UK PAS paediatric Antimicrobial Intravenous-to-Oral Switch (IVOS) Decision Aid – based on UK HSA IVOS guidance (version 1, Jan 2024)

Why use this Paediatric IVOS decision aid?

IVOS is an important antimicrobial stewardship intervention. Research evidence confirms several IVOS benefits, including decreased risk of bloodstream and catheter-related infections, reduced equipment costs, carbon footprint and hospital length-of-stay, increased patient mobility and comfort, and released nursing time to care for patients. Most oral Abs have good bioavailability in children.*

When to use this IVOS decision aid?

The audit standard recommended for the implementation of this decision aid is that all children on intravenous (IV) therapy should be reviewed promptly from first dose of IV antimicrobial with formal review completed within 36 - 48 hours and daily thereafter, unless clearly documented exemptions. Evidence based guidance on the timing of IV to oral switch for specific infections is provided within the nationally agreed clinical pathways for children (https://bsac.org.uk/paediatricpathways/) and evidence based guidance on total duration of treatment is provided within the UK-PAS empirical antimicrobial guidelines (https://uk-pas.co.uk/Antimicrobial-Paediatric-Summary-UKPAS.pdf).

This IVOS decision aid is not for use in children in whom suspicion of a bacterial infection is low – in these children, antibiotics should be stopped at 36 hours once microbiology +- virology results are available (or earlier at discretion of senior decision makers)

Does your patient have an infection that may require a prolonged course of IV antibiotics?

Antibiotics can be stopped or switched within 48 hours in most children (and earlier at the discretion of senior decision makers). However, there are some infections that may require a prolonged course of IV antibiotics beyond 48 hours) including deep-seated infections, infections requiring high tissue concentration (i.e. CNS infections and infective endocarditis) or confirmed bacterial infections in severely immunocompromised children or in young infants (<3 months of age). **To note: on specialist advice, an IVOS within 48 hours may still be indicated for some patients with these infections.**

Infections requiring special consideration include, but are not limited to, those listed below:

- bloodstream infection Y/N
- empyema Y/N
- endocarditis Y/N
- meningitis Y/N
- osteomyelitis Y/N
- severe or necrotising soft tissue infections Y/N
- septic arthritis Y/N
- undrained abscess Y/N

If YES → documented plan, consult national clinical pathways or seek specialist advice

If NO → continue

1a. Enteral route

1.1. Is the patient's gastrointestinal tract functioning with no evidence of malabsorption? Y/N

1.2. Has the patient vomited within the last 24 hours? Y/N

1.3. Is the child able to tolerate oral medication (tablets or suspension)? Y/N

1.4. Is there a tolerable oral antibiotic available (taste / frequency of dosing)? Rather than offering large volumes of suspensions, has pill swallowing training been offered?(https://www.nenc-healthiertogether.nhs.uk/parentscarers/medicine-children/pill-swallowing-kidzmed) Y/N

If NO → reassess in 24 hours

If YES → continue

***Oral bioavailability**: amoxicillin 70%, azithromycin 60-90%, cephalexin 95%, ciprofloxacin 70-80%, clarithromycin 50-55%, clindamycin >90%, co-amoxiclav 70%, flucloxacillin 80%, fluconazole >90%, linezolid 100%, metronidazole 90-95%, rifampicin 90-95%

2. Clinical signs and symptoms

2.1. Are the patient's clinical signs and symptoms of infection improving? Y/N

If YES → continue

If NO → reassess in 24 hours

3. Infection markers

3.1. Has the patient's temperature been between 36-37.9°C for the past 24 hours? Temp: ..... Y/N

3.2. Is the patient's Paediatric Early Warning Score (PEWS) improving? PEWS: ..... Y/N

3.3. Is the patient's C-Reactive Protein (CRP) decreasing?** CRP: ..... Y/N

If NO → reassess in 24 hours

If YES → prompt or assess for switch

PROMPT FOR SWITCH:

Nursing/pharmacy teams to prompt prescriber or infection specialist to consider IV to oral switch.

ASSESS FOR SWITCH:

Paediatric team or infection specialist to consider IV to oral switch. Identify whether a suitable oral switch option is available, considering for example oral bioavailability, any clinically significant drug interactions, patient allergies or contra-indications.

Intravenous antimicrobial initiation:	Date: __/__/____	Time:	Name: .....
IVOS first assessment (daily thereafter):	Date: __/__/____	Time:	Name: .....
IV to Oral Switch:	Date: __/__/____	Time:	Name: .....

** To note: serial CRP can be a useful marker in assessing response to treatment. However, a raised CRP can also indicate a viral infection (ie adenovirus) or an inflammatory process; an IVOS may still be indicated if this is the only IVOS criteria not met.

References

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