



# The American STAR comes to England

*A curriculum based on selected US models is to be tested in England's first national evaluation of substance use education. The choice is critical – poor outcomes could undermine support for drug education in Britain. How solid is the US foundation?*



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The British Home Office and the Department for Education and Skills have joined forces on an ambitious new project involving up to 50 secondary schools, the first time the UK government has tried to construct and test its own school-based drug prevention programme.

The project is based on two unusually well researched US models. They received the accolade of being the only ones selected by experts on the University of Colorado's *Blueprints* panel – why *Blueprint* became the name for the British project. The panel set out to identify ten “truly outstanding” programmes on which to base a US anti-violence strategy. With drugs in America so closely linked to violence, drug prevention came within their remit. The programmes they chose were Life Skills Training and the Midwestern Prevention Project.<sup>1</sup>

Elements may be taken from elsewhere and adaptations are inevitable, but the chances of the new English project countering pessimism over preventive education depend crucially on the suitability of these US models. Life Skills Training was investigated in issue three and found unconvincing in its claims to reduce illegal drug use.<sup>2</sup> Now we turn to the Midwestern Prevention Project, implemented in Kansas City as Project STAR and in Indianapolis as I-STAR, and investigated by a team led by Professor Mary Ann Pentz.

Starting lessons in the first year of secondary school, STAR has school work at its core, but also extends its reach to parents and the wider community ▶ *The STAR programme* p. 24.

The British team had good reason to light upon STAR. A Health Education Authority review had found just five methodologically sound drug education studies which reported drug use reductions over follow-ups of at least two years.<sup>3</sup> Two involved STAR and in both the impact was at the top end of the range.<sup>4,5</sup> In the USA the project is seen as the closest yet to a model programme<sup>6</sup> and takes pride of place in an official drug prevention guide.<sup>7</sup> How does the project match up to its billing? First we bring together all the results we could find then probe what seems an obvious weakness in the methodological foundations of an impressive superstructure.

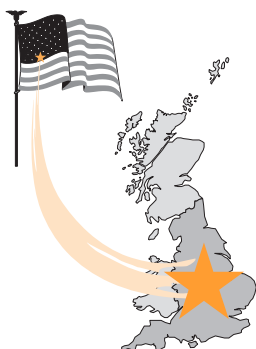
## Kansas City leads the way

In 1984 Kansas City became the first trial site for the programme. The most comprehensive report of how it worked is a 1989 account of smoking, drinking and cannabis use after the first year,<sup>8</sup> when only the mass media and school-based elements had been implemented. Community leaders had been trained, but had yet to mobilise the wider community. This training and the mass media elements were also applied to the comparison

## Golden Bullets

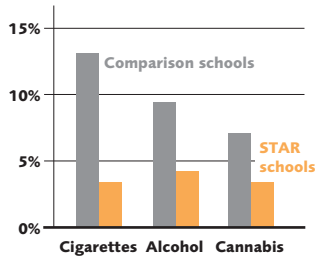
### Essential practice points from this article

- ★ The Midwestern Prevention Project is one of the two models for the English national evaluation of drug education. It combines school, parental, and community mobilisation elements.
- ★ The project was trialed among first-year secondary school pupils in Kansas City and Indianapolis and found to reduce tobacco, alcohol and cannabis use. There was also some evidence of long-term impact through to early adulthood and of reductions in other forms of illegal drug use.
- ★ Impacts were most consistent and generally most impressive for cigarette smoking.
- ★ Non-random allocation of schools in Kansas and incomplete reporting of the randomised Indianapolis evaluation leave doubts over the validity of the findings.
- ★ Probably the project's impact was partly due to the enthusiasm and flexibility of the schools which opted to take it on and partly to the curriculum which provided a structure for their efforts.
- ★ Full implementation is expensive and requires community commitment. Areas in greatest need may be least able to implement. Cost and commitment are more justifiable if other youth problems are also addressed.
- ★ The project provides well-constructed models for orchestrating school and community mobilisation and for evaluating their impact.





**Figure 1** In Kansas City at the one year follow-up the growth in the proportion of pupils using at least monthly had been significantly held back in STAR schools.<sup>8</sup>



schools in the same areas.<sup>4</sup> This means that if there were greater drug use reductions because of STAR, it could only be due to the school-based components.

First-year outcomes are also primary because they represent the most clear cut test of STAR versus no STAR. In later years, delayed implementation of STAR in the comparison schools (they waited a year) could have affected even the pupils who had missed out on the lessons.

