IMPLEMENTING A SCHOOL-BASED HPV VACCINATION PROGRAMME

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Background: The Department of Health launched a national human papillomavirus immunisation programme for girls aged 12–13 years in September 2008.

Aim: To assess the feasibility and acceptability of implementing a school-based programme.

Method: HPV vaccination was offered over one academic year by two PCTs in 36 schools to 12–13-year-old girls, using different implementation plans.

Results: At parent information evenings, the questions most often raised related to vaccine safety. In PCT 2, first-dose vaccine uptake was 78.7% (1,292), higher than the 59.8% (706) achieved in PCT 1. Using a late recall system and accepting late consenters in PCT 2 was associated with higher uptake, but led to one in five girls being outside the school schedule.

Conclusion: This study suggests uptake can be improved by achieving a high initial consent rate, accepting late consenters and adopting a flexible policy to maintain high coverage across all three doses.

INTRODUCTION

This will be a challenging year for school nursing services, as they implement for the first time a three-dose vaccination programme in one academic year.

In September 2008, the Department of Health introduced the human papillomavirus (HPV) vaccine.

HPV is a sexually transmitted infection, which may be contracted at any time after the onset of sexual activity. In the UK, up to 70% of sexually active women may be infected with HPV at some time during their life (Kitchener et al, 2006). Infection with a high-risk (oncogenic) type is necessary for the development of cervical cancer and, though most infections are cleared by the immune system, a persistent HPV infection can lead to cervical cancer.

Approximately 40 HPV types may infect the genital tract. The two most prevalent high-risk HPV types are 16 and 18, which cause approximately 70% of cervical cancers worldwide (Muñoz et al, 2004).

Vaccinating against these could potentially prevent the majority of cervical cancers.

There are two licensed HPV vaccines in the UK, a quadrivalent vaccine (Gardasil) and a bivalent vaccine (Cervarix). Both vaccines prevent HPV types 16 and 18 in those not previously infected (Rambout et al, 2007). Gardasil also protects against low-risk types 6 and 11, which cause genital warts. Both vaccines require a course of three doses over a six-month period.

In the UK, a national school-based programme to routinely vaccinate girls aged 12–13 years (year 8) began this September. Responsibility for planning and implementing the programme has been mainly devolved to PCTs.

LITERATURE REVIEW

The two main challenges of this vaccination programme are its acceptability, as the first routine STI vaccine for adolescents, and the feasibility of delivering a three-dose schedule over six months in schools. An acceptability study suggested a possible 80% uptake rate (Brabin et al, 2006).

A three-dose adolescent hepatitis B vaccine was successfully delivered in schools in a feasibility study in Glasgow. The hepatitis B study achieved an uptake of 92% for the first dose, although this fell to 80% for the third dose. This study suggested that a school-based three-dose vaccination programme could be successfully delivered (Bramley et al, 2002).

However, the general public’s awareness of HPV and its link to cervical cancer is low (Wallier et al, 2004) and the importance of HPV vaccination for cervical cancer may not be appreciated.

Uptake rates are also influenced by the approach to implementation. For example, Tickner (2006) highlighted that the way vaccination services are organised and delivered has a significant impact on the level of coverage achieved.

AIMS

The overall purpose of the study was to assess the acceptability and feasibility of vaccinating year 8 girls (aged 12–13 years) against HPV in a school setting.

This article draws on the results of a feasibility study undertaken in two PCTs in Greater Manchester, which reported an initial 71% vaccine uptake (Brabin et al, 2008).

IMPLICATIONS FOR PRACTICE

The following are some issues to consider:

- Early and comprehensive training for nurses delivering the vaccine to promote parental confidence;
- Liaise with schools early on to agree timetabling of educational and vaccination sessions;
- Direct time and resources into obtaining consent for vaccination;
- Send reminders by post at intervals that allow parents time to make an informed decision;
- Accept late consenters into the vaccination programme;
- Provide flexibility to accommodate girls outside their school’s schedule;
- School nurses/immunisation teams should be available to parents through information evenings and/or a dedicated telephone line.
We report the difference in the uptake rates for the two PCTs, which we assign partly to implementation.

**METHOD**

Vaccine and implementation costs, estimated by PCTs at around £21 per child invited, were provided by GlaxoSmithKline (GSK), manufacturer of the Cervarix vaccine. The North Manchester NHS research ethics committee approved this study.

