



SOCIEDAD PARAGUAYA DE MEDICINA INTERNA



ABORDAJE ANTIMICROBIANO EN LA ERA DE LA MR

DRA. DESIREE ALMIRON
INFECTOLOGIA CLINICA
HNI - IMT - HEQI IPS

Medicina Interna Itinerante **CHACO 2025**



Viernes **20** | 19:30 Horas | Sábado **21** | 08:30 Horas

 Auditorio UEP
Campus Hospital Filadelfia.

Pre operatorio adulto mayor
*Dra. Jeaninne Mongelos

Congestión en Insuficiencia cardiaca
*Dr. Jesús Falcón

Manejo inicial del Accidente Ofídico
*Dr. Javier Gómez

Diagnóstico precoz de HIV. Protocolo de acción
*Dra. Stela Samaniego

Manejo de la agitación
*Dra. Dr. Víctor Adorno

Mitos y verdades de la Vitamina D
*Dr. Marcos Vázquez

Abordaje antimicrobiano en la era de la multirresistencia
*Dra. Desiree Almirón

Hipertensión Arterial, enfoques prácticos según las últimas guías
*Dr. Manuel Castillo

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Pancha Garmendia 6483
+981 383 839
gerencia@spmi.org.py

Inversión:

Socios al día: Sin costo
Estudiantes: Gs. 20.000
Residentes / Enfermería: Gs. 40.000
Médicos y Bioquímicos: Gs. 60.000

Auspicia:



Glifozina
Dapagliflozina 10 mg

Lasca
Laboratorios
Nuestra calidad, su seguridad.

Actizim
Aзитromicina

AGENDA

- **Introducción - Epidemiología RAM**
- **Principios de Uso Apropiado**
- **Conclusiones**



THE COST IS
HIGH
IF WE DO NOT
ADDRESS
**ANTIMICROBIAL
RESISTANCE NOW**



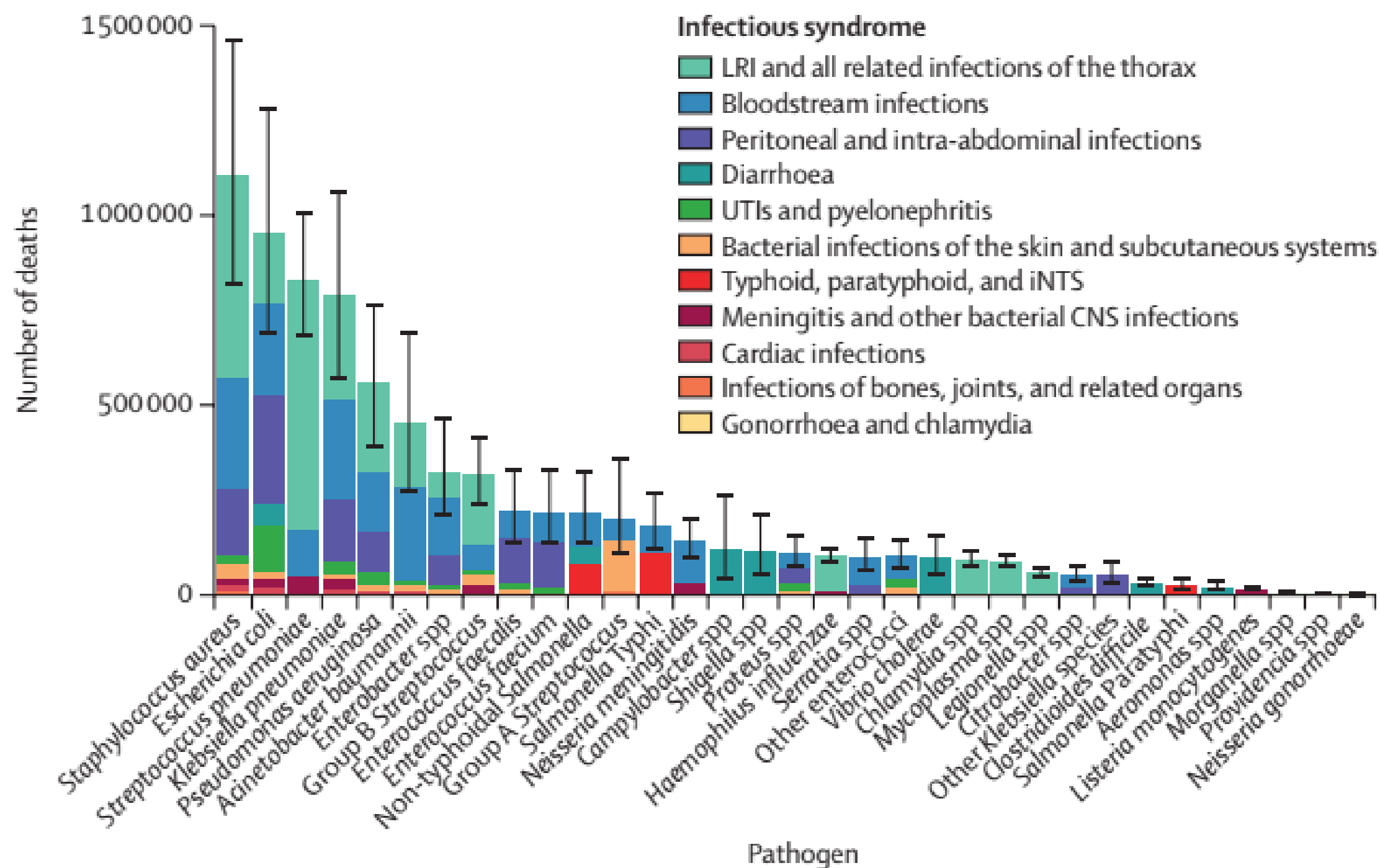
1.27
MILLION DEATHS
DUE TO
ANTIMICROBIAL
RESISTANCE



