



H N P D I S C U S S I O N P A P E R

Economics of Tobacco Control Paper No. 10

Research on Tobacco in Indonesia

An Annotated Bibliography and Review on Tobacco Use, Health Effects, Economics, and Control Efforts

Triasih Djutaharta and Henry Viriya Surya

October 2003

Tobacco Free Initiative
World Health Organization



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October 2003

Health, Nutrition and Population (HNP) Discussion Paper

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Paper prepared for the World Bank, and presented at a meeting on Policy Research on Tobacco Control, October 14th, 2002, at the Sahid Jaya Hotel, Jl. Jend Sudirman, Jakarta 10220.

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Abstract: This report summarizes 46 studies on various aspects of tobacco in Indonesia published since 1990. Studies are arranged alphabetically by author's last name. The studies include tobacco use surveys, studies on tobacco-related mortality and diseases including costs, and health problems associated with environmental tobacco smoke. Some studies cover interventions to reduce tobacco use, and tobacco control policies, including price increases. Some studies look at specific groups such as children, street vendors, drivers, youth, athletes or nurses. Studies were traced using bibliographies of an initial set of studies collected.

Keywords: tobacco, Indonesia, cigarette, kretek, smoking, nicotine, environmental smoke, passive smoking, second-hand smoke, sidestream smoke, cancer, pulmonary disease, CVD, coronary vascular disease, respiratory disease, stroke, nutrition, tobacco control, tobacco policy, economics of tobacco, taxation, cigarette price.

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PREFACE

In 1999, the World Bank published “Curbing the Epidemic: governments and the economics of tobacco control”, which summarizes trends in global tobacco use and the resulting immense and growing burden of disease and premature death. In 2000, there were nearly 5 million deaths from tobacco each year, and this huge number is projected to grow to 10 million per year by 2030, given present consumption trends. Already about half of these deaths are in high-income countries, but recent and continued increases in tobacco use in the developing world is causing the tobacco-related burden to shift increasingly to low- and middle-income countries. By 2030, seven of every ten tobacco-attributable deaths will be in developing countries.

“Curbing the Epidemic” also summarizes the evidence on the set of policies and interventions that have proved to be effective and cost-effective in reducing tobacco use, in countries around the world. Tax increases that raise the price of tobacco products are the most powerful policy tool to reduce tobacco use, and the single most cost-effective intervention. They are also the most effective intervention to persuade young people to quit or not to start smoking. This is because young people, like others with low incomes, tend to be highly sensitive to price increases.

Why are these proven cost effective tobacco control measures –especially tax increases– not adopted or implemented more strongly by governments? Many governments hesitate to act decisively to reduce tobacco use, because they fear that tax increases and other tobacco control measures might harm the economy, by reducing the economic benefits their country gains from growing, processing, manufacturing, exporting and taxing tobacco. The argument that “tobacco contributes revenues, jobs and incomes” is a formidable barrier to tobacco control in many countries. Are these fears supported by the facts?

In fact, these fears turn out to be largely unfounded, when the data and evidence on the economics of tobacco and tobacco control are examined. The team of about 30 internationally recognized experts in economics, epidemiology and other relevant disciplines who contributed to the analysis presented in “Curbing the Epidemic” reviewed a large body of existing evidence, and concluded strongly that in most countries, tobacco control would not lead to a net loss of jobs and could, in many circumstances actually generate new jobs. Tax increases would increase (not decrease) total tax revenues, even if cigarette smuggling increased to some extent. Furthermore, the evidence shows that cigarette smuggling is caused at least as much by general corruption as by high tobacco product tax and price differentials, and the team recommended strongly that governments not forego the benefits of tobacco tax increases because they feared the possible impact on smuggling, but rather act to deter, detect and punish smuggling.

Much of the evidence presented and summarized in “Curbing the Epidemic” was from high-income countries. But the main battleground against tobacco use is now in low- and middle-income countries. If needless disease and millions of premature deaths are to be prevented, then it is crucial that developing countries raise tobacco taxes, introduce comprehensive bans on all advertising and promotion of tobacco products, ban smoking in public places, inform their citizens well about the harm that tobacco causes and the benefits of quitting, and provide advice and support to help people who smoke and chew tobacco, to quit.

In talking to policy-makers in developing countries, it became clear that there was a great need for country-specific analytic work, to provide a basis for policy making, within a sound economic framework. So the World Bank and the Tobacco Free Initiative of the World Health Organization (as well as some of the WHO regional offices and several other organizations,

acting in partnership or independently) began to commission and support analysis of the economics of tobacco and tobacco control in many countries around the world.

Most of the other papers in this Discussion Paper series report results of new, previously unpublished analyses of tobacco economics and tobacco control issues. Clearly, this annotated bibliography is different, being a compilation of references and abstracts of research published elsewhere, often in refereed journals, or in the “grey” literature.

Our hope is that the information compiled in this report will be a useful reference for researchers and others who are looking for information on tobacco use and its impact in Indonesia, or on tobacco control in Indonesia.

Joy de Beyer

Tobacco Control Coordinator
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FOREWORD

The negative impact of tobacco on health and the economy has encouraged international institutions and non-government organizations to increase their efforts in convincing all related parties to quickly and seriously institute tobacco control measures. Scientific studies into the various tobacco issues are needed to support this effort. To meet this need, some non-government organizations, research institutions and universities have conducted studies on tobacco from many points of view.

In order to identify which tobacco-related issues have been adequately researched and which are in need of further research in Indonesia, the World Bank has funded the compilation of this bibliography.

Any input for the improvement of this bibliography will be appreciated. It is hoped that this bibliography will be useful to those working in tobacco related matters.

Dr. Sri Moertiningsih Adioetomo

September 2002
Director of Demographic Institute

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1. INTRODUCTION

Tobacco-related studies have been conducted in Indonesia on various issues, including the prevalence of tobacco use, the economic impact of the tobacco industry, and the impact of tobacco use on health. However, no systematic review had been done to identify research gaps, and no study has been made into whether these studies on tobacco issues have helped support tobacco control activities and the antismoking movement in Indonesia.

Although each individual study has its own specific purpose, the various studies are often related to one another. Studies on tobacco issues have become a means to communicate to society the dangers of tobacco usage, especially in regards to health. Studies on the relation of tobacco to the economy have been also conducted. However, some research gaps remain.

One of the visible gaps is national data. Most surveys and intensive tobacco studies in Indonesia have been conducted in a narrow range of locations, such as one city. Furthermore, most studies are located on the island of Java. These studies do not adequately represent the national condition, since they represent only one specific area.

Therefore, the studies done on tobacco issues in Indonesia need to be assessed carefully, and systematically reviewed and classified. This will help identify research gaps and enable research to be designed to fill these gaps in the future.

1.1 Purpose of this Study

In general, this study aimed to identify and summarize all studies related to tobacco use, effects, tobacco control and anti-smoking in Indonesia, and to identify important gaps in existing research, to help guide future studies.

2. A BRIEF LOOK AT TOBACCO STUDIES IN INDONESIA

This annotated bibliography lists and summarizes 46 studies conducted in Indonesia since 1990, on various aspects of tobacco use, effects, and control. They include empirical studies with descriptive analysis, inferential studies, and literature reviews on specific subjects. The snowball method was used in tracing research, seeking information from many sources and libraries, and using the bibliographies in the studies located to trace other earlier studies. Every effort has been made to identify all existing studies, but if some have been missed, the authors would appreciate it if readers provide copies of new or omitted studies, to enable the on-line version of this document to be expanded and updated.

The 46 studies are listed alphabetically by author's last name, in the index. Broadly, the studies can be categorized by three main criteria: the population group that the research focuses (research subject), the location of the study, and the topic/problems discussed. The index lists the subject and issues discussed in each study. The classification system follows the standard UCSF/ANRF Tobacco Documents Thesaurus, University of California, San Francisco, 2001.

2.1. Research Population Group, or Subject

The research subject refers to the respondent groups on which the study focuses. Several studies interviewed respondents from the group that was the main focus of the analysis as well as some respondents who were closely related, and usually familiar with the situation of the group member of interest (referred to as the informant). The research subject can be classified by working status/occupation, age, and gender (Tables 1-3). One study used animals as the research subject.

Table 1.
Tobacco Research Subject by Occupation

Occupation	Number of studies	Index Number
<i>Athlete</i>	1	(42)
<i>Bus driver</i>	2	(31), (44)
<i>Nurse</i>	1	(5)
<i>Street vendor</i>	1	(43)
<i>Tobacco industry employee</i>	1	(1)
<i>Animal</i>	1	(20)

Studies on low-level income groups typically focus on those who work as street vendors, bus drivers (including co-drivers), and tobacco industry employees. Despite the limitations of case studies, the general conditions in low-level income groups have been established. Despite their low income, some respondents considered cigarettes one of their daily basic needs. Knowledge of the danger of cigarettes and other tobacco products will perhaps result in decreased cigarette purchase and increased expenditure on food.

Low-income groups usually do not have health insurance. Therefore when a family member is ill, the financial condition of the family is worsened, as they must pay all medical costs themselves. Better knowledge of the diseases caused by use of tobacco products that add to families' burdens may reduce tobacco product use.

The culture of smoking is wide spread in most communities in Indonesia. Even occupational groups with a health focus, such as nurses and athletes, include many smokers, and 10 percent of nurses are not adequately informed about the dangers of tobacco use. Despite the majority of nurses having adequate information, only 60 percent of nurses usually warn patients who smoke of the dangers of their habit and encourage

quitting. One third of athletes smoke. This shows that even those in health-care occupations or where personal health is crucial to performance are not yet all role models for the anti-smoking campaign.

In laboratory level research, the negative impact of cigarette smoke was established through a randomized clinical trial on animals. In this study, animals were chosen as the subject as it would be unethical to experiment with a dangerous product such as cigarettes on humans. The study showed that the animals exposed to cigarette smoke had the slowest increase in body weight. This research has important implications in a country with a significant incidence of malnutrition. Similar research could be conducted on human babies, using a different method of research such as a case control study, or retrospective study.

Table 2.
Research Subject by Age and Gender

Respondent	Number of Studies	Index Numbers
Child	1	(43)
Youth	4	(4),(6),(19),(30)
Female	3	(1),(9),(40)

Studies that focus on specific age groups are classified into studies that focus on children, youth and adults. Many studies do not discuss any specific age group. Children and youth have received special attention in tobacco studies. The studies show that smoking is not restricted to adults, but is also prevalent among children and youth. One study focuses on street vendors under the age of 14 years. These young smokers have little or no knowledge of the dangers of smoking and come from a poor social environment, which does not provide boundaries to prevent smoking or encourage quitting.

In the Indonesian culture, it is acceptable for a male to smoke whereas a stigma surrounds the idea of women smoking. However, a literature study showed that the numbers of female smokers is not decreasing. Many Indonesian women consider smoking a characteristic of modern women in western civilization (9). This view is suspected to be the influence of advertising, as several cigarette advertisements appear to target women and girls. Smoking is more prevalent among females with a higher socio-economic status, especially those of a young age.

One study of the situation of low-wage female workers at a cigarette company (1) found that although some workers suffered from neuritis, flu, hypertension and dermatitis, none showed signs of malnutrition. Work productivity, while usually above required limits, appeared to fluctuate. Productivity usually determined income. Workers did not think about the risks involved with their job.

Case studies show that women exposed to the cigarette smoke of their husbands or other family member/s are at greater risk of developing lung cancer (40). This information should be useful in demonstrating to the community that smoking endangers not only

smokers but also those around them, and that therefore there is a need to protect non-smokers. Unfortunately, this study uses a small sample size (32 people). A further study with a larger sample size would carry even more weight and be more statistically significant and accurate.

Table 3.
Research Subject by Educational level

Study subject	Number of studies	Index number
Elementary school student	4	(15),(16),(28),(41)
Junior high school student	3	(23),(24),(33)
Senior high school student	3	(25),(32),(35)
College student/medical student	1	(5)

Research has been conducted into smoking prevalence and habits at all levels of education from elementary school to university. The results show that some students have or have had a smoking habit. A study of 5th and 6th grade students at elementary school found that 10-15 percent of them smoke or have tried to smoke (15), (16) and (28). Those who have parents, other close relatives or close friends who smoke have a greater chance of smoking (16), (28). Usually cigarettes are obtained from friends and only a small number bought their own cigarettes. As a part of tobacco control, consistency between school rules and rules in homes is one important factor in determining students' success in ceasing to smoke.

Subjects' knowledge about cigarettes and their dangers varied from one study to another, from relatively low to reasonably high. Cigarette advertisements, especially those television-based, are a popular and impressive source of information for school-aged children. This positive view of cigarette advertisements could lead to increased smoking among the youth (15). In order to combat this influence, anti-smoking policies should be implemented in the educational world as early as possible.

2.2 Location Of Study

Studies related to tobacco may be national in scope ((2), (8), (12), (21), and (26)), or may focus on specific areas such as Jakarta, Semarang, Sukabumi, and Denpasar Bali. Some of the data sources used contain large samples, such as the 1993 Indonesian Family Life Survey, the 1999 Social Economic Survey, and the 1995 Household Health Survey.

This study found that fewer national level empirical studies have been conducted than smaller studies, since the sample used in a small-location study is smaller and therefore easier to manage. Any conclusion as to the national condition that is drawn from these location-specific studies needs to be treated carefully, noting its limitations.

Table 4 shows that studies were most often conducted in Jakarta. It is possible that either the number of studies conducted outside Jakarta is relatively small in number, or that the

publication of research results is still inadequate. This prevents policy makers and the community from being aware of new or complete information regarding national issues.

Table 4.
Tobacco-related Research by Location

Location of Study	Number of studies	Index number
<i>Province</i>		
Bali	1	(19)
Central Java- Semarang	1	(30)
West Java	1	(19)
West Java-Sukabumi	1	(13)
DKI Jakarta-All	5	(4),(13),(27),(31),(33)
DKI Jakarta-Central	4	(15),(32),(35),(41)
DKI Jakarta-East	2	(16),(28)
DI. Yogyakarta	3	(23),(24),(25)
<i>Type of public place</i>		
Workplace	1	(18)
Shopping mall	1	(27)

In order to protect non-smokers, smoking should be limited in public and work places. A study into this matter was conducted in shopping centers/malls throughout DKI Jakarta. This study indicates that anti-smoking campaigns in malls could be effective if signs for cigarette-free areas are placed in prominent positions and warnings are given to those who break the rules (27). Although anti-smoking activities ran smoothly during the survey period, it is possible that the lack of strict punishment for those who break the rules will weaken the effort in the future.

A study in workplaces did not focus on anti-smoking policies (18). This study used smoking as the variable of interest and showed that efforts to make work places smoke-free areas are still relatively low.

2.3 Topic/Problem Discussed

Problems discussed in studies related to tobacco are quite varied. Generally they are classified into: behaviors, tobacco prevalence, health impact, economic aspects and tobacco control/anti-smoking. Table 5 shows that the most often discussed problem is individual behavior. Individual behavior studies are classified further into: knowledge, attitude, and practices with respect to tobacco products. Some studies of smoking behavior focus on different groups based on socio-economic status, geographical location, and demographic attributes, and explore differences across groups.

