



Antimicrobial Stewardship

Blueprint



AMR&S
WORKING GROUP

Antimicrobial Resistance & Stewardship Working Group



**Anucha
Apisarntharak**

Professor and Chief,
Infectious Diseases Division,
Thammasat University
Hospital,
Pathum Thani,
Thailand



Feng-Yee Chang

Deputy Superintendent/
Professor and Chairman,
Division of Infectious
Disease,
Tri-Service General
Hospital/National
Defense Medical Center,
Taiwan



Cheng-Hsun Chiu

Professor,
Division of Pediatric
Infectious Diseases,
Department of Pediatrics,
Chang Gung Memorial
Hospital,
Taiwan

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Antimicrobial Resistance & Stewardship Working Group



Yin Ching Chuang*

Honorary Superintendent,
Chi Mei Liouying Hospital,
Tainan,
Taiwan



Anis Karuniawati

Vice Dean; Lecturer;
Researcher,
Department of
Microbiology,
Faculty of Medicine,
Universitas Indonesia,
Indonesia



Andrea Kwa

Assistant Director (Research),
Singapore General Hospital;
Associate Professor,
Duke NUS Medical School,
Singapore

*Retired member

Antimicrobial Resistance & Stewardship Working Group



Syamhanin bt Adnan

Senior Clinical Pharmacist;
Head of Department
(In-patient/Clinical),
Sungai Buloh Hospital
Malaysia



Maria Fe Tayzon

Infectious Disease
Specialist & Adviser,
Hospital Infection Control
and Epidemiology Center,
The Medical City,
Pasig City, Philippines



Antimicrobial Resistance & Stewardship Working Group



Huỳnh Phúông Thảo

Clinical Pharmacist,
Hospital for Tropical Diseases,
Ho Chi Minh City,
Vietnam



Balaji Veeraraghavan

The Hilda Lazarus
Core Research Chair,
Christian Medical College and
Hospital,
Vellore, India

Introduction

What is an AMS program?

An antimicrobial stewardship (AMS) program is a group of interventions that promote appropriate use of antibiotics by encouraging selection of the right drug, dose, route of administration and duration of therapy for each patient.¹

A hospital AMS program is planned, implemented and managed by a multidisciplinary team of healthcare providers that is usually led by an influential clinician or pharmacist AMS 'champion'.

Key performance indicators are monitored to assess the effects of AMS interventions on prescribing practices, patient outcomes and costs of treatment.

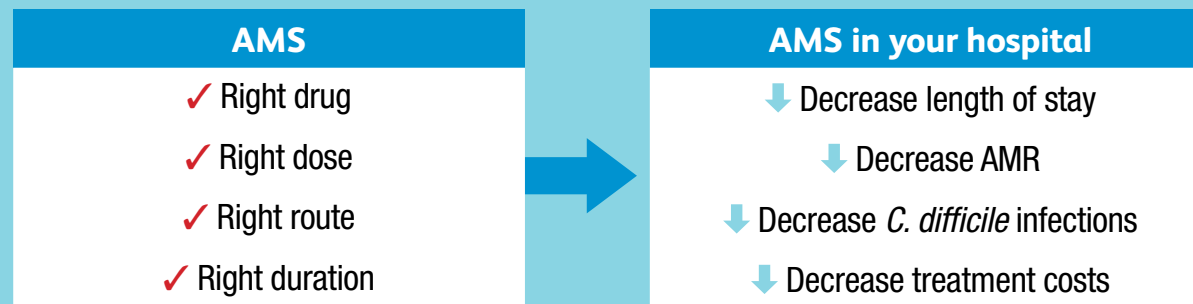


Why implement an AMS program?

