Audit of antibiotic policies in the South East of England, 2004

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Objectives: The antibiotic policies of hospitals and primary care trusts (PCTs) in South East England were audited in the summer of 2004, to see how they had improved since 2000.

Methods: Antibiotic policies were obtained from pharmacists in NHS hospitals and PCTs, and examined for dates, formats, evidence base for policies, the type of guidance given on dosage, length of treatment, choice of antibiotics, coverage of common infections and reasons for prophylaxis.

Results: Twenty-three hospital and 25 primary care policies were examined. The average age of policies was 12 months, but 13 were more than 2 years old. The commonest format was an A4-sized document available in an electronic version. Primary care policies were more uniform than hospital policies. More primary care than hospitals' policies gave evidence to support their guidance. Ten policies used plain English for dosages, and 38 (79%) policies made few or no cautionary points about the drugs recommended. Respiratory and urinary infections were covered in most policies, but guidance on gastroenteritis and antibiotic prophylaxis was less frequent. There was little advice in the policies on the management of methicillin-resistant Staphylococcus aureus.

Conclusions: Primary care policies have improved since 2000, using a national model for evidence and a consistent style. Hospitals could benefit from similar national guidance, especially in the evidence to support the contents of antibiotic policies.

Keywords: antibiotic policies, audit, antibiotics

Introduction

The purpose of antibiotic policies is to ensure that an effective range of antibiotics is maintained.1,2 Policies should describe effective antibiotics in appropriate dosages, avoid unnecessary treatment, reduce the emergence of antibiotic resistance, promote good practice and contain costs.3 We audited antibiotic policies in the South East region of England in 2000, and we found wide variation in the structure, content and quality of antibiotic policies.4 In 2004, we repeated the audit to monitor developments since 2000.

Materials and methods

Strategic Health Authority (SHA) pharmaceutical advisers in the former NHS South East Region provided contact details of chief pharmacists in NHS hospital trusts and primary care trust (PCT) pharmaceutical advisers. Twenty-two acute hospital trusts, two specialist hospital trusts and 49 PCTs were identified. In May 2004, the chief pharmacists and pharmaceutical advisers were asked by e-mail or letter for copies of their antibiotic policies. Further requests were sent to non-responders in July and September 2004.

The data were analysed using an Excel database, with a template from the previous audit. We assessed the policies as if we were newcomers to a hospital or a general practice and wanted to know what to prescribe in certain situations. We read the policies independently and one author checked the data entered by the other. Shared policies were counted as a single unit in the analysis. The audit results were reported back to the pharmacists.

The same criteria were applied to hospital and PCT policies, except that only the hospital policies were checked for treatment for Clostridium difficile infection and prophylaxis for abdominal surgery, and only the PCT policies assessed the management of upper respiratory infections.

Results

Twenty-three hospital and 25 PCT policies were received (Figure 1).
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Format of policies
Fourteen (61%, n = 23) of the hospital policies used A4 documents, five used A5 or pocket-sized booklets, three used hospital intranets and one used laminated notices. The format of PCT policies was more consistent than the hospitals’ and followed the model published by the Health Protection Agency (HPA). This format used coloured printing on A4 paper, and compressed information into tables covering four or five pages. Seventeen (68%, n = 25) PCTs used A4-sized paper, seven used A5 or smaller formats and one used a laminated poster.

Microsoft Word was the commonest software used for policies, but 10 (21%, n = 48) used PDF files, and one hospital used Powerpoint slides.

Age of policies
The median age of the submitted policies was 12 months, but 13 (27%, n = 48) were over 2 years old or undated (Figure 2). Ten (43%, n = 23) of the hospital and 18 (72%, n = 25) of the PCT policies stated revision dates, which indicated that policies were reviewed annually or biennially.

Contacts for more guidance
Thirty-two (67%, n = 48) policies gave contact details for further advice on antibiotic use.

Evidence for guidance
Nine (39%) of the hospital policies and 12 (48%) of PCT policies provided citations or indications of the level of evidence behind their statements. The evidence used in PCT policies was based on the HPA model. There was no explicit use of local antibiotic resistance data in policies.

Doses of antibiotics
Two policies (one hospital and one PCT) did not give doses for the drugs listed. Only seven hospital and three PCT policies consistently used plain English for the dosages. Twelve hospitals, but only one PCT, gave advice on how and when to switch from parenteral to oral doses.

Cautionary points
Nine (39%, n = 23) hospital and seven (28%, n = 25) PCT policies alerted users to side effects, contraindications or special dosages. Five hospital and five PCT policies made cautionary points for >25% of drugs and dosages. Only seven hospitals and nine PCTs advised users to modify doses for the elderly. Sixteen hospital policies recommended antibiotic treatments for immunocompromised patients, with detailed guidance on neutropenic patients in 13 hospitals.