**1 DEATH EVERY
25 SECONDS**

According to data from a 2019 study in The Lancet²

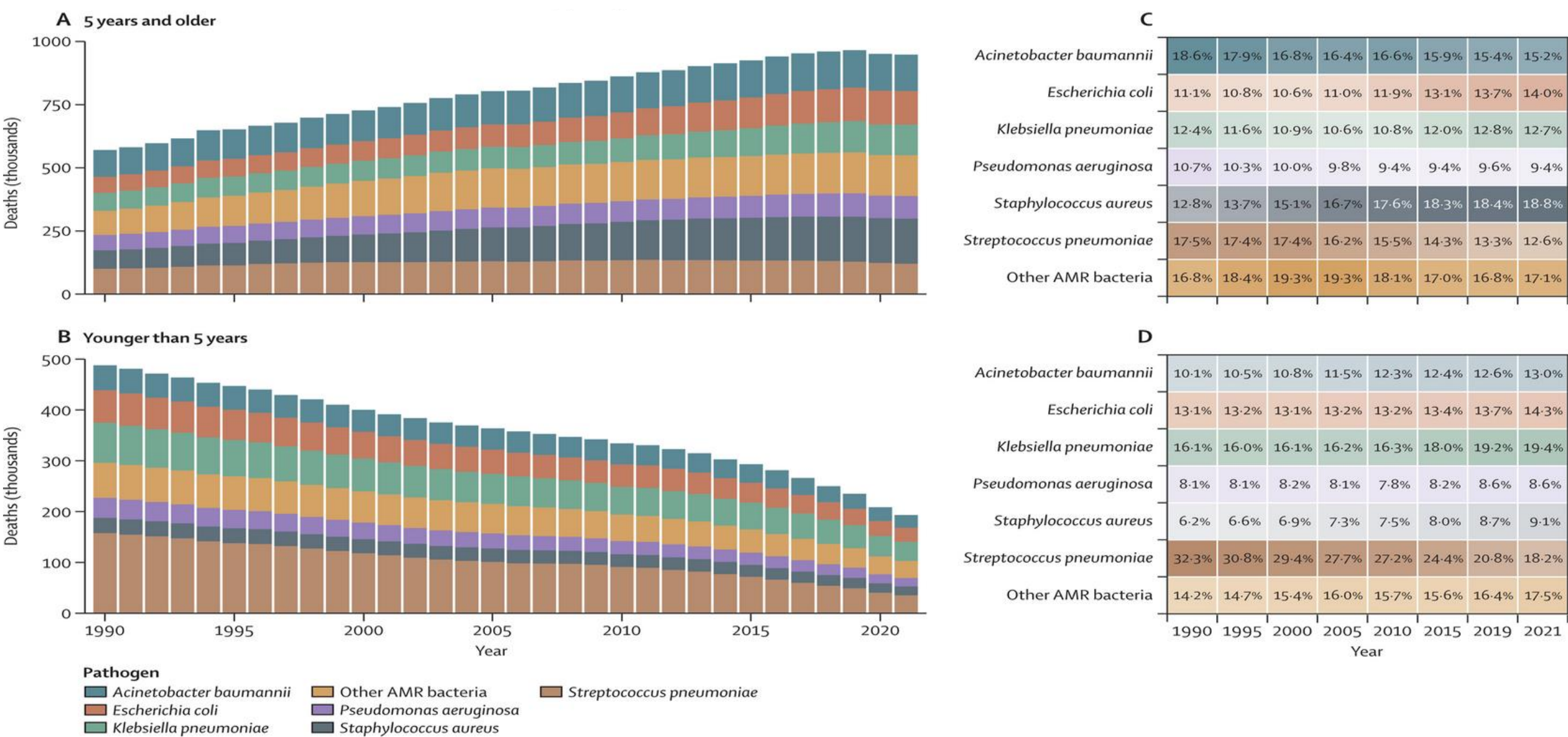
Global mortality associated with 33 bacterial pathogens in 2019: a systematic analysis for the Global Burden of Disease Study 2019



Global burden of bacterial antimicrobial resistance 1990–2021: a systematic analysis with forecasts to 2050



Muertes atribuibles a RAM por patógeno, a nivel mundial, 1990-2021, para personas de 5 años o más y menores de 5 años





2022
SPECIAL
REPORT

COVID-19

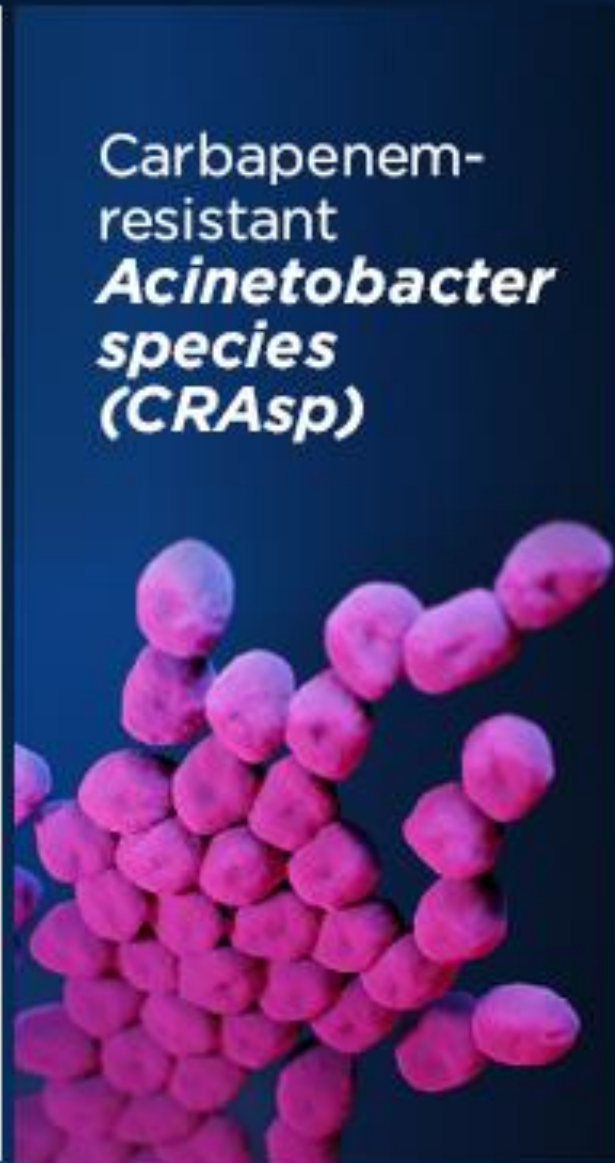
U.S. IMPACT ON ANTIMICROBIAL RESISTANCE

	Threat	Change in Rates or Number of Infections***			
		2020 vs. 2019	2021 vs. 2020	2022 vs. 2021	2022 vs. 2019
URGENT*	Hospital-onset CRE	▲ Increase	▲ Increase	▬ Stable	▲ Increase
	Hospital-onset Carbapenem-resistant <i>Acinetobacter</i>	▬ Stable	▬ Stable	▬ Stable	▲ Increase**
	Clinical Cases of <i>C. auris</i>	▲ Increase	▲ Increase	▲ Increase	▲ Increase
SERIOUS*	Hospital-onset MRSA	▲ Increase	▬ Stable	▼ Decrease	▬ Stable
	Hospital-onset VRE	▲ Increase	▲ Increase	▬ Stable	▲ Increase
	Hospital-onset ESBL-producing Enterobacterales	▲ Increase	▬ Stable	▬ Stable	▲ Increase
	Hospital-onset MDR <i>Pseudomonas aeruginosa</i>	▲ Increase	▲ Increase	▬ Stable	▲ Increase

6 of the 18 most alarming **antibiotic resistance threats** cost the U.S. more than **\$4.6 billion annually**



Vancomycin-resistant
Enterococcus
(VRE)



Carbapenem-resistant
Acinetobacter
species (CRAsp)



Methicillin-resistant
Staphylococcus
***aureus* (MRSA)**



Carbapenem-resistant
Enterobacterales
(CRE)



Extended-spectrum
cephalosporin resistance
in Enterobacterales
suggestive of extended-
spectrum β -lactamase
(ESBL) production



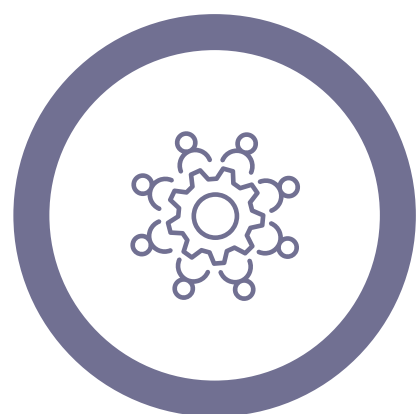
Multidrug-resistant (MDR)
Pseudomonas
aeruginosa

www.cdc.gov/DrugResistance



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

USO INADECUADO DE ATB



**Múltiples
cursos de ATB**



**Duración
prolongada**



**ATB de amplio
espectro**



**Dosis
inadecuadas**



**Prescripción
por presión**



**Automedicación -
Desconocimiento**



USO RACIONAL DE ATB

La Organización Mundial de la Salud (OMS) ha definido el uso apropiado o racional de estos fármacos como:

