruginosa* to antimicrobials



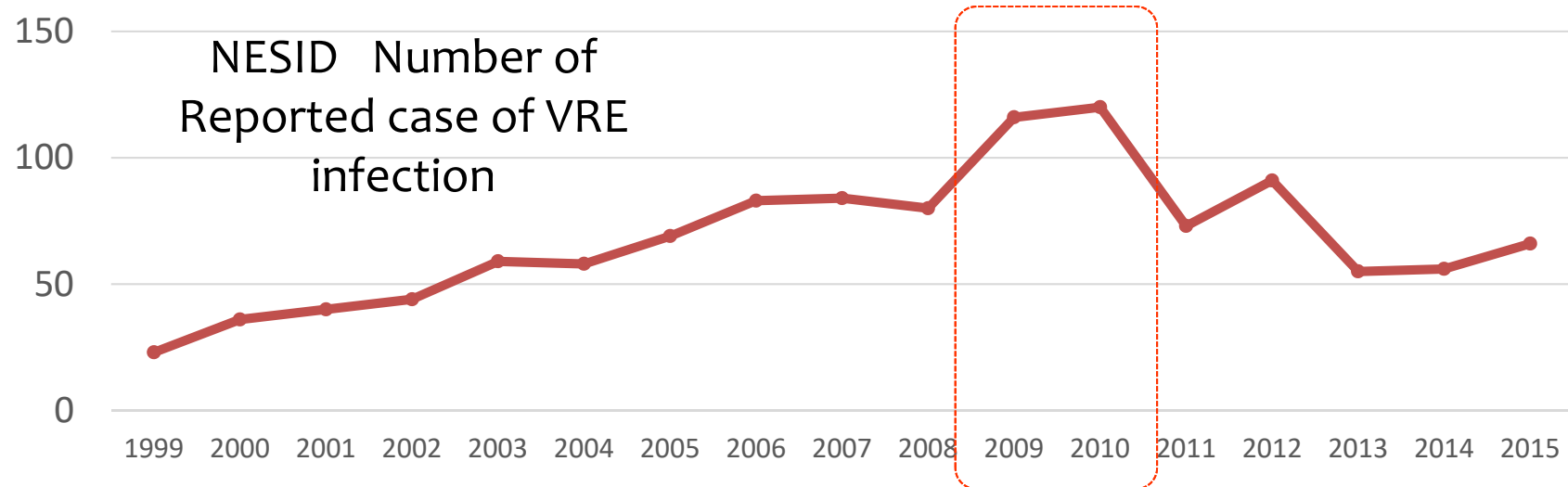
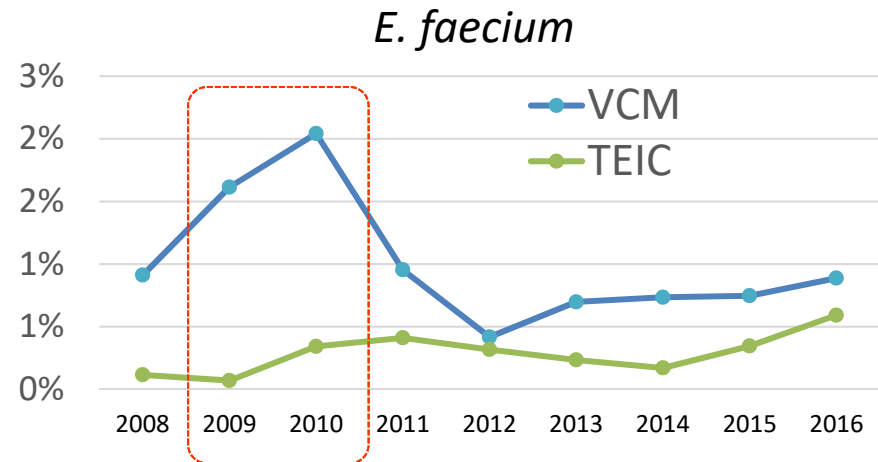
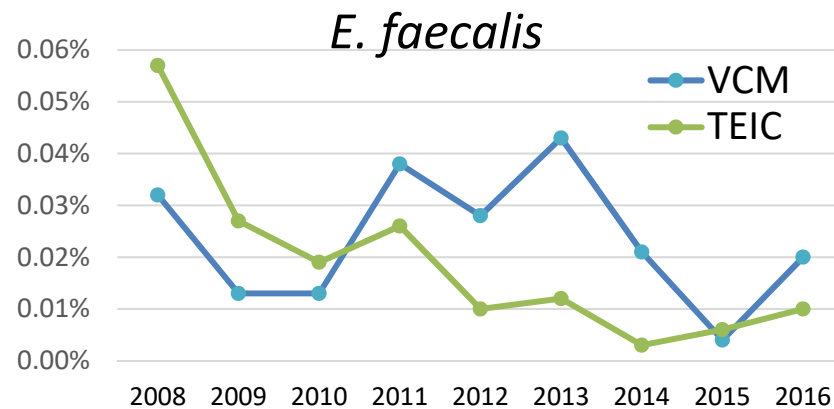
NESID Number of Reported cases of MDRP infection per sentinel site