All Kansas City's 50 junior high or middle schools formed the baseline sample. 5065 of their first-year pupils (roughly aged 11–13) were assessed before the lessons started. A year later 42 schools could be matched with the baseline sample. The key question was whether drug use in first-year pupils rose less in the 24 which implemented STAR, compared to the 18 which had carried on with their normal curriculum.<sup>9</sup>

How the schools were allocated is critical to understanding the study. The school year was already under way when the project started. Eight schools agreed to be randomly allocated and were evenly split between STAR and the comparison set. Another 20 rescheduled classes to accommodate STAR. Fourteen unable to do so at short notice were added to the comparison sample. There were no relevant statistically significant differences between random and non-randomly allocated schools, so all schools were pooled in the main analysis.

In eight schools all first-year pupils were assessed and then tracked individually; in the remainder one in four pupils were sampled.

### Encouraging outcomes

On all the measures, what started as similar or slightly higher rates of drug use had a year later been significantly held back in STAR versus comparison schools. This was true for use in the last week, in the last month, and for all three drugs (tobacco, alcohol and cannabis), but it was most apparent and most significant for smoking ▶ *Figure 1*.

For example, at baseline on average in each comparison school about 11% of pupils had smoked cigarettes in the last month; a year later about 25% had done so, roughly 14% more. In STAR schools the increase was held back to just 3%. Similarly, in both sets of schools the proportion of pupils who had

drunk alcohol in the past month<sup>10</sup> started at about 7%; in comparison schools it rose to roughly 16% but to just 12% in STAR schools. For cannabis, a slightly higher baseline rate in STAR schools was reversed a year later when just under 8% had used cannabis in the last month compared to just over 10% in comparison schools. A study restricted to smoking showed that the gains were broadly maintained at two years.<sup>11</sup>

### Most stringent test?

The most stringent test for STAR was its performance in the eight schools where all first-year pupils were assessed and 'tracked' individually, and where schools were (perhaps) randomly allocated. Random allocation would overcome doubts that schools which chose to start STAR immediately were unusually keen; tracking avoids dilution of the samples by pupil transfers. In this cohort STAR also had perhaps its best chance to shine; despite short notice, in the first year all STAR schools fully implemented the lessons, a strong influence on outcomes.<sup>12</sup>

In what seem to be three reports on the tracking study, the allocation of schools is differently described. In one the eight schools were "assigned randomly to program or control conditions",<sup>4</sup> a design which would indeed have overcome the limitations of the main study. But the other two either stipulate<sup>13</sup> or leave open the possibility<sup>14</sup> that the school's preferences played a part. If these really are different descriptions of the same study, then its major advantage – random allocation – is in doubt.

The report which asserted random allocation says 1607 pupils were assessed before the lessons and 84% again three years later, a period which included parent organisation and training as well as school lessons.<sup>4</sup> At follow-up about 6–7% fewer STAR than non-STAR pupils had smoked cigarettes or used cannabis in the past month, a cut of about a fifth and a third respectively in the numbers using the drugs. The impact was consistent across pupils at high and low risk of drug use, though for any particular combination of risk factors STAR's contribution was small. For example, without STAR 54% of pupils initially at greatest risk for cannabis use went on to use the drug monthly three years later; STAR reduced this to 47%. There was no significant impact on drinking not any

indication of what happened to heavier (weekly or daily) use or to drunkenness, though by the ages reached in the study (14–16), these are the more relevant outcomes.<sup>15</sup>

A report which says allocation was based on school preferences came to similar conclusions.<sup>13</sup> Results were limited to the one-year follow-up but there were some answers to whether heavy use had been held back. Again, STAR's benefits were most clear-cut for smoking. At baseline 4–5% of pupils had smoked in the past week: a year later, without STAR this had risen to nearly 18%, with STAR to just over 8%. On some assumptions, past-month cannabis use was also significantly reduced, on others it was not, while there were no statistically significant reductions in the proportions drinking in the past week.

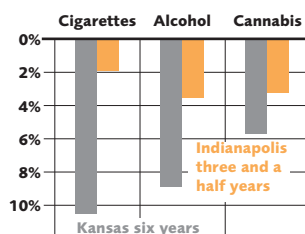
From brief mentions elsewhere it seems that these heavier use reductions outlasted the end of the lessons. After two years, growth in past-week smoking was 9% less in STAR schools, drinking 2% less, cannabis use 3% less,<sup>18</sup> but whether these findings had withstood the sophisticated statistical tests employed in the previous study is unclear.

