



**TESTIMONY OF
THE DEPARTMENT OF THE ATTORNEY GENERAL
TWENTY-NINTH LEGISLATURE, 2017**

ON THE FOLLOWING MEASURE:

S.B. NO. 174, S.D. 1, RELATING TO MEDICAL MARIJUANA.

BEFORE THE:

SENATE COMMITTEE ON JUDICIARY AND LABOR

DATE: Wednesday, February 22, 2017 **TIME:** 9:15 a.m.

LOCATION: State Capitol, Room 016

TESTIFIER(S): WRITTEN TESTIMONY ONLY. For more information, call
Jill T. Nagamine, Deputy Attorney General (587-3050)

Chair Keith-Agaran and Members of the Committee:

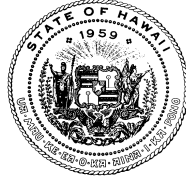
The Department of the Attorney General provides the following comments.

We generally oppose the passage of new laws related to marijuana until the medical marijuana dispensaries open and we have the chance to gauge the impact on the State.

This bill would expand the list of medical conditions for which a patient can be certified for the medical use of marijuana. This draft of the bill deleted anxiety, depression, insomnia, and stress from the previous draft, but it would still add lupus, epilepsy, multiple sclerosis, arthritis, and autism (page 1, lines 5-6) to the list of debilitating medical conditions already approved in section 329-121, Hawaii Revised Statutes.

While we appreciate the Legislature's limiting the proposed new conditions, we are still concerned that without a scientific or other basis to indicate that the use of marijuana helps treat or provide relief to people who have the additional proposed conditions, the proposed expansion may appear to move the State closer to deregulation of marijuana, a schedule I controlled substance under federal law. Adding these new conditions without adequate justification could increase the risk of diversion and could be viewed by the new federal administration as contrary to the goal of having a robust regulatory scheme for the medical use of marijuana in Hawaii.

If this Committee decides to pass this bill, we respectfully recommend that it add a section of findings that would provide a basis for the use of marijuana for the additional conditions.



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. Box 3378
Honolulu, HI 96801-3378
doh.testimony@doh.hawaii.gov

WRITTEN ONLY

**Testimony in OPPOSITION to S.B. 0174 SD1
RELATING TO MEDICAL MARIJUANA**

SENATOR GILBERT S.C. KEITH-AGARAN, CHAIR
SENATE COMMITTEE ON JUDICIARY AND LABOR

Hearing Date: February 22, 2017

Room Number: 016

1 **Fiscal Implications:** None

2 **Department Testimony:** The purpose of this bill is to amend the list of debilitating conditions
3 for the medical use of marijuana by adding a number of new conditions. The Department
4 generally opposes the passage of new laws related to marijuana until the medical marijuana
5 dispensaries open and we can gauge the impact upon the State. We specifically oppose this bill
6 because the Department through §11-160-7, Hawaii Administrative Rules has already laid out a
7 comprehensive annual process to consider addition or deletion of qualifying conditions for the
8 medical use of marijuana. Physicians or potential medical marijuana patients may petition the
9 Department for new conditions. This process will focus on all available medical evidence and
10 research on efficacy and safety for patients. It will include a public hearing where testimony
11 from the public can be provided. The evidence gathered with recommendations will be provided
12 to the Director of Health for decision making.

13

14 The Department has already queried registering physicians and several plan to petition for a
15 variety of conditions. The first annual petition process will be implemented this year. Decisions

- 1 will be grounded in the best available science that shows that medical marijuana helps treat or
- 2 relieve any proposed additional conditions.
- 3
- 4 Thank you for the opportunity to testify.

ON THE FOLLOWING MEASURE:

SB174 SD1, RELATING TO MEDICAL MARIJUANA

BEFORE THE:

SENATE COMMITTEE ON JUDICIARY AND LABOR

DATE: Wednesday, February 22, 2017

TIME: 9:15 A.M.

LOCATION: State Capitol, Conference Room 016

TESTIFIER: _____

Honorable Chair Keith-Agaran and Members of the Committee:

As a stakeholder in the medical marijuana industry I am writing in **STRONG SUPPORT of SB174 SD1 RELATING TO MEDICAL MARIJUANA**, which amends the definition of debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, and autism as conditions that qualify for the legal use of medical marijuana.

