"CHALLENGES IN COMMUNICABLE DISEASE"

MANAGING COMMUNICABLE DISEASE: THE PHARMACIST ROLE

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“CHALLENGES IN COMMUNICABLE DISEASE”

MANAGING COMMUNICABLE DISEASE:

THE PHARMACIST EXPANDED ROLE

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Introduction – What is Communicable Disease (CD)?

Pharmacist & CDs

ASHP Statement on the Pharmacist’s Role in Antimicrobial Stewardship and Infection Prevention and Control

Pharmacists’ role in preventing antimicrobial resistance

Expanding role of antimicrobial pharmacist

SIDP-ACCP Joint opinion Paper
Medical:
an infectious **disease** transmissible (as from person to person) by direct contact with an affected individual or the individual's discharges or by indirect **means** (as by a vector)—compare contagious **disease**

www.cdc.org

an **illness** caused by an infectious agent or its toxins that occurs through the direct or indirect transmission of the infectious agent or its products from an infected individual or via an animal, vector or the inanimate environment to a susceptible animal or human host.


Any disease transmitted from one person or animal to another; also called **contagious disease**.
PHARMACIST & CDS WHERE ARE WE ...?
Basic Pharmacist Role:

- Availability and cost-effective utilization
- Appropriate safety monitoring and reporting change
- Medicine use evaluation
- Continous Education

Promoting the rational, safe and effective use of medicines
Pharmacists & CDs...

Expert clinical decision support systems to enhance antimicrobial stewardship programs: insights from the society of infectious diseases pharmacists.

Author information

Abstract

Health care-associated infection (HAI) remains one of the leading cause of in-hospital mortality and adverse events such as antimicrobial resistance. These infections arise from a complex interaction of factors that act both at the patient care system and create situations for misuse of antimicrobial drugs. Recognition of these factors has led to the realisation that healthcare systems need to develop programs to improve the management of HAI and the use of antimicrobial drugs. Traditionally, antimicrobial stewardship is often referred to as antimicrobial stewardship. Traditionally, antimicrobial stewardship is often referred to as antimicrobial stewardship.

The advent of modern health care information technology has greatly increased the breadth and depth of these programs. Expert clinical decision support systems are the most promising of these information technology advances.

Patient characteristics, local antibiograms, dosing strategies to achieve optimal pharmacodynamic profile, early appropriate therapy can be utilised to improve clinical outcome, minimize resistance development and reduce healthcare cost.

Summary: Bacterial resistance is an increasing problem in the hospital environment, and has been associated with poorer clinical outcomes and elevated healthcare costs. By using patient characteristics, local antibiograms, and dosing strategies to achieve an optimal pharmacodynamic profile, early appropriate empirical therapy can be utilized to improve clinical outcomes, minimize the development of resistance, and reduce healthcare costs.
Members of the ASP team and their roles and responsibilities:

a. Head of ASP team
   - Usually led by an ID Practitioner (physician or pediatrician), senior physician or clinician deemed to be suitable by the hospital director.
   - Represents the AMS team in the hospital infection control committee and gives feedback on ASP program.
   - Collaborates with the Drugs and Therapeutics Committee (JKUT) to determine available antimicrobials in the hospital formulary.
   - Prepares surveillance and audit reports for submission to state and national level.
   - Proposes annual ASP activities with the hospital Director and various departments.

b. Infectious Disease (ID) Physician or Physician (if available)
   
   Roles and responsibilities:
   - Leads the technical component of Antimicrobial Stewardship team.
   - Consults and advises on specific stewardship related cases and issues.

c. Antimicrobial Pharmacist or Clinical Pharmacist

   (In larger healthcare settings, preferably a dedicated full-time Pharmacist trained in ASP)

   Roles and responsibilities:
   - Clinical role in conjunction with other members of the Antimicrobial Stewardship Team
     - Gives technical knowhow on finer aspects of antimicrobials and newer agents.
     - Works with and educates ward pharmacists to identify potential patients for stewardship interventions (e.g., de-escalation, etc.)
     - Carries out dose optimization especially for complex antibiotics and complex...
c. Antimicrobial Pharmacist or Clinical Pharmacist

