

# Liver Cancer in Vietnam

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2018-06-20

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# outline

- Liver cancer burden
- Risk factors
- Interventions

# Liver Cancer Burden: GDB 2015 study

- The highest burden of liver cancer incident cases, deaths, and DALYs was observed in East Asia
- Japan was the driver behind this finding with 75% of incident cases of which 67% were due to HCV
- Southeast Asia experienced the fourth highest number of incident liver cancer cases but **ranked second for liver cancer deaths and DALYs**
- ASIR some countries with high incidence rates like China and countries in Western and Eastern sub-Saharan Africa have experienced a decrease of over 20% in ASIR
- ASMR declined substantially in regions with high liver cancer burden

# Vietnam

- 9 cancer registry centers (cover only 20 % of the population)
- 6 specialist oncology hospitals in the public sector

**Table 35: Evaluation of performance of the cancer prevention and control project based on objectives for the period 2006-2010**

Objective	Implementation
<b>General objective:</b> <ul style="list-style-type: none"> <li>▪ Reduce cancer morbidity</li> <li>▪ Reduce cancer mortality</li> <li>▪ Improving quality of life for cancer patients</li> </ul>	<b>Objective 1:</b> Cancer morbidity increased by 28% in male and 33% in female, from 2000 to 2010 <b>Objectives 2 and 3:</b> Insufficient information for assessment
<b>Specific objectives:</b> <ol style="list-style-type: none"> <li>1. Reducing cancer morbidity related to tobacco use by 30% compared to 2000;</li> <li>2. Immunize 100% of infants against hepatitis B;</li> <li>3. Reducing fatality rate for specific types of cancer: breast, cervical, mouth, colon and rectum;</li> <li>4. Reduce the proportion of cancers first presenting at specialist facilities in late stages from 80% to 50%.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cancer morbidity related to tobacco increased in males by 20% for lung cancer and 167% for esophageal cancer. Little change in morbidity of these cancers for females.</li> <li>2. Infants immunized against hepatitis B reached 48.2% (MICS 4, 2011) or 95.2% (Health Statistics Yearbook 2011).</li> <li>3. Insufficient information for assessment of changes in fatality rates.</li> <li>4. Using data from 135 hospitals in 5 major provinces (2010): of 22.7% of breast cancer cases where disease stage was assessed, 64.2% of cases were at late stage (stage &gt; III). There is no data showing changes in proportion of late diagnosis</li> </ol>

Source: Nguyen Thanh Huong, Hua Thanh Thuy. Report reviewing NCD control policies in the world and in Vietnam, 2013 [Báo cáo rà soát chính sách phòng chống BKLN trên thế giới và Việt Nam].

## Overview: National Strategy for Cancer Control (2010 and 2020)

Viet Nam is one of the developing countries in with GNP per capita of USD 640 in 2005 and has a population of 83.119 million. Noncommunicable diseases represented 47% of total mortality in 2002, with 8.2% due to cancer. The current national cancer incidence is at least 1500, 000 new cases per year. The leading cancers are lung, liver, stomach, colorectal and nasopharynx for men, and breast, cervix, and stomach and liver for women.

Viet Nam has proposed a National Strategy for Cancer Control up to 2010 and 2020 with the following objectives:

1. Reduce the incidence of tobacco-related cancers by 30%, compared to the year 2000.
2. Ensure HBV vaccination coverage for all newborns.
3. Reduce breast, cervix, mouth and rectum cancers mortality rates.
4. Decrease the proportion of advanced stage cancers from 80 to 50%.
5. Establish a community-based terminal care system for cancer patients and ensure enough supplies of essential drugs.

Although the National Strategy for Cancer Control has not yet been implemented, Viet Nam has already taken action in cancer prevention and control:

- Adoption of a national tobacco control policy in 2002 and measures to restrict tobacco (e.g. banning of tobacco advertisements, smoking restrictions, taxation, and labelling).
- Successful production of HBV vaccine. Since 1997 the vaccine has been included in the extended immunization programme for newborns in Hanoi, Ho Chi Minh City and other provinces.
- Development of breast and cervical cancer screening projects. The Pap technique has recently been introduced. The feasibility of other low cost technology (e.g. visual cervical screening) is also being explored.
- Improving cancer treatment.
- Improving quality of life for cancer patients.
- Mass media education.

**Table 2: Ten most important specific causes of disease burden in Group 2: NCDs, 2010**

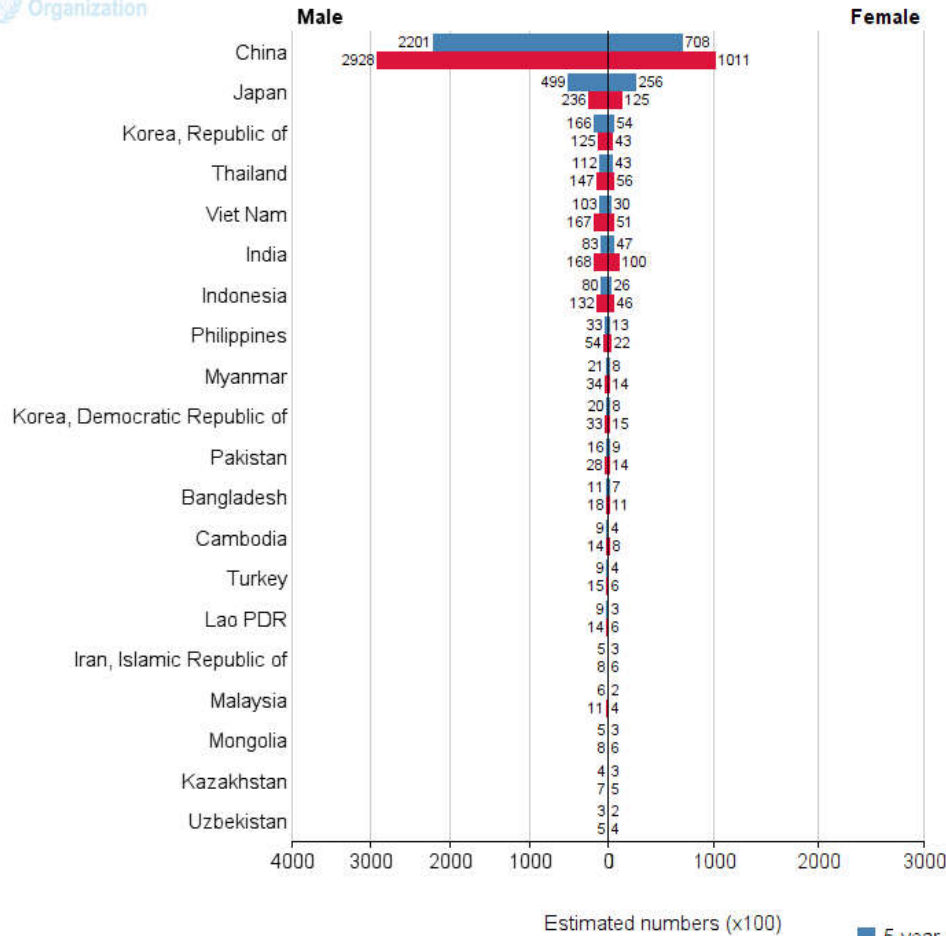
	<b>Ten most important specific causes of disease burden in Group 2</b>	<b>DALYs</b>	<b>Percent of total DALYs</b>
1	Hemorrhagic and other non-ischemic stroke	1 251 750	5.9%
2	Unipolar depressive disorders	908 353	4.3%
3	Low back pain	855 530	4.0%
4	Chronic obstructive pulmonary disease (COPD)	702 332	3.3%
5	Liver cancer	552 726	2.6%
6	Ischemic heart disease	533 058	2.5%
7	Liver cirrhosis	406 724	1.9%
8	Trachea, bronchus and lung cancers	395 655	1.9%
9	Migraine	384 240	1.8%
10	Neck pain	380 054	1.8%
	<b>Total</b>		<b>30%</b>

a retrospective study on cancer stages at the five biggest cancer hospitals in Viet Nam in 2009

Of newly diagnosed patients, there were respectively **87.8%**, 86.9%, 84.3%, 67.8% and 49.5% with liver, stomach, lung, colorectal and breast cancer that presented **with stages III and IV at diagnosis**

Table 1: Disease stage at diagnosis at the five biggest cancer hospitals

Site of cancer	Stage I, II		Stage III, IV		Total
	Cases	%	Cases	%	
Breast	2,009	50.5	1,968	49.5	3,977
Colorectum	407	32.2	859	67.8	1,266
Cervical	439	46.0	515	54.0	954
Thyroid	377	31.5	819	68.5	1,196
Nasopharyn	246	19.9	989	80.1	1,235
Lung	265	15.7	1,425	84.3	1,690
Stomach	167	13.1	1,105	86.9	1,272
Liver	147	12.2	1,055	87.8	1,202
Lymphoma	226	34.5	429	65.5	655
Esophagus	207	28.8	512	71.2	719
Other	1,019	20.0	4,077	80.0	5,096

