LAPORAN LENGKAP PROJEK

PROJECT: STUDY ON RESPIRATORY HEALTH HAZARDS

AND ITS MANAGEMENT AMONG RICE MILLS AND

SAWMILL WORKERS

(IRPA; No. Project: 06-02-05-0026)

END OF PROJECT REPORT

A. Project number: 06-02-05-0026 (305/PPSP/6110263)

Project title: Study on Respiratory Health Hazards & Its Management Among Rice Mill & Sawmill Workers

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B. Summary for the MPKSN Report (For publication in the Annual MPKSN Report, please summarise the project objectives, significant results achieved, research approach and team structure)

Introduction: There are significant number of workers in rice mills and sawmills in Malaysia. A large amount of dust is generated especially during the milling rice and cutting wood. Rice husk dust has been shown to have high silica content, and silica has been known to be associated with pulmonary diseases including cancers. A few studies reported on the effect of saw dust, but the result (lung function parameters) reported were worse than their control groups.

Project Objective: The objectives of the project include (1) to determine the adverse health effects of respiraotry hazards in dusty work places such as rice mills and saw mills, and (2) to develop and evaluate risk-communication package on respiratory hazards.

Research Approach/Methods: Two comparative crosssectional studies were conducted in Kelantan in the Phase 1, and a community intervention study in Phase 2. In the Phase 1, three saw mills and four rice mills were selected using simple random sampling from available mills in Kelantan. All eligible workers in the selected mills were taken as study sample. A total of 118 sawmill workers and 159 rice mill workers were included. A questionnaire was developed and used to assess their respiratory health status, knowledge, attitude, and practice (KAP). Lung function was measured by using a calibrated spirometer (Chest Graph). Physical Examination was done by medical doctors (team members). Chest X rays were taken for rice mill workers and reports were given by a radiologist (team member). In the Phase 2, a group of rice mill workers ($n=55$) was taken as an intervention and another group ($n=80$) was taken as a control group. In the intervention group, a health education intervention/risk communication package (developed by the team) was given, whereas none was done in the control group. The KAP assessment was done before and after the intervention in both study groups. Then, the improvement of KAP in the intervention group was compared with the control group.

Significant Results:

(1) The Validated KAP Questionnaire (Appendix 1)

The KAP questionnaire was short, accurate and reliable. As in this study, the questionnaire will be useful to quickly screen the KAP level of dust exposed workers and then, to design an appropriate intervention program to reduce respiratory hazards in exposed workers.

(2) KAP Level of Sawmill Workers (Appendix 1)

KAP level of sawmill workers was alarming. Prevalence of unsatisfactory KAP level were 33.3%, 58.1% and 53% for knowledge about exposed hazards, control activities of the hazards,

and related legislation respectively; 53.8% and 6.8% for risk-taking attitudes and attitude towards control activities respectively; and 74.4% for control practices.

(3) KAP Level of Rice Mill Workers (Appendix 2)

A slightly better KAP results were revealed in rice mill workers such as 25%, 32.2%, and 9.9% for knowledge related to exposed hazards, control activities of the hazards, and related legislation respectively; 54.0% and 11.2% for risk-taking attitudes and attitude towards control activities respectively; and 30.3% for control practices.

(4) Respirtory Symptoms among Sawmill Workers (Appendix 3)

Prevalence of respiratory symptoms among sawmill workers were 44.9%, 38.1%, 22.9%, 45.8% for cough at early morning, phlegm at early morning, chest tightness, and shortness of breath on exertion respectively. About 73% had at least one symptom. A respiratory symptom index, ranging from 0 to 10, was developed. The median index was 2, ranging from 0 to 8.

(5) Respiratory Symptoms among Rice Mill Workers (Appendix 2)

Prevalence of respiratory symptoms among rice mill workers were 27.9%, 37.4%, 21.3%, 35.7% for cough at early morning, phlegm at early morning, chest tightness, and shortness of breath on exertion respectively. About 66.7% had at least one symptom. The median respiratory symptom index was 1, ranging from 0 to 9.

(6) Radiological Reports on Rice Mill Workers (Appendix 2)

Chest X-rays were done among 142 rice mill workers and 48 (33.8%) had radiological pneumoconiosis, in which 40 (28.2%) were in category 1 and 8 (5.6%) were in category 2 of the ILO radiological classification for pneumoconiosis. There was no subject in category 3.

(7) Lung function among Sawmill Workers (Appendix 4)

Significantly lower values ($P<.001$) for FVC, FEV1, MMF and PEFR for lung function indices of rice mill workers were found compared to predicted value in the Asian population. PEF was the most severely affected (mean value of 47.1% of predicted value) whereas 81.0%, 75.7% and 71.1% of predicted values for FVC, FEV1 and MMF.

(8) Lung Function among Rice Mill Workers (Appendix 2)

Significantly lower values ($P<.001$) for FVC, FEV1, MMEF and PEFR for lung function indices of rice mill workers were found compared to predicted value in the Asian population. MMF was the most severely affected (mean value of 70.8% of predicted value) whereas 97.6%, 86.0% and 94.8% of predicted values for FVC, FEV1 and PEF.

(9) Intervention package report (Appendix 2)

After the intervention among rice mill workers, the knowledge of dust hazard, attitude of risk perception, and the practice of using PPE were significantly improved ($P<.001$). Other areas of knowledge and attidues were also improved but statistically not significant.

Summary:

This study has demonstrated the respiratory health effects as a result of saw dust or rice husk exposure. It also demonstrated the risk of radiological pneumoconiosis among rice mill workers. In addition, it showed that workers were able to benefit from the intervention program designed and implemented at their workplace.

Team Structure:

Name	Specialty	Institution
1. Dr Lin Naing (Project Leader)	Occupational Health	USM
2. Professor Dr Rusli Nordin	Occupational Health	USM
3. AP Dr Zulkifli Ahmad	Public Health	USM
4. AP Dr Razlan Musa	Occupational Health	USM
5. AP Haji Meera Mohaideen Abdul Kareem	Radiologist	USM
6. Dr Ariza Abdul Rhaman	Occupational Health	MOH
7. Encik Azwan Aziz	Research Officer	-

AP = Associate Professor; USM = Universiti Sains Malaysia; MOH = Ministry of Health

C. Objectives achievement

- **Original project objectives** (Please state the specific project objectives as described in Section II of the Application Form)

(1) To determine the adverse health effects of respiratory hazards in dusty work places such as rice mills and sawmills

(2) To develop and evaluate risk-communication package on respiratory hazards

- **Objectives Achieved** (Please state the extent to which the project objectives were achieved)

Both above objectives were achieved.

- **Objectives not achieved** (Please identify the objectives that were not achieved and give reasons)

All stated objectives were achieved.

D. Technology Transfer/Commercialisation Approach (Please describe the approach planned to transfer/commercialise the results of the project)

The risk-communication (intervention) package has been developed (Appendix 9 & 10). This is a useful product for the dust-exposed workplace in order to improve work practices among the workers.

The demonstration video of performing lung function test using Chest Graph (Appendix 9) has been developed and applied in this study. It assits very well in instructing workers how to perform the test. This can be transfered to National Institude of Occupational Safety and Health (NIOSH), Malaysia for the future use by others researchers and occupational specialists.

F. Assessment of project structure

- **Project Team** (Please provide an assessment of how the project team performed and highlight any significant departures from plan in either structure or actual man-days utilised).

The project team performed as planned in both structure and man-days utilized. No significant departure to be reported.

- **Collaborations** (Please describe the nature of collaborations with other research organisations and/or industry)

Both sawmill and rice mills (Bernas) industries were very cooperative. They provided all kinds of assistance and gave full acess to the industry. We experienced full participation of workers, supervisors, and management personel.

G. Assessment of Research Approach (Please highlight the main steps actually performed and indicate any major departure from the planned approach or any major difficulty encountered)

(1) The team developed questionnaires, and piloted for the validation.
(2) Baseline exploration using questionnaire, clinical examination, and lung function test were carried out in both industries. In addition, radiological assessment was done in rice mill workers.
(3) Based on the baseline KAP findings, the intervention package was developed and intervention was conducted in rice mill workers. Pre- and Post-intervention KAP assessment was done.
(4) Data analysis and reporting was done.

Major departure from original plan:
(1) Some agricultural workers were planned to take as control. However, as the normal values for lung function, acceptable level for KAP scores and abnormal radiological findings are well defined, having the control group would be redundant. Moreover, it is impossible to assume that agricultural workers did not expose to dust. Therefore, all objectives have been achieved without having the control group.
(2) Due to the limited budget (section H and I), radiological assessment and the intervention study were carried out only in the rice mill group (originally, it is for both groups). We selected rice mills as it was under the PhD proposal, and we gave the priority for it. However, it still fulfilled our second objective.

H. Assessment of the Project Schedule (Please make any relevant comment regarding the actual duration of the project and highlight any significant variation from plan)

The schedule of the project was delay or slower than original plan and it totally took 4 years to complete. The main reason was that we have to wait the approval from Curtain University for our PhD candidate research activities. As the successful man-power development is an important outcome of our study, we complied with their research approval.

The one-year extension of the project caused more expenses (4 years salary for the research officer). That causes extra burden on approved budget.

I. **Assessment of Project Costs** (Please comment on the appropriateness of the original budget and highlight any major departure from the planned budget)

The original budget was reasonable. However, as mentioned in Section H, the longer project schedule caused extra cost. With this situation, project approach was adjusted without compromising the achievement of objectives.

Otherwise, there was no other major departure from the planned budget.

J. **Additional Project Funding Obtained** (In case of involvement of other funding sources, please indicate the source and total funding provided)
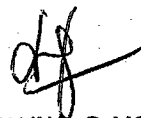
No additional project funding was obtained.

K. **Other Remarks** (Please include any other comment which you feel is relevant for the evaluation of this project)

(1) The PhD candidate won the third price for his presentation in Tokyo (Appendix 5).
(2) The preceeding of the conference presentation done in China, has come out as a chapter in the book titled "Studies on Public Health in Asia" (ISBN 1-58949-047-9) (Appendix 8).

Date: 5th June, 2006

Signature:

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LAPORAN LENGKAP PROJECT

APPENDIX 1:
Proceedings of Sino-Japanese International Symposium on Public
Health in the 21st Century, August 19-21, 2004 Hefei, China

APPENDIX 2:
Abstract of PhD thesis: Respiratory health effect of rice husk dust
exposure and effect of intervention in relation to the knowledge,
attitude and practice

APPENDIX 3:
Conference Presentation: Respiratory symptoms and sawmill
workers in Kelantan

APPENDIX 4:
Lung function parameters in 114 sawmill workers

APPENDIX 5:
Conference Presentation: Effectiveness of a workplace intervention
program among workers exposed to dust in Malaysia

APPENDIX 6:
Conference Presentation: Validation of questionnaire for knowledge,
attitude, and practice related to respiratory health hazards and risks
at workplaces

APPENDIX 7:
Conference Presentation: Level of knowledge, attitudes and practice
among sawmill workers in Kelantan

APPENDIX 8:
Publication

APPENDIX 9:
List of Videos

APPENDIX 10:
Intervention Programme

APPENDIX 1:

Proceedings of
Sino-Japanese International
Symposium on Public Health in the
21st Century

August 19-21, 2004 Hefei, China

Level of Knowledge (K), Attitude (A) and Practice (P) Related to Respiratory Health Hazards among Saw Mill Workers in Kelantan

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Abstract

Introduction

Studies have been shown that dusty workplace is hazardous for respiratory health. One of the preventive strategies is to strengthen the KAP of exposed workers. This study attempted to develop the KAP assessment tool using a rice mill and sawmill population, and explore KAP level among saw mill workers.

Methodology

A KAP self-administered close-ended questionnaire consisting 190 items was drafted. It was piloted among 42 sawmill workers, and using item-analysis, the second version of questionnaire consisting 139 items. Then, further validation study was conducted among a total of 277 saw mill and rice mill workers, and the final version with 52 items was developed. With the final questionnaire, a total of 118 sawmill workers were explored for their KAP level. Item-total correlation, Cronbach's alpha, and factor analysis were used to evaluate reliability and validity of the questionnaire.

Result

The result of item analysis of the final version of KAP questionnaire was presented. Except one item, all the rest were having acceptable to good coefficient of reliability and validity. The KAP level of sawmill workers were alarming. High prevalence of unsatisfactory knowledge, attitude of risk awareness, and practice were presented.

Conclusion

The final KAP questionnaire is reasonable reliable and valid. However, further validation is suggested. The study conducted among sawmill workers gave an example of usage of the validated questionnaire for the designing appropriate intervention for the exposed workers.

Keywords

attitude, knowledge, practice, questionnaire, validation

Introduction

Several studies reported the relationship between dust exposure and respiratory health problems. Lim et al (1984) reported the adverse respiratory health effect among Malaysian rice millers, and proposed as 'rice millers' syndrome'[1]. A recent study done in Shanghai [2] reported that rice mill workers had a lower mean level of lung function parameters as compared to controls. A recent study done in Malaysia among rice millers reported a high prevalence of respiratory symptoms, and poor lung function parameters as compared to healthy population[3].

A study done in Nigeria[4] reported that the sawmill workers had significantly lower pulmonary function parameters as compared to their controls. A study done in New South Wales, Australia reported that sawmill workers had high prevalence of respiratory symptoms, and poor lung functions as compared to the controls[5]. A study done in New Zealand[6] reported the same relationship.

According to the literature, it is consistently documented that exposed to the dust may effect the respiratory health of the workers. Researchers have suggested that preventive measures should be done[5].

One of the important preventive measures is the compliance of workers in safe work practices including proper usage of personal protective equipments. We, therefore, considered that it was important to explore the knowledge (K), attitude (A) and practice (P) related to respiratory health hazards among exposed workers. However, to our knowledge, a reliable and valid KAP assessment tool was not yet available.

Thus, this study attempted to develop and validate a self-administered questionnaire, the KAP assessment tools related to respiratory health hazards and secondly, to explore the KAP level of sawmills workers in Kelantan, Malaysia.

Materials and Methods

Study Design

A cross-sectional study was conducted to validate the KAP questionnaire in rice mill and sawmill workers in Kelantan from January to July 2003. We developed a sampling frame of all (12) registered saw mills and (10) rice mills using information from Department of Safety and Health, and the Yellow Pages Directory. Cluster sampling was used to select 3 sawmills and 4 rice mills, and all processing workers (118 sawmill workers and 159 rice mill workers) in selected workplaces were recruited. With a total sample size of 277, the precision for the estimated Cronbach's alpha (0.8) was 0.04[7].

Research Tool

We developed a close-ended KAP questionnaire consisting of 79 knowledge items, 82 attitude items and 29 practice items in the official Malay language (*Bahasa Melayu*). This first draft questionnaire was piloted among 42 sawmill workers and item-analysis was done. Detail of item-analysis procedure was described in the 'statistical analysis' section. Based on the result, a second draft version was developed consisting of 62, 49 and 28 items for K, A, and P respectively.

This second draft questionnaires were administered to 277 rice mill and sawmill workers, and the same procedure of item-analysis was employed. Then, we obtained the final version of the KAP questionnaire which was presented in this paper.

Categorical responses (Yes/No/Don't Know) were assigned for the K component; ordinal responses (Strongly Agree/Agree/No Opinion/Not Agree/Strongly Not Agree) were assigned for the A component; and also ordinal responses (Never/Sometimes/Frequently/Always) as well as categorical responses (Yes/No) were assigned for the P component of the questionnaire.

The scoring system adopted is as follows: for categorical responses, a correct response scores '2' marks; an incorrect response scores '0' mark; and a 'don't know' response scores '1' mark. An ordinal response for a positive item ['Strongly Agree,' 'Agree,' 'No Opinion,' 'Not Agree,' and 'Strongly Not Agree'] scores '4,' '3,' '2,' '1,' and '0,' respectively. For a negative item, the above scoring system is reversed. The ordinal response ['never,' 'sometimes,' 'frequently,' and 'always,'] for a good practice item (e.g. use of PPE) scores '0,' '1,' '2,' and '3.' For a bad practice (e.g. smoking at work), the scoring system is reversed.

The total raw score of each section of KAP were calculated by summing up all items' scores in each section. Then, the raw scores were transformed to 0-100 scale (percent score), by calculating as follows: total raw score divided by possible highest score, then multiplied by a hundred.

For the scores in K, A, and P section, researchers considered that workers should have 80 percent score, 62 percent score and 80 percent score respectively, in order to determine that their KAP level is satisfactory. The cut-off levels were decided by consensus among researchers based on what workers should get minimally to consider satisfactory level of KAP.

Data Collection Procedure

We obtained written permission to conduct this study from the management of the factories concerned. The workers were assembled in the meeting rooms of the factories between 9 am and 12 noon. The principal researcher gave a short briefing regarding the benefit of the study and the method to fill the questionnaire. The questionnaire forms were distributed to each worker and researchers observed and assisted when necessary in the completion of the questionnaire.

Statistical Analysis

Data entry and analysis was done using SPSS version 11.0 (SPSS Inc., 2000). Data cleaning, recoding and scoring accordingly were done.

The item-analysis procedure was as follows. Exploratory Factor Analysis (EFA) was employed by using principal component method with 'eigenvalue 1' and fixed numbers of factors such as 3, 4, 5, 6, 7, and 8, and with the varimax orthogonal factor rotation method. Therefore, we obtained the seven exploratory factor structures. Then, preliminary construct structure of the questionnaire was determined. For each construct, Internal Consistency Reliability Analysis (RA) was done and based on the EFA, RA & content consideration, the items were selected. Then the steps of EFA and RA were repeated as necessary until a short, but still precise and valid questionnaire was obtained. The final version of the questionnaire consists of 25, 15 and 12 items for K, A, and P, respectively (Appendix A: English version).

Results

The response rate was 100%. Descriptive analysis of 277 workers revealed the following: age ranges from 18 to 60 years; majority (85.9%) was male and Malay (99.3%); a high proportion (60.6%) completed at least primary education (Table 1).

The final version of questionnaire tested had three major domains such as knowledge, attitude and practice. Initially, there were a total of 190 items in 3 domains, and at the final version, only 52 items were selected. The detail of item analysis result such as corrected item-total correlation, Cronbach's alpha coefficients, and factor loadings were presented in Table 2.

Levels of the KAP among 118 sawmill workers for each section of KAP was presented in Table 3, Figure 1. The bivariate correlations (and their significances) between the KAP scores were presented in Table 4.

Discussion

In this study, we achieved a high response rate as we checked the completeness of the questionnaire at the end of the administration of the questionnaire. In addition, respondents were given some incentive in kind equivalent to their one-day income. This is to compensate their time given for this study, and also to promote the completeness of questionnaire.

There was only 1 item (K11) having both item-total correlation and factor loading less than 0.2. This may be a serious problem in terms of reliability and validity. Nine more items were between 0.2 & 0.3 in item-total correlation (K12, A5, P1, P2, P6, P7, P11, P12). However, their factor loadings were above 0.4. It was considered acceptable. These all items were still selected as they were required for the content validity in researchers' opinion. In addition, by adding these relatively poor items, the internal consistency reliability of all sections of the questionnaires was remained acceptable.

However, knowledge (control hazard) and knowledge (legislation) were on the same factor. However, we still decide to keep as 2 different domain as we interest them separately. The practice domain was split into 2 constructs which were "use of PPE" and "medical examinations". However, researchers decided "not to split" the domain as the Cronbach's alpha for the whole practice domain was acceptable (0.7).

We compared with other KAP questionnaires. KAP on pesticide handling, having 3 domains (Cronbach's alpha: 0.89, 0.81, 0.72) [8], KA on hospital services, having 4 domains (Cronbach's alpha: 0.71, 0.81, 0.71, 0.67)[9] KAP on noise-induced hearing loss, having 3 domains (Cronbach alpha: 0.80, 0.86, 0.86)[10].

By using this questionnaire, the practice will be "self-reported practice". We would like to suggest that a subset of sample should be observed and compare with the self-reported practice. In this way, the practice could be validated. The practice session should be used as a check-list for observation.

This reliability and validity analysis was limited to content validity, construct validity, and internal consistency reliability. We realize that test-retest reliability and criterion validity will definitely strengthen our result.

The level of KAP among sawmill workers was alarming. Although median scores seemed to be high, there were still many workers at unsatisfactory level. All three knowledge domains had high prevalent of

unsatisfactory score. Although attitude towards control hazards was only 6.8% of prevalence of unsatisfactory score, their risk awareness was still a problem. They might have been exposed to the needs of the control hazards, but risk awareness and appropriate knowledge were obviously lacking. The correlations (Table 4) also show that there was a significant positive correlation between practice score and K (Control Hazard) and K (Legislation) (P<.001 for both). The correlation between K (Hazard) and Practice score was almost significant (P=0.077). Although correlations were not significant for Attitude domains with Practice score, we would suggest that, the intervention for these workers should be focused on knowledge, and awareness of hazards which could improve their practice in the future.

Conclusion

We considered that the questionnaire was short, accurate (in terms of content validity and construct validity) and reliable (in terms of internal consistency reliability). However, we still will pursue further validation such as test-retest, criterion validity, and testing on various populations in order to gain the acceptance on this questionnaire. As in this study, the questionnaire will be helpful to explore the KAP level of dust exposed workers and to design an intervention program as their needs.

