Antimicrobial stewardship

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Antimicrobials

Antibacterials

Antivirals

Antifungals

Antiprotozoals

Anthelmintic

Characteristics of various pathogens and its impact on antimicrobial strategies

- Virus vs Bacteria vs Fungi vs Protozoa vs Helminths
- Gram +ive vs Gram –ive
- Anaerobes
- H-pylori

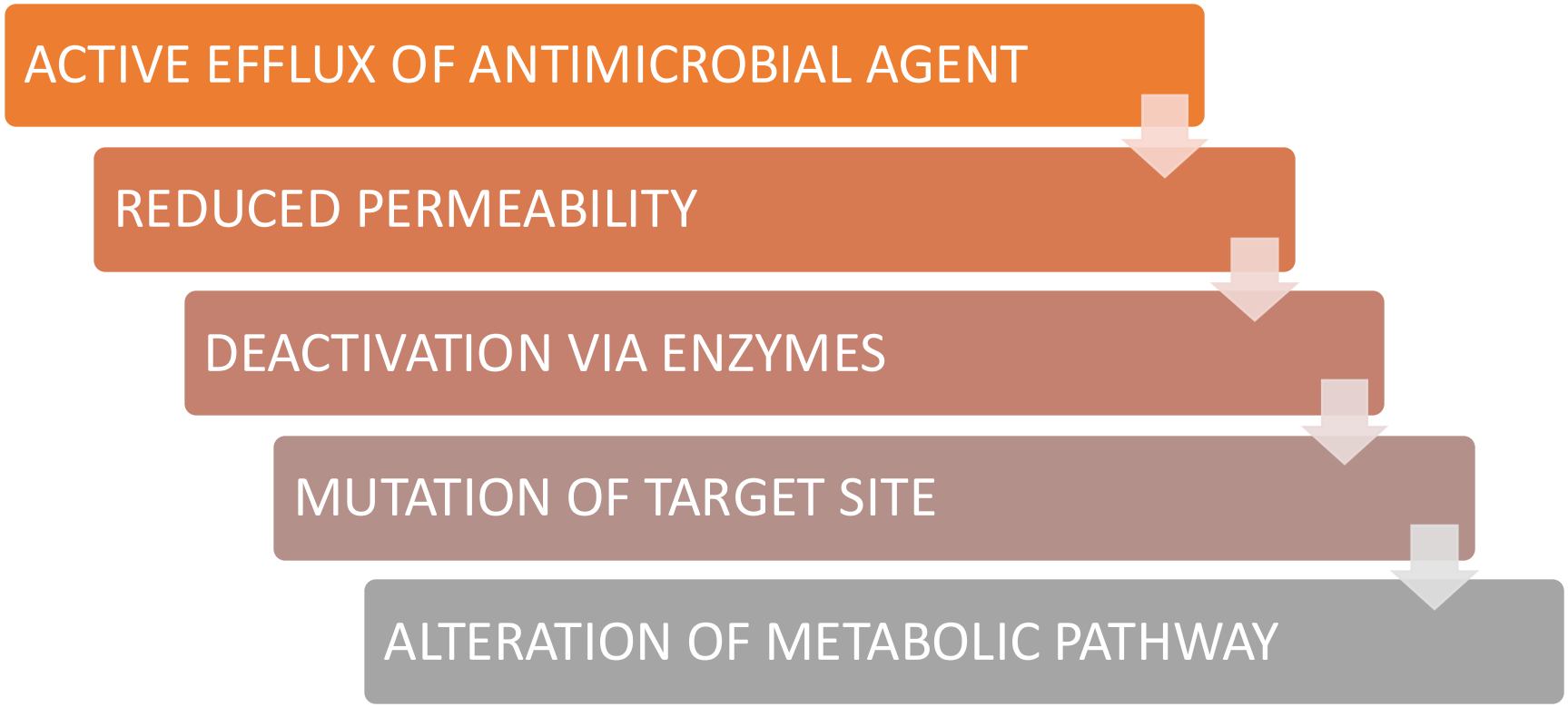
Resistance

Clinical resistance

- When there is not enough antimicrobial agent to kill the pathogen