"el uso costo-efectivo de los antimicrobianos, minimizando sus efectos adversos o tóxicos y el desarrollo de resistencia"



CASO CLINICO

Paciente: Femenino 46 años

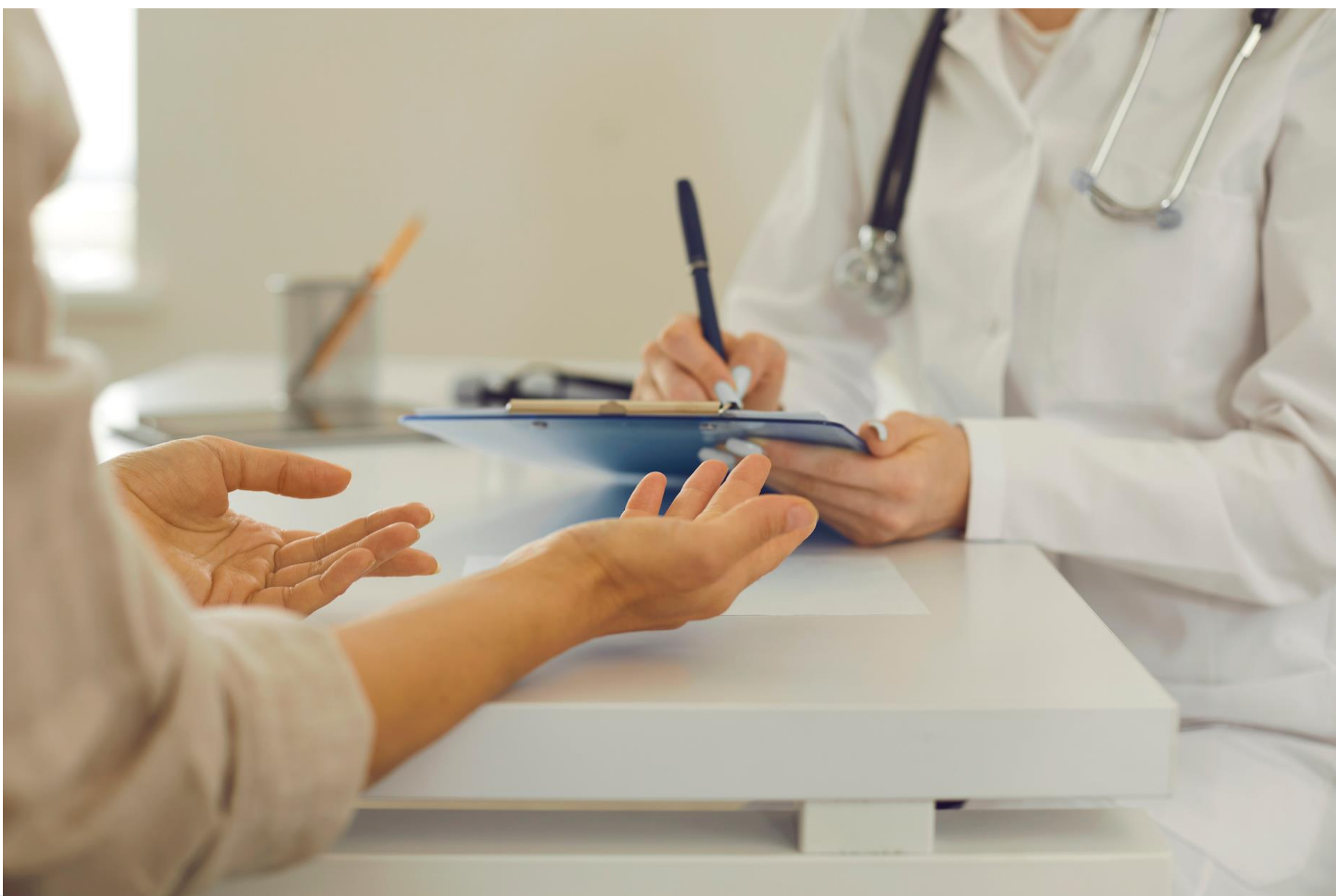
APP: Conocida Hipertensa no controlada, no DM2. Portadora de Litiasis vesicular en planes de cirugía.

AREA: niega

AEA: Acude para evaluacion preoperatoria, referida por facultativo. Niega fiebre, náuseas, vómitos, deposiciones líquidas. Niega síntomas urinarios.



CASO CLINICO



Analisis	Resultados	Unidad	Intervalos de referencia
UROCULTIVO			
COLORACION DE GRAM	Bacilos Gram Negativo		
RECuento DE COLONIAS	Aproximadamente 80.000 UFC/mL		
ASLAMIENTO	<i>Escherichia coli</i> <i>Cepa productora de Beta Lactamasa de Espectro Extendido (BLEE+)</i>		
Antibiograma			
Sensible a:	Nitrofurantoína, Trimetoprima/Sulfametoxazol		
Resistente a:	Cefotaxima, Ciprofloxacina, Gentamicina, Norfloxacina, Cefazolina		
Obs:			



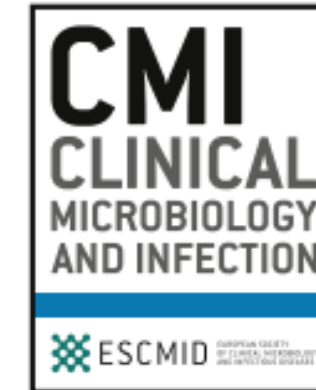
PRINCIPIOS DE USO OPTIMO



Contents lists available at [ScienceDirect](#)

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com



Review

What is antimicrobial stewardship?

O.J. Dyar ^{1,*}, B. Huttner ², J. Schouten ³, C. Pulcini ⁴, on behalf of ESGAP (ESCMID Study Group for Antimicrobial stewardship)