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**Roles and responsibilities:**

- Clinical role in conjunction with other members of the Antimicrobial Stewardship Team
  - Gives technical knowhow on finer aspects of antimicrobials and newer agents.
  - Works with and educates ward pharmacists to identify potential patients for stewardship interventions (eg de-escalation etc)
  - Carries out dose optimization especially for complex antibiotics and complex clinical scenarios.
  - Integrates usage of therapeutic drug monitoring (where available)
  - Ensures safe and effective use of medication to reduce risk for errors and adverse events
- Surveillance of antimicrobial use
  - Collection and analysis of local consumption and expenditure
  - Provision of data to regional/national surveillance programs
  - Carries out and analyses point prevalence studies on antimicrobial usage
- Audit and feedback
  - Leads and conducts appropriate antimicrobial audits
  - Provides timely feedback for future improvement
ANTIBIOTIC STEWARDSHIP

Antibiotic stewardship programs (ASP) can reduce inappropriate prescribing and provide other benefits, such as shorter therapies and lower hospital costs (Chl and Good's Ashley 2011). Both persuasive (advice or feedback on prescribing) and restrictive (limits or required approvals) interventions improve physicians’ prescribing practices, and restrictive interventions have a larger effect. ASPs have also been associated with a decrease in HCAIs (Davey et al. 2013).

Similarly, ASPs in critical-care units in nine countries from 1996 to 2010 reduced antibiotic use by 11 to 38 percent, lowered costs by $5 to $10 per patient per day, shortened the average duration of drug therapy, reduced rates of inappropriate use, and reduced the number of adverse events. After six months, ASPs were associated with reductions in antibiotic resistance for some drug-bug combinations, particularly for Gram-negative bacilli (Kaki et al. 2011). ASPs have also been found to reduce unnecessary antibiotic prescribing for asymptomatic bacteriuria (Trautner et al. 2015) and to decrease C. difficile incidence, particularly in geriatric settings (Feazel et al. 2014).

Although ASPs have been shown to reduce antibiotic resistance rates, few studies have demonstrated long-term reductions in resistance (McGowan 2012). However, given the lack of good measurement techniques and the long time required to observe the benefit of ASP programs, the lack of effect may be due to a lack of data rather than the absence of effectiveness.
<table>
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<tr>
<th><strong>THE ANTIMICROBIAL STEWARDSHIP CORE TEAM</strong></th>
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<tr>
<td><strong>HOSPITAL</strong></td>
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<tr>
<td>Infectious Disease–trained Physician</td>
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<tr>
<td>Clinical Pharmacist</td>
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<td>Clinical Microbiologist</td>
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<tr>
<td>Infection Control Representative</td>
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<td>Hospital Epidemiologist</td>
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<tr>
<td>IT</td>
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<tr>
<td>Senior Administrator</td>
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Elements of antimicrobial stewardship

AMS programs are multidisciplinary: they utilise the expertise and resources of infectious diseases physicians, clinical microbiologists, and pharmacists. Their success depends on the explicit support of the hospital administration, the allocation of adequate resources, and the cooperation and engagement of prescribers.
WHAT IS Antimicrobial Stewardship?
An initiative to promote responsible use of antibiotic resources
Antimicrobial Stewardship

- Antimicrobial stewardship involves the optimal selection, dose and duration of an antibiotic resulting in the cure or prevention of infection with minimal unintended consequences to the patient including emergence of resistance, adverse drug events, and cost.