Table 1. Socio-demographic characteristics of 118 sawmill and 159 rice mill workers in Kelantan (Questionnaire validation study)

Variable	No.	(%)	Mean	(SD)
Age (year)			43.2	(8.02)
Duration of current work (year)			14.7	(8.91)
Type of workplace				
Sawmill	118	(42.6)		
Rice mill	159	(57.4)		
Sex				
Male	238	(85.9)		
Female	39	(14.1)		
Ethnic				
Malay	275	(99.3)		
Chinese	2	(0.7)		
Education level				
None	21	(7.7)		
Primary	86	(31.7)		
Secondary	155	(57.2)		
Tertiary & above	9	(3.3)		
Marital status				
Single	22	(7.9)		
Married	246	(88.8)		
Divorce	4	(1.4)		
Widow	5	(1.8)		

Table 2 A: Item Analysis of KAP Questionnaire: Knowledge (K) Domain

Item[1]	It-T C.[2]	Cb's A.[3]	1	2	3	4	5	6
K1 Smaller the dust, the more danger to the lung.	0.58		0.69					
K2 Rice husk contains ingredients, injurious to lung.	0.52		0.70					
K3 Those with weak immune system are more vulnerable to lung diseases.	0.35		0.55					
K4 Dust can cause skin itchiness.	0.52		0.56					
K5 Dust can cause eye irritation.	0.51	0.782	0.62					
K6 Dust can cause asthma.	0.38		0.46					
K7 Lung disease can be detected by sputum test.	0.40		0.27	0.34				
K8 Lung disease can be detected by physical examination.	0.39		0.29	0.37				
K9 If someone is exposed to dust & also smokes, lung disease will be worse.	0.47		0.59					
K10 If someone exposes to dust & with asthma, lung disease will be worse.	0.54		0.61					
K11 Dust in the workplace can be minimized by good ventilation.	0.15		0.35					0.30
K12 Long sleeve shirt is useful in dusty workplace.	0.24			0.33				
K13 Before joining to workplace, pre-employment medical check is compulsory.	0.52			0.39				
K14 Employer is responsible for the cost of pre-employment medical check.	0.35			0.37				
K15 People with asthma are not appropriate to work in a dusty workplace.	0.47	0.704		0.39				
K16 People with other lung disease are not appropriate to work in a dusty workplace.	0.45			0.44				
K17 Periodic medical check is to identify early stage of diseases.	0.53			0.59			0.31	
K18 For workers who expose to dust, at least every 2 years chest X ray is necessary.	0.47			0.52				
K19 Handkerchiefs are more effective than the proper mask.	0.34			0.35				
K20 Towels are more effective than the proper mask.	0.53			0.40				
K21 Workers can be fined if not using personal protective equipment.	0.56			0.64				
K22 Workers can be representatives in safety and health committee at their working place.	0.61			0.61				
K23 There are rules regarding safety & health involving workers responsibility.	0.66	0.808		0.69				
K24 Certain dusts have permissible exposure limit.	0.52			0.54				
K25 Safety & health committee is required if workplace have > 40 workers.	0.66			0.73				

[1]Abbreviated form of items [2]It-T C.= Item-Total Correlation [3]Cb's A.= Cronbach's Alpha [4]Principal component data extraction with varimax factor rotation

Remark: Factor loadings less than 0.3 were omitted for the purpose of clear presentation.

Table 2 B: Item Analysis of KAP Questionnaire: Attitude (A) and Practice (P) Domain

ITEM*		It-T C.	Cb's A.	Loading on 6 Factors[1]					
				1	2	3	4	5	6
A1	It is negligible to get lung diseases from exposure to dust.	0.59				0.68			
A2	It is negligible to get eye diseases from exposure to dust.	0.56				0.70			
A3	Workers become immune for lung diseases after working for a long time in a dusty place.	0.48	0.709			0.69			
A4	Risk at my workplace is not different from other workplace.	0.42				0.55			
A5	The likelihood of getting the disease is the same regardless of wearing PPE or not.	0.28				0.43			
A6	Dust should be minimized by whatever means in the workplace.	0.50					0.60		
A7	We should be provided information related to SOP.	0.58					0.68		
A8	We should be informed about the dust content in the air at workplace.	0.60					0.68		
A9	We should use proper mask to prevent from dust.	0.54					0.63		
A10	We should use goggle to prevent our eyes from dust.	0.59					0.68		
A11	We should wear long sleeved shirt to guard our skin.	0.61	0.825				0.70		
A12	We should not smoke at workplace.	0.33					0.43		
A13	We should change clothes before going back home.	0.43					0.50		
A14	We should be checked for chest X-ray regularly e.g. every 2 years.	0.50					0.56		
A15	We should be checked for lung function test regularly e.g. every 2 years.	0.58					0.58		
P1	If you are offered, will you use mask?	0.27						0.56	
P2	If you are offered, will you use goggle?	0.29						0.71	
P3	If you are offered, will you use long sleeved shirt?	0.39						0.78	
P4	If you are offered, will you use safety helmet?	0.51			0.30			0.76	
P5	If you are offered, will you use safety belt?	0.39			0.30			0.50	
P6	If you are offered, will you use safety boot?	0.28	0.704					0.63	
P7	Do you use handkerchief as PPE during work?	0.27						0.22	
P8	Do you use towel as PPE during work?	0.30						0.25	
P9	I checked for pre-employment medical examination.	0.48			0.44				0.65
P10	I did chest X ray before start working.	0.42			0.43				0.65
P11	I did lung function test before start working.	0.29							0.56
P12	I did chest X ray regularly e.g. every 2-4 years.	0.25							0.60

[1,2,3,4] As Table 2 A

Table 3 Descriptive statistics of KAP level of 118 sawmill workers

	Median	(Q1, Q3)	Min	Max
K (Hazard)	85.0	(68.8, 90.0)	25.0	100.0
K (Control Hazard)	75.0	(55.0, 80.0)	10.0	100.0
K (Legislation)	70.0	(50.0, 100.0)	0.0	100.0
A (Risk Awareness)	60.0	(50.0, 87.5)	15.0	100.0
A (Control Hazard)	85.0	(75.0, 95.0)	52.5	100.0
P (Control Hazard)	70.0	(50.0, 80.0)	0.0	90.0

Q1=First Quartile; Q3=Third Quartile; Min=Minimum; Max=Maximum
All scores were negatively skewed (to the left)

Table 4 Pearson's Correlation between KAP scores of 118 sawmill workers

	K1 (Hazard)	K2	K3	A1	A2
K2 (Control Hazard)	.378 (<.001)				
K3 (Legislation)	.286 (<.001)	.442 (.000)			
A1 (Risk Awareness)	.152 (.012)	.209 (.001)	.058 (.338)		
A2 (Control Hazard)	.102 (.093)	.094 (.122)	.058 (.342)	.163 (.007)	
P (Control Hazard)	.108 (.077)	.301 (<.001)	.260 (<.001)	-.046 (.455)	-.021 (.728)

P value is presented in the bracket

Figure 1   Prevalence of unsatisfactory KAP level among 118 saw mill workers
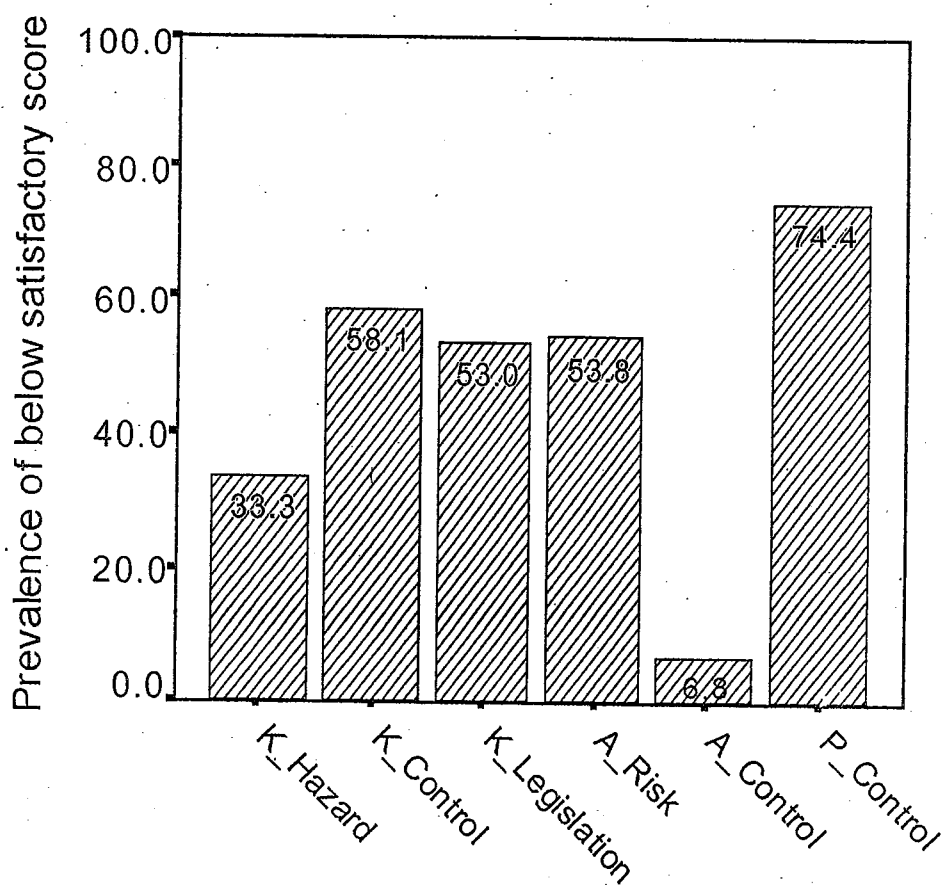
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165

APPENDIX 2

Abstract of PhD Thesis

Title: "Respiratory Health Effect of Rice Husk Dust Exposure and Effect of Intervention in relation to the Knowledge, Attitude and Practice"

I

Results. Based on study criteria in the initial radiological assessment there were 142 subjects available for further assessment. Forty-eight (33.8 %) subjects were found to have radiological pneumoconiosis and regarded as cases for further detail investigations. Of these, 40 (53.3 %) were in category 1 and 8 (5.6 %) were in category 2 of the ILO radiological classification for pneumoconiosis. There were no subjects found in category 3. Significantly, higher prevalence of radiological pneumoconiosis was obtained for workers who were employed at a younger age and have been working for longer in the industry. There were 57.9% of the workers who are currently smokers and half of them were regarded as heavy smokers. With regards to knowledge, attitude and practices (KAP), it seems that workers with radiological pneumoconiosis were associated with lower mean scores of the KAP and this association are statistically significant in practices score. Respiratory symptoms such as phlegm production, shortness of breath and morning cough were among the most commonest symptoms reported by rice mill workers. Further investigations of respiratory symptoms revealed that workers with radiological pneumoconiosis were significantly reported to have more symptoms of chronic phlegm, chest tightness and dyspnoea grade 4. Significantly lower values for FVC, FEV1, MMEF and PEFR for lung function indices of rice mill workers were found compared to predicted value in the Asian population. Values of MMEF, which reflects small airway obstruction, was noted to have been more severely affected. Workers with radiological pneumoconiosis seems to have lower value of lung function indices, however no significant associations were obtained when adjusted for age, smoking status, duration of employment and height.

There were no significant differences in socio demographic factors between the intervention and comparison group. In the pre intervention KAP assessment, most of the sub domains of KAP were similar between the two groups except knowledge of dust hazards and practice scores. Using repeated ANOVA analysis that takes account of the initial differences between two groups, it was revealed that the intervention groups were found to have a significant improvement in the mean score of knowledge (dust hazards, attitude (risk perception) and practices scores compared to non intervention comparison group. Improvement of overall other scores of sub domains as a result of intervention program were also noted, however no significant differences were found in comparison with the non intervention group.

Conclusion. This study has demonstrated the respiratory health effects as a results of rice husk dust exposure and further detail exploration of clinical findings with regards to risk of radiological pneumoconiosis. Rice mill workers were able to benefit from the intervention program designed and implemented at their workplace.

MAIN RESULTS
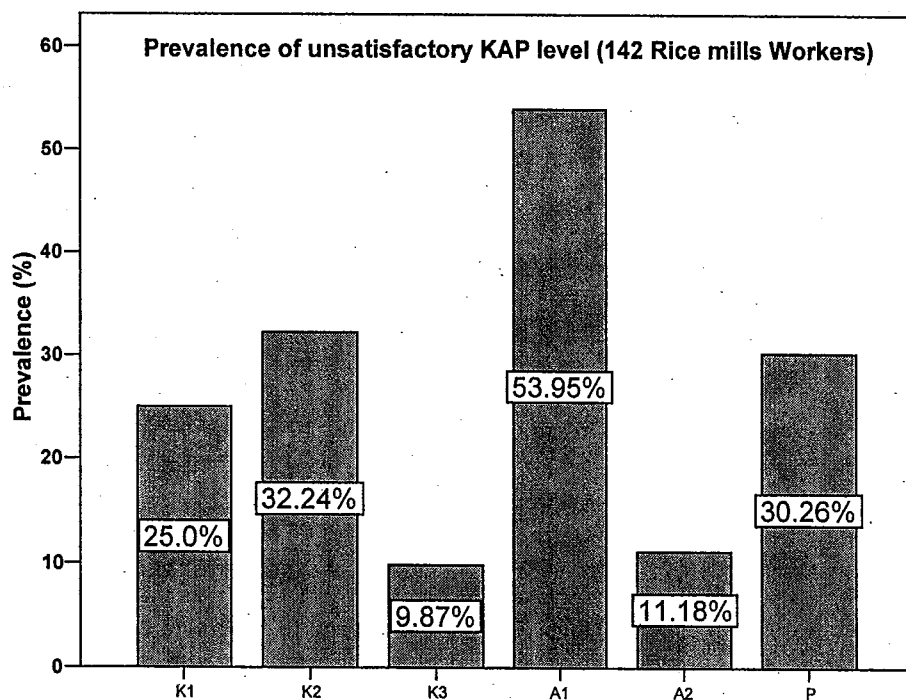
Figure 1: Prevalence of unsatisfactory KAP level among 142 rice mills workers
Note: Knowledge related to exposed hazards (K1), control activities of the hazards (K2), and related legislation (K3), risk awareness (A1), attitude towards control activities (A2), and control practices (P)

Table 4.7.Respiratory symptoms reported by rice mill workers (n= 142)

Reported symptoms / Illnesses*	YES (%)
Cough at early morning	39 (27.9)
Cough in day or night	32 (23.2)
Chronic cough	31 (22.5)
Produce phlegm in the morning	52 (37.4)
Produce phlegm day or night	35 (25.5)
Chronic phlegm	18 (15.4)
Chronic bronchitis	10 (7.1)
Chest tightness/breathing difficulty (other than flu)	29 (21.3)
Chest tightness or breathing difficulty on any particular days	24 (20.9)
Shortness of breath when hurrying on level ground	50 (35.7)
Dyspnea grade 3	22 (15.8)
Dyspnea grade 4	10 (7.2)
Chest illnesses kept away from usual activities	8 (5.8)

Table 4.1 Descriptive findings of chest X-ray according to profusion categories (n=142)

Profusion category	n	(%)
Category 0		
0 / -	0	(0.0)
0 / 0	81	(57.0)
0 / 1	13	(9.2)
Category 1		
1 / 0	4	(2.8)
1 / 1	32	(22.5)
1 / 2	4	(2.8)
Category 2		
2 / 1	3	(2.1)
2 / 2	4	(2.8)
2 / 3	1	(0.7)
Category 3		
3 / 2	0	(0.0)
3 / 3	0	(0.0)
3 / +	0	(0.0)
Grand total	142	(100.0)

Table 4.11.Lung function tests in rice mill workers (n=142)

Parameter	Measured Mean (SD)	Predicted Mean (SD)	% predicted Mean	P value[a]
FVC (l)	3.65 (0.60)	3.74 (0.19)	97.6	0.045
FEV1 (l)	2.77 (0.53)	3.22 (0.31)	86.0	< 0.001
MMEF (l/sec)	3.01 (1.17)	4.25 (0.32)	70.8	< 0.001
PEFR (l/sec)	8.05 (2.03)	8.49 (0.39)	94.8	< 0.001

[a] Difference between measured and predicted using Pair t test

FVC = Force Vital Capacity

FEV_1 = Force Expiratory Volume in the first second

PEFR = Peak Expiratory Flow rate

MMEF = Maximal Mid Expiratory Flow

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RESPIRATORY SYMPTOMS AMONG SAWMILL WORKERS IN KELANTAN

Lin Naing[1], Razlan M[2], Rusli N[1], Zulkifli A[2]

[1]*School of Dental Sciences, [2]School of Medical Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan*

Introduction: Although sawdusts are not organic or inorganic material, the irritation effect on respiratory tract is expected.

Objective: To determine the prevalence of respiratory symptoms among sawmill workers. The association of respiratory symptoms and demographic variables were also determined.

Methodology: A cross-sectional study was conducted from May to December 2003 among randomly selected 118 sawmill workers in Kelantan. A modified version of the questionnaire for respiratory symptoms approved by the Medical Research Council Committee on Research into Chronic Bronchitis (Phoon, 1988) was used. As most of the workers are illiterate, interviews were conducted. The respiratory symptom score or index was calculated by summing up the rank of each respiratory symptom.

Results: All were Malay and 79 (66.9%) were male. The mean age was 42.6 (10.15) years. The prevalence of respiratory symptoms were 44.9%, 38.1%, 22.9%, 45.8% for cough, phlegm, chest tightness, and shortness of breath on exertion respectively. About 73% had at least one symptom. The maximum respiratory symptom index was 8.0. The study reported the distribution of symptoms and index by plots. The index of female was significantly higher than that of female after adjusting for age (p=0.011).

Conclusion: The study revealed that the respiratory symptoms experienced by sawmill workers were substantial. Further appropriate investigation should be done in this population so that appropriate action can be taken.

Respiratory Symptoms among Sawmill Workers in Kelantan

Lin Naing[1], Razlan Musa[2], Rusli Nordin[1], Zulkifli Ahmad[2]

1 School of Dental Sciences, Health Campus, Universiti Sains Malaysia
2 School of Medical Sciences, Health Campus, Universiti Sains Malaysia

ABSTRACT

BACKGROUND: Although saw dusts are not organic or inorganic material, the irritation effect on respiratory tract is expected. This study attempted to determine the prevalence of respiratory symptoms among sawmill workers. The association of respiratory symptoms and demographic variables were also determined.

METHOD: A cross-sectional study was conducted in May to December, 2003 among randomly selected 118 sawmill workers in Kelantan. A modified version of the questionnaire for respiratory symptoms approved by the Medical Research Council Committee on Research into Chronic Bronchitis (Phoon, 1988) was used. As the most of the workers are illiterate, interviews were conducted. The respiratory symptom score or index was calculated by summing up the rank of each respiratory symptom.

RESULT: All were Malay and 79 (66.9%) were male. The mean age was 42.6 (10.15) years. The prevalence of respiratory symptoms were 44.9%, 38.1%, 22.9%, 45.8% for cough, phlegm, chest tightness, and shortness of breath on exertion respectively. About 73% had at least one symptom. The maximum respiratory symptom index was 8.0. The study reported the distribution of symptoms and index by plots. The index of female was significantly higher than that of female after adjusting for age (P=.011).

CONCLUSION: The study revealed that the respiratory symptoms reported by sawmill workers was substantial. Further appropriate investigation should be done in this population so that appropriate action can be taken.

INTRODUCTION

▶ In Kelantan, about 60% of land area is forest, and wood industry has been one of the biggest income contributor.

▶ Dusty environment is commonly observed in sawmills. However, only a few investigations have been done for this area. A study done in India[1] reported that saw mill workers had poorer lung function parameters compared with the control group. An Italian case report[2] described a case of saw dust pneumoconiosis with diffuse pulmonary fibrosis.

▶ To our knowledge, in Malaysia, the respiratory health status of sawmill workers was not studied before. However, study done in a similar dusty workplace like quarry[3] and rice mills[4], reported high prevalence of respiratory symptoms and low lung function parameters.

▶ Therefore, this study was designed to study the respiratory symptoms among sawmill workers.
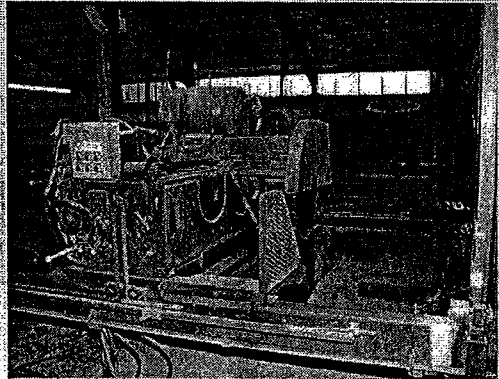
OBJECTIVE

Therefore, this study attempted

▶ to determine the prevalence of respiratory symptoms among sawmill workers and

▶ to determine the association of respiratory symptoms and demographic variables.
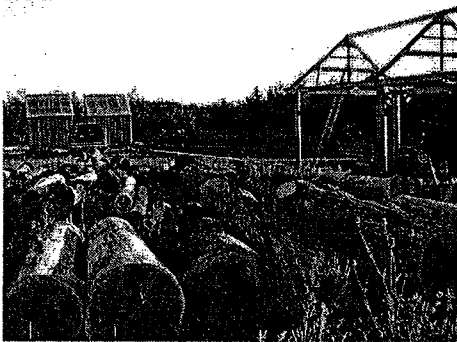
METHODOLOGY

▶ This cross-sectional study was conducted in May to December, 2003. Three sawmills in Kelantan were selected using simple random sampling. Random number generator of Microsoft Excel was used for simple random sampling. Approximately, there are 30 to 50 workers in each sawmill and they have similar work settings in our observation.

▶ We took 3 sawmills so that about 120 workers were expected to be recruited. This sample size was determined to achieve the precision of 10% in determining prevalence which may range from 10% to 90% with 95% confidence.

▶ A modified version of the questionnaire for respiratory symptoms approved by the Medical Research Council Committee on Research into Chronic Bronchitis[5].

▶ Each respiratory symptom was given score and summation of score was calculated as respiratory symptom index. For cough, no cough, morning cough, whole day cough less than 3 month, and more than 3 months were given score 0, 1, 2 & 3 respectively. Similar score was graded for phlegm. Presence of chest tightness was given score 1 whereas zero for absence. For shortness breathe (SOB), zero for absence, 1 for SOB at physical exertion, 2 for SOB during walking with the same age of people, and 3 for SOB at rest.

▶ As the most of the workers are illiterate, interviews were conducted by using the structured questionnaires.

