

Choosing Wisely in Infection

A synthesis of international English language infection recommendations

Alexander Richards¹, Gavin Barlow^{1,2}

¹Hull and East Yorkshire Hospitals NHS trust, Hull, UK. ²Hull York Medical School, UK.

Choosing Wisely

Launched in 2012 by the American Board of Internal Medicine, the aim of Choosing Wisely is to reduce unnecessary testing or treatment. The campaign brings together information from a wide range of medical institutions and clinical societies in the United States (US) to improve doctor-patient communication and tackle the overuse of medical resources. (www.choosingwisely.org)

Global Campaign

Since the initial work in the US, a number of countries have taken up this initiative, but the information and recommendations generated by these independent campaigns has not been collated. The Academy of Medical Royal Colleges launched the UK version in 2016: (www.choosingwisely.co.uk)

Importance

The global antimicrobial resistance crisis means that antimicrobial use must be optimised. Additionally, 1 in 5 hospitalised patients prescribed an antibiotic develops a clinically important adverse effect. Diagnostic stewardship is also an emerging initiative. £2.5 billion/year is spent on NHS pathology services (4% of NHS expenditure, rising by 10% per annum over the past 3 years). In England, over 50 million microbiology requests are processed each year. Optimisation and treatment of patients with infection is therefore vital. ('Unwarranted variations', Lord Carter Review 2016)

Aim

This project aims to synthesise existing international *Choosing Wisely* recommendations relevant to infection.

Methods

A systematic search of the internet was undertaken for published English language (under the banner of *Choosing Wisely*) recommendations relating to the investigation and treatment of infection.

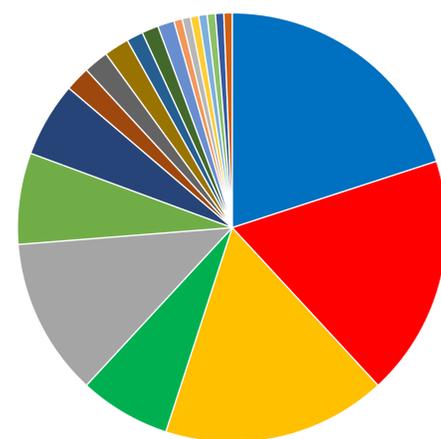
A total of 163 recommendations were found and then organised thematically to highlight areas of agreement/similarity between different global *Choosing Wisely* initiatives.

4 key areas of focus

Area/Specialty	Proportion (%)
Respiratory	20
Generic	18
Urinary Tract	17
Gastroenterology	7

Breakdown of Recommendations by Specialty

- Respiratory
- Generic
- Urinary Tract
- Gastroenterology
- Dermatology
- GUM
- Surgery
- Cardiology
- HIV
- Orthopedics
- EoL
- Gynaecology
- Hepatitis
- Allergy
- Imaging
- Nursing
- Neurology
- Obstetrics
- Oncology
- Paediatrics



Recommendation	Rationale	Support
Do not request unnecessary tests if patients are clinically improving and it will not change management plan	For example, daily bloods, chest x-rays, specimen cultures. Clinical picture should guide management plans and assess response to antibiotics	
Consider de-escalation of intravenous to oral antibiotics daily (when an appropriate agent is tolerated)	De-escalation of antibiotics reduces the need and complications of intravenous access, reduces the risk of antibiotic resistance and the overall cost of antibiotic administration. Use oral formulations of highly bioavailable agents when possible	
Do not prescribe alternate second-line antimicrobials to patients reporting non-severe reactions to penicillin when beta-lactams are the recommended first-line therapy	Reported penicillin reactions frequently result in the use of alternate second-line agents that may be clinically inferior or may pose increased risks to patients resulting in longer lengths of stay and increased costs of care. Alternate broad-spectrum agents may also result in increased rates of adverse events and selection for antimicrobial resistance	
Do not routinely administer antipyretics with the sole aim of reducing body temperature in un-distressed children	The benefits of fever in slowing the growth and replication of bacteria and viruses are well documented within the literature, however the administration of pharmacological antipyretic therapy to reduce fever remains a common clinical intervention. Current evidence does not support the routine use of antipyretics solely to reduce body temperature	
Do not forget to communicate any alert microorganisms in the patient health records (hospital discharge letter or document related to the patient transfer to another facility)	The indication of positivity to an alert microorganism (e.g. MRSA) in the discharge letter or document related to the patient transfer to another facility is a fundamental piece of information for patient management both at home or in another health facility. Knowledge of an alert microorganism allows health professionals, GPs, and family members to take appropriate precautions and to use the most suitable antibiotics	
Do not routinely avoid influenza vaccination in egg-allergic patients	Studies have shown no evidence of allergic reaction, even in severe egg allergy patients	