1. INICIO DE LA TERAPIA EMPÍRICA



**Sitio de la
infección**



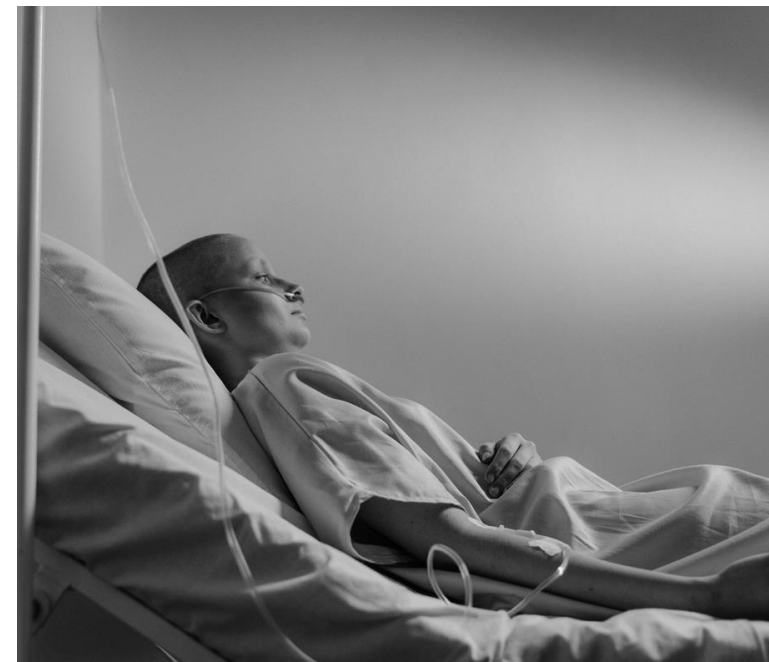
Gravedad



Hospitalización



**Patrones de
Resistencia locales
Colonización previa**



**Comorbilidades
Inmunosupresión**

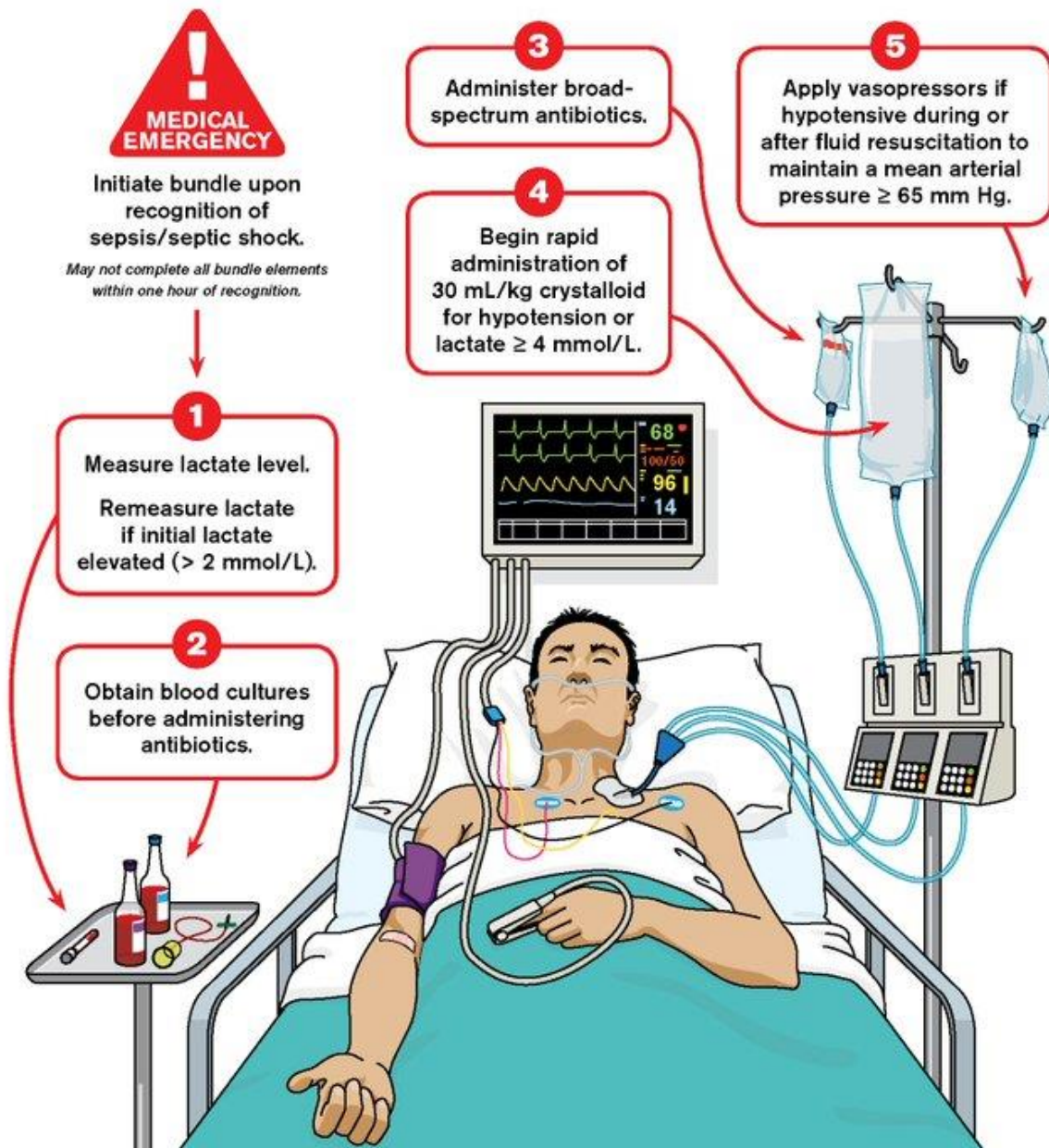


1. INICIO DE LA TERAPIA EMPÍRICA

