# EU-Dap
EUropean Drug addiction prevention trial

Effectiveness of a school-program against smoking in Europe: early results from the EU-Dap trial

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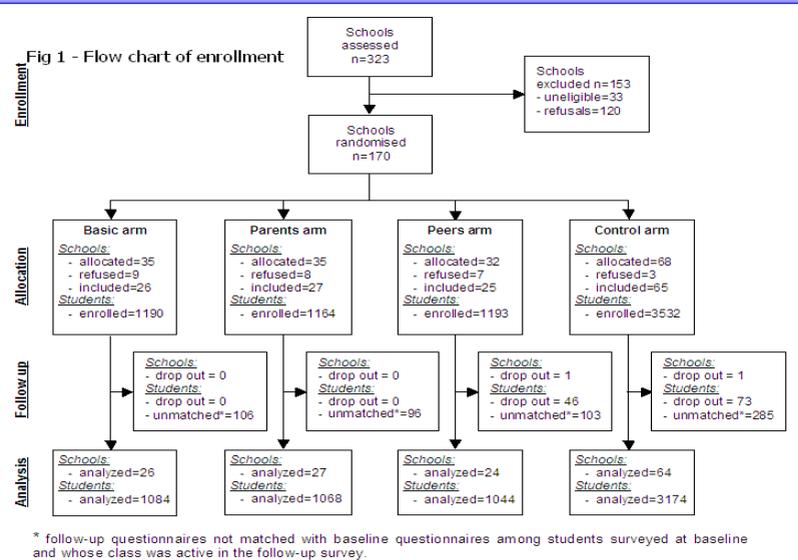(12)IFT Nord, Kiel, Germany
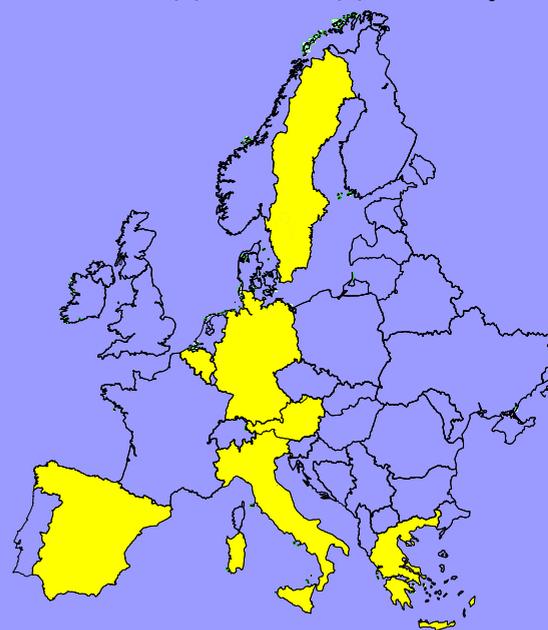
INTRODUCTION

School is likely the most appropriate setting for prevention of tobacco smoking. Notwithstanding the evidence of effectiveness of school-based programmes is still weak. Tobler's review (2000) pointed interactive intervention out, whereas Thomas (2002) found inconsistent effects of social influence programmes.

Moreover most part of the evaluation studies have been carried out in North America, raising suspects about generalisability.

With the aim to evaluate the effects of an European primary prevention program, EU-Dap (EUropean Drug Addiction Prevention) project has been carried out in 9 centers of 7 European countries, co-funded by the European Commission.

METHODS (1) – STUDY ENROLMENT

EU-Dap is a Cluster Randomized Trial in which schools are the unit of randomization and students the unit of analysis. From the 323 schools randomly selected from the centers involved, and assessed for inclusion, 170 have been randomized to the following arms:
- Basic intervention
- Basic intervention plus parents involvement
- Basic intervention plus peers involvement
- Control (usual curriculum)

After the randomization, but before the first baseline survey, 27 schools dropped out. All in all 7079 students of 345 classes (7°, 8° and 9° grade) have been included in the study (Fig 1).

Fig 1 - Flow chart of enrollment

* follow-up questionnaires not matched with baseline questionnaires among students surveyed at baseline and whose class was active in the follow-up survey.

"UNPLUGGED": THE PREVENTION PROGRAM

The programme under evaluation is based on a ***comprehensive social influence approach*** and includes the following components:
- Social skills
- Personal skills
- Knowledge
- Normative education

It is composed by 12 one-hour units delivered weekly from October 2004 to January 2005 by the class teachers. Each teacher received a 3-days training course.

It has been designed by the EU-Dap Intervention Planning Group.

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Early results from EU-Dap trial - 2

METHODS (2) – OUTCOMES ASSESSEMENT AND DATA ANALISYS

A baseline anonymous self-administered questionnaire has been filled in by students during October 2004. It was focused on lifetime and last 30 days use of cigarettes and on intermediate outcomes. Drunkenness and drugs use have been also investigated.

Baseline data have been linked to those collected with a follow-up questionnaire administered in May 2005, at least 3 months after the end of intervention. Linkage has been made by an anonymous code and the success rate was 92% (considering unlinked and absentees together).

We analysed data using a multilevel model to adjust for cluster effect (**model 1**), prevalence differences among centres (**model 2**), and individual baseline use (**model 3**). Prevalence Odds Ratios (**PR**) and 95% Confidence limits (**CI**) have been estimated for at least one cigarette use during last 30 days (**ALO smoking**), for more than 6 cigarettes in last 30 days (**Regular smoking**) and for at least 20 cigarettes in last 30 days (**Daily smoking**).

RESULTS (1)

Figure 2 shows changes in prevalence of daily smoking between baseline and follow-up survey. Given that non significant differences were found among intervention arms, in the result tables they are pooled together.

