U.S. FOOD & DRUG ADMINISTRATION

Diagnostic (AMR) Update

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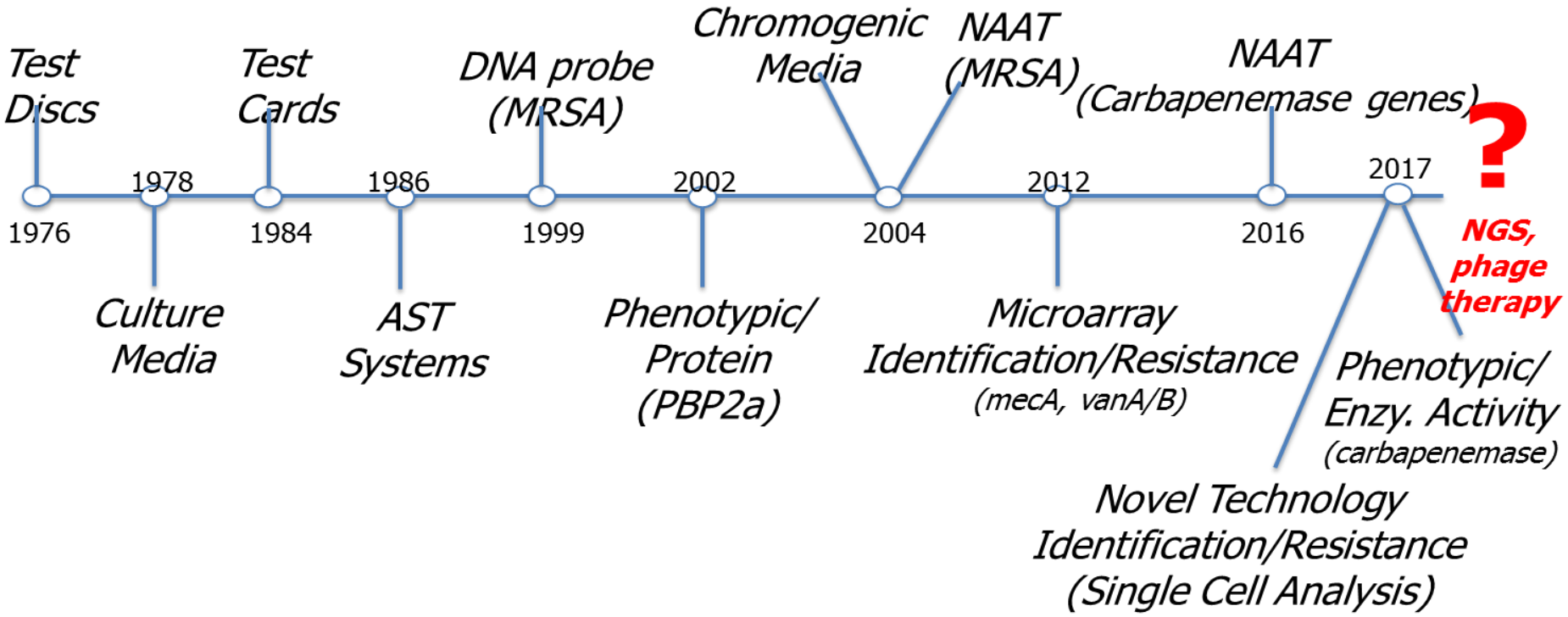
Timeline of AMR Tests (FDA)



Antimicrobial Stewardship (1)

- First biomarker clearance (procalcitonin) to aid clinicians regarding the initiation of antibiotics (outpatient) and discontinuation of antibiotics (inpatient)
  - Follows FDA Panel meeting late last year
  - Very active area of device development and clinical studies
  - Still remains challenging area for clinical validation
- Clearance of Accelerate PhenoTest BC Kit earlier this year
  - First new-technology phenotypic susceptibility devices

Antimicrobial Stewardship (2)

- Clearance of CRE molecular detection device for infection control and bacterial cultures (2016)
- Ongoing development of multiplex devices that include AMR markers