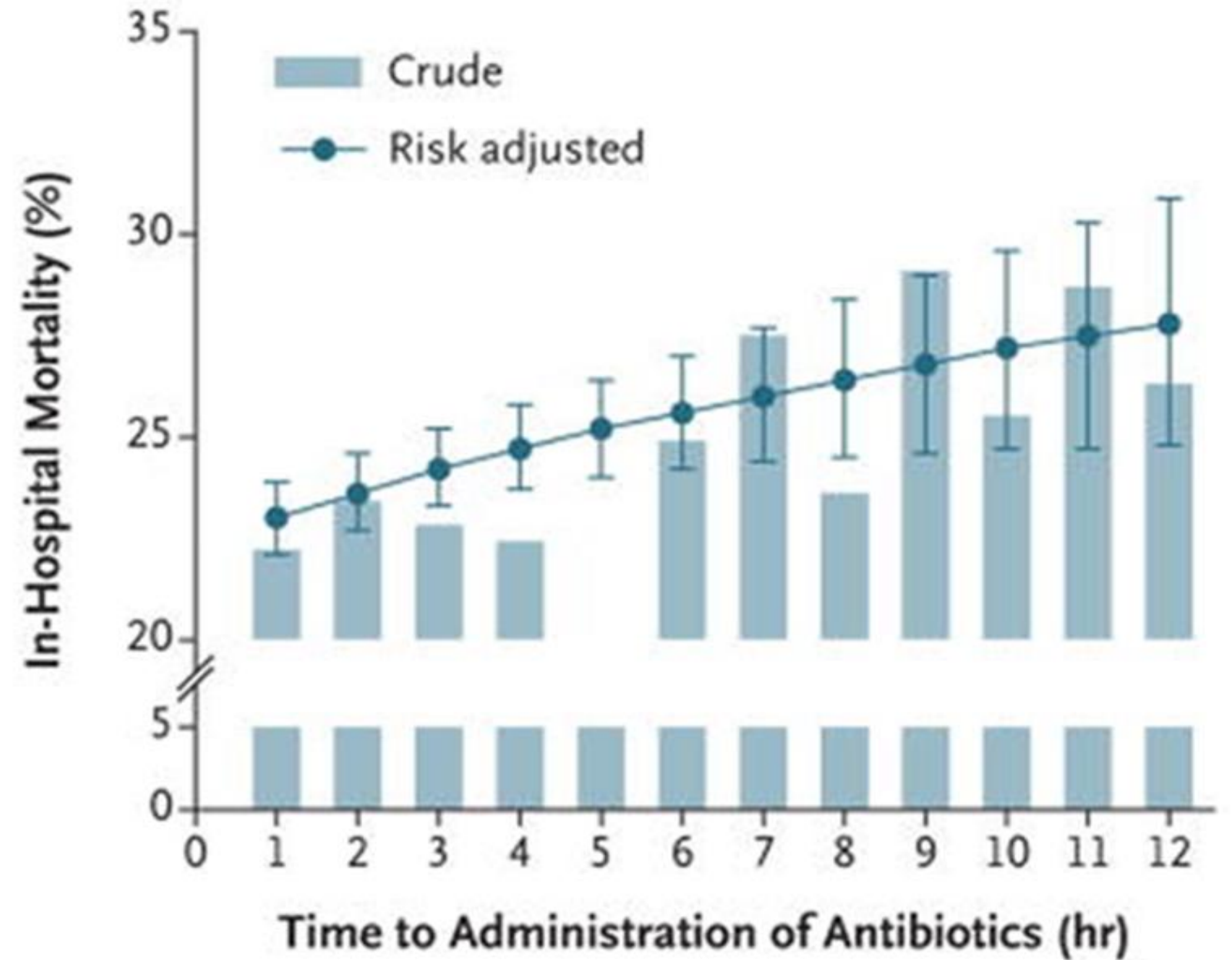
Hour-1 Bundle

Initial Resuscitation for Sepsis and Septic Shock

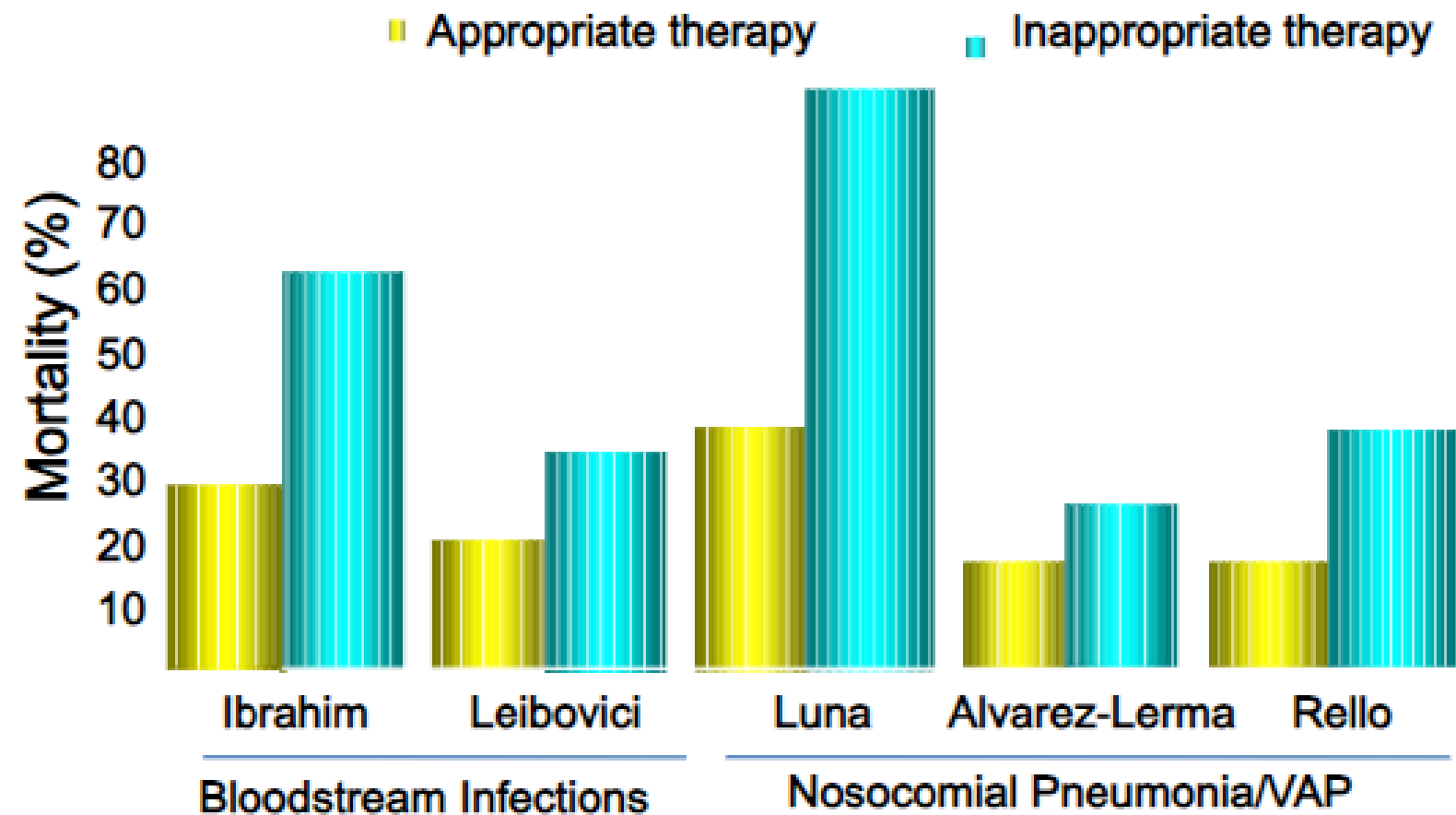
Surviving Sepsis Campaign



B Administration of Antibiotics



1. INICIO DE LA TERAPIA EMPÍRICA



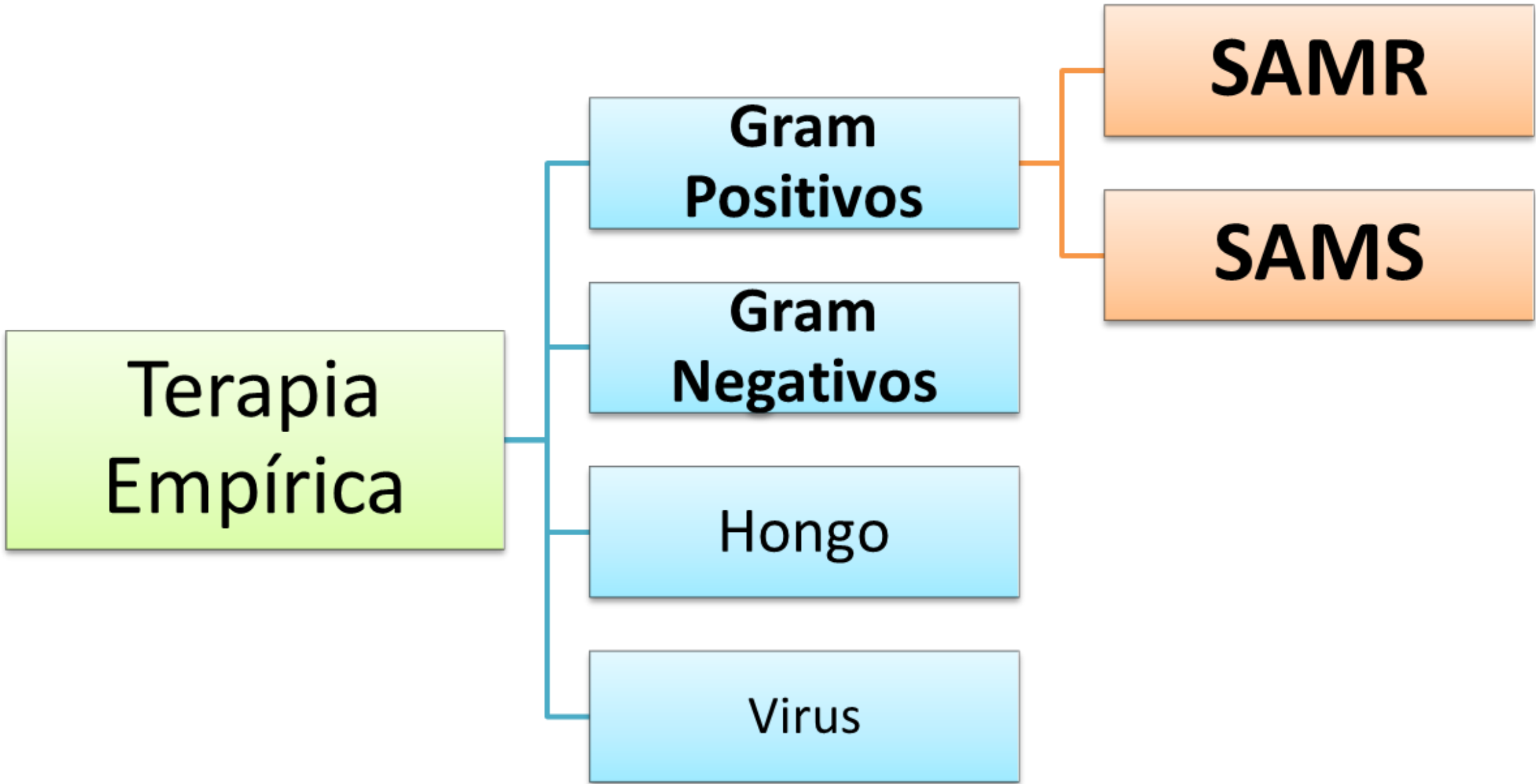
T. empírica apropiada
T. empírica inapropiada