JANIS and NESID-AMR in Human

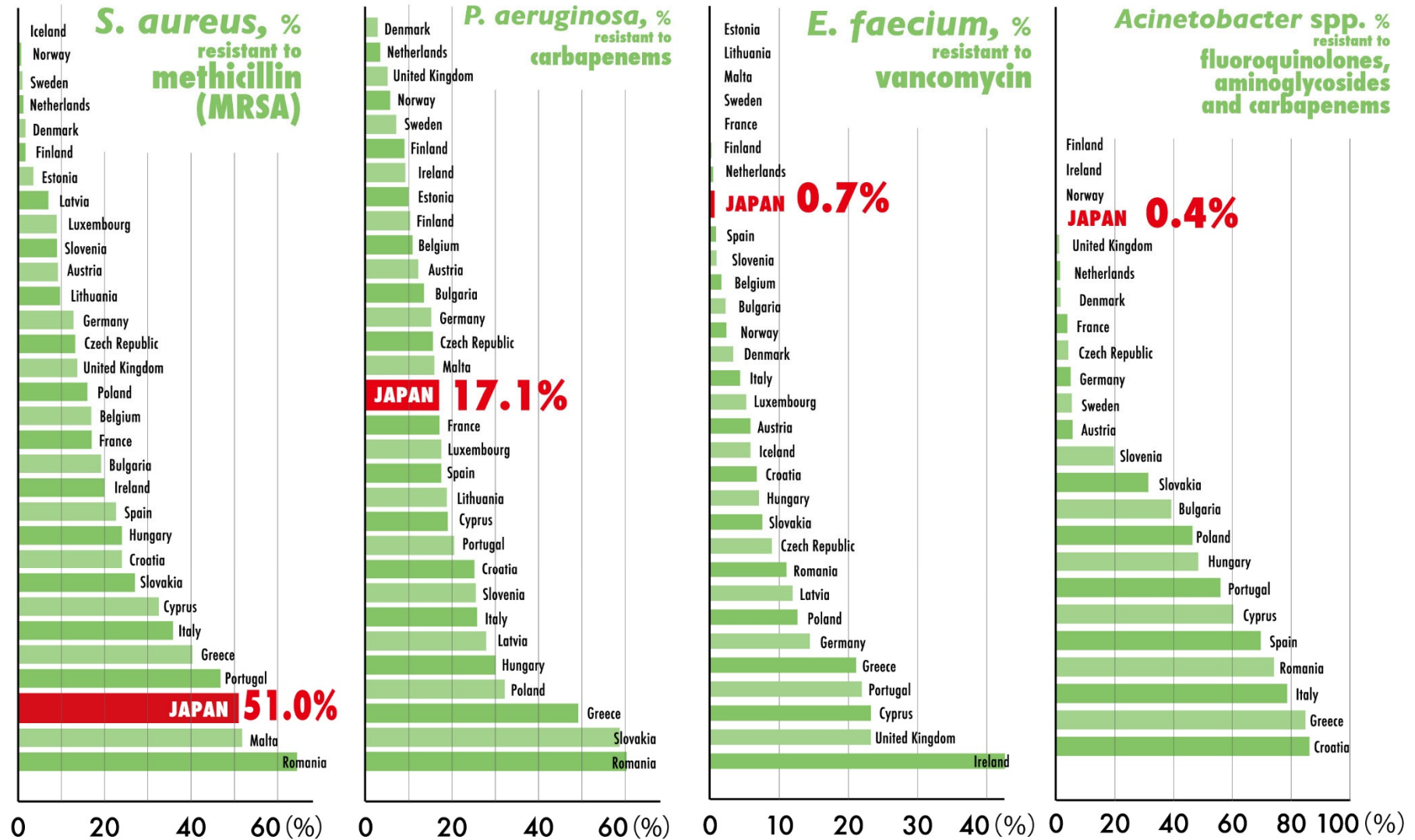
Vancomycin-Resistant Enterococci (VRE)