- Antimicrobial stewardship can play a key role in the reduction of infection

- Implementing successful stewardship programs involves multiple strategies, administrative support, and effective collaboration of a multidisciplinary team
From the Infectious Diseases Society of America

Guidelines for Improving the Use of Antimicrobial Agents in Hospitals: A Statement by the Infectious Diseases Society of America

Society for Healthcare Epidemiology of America and Infectious Diseases Society of America Joint Committee on the Prevention of Antimicrobial Resistance: Guidelines for the Prevention of Antimicrobial Resistance in Hospitals


Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship

Testimony of the Infectious Diseases Society of America (IDSA)

Antibiotic Resistance: Promoting Critically Needed Antibiotic Research and Development and Appropriate Use ("Stewardship") of these Precious Drugs

Presented on 6/9/10 to US Congress
ASHP Statement on the Pharmacist’s Role in Antimicrobial Stewardship and Infection Prevention and Control

Position

The American Society of Health-System Pharmacists (ASHP) believes that pharmacists have a responsibility to take prominent roles in antimicrobial stewardship programs and participate in the infection prevention and control programs of health systems. This responsibility arises, in part, from pharmacists’ understanding of and influence over antimicrobial use within the health system. Further, ASHP believes that the pharmacist’s ability to effectively participate in antimicrobial stewardship and infection prevention and control efforts can be realized through clinical endeavors focused on proper antimicrobial utilization and membership on multidisciplinary work groups and committees within the health system. These efforts should contribute to the appropriate use of antimicrobials, ultimately resulting in:

3. Surveillance systems to track the occurrence and transmission of infections.
4. Surveillance systems to track the use of antimicrobials and the development of antimicrobial resistance.
5. Promotion of evidence-based practices and interventions to prevent the development of infections.

Responsibilities of Pharmacists

Pharmacists’ responsibilities for antimicrobial stewardship and infection prevention and control include promoting the optimal use of antimicrobial agents, reducing the transmission of infections, and educating health professionals, patients, and the public.
Where are we in managing CDs?

- Pharmacists responsible to take prominent roles in antimicrobial stewardship programs and participate in the infection prevention and control programs of health systems.

- ASHP believes that the pharmacist’s ability to effectively participate in antimicrobial stewardship and infection prevention and control efforts can be realized through clinical endeavours focused on proper antimicrobial utilization and membership on multidisciplinary work groups and committees within the health system.

- These efforts should contribute to the appropriate use of antimicrobials, ultimately resulting in successful therapeutic outcomes for patients with infectious diseases, and reduce the risk of infections for other patients and health care workers.
Pharmacists’ responsibilities for antimicrobial stewardship and infection prevention and control include:

- promoting the optimal use of antimicrobial agents
- reducing the transmission of infections,
- educating health professionals, patients, and public
Promoting the optimal use of antimicrobial agents

- Encouraging multidisciplinary collaboration

- Working within the pharmacy and therapeutics committee (or equivalent) structure, which may include infectious disease-related subcommittees, to ensure that the number and types of antimicrobial agents available are appropriate for the patient population

- Operating a multidisciplinary, concurrent antimicrobial stewardship program that uses patient outcomes to assess the effectiveness of antimicrobial use policies
Promoting the optimal use of antimicrobial agents

- Generating and analysing quantitative data on **antimicrobial drug use** to perform clinical and economic outcome analyses

- Working with the microbiology laboratory personnel to ensure that appropriate microbial susceptibility tests are reported on individual patients in a timely manner, and collaborating with the laboratory, infectious diseases specialists

- **Utilizing information technology** to enhance antimicrobial stewardship through **surveillance, utilization and outcome reporting**, and the development of clinical decision-support tools
Reducing the Transmission of Infections.

- Participating in the infection prevention and control committee (or its equivalent).

- Establishing internal pharmacy policies, procedures, and quality-control programs to prevent contamination of drug products prepared in or dispensed by the pharmacy department.

- Promoting adherence to standard precautions by health care workers, patients, and others who impact the patient care environment.
Educational Activities

- Providing education and information about antimicrobial stewardship and infection prevention and control to health professionals, patients, and members of the public who come in contact with the health system’s practice settings.