Ibrahim, et al. *Chest*. 2000;118:146–155.
Leibovici, et al. *J Intern Med*. 1998;244:379–386.
Luna, et al. *Chest*. 1997;111:676–685.
Alvarez-Lerma, et al. *Intensive Care Med*. 1996;22:387–394.
Rello, et al. *AJRCCM*. 1997;156:196–200.

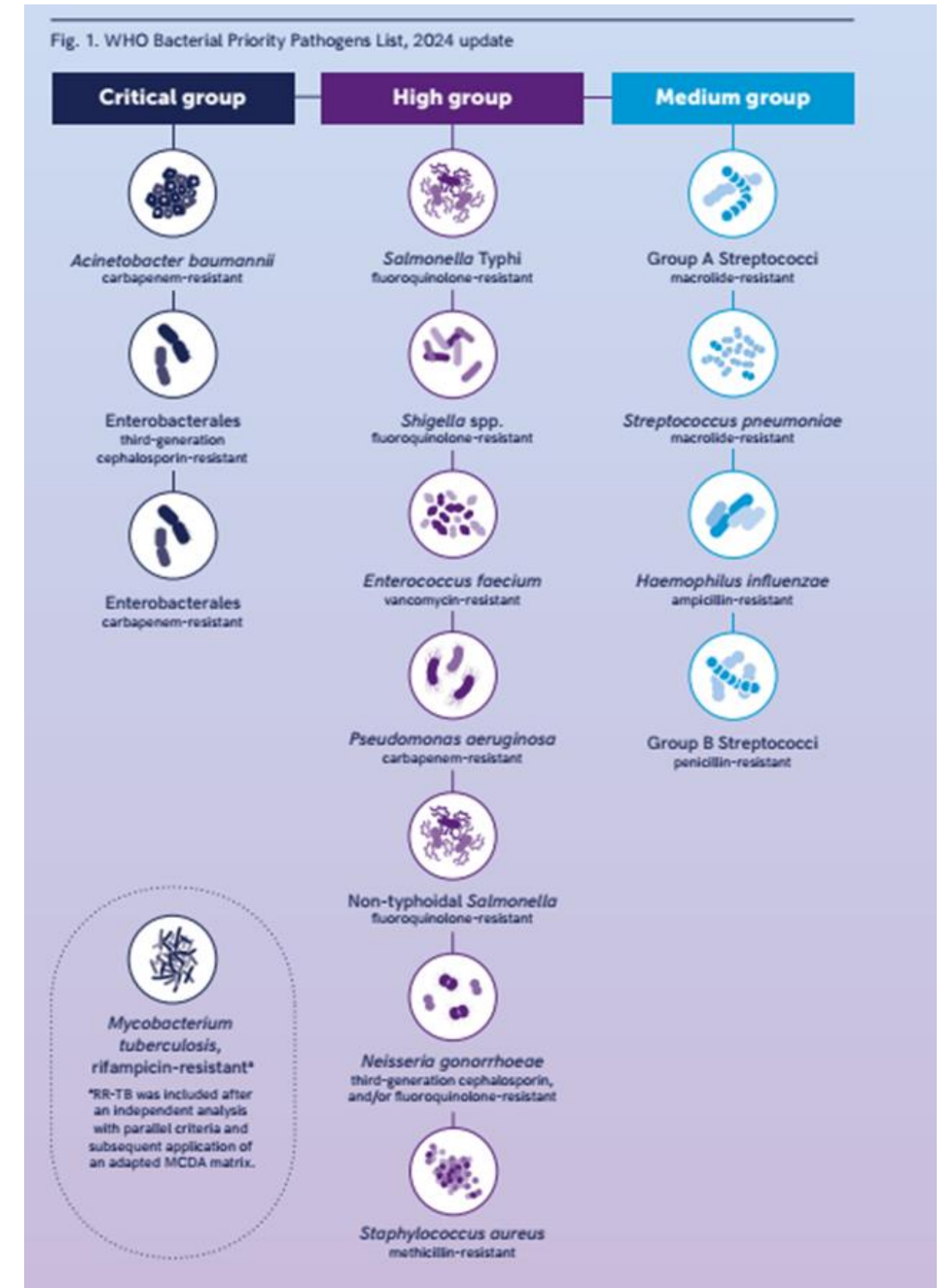
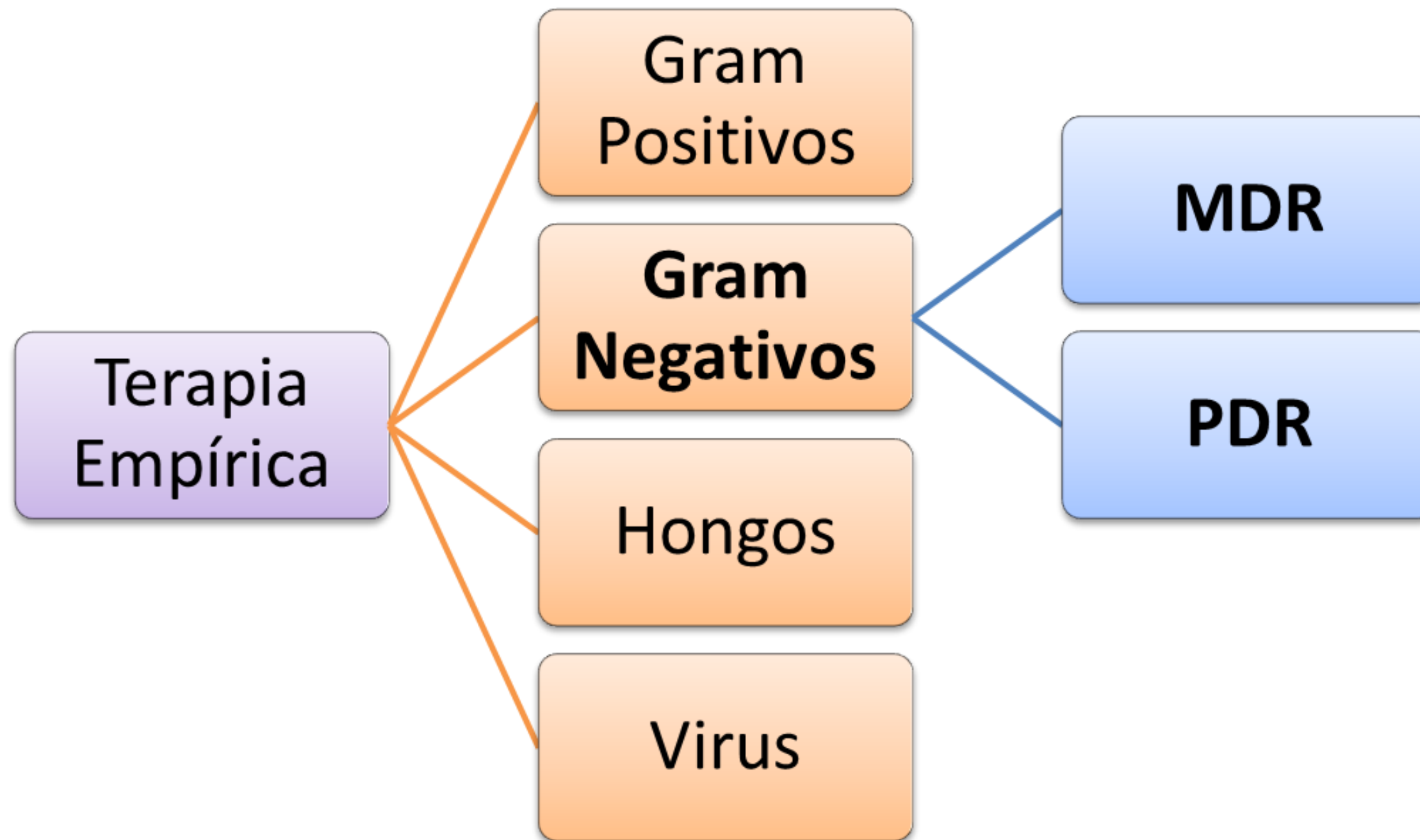


