ANTIMICROBIAL (MIS)USE AT THE END OF LIFE

The impact of "diagnosing dying" and a Treatment Escalation / Limitation Plan

Adrian Wilder-Smith, Thomas Gillespie, D. Robin Taylor

HOW THE PROJECT CAME TO BE

- Medical student, BMedSc in Infectious Disease
- The problem of antimicrobial overuse and resistance
- The development of a Treatment Escalation / Limitation Plan (TELP)

INTRODUCTION

- 55,000 die annually in Scotland, 55% in hospital
- People die because of infection
- People die with infection e.g. terminal bronchopneumonia
- Dying people have symptoms and signs that mimic infection e.g. fever
- *ergo* Antimicrobial use is high in those who are dying

IS IT APPROPRIATE? IS IT RISKY? DOES IS MATTER?

WHAT IS THE POTENTIAL RISK?

1. Patient-related risks:

- Antimicrobial side-effects
- Inappropriate stalling of dying process where death is inevitable

2. Hospital / community risks:

- Waste of resources e.g. 5 days of "triple therapy" costs £278
- Enhances likelihood of drug-resistant organisms

REASONS FOR ANTIMICROBIAL OVERUSE

Obvious

- Concomitant infection occurs in a patient who is dying from end-stage organ failure.

Not so obvious

- Treatment of symptoms that mimic infection - due to disease related cytokines / mediators
- Uncertain goals of care at end-of-life: "curative" versus "palliative"
- Moral justification for "last chance medicine"
- Despite knowing that treatment is futile, discomfort about withdrawing treatment. Even when major treatments are withdrawn, antimicrobials are continued.
- False perception that no particular harms are associated with antimicrobial misuse

TREATMENT ESCALATION / LIMITATION PLAN

What interventions are appropriate / not appropriate if the patient deteriorates?

NHS Lanarkshire

Hospital Anticipatory Care Plan

CHI no .....
First name ..... DOB ...../...../.....
Last name ..... Sex: ☐M ☐F
Address .....
.....
.....
or attach addressograph label here

TREATMENT ESCALATION / LIMITATION PLAN, SUITABLE FOR PATIENTS WITH FRAILTY AND /OR MULTIPLE CO-MORBIDITIES

Other forms are available on First Port (At Point of Admission, Advanced Malignancy, Cardiology, COTE, Dementia, Liver Disease, Orthopaedics, Renal, Respiratory and Surgery).

The Hospital ACP is indicated when one or more of the following applies:

- The patient is unstable with the possibility of deterioration.
- He / she has severe frailty / is completely dependent for ADLs / has progressive / end stage organ failure / multiple co-morbidities / advanced cancer.
- He / she has specific wishes regarding medical interventions.
- Treatment limitation in the event of a crisis / deterioration would be in the patient's best interests and would avoid harm.

- **Discussion with the patient** and their family, welfare attorney or important others regarding this Plan is strongly advised. DNACPR discussions in isolation are potentially unhelpful. If a discussion is not possible, the HACP should be completed if it is in the patient's best interests to do so, and it would potentially harmful not to do so.
- Consideration should be given to the issue of **mental capacity.** The provisions of the AWI Act (Scotland) 2000 apply.
- An HACP should be completed prior to making an **ICU or Palliative Care referral.**
- Information in an **existing ACP** / KIS / Palliative Care Summary should be used.

An HACP must be used concurrently when a DNACPR order is being put in place

GOALS OF CARE It is often helpful to write down the **treatment aims** in your own words:

.....

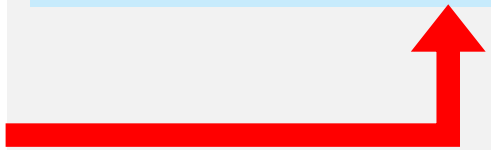
Immediately **reversible problems should be addressed.** Management should **always include symptom control** if the patient is in pain, nauseated, breathless or distressed.

