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► [A preliminary study of the population-adjusted effectiveness of substance abuse prevention programming: towards making IOM program types comparable.](#)

Shamblen S.R., Derzon J.H. [Request reprint](#)

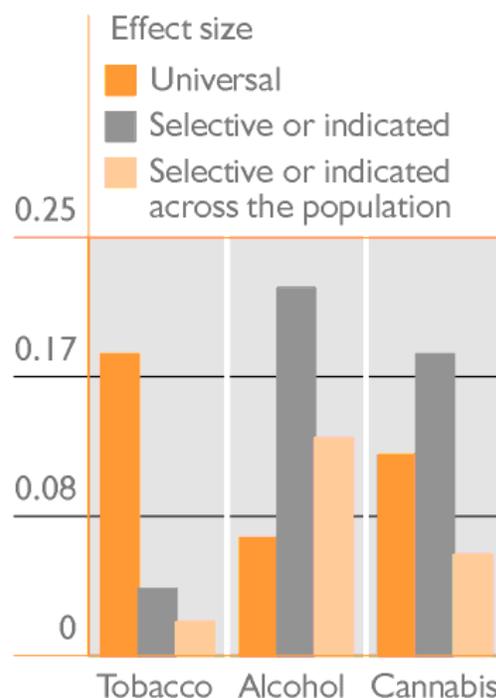
Journal of Primary Prevention: 2009, 30, p. 89–107.

One of the biggest strategic decisions facing prevention planners is whether to target high-risk groups or to prioritise universal programmes. This analysis won't decide the issue, but it does create an important new tool for comparing these strategies.

Abstract The US Institute of Medicine distinguishes between prevention programmes based on who is targeted: the entire population (universal); those at risk (selective); or people exhibiting the early stages of use or related problem behaviour (indicated). Evaluations suggest that while universal programmes can reduce and prevent substance use, selective and indicated programmes are both more effective and have better cost-benefit ratios. Nevertheless, universal programmes may have a greater impact across the population because they affect more people. This paper attempts to 'level the playing field' by comparing the impact of these three different types of programmes in reducing and preventing [tobacco, alcohol or cannabis](#) use not only among individuals exposed to the intervention, but also across the same-age population as a whole (ie, those exposed and not exposed to the intervention), often termed a 'public health' perspective. Effectively the analysis statistically 'transformed' selective/indicated programmes in to their universal-impact equivalents.

To do this the 102 programmes listed as effective or model by the US National Registry of Effective Prevention were examined to identify those specified in a manual and evaluated in such a way that the results could be included in a [meta-analysis](#) combining their outcomes. The analysis was able to include the results of 43 studies of 25 programmes classified as either universal, selective or targeted depending on the way the samples were selected for the studies. Impacts were assessed in terms of [effect sizes](#), a metric which enables different outcomes to be compared and combined. To estimate the population-level impact of non-universal programmes, these calculations

were adjusted for the proportions of the population **targeted** by the programme.



Because there were relatively few selective or indicated programmes, and because many fell in both camps, estimates for these were combined. As expected, for the populations they targeted selective/indicated programmes for alcohol and cannabis use had greater effects than universal programmes. Unexpectedly, this was not the case for tobacco, where universal programmes had greater impacts ▶ chart. But as discussed above, selective/indicated programmes affect fewer people. When their impacts were statistically 'spread' across the population as a whole, they remained slightly more successful in reducing drinking and less successful in curbing smoking. In respect of cannabis use, the verdict changed; though relatively successful with the populations they targeted, across the population as a whole selective/indicated programmes fell short of the impact of universal programmes.

The upshot was a consistent advantage for universal programmes in preventing smoking, the same for selective/indicated programmes in curbing drinking, but for cannabis a mixed picture; greater impacts for selective/indicated than universal programmes on their target populations, but a lesser impact across the population as whole. On the basis of these figures, from a public health perspective universal programmes achieve the greatest tobacco and cannabis use reductions, selective/indicated programmes the greatest drinking reductions.

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These findings correct the false impression that because programmes focused on at-risk groups or individuals have greater and more statistically significant effects, this means they are preferable to universal programmes if the aim is to affect the population as a whole. Only in respect of **drinking** was this impression correct.