Table 5.
Tobacco Studies on Behavior, Tobacco Prevalence and Health Impact

Study Topic	Number of studies	Index number
<i>Behavior</i>		
Individual behavior	21	(4),(5),(13),(15),(16),(19),(26),(28),(29),(30),(31),(32),(33),(34),(35),(38),(39), (41),(42),(43),(44)
Risk taking behavior	1	(19)
Tobacco use	7	(2),(6),(9),(11),(12),(13),(36)
Socio economic status	1	(2)
Sociographic segment	2	(13),(34)
<i>Tobacco Prevalence</i>		
Statistical prevalence	4	(4),(8),(13),(34)
Trend	1	(36)
<i>Health impact</i>		
Adverse effect	4	(1),(21)
Disease	1	(32)
Lung cancer	5	(17),(22),(29),(38),(40)
Lung diseases	1	(10)
Mouth disease	1	(31)
Respiratory disease	1	(18)
Asthma	1	(39)
Weight loss	1	(20)
Second-hand smoke	1	(40)

The second most often discussed topic after behavior is health impact. Health problems caused by cigarettes include, among others: cardio-vascular diseases, respiratory diseases, lung and other cancers, mouth and gum disease, and asthma. An aggregate study at national level showed that the most common problem related to smoking is high blood pressure. Many health problems caused by cigarettes result in sufferers becoming disabled and unable to perform normal activities and work. These disabilities were estimated to cause a loss of nearly 9 million disability-adjusted life years (DALY = 8,914,930). The largest DALY loss through disability is caused by lower respiratory infections (21).

The disease most often studied is lung cancer. Four of five studies into the relationship between cigarettes and lung cancer were conducted at the Persahabatan Hospital, the fifth was a literature review. The literature review showed that smokers are 8 times more likely to develop lung cancer than non-smokers. It is estimated that lung cancer patients in Indonesia only live for 1-2 years after developing the disease (29).

The economic impact of lung cancer is not only felt by the 50 percent of patients who have to pay the full cost of treatment themselves. All patients experience a loss of income due to the inability to work at full capacity or at all. Employers are affected by

the loss of a productive worker, in whom the employer has invested training. The patient's family members are also unable to continue working optimally as time is needed to care for the patient (17) (29).

Lung cancer does not only affect males, who generally smoke, but also female passive smokers. A woman whose husband smokes is 3 times more likely to develop lung cancer than a woman with a non-smoking husband (40). Only 1 study discussed the risks of second hand smoke, although the negative impact of second hand smoke on those exposed to it is a significant cause of disease.

The number of passive smokers in Indonesia is far larger than the number of smokers. There is a lack of protection for those who do not smoke from exposure to second hand smoke. Additional studies into the impact of second-hand smoke that support protection of passive smokers are needed.

Table 6.
Tobacco Studies by Type of Impact

Type of Impact	Number of studies	Index number
Economic cost	2	(11),(21)
Health care cost	3	(17),(22),(39)
Economic impact	1	(21)
Revenue	2	(11),(12)
Social cost	1	(17)
Absenteeism	1	(39)

The topic of study most often discussed after health impact is the economic impact of tobacco (Table 6). The average expenditure on tobacco products is around 4 percent of household income. This percentage increases as income decreases (11). The national loss to the economy from smoking is estimated at approximately US\$ 9,806,423,000 per year - or around 50 percent of the total budget of the health department in 1995 (21).

3. TOBACCO CONTROL STUDIES IN INDONESIA

Tobacco control activities are the steps taken with the purpose of decreasing tobacco consumption, smoking prevalence, and the numbers of new smokers. These efforts aim to influence either the demand or supply side of the tobacco industry, whether directly or indirectly. This study found that most tobacco control strategies are directed toward influencing demand (see Table 7).

Literature studies of the efforts of anti-smoking advocates and activists have been conducted by, among others, the NGOs LM3 and Wanita Indonesia Tanpa Tembakau. It seems, however, from government efforts, that the government has not made the fight against tobacco a priority. Tobacco control efforts tend to be carried out by individuals

and confined to a single sector. In comparison, multinational cigarette companies are aggressive in promoting their products through advertisement and sponsorships (14).

Table 7.
Tobacco Control Strategy and Intervention Studies

Type of Intervention	Number of studies	Index number
Anti-smoking advocacy	1	(14)
Activist strategy	1	(14)
Smoking prevention	3	(23), (24), (25)
Tobacco control program	2	(3), (37)
Tobacco education material	3	(23), (24), (25)
Tobacco policy	1	(7)
Smoke free policy	1	(27)
Excise tax	3	(2),(7),(12)
Pricing	2	(2),(11)
Media advertising	1	(4)

A study of anti-smoking activities in senior high schools found that smoking risk prevention programs were not effective if presented by teachers. Posters and leaflets containing tobacco education appeared to be more effective than presenting these facts in the classroom. In the follow up to this study, tobacco education issues were presented in a program that simulated high school students' environment. An instructor accompanied this activity. Students were taught how to respond to a peer's invitation to smoke, and how to persuade smokers around them to quit. The study stated that in order for this anti-smoking program to succeed, one professional instructor is needed per 10 students (24). To test whether this education program worked, a follow up study was conducted. The result of the study showed that all students involved were convinced that smoking is dangerous and that smoking prevention programs were the solution to educating people about the smoking problem. To make the presentation of the material more interesting, multimedia formats could be used (23).

One literature study found that improved knowledge of smoking and its implications for health, economy and other aspects of life is an important part of controlling the tobacco problem (3). Other literature studies stated that although the government and NGOs have conducted tobacco control programs, it has not become a priority. Health education programs have been presented by few NGO and the scope of these programs is small. In order for tobacco control programs to work, the government needs to be more serious about the problem and needs additional support from NGO's and parliament (37).

Tobacco excise tax revenues provide almost 90 percent of all excise tax revenue in Indonesia (7). Increasing cigarette excises to raise cigarette prices is one way to reduce cigarette consumption. A study using household data from the National Social Economic Survey (Susenas) shows that a 10 percent increase in cigarette excise taxes (in real terms) would increase average cigarette prices by 4.9 percent, and reduce consumption by 3

percent. Despite the consumption decrease, excise revenue would increase by 6.7 percent. This is due to the low price elasticity of demand, which was around -0.61 . This means that the percentage drop in consumption is smaller than the percentage increase in price, so the higher taxes are collected on an only slightly reduced volume of sales, resulting in higher total tax revenue. Lower income groups were more price-sensitive (2). Other studies obtain price elasticity of demand of -0.51 (11) and -0.32 (12). The three studies show that cigarette consumption is relatively inelastic with respect to price changes. The price variable can therefore be used as an instrument to reduce consumption.

An interesting advertisement can influence someone in their choice to consume tobacco products or not. According to a survey of youth in Jakarta, young people have the impression that anti-smoking media messages tend to support cigarette advertisements (4). This shows that in terms of tobacco control, there has to be an opposing advertisement to convince the public that cigarettes are dangerous and should be avoided.

One study, which is still in progress, is investigating different methods to support smoking cessation, comparing nicotine replacement therapy (NRT), counseling, and counseling combined with NRT. This study is intended to guide the development of smoking cessation programs in the future.

4. ADDITIONAL STUDIES SUGGESTED

Tobacco control programs aim to reduce of the number of smokers and cigarettes consumed, support those trying to stop smoking and to deter new smokers. Although many studies have been done on the actions that are effective in reducing tobacco use and the resulting health problems, some areas have not yet been studied adequately.

Additional studies that might be useful in guiding future efforts to reduce the demand for the tobacco products include the following:

- a. Research on the effect of smoking on health and the economy
- b. Development of smoking restrictions/bans in work places and in public places
- c. Investigation of the impact of banning of tobacco advertisements and promotions
- d. Investigation of impact of labels warning of smoking danger on cigarette packs
- e. Development of anti-tobacco advertising
- f. Exploration of effective dissemination of information on the dangers of smoking
- g. Investigation of the impact of non-price interventions on tobacco consumption
- h. Investigation of the cost-effectiveness of Nicotine Replacement Therapy and other cessation support methods.

Study topics relating to the supply side might include:

- a. Exploration of age restrictions on use of tobacco products
- b. Investigation into alternative crops and diversification of agricultural production
- c. Development of alternative (non-harmful) uses of the tobacco plant
- d. Investigation of the black market.

5. LIST OF STUDIES WITH SUMMARIES

1. Adiningsih, Sri, Tjipto Suwandi, Soeprapto, Sulaksmono, Arsiniati. 1995. Hubungan Status Gizi dan Produktivitas pada Tenaga Wanita Pelinting Rokok [The Relationship between Nutrition Status and Productivity and the Female Cigarette Industry Worker]. *Majalah Kesehatan Masyarakat Indonesia* Tahun XXIII No.8 1995 p.566-568.

Background: As Indonesia bases its national development upon industrialization, attention must be given to the workers in the industrial sector. Poorly educated workers earning the minimum wage struggle to meet their basic needs. Malnutrition and a susceptibility to disease results. This costs the employer in treatment costs, decreased productivity and increased rate of accidents in the workplace.

Purpose: The study explores the relationship between nutrition status, productivity and other factors.

Methodology: This is an observational study conducted twice over 10 days in 1989. 100 samples were selected, using a random table, from a list of qualified respondents.

Result: 56 percent of the respondents were married mothers. In the medical check up during the observation, 4 percent suffered neuritis, 2 percent flu, 2 percent hypertension and 2 percent dermatitis. None of the respondents showed nutritional deficiencies. Daily productivity was above the required limit, with some fluctuations. Productivity was shown to have a positive relationship to protein intake, which shows the importance of protein in ensuring energy and strength through working hours.

2. Adioetomo, Sri Moertiningsih, Triasih Djutaharta, Hendratno. 2001. *The Economic aspects of Tobacco Consumption in Indonesia: A Household Analysis of the 1999 National Socio-economic Data*. Collaboration between Demographic Institute and Human Development Health, Nutrition and Population Division, The World Bank Washington. Forthcoming, World Bank, Economics of Tobacco Discussion Paper.

Background: The prevalence of smoking in Indonesia has shown an increasing trend. Tobacco control measures such as written messages on cigarette boxes (for example “Warning: Smoking damages Health”) and designated no smoking areas are effective in decreasing smoking prevalence.

Purpose: To identify alternative tobacco control measures, such as pricing and taxation, and social and economic factors which decrease smoking participation and the quantity of cigarettes consumed.

Methodology: The survey uses data from the 1999 Social and Economic Survey, which used households as its analysis unit. Households were classified as low-income, middle-income or high-income. A two-part estimation model was used.

Result: The prevalence of smoking in households has decreased to 57.2 percent. Smoking prevalence increases as household (HH) income decreases. Filtered clove cigarettes are more popular than unfiltered clove cigarettes. White cigarettes are least popular (cigarette without cloves). Among households that have (non-zero) expenditures on cigarettes, the average number of cigarettes consumed per capita is 4.32 packs per month and the quantity of cigarettes consumed increases as income increases. Smoking households spend an average of 6.22 percent of their income on cigarettes. The lower the household income, the higher the percentage spent on cigarettes. The proportion of tax in the price of cigarettes is about 28 percent.

Price does not have a significant impact on HH decisions to smoke. However, price has a negative effect on the average quantity of cigarettes consumed by smoking HH. The lower the income group the more sensitive the household is to price changes. The total price elasticity for all households is -0.61 . Price elasticity for the low-income group is -0.67 , for the middle-income group is -0.33 , and for the high-income group it is -0.31 .

Simulation of the impact of a 10 percent tax increase, *ceteris paribus*, showed cigarette prices rising by 4.9 percent and consumption declining by 3 percent. Despite the consumption decline, cigarette's share of total expenditures would increase slightly from 4.55 percent to 4.63 percent (HH who did not consume cigarettes were considered zero percent). Total tobacco tax revenue would increase by 6.7 percent. Simulation of 50 percent tax increase resulted in an increase of tobacco tax revenue of 27.5 percent.

3. Aditama, Tjandra Yoga. 2002. The Smoking Problem in Indonesia. *Medical Journal of Indonesia* Vol.11 No.1 January-March 2002. p.56-65.

Background: Smoking is a major public health problem in Indonesia. Smoking occurs from an early age in Indonesia. Up to 60 percent of the male adult population and approximately 5 percent of the female adult population are smokers. Some of the popular Indonesian *kretek* cigarettes have high tar and nicotine contents. Smoking adversely impacts both the health and the economic status of the individual and family. Reliable national morbidity and mortality data are scarce, but reports from various cities showed smoking related diseases, such as lung cancer, COPD, adverse effects on pregnancy, etc.

Purpose: To fully describe the problem of smoking in Indonesia, to identify and describe the factors which complicate the smoking control program, and to identify strategies to strengthen the smoking control program.

Methodology: This is an overview article, drawing information from various published and unpublished surveys, reports and official documents.

Result: The prevalence of smoking among males was more than 60 percent and among females was 5 percent, a figure which is expected to rise in the near future. The majority of smokers started smoking between the ages 15 and 20. It is estimated that approximately 12 million people are supported by tobacco-related industries, including agriculture and trade. The cigarette industry is an important source of tax revenue for

Indonesia. There is insufficient scientific research on smoking and related health problems in Indonesia's population. Most Indonesians consider smoking socially acceptable and the term "cigarette money" is commonly used for a tip. Decision-makers in government are not yet politically committed to supporting smoking control programs.

Conclusion: Improving the population's knowledge of smoking and its impact on health and the economy would be an important step towards effective smoking control in Indonesia. Those in tobacco-related industries should be encouraged to diversify their trade or crops to minimize impact should demand for tobacco products decrease. Political commitment from government and parliament should be encouraged.

4. Aditama, Tjandra Yoga. 2000. Global Youth Study Survey (GYTS) Jakarta. Indonesia. Unpublished report. Summary results are available at www.cdc.factsheet

Background: Around 80-100 thousand adolescents are estimated to start smoking every day around the world.

Purpose: To determine prevalence of tobacco product use and factors influencing the decision to smoke: access and price, environmental tobacco smoke exposure (ETS), cessation, media and advertising and school curriculum, in adolescents in Indonesia.

Methodology: This 2000 study was a school-based survey of students in grades 1-3. A two-stage cluster sample design was used to produce representative data for all of Jakarta. The school response rate was 100 percent and the student response rate was 91.6 percent. A total of 2,074 students responded.

Result: 43.9 percent of students had ever smoked a cigarette, 69.3 percent of all males and 18.8 percent of all females. 36.7 percent of males and 5.0 percent of females were currently using a tobacco product, a total of 20.8 percent of all students. 13.6 percent of those who had never smoked said they were likely to initiate smoking in the next year.

Of current smokers, 64.4 percent bought their cigarettes in a store. 70.3 percent of these smoker were not challenged about their age when purchasing cigarettes. ETS exposure was very high, with almost 7 in 10 students living in homes where others smoke. 8 in 10 were exposed to smoke in public places and over 6 in 10 had parents who smoke.

