

## An urgent need for National Action Plan for Infection Control and Antibiotic Stewardship in Pakistan

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Antibiotic resistance has risen alarmingly and has emerged as a major health threat in not only the west but also in resource poor countries of Asia.<sup>1,2</sup> It has been documented in all health care settings, particularly in high-risk areas such as intensive care units, surgical units and neonatal intensive care units. Pakistan like many countries of the world faces the crisis of antibiotic resistance as well.<sup>3</sup> Antibiotic misuse and overuse has contributed tremendously to this major health crisis. As an array of newer "superbugs" especially the enterobacteriaceae continues to spread in healthcare and community settings alike, the challenges have become stiffer and goals to combat are now out of reach. There is urgency for many healthcare settings because of associated higher morbidity, mortality and costs.<sup>4</sup> A recent review estimated that 700,000 deaths occur each year worldwide due to AMR. If appropriate action is not taken now, then by 2040 AMR will kill 300 million people worldwide. This figure is higher than today's cancer death and the estimated cost is 100 trillion US dollars.<sup>5</sup>

In Pakistan the antibiotic misuse is equally huge and tackling it will be an equally daunting and challenging task.<sup>6</sup> The hurdles to effectively tackle this crisis include lack of health infrastructure and expertise, illiteracy, lack of access to basic health needs and lack of clean water and sanitation that lead to a continuous "explosion" of infectious diseases that are mostly preventable. Antimicrobial Stewardship Program (ASP) is an emerging concept defined by a series of strategies and interventions aimed towards improving appropriate prescriptions of antibiotics in all healthcare settings.<sup>7</sup>

The 2001 "WHO Global Strategy for Containment of Antimicrobial Resistance" had made comprehensive recommendations.<sup>1</sup> In its 2012 report "The evolving threat of antimicrobial resistance: Options for action" WHO has highlighted the lessons learnt with gaps and urged countries to commit to a comprehensive financed national plan to combat antimicrobial resistance,

engaging all principal stakeholders including civil society.<sup>8</sup> A large 2014 WHO global surveillance study "Antimicrobial resistance: global report on surveillance" reported data from 114 countries with resistance now documented "in every region of the world."<sup>9</sup>

In Pakistan the overall health situation is much more grim as shown in many published studies over the last two decades and a recent article by Zaidi et al.<sup>10</sup> Problems identified include unnecessary number of registered products (approximately 50,000), 18% advertisements being "unjustified or misleading," only 15% promotional brochures meet WHO criteria, self-medication in 51%, presence of more than 600,000 quacks and more importantly 70% of patients being prescribed antibiotics. This overuse and abuse was more common among GPs, public hospitals for costly antibiotics and 3rd generation cephalosporins. After a decade ago resistance in gram-negative organisms with extended spectrum beta lactamases (ESBLs) and now carbapenem resistance, typhoid resistance, MRSA and MDR TB is a reality and a major concern.<sup>3,11-14</sup> A National Antibiotic Policy or Infection Control Policy is lacking. Few institutions may have full or partial policies but unless majority has in place such policies with full implementation any impact at country level will be minimal.

ASPs have made major impact on infection rates, resistance patterns, costs and clinical outcomes in many studies.<sup>15-17</sup> Given that ASPs proven efficacy with major gains have been proved in many settings it is thus imperative that such initiatives and efforts should be taken across Pakistan.

On a global level many initiatives have been taken. At the Sixty-eighth session in Geneva 18-26 May 2015 the World Health Assembly (WHA) delegates endorsed a global action plan to tackle AMR.<sup>18</sup> Through adoption of the global plan all governments are committed to have in place, by May 2017, a national action plan on antimicrobial resistance that is aligned with the Global Action Plan.<sup>19</sup> A WHO manual in collaboration with the Food and Agriculture Organization of the United Nations

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(FAO) and the World Organization for Animal Health (OIE) will assist countries in preparing their national action plans with participation of all relevant sectors and an incremental approach.<sup>20</sup> Pakistan in line with World Health Resolution in May 2015 has also initiated efforts to take up the challenges of AMR.

In summary there is an urgent need to have a National Action Plan for implementation of consensus policies in various health institutions and sectors across Pakistan to address the issue of antibiotic resistance and its subsequent fallout. Some of the components of this plan that should be tackled include a comprehensive Infection Control Policy, realistic Antibiotic Policy, regulate Over the counter (OTC) antibiotics, improve Microbiology Facilities, create a National antimicrobial resistance network, ensure Capacity Building and finally initiate and support Antibiotic Stewardship Programs (ASP) in all major hospitals. The government must come forward to initiate and allocate additional resources and funds to achieve this across all the provinces especially in the major cities.

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