

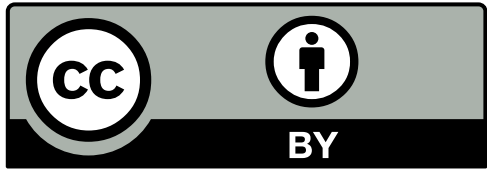


**preserving
antibiotics
through safe
stewardship**

Intervention Bundles

December 2020

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Interventions

GP **1** Electronic infection profile

GP **2** Patient-prescriber discussion tools

CH **1** Infection Prevention & Monitoring App

CH **2** Structured conversation tool

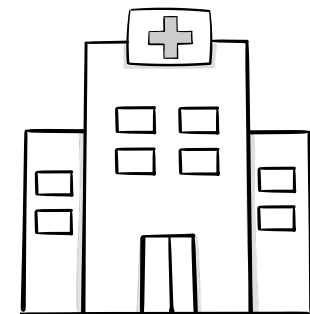
CH **3** Care home staff training

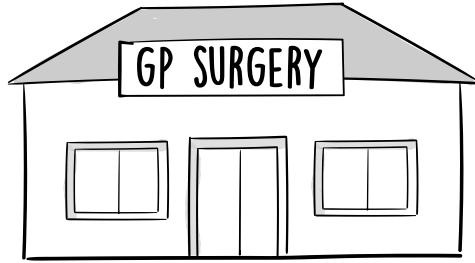
H **1** Electronic infection timeline

H **2** Structured symptom recording (UTI)

H **3** Monitor & prioritise prescription review

H **4** Facilitate therapy de-escalation





Mean consultation:
9 minutes



Primary care

GPs need to

- ✓ evaluate likelihood & potential of complications
- ✓ address patients' concerns/circumstances
- ✓ decide the best course of action
- ✓ communicate it effectively to patient

Intervention target areas

- ✓ streamline consultation
- ✓ optimise electronic records systems
- ✓ facilitate use of prescribing guidelines
- ✓ improve communication with patients

Stevens S, Bankhead C, Mukhtar T, et al (2017) Patient-level and practice-level factors associated with consultation duration: a cross-sectional analysis of over one million consultations in English primary care, *BMJ Open*, 7:e018261. doi: [10.1136/bmjopen-2017-018261](https://doi.org/10.1136/bmjopen-2017-018261)

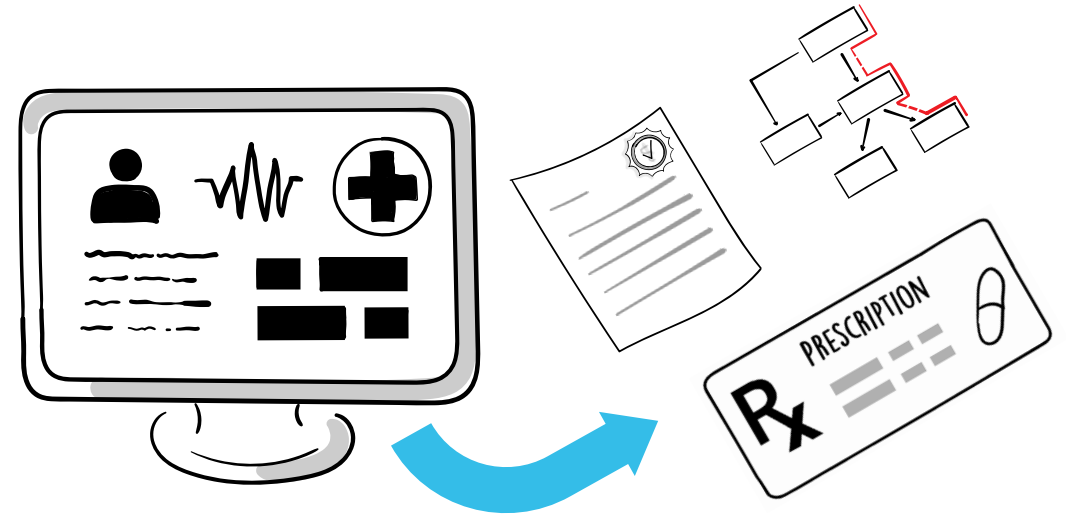


System within Electronic Medical Records

- ✓ Structured Infection & prescriptions history
- ✓ Prompting options from clinical guidelines and other resources (eg patient leaflets)
- ✓ Infection summary issued for other docs (potentially even patients)

