

Education of health-care professionals on antibiotic prescribing:

Post-graduate, continuing education

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ESGAP



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European Society of Clinical Microbiology and Infectious Diseases

ESCMID STUDY
GROUP FOR
ANTIBIOTIC POLICIES

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The start is very stressful.

New responsibilities.

New environment.

Emotional situations.

Qualitative study in 60 medical graduates from 3 UK medical schools

- Prescribing is the weakest part of the practice.
- Prescribing is a complex process which includes clinical skills, pharmacology and practicalities of prescribing.
- Prescribing is perceived as most prone to errors.

A window into the lives of junior doctors: narrative interviews exploring antimicrobial prescribing experiences

Karen Mattick^{1*}, Narcie Kelly¹ and Charlotte Rees²

127 narratives about the experience in antimicrobial prescribing experience:

- Most young doctors report negative experience.
- Prescribing errors, complex prescribing situations, interpersonal tensions, prescribing dilemmas cited in most narratives.

Medical Career

Internship
Foundation
period

Specialty
training

CME
CPD

30 yrs

BEHAVIOUR SHAPING

BEHAVIOUR CHANGING

BRAIN PLASTICITY

Adapted from:

Arain M, et al. *Neuropsych Dis Treat* 2013; 9: 449–61.

Pulcini C, Gysens IC. *Virulence* 2013; 4: 192-202.

What determines antimicrobial prescribing in young doctors?

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The knowledge

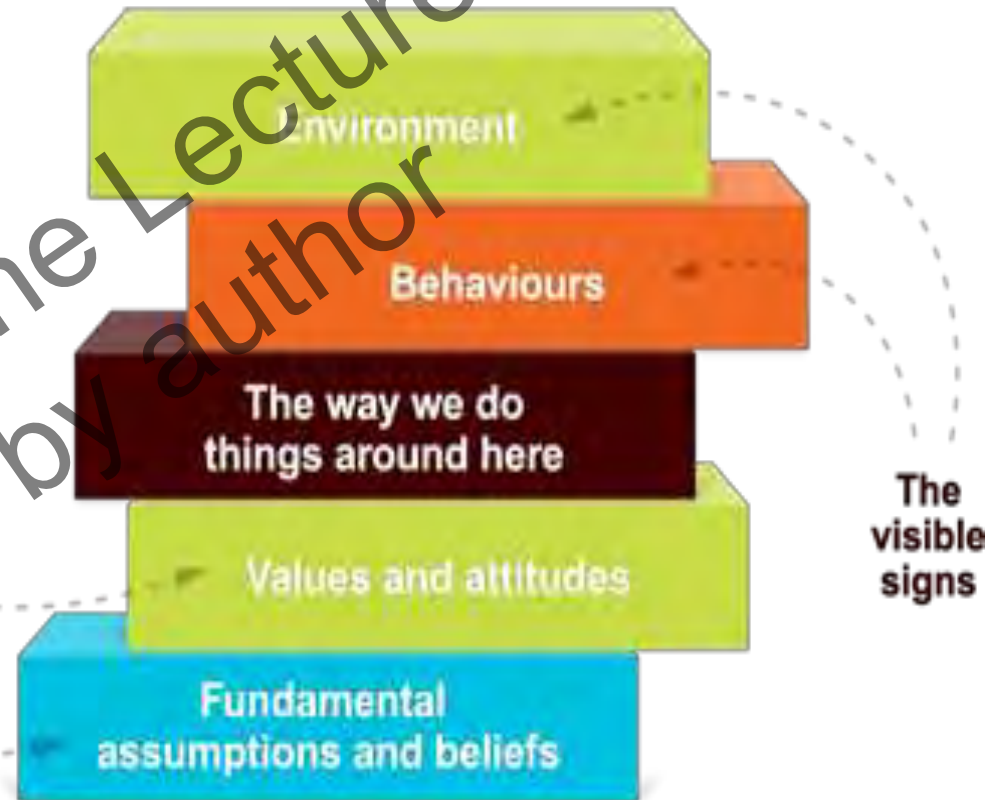


- **Apparently poor, the scores in most studies below 50%**
- **Local resistance rates usually under-estimated.**
- **Under-estimation of antibiotic misuse.**
- **No relationship between the years of training and the level of knowledge.**