Treatment of lower respiratory infection
As in the 2000 audit, amoxicillin was the commonest choice for acute exacerbations of chronic obstructive pulmonary disease (COPD) (30 policies, 63%, n = 48) and for non-severe community-acquired pneumonia (26 policies, 54%, n = 48). Co-amoxiclav (not advised in 2000) was recommended for COPD in five policies. The combination of amoxicillin and erythromycin was advised for community-acquired pneumonia in eight hospitals and one PCT. Ten hospitals’ policies did not distinguish between severe and non-severe pneumonia; they recommended parenteral antibiotics for pneumonia: benzyl penicillin in five, cephalosporins in four and ampicillin in one. Eight policies stated that antibiotics were not usually helpful for COPD. Four policies (three hospital, one PCT) gave no...
advice for COPD, and three PCT policies gave no advice on pneumonia.

Management of upper respiratory infection

Twenty-one (84%, $n = 25$) PCT policies stated that pharyngitis and acute otitis media were commonly viral and that antibiotics (penicillin V for pharyngitis, amoxicillin for otitis media) were often unnecessary. Three PCT policies advised delayed prescriptions for otitis media. Three PCT policies recommended antibiotics without reservations, and one gave no advice.

Treatment of urinary infection

Trimethoprim for three days was recommended for uncomplicated urinary infections in 18 hospitals (78%, $n = 23$) and 24 PCTs (96%, $n = 25$). Three hospital policies recommended nitrofurantoin. A difference from the 2000 audit was to advise an oral cephalosporin in two hospital policies and one PCT policy.

The recommendations for pyelonephritis were: ciprofloxacin (seven hospital policies, six PCTs), parenteral cephalosporin (11 hospitals), co-amoxiclav (two hospitals, two PCTs), trimethoprim with alternatives (three hospitals, seven PCTs), norfloxacin (three PCTs), and an oral cephalosporin (one PCT). The preference for ciprofloxacin over parenteral cephalosporins was a change from 2000. Six PCTs gave no guidance on pyelonephritis.

Treatment of infectious diarrhoea

The commonest advice on infectious diarrhoea was not to give antibiotics, whether a known pathogen had been identified or not (13 hospitals, 18 PCTs). Five hospital policies recommended ciprofloxacin for salmonella infections, and one hospital recommended erythromycin for treatment for campylobacter infections.

The hospital policies for treating *C. difficile* infection were either metronidazole (nine hospitals) or stopping antibiotics and considering metronidazole with microbiological advice (eight hospitals). In the 2000 audit, hospital recommendations had been divided between vancomycin or metronidazole. Eleven policies (23%, $n = 48$) had no guidance on infectious diarrhoea.

Management of patients with MRSA

As in the 2000 audit, the advice on patients infected or colonized with methicillin-resistant *Staphylococcus aureus* (MRSA) was varied in hospital policies and was minimal or absent in primary care. Two hospital policies fully covered MRSA management, 11 described the treatment of MRSA infections and six described decontamination. Three hospital policies referred readers to the infection control team, and nine hospital policies made no mention of MRSA.

Prophylaxis

There was no improvement from 2000 in the advice on prophylaxis. Twelve hospital and 16 PCT policies mentioned prophylaxis for contacts of meningococcal disease: seven hospital policies gave indications and dosages; the only advice in the other 21 was to contact the local health protection team. Prophylaxis for asplenic patients was covered in eight hospital and two PCT policies. Guidance on prophylaxis to prevent endocarditis was given by nine hospital policies with sources of advice in a further two, and mentioned in only two PCT policies.

Sixteen hospitals (76%, $n = 21$) had policies for peri-operative prophylaxis for abdominal surgery. The two specialist hospitals had detailed guidance for their particular specialties, which did not include abdominal surgery. Seven hospital policies recommended cefuroxime for clean abdominal surgery. For clean abdominal surgery in the other nine hospitals, and for potentially contaminated abdominal surgery in all 16, the policy was to use a cephalosporin plus metronidazole.

Discussion

The aim of this audit was to assess the progress in antibiotic policies during 2000–2004 in South East England. The good response rate of 90% ($n = 73$) of hospital trusts and PCTs correlated with the interest expressed by chief pharmacists. Since 2000, mergers of hospital trusts and divisions of health authorities into PCTs have resulted in fewer hospital policies (30 in 2000, 23 in 2004) and more primary care policies (9 in 2000, 25 in 2004).

The 2004 policies were more up-to-date (median age 1 instead of 2 years found in 2000), but the range of policy ages was similar to 2000. The national standard is for annual revisions for hospitals, but our results suggest that biennial updates are more achievable.

The format of policies had developed since 2000, with a greater use of electronic versions, of A4-sized documents and of colour. A national survey conducted in 2001 found that less than half of hospital antibiotic documents were available electronically, but 91% of hospitals in this audit had electronic versions. Hospitals have to choose between detailed advice in A4 and intranet formats or guidance that is easy to carry and consult. One solution is a detailed policy with a pocket-size summary. We liked the style of showing first choice drugs in a colour or font different from the alternatives. One improvement widely needed is to use English words instead of abbreviations of Latin terms for dosages and length of treatments.

Primary care policies have good evidence-based guidance, using the HPA model. Hospitals could benefit from a national template listing the contents of good antibiotic policies and from help in finding the evidence on which to base their policies.

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References

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