Up to 50 % of antibiotic prescriptions in Asian hospitals are inappropriate.²⁻⁴ This is contributing to a very high burden of antimicrobial resistance (AMR).^{2,5} Inappropriate and excessive use of antibiotics also increases the risk of other harmful effects of antibiotics, such as *Clostridium difficile* infections, and inflates treatment costs.^{6,7}



Benefits of AMS programs in the Asian hospital setting include reduced antibiotic consumption, length of hospital stay, AMR and healthcare costs.⁸ Based on the urgent need to improve rational use of antibiotics to improve patient care and reduce the threat of AMR, it is essential that all Asian hospitals without an adequate AMS program plan to start one now. Use the [AMS checklist](#) to see how your hospital rates.



Adapted from Barlam TF, et al.



Toolkit to implement an AMS program

Starting an AMS program should not seem like an overwhelming or impossible task. Using a flexible approach, it is possible to develop AMS programs to suit the different clinical needs and resource levels of all Asian hospitals. This toolkit was developed by a working group of infectious disease experts from hospitals across Asia to help guide and simplify the process.



How to use the toolkit

This toolkit contains an AMS checklist to help hospitals assess their current AMS status and what they still need to do in relation to AMS. From here, toolkit users are directed to practical guides to different AMS activities and processes. Templates and outreach materials that can be used by AMS teams are also provided. When used together, these resources are intended to provide a complete general framework for developing AMS programs that Asian hospitals can adapt to suit their own needs and resources. Links between the guides allow the user to easily navigate from one guide to another at appropriate points. The information contained in all of the guides is consistent with recommendations from international guidelines and toolkits. Links to online resources are also provided at relevant points within the guides.



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Materials



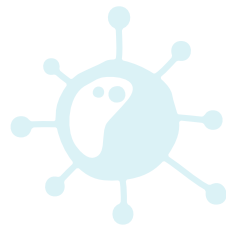
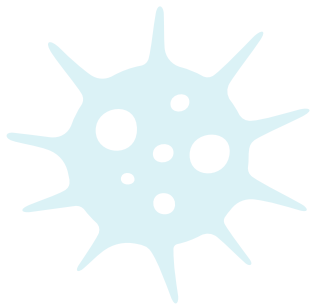
AMS Lead



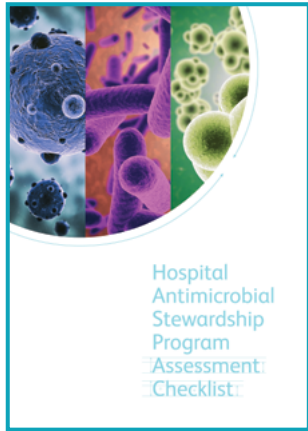
AMS Team



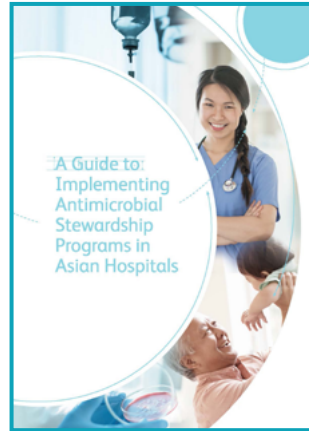
AMS Outreach



AMS Lead



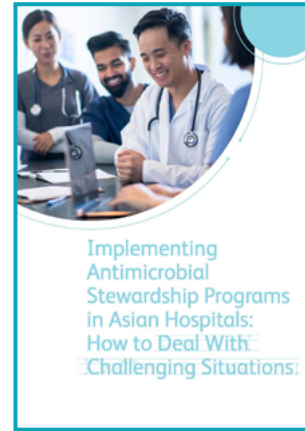
[Hospital AMS program assessment checklist](#)



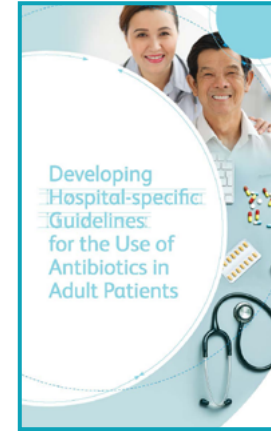
[A guide to implementing AMS programs in Asian hospitals](#)

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[!\[\]\(e474458956c9a37fbf9586ddb60a7fa1_img.jpg\) Business case sample slides](#)



