Surveillance of Foodborne AMR in China

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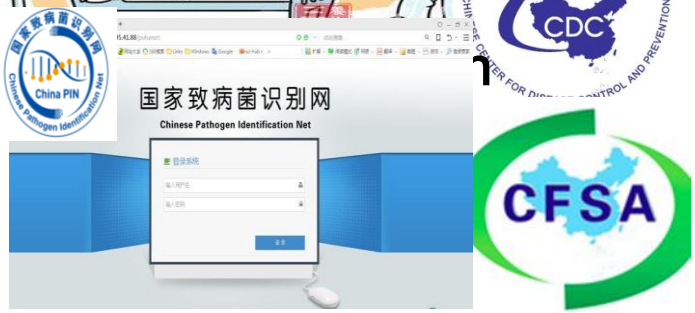
China National Centre for Food Safety Risk Assessment

AMR Surveillance Networks in China



AMR Surveillance in Food

MOA

全国细菌耐药监测网 CARSS China Antimicrobial Resistance Surveillance System

Hospital information

Total: 1427

Reporting:1338

Data available:1143

Bacteria information

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2014

Beijing
Tianjin
Hebei

全国细菌耐药监测网 CARSS China Antimicrobial Resistance Surveillance System

2015 年全国细菌耐药监测报告

Specimens

- Septic specimens: blood, urine, ncurolymph, bone-marrow, hydrothorax, ascites, puncture fluid,tissues, etc.
- Others: sputum, fecaes, pharyngeal swabs etc.

Targeted bacteria and antimicrobial agents monitored mandatorily

Bacteria	Antimicrobial agents
Staphylococcus	Penicillin, cefoxitin (or benzimidazole), erythromycin, Clindamycin
Streptococcus pneumonia:	Penicillin, vancomycin, ceftriaxone (or cefotaxime), meropenem
β-hemolytic streptococcus:	erythromycin, Clindamycin
Streptococcus viridans:	Penicillin (ampicillin)
Enterococcus	Penicillin (or ampicillin), gentamicin (high concentration) or Streptomyces(high concentration)
Haemophilus influenza	Ampicillin, SMZco
Enterobacteriaceae (E coli,Klebsiella, Proteus,Enterobacter,Bacillus citrate, Serratia)	Ampicillin, Cefazolin, gentamicin (or tobramycin)
Enterobacteriaceae (Salmonella, Shigella)	Ammonia-ampicillin, ceftriaxone (or cefotaxime), levofloxacin
Pseudomonas aeruginosa	Piperacillin/Tazobactam, ceftazidime, gentamicin (or tobramycin)
Acinetobacter	Ampicillin/Sulbactam, ceftazidime, Imipenem (or Mei Luo pei)South, Niepenand), gentamicin (or tobramycin)
Maltophilia Maltophilia	SMZco
Burkholderia cepacia	SMZco, Meropenem, levofloxacin

Strains Isolated from CARSS in 2015

S. aureus 223758 (32.2 %)

S. epidermidis 88593 (12.8%)

Enterococcus faecalis 67432 (9.7%)

S. pneumoniae 64791 (9.3%)

Enterococcus faecium 61961 (8.9%)

Top 5 Gram Positive

E.coli 510 140 (29.9%)

Klebsiella pneumoniae 336829 (19.8%)

Pseudomonas aeruginosa 219630 (12.9%)

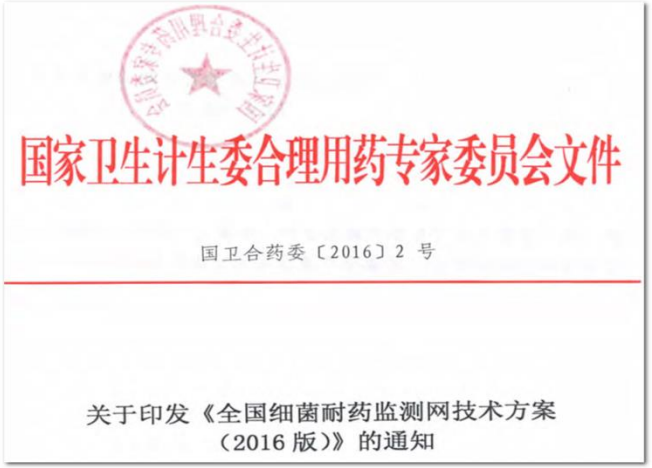
Baumanii 183178 (10.7%)