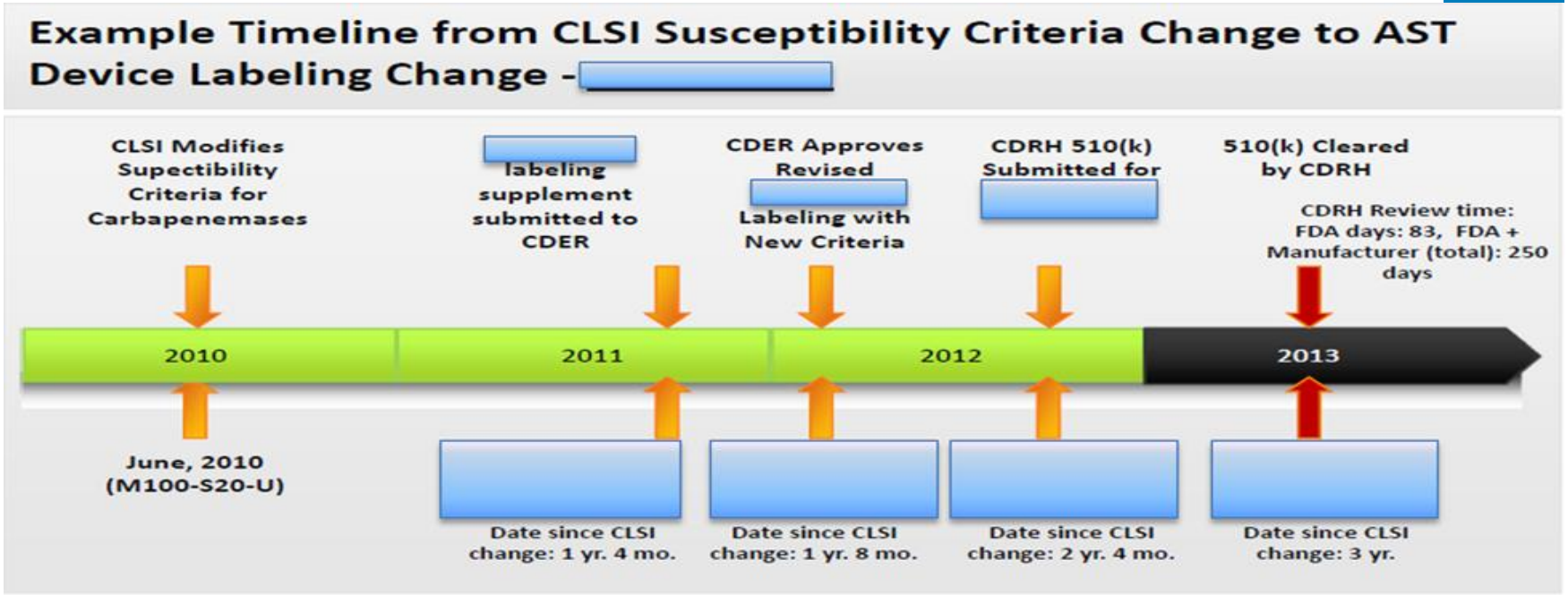
Device Development (1)

- Continued support for the FDA-CDC Antimicrobial Resistance Isolate Bank
  - Initiated 2015
  - Likely much more from Dr. Patel ☺
- Continued development of FDA-ARGOS
- September, 2017 workshop on "Antimicrobial Susceptibility and Resistance: Addressing Challenges of Diagnostic Devices"
  - Guidance revision and FAQ document under discussion (will be addressed again)
- Presidential Advisory Council on Combating Antibiotic-Resistance Bacteria
- AMR Prize

Device Development (2)