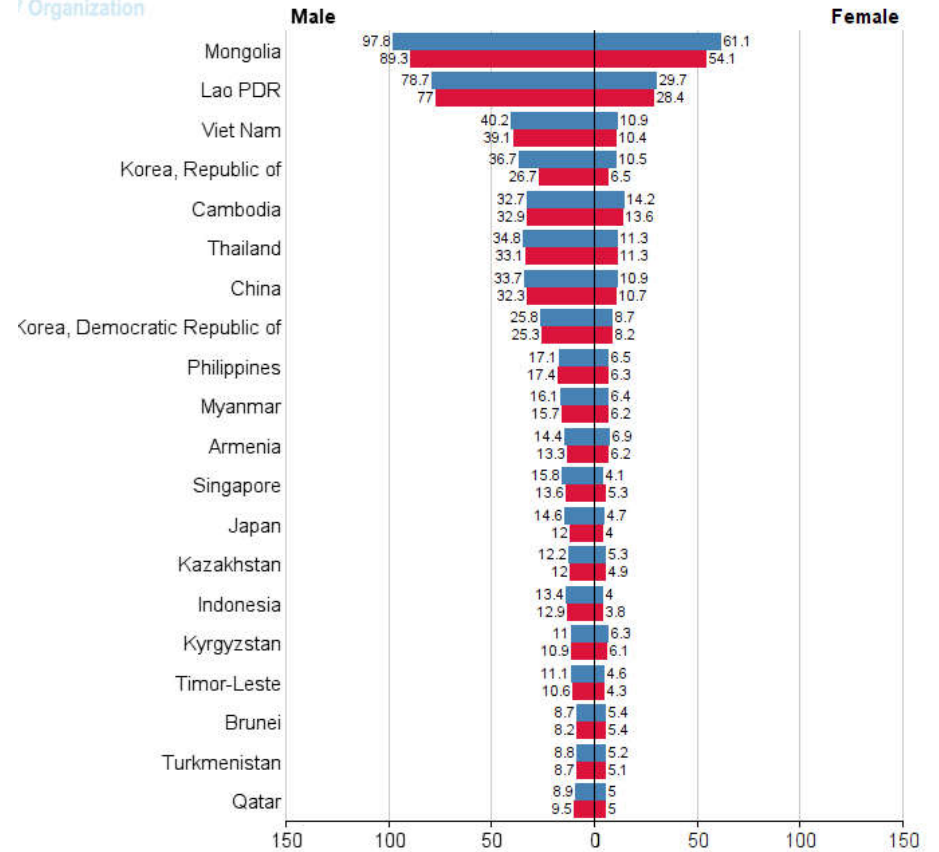


GLOBOCAN 2012 (IARC) (30.4.2018)

GLOBOCAN 2012 (IARC) (2.5.2018)

■ 5-year prevalence  
■ Incidence

IARC 2012 (IARC) (30.4.2018)



■ Incidence  
■ Mortality

# Trend of liver cancer in Vietnam

- There is a high prevalence of liver disease in Viet Nam, much of which results from preventable causes, including **chronic infection with hepatitis viruses**, as well as **high consumption of alcohol** among men
- Viet Nam is one of the 11 countries which carry almost 50% of the global burden of chronic hepatitis, so addressing this major public health issue is vital.



# Incidence

No	Cancer	ASR_2005
	All cancers(excl. NMSC, KS) - Male	237.3
1	Tracheal, bronchus, and lung cancer	63.3
2	Stomach cancer	33.4
3	Liver cancer	27.6
4	Colon and rectum cancer	19.1
5	Other neoplasms	12.5
6	Prostate cancer	11.2
7	Other pharynx cancer	9.4
8	Non-Hodgkin lymphoma	8.6
9	Esophageal cancer	7.1
10	Leukemia	6.4
11	Lip and oral cavity cancer	6.2
12	Bladder cancer	5.3
13	Pancreatic cancer	4.7
14	Larynx cancer	4.2
15	Nasopharynx cancer	3.9
16	Acute lymphoid leukemia	3.5
17	Thyroid cancer	2.6
18	Brain and nervous system cancer	2.5
19	Kidney cancer	1.8
20	Gallbladder and biliary tract cancer	1.6
21	Acute myeloid leukemia	1.6
22	Testicular cancer	1.4
23	Hodgkin lymphoma	1.4
24	Breast cancer	1.1
25	Malignant skin melanoma	0.8
26	Multiple myeloma	0.8
27	Chronic myeloid leukemia	0.7
28	Mesothelioma	0.6
29	Chronic lymphoid leukemia	0.6

No	Cancer	ASR 2015	Percent change ASR 2005 to 2015
	All cancers(excl. NMSC, KS) - Male	260.6	
1	Tracheal, bronchus, and lung cancer	68.7	8.6
2	Stomach cancer	30.6	-8.2
3	Liver cancer	26.6	-3.6
4	Colon and rectum cancer	24.5	28.6
5	Prostate cancer	16.1	44.5
6	Other neoplasms	14.6	16.3
7	Non-Hodgkin lymphoma	11	27.9
8	Other pharynx cancer	10.1	7.1
9	Esophageal cancer	7.4	3.4
10	Leukemia	6.9	7.5
11	Lip and oral cavity cancer	6.9	12
12	Bladder cancer	6	13.9
13	Pancreatic cancer	5	7
14	Larynx cancer	4.2	0.7
15	Nasopharynx cancer	4	2.4
16	Thyroid cancer	3.7	40.4
17	Acute lymphoid leukemia	3.6	3.5
18	Brain and nervous system cancer	2.8	9.9
19	Kidney cancer	2.5	42.3
20	Testicular cancer	2	45.2
21	Acute myeloid leukemia	1.8	10
22	Hodgkin lymphoma	1.5	12.9
23	Gallbladder and biliary tract cancer	1.4	-9.7
24	Breast cancer	1.3	21.1
25	Malignant skin melanoma	1.1	36.8
26	Multiple myeloma	1.1	34.9
27	Chronic lymphoid leukemia	0.7	22.1
28	Chronic myeloid leukemia	0.7	9.4
29	Mesothelioma	0.5	-10.4

2018-06-20

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**Incidence**

Cancer	ASR 2005
All cancers(excl. NMSC, KS) - Female	171.3
1 Breast cancer	36.3
2 Tracheal, bronchus, and lung cancer	25.4
3 Colon and rectum cancer	17.5
4 Cervical cancer	12.6
5 Stomach cancer	11.9
6 Other neoplasms	9.1
7 Lip and oral cavity cancer	7.9
8 Liver cancer	7.2
9 Ovarian cancer	6.4
10 Leukemia	5
11 Uterine cancer	4.7
12 Non-Hodgkin lymphoma	4.3
13 Pancreatic cancer	3.4
14 Thyroid cancer	3.3
15 Esophageal cancer	3.2
16 Acute lymphoid leukemia	2.7
17 Other pharynx cancer	2.1
18 Brain and nervous system cancer	2
19 Nasopharynx cancer	1.8
20 Gallbladder and biliary tract cancer	1.6
21 Bladder cancer	1.5
22 Acute myeloid leukemia	1.1
23 Larynx cancer	1
24 Kidney cancer	1
25 Malignant skin melanoma	0.8
26 Chronic lymphoid leukemia	0.8
27 Multiple myeloma	0.7
28 Hodgkin lymphoma	0.5
29 Chronic myeloid leukemia	0.4
30 Mesothelioma	0.1

Cancer	ASR 2015	Percent change ASR 2005 to 2015
All cancers(excl. NMSC, KS) - Female	177.3	
1 Breast cancer	39.1	7.7
2 Tracheal, bronchus, and lung cancer	27.9	9.6
3 Colon and rectum cancer	21.4	22.1
4 Other neoplasms	9.8	8
5 Stomach cancer	9.7	-18.7
6 Cervical cancer	9.2	-26.8
7 Lip and oral cavity cancer	8	1.5
8 Ovarian cancer	7.1	10.4
9 Liver cancer	6.3	-13.2
10 Uterine cancer	5.4	15.3
11 Non-Hodgkin lymphoma	5.3	21
12 Leukemia	4.8	-3
13 Thyroid cancer	3.9	18.2
14 Pancreatic cancer	3.5	4.5
15 Esophageal cancer	2.9	-9.8
16 Acute lymphoid leukemia	2.5	-7.3
17 Brain and nervous system cancer	2.2	10
18 Other pharynx cancer	1.7	-19.7
19 Bladder cancer	1.6	8.5
20 Nasopharynx cancer	1.5	-14.3
21 Gallbladder and biliary tract cancer	1.4	-12.7
22 Kidney cancer	1.2	22.5
23 Acute myeloid leukemia	1.2	8.8
24 Larynx cancer	1	0.3
25 Malignant skin melanoma	1	22.9
26 Multiple myeloma	0.9	23.4
27 Chronic lymphoid leukemia	0.8	-3
28 Hodgkin lymphoma	0.5	0.3
29 Chronic myeloid leukemia	0.4	-6.1
30 Mesothelioma	0.1	-15.4

Red box highlighting Liver cancer (rank 8) and Ovarian cancer (rank 9) in the 2005 table.