Potential Mechanisms of Action

- Memory, attention and decision processes
- Environmental context & resources
- Behavioural cueing



Diagnosis: URETHRITIS

INFECTION HISTORY

Date	Infection	Confidence	ABx
20/07/06	Bacterial Urinary Infection/ 312124009	Low	Co-Amo
<i>Location: Sloan medical Centre S11 8BB HCP: R.Surname/364</i>			

Date	Infection	Confidence	ABx
20/07/06	Bacterial Urinary Infection/ 312124009	Low	Co-Amo
<i>Location: Sloan medical Centre S11 8BB HCP: R.Surname/364</i>			

FACTORS AFFECTING PRESCRIBING

Date	Infection	Confidence	ABx
20/07/06	Bacterial Urinary Infection/ 312124009	Low	Co-Amo
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LOCAL PRESCRIBING INFORMATION

Date	Infection	Confidence	ABx
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NEXT

Diagnosis: URETHRITIS

INFECTION HISTORY

Relevant infections

Date	Infection	Confidence	ABx
20/07/06	Bacterial Urinary Infection/ 312124009	Low	Co-Amo
20/03/23	Bacterial Urinary Infection/ 312124009	Low	Co-Amo

FACTORS AFFECTING PRESCRIBING

20/07/06	Travel Details.....
20/05/15	Allergy Details.....
20/06/23	Hospital Admission Details.....

LOCAL PRESCRIBING INFORMATION

NEXT

Diagnosis: URETHRITIS

INFECTION HISTORY

Relevant infections

Date	Infection	Confidence	ABx
20/07/06	Bacterial Urinary Infection/ 312124009	Low	Co-Amo
20/03/23	Bacterial Urinary Infection/ 312124009	Low	Co-Amo

FACTORS AFFECTING PRESCRIBING

Occupation	Nursery Teacher
Travel	Indonesia; June 2019
Micro	Resistance to Cefalexin
Hospital	3 admissions over last year; 1 HAIs
OOH	6 visits over last year
Allergy	Penicillin

LOCAL PRESCRIBING INFORMATION

MONITOR

PRESCRIBE



- ✓ Guides by clinicians for clinicians on patient needs, fears and expectations
- ✓ Antibiotic 'spiel' guide – phrases to effectively communicate
- ✓ Patient resources about infections and their natural course, including visual representations
- ✓ Patient resources targeted at complex groups (eg COPD, recurrent UTI, etc)

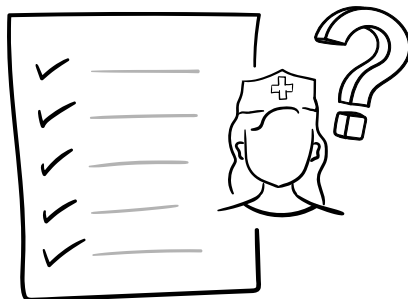
Potential Mechanisms of Action

- Knowledge & Skills
- Emotions
- Behaviour regulation
- Social influences





- Well-embedded infection **protection & control** (IPC) protocols
- Infection **management** strategies are less formalised: unclear hierarchy of care decision making.
- This can lead to rapid escalation to antibiotics.