A third report is limited to cigarette smoking up to the two-year follow-up, when (compared to the growth in control schools) in STAR schools 16% fewer children were smoking in the past month and 12% fewer in the past week.<sup>14</sup> Importantly, STAR seemed to curb heavy as well as occasional smoking.

### Indianapolis – the missing link

Three years later and with longer to prepare, all 57 schools in the Indianapolis study accepted random assignment to I-STAR or to delay for a year. This far stronger design was intended to eliminate doubts raised by non-random allocation in Kansas. Unfortunately, we found just one report of the results in a scientific journal, and this confined itself to pupils who before the lessons had *already* smoked, drunk or used cannabis in the previous month.<sup>16</sup> At most these were under a third of all pupils and perhaps much less. A researchers who worked on the study says this reporting gap "leaves many questions unanswered and reflects negatively" on the Midwestern Prevention Project as a whole.<sup>17</sup>

As in Kansas, these precocious pupils were assessed first aged 11–13. Follow-ups were conducted six months later and then annu-



**Figure 2** Random allocation in Indianapolis seems to have led to less impressive results than in non-randomised Kansas. The chart shows the net reductions (ie, differences between STAR and comparison schools) in the proportions of pupils using drugs at least monthly.<sup>19</sup> The deeper the bar, the greater the reduction.



#### KANSAS CITY – Non-random allocation

Ewing Kauffman, local philanthropist and drugs company owner, bought baseball and STAR to his hometown. His support was critical. Outcomes looked encouraging but just eight out of 42 schools were randomly allocated. Another 20 revamped their teaching schedules at short notice to incorporate STAR. The results could reflect their greater flexibility and commitment to drugs prevention.



#### Professor Mary Ann Pentz

Her findings influenced US drug prevention policy and are now being used as the basis for the national drug education evaluation in England.



#### INDIANAPOLIS – The missing link

In Indianapolis it was the charitable arm of another pharmaceutical company, Eli Lilly, which took on the Kauffman role. With longer to prepare, all 57 schools accepted random assignment but the results from this far stronger design have never been fully reported. From what can be gleaned they were less impressive than in Kansas.



ally until three-and-a-half years. Relative to controls, at all but one of the follow-ups for one of the drugs, I-STAR pupils were more likely to have made lasting reductions in the quantity of drugs they used. Across the whole time period the reductions were significant for all three drugs. The effect was greatest at the early follow-ups (and statistically significant for alcohol and cigarettes) but practically absent by the last. The study was hampered by the very high absence rate of children at follow-up assessments. At the last two, often half or more were missing, potentially greatly reducing the chances of a statistically significant result and casting doubt over those which were found.

Other reports do draw on data from more or less all the pupils, including the ones who had not already used drugs. However, their main aims were to illustrate statistical techniques, not to present findings. One such report used past-month smoking data from 50 schools.<sup>18</sup> So far as can be ascertained, I-STAR's impact was inconsistently significant depending on the statistical analysis being used.

Otherwise, for the whole sample there are only snippets of results briefly reported. At three-and-a-half years, growth in weekly smoking had been held back by about 4% but daily smoking by under 1%.<sup>19</sup> On all other measures<sup>20</sup> growth in drug use had been held back by about 2–3%. The statistical significance of these findings was not specified, but from another report we know that at one-and-a-half years some analyses found significantly reduced cannabis use.<sup>15</sup> For cocaine, only at the four-year follow-up had signifi-

cantly fewer I-STAR pupils used the drug in the past month. In earlier years sometimes there were fewer, sometimes more.

#### Outcomes less impressive

Where comparison is possible, outcomes in Indianapolis were generally less impressive than in Kansas ▶ *Figure 2*. At three-and-a-half years the rise in weekly smoking had been held back by 4%<sup>19</sup> compared to 5% at two years in Kansas.<sup>4</sup> Daily smoking was barely restrained at all (0.7%) while at six years in all Kansas schools<sup>19</sup> and at three where pupils were individually tracked<sup>4</sup> the figures were 5% and 3%. With respect to cannabis, retardation in growth was about the same as in all Kansas schools<sup>8 19</sup> but much less than in those subject to individual tracking, where it had been held back by 9%<sup>4</sup> compared to just 3% in Indianapolis.<sup>19</sup>

Despite the curriculum having been strengthened on alcohol,<sup>1</sup> outcomes relative to Kansas were mixed. In the eight-school Kansas tracking study there had been a relative growth in monthly use of 3%;<sup>4</sup> Indianapolis reversed this into the intended reduction.<sup>19</sup> But in the whole sample of Kansas schools drinking reductions at one<sup>8</sup> and six years<sup>19</sup> had been greater than at three-and-a-half years in Indianapolis.

