

## ENVIRONMENTAL FACTORS AS ONE CAUSE OF BREATH CANCER

LAODE BURHANUDDIN<sup>1</sup>, MASYITHA MUIS<sup>2</sup> & ERIZAL AZMI<sup>3</sup>

1) Lecturer in Department Anatomy Faculty of Medicine, University of Riau

2) Lecturer in Public health Faculty Hasanuddin University

3) Lecturer Assistant in Department Anatomy Faculty of Medicine, University of Riau

### INTRODUCTION

Environment is one of the factors that play a role in increasing incidence of cancer continues to increase, especially in developing countries.<sup>1</sup> Cancer control programs in developing countries has not run optimally. One important step is cancer control, protecting the environment from pollution, early detection and setting healthy lifestyle. Until now, data is accurate incidence of cancer in Indonesia is not yet available.<sup>1,2,3</sup>

The Research of which have been collected by the International Agency for Research on Cancer (IARC), an estimated incidence of cancer worldwide in 2000 amounted to 10.1 million.<sup>4</sup> In the same year 6.2 million people died of cancer and 22.4 million people live suffer kanker.<sup>1</sup> This means that the incidence and mortality of each rose 19% and 18% compared to 1990.<sup>5</sup> In 2008 there were an estimated 12.4 million life of cancer patients worldwide and 7.6 million people died of cancer.<sup>6</sup> covers all ages, from children to senior citizens. However, cancer is more common in adults and advanced age.<sup>7</sup> Incidence and mortality of cancer will continue to increase if no earnest efforts of each country to eradicated.<sup>8</sup>

Wildfire can induce an unhealthy smoke for human, especially lung health state. A last few years in Indonesia, especially in Riau Province and Sumatra, wildfire happen more frequently and it will be evoke a new health problem if its all not we handle properly.<sup>9</sup>

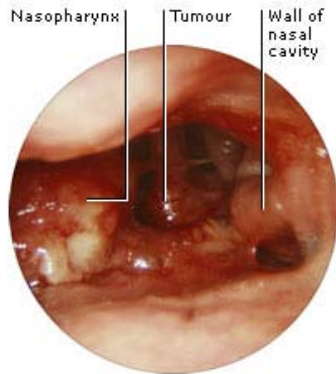
Wildfire induce biomass smoke which contain large ammounts of chemicals, such as particulate material and gas components. Like carbon monoxide, formaldehyd, acrolein, benzene, nitrogen dioxide and ozon. Levels of carcinogenic particles can also find in biomass smoke cases caused by wildfire. For example Benzo (a) pyrene and Benzo (k) fluoranthene.<sup>9</sup>

### METHODS

This study is a retrospective descriptive study, carried out in Anatomical Pathology Department Arifin Ahmad General Hospital Pekanbaru and Faculty of Medicine, University of Riau. Time Research, February 2013 until November 2013. Variables to be studied are gender, age and primary organ. The study population was a medical record all cases of primary malignancy based on histopathological examination 2010-2012.



## RESULTS



Based on research conducted in Anatomic Pathology Department General Hospital Arifin Achmad Pekanbaru the period 2010-2012, there were 183 known cases of cancer in 2010, 228 cases in 2011 and 209 cases in 2012.

### DISTRIBUTION OF MALIGNANCY BY AGE

Age is classified into age groups with an age range of 10 years. For less than 15 years of age were classified in one age group. Likewise, more than 74 years of age were classified into one group age.<sup>8</sup>

**Table 1.1 Distribution of malignancy by age 2010-2012**

Age (year)	2010 (%)	2011 (%)	2012 (%)
<15	3,3	3,5	1,4
15-24	5,5	4,8	0,5
25-34	12,0	12,7	13,4
35-44	21,4	20,0	23,4
<b>45-54</b>	<b>32,1</b>	<b>33,1</b>	<b>36,4</b>
55-64	13,1	14,9	13,9
65-74	10,4	7,9	7,7
>74	2,2	3,1	3,3
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