Care homes

Priority areas we identified:

- ✓ Personalised infection management:
 - medicine management
 - internal escalation management
 - external escalation management
- ✓ Develop new training resources linking IPC, infection management, and AMS
- ✓ Promote and communicate on AMS

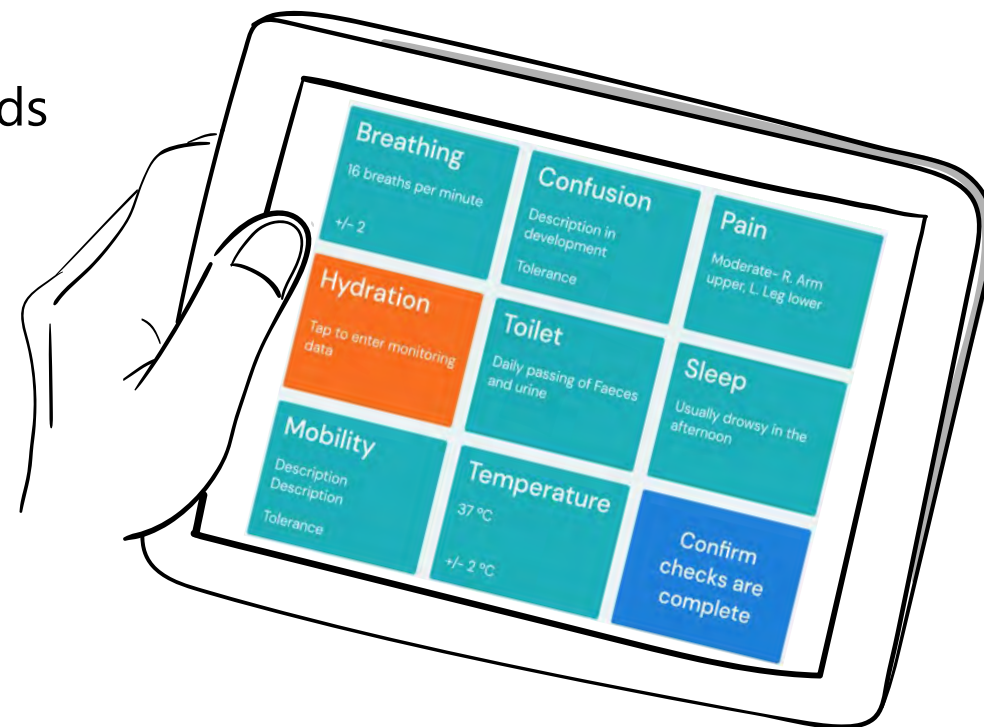


Infection Prevention & Monitoring App

- ✓ Protocol to complete daily checks to observe, monitor and record any changes in 9 observables
- ✓ Holds data on each resident's baseline
- ✓ Specifies thresholds for altering senior care staff
- ✓ Supports communication on residents' health and needs both within the care home and with external services

Potential Mechanisms of Action

- Knowledge
- Memory, Attention, Decision Making
- Emotions
- Behaviour regulation



Breathing

16 breaths per minute

+/- 2

Confusion

Description in development

Tolerance

Pain

Moderate- R. Arm upper, L. Leg lower

Hydration

5 beakers every 12 hrs

+/-1

Toilet

Daily passing of Faeces and urine

Sleep

Usually drowsy in the afternoon

Mobility

Description
Description

Tolerance

Temperature

37 °C

+/- 2 °C

Confirm
checks are
complete

Breathing

Baseline: 16 breaths per minute

+/- 2 breaths

Additional information

<< Back

Start Monitoring

Breathing

Tap to enter monitoring data

Confusion

Description in development

Tolerance

Pain

Moderate- R. Arm upper, L. Leg lower

Hydration

5 beakers every 12 hrs

+/-1

Toilet

Daily passing of Faeces and urine

Sleep

Usually drowsy in the afternoon

Mobility

Description
Description

Tolerance

Temperature

37 °C

+/- 2 °C

Confirm
checks are
complete

Breathing

Baseline:

16 breaths per minute

View monitoring
progress

Tap to enter monitoring data

<< Back

Confirm

Breathing

Monitoring data up to date

Tap to see summary

Confusion

Description in development

Tolerance

Pain

Moderate- R. Arm upper, L. Leg lower

Hydration

5 beakers every 12 hrs

+/-1

Toilet

Daily passing of Faeces and urine

Sleep

Usually drowsy in the afternoon

Mobility

Description
Description

Tolerance

Temperature

37 °C

+/- 2 °C

Checks
complete



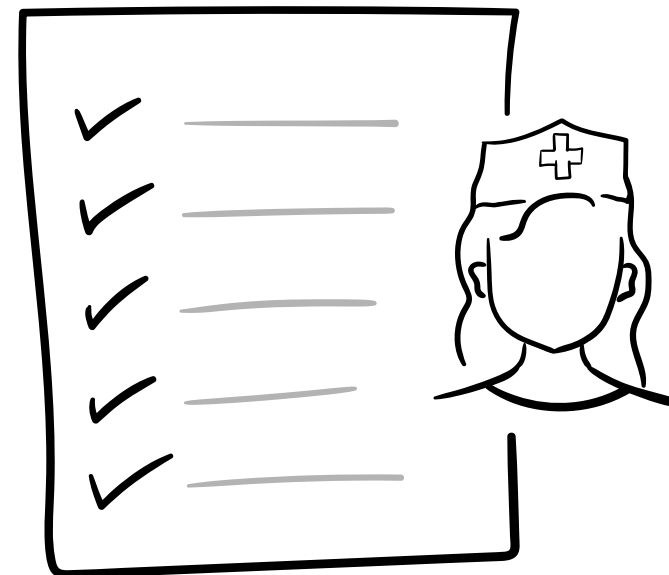
Structured Conversation Tool to identify infection risks

Step-by-step instructions for staff, residents and their relatives to discuss and log anything that may put them at higher risk of infection

“Knowing the resident [better] would give me the confidence to act and medicate in the resident’s best interests, even under pressure from others [GP / family]”

“Some carers don’t have the clinical knowledge to deflect or provide relatives a rationale for their decisions”

“We record a lot [about the resident] but not always their baseline [which is very useful]”

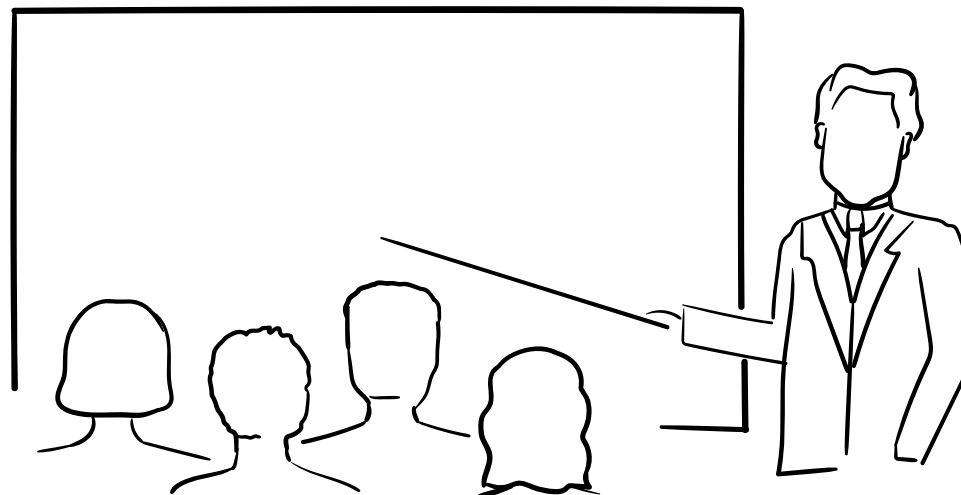


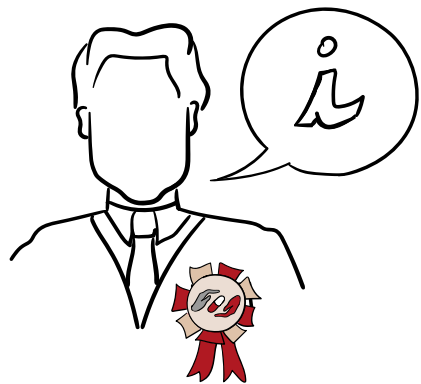
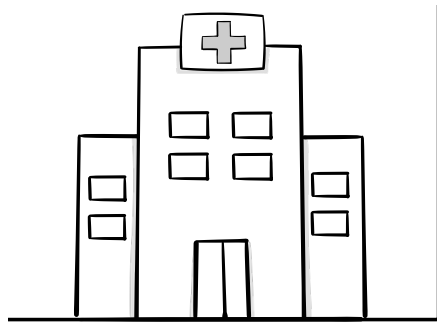
There is a need for training resources on:

- common care home infections, including how to prevent, spot and manage them
- engaging with residents to better observe and monitor any changes in residents' health
- communicating changes in residents' health in the home

Potential Mechanisms of Action

- Knowledge; Skills
- Social professional role and identity
- Beliefs about capabilities





Infection specialists can advise prescribers

- microbiologists
- infectious disease consultants
- antimicrobial pharmacists

Secondary care

Challenges

- ✓ Rationale for antibiotics not evident from notes
- ✓ Electronic notes do not always improve the structure and quality of information
- ✓ Low confidence in stopping/de-escalating therapy
- ✓ Just 8 infection specialists for 150 inpatients taking antibiotics

Intervention target areas

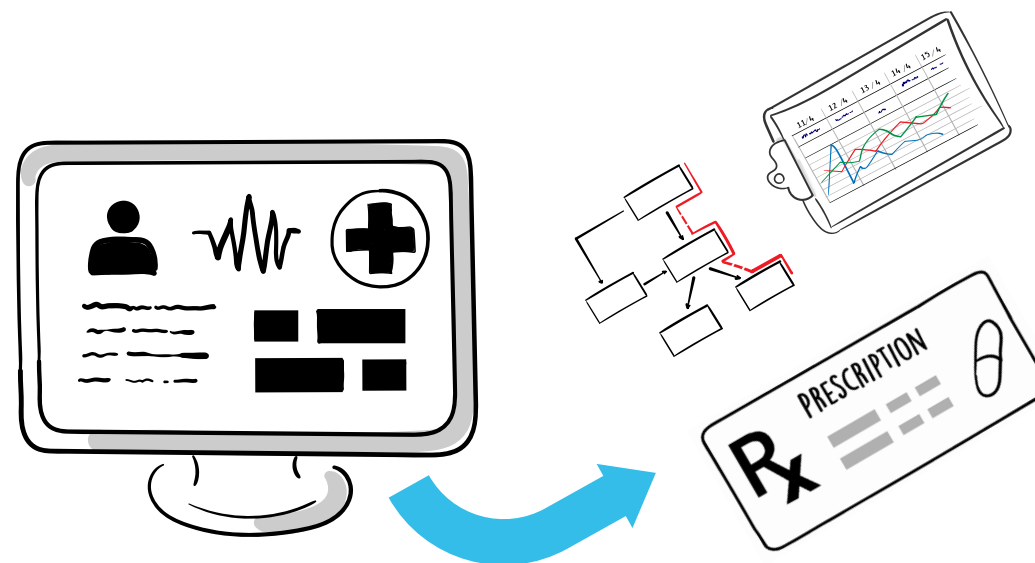
- ✓ Enable timely prescription review by infection specialists
- ✓ Improve structure and quality of electronic records systems
- ✓ Develop guidelines for stopping or de-escalating therapy

System within Electronic Medical Records

- ✓ Structured Infection & prescriptions history
- ✓ Prompting options from clinical guidelines and other resources (eg patient leaflets)
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Potential Mechanisms of Action

- Memory, attention and decision processes
- Environmental context & resources
- Behavioural cueing