Almost 6 in 10 students thought smoke from others was harmful to them and almost 9 in 10 students thought smoking should be banned in public places. Almost 8 in 10 smokers wanted to stop. 11.8 percent thought boys and 3.5 percent thought girls who smoke have more friends. 9 in 10 students had seen anti-smoking media messages in the previous 30 days and 9 in 10 students had seen pro cigarette ads in the previous 30 days.

5. Aditama, Tjandra Yoga. 2000. Pengetahuan, Sikap dan Perilaku Mahasiswa Akademi Perawat dan Perawat serta Mahasiswa Fakultas Kedokteran dalam Masalah Merokok [The Knowledge of, Attitude towards, and Behavior of Nursing Academy Students,

Nurses and Medical Students Towards The Smoking Problem]. *Jurnal Respirasi Indonesia* Vol.20 No.2, 2000. p 60-63.

Background: Only one percent of smokers without access to an intervention program or any anti-smoking influence successfully stop smoking. The rate of success rises to 5 percent if the smoker is advised by doctors, nurses or other medical personnel to stop smoking. If medical services were to use every method available to encourage and aid smokers to quit, the rate of success would rise to 50-60 percent. This demonstrates the vital role of medical services in successful quitting by smokers.

Purpose: To identify the level of knowledge of, and the attitude and behavior towards, smoking of nurses, nursing academy students and medical students.

Methodology: 41 medical students, 92 nursing academy students and 50 hospital nurses responded to the survey. Self-filled questionnaires, with different sections for nurses and medical students, were used.

Result: The main source of information on the dangers of smoking for all groups was school, with 49.8 percent of medical students, 38.2 percent of nursing academy students and 44.7 percent of nurses agreeing. It was found that 43.2 percent of medical students had a good level of knowledge, 50 percent had a fair level and 6.8 percent had a poor level. 38 percent of nursing academy students and 30 percent of nurses had a good level of knowledge, 52.2 percent and 60 percent had a fair level and 9.8 and 10 percent had a poor level of knowledge.

Around 5.2 percent of the medical students currently smoked, 6 percent had smoked in the past, and 88.8 percent had never smoked. 1.1 percent of the nursing academy students currently smoked, 4.3 percent had smoked before, and 93.5 percent had never smoked. Nursing academy students who smoked consumed an average of 1 to 5 cigarettes a day. None of the nurses had ever smoked.

The respondents were asked if they would tell a person smoking in the workplace to stop. 60 percent of nurses, 47.8 percent of nursing academy students and 9 percent of medical students indicated that they would.

Conclusion: The attitudes and practices of the health professionals studied are inadequate.

6. Aditama, Tjandra Yoga. 1999. *Youth and Tobacco Indonesian Experience*. Indonesian Smoking Control Foundation. 1999. Presented at a SEARO Workshop on Youth and Tobacco. Mumbai India, 26 August.

Background: Most tobacco consumed in Indonesia is in the form of cigarettes. Between 85 and 90 percent of all cigarettes smoked in Indonesia are *kretek* (clove) cigarettes.

Purpose: The paper is intended to describe the Indonesian experience of tobacco use among youth.

Methodology: This is an overview article, using data from published and unpublished surveys and official documents, mainly from Indonesian studies.

Result: The prevalence of smoking among the male population was more than 60 percent and among the female population around 5 percent. 10-30 percent of male teenagers and less than 3 percent of female teenagers smoked. The majority of smokers began smoking between the ages of 15-20 years. The youngest smokers reported were 5 years of age.

Conclusion: To strengthen the smoking control program in Indonesia, several steps should be undertaken. The education of the general public in health matters is crucial. Every opportunity for education should be optimized by both governmental and non-governmental organizations. Regulation and laws in the field of smoking should be produced and implemented firmly and international collaboration for smoking control utilized. Political commitment and public awareness should drive the smoking control program.

7. Asri, Istyastuti Wuwuh (1992). *Kebijakan Pajak Tak Langsung Cukai Studi Kasus Cukai Tembakau di Indonesia 1969-1992*. [Indirect Tax Policy Case of Tobacco Excise Tax in Indonesia 1969-1992]. Thesis. Program Pasca Sarjana Bidang Ilmu sosial dan Ilmu Politik Spesialisasi Ilmu Administrasi. University of Indonesia.

Background: Excise taxes from tobacco are an important sources of revenue for the Indonesian government.

Purpose: To reveal the factors that influenced the policy making process from 1969-1992, which led to the development of tobacco taxes that achieved state revenue targets, but not social targets.

Methodology: This is an overview study of international and national literature. The data sources utilized are published and unpublished surveys and research, both from Indonesian and international studies, and official documents.

Results: The study shows that several factors affecting the policy making process for tobacco excise taxes prevented revenue and social targets from being met. The targets adopted were state revenue, rather than social targets such as the control of tobacco product consumption or the absorption of the labor force. A qualitative study of the tobacco excise tax policy during 1969-1992, suggests that the original aim of the policy was more than just to earn state revenue. It originally aimed to provide training and foster small enterprises, explicitly classifying tobacco producers by size, and seeking to protect small enterprises and clove farmers/businessmen.

The idea that consuming tobacco endangers health is still being spread. Meanwhile tobacco excise tax makes up 89.78 percent of the total excise tax. There are 599 tobacco

product factories, and 11.4 million people are said to derive income directly or indirectly from tobacco.

8. Badan Penelitian dan Penembangan Kesehatan [Institute of Health Research and Development], 2002. Faktor Risiko Penyakit Tidak Menular di Jawa-Bali: Studi Morbiditas-Disabilitas Surkesnas 2001 [*Risk Factors for Non-Infectious Diseases in Java-Bali: Study of Morbidity-Disability 2001 National Health Survey*]. Slide Presentation and Graph, 21 slides.

Background: The Indonesian population suffers both infectious and non-infectious diseases, including cancer, heart and chronic lung diseases. Reducing risk factors for these diseases today could prevent diseases in future years.

Purpose: To identify the prevalence of behavior patterns, which lead to non-infectious diseases, in Indonesia. One such behavior is smoking.

Methodology: The 2001 National Health Survey is integrated with the National Social-Economic Survey. 25 percent of the National Social-Economic Survey sample becomes the National Health Survey sample. 6,272 households were surveyed, 3,280 of which were in the Java-Bali area. Data were collected between September and December 2001.

Result: 63 percent of males and 1 percent of females smoked. In the Java-Bali area, 69 percent of males and 3 percent of females smoked. Filtered clove cigarettes were the preferred type. The average age when smoking started was between 17 and 18.5 years.

1.5 percent of the population consumed alcoholic beverages. The average female cholesterol reading was higher than the average male cholesterol reading.

9. Barraclough, Simon. 1999. Women and Tobacco in Indonesia. *Tobacco Control*; 8: 327-332.

Background: Although comparatively few Indonesian women are smokers, they are the major source of labor in the manufacture of cigarettes.

Purpose: To explore what is known about the relationship between Indonesian women and tobacco. Of special concern is the prevalence of smoking among women, whether or not the rate of female smoking is increasing, whether there is evidence of tobacco companies targeting women, and health promotion activities concerned with women and smoking.

Methodology: This is an overview article. The data sources used are published and unpublished prevalence surveys, official documents, unstructured interviews, and personal observations.

Result: Although Indonesian women are conspicuous in growing and processing tobacco, their rates of smoking are low in comparison with their male compatriots and

international peers. The only representative national household data on smoking prevalence from 1995 suggested a national prevalence for occasional and regular smoking of 2.6% for women aged 20 years or older. Smaller, local level surveys reported rates of 4% for junior high school girls, 2.9% for women undergraduates at a provincial university, and 6.4% of women in a representative sample in Jakarta. Anecdotal evidence suggests that their disinclination to smoke is commonly attributed to cultural values, which stigmatize women smokers as morally flawed. Although there is little evidence of tobacco advertising directly targeting women, Indonesian health activist interviewed by the author felt that women are increasingly taking up smoking due to a weakening of stigma and a strengthening of western cultural influences.

10. Bernida, Ida. Faisal Yunus, Wiwien Heru Wiyono, Dianiati KS, Sardikin Giriputro, Priyanti, Pudjo Astowo, Boedi Swidarmoko, A. Mulawarman, Soegeng Hidayat dan Hadiarto Mangunnegoro. "Faal Paru dan Uji Bronkodilator Pada Perokok, Bekas Perokok dan Bukan Perokok" [Lung Function and Bronchodilator Test on Smokers, Ex-smokers and Non-smokers]. 1990. *Majalah Paru* Vol. 10, Nomor 4. Jakarta. P 5-11

Background: Cigarette smoking is one of the causes of abnormal respiratory systems.

Purpose: To investigate the differences in lung function, using fenoterol, in smokers, ex-smokers and non-smokers and to investigate differences in response to the bronchodilator test among smokers, ex-smokers and non-smokers.

Methodology: The respondents were workers at a magazine company, which is free from pollution. All respondents were free of lung or cardiovascular disease and were between the ages of 22 and 56 years.

Result: Of the respondents, 29 were male and 22 were female. Among them, 23 were smokers, 7 were ex-smokers and 21 were non-smokers. The study found no significant differences in the KVP, VEP1, and APE among smokers compared to the other groups. However, the ratio of VEP1/KVP and the percentage of VEP1 (compared to estimated VEP1) in smokers was significantly lower.

11. de Beyer, Joy, Ayda A. Yurekli. 2000. "Curbing the Tobacco Epidemic in Indonesia". East Asia and the Pacific Region Watching Brief. Vol 6, World Bank. 9pp.

Background: Cigarette consumption in Indonesia is rising more rapidly than anywhere else in the world. Smoking is stealing millions of years of healthy life from Indonesians. It causes 90 percent of all cancers of mouth, throat, trachea, bronchia, and lungs; 75 percent of all chronic obstructive pulmonary disease; and 40 percent of cerebrovascular disease in Indonesia. Rising income over the past decades is one reason for dramatic increases in smoking. The low price of cigarettes and limited tobacco control policy efforts have also played a big part. Tobacco tax increases and a package of other policies to inform people of the health risks of tobacco usage could protect people, especially the young, from starting smoking and therefore putting their health and life at risk.

Purpose: Assess the burden of disease attributable to smoking in Indonesia. Examine tobacco expenditures by various income groups. Compare trends in cigarette prices and consumption. Analyze the likely economic consequences of a tax increase on government revenues, consumption and employment.

Methodology: This study summarizes earlier studies on tobacco issues in Indonesia. For empirical analysis, it uses data from Central Bureau of Statistics of Indonesia, USDA, World Bank, International Monetary Fund, and Market File Databases, ranged from 1960 to 1998.

Result: Smoking was reported to have caused 6,426,630 cases of disease in 1995. The cost to the Indonesian people was 8,914,930 Disability Adjusted Life Years. On average, 4 percent of per capita income was spent on tobacco products. Spending by the lowest income group rose 227 percent in real terms from Rp 343 (1981) to Rp 779 (1997). Real spending by the middle-income group increased 182 percent over the same period.

Cigarette prices in Indonesia were higher than in some neighboring countries in 1998 but the percentage of the total price accounted for by taxes (30 percent) was the second lowest in the region. During the 1970s annual cigarette consumption rose 159 percent, during the 1980s it rose 67 percent and during the 1990s it rose 47 percent.

A log-linear model using 1980-95 data suggests the price elasticity of demand for *kreteks* is -0.51 and the income elasticity is $+0.35$. The simulation found that if taxes increased by 100 percent, consumption would fall and revenue would rise.

Conclusion: Tax increases and other tobacco control programs could save millions of Indonesian families from the heartbreak and loss cause by tobacco related disease and death.

12. Djutaharta, Triasih, Henry Viriya Surya., N. Haidy A. Pasay, Hendratno, Sri Moertiningsih Adioetomo, 2002. *The Impact of Cigarette Tax Rate Increase on Consumption and Government Revenue: Aggregate Analysis*. A Collaboration of World Bank and Demographic Institute Faculty of Economics University of Indonesia. Forthcoming, World Bank HNP Economics of Tobacco Discussion Paper series.

Background: Cigarettes and other tobacco products contain many ingredients dangerous to human health. Many smokers underestimate the risks of smoking, although they know that smoking is dangerous. One way to decrease cigarette consumption is to increase cigarette prices, which can be done by increasing cigarette taxes. The current excise tax contributes 7.3 percent of the government's domestic revenue. In Indonesia, current policy results in cigarette retail sales price being changed rather than tax rate.

Purpose: This study is intended to predict the impact of tax and price increases on cigarette consumption in Indonesia. It provides an overview of the impact of tax rate increases and the change in government revenue. It estimates the price elasticity of

demand, the tax elasticity of price, and the impact of tax increases on government revenue from the tobacco excise tax.

Methodology: The study uses two groups of time series data, a yearly series extending from 1970 to 2001, and a monthly series from January 1996 to June 2001, taken from official documents.

Result: The estimation with annual data gave a price elasticity of demand for cigarettes of -0.345 , and income elasticity of demand of 0.473 . A dummy variable representing the period after the economic crisis is positive 0.198 . The price function estimation gives 0.259 tax elasticity of price (change in price in response to a tax change). Using monthly data, the price elasticity of demand is -0.315 , and the income parameter is not significant. The tax elasticity of price is estimated to be 0.103 . The study simulation results for both yearly and monthly data showed that fears that raising cigarette tax would lower government revenue are unfounded. The inelastic price elasticity of cigarette demand ensures that total revenues rise when tax increases are used to raise prices.

13. Haryanto, Budi and Rita Damayanti. 2001. *Study of Prevalence of Tobacco Use in Indonesia 2001*. Center for Health Research University of Indonesia. Do nated by WHO-SEARO. 111 pp. Unpublished report.

Background: Tobacco use is a major public health problem in all countries to smokers and those around them. Recent studies have concluded that passive (or involuntary) smoking can cause disease, including lung cancer, in healthy non-smokers.

Purpose: The objective of this study is to build a database on prevalence of tobacco use in the total population and among specific population subgroups, for the purpose of advocacy for tobacco control and planning tobacco control interventions and evaluation in Indonesia. Specifically, the objective is to conduct a survey on tobacco use in one urban and one rural area in Indonesia.

Methodology: Using a cross sectional cluster survey design with a structured questionnaire, self reported tobacco use behavior data were collected at the sampling or cluster sites, from those aged ten years old and above. The location of survey is in Jakarta (an urban area) and Sukabumi (a rural area). The total sample size was 15,072.

Result: The results were categorized by socio economic characteristics, tobacco use status, tobacco use experiences, cessation status of tobacco use, and knowledge of tobacco use effects. Around 39 percent of all respondents, and 68 percent of all male respondents, were found to have ever used tobacco products. The percentage was slightly higher in urban areas than rural areas. The percentage of respondents who were currently using tobacco products was slightly higher in rural areas than urban areas. The major reasons for cessation of tobacco usage among adult male were long-term health impact (60 percent) and economic impact (24 percent). 57 percent of adult respondents had attempted to quit tobacco use at least once during the previous year. 90 percent of respondents understood the dangers of tobacco to health. 84 percent of respondents were

also familiar with the symptoms or diseases directly caused by smoking, such as coughing.