Two PCTs offered the vaccine. Both had good coverage of approximately 81% for cervical screening. Adolescent Td/IPV delivery had been transferred to general practice in PCT 1, which was not conducting any school vaccination programme when this study began. PCT 2 had continued with a school-based Td/IPV programme.

**Preparing for the programme**

Each PCT was responsible for delivering the vaccine to all secondary schools in its area and formed a local HPV planning committee to coordinate this. A broader steering group was set up which included the health protection unit, both PCTs and independent members. Patient group directions were developed within PCTs (so that the vaccines could be given by practitioners without independent prescribing qualifications).

At the beginning of term, a list of all year 8 girls was drawn up. An information sheet, invitation letter and consent forms were standardised and sent out by both PCTs. Consent was sought for the full course of vaccination. The information sheet included details on HPV and its link to cervical cancer, the two HPV vaccines available, the national programme and the study’s aims. A flyer describing an educational DVD for girls was also sent. The consent form requested parents who refused vaccination to state the reason. The written information was sent by post and reminders sent to those who did not reply.

Staff training was provided in both PCTs, after which parents’ evenings were organised. In PCT 1, a school nurse team visited every participating school, and parents and girls were invited to attend information evenings. PCT 2 organised five sessions in different schools, led by the consultant in communicable disease.

The format was an overview of HPV and the vaccine and the educational DVD was shown, followed by an open question and answer session. In PCT 2, school nurses ran education sessions, including the DVD, in each school for all year 8 girls.

**Vaccination sessions**

Vaccination sessions went well, with typically 100 girls vaccinated per morning session, but the two PCTs organised the vaccination teams differently. The school nursing services in PCT 1 were organised into four teams. In PCT 2, an HPV vaccination team was set up, comprising a lead nurse and two part-time nurses. This team liaised with school nurses.

When girls missed sessions, ‘catch-up’ appointments were arranged. PCT 1 sent two or three school nurses into the school a week later to vaccinate those who had been missed. In PCT 2, girls were invited to come for their first dose when the team returned to give dose two to or attend a session at a neighbouring school. Those who remained unvaccinated were given up to three appointments at an out-of-hours community youth clinic.

**RESULTS**

**Uptake rates:** All year 8 girls were invited for vaccination (2,822); the overall uptake rate was 70.8% (1,998). In PCT 2, the first-dose vaccine uptake of 78.7% (1,292) was higher than in PCT 1 – 59.8% (706).

**Schools’ participation**

Timetables were taken to 36 secondary schools for agreement at the start of term. These included dates for information evenings, child education sessions (PCT 2 only) and dates and times of vaccination sessions.

Two Catholic schools (PCT 1) refused to take part and the PCT was obliged to relocate the scheduled vaccination session to a local health centre. Uptake rates in these schools were lower (39% and 49%). Two schools delayed because of implementation concerns and, in two other schools, vaccination sessions were rescheduled at short notice because of unforeseen events such as a school inspection.

**REFERENCES**


TABLE 1. QUESTIONS AND ISSUES RAISED BY PARENTS AT INFORMATION EVENINGS

<table>
<thead>
<tr>
<th>Category/example questions or statements</th>
<th>Frequency (n=155)</th>
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</thead>
<tbody>
<tr>
<td>Safety</td>
<td>32</td>
</tr>
<tr>
<td>‘You are giving a relatively new vaccine at the age of 12–13 that could be harmful in years to come and cause them to become ill or suffer side-effects that are not yet known about.’</td>
<td></td>
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<tr>
<td>Vaccine efficacy and length of protection</td>
<td>27</td>
</tr>
<tr>
<td>‘How long before we know about the efficacy and if there will be a booster available?’</td>
<td></td>
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<tr>
<td>Practicalities</td>
<td>23</td>
</tr>
<tr>
<td>‘Can a foster mum consent to this vaccine or does it have to be a social worker?’</td>
<td></td>
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<tr>
<td>Vaccine testing and licensing</td>
<td>20</td>
</tr>
<tr>
<td>‘What proportion of the trial was in the under-14-years age group?’</td>
<td></td>
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<tr>
<td>Transmission of HPV</td>
<td>12</td>
</tr>
<tr>
<td>‘Is it not passed on genetically?’</td>
<td></td>
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<tr>
<td>Fertility</td>
<td>10</td>
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<tr>
<td>‘Will the vaccine affect development or stop periods?’</td>
<td></td>
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<tr>
<td>Risk to boys</td>
<td>10</td>
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<tr>
<td>‘Does it affect boys or are they just carriers?’</td>
<td></td>
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<tr>
<td>Age of vaccination</td>
<td>8</td>
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<tr>
<td>‘It’s stealing her childhood and innocence to talk about such things at this age. I had to ask her older sister to explain why she didn’t need the injection.’</td>
<td></td>
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<tr>
<td>Perceived contraindications</td>
<td>7</td>
</tr>
<tr>
<td>‘My daughter has asthma. Is this a problem?’</td>
<td></td>
</tr>
<tr>
<td>Perceived low risk of infection</td>
<td>3</td>
</tr>
<tr>
<td>‘Why should my daughter need it? Our religion does not condone sex before marriage.’</td>
<td></td>
</tr>
<tr>
<td>Condoning sexual activity</td>
<td>1</td>
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<tr>
<td>‘I think it will make them more promiscuous but, if they are going to be that way, it’s not going to stop them.’</td>
<td></td>
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<tr>
<td>Other</td>
<td>2</td>
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Providing information
In both PCTs, parents were invited to attend an information evening. PCT 1 held information evenings for parents and their daughters together in all 13 participating schools, which were attended by 281 parents and 192 girls. PCT 2 held information evenings for parents in five different schools, which were attended by 118 parents and seven girls. Table 1 above shows the frequency of questions asked at these events and examples of questions in each of the categories, excluding questions that were specific to the research study.