It seemed that randomisation had revealed that STAR was not as strong as it had seemed in Kansas. However, in some respects Indianapolis had the odds stacked against it. The programme had been compressed,<sup>1</sup> meaning that after the first year, outcomes in the 25 comparison schools could have been heavily 'contaminated' by parental and community-

wide influences. The effect would have been to reduce the chances of I-STAR schools bettering the others.

Another factor would have had a similar effect. In the first year publicly funded schools were slow to implement I-STAR,<sup>1</sup> while presumably the comparison schools – which continued with their normal lessons – had no such teething problems. Many I-STAR pupils will have incompletely received the core lessons, a deficit which greatly attenuates the impact of the intervention.<sup>12</sup> Professor Pentz reports that taking these implementation problems into account, I-STAR's outcomes were closer to those in Kansas,<sup>1</sup> but this analysis does not seem to have been published.

#### Long-term benefits unclear

There is no comprehensive account of longer term outcomes for the full Kansas sample, but there are several mentions. Six years after baseline when pupils were generally aged 18, these suggest that without STAR 7% more would have used cigarettes or alcohol in the past week and 3% cannabis.<sup>19</sup> Heavy use too had been held back, with 5% fewer smoking daily, 7% fewer getting drunk in the past month, and 3% fewer using cannabis more than twice in the past week.<sup>1</sup> Also reported are reductions in cocaine use at age 14–16. At least some of these findings were statistically significant, but it is unclear which.

These results are difficult to square with a third report which portrays a steady growth to 12% at five years in the proportion of pupils STAR prevented from smoking daily.<sup>21</sup> A fourth report on daily smoking gives yet



## The STAR programme ★★★★★

STAR's core is its school programme, but it also reaches out to parents and the wider community. The thinking is that prevention aimed at pupils 'radiates' out to their family and peer group, reducing the opportunities for and the acceptability of drug use.<sup>133</sup>

Gains made by the pupils are fed back to parents, encouraging their participation in homework. Feedback to adults who control school and community resources helps mobilise support for continuing the school and parent programmes and for environmental changes. These may include drug-free events, changes in local norms about drug use, enforcement of supply regulations, and services for youngsters experiencing drug problems. Throughout, local media coverage reinforces prevention messages and encourages participation in the local coalition. Rather than leaving this positive interaction to chance, STAR aims to give a major push to all three levels in turn. Its five strands are described below.

### ★ School programme

Initiated in the first year of secondary school, STAR's lessons are delivered by trained teachers who also train peer leaders nominated by the class. Between ten and 13 lessons scheduled preferably twice a week aim to increase skills to resist drug offers and to counteract adult, community and media influences which promote drug use, altering the social climate of the school towards non-drug use norms. Five booster sessions in the second year reinforce the previous year's messages.

Interactivity is the key to successful preventive education<sup>34</sup> and is a feature of STAR's teaching style. Pupils are encouraged to share their feelings and raise questions in a safe environment and

to generate their own information and role-play scenarios,<sup>35</sup> helping ensure that what happens in class connects to their lives outside.

In the same vein, six or seven homework sessions involve parents and children in interviews and role plays, and the programme is amended in the light of feedback from teachers and other participants. In later years peer counselling and support activities are provided to help pupils who may have fallen through the primary prevention net.

STAR is a community programme, so ideally all the schools in a community participate. This mandates lead-in work with local educational and political leaders to gain support for the programme and then community-wide teacher training. Later, teachers will be expected to attend refresher courses and annual reviews. The first generation of trained teachers helps train later generations and those nominated by their colleagues then go on to take the training lead.

### ★ Mass media

The mass media component starts the same year as the school programme and continues for nearly five years. In Kansas it featured over 30 television, radio and print slots a year. Simple messages introduce and explain the school-based programme (and each successive component as it is added) to the community. The aim is to reinforce the other components through the wider community's modelling influence on adolescents.