▶ Data were analysed using SPSS version 11.0.
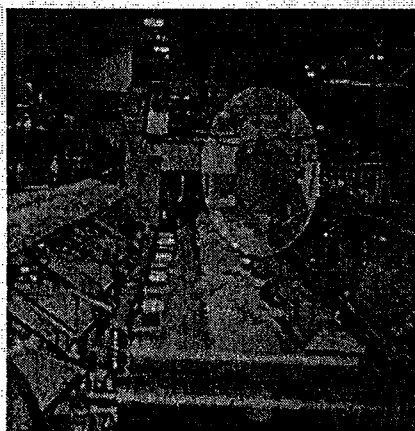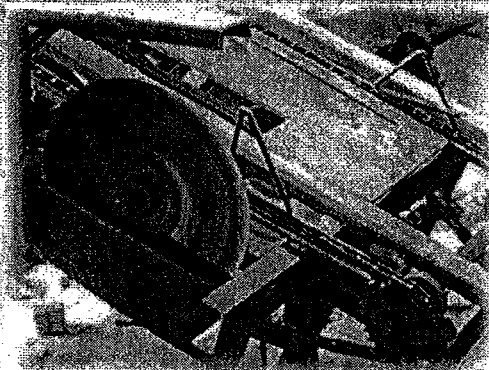
RESULT

A total of 118 workers were interviewed. All were Malay and 79 (66.9%) were male. The mean age was 42.6 (10.15) years. Twenty-one (17.8%) of them never attended the formal education, 56 (47.5%) attended the primary education, and the rest 41 (34.7%) attended secondary or higher level education. Nighty-nine (83.9%) were married. The median duration of employment was 9.5 (IQR 15.0) years (mean 10.6, SD 9.3).
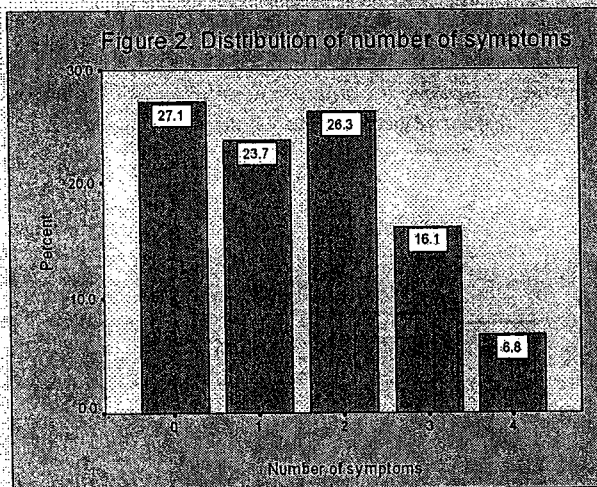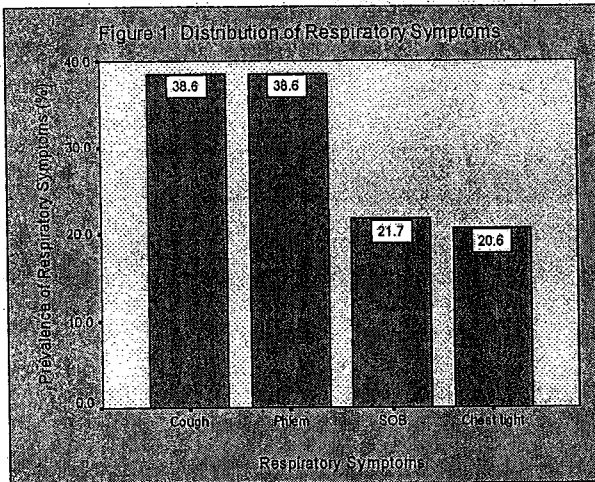
The frequency of cough, phlegm, chest tightness, and shortness of breath are presented in Figure 1.

Distribution of the number of respiratory symptoms is presented in Figure 2.

Figure 1. Distribution of Respiratory Symptoms

Figure 2. Distribution of number of symptoms

RESULT (Cont.)

Figure 3: Distribution of Respiratory Symptom Index
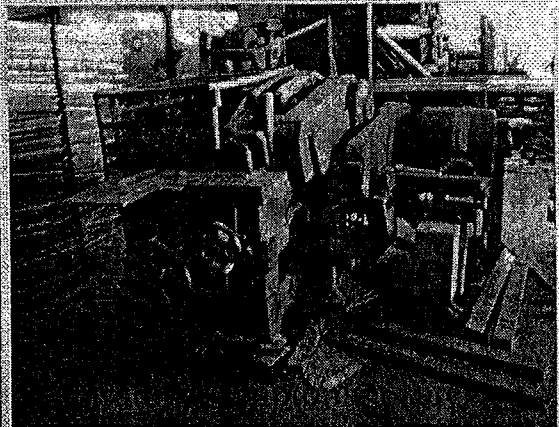
The median respiratory symptom index was 2.0 (min: 0, max: 8) and the distribution of the index was presented in Figure 3.
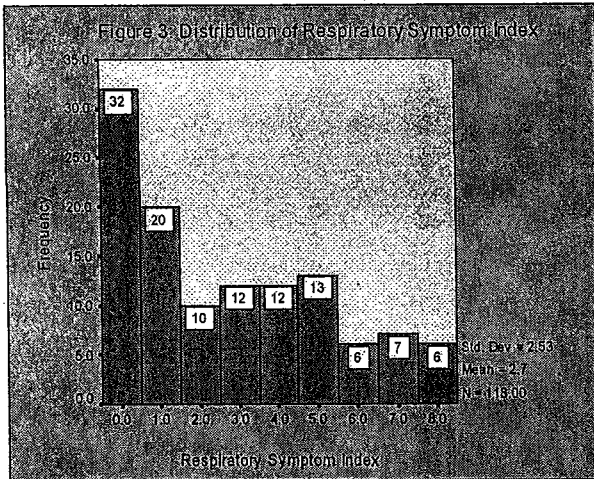
DISCUSSION

► The study revealed that there were considerable respiratory health problem in sawmill workers. About 73% of workers had at least one respiratory symptoms. This prevalence was slightly higher than the prevalence among quarry workers (60%).

► The commonest respiratory symptom was cough and phlegm which were present in 39% of workers. This prevalence was 19% for cough and 31.7% for phlegm in the rice mill study[4] and 10% for cough and 20% for phlegm in the quarry study[3]. These 2 studies and the current study used the same questionnaire, and also having comparable mean duration of employment, so that the results can be compared. It showed that sawmill workers have considerable respiratory health problem.

► The investigation including environmental air sampling, personal air sampling, and lung function test on exposed workers should be considered. The knowledge, attitudes, practice related to good practice at work including application of PPE, should be investigated. As the sawmills in Kelantan are small factories, resources for preventive measures such as to maintain safe work environment could be limited. It should be investigated and necessary actions should be taken.

DISCUSSION (Cont.)

▶ The respiratory symptom index used in this study was designed by authors in this study. Therefore, it cannot be used to compare with other studies yet. The index has to be further studied to evaluate how much it has predictive capacity to lung function. In this study, as an initial stage, the scores were given in each symptom without any weightage. We hope to study the weightage in the future so that a good valid index could be obtained.

▶ CONCLUSION: The study highlights the considerable respiratory health problems among sawmill workers and given several recommendations for the future investigation in sawmill work setting.

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ACKNOWLEDGEMENT

APPENDIX 4:

Lung function parameters in 114 sawmill workers

Parameter	Measured Mean (SD)	Predicted Mean (SD)	% predicted Mean (SD)	P value[a]
FVC (litre)	2.70 (0.73)	3.33 (0.59)	81.0 (15.28)	< 0.001
FEV1 (litre)	2.16 (0.66)	2.85 (0.60)	75.7 (16.66)	< 0.001
MMEF (litre/sec)	2.75 (1.08)	3.86 (0.73)	71.1 (24.54)	< 0.001
PEFR (litre/sec)	3.49 (1.27)	7.47 (1.33)	47.1 (15.63)	< 0.001

[a] Difference between measured and predicted using Paired t test
FVC = Force Vital Capacity
FEV_1 = Force Expiratory Volume in the first second
PEFR = Peak Expiratory Flow rate
MMEF = Maximal Mid Expiratory Flow

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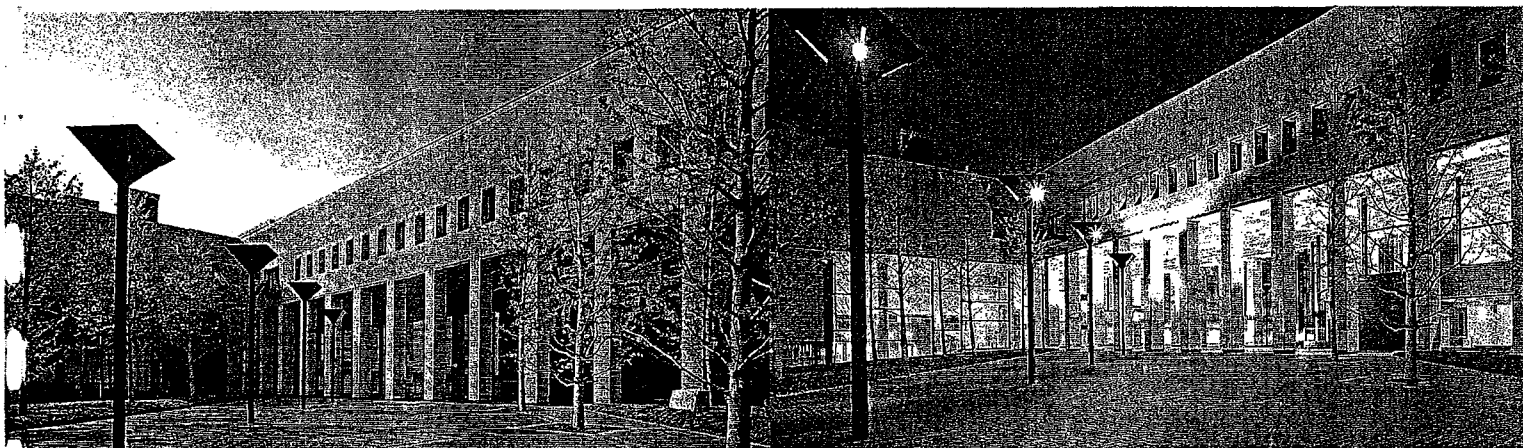
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BOOK OF ABSTRACTS

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Jabatan Perubatan Masyarakat
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Universiti Sains Malaysia
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Curtin 🛡️

11 November 2005

Razlan bin Musa
School of Public Health

Dear Razlan

The Mark Liveris Health Sciences Research Seminar

Congratulations again on being awarded 3rd prize for your paper presentation. I have enclosed a form for you to complete in order to receive the $200.

On behalf of Professor Mike Garlepp, Acting Executive Dean and Professor Jeff Spickett, Dean of Graduate Studies, Health Sciences, I would like to thank you again for your participation in the seminar. Feedback from the judging panel on your presentation is included below.

Comments, both at the seminar and since, have shown that the event was a great success and thoroughly enjoyed by those who participated and attended. The standard of presentations was extremely high and will be a challenge to match up to for those applying to present next year!

We hope that you will promote the event to your colleagues – both potential presenters and to all students and staff to attend and enjoy the vast range of research being carried out across the Division.

I have enclosed a copy of the Book of Abstracts in case you did not have the opportunity to pick one up at the event.

Yours sincerely

Lorraine Rivers
Graduate Services Administrator
Health Sciences

Judges comments:

Good, concise presentation on a very important health issue, covering a large body of experimental data. The aims and objectives were clear and the results supported the conclusions made. Questions were well answered and you interacted well with the audience. Good to see limitations of the study were acknowledged.

Curtin

UNIVERSITY OF TECHNOLOGY

DIVISION OF HEALTH SCIENCES

THE MARK LIVERIS HEALTH SCIENCES RESEARCH STUDENT SEMINAR

THURSDAY, 10th NOVEMBER 2005
HAYDN WILLIAMS LECTURE THEATRE

This is to certify that

Razlan bin Musa

School of Public Health

is awarded a

CERTIFICATE OF EXCELLENCE

for presentation of the paper entitled:

Exposure to Rice Husk Dusts and Respiratory Abnormalities: A Case-Control Evaluation

_____

Professor Michael Garlepp, Acting Executive Dean (Health Sciences)

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Effectiveness of a Workplace Intervention Program Among Workers Exposed to Dust in Malaysia

Razlan BM[1], Spickett JT[1], Rumchev K[1], Naing LL[2]
[1]:School of Public Health, Curtin University of Technology, Western Australia
[2]:School of Dental Sciences, Universiti Sains Malaysia, Kelantan,Malaysia.

Introduction
The need for conducting studies on intervention effectiveness were among identified area for further research. This study evaluates the effectiveness of multiple strategies intervention program in improving knowledge, attitude and practices (KAP) in relation to dust related illnesses in rice mills.

Methods
Forty-nine rice mill workers from four rice mills took part in the following intervention program; lectures, small group discussion, video sessions, pamphlets and posters as well as with their health feedback from earlier screening which includes chest x ray findings and lung function tests results. Using repeated measure analysis of variance (ANOVA),changes in score of pre and post test of KAP were examined in comparison with rice mill workers from other non intervention mills.

Results
The intervention group made significant gains over the non- intervention group on pre test-post test measures of certain sub domains of knowledge, attitude and practices.

Conclusion
It is concluded that multiple strategies workplace intervention program can positively improved the health awareness and practices. Findings of this evaluation provide useful information for the management in a measures to improve workplace health and safety through workers' participation, which can complement engineering controls which are the more appropriate long term solution in minimizing exposure.

APPENDIX 6

VALIDATION OF QUESTIONNAIRE FOR KNOWLEDGE, ATTITUDES, AND PRACTICE RELATED TO RESPIRATORY HEALTH HAZARDS AND RISKS AT WORKPLACES

Authors : *Lin Naing*[1], *Razlan Musa*[2], *Rusli Nordin*[1], *Zulkifli Ahmad*[2], *Abdul Kareem*[3], *Azwan Aziz*[2]

Institution : [1] *School of Dental Sciences, Universiti Sains Malaysia;* [2] *Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia* [3] *Department of Radiology, School of Medical Sciences, Universiti Sains Malaysia*

Introduction :

Workplaces especially dusty places have considerable respiratory health hazards. To minimize the risk, practice of workers has played an important role. Therefore, it is important to assess workers regarding their Knowledge (K), Attitudes (A), and Practice (P) related to respiratory hazards in dusty workplaces.

Purpose :

To develop and validate the questionnaire for K, A, and P related to respiratory health hazards.

Methods :

A workshop was conducted (participants: three occupational health specialists and five trainees) to develop the first version of questionnaire. Based on the item-analysis on a pilot study (42 sawmill workers), the second version was developed. After conducting a larger study (277 saw mill and rice mill workers), the final version was developed according to the item-analysis.

Results :

The first version of the questionnaire consisted 79, 82 and 29 items for K, A, and P respectively. Only 62, 49 and 28 items for K, A, and P respectively remained in the second version. Only 25, 15 and 12 items for K, A, and P respectively remained in the final version. The final version achieved the internal consistency reliability of 0.78, 0.70, and 0.81 for the domains of K; 0.71 and 0.82 for the domains of A; and 0.70 for the P. Factor analysis also revealed that selected items were appropriate in their corresponding domains.

Conclusion :

The final version was considered short and accurate in terms of content validity, construct validity and internal consistency reliability.

Keywords : *Attitudes, hazards, knowledge, practice, respiratory health, questionnaire, validation*

9th National Conference on Medical Sciences

LEVEL OF KNOWLEDGE, ATTITUDES AND PRACTICE AMONG SAW MILL WORKERS IN KELANTAN

Authors : *Lin Naing[1], Razlan Musa[2], Rusli Nordin[1], Zulkifli Ahmad[2], Abdul Kareem[3], Azwan Aziz[2]*

Institution : *[1] School of Dental Sciences, Universiti Sains Malaysia; [2] Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia; [3] Department of Radiology, School of Medical Sciences, Universiti Sains Malaysia*

Introduction :

Workplaces especially dusty places have considerable respiratory health hazards. To minimize the risk, practice of workers has been an important role. Therefore, it is important to assess workers regarding their Knowledge (K), Attitudes (A), and Practice (P) related to respiratory hazards in dusty workplaces.

Purpose :

The study explored the level of K, A, and P related to respiratory health hazards among saw mill workers in Kelantan.

Method :

A random sample of 118 saw mill workers were recruited as the study sample. The KAP related to respiratory health hazards was explored using a validated self-administered questionnaire. The prevalences of those below satisfactory scores were calculated.

Results :

There were 33.1%, 58.5%, and 53.4% of workers having below satisfactory level (80 percent-score) of knowledge related to respiratory health hazards and risks, prevention of respiratory diseases, and legislation at workplace respectively. There were 53.4% and 53.8% of workers having below satisfactory level (62.5 percent-score) of attitudes towards risk-taking, and prevention activities respectively. The prevalence of below satisfactory level (80 percent-score) for practice was 74.4%. Knowledge scores were significantly correlated with practice score (r were .30 and .26 for respiratory hazards and risks, and legislation respectively).

Conclusion :

There was a high prevalence of unsatisfactory level of KAP among saw mill workers in Kelantan. An appropriate intervention should be carried out.

Keywords :

Attitudes, hazards, Kelantan, knowledge, practice, respiratory health

LEVEL OF KNOWLEDGE, ATTITUDES, AND PRACTICE AMONG SAWMILL WORKERS IN KELANTAN

Authours:
Dr Lin Naing @ Mohd. Ayub Sadiq (PPSG)
Asso. Prof. Razlan Musa (PPSP)
Professor Rusli Nordin (PPSG)
Asso. Prof. Zulkifli Ahmad (PPSP)
Dr Abdul Kareem (PPSP)
Encik Azwan Aziz (PPSP)
Cik Mazalisah Matsah (PPSG)

Introduction
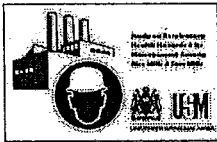
- **Workplaces especially dusty places have considerable respiratory health hazards.**
  - ☼ Rice mill workers are potentially exposed to organic and inorganic dusts that may have adverse effects on respiratory health (Standards and industrial research institute of Malaysia, 1983).
  - ☼ Lim *et al.* (1984) reported that among Malaysian rice mill workers, significant high prevalence of irritant cough with phlegm (42%) and nodular opacities on CXR (15%) compared to control.
  - ☼ A study done in India (Bhat & Ramaswamy, 1991) reported that that both rice mill and saw mill workers had significantly poorer lung functions in terms of (FVC, FEV1, and PEFR) than controls. Saw mill workers were affected worse than rice mill workers in their study.

Introduction

- To minimize the risk, daily practice of workers has been an important role. Therefore, it is important to assess workers regarding their Knowledge (K), Attitudes (A), and Practice (P) related to respiratory hazards in dusty workplaces.

Objective

- Therefore, the study aimed to explore the level of knowledge (K), attitude (A), practice (P) related to respiratory health hazards among saw mill workers.

Methodology

- Study design: Cross-sectional study
- Population & Sample:
  - Sawmill workers in Kelantan
  - Three (3) sawmills were randomly selected (SRS) from 10 listed sawmills (obtained from Yellow Pages) in Kelantan (average 40 processing workers in each factory).
  - Sample size was estimated as 97 in order to achieve a precision of 0.1 for a range of expected proportions (score below satisfactory level) of 20-80% (expected by researchers).

Methodology

- KAP Questionnaire developments
  - A workshop was conducted (participants: three occupational health specialists and five trainees) to develop the first version of questionnaire (consisting 79, 82 and 29 items for K, A, and P respectively).
  - With a pilot study (42 saw mill workers), then followed by a bigger study (277 saw mill and rice mill workers), item-analysis was done. Based on the result, the final version of the questionnaire was developed (25, 15 and 12 items for K, A, and P respectively).
  - Contents, Reliability & Validity (see details in Appendix)

Result

Table 1: Sociodemographic Characteristics of 118 saw mill workers

Variable	Freq	(%)	Mean	(SD)
Age (year)			42.5	(10.15)
Duration of current work (year)			10.6	(9.36)
Gender				
Male	79	(66.9)		
Female	39	(33.1)		
Ethnic				
Malay	116	(98.3)		
Chinese	2	(1.7)		
Education level				
No school	21	(17.8)		
Primary	56	(47.5)		
Secondary	38	(32.2)		
> Secondary	3	(2.5)		
Marital status				
Single	10	(8.5)		
Married	99	(83.9)		
Divorce	4	(3.4)		
Widow	5	(4.2)		

- Socio-demographic characteristics of 118 workers
- Age range from 18 to 60 years old
- Majority was male (66.9%) and Malay (98.3%).
- 34.7% completed at least primary school education.

3

Result

Table 3: Descriptive statistics of KAP level of 118 sawmill workers

	Median	(Q1, Q3)	Min	Max
K (Hazard)	85.0	(68.8, 90.0)	25.0	100.0
K (Control Hazard)	75.0	(55.0, 80.0)	10.0	100.0
K (Legislation)	70.0	(50.0, 100.0)	0.0	100.0
A (Risk Awareness)	60.0	(50.0, 87.5)	15.0	100.0
A (Control Hazard)	85.0	(75.0, 95.0)	52.5	100.0
P (Control Hazard)	70.0	(50.0, 80.0)	0.0	90.0

Q1=First Quartile; Q3=Third Quartile; Min=Minimum; Max=Maximum
All scores were negatively skewed (to the left)

Result
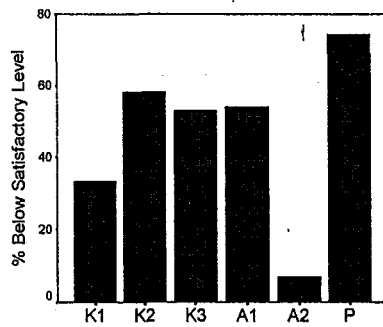
- There were 33.1%, 58.5%, and 53.4% of workers with un-satisfactory level of knowledge related to respiratory health hazards and risks, prevention of respiratory diseases, and legislation at workplace respectively (below 80 percent-score).

- There were 53.4% & 53.8% of workers with unsatisfactory level (below 62.5 percent-score) of attitudes towards risk-taking, and prevention activities respectively. The prevalence of below satisfactory level (80 percent-score) for practice was 74.4%.

- Knowledge scores were significantly correlated with practice score (r 0.30 & 0.26 for hazards, and legislation respectively).