Frequent questions: About 40% were related in some way to safety issues, particularly unknown long-term side-effects. Lack of familiarity with the vaccine prompted questions on clinical trials data and the experiences of countries that had introduced it. Parents were concerned that immunity might wane after five years.

Less frequent questions: There was some discussion around the risk of HPV infection to boys, and why boys were not being offered the vaccine. The mechanism of HPV transmission and why condoms were not 100% effective at preventing HPV infection were also discussed.

Infrequent questions: Parents asked about contraindications specific to their child, related to illness. The age at vaccination and the risk of HPV infection at that age necessitated parents’ consideration of when their child might become sexually active and, for some, whether their cultural or religious beliefs were consistent with vaccination. Some parents commented they were pressurised into discussing sex with their child at an inappropriate age. The view that the vaccination would lead to promiscuity was raised publicly only once. Other parents may have held that view privately, but it was not voiced at parents’ evenings.

CONSENT ISSUES
As this was a research study, written parental consent was required for inclusion in and withdrawal from the study. The initial consent covered all three vaccination doses.

Some consent forms were returned late by hand or fax, which caused administrative difficulties and disrupted some vaccination sessions. Similarly, a few parents sought to withdraw consent verbally. Despite parental consent, nine girls refused vaccination on the day, but three agreed to be vaccinated at a later session. Overall, 29 girls whose parents had consented to vaccination remained unvaccinated because they did not attend (DNA) vaccination sessions.

Maintaining the three-dose schedule
In PCT 1, catch-up was achieved for late consenters by giving them their first dose at the second scheduled session at their school. PCT 2 held catch-up vaccination sessions in neighbouring schools or evening community clinics.

PCT 2 had more late consenters and vaccinated more girls. It sent reminder letters to parents who had not returned consent forms after the first vaccination date, while PCT 1 sent reminders out 10 days after the first invitation. This meant that the late consented girls were outside their planned school schedule, more so in PCT 2.

Overall around one in five girls was outside their original school vaccination schedule (see Table 2, p33). As a result of late consent, school nurses, particularly in PCT 2, found it challenging to maintain the schedule of zero, one and six months, and a few girls fell outside the recommended regimen. The shortest interval between the two doses was 21 days, and the longest 312 days.

In catch-up sessions in PCT 1, in which girls were followed up at their own school, attendance was high. In PCT 2, late consenters and those who missed their school’s session for other reasons were usually offered an appointment at local clinics. School nurses reported that attendance rates at the community clinics were low. In total, PCT 2 ran five evening community clinics to give each girl three opportunities for the first dose. Most girls who were vaccinated late re-entered the routine programme for dose 3. In a few cases, the inter-dose interval was too short, so the third dose was deferred to the next academic year.
DISCUSSION

This study demonstrates that a three-dose HPV vaccination programme for 12–13-year-old girls can be delivered in a school setting following implementation plans produced and delivered by PCTs. It also shows the HPV vaccine is accepted by most parents, as over 70% consented to their daughter’s vaccination.

Nevertheless, some parents still saw the feasibility study as a trial of the vaccine; 10% stated they did not wish to participate in a research study or wanted to know the outcome of the national programme before making a decision (Brabin et al, 2008). In addition, the public awareness campaign was not due until the following autumn, so generally parental knowledge of HPV vaccine was low.