### ★ Parents' programme

From year two parents are directly targeted. Parent education and organisation through the remaining years of middle school aim to develop support for, and modelling of, non-drug use so-

cial norms in the family and neighbourhood. For each school, a committee consisting of the head, four to six parents, and two student leaders meets throughout the year. Their tasks are to institutionalise drug prevention in the school, help create a drug-free environment by monitoring the grounds and neighbourhood, and to organise twice yearly training for all parents, focusing on parent-child communication and prevention support skills.

### ★ Community organisation

The community beyond the school comes more directly on board during the third year. Community and local government leaders are enlisted and trained to form a coalition to arrange prevention services and activities which complement other components. At its head is a small steering committee primarily drawn from local businesses who lend credibility to the coalition and raise funds. A wider 'council' of up to a 100 people representing diverse interests is the key structure guiding implementation through perhaps nine subcommittees charged with specific, time-limited tasks.

### ★ Health policy

During the fourth and fifth years, leaders who participated in the community organisation component form a local government subcommittee which actively implements policy changes to reduce the demand for drugs and to limit their supply. Examples include restricting cigarette smoking in public, limiting the availability of alcohol by regulating outlets, 'drug-free' zones, financial support for prevention programming, and enforcement of national and local laws such as those controlling underage sales of alcohol and tobacco, drunkenness, and drink driving.

another picture.<sup>22</sup> Technical adjustments and different definitions may account for these unexplained variations.

The longest term results come from eight Kansas schools whose pupils were tracked individually. By age 23 the growth in drug use among former STAR pupils was generally lower than in the comparison sample.<sup>119</sup> For regular smoking or cannabis use, the gap was below 2%, but it was 6–8% for the proportions ever having tried LSD, amphetamine or volatile substances. For heroin the corresponding proportion was 2.5% but in the wrong direction – higher use after STAR.

There seem also to have been gains in health care costs. Among a sub-sample of about 1000 pupils aged about 16–18, after going through STAR significantly fewer said they (5% v. 7%) or their families (19% v. 23%) had received professional treatment for drug problems.<sup>23</sup>

All these results are reported only briefly,

leaving a question mark over how the figures were reached, over their significance, and over the completeness of the reporting. For example, in the publications uncovered for this review, no outcomes are reported for cocaine beyond the mid-teen years, yet at the time this was the major 'hard' drug problem in the USA, and the adverse heroin use results reported in one document<sup>19</sup> are omitted from another.<sup>1</sup>

### Uneven playing field in Kansas

There is no doubting the sophistication and rigour of the implementation effort and of the statistical analyses deployed in Kansas and Indianapolis.<sup>15</sup> But in Kansas this superstructure was built on a shaky foundation: the non-random allocation of all but eight of the 42 schools.<sup>24</sup> The decision of the remainder whether or not to immediately implement the programme is attributed to scheduling flexibility, but this could itself reflect the all-

important flexibility needed to deliver STAR's interactive curriculum. Perhaps, too, only schools prepared to undertake a major in-year revamp of their science or health education schedules would have opted for STAR, and these are the ones most likely to prioritise substance use prevention.

In other words, rather than STAR itself, maybe it was something about the schools which opted to take it on straight away which accounts for the apparent gains from the programme.<sup>25</sup> That there was indeed a variation in enthusiasm across schools is indicated by the fact that only a quarter opted to continue with STAR once the study had ended.<sup>19</sup> A strong effect of the school's social 'climate' is indicated by the persistence of drug use levels in different schools.<sup>15</sup> Similar considerations could explain why, among schools which did immediately implement STAR, only those prepared to devote more than the typical classroom time for the





lessons statistically bettered comparison schools **► How did it work?**<sup>12</sup>

Set against this is the fact that it seems there were no significant differences in the impact of STAR between schools allocated at random and the remainder.<sup>8</sup>

### School and STAR in synergy

However, a straight choice between whether features of the schools or of STAR accounted for the outcomes is too simplistic. It seems likely that STAR had its greatest impact in schools with the enthusiasm and flexibility to give life to the lessons, and that in these schools STAR provided the structure needed for these virtues to create drug use reductions – that the active ingredient was an *interaction* between programme and school. Professor Pentz herself cites just such a finding with respect to a school or college tobacco policy.<sup>26</sup> Random allocation in Indianapolis reduced the chances for any such interaction to affect the results, which were less impressive than in Kansas.

