

---

---

# A BILL FOR AN ACT

RELATING TO HEALTH.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1           SECTION 1. The legislature finds that liver cancer in  
2 Hawaii occurs at extremely high rates. According to the United  
3 States Centers for Disease Control and Prevention and the  
4 University of Hawaii Cancer Center, Hawaii has had the highest  
5 or second highest rate of liver cancer in the country in recent  
6 years.

7           Every year in Hawaii there are one hundred eighty-four  
8 newly diagnosed cases of liver cancer, including bile duct  
9 cancer, according to the Hawaii Tumor Registry. From 2004 to  
10 2013, available data on liver cancer indicates an annual  
11 increase in Hawaii of 2.1 per cent in males and 1.3 per cent in  
12 females, while the incidence of many other cancers such as  
13 colon, lung, prostate, and stomach cancer declined. There are  
14 currently about one thousand patients in Hawaii fighting liver  
15 cancer and bile duct cancer, both of which are almost always  
16 fatal.



1           Liver cancer, which starts in the liver and includes bile  
2 duct cancer, is most commonly caused by the hepatitis B virus,  
3 hepatitis C virus, and heavy alcohol consumption. In Hawaii,  
4 however, these factors are near the national average, which  
5 suggests that other factors may be contributing to the high  
6 occurrence of liver cancer in the State. Other factors that can  
7 cause liver cancer are liver fluke infection, a type of  
8 parasitic flatworm found in fish, shrimp, and vegetables grown  
9 in fresh water, and consumption of foods containing aflatoxins,  
10 a fungus abundant in warm and humid regions that can grow on  
11 foods such as grains and nuts stored improperly.

12           According to the American Cancer Society, persons who have  
13 chronic inflammation of the bile ducts have an increased risk of  
14 developing bile duct cancer. Certain conditions of the liver or  
15 bile ducts can cause bile duct cancer, including liver fluke  
16 infections, which occur in some Asian countries when people eat  
17 raw or poorly cooked fish that are infected with these tiny  
18 parasite worms. Liver fluke infection can also affect people  
19 from Hawaii who travel to Asia.

20           The legislature notes the July 2018 abstract in the United  
21 States National Institutes of Health's National Library of



1 Medicine, "Screening US Vietnam Veterans for Liver Fluke  
2 Exposure 5 Decades After the End of the War," which indicates  
3 that the causal relationship between two liver fluke diseases,  
4 *clonorchiasis* and *opisthorchiasis*, and *cholangiocarcinoma*, or  
5 bile duct cancer, has been well documented. The abstract states  
6 that in the United States, eight thousand people are diagnosed  
7 with bile duct cancer each year, and United States Vietnam  
8 veterans, five decades after the end of the war, are being  
9 diagnosed with bile duct cancer.

10 Furthermore, a November 21, 2017, Associated Press article,  
11 "VA study shows parasite from Vietnam may be killing veterans,"  
12 indicates that the United States Department of Veterans Affairs  
13 commissioned a small pilot study in spring 2017 to look into the  
14 link between liver flukes ingested through raw or undercooked  
15 fish and a rare bile duct cancer. The article states that the  
16 test results show some men who served in Vietnam may have been  
17 infected by the slow-killing liver fluke parasite while fighting  
18 in Southeast Asia. An abstract in the Public Library of Science  
19 published October 9, 2009, also indicates that the human liver  
20 fluke, *Opisthorchis viverrini*, infects millions of people



1 throughout Southeast Asia and is a major cause of cancer of the  
2 liver ducts.

3       The legislature finds that a November 1964 University of  
4 Hawaii research study entitled "Parasitic Infections of Man and  
5 Animals in Hawaii" by Joseph E. Alicata, a professor at the  
6 Hawaii agricultural experiment station, college of tropical  
7 agriculture, University of Hawaii, clearly shows that liver  
8 flukes are relatively common in Hawaii and are found in various  
9 animals and snails in and near fresh water habitats such as  
10 streams, ponds, and wet soil. The legislature notes that Hawaii  
11 is the only state with a tropical climate similar to Southeast  
12 Asia where liver flukes are found.

13       However, since there is virtually no data on liver fluke  
14 infection and aflatoxin exposure in Hawaii, the State is unable  
15 to warn the public of this serious health danger without  
16 adequately making causative connections between these factors  
17 and liver cancer, which is why research at the University of  
18 Hawaii Cancer Center is needed.

19       The University of Hawaii Cancer Center is preparing to  
20 conduct a three-year, \$1,100,000 study to examine the prevalence  
21 of liver fluke infection, aflatoxin ingestion, and intrahepatic



1 bile duct dilation in the general population and liver cancer  
 2 patients in Hawaii, and examine any associations with  
 3 participant characteristics, such as ethnicity. The Cancer  
 4 Center has indicated that it will need \$340,000 for the first  
 5 year of the study and \$380,000 for each of the remaining years.

6 The purpose of this Act is to appropriate funds to the  
 7 University of Hawaii Cancer Center to determine whether Hawaii  
 8 has the highest incidence in the country of liver and bile duct  
 9 cancer due to liver fluke infection, aflatoxin ingestion, or  
 10 intrahepatic bile duct dilation.

11 SECTION 2. There is appropriated out of the general  
 12 revenues of the State of Hawaii the sum of \$ or so much  
 13 thereof as may be necessary for fiscal year 2019-2020 and the  
 14 sum of \$ or so much thereof as may be necessary for  
 15 fiscal year 2020-2021 for the University of Hawaii Cancer Center  
 16 to determine whether Hawaii has the highest incidence in the  
 17 country of liver and bile duct cancer due to liver fluke  
 18 infection, aflatoxin ingestion, or intrahepatic bile duct  
 19 dilation.



1           The sums appropriated shall be expended by the University  
2 of Hawaii for the purposes of this Act.

3           SECTION 3. This Act shall take effect on July 1, 2050.



**Report Title:**

University of Hawaii; Cancer Center; Liver and Bile Duct Cancer;  
Liver Flukes; Appropriation

**Description:**

Appropriates funds to the University of Hawaii Cancer Center to determine whether Hawaii has the highest incidence in the country of liver and bile duct cancer due to liver fluke infection, aflatoxin ingestion, or intrahepatic bile duct dilation. (HB654 HD1)

*The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.*