4

Discussion

- Setting the satisfactory level for KAP may vary from a study to another. Our settings was made by researchers considering the contents. Eighty percent of the knowledge questions were considered that workers should know.
- For attitudes, 50 percent-score is no opinion and it ranges from 37.5 to 62.5. Therefore, above 62.5 percent-score was considered right direction of attitudes.
- Similarly, cut-off point for Practice was considered 80 percent-score.
- According to these cut-off points, the prevalence of unsatisfactory level for KAP of workers were very high.
- However, as the questionnaires was newly developed, we cannot make any comparison with other populations yet.

Recommendation

- The study strongly indicates the need for intervention in this working group.
- Similar studies should be done in other population so that comparison can be made and the validation of the questionnaires can be further improved.

Conclusion

- The study revealed that KAP level of workers were significantly low which strongly indicates to conduct an appropriate intervention. The study also highlighted the need for further development of the questionnaires.

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APPENDIX 8: PUBLICATION

PUBLISHED A CHAPTER IN BOOK

1. Lin Naing (2005). Level of knowledge, attitude, practice related to respiratory health hazards among saw mill workers in Kelantan In "Study on Public Health in Asia". New Jersey: Rinton Press. (ISBN 1-58949-047-9) (Title page attached in this appendix)

CONFERENCE PRESENTATION

1. Razlan Musa, Jeffery Spickett, Krassi Rumchev and Peter Howatt (2005). Exposure to rice husk dust and respiratory abnormalities: A case control evaluation (oral presentation). The Mark Liveris Health Sciences Seminar 2005, Curtin University of Technology, Perth, Western Australia (3rd prize winner) (Appendix 5)

2. Razlan Musa, Jeffery Spickett, Krassi Rumchev and Naing L. Effectiveness of workplace intervention program in relation to knowledge, attitude and practices towards dust related illnesses in Malaysia (oral presentation). The 13th International Congress of Occupational Health (ICOH), 1-3 December 2005, Utsunomiya Japan. (Appendix 5)

3. Lin Naing, Razlan Musa, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem, Azwan Aziz, Mazalisah M. Level of knowledge, attitude and practice related to respiratory health hazards among saw mill workers in Kelantan. Sino-Japenese International Symposium on Public Health in the 21st Century. August 19-21, 2004 Hefei, China. (Appendix 1)

4. Lin Naing, Razlan Musa, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem, Azwan Aziz. Validation of questionnaire for knowledge, attitude, and practice related to respiratory health hazards and risks at workplaces. 9th National Conference on Medical Sciences, 22-23 May 2004, Universiti Sains Malaysia, Kubang Kerian, Kelantan. (Appendix 6)

5. Lin Naing, Razlan Musa, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem, Azwan Aziz. Level of knowledge, attitude and practice among saw mill workers in Kelantan. 9th National Conference on Medical Sciences, 22-23 May 2004, Universiti Sains Malaysia, Kubang Kerian, Kelantan. (Appendix 7)

6. Lin Naing, Razlan Musa, Rusli Nordin, Zulkifli Ahmad. Respiratory symptoms among sawmill workers in Kelantan. 10th National Conference on Medical Sciences, 21-22 May 2005, Universiti Sains Malaysia, Kubang Kerian, Kelantan. (Appendix 3).

PAPERS IN PROCESS

1. Lin Naing, Razlan Musa, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem. Respiratory health effect of saw dust exposure in kelantan. (to be published in the Southeast Asian Journal of Tropcial Medicine and Public Health).

2. Razlan Musa, Jeffery Spickett, Krassi Rumchev, Lin Naing, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem. Exposure to rice husk dust and respiratory abnormalities. (to be published in the Industrial Health Journal).

3. Razlan Musa, Jeffery Spickett, Krassi Rumchev, Lin Naing, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem. Effectiveness of workplace intervention program in relation to knowledge, attitude and practices towards dust related illnesses in Malaysia. (To be published in the Industrial Health Journal).

4. Lin Naing, Razlan Musa, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem. Application of respiratory symptom index for screening of dust-exposed workers. (To be published in the Industrial Health Journal).

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Studies on Public Health in Asia

200 pages 11x8.5 inches
Oct 2005 Hardcover
ISBN 1-58949-047-9
US$78

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ed: **Jin Huiqing**

Description:

Striking Breakthroughs have been made in the studies of disease prevention and treatment among some Asian countries, especially China, Japan and Malaysia, in the past years. This book is aimed at reporting the latest academic progress in the researches on public health in Asia, including road injuries, SARS, AIS, and occupational and other health problems, with new techniques and approaches of prevention and treatment. The 30 contributions of the book by public health experts from all over the world cover a wide range of health problems with the first hand data and in-depth analysis, and it makes the book very valuable for these who are interested in the public health issues.

Contents:

Part 3: Occupational and Environmental Health

Part 4: Others

APPENDIX 9: LIST OF VIDEOS

1. Lin Naing, Razlan Musa, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem, Azwan Aziz. "HAZARD OF DUST-EXPOSURE AT WORKPLACE" (Used in Intervention Programme)

2. Lin Naing, Razlan Musa, Rusli Nordin, Zulkifli Ahmad, Abdul Kareem, Azwan Aziz. "HOW TO PERFORM LUN FUNCTION TEST" (Used in conducting Lung Function Tests).

APPENDIX 10: INTERVENTION PROGRAMME

1. TITLE PAGE WITH SEKAPUR SIREH

2. SEPATAH KATA & ATURCARA SEMINAR

PAMPHLET:

3. PAMPHLET: JIKA ANDA MEROKOK & BEKERJA TEMPAT BERHABUK

4. PAMPHLET: ANDA SEORANG PEKERJA - KETAHU UNDANG-UNDANG YANG MELIBATKAN ANDA

5. PAMPHLET: PENGGUNAAN DAN PENJAGAAN PERALATAN PERLINDUNGAN DIRI (PPD)

6. PAMPHLET: APA YANG DOKTOR PERIKSA? PEMERIKSAAN AM PEMERIKSAAN KHUSUS

7. PAMPHLET: AMALAN 5'S DI TEMPAT KERJA - BUDAYA KERJA SIHAT DAN SELAMAT

8. PAMPHLET: ANDA SEORANG PEKERJA - PERKARA BERIKUT BOLEH JADI BERBAHAYA!

9. PAMPHLET: PENYAKIT PARU PARU PEKERJAAN

10. PAMPHLET: ANCAMAN DEBU KE ATAS KESIHATAN

LECTURE:

11. LECTURE: PENYAKIT PARU PARU PEKERJAAN

12. LECTURE: MEROKOK: TEPATKAH KEPUTUSAN ANDA?

13. LECTURE: ALAT PERLINDUNGAN DIRI

14. LECTURE: MAKLUMBALAS KESIHATAN

15. LECTURE: PENGURUSAN RISIKO

SEMINAR INTERVENSI PROGRAM 'PENINGKATAN PRODUKTIVITI MELALUI KESEDARAN KESELAMATAN & KESIHATAN' (PROKES)

ANJURAN:

GERAN PENYELIDIKAN IRPA USM

STUDY ON RESPIRATORY HEALTH HAZARDS & ITS MANAGEMENT AMONG RICE MILL & SAW MILL WORKERS

(IRPA: 06-02-05-0026)

PADA:
19 JUN 2004

TEMPAT:
PUSAT PENGAJIAN SAINS PERGIGIAN, USM,
KUBANG KERIAN, KELANTAN

USM

SEKAPUR SIREH

Kata-Kata Aluan Ketua Projek

Assalamualaikum wb t

Selamat datang kepada semua peserta seminar ke Seminar Intervensi Program "Peningkatan Produktiviti melalui Kesedaran Keselamatan & Kesihatan (PROKES) Kampus kesihatan bukan sahaja diberi tugas untuk melatih graduan-graduan perubatan tapi juga aktif dalam bidang penyelidikan. Bidang penyelidikan yang dijalankan adalah bertujuan untuk mencari ilmu dan menyebarkan pengetahuan kepada orang ramai

Seminar ini adalah suatu kesinambungan bidang penyelidikan dan mempromosikan Gaya Hidup Sihat.Sama ada dalam aktiviti harian dan juga tempat kerja.Bidang Kesihatan dan keselamatan adalah sesuatu yang diketahui umum tetapi dalam mengejar sesuatu keuntungan, sesungai aspek-aspek ini diketepikan

Seminar ini mempunyai objektif untuk meningkatkan kesedaran dan pengetahuan dalam bidang keselamatan dan kesihatan di tempat kerja.Produktiviti dijangka akan meningkat apabila mengamalkan kaedah keselamatan yang mudah di gunakan praktikal dan berkos rendah. Di harap sedini i sebanyak para peserta mendapat sesuatu sebanyak-nya pengetahuan daripada seminar ini dan dapat dijadikan panduan dalam tatacara Kesehatan dan Kesihatan di tempat kerja

Sekian. Selamat datang ke seminar ini dan selamat berseminar. Semoga ia memberi maanfaat kepada semua

Wassalam

(signature)

DR. LIN NAING@MOHD AYUB SADIQ
KETUA PROJEK
Study On Respiratory Health Hazards &
Its Management Among Rice Mill & Saw
Mill Workers (TRPA: 06-02-05-0026)

SENARAI KILANG YANG TERLIBAT

BIL	NAMA
1	KOMPLEKS BERNAS PERINGAT, KELANTAN
2	KOMPLEKS BERNAS TUMPAT, KELANTAN
3	KOMPLEKS BERNAS BUKIT KENAK, JERTEH, TERENGGANU
4	KOMPLEKS BERNAS PASIR PUTEH, KELANTAN

AHLI JAWATANKUASA PENGANJUR

PENAUNG : PROFESOR DR. RUSLI NORDIN

PENYELARAS : PROF. MADYA DR. RAZLAN MUSA

AJK PENYELARAS:

DR. LIN NAING @ MOHD AYUB SADIQ

EN. AZWAN BIN AZIZ

CIK MAZALISAH BINTI MATSAH

CIK PUTRI NURUL IZZA RUSLI

EN. KAMARUDIN BIN HUSSIN

EN. EDIMANSYAH BIN ABDIN

SEPATAH KATA

Kata-Kata Aluan Penyelaras
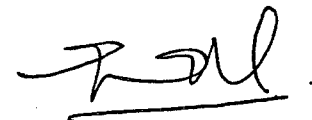
Assalamualaikum w.b.t

Aspek-aspek keselamatan dan kesihatan di tempat kerja adalah suatu bidang yang seringkali dilupakan dalam mengejar produktiviti harian. Walhal dengan peningkatan aspek-aspek keselamatan dan kesihatan sesuatu syarikat dapat meningkatkan produktiviti mereka. Misalnya jika seseorang pekerja itu sakit atau tercedera selain daripada tidak dapat melaksanakan kerja, kos yang lain pula timbul seperti kos rawatan dan sebagainya. Di samping itu juga sesuatu syarikat itu perlu menggantikan orang lain pula untuk membuat pekerjaan, akibatnya pengeluaran serba sedikit akan terjejas.

Majikan dan pekerja mempunyai tanggungjawab masing-masing untuk mengekalkan keselamatan dan kesihatan di tempat kerja selaras dengan Akta Keselamatan dan Kesihatan Pekerjaan 1994. Tatacara keselamatan dan kesihatan tidak semestinya memerlukan perbelanjaan yang besar untuk melaksanakannya. Kadang-kadang cara yang mudah dan murah boleh dipraktikkan untuk meningkatkan keselamatan dan kesihatan dan seterusnya produktiviti sesuatu syarikat.

Saya sebagai Penyelaras Seminar ini berharap, melalui seminar ini boleh memberi manfaat kepada semua peserta dalam meningkatkan keselamatan dan kesihatan di tempat kerja.

Sekian, terima kasih dan selamat berseminar.

Profesor Madya Dr. Razlan Musa
Penyelaras Seminar PROKES

OBJEKTIF SEMINAR

◈

Meningkatkan kesedaran keselamatan dan kesihatan di tempat kerja

◈

Mengetahui perundangan berkaitan keselamatan dan kesihatan

◈

Meningkatkan sikap dan amalan yang sihat dan seterusnya meningkatkan produktiviti kerja

ATURCARA SEMINAR
Hari: Sabtu (19.06.2004)

Masa	Aktiviti
8.30 - 9.00	Pendaftaran
9.00 - 9.10	Perasmian
9.10 - 9.30	Jamuan teh / Sesi bergambar
9.30 - 10.00	Survei KAP
10.00 - 10.15	Tayangan video 1 –Pekerjaan & Kesihatan
10.15 - 10.35	Ancaman Debu ke atas Keselamatan & Kesihatan
10.35 - 10.55	Penyakit Paru paru pekerjaan
10.55-11.10	Tayangan Video 2- Kekemasan tempat kerja
11.10-11.30	Merokok & Kesihatan
11.30-11.50	Alat Perlindungan Diri
11.50-12.10	Maklumbalas Kesihatan
12.10-12.30	Perundangan Keselamatan & Kesihatan
12.30-12.40	Kuiz Program
12.40-2.30	Rehat & Makan Tengahari Tayangan video 3
2.30-2.50	Pengurusan risiko
2.50-3.40	Perbincangan Kumpulan
3.40-4.10	Persembahan wakil
4.10-4.30	Perbincangan
4.30-4.45	Penyampaian sijil
4.45-5.00	Cabutan Bertuah
5.00	Jamuan teh & Bersurai

AKUJANJI

Saya _____
telah berhenti merokok. Saya sesungguhnya berjanji tidak akan merokok lagi.

_____
Tandatangan

Tarikh: _____

Saksi: _____

JADI TIBA MASANYA ANDA MULA LANGKAH ANDA

1. *LANGKAH PERTAMA*

Tanya diri anda........ Mengapa saya merokok

2. *LANGKAH KEDUA*

Buat ketetapan tarikh untuk berhenti

3. *LANGKAH KETIGA*

Tandatangan akujanji

4. *LANGKAH KEEMPAT*

Ingat akujanji

5. *LANGKAH KELIMA*

Elak rasa ketagih

JIKA ANDA MEROKOK & BEKERJA TEMPAT BERHABUK

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TELEFON: 09-766 4064/3743

EMAIL: razlan@kb.usm.my / naing@kck.usm.my

Merokok menyebabkan

1. Berbagai penyakit paru-paru
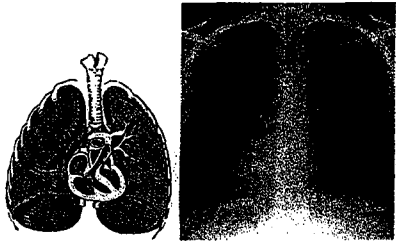
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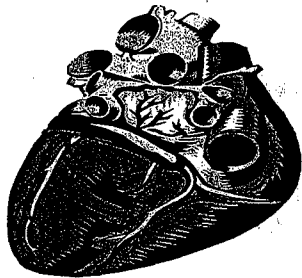
3. Berbagai penyakit lain

➢ Kanser mulut dan berbagai kanser yang lain
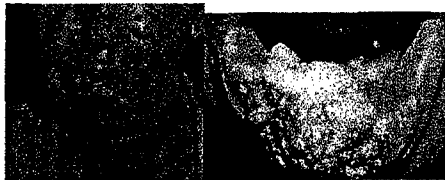
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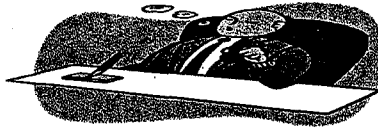
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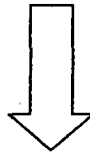
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MENINGGIKAN
RISIKO PENYAKIT
PARU-PARU
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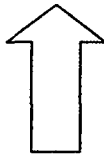
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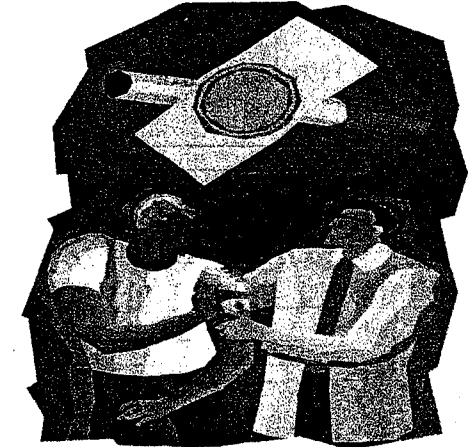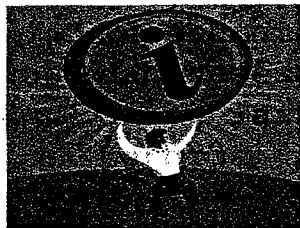
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43650 BANGI, SELANGOR.

TELEFON: 03-89261900/03-89262900

SEBAHAGIAN DARI TANGGUNGJAWAB ANDA

- Menjaga keselamatan diri dan keselamatan orang lain semasa bekerja

- Bekerjasama dengan majikan atau pegawai tertentu yang melaksanakan undang-undang

- Memakai / menggunakan alat perlindungan diri

- Menurut segala arahan & langkah keselamatan dan kesihatan sebagaimana yang diperlukan dalam Akta dan Peraturan.

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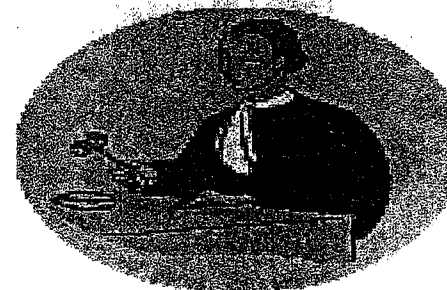
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Keselamatan & Kesihatan PROKES (07)

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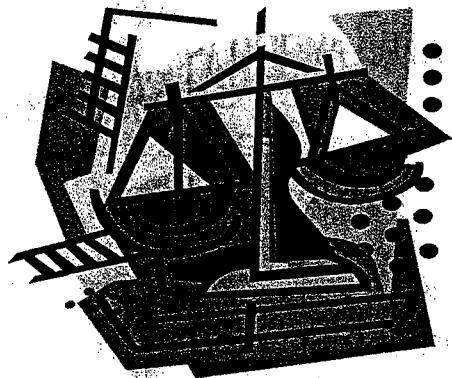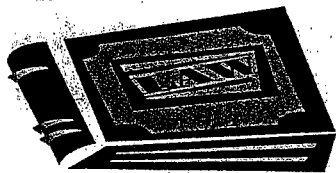
KETAHUI HAK ANDA......!!!

KETAHUI TANGGUNGJAWAB ANDA......!!!!!!

SEBAHAGIAN DARIPADA HAK ANDA

- Mendapat maklumat, latihan & penyeliaan berkenaan keselamatan & kesihatan

- Bekerja dalam persekitaran yang selamat dengan kemudahan kebajikan yang mencukupi

TANDAKAN PADA SENARAI SEMAKAN!!!!!!!

Saya berminat untuk mendapat maklumat lanjut

1. Mengenai OSHA ☐

2. Jawatankuasa Keselamatan & Kesihatan Pekerja ☐

3. Tugas dan tanggungjawab Pekerja ☐

4. Tugas dan tanggungjawab Majikan ☐

5. Lain-lain (Senaraikan): ☐

_____

ALATAN KESELAMATAN YANG DIGUNAKAN MESTILAH DISIMPAN DI TEMPAT YANG SELAMAT:-

- STOR

- ALMARI KESELAMATAN

Setiap peralatan yang telah rosak dan terlalu lama perlu dilupuskan agar tidak mendatangkan risiko kecederaan kepada pekerja………

INI DAPAT MENGURANGKAN RISIKO KEMALANGAN DI TEMPAT KERJA ……….

PATUHILAH ARAHAN…..
AKTA KESELAMATAN DAN
KESIHATAN PEKERJAAN
YANG TELAH
DITETAPKAN!!!!
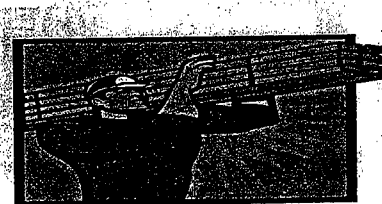
PENGGUNAAN DAN
PENJAGAAN
PERALATAN
PERLINDUNGAN
DIRI (PPD)
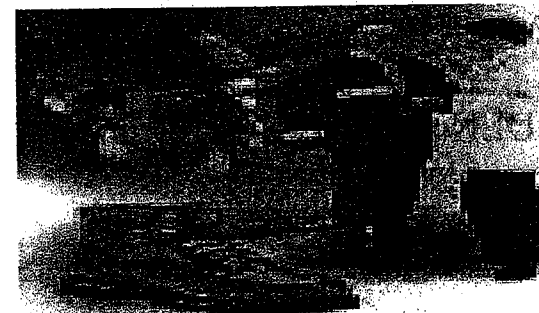
TAHUKAH APA TANGGUNGJAWAB ANDA SEBAGAI SEORANG PEKERJA………!!!!!!

SETIAP PEKERJA PERLU MENJAGA DAN MENGGUNA PERALATAN YANG DISEDIAKAN DENGAN SELAMAT DAN BAIK………

BAGAIMANA CARANYA!!!!
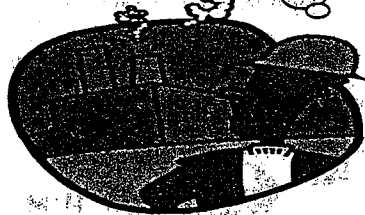
SETIAP PEKERJA PERLU MENJAGA PERALATAN SEPERTI:

- Mesin
- Jentera
- Alat keselamatan diri
- Topi keselamatan
- Cermin mata keselamatan (goggles)
- Penutup hidung & telinga
- Baju tangan panjang (overall)
- Sarung tangan
- Seluar panjang
- Kasut keselamatan

SEMUA PERALATAN YANG DIGUNAKAN PERLU DISELENGGARAKAN DENGAN BAIK DAN SELAMAT!!!!!.

BAGAIMANA CARANYA!!!!

- Pastikan semua Peralatan Perlindungan Diri (PPD) dalam keadaan baik dan selamat

- Mematuhi segala arahan penggunaan Peralatan Perlindungan Diri (PPD) pada setiap masa

- Peralatan Perlindungan Diri (PPD) mesti mematuhi piawaian keselamatan yang ditetapkan

PEMERIKSAAN KESIHATAN PEKERJA

APAKAH FAEDAHNYA??