Conclusion: This report only presents baseline measures of prevalence of tobacco use in the selected areas. It is recommended that similar data be collected from the same sampling sites at regular intervals to provide data for measuring trends and levels of the prevalence of the tobacco use.

14. Hudoyo, Achmad. 2000. Kampanye Anti Rokok di Indonesia “Tantangan dan Strategi” [The Anti-cigarette Campaign in Indonesia “Challenges and Strategies”]. *Journal of Respiriology Indonesia* Vol. 20, No. 2, 2000, p.81-84.

Background: Anti-smoking campaigns are different from anti-AIDS, anti-TB or anti-drugs campaigns. The negative impact of smoking is not always clearly visible to society. An elderly smoker may live a healthy life, while a young non-smoker may develop lung cancer.

Purpose: The study is intended to describe the challenges faced by the anti-smoking campaign in Indonesia, and to explore the strategies available to overcome them.

Methodology: This is an overview study of international and national literature.

Result: The increased prevalence of smoking in Indonesia is related to the individualistic and sectoral approach dominating the tobacco control program. This has caused frequent conflicts of interest between the involved parties, such as two governmental ministries, and prevented problem solving. Further conflicts have developed between professional organizations, such as Indonesian Smoking Control Foundation, Indonesian Women Without Tobacco, and Indonesian Consumer Institution Foundation, and non-governmental organizations.

In developing countries, like Indonesia, cigarette consumption is increasing, due to low public awareness of the dangers of smoking. The government has not made tobacco control a priority, while local and multinational tobacco companies are very aggressively promoting their products, utilizing advertising and high level lobbying. For the success of the smoking control program, there should be cooperation among non-government organizations, professional organizations and individuals working to reduce smoking, public support for the movement and a committed and sincere approach from the government.

15. Jusuf, Anwar. 2000. Knowledge and Attitude Concerning Cigarette Smoking among Schoolchildren in Central Jakarta. *Japan Journal of Chemother*, Vol.27: Supplement II, May 2000 p.582-591.

Background: Cigarette smoking is an acquired behavior, influenced by knowledge and attitudes to cigarettes. Decisions to smoke consider loss and benefit caused by smoking and are influenced by external factors including the environment of the individual.

School children are often exposed to smoking behavior, which may influence them to start smoking. Since habitual smoking can lead to health problems and fatal diseases, prevention is very important, especially at a young age.

Purpose: This study examines the knowledge and attitudes of schoolchildren in Central Jakarta and the sources of their information about smoking.

Methodology: The study interviewed 5th and 6th grade primary schoolchildren in the slum and non-slum areas in Central Jakarta. This study uses clustered samples, taking proportionally 665 respondents, recruited from 26,172 children. The data were obtained through a questionnaire filled out by each respondent. A child is regarded as a smoker if s/he smoked at least one cigarette daily. Result analysis uses chi-squared test.

Result: Of the 665 respondents aged between 10 and 12 years, 360 were male and 305 were female. 2.11 percent of respondents were daily smokers, 13.6 percent were experimental smokers and 84.2 percent were non-smokers. The general knowledge of smoking and its dangers is considered sufficient for their age. 95 percent of respondents recognized the disadvantages of smoking, 98.4-96.0 percent knew that cigarettes contain dangerous substances and 63.6-83 percent knew that nicotine contained in cigarettes is dangerous. Few respondents knew that tar (less than 2.5 percent) and smoke (9.0-19.7 percent) were dangerous.

When questioning respondents' knowledge of smoking related diseases and symptoms, lung cancer was recognized most often, followed by coughing and dyspnea (shortness of breath). The harmful effects on smokers were recognized by 29-40 percent and 74-85 percent of respondents knew that smoking is harmful to others. Respondents from the non slum area had a significantly better understanding of issues concerning smoke, the relation between coughing and smoking, the risks smokers faced and the negative effects of smoking at home, than respondents from the slum area.

The attitudes of schoolchildren in both areas are favors non-smoking. Most of the respondents (more than 50 percent) say that a smoking friend must be reported to a teacher, that children who smoke cause trouble at home and at school and that smoking is not healthy. Most respondents in both areas did not agree that: smoking is fun or shows masculine character, it is acceptable for a father/brother/teacher to smoke, a cigarette on a table may be tried, smoking enhances learning and smokers make friends.

In the slum area, 51.5 percent of respondents gathered their information concerning cigarettes from advertising, 15.2 percent from family and 11.7 percent from extra familial sources. No respondents found information from printed media or health personal. In the non-slum area, the three main sources of information on cigarettes were extra familial sources (24.7 percent), television (18.1 percent) and friends (14.3 percent). In both areas, the most common sources of information were television and advertising.

Children's attitudes toward smoking change as they obtain new information, experiences or observations on non- smoking or smoking. Therefore an environment in which

smoking appears acceptable can lead children to try smoking. Efforts should be made to eliminate pro-smoking media influences from schoolchildren's surroundings, especially in the neighborhood of schools.

16. Jusuf, Anwar, Sukaenah Shebubakar, Tjandra Yoga Aditama, Corrie Wawoulamaya and Zarni Amri. 1994. Pengetahuan, Sikap dan Perilaku Murid Sekolah Dasar Kelas V dan VI Tentang Rokok Di Jakarta Timur [Knowledge of, Attitude towards, and Behavior regarding Cigarettes of Elementary School Students in 5th and 6th grade in East Jakarta]. *Paru* Vol.14 No.1 January 1994 p.8-18.

Background: The 1980 household survey showed that 46.4 percent of males over 10 years old in Indonesia smoke. In 1986 this increased to 52.9 percent. In Jakarta, the tendency to smoke is also visible, even among elementary school students.

Purpose: This study aims to build a primary database on the knowledge, attitudes and smoking behavior among elementary school students in East Jakarta, and to explore the factors influencing their behavior and opinions. It investigates the prevalence of smoking in 5th and 6th graders (most are 11-12 years old) in East Jakarta and identifies the relationship between smoking behavior and factors such as parental education, close friend influence, supervisors, knowledge of the danger of smoking, smoking in the family and the influence of the school environment.

Methodology: 314 students from 5th and 6th grade elementary schools were interviewed. Schools were classified as public or private elementary school. Public schools were further classified as being in slum or non-slum environments and private schools were further classified by whether or not they possessed a centrally managed foundation. Schools and students were randomly selected. Ten students were placed in each room without teachers to fill out a questionnaire. Students were regarded as smokers if they smoked a minimum of 1 cigarette per day regularly for three months.

Result: Of the 12.76 percent of respondents who smoked, 10.9 were male and 1.86 were female. Smokers ranged in age from 10 to 15 years old. 11.8 percent of respondents stated that they had smoked one or more cigarettes and then quit. 71.7 percent of respondents smoked for the first time as an experiment. 52.8 percent of those who smoked obtained their cigarettes from friends and approximately 20.8 percent bought their own cigarettes.

Respondents who smoked were often influenced by a sibling or friend who smoked, a lack of knowledge of the dangers of smoking or the lack of a father or proper control in the home. The study also found that the role of parents and teachers in preventing smoking in children is less than expected. The main sources of the information on the dangers of smoking were magazines/newspapers (35.04 percent), teachers (33.84 percent), and parents (30.63 percent). A factor in preventing children from smoking is monitoring by a father, teacher or older sibling.

17. Jusuf, Anwar, Ascobat Gani, Sardikin Giriputro, Achmad Hudoyo, Adang Bachtiar, Fachrial Harahap and Djoni Anwar. 1993. "Implikasi Ekonomis Kanker Paru Pada Pekerja Perusahaan" [Economic Implications of Lung Cancer on Workers]. *Majalah Paru* Vol 13 Nomor 1. Jakarta. p.2-8.

Background: This paper presented examples of the cost of lung cancer. Clinically, lung cancer is a fatal disease with a low survival rate. Lung cancer results in economic loss due to treatment costs, lost productivity and lost income for families.

Purpose: This study aims to calculate the direct and indirect costs of 170 lung cancer cases in Persahabatan Hospital from 1990 to 1991.

Methodology: 170 lung cancer cases from Persahabatan hospital were identified. Direct costs included the check-up cost and costs of medical treatment in the hospital. An average for each cost element is calculated. The sum of all average values of costs is the average total direct cost. The indirect costs were calculated through a simulation process, considering the age at which lung cancer was detected, salary and benefits, and the cost to the employer of training a suitable replacement.

Result: Half of the patients paid for treatment costs themselves. The estimated direct cost of a lung cancer case was Rp 740,422 (treated for 24 days and discharged alive) + Rp 638,128 (treated 18 days before death) = Rp 1,378,550 (with 30-40 percent subsidy). The average was Rp 1,250,000 per case. The largest economic loss was for the patients, the size of which depends on their salary, the age at which they develop lung cancer and the age of death. The second largest loss was to the employer, the size of which is dependent on expenditures for recruiting a replacement, expenditures on worker education, training and benefits and the age of worker.

A smoker is eight times more likely to contract lung cancer than a non-smoker. In consideration of the economic and social impact lung cancer can have on a family, the need for the avoidance of smoking is apparent.

18. Karnagi, Julia, Sumedi Sudarsono, Faisal Yunus. 1996. Prevalensi Bisinosis di Pabrik Tekstil dan hubungannya dengan Konsentrasi Debu Kapas di Lingkungan Kerja [Bicynosis Prevalence in the Textile Factory and the Relationship with Cotton Dust in Working Environment]. *Jurnal Respirasi Indonesia* Vol.16 No.4:138-142 .

Background: Cotton, a basic material for textiles, is a popular crop due to the low cost of planting and manufacturing. Workers in textile factories that use cotton as a raw material inhale cotton dust, putting them at risk of contracting bicynosis disease.

Purpose: This study aims to obtain data on the prevalence of bicynosis, chronic cough, chronic bronchitis, acute obstruction and chronic obstruction in textile workers, and the relationship with the level of dust in the work place and with smoking.

Methodology: The respondents were taken from the spinning and carding division of a textile factory in Jakarta. Of 88 respondents, 73 were from the spinning divisions and 15 from the carding division. All respondents had worked for the factory for more than 6 months and had rested for the previous 24 hours. The health data were collected through a health questionnaire and lung testing procedures.

Result: There was a difference in the prevalence of chronic cough between workers with bicycnosis and workers without bicycnosis, but no difference in the prevalence of acute obstruction. There was also no difference in the prevalence of chronic cough between the workers who often used body protection tools, and the ones who seldom wore them. There was no difference in the prevalence of bicycnosis, chronic cough or chronic bronchitis between smokers and non-smokers. None of the 88 respondents suffered from asthma, although 5 –10 percent of the general population has asthma.

This research needs to be expanded using larger samples and cohort method to define the real causes of the diseases. (Despite finding no differences in outcomes studied), the study recommends that factory management should decrease the level of dust in the work place, and increase the use of body protection tools. It also suggests conducting routine lung check ups for the workers.

19. Kristanti, Ch.M., Siti Sapardiyah and S.Suhardi. 1998. Perilaku Merokok dan Minum Alkohol pada Remaja di Propinsi Jawa Barat dan Bali 1995 [Youth/Teenagers behavior in smoking and alcoholic drinking in West Java and Bali provinces 1995]. *Jurnal Epidemiologi Indonesia* Vol. 2 ed. 3.

Background: Alcoholic drink and cigarettes are sold everywhere without any control on buyers. West Java and Bali are two provinces with strong tradition, life norm and cultural values. The globally available information will certainly affect the behavior of men and women including smoking and drinking alcoholic beverages.

Purpose: To study the smoking and drinking behavior

Methodology: Bandung and Denpasar were chosen purposively to represent an urban medium size business type community. Cianjur and Gianyar were districts purposely determined to represent the rural areas. The respondents are young people aged 13-19 years old. The criteria of “smoking” or “drinking” is determined subjectively by the respondents upon the questions: “Do you smoke?” and “Have you ever had alcoholic drink”.

Result: The number of respondents in West Java is 1.189, 15.7 percent of which are smokers (out of which 25.4 percent are male smokers and 3.8 percent are female smokers). In male smokers the intensity of tobacco use is revealed in the consumption of more or equal to 4 pieces of cigarettes a day as shown by 41.9 percent of the respondents in the urban area and 25 percent in the rural area. From the total respondents, 6.4 percent have ever drunk alcoholic drinks, among which 9.4 percent are male respondents and 1.7

percent female respondents. The percentage of male respondents who are smokers and alcoholic drinkers is higher in urban areas than in rural areas.

In Bali, out of 922 respondents 10.5 percent are young smokers (out of which 18.8 percent are young male smokers and 1.1 percent young female smokers). The percentage of young smokers in urban areas is higher than in rural areas. Those who smoke at least 4 pieces of cigarettes a day are 30 percent in urban areas and 38.4 percent in rural areas. Meanwhile 21.3 percent of the respondents have ever drunk alcoholic beverage. Unlike the smoking pattern, the percentage of drinkers in rural areas is higher than in urban areas.

In the two provinces the age they start smoking is 13-17 years and the age they drink for the first time is around 14-18. Meanwhile the reasons for smoking are: to get rid of feeling lonely and stressful, to make friends easier, influenced by friends, to be considered matured and to follow the parents' habit. While the motives of alcoholic drinking are: influenced by friends, being disappointed, conflict in the family, and to kill the time. Most of the young people in West Java drink alcoholic beverages with their group (gang) or during a youth party, while those in Bali they drink when attending a party or tradition ceremony.

Both activities mentioned above show a risky behavior. Hence an CIE (Communication, Information, Education) model needs to be developed to inform the young smokers and drinkers on the effect of their habit. In this case the participation of the youth themselves is eminent.

20. Koentjahja, Henny C. 2001. Changes of Body Weight and Response of Tracheal Smooth Muscles of Adult Guinea Pigs Due to Chronic Exposure to Cigarette Smoke and Supplementation of Vitamin C. *Jurnal Respirology Indonesia* Vol.21 No.1, 2001. p 17-23.

Background: The lungs are the body part most often exposed to free radicals. Generally, free radicals can cause damage to proteins, lipids, carbohydrates, and nucleate acid. Free radicals are suspected to be important in the pathogenesis of chronic obstructive pulmonary diseases. Sources of free radicals that can be inhaled are cigarette smoke, pollutant gases, and ozone. Smoking is the largest cause of chronic obstructive pulmonary diseases.

Purpose: The objectives of this study are to investigate the effect of cigarette smoke exposure and vitamin C supplementation on the adrenergic receptor of the airway's smooth muscle and on the body weight of guinea pigs.

Methodology: This is an experimental study with a random design. Six month old guinea pigs, weighting 400-450 grams, were divided into 4 groups, namely: control group, cigarette smoke exposure group, cigarette smoke exposure and vitamin C supplementation group, and vitamin C supplementation group. The groups were observed daily for a period of 6 months. The smoke from one cigarette and a vitamin C

supplement of 0.5-mg/100 mg body weight was issued to each guinea pig daily, according to their group. Isolated tracheal ring preparations were evaluated to see the response of tracheal smooth muscle relaxation after adrenaline supplementation, and recorded in a Mac Lab computer. A dose response curve was evaluated. Data were analyzed with principle component analysis and Anova. Normality test using Q-Q plots were carried out and differences between treatment and control groups assessed using Turkey BNJ Test.