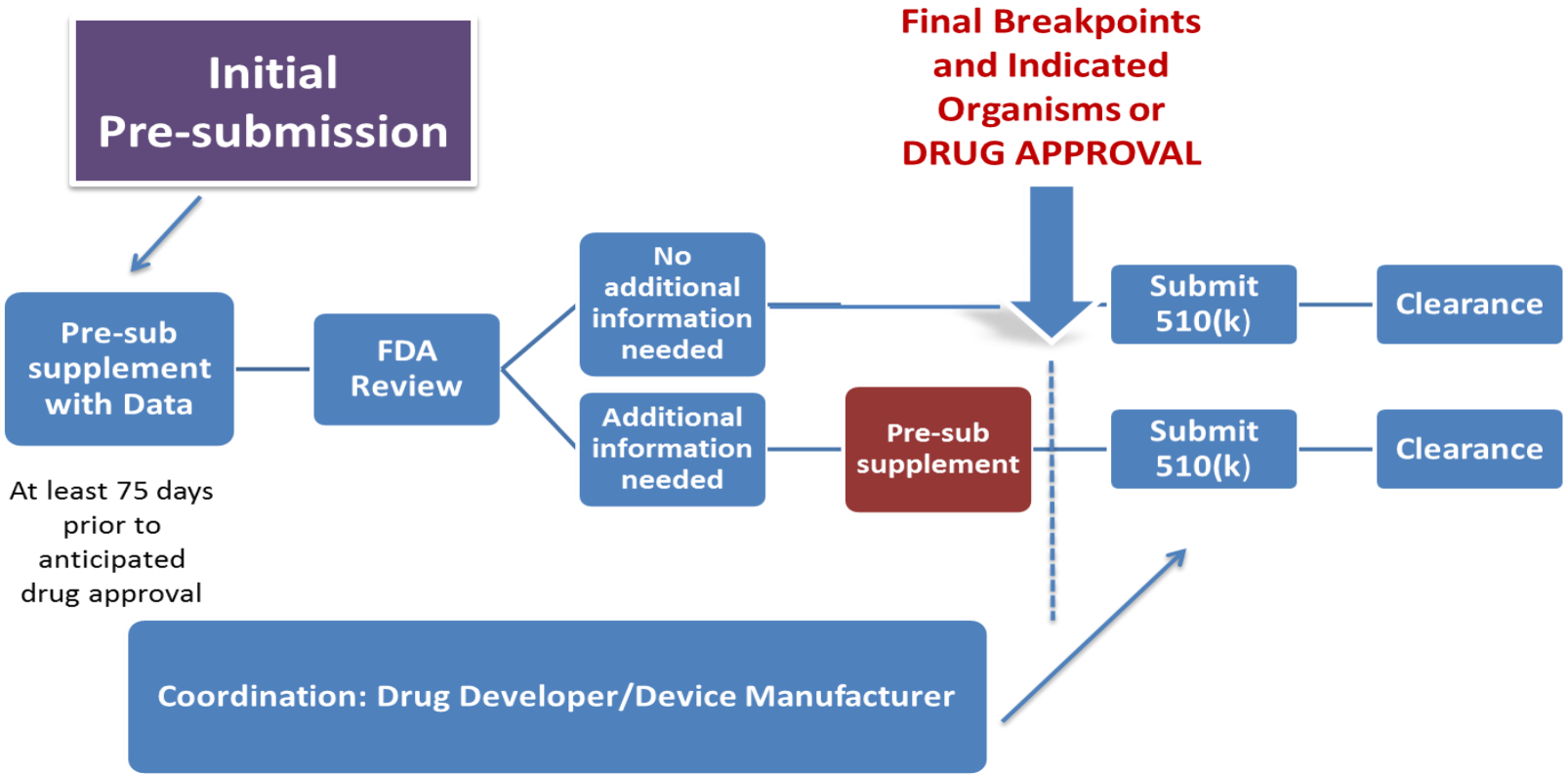
- Support for new semantic interoperability standard for communicating device coding (LIVD) and for standardized Microbiology coding of laboratory tests (with CDC, NLM, ONC, other partners)
  - Contract with Regenstrief Institute for Microbiology Coding standards
  - Value set workshop anticipated for January, 2018
- New 'breakthrough pathway' for devices

Prior to 21st Century Cures



CLSI published revised susceptibility criteria for Carbapenem antibiotics in June, 2010 (M100-S20-U). The timeline reflects approximate milestone dates for CDER labeling change submission, CDER approval, CDRH 510(k) device submission, and CDRH 510(k) device clearance. Durations are also approximate.

Example Coordinated Pathway



Coordinated Development (2)

- Addresses delays in getting AST devices available near or proximate to drug approvals
- FDA draft guidance published September 2016, final 'shortly'
- Nine pre-submissions
- Recent drug with three AST devices within 44 days of approval
- More recent drug where AST device available before commercial shipping

Ongoing Issues for AST Device Development

- Fresh specimens for documenting performance: how many and how long...
- 'Lumpers' versus 'splitters': can classes for grouped for AST device development, i.e., each claimed species or Enterobacteriaceae
- Reference method variability for phenotypic AST devices (EA vs. CA)
- Appropriate reference method for genotypic devices

Ongoing Issues for AST Device Development (2)

- Appropriate comparator methods for polymicrobial specimens
  - Association of resistance markers with identified organisms
- ‘Quantifying’ bacterial load
- How to report information to clinicians
- Incorporating post-marketing information

Thank you.

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