NURSES IN ANTIMICROBIAL STEWARDSHIP

Jo McEwen
Advanced Nurse Practitioner
Antimicrobial Stewardship, NHS Tayside

NURSING WORKFORCE:

- Largest professional workforce within Healthcare
- Regular clinical review and engagement with patients
- Consistent role at point of care for patients and families
- Primary role to administer medications safely and effectively
- NMC duty of care to ensure no harm & patients receive the correct medicine

WHERE CAN NURSES/ MIDWIVES CONTRIBUTE TO AMS?

Table 1. Overlap of nursing activities with function attribution in current antimicrobial stewardship models

	Nursing	Microbiology	Case management	Pharmacy	Infectious Diseases	Infection Control	Inpatient Physician	Administration
Patient admission								
Triage and appropriate isolation	●					●		
Accurate allergy history	●			●	●		●	
Early and appropriate cultures	●				●		●	
Timely antibiotic initiation	●				●		●	●
Medication reconciliation	●			●			●	
Daily(24h) clinical progress monitoring								
Progress monitor and report	●		●		●		●	
Preliminary micro results and antibiotic adjustment	●	●		●	●		●	
Antibiotic dosing and de-escalation	●			●	●		●	
Patient safety and quality monitoring								
Adverse events	●			●	●		●	
Change in patient condition	●				●		●	
Final culture report and antibiotic adjustment	●	●		●	●	●	●	
Antibiotic resistance identification	●	●			●	●	●	
Clinical progress/patient education/discharge								
IV to PO antibiotic, outpatient antibiotic therapy	●		●	●	●		●	
Patient education	●				●	●	●	
Length of stay	●		●		●		●	●
Outpatient management, long term care, readmission	●		●		●	●		●

Olans, Olans & De Maria, 2015 Clinical Infectious Diseases

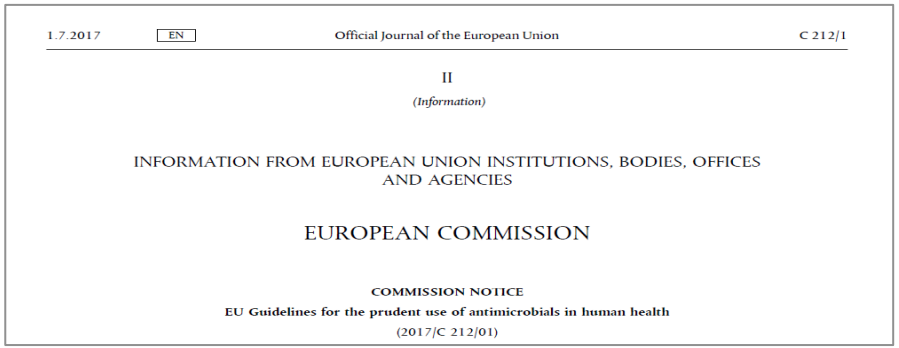
NO EXTRA WORK INVOLVED!

NURSING/MIDWIFERY INFLUENCE IN ANTIMICROBIAL STEWARDSHIP

Medicines Management	Nursing Management
Prescribing in line with recommended guidelines –non medical prescribers	Adherence to infection prevention and control standards both national and local
Monitor duration of therapy	Provision of essential nursing care including nutrition, hydration and prevention of pressure ulcers
Promote appropriate route of administration	Appropriate sampling
Timing of antimicrobial administration	Review microbiology results
Participation in therapeutic drug monitoring	Nursing assessment
Check allergy status	Health Promotion
Contribute to preparing patient for Out-patient parenteral antimicrobial therapy (OPAT)	Discharge Planning
⟵ Patient education, awareness and involvement in antibiotic use ⟶	

McEwen J. & Burnett E. Antimicrobial Stewardship and pre-registration student nurses: Evaluation of teaching. Journal of Infection Prevention, 2017. https://doi.org/10.1177/1757177417726156

INTERNATIONAL PERSPECTIVE



1.7.2017 EN Official Journal of the European Union C 212/1

II

(Information)

INFORMATION FROM EUROPEAN UNION INSTITUTIONS, BODIES, OFFICES AND AGENCIES

EUROPEAN COMMISSION

COMMISSION NOTICE

EU Guidelines for the prudent use of antimicrobials in human health

(2017/C 212/01)

WHITE PAPER

ANA AMERICAN NURSES ASSOCIATION

CDC

Redefining the Antibiotic Stewardship Team:

Recommendations from the American Nurses Association/Centers for Disease Control and Prevention Workgroup on the Role of Registered Nurses in Hospital Antibiotic Stewardship Practices