As a result, uptake in the study was probably lower than can be achieved in the national programme. The main finding is that there are several ways to approach implementation, although these affect the delivery of the programme and workload of school nurses and support staff.

It appears the PCT implementation practices affected uptake rates. It was important to direct time and resources into obtaining an initial high consent rate. We attribute the higher uptake rate in PCT 2 to the ability to capture more girls in the programme. By sending reminder letters after the first vaccination to all those who did not respond to the initial invitation, having a flexible policy for late consenters and, consequently, by allowing more of these into the programme, PCT 2 achieved a higher uptake rate (Table 2).

Reminders and recall systems are established as a method to improve immunisation rates (Jacobson Vann and Szilagyi, 2005). In the Cochrane review, only one study was identified on adolescent reminders, which did not demonstrate significant improvement in uptake (Jacobson Vann and Szilagyi, 2005).

Uptake rates are higher when late consenters are accommodated. These may be parents who are ambivalent or reluctant about the HPV vaccination programme. A flexible policy towards late consenters will mean more follow-up clinics are required to maintain the schedule. Despite trying to reduce barriers to vaccination by holding clinics in the evenings at a central location, DNA rates remained high. Accommodating late consenters requires a considerable amount of time and resources.

As this was a research study, providing parents with sufficient information to give informed consent was a legal requirement. In addition to the written information, parents’ information evenings were provided. Own-school evenings were better attended than joint school ones.

Smith et al (2006) demonstrated that, when vaccine safety is an issue, healthcare professionals’ reassurance can increase vaccine acceptance among parents. However, we have shown that parents who attended information evenings did not change their view as they had already made a final decision (Stretch et al, 2008).

Most questions concerned safety issues. Educational initiatives targeting healthcare professionals have been shown to foster vaccine acceptance among parents (Gonik, 2006). It is therefore important that nurses are sufficiently educated to answer parents’ questions positively and confidently. In view of limited awareness of HPV and parents’ issues about safety, it may be beneficial to use parents’ information evenings to allay fears and anxieties until the national HPV vaccine programme is bedded in and safety concerns have diminished.

CONCLUSION

A school-based HPV vaccination programme for adolescent girls was successfully delivered in two PCTs.

Despite media reports that ‘nearly three in 10 parents failed to agree’ to vaccination (BBC News Online, 2008), we consider the uptake was good at 70% and in line with predicted uptake of 80% in a national programme (Brabin et al, 2006). PCT 1 experienced some implementation difficulties in two Catholic faith schools, but this was essentially a local issue. Many of the issues around faith schools and sexual promiscuity have been seized on by the media, but are a concern to only a minority of parents.

Parents do remain concerned about safety and novelty of the vaccine and nurses need to be familiar with ongoing HPV vaccine trials to provide accurate and up-to-date information.

Only two PCTs took part in this study. They represented two populations which may have been dissimilar, which limits the conclusions that can be drawn, particularly about which implementation practices affect uptake the most.

It is worth investing time and effort in achieving a high consent rate, as vaccine coverage can only decrease thereafter. This may include admitting late consenters and providing additional vaccination sessions.

TABLE 2. GIRLS VACCINATED BY PCT

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<tr>
<th></th>
<th>PCT 1 (n=1181) n (%)</th>
<th>PCT 2 (n=1641 n (%)</th>
<th>PCT 1 n (%)</th>
<th>PCT 2 n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccinated</td>
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<tr>
<td>706 (59.8%)</td>
<td>1292 (78.7%)</td>
<td>On schedule 648 (54.9%)</td>
<td>939 (57.2%)</td>
<td></td>
</tr>
<tr>
<td>Consented</td>
<td>9 (0.8%)</td>
<td>At catch-up 58 (4.9%) (8.2% of those vaccinated)</td>
<td>353 (21.5%) (27.3% of those vaccinated)</td>
<td></td>
</tr>
<tr>
<td>Refused</td>
<td>112 (9.5%)</td>
<td></td>
<td>116 (7.1%)</td>
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<tr>
<td>No response</td>
<td>354 (30.0%)</td>
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<td>215 (13.1%)</td>
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<table>
<thead>
<tr>
<th>Not vaccinated</th>
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<tr>
<td>475 (40.2%)</td>
<td>349 (21.3%)</td>
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</table>

Vaccinated at a later visit to school, neighbouring school or at a community follow-up clinic

REFERENCES