TREATMENT ESCALATION / LIMITATION PREFERENCES

FOR FULL ESCALATION, INCLUDING CPR ☐

DO NOT ATTEMPT CPR | **ESCALATE / LIMIT TREATMENTS using options below** ☐

ROUTINE BLOOD TESTS	YES / NO	NIL BY MOUTH (if yes, document reason in Hospital Notes)	YES / NO
ABG ANALYSIS	YES / NO		
IV ACCESS	YES / NO	PROCEDURES / INVESTIGATIONS (state)	
IV FLUIDS (with time limit if appropriate)	YES / NO	.....	YES / NO
SUBCUT. FLUIDS	YES / NO	TRANSFER TO HDU	YES / NO
IV A'BIOTICS (with time limit if appropriate)	YES / NO	TRANSFER TO ICU / POSSIBLE MECHANICAL VENTILATION	YES / NO
ORAL ANTIBIOTICS	YES / NO	OTHERS	
COMFORT FEED	YES / NO	.....	YES / NO
BLOOD TRANFUSION	YES / NO	.....	YES / NO



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AIMS

- To evaluate antimicrobial prescribing in terminally ill patients in University Hospital Wishaw
- To assess whether antimicrobial use was modified using the NHSL Treatment Escalation / Limitation Plan

METHODS

- Retrospective cross-sectional review of in-patient hospital records.
- 94 consecutive deaths in medical wards, HDU and CCU in UHW between May 1st and July 31st 2018 (surgical wards and ICU not included)

DEFINITIONS

Antimicrobial use deemed "inappropriate" when administered despite:

1. A TELP with antimicrobial "ceiling" (Antibiotics – YES / NO)
2. Recognition of imminent death ("diagnosing dying") by attending clinicians
3. Infection not contributing to or causing death AND no laboratory evidence of infection.

RESULTS

47 males	47 females
Mean age 73.7 years	

TELP including DNACPR: 81/94 = 86.2% TELP with "ceiling": 28/81 = 34.6%	DNACPR: 9.6%	Neither: 4.3%

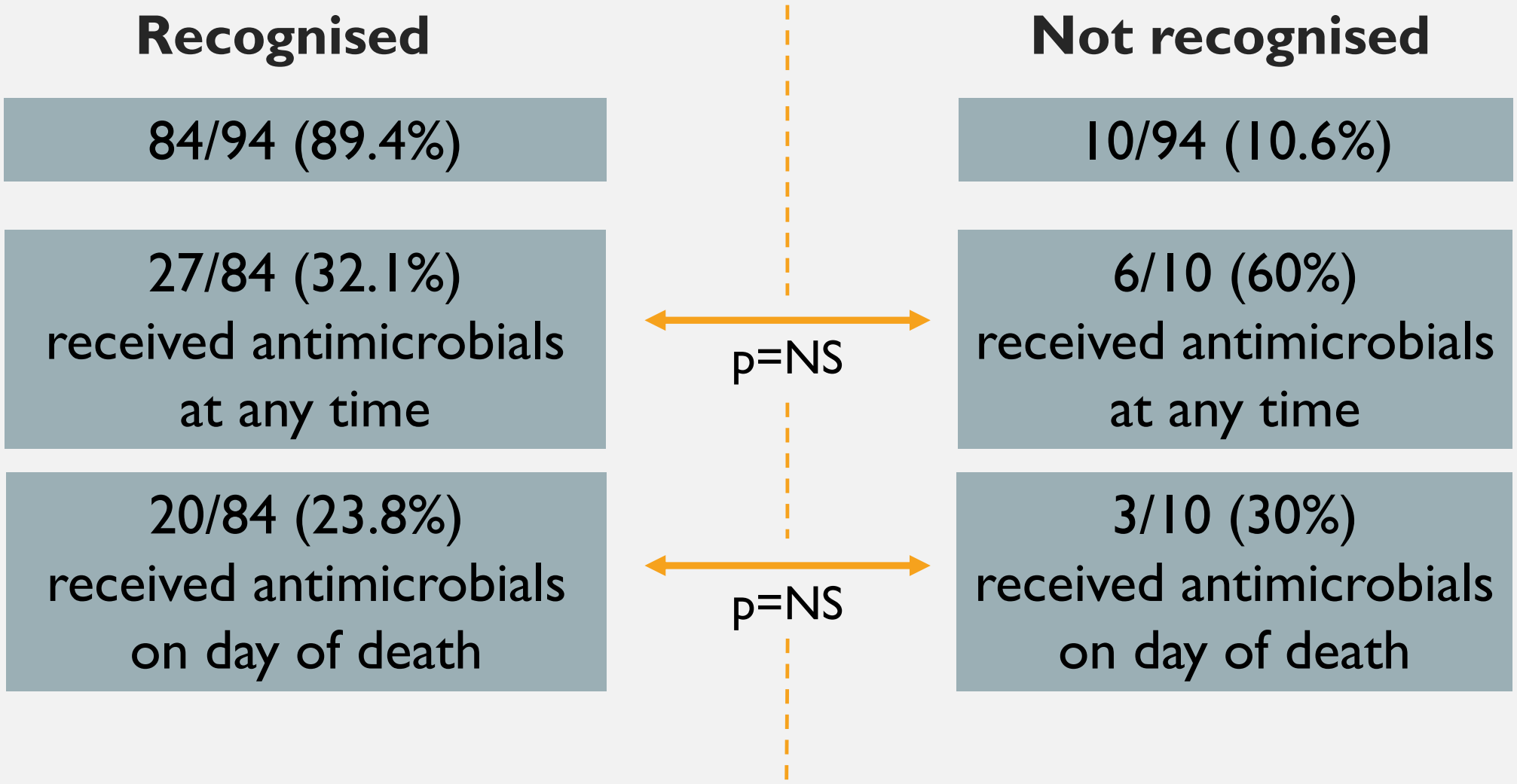
Receiving antimicrobials at any time	Yes: 76.6%	No: 23.4%