It is my opinion that adding these conditions to the current condition list will encourage greater patient access to the medicines they need. If passed, this measure will also situate Hawaii as one of the more patient friendly state regulated medical cannabis programs in the nation. Including these qualifying conditions on our roster would benefit future medical cannabis studies conducted by the University of Hawaii system as well as those conducted in private by local firms. This is an opportunity to help more patients and to conduct the sound medical research which the international medical industry desperately needs.

For these reasons, I stand in **STRONG SUPPORT** of **SB174 SD1**.

I would like to recommend that this bill be moved forward for further discussion. Thank you very much for the opportunity to provide testimony on this measure.

Respectfully,

Scott Baehrens
Cannabis Consultants Of Hawaii

From: mailinglist@capitol.hawaii.gov
To: [JDLTestimony](#)
Cc: carl@dpfhi.org
Subject: Submitted testimony for SB174 on Feb 22, 2017 09:15AM
Date: Monday, February 20, 2017 10:14:06 PM

SB174

Submitted on: 2/20/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Carl Bergquist	Drug Policy Forum of Hawaii	Support	No

Comments: The SD1 version of this measure lists numerous conditions that one or more other medical cannabis states consider to be debilitating and treatable with the use of medical cannabis. We support both the addition of conditions via statute, as was done with PTSD in 2015, and the Department of Health's complementary petition process to add conditions administratively. Mahalo for the opportunity to testify.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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From: mailinglist@capitol.hawaii.gov
To: [JDLTestimony](#)
Cc:
Subject: *Submitted testimony for SB174 on Feb 22, 2017 09:15AM*
Date: Tuesday, February 21, 2017 12:34:20 PM

SB174

Submitted on: 2/21/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Heather Blodgett	Epic-Interventions LLC	Support	No

Comments:

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ON THE FOLLOWING MEASURE:

SB174 SD1, RELATING TO MEDICAL MARIJUANA

BEFORE THE:

SENATE COMMITTEE ON JUDICIARY AND LABOR

DATE: Wednesday, February 22, 2017

TIME: 9:15 A.M.

LOCATION: State Capitol, Conference Room 016

TESTIFIER: Christopher Garth, Executive Director

Honorable Chair Keith-Agaran and Members of the Committee:

The Hawai'i Dispensary Alliance submits the following testimony in strong **SUPPORT of SB174 SD1 RELATING TO MEDICAL MARIJUANA**, which amends the definition of debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, and autism as conditions that qualify for the legal use of medical marijuana.

The Hawaii Dispensary Alliance is a patient-centric organization that aims to appropriately introduce the legitimate cannabis industry to the state of Hawaii. Our membership is drawn from patients and caregivers, ancillary businesses related to and involved in the physical and intellectual cannabis space, and those who generally support the value of a legal right to cannabis-based medicine. The Alliance has established itself as a consistent voice in the conversation for greater patient access to safe and quality cannabis resources; and it is from this perspective that we support SB174 SD1.

Our board and membership find that the language of this measure will provide greater access to less invasive medical solutions, by expanding the applicability of cannabis-based medicine. If passed, this measure will place Hawaii on the list of states as one of the more inclusive state regulated medical cannabis programs in the nation. Including these qualifying conditions on our roster would benefit future medical cannabis studies conducted by the University of Hawaii system as well as those conducted in private by local firms. This is an opportunity to help more patients and to conduct the sound medical research which the international medical industry desperately needs.

For all of the foregoing reasons, the Hawai'i Dispensary Alliance **SUPPORTS** the language of this measure and recommends that **SB174 SD1** be moved forward for further discussion.

A 2017 version of a state-by-state list of qualifying conditions has been attached for your review and comparison. This list has been vetted and approved by the State of Hawaii Department of Health.

Thank you very much for the opportunity to provide testimony on this measure.

WHERE DO YOUR QUALIFY?