1. Mengetahui status kesihatan diri
2. Dapat mencegah penyakit jadi serius
3. Kita tidak melanggar undang-undang
4. Berguna untuk tuntutan pampasan

JENIS PEMERIKSAAN KESIHATAN PEKERJA

1. Pemeriksaan sebelum bekerja
2. Pemeriksaan berkala
3. Pemeriksaan statut (ikut undang-undang)
4. Pemeriksaan selepas sakit

Jika ada sebarang pertanyaan, sila hubungi kami:

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EMAIL: razlan@kb.usm.my / naing@kck.usm.my

PEMERIKSAAN AWAL

PEMERIKSAAN KHUSUS

BAGAIMANA DENGAN ANDA SENDIRI?

Pemeriksaan	Pernah	Tak Pernah
Pemeriksaan kesihatan sebelum bekerja (dahulu)		
Pemeriksaan berkala (tahunan)		
Pemeriksaan selepas ditimpa kemalangan / sakit		

PEMERIKSAAN AM

Keadaan fizikal am

- Pemeriksaan tanda-tanda penting:

> - Tekanan darah
> - Denyutan jantung/nadi
> - Berat / Tinggi

PEMERIKSAAN KHUSUS

UNTUK ANDA..........

- Pemeriksaan sistem pernafasan:

> - Pemeriksaan dada
> - Pemeriksaan paru-paru
> - X-ray dada
> - Ujian paru-paru
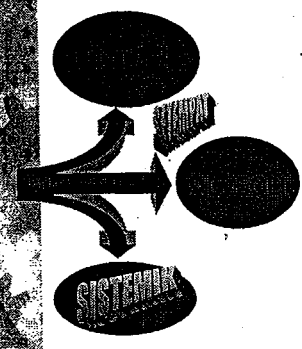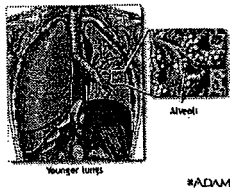> - Ujian lain seperti:
>
>   kahak

BAGAIMANA DENGAN BAYARAN????

☑ *Tanggungjawab Majikan*
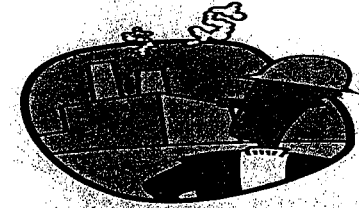
ADAKAH TERDAPAT UNDANG-UNDANG YANG KERAJAAN BOLEH KUATKUASAKAN?

Contoh:-

Akta Kilang & Jentera (1967)

- Peraturan bunyi bising
- Peraturan debu mineral
- Peraturan pendedahan plumbum
- Peraturan Asbestos

Kelebihan Amalan Kerja 5'S

Di antara kelebihan organisasi yang mengamalkan budaya kerja 5's adalah:

1. Ia boleh dilakukan dengan mudah, cepat dan boleh dimulakan dari sekarang.
2. Semua majikan dan pekerja boleh melibatkan diri.
3. Memberi kesan yang baik terhadap sistem pengurusan kerja.
4. Memudahkan dan mempercepatkan masa kerja.
5. Meningkatkan kualiti kerja.
6. Meningkatkan tahap keselamatan dan kesihatan pekerjaan.
7. Meningkatkan moral dan budaya kerja.
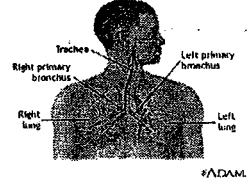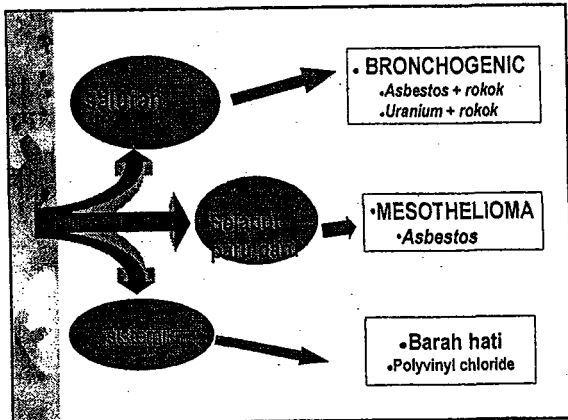8. Meningkatkan produktiviti kerja

Jika ada sebarang pertanyaan, sila hubungi kami:

Unit Keselamatan & Kesihatan Pekerjaan
Jabatan Perubatan Masyarakat,
Pusat Pengajian Sains Perubatan
Universiti Sains Malaysia, Kampus Kesihatan
16150 Kubang Kerian
Kelantan (u.p.: Prof. Madya Dr. Razlan Musa)

Telefon: 09-766 4064
Fax: 09-765 3370
Email: razlan@kb.usm.my

Amalan 5'S Di Tempat Kerja

BUDAYA KERJA SIHAT DAN SELAMAT

SIRI KESELAMATAN & KESIHATAN PEKERJAAN DI TEMPAT KERJA

Pengenalan
Apa itu Amalan Budaya 5'S Di Tempat Kerja?

Amalan budaya kerja 5'S adalah satu program kerja yang sistematik yang diamalkan di dalam sesuatu organisasi di tempat kerja bertujuan untuk mencapai matlamat pengurusan organisasi yang bersih, selamat, cekap, produktif dan mencapai standard yang tertentu. Ini akan meningkatkan lagi moral dan semangat kepada pekerja, melahirkan rasa berbangga dengan kerja mereka dan bertanggungjawab.
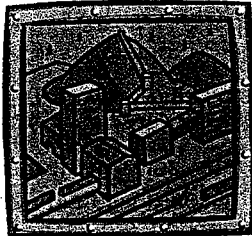
5'S telah diperkenalkan di negara Jepun dan mengandungi lima perkataan bermula dengan huruf "S":

1. Seiri
2. Seiton
3. Seiso
4. Seiketsu
5. Shitsuke

DEFINISI 5'S

Setiap organisasi di pelbagai syarikat mengamalkan sistem pengurusan kerja yang berlainan seperti "Just In Time (JIT) production", "Total Productive Maintenance (TPM)" atau "Total Quality Management (TQM) untuk kepuasan organisasi dan pelanggan mereka. Amalan 5'S adalah salah satu sistem pengurusan yang biasa diamalkan.

Seiri: bermaksud *mengemas* atau *"Clearing Up"*. Kemaskan dan buangkan kesemua sampah atau bahan-bahan yang tidak berkaitan di tempat kerja. Buat senarai bahan-bahan yang diperlukan dan bahan yang tidak diperlukan. Aturkan mengikut susunan yang berkepentingan sahaja.

Seiton: bermaksud *mengatur* atau *"Organizing"*. Aturkan bahan-bahan di tempat yang betul dan bersistematik. Letakkan tanda di mana bahan itu diletakkan.

Seiso: bermaksud *membersih* atau *"Cleaning*. Bersihkan tempat kerja selalu. Bersihkan kekotoran. Baiki kerosakan bahan. Kenalpasti sumber kekotaran dan lakukan rutin pembersihan

Seiketsu: bermaksud *mempiawaian* atau *"Standardization"*. Memastikan semuanya adalah teratur, sistematik dan bersih dalam semua aspek di sepanjang masa.

Shitsuke: bermaksud *mendisiplin* atau *"Discipline"*. Amalkan 5'S setiap hari. Jadikannya satu budaya hidup.
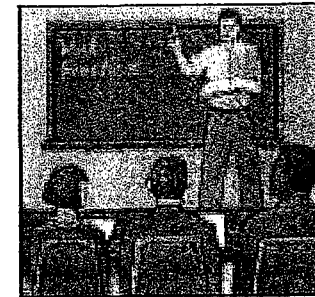
AMALKAN
BUDAYA KERJA
SIHAT DAN
SELAMAT!!!!

SAYANGILAH
NYAWA ANDA......
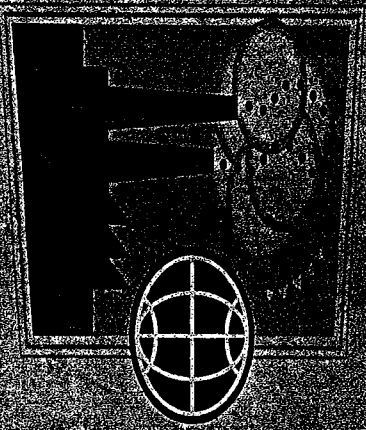
BAHAYA BIOLOGIKAL
Jangkitan penyakit melalui
udara — TB

ANDA SEORANG PEKERJA......
PERKARA BERIKUT
BOLEH JADI
BERBAHAYA
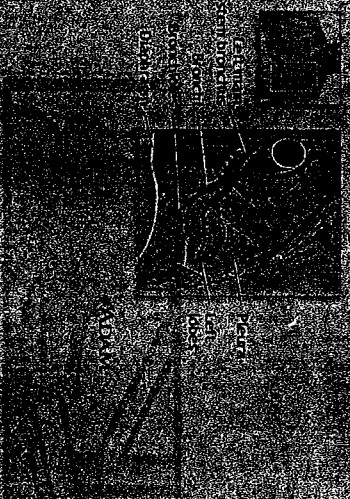
MASALAH PSIKOSOSIAL

- Tekanan / Stress
  di tempat kerja
- Kerja berulang /
  sama
- Masalah komunikasi
  sesama rakan /
  majikan

TANPA ANDA MENYEDARI

Pertanyaan lanjut sila hubungi:
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16150 KUBANG KERIAN KELANTAN
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EMAIL: razlan@kb.usm.my / nraim@kk.usm.my

Keselamatan & Kesihatan PROKES (01)

BAHAYA FIZIKAL

- Bunyi Bising
- **DEBU**
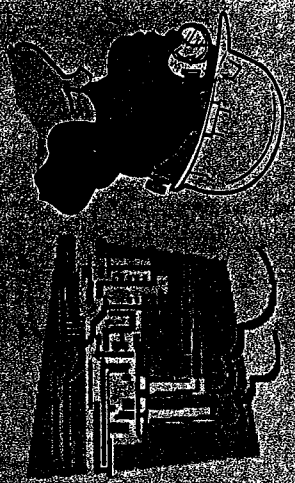
BAHAYA MEKANIKAL

- Suhu melampau

BAHAYA KIMIA

- Bahan kimia industri
- Pelepasan sisa industri
- Pencemaran udara
- Persekitaran - Asap rokok
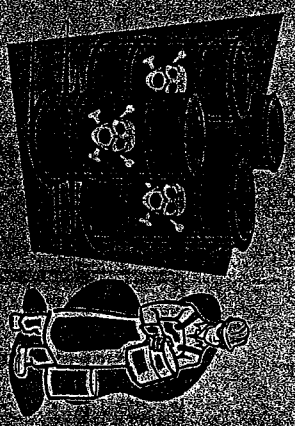
MASALAH ANDA MUNGKIN BOLEH DIATASI

Senaraikan masalah anda mengikut keutamaan anda.

Masalah	MASALAH NO.		
	Besar	Sederhana	Tiada Masalah
Debu	1	2	3
Bising	1	2	3
Panas	1	2	3
Kimia	1	2	3
Mekanikal	1	2	3
Lain-lain (nyatakan)	1	2	3

BAGAIMANA MENGENALPASTI PENYAKIT PARU-PARU PEKERJAAN?

Apakah Penyakit asma pekerjaan???

Secara umumnya asma pekerjaan bermaksud suatu penyakit gangguan saluran pernafasan yang disebabkan oleh Seseorang pekerja menghidu wasap, gas habuk atau bahan-bahan yang mendatangkan bahaya kepada sistem pernafasan semasa bekerja di tempat kerja.

Gejala penyakit asma seperti batuk yang teruk, sukar bernafas, hidung berair dan mata gatal.

☑ Pemeriksaan permulaan x-ray ada perlu dilakukan

☑ Pemeriksaan tentang fungsi paru-paru dengan menggunakan mesin khusus untuk menguji sistem pernafasan

☑ Pemeriksaan tentang kopii untuk isu sel dan bendalir tanpa paru-paru perlu dijalankan

☑ Kajian biokimia dan sel tentang pendalir paru-paru dijalankan

☑ Ukuran tentang sistem respiratori atau fungsi pertukaran gas

☑ Pemeriksaan tentang tahit bronkus

LANGKAH PENCEGAHAN PENYAKIT PARU-PARU PEKERJAAN

➤ Menggunakan Peralatan Perlindungan Diri (PPD) seperti penutup hidung

➤ tidak merokok

➤ Membuat penilaian tentang paru-paru menggunakan alat spirometry dan x-ray dada sekurang-kurangnya 2 tahun sekali

➤ Memupuk pengetahuan tentang bahaya penyakit paru-paru

Penyakit paru-paru tiada penawar, dan boleh menyebabkan kematian jika ada sebarang kemuskilan sila berjumpa dengan doktor.
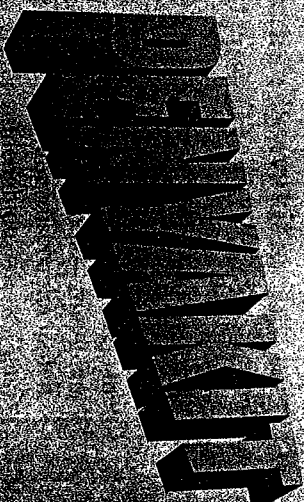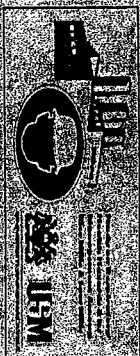
APAKAH PENYAKIT PARU-PARU PEKERJAAN?

Antara kategori penyakit paru-paru pekerjaan:

Tahukah Anda.........!!!!
Apakah simptom penyakit paru-paru pekerjaan???

Tanda-tanda penyakit paru-paru pekerjaan adalah seperti

☑ Penyakit yang tidak khusus kepada pekerjaan sahaja adalah seperti

■ Asma, Gangguan bronkitis dan penyakit paru-paru Sempit

■ Pada kebiasaannya penyakit ini berpunca daripada merokok

> Batuk

> Nafas pendek/singkat

> Ketat dada

> Sakit dada

> Mengeluarkan bunyi yang abnormal ketika bernafas

☑ Penyakit yang berpunca dari pekerjaan adalah seperti

■ Penyakit paru-paru yang berpunca dari asbestos

■ Penyakit paru-paru yang berpunca dari silica

■ Penyakit paru-paru hitam (pneumoconiosis) yang berpunca dari arang batu
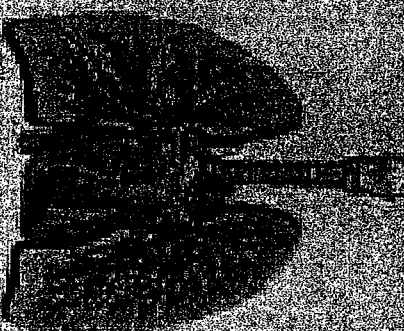
KESAN DEBU KE ATAS KESIHATAN

KESIHATAN

Masalah penyakit kronik yang serius disebabkan oleh masalah debu adalah seperti:

* kegagalan saluran pernafasan
* kematian
* pengumpulan partikel di dalam paru-paru
* paru-paru tidak boleh kembali kepada berus yang asal

◆ Kesan yang berlaku secara serta merta :-

* Keradangan mata
* Hidung tersumbat
* Hidung berair
* Kegatalan pada kulit

■ Kesan jangka panjang

* Pening & sakit kepala

■ Kesan Pernafasan (respiratori) -
geraja mungkin gejala mungkin boleh menyebabkan nafas pendek atau singkat nafas tersekat-sekat nafas tercungap-cungap, batuk yang berpanjangan hidung berair dan hidung tersumbat

▽ Pengawalan sistem ventilasi dan pembersihan udara

▽ Penggunaan peralatan Perlindungan Diri (PPD)

Pertanyaan lanjut sila hubungi

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16150 KUBANG KERIAN, KELANTAN
TELEFON : 09-766 40431/43

Debu merupakan partikel yang paling kecil saiznya bermula daripada bawah 1µm sehingga sekitar 100 µm yang mana ia mungkin didatangkan melalui keadaan persekitaran, keadaan fizikal dan bergantung ke atas punca-puncanya.

Debu yang terdapat di persekitaran tempat kerja amat berbahaya kepada pekerja.

DEBU YANG BERBAHAYA DI KAWASAN TEMPAT KERJA ADALAH SEPERTI:

1. *Debu mineral daripada proses mineral — biasanya mengandungi silica yang mana ia adalah yang paling bahaya.*

2. *Debu berlogam seperti timah hitam berat kadmiumnya atau campuran dua bahan tersebut.*

3. *Debu asbestos — bahan yang sangat berbahaya.*

4. *Debu kimia yang lain — bahan kimia yang lain dan racun serangga.*

5. *Debu-debu organik — Debu kayu, serkam padi, debu tepung, kapas, teh dan debunga.*

Debu adalah zarah-zarah halus yang wujud di dalam berbagai jenis saiz serta boleh mendatangkan gejala dan punca penyakit seperti asma dan sebagainya.

- Antara tanda-tanda gejalanya ialah:
- Keradangan mata
- Keradangan hidung
- Keradangan tekak
- Penyakit asma yang boleh membawa kepada ahli yang mengalaminya seperti:
- Kesukaran bernafas
- Ketat dada
- Kesesakan di paru-paru

PENYAKIT
PARU PARU PEKERJAAN

Trachea
Right primary bronchus
Left primary bronchus
Right lung
Left lung
*ADAM.

Alveoli
Younger lungs
*ADAM.

SISTEMIK

- UPPER ITIS
- BRONCHITIS
- ASTHMA-LIKE
- ASTHMA
- BRONCHIOLITIS

- PULM EDEMA
- PNEUMONITIS
- FIBROSIS

- NEUROTOXINS
- FEVERS

sistemik

- BRONCHOGENIC
  - Asbestos + rokok
  - Uranium + rokok

- MESOTHELIOMA
  - Asbestos

- Barah hati
  - Polyvinyl chloride

Slide 1

. BRONCHOGENIC
.Asbestos + rokok
.Uranium + rokok

·MESOTHELIOMA
·Asbestos

·Barah hati
·Polyvinyl chloride

Slide 2

● Sifat fizikal/kimia
  ◆ *Saiz partikel... <5u pergi jauh*
  ◆ Tahap kepekatan...
  ◆ kelarutan
  ◆ ketumpatan... *lighter (as) go deeper*
  ◆ Reaktiviti... *higher (NH4) more damage*
● Jagkamasa terdedah *Signs of alertness*
● Kadar pernafasan
● Kecenderungan seseorang/suseptibel
● Mekanisma pertahanan diri

Slide 3

Mekanisme

Toksik

Keradangan
● Irritasi :   *farm dust, chemicals*
● Allergik :   *flour (bakers)*
● Sensitizers : *toluene di-isocyanates*
● Jangkitan : *brucellosis*
Karsinogenik   *uranium,*

Slide 4

·Simptom

* Batuk
* Kahak
* Batuk berdarah
* Susah bernafas – semasa rehat
* Nafas berbunyi
* Ketat dada/sakit
* Gejala selsema
* Deman dll

Slide 5

Spirometry measures the amount and rate of air a person breathes in order to diagnose illness or determine progress in treatment

·ADAM

Slide 6

A bronchoscope is used to view the airways and check for any abnormalities

·ADAM
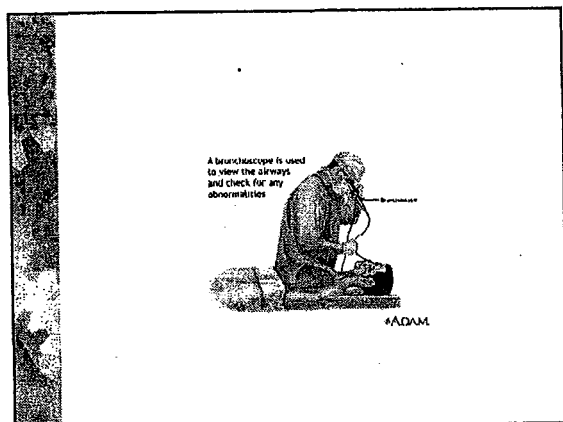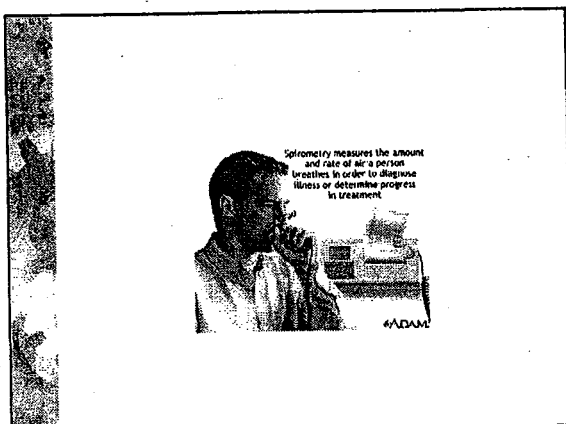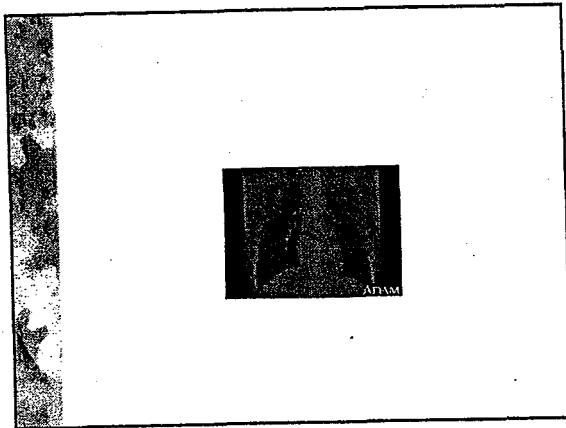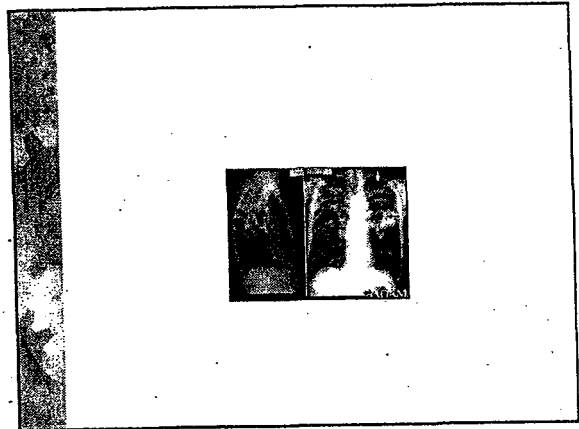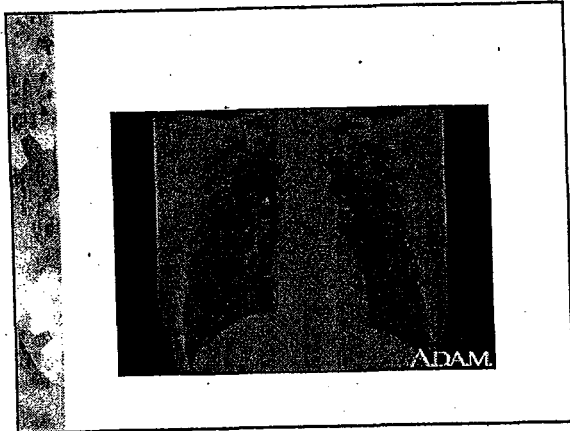
APA YANG DIMAKSUDKAN ASMA PEKERJAAN?