Enterobacter cloacae 73136 (4.3%)

Top 5 Gram Negative

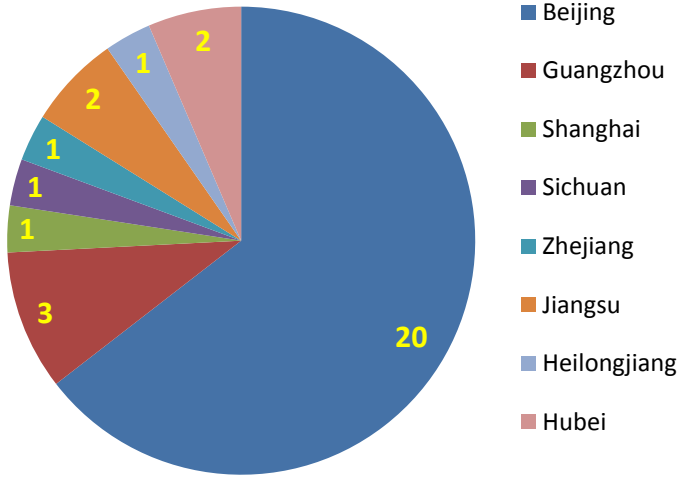
National Health and Family Planning Commission

- Experts Committee on Clinical Application of Antimicrobial Agents and Evaluation of Antimicrobial Resistance of NHFPC was established on Jan 4, 2017.
- 31 doctors involved


国家卫生计生委合理用药专家委员会文件

国卫合药委〔2016〕2 号

关于印发《全国细菌耐药监测网技术方案（2016 版）》的通知



Responsibilities

- To study on relationship between prescription of antibiotics and AMR , and put forward policy recommendations.
- To make a comprehensive evaluation of antimicrobial agents used in prevention and infection treatment;
- To study on prescription of antibiotics , AMR situation, the spectrum of infectious diseases, economic and social impact of the growing threat of multi-drug resistance and puts forward some suggestions .
- To complete other work in relation to AMR designated by NHFPC.

政务版 服务版 繁体版 English Русский 日本語 한국어 2017年11月23日 星期四 农历十月初六 下月7日大雪 公务员邮箱 邮件订阅

中华人民共和国农业部
Ministry of Agriculture of the People's Republic of China

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动物源病原菌耐药性数据库系统

管理级用户登录 | 监控级用户登录 | 公众级用户登录 | 联系我们

我国的动物源细菌耐药性已十分严重，令人忧心是，“细菌耐药性!—用药量/用药种类!—细菌耐药性!!”这种现象还在循环上演。迫切需要开展动物源细菌耐药性监测，掌握其本底和变迁数据，以评估动物源细菌耐药性产生与传播的风险，指导养殖业合理使用抗生素。

我国科研人员开展相关研究，农业部2008年启动了动物源细菌耐药性监测计划，已获得了大量有价值的耐药性数据。在国家科技支撑计划项目（项目编号：2012BAK01B00）和公益性行业（农业）科研专项（项目编号：201203040）的资助下，建设完善了动物源病原菌耐药性监测数据平台，支持耐药性监测数据的采集、统计、分析与应用。

本系统采集了从2001年到2014年的动物源病原菌药敏实验数据66多万条和监测工作专家辅助，具有判定、统计耐药性，对比分析耐药情况和趋势、用药建议等功能，为药政部门、食品安全监管部门、疾病预防控制中心、动物疾病预防控制中心、养殖企业、制药企业、科研院所等提供了基础数据支撑和应用指导。