Microbiological resistance

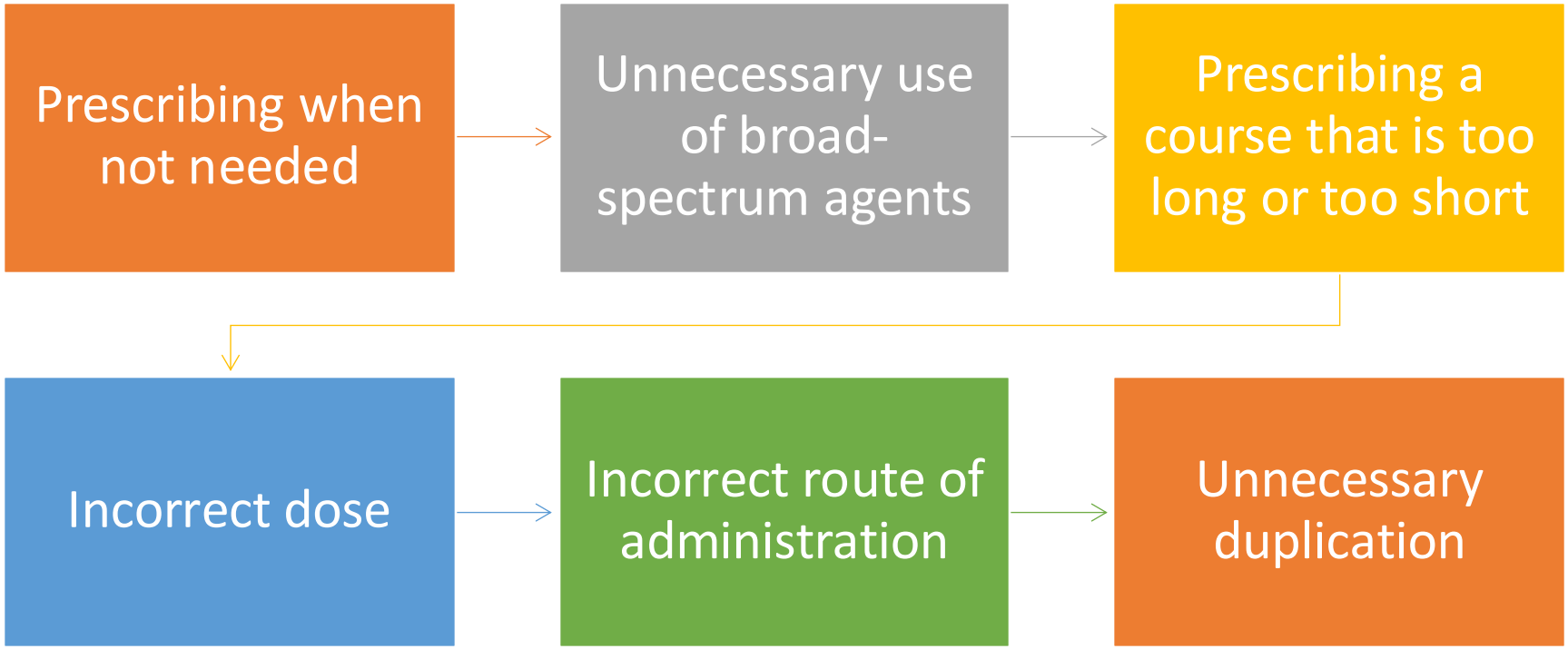
Acquired resistance (explained)



Antimicrobial resistance (A global threat)

Klebsiella pneumoniae	E-coli	Gonorrhoea
Resistance in Tuberculosis	Resistance in HIV	Resistant fungal infections

What classes as inappropriate antimicrobial prescribing?



Factors influencing prescriber

PATIENTS' EXPECTATIONS

POSITION AND EXPERIENCE OF PRESCRIBER

Factors that should influence prescribing decision!