Red box highlighting Liver cancer (rank 9) in the 2015 table.

Blue circle highlighting the -13.2 percent change for Liver cancer in the 2015 table.

Watermark: Women

# Mortality

Cancer	ASR 2005
All cancers(excl. NMSC, KS)	200.7
<b>1</b> Tracheal, bronchus, and lung cancer	68.1
<b>2</b> Liver cancer	30.8
<b>3</b> Stomach cancer	25.2
<b>4</b> Colon and rectum cancer	15.8
<b>5</b> Other neoplasms	8.3
<b>6</b> Esophageal cancer	7.7
<b>7</b> Prostate cancer	7.6
<b>8</b> Pancreatic cancer	5.3
<b>9</b> Non-Hodgkin lymphoma	4.9
<b>10</b> Other pharynx cancer	4.4
<b>11</b> Leukemia	3.9
<b>12</b> Bladder cancer	2.8
<b>13</b> Larynx cancer	2.6
<b>14</b> Lip and oral cavity cancer	2.6
<b>15</b> Acute lymphoid leukemia	2.4
<b>16</b> Brain and nervous system cancer	2.2
<b>17</b> Nasopharynx cancer	2
<b>18</b> Gallbladder and biliary tract cancer	1.4
<b>19</b> Kidney cancer	1.3
<b>20</b> Acute myeloid leukemia	1.1
<b>21</b> Hodgkin lymphoma	0.8
<b>22</b> Multiple myeloma	0.8
<b>23</b> Thyroid cancer	0.7
<b>24</b> Mesothelioma	0.6
<b>25</b> Testicular cancer	0.5
<b>26</b> Malignant skin melanoma	0.3
<b>27</b> Breast cancer	0.3
<b>28</b> Chronic myeloid leukemia	0.3
<b>29</b> Chronic lymphoid leukemia	0.1

Cancer	ASR 2015	Percent change ASR 2005 to 2015
All cancers(excl. NMSC, KS)	202.6	
<b>1</b> Tracheal, bronchus, and lung cancer	71.4	4.4
<b>2</b> Liver cancer	29.1	-5.7
<b>3</b> Stomach cancer	21.9	-13.8
<b>4</b> Colon and rectum cancer	17.8	12.8
<b>5</b> Other neoplasms	8.4	0
<b>6</b> Prostate cancer	7.9	3.1
<b>7</b> Esophageal cancer	7.5	-2.3
<b>8</b> Pancreatic cancer	5.6	4.4
<b>9</b> Non-Hodgkin lymphoma	5.2	6
<b>10</b> Other pharynx cancer	4.6	4.8
<b>11</b> Leukemia	3.9	-0.2
<b>12</b> Lip and oral cavity cancer	2.9	11.5
<b>13</b> Bladder cancer	2.8	0.7
<b>14</b> Larynx cancer	2.5	-3.8
<b>15</b> Acute lymphoid leukemia	2.4	-0.1
<b>16</b> Brain and nervous system cancer	2.3	2.8
<b>17</b> Nasopharynx cancer	2	-0.9
<b>18</b> Kidney cancer	1.5	17.1
<b>19</b> Gallbladder and biliary tract cancer	1.3	-12.8
<b>20</b> Acute myeloid leukemia	1.1	3.5
<b>21</b> Multiple myeloma	1	25.9
<b>22</b> Thyroid cancer	0.7	-0.7
<b>23</b> Hodgkin lymphoma	0.7	-14.5
<b>24</b> Testicular cancer	0.5	-5.5
<b>25</b> Mesothelioma	0.5	-17.5
<b>26</b> Malignant skin melanoma	0.3	13.6
<b>27</b> Breast cancer	0.3	7.1
<b>28</b> Chronic myeloid leukemia	0.3	-12.3
<b>29</b> Chronic lymphoid leukemia	0.1	-5.7

# Mortality

Cancer	ASR 2005
All cancers(excl. NMSC, KS)	108.8
1 Tracheal, bronchus, and lung cancer	26.9
2 Colon and rectum cancer	14.5
3 Breast cancer	10
4 Stomach cancer	8.9
5 Liver cancer	7.4
6 Cervical cancer	5.8
7 Other neoplasms	5.3
8 Ovarian cancer	4.3
9 Pancreatic cancer	3.8
10 Esophageal cancer	3.4
11 Leukemia	3
12 Lip and oral cavity cancer	2.9
13 Non-Hodgkin lymphoma	2.1
14 Uterine cancer	1.9
15 Acute lymphoid leukemia	1.9
16 Brain and nervous system cancer	1.6
17 Gallbladder and biliary tract cancer	1.4
18 Nasopharynx cancer	1
19 Bladder cancer	0.9
20 Other pharynx cancer	0.9
21 Thyroid cancer	0.8
22 Acute myeloid leukemia	0.8
23 Kidney cancer	0.7
24 Multiple myeloma	0.7
25 Hodgkin lymphoma	0.3
26 Larynx cancer	0.2
27 Malignant skin melanoma	0.2
28 Chronic lymphoid leukemia	0.2
29 Chronic myeloid leukemia	0.2
30 Mesothelioma	0.1

Cancer	ASR 2015	Percent change ASR 2005 to 2015
All cancers(excl. NMSC, KS)	103.6	
1 Tracheal, bronchus, and lung cancer	28.1	3.8
2 Colon and rectum cancer	15.4	6.6
3 Breast cancer	9.4	-6.7
4 Stomach cancer	6.8	-23.6
5 Liver cancer	6.1	-17.8
6 Other neoplasms	4.9	-7.7
7 Cervical cancer	4.6	-20.8
8 Ovarian cancer	4.3	-0.9
9 Pancreatic cancer	3.8	0
10 Lip and oral cavity cancer	2.9	0.4
11 Esophageal cancer	2.9	-15.2
12 Leukemia	2.8	-7.8
13 Non-Hodgkin lymphoma	2	-1.7
14 Acute lymphoid leukemia	1.7	-9.1
15 Brain and nervous system cancer	1.6	1.3
16 Uterine cancer	1.5	-19.5
17 Gallbladder and biliary tract cancer	1.1	-16.7
18 Bladder cancer	0.9	-0.2
19 Multiple myeloma	0.8	13.5
20 Acute myeloid leukemia	0.8	1.8
21 Nasopharynx cancer	0.8	-16.3
22 Kidney cancer	0.7	-1.1
23 Thyroid cancer	0.7	-10
24 Other pharynx cancer	0.7	-22.7
25 Larynx cancer	0.2	-16.2
26 Malignant skin melanoma	0.2	2.8
27 Hodgkin lymphoma	0.2	-25.8
28 Chronic myeloid leukemia	0.2	-22.6
29 Mesothelioma	0.1	-17.4
30 Chronic lymphoid leukemia	0.1	-20.7

From: **The Burden of Primary Liver Cancer and Underlying Etiologies From 1990 to 2015 at the Global, Regional, and National Level** Results From the Global Burden of Disease Study 2015