Secara umumnya asma pekerjaan bermaksud suatu penyakit gangguan saluran pernafasan yang disebabkan oleh seseorang pekerja menghidu wasap, gas, habuk atau bahan-bahan yang mendatangkan bahaya kepada sistem pernafasan semasa bekerja di tempat kerja.

SISTEM PERNAFASAN MANUSIA

1. Saluran pernafasan atas
2. Saluran pernafasan bawah
3. Kawasan laringeal
4. Trakea dan bronkus
5. Bronkiul dan aveolus

1. Trakea
2. Bronkus kanan pertama
3. Bronkus kanan kedua
4. Brokus kiri pertama
5. Bronkus kiri kedua

1. Bronkiul
2. Alveoli
3. Ruang alveolar

ASMA PEKERJAAN

Gejala-gejala:

Seseorang pekerja yang terdedah kepada wasap, habuk, gas atau bahan yang boleh mencetus penyakit asma pekerjaan di tempat kerja akan mengalami salah satu atau beberapa gejala di bawah:

☐ Mata dan hidung berair
☐ Kegatalan pada mata dan hidung
☐ Sesak/sukar bernafas
☐ Batuk yang teruk
☐ Bernafas terengah-engah
☐ Bernafas dengan bunyi bising dalam keadaan biasa

3

BAGAIMANA IA MENJEJASKAN SISTEM PERNAFASAN

Sebahagian bahan seperti wasap, habuk, gas, bahan kimia atau bahan-bahan lain boleh menyebabkan alahan jika seseorang pekerja menghidu bahan tersebut. Bahan-bahan tersebut dikenali sebagai SENSITISER.

Apabila sensitiser memasuki saluran pernafasan, ianya akan menyebabkan keradangan di dalam paru-paru. Keradangan ini akan menyebabkan pengeluaran bendalir berlebihan dalam paru-paru dan juga menyempitkan saluran otot pernafasan di sekeliling bronkial.

Kesemua tindakan di atas mengakibatkan penyempitan saluran pernafasan dan penyakit asma pekerjaan boleh terjadi.
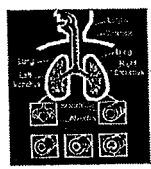
BAGAIMANA IA MENJEJASKAN SISTEM PERNAFASAN

Penyempitan saluran pernafasan terjadi apabila sensitiser memasuki sistem pernafasan mengakibatkan ASMA PEKERJAAN

When You Have Asthma
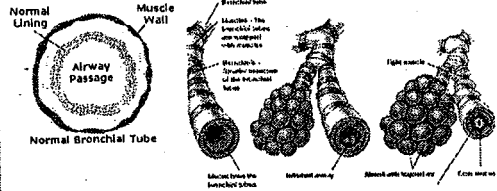
JENIS PEKERJAAN YANG BERISIKO TINGGI MENGALAMI ASMA PEKERJAAN

- Pembinaan
- Gas & petroleum
- Penternakan, perikanan & pertanian
- Kuari & perlombongan
- Pembuat roti, makanan & biskut
- Perkayuan & pembalakan
- Operator pengeluaran kilang
- Kilang-kilang automobil, keluli dll.
- Hospital
- Pengecat
- Dan lain-lain

BAHAN-BAHAN YANG BOLEH MENYEBABKAN ASMA PEKERJAAN

Bahan Kimia	Bahan Biologi
Acrylates & Methacrylates	Acrylates & Methacrylates
Metals	Metals
Fungicides	Fungicides
Amines	Amines
Acid Anhydrides	Acid Anhydrides
Preservatives/Disinfectants	Preservatives/Disinfectants
Isocyanates	Isocyanates
Plastic & Rubber Dusts	Plastic & Rubber Dusts
Pyrolysis Products	Pyrolysis Products
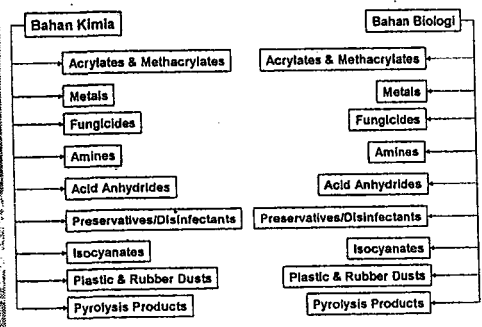
BAGAIMANA ANDA BOLEH MENGELAKKAN DIRI DARIPADA MENDAPAT ASMA PEKERJAAN

Bagi mengelakkan diri daripada mendapat penyakit asma pekerjaan, anda boleh mengikuti langkah-langkah berikut:

- ❖ Elakkan daripada pendedahan yang berpanjangan
- ❖ Ikut peraturan-peraturan kerja yang betul
- ❖ Lakukan amalan kerja yang baik
- ❖ Pastikan tempat kerja anda sentiasa bersih dan kemas
- ❖ Pastikan aliran udara di tempat kerja lancar dan bersih
- ❖ Pakai alat perlindungan diri seperti penutup hidung (mask)
- ❖ Jangan merokok!
- ❖ Laporkan kepada pihak atasan jika anda mengalami gejala-gejala penyakit asma pekerjaan

APA YANG PERLU ANDA LAKUKAN JIKA ANDA MENGALAMI ASMA PEKERJAAN

Jika anda mengalami masalah kesihatan seperti batuk, sesak nafas dan terengah-engah semasa bekerja di tempat kerja yang berhabuk, berwasap, bergas atau berpotensi mencetuskan.........

ASMA PEKERJAAN

sila.......

- Laporkan kepada majikan anda mengenai bahaya tempat anda sedang bekerja.

- Berjumpa dengan pakar perubatan kesihatan pekerjaan untuk mendapatkan nasihat & rawatan.

- Lakukan pemeriksaan & penilaian ujian fungsi paru-paru

MEROKOK:TEPATKAH KEPUTUSAN ANDA?

Merokok membunuh

- Setahun   > 4 juta
- Sehari   > 8 ribu
- Seminit   > 6
- Setiap 8 saat   - seorang

- Sumber ;WHO Western Pacific Region

Risiko perbandingan...

UK	US
1 bunuh diri/dibunuh	1 bunuh diri/dibunuh
6 kemalangan jalanraya	6 kemalangan jalanraya
250 mati penyakit akibat rokok	250 mati penyakit akibat rokok

Setiap sebatang rokok --→ Mengurangkan nyawa perokok – 5 minit

Masa utk menghabis sebatang rokok

Data mobiditi / mortaliti Malaysia

- Menyumbang 25% kepada semua kematian
- Penyakit jantung – pembunuh no 1 sejak 1980
- Kajian HKL – peningkatan kes kanser paru paru pada kadar 17% setahun
- Pembaziran sebanyak RM 3 billion setahun

Kandungan asap rokok...

Nikotin	Jantung berdenyut cepat
	Pengecutan salur darah di jantung
	Meningkatkan BP , nadi
	Meningkatkan kerja jantung
	Meningkatkat aktiviti platelet
	Mengurangkan estrogen-cepat putus haid
Tar	Berbagai kanser
Karbon monoksida	Mengurangkan kebolehan darah membekal oksigen ke tisu

---

Kandungan asap

ARSENIC: used in rat poison

ACETIC ACID: hair dye and developer

ACETONE: main ingredient in paint and fingernail (polish) remover
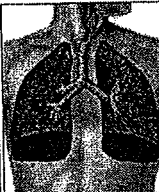
AMMONIA: a typical household cleaner

1

- Naftalen – ubat gegat,bom
- Benzen
- Hydrazin
- Ethanol
- Kadmium
- Karbon Tetraklorida
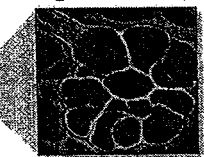
Gas/kimia berbahaya
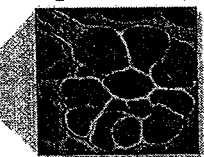
- Karbon monoksida
- Hidrogen Sianida
- Methana
- Nikel

Enlarged view of air sacs (alveoli)

Damaged air sacs (alveoli)

Cigarettes contain many hazardous substances that damage the lungs when inhaled
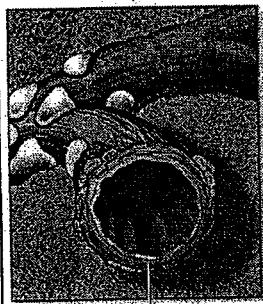
Inflammed primary and secondary bronchi
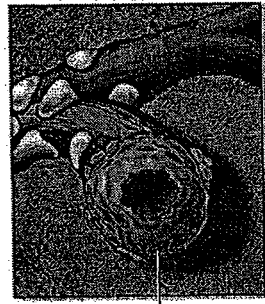
Chronic bronchitis is caused most often by exposure to airborne pollutants such as cigarette smoke

Normal   Bronchitis
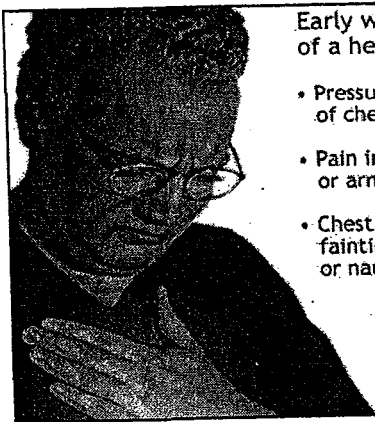
Tertiary bronchi
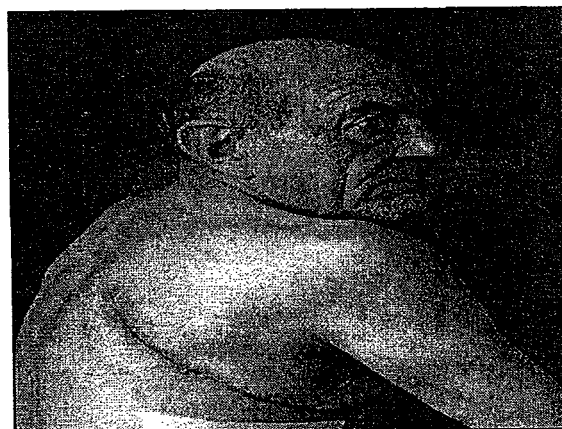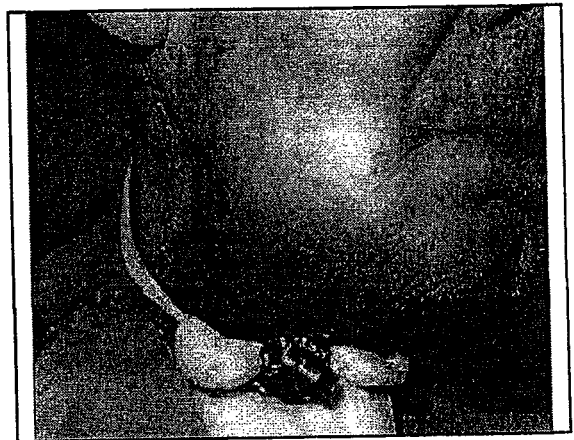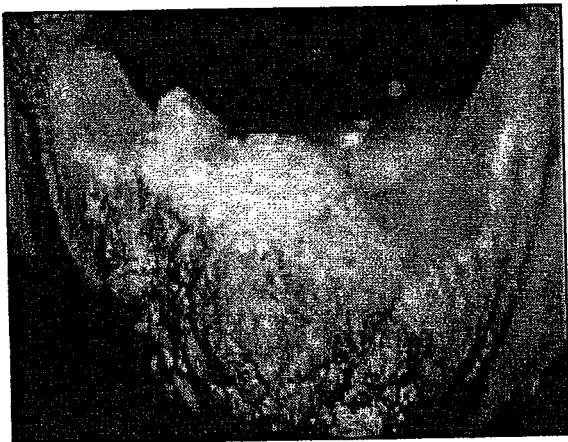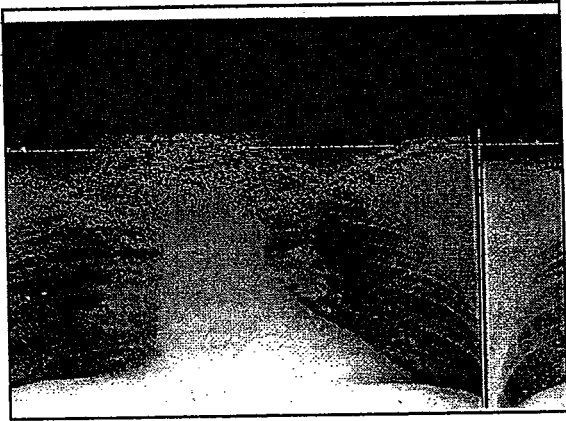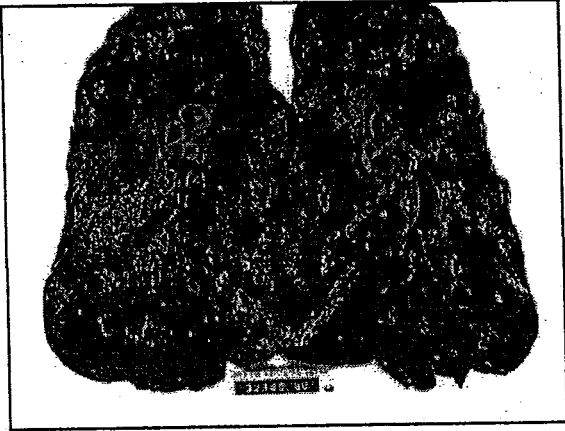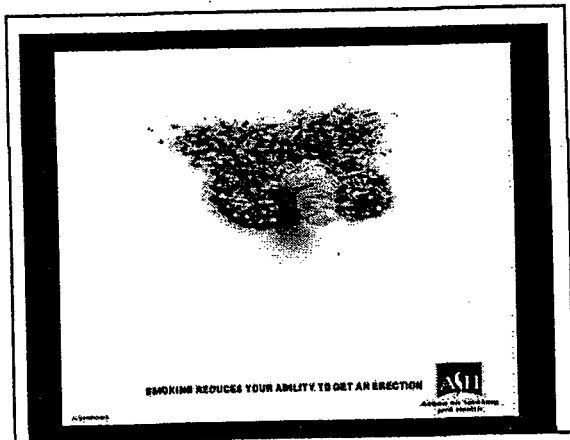
Early warning signs of a heart attack:
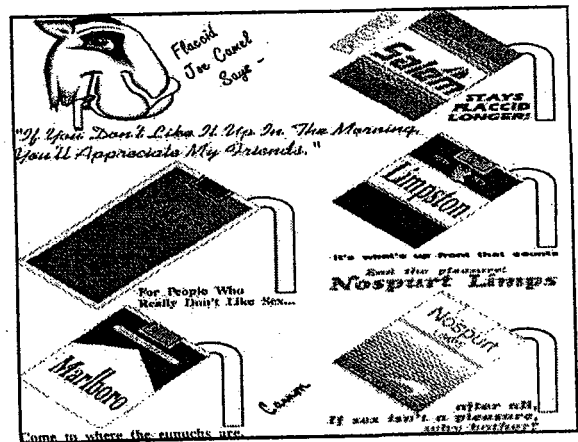
- Pressure in center of chest
- Pain in shoulders, neck or arms
- Chest discomfort with fainting, sweating or nausea

A.D.A.M.
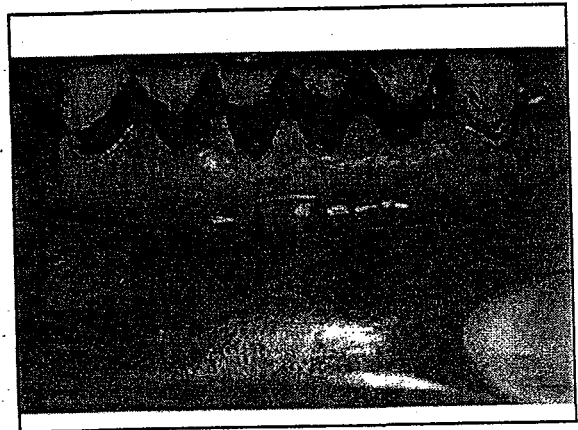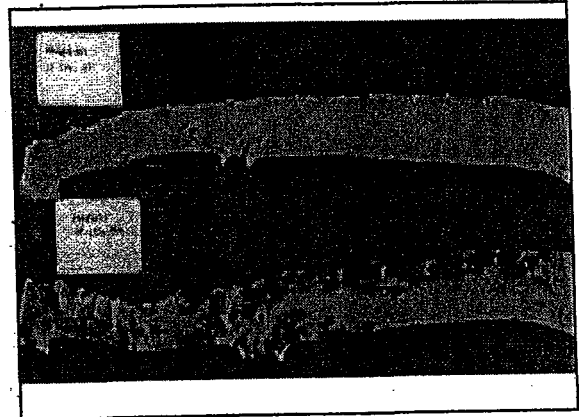
SMOKING REDUCES YOUR ABILITY TO GET AN ERECTION
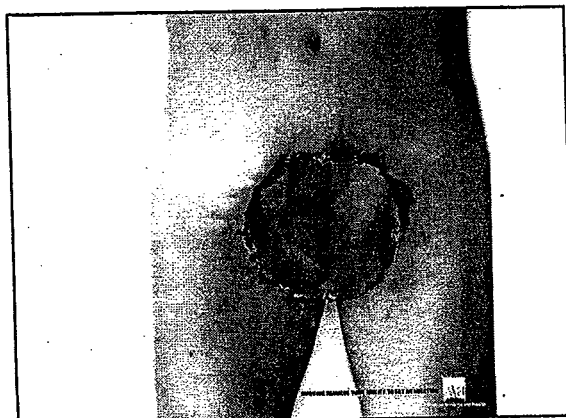
Temui fakta...

* Strok
* Kanser larinks,trakea
* Kanser paru paru,bronkitis
* Penyakit jantung Koronari
* Kanser perut,esofagus,ulser
* Kanser pankreas
* Mandul,keguguran,kanser serviks,cepat putus haid
* Kanser pundi kencing
* Mati pucuk,kurang kesuburan
* Penyakit saluran darah
* Osteoporosis

Faedah berhenti...

Belum kena

* Risiko mendapat penyakit akan menjadi sama dengan orang yang tak pernah hisap rokok – selepas 5 tahun berhenti

Sudah kena

* Mengurangkan risiko serangan
* Mengurangkan komplikasi penyakit
* Meningkatkan fungsi paru paru
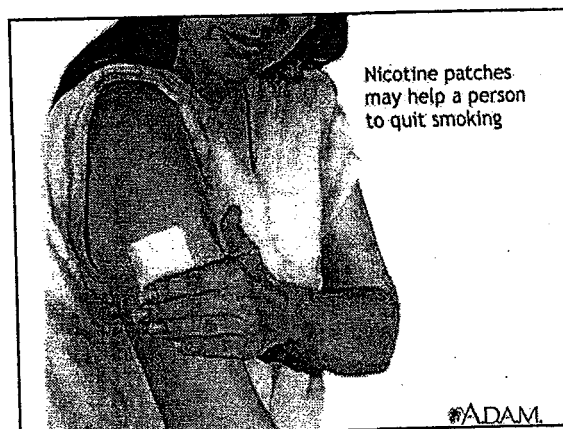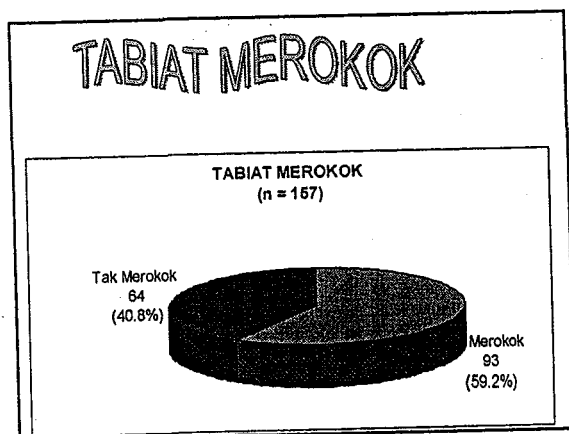
TABIAT MEROKOK

TABIAT MEROKOK
(n = 157)

Tak Merokok
64
(40.8%)

Merokok
93
(59.2%)

Nicotine patches may help a person to quit smoking

A.D.A.M.

Isu agama & merokok

- HARAM – Jawatankuasa Fatwa Kebangsaan 1996
- Kenapa HARAM?
  - Islam mengharamkan tingkahlaku yang membinasakan diri sendiri atau orang lain
  - Merokok melemahkan minda dan semangat
  - Merosakkan persekitaran
  - Membazir

ANDA PRI

TEPATKAH KE PUT

Tak N

Terima Kasih
Semoga sihat & selamat ! !

Isu agama & merokok

- HARAM – Jawatankuasa Fatwa Kebangsaan 1996
- Kenapa HARAM?
  - Islam mengharamkan tingkahlaku yang membinasakan diri sendiri atau orang lain
  - Merokok melemahkan minda dan semangat
  - Merosakkan persekitaran
  - Membazir

ANDA PRIHATIN !