This still suggests that STAR's performance in schools able and willing to overturn teaching schedules to take it on is an unreliable guide to how it would perform in the normal run of schools. Indianapolis, where publicly-funded schools were slow to implement the programme,<sup>1</sup> may have been a case in point. If the Kansas results are anything to go by, these schools will have barely bettered the controls.<sup>12</sup>

### Could it be done in the UK?

Setting aside the doubts and accepting the validity of briefly reported findings, there remains the issue of whether a STAR-type programme could successfully be implemented across Britain.

### Central guidance needed

Interactivity (within a predetermined framework and to pre-determined ends) is the key to STAR's work with the children. Allowing pupils to share the lead, and facing the risky issue of disclosure of drug use, do not come naturally to many British teachers.<sup>27</sup> To prevent selective implementation and backsliding into didactic teaching, the STAR and I-STAR teams found that monitoring and refresher courses were critical.<sup>1</sup> This presupposes a central expert agency capable of distinguishing desirable curriculum adaptation from undesirable deviation, and with the resources and clout to monitor and correct the latter. If teachers are left to seek further guidance on their own initiative, those who need it most would probably be least likely to receive it.

In this respect STAR and I-STAR had one major advantage not generally available – the direction and support of the research team and the start-up funding<sup>8</sup> they brought with them. They identified potentially suitable communities, provided scientific credibility,

set the framework for the project, helped win over schools and community leaders, initiated the local coalition, provided manuals and training, and monitored what happened to keep the project true to its core methodology and objectives. This central support is essential to provide coherent planning and to enable cost-effective use of resources such as specialised training and teaching manuals which it would be unrealistic to provide at a single-school level.<sup>1</sup>

### Cost demands a wider remit

Implementing just STAR's school-based elements was very expensive – \$28 per pupil per year compared to \$6 for a more typical programme, and this estimate did not include the cost of hiring substitutes for teachers away on training courses or the time of headmasters, local authority officials and other staff. These costs and those of the community mobilisation envisaged in STAR are more justifiable and more likely to be supported if the initiative also targets other local concerns such as crime, truancy and teenage pregnancy.<sup>28</sup>

In Britain<sup>29,30,31</sup> as in the USA,<sup>1</sup> a multi-problem approach is made feasible by the fact that these problems tend to go together. The cross-agency coalition required to elevate the schools programme into a truly community venture should be available in Britain through drug action teams, and extension to other problems areas should come all the more naturally through strengthened links with crime prevention teams.

### Money helps, local support is vital

A STAR-type initiative requires local financing and resources which are less likely to be available in the most needy neighbourhoods. Above all, it presupposes a community which is already strong, well organised and enthusiastic about engaging not just children and schools but also their parents in prevention activities which eat into classroom time and into the free time of the adults.<sup>1</sup> Where drug problems are most entrenched, it is possibly because just such a community is lacking.

With energetic support from a well-healed sponsor, the Kansas City project got off the ground in four months; even with that

## How did it work?

Pupils in 42 Kansas schools completed questionnaires to identify how (if it did) STAR reduced drug use.<sup>37</sup> The clearest findings related to how much pupils cared about their friends' reactions if they used drugs. STAR pupils cared more and this seemed to lead them to drink and smoke less. Together with the fact more STAR pupils thought their friends might react negatively, this suggests that an alteration in the social climate of the pupil's immediate peer group underpinned at least part of the programme's effects.<sup>38</sup>

There were surprising negative findings. The lessons had no impact on pupils' confidence that they could refuse an offer of drugs nor on their estimates of how many of their peers used drugs, supposedly important mechanisms. Most other variables (such as communication skills and beliefs about the benefits of each of the drugs) were changed in the intended direction, but few were among the ways STAR impacted on drug use.

### 'Dosage' seems important

In the same set of schools, another analysis tested the impact of classroom time devoted to the year-one lessons.<sup>12</sup> Typically schools devoted six to seven hours, close to the scheduled requirement.<sup>35</sup> Schools were divided into the top and bottom halves of the time commitment range. Only those in the top half held back the growth of drug use significantly more than in comparison schools, which had effectively spent zero hours on STAR. Time spent on the lessons was more important to the outcomes than whether the school had chosen STAR or been allocated to the programme at random.

These findings suggest a critical duration before STAR improves on normal lessons, but instead they could reflect the impact of the school's commitment to drug prevention. More committed schools would tend to spend longer on the topic, but this same enthusiasm might also mean they would have done well even with fewer hours.