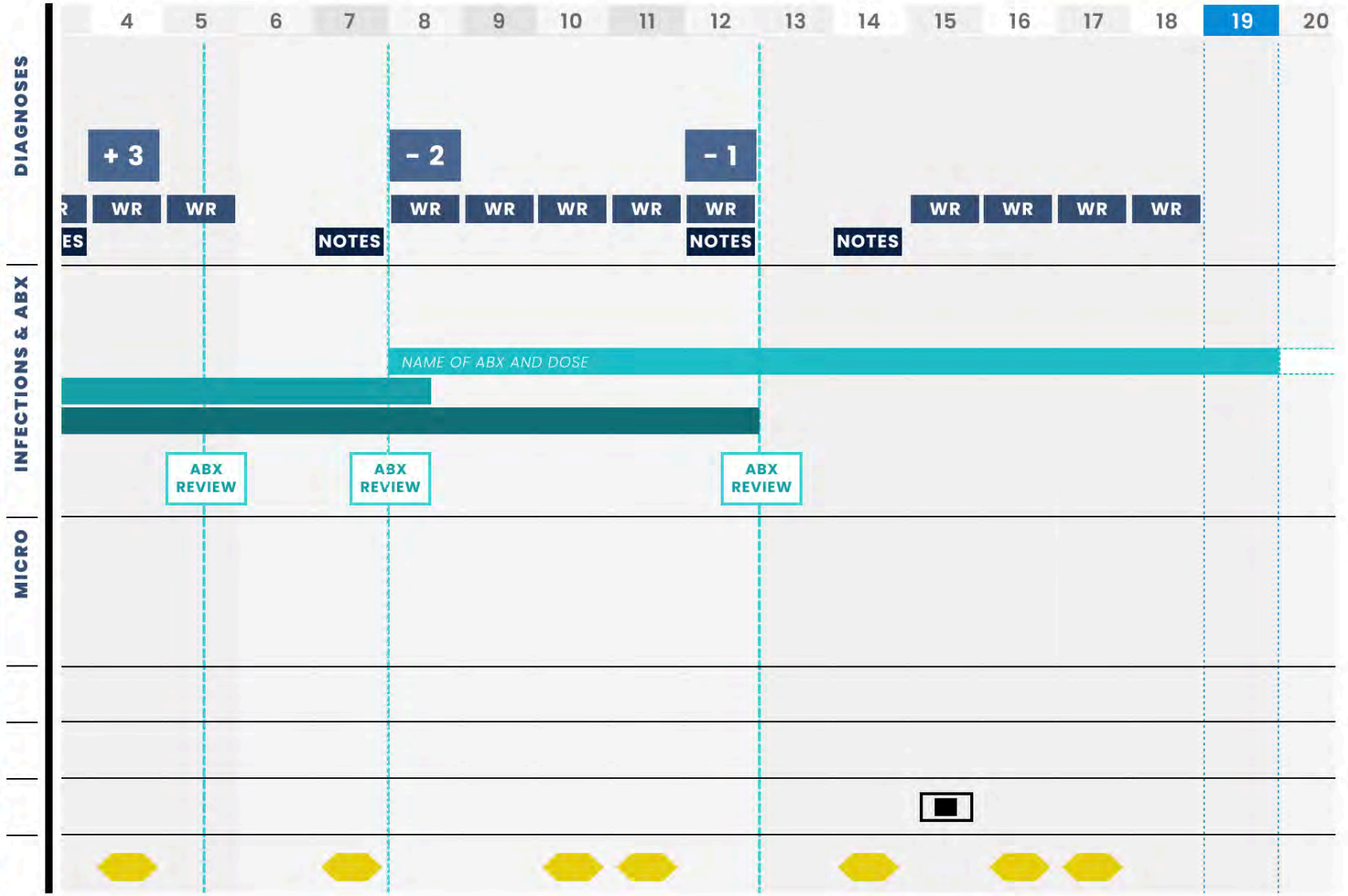


PATIENT NAME
HOSPITAL NO.
D.O.B
ADMISSION DATE

CURRENT DIAGNOSIS:
DIAGNOSIS 1, DIAGNOSIS 2, DIAGNOSIS 3

VIEW

WEEK DAY



MEDICAL HISTORY

PROBLEM LIST

WARD ROUNDS AND NOTES

PAST INFECTIONS AND ABX TREATMENTS

ABX AND INDICATIONS

ABX REVIEWS

PAST MICRO REPORTS & ALLERGY REPORTS/INFO

LAB COMMUNICATION AND MICRO REPORTS

VITALS

INFLAMMATORY MARKERS

IMAGING

SYMPTOMS



Structured symptom recording

There is a need for resources to help record symptoms:

- ✓ Many symptoms are relevant to prescribing: eg: dysuria, cloudy urine, kidney pain, myalgia, ability to eat/drink.
- ✓ They are seldom recorded. If recorded, they are hard to retrieve from notes.
- ✓ There are no clear guidelines summarising important symptoms and frequency of monitoring.



