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19 November 2010

Dear Colleague

## ANTIMICROBIAL RESISTANCE

I am writing to highlight that bacteria from clinical and non-clinical settings are becoming increasingly resistant to conventional antibiotics, and to reinforce the key principles and actions needed to combat this threat.

1. The World Health Organisation has identified antimicrobial resistance as one of the three greatest threats to human health. Multidrug resistant Gram negative bacteria now pose the greatest microbiological risk to public health because: the increase in resistance of Gram negative bacteria is faster than in Gram positives; there are fewer new antibiotics active against Gram negatives; and drug development programmes seem insufficient to provide therapeutic cover in 10-20 years. In Scotland about 8% of all E coli blood culture isolates produce enzymes (ESBLs) making them multi-resistant.

2. The emergence of carbapenemase-producing enterobacteriaceae in the UK is of particular concern as these organisms are multiply resistant and treatment options are very limited. Resistance to carbapenems conferred by New Delhi metallo- $\beta$ -lactamase 1 (NDM-1) is rare in Scotland, but the number of reports of *Klebsiella pneumoniae* carbapenemase producing organisms is on the rise.

3. The key principles in combating the threat of antimicrobial resistance and emerging organisms are prevention (through prudent antimicrobial prescribing), early detection (awareness and surveillance), and excellence in infection control.

From the Chief Medical Officer  
Chief Nursing Officer  
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### For action

Medical Directors, NHS Boards – to circulate to relevant clinicians, microbiology and to leads antimicrobial management; Directors of Pharmacy; HAI Executive Leads

### For information

Chief Executives, NHS Boards; Chairs, NHS Boards; Directors of Public Health, NHS Boards; Directors of Nursing; Consultants In Public Health Medicine(HP); Scottish Microbiology Forum; HAI Task Force; Infection Control Managers Network  
Scottish Antimicrobial Prescribing Group – to circulate to AMTs; Health Protection Scotland

### Further Enquiries

#### Policy Issues

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#### Medical Issues

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SAPG website:

[http://www.scottishmedicines.org.uk/SAPG/Scottish\\_Antimicrobial\\_Prescribing\\_Group\\_SAPG](http://www.scottishmedicines.org.uk/SAPG/Scottish_Antimicrobial_Prescribing_Group_SAPG)

## **Awareness**

4. Clinicians should be alert to the risk of carbapenemases and other emerging resistance. These are most likely, although not exclusively, to be patients who have been hospitalised abroad, especially in high risk countries such as India, Pakistan, Israel, Greece, Turkey, USA particularly in the specialties of plastic and cosmetic surgery, renal transplant and dialysis. However as there are now reports of carbapenemase producing organisms in patients who have not been outside Scotland, clinicians should also be alert to the possibility of carbapenemase producing organisms in patients who have not responded to first line empiric therapy.

5. **ACTION: Clinicians should seek early advice from their local microbiologist if infection with a carbapenemase producing organism is a possibility.**

## **Infection control**

6. Standard precautions should be fully implemented for all patients.

7. **ACTION: Advice on infection control for patients with suspected Gram negative resistant infections should be obtained from your local microbiologist or infection prevention and control team.**

## **Prescribing**

8. Antibiotic prescribing is a key driver in the development of resistance, both for the individual patient and for the community. Up to 30% of antimicrobial prescribing, including surgical prophylaxis, may be inappropriate, leading to antibiotic resistance, *Clostridium difficile* infections and increased morbidity and mortality.

9. Good progress is being made towards reducing inappropriate prescribing. The Scottish Antimicrobial Prescribing Group (SAPG) has been working with local Antimicrobial Management Teams (AMTs) to implement antimicrobial prescribing policies. Further advice for prescribers is available via your local AMT.

10. **ACTION: Compliance with local policy for antimicrobial prescribing and surgical prophylaxis is essential to reduce the emergence of resistance.**

Yours sincerely

*Harry Burns*

*Ros Moore*

*Bill Scott*

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**Ros Moore**

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