Result: Higher doses of adrenaline concentration were needed to dilate the smooth muscle of the group with cigarette smoke than the other groups. The lowest increase in body weight was found in the cigarette smoke group. Increased vitamin C may be helpful in counteracting this. Chronic cigarette smoke exposure decreased the sensibility of the adrenergic receptor of the airway's smooth muscle. This can explain the low effect of B2 agonist in chronic obstructive pulmonary diseases.

21. Kosen, Soewarta. 1998. *Analysis of Current Economic Impact of Smoking in Indonesia: Government and Community Prospective*. Health Services Research and Development Center. National Institute of Health Research and Development. Ministry of Health. Jakarta. Unpublished report, 13 pp.

Background: For smokers, health risks increase with increasing duration and amount of tobacco consumed. Smoking creates economic losses, through the costs of purchasing tobacco/cigarettes, the costs of medical treatment, the loss of income due to illness, the loss of income due to premature death, the loss of income of family members who take care of the sick and decreased quality of life due to the loss of income. Of these, the first two are direct economic losses and the rest are indirect.

Purpose: This study aims to measure the burden of diseases caused by smoking, using the DALY (Disability Adjusted Life Years) technique, which incorporates the years of life lost due to premature mortality and those lost from varying degrees of disability associated with disease.

Methodology: The study used multiple indicators of disease burden, since the measurement of burden using DALY takes into account any adjustment of health that represents loss of well being and is not limited to disease and death. To estimate the DALY, results of the Morbidity and Disabilities Study, National Household Health Survey 1995 and data from the Global Burden of Disease Study (Other Asia Islands Region) were used. The economic loss due to tobacco consists of direct and indirect costs. The list of diseases attributable to smoking is cancers of the mouth, oropharynx and oesophagus, pancreas, trachea, bronchus and lung; hypertension, ischaemic heart disease, cerebrovascular disease, lower respiratory infection, chronic obstructive pulmonary disease, low birth weight and birth asphyxia.

Result: The total number of cases attributable to smoking in 1995 was 6,426,630 (2,834,470 male and 3,592,160 female). Hypertension caused the largest number of cases (3,940,520 cases). The total DALY loss due to disease and injury attributable to smoking

in Indonesia (1995) was 8,914,930 (4,667,700 males and 4,247,230 females). The largest total DALY loss was for lower respiratory infection diseases (3,265,430). With the GDP per-capita in 1995 about US\$ 1,100, it is estimated that the macro economic loss for the country from the government's perspective was US\$ 9,806,423,000 - approximately fifty percent of the total annual budget for the ministry of health. The microeconomic loss due to tobacco from the community's perspective totals US\$ 968 per-patient per-year; not including the cost of purchasing tobacco and the loss of income due to premature deaths, which is likely to be larger. The microeconomic loss can be broken down into the average cost for medical treatment (US\$ 738), the lost of income due to illness for one patient (US\$ 115/year) and the loss of income of family members due to taking care of patient (US\$ 115/year). It is estimated that there are 5,670 cases of trachea, bronchus and lung cancers, giving a total economic loss of US\$ 5,488,560 for these diseases alone.

Reducing tobacco use is one of the most important public health issues, as tobacco is the single most important risk factor for chronic diseases. Political action could substantially reduce smoking prevalence and the related health risks and thus reduce this economic loss for the government and the community.

22. Persahabatan Hospital, No date. *Biaya Perawatan Penderita Penyakit Akibat Rokok di RSUP Persahabatan*. [The Cost of Medical Care for Lung Cancer Patients at Persahabatan Hospital]. Jakarta. Unpublished report.

Background: Nearly 5 million people worldwide die every year from smoking related diseases. Around 90 percent of all lung cancer cases and a significant percentage of chronic obstructive pulmonary disease cases are caused by smoking. According to the 1986 Indonesia Household Health Survey, 52.9 percent of males and 3.6 percent of females smoke. As 1.4 percent of all smokers develop lung cancer, it is estimated that 340,214 lung cancer cases occur every year. The group with the highest risk of contracting lung cancer is those who have smokes at least 10 cigarettes a day for 15 years or longer. In the *Persahabatan* hospital, the occurrence of chronic obstructive pulmonary disease and lung cancer has raised a lot of concern.

Purpose: To investigate the direct costs to lung cancer patients of *Persahabatan* hospital, and the indirect costs to patients and their families, in order to estimate the cost of lung cancer to society.

Methodology: This study used secondary data from medical records of 319 lung cancer patients treated in the *Persahabatan* hospital from 1990 to 1992. Data include the length of treatment, diagnostic types, kinds of treatment, medicines and other costs. All direct costs are then calculated. Indirect costs due to death or sickness are also calculated.

Result: Of the lung cancer patients studied, 53 percent were smokers (for males 60 percent and for females 8 percent, 3.5 percent were ex-smokers (4.1 percent for males), 22 percent had no smoking status information (21 percent of males and 27 percent of females) and 26 percent said they did not smoke (20 percent of males and 65 percents of females). The ratio of the male and female patients was 5.6 to 1. Around 9.4 percent of

the patients died in hospital and many of them died aged 41-50 years. On average, lung cancer patients survive for 1-2 years. 55.8 percent of patients pay their treatment costs themselves, 24.66 percent have their costs paid for by health insurance, and the rest have their costs paid for by their company/employer.

If it is assumed that the limit to productivity is 60 years, then the loss caused by death or the loss of 15 years of productive age is around $15 \times 300 \times 3,750 = \text{Rp } 16,875,000$ or Rp 5,737,500 million nationally.

Lung patients are treated in *Persahabatan* hospital for on average 22.85 days, and the average cost of treatment, action and medication is Rp 1,107,886 for each patient, or Rp 376,681,240,000 nationally (340,000 cases). The loss of 7,769,000 productive working days per year is valued at Rp 29,133,750,000. There is an additional expenditure of $22.85 \times 340,000 \times 5000 = \text{Rp}38,845,000,000$ if the patient is forced to wait for treatment.

The total cost is even higher if the person who is sick or has died is productive and his/her sickness or death affects those who worked for him/her. It should be noted that the cost of care at *Persahabatan* hospital is relatively low, and that many policies of cost reduction are available to lessen the burden to patients.

23. Prabdari, Y.S, N. Higginbotham. No date. Exploring Perceptions About a Program To Prevent Smoking among Junior High School Student Using Qualitative Approach. Department of Public Health Faculty of Medicine Gadjah Mada University. Yogyakarta. unpublished

Background: Young people in Indonesia start smoking at an early age. The majority of young smokers try to quit, but have difficulty stopping. Previous studies abroad indicate that anti-smoking programs are effective in reducing the number of teens who begin smoking.

Purpose: To explore opinions of junior high school students and teachers about the feasibility of an anti-smoking program.

Methodology: The respondents are students of junior high school in Yogyakarta, chosen purposively by type of school. Focus group discussion and an in-depth interview were used for data collection. Two focus group discussions (FGD) with smoking junior high school students and with non-smokers were conducted. A FGD with sport and health teachers was also conducted and two in-depth interviews with junior high school students.

Result: The perception of smoking was different between student smokers (SS) and non-smokers (NS). SS smoked to reduce stress, make friends and appear “cool”. NS did not smoke because it is harmful to the health and costs too much. The teachers believed that a child is more likely to smoke if a parent is a smoker. The students noted that some teachers smoked at school. All respondents agreed that smoking is bad and has more disadvantages than advantages.

Although some smokers wished to quit, they continued to smoke due to prior failed efforts to quit. Non-smokers hoped to remain non-smokers. The sport and health teachers were in favor of a non-smoking school environment, and hoped to persuade the local cigarette-selling kiosks not to sell cigarettes to students.

Participants considered smoking prevention urgent. Although a bad habit and preventable, smoking is widespread. Therefore, anti-smoking education programs should be implemented in Yogyakarta, utilizing combined multimedia materials, such as posters and films, and an interactive format.

24. Prabandari, Yaii Suryo, Punik M. Wijayanti, Ali G. Mukti. 2001. Analisis Kelayakan Program Inokulasi Untuk Pencegahan Perilaku Merokok Pada Pelajar Sekolah Lanjutan Pertama di Kodya Yogyakarta [Feasibility Analysis of Inoculation Program to Prevent Smoking Behavior on Junior High School in Yogyakarta Municipality. *Berita Kesehatan Masyarakat XVII* (1).

Background: A previous study in developed countries indicates that smoking prevention is more effective than quitting efforts. Moreover, smoking prevention based on psychological approaches, such as smoking inoculation program is more successful in reducing the number of teens who begin smoking than smoking prevention programs that emphasize increasing awareness of smoking consequences. There is a need to conduct formative research on the program to assess the feasibility of its implementation in Indonesia.

Purpose: To investigate the possibility of implementing a smoking inoculation program to prevent smoking among junior high school in Yogyakarta municipality.

Methodology: After stratification by type of school, schools are randomly selected. The methods of data collection are focus group discussion and in-depth interviews. Respondents are third grade male students of Junior High School, health teachers, and counseling teachers. Six focus groups were conducted with students, one with sport and health teachers, one with Health Psychologists, one with Health Education Experts and one with student representatives (OSIS) and graphic designers. The following variables were assessed: perception, confidence and practices related to smoking; and opinion of the material used in the inoculation program.

Result: A total of 72 students participated in focus groups, and in-depth interview were conducted with 2 students. All respondents stated that smoking is common among teenagers especially male ones. According to the students, smoking prohibition must be imposed on all parties (teachers, students as well as administration personnel). All participants consider smoking prevention to be urgent and that a smoking inoculation program could be implemented in Indonesia with some modification. People, who would like to prevent students from smoking, include senior students from faculties of medicine and psychology, as well as staff from both faculties and successful young quitters. They suggested that the materials should be more interactive, not just lectures, and should be

combined with multimedia materials such as posters and films. It was also concluded that the demonstration inoculation program, given for two days long, is not effective enough, and that professional educators need to be involved in conducting it. One educator is needed for each 10 students in the program.

25. Prabandari, Y.S. No year. *Health Education on the Effects of Smoking for Senior High School Students by Senior High School Teachers*. Community Oriented Medical Education Program, Gadjah Mada University. 11pp. unpublished report.

Background: Publications and advertisements about the dangers of smoking have increased recently. A few institutions have made an effort to reduce the number of smokers, but smoking remains a serious problem.

Purpose: This study aims to understand the effectiveness of health education by high school teachers in reducing smoking behavior, changing attitudes towards smoking and improving knowledge on smoking.

Methodology: Based on prior research, 12 senior high schools in Yogyakarta were selected. The intervention included 6 experimental groups, including 3 big classes and 3 small classes that received teacher intervention as well as anti-smoking posters and leaflets. Six schools acted as a control group and received only the leaflets and posters. Teachers gave a health education class to the students. Beliefs, attitudes and knowledge about smoking of the students were used to test impact. Tests were done before and after the intervention and a follow-up test was conducted three month later.

Result: Health education by the teacher had a small effect. In the experimental group, the post education test showed that knowledge had increased and positive attitudes toward smoking decreased. Differences in knowledge and attitudes between the experimental and control groups were not significant. However, the number of cigarette smoked increased in the control group between the pretest and follow up test, whereas there was no change in smoking behavior of the experimental group. This suggests that the teachers' intervention may have prevented an increase in the number of cigarettes smoked daily, even though it did not achieve a decrease. Psychologists, artists and medical or health scientists can work together to produce attractive and effective health education materials.

26. Prasetyo, Sabarinah, Tris Eryando and Tjandra Y. Aditama. 1998. *Analisis Meta Pola Merokok di 14 Propinsi Indonesia [Meta Analysis of Smoking Patterns in 14 Provinces in Indonesia]*. Indonesian Smoking Control Foundation, May 1998. Jakarta.

Background: The WHO stated that there is a tendency for people to start smoking at a younger age. This will result in a significant impact on society, both from a socio-economic and health view.

Purpose: This study explores smoking patterns in 14 provinces in Indonesia.

Methodology: This study utilizes a quantitative method. Data were taken from two large surveys, the 1993 Indonesian Family Life Survey in 13 provinces and the Senses Health Survey (Eyes and Ear) in 7 provinces, from 1994 to 1996. Samples from these surveys were chosen using a multistage method. The meta-analyses used the Hedges method. All selected respondents were 10 years or older.

Result: Around 59.04 percent of the male population 10 year and above in the 14 provinces surveyed were current smokers. Only 4.83 percent of the female population 10 years and above were current smokers. A slight tendency was apparent, that the higher the level of education, the smaller the percentage of current smokers. Non-smoking tobacco products were used more frequently by females, whether current users (0.79 ounce per-week) or ex-users (1.42 ounce per-week). Clove cigarettes, with or without a filter, were the most popular type among current smokers and ex-smokers. The starting age of smoking is significant in the likely success of cessation efforts. The younger the age, at which a smoker started, the less likely the smoker is to be successful in quitting. Those who start to smoke as teenagers had smoked on average for 23 to 37 years. The majority of smokers and ex-smokers had started smoking between the ages of 10 and 30 years.

27. Purwanto, Didy, Lanny Bob Nasution, Sudirman, Fuad Gani, M. Fadli. 2001. *Kawasan Bebas Rokok di Lingkungan Mall/Plaza di DKI Jakarta* [Cigarette Free Area in Mall/Plaza in Jakarta]. Indonesian Smoking Control Foundation, Jakarta, 10 pages. Unpublished.

Background: A burned cigarette is like a chemical factory with 4,000 hazardous waste chemicals, such as nicotine, which is addictive; tar, which is carcinogenic; CO₂ gas and other dangerous compounds. While some regard smoking as a right, it should also be recognized that non-smokers have a right not to be exposed to these chemicals in public places.

Purpose: This study intends to create smoke free plazas and malls, by encouraging these public places to provide designated smoking areas and by rewarding those public places that become smoke free areas.

Methodology: A survey was conducted in Malls and Plazas in the city of Jakarta. The malls and plazas surveyed had “no smoking” signs, “no smoking” areas, and a policy to prevent smokers from breaking anti-smoking rules. The survey was conducted over 7 days. 30 malls and plazas in Jakarta were randomly selected in 5 areas of Jakarta. All consisted of more than two levels. Data were collected through observation and interviews with management.

Result: Of the 30 malls/plazas observed, only 15 fulfilled the above-mentioned criteria to become objects of further study. Of these 15, 3 were of a high enough standard to be rewarded, namely Pondok Indah Mall, Plaza Indonesia, and Ciputra Mall. No smoking signs in both the general mall area and the dining areas and restaurants were clearly visible. Separate dining areas had been set-aside for smokers, who respected the

arrangements and did not smoke in no-smoking areas. Employees ensured the success of the arrangement by enforcing no-smoking policies among customers and refraining from smoking themselves.