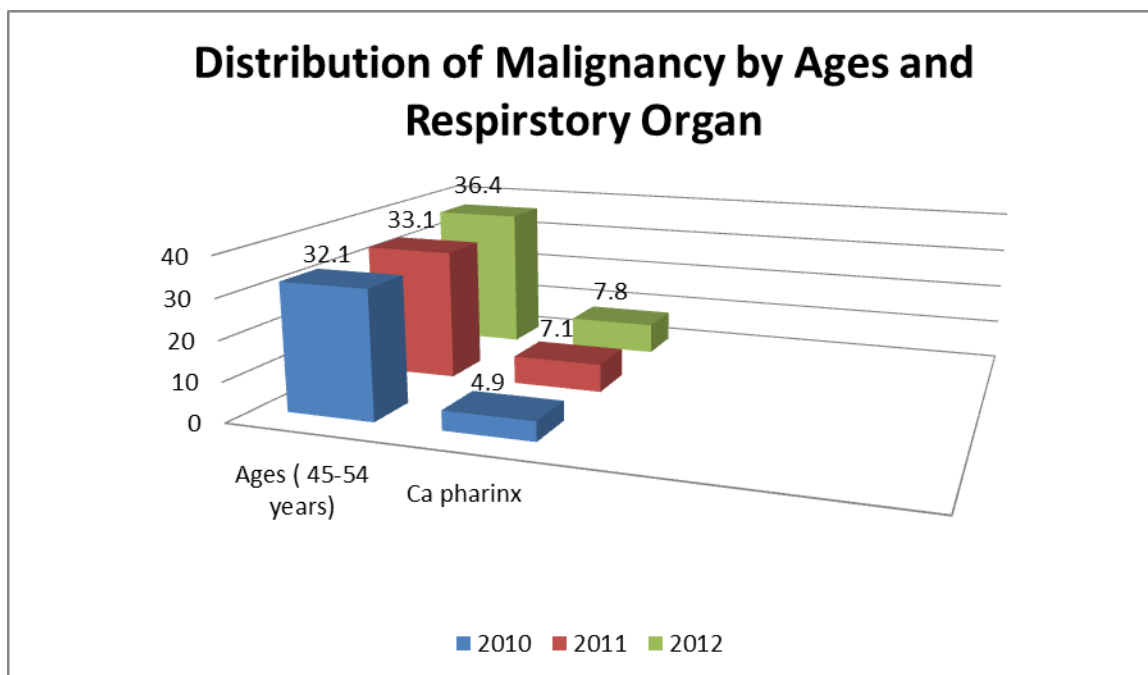
Highest age group is 45-54 years old, with an average value of 32.53%. Age group 35-44 years had an average value of 22.93% within 3 years of research data. Younger age groups (<15 years) is much less cancer, as well as the older age group (> 74 years).

### DISTRIBUTION OF MALIGNANCY IN PRIMARY ORGAN

Primary malignancy mapped by organs and organ systems ranging from oris cavity and pharynx until gland limfe.<sup>15</sup> Here are the most common primary malignancy of the table by the organ.

Table 2.1 Ten common malignancy in men and women 2010-2012

2010 (%)	2011 (%)	2012 (%)
Serviks uteri (13,2)	breast (21,5)	breast (33,4)
Rektum (12,6)	Serviks uteri (10,5)	Serviks uteri (12,0)
Breast (12,0)	Skin (9,6)	<b>Pharinx (7,8)</b>
Skin (11,9)	Soft Tissue (10,2)	Skin (7,6)
Soft Tissue (10,4)	Ovarium (8,2)	Ovarium (4,8)
Ovarium (9,3)	<b>Pharinx (7,1)</b>	Tiroid (4,8)
<b>Pharinx (4,9)</b>	Lymph nodus (6,3)	Rektum (4,3)
bladder (3,8)	Tiroid (4,8)	Lymph nodus (4,3)
Tiroid (3,8)	Colon (3,5)	<b>Cavum oris And Pharinx (4,1)</b>
<b>Cavum oris And Pharinx (2,7)</b>	<b>Cavum oris And Pharinx (3,6)</b>	Soft Tissue (3,2)
Other Thyypes (27,9)	Other Thyypes (17,2)	Other Thyypes (14,3)
<b>Total 100</b>	<b>Total 100</b>	<b>Total 100</b>