JANIS CL division, Resistance rate(%) of Enterococci to vancomycin(VCM) and teicoplanin



Nosocomial AMR pathogen

Comparison between EU countries and Japan



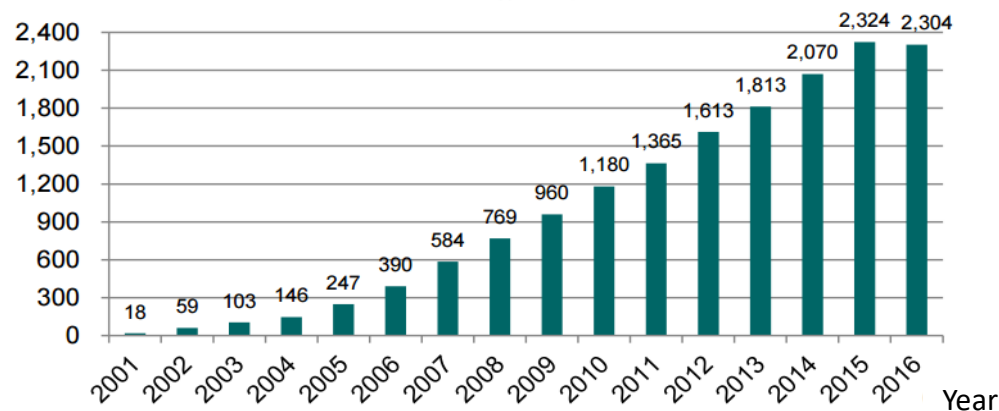
Establishment of hospital infection control in Japan

Table 1. Key events in infection control in Japan

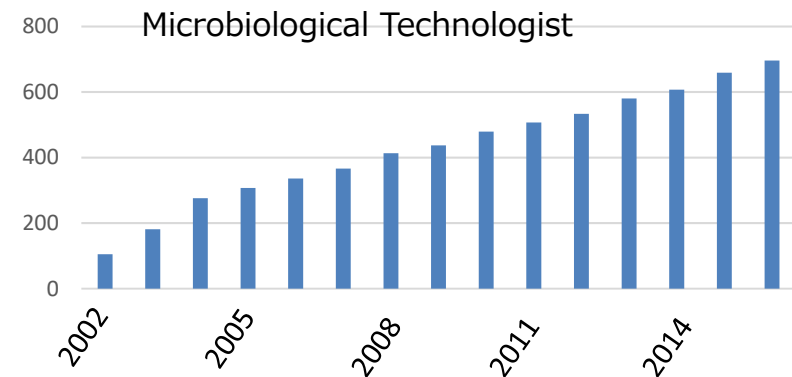
1980s	Increase in the incidence of healthcare-associated MRSA infection	
1986	Founding of JSEI	
1993	Infection control department established at The University of Tokyo Hospital (first in Japan)	
1999	Nationwide surveillance of surgical site infections by JSEI	
2000	Nationwide surveillance of multidrug-resistant organisms by MHLW	
2000	832 MD and PhD staff certified as Infection Control Doctors (ICD)	← JANIS
2001	18 nurses certified as Infection Control Nurses (ICN)	
2004	Mandatory assignment of dedicated infection control personnel at Advanced Treatment Hospitals	
2010	Revision of medical reimbursement system: implementation of additional reimbursement for advanced infection control management	