JAMA Oncol. 2017;3(12):1683-1691. doi:10.1001/jamaoncol.2017.3055

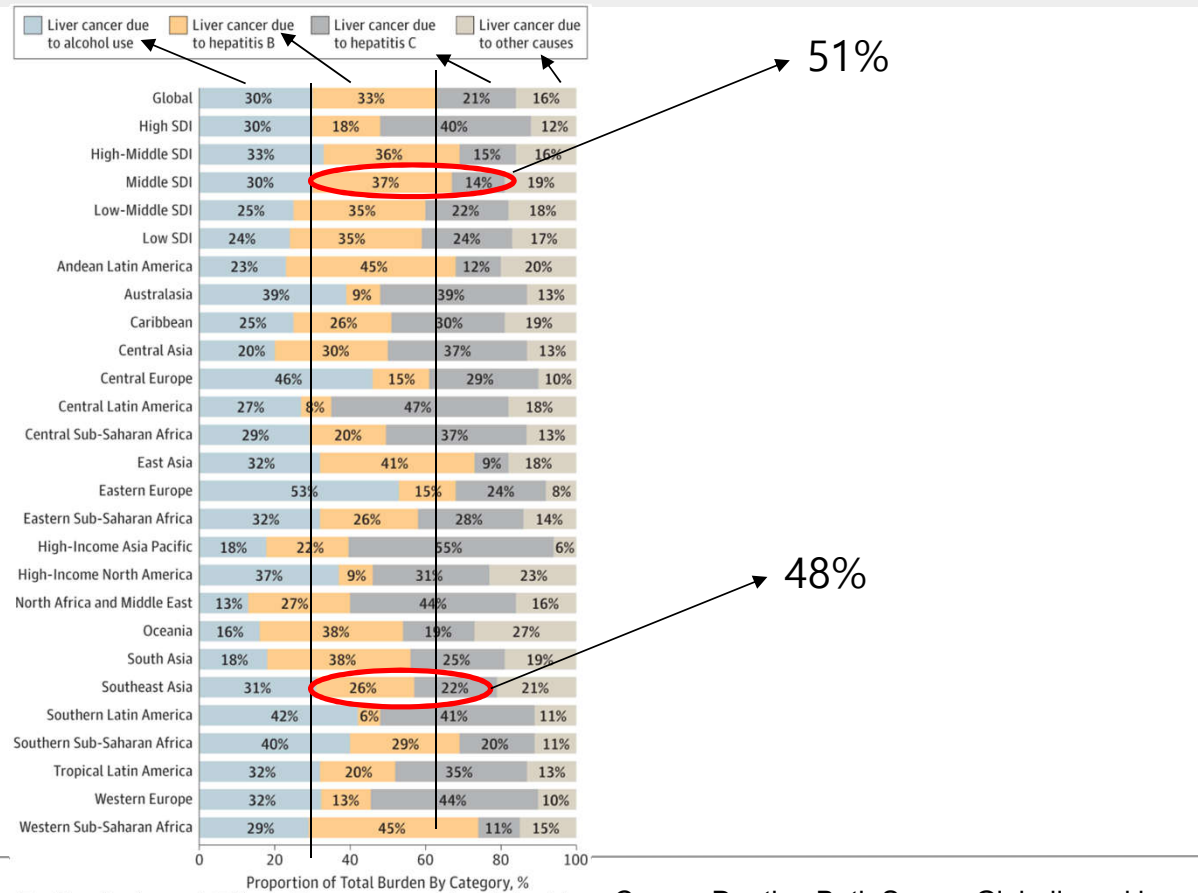
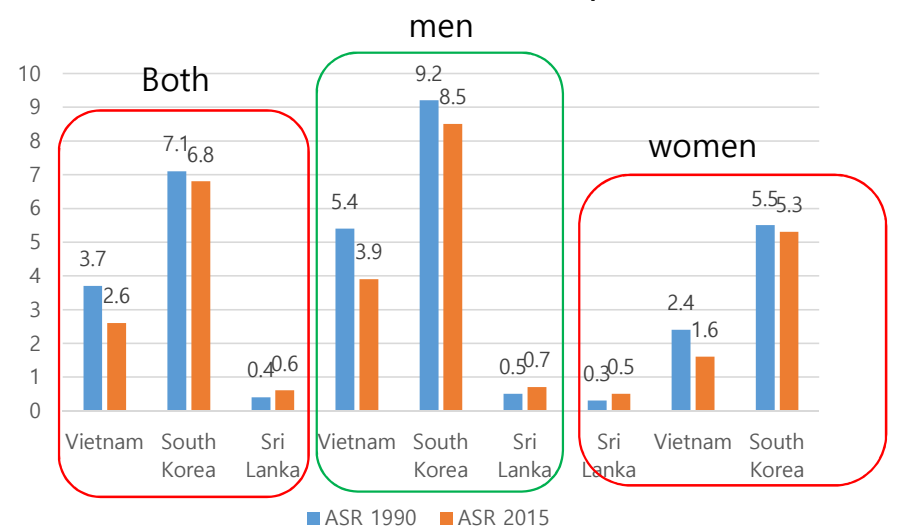
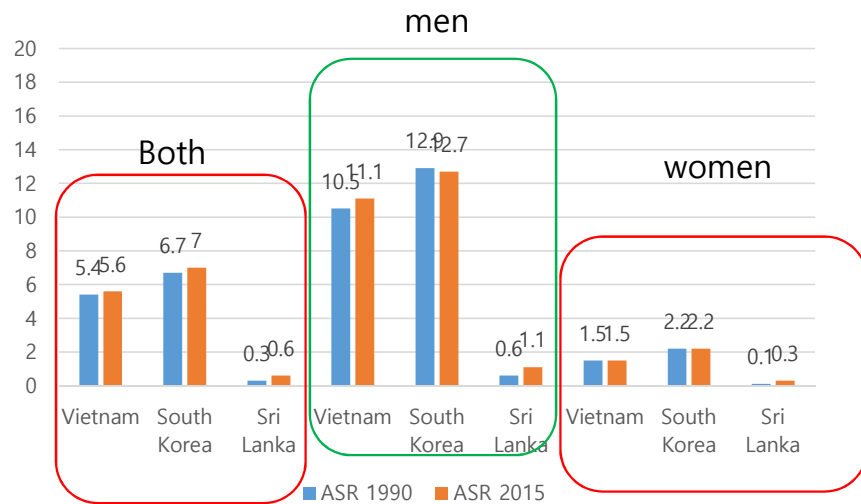
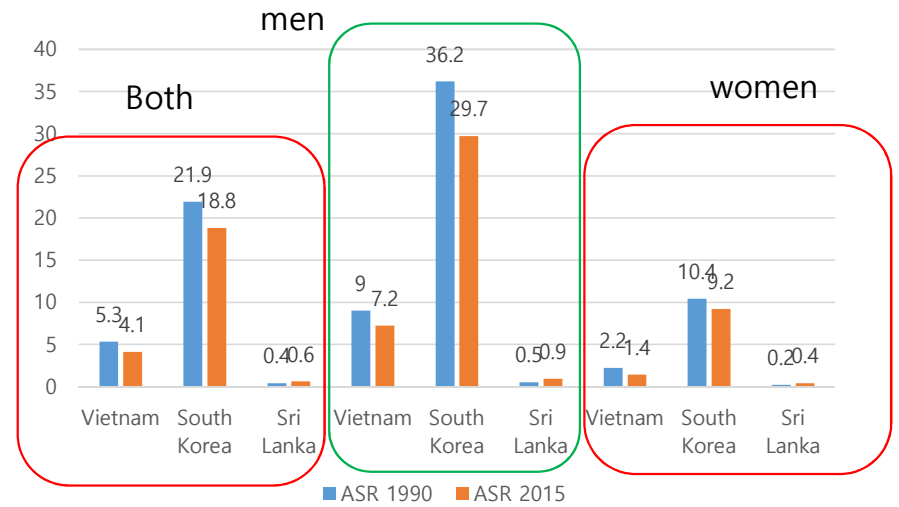
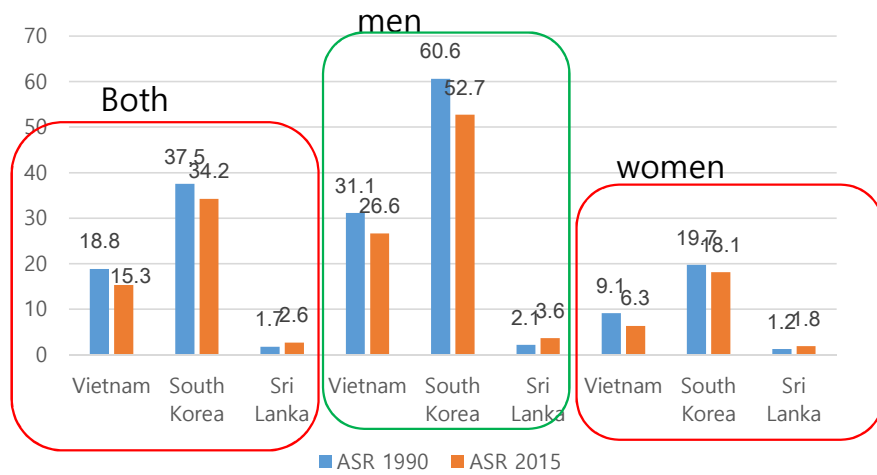


Figure Legend:

2018-06-20 Date of download: 4/26/2018

Contribution of Hepatitis B, Hepatitis C, Alcohol, and Other Causes on Absolute Liver Cancer Deaths, Both Sexes, Globally and by Region, 2015 SDI indicates sociodemographic index.

Bình Thắng Trần



2018-06-20

# Types

- Hepatocellular Carcinoma HCC(80%)
  - Vietnam: 81.8% and older age (however with 8.5% younger than 40 years old).
- Cholangiocarcinoma (liver flukes): 10-12%

# Risk factors

- HBV&HCV
- Aflatoxins
- Alcohol
- Liver flukes



# HBV

- HBV infection (HBsAg+) ranges from 10% to 20% in the general population (Higher in Male ). *8.8% of women and 12.3% of men are chronically infected with hepatitis B.*
- 20% to 40% among injecting drug users and HIV+ patients
- Chronic HBV infection was found in 62.3% of cases, and chronic HCV infection in 26.0%. HBV and HCV co-infection was seen in 2.7%

Table 2. Prevalence of chronic HBV infection in Viet Nam

Investigators	Population studied	Chronic HBV infection
Tran HT et al., 20031	Urban, Ho Chi Minh City, low & high risk	Low risk: 10% High risk: 31.2%
Nakata S et al., 19942	Urban, Ho Chi Minh City and Hanoi, low & high risk	10%-14%
Hipgrave DB et al., 20033	Rural, Thanh Hoa province	Infants: 12.5% Children: 18.4% Adolescents: 20.5% Adults: 18.8%
<i>Do (2014)</i>	15.3% (95% CI, 12.2–8.5),	
Nguyen VT et al., 20074	Rural, Thai Binh province	19%
Duong TH et al., 20099	Rural, Thai Nguyen province	8.8%
Nguyen HD et al., 20108	Greater Mekong sub-region, both urban and rural, low risk	12%
Kakumu S et al., 199810	Urban, Ho Chi Minh City, high risk; rural, Dalat City, low risk	Low risk: 5.7% High risk: 47.0%

HBV, hepatitis B virus.