Effective Date: 2017

CURRENT NURSING AMS INVOLVEMENT IN UK

- National audit & feedback
- Penicillin allergy review
- Education & awareness – pre & post registration
- Bacteraemia review – SABs & Gram -ve
- Antimicrobial stewardship rounds
- Bone & joint infection rounds
- International AMS collaboration
- Health & Social Care Integration
- R&D
- Policy & strategic direction

UK PERSPECTIVE – WHAT'S TO COME

BSAC BRITISH SOCIETY FOR ANTIMICROBIAL CHEMOTHERAPY

NMC Nursing & Midwifery Council

ANTIMICROBIAL STEWARDSHIP IN NURSING CLINICAL PRACTICE

AMS NURSING ROLE COMMUNITY HOSPITAL

12 month education programme for nurses

Most hospitals predominantly nurse led

GP & Pharmacy input variable (daily in one ward only)

Aims

Increase nursing knowledge

Reduce number of inappropriate urine samples sent to the lab

Measurables

Pre-test/ post-test questionnaire

Number of urine samples sent to lab

Results

Question	Pre-test result	Post-test result	P value
I know what antimicrobial stewardship means	50% Agree 36% Disagree 14% Unsure	96% Agree 4 % Disagree	0.019
I have sufficient knowledge of antibiotics to ask the prescriber questions about antimicrobial prescriptions	68% Agree 23% Disagree 9% Unsure	92% Agree 8% Unsure	0.01
I know what is meant by empiric antibiotic therapy	23% Agree 54% Disagree 23% Unsure	76% Agree 4% Disagree 20% Unsure	0.00003
Urinalysis is a reliable tool in the diagnosis of UTI in older adults and catheterised patients	27% Agree 64% Disagree 9% Unsure	92% Disagree 4% Agree 4% Unsure	0.019
Antibiotic resistance only affects the person who has received the antibiotics	45% Agree 18% Disagree 41% Unsure	20% Agree 76% Disagree 4% Unsure	0.029
I know which antibiotics are classed as high risk in terms of promoting resistance or C.difficile infection	73% Agree 23% Disagree 4% Unsure	92% Agree 8% Unsure	0.013

Knowledge does not always result in behaviour change

IMPACT ON PRACTICE

Question	Response
Has the session on antimicrobial stewardship been beneficial for your nursing practice?	100% Yes
Since attending the educational session on antimicrobial stewardship, I now feel more confident in my role in the management of infections.	95.24% Yes 4.76% No change

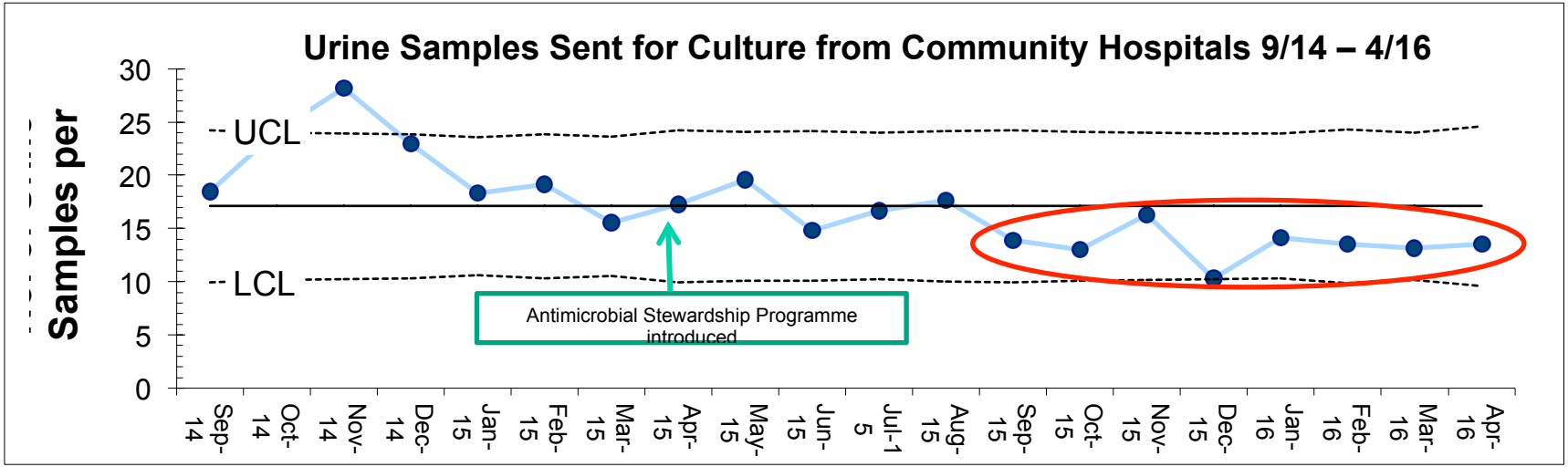
Can you provide an example of where you have used the areas of nursing influence or principles of antimicrobial stewardship in clinical practice? Qualitative themes