Morikane, K. J Epidemiol 2012

Number of certified Infection Control Nurse



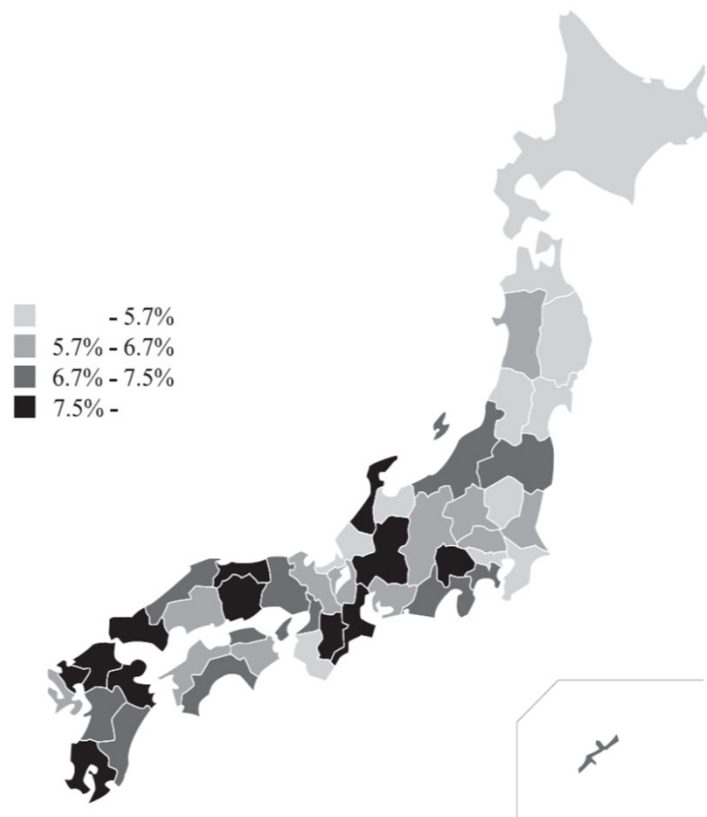
Number of Infection Control



What can we know from AMR surveillance?

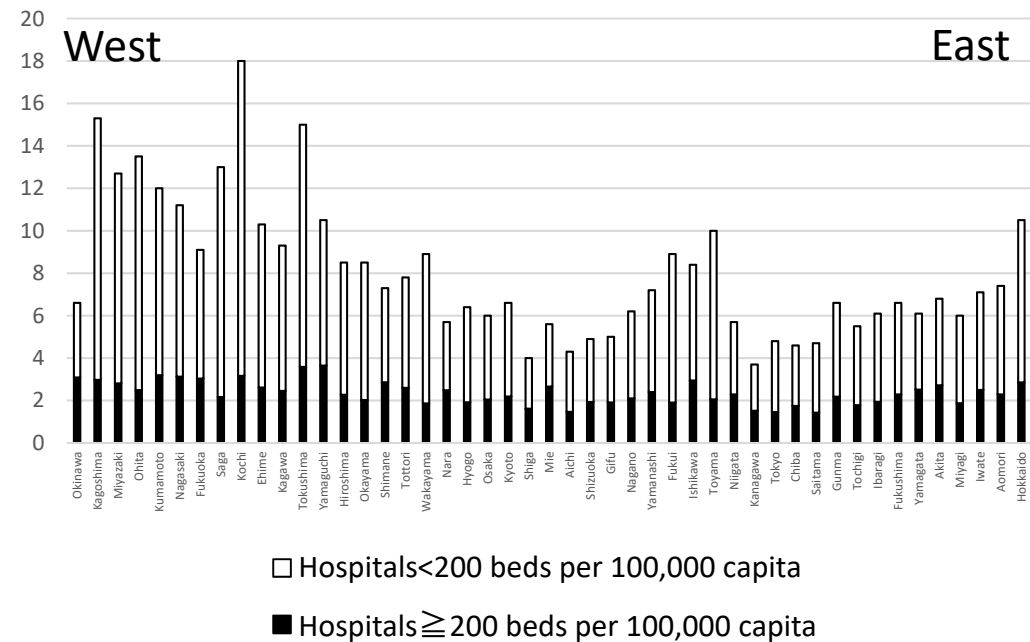
Consider “local factor” in AMR epidemiology