Qualifying Ailments by State*

	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Hawaii	Illinois	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Montana	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Dakota	Ohio	Oregon	Pennsylvania	Rhode Island	Vermont	Washington DC	Washington State				
ALS		+	+			+	+	+	+		+		+		+	+	+			+	+	+	+	+	+	+									
Alzheimer's		+	+				+				+		+			+					+	+	+	+	+	+		+							
Anorexia				+										+						+	+		+										+		
Arnold-Chiari Malformation											+										+	+	+	+	+	+							+		
Arthritis			+	+							+											+	+	+	+	+									
Autism							+																				+								
Brain Injury/Concussion											+										+	+	+	+	+	+							+		
Cachexia	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cancer	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Causalgia											+																								
Cerebral Palsy						+																													
Cervical Dystonia													+									+	+	+	+	+	+	+	+	+	+	+	+	+	
Chronic Spasticity						+						+							+																
Chronic Pancreatitis																					+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Crohn's		+	+			+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
CRPS						+					+																								
Cystic Fibrosis						+																													
Decompensated Cirrhosis							+																												
Dystonia											+																								
Epilepsy						+		+		+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Fibromyalgia			+								+														+	+									
Fibrous Dysplasia											+																								
Glaucoma	+	+	+	+	+	+		+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hepatitis C		+	+				+				+		+		+	+					+	+	+	+	+	+	+	+	+	+	+	+	+	+	
HIV/AIDS	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hospice Patients																			+				+	+	+	+	+	+	+	+	+	+	+	+	
Huntington's													+										+	+	+	+	+	+	+	+	+	+	+	+	
Hydrocephalus											+												+	+	+	+	+	+	+	+	+	+	+	+	
Hydromyelia											+																								
Inclusion Body Myositis																							+	+	+	+	+	+	+	+	+	+	+	+	
Inflammatory Bowel													+			+						+	+	+	+	+	+	+	+	+	+	+	+	+	
Interstitial Cystitis											+																								
Intractable Pain																	+					+	+	+	+	+	+	+	+	+	+	+	+	+	

*Last updated Feb. 9, 2017. Some states require the diagnosis of a listed condition, others only require the presence of symptoms similar to those of a listed condition. In some states, a patient must exhibit more than one of the listed conditions to qualify. Check with your local doctor to see if your medical condition qualifies.

Continued on Back

Qualifying Ailments by State*



	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Hawaii	Illinois	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Montana	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Dakota	Ohio	Oregon	Pennsylvania	Rhode Island	Vermont	Washington DC	Washington State		
Lupus											+										+												
Migraines				+																													
Mitochondrial Disease									+																								
Multiple Sclerosis	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Muscular Dystrophy											+	+										+	+										
Myasthenia Gravis											+																						
Myoclonus											+																						
Nail Patella Syndrome											+		+			+																	
Neurofibromatosis											+																						
Neuropathy			+								+									+			+	+			+	+					
Palliative Care														+																			
Parkinson's						+		+	+		+		+		+						+		+	+			+		+				
Psoriasis/Psoriatic Arthritis						+																											
Post Laminectomy/ Radiculopathy						+																											
PTSD		+	+			+	+	+		+			+	+		+	+		+		+	+		+	+	+	+	+	+	+	+	+	
Reflex Sympathetic Dystrophy											+																						
Residual Limb Pain											+																						
RSD											+																						
Sickle Cell Disease						+			+																		+		+				
Sjogren's Syndrome											+																						
Seizures	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Severe Nausea	+	+	+	+	+		+			+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Severe Muscle Spams	+	+	+	+	+		+			+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Severe & Chronic Pain	+	+	+	+	+		+			+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Spinal Cord Disease											+												+										
Spinal Cord Injury						+					+												+		+	+	+	+					
Spinocerebellar Ataxia											+																						
Spinal Stenosis																										+							
Syringomyelia											+																						
Tarlov Cysts											+																						
Terminal Patients						+	+										+				+	+						+				+	
Treatments - Chemothera- py, Radiotherapy, Azidothy- midine, Protease Inhibitors																																+	
Tourette Syndrome			+								+						+										+						
Ulcerative Colitis						+																+	+			+	+						
Weakness															+																		
Wasting Syndrome	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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Questions?
Give us a shout at info@hawaiidispensaryalliance.org

HAWAII EDUCATIONAL ASSOCIATION FOR LICENSED THERAPEUTIC HEALTHCARE

To: Senator Gilbert Keith-Agaran, Chair Judiciary and Labor
Senator Karl Rhoads, Vice-Chair Judiciary and Labor
Members of the Senate Judiciary and Labor Committee

Fr: Blake Oshiro, Esq. on behalf of the HEALTH Assn.