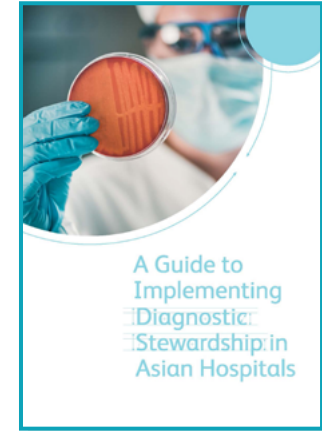
[Implementing AMS in Asian hospitals: How to deal with challenging situations](#)



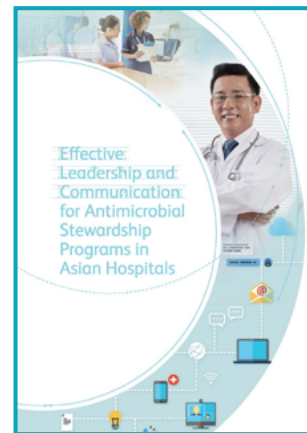
[Developing hospital-specific guidelines for the use of antibiotics in adult patients](#)

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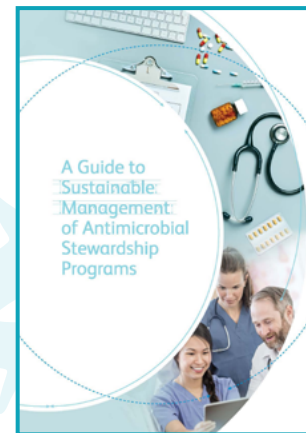
[!\[\]\(b792654f2cef9719eabeb6c5be00811e_img.jpg\) Example templates](#)



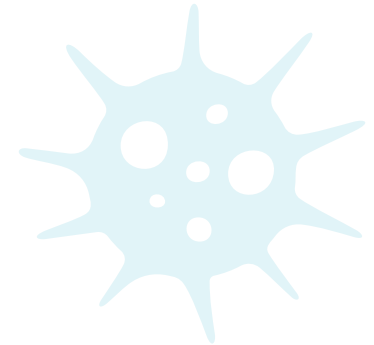
[A guide to implementing diagnostic stewardship in Asian hospitals](#)



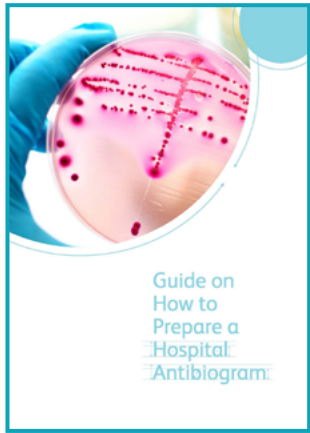
[Effective leadership and communication for AMS programs in Asian hospitals](#)



[A guide to sustainable management of AMS programs](#)



AMS Team

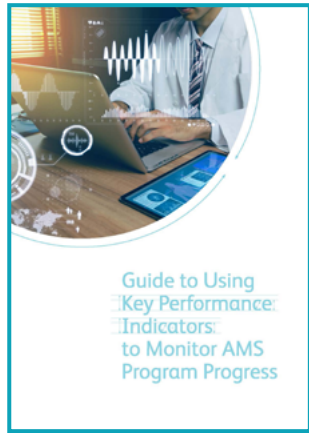


[Guide on how to create a hospital antibiogram](#)

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[!\[\]\(c694a3ff3b077d76910920a6a1593ab4_img.jpg\) Antibiogram template](#)



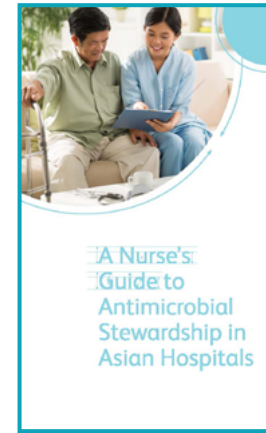
[Guide to using KPIs to monitor AMS program progress](#)