Prevalence of MRSA by prefecture



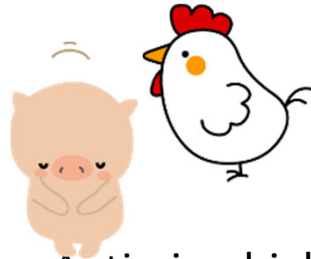
More MRSA in western part of Japan

Number of hospital per 100,000 capita



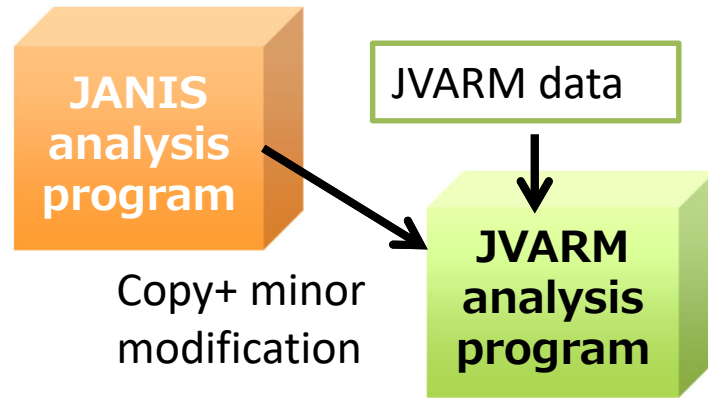
More small hospitals in western part of Japan

JANIS-JVARM integration

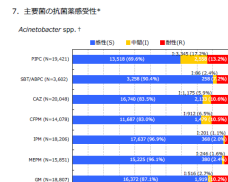


JVARM

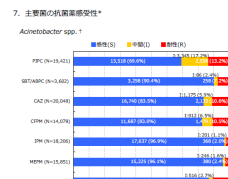
Japanese Veterinary Antimicrobial Resistance Monitoring System