- End date antibiotic prescriptions
- Urinalysis no longer used as diagnostic tool for UTI
- Questioning inappropriate sample requests
- Review lab results for sensitivities

URINE SAMPLES

Statistically significant reduction in urine samples sent to the labs from mean 20.9 to 14.9 samples per 1000 OBD (p=0.009)

- 29% overall reduction
- Marginal cost saving
- Prevention of antimicrobial prescriptions



UNDERGRADUATE NURSING EDUCATION

Education introduced to undergraduate nursing programme 2014

First School of Nursing to include AMS

AMS education delivered in 3rd yr

Blended teaching methods

Incorporates all principles of AMS, microbiology and areas of nursing influence in AMS

EVALUATION OF UNDERGRADUATE NURSING EDUCATION

Evaluation carried out 2016

Quantitative & qualitative evaluation questionnaire

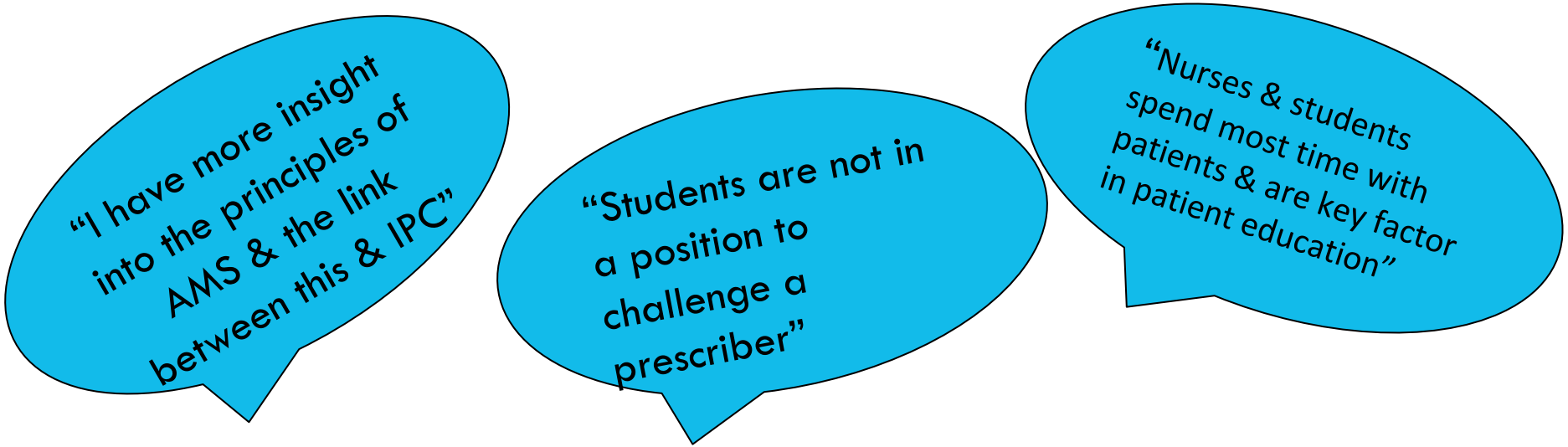
10 questions and 3 statements

All 13 questions had optional free text

Survey completed by 167 students

RESULTS
KNOWLEDGE & UNDERSTANDING

15% of students aware of AMS pre-lecture rising to 79% post-lecture

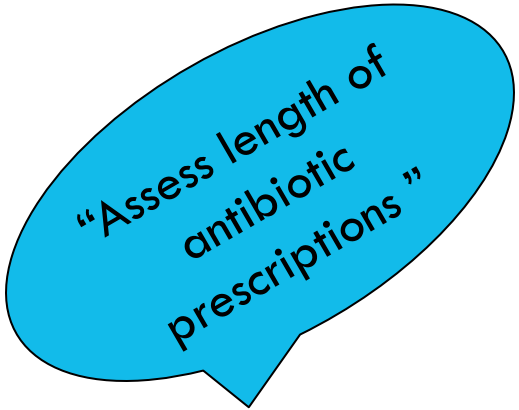


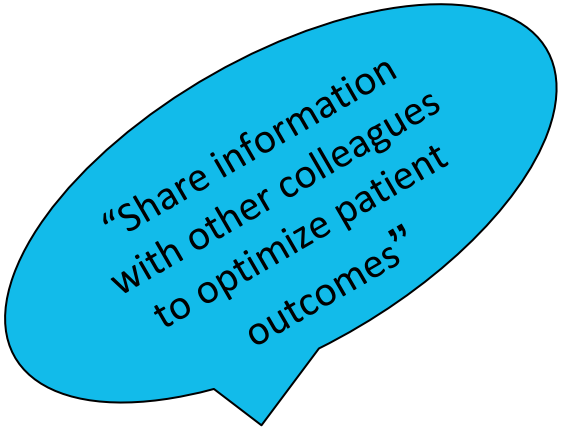
APPLICATION TO CLINICAL PRACTICE

92% believed that nurses have an important role to play in AMS

71% could identify where they could contribute to antimicrobial & infection management