TEPATKAH KEPUTUSAN ANDA?

Tak Nak !

Terima Kasih
Semoga sihat & selamat ! !

ALAT PERLINDUNGAN DIRI

UNIT KESELAMATAN & KESIHATAN PEKERJAAN
JABATAN KESIHATAN MASYARAKAT
PUSAT PENGAJIAN SAINS PERUBATAN
UNIVERSITI SAINS MALAYSIA
KAMPUS KESIHATAN,
16150 KUBANG KERIAN KELANTAN

TELEFON: 09-768 4064 / 3743
EMAIL: razian@kb.usm.my , osing@kck.usm.my

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PENGENALAN

Alat Perlindungan Diri (APD) - alat yang direkabentuk untuk melindungi pekerja daripada mendapat kecederaan atau kesakitan secara langsung atau tidak langsung dengan bahan kimia, radiologi, fizikal, elektrik, mekanikal, debu dan bahaya-bahaya lain di tempat kerja.

✓ Penggunaan Alat Perlindungan Diri (APD) perlu digunapakai di setiap industri atau tempat bekerja yang berisiko tinggi seperti:

  ➢ Kilang papan – menghasilkan habuk papan
  ➢ Kilang memproses beras – menghasilkan habuk
  ➢ Kilang plastik / bahan kimia – menghasilkan bahan kimia, debu dan sebagainya

✓ Majikan perlu menyediakan peralatan Alat Perlindungan Diri (ALD) bagi mengurangkan risiko kemalangan, kecederaan dan penyakit berbahaya di tempat kerja.

CAT

C – Cam Risiko/ bahaya

A – Analisis Risiko

T – Tindakan yang perlu diambil
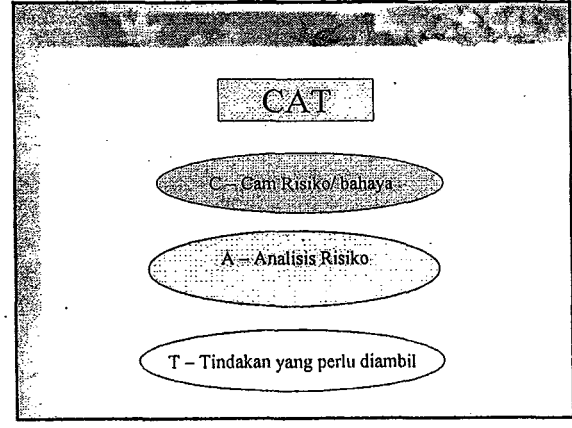
Masalah Penggunaan PPD

■ Kurang selesa

■ Berasa rimas dan membebankan

■ Menyukarkan pergerakan

Faedah Penggunaan PPD

■ Dapat melindungi diri daripada pelbagai risiko

■ Menyelamatkan diri daripada pelbagai penyakit bahaya

ANDA TAHU ...... !!!!!!!

Apakah Alat Perlindungan Diri (APD)??????
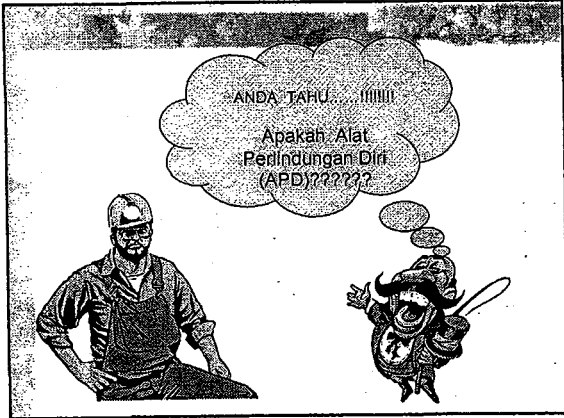
Alat Perlindungan Diri (APD)

APD – Perlu digunapakai oleh setiap pekerja di tempat kerja adalah seperti:-

(1) Topi Keselamatan

(2) Cermin mata keselamatan (Goggles)

Safety Goggle

(3) Kasut keselamatan

Safety Shoe

(4) Sarung tangan
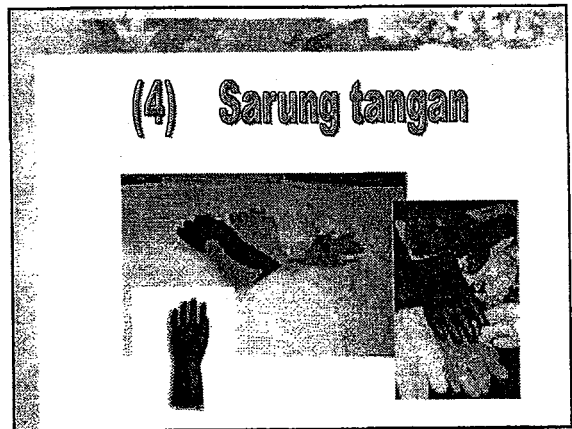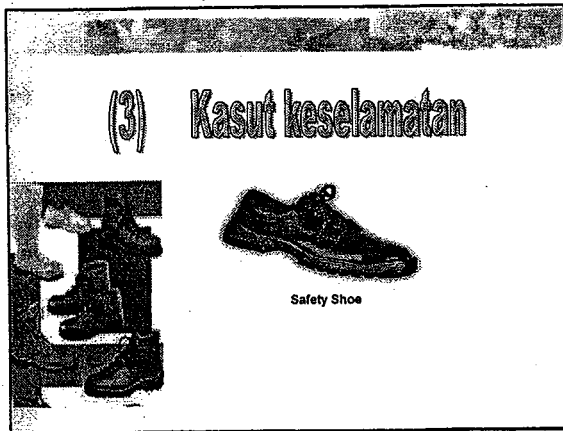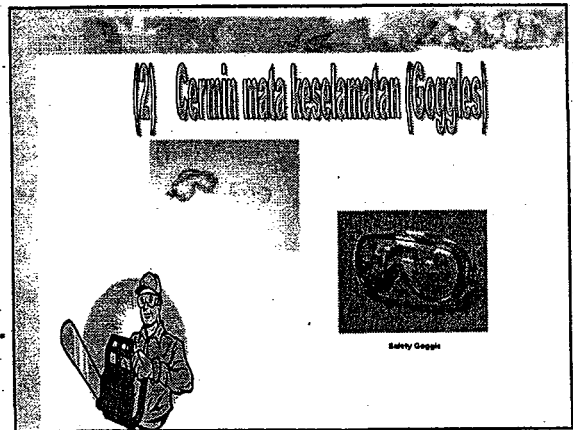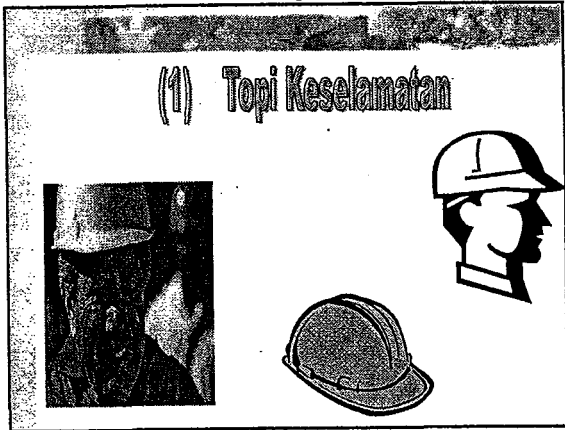
(5) Vest

(6) Penutup telinga
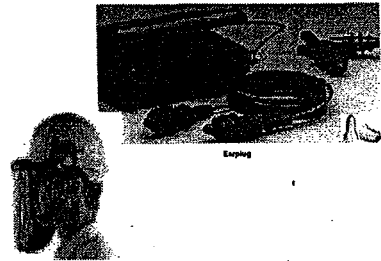
(7) Penutup hidung
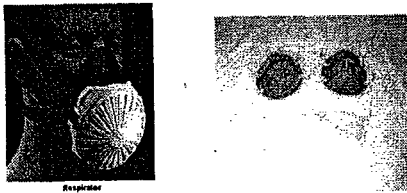
(8) Pakaian keselamatan (Overall)

(9) Perlindung muka
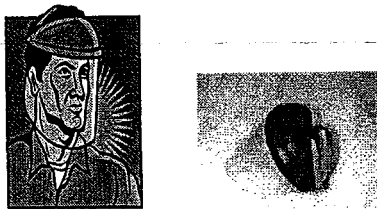
LATIHAN DAN PENDIDIKAN CARA PENGUNAAN ALD

Majikan harus melatih pekerja untuk memakai ALD dengan cara yang betul mengikut maklumat berikut:-

- Pemakaian ALD yang betul
- Memakai ALD apabila diperlukan
- Tahu jenis ALD yang patut dipakai
- Tahu had-had ALD yang melindungi pekerja
- Pakai, serasikan dan gunakan ALD dengan betul
- Jaga ALD dengan baik

Pemakaian Alat Lindung Diri (ALD) termaktub di dalam :

AKTA KESELAMATAN & KESIHATAN PEKERJAAN,
1994 (OSHA 1994)

❖ Memberi kewajipan setiap majikan menyediakan
peralatan kepada pekerja dalam keadaan yang baik
dan selamat di tempat kerja.

ASPEK PENJAGAAN

■ Alat Lindung Diri (ALD) tidak boleh disalahgunakan untuk tujuan lain

■ Harus diganti dengan yang baru jika ALD mengalami kerosakan yang tidak berfungsi dengan baik.

KESIMPULAN

❖ Pekerja perlu menggunakan Alat Lindung Diri (ALD) bagi mengurang risiko kemalangan dan kesihatan di tempat kerja

❖ Langkah keselamatan ini perlu diambil oleh semua pekerja dan majikan

---

"Amalkan budaya kerja sihat dan selamat"

"Keselamatan di tempat kerja tanggungjawab bersama daripada pihak majikan dan pekerja"

TERIMA KASIH

Slide 1
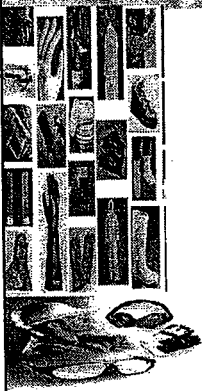
PERUNDANGAN KESELAMATAN DAN KESIHATAN DI TEMPAT KERJA

UNIT KESELAMATAN & KESIHATAN PEKERJAAN
JABATAN KESIHATAN MASYARAKAT
PUSAT PENGAJIAN SAINS PERUBATAN
UNIVERSITI SAINS MALAYSIA
KAMPUS KESIHATAN,
16150 KUBANG KERIAN KELANTAN

TELEFON: 09-766 4064 / 3743
EMAIL: razlan@kb.usm.my , naing@kck.usm.my

Slide 2
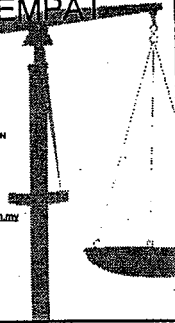
Butir Bicara

- Undang-undang
- Kewajipan Majikan
- Kewajipan ANDA sebagai seorang Pekerja
- Peraturan
- Langkah Keselamatan
- Penutup

Slide 3
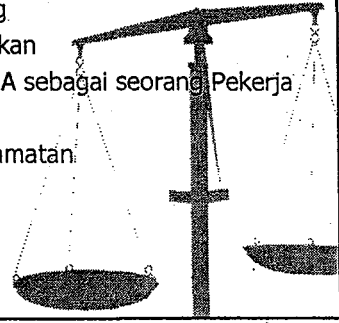
TAHUKAH ANDA.......!

Apakah undang-undang keselamatan dan kesihatan pekerjaan?????

Slide 4
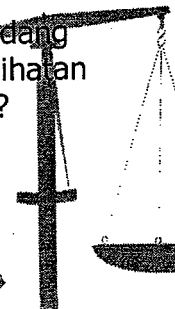
OSHA

Occupational Safety and Health Act

Slide 5
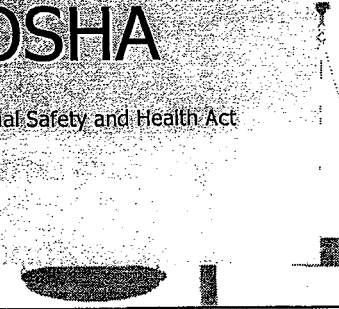
AKKP

AKTA KESELAMATAN, KESIHATAN PEKERJAAN

Slide 6

PENGENALAN

- Akta Keselamatan dan Kesihatan pekerja diwujudkan pada 25 Februari 1994 - (OSHA, 1994)

- Akta ini adalah untuk digunapakai oleh SEMUA industri di seluruh Malaysia
  - bagi mengurangkan kadar kemalangan
  - memperbaiki mutu kesihatan di tempat kerja
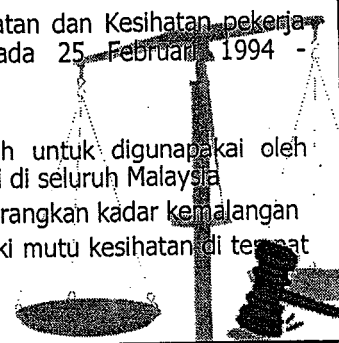
- Akta ini perlu digunapakai di kawasan tempat kerja yang berisiko tinggi seperti di kilang kayu, kilang memproses beras dan sebagainya.

- Akta yang digunapakai dapat mengurangkan kadar kemalangan, kecederaan, penyakit kronik dan kematian
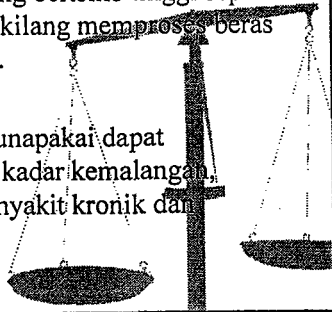
TUJUAN

- Untuk memastikan keselamatan, kesihatan dan kebajikan orang-orang yang sedang bekerja

- Untuk melindungi orang-orang di tempat kerja (selain daripada orang-orang yang sedang bekerja terhadap risiko keselamatan atau kesihatan)
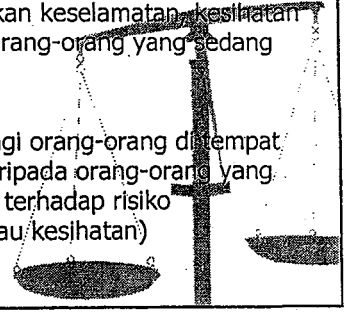
- Untuk menggalakkan suatu persekitaran pekerjaan yang bersesuaian dengan fisiologi dan psikologi orang-orang yang sedang bekerja

- Untuk mengadakan suatu sistem perundangan keselamatan dan kesihatan pekerjaan yang berasaskan kepada peraturan dan tata amalan industri yang diluluskan dalam peruntukan akta mengikut standard yang ditentukan.
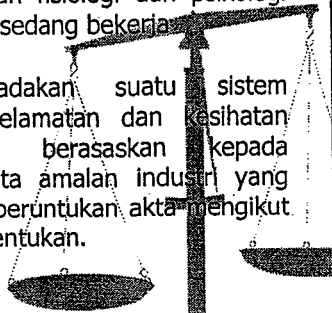
Apakah kewajipan majikan terhadap pekerja di kilang papan, kilang beras dan sebagainya?????
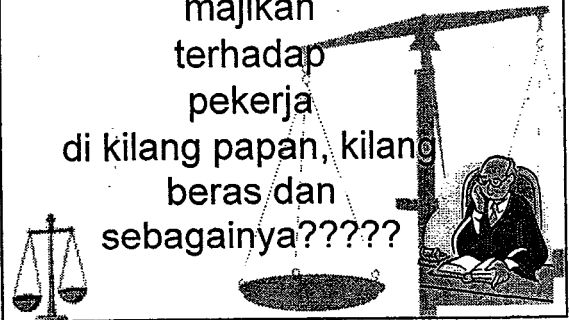
" MAJIKAN" - PEMUNYA SUATU INDUSTRI ATAU ORANG YANG DENGANNYA SESEORANG PEKERJA TELAH MEMBUAT KONTRAK PERKHIDMATAN; PENGURUS, EJEN ATAU ORANG YANG BERTANGGUNGJAWAB BAGI PEMBAYARAN GAJI ATAU UPAH KEPADA SESEORANG PEKERJA.
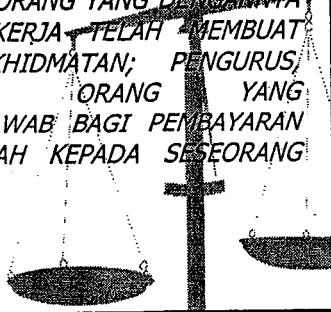
MENURUT SEKSYEN 15:-
"ADALAH MENJADI KEWAJIPAN TIAP-TIAP MAJIKAN DAN TIAP-TIAP ORANG YANG BEKERJA SENDIRI UNTUK MEMASTIKAN SETAKAT YANG PRAKTIKAL, KESELAMATAN, KESIHATAN DAN KEBAJIKAN SEMUA PEKERJANYA SEMASA BEKERJA.'"

KEWAJIPAN MAJIKAN

🖐 Penyediaan dan penyenggaraan loji, mesin jentera dan alatan; serta sistem kerja yang setakat praktik, selamat dan tidak memberi risiko kesihatan kepada pekerja seperti di kilang papan, kilang memproses beras dan sebagainya.

🖐 Membuat perkiraan tentang langkah-langkah yang perlu diambil dalam penyimpanan, pengendalian dan pengangkutan logi dan bahan

🖐 Memberi maklumat, arahan, latihan dan pengawasan ke atas aktiviti-aktiviti berbahaya kepada pekerja di kilang papan, kilang memproses beras dan sebagainya

---
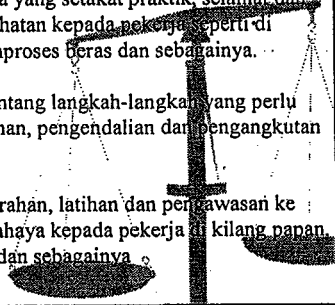
🖐 PENYENGGARAAN tempat kerja dan keadaan kerja yang selamat serta menyediakan cara masuk dan keluar yang selamat semasa sedang bekerja di kilang.

🖐 Menyediakan persekitaran tempat kerja yang bebas dari BAHAYA / HAZAD
- contohnya bising, habuk, debu dan sebagainya
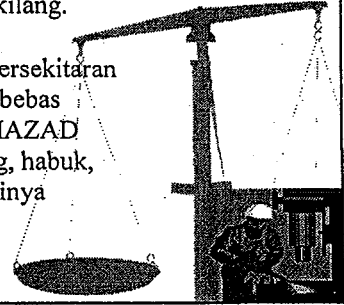
TANGGUNGJAWAB MAJIKAN

• Menyediakan POLISI keselamatan dan kesihatan pekerja di tempat kerja

• Pastikan ORANG LAIN selain pekerjanya
-tidak terdedah kepada bahaya yang dihasilkan dari aktiviti yang dijalankan serta memberitahu orang lain tentang aktiviti yang dijalankan.
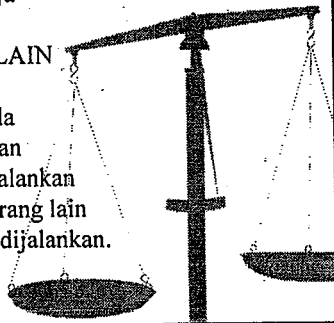
• Memberi maklumat kepada orang lain berkenaan dengan aspek cara pengusahaannya yang boleh menyentuh Keselamatan dan Kesihatan orang lain

MAJIKAN YANG MELANGGARI AKTA INI BOLEH DIDENDA RM 50,000 ATAU 2 TAHUN PENJARA ATAU KEDUA-DUANYA
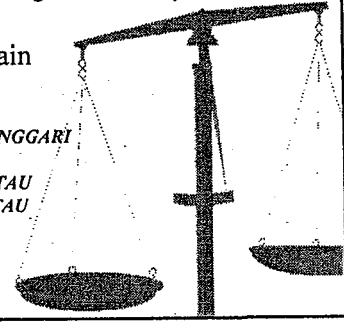
TAHUKAH ANDA................!!!!!!!!!
Kewajipan anda sebagai seorang pekerja di kilang papan, kilang memproses beras dan sebagainya?????
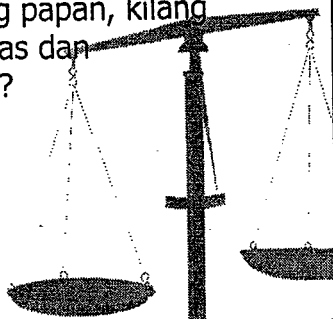
"PEKERJA" - *SESEORANG YANG DIAMBIL BERKERJA DENGAN DIBERI GAJI DIBAWAH KONTRAK PERKHIDMATAN MENGENAI ATAU YANG BERKAITAN DENGAN KERJA SESEBUAH INDUSTRI SECARA TETAP ATAU SEMENTARA.*

3
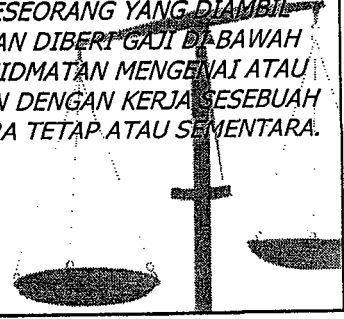
KEWAJIPAN PEKERJA

MENURUT SEKSYEN 24 OSHA 1994:-

- MEMBERI PERHATIAN MUNASABAH TERHADAP KESELAMATAN DAN KESIHATAN DIRINYA DAN ORANG LAIN SEMASA MENJALANKAN AKTIVITI-AKTIVITI SEMASA BEKERJA (DI KILANG PAPAN, KILANG MEMPROSES BERAS DAN SEBAGAINYA)

- MEMBERI KERJASAMA SAMA ADA KEPADA MAJIKAN ATAU ORANG LAIN DALAM HAL BERKAITAN DENGAN PEMATUHAN TERHADAP AKTA INI

- MEMAKAI ATAU MENGGUNAKAN SEPANJANG MASA APA-APA KELENGKAPAN ATAU PAKAIAN PERLINDUNGAN YANG DIBEKALAKAN OLEH MAJIKAN BAGI MENCEGAH APA-APA RISIKO

- MEMATUHI APA-APA ARAHAN ATAU LANGKAH KESELAMATAN DAN KESIHATAN PEKERJAAN YANG PERKENALKAN OLEH MAJIKAN MELALUI AKTA INI.

