Correspondence

Should we be doing more to prevent Group C meningococcal infection in school age children? How can we decide?

Sirs,

Round and Palmer review the current strategies for preventing Group C meningococcal infection in school age children and consider the relative merits of chemoprophylaxis and vaccination.1 However, some of their assumptions have been overtaken by recent developments.

It is probable that the new genetically engineered Group C vaccines will be efficacious in both infants and young children as well as in teenagers, just as the third generation *Haemophilus influenzae* vaccines virtually eradicated invasive disease in small children; and so there will be great interest in doing the same with the newer Group C vaccines within the next 12 or 24 months.

Similarly, the comment on Group B vaccine coverage has been overtaken by the successful Group B vaccine now used for all Cuban children.

It appears that rifampicin prophylaxis (or intramuscular ceftriaxone or oral ciprofloxacin) are not adequate without an immunization strategy in dealing with Group C disease outbreaks, and the decision making will be modified with the introduction of the new Group C vaccines.

Reference


Yours faithfully,

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Comparative cost effectiveness supports the use of meningococcal vaccine in schools after a single case

Sirs,

Round and Palmer have made a valuable contribution to the open discussion of immunization policy for the control of Group C meningococcal disease.1

In presenting their results as cost per case prevented they have not made it easy to make comparisons with the cost effectiveness of other public health and health care interventions. The use of cost per life-year saved would have facilitated such comparisons. Also, rather surprisingly, they did not make use of recent data from the United Kingdom on the absolute and relative risk of secondary cases of meningococcal disease in educational settings during 1993–1995,2 using instead rather dated estimates from France, Belgium and the United States.

In the period 1993–1995 in the United Kingdom, the absolute risk of another case of culture positive meningococcal disease occurring in a primary school in the month after a single case, the period during which the relative risk of disease was increased, was 1 in 14 000 (7.0/100 000), and the risk of a culture positive case occurring 7–30 days after the first case was 1 in 36 000 (2.8/100 000). Using the age-specific rate for children aged 4–10 years in England and Wales during 1996–1997 to calculate the absolute risk from 30 days to 4 years (13.5/100 000), we calculate the cost per undiscounted year of life saved at 4 years of vaccinating the pupils of a primary school following a single case of Group C meningococcal disease is £8100. The assumptions in this calculation are similar to those used by Round and Palmer and are given elsewhere.3 This figure overestimates the true current cost, as culture positive cases made up around three-quarters of all cases and Group C disease is more likely to cause outbreaks and is more likely to prove fatal than infection with other meningococcal serogroups.4

In the debate about the cost effectiveness of this intervention, the significance of this is that although it is costly, it is similar to the cost per undiscounted life-year saved of other established health care interventions, including intensive care for patients with multiple trauma, coronary artery bypass grafting and kidney transplantation.5 In answer to the question posed in the title of their paper, we believe that relative cost effectiveness and current societal values suggest that answer should be ‘Yes’.

References

2 Hastings L, Stuart J, Andrews N, Begg N. A retrospective survey of clusters of meningococcal disease in England and Wales, 1993 to 1995: estimated risks of further cases in

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Yours faithfully,

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Reply

Sirs,

We are encouraged to see that our paper has provoked some debate on the costs and benefits of meningococcal prophylaxis. Roberts and Petrovic wonder why we did not use cost per life year saved. This method of economic analysis automatically places a great weight on interventions in children as the life expectancy of children is greater than adults. As mentioned in the paper, the validity of our data sources was tested by using UK data from 1995–1996 and this indeed showed similar results to the other calculations. We used a slightly different target population to Roberts and Petrovic, children aged 5–16, with the necessity to treat a larger number of children per case as secondary schools tend to be bigger than primary schools. Nevertheless, our results are similar to theirs in order of magnitude, although presented in a different way.

Johnson comments that new vaccines will radically change the characteristics of this problem. We agree that a new more effective vaccine would make a strong case for universal vaccination, although the comparative rarity of meningococcal disease means that issues of cost benefit are still relevant.

Yours faithfully,

Alison Round
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Know your limitations: not just for clinicians. Estimation of confidence intervals is not straightforward

Sirs,

Dr Jessop’s recent editorial states that estimation of confidence intervals is easy with modern software. Although this is true for many of the measures used widely in public health, there is a glaring lacuna in regard to what should be the simplest things we ever report, proportions and differences between them. Traditional methods for calculating these are often referred to as back-of-envelope methods because they are so simple. Unfortunately, they have several serious deficiencies, which render them unsuitable for summarizing real data, and should be regarded merely as a first approximation, useful for introductory teaching purposes. The well-recognized deficiencies of the simple method for the single proportion carry across to the unpaired difference cases also. And widely used commercial software has little to offer for these tasks.