Re: Testimony in **Support of Senate Bill (SB) 174, Senate Draft (SD) 1**
RELATING TO MEDICAL MARIJUANA.

Amends the definition of debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, autism, as conditions that qualify for the legal use of medical marijuana.

Dear Chair Keith-Agaran, Vice-Chair Rhoads and Members of the Committee:

HEALTH is a recently formed trade association made up of the eight (8) licensed medical marijuana dispensaries under Haw. Rev. Stat. (HRS) Chapter 329D. HEALTH's members are all committed to ensuring the goals of patient safety, product safety and public safety. We **strongly support** SB174 SD1 which adds additional conditions to qualify for the legal use of medical marijuana. Attached, is a list of the state's that allow medical marijuana and the qualifying conditions. See <https://www.leafly.com/news/health/qualifying-conditions-for-medical-marijuana-by-state>

While we note that the range of conditions vary state to state with some more restrictive, some broader, than Hawaii, we think it is important to note that Hawaii was one of the first states to authorize the use of medical marijuana program in 2000. Yet, since that time, the list of conditions remained the same until 2015's Act 241 added "post-traumatic stress disorder."

However, we believe that there is an abundance of evidence to demonstrate and substantiate the medicinal benefits of medical marijuana for certain conditions, including those in this bill.

As with any other medication, a patient has the opportunity to try the product and see if it produces positive results, and weigh that against any negative side-effects. In close collaboration with their physician who provided the certification, they can then make their own decision whether to continue or discontinue the use of medical marijuana.

Therefore, we support this bill. Thank you for your consideration.

Alaska

Qualifying conditions to become a medical marijuana patient in Alaska include:

- Cancer
- Glaucoma
- HIV/AIDS
- Cachexia (wasting syndrome)
- Pain
- Nausea
- Seizures
- Muscle spasms
- Multiple sclerosis

For a complete list of qualifying conditions and guidelines, please refer to [Alaska's application for medical marijuana registry](#), or catch up on the latest [Alaska cannabis news](#).

Arizona

Qualifying conditions to become a medical marijuana patient in Arizona include:

- Cancer
- Glaucoma
- HIV/AIDS
- Cachexia (wasting syndrome)
- Pain
- Nausea
- Seizures
- Muscle spasms
- Multiple sclerosis
- PTSD

For a complete list of qualifying conditions and guidelines, please refer to the [Arizona state legislature concerning medical marijuana](#), or catch up on the latest [Arizona cannabis news](#).

Arkansas

Qualifying conditions for the [Arkansas Medical Marijuana Amendment](#) include:

- Cancer
- Glaucoma
- HIV/AIDS
- Hepatitis C
- ALS or Lou Gehrig's Disease
- Tourette's Syndrome
- Crohn's disease
- PTSD
- Severe arthritis
- Fibromyalgia
- Alzheimer's disease
- A chronic or debilitating disease that produces:
 - Cachexia or wasting syndrome
 - Peripheral neuropathy
 - Intractable pain
 - Severe nausea
 - Seizures

- Severe or persistent muscle spasms

Arkansas' medical marijuana qualifying conditions are currently effective, but licenses for dispensaries will not be accepted until June 1, 2017.

California

Qualifying conditions to become a medical marijuana patient in California include:

- Cancer
- Anorexia
- AIDS
- Chronic pain
- Cachexia
- Persistent muscle spasms, including those associated with multiple sclerosis
- Seizures, including, but not limited to, those associated with epilepsy
- Severe nausea
- Glaucoma
- Arthritis
- Migraines
- Any other chronic or persistent medical symptom that substantially limits the ability of the person to conduct one or more major life activities (as defined by the Americans with Disabilities Act of 1990) or, if not alleviated, may cause serious harm to the patient's safety or physical or mental health

For a complete list of qualifying conditions and guidelines, please refer to [California Proposition 215](#), with revised [Senate Bill 420](#), or catch up on the latest [California cannabis news](#).