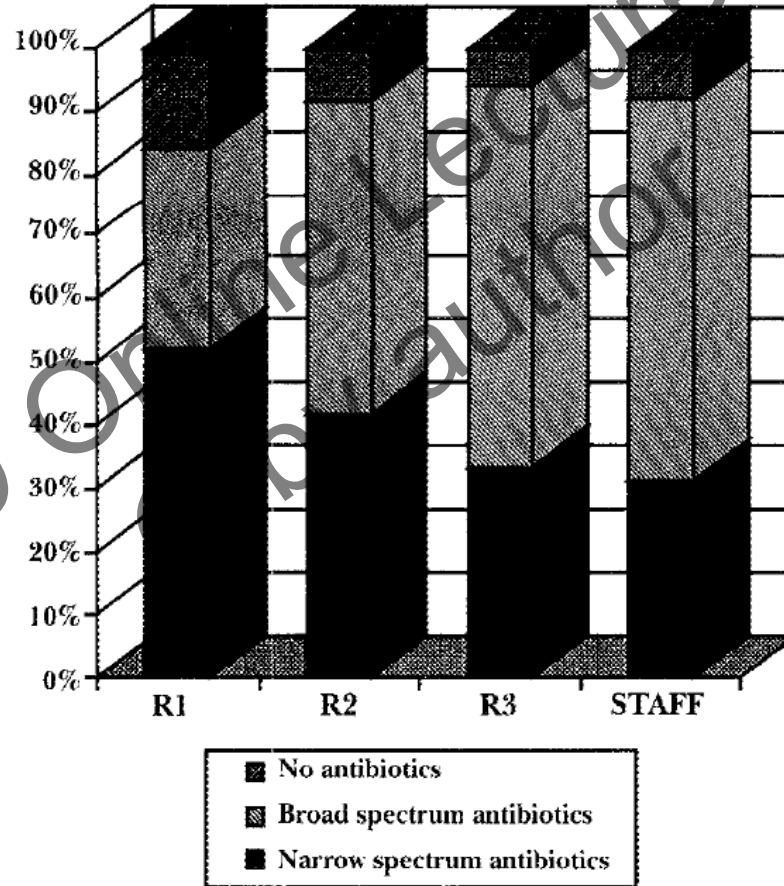
No knowledge gain in antibiotic prescribing/stewardship during training.

The Culture

**WHAT IS
CULTURE?**



Prescribing narrow spectrum antibiotics or no antibiotics for sinusitis:



The Culture of Prescribing Antibiotics

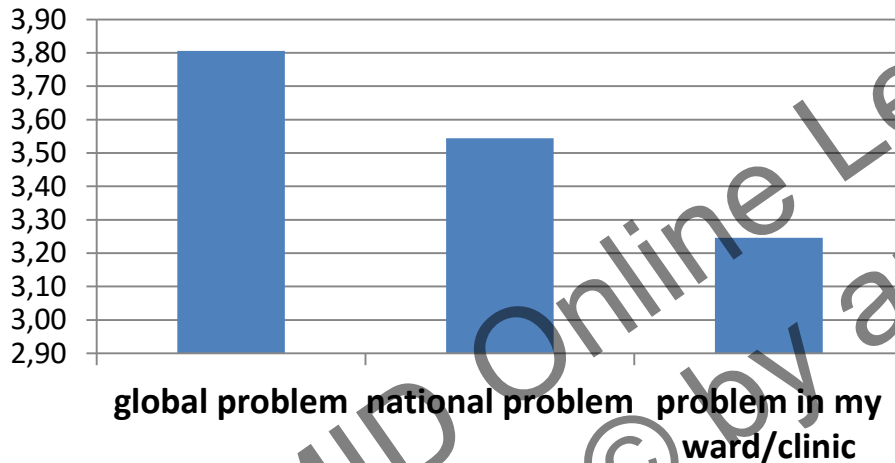
- **Non-interference „out-of-courtesy.“**
- **„There is a culture in health-care which is characterized by over-treating infection, lack of accountability and non-compliance....“**
- **„Clinical inertia which is defined by superficiality in following orders or lapsing into patterns of prescription“**



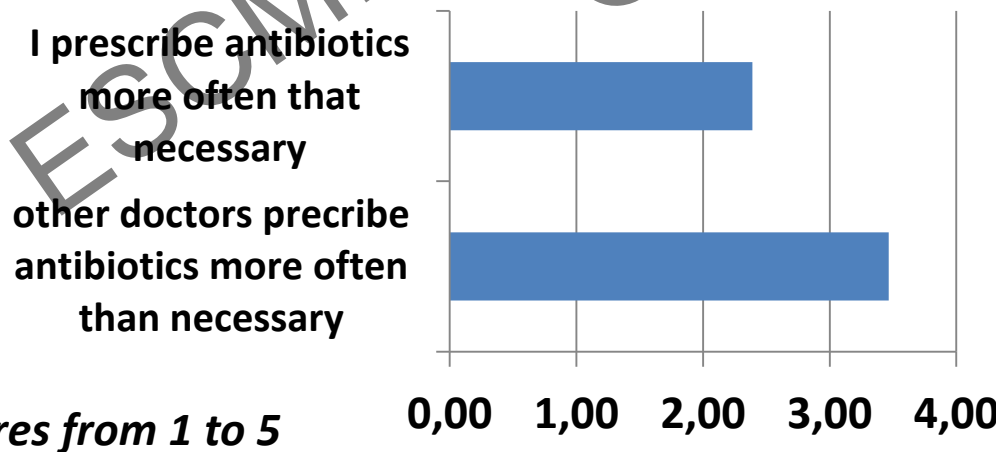
Schouten JA, et al. Qual Saf Health Care 2007;16:143–149.
Giblin TB, et al. Arch Intern Med. 2004;164:1662-1668..
MayL, et al. ICHE 2014: 35: 1114-25.