管理级用户登录

用户名：

密　码：

验证码：

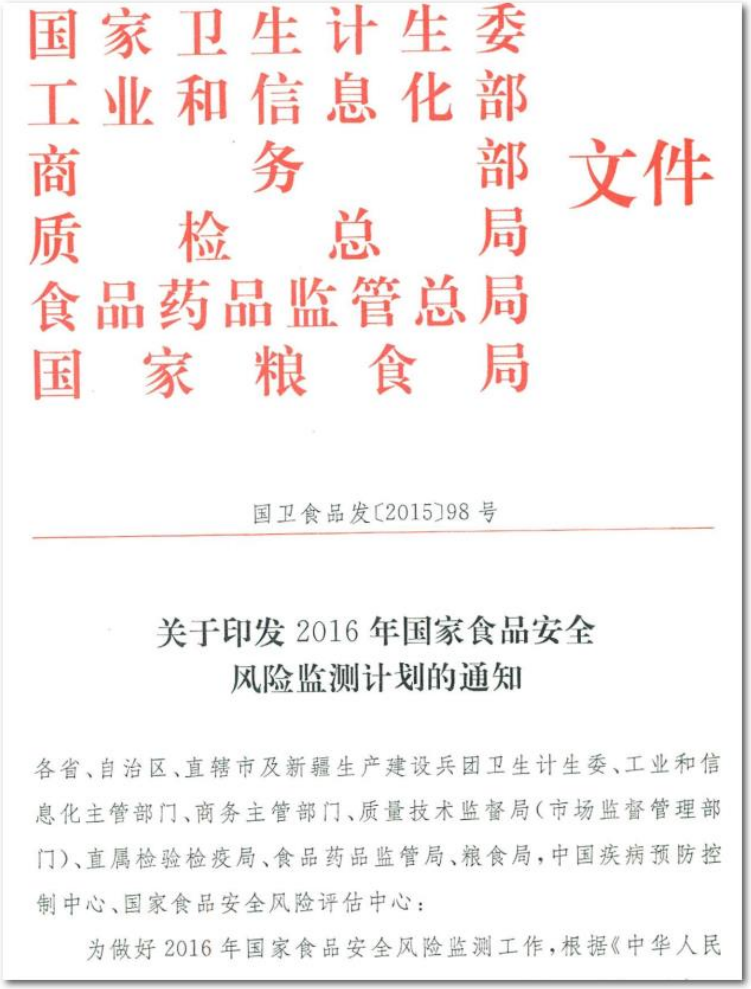
2061 看不清，换一个

登 录

China National Food Safety Risk Surveillance Plan

Released by

- NHFPC
- Ministry of Industry and Information Technology
- Ministry of Commerce
- General Administration of Quality Supervision , Inspection Quarantine
- China Food and Drug Administration
- State Administration of Grains



国家卫生计生委
工业和信息化部
商务部
质检总局
食品药品监管总局
国家粮食局

文件

国卫食品发〔2015〕98号

关于印发2016年国家食品安全风险监测计划的通知

各省、自治区、直辖市及新疆生产建设兵团卫生计生委、工业和信息化主管部门、商务主管部门、质量技术监督局（市场监督管理部门）、直属检验检疫局、食品药品监管局、粮食局，中国疾病预防控制中心、国家食品安全风险评估中心：

为做好2016年国家食品安全风险监测工作，根据《中华人民

Roles of CFSA in Surveillance

- Plan development,
- Training of local professionals on sampling and analytical methods,
- Quality control,
- Data compilation and analysis, and
- Report preparation for NHFPC.