LA IDENTIFICACIÓN DE LOS FACTORES DE RIESGO INDIVIDUALES PARA GMR Y LA UTILIZACIÓN DE SISTEMAS DE PUNTUACIÓN DE RIESGO SON HERRAMIENTAS VALIOSAS PARA OPTIMIZAR LA TOMA DE DECISIONES EMPÍRICAS SOBRE ANTIBIÓTICOS.

Li, C., Claeys, K.C., Justo, J.A. et al. No Crystal Ball? Using Risk Factors and Scoring Systems to Predict Extended-Spectrum Beta-Lactamase Producing Enterobacterales (ESBL-E) and Carbapenem-Resistant Enterobacterales (CRE) Infections. Curr Infect Dis Rep 24, 147–158 (2022). <https://doi.org/10.1007/s11908-022-00785-2>



Risk factors for methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) infection in adults	
Health care exposures during the prior 12 months:	
▪	Recent hospitalization
▪	Residence in a long-term care facility
▪	Recent surgery
▪	Hemodialysis
Patient-specific risk factors:	
▪	Known MRSA colonization or past infection with MRSA
▪	Recent close contact with a person colonized or infected with MRSA
▪	HIV infection
▪	Injection drug use
▪	Homelessness
▪	Men who have sex with men
▪	Antibiotic use within prior 6 months
Environmental exposures associated with outbreaks of MRSA skin abscesses*:	
▪	Incarceration or working as prison guard
▪	Military service
▪	Attending schools or living in communities with high colonization rates
▪	Living in crowded conditions
▪	Attending or working in childcare centers
▪	Playing contact sports or sharing sporting equipment
▪	Sharing needles, razors, or other sharp objects



FR PARA ENTEROBACTERIALES RESISTENTES A CARBAPENEMES



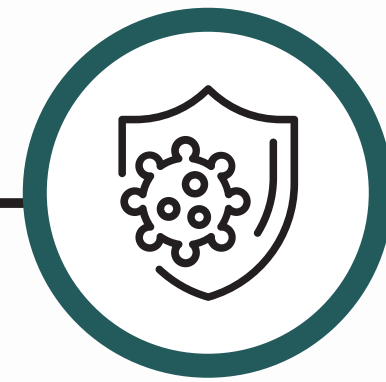
HOSPITALIZACION RECIENTE

Internación prolongada
Internación en UCI
Instituciones de
cuidados crónicos



ATB TIEMPO PROLONGADO

Cefalosporinas de 3G,
PTZ, Carbapenemes, AMG.
Profilaxis con quinolonas



COLONIZACION POR EPC

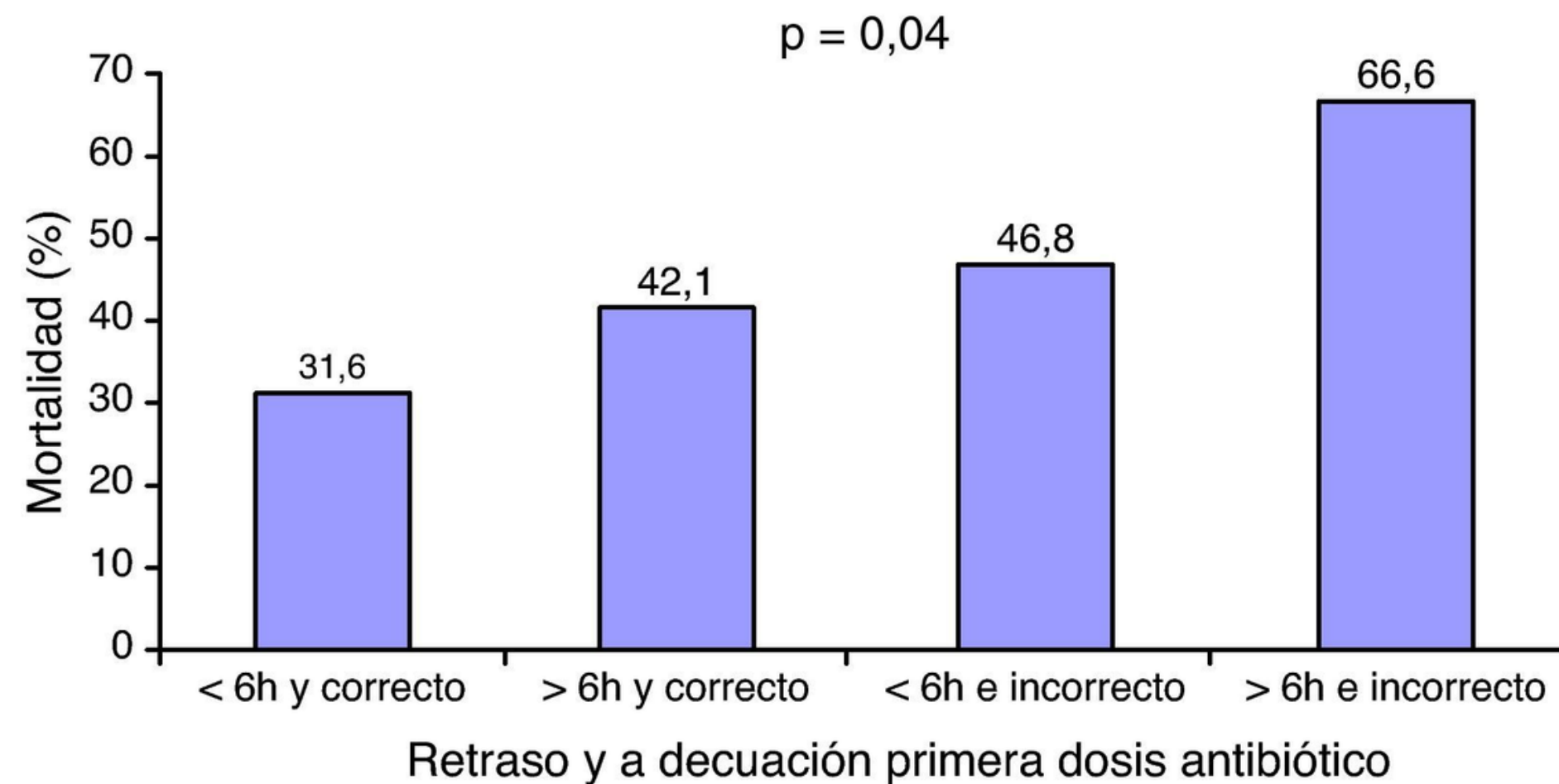
Colonización rectal
reciente.
Infección previa por EPC.