Human
E. coli

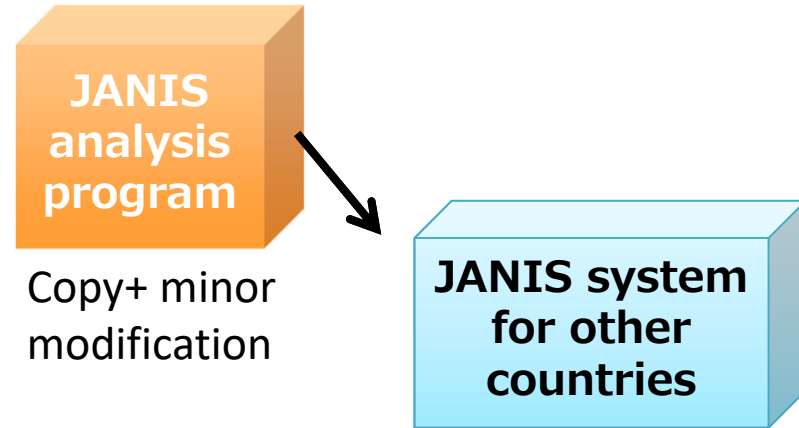


Cattle
E. coli



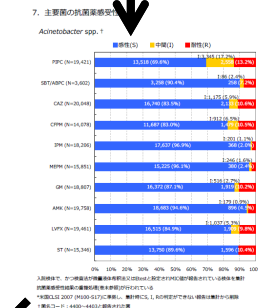
Annual report in same format

International use of JANIS system



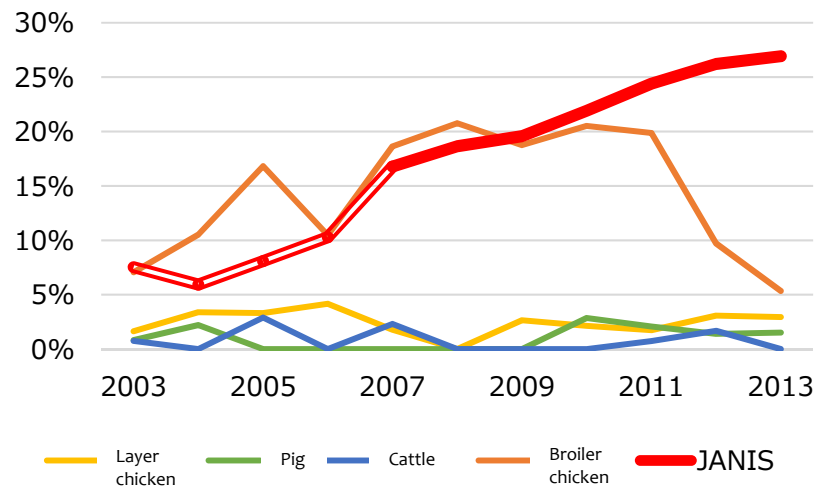
WHONET
output

Hospital data

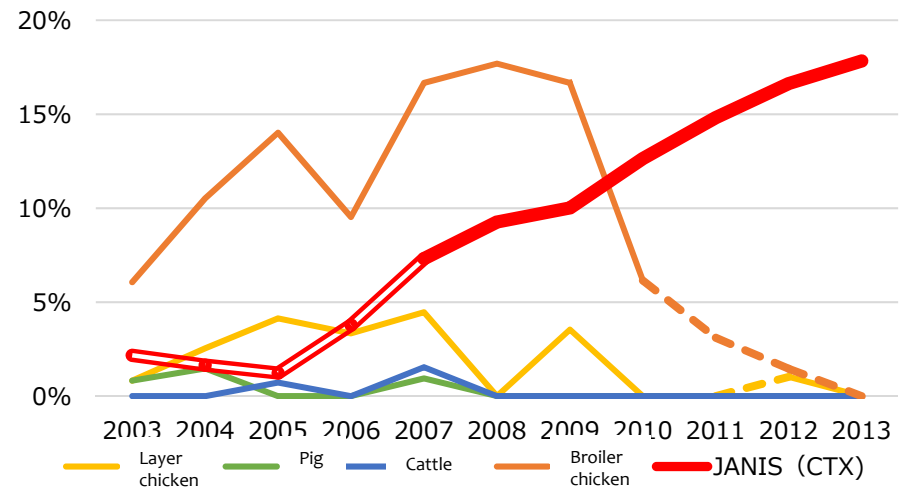


National data
Regional data
Hospital data

Proportion of cefazoline resistance in *E. coli*