I have recently comprehensively reviewed and evaluated existing methods for these three cases, and devised improved methods for differences between proportions. Good closed-form methods are now available that are readily programmed as add-ons to existing statistical software. Versions for SPSS and Minitab are available at http://www.uwcm.ac.uk/uwcm/ms/Robert.html. These methods will also be available in the forthcoming second edition of *Statistics with Confidence* and its accompanying software.

The confidence limits for a difference between proportions may be inverted to produce confidence bounds for the number needed to treat (NNT). However, irrespective of the method chosen to calculate the confidence interval for the difference, the resulting confidence region for the NNT can be doubly infinite, if the null hypothesis is not rejected. As a summary of results, this is very difficult for anyone other than mathematicians to assimilate. My recommendation is that point and interval estimates for differences between proportions should be presented primarily in percentage form, and use of the NNT should be restricted to secondary contexts such as the labelling of an extra axis on a graph.

References


General Household Survey

Sirs,

A paper by Liz Twigg discussed the General Household Survey (GHS) as a source of data on smoking behaviour. On page 15 (in the final paragraph), the paper refers to the GHS as ‘now conducted by the Office for National Statistics’. The survey has always been conducted by the Social Survey Division of what is now ONS, but was formerly the Office of Population Censuses and Surveys (OPCS). The paper also describes the GHS as an ‘annually repeated’ survey, whereas fieldwork is carried out continuously, with the questionnaire changing at the beginning of each financial year.

Although the paper refers to data from the GHS, and from other surveys conducted by ONS, the data used are not the most recent. The results of the 1996–1997 GHS were published in early 1998, and there have also been more recent publications on smoking among secondary school-children (reference 2), and on infant feeding (reference 34) than those cited by Twigg.

Reference


Out-of-hours care in the UK –

generalizability of research findings

Sirs,

In their discussion of patients’ use of general practice and accident and emergency services outside normal surgery hours, Avery et al. questioned the generalizability of their findings with respect to the age and sex of the patients and their presenting symptoms. A cross-sectional study of the Glasgow Emergency Medical Service (GEMS) reveals a similar pattern of patient contacts and symptoms.

GEMS was established in February 1996, covering approximately 950,000 patients and involving 95 per cent of the city’s 219 general practices. There is a high prevalence of socio-economic deprivation, with 52 per cent of the population residing in areas of severe deprivation (Carstairs and Morris deprivation categories 6 or 7). GEMS operates from six centres across the city, and patients may receive a home visit, be asked to attend a centre or be given telephone advice. Data were collected on all patient contacts (n = 3193) with the service for one week in October 1996. The age and sex of patients contacting GEMS are outlined in Table 1.

There were 6976 presenting symptoms recorded. These were very similar to those reported by Avery, with fever the largest category (n = 667, 9.6 per cent), followed by vomiting (504, 7.2 per cent) then abdominal pain (400, 5.7 per cent). One presenting symptom not reported by Avery was that of anxiety/depression (252, 3.6 per cent). However, this may reflect the fact that some information on presenting symptoms was collected from the general practitioner’s examination of the patient, rather than being reported by the patient themselves.

A major difference between the two studies was the proportion of calls dealt with by telephone alone. Whereas Avery’s study showed that 30 per cent were dealt with in this
way, only 14 per cent were given telephone advice in Glasgow. This variation in response to patients contacting out-of-hours services has been discussed previously \(^4,5\) and is likely to reflect many things including geographical location, previous history of out-of-hours care in an area and sociodemographic profile of an area. However, patient acceptance of telephone advice may influence how much a service feels it can provide, as will the level of telephone ownership within an area. Danesh et al. have shown that telephone ownership is significantly less in areas of low income than in areas of high income.\(^6\) With the move towards ‘NHS Direct’ \(^7\) and an increasing emphasis on providing telephone advice for out-of-hours care\(^8\) the acceptability and accessibility of such a service to patients, particularly in areas of deprivation, must be carefully evaluated.

