Unleashing the Power of Diagnostic Tests in the Fight Against Antibiotic Resistance

**Antibiotic Resistance: A Global Crisis**

The discovery of antibiotics was heralded as one of the greatest medical discoveries in modern history and the drugs quickly became the cornerstone of modern medicine. Yet after 80 years of significant overuse in human medicine and agriculture, antibiotics are losing their effectiveness. It is estimated that up to 50% of all prescribed antibiotics are either not needed—such as antibiotics given to treat viral infections—or are not properly “matched” to the bacteria they’ve been prescribed to treat, and therefore are not as effective as they could be.\(^2\) This has led to a sharp increase in drug-resistant infections around the world. As a result, antibiotic resistance is now one of the greatest public health threats of our time, with substantial impacts on people, health care systems and economies worldwide. Without

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\(^1\) **THE WORLD HEALTH ORGANIZATION**

It is estimated that by 2050, 10 million people a year will die from drug-resistant infections and $100 trillion in global economic productivity will have been lost over that time period.

\(^2\) **THE REVIEW ON ANTIMICROBIAL RESISTANCE**

“Without urgent, coordinated action by many stakeholders the world is headed for a post-antibiotic era, in which common infections and minor injuries, which have been treatable for decades can once again kill.”

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die from drug-resistant infections and $100 trillion in global economic
productivity will have been lost over that time period.³

Addressing antibiotic resistance requires a coordinated global
response. In September 2016, the United Nations General Assembly
took up the issue for the first time by adopting a UN declaration⁴,
signed by all 193 member states, on the importance of combating
antibiotic resistance. It noted: “no one country, sector or organization
can address this issue alone”⁵ and called for better promotion of
existing diagnostic tests as well as the need to develop and fund new
diagnostic tools.⁶

**What are Diagnostic Tests?**

Diagnostic tests are a critical component in any strategy to reduce
antibiotic resistance. Diagnostic tests can help clinicians decide
whether an antibiotic will cure an infection and which specific drug will
work best. This could dramatically reduce unnecessary antibiotic use
and improve patient care.

There are many safe and effective diagnostic tests available to health
care professionals today. These tests—performed in laboratories, at
the hospital bedside, in medical clinics, and in the home—improve
quality of care, promote wellness and often reduce health care costs.

Diagnostic tests are an integral component of health care and an
important part of the fight against antimicrobial resistance. Diagnostic
tests can be used to quickly distinguish between infections that require
treatment and those that do not—such as viral infec-
tions—in order to determine the appropriate treatment
strategy. Rapid, point-of-care tests can quickly inform
physicians’ decisions on what antibiotics, if any, are
most appropriate for the treatment of their patients—
before they leave the physicians’ offices. These tests
are critical in defining the pathway for improved patient
care. More frequent use of diagnostic tests to inform

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**Diagnostic Tests Can:**

**Improve** patient care

**Decrease** overall medical costs

**Ensure** doctors prescribe the correct antibiotics at the right time

**Improve** the judicious use of antibiotics, especially in outpatient settings where antibiotics are often overused

**Reduce** misuse of antibiotics

**Identify** drug-resistant organisms to enable patient isolation, decontamination, and reduce spread of infections

**Revitalize** antibiotics that have been abandoned due to high rates of resistance
treatment decisions will reduce unnecessary use of antibiotics and therefore slow down antimicrobial resistance. Furthermore, the value of diagnostic tests continues to increase as manufacturers develop new and improved tests that help doctors quickly identify infections, predict health outcomes, and choose the most effective treatment options.

**The Role of Diagnostics in Curbing Resistance**

In many cases, health care professionals prescribe antibiotics based on just their professional judgment and immediate assessment of a patient. As a result, patients frequently are given antibiotics that are unnecessary or may be ineffective. In fact, at least 30% of antibiotics prescribed in the United States are unnecessary, and the percentage of antibiotics unnecessarily prescribed in the rest of the world is estimated to be even higher. Diagnostic tests can help health care professionals determine when to start, and importantly, when to stop antibiotics, ensuring that patients only receive these powerful drugs when they need them. This could substantially improve patient care and help slow antibiotic resistance.

Antimicrobial resistance is a massive global public health challenge, and the increased use of currently available diagnostic tests and the development of new, rapid diagnostic tests are critical parts of the solution.

“Today, antibiotics are rarely prescribed based on a definitive diagnosis. Diagnostic tests can show whether or not an antibiotic is actually needed, and which one. Having rapid, low-cost, and readily available diagnostics is an essential part of the solution to this urgent problem.”

DR. MARGARET CHAN, DIRECTOR GENERAL OF THE WORLD HEALTH ORGANIZATION
Endnotes


5 Ibid.