Bacteria Monitored in Foods

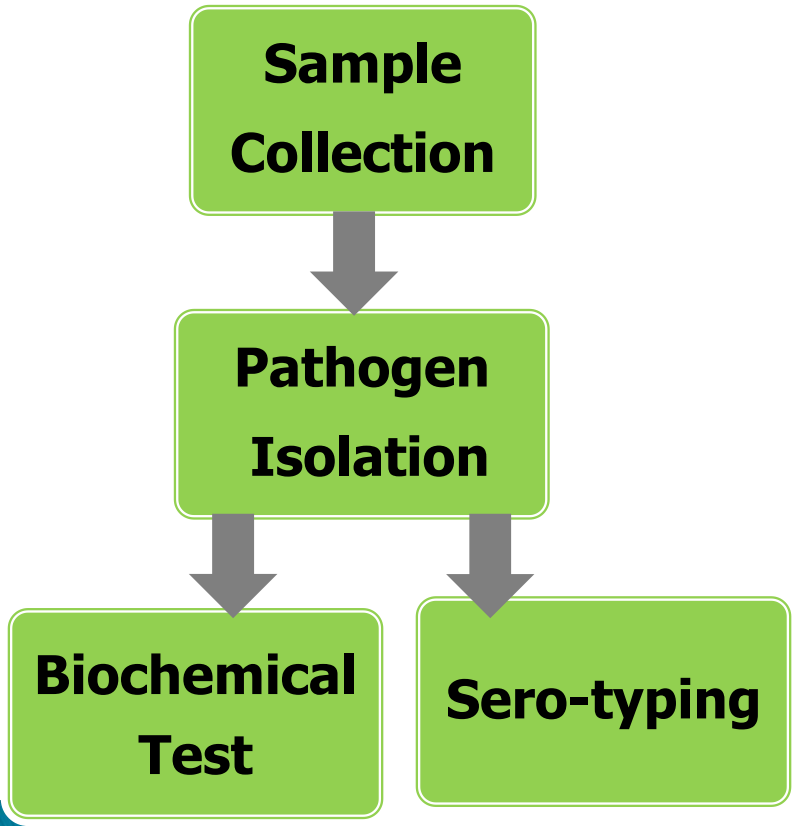
- Foods for special dietary uses
- Meat and meat products (raw meat, animal blood-based products)
- Aquatic products (bivalve)
- Food and beverage (cooked rice products, Chinese salad, sushi),
- Food processing monitoring (meat and meat products, milk and dairy products, frozen drinks)

- *Staphylococcus aureus*
- *Salmonella*
- Pathogenic *E. coli*
- *Listeria monocytogenes*
- *Cronobacter*
- *Pseudomonas aeruginosa*
- *Vibrio parahaemolyticus*
- *Campylobacter*
- *V. cholera*e

Foods Monitored in 2017

Bacteria Detected in 2017

Foodborne Pathogens Isolation and Characterization



- Further Confirmation
- Antimicrobial Susceptibility Testing (AST)
- Genetic Characterization
  WGS, PFGE, MLST, MLVA
- MALDI-TOF-MS
- Virulence gene detection
- ……

