FDA Science Board Review of the National Antimicrobial Resistance Monitoring System

Introduction

The National Antimicrobial Resistance Monitoring System (NARMS) is a national collaborative network of the FDA, CDC, USDA and public health laboratories in all 50 states. The system was developed to monitor changes in antibiotic resistance in zoonotic bacteria from animals, retail meats, and humans. NARMS began in 1996 and has evolved over the last two decades growing in stature, awareness, and importance. It has undergone a series of changes and improvements based on continuous challenges at the interface of human and animal health and the need to assess and monitor the occurrence of antimicrobial resistance in bacteria from animals, foods, and humans.

A subcommittee of the FDA Science Board (SB) reviewed (NARMS) in 2007. At that time, the charge to the SB was to address four questions relevant to the continued success of the program.

1. Are there inherit biases in the sampling strategies employed in NARMS? If so, how can they be improved to ensure that the data and interpretation are scientifically sound given current resources?
2. Are there epidemiological and/or microbiological research studies that would better serve the goals of NARMS and the regulatory work of FDA?
3. Are current plans for data harmonization and reporting appropriate? If not, what are the top priorities for advancing harmonized reporting?
4. Are the current NARMS international activities adequate to address the worldwide spread of antimicrobial-resistant food-borne bacteria?

The NARMS program has incorporated many of the recommendations from this 2007 review. Much has changed since then, including the visibility of antibiotic resistance as a major global health challenge, the publication of a U.S National Strategy to Combat Antimicrobial Resistant Bacteria, and rapid changes in laboratory technologies. The FDA, USDA and CDC partners in NARMS agree that a new Science Board review of NARMS is appropriate. We offer three questions for consideration:

1. NARMS is focused on specific commodities and sampling intervals. Could changes to sampling strategies improve our understanding of resistance dynamics within a One Health paradigm?
2. FDA publishes annual antimicrobial sales and resistance data. Is our analysis and presentation of these data adequate? What is the best way to report relationships between antimicrobial sales data and antimicrobial resistance in our national surveillance?
3. NARMS now does whole genome sequencing as a routine part of surveillance. What is the best way to report whole genome sequence data, and trends in the resistome?

We would like to share the results of this review at our next NARMS public meeting in September 2017.