
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 \$340,000 or so much
13 thereof as may be necessary for fiscal year 2019-2020 and the
14 sum of \$380,000 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.

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



H.B. NO. 654

1 SECTION 3. This Act shall take effect on July 1, 2019.

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H.B. NO. 654

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 in Hawaii.

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