Receiving antimicrobials on day of death	Yes: 24.5%	No: 75.5%

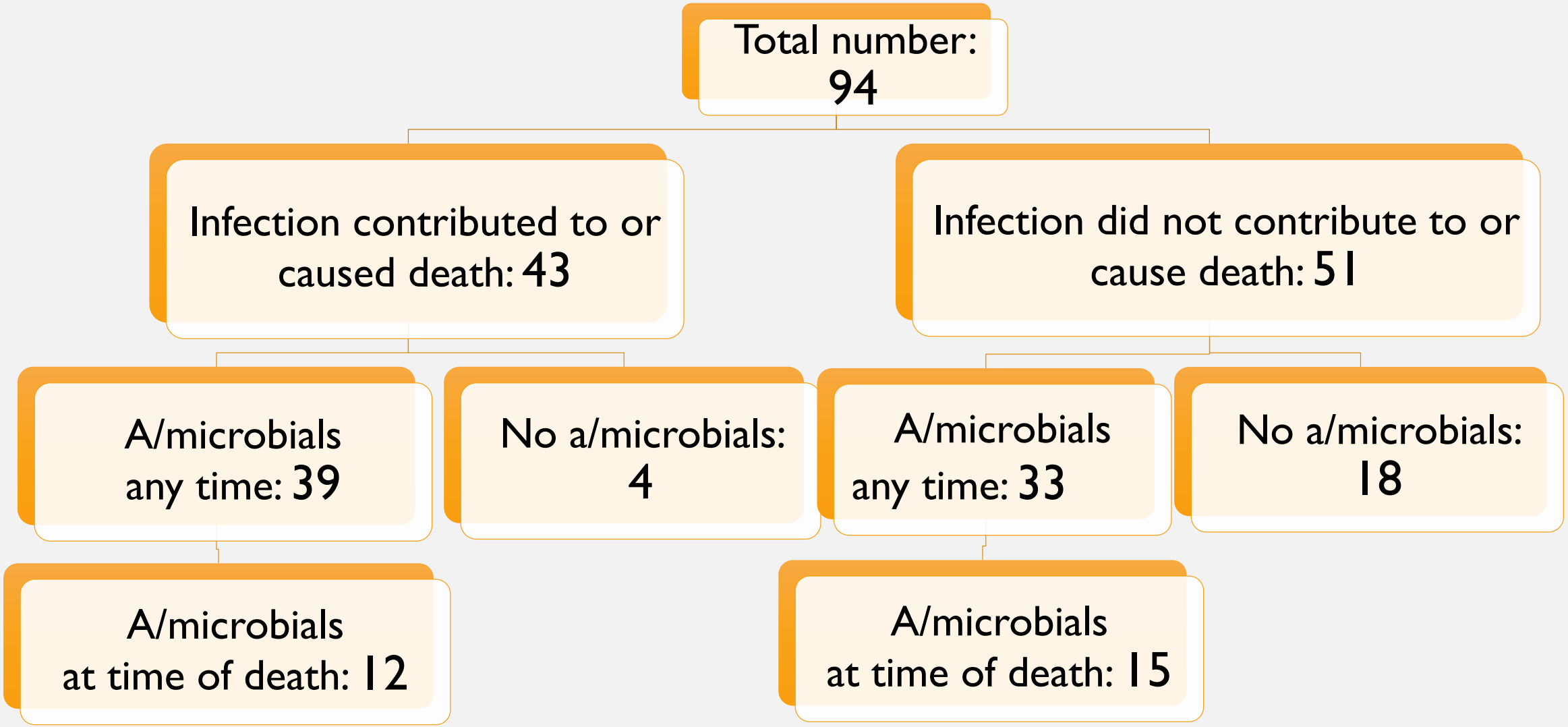
INAPPROPRIATE: TELP "CEILING"