Colorado

Although Colorado has implemented a legal recreational cannabis market, it still operates medical marijuana dispensaries for valid patients. Colorado medical marijuana patients still pay standard sales tax on cannabis but are exempt from the high excise taxes and additional state taxes collected from recreational cannabis sales.

Qualifying conditions to become a medical marijuana patient in Colorado include:

- Cancer
- Glaucoma
- HIV/AIDS
- Cachexia (wasting syndrome)
- Persistent muscle spasms
- Seizures
- Severe nausea
- Severe pain

For a complete list of qualifying conditions and guidelines, please refer to [Colorado's Debilitating Conditions for Medical Marijuana Use](#), or catch up on the latest [Colorado cannabis news](#).

Connecticut

Qualifying conditions to become a medical marijuana patient in Connecticut include:

- Cancer
- Glaucoma
- HIV/AIDS
- Parkinson's disease
- Multiple sclerosis

- Damage to the nervous tissue of the spinal cord with objective neurological indication of intractable spasticity
- Epilepsy
- Cachexia (wasting syndrome)
- Wasting syndrome
- Crohn’s disease
- Post-traumatic stress disorder (PTSD)

For a complete list of qualifying conditions and guidelines, please refer to [Connecticut’s medical marijuana qualification requirements](#), or catch up on the latest [Connecticut cannabis news](#).

Delaware

Qualifying conditions to become a medical marijuana patient in Delaware include:

- Cancer
- HIV/AIDS
- Hepatitis C
- Lou Gehrig’s disease (amyotrophic lateral sclerosis, or ALS)
- Alzheimer’s
- Post-traumatic stress disorder (PTSD)
- Cachexia (wasting syndrome)
- Intractable nausea
- Seizures
- Muscle spasms
- Multiple sclerosis

For a complete list of qualifying conditions and guidelines, please refer to Delaware’s [medical marijuana program guidelines](#), or catch up on the latest [Delaware cannabis news](#).

District of Columbia (Washington, D.C.)

Qualifying conditions to become a medical marijuana patient in Washington, D.C. include:

- HIV/AIDS
- Cancer
- Glaucoma
- Muscle spasms
- Multiple sclerosis
- Lou Gehrig’s disease (ALS)
- Cachexia (wasting syndrome)
- Decompensated cirrhosis
- Alzheimer’s
- Seizure disorders
- Any condition diagnosed as “debilitating” by a licensed physician

For a complete list of qualifying conditions and guidelines, please refer to the [District of Columbia’s Medical Marijuana Program Patient FAQ](#), or catch up on the latest [Washington, D.C. cannabis news](#).

Florida

Qualifying conditions to become a medical marijuana patient in Florida include:

- Cancer
- Epilepsy
- Glaucoma
- HIV/AIDS

- PTSD
- ALS or Lou Gehrig's disease
- Crohn's disease
- Parkinson's disease
- Multiple sclerosis

For more information on the Florida Medical Marijuana Legalization, please refer to [Amendment 2](#).

Georgia

Georgia only allows for the use of [low THC oil](#) (less than 5% THC by weight).

Qualifying conditions to become a medical marijuana patient in Georgia include:

- Cancer
- Lou Gehrig's disease (ALS)
- Seizure disorders related to diagnosis of epilepsy or trauma-related head injuries
- Multiple sclerosis
- Crohn's disease
- Mitochondrial disease
- Parkinson's disease
- Sickle cell disease

For a complete list of qualifying conditions and guidelines, please refer to [House Bill 1 \(Haleigh's Hope Act\)](#), or catch up on the latest [Georgia cannabis news](#).

Hawaii

Qualifying conditions to become a medical marijuana patient in Hawaii include:

- Cancer
- Glaucoma
- HIV/AIDS
- Cachexia (wasting syndrome)
- Pain
- Nausea
- Seizures
- Muscle spasms
- Multiple sclerosis

For a complete list of qualifying conditions and guidelines, please refer to [Hawaii Senate Bill 862](#), or catch up on the latest [Hawaii cannabis news](#).