SESEORANG PEKERJA YANG MELANGGARI AKTA INI BOLEH DIKENAKAN DENDA TIDAK MELEBIHI RM 1,000 ATAU TIGA BULAN PENJARA ATAU KEDUA-DUANYA

PERATURAN

- HABUK MINERAL (MINERAL DUSTS) PERATURAN KILANG DAN JENTERA (MINERAL DUST), 1989

- JAWATANKUASA KESELAMATAN (SAFETY COMMITTEE) – PERATURAN KESELAMATAN DAN KESIHATAN PEKERJA (SAFETY COMMITTEE), 1996

LANGKAH-LANGKAH KESELAMATAN YANG DIPERLUKAN

- *AKTA KILANG DAN JENTERA 1967 (AKJ 1967), TERUTAMA BAHAGIAN II AKTA - MENEKANKAN LANGKAH-LANGKAH ATAU AKTIVITI-AKTIVITI KESELAMATAN PEKERJA YANG PERLU DIAMBIL OLEH SEMUA PIHAK DI DALAM INDUSTRI (TERUTAMA OLEH MAJIKAN). IAITU:-*

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1. MENENTUKAN KEKUKUHAN BINAAN, LANTAI, ATAS, LALUAN, TANGGA, TEMPAT BEKERJA YANG SELAMAT UNTUK PEKERJA

2. BARANG DAN BAHAN YANG DISIMPAN SELAMAT KEPADA PEKERJA

3. KEADAH KERJA (SEPERTI CARA MENGANGKAT BEBAN) YANG TIDAK MENYEBABKAN / MEMUNGKINKAN MENCEDERAKAN PEKERJA

4. KESELAMATAN DARIPADA KEBAKARAN

5. MESIN, JENTERA DAN ALATAN KERJA YANG DIPASANG, DIBAIKI DAN DISELENGGARA PERLULAH MENGAMBILKIRA KESELAMATAN PEKERJA (YANG MENGGUNAKANNYA ATAU MUNGKIN MENERIMA KESAN DARIPADANYA)
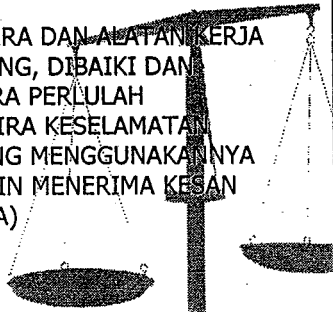
- PERATURAN KILANG DAN JENTERA (KESELAMATAN KESIHATAN DAN KEBAJIKAN) 1970 MENYENARAIKAN PENGGUNAAN ATAU PEMAKAIAN PERALATAN SEMASA BEKERJA.

- SEKSYEN 24(1)(C) BAHAGIAN VI, AKTA KESELAMATAN DAN KESIHATAN PEKERJAAN 1994, KEWAJIPAN MAJIKAN MENYEDIAKAN PERALATAN KEPADA PEKERJA DALAM KEADAAN YANG BAIK DAN SELAMAT
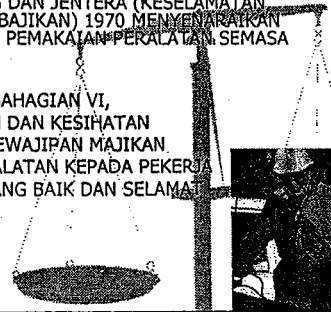
1. ALATAN PERLINDUNG MATA (GOGGLES) YANG SESUAI BAGI KERJA-KERJA YANG MEMERLUKAN IA DIPAKAI (SEPERTI KERJA PEMETERIAN)

2. PENUTUP TELINGA

3. PAKAIAN KESELAMATAN – SELUAR BAJU, TOPI DAN SARUNG TANGAN

4. FACE RESPIRATOR – KERJA-KERJA BAHAN KIMIA BERBAHAYA ATAU HABUK
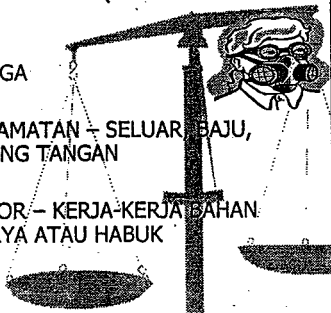
KESIMPULAN

- AKTA KESELAMATAN DAN KESIHATAN PEKERJAAN 1994 PERLU DITITIKBERATKAN OLEH SEMUA PEKERJA DI SEKTOR INDUSTRI TERUTAMA DI KILANG KAYU/KILANG MEMPROSES BERAS YANG MUDAH TERDEDAH KEPADA DEBU & HABUK

- INI PERLU UNTUK MEMPERTINGKATKAN MUTU KESELAMATAN DAN KESIHATAN PEKERJA YANG LEBIH BAIK DAN SELAMAT
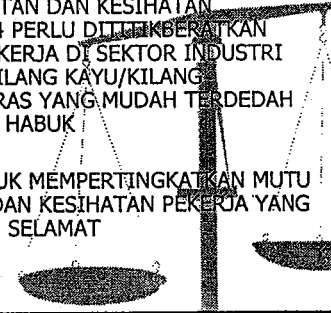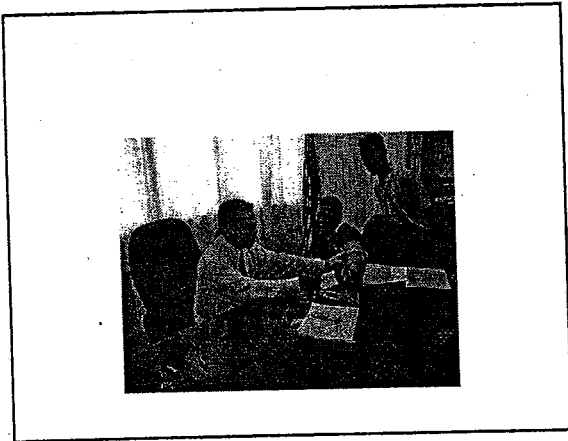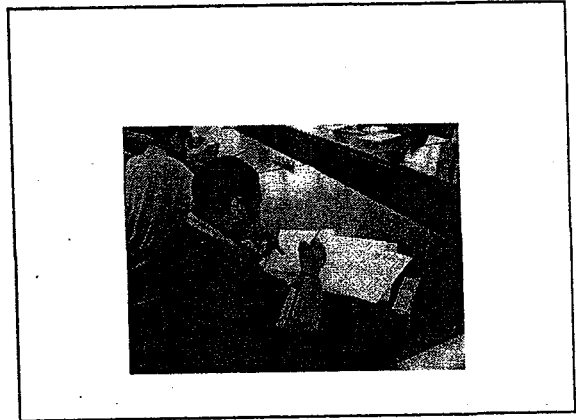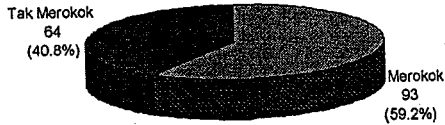
SEKIAN TERIMA KASIH
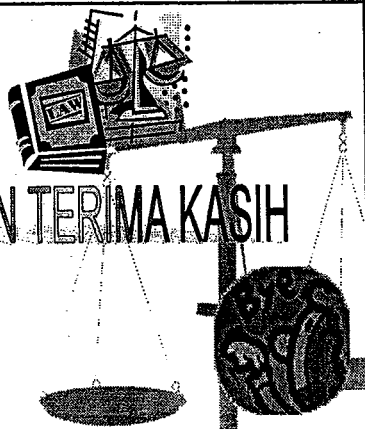
MAKLUMBALAS kESIHATAN

UNIT KESELAMATAN & KESIHATAN PEKERJAAN
JABATAN KESIHATAN MASYARAKAT
PUSAT PENGAJIAN SAINS PERUBATAN
UNIVERSITI SAINS MALAYSIA
KAMPUS KESIHATAN,
KUBANG KERIAN KELANTAN

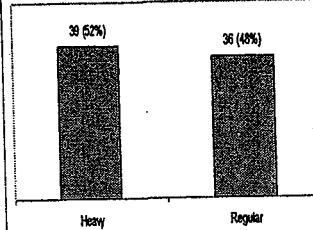PHONE: 09-766 4064 / 3743
EMAIL: razias@kb.uam.my , salas@kck.uam.my

SOSIODEMOGRAFI

Sosiodemografi

Umur Purata = 43.6 Tahun
(Minima : 26 Tahun)
(Max : 54 Tahun)

Purata Tahun Bekerja = 17.8 Tahun
(Max : 33 Tahun)

48 41 37 33

Jerteh   Pasir Puteh   Tumpat   Peringat

n = 159

TABIAT MEROKOK

TABIAT MEROKOK (n = 157)

- Tak Merokok 64 (40.8%)
- Merokok 93 (59.2%)
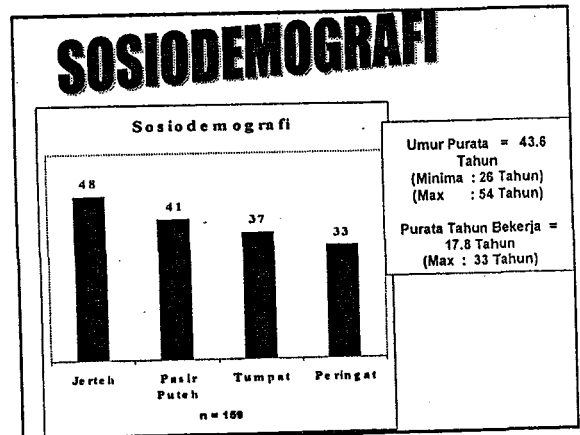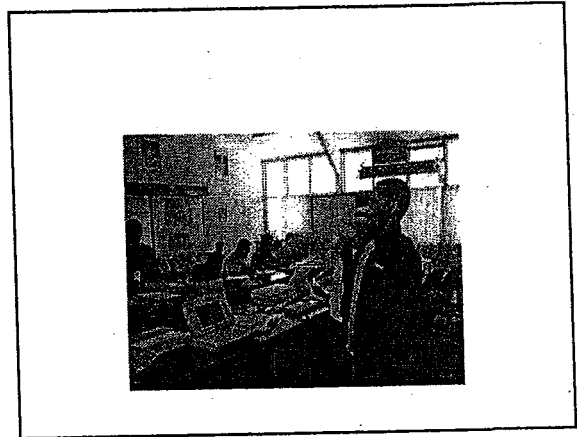
BERAPA BANYAK?

BERAPA BANYAK?

- Heavy: 39 (52%)
- Regular: 36 (48%)

WHO

Heavy = ≥ 20
Regular = 1 – 19 Batang

PEMERIKSAAN FIZIKAL

Pemeriksaan Fizikal

- Pterygium: 39 (24.5%)
- Dermatitis: 10 (6.6%)
- Normal BP: 118 (74.7%) 126 (79.7%)
- Moderate: 35 (22.2%) 30 (19%)
- Severe: 5 (3.2%) 2 (13%)

GEJALA SISTEM PERNAFASAN

Gegala Sistem Pernafasan

- Kahak Pagi: 60 (38.5%)
- Kesukaran Bernafas 'on exertion': 55 (35.0%)
- Ketat Dada / Kesukaran Bernafas: 47 (29.9%)
- Batuk Pagi: 46 (29.3%)
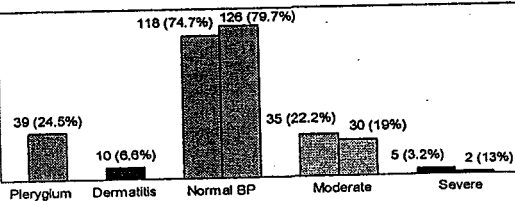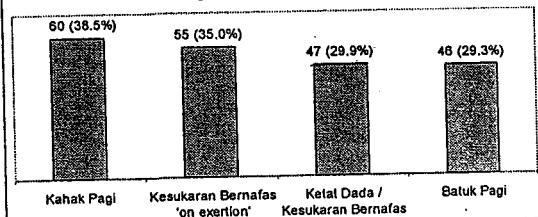
TB = 4 Orang (2.5%)
Asthma = 19 Orang (12.1%)

UJIAN FUNGSI PARU-PARU

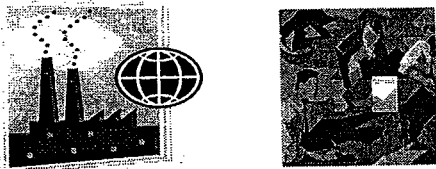| Parameter	Gangguan Ringan	Gangguan Sederhana	Gangguan Teruk	Normal
FVC (n = 155)	(60 – 79 %) 21 (13.5%)	(51 – 59%) 0	≤ 50% 3 (1.9%)	> 80% 131 (84.5%)
FEV1 (n = 155)	(60 – 79 %) 51 (32.9%)	(41 – 59%) 9 (5.8%)	≤ 40% 1 (0.6%)	> 80% 94 (60.6%)
MMF (n =152)	(60 – 79%) 39 (24.5%)	(51 – 59%) 15 (9.9%)	≤ 50% 50 (31.4%)	> 80% 48 (31.6%)

FEV1 ≥ 80%   107 (67.3%)
FVC ≥ 80%   40 (25.2%)

Keputusan X ray

Number of cases — Normal, Abnormal

2

Keputusan X ray

TERIMA KASIH
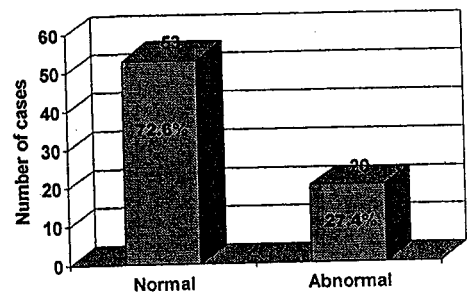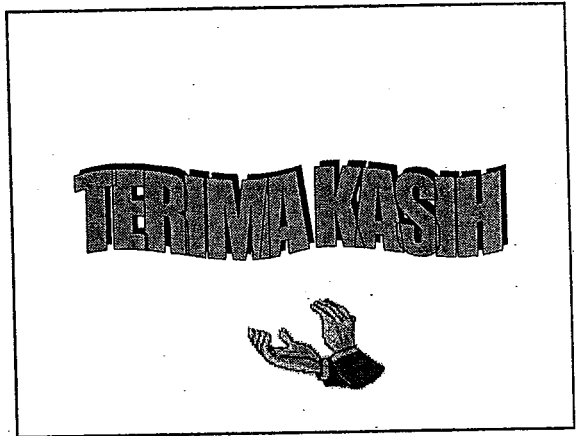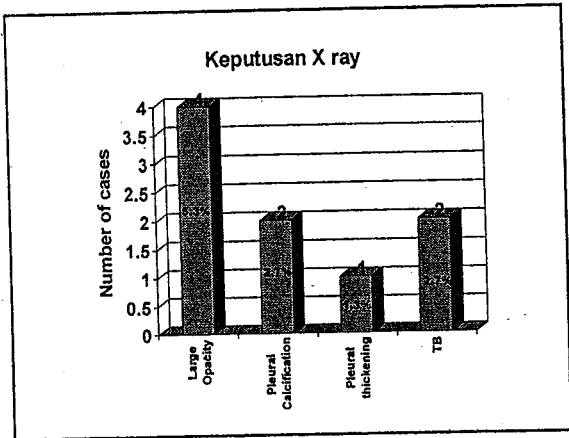
PENGURUSAN RISIKO

- Risiko – kemungkinan sesuatu kejadian akan berlaku ditempat kerja yang boleh mengakibatkan kecederaan/ penyakit kepada individu atau kerugian pada syarikat

- Pengurusan risiko – mengenalpasti, menilai dan mengawal keseluruhan risiko dalam organisasi

- Membolehkan organisasi berfungsi secara berkesan dan selamat

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Tujuan penilaian risiko

- Membolehkan majikan mengambil langkah yang berkesan demi keselamatan & kesihatan pekerja
  - Pencegahan ke atas risiko pekerjaan
  - Penyebaran maklumat kepada pekerja
  - Pemberian latihan
  - Mengenalpasti kaedah pengurusan risiko

Penilaian & pengurusan risiko

1. Mewujudkan program penilaian
2. Kenalpasti pendekatan
3. Mengumpul maklumat
4. Mengenalpasti risiko/hazad
5. Mengenalpasti siapa yang berisiko
6. Kenalpasti bentuk pendedahan
7. Menilai risiko
8. Kenalpasti opsyen & tentukan langkah kawalan
9. Memberi prioriti tindakan
10. Melaksanakan langkah kawalan
11. Menilai keberkesanan

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Mengenalpasti hazad

- Memereksa secara sistematik keseluruhan aspek kerja / tempat kerja
  - Apa yang berlaku – aktiviti biasa / penyelengaraan
  - Aktiviti bukan rutin
- Kenalpasti aktiviti berpotensi menimbulkan risiko

Kenalpasti hazad..

- Mengadakan checklist
- Melakukan 'walk through'
- Maklumat daripada pembuat / pembekal
- Menganalisa data kemalangan
- Analisa proses kerja
- Analisa CSDS
- Nasihat dari pakar

Contoh hazad..

Graviti	objek jatuh , gelincir
Daya gerak	objek bergerak
Mekanikal	terperangkap
Kimia	sedutan/ kena kulit
Fizikal	suhu / bising
Biologi	mikro organisma
Psikososial	stress
Ergonomik	peralatan
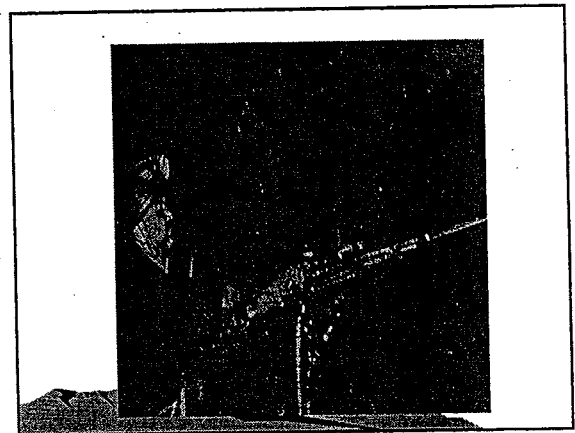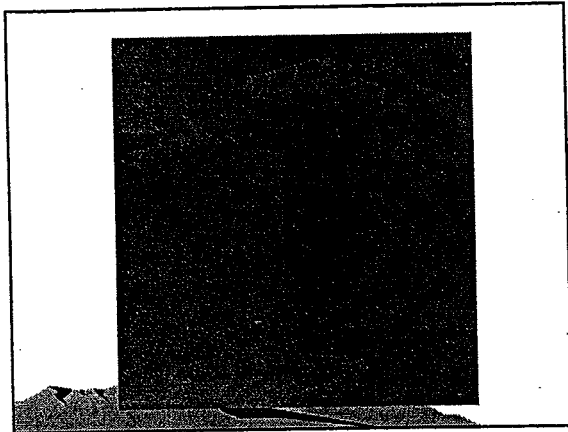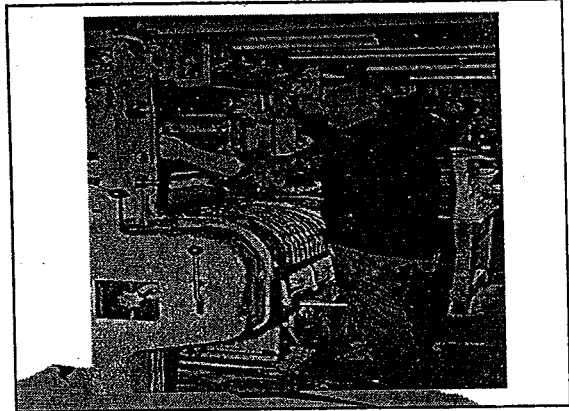
Panduan Penilaian Risiko

- Risiko dikenalpasti
- Risiko melibatkan
  - Majikan
  - Pekerja
  - Penyelia
  - Pelawat

- Akibat / implikasi
  - Kematian
  - Kecederaan teruk
  - Kecederaan kecil
  - Gangguan kecil persekitaran kerja
  - tiada

- Peluang terkena
  - Sangat tinggi
  - Kerap
  - Kurang kerap
  - Jarang
  - Tidak mungkin
- Samada risiko dapat diterima

Penaksiran risiko

- Berdasarkan
  - Keterukan kesan risiko/hazad
  - Peluang terkena
- Tentukan risiko
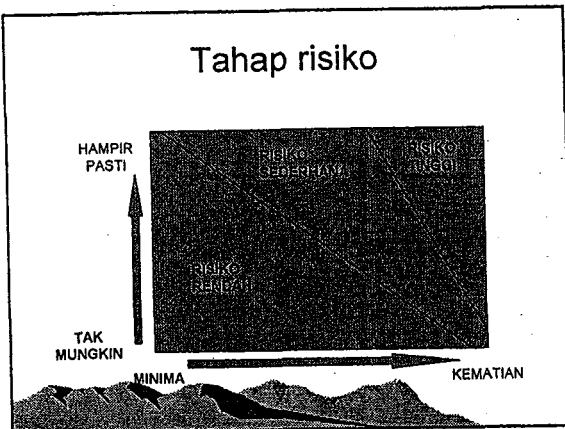 - Boleh diabaikan
  - Boleh diterima
  - Tak boleh diterima

PENILAIAN KUANTITATIF RINGKAS

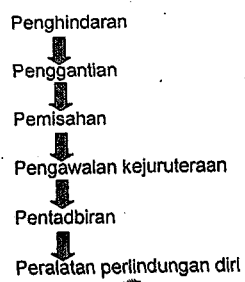| PELUANG TERKENA		
3	6	9
2	4	6
1	2	3

KEPARAHAN

3

Tahap risiko

Elemen Asas Pengurusan risiko

Penghindaran

Penggantian

Pemisahan

Pengawalan kejuruteraan

Pentadbiran

Peralatan perlindungan diri

- Jika risiko tak dapat diterima
- Berikan kaedah pengurusan risiko yang boleh dilaksanakan

Terima Kasih