28. Shebubakar, Sukaenah A. 1993. Pengetahuan, Sikap dan Perilaku Murid Sekolah Dasar Kelas V dan VI Tentang Rokok di Jakarta Timur 1992 [The Knowledge of, Attitude towards, and Behavior regarding Cigarettes of 5th and 6th Grade Elementary School Students in East Jakarta in 1992]. Department of Pulmonology, Faculty of Medicine, University of Indonesia, 1993. Jakarta. Thesis

Background: The prevalence of smoking among 11-year-old males is 4 percent. By age 15, prevalence increases to 34 percent. The majority of smokers begins experimenting with cigarettes around 9 to 11 years and by 12 to 13 years can be considered full smokers. In response, tobacco control and prevention measures aimed at those below age 14 should be in place.

Purpose: To determine the knowledge of, attitude towards and behaviors with regards to smoking in 5th and 6th grade students in East Jakarta and to explore the relationship between these aspects and the psychology, socio-economic status and other factors influencing the students.

Methodology: This study is an analysis of a survey conducted during February 1991 in East Jakarta. The cross sectional survey targeted 431 5th and 6th grade elementary school students. The respondents were classified into Public School students (further classified into slum areas, and non-slum areas), Private School students (further classified into “has a centrally managed foundation” and “does not have a centrally managed foundation”), and Islamic School students. The selection of the school and students was conducted randomly. The statistical analysis utilized the chi-square test and odd-ratio.

Result: Around 12.76 percent of the respondents were smokers, 11.83 percent were ex-smokers, and 75.41 percent were non-smokers. The average age at which smoking had started was between 11 and 12 years old. Experimentation and peer pressure were the main reasons for initially smoking. Respondents with a smoking immediate family member were 2.2 times more likely to smoke. Respondents with close friends who smoked were 3.4 times more likely to smoke. Many respondents smoked secretly. Respondents’ knowledge of the ingredients in cigarettes and the dangers posed to the smoker and those around him was low. Parents and teachers were not as great a source of information on the dangers of smoking as expected.

Conclusion: Smoking prevention and cessation programs should be conducted from as young an age as possible. Prevention efforts with children should be linked with prevention efforts in the family and greater society. The teacher’s role in imparting information on the dangers of smoking should be increased.

29. Situmeang, Sutan Bahasa Taufan. 2001. Hubungan Merokok Kretek dengan Kanker Paru [The Relationship between Clove Cigarette Smoking and Lung Cancer]. Department of Pulmonology Faculty of Medicine University of Indonesia. Jakarta. Thesis. 53pages

Background: The clove (*kretek*) cigarette is the most commonly consumed cigarette type in Indonesia. Lung cancer tumors have the 3rd and 4th highest rate of mortality in Indonesian hospitals.

Purpose: This study explores the relationship between lung cancer and smoking of clove cigarettes.

Methodology: This is a case-control study conducted in the *Persahabatan Lung* Hospital. Samples were collected over 6 months (July 2000 to December 2000). Lung cancer patients were divided into case groups of 70 patients each, based on the type of lung cancer. A control group of randomly selected sufferers of other diseases related to cigarettes was set up. Data analysis was carried out using logistic regression on odds ratio.

Result: Factors influencing the rate of lung cancer in clove cigarette smokers were the age of the patient, the age at which the patient began smoking and the number of cigarettes smoked daily. The risk of contracting lung cancer increased 3.62 times with every increase in age of 10 years. The risk increased 2.28 times as the number of cigarettes smoked daily increased by 10. The risk rose by 8.255 times if both age and number of cigarettes smoked daily increased by 10. The risk decreased by 0.332 times with every increase of 10 years in the starting age of smoking.

Society needs to be informed of the danger of smoking clove cigarettes. Further research will indicate any difference in the risk of lung cancer between those who smoke clove cigarettes and those who smoke white cigarettes.

30. Smet, Bart, Lea Maes, Linda De Clercq, Kristiana Haryanti, Rachmad Djati Winarno. 1999. Determinants of Smoking Behavior Among Adolescents in Semarang, Indonesia. *Tobacco Control*, 8: 186-191

Background: The initiation and predictors of smoking by adolescents has not been as well documented in the Asia Pacific region as in the West, although the prevalence of smoking is increasing in these developing countries. Cigarette smoking is only a socially acceptable practice for males in Indonesia and less than 5 percent of adult females currently smoke. Although age is recognized as an important variable in the onset and maintenance of smoking behavior, few studies have assessed how age modifies the value of the predictive models, and how determinants may vary across age.

Purpose: The objective of this study is to examine smoking prevalence and determinants of smoking behavior among male adolescents in Semarang, Indonesia.

Methodology: A random sample of schools in Semarang was obtained using a stratified sampling procedure (strata based on type of school and district). A total of 149 schools were selected, targeting 11, 13, 15 and 17 year olds. An anonymous, self administered questionnaire was filled in by all students present on the day of the survey. The total sample size was 6,276. Logistic regression was used to examine the determinants of smoking behavior. Only male students were included in the analysis.

Result: Smoking prevalence increased dramatically between the ages of 11 and 17, from 8.2 percent to 38.7 percent. The variance explained by the regression model increased from 19.8 percent for 11 year olds to 53 percent for 17 year olds. The smoking behavior of best friends was the most powerful determinant of smoking behavior, and this was consistent across the age groups. Best friends' attitude towards smoking and older brothers' smoking behavior were also important determinants.

Conclusion: Smoking prevalence among male adolescents in Semarang, Indonesia is high. Effective smoking prevention programs should take into account the dominant influence of peers in the onset and maintenance of smoking behavior. In general, school related items had a less important role in predicting smoking behavior than expected.

31. Soetiarto, Farida. 1992. *Hubungan Kebiasaan Merokok Kretek dengan Kerusakan Gigi pada Sopir Bis PPD di Jakarta tahun 1992* [The Relationship between Clove Smoking and Dental Damage in PPD Bus Drivers in Jakarta 1992]. Program Pascasarjana Bidang Studi Kesehatan Masyarakat Epidemiology. 94pages. Thesis

Background: The Clove Cigarette contains spices with different tastes and aromas to white cigarettes, which could be the cause of dental damage. This assumption is based on reports of specific dental damage among clove cigarette smokers.

Purpose: This study identifies the incidence and description of specific types of dental damage and examines the relationship between this dental damage and the smoking of clove cigarettes.

Methodology: This retrospective cohort study covers 1,160 PPD bus drivers, who are divided into those who do not smoke clove cigarettes and those who have smoked them for more than 5 years. The initial sample of bus drivers was randomly selected.

Result: Specific damage, differing in shape, location and patophysiology from other general dental damage was identified, with an incidence of 55.8 percent. Dental damage was influenced by the length of smoking history (years smoked) and the number of cigarettes smoked daily. The risk of developing dental damage was found to be 83 percent, if smoking history was 10 to 15 years and number of cigarettes smoked daily was 7 to 12. The risk increased to 95 percent if smoking history was longer than 15 years and the number of cigarettes smoked daily was greater than 18.

Dental and medical staffs are advised to warn clove cigarette smokers of the dental damage they may suffer. Laboratory experiments are required to further understand the mechanisms of the damage.

32. Sopiyyudin D., M., Agus Rizal A.H.H., Syifa Imelda, P. Pramitha, Meilani S., Lian M.A. 1998. *Hubungan Antara Kebiasaan Merokok dengan Kesehatan Jiwa Siswa SMU Negeri di Jakarta Pusat tahun 1998* [Relationship between Smoking and Mental Health of Public High School Students in Central Jakarta 1998]. Faculty of Medicine, University of Indonesia. Funded by Indonesian Smoking Control Foundation.

Background: Smoking is predicted to have a negative impact on mental health. International studies have found a connection between smoking in teenagers and incidence of depression. A 1995 survey found that more than 50 percent of smokers in Indonesia had begun smoking between the ages of 15 and 19 years. The prevalence of smoking in teenagers should be closely monitored as the health dangers of smoking are closely related to the age at which a smoker starts smoking.

Purpose: To explore the relationship between smoking habits and mental health in high school students in Central Jakarta.

Methodology: A cross sectional survey was conducted in April and May 1998 using 332 respondents. The respondents were chosen by cluster method from 2nd grade male high school students in Central Jakarta. Mental health was measured using the Symptom Check List (SCL-90), which was developed from the Hopkins Symptom Check List. Data were analyzed using a chi-square statistical test.

Result: Of the respondents, 41.5 percent were smokers, 17.5 percent were ex-smokers and 41.6 percent were non-smokers. Most respondents were aware of the effects of smoking, but only a small number knew the ingredients of cigarettes. There was a significant negative relationship between academic ranking in class and the prevalence of smoking. There was a significant positive relationship between the respondent's smoking behavior and the smoking behavior of immediate family and close friends. No significant relationship between knowledge and attitude was found. Attitude had a significant relationship with behavior. The majority of respondents had neutral attitudes about smoking. In terms of mental health, only a somatic tendency had a significant relationship with smoking behavior: 40.7 percent of respondents showed a somatic tendency.

Conclusion: The surrounding environment, the smoking behavior of close friends and family members and the respondent's achievement in class all influence smoking habits.

33. Sudarti, Soeratmi Poerbonegoro, Pinarti, Mursidi. 1994. *Laporan Studi Perilaku Merokok siswa SMP Negeri di DKI Jaya* [Report on the Smoking Behavior of Junior High School Students in Jakarta]. Indonesian Heart Foundation with Widya Prakarsa Foundation. Jakarta.

Background: According to the 1986 Household Health Survey, 52.9 percent of males and 3.6 percent of females in Indonesia smoke. A survey of junior high school students (aged 12-16 years) in Jakarta found that 49 percent of male students and 8.8 percent of female students smoke. An elementary school study found that 41 percent of males and 10 percent of females (aged 6-12 years) smoke.

Purpose: To explore knowledge and smoking behavior among junior high school students, factors that influence smoking behavior and opinions of smoking prevention programs.

Methodology: A survey was conducted in 10 junior high schools in Jakarta. 2 schools from each of Jakarta's 5 regions were selected. 106 2nd grade junior high school students were selected as respondents, all of whom had participated in smoking prevention programs in the first grade. Data collection was both qualitative, utilizing focus group discussions in 10 groups, and quantitative, utilizing a questionnaire.

Result: Respondents listed among the causes of smoking stress reduction, the resulting good feeling and the masculine image projected. All respondents agreed that smoking is dangerous and results in behavior such as stealing and antisocial responses to others. Respondents listed among the results of the smoking prevention programs they participated in: increased knowledge of the dangers of smoking, the desire to quit smoking and a reduction in cigarettes consumed. Respondents indicated that they had not been successful in persuading family members and friends to stop smoking. Respondents listed among factors that influence their decision to smoke: family environment; the smoking behavior of friends, outsiders and teachers; the mass media; and a lack of punishment at school for those who smoke.

Conclusion: Further smoking prevention should target both student and parents and should focus on those activities which result in smoking behaviors and the need for these activities to be actively monitored.

34. Suhardi. 1997. *Perilaku Merokok di Indonesia [Smoking Behavior in Indonesia]*. National Household Survey Series. Health Research and Development Board. Health Department of the Republic of Indonesia. Jakarta.

Background: The major risk factors for the chronic diseases that are increasingly emerging as Indonesia's epidemiological transition proceeds, are: smoking, eating patterns and obesity, physical health, stress and environmental pollution. While the consumption of tobacco in developed countries has decreased, the opposite has occurred in developing countries. The prevalence of smoking must be measured in order to establish the success of national and provincial tobacco control programs.

Purpose: This study examines the extent of the smoking problem in Indonesia, by exploring the prevalence, intensity, preference and starting age of smokers, in terms of social demographics at national, region and provincial level, in order to assess the success of tobacco control thus far.

Methodology: Smoking behavior data were taken from the 1995 National Social Economic Survey module database subset and social demographic data were taken from a database subset of the same survey. Reliability measurement is based on 1995 National Social Economic Survey and the Morbidity/Disability Study in 1995 National Household Health Survey. Descriptive data analysis utilized cross tabulation.

Result: 61.2 percent of males over the age of 20 years smoke daily and 7.5 percent smoke occasionally. In all age groups, the prevalence of smoking is higher in males than in females. 92.8 percent of males over 20 years who smoke daily smoke inside their homes. The majority of smokers began smoking between 15 and 19 years old, although the youngest starting age was 5 years old. This indicates the necessity of smoking prevention programs aimed at children. The prevalence of smoking increases as age increases, especially in youth. Smoking prevalence decreases as education levels in both urban and rural areas increases. Smoking prevalence decreases in urban areas above income levels of Rp 100,000/capita/month. The majority of smokers (age 20 year olds and above) smoke 11 to 20 cigarettes a day. The number of cigarettes smoked daily increases as education level and household expenditure increase.

Conclusion: Measures to decrease the prevalence of smoking are needed, such as increasing the excise tax, banning cigarette commercials and sponsorship, role models among the leaders of the country and medical agents, decrease in tar levels in cigarettes, increased use of filtered cigarettes, and diversification away from tobacco and cigarette product production.

35. Sumartono, R. Wasis, Ganda Siburian, Ieke Idjriatie. No year. *Tobacco Smoking Among Indonesian Male Senior High-School Students*. Center for Disease Control Research and Development, National Institute of Health Research and Development, Ministry of Health Republic of Indonesia. Jakarta. 8 pages. Unpublished.

Background: The smoking epidemic is said to be responsible for the widespread and persistent use of alcohol and illicit drugs, including marijuana and heroin. One of the smoking control strategies recommended by the WHO is smoking prevention programs at school level.

Purpose: The aim of this study is to evaluate the prevalence, behavioral patterns, and determinants of smoking among senior high-school students in Jakarta. This study was a pre-intervention study for operational research that aimed to measure effectiveness of an educational model for smoking control in youth.

Methodology: The study sample comprised male students from twelve senior high-schools in Central Jakarta. Data collection took place in November 1998. 2,143 male adolescents were analyzed. The chi-square test was used to compare proportions and associations between independent variables. Smoking status was estimated by means of crude odd ratios.

Result: 50.2 percent of the students had never smoked, 11.9 percent were former smokers and 37.9 percent were current smokers (of which 30.6 percent were occasional smokers and 7.3 percent were regular smokers). The proportion of regular smokers increased significantly with age. There was a significant decrease in the proportion of never smokers as age increased. The proportion of smokers also decreased as age increased. The mean age for starting to smoke was 13.9 ± 1.2 years. This study suggests the need for school-based tobacco prevention programs. Other measures for decreasing the prevalence of smoking include raising cigarette prices (which can be done through increasing tobacco taxes), prohibiting tobacco sales to minors and banning tobacco advertising.

36. Sumartono, R. Wasis. 2002. *Trends in Tobacco Use in Indonesia*. National Institute of Health Ministry of Health Republic of Indonesia. Jakarta. 12pages. Unpublished.