Illinois

Qualifying conditions to become a medical marijuana patient in Illinois include:

- Acquired Immunodeficiency Syndrome (AIDS)
- Alzheimer's disease
- Lou Gehrig's disease (ALS)
- Arnold-Chiari malformation and syringomyelia
- Cachexia/wasting syndrome
- Cancer
- Causalgia
- Chronic inflammatory demyelinating polyneuropathy
- Crohn's disease
- CRPS (Complex Regional Pain Syndrome Type I)
- CRPS (Complex Regional Pain Syndrome Type II)

- Dystonia
- Fibromyalgia (severe)
- Fibrous dysplasia
- Glaucoma
- Hepatitis C
- Human Immunodeficiency Virus (HIV)
- Hydrocephalus
- Hydromyelia
- Interstitial cystitis
- Lupus
- Multiple sclerosis
- Muscular dystrophy
- Myasthenia gravis
- Myoclonus
- Nail-patella syndrome
- Neurofibromatosis
- Parkinson's disease
- Post-concussion syndrome
- Post-Traumatic Stress Disorder (PTSD)
- Reflex sympathetic dystrophy
- Residual limb pain
- Rheumatoid arthritis (RA)
- Seizures
- Sjogren's syndrome
- Spinal cord disease (including but not limited to arachnoiditis, Tarlov cysts, hydromyelia & syringomyelia)
- Spinal cord injury
- Spinocerebellar ataxia (SCA)
- Syringomyelia
- Tarlov cysts
- Tourette syndrome
- Traumatic brain injury (TBI)

For a complete list of qualifying conditions and guidelines, please refer to the [Illinois Medical Cannabis Pilot Program's FAQ](#), or catch up on the latest [Illinois cannabis news](#).

Iowa

Iowa allows for the use of [high-CBD cannabis extracts](#) with less than .3% THC.

Qualifying conditions to become a medical marijuana patient in Iowa include:

- Intractable epilepsy

For a complete list of guidelines, please refer to [Iowa Medical Cannabidiol Act Quick Facts](#), or catch up on the latest [Iowa cannabis news](#).

Kentucky

Kentucky allows for the use of low-THC cannabis or industrial hemp-derived CBD oil. Only those who are participating in a clinical trial or expanded access program are legally allowed to possess CBD oil.

For more information on accessing CBD in Kentucky, please refer to [Senate Bill 124](#), or catch up on the latest [Kentucky cannabis news](#).

Louisiana

Qualifying conditions to become a medical marijuana patient in Louisiana include:

- Symptoms related to cancer
- Glaucoma
- Spastic quadriplegia

For more information on Louisiana's medical marijuana law, please refer to [Senate Bill 143](#), or catch up on the latest [Louisiana cannabis news](#).

Maine

Qualifying conditions to become a medical marijuana patient in Maine include:

- Chronic pain that has not responded to conventional therapy for more than six months
- Post-traumatic stress disorder (PTSD)
- Lou Gehrig's disease (ALS)
- Alzheimer's
- Cachexia (wasting syndrome)
- Cancer
- Crohn's disease
- Glaucoma
- Hepatitis C (active form)
- HIV
- Inflammatory bowel disease (IBS)
- Seizure disorders
- Severe muscle spasms (including multiple sclerosis and other diseases causing severe and persistent muscle spasms)
- Severe nausea

For a complete list of qualifying conditions and guidelines, please refer to [Maine's medical use of marijuana guidelines](#), or catch up on the latest [Maine cannabis news](#).

Maryland

Qualifying conditions to become a medical marijuana patient in Maryland include:

- Cachexia (wasting syndrome)
- Severe, debilitating, or chronic pain
- Severe nausea
- Seizures, including those characteristic of epilepsy
- Severe and persistent muscle spasms
- Multiple sclerosis
- Crohn's disease
- Alzheimer's
- Cancer
- Glaucoma
- HIV/AIDS
- Hepatitis C

For a complete list of qualifying conditions and guidelines, please refer to [Maryland Senate Bill 757](#), or catch up on the latest [Maryland cannabis news](#).

Massachusetts

Qualifying conditions to become a medical marijuana patient in Massachusetts include:

- Cancer

- Glaucoma
 - AIDS
 - Hepatitis C
 - Lou Gehrig's disease (ALS)
 - Crohn's disease
 - Parkinson's disease
 - Multiple sclerosis
 - Other debilitating conditions as determined in writing by a qualifying patient's certifying physician.
- For a complete list of qualifying conditions and guidelines, please refer to the [Massachusetts medical use of marijuana overview](#), or catch up on the latest [Massachusetts cannabis news](#).