6000-10000 strains annually

Targeted Surveillance

Chicken meats-*Salmonella,*

Chicken meats-*Campylobacter*

Aquatic products -*Vibrio parahaemolyticus*

RTE meat-*Listeria monocytogenes*

Infant formula-*Bacillus cereus*

Further characterization for pathogens obtained

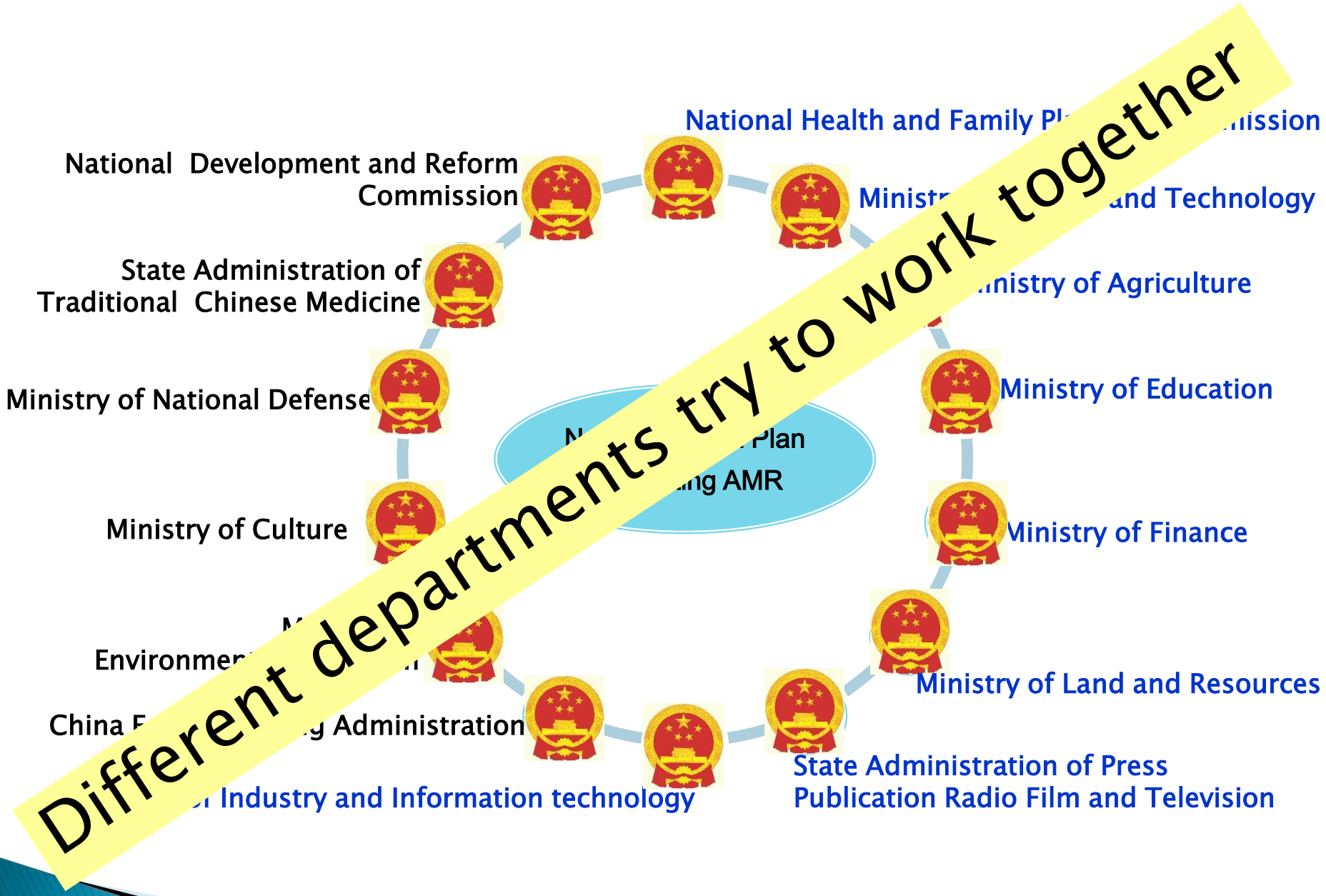
The Challenges Faced

- Different sectors work independently
- Difficult in data-sharing
- Duplication of work
- Lack of basic information on AMR at the national level (antimicrobial agents use in clinical treatment, food animal production, environmental pollution data, food chain transmission etc.)

- Technical bottleneck
  - Lack of national standard methods for AST
  - Drug standards & strains for quality control
- Narrow coverage on AMR surveillance network
  - Limited number of sampling sites, testing samples and microorganisms.
  - Issues in data collection and analysis (human resources, and database -building)

Actions at the National Level

China National Action Plan For Combating Antibiotic-resistant Bacteria（2016-2020）released on 5 August 2016 by 14 organizations including health, agriculture, finance, culture, environment protection etc.