Background: Tobacco is one of the leading causes of diseases and death in the world. Reducing tobacco use is one of the most important disease prevention measures. It was reported that since 1970, high-income countries has decreased cigarette consumption, while low and middle-income countries have increased cigarette consumption.

Purpose: To review tobacco use trends in Indonesia.

Methodology: This is a literature overview study. The data sources used are published and unpublished prevalence surveys and research and official documents.

Result: The prevalence of tobacco usage has increased throughout Indonesia, in all population age groups, since 1980, especially among older teenage boys. The prevalence of smoking among Indonesian males aged 10 years or above increased from 46.4 percent (1980) to 52.9 percent (1986), 51.3 percent (1995) and 54.5 percent (2001). The prevalence of tobacco usage among Indonesian males aged 15 to 19 years increased from 13.2 (1986) to 22.6 percent (1995) and 27.2 percent (2001). Among females aged 15 to 19 years, the prevalence of tobacco usage increased from 0.6 (1986) to 0.7 percent (1995) and 0.9 percent (2001). The prevalence of tobacco smoking among young girls in Jakarta was high considering the traditional taboo on women smoking in Indonesia.

The average starting age for smoking in Indonesia has become younger and younger, which results in a greater risk of death. Smoking is one of the three major factors in cardiovascular diseases, with high cholesterol and hypertension. There is a direct correlation between increasing prevalence of smoking among Indonesian males and the increasing prevalence of cardiovascular disease. Tobacco smoking also increases the risk of developing TB, respiratory infections, bronchitis, emphysema and asthma.

Many Indonesian NGO's focus on tobacco control and prevention. These NGO's aim to reverse the increase of tobacco related diseases by decreasing tobacco use in the Indonesian community. NGOs aim to persuade Parliament to help by passing a tobacco act controlling tobacco use by restricting tobacco sales to minors, banning tobacco promotion and advertising and other measures. However, the Indonesian parliament is

reluctant to introduce such restriction, due to the effect it fears this will have on tobacco farmers and businessman.

This is the time for the Indonesian government to implement multi-pronged tobacco control and prevention activities.

37. Sumartono, Wasis. 2000. *Indonesian Government Policies and Programs on Tobacco Control: Realities and Hopes*. Presented in Short Course on Tobacco Control and Gender, Key Center for Women's Health in Society, The University of Melbourne, Australia, 20th November- 1st December 2000. 5pages.

Background: The Indonesian government should implement the recommendations made to developing countries with regards to smoking control strategies.

Purpose: This study examines several Indonesian Government policies and programs on tobacco control in the light of the above recommendation, including policies that have not been implemented.

Methodology: The expected level of tobacco control used is based on recommendations of the WHO meeting in Geneva, 1983. The evaluation of the Indonesian government policies towards the tobacco control is based on the author's own observations and opinions.

Results: Although both government and NGOs have implemented some tobacco-control policies, these activities have been focused on low-priority areas such as family planning and TB control. The National Committee on Smoking has been created but does not yet act as advised by the WHO expert. The committee must fall under a central agency and must include the representatives of government ministries related to tobacco control. At present, conflict between various ministries hampers the work of tobacco control.

More education programs on the dangers of smoking, especially programs aimed at children, are needed. At present, education programs are run by a few NGOs and receive little support.

Although children's access to cigarettes should be banned, cigarette shops currently conduct business near elementary and secondary schools and many teachers smoke in their classrooms. Very few key groups in education have been involved in tobacco control. The freedom of tobacco advertising should be countered by effective health warnings on cigarette packs and in the media. Tobacco products are still easily accessible in public health centers and general hospitals, and few environments are smoke free.

The Indonesian government needs to improve and enhance its tobacco control measures. The Health Minister needs stronger bargaining powers to overcome opposition to tobacco control. The prevalence of smoking will only decrease if the government, led by the

president, with the full support of NGOs and the house of representative, takes firm action against smoking.

38. Surjanto, Eddy. 1989. Hubungan Merokok dengan Kanker Paru: Tinjauan secara Epidemiologis [Relationship between Smoking and Lung Cancer: An Epidemiological Observation]. *Paru* Vol. 9 (3): 20-26, 4 December 1989.

Background: Since the turn of the 20th century, there has been a sharp increase in the number of reported lung cancer cases. Many researchers suspect smoking is a factor in this increase, as the number of smokers has increased simultaneously.

Purpose: This study explores the relationship between smoking and the risk of lung cancer.

Methodology: This is a literature review utilizing international and national papers.

Result: This study provides some information on research methods used to investigate the relationship of smoking with lung cancer, but being a literature survey, it does not include new research. Smokers have a 7.8 times greater risk of developing lung cancer than non-smokers

39. Swidarmoko, Boedi, Hadiarto Mangunegoro, Tjandra Yoga Aditama. 1994. Profil Produktivitas Kerja, Biaya Pengobatan serta Pengetahuan, Sikap dan Perilaku terhadap Penyakitnya pada Penderita Asma Bronkial [Profile of Work Productivity, Treatment Cost and Knowledge, Attitudes and Behavior regarding their Disease among Bronchial Asthma Patients]. *Paru* Vol.14 (2): 7-16, April 1994.

Background: Despite rapid progress in the understanding of asthma, its prevalence and mortality rate in Indonesia is increasing. This could be caused by the actions of patients, their families or their doctors.

Purpose: This study examines the knowledge of, attitude towards and behavior of asthma patients and the effect of asthma on work productivity and its treatment cost.

Methodology: A cross sectional descriptive survey was conducted of 100 asthma patients who were first time attendees at the asthma out-patients ward of Persahabatan General Hospital Jakarta.

Result: Patients ranged in age from 18 to 45 years old. 41 patients were male and 59 were female. Only 7 percent of male patients smoked. Around 8.5 percent of respondents found that their ability to work was affected by asthma. On average, respondents were absent from work 3.08 days/months. Respondents' knowledge of asthma was sufficient and mainly concerned personal health. Respondents usually rely on a general doctor for treatment. No relationship was found between smoking behavior and knowledge and attitudes, or between attitudes and behavior and asthma. 95 percent

of respondents avoid behavior that triggers asthma. Treatment costs on average Rp 24,220 – 28,066 a month.

40. Taufik. 2000. *Hubungan Kanker Paru dengan Merokok Pasif pada Perempuan* [The Connection between Lung Cancer and Passive Smoking in Females]. Department of Pulmonology Faculty of Medicine, University of Indonesia, Jakarta. Thesis.

Background: Cigarette smoke is a direct cause of lung cancer. Passive smokers are therefore at risk of developing lung cancer. The prevalence of active and passive smoking among females is currently increasing.

Purpose: This study examines the relationship between passive smoking in females and lung cancer.

Methodology: This is a case control or a retrospective study. 32 cases and 32 controls were selected from female lung cancer patients at the Persahabatan Lung Hospital in Jakarta. Statistical analysis was conducted using the chi-square test and odd-ratio.

Result: The average age of lung cancer patients was 56 years among the case sample group and 55 years among the control group. 46.9 percent of patients' husbands smoked in both groups. 43.8 percent of husbands smoked clove cigarettes (kretek) and 9.4 percent of husbands smoked white cigarettes. All patients had third and fourth stage lung cancer.

Women whose husbands smoked had a greater risk of developing lung cancer (OR=2.79) than those whose husbands did not smoke. The risk was even higher for women whose husbands smoked kreteks, more than 3 times the risk of developing lung cancer than those in the control group (OR=3.11).

Conclusion: Society should be informed of the impact of direct smoking and passive smoking on lung cancer.

41. Wolumaya, Corrie. 1996. Studi Pengetahuan, Sikap dan Perilaku Merokok pada Anak Sekolah Dasar Negeri Kelas V dan VI di Dua Sekolah Dasar Negeri Wilayah Jakarta Pusat 1994-1995 [The Study of Knowledge, Attitude and Smoking Behavior of Elementary School Students 5th and 6th grade at Two State Elementary School in Central Jakarta]. *Majalah Kesehatan Masyarakat Indonesia*, Tahun XXIV Nomor 3

Background: Some previous studies show that the ratio of smokers to non-smokers among Junior High School students is 2:1 with first time smoking at the age of 6 to 16 years. The smoking prevalence among Elementary School children of grade 5 and 6 in East Jakarta is quite significant (13 percent).

Purpose: To study the prevalence, knowledge, attitude and behavior of the elementary school children towards smoking.

Methodology: The Elementary Schools are grouped into those in slum areas and in non slum areas. Samples of Elementary School were purposively selected. 110 Children of grade 5 and 6 for each school were selected randomly. Data were collected using fill in questionnaires, and analysis was done using Chi Square-test and Odd Ratio calculation.

Result: There is a significant distinction in the children's statements of both elementary school groups on the existence of cigarette vendors and advertisement in schools and at home as well as on their knowledge on a variable of coughing and asthma diseases, their knowledge about the effect of smoking which will cause addiction, the reason for smoking, the negative effect of smoking at school and at home, and their knowledge about the impact of passive smoking. Their knowledge about tobacco issues is mostly on health hazard and the disease most known to them is lung cancer, but this knowledge does not show any significant distinction between the two groups.

The main reasons of smoking of these two groups are their wish to look smart and matured and followed by a longing to try smoking. The number of cigarettes consumed is above 9 pieces a day as admitted by 50 percent of the respondents. They obtained cigarettes from buying themselves and by taking father's cigarettes. Some motivations of smoking cessation are: scolded by teacher, health reason, aware of the danger, and only a small percentage said because they were scolded by parents.

Their daily life experience about smoking which has a significant distinction between the two school groups is the teachers who smoke and a smoker among family members. Information sources, from the most popular one, are consecutively advertisement, parents and friends. While the most impressive information is from advertisement/television, and parents.

42. Widjajarta, Marius. 2002. *Kebiasaan Merokok pada 375 Pelaku Olah Raga dari 10 cabang Olahraga* [Smoking Habits of 375 Sportsmen from 10 Sports]. Indonesian Smoking Control Foundation, Jakarta. Unpublished.

Background: Cigarette companies often sponsor sports teams, even though cigarettes contains 4,000 dangerous chemicals, including nicotine, which causes addiction, tar, which tends to be carcinogenic, and Carbon Monoxide (CO) gas, which binds the blood cells and causes a lack of oxygen in the body.

Purpose: To investigate the smoking habits of sportsmen and the spread of cigarette company sponsorships in various sports.

Methodology: 375 sportsmen (athletes and coaches) from 10 major sports (badminton, swimming, tennis, athletics, basketball, football, volley ball, bridge, golf and motorcycle) were selected. The period of observation was from January to March 2002 and was conducted in two cities, Jakarta and Semarang.

Result: 64.4 percent of the respondents did not know the chemical substances in cigarettes. 36.3 percent of the sportsmen smoked. Of the smokers, 32 percent were 20 to

26 years old and 28.3 percent were 12 to 19 years old. 55.3 percent of the smokers consumed 1 pack of cigarettes a day. 44.8 percent consumed clove cigarettes, 34.5 percent consumed white cigarettes and 20.7 percent consumed a mix of the two. Approximately 62.1 percent of smokers had attempted to quit smoking and 37.9 percent had never attempted to quit smoking. 41.6 percent of those who attempted to quit but resumed their habit indicated a lack of concentration as the reason. 45.5 percent of the smokers desired to quit. Smokers did not try to quit due to a lack of knowledge of the best way to quit (40 percent) and a lack of concentration (33.3 percent). About 72.4 percent of the respondents stated they quit smoking due to self-awareness, and 27.6 percent due to sickness.

45.1 percent of respondents stated that cigarette companies sponsored their sport. There did not appear to be any regulations concerning sports funding or sponsorship.

Conclusion: Increased education of the dangers of cigarettes and related issues might prevent non-smokers from becoming smokers and aid smokers in quitting.

43. Widjajarta, Marius. No year. *Rokok di kalangan Pedagang Asongan Anak-anak di Jakarta* [Cigarettes among the Child Street Vendors in Jakarta]. Indonesian Smoking Control Foundation, Jakarta. Unpublished report.

Background: Cigarettes have an adverse effect on the economic, social and health aspects of society. Street vendors are very underpaid and usually have a low education level. They are therefore highly vulnerable to the risks of cigarettes mentioned. The children working as street vendors are often heavy smokers and this tendency can potentially endanger their future lives.

Purpose: To examine the prevalence of smoking in child street vendors and explore the related risks.

Methodology: A survey was conducted of 250 children street vendors under the age of 14 years in the city of Jakarta.

Result: 52.63 percent of respondents have smoked since they were 12 or 13 years old. 71.5 percent were introduced to smoking by friends. 88.89 percent smoke unfiltered cigarettes. 34.84 percent obtain their cigarette from fellow street vendors. 70.97 percent state that nearly all of their friends who are fellow street vendors also smoke.

44. Widjajarta, Marius. 1999. *Perilaku Merokok Sopir/Kenek pada Lima Kota di Indonesia* [Smoking Behavior of Drivers/Co-drivers in Five Cities in Indonesia]. Indonesian Smoking Control Foundation and Indonesian Health Consumer Empowerment Foundation, Jakarta. 18 pages. Unpublished report

Background: A nation's progress can be measured through the health of its people. The major risk factors for the chronic diseases that are increasingly emerging, as Indonesia's epidemiological transition proceeds, are: smoking behavior, diet and obesity, physical

activity levels, stress and environmental problems. Smoking causes losses of human productivity and health problems. Therefore, reducing smoking levels could increase productivity and improve health outcomes. Public transportation has an important role in the life of big cities, providing both a service to the inhabitants and a source of employment for drivers and co-drivers.

Purpose: This study examines the risk to passengers of public transport caused by the smoking of drivers and co-drivers and the effect of this habit on the economy and productivity of the drivers' families.

Methodology: A cross sectional survey was conducted over 40 days, from April to May 1999. 1,586 drivers and co-drivers were selected by purposive sampling. The Indonesian Smoking Control Foundation and Indonesian Health Consumer Empowerment Foundation conducted this survey of smoking habits in the cities of Pekanbaru, Jakarta, Surabaya, Denpasar, and Sorong. Data analysis used frequency distribution and bivariate analysis to establish the relationship between the variables.

Result: Most of respondents were aware of the dangers of cigarette smoke to the smoker and those around him. The main source of this information was magazine/tabloid health sections. 82.2 percent of respondents smoked regularly. Most respondents preferred clove (*kretek*) cigarettes and consumed one pack daily. Relationships between smoking and earnings, education, knowledge and attitudes of respondents were noted.

Some respondents spent between Rp 3.000-6.000 a day on cigarettes. The majority had an average income of Rp 20.000-30.000/day. Some respondents expressed a desire to quit, due to illness and the risk of disease. The majority had not quit due to the working environment. The transportation association does not subsidize the cost of treatment for smoking related diseases. Although respondents must pay the full costs themselves, most will still consult a doctor. The transport industry has attempted to protect customers and drivers from passive smoking by banning smoking on public transport, but this step has not met with a positive response.

Conclusion: Respondents are aware of the dangers of smoking and the high cost for treatment of smoking related diseases and should be supported in their smoking control efforts.