Michigan

Qualifying conditions to become a medical marijuana patient in Michigan include:

- Cancer
- Glaucoma
- HIV/AIDS
- Hepatitis C
- Lou Gehrig's disease (Amyotrophic lateral sclerosis, or ALS)
- Alzheimer's
- Nail-patella syndrome
- Cachexia (wasting disease)
- Severe and chronic pain
- Severe nausea
- Seizures
- Epilepsy
- Muscle spasms
- Multiple sclerosis

For a complete list of qualifying conditions and guidelines, please refer to the [Michigan Medical Marihuana Registry Program FAQ](#), or catch up on the latest [Michigan cannabis news](#).

Minnesota

Minnesota does not allow for smokeable cannabis, only a 30-day supply of oils, [edibles](#), and [concentrates](#). Qualifying conditions to become a medical marijuana patient in Minnesota include:

- Lou Gehrig's disease (Amyotrophic lateral sclerosis, or ALS)
- Cancer
- Cachexia
- Crohn's disease
- Glaucoma
- HIV/AIDS
- Seizures
- Severe and persistent muscle spasms
- Terminal illness
- Tourette syndrome
- Intractable pain*

*Recently recommended qualifying condition soon to be available for Minnesota patients.

For more information, please visit the [Minnesota Department of Health – Medical Cannabis](#), or catch up on the latest [Minnesota cannabis news](#).

Mississippi

Mississippi allows access to [CBD oil](#) only. Qualifying conditions to become a medical marijuana patient in Mississippi include:

- Debilitating epileptic seizure disorders

Patients must receive medical recommendations by a physician from the University of Mississippi Medical Center to participate in the clinical trial. For more information, please refer to [House Bill 1231](#) or [Harper Grace's Law](#), or catch up on the latest [Mississippi cannabis news](#).

Missouri

Missouri allows access to [CBD oil](#) only. Qualifying conditions to become a medical marijuana patient in Missouri include:

- Intractable epilepsy

For more information, please refer to [House Bill 2238](#), or catch up on the latest [Missouri cannabis news](#).

Montana

Qualifying conditions to become a medical marijuana patient in Montana include:

- Cancer
- Glaucoma
- HIV/AIDS
- Cachexia (wasting syndrome)
- Chronic pain
- Intractable nausea or vomiting
- Epilepsy or an intractable seizure disorder
- Multiple sclerosis
- Crohn's disease
- Painful peripheral neuropathy
- A central nervous system disorder resulting in chronic, painful spasticity or muscle spasms

For a complete list of qualifying conditions and guidelines, please refer to [Montana Code Annotated 2013](#), or catch up on the latest [Montana cannabis news](#).

Nevada

Qualifying conditions to become a medical marijuana patient in Nevada include:

- AIDS
- Cancer
- Glaucoma
- Condition or treatment for a medical condition that produces cachexia (general physical wasting and malnutrition)
- Persistent muscle spasms (including multiple sclerosis)
- Seizures (including epilepsy)
- Severe nausea
- Severe pain

For a complete list of qualifying conditions and guidelines, please refer to the [Nevada Medical Marijuana Program](#), or catch up on the latest [Nevada cannabis news](#).

New Hampshire

Qualifying conditions to become a medical marijuana patient in New Hampshire include:

- A chronic or terminal disease
- Cachexia (wasting syndrome)

- Severe pain
- Severe nausea/vomiting
- Seizures
- Severe, persistent muscle spasms

For a complete list of qualifying conditions and guidelines, please refer to [New Hampshire House Bill 573](#), or catch up on the latest [New Hampshire cannabis news](#).

New Jersey

Qualifying conditions to become a medical marijuana patient in New Jersey include:

- Lou Gehrig's disease (amyotrophic lateral sclerosis, or ALS)
- Multiple sclerosis
- Terminal cancer
- Muscular dystrophy
- Inflammatory bowel disease (IBS)
- Crohn's disease
- Terminal illness if the physician has determined a prognosis of less than 12 months of life
- Seizure disorder, including epilepsy
- Intractable skeletal muscular spasticity
- Glaucoma
- HIV/AIDS
- Cancer

For a complete list of qualifying conditions and guidelines, please refer to the [New Jersey Medicinal Marijuana Program](#), or catch up on the latest [New Jersey cannabis news](#).