Conclusions are very tentative because differences were sometimes small and because programmes within the same broad universal/selective/indicated categories significantly differed in their effectiveness, meaning the results of the analysis are likely to change if other programmes are included in the mix. However, the methodology pioneered in the study offers a way for public health authorities to level the playing field between universal and more selective programmes, whatever the mix of programmes for which

data is available at the time, aiding the decision over which to prioritise.

Several issues remain to complicate this decision. Counting against selective programmes is the difficulty ([previously addressed](#) by one of the featured study's authors) of discerning who really is at risk of later use or problem use, meaning such programmes will exclude many who later prove to have been in need of their services. Because youngsters usually have strong incentives to hide signs of a developing problem, a similar issue hinders the targeting of indicated programmes. Partly because of this, delaying intervention until problems indicators have surfaced might be to leave it too late. Indicated programmes also face the issues of avoiding stigmatisation, counterproductive labelling of youngsters as on track to become problem adults, and the [possibility](#) that grouping these youngsters together for intervention will give a peer reinforcement boost to anti-social development.

Universal programmes also face complicating issues. They may lead the population as a whole to reduce use of the targeted substances, but within this population may at the same time exacerbate *inequalities* in use and health. This happens because well resourced individuals and groups are best able to take on board and act on health promotion messages, while the most vulnerable are less able to do so. The [net result](#) is to widen the gap between the two. Selective and indicated programmes should help mitigate this effect by delivering more intensive services to the more vulnerable sections of the population – assuming, as noted above, that these can be identified and that the programmes are able to counter sometimes deep-seated problems. Aggravation of health inequalities is not however an inevitable side-effect of universal programming. Sometimes ([example 1](#); [example 2](#)) it can work the other way, partly because universal programmes cannot reduce use/problems in children who are in any event never going to engage in these behaviours.

Finally, though selective and indicated programmes sometimes make things worse, so too can universal programmes, especially those based on fear-arousal. Portraying drug-related damage may inadvertently [attract youngsters](#) bent on self-destruction or who see extreme forms of drug use as the ultimate drug experience and initiation into an elite. Those already using in the ways portrayed in the messages can feel [under attack](#) and further alienated from society. Fear-arousing messages also make communication between children and parents so [fraught with emotion](#) that both steer clear, making it more difficult for parents to intervene. Even non-fear based campaigns risk [counterproductively](#) making use of the targeted substance seem ('Otherwise why would they bother?') widespread, 'normal' and difficult to avoid.

The most fundamental issue facing both sorts of programmes relates to where the bulk of preventable problems lie in the society for each substance – an amalgam of the distribution of the problems plus their susceptibility to intervention. If these arise only among highly atypical (for example, very heavy) users, universal programmes which curb substance use among normal users make little contribution to reducing related problems, while they may fail to tackle the few problem-generating users. In this scenario, compared to more targeted programmes, universal programmes may make a greater dent in use levels across the population, but a lesser dent in related problems. Because it focused solely on use levels, the featured study was unable to exclude this possibility.

Where even typical use levels are associated with significant problems, the reverse can be the case. Because there are (by definition) far more typical than atypical users, the bulk of related problems across society may be found among normal users – the so-called 'prevention paradox' [much discussed](#) in respect of drinking. By reaching typical as well as atypical users, universal programmes can reduce these problems to a greater degree than programmes targeting just the atypical end of the spectrum. Of course, this argument [only applies](#) if universal programmes actually work. Raising the [price of alcohol](#) seems one effective example.

In the end these decisions [must be taken](#) on the basis of how things stand in a particular population for a particular problem related to a particular substance, and the adequacy of the interventions which can be brought to bear on those problems. It can vary [for example](#) by age; in some societies, acute problems like accidents and fights are spread across the younger population, but among the over-30s, largely confined to the heaviest drinkers. It can also vary depending on [the problem being targeted](#): long-term health damage such as liver disease is concentrated among very heavy drinkers, but one-off incidents such as accidents and violence are more widely spread. When the targeting issue was [looked at](#) in respect of secondary school children in one Australian state, the verdict was that most problem drinking and smoking was found among children with moderate or low levels of risk factors. Because these children would be missed by selective programmes, the implication was that universal programmes were a priority. The reverse was the case for illegal drug use. But as this review argued, the evidence does not support mounting either type of programme exclusively.

Last revised 10 May 2009

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