**DISCUSSION**

There are increasing a malignancy cases every year in Riau. It will be appear to data and we can looking a malignancy pharynx also increasingly. Wildfire problem be happen more frequently and has bad impact to respiratory health. It will be appear more increasingly from a number of patient visit with respiratory complain in primary care and RSUD ArifinAchmadPekanbaru. Probably during this long term give contribute to increase of pharynx cancer case in Riau.



Figure 1. Wildfire

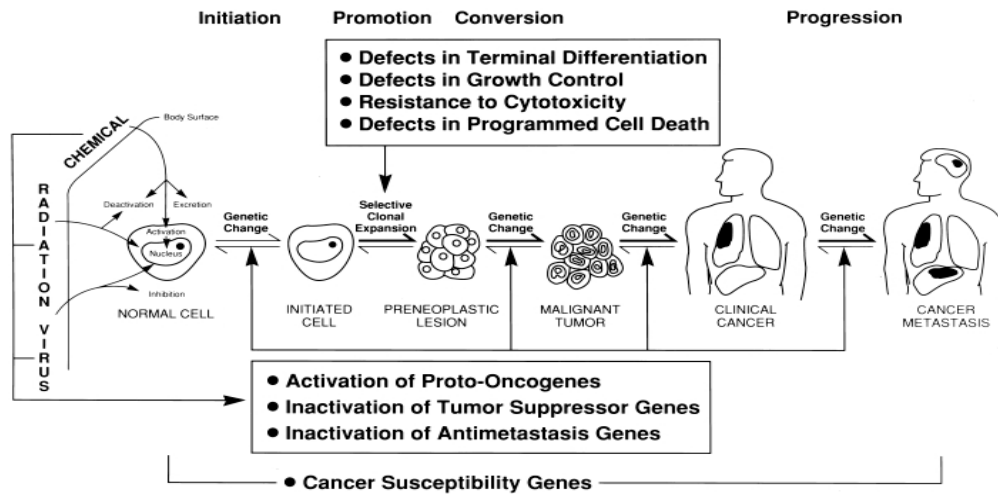


Figure 2. Wildfire of biomass smoke

In the Wildfire case, particulate have small size is most contribute ingredient to adverse effects on health, especially small size of particulate matter (PM) from 10 micron. Increasing of PM above 10 micron related with :<sup>9</sup>

- a. Increase in Respiratoric Complain
- b. Increase in visits to emergency department
- c. Increase in visit and hospitalization and mortality
- d. Acute exacerbation of bronchial asthma and chronic pulmonary disease (COPD)
- e. A decrease in pulmonary function

Levels of carcinogenic particles which can be find in the case biomassa smoke from wildfire, such as benzo ( a ) pyrene and benzo ( k ) fluoranthene is the result of condensation of combustion gases , and the incomplete combustion of organic materials.<sup>9</sup>



## CONCLUSION

Based on histopathologic examination in Anatomical Pathology Laboratory Arifin Achmad Pekanbaru the period 2010-2012, there were 231 cases Cancer in 2010, 239 cases in 2011 and in 2012, 245 cases. Malignancies suffered by men showed increased numbers, with figures of 30.7% 35.5%. Women showed a fairly high number, ranging from 64.5 to 69.3% of cases. The highest age group is 45-54 years cancer ranged from 27.2 to 33.3% of cases. Primary organ most common cancer in men, among others: skin (19%) and Pharynx (17.5%). Primary organ cancer in women, breast (31.2%), cervix uteri (17.1%) and in the mouth only (1.8%).

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