# HCV

**Table 3** Prevalence of chronic HCV infection in Viet Nam

Investigators	Population studied	Chronic HCV infection
Tran HT <i>et al.</i> , 2003 <sup>1</sup>	Urban, Ho Chi Minh City, low & high risk	Low risk: 2% High risk: 19.2%
Nakata S <i>et al.</i> , 1994 <sup>2</sup>	Urban, Ho Chi Minh City and Hanoi, low & high risk	Low risk, Ho Chi Minh: 9% Low risk, Hanoi: 4% High risk, drug users, Ho Chi Minh: 87% High risk, drug users, Hanoi: 31% High risk, hemodialysis patients, Ho Chi Minh: 54% High risk, hemophiliacs, Ho Chi Minh: 29%
Nguyen VT <i>et al.</i> , 2007 <sup>4</sup>	Rural, northern Viet Nam, low risk	Low risk: 1.0%
Nguyen HD <i>et al.</i> , 2010 <sup>8</sup>	Greater Mekong sub-region, both urban and rural, low risk	Low risk: 2.89%
Kakumu S <i>et al.</i> , 1998 <sup>10</sup>	Urban, Ho Chi Minh City, high risk; rural, Dalat City, low risk	Low risk: 1% High risk: 23%
Quan VM <i>et al.</i> , 2009 <sup>18</sup>	Rural, northern Viet Nam, high risk	High risk, drug users: 74.1%
Nguyen VT <i>et al.</i> , 2007 <sup>4</sup>	Rural, northern Viet Nam, low risk	Low risk: 1.0%
Clatts MC <i>et al.</i> , 2010 <sup>29</sup>	Urban, Hanoi, high risk	High risk, drug users, 10 or fewer months of injection risk: 30% High risk, drug users, 30 or more months of injection risk: 70%

HCV, hepatitis C virus.

- Prevalence of **HCV** infection in Vietnam: 1-3% (CDC, other studies)
  - age groups of 50 or over were found to have high-risk of anti-HCV seropositivity
- 88.8% among persons who inject drug ( the prevalences of HIV/HCV coinfection and HCV mono-infection were 34.8 and 53.9%)
- HCV infection in Vietnam appears to be high among MSM, particularly among HIV-infected MSM



ASIA

# 'Preventable' liver cancer on the rise in Vietnam



By Tan Qiuyi  
@QiuyiCNA

Liver cancer is on the rise in Vietnam. According to a global cancer study, the number of people diagnosed with the disease in 2013 was more than double that of 1990.

<https://www.channelnewsasia.com/news/asia/preventable-quot-liver-cancer-on-the-rise-in-vietnam-8228620>

25 Aug 2015 12:10PM



Bookmark



HANOI: A farmer from northern Vietnam, Trieu Van Chin, had never heard of hepatitis B until he was diagnosed with liver cancer in February.

**"I live in a remote area so I don't have money to go to the hospital. I had fever, I felt better after one or two days, so I went back to work," he said.**

**"In February, my children took me for a medical examination and I found this disease."**

"When I found out I had hepatitis B, I was very afraid I'd get cancer. I quit drinking after that," he said.

Following his diagnosis, Son's wife was tested and his three children vaccinated against the disease.

Vietnam introduced vaccinations for newborns in 2003, but doctors say it would take time for the benefits to show.

"Why? Because it takes 20 to 30 years for chronic hepatitis B to progress to liver cancer, so now we are suffering from liver cancer because 20 and 30 years ago there is high prevalence of hepatitis B," Dr Hang said.

It means liver cancer numbers are expected to remain high in Vietnam for the next ten to 15 years unless authorities invest heavily in the life-saving work of hepatitis treatment, monitoring and follow-up.

2018-06-20

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# HBV/HCV treatment

- Burden for HCV patients: late diagnosis and treatment
- one out of 11 people is living with chronic hepatitis B and C. However, many of them are not yet diagnosed or not accessing treatment
- Currently available medicines do not cure the HBV infection, but treatment can slow the progression of cirrhosis, reduce incidence of liver cancer and improve long term survival.
- In Viet Nam, the **oral antiviral medicines to treat hepatitis B** are increasingly available at hospitals, and are already reimbursable by **health insurance**.

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## WHO welcomes progress in access to Hepatitis C treatment in Viet Nam

HA NOI, 10 MAY 2017 - The World Health Organization welcomes new progress in Viet Nam to improve access to new life-saving hepatitis C treatments. The Ministry of Health of Viet Nam recently reached an agreement with the leading manufacturer of antiviral medicines for hepatitis C treatment, paving the way for people in Viet Nam to access these medicines at a substantially reduced price.

Since 2013, a [new type of oral antiviral medicines to treat hepatitis C](#) is available globally. These newly available medicines are a break-through offering a cure for over 95% of patients following a three to six months treatment. The new oral antiviral medicines are not only more efficacious, but also have fewer side effects, and are more convenient for patients as they can be taken orally. Previous hepatitis C treatments were costly and required regular injections.

In Viet Nam many people cannot yet afford the new oral antiviral medicines. For example, the most commonly prescribed regimen of the new antiviral medicines (a combination of sofosbuvir and ledipasvir) currently costs approximately 45 million Vietnamese dong (or US\$2,000) for a three month treatment course. These medicines are also not yet reimbursed by Viet Nam's health insurance.

Based on the agreement between the Ministry of Health of Viet Nam and the manufacturer, antiviral medicines will become available at "1% of the price at which the innovator drugs are being sold in the United States of America", which is [expected to be around 20 million Vietnamese Dong for a three months cure](#). In return, the Ministry of Health will issue a license to fast-track drug registration for the hepatitis C medicines of the manufacturer. The Ministry of Health may also consider allowing importation of the generic version of the antiviral medicines produced by the manufacturers for which the originator manufacturer provided the voluntary license. Moreover, both sides agreed to build capacity for the production of generic version of antiviral medicines in Viet Nam. Registration is an important first step to allow for reimbursement of the medicines by the Viet Nam health insurance in the future.

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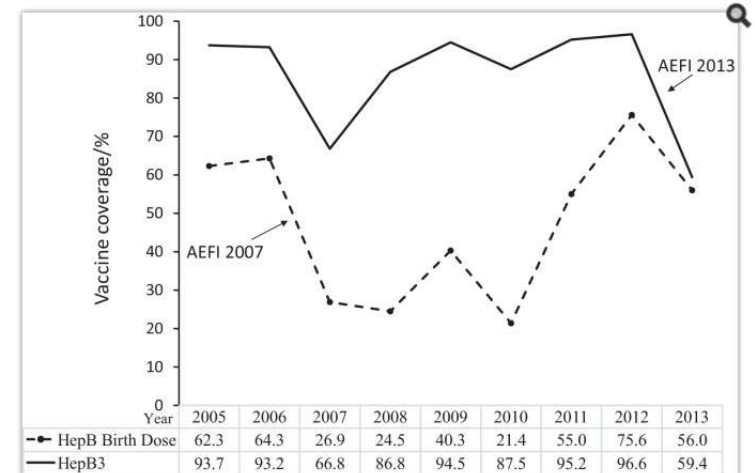
### Related links

[WHO Global Hepatitis Report 2017](#) 

# Current intervention

- HBV vaccination (2003)
  - 80–90% of infants infected during the first year of life develop chronic infections;
- HIV/AIDS Program: HCV test for HIV/Drug users
- Plan for the prevention of hepatitis 2015-2019" (*Decision 5/3/2015*)
  - Prevent transmission from mother to baby

Fig. 1



Anti Vaccine  
Nhóm công khai

Thảo luận

Thành viên

Sự kiện

Ảnh

Tìm kiếm trong nhóm này

Lối tắt

Kho lâm sàng 20+

Nguyễn Dương Hà My Tui thấy có Tàu ngầm chụp cái stt nì của nàng qua bên kia bể rừ.  
Thích · 1 · Hôm qua lúc 8:59

Trường Tuệ Cái này thì bể cũng đc ^^ có mùi tiền mà  
Thích · 1 · Hôm qua lúc 9:08

Nguyễn Dương Hà My  
18 Tháng 5 lúc 21:23

BỐC PHỐT THẦN TƯỢNG CỦA CÁC THÁNH CUỒNG (CUỒNG GMO, CUỒNG VACCINE, CUỒNG SỮA THÚ)  
<https://m.facebook.com/story.php...>

Thích Chia sẻ

21

Trường Tuệ Phần 1  
Thích · 1 · 18 Tháng 5 lúc 21:51

Nguyễn Dương Hà My đã trả lời · 2 câu trả lời

Thúy Nguyễn Cá nhân mình thấy ông ĐOÀN vẫn có nhiều điều đáng ghi nhận. Nhưng ông này có quan điểm quá cứng nhắc (y khoa Mỹ) mà bỏ ngoài tai hết những thứ khác. Nói chung, khi bóc phốt, My cũng nên ghi nhận (nếu có) những gì đồng quan điểm.  
Thích · Hôm qua lúc 9:00 22