Ongoing studies:

45. Prabandari, Yaii Suryo. 2002 *Cara Baru untuk Membantu Penghentian Merokok Bagi Orang Miskin di Jawa Tengah, Indonesia (New Ways of Helping Smoking Cessation Among Poor Smokers in Central Java, Indonesia)*. Pusat Perilaku dan Promosi Kesehatan Kedokteran UGM collaboration with World Bank and Pharmacia.

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46. Demographic Institute. 2002. *A Study on Tobacco Economics and Health Consequences in Indonesia*. Collaboration with WHO-SEARO. P85
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6. LIST of STUDIES by AUTHOR'S NAME, and SUBJECT

1. **Adiningsih**, Sri, Tjipto Suwandi, Soeprapto, Sulaksmono, Arsiniati. 1995. Hubungan Status Gizi dan Produktivitas pada Tenaga Wanita Pelinting Rokok [The Relationship between Nutrition Status and Productivity and the Female Cigarette Industry Worker]. *Majalah Kesehatan Masyarakat Indonesia Tahun XXIII* No.8: 566-568.
Subject: adverse effects, female, tobacco industry employee
2. **Adioetomo**, Sri Moertiningsih, Triasih Djutaharta, Hendratno. 2001. *Economic aspects of Tobacco Consumption in Indonesia: A Household Analysis of the 1999 National Socio-economic Data*. Collaboration between Demographic Institute and Human Development Health, Nutrition and Population Division, The World Bank Washington. Forthcoming.
Subject: excise tax, pricing, socioeconomic status and tobacco use
3. **Aditama**, Tjandra Yoga. 2002. The Smoking Problem in Indonesia. *Medical Journal of Indonesia* Vol.11 (1):56-65. January-March.
Subject: Tobacco control program
4. **Aditama**, Tjandra Yoga. 2000. *Global Youth Study Survey (GYTS)* Jakarta. Indonesia. Unpublished report. Also available in www.cdc.factsheet
Subject: statistical prevalence, individual behavior, media advertising and youth, Jakarta
5. **Aditama**, Tjandra Yoga. 2000. Pengetahuan, Sikap dan Perilaku Mahasiswa Akademi Perawat dan Perawat serta Mahasiswa Fakultas Kedokteran dalam Masalah Merokok [Knowledge, Attitudes and Behavior of Nursing Academy Students, Nurses and Medical Students Towards The Smoking Problem]. *Jurnal Respirasi Indonesia* Vol. 20 (2): 60-63.
Subject: Individual behavior, college student, nurse
6. **Aditama**, Tjandra Yoga. 1999. *Youth and Tobacco Indonesian Experience*. Indonesian Smoking Control Foundation. 1999. Presented SEARO Workshop on Youth and Tobacco. Mumai India 26 August.
Subject: Tobacco use and Youth
7. **Asri**, Istyastuti Wuwuh (1992). *Kebijakan Pajak Tak Langsung Cukai Studi Kasus Cukai Tembakau di Indonesia 1969-1992*. [Indirect Tax Policy Case of Tobacco Excise Tax in Indonesia 1969-1992]. Thesis. Program Pasca Sarjana Bidang Ilmu sosial dan Ilmu Politik Spesialisasi Ilmu Administrasi. University of Indonesia.
Subject: Excise tax and tobacco policy
8. **Badan Penelitian dan Pengembangan Kesehatan** [Institute of Health Research and Development]. 2002. *Faktor Risiko Penyakit Tidak Menular di Jawa-Bali: Studi Morbiditas-Disabilitas Surkesnas 2001* [The Risk Factors of Non-Infectious Diseases in Java-Bali: Study of Morbidity-Disability 2001 National Health Survey]. Presentation, 21 slides.
Subject: Statistical prevalence

9. **Barrclough**, Simon. 1999. Women and Tobacco in Indonesia. *Tobacco Control*; 8: 327-332.

Subject: tobacco use and females

10. **Bernida**, Ida. Faisal Yunus, Wiwien Heru Wiyono, Dianiati KS, Sardikin Giriputro, Priyanti, Pudjo Astowo, Boedi Swidarmoko, A. Mulawarman, Soengeng Hidayat dan Hadiarto Mangunnegoro. 1990. "Faal Paru dan Uji Bronkodilator Pada Perokok, Bekas Perokok dan Bukan Perokok" [Lung Function and Bronkodilator Test on Smokers, Ex-smokers and Non-smokers]. *Majalah Paru* Vol. 10 (4) : 5-11. Jakarta.

Subject: lung diseases, respiratory function test

11. **De Beyer**, Joy, Ayda A. Yurekli. 2000. "Curbing the Tobacco Epidemic in Indonesia". *East Asia and the Pacific Region Watching Brief*. Vol 6. pp9

Subject: economic cost, pricing, revenue and tobacco use

12. **Djutaharta**, Triasih, N. Haidy A. Pasay, Hendratno, Sri Moertiningsih Adioetomo, Henry Viriya Surya. 2002. *The Impact of Cigarette Tax Rate Increase on the Consumption and Government Revenue: Aggregate Analysis*. A Collaboration of World Bank and Demographic Institute Faculty of Economics University of Indonesia. Unpublished.

Subject: tobacco use, excise tax and revenue

13. **Haryanto**, Budi and Rita Damayanti. 2001. *Study of Prevalence of Tobacco Use in Indonesia 2001*. Center for Health Research University of Indonesia Donated by WHO-SEARO. 111 p.p Unpublished report.

Subject: Statistic prevalence, tobacco use, sociographic segment and individual behavior, Jakarta, Sukabumi

14. **Hudoyo**, Achmad. 2000. Kampanye Anti Rokok di Indonesia "Tantangan dan Strategi" [The Anti-cigarette Campaign in Indonesia "Challenges and Strategies"]. *Jurnal Respirology Indonesia* Vol. 20 (2):81-84.

Subject: anti-smoking advocacy and activist strategy

15. **Jusuf**, Anwar. 2000. Knowledge and Attitude Concerning Cigarette Smoking among Schoolchildren in Central Jakarta. *Japan Journal of Chemother*, Vol.27: 582-591. Supplement II, May.

Subject: individual behavior and elementary school student, Central Jakarta

16. **Jusuf**, Anwar, Sukaenah Shebubakar, Tjandra Yoga Aditama, Corrie Wawoulamaya and Zarni Amri. 1994. Pengetahuan, Sikap dan Perilaku Murid Sekolah Dasar Kelas V dan VI Tentang Rokok Di Jakarta Timur [Knowledge of, Attitude towards, and Behavior regarding Cigarettes of Elementary School Students in 5th and 6th grade in East Jakarta]. *Paru* Vol.14 (1):8-18. January.

Subject: smoking attitude, individual behavior and elementary school student, East Jakarta

17. **Jusuf**, Anwar, Ascobat Gani, Sardikin Giriputro, Achmad Hudoyo, Adang Bachtiar, Fachrial Harahap and Djoni Anwar. 1993. "Implikasi Ekonomis Kanker Paru Pada Pekerja Perusahaan" [Economic Implications of Lung Cancer on Workers]. *Majalah Paru* Vol 13 (1) :2-8. Jakarta.
Subject: Health care cost, social cost and lung cancer
18. **Karnagi**, Julia, Sumedi Sudarsono, Faisal Yunus. 1996. Prevalensi Bisinosis di Pabrik Tekstil dan hubungannya dengan Konsentrasi Debu Kapas di Lingkungan Kerja [Byssinosis Prevalence in the Textile Factory and the Relationship with Cotton Dust in Working Environment]. *Jurnal Respirasi Indonesia* Vol.16 (4): 138-142.
Subject: respiratory disease, workplace
19. **Kristanti**, Ch.M., Siti Sapardiyah and S.Suhardi. 1998. Perilaku Merokok dan Minum Alkohol pada Remaja di Propinsi Jawa Barat dan Bali 1995 [Smoking and Alcohol Drinking Behavior on Teenagers in West Java and Bali 1995]. *Jurnal Epidemiologi Indonesia* Vol. 2 (3).
Subject: Risk taking behavior, individual behavior, youth, West Java, Bali
20. **Koentjahja**, Henny C. 2001. Changes of Body Weight and Response of Tracheal Smooth Muscles of Adult Guinea Pigs Due to Chronic Exposure to Cigarette Smoke and Supplementation of Vitamin C. *Jurnal Respiriologi Indonesia* Vol.21(1):17-23.
Subject: Animal research/animal behavior, weight loss
21. **Kosen**, Soewarta. 1998. *Analysis of Current Economic Impact of Smoking in Indonesia: Government and Community Prospective*. Health Services Research and Development Center. National Institute of Health Research and Development. Ministry of Health. Jakarta. Unpublished report. 13 pp.
Subject economic impact, adverse effect and economic cost
22. **Persahabatan Hospital**, No date. *Biaya Perawatan Penderita Penyakit Akibat Rokok di RSUP Persahabatan*. [The Cost of Medical Care for Lung Cancer Patients at Persahabatan Hospital]. Jakarta. Unpublished report.
Subject: Health care cost, lung cancer
23. **Prabandari**, Y.S, N. Higginbotham. No date. *Exploring Perception of Smoking Inoculation Program To Prevent Smoking among Junior High School Student Using Qualitative Approach*. Department of Public Health Faculty of Medicine Gadjah Mada University. Yogyakarta. unpublished
Subject: junior high school student, tobacco education material, smoking prevention, Yogyakarta
24. **Prabandari**, Yayi Suryo, Punik M. Wijayanti, Ali G. Mukti. 2001. Analisis Kelayakan Program Inokulasi Untuk Pencegahan Perilaku Merokok Pada Pelajar Sekolah Lanjutan Pertama di Kodya Yogyakarta [Feasibility Analysis of Inoculation Program to Prevent

Smoking Behavior on Junior High School in Yogyakarta Municipality. *Berita Kesehatan Masyarakat XVII* (1).

Subjects: junior high school student, tobacco education material, smoking prevention, Yogyakarta

25. **Prabandari**, Y.S. No year. *Health Education on the Effects of Smoking for Senior High School Students by Senior High School Teachers*. Community Oriented Medical Education Program, Gadjah Mada University. pp11. unpublished report.
Subject: Senior high school, tobacco education material, smoking prevention, Yogyakarta
26. **Prasetyo**, Sabarinah, Tris Eryando and Tjandra Y. Aditama. 1998. *Analisis Meta Pola Merokok di 14 Propinsi Indonesia* [Meta Analysis Smoking Pattern in 14 Provinces in Indonesia]. Indonesian Smoking Control Foundation May 1998. Jakarta.
Subject: individual behavior
27. **Purwanto**, Didy, Lanny Bob Nasution, Sudirman, Fuad Gani, M. Fadli. 2001. *Kawasan Bebas Rokok di Lingkungan Mall/Plaza di DKI Jakarta* [Cigarette Free Area in Mall/Plaza in Jakarta]. Indonesian Smoking Control Foundation. Jakarta.pp10. Unpublished.
Subject: smoke free policy, Jakarta, shopping mall
28. **Shebubakar**, Sukaenah A. 1993. *Pengetahuan, Sikap dan Perilaku Murid Sekolah Dasar Kelas V dan VI Tentang Rokok di Jakarta Timur 1992* [The Knowledge of, Attitude towards, and Behavior regarding Cigarettes of 5th and 6th Grade Elementary School Students in East Jakarta in 1992]. Department of Pulmonology, Faculty of Medicine, University of Indonesia, Jakarta. Thesis
Subject: elementary school student, individual behavior, East Jakarta
29. **Situmeang**, Sutan Bahasa Taufan. 2001. *Hubungan Merokok Kretek dengan Kanker Paru* [The Relationship between Clove Cigarette Smoking and Lung Cancer]. Department of Pulmonology Faculty of Medicine University of Indonesia. Jakarta. Thesis. pp53
Subject: individual behavior and lung cancer
30. **Smet**, Bart, Lea Maes, Linda De Clercq, Kristiana Haryanti, Rachmad Djati Winarno. 1999. Determinants of Smoking Behavior Among Adolescents in Semarang, Indonesia. *Tobacco Control*, 8: 186-191.
Subject: individual behavior, youth, Semarang
31. **Soetiarto**, Farida. 1992. *Hubungan Kebiasaan Merokok Kretek dengan Kerusakan Gigi pada Sopir Bis PPD di Jakarta tahun 1992* [The Relationship between Clove Smoking and Dental Damage in PPD Bus Drivers in Jakarta 1992]. Program Pascasarjana Bidang Studi Kesehatan Masyarakat Epidemiology. 94pp. Thesis
Subject: individual behavior, mouth disease, bus driver, Jakarta

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Subject: Disease, individual behavior and senior high school, Central Jakarta
33. **Sudarti, Soeratmi Poerbonegoro, Pinarti, Mursidi.** 1994. *Laporan Studi Perilaku Merokok siswa SMP Negeri di DKI Jaya* [Report on the Smoking Behavior of Junior High School Students in Jakarta]. Indonesian Heart Foundation with Widya Prakarsa Foundation. Jakarta.
Subject: individual behavior and junior high school, Jakarta
34. **Suhardi.** 1997. *Perilaku Merokok di Indonesia [Smoking Behavior in Indonesia]*. National Household Survey Series. Health Research and Development Board. Health Department of the Republic of Indonesia. Jakarta.
Subject: Statistical prevalence, sociographic segment and individual behavior
35. **Sumartono, R. Wasis, Ganda Siburian, Ieke Idjriatie.** No year. *Tobacco Smoking Among Indonesian Male Senior High-School Students*. Center for Disease Control Research and Development, National Institute of Health Research and Development, Ministry of Health Republic of Indonesia. Jakarta. 8 pp. Unpublished.
Subject: individual behavior, senior high school, Central Jakarta
36. **Sumartono, R. Wasis.** 2002. *Trends of Tobacco Use in Indonesia*. National Institute of Health Ministry of Health Republic of Indonesia. Jakarta. pp 12 (unpublished)
Subject: trend and tobacco use
37. **Sumartono, Wasis.** 2000. *Indonesian Government Policies and Programs on Tobacco Control: Realities and Hopes*. Presented in Short Course on Tobacco Control and Gender, Key Center for Women's Health in Society, The University of Melbourne, Australia, 20th November- 1st December 2000. pp.
Subject: tobacco control program
38. **Surjanto, Eddy.** 1989. *Hubungan Merokok dengan Kanker Paru: Tinjauan secara Epidemiologis* [Relationship between Smoking and Lung Cancer: An Epidemiological Observation]. *Paru* Vol. 9 (3):20-26. December.
Subject: individual behavior and lung cancer
39. **Swidarmoko, Boedi, Hadiarto Mangunnegoro, Tjandra Yoga Aditama.** 1994. *Profil Produktivitas Kerja, Biaya Pengobatan serta Pengetahuan, Sikap dan Perilaku terhadap Penyakitnya pada Penderita Asma Bronkial* [Profile of Work Productivity, Treatment Cost and Knowledge, Attitude and Behavior regarding their Disease of Bronchial Asthma Patients]. *Paru* Vol.14 (2): 7-16. April.
Subject: individual behavior, health care cost, asthma and absenteeism

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