Without "ceiling"		With "ceiling"
43/53 (81.1%) received antimicrobials at any time	p<0.005	8/28 (28.6%) received antimicrobials at any time
18/53 (34.0%) received antimicrobials *on day of death*	p <0.01	2/28 (7.1%) received antimicrobials *on day of death*

INAPPROPRIATE: DEATH IMMINENT



INAPPROPRIATE: INFECTION CONTRIBUTED TO / CAUSED DEATH



ANTIMICROBIAL RESISTANCE

- AMR correlated with number of antimicrobials prescribed ($p<0.01$)
- Out of 40 positive cultures in 94 patients → 8 resistant species (20%)
- Among 8 AMR cultures, 2 cases were from patients with inappropriate antimicrobial prescribing

CONCLUSIONS (1)

- Antimicrobial prescribing is common and often inappropriate in patients nearing end of life (EOL).
- Antimicrobial use at EOL is associated with AMR

CONCLUSIONS (2)

- Antimicrobial prescribing does not decrease with recognition of EOL by attending clinicians.
- Antimicrobial prescribing was not any lower when evidence of infection was absent.
- Antimicrobial prescribing was reduced when a TELP that had an antimicrobial "ceiling" was used.

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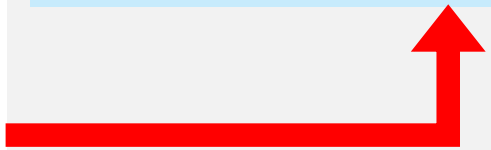

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Reference

Lightbody, C.J., Campbell J.N., Herbison G.P., Osborne H.K., Radley A., Taylor D.R.

The impact of a treatment escalation / limitation plan on non-beneficial interventions and harms in patients during their last admission before in-hospital death, using the Structured Judgment Review Method. BMJ Open 2018.

https://bmjopen.bmj.com/content/8/10/e024264

INTRODUCTION

"The world is facing an antibiotic apocalypse. Unless action is taken to halt the practices that have allowed antimicrobial resistance to spread … we could return to the days when routine operations, simple wounds or straightforward infections could pose real threats to life"

Professor Dame Sally Davies

Chief Medical Officer, NHS England