Nguyễn Dương Hà My đã trả lời · 1 câu trả lời

# Society efforts

- 70–75% of Viet Nam's 84 million people dwell in rural and mountainous regions, 10 769 communes have a health center which provides both primary health care and preventive healthcare activities
- All provinces and most communes (95.7%) have a Red Cross Society branch that provides free health checks for the poor and other vulnerable groups, including children, the elderly, and women
- Screening for HIV, HBV, HCV, malaria and syphilis is compulsory for all blood donations



# Aflatoxins

**Table 2** Presence of *A. flavus* in crop and soil samples

Sample type	No. of samples tested	Location								No. (%) of positive samples
		North				South				
		A	B	C	Total	D	E	F	Total	
Peanuts	25	1/5 <sup>a</sup>	2/6	2/4	5/15	4/8	0/2	–	4/10	9 (36.0%)
Corn	45	10/21	1/6	1/1	12/28*	1/7	0/2	1/8	2/17*	14 (31.1%)
Soil-farmed	11	0/1	–	–	0/1	0/1	2/6	1/3	3/10	3 (27.3%)
Soil-virgin	4	0/1	0/2	–	0/3	0/1	–	–	0/1	0
Total	85				17/47				9/38	26 (31.0%)

A Northern Uplands, B Red River Delta, C North Central Region, D Central Highlands, E South East Region, F Mekong River Delta

\* Significant difference ( $P < 0.05$ ) was found in the levels of infection in corn between Northern and Southern samples

<sup>a</sup> Number of infected samples/number of samples tested

**Table 3.** Dietary exposure of aflatoxin B<sub>1</sub> and ochratoxin A and risk of liver and renal cancer.

Food group <sup>a</sup>	Daily intake (kg/day) <sup>a</sup>	Aflatoxin B <sub>1</sub> <sup>c</sup> Exposure <sup>b</sup> (ng/kg bw/day)		Liver cancer risk <sup>d</sup> (case/100,000 persons)			Ochratoxin A <sup>c</sup> Exposure <sup>b</sup> (ng/kg bw/day)		MOE <sup>e</sup>
		MB	LB-UB	Mean	LB-UB	MB	LB-UB		
		Rice and products	0.405	22.2	19.5-25.0	1.51	1.32- 1.70	8	
Wheat and products	0.013	0.3	0-0.5	0.02	0-0.04	641	0.3	0-0.5	>10,000
Other cereals	0.015	1.0	1.0	0.07	0.07	173	0.3	0-0.6	>10,000
Roots and products	0.003	0.1	0.1-0.2	0.01	0.01	1,279	0.1	0-0.1	>10,000
Beans and products	0.001	0.1	0.1	0.00	0	2,909	0.2	0.2	>10,000
Tofu	0.037	0.8	0-1.5	0.05	0-0.10	225	0.7	0-1.4	>10,000
Oily seeds	0.005	0.4	0.4	0.03	0.03	408	0.1	0-0.2	>10,000
Vegetables	0.032	1.6	1.6	0.11	0.11	105	0.6	0-1.2	>10,000
Sugar/confectionary	0.001	0.1	0.1	0.01	0.01	2,065	0.0	0.0	>10,000
Seasoning	0.010	0.8	0.8	0.05	0.05	217	0.3	0.2-0.4	>10,000
Oil, fat	0.008	0.6	0.6	0.04	0.04	308	0.2	0.2-0.3	>10,000
Meat and products	0.092	7.7	7.5-7.8	0.52	0.51-0.53	22	5.0	4.4-5.7	4166
Egg and milk	0.021	2.3	2.3	0.16	0.16	74	1.4	1.3-1.5	>10,000
Fish	0.030	1.4	1.1-1.7	0.10	0.07-0.12	121	1.4	1.1-1.7	>10,000
Other aquatic products	0.003	0.2	0.1-0.2	0.01	0.01	1,103	0.3	0.3	>10,000
Total	2018-06-20	39.4	35.0- 43.7	2.68	2.38- 2.97	4.3	18.7	7.5- 29.8	1124

Huong. *Food and Chemical Toxicology* (2016)



# aflatoxin B<sup>1</sup> in maize

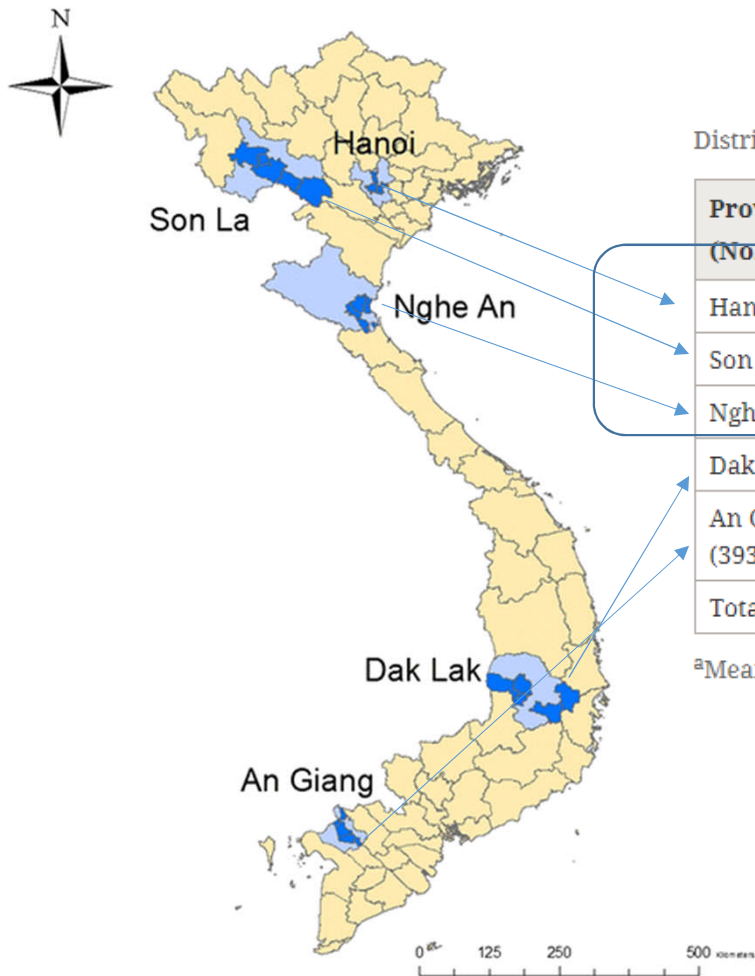
Table 1. Distribution of aflatoxin B<sub>1</sub> levels in maize for food and feed from six provinces.

Province	Purpose (n)	No. with aflatoxin level >2 µg/kg (% with 95% CI)	No. with aflatoxin level >5 µg/kg (% with 95% CI)	Mean <sup>1</sup>	Median <sup>1</sup>	Range
Hanoi	Human consumption (13)	3 (23.08%, 5.04-53.81)	3 (23%, 50.38-53.81)	7.8	8.4	<LOD-13.2
	Animal feed (384)	181 (47.14%, 42.05-52.26)	160 (41.67%, 36.69-46.77)	11.8	13.5	<LOD-34.8
Son La	Human consumption (0)					
	Animal feed (395)	230 (58.23%, 53.19-63.14)	203 (51.39%, 46.34-56.42)	12.0	14.3	<LOD-22.2
Nghe An	Human consumption (3)	1 (33.33%, 0.84-90.57)	1 (33.33%, 0.84-90.57)	11.0	11.0	<LOD-11.0
	Animal feed (391)	111 (28.39%, 23.97-33.14)	86 (21.99%, 17.99-26.43)	10.4	10.9	<LOD-30.0
Dak Lak	Human consumption (187)	9 (4.81%, 2.22-8.94)	9 (4.81%, 2.22-8.94)	9.4	9.5	<LOD-16.0
	Animal feed (202)	5 (2.48%, 1.09-5.69)	4 (1.98%, 0.54-4.99)	8.2	5.89	<LOD-19.3
Dong Nai	Human consumption (194)	86 (44.33%, 37.22-51.62)	68 (35.05%, 28.36-42.21)	11.2	14	<LOD-20.9
	Animal feed (201)	103 (51.24%, 44.11-58.34)	89 (44.28%, 37.29-51.44)	11.7	13.6	<LOD-22.0
An Giang	Human consumption (131)	43 (32.82%, 24.88-41.57)	41 (31.06%, 23.30-39.70)	10.4	10.2	<LOD-21.8
	Animal feed (269)	27 (10.04%, 6.72-14.27)	23 (8.55%, 5.50-12.55)	7.0	5.5	<LOD-23.8

<sup>1</sup> Mean and median were calculated from the samples above the limit of detection (LOD); >1 µg/kg).

