





CHOOSE TRANSFORMATION

THE WORLD OF INFECTION IS CHANGING: HOW CAN WE WIN THE RACE?

Klimud 2015 / Belek - Antalya

Simon Akhtar General Manager EMEA Ibis Biosciences



Global Trends in Infectious Diseases and Antimicrobial Resistance



- A wide range of risk factors have put emerging infectious diseases into international focus*:
 - Today, a disease can be spread across the globe within 24 hours, through global trade and travel: e.g. SARS, MERS or the recent Ebola outbreak.
 - Social and demographic factors contribute:
 - Ageing population trend could increase challenges
 related to hospital or nursing-home acquired infections
 - Migration and humanitarian crises
 - Increasing resistance to antimicrobial drugs¹:
 - In the European Union (EU), Norway and Iceland, 5–12% of hospital patients acquire an infection during their stay. Each year, an estimated 400,000 present with a resistant strain, of whom on average 25,000 die²

*ECDC Input Paper: The interconnected and cross-border nature of risks posed by infectious diseases, January 15, 2014 ¹G7 Science Academies' Statement 2015: Infectious Diseases and Antimicrobial Resistance: Threats and Necessary Actions ²http://www.euro.who.int/en/health-topics/disease-prevention/antimicrobial-resistance/data-and-statistics



3

CHOOSE TRANSFORMATION

Governments Take Action



- At the G7 Summit in Germany in June 2015, antibiotic resistance was one of the key topics discussed.
- Several countries have issued national action plans with strategies to slow the spread of antibiotic resistance
- The G7 Science Academies' Statement 2015 requests a very comprehensive strategy:
 - "Accelerate the development of diagnostics, vaccines and therapeutics to better meet the threat from highly dangerous pathogens"
 - "Develop innovative strategies for prevention and rapid diagnosis of infection"
 - "Regulate the use of antibiotics in medicine and agriculture", and
 - "...educating the public on the development of resistance, prevention and effective management of infections."

¹G7 Science Academies' Statement 2015: Infectious Diseases and Antimicrobial Resistance: Threats and Necessary Actions



CHOOSE TRANSFORMATION

The Burden of Nosocomial Infections across the EU



HAI	Germany	France	UK	Italy	Spain	Benelux	Scandinavia	R.O.E.	Total
Population (In Millions)	82.0	64.3	61.6	60.6	45.8	27.8	25.0	137.6	504.7
PN/LRTI	116.000 -	140.000 –	138.000 –	200.000 –	90.000 –	84.000 –	66.000 –	314.000 –	1.148.000 –
	118.000	142.000	140.000	202.000	92.000	86.000	68.000	316.000	1.164.000
SSI	88.000 –	104.000 –	96.000 –	100.000 –	82.000	52.000 –	80.000 –	225.000 –	827.000 –
	90.000	106.000	98.000	102.000	84.000	54.000	82.000	227.000	843.000
BSI	48.000 –	56.000 –	58.000 –	54.000 –	50.000 –	30.000 –	26.000 –	122.000 –	444.000 –
	50.000	58.000	60.000	56.000	52.000	32.000	28.000	124.000	460.000

SVC Market Research 2012: Adult ICU & Hospital Acquired Infections in Europe









28%

Severe Sepsis

Worldwide, over 8MM diagnosed with Sepsis

Severe sepsis accounts for an estimated 40% of all ICU expenditures,

totaling \$16.7B in the US alone; average stay costs \$22,100



CHOOSE TRANSFORMATION

©2015 Abbott Laboratories, AMD00002702

6

Nosocomial Fungal Infections are Increasing*



- Nosocomial fungal infections have increased in the last decades
 - Advances in medical and surgical therapies have increased the population of immunocompromised patients:
 - Increase in hematopoietic stem cell transplants
 - Increase in solid organ transplants
 - New chemotherapeutic and immune modulatory agents
 - Invasive devices have increased catheter-related infections
- The range and diversity of fungi has broadened¹:
 - Candida and Aspergillus are the most frequent pathogenic fungi
 - Increasing reports of infections caused by hyaline and dematiaceous filamentous fungi
- More sensitive non-culture-based diagnostic techniques may result in appropriate therapy initiated earlier²

- *Alangaden GJ (2011), Infect Dis Clin N Am 25: 201-225
- ¹Puebla LEJ (2012), Immunodeficiency: 149 ff, <u>http://dx.doi.org/10.5772/51512</u>
- ²Low CY et al. (2011) F1000 Medicine Reports, 3: 14



Challenges Associated with Culture-Based Diagnostic Methods





Slow turnaround time for results¹⁻⁴



Failure to detect fastidious pathogens³

High negative detection rates⁵



Results compromised by prior antimicrobial use³



¹Dellinger RP, Levy MM, Rhodes A, et al. Crit Care Med. 2013; 41: 580–637.
²Mancini N, Carletti S, Ghidoli N, et al. Clin Microbiol Rev. 2010; 23: 235–51.
³Buchan BW, Ledeboer NA. J Clin Microbiol. 2013; 51: 1359–66.
⁴Cassagne C, Rangue S, Normand AC, et al. PLoS One. 2011; 6: e28425.
⁵Fenollar F, Raoult D. Int J Antimicrob Agents. 2007; 30(suppl1): S7–15.

CHOOSE TRANSFORMATION



8

Early change of empirical antimicrobial therapy to targeted therapy is key





*Compared with patients receiving optimal targeted therapy

¹Dellinger RP, Levy MM, Rhodes A, et al. Crit Care Med. 2013; 41: 580–637. 2. Funk DJ, Kumar A. Crit Care Clin. 2011; 27: 53–76. 3. Arabi YM, Dara SI, Memish Z, et al. Hepatology. 2012; 56: 2305–15. 4. Lambert ML, Suetens C, Savey A, et al. Lancet Infect Dis. 2011; 11: 30–8.

CHOOSE TRANSFORMATION



9

There is an Urgent Need for a Diagnostic Tool to Bridge the Gap Between Treating Rapidly AND Treating OPTIMALLY





"...early recognition of life-threatening infection and rapid initiation of appropriate antimicrobial therapy is the critical element in reducing mortality. The challenge that hospitals now face is how best to implement systems to facilitate this goal."

Funk DJ, Kumar A. Crit Care Clin. 2011; 27: 53-76.

Reproduced from Critical Care Clinics, volume 27 issue 1, Funk DJ, Kumar A, Antimicrobial therapy for life threatening infections: speed is life, pages 53–76, Copyright 2011, with permission from Elsevier.

CHOOSE TRANSFORMATION





ANTIMICROBIAL RESISTANCE



CHOOSE TRANSFORMATION





- Inline with the G7 goals, new diagnostic tools are needed that:
 - Can meet the threat from highly dangerous pathogens from I around the globe,
 - Allow rapid diagnosis of infections,
 - Help regulate the use of antibiotics in medicine, and
 - Allow effective management of infections.
- IRIDICA is the fastest and broadest pathogen identification solution direct from a clinical specimen
 - Detects and identifies over 1,000 bacteria, fungi and viruses, and
 - 4 important antimicrobial resistance markers
 - Providing actionable results in less than 6 hours
 - Identifies one or more pathogens in poly-microbial infections
 - Not affected by antimicrobial pre-treatment
 - Direct testing from a wide variety of sample types, culture not required
 - Developed for routine diagnostic testing, with minimal hands-on time



12







CHOOSE TRANSFORMATION



iridica.