Oh no, not me... I never lost control...

Resistance is a



From YPAR study, N=2898, unpublished



Scores from 1 to 5

“The prescribing etiquette”

- The hierarchic organisation of the groups.
- The autonomous position of senior doctors who rely more on their experience than policies and guidelines.
- Culture of non-interference when an antimicrobial has been prescribed by a peer.





Antibiotic stewardship in specialty training curricula

General surgery	Soft tissue and musculoskeletal system: diabetic foot, defects in skin and soft tissue, compartment syndrome, amputations
Plastic, Reconstructive and Aesthetic Surgery	Management of severe soft tissue infections including necrotizing fasciitis and gas gangrene
Pediatrics	Appropriate and safe prescribing of antibiotics and antivirals
Neurology	Neurological infections (list of syndromes)
Medical microbiology	Antibiotic stewardship
Infectious diseases	The issues related to optimal use of antimicrobials
Geriatrics	Lung infections including tuberculosis, urinary problems including infection
Gastroenterology	Microbiology of the normal gut and infections as a cause of disease
Cardiology	Select appropriate antibiotic for endocarditis
Anaesthesiology, pain and intensive care medicine	Infections as life threatening conditions

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Healthcare Associated Infections

- Background
- Educational Programmes
 - Antimicrobial Resistance and Stewardship**
 - Cleanliness Champions

Antimicrobial Resistance and Stewardship

Educational resources to support antimicrobial prescribing, resistance and stewardship within NHSScotland.

Antimicrobial Resistance

The scale of the threat of antimicrobial resistance (AMR) and the case for action was set out in the

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Continuous medical education (CME)

Continuous professional development (CPD)

CPD: to improve all aspects of a medical practitioner's performance:

- ***knowledge***
- ***skills***
- ***attitudes***

Antibiotic stewardship and prescribing are typical CPD activities.

Which type of education?

(Potentially) most effective educational interventions in CME/CPD:



- Repetitive (*Repetitio est mater studiorum*)
- Multiple techniques education
- Interventions using an external reference group (reminders, outreach visits and audit and feedback)

Competencies in antimicrobial stewardship and prescribing

...sets of knowledge and skills needed to deliver the desired results.

- may be used by individuals or institutions to improve antibiotic prescribing

J Antimicrob Chemother 2014; **69**: 2886–2888
doi:10.1093/jac/dku350 Advance Access publication 11 September 2014

Journal of
Antimicrobial
Chemotherapy

Developing the first national antimicrobial prescribing and stewardship competences

D. Ashiru-Oredope^{1*}, B. Cookson² and C. Fry³ on behalf of the Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection Professional Education Subgroup†



ESCAPS: Under development, first for the ESCMID and in the future for other professional societies.

Education of pharmacists in antimicrobial stewardship and prescribing

- ***UK: Clinical Pharmacy Association Pharmacy Infection Network has developed a professional curriculum for antimicrobial pharmacists.***
- ***USA: several educational programmes for ID pharmacists which include some aspects of antibiotic stewardship.***
- ***Scottish Doctors Online Training System (DOTS).***

Chahine AB, et al. Journal of Pharmacy Practice 2015; 28: 585-91.

Nathwani D, et al. J Antimicrob Chemother 2011; 70: 1277-80.

Nurses in antimicrobial stewardship: the educational needs

Microbiology diagnostics	<ul style="list-style-type: none">- The understanding and skills on how to obtain the specimens- understanding of the process in the laboratory- Interpretation of microbiology testing results: differentiation of Gram-positive and Gram-negative bacteria, basic principles of the antibiogram
Pathophysiology and pharmacotherapy of infection	<p>Understanding the basic principles of</p> <ul style="list-style-type: none">- de-escalation- switch to oral
Clinical knowledge and skills	<ul style="list-style-type: none">- Recognizing subtle signs of infection- Differentiating colonisation and infection
Communication skills	<p>Improved confidences in asking prescribers on infection and antibiotic treatment</p>

Conclusions

- **Most important determinants of antimicrobial prescribing in young doctors in training are knowledge and “the prescribing etiquette”.**
- **The post-graduate training curricula include very few knowledge and skills in antimicrobial prescribing and stewardship.**
- **Education in antimicrobials stewardship for pharmacists and nurses is very limited.**

Steps forward:

- **Mandatory education in antimicrobial stewardship and prescribing in internship/foundation period and specialty curricula.**
- **Antimicrobial stewardship and prescribing should be included in CPD.**
- **Education in antimicrobial stewardship for pharmacists and nurses.**

Steps forward:

- Mandatory education in antimicrobial

„If you think that education is expensive, you should consider ignorance”

Socrates

stewardship for pharmacists and nurses