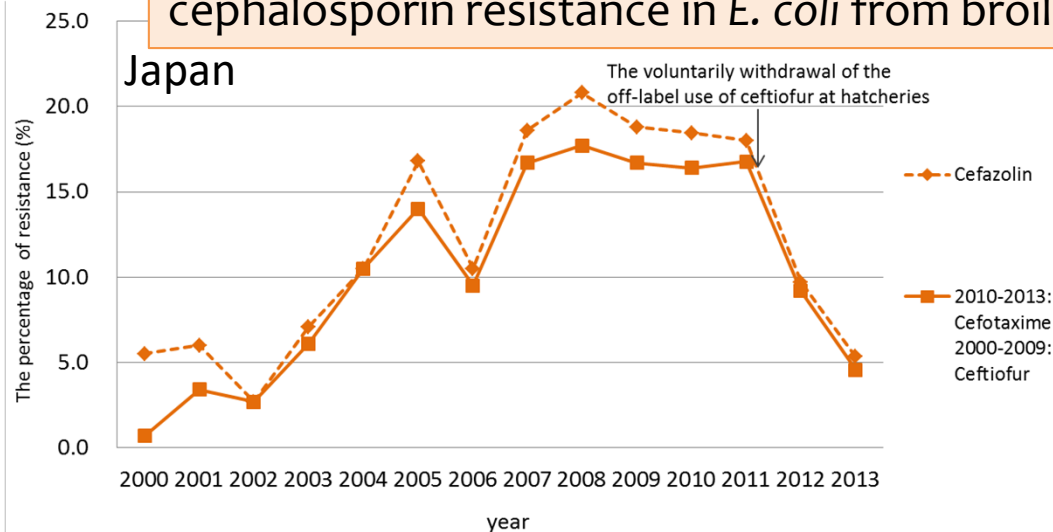


Proportion of ceftiofur(JVARM) /cefotaxime(JANIS) resistance in *E. coli*

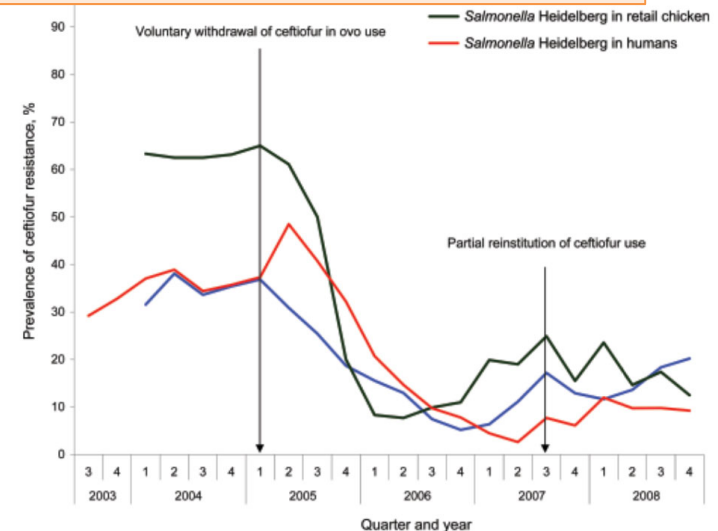


The voluntarily withdrawal of ceftiofur at hatcheries dramatically decreased cephalosporin resistance in *E. coli* from broiler chicken

Japan



Hiki M et al. Foodborne Pathog Dis. 2015 Jul;12(7):639-43.



Emerg Infect Dis. 2010 Jan;16(1):48-54.