Among collected samples, 799 samples (**33.71%**, 95 CI: 31.81-35.66%) and 687 samples (**28.98%**, 95%CI: 27.17-30.86%) had levels above 2 and 5

# Prevalence of aflatoxins in pigs:



Distribution of aflatoxin M<sub>1</sub> levels in pigs from five provinces in Vietnam

Province (No.)	Samples above LOD (% with 95% CI) <sup>a</sup>	Mean (µg/kg) <sup>a</sup>	Median (µg/kg) <sup>a</sup>	Range (µg/kg) <sup>a</sup>
Hanoi (385)	292 (75.84, 95% CI 71.25–80.04)	0.41	0.19	<LOD - 8.05
Son La (383)	316 (82.51, 95% CI 78.32–86.18)	1.23	0.32	<LOD - 7.35
Nghe An (375)	245 (65.33, 95% CI 60.28–70.15)	0.24	0.18	<LOD - 1.42
Dak Lak (384)	167 (43.49, 95% CI 38.47–48.61)	0.50	0.18	<LOD - 13.66
An Giang (393)	15 (3.82, 95% CI 2.15–6.22)	0.19	0.17	<LOD - 0.30
Total (1920)	1035 (53.90, 95% CI 51.64–56.15)	0.63	0.20	<LOD - 13.66

<sup>a</sup>Mean and median were calculated from the samples above limit of detection (LOD ≥ 0.15 µg/kg)

- Aflatoxin M<sub>1</sub> (AFM<sub>1</sub>) is a hydroxylated metabolite formed after aflatoxin B<sub>1</sub> (AFB<sub>1</sub>)
- 1920 urine samples were collected from slaughterhouses located in five provinces

Binh Thang Tran

Table 4  
Demographic characteristics of survey respondents from “Have you heard about aflatoxins?”

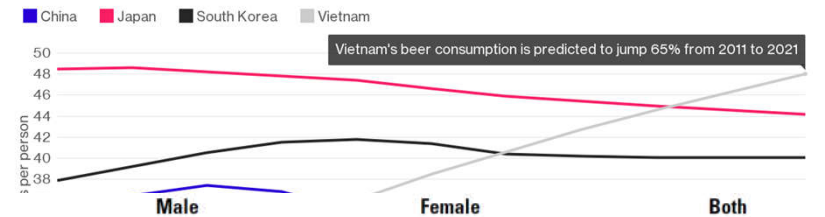
Category	Characteristic (n)	Have you heard about aflatoxins?
Age (year)	< 20 (n = 3)	1 (33.33%)
	21–29 (n = 21)	16 (76.19%)
	30–39 (n = 65)	46 (70.77%)
	40–49 (n = 89)	62 (69.66%)
	50–59 (n = 54)	32 (59.26%)
	≥ 60 (n = 20)	14 (70.0%)
Gender	Male (n = 154)	114 (74.03%)
	Female (n = 98)	57 (58.16%)
Education	None (n = 3)	1 (33.33%)
	Primary & Middle school (n = 97)	49 (50.52%)
	High school (n = 115)	88 (76.52%)
	College/University or more (n = 37)	33 (89.19%)
Occupation	Farmers (n = 141)	90 (63.83%)
	Retailers (n = 36)	27 (75.0%)
	Feed manufacturers (n = 10)	9 (90.0%)
	Others (office workers and businessmen) (n = 65)	45 (69.23%)

# Alcoholic liver disease

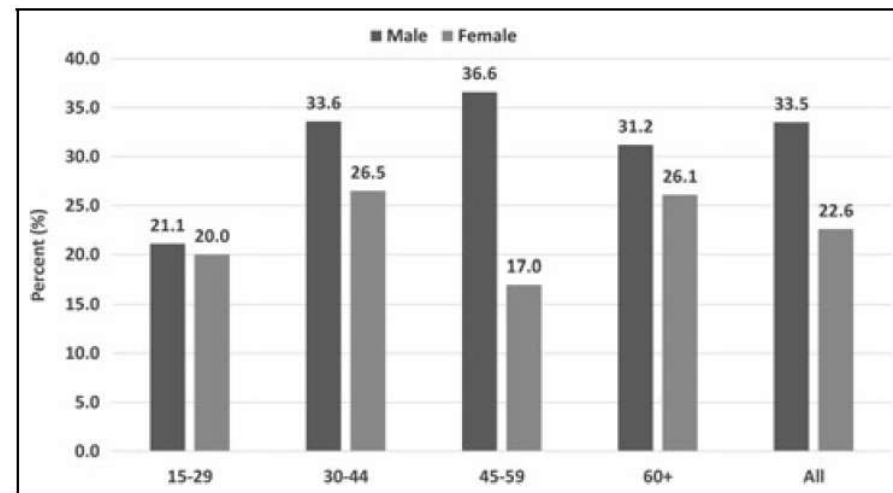
- alcohol consumption is common
- People living in rural areas drink more than those in urban areas, but people living in urban areas tend to drink at a harmful level more
- Viet Nam had by far the highest rates of male at-risk drinkers and moderate drinkers (The rural Health and Demographic Surveillance System (HDSS))

## Lager Quaffers

Per-capita beer consumption in select markets



Alcohol consumption status	Male (%)	Male 95% CI	Female (%)	Female 95% CI	Both (%)	Both 95% CI
Lifetime abstainers	28.1	26.3-29.8	75.6	74.1-77.2	52.2	50.8-53.7
Ex-drinkers	5.3	4.5-6.3	7.9	7.0-8.9	5.9	5.3-6.6
Current drinkers	66.6	64.7-68.5	16.4	15.1-17.8	41.8	40.3-43.2



ard drinks per day  
ard drinks per day

ine Asian

**FIGURE** Prevalence of Binge Drinking by Age Group and Gender

Happy Hours



A delivery man with boxes of imported beer in Hanoi. Photographer: Hoang Dinh Nam/AFP via Getty Images



Binh Thang Tran

2018-06-20

# Alcohol



News

## Vietnam weighs overnight alcohol ban

By Nam Phuong April 14, 2018 | 07:00 pm GMT+7

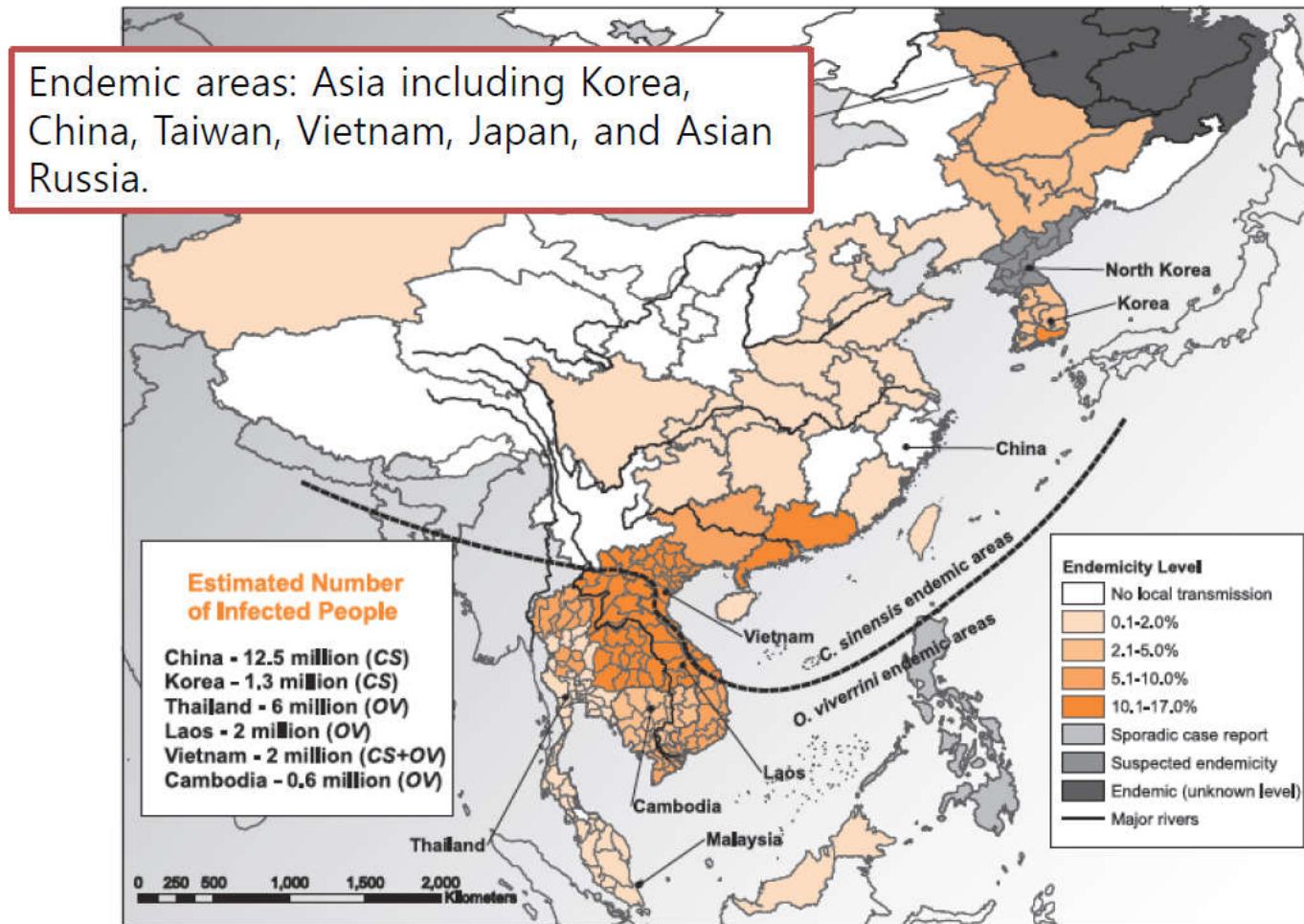


People drink beer in a restaurant in Hanoi. Photo by Reuters

**The health ministry says it's time to tackle the costs of excessive late night drinking.**

Vietnam is considering options for limiting the sale of alcoholic drinks at night to prevent harmful effects of drinking, the health ministry said on Friday.