Support	Recommendation	Rationale
	Do not treat asymptomatic bacteriuria with antibiotics	Antibiotic treatment of patients with asymptomatic bacteriuria is generally not indicated as it does not decrease the incidence of symptomatic urinary tract infection. This also includes patients with indwelling urinary catheters. Exceptions to this are pregnant women and those undergoing a urological procedures
	Do not do a urine dip or send urine specimens for culture unless urinary tract symptoms are present	Testing should only be done when there are urinary tract infection (UTI) symptoms
	Do not use a bag for collection of urine cultures to diagnose urinary tract infections	Bacterial growth in cultures of bag urine specimens are more likely to be falsely positive in young children with suspected urinary tract infection (UTI) due to contamination with perineal flora. A bag urine culture cannot therefore be used to establish the diagnosis of UTI and may lead to overtreatment
	Do not perform voiding cyst-urethrogram (VCUG) routinely in first febrile urinary tract infection (UTI) in children aged 2-24 months	Risks outweigh delaying the detection of abnormalities until the 2nd UTI
	Avoid using a fluoroquinolone antibiotic for the first-line treatment of uncomplicated urinary tract infections (UTIs) in women	Although fluoroquinolones are efficacious in 3-day regimens, they have a higher risk of increasing multidrug resistant organisms. Thus, they should only be used for those who cannot be prescribed nitrofurantoin, trimethoprim-sulfamethoxazole or Fosfomycin

Recommendation	Rationale	Support
Do not investigate or treat for faecal pathogens in the absence of diarrhoea or other gastro-intestinal symptoms	Testing of faeces for microscopy and culture or by PCR methods should not be performed in the absence of diarrhoea or other gastro-intestinal symptoms	
Do not maintain precautionary isolation upon symptom resolution in patients with <i>Clostridium difficile</i> diarrhoea	Despite the cessation of diarrhoea symptoms, in many operating environments the patient is kept in isolation. Isolation and contact precautions must be maintained up to 48 hours after the last discharge of diarrhoea. Diarrhoeal stools transmit spores that can remain in the environment and on the material that comes into contact with the patient	
Do not prescribe prophylactic antibiotics to prevent travellers' diarrhoea	The vast majority of cases clear in a few days without treatment. Antibiotic prophylaxis for travellers' diarrhoea is not recommended as these treatments disrupt the normal gut flora and allow resistant bacteria such as ESBL producers to flourish. Those taking antibiotics are more likely to become colonized with ESBL producing bacteria	
Do not use antibiotics in patients with recent <i>C. difficile</i> without convincing evidence of need. Antibiotics pose a high risk of <i>C. difficile</i> recurrence	<i>C. difficile</i> can be a life threatening illness and is generally caused by antibiotics killing normal bacteria in the intestine. Patients recovering from <i>C. difficile</i> are three times as likely to have a recurrence if they receive an antibiotic in the following month. However, unnecessary antibiotics are often used in this population – primarily for misdiagnosed urinary tract infection or pneumonia	
Do not request serology for <i>H. pylori</i> . Use the stool antigen or breath tests instead	Alternative non-invasive testing methods (e.g., the urea breath test and stool antigen test) have demonstrated higher clinical utility, sensitivity, and specificity	

Support	Recommendation	Rationale
	Do not use antibiotics or order radiological tests for upper respiratory infections that are likely viral in origin, such as influenza-like illness, or self-limiting, such as sinus infections of less than seven days duration	Most upper respiratory tract infections are viral or self-limiting. Although cases of non-resolving (>7 days) bacterial sinusitis may benefit from antibiotics, most cases resolve without antibiotics
	Do not routinely do a throat swab when children present with a sore throat if they have a cough, rhinitis, or hoarseness as they almost certainly have viral pharyngitis	Throat swab is unlikely to change management, as these children are unlikely to have 'Strep Throat' as the cause of their sore throat
	Do not routinely use antibiotics other than amoxicillin in the treatment of children with presumed community-acquired pneumonia (in the outpatient setting)	Preschool-aged children with CAP (community acquired pneumonia) frequently do not require antibiotics, as most disease is caused by viral infections. Children with suspected CAP of bacterial origin should usually receive amoxicillin for outpatient treatment, or ampicillin or penicillin G for inpatient treatment
	Do not use antibiotics for acute asthma exacerbations without clear signs of bacterial infection	If an attack is precipitated by an infection, it is much more likely to be viral than bacterial
	Avoid ordering an abdominal ultrasound examination routinely in athletes with infectious mononucleosis	Splenic enlargement is very common in infectious mononucleosis and increases risk of rupture in the first 3-4 weeks. However, normal splenic size varies greatly, thus it is not possible to compare normal ranges/predict risk
	Do not routinely use perioperative antibiotics for elective tonsillectomy in children	Oral antibiotics may have significant adverse effects and do not provide demonstrable benefit after tonsillectomy. Avoidance of oral antibiotics can reduce the spread of antibiotic resistance and the risk of opportunistic infections

Discussion

Although campaigns were from different countries with a variety of healthcare systems, there was relatively good alignment of recommendations. The opportunity to optimise the testing and therapy, and cost-effectiveness of care, of infections therefore appears to be relatively similar across high income countries. Ultimately, the success of such campaigns will depend on healthcare professionals and patients supporting recommendations and evidence to demonstrate a beneficial impact of doing so. There is considerable potential synergy between global *Choosing Wisely* and antimicrobial stewardship initiatives, which could be exploited further to the benefit of both campaigns.

Future Work

This project has focused on English-language versions of *Choosing Wisely* from developed healthcare systems. Recommendations from low and middle income countries and those without English translations need to be synthesised to gain a more accurate global overview of *Choosing Wisely* infection and antibiotic guidance.