Accurate history of presenting complaint
Accurate examination
Accurate history of recent exposure to antimicrobials
Taking into account patients' ability to follow dose/administration guidance
Local antimicrobial guidelines
CnS results
Exploring reasons of treatment failure

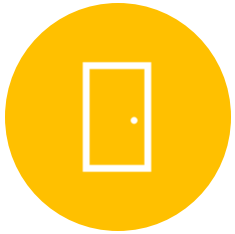
Who is at increased risk of infection!

- Cancer patients and on chemotherapy
- Transplant recipient on immunosuppressant
- Those receiving biologics
- Those who had splenectomy
- Pregnant
- The very young and elderly
- Those with co-morbidities

Key message

Use as narrow spectrum as possible

As short course as possible



Switch from IV to oral route as soon as possible

Always screen for **SEPSIS**

Healthcare associated infections

These arise as a result of medical care/treatment

Can happen in hospital, nursing home, patients' home

Can affect any part of body

Example: C-Diff, MRSA (superbugs)

Infection control and your role

- Hand hygiene
- Personal hygiene
- Immunisation (occupational health)
- Sickness guidance (occupational health)
- Needle stick injury (occupational health)

Some common presentations and current guidance (URTI)

For sore throat remember to document FEVERPAIN score

Otitis externa is usually treated with topical treatment

Only 2% of acute sinusitis are complicated by bacterial infiltration, so think very carefully before writing a Rx for antibiotics

Some common presentation and current guidance (LRTI)

- Bronchitis/ acute cough: Antibiotics should only be considered if patient is systemically really unwell or is in high risk category as discussed earlier.
- Acute exacerbation of COPD: The duration of antibiotic treatment is 5 days only
- Acute exacerbation of Bronchiectasis: The duration of treatment of antibiotics is 7-14 days
- There is slight difference in assessing CAP during COVID via remote consultation. You may not be able to use CRB65 score, but do document this wherever you can.

Some common presentations and current guidance (UTI)

- Uncomplicated lower UTI in non-pregnant women should be guided by symptoms + dip-stick. Use Nitrofurantoin as first line. Only use 3 days' course.
- For catheter associated infections, do not use dip-stick. Consider CnS. Let the symptoms guide your management options. Lower UTI antibiotic choice will be different from upper UTI.
- Lower UTI in men. Consider STI, prostatitis. Send pre-treatment MSU for CnS. Trimethoprim can be used. Duration of treatment is 7 days.

Oral thrush

- It is rare in immunocompetent individuals
- Topical Azoles (miconazole) is superior to Nystatin

Helicobacter Pylori

Only offer eradication in confirm H-pylori cases

Do not use Metronidazole, Clarithromycin or Quinolones if it has been used in past 12 months.

Bacterial vaginosis

- Oral metronidazole is as effective as topical, readily available and cheaper to prescribe.

Impetigo

Reserve mupirocin for MRSA

Do not combine oral and topical antibiotics

Leg ulcers

Most are colonised by bacteria but only few are clinically infected

Look for sign of systemic unwellness, redness beyond the borders of ulcer, local warmth, severe pain.

Should you choose not to prescribe antibiotic, remember to re-asses in 48-72 hours.

Usually need longer course and higher doses than usual, sometimes off-license.

Dermatophyte skin infections

- Topical Terbinafine should be your first choice. It needs far less duration of treatment, hence better adherence and successful treatment.

Dermatophyte nail infection

- Only treat once nail clippings have been confirmed to have fungal elements in it.
- Oral Terbinafine is more effective than oral Azoles.
- Do not use topical Amorolfine, as it has very limited evidence of effectiveness.

Scabies

- Treat whole family and sexual contacts within 24 hours
- Recommended treatment is Permethrin Cream 5% two application to be used 1 week apart.

Allergies

- Intolerance vs Allergy
- Details of reactions
- Coding

Case study 1

3 Yr old child brought in with 3/7 history of sore throat, cough, fever, blocked nose ,dry cough and reduced oral intake.