## Distribution of Liver fluke infection in Asia



Source: IARC Monographs on the evaluation of carcinogenic risks to humans- Biological Agents. Vol. 100B. 2012

# Liver flukes

- In Vietnam, at least 1 million people are infected with **C. sinensis** in the North and *O. viverrini* in the Central and South regions
- Clonorchis sinensis* is major fish-borne trematode, endemic in North Vietnam. Risk factors described so far include individual eating behaviors and environmental factors
- clonorchiasis is endemic in 21 northern provinces and its prevalence varies from 0.2% to 40.1%

*C. Sinensis Infection*

16.4%

Characteristic	n	Positive No. (%)	Univariate analysis OR (95 % CI)	P value
<b>Gender</b>				0.001
Male	238	53 (22.27)	2.23 (1.37 – 3.61)	
Female	272	31 (11.40)	1	
<b>Education level</b>				0.002
Primary school (under grades 6)	120	29 (24.17)	1	
Secondary school (grades 6–9)	310	52 (16.77)	0.63 (0.38–1.05)	
High school (grades 10–12)	65	3 (4.62)	0.152 (0.042 – 0.543)	
University	15	0 (0.00)	- -	
<b>Occupation</b>				0.002
Non-Farmers	92	5 (5.43)	1	
Farmers	418	79 (18.90)	4.05 (1.59 – 10.32)	
<b>Alcohol drinking when eating raw fish</b>				0.037
No	88	14 (15.91)	1	
Yes	225	61 (27.11)	1.97 (1.03–3.74)	
<b>Raw fish consumption</b>				0.000
Never	197	9 (4.57)	1	
Yes but not for the past 5 years	108	13 (12.04)	2.86 (1.18 – 6.93)	
Yes, still eating in the past 5 years	205	62 (30.24)	9.06 (4.36 – 18.83)	
<b>Raw fish consumption for last year</b>				0.013
At least once a week	5	1 (20.00)	1	
At least once a month	42	13 (30.95)	1.79 (0.18 – 17.65)	
At least once in last year	126	39 (30.95)	1.79 (0.19 – 16.57)	
Have not eat raw fish in last year	140	22 (15.71)	0.75 (0.80 – 7.00)	

Characteristics	Male N (%)	Female N (%)	Total N (%)	P-value
<b>Raw fish consumption (n=510)</b>				0.000
No	27 (13.61)	170 (86.29)	197 (100)	
Yes	211 <b>88.7</b>	102 <b>37.5</b>	313 (100)	
<b>Alcohol consumption with raw fish (n=313)</b>				0.000
No	13 (14.77)	75 (85.23)	88 (100)	
Yes	198 <b>93.8</b>	27 <b>26.4</b>	225 (100)	

*Emerging and Zoonotic Diseases*, Vol. 16, No. 12 | Original Article

## Comparative Risk of Liver and Intestinal Fluke Infection from Either Wild-Caught or Cultured Fish in Vietnam

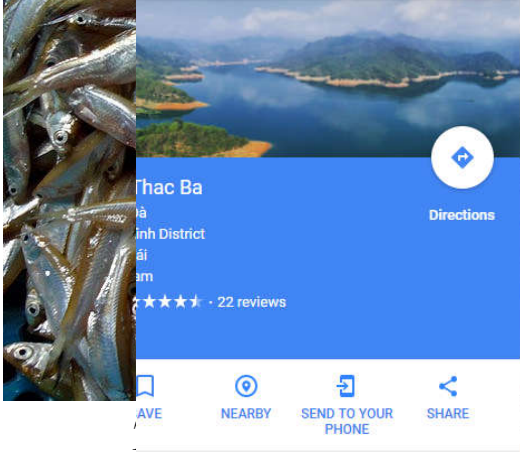
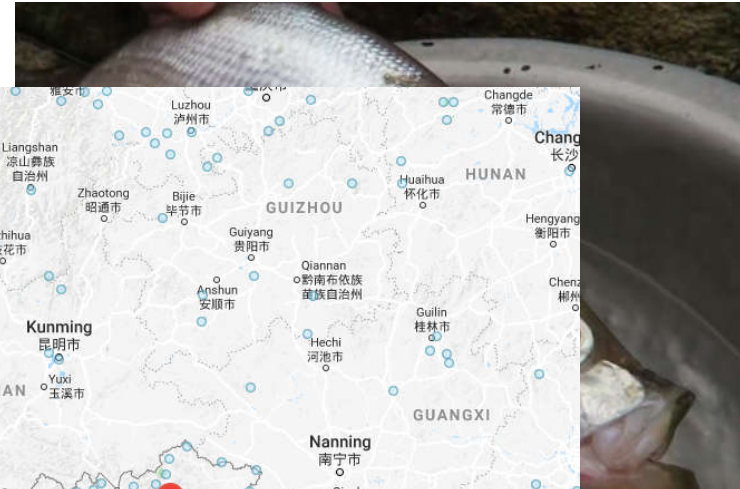
Phan Thi Van<sup>1</sup>, Ba Ngoc Thanh<sup>1</sup>, Nguyen Van Ha<sup>1</sup>, and Khanh Khanh<sup>1</sup>  
 Published Online: 1 Dec 2016 | <https://doi.org/10.1089/eid.2016.1987>

TABLE 2. PREVALENCE AND INTENSITY OF FZTs IN DIFFERENT WATER TYPES AT THE NORTHERN MOUNT

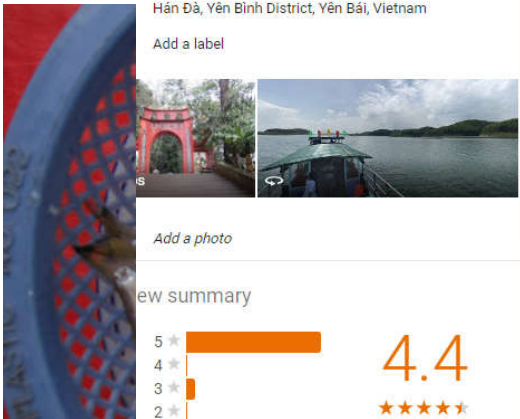
Water types	No. of fish examined (fish)	Prevalence% (Intensity— <i>metacercariae</i> )				
		<b>Clonorchis sinensis</b>	Haplorchis pumilio	Haplorchis taichui	Haplorchis yokogawai	Centrocestus formosanus
Pond	186	0	44.1 <sup>a</sup> (22.6) <sup>a</sup>	11.3 <sup>a</sup> (6.1) <sup>a</sup>	0.5 <sup>a</sup> (1.0) <sup>a</sup>	4.3 <sup>a</sup> (1.6) <sup>a</sup>
Reservoir	210	10.9 <sup>a</sup> (29.7) <sup>a</sup>	25.2 <sup>a</sup> (7.2) <sup>a</sup>	1.4 <sup>b</sup> (1.0) <sup>a</sup>	0	1.9 <sup>a</sup> (1.0) <sup>a</sup>
River	450	2.7 <sup>a</sup> (2.1) <sup>b</sup>	44.7 <sup>a</sup> (16.3) <sup>a</sup>	14.2 <sup>a</sup> (6.2) <sup>a</sup>	1.3 <sup>a</sup> (5.5) <sup>a</sup>	14.2 <sup>b</sup> (10.7) <sup>b</sup>



*Clonorchis sinensis*



fishes-Ngã gù)



*Hemiculter leucisculus* (Sharpbelly-Mương xanh)



2018-09-29  
*Cultrichthys erythropterus* (Cá Thiều)

Binh Thang Tran

# Liver flukes

Education and surveillance system



National Institute for malarology Parasitology and Entomology (Hanoi)

Quy Nhon Institute for malarology Parasitology and Entomology

HCMC Institute for malarology Parasitology and Entomology

# Greater Mekong Subregion Health Security Project

## ADB-48118-002

### Project Description

According to ADB website, The Greater Mekong Subregion (GMS) Health Security Project is composed of (i) four loans to Cambodia, the Lao PDR, Myanmar, and Viet Nam (CLMV); and (ii) a grant to the Lao PDR. The project builds on previous and ongoing interventions focusing on communicable disease control (CDC) in Cambodia, the Lao PDR, and Viet Nam; and now including Myanmar. The impact will be GMS public health security strengthened. The outcome will be GMS health system performance with regard to health security improved.

### Investment Description

- Asian Development Bank (ADB)