38% felt their practice had changed



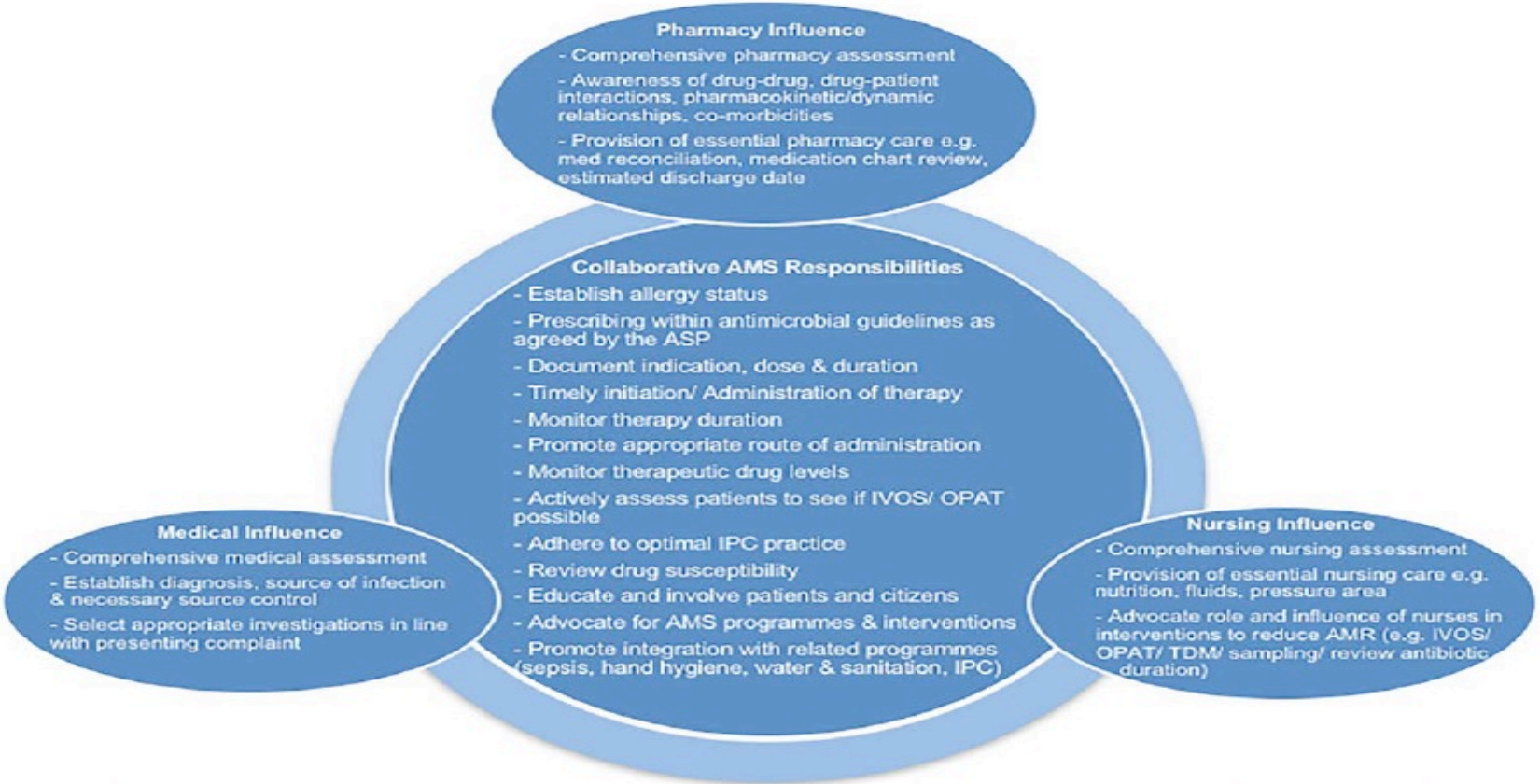


RELEVANCE TO PRE-REGISTRATION PROGRAMME

84% felt that AMS relevant to undergraduate nursing education

73% felt more confident in asking about antimicrobial prescriptions

HOPES FOR THE FUTURE - SYNERGY….



Castro Sanchez EM, Gilchrist M, McEwen J, Smith M, Kennedy H, Holmes A., 2017, Antimicrobial stewardship: widening the collaborative approach, *Journal of Antimicrobial Stewardship*

@jomcewen1977