EPIDEMIOLOGIA LOCAL

Perfiles de resistencia
locales.
Brotos.M

2. REEVALUACION



Collaborative Antimicrobial Stewardship Working with Microbiology

Elizabeth L. Palavecino, MD^a, John C. Williamson, PharmD^{b,c},
Christopher A. Ohl, MD^{c,*}



3. VIA ADECUADA: PASAR DE IV a VIA ORAL

JAMA
Network | **Open**™



Original Investigation | Infectious Diseases

Early Switch From Intravenous to Oral Antibiotics for Patients With Uncomplicated Gram-Negative Bacteremia

Sandra Tingsgård, MD; Simone Bastrup Israelsen, MD, PhD; Henrik Løvendahl Jørgensen, MD, PhD; Christian Østergaard, MD, DMSc; Thomas Benfield, MD, DMSc

JAMANetworkOpen.2024;7(1):e2352314.doi:10.1001/jamanetworkopen.2023.52314



4. DURACION DE ATB

Table 1. Conditions with support for short-course antibiotics

Disease	Short course studied (days)	Long course studied (days)	Result
Acute bacterial sinusitis	5	10	Equal
Acute exacerbation of chronic bronchitis and obstructive pulmonary disease	≤5	≥7	Equal
Intra-abdominal infection	4	10	Equal
Osteomyelitis	42	84	Equal
Pneumonia, community-acquired	3-5	7-10	Equal
Pneumonia, nosocomial (including ventilator-associated)	≤8	10-15	Equal
Pyelonephritis	5-7	10-14	Equal
Skin infections (cellulitis, major abscesses, wound infection)	5-6	10-14	Equal

M Dedge News

Source: J Hosp Med. 2018 May 1;13(5):361-2

Family Practice, 2017, Vol. 34, No. 5, 511–519
doi:10.1093/fampra/cmz037
Advance Access publication 9 May 2017



Review

Short-course versus long-course oral antibiotic treatment for infections treated in outpatient settings: a review of systematic reviews

Elizabeth E Dawson-Hahn^{a,b,*}, Sharon Mickan^{c,d}, Igbo Onakpoya^d,
Nia Roberts^e, Matthew Kronman^{a,f}, Chris C Butler^{d,g} and
Matthew J Thompson^h



5. DOSIS DE ATB

Table 3. Primary and Secondary Outcomes

	Intermittent Infusion n = 134	Extended Infusion n = 134
Primary Outcomes Hours, Median (IQR)		
Time to clinical stability	n = 92 52.8 (35.6–116.0)	n = 81 30.0 (10.1–43.0)
Time to defervescence	n = 45 30.0 (15.4–46.4)	n = 39 6.5 (2.3–15.9)
Time to WBC normalization	n = 62 73.6 (41.5–176.0)	n = 52 39.3 (27.7–82.6)
Secondary Outcomes		..
In-hospital mortality, n (%)	0 (0.0)	4 (3.0)
Infection-related mortality, n (%)	0 (0.0)	1 (0.7)
Treatment failure, n (%)	13 (9.7)	1 (0.7)
Recurrence of bloodstream infection, n (%)	9 (6.7)	0 (0.0)
LOS from study drug start, days, median (IQR)	9.0 (6.0–15.0)	6.0 (4.0–9.0)
ICU LOS from study drug start, days, median (IQR)	n = 56 5.0 (3.0–9.0)	n = 56 3.0 (3.0–5.0)
Recurrence due to resistant isolate, n (%)	2 (1.5)	0 (0.0)

Open Forum Infectious Diseases

MAJOR ARTICLE



Clinical Outcomes With Extended Versus Intermittent Infusion of Anti-Pseudomonal Beta-Lactams in Patients With Gram-Negative Bacteremia

Nikki N. Tran,^{1,*} Ryan P. Mynatt,² Keith S. Kaye,^{3,*} Jing J. Zhao,⁴ and Jason M. Pogue⁵

¹Department of Pharmacy Services, The Ohio State University Wexner Medical Center—The James Cancer Hospital and Solove Research Institute, Columbus, Ohio, USA, ²Department of Pharmacy Services, University of Kentucky HealthCare, Lexington, Kentucky, USA, ³Department of Medicine, Division of Allergy, Immunology and Infectious Diseases, Rutgers, Robert Wood Johnson Medical School, New Brunswick, New Jersey, USA, ⁴Department of Pharmacy, Harper University Hospital, Detroit Medical Center, Detroit, Michigan, USA, and ⁵Department of Clinical Pharmacy, College of Pharmacy, University of Michigan, Ann Arbor, Michigan, USA



5. DOSIS DE ATB - VANCOMICINA

15–20
mg/kg/dosis

25–30 mg/kg

C/ 8–12 hs
(Máx 2 g/dosis)

IDSA GUIDELINES

Clinical Practice Guidelines by the Infectious Diseases Society of America for the Treatment of Methicillin-Resistant *Staphylococcus aureus* Infections in Adults and Children



MENSAJES CLAVE

Infection Control & Hospital Epidemiology (2019), 1–6
doi:10.1017/ice.2019.218

Original Article

Outcomes of an electronic medical record (EMR)-driven intensive care unit (ICU)-antimicrobial stewardship (AMS) ward round: Assessing the “Five Moments of Antimicrobial Prescribing”

Misha Devchand MClinPharm, BPharm^{1,2} , Andrew J. Stewardson MD, PhD^{3,4}, Karen F. Urbancic MClinPharm, BPharm^{1,2,5}, Sharmila Khumra BPharm^{1,2}, Andrew A. Mahony MD¹, Steven Walker BPharm^{1,2}, Kent Garrett BPharm², M. Lindsay Grayson MD^{1,6} and Jason A. Trubiano MD, PhD^{1,5,6}



Recommendations based on the “5 Moments” of antimicrobial prescribing

1 – Escalation

- Commencement of new antimicrobial or broadening of antimicrobial coverage

2 – De-escalation

- Narrowing of antimicrobial coverage

3 – Discontinuation

4 – Switch

- IV to Oral switch
- Change to an alternative antimicrobial (i.e. a change from one agent to another due to toxicity or the potential for toxicity)

5 – Optimize therapy

- Optimize dose
- Therapeutic drug monitoring (TDM)
- Drug-disease interactions/Drug-drug interactions
- Antimicrobial allergy assessment
- Additional tests requested (including microbiological)
- Cease date entered into EMR

Fig. 1. New EMR-led ICU-AMS structure. EMR, electronic medical record; ICU, intensive care unit; AMS, antimicrobial stewardship.



"Guía de Tratamiento Antibiótico Empírico de Infecciones más Frecuentes en Adultos"





Antibiotics

Antivirals

Antifungals

Antiparasitics



MUCHAS GRACIAS

**SOCIEDAD PARAGUAYA
DE MEDICINA INTERNA**