### References


Yours faithfully
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### Table 1 Age and sex of patients contacting GEMS (values in parentheses are percentages)

<table>
<thead>
<tr>
<th>Age groups (years)</th>
<th>GEMS contacts</th>
<th>GEMS population</th>
<th>Rate of contact*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–4</td>
<td>713 (22.3)</td>
<td>51754 (5.4)</td>
<td>716.4</td>
</tr>
<tr>
<td>5–14</td>
<td>365 (11.4)</td>
<td>113716 (12.0)</td>
<td>166.9</td>
</tr>
<tr>
<td>15–44</td>
<td>1034 (32.4)</td>
<td>436039 (45.9)</td>
<td>123.3</td>
</tr>
<tr>
<td>45–64</td>
<td>430 (13.5)</td>
<td>204526 (21.5)</td>
<td>109.3</td>
</tr>
<tr>
<td>65+</td>
<td>471 (14.8)</td>
<td>143988 (15.2)</td>
<td>170.1</td>
</tr>
<tr>
<td>Missing</td>
<td>180 (5.6)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1326 (41.5)</td>
<td>466301 (49.1)</td>
<td>147.9</td>
</tr>
<tr>
<td>Female</td>
<td>1776 (55.6)</td>
<td>483722 (50.9)</td>
<td>190.9</td>
</tr>
<tr>
<td>Missing</td>
<td>91 (2.9)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3193 (100.0)</td>
<td>952003 (100.0)</td>
<td>174.4</td>
</tr>
</tbody>
</table>

*Rates calculated as (number of contacts over one week \(\times 52\))/total number of GEMS patient population within each age or sex band \(\times 1000\).*

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**Health-promoting schools: new challenges to school teachers**

Sirs,

One cannot agree more that the health-promoting school approach is effective in influencing outcomes related to health and education as pointed out in Denman’s paper.\(^1\) There is...
already substantial evidence indicating the health of children as the major factor affecting their capacity to learn.2,3 Most schools are confined to the formal curriculum of health education, and have little understanding of the importance of involving different sectors in the community. Also, they have little training in establishing schools as health-promoting setting.

For a comprehensive school health education programme to be successful, a variety of health, education and social services should be made available in schools so that school children and their families can gain access.4 Therefore my Department together with the three major School Councils in Hong Kong (Hong Kong Subsidized Secondary Schools Council, Subsidized Primary Schools Council and Hong Kong Special Schools Council) launched a ‘healthy schools’ programme focusing on six major aspects:

1. to offer a two years part-time Professional Diploma course in Health Promotion and Health Education to train school-related workers;
2. to publish journals, textbooks and periodicals on health promotion and health education for school health workers, parents and students;
3. to conduct research on health promotion and health education, and on health need assessment;
4. to enrich the curriculum of health education in schools, and to organize and participate in local and regional conferences or seminars on health education and health promotion;
5. to provide consultancy services in health promotion for the school community;
6. to act as a liaison body, and establish a network of academic and professional staff in health education from universities and other professional institutions or organizations, both local and overseas, to foster health promotion and health education in Hong Kong, Southern China and the Western Pacific region.

The programme provides education and training, networking, community partnership, research and information dissemination. The end results would extend the school health education curriculum to become youth health promotion programmes in the community, so that schools would have the support of the community and the local needs would be met. It is aimed that graduates of the course should have:

1. the ability to read and comprehend information on health-related issues;
2. the ability to take preventive measures and preliminary action against health problems encountered by school children;
3. the ability to find information for basic problem-solving in health matters related to school children;
4. the ability to organize health promotion programmes at school;
5. the ability to teach basic concepts in health education;
6. the ability to co-ordinate health promotion research, curriculum development, and the organization of health promotion programmes on a territory wide or network basis.

Well-structured training is essential for the school teachers so that they can commit to implementing the idea of health-promoting schools, and take the challenge of moving away from old-style health education to a whole setting approach, and a wide-ranging, comprehensive collection of actions.5 During one workshop, the course participants were asked to fill in a questionnaire on the perception of being healthy. Their perception of good health has moved away from the traditional idea of health as merely absence of disease, to a more holistic and comprehensive approach taking into account psychological and social well being.

Our programme recognizes the importance of training the trainers in health promotion and health education at schools, networking for wider community participation, and school-based research. If there is at least one trained school health educator in each school, and these work together according to the principles of health-promoting schools, it will not be difficult to implement the Ottawa Charter for Health.6

Acknowledgement

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References


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