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[!\[\]\(dd161862f9164df98f62b726e9846241_img.jpg\) KPI worksheets](#)



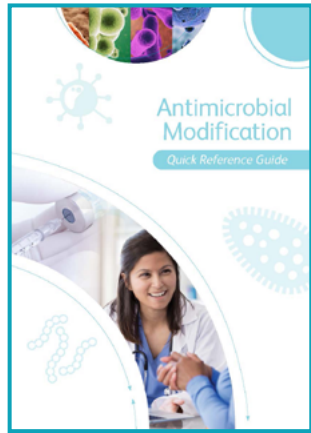
[Pocket guide: A pharmacist's guide to AMS in Asian hospitals](#)



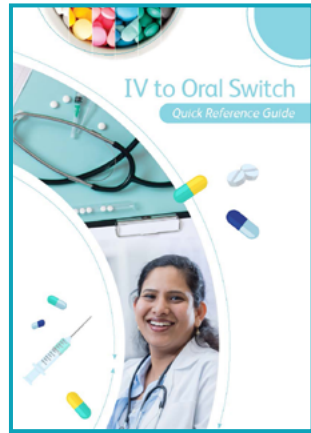
[Pocket guide: A nurse's guide to AMS in Asian hospitals](#)



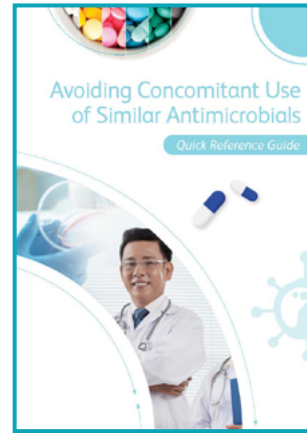
AMS Outreach



Quick reference guide:
Antimicrobial modification



Quick reference guide:
IV to oral switch



Quick reference guide:
Avoiding concomitant use of similar antimicrobial



Hospital leaflet:
Why should I care about AMS?



Hospital leaflet:
Understanding the importance of AMS



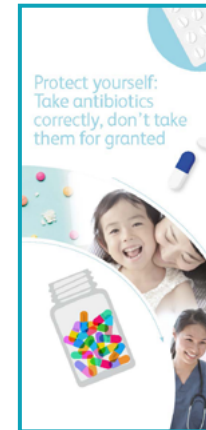
Hospital poster:
Your role in AMS



Hospital poster:
10 things I need to know before prescribing antibiotics for my patients



Patient leaflet:
Why didn't my doctor give me antibiotics?

