The proportion of all deaths due to euthanasia varies greatly between different diseases. If death does not come unexpectedly, the decision to perform euthanasia apparently depends greatly on the extent to which intolerable and hopeless suffering are experienced. This study provides some evidence that this differs not only between patients but also between diseases.

Funding: The Euthanasia Research Foundation.
Conflict of interest: None.

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*(Accepted 5 December 1995)*

# Growth in the use of antibiotics in the community in England and Scotland in 1980-93

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*BMJ* 1996;312:613

In 1989 the British Society for Antimicrobial Chemotherapy set up a working party on the use of antibiotics, including a working group that was asked to identify sources of data about prescribing in general practice. The aim was to identify potential sources of data, analyse the available data, and make recommendations about further investigation.

## Methods and results

Data about prescribing were obtained from the prescription pricing authorities in England and Scotland. In England complete data about prescriptions were available from 1980, whereas in Scotland data available before 1991 were only a 1% sample of all prescriptions. For statistical analysis the annual growth rate in prescribing in England was calculated from the following formula: growth rate (%)=(((Pn+1)−Pn))/Pn×100, where Pn is the number of prescriptions in the baseline year and Pn+1 is the number of prescriptions in the following year.

In England there has been a steady annual increase in the number of prescriptions for antibiotics (table 1) which has been greatest for the quinolones (22% increase). Most of the increase in quinolone prescribing came in 1986-91, when the average increase was 44% (95% confidence interval 15% to 74%). The available data on complete prescribing from Scotland show a broadly similar picture for overall prescribing, although the annual increase in quinolone prescriptions was not so great as in England (table 1). In both England and Scotland prescribing data are now adjusted for population, but the increase in total prescribing is similar to the increase in prescribing per 1000 population—for example, 11·5% *v* 10·6% for Scotland in 1992-3. The number of prescriptions per 1000 population is currently lower in Scotland than in England (956 in Scotland in 1992 *v* 1452 in England in 1991). The ingredient cost per prescription has also risen—for example, from £2.50 in 1980 to £6.01 in 1991 in England. Consequently, the annual increase in the cost of antibiotic prescribing is greater than the increase in the number of prescriptions.

## Comment

The overall increase in the number of prescriptions for antibiotics in England was 45·8% from 1980 to 1991, which is greater than a previous estimate of 33% growth from 1978 to 1987 but still below the rate of growth over the same period in France (65%) and West Germany (78%).[1] Why has antibiotic prescribing increased inexorably over the past decade? Approximately half of all antibiotic prescriptions are for respiratory symptoms.[2] We believe that the overall increase in antibiotic prescribing is due in part to a gradual increase in the use of antibiotics for respiratory symptoms, but that hypothesis cannot be tested from the Scottish or English prescribing databases because they contain no information about indications for prescribing. Our analysis also shows that growth has been most rapid for recently introduced drugs or drugs that are still being heavily promoted by their manufacturers (aminopenicillins, cephalosporins, macrolides, and quinolones), which is consistent with the findings of a recent study from Northern Ireland.[3] Increased prescribing of antimicrobials is associated with increased drug resistance, a global problem which recently prompted a parliamentary report in the United Kingdom.[4] We believe that the reasons for increased prescribing should be investigated as well as the link between the level of prescribing and resistance.

Funding: None.
Conflict of interest: None.

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*(Accepted 5 December 1995)*

**Table 1**—*Changes in prescribing of antibiotics in England and Scotland*

| Type of antibiotic | Mean annual % increase 1980-91 (95% confidence interval) | England: Total prescriptions 1990 (thousands) | England: Total prescriptions 1991 (thousands) | England: % Increase | Scotland: Total prescriptions 1992 (thousands) | Scotland: Total prescriptions 1993 (thousands) | Scotland: % Increase |
|---|---|---|---|---|---|---|---|
| Ampicillins | +4 (0 to 9) | 15 437 | 17 521 | +14 | 1926 | 2310 | +20 |
| Phenoxymethyl penicillin | −1 (−3 to +4) | 4 257 | 4 387 | +3 | 474 | 506 | +7 |
| Macrolides | +6 (−6 to +14) | 5 414 | 5 924 | +9 | 579 | 622 | +8 |
| Sulphonamides | +1 (−3 to +5) | 4 151 | 4 300 | +4 | 394 | 400 | +2 |
| Tetracyclines | −4 (−8 to −1) | 3 768 | 4 019 | +7 | 479 | 493 | +3 |
| Cephalosporins | +6 (+1 to +11) | 3 298 | 3 576 | +8 | 450 | 512 | +14 |
| Quinolones | +22 (−1 to +46) | 572 | 860 | +50 | 164 | 181 | +11 |
| All antibacterials | +5 (+2 to +7) | 38 212 | 42 090 | +10 | 4685 | 5226 | +12 |