National Health and Family Pl
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Ministry of National Defense
Ministry of Education
Plan
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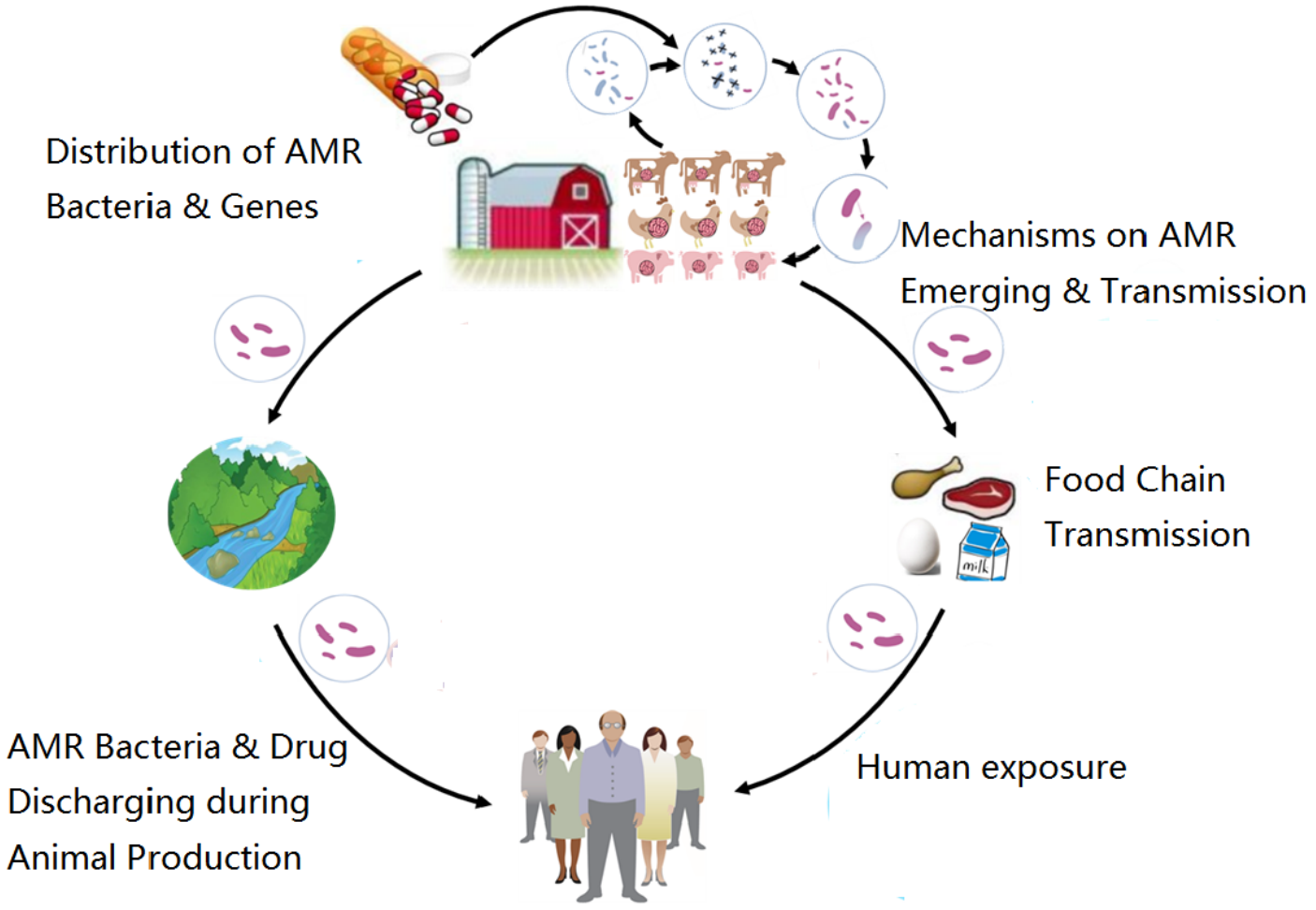
Ministry of Culture
Ministry of Finance
Environmen
Ministry of Land and Resources
China E
g Administration
State Administration of Press Publication Radio Film and Television
Industry and Information technology
Different departments try to work together

Scientific Programs Supported by MOST

Focus on:

- **Animals**
- **Environment**
- **Foods**
- **Community**
- **Patients**



Future Efforts

- Integrated surveillance network building is the key
- Financial support
- Data sharing-central government coordinating
- Application of the AMR data in risk management
- Social- and economic impact analysis

Thanks for your attention