- Incorporating active intervention techniques, such as formulary restriction and preauthorization, enhances the effectiveness of educational activities in the patient care setting.
Educational Activities : Examples

- Providing clinical conferences, newsletters, and other types of educational forums for health professionals on topics such as antimicrobial use and resistance, decontaminating agents (disinfectants, antiseptics, and sterilants)

- Educating and counseling inpatients, ambulatory care patients, home care patients, and their families and caregivers in the following areas: adherence to prescribed directions for antimicrobial use, storage and handling of medications and administration devices

- Providing exposure to antimicrobial stewardship and infection prevention and control practices
The Pharmacist's Role in Preventing Antibiotic Resistance

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7/20/2011
The Pharmacist's Role

The pharmacist's role in combating and preventing infectious diseases is essential as antibiotic and vaccine regimens become more complex due to the continuously evolving epidemiology of infections. The decrease in drug development makes the preservation of currently available antibiotics paramount, highlighting the roles that pharmacists play in maximizing the utility of available drugs. While further training in infectious diseases may be necessary for some pharmacist roles in preventing antibiotic resistance, many others exist that all pharmacists can embrace.

Antibiotic Stewardship

Pharmacist-directed antibiotic stewardship programs (ASPs) have proliferated considerably in the past decade. After evidence emerged that these programs improve patient care, the Infectious Diseases Society of America and Society for Healthcare Epidemiology of America published a guideline for the development of ASPs specifying that an infectious diseases-trained clinical pharmacist was an essential core member. As resistance has increased and antibiotic development has lagged, ASPs have become important to improve clinical outcomes, prevent resistance, and decrease adverse events such as Clostridium difficile infections. ASPs take many forms, but all utilize a team approach to improve the utilization of antibiotics through means such as interventions on individual patients, guideline development, and system-wide improvement (TABLE 1). Over time, ASPs may become a standard for all hospitals and long-term-care facilities across the nation; however, at this time only California has developed a statewide initiative to require ASPs.
The expanding role of the antibiotic pharmacist

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Widespread inappropriate prescribing of antibiotics in UK hospitals has led to the introduction of specialist antibiotic pharmacists. Their role is to monitor antibiotic use, advise clinicians, educate all grades of healthcare workers and help to develop policy. Antibiotic pharmacists have been shown to be effective in many situations. As these practitioners become more accomplished it will be possible to expand their role to include direct intervention in patient treatment. Simple measures, such as modification of intravenous treatment to oral and automatic stop orders, could greatly enhance patient care.

Keywords: antibiotic, prescribing, control
Key roles for antibiotic pharmacists

- Education of medical, pharmacy and nursing staff
- Audit of local practices
- Participation in infection control
- Antibiotic consumption monitoring
- Formulary development
- Appraisal of new antimicrobials
Benefits of dedicated Antibiotic Pharmacist:

- reducing medication errors
- reduce length of hospital stay
- encouraging oral medication
- ensuring appropriate drug choice

...difficult to quantify exactly how great the clinical and financial benefits are as the studies in this field are generally of poor quality...
When I want to understand what is happening today or try to decide what will happen tomorrow, I look back.

Omar Khayyam
Potential shortcomings:

• The ability of an antibiotic pharmacist to be effective could be reduced by lack of other health care providers’ knowledge or by lack of support from clinical colleagues.

• Pharmacy degree only provides basic training in microbiology, it is likely that further training such as Residency Programme, fellowship in practice, MSc in infection management for pharmacists (UK) is crucial.

• Continuing training whilst in post and close liaison with an infection specialist, to whom complicated cases can be referred, also helps to develop diagnostic and evaluation skills that only come with experience.
Potential shortcomings:

- While many clinicians recognize the need to improve antimicrobial prescribing, not all will accept that their own practice may be in need of improvement. *nobody likes to be told what to use or what not to use!!*

- The antimicrobial pharmacist need to work hard *must worked very hard* to gain the respect of medical colleagues, some of whom will not appreciate ‘interference’ from other health-care provider.