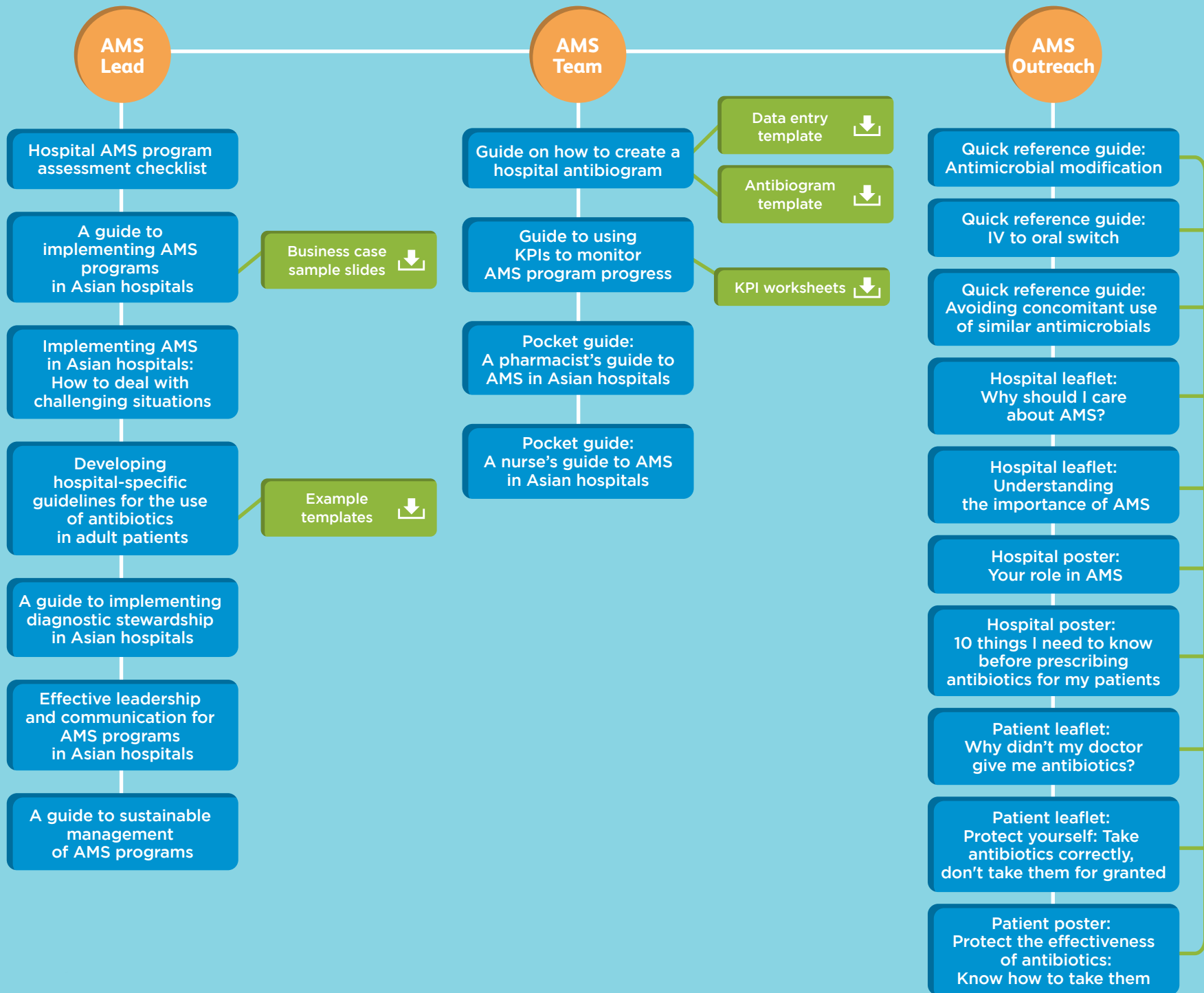


Patient leaflet:
Protect yourself: Take antibiotics correctly, don't take them for granted



Patient poster:
Protect the effectiveness of antibiotics: Know how to take them





References

1. Barlam TF, et al. Implementing an antibiotic stewardship program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. *Clin Infect Dis* 2016;62:e51-77.
2. Apisarnthanarak A, et al. Inappropriate antibiotic use in a tertiary care center in Thailand: An incidence study and review of experience in Thailand. *Infect Control Hosp Epidemiol* 2006;27:416-420.
3. Hsu LY, et al. Carbapenem-resistant *Acinetobacter baumannii* and Enterobacteriaceae in South and Southeast Asia. *Clin Microbiol Rev* 2017;30:1-22.
4. Teo J, et al. The effect of a whole-system approach in an antimicrobial stewardship programme at the Singapore General Hospital. *Eur J Clin Microbiol Infect Dis* 2012;31:947-955.
5. Lai CC, et al. High burden of antimicrobial drug resistance in Asia. *J Glob Antimicrob Resist* 2014;2:141-147.
6. Borren NZ, et al. The emergence of *Clostridium difficile* infection in Asia: A systematic review and meta-analysis of incidence and impact. *PLoS One* 2017; 12: e0176797.
7. Liew YX, et al. Surveillance of broad-spectrum antibiotic prescription in Singaporean hospitals: A 5-year longitudinal study. *PLoS One* 2011;6:e28751.
8. Honda H, et al. Antibiotic stewardship in inpatient settings in Asia Pacific region: A systematic review and meta-analysis. *Clin Infect Dis* 2017;64 (Suppl 2):S119-S126.



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