NESID-Pathogen surveillance

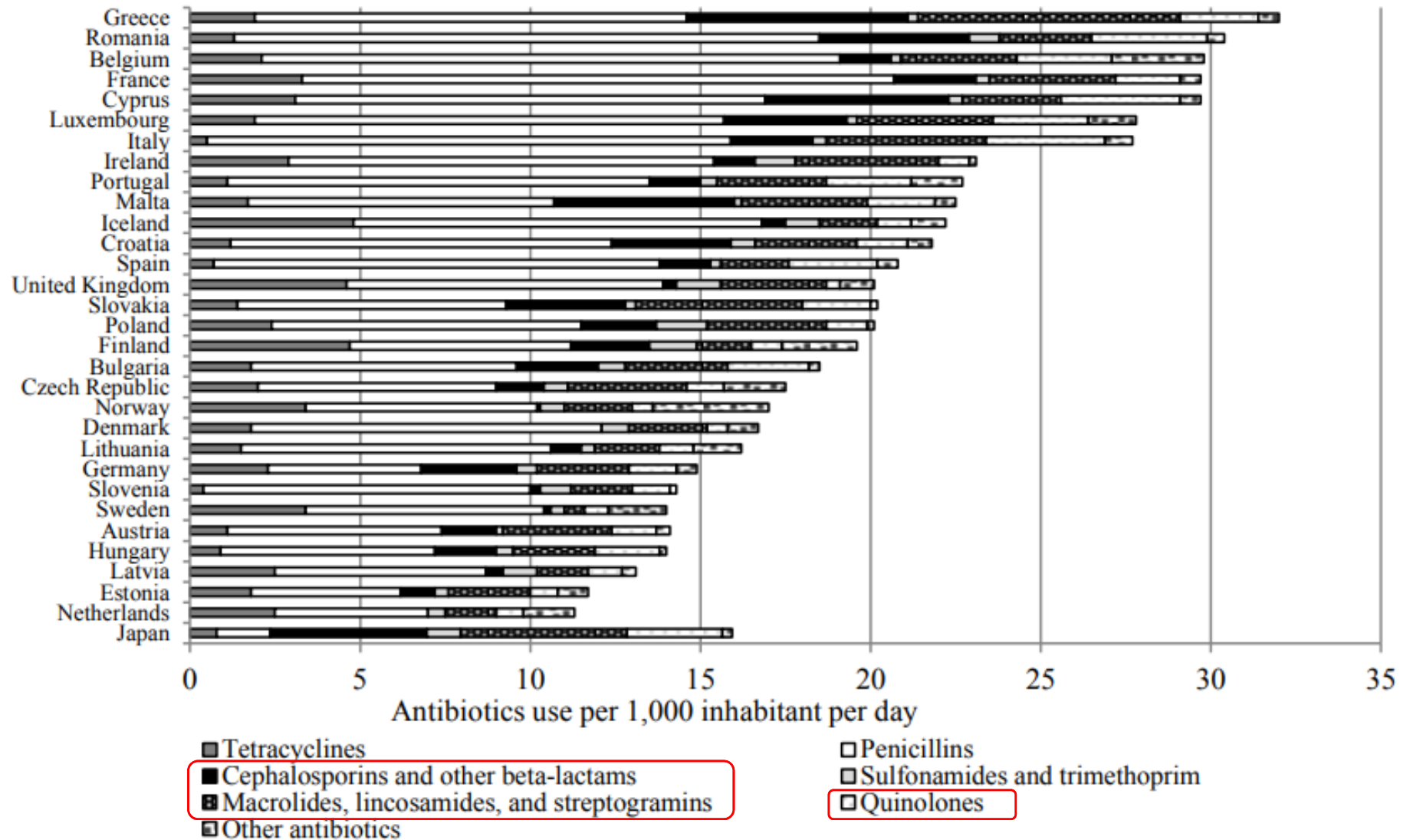
- Started from 2017 for carbapenem-resistant Enterobacteriaceae
- In 2017, 1660 CRE cases were reported and 865 isolates from those cases were tested for carbapenemase genes at public health laboratories in prefectures.



- AMR training course for public health laboratories.
 - Antimicrobial susceptibility testing, differentiation of β -lactamases by phenotype and genotype...
 - Standardized methods
 - In 2018, 78 participants (4 courses)
 - Providing training materials and control (DNA and strains)

Antimicrobial Steward Ship

Figure 0.1. Comparison of antibiotic use for humans in EU countries and Japan³



90% of the prescription was for outpatients

Public awareness activities by AMR Clinical Reference Center



Do you know about antibiotic resistance, which makes antibiotics ineffective?

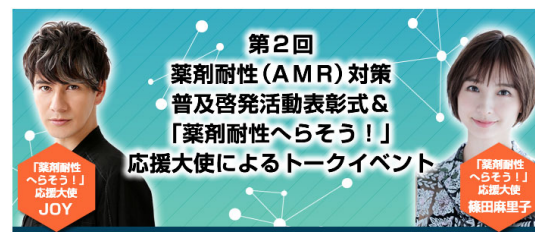


November is Antibiotic Awareness Month Cabinet Secretariat



Commendation for excellent AMR public awareness activities

Famous TV stars are appointed to “AMR containment ambassador”



イベント概要

イベント名 第2回薬剤耐性 (AMR) 対策普及啓発活動表彰式及び「薬剤耐性へらそう!」応援大使によるトークイベント



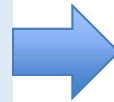
受賞者の皆様を囲んで



Antimicrobial Stewardship and Medical Reimbursement

For Inpatients

Organizing Antimicrobial Stewardship Team



1000 JPY/ admission

For Out patients (pediatric)

To inform the reason of not to prescribe antimicrobial drug



800 JPY/ First visit of patient