If rather than the school, the lessons were the active factor, then teachers' ratings of how well they went might be expected to correlate with outcomes, but they did so only weakly and generally in the 'wrong' direction. Another potentially crucial measure was omitted from the analysis. Interactivity in teaching is fundamental to STAR. This dimension was rated by observers<sup>1</sup> but there was no test of its relation to outcomes.

What of the non-school components of the programme? Their contributions are impossible to disentangle with any confidence,<sup>17</sup> though it seems a fair guess that the school lessons – the main element distinguishing STAR from comparison schools in year one – were the major factor.

**Nugget 2.15** •  
Education's uncertain  
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experience to draw on, in Indianapolis it took four years, and still the state-run schools were slow.

The decisive factor in Kansas City was the prominent local businessman and philanthropist, Ewing Kauffman. He provided valuable services in kind as well as direct funding. As the owner of the local baseball team, he was also in a unique position to lend credibility to and to publicise the project, as well as to motivate teachers by public commendation and by inviting them to games as his special guest.<sup>1</sup> Mr Kauffman had made his money in pharmaceuticals. In Indianapolis, it was the charitable arm of another pharmaceutical company, Eli Lilly, which took on the Kauffman role.

Without these head starts, implementing a STAR-type initiative could be an uphill struggle. The Kansas communities were mainly white, middle class, well educated and stable. Nearly half the schools in the Indianapolis study were private or parochial schools and the population again seems to have been overwhelmingly white.<sup>16</sup> As Mary Ann Pentz has acknowledged, projects aiming at community-wide change may not be feasible when that community is so diverse that consensus on the nature of the problem and the solutions may be lacking.<sup>1</sup>

The British *Blueprint* project will be the proof of the pudding. How many schools will volunteer, how much of a community-wide initiative will be generated, will these take root in areas of greatest need, and will the school and community elements be sustained after the study has ended?

### Still seeking the magic highway

Despite the accolades, including that from a Health Education Authority report,<sup>3</sup> we have to agree with the rather lukewarm assessment in another report from the same source.<sup>32</sup> STAR and I-STAR may have held back the growth of substance use during adolescence, but the studies and the reports on them are not strong enough to show this with any confidence. Where STAR and I-STAR undoubtedly have lessons for us is in their impressive orchestration of school and community mobilisation and in the methodologies developed to evaluate their impact. What that impact was is the major question.

The evidence is strongest and most consistent for cigarette smoking, the conclusion reached also on Life Skills Training.<sup>2</sup> But even with respect to tobacco, non-random allocation in Kansas, and the incomplete account of what happened in Indianapolis, create considerable doubts.

Despite their flaws, studies which seem to have discovered the educational route to a more drug-free generation – broad, inexpensive and relatively easy to travel – are seized upon. The unpalatable truth is that the existence of such a route has yet to be adequately established. ★

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- 38 Alteration in beliefs about the positive effects of cannabis were influential as were intentions to use that drug or to drink.

### OUTCOMES

Drug education is not the only health education sector which find it difficult to demonstrate behaviour change. The first randomised trial of school sex education in Britain has also recorded no short-term reduction in sexual activity or risktaking.<sup>1</sup> The SHARE programme consists of a teacher-training course plus 10 lessons each in the third and fourth years of secondary school. This modern programme was implemented in 13 Scottish schools randomly allocated from 25 which volunteered for the research. In most schools, most lessons were delivered but (as with the interactive elements of drug education) teachers often shied away from the skills-based sessions. The 12 control schools carried on with normal lessons, typically much fewer than SHARE and lacking its interactive elements. Pupils answered questions beforehand and at follow up aged 15–16, six months after lessons had ended. Though the programme improved knowledge, there was no impact on behaviour. Just as many children from SHARE schools initiated sex, did not use contraception, and experienced unwanted pregnancies. How well the programme was delivered had no effect on outcomes, suggesting that rather than the teaching, it was the programme itself which failed to improve on normal lessons. Negative findings might be due to the difficulty of further raising the already high level of contraceptive use among the youngsters. However, a more fundamental problem is suggested by the fact that worldwide, just one of the nine other randomised trials of sex education has recorded positive behaviour change outcomes.

1 Wight D. et al. "Limits of teacher delivered sex education: interim behavioural outcomes from randomised trial." *British Medical Journal*: 2002, 324.