- Successful implementation of the antimicrobial pharmacist role requires good working relationships and trust to be developed with clinical teams.
Potential shortcomings:

- It’s a great challenge for the pharmacist to show the benefits of advice and collaboration with the clinical team rather than to be reviewed as a policy enforcer or more focus on technical part, rather than clinical.

- Support and input from the clinical microbiologists will help to uplift the pharmacist profile …**but pharmacist must work hard towards this.**

- Moreover, agreement with the advice given, by the consultant in charge of the patient, is vital to give the pharmacist credibility with junior medical staff and will allow them to make greater contribution in the future.
SIDP–ACCP JOINT OPINION PAPER

Recommendations for Training and Certification for Pharmacists Practicing, Mentoring, and Educating in Infectious Diseases Pharmacotherapy

Joint Opinion of the Society of Infectious Diseases Pharmacists and the Infectious Diseases Practice and Research Network of the American College of Clinical Pharmacy


(Pharmacotherapy 2009;29(4):482–488)

SIDP - Society of Infectious Diseases Pharmacists American
ACCP - College of Clinical Pharmacy Infectious Diseases Practice and Research Network
Antimicrobial stewardship programs recommend that a pharmacist with infectious diseases training be included as a core member of the antimicrobial stewardship team.

Self-directed learning or on-the-job experiences in infectious diseases is not considered feasible or sufficient for reliable training of future clinical specialists in infectious diseases.

This document, therefore, is forward looking and provides overarching recommendations for future training and certification of pharmacists practicing, mentoring, and educating in infectious diseases pharmacotherapy.
**Definition:**

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<tr>
<th>ID trained Pharmacist</th>
<th>ID clinical pharmacist</th>
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<tr>
<td>defined as a pharmacist who has received formalized training in infectious diseases pharmacotherapy</td>
<td>is one who practices in the collaborative care of patients with infectious diseases.</td>
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**ID Clinical Pharmacist Responsibility**

<table>
<thead>
<tr>
<th>Clinical Service</th>
<th>Research</th>
<th>Educational</th>
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<tr>
<td>• pharmacotherapy or pharmacokinetic evaluations,</td>
<td>• in vivo or in vitro antimicrobial assessments,</td>
<td>• directed at patients, trainees, students, health care workers</td>
</tr>
<tr>
<td>• therapeutic monitoring</td>
<td>• pharmacokinetic or pharmacodynamic analyses,</td>
<td></td>
</tr>
<tr>
<td>• drug information or patient education regarding antimicrobial therapy</td>
<td>• resistance surveillance, pharamacoeconomic analyses</td>
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<tr>
<td>• antimicrobial stewardship participation or coordination</td>
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Core Competencies for all health care professionals

Expanded competencies for infectious diseases–trained clinical pharmacists

- Make empiric, prophylactic, and definitive antimicrobial treatment recommendations based on patient-specific factors
- Interpret and make treatment recommendations based on microbiology reports
- Interpret and make treatment or formulary recommendations based on antibiogram or microbiology data
- Critically evaluate and apply infectious diseases literature and research
Expanded competencies for infectious diseases–trained clinical pharmacists

- Make informed, evidence-based, cost effective recommendations to relevant parties regarding formulary decisions

- Participate in infectious diseases–related continuing professional development

- Educate other health professionals (e.g., hospital staff, other pharmacists, students, and residents) and the public regarding infectious diseases

- Design, implement, and monitor programs to prevent, delay, or combat antimicrobial resistance
SUCCESS

WHAT PEOPLE THINK IT LOOKS LIKE

SUCCESS

WHAT IT REALLY LOOKS LIKE
WARNING

CHALLENGES AHEAD
What is Pharmacist biggest challenge...?

To translate and transform all the recommendations / suggested / listed ROLES & EXPANDED ROLES of pharmacist into practice....
Your Comfort Zone → Where the magic happens
It's the road to success!

- Well Defined Goals
- Commitment
- Clear Objectives
- Right Approach
- Don't Quit
- Solid Foundation
- Taking Action

Put your foot on the gas!
It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.

- Charles Darwin