Examination and history: 1 older sibling with similar symptoms started 1 week ago. Tympanic temperature 38.1, bilaterally enlarged tonsils, ear examination NAD, soft abdomen, passing urine and had bowel movement in last 24 Hours. Last dose of paracetamol given 9 Hrs ago.

Case study 1: Continued

- You are now told that
  - This child has end stage kidney failure
  - Suffers from allergic Asthma
  - Has ADHD
  - Was prescribed a course of penicillin yesterday (No h/o of penicillin allergy)
  - Child has cloudy/bulging TM

Case study 2

- 13Y old with known diagnosis of Atopic eczema since infancy. You have received photographs of what looks like a flare up of eczema patches.
- Patient has followed her Eczema management plan with minimal effect.
- Parent reports 1 week h/o mild fever, extreme pain and unable to do homework, reduced appetite.
- Current Eczema management plan has Eumovate 0.05% ointment to be used BD for up to 2 week (on trunk and limbs) and/or Hydrocortisone 1% for face + Continue to use generous amount of Emollient + Cetirizine OD.

Case study 3

- A 23 Y old female presents with 3/7 history of dysuria, mild suprapubic discomfort, increased urinary frequency.
  - Urine dipstick as below:
  - Nitrites +
  - Leucocytes +++
  - Blood (negative)

Case study 3 Continued

- You find out that she was prescribed 3 days' course of Nitrofurantoin
- You find out that she is pregnant
- You find out that she has been vomiting, passing cloudy urine and experiencing chills with lower back pain

Case Study 4

- 23 Y old male has 1 week h/o unilateral ear discharge symptoms
- Slight hearing impairment
- Also suffers from Seborrheic dermatitis

How will you treat?

As presented to you

You find out that patient has been treated with Clotrimazole 1% solution Three times a day for 1 week

You examine patient and discover that patient has perforated ear-drum

Patient tells you that he has already taken a 5 days' course of Flucloxacillin 500mg QDS

CULTURE

3+ Pseudomonas aeruginosa (Abnormal)
1+ Anaerobes (Abnormal)
SUSCEPTIBILITY

	Pseudomonas aeruginosa
METHOD	ANTIBIOTIC SUSCEPTIBILITY
CEFTAZIDIME	-- I = Susceptible at Increased Exposure
CIPROFLOXACIN	-- I = Susceptible at Increased Exposure
GENTAMICIN	-- Susceptible
PIPERACILLIN/TAZOBACTAM	-- I = Susceptible at Increased Exposure

SUSCEPTIBILITY COMMENTS

Case study 5

- A 49Y old female seeks help regarding her acne treatment.
- Current treatment Minocycline 100mg Daily
- Previous treatments: Duac gel (Tried for 1 months, aborted treatment as caused burning sensation)
- Previous treatment: Panoxyl gel (Tried variably for up to 2.5 years. Stopped because formulation was discontinued)
- Concerns today: Experiencing no significant control in acne and has noticed darker colour on her upper lip area that she is very unhappy about.

Useful resources

- Royal college of general practitioners TARGET antibiotic Toolkit https://www.rcgp.org.uk/clinical-and-research/resources/toolkits/target-antibiotic-toolkit.aspx
- NICE antimicrobial prescribing guidance https://www.nice.org.uk/Media/Default/About/what-we-do/NICE-guidance/antimicrobial%20guidance/summary-antimicrobial-prescribing-guidance.pdf
- PHE treat your infection personalised leaflet http://www.mysurgerywebsitemobile.co.uk/website/B87042/files/V5%20TYI%20leaflet%20for%20GPs%2021716.pdf
- Become an antibiotic guardian at https://antibioticguardian.com/ you will receive

Antimicrobial prescribing surveillance

- Total volume of antibiotics
- Minocycline
- Broad spectrum antibiotics
- Trimethoprim: Nitrofurantoin
- Broad spectrum : Total antibiotics
- 3 days' course for lower UTI
- Injectable preparations
- https://openprescribing.net/practice/