Potential Mechanisms of Action

- Environmental context & resources
- Behavioural regulation
- Knowledge
- Memory, attention & decision processes

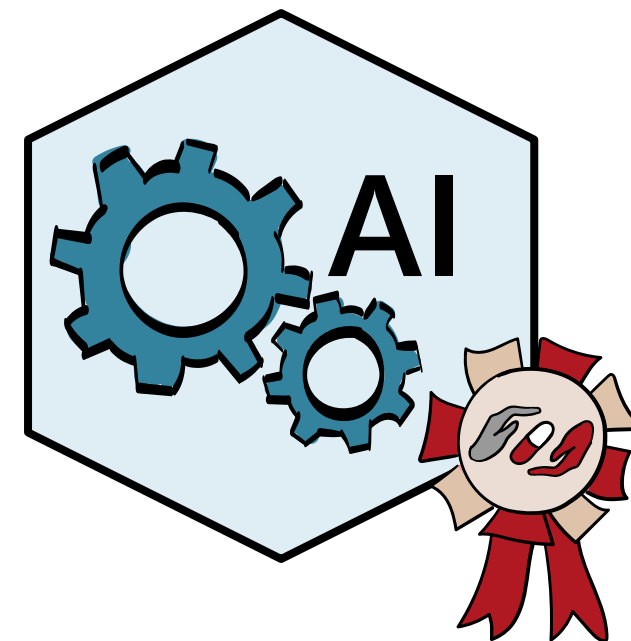


Monitor and prioritise antibiotic prescription reviews



Antibiotic surveillance system

- ✓ Learn from infection specialists (artificial intelligence)
- ✓ Monitor patient test results in real time
- ✓ Predict whether the prescription would be changed or stopped by an infection specialist
- ✓ Generate a prioritised list of patients to review



Mechanisms of Action

- Memory, attention and decision processes
- Environmental context & resources
- Behavioural cueing

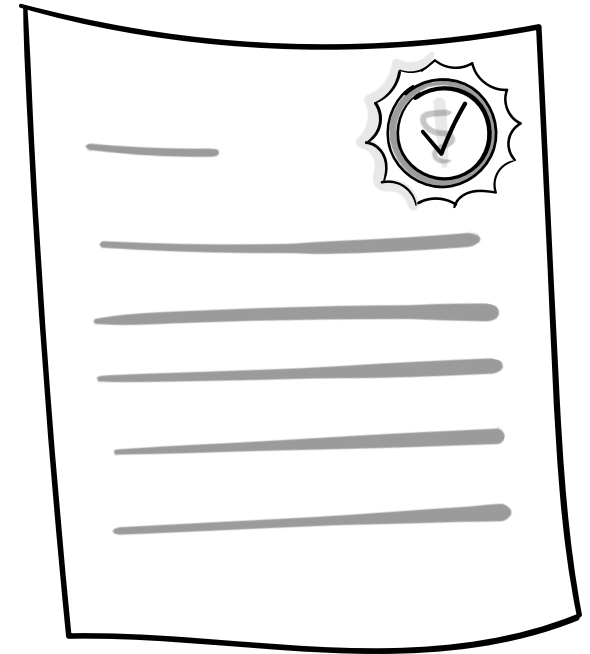


Facilitating the de-escalation of antimicrobial therapy

There is no agreed approach to de-escalation.

There is a need for:

- ✓ clinical evidence
- ✓ guidelines
- ✓ training





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