
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 Hawaii
4 Tumor Registry, Hawaii has had the highest or second highest
5 rate of liver cancer among all of the states in recent years.

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

16 The legislature further finds that liver cancer, which
17 starts in the liver and includes bile duct cancer, is most



1 commonly caused by the hepatitis B virus, hepatitis C virus, and
2 heavy alcohol consumption. In Hawaii, however, these factors
3 are near the national average, which suggests that other factors
4 may be contributing to the high occurrence of liver cancer in
5 the State. Other factors that can cause liver cancer are non-
6 alcoholic steatohepatitis (NASH or fatty liver), infectious
7 agents such as liver fluke, a type of parasitic flatworm found
8 in fish, shrimp, and vegetables grown in fresh water, and
9 consumption of foods containing aflatoxins, a fungus abundant in
10 warm and humid regions that can grow on foods such as grains and
11 nuts stored improperly. Almost all of these possible etiologies
12 lead to chronic inflammation in the bile ducts. Such
13 inflammation can result in genetic alterations in the liver and
14 bile ducts, which predispose to the development of cancer.

15 The precise etiology of the increased incidence of liver
16 and bile duct cancer in Hawaii is not known. Understanding this
17 is essential in order to implement appropriate public health
18 interventions to decrease the burden of this disease. Recent
19 research at the University of Hawaii cancer center suggests that
20 many individuals who are not obese can accumulate liver fat
21 insidiously that may predispose to cancer. Also, the prevalence



1 of aflatoxins and cancer-causing liver fluke infections in
2 Hawaii is not well defined.

3 In addition, liver and bile duct cancer has racial and
4 ethnic predispositions, with the highest incidence and mortality
5 rates seen in Native Hawaiian males and Chinese females. The
6 reason for the racial and ethnic disparities requires further
7 study, but may possibly be related to environmental exposures.

8 In order to better understand the etiologies of liver and
9 bile duct cancer, the high incidence of this disease compared to
10 other states, and the racial and ethnic disparities, the
11 University of Hawaii cancer center is proposing a three-year
12 study with the following goals:

13 (1) Examine the incidence of insidious fatty liver across
14 diverse population groups in Hawaii and correlate with
15 environmental and dietary exposures that may be
16 causative;

17 (2) Define the incidence of liver fluke infection and
18 aflatoxin exposure in diverse population groups in
19 Hawaii, correlate exposure to the development of
20 chronic liver inflammation and cancer, develop
21 biomarkers that can be utilized for diagnostic and



1 prognostic purposes in exposed individuals, and
2 develop cancer prevention interventions to mitigate
3 the risk of future liver cancer development; and
4 (3) Identify additional biomarkers, such as bile acid or
5 intestinal microbiome composition, that may correlate
6 with the development of liver and bile duct cancer in
7 order to inform public health interventions for liver
8 and bile duct cancer prevention.

9 Liver cancer is the leading cause of cancer deaths
10 worldwide, but accounts for only 2.4 per cent of all new cancer
11 cases in the United States. Therefore, it has not been a high
12 priority for research funding from the National Institutes of
13 Health. Since liver cancer is so widespread in Hawaii, where it
14 is the fifth most common cause of cancer mortality, more
15 resources need to be devoted to research. As part of its three-
16 year, \$1,100,000 study, the University of Hawaii cancer center
17 is preparing to examine the causes of liver and bile duct cancer
18 with specific attention to disparities across different racial
19 and ethnic groups in order to inform public health and medical
20 interventions to reduce the burden of this disease. To
21 accomplish all of the goals and objectives, \$340,000 for the



1 first year of the study and \$380,000 for each of the remaining
 2 years is proposed. Funding would be distributed across several
 3 faculty currently engaged in liver cancer and related research
 4 to conduct these studies. Annual reports on activities and
 5 progress will be submitted to the legislature. Furthermore, it
 6 will be incumbent on the University of Hawaii cancer center
 7 director to ensure that research is conducted productively and
 8 that all funds are utilized for the express purposes of the
 9 center's research goals.

10 The purpose of this Act is to appropriate funds to the
 11 University of Hawaii cancer center to determine the etiologies
 12 of the high incidence of liver and bile duct cancer in Hawaii.

13 SECTION 2. There is appropriated out of the general
 14 revenues of the State of Hawaii the sum of \$ or so
 15 much thereof as may be necessary for fiscal year 2019-2020 and
 16 the sum of \$ or so much thereof as may be necessary
 17 for fiscal year 2020-2021 for the University of Hawaii cancer
 18 center to determine the etiologies of the high incidence of
 19 liver and bile duct cancer in Hawaii.

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



1 SECTION 3. The University of Hawaii cancer center shall
2 submit a progress report and final report of its findings,
3 including how the appropriated funds were spent, to the
4 legislature no later than twenty days prior to the convening of
5 the regular sessions of 2020 and 2021.

6 SECTION 4. 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 the etiologies of the high incidence of liver and bile duct cancer in Hawaii. Establishes reporting requirements. Effective 7/1/2050. (SD1)

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