Table 1 shows the main results. Compared to the Unadjusted model, Model 3 (adjusted for cluster effect, centre prevalence and students' use at baseline) does not show large differences in effect size but it shows wider confidence intervals. The intervention groups show significant reduction in daily use (-30%) and lower and not significant effect on ALO smoking and on Regular smoking.

Fig 2 - Changes in prevalence of daily smoking (>=20 cigarettes in the last 30 days) between baseline and post-test follow-up
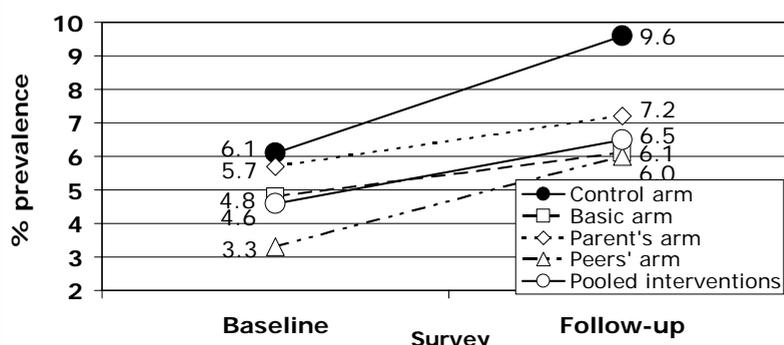
Table 1. Prevalence Ratios of use in the intervention arms vs control: comparison of results using different models						
	Controls	Interventions	Unadjusted	Model 1	Model 2	Model 3
	n/N*	n/N*	PR (95%CI)	PR (95%CI)	PR (95%CI)	PR (95%CI)
ALO smoking	642/3059	531/3098	0.82 (0.74-0.91)	0.87 (0.72-1.04)	0.88 (0.72-1.08)	0.88 (0.71-1.08)
Regular smoking	407/3059	315/3098	0.76 (0.67-0.88)	0.84 (0.66-1.06)	0.85 (0.65-1.10)	0.86 (0.67-1.10)
Daily smoking	294/3059	200/3098	0.67 (0.57-0.80)	0.73 (0.56-0.95)	0.74 (0.55-0.99)	0.70 (0.52-0.94)

*. Number of users out of the total number of students answering the question at follow-up (unadjusted model).

PR. Prevalence Ratios (all interventions vs control).

Model 1. Multilevel model (RIGLS bin 1st order MQL) with 3 levels (level 1: centre; level 2: class; level 3: student)

Model 2. Multilevel model (RIGLS bin 1st order MQL) with 3 levels adjusting for centre prevalence of daily smoking

Model 3. Multilevel model (RIGLS bin 1st order MQL) with 3 levels adjusting for centre prevalence of daily smoking and baseline status of the outcome

Early results from EU-Dap trial - 3

RESULTS (2)

Table 2 reports Prevalence rations stratified by gender. UNPLUGGED program have higher effects on boys: Prevalence Odds Ratios for daily smoking and for regular smoking are significantly reduced among intervention groups, compared to controls (POR=0.49 and POR=0.68 respectively). Effect size appears smaller among girls, and not statistically significant.
No significant differences are found among different school grades involved (data not shown)

Table 2. Prevalence Odds Ratios of effectiveness of interventions, compared to controls (PR=1), stratified by gender

	All			Boys			Girls		
	Control	Intervention		Control	Intervention		Control	Intervention	
	n/N*	n/N*	PR (95%CI)	n/N*	n/N*	PR (95%CI)	n/N*	n/N*	PR (95%CI)
ALO smoking	605/2968	496/2979	0.88 (0.71-1.08)	304/1509	220/1563	0.88 (0.66-1.18)	300/1453	276/1412	0.86 (0.65-1.15)
Regular smoking	387/2968	297/2979	0.86 (0.67-1.10)	211/1509	126/1563	0.68 (0.50-0.93)	175/1453	171/1412	1.07 (0.74-1.55)
Daily smoking	277/2968	193/2979	0.70 (0.52-0.94)	159/1509	80/1563	0.49 (0.34-0.71)	117/1453	113/1412	0.99 (0.64-1.52)

*. Number of users out of the total number of students answering the question at follow-up (multilevel adjusted model).

PR. Prevalence Ratios (all interventions vs control) estimated using multilevel model 3 (RIGLS bin 1st order MQL with 3 levels adjusting for centre prevalence of daily smoking and baseline status of the outcome)

DISCUSSION

The prevention program evaluated by EU-Dap resulted effective in reducing the prevalence of smoking habits among students of 7° to 9° grade.

There are some characteristics of this effect deserving a deeper discussion: the Prevalence ratios appear to increase with the increasing of smoking frequency; the program is more effective with daily users than with sporadic users (ALO smoking). Moreover it works better for boys than for girls. These effects could be related to the main features of the program, and require further investigation.

These results are coming from a Cluster Randomized Controlled trial, which is considered the most appropriate study design for evaluating programmes carried out at the group level. Furthermore the large sample size and the heterogeneity of contexts in which the program has been experimented assures a good generalizability.

UNPLUGGED is a comprehensive program, mainly based on the life skills approach. Life skills have been previously shown effective in drug use prevention (Faggiano 2005), but before this study the evidence for tobacco appeared weak (Thomas 2000). Although the evidence presented here cannot strictly be extended to all programmes based on life skills approach, this should be matter of consideration.

In conclusion, UNPLUGGED is the first prevention program effective among 7°-9° graders European students, coming from the effort of a large international collaboration. Its dissemination will be the focus of further European projects.