New Mexico

Qualifying conditions to become a medical marijuana patient in New Mexico include:

- Severe chronic pain
- Painful peripheral neuropathy
- Intractable nausea/vomiting
- Severe anorexia
- Cachexia (wasting syndrome)
- Hepatitis C infection currently receiving antiviral treatment
- Crohn's disease
- Post-traumatic stress disorder (PTSD)
- Lou Gehrig's disease (amyotrophic lateral sclerosis, or ALS)
- Cancer
- Glaucoma
- Multiple sclerosis
- Damage to the nervous tissue of the spinal cord with intractable spasticity
- Epilepsy
- HIV/AIDS
- Inflammatory autoimmune-mediated arthritis
- Hospice patients

For a complete list of qualifying conditions and guidelines, please refer to the [New Mexico Medical Cannabis Program FAQ](#), or catch up on the latest [New Mexico cannabis news](#).

New York

Qualifying conditions to become a medical marijuana patient in New York include:

- Cancer
- Epilepsy
- HIV/AIDS
- Huntington’s disease
- Inflammatory Bowel Disease (IBS)
- Lou Gehrig’s disease (ALS)
- Parkinson’s disease
- Multiple sclerosis (MS)
- Neuropathies
- Spinal cord damage

For a complete list of qualifying conditions and guidelines, please refer to the [New York State Medical Marijuana Program FAQ](#), or catch up on the latest [New York cannabis news](#).

North Carolina

North Carolina allows for the use of [CBD oil](#) only. Qualifying conditions to become a medical marijuana patient in North Carolina include:

- Intractable epilepsy

For more information, please refer to [House Bill 1220](#), or catch up on the latest [North Carolina cannabis news](#).

North Dakota

North Dakota’s qualifying conditions for the North Dakota Compassionate Care Act include:

- Cancer and its treatments
- HIV/AIDS
- Hepatitis C
- ALS or Lou Gehrig’s disease
- PTSD
- Alzheimer’s disease, dementia, or treatment of these conditions
- Crohn’s disease
- Fibromyalgia
- Spinal stenosis
- Chronic back pain, including:
 - Neuropathy or damage to the nervous tissue of the spinal cord with objective neurological indication of intractable spasticity
- Glaucoma
- Epilepsy
- A chronic or debilitating disease, medical condition, or its treatment that produces one or more of the following:
 - Cachexia or wasting syndrome
 - Severe, debilitating pain that has not responded to previously prescribed medication or surgical measures for more than three months or for which other treatment options produced serious side effects
 - Intractable nausea
 - Seizures
 - Severe or persistent muscle spasms, including but not limited to those characteristic of multiple sclerosis.

For more information, please refer to the [North Dakota Compassionate Care Act](#).

Oklahoma

Oklahoma allows for the use of [CBD oil](#) only. Qualifying conditions to become a medical marijuana patient in Oklahoma include:

- Must be under the age of 18 suffering from:
 - Lennox-Gastaut syndrome
 - Dravet syndrome
 - Severe myoclonic epilepsy of infancy
 - Any form of refractory epilepsy not treatable by traditional medical therapies

For more information, please refer to [Katie and Cayman's Law \(House Bill 2154\)](#), or catch up on the latest [Oklahoma cannabis news](#).

Oregon

Qualifying conditions to become a medical marijuana patient in Oregon include:

- Cancer
- Glaucoma
- Alzheimer's
- HIV/AIDS
- Cachexia (wasting syndrome)
- Severe pain
- Severe nausea
- Seizures, including but not limited to seizures caused by epilepsy
- Persistent muscle spasms
- Multiple sclerosis

For a complete list of qualifying conditions and guidelines, please refer to the [Oregon Medical Marijuana Act](#), or catch up on the latest [Oregon cannabis news](#).

Pennsylvania

Qualifying conditions to become a medical marijuana patient in Pennsylvania include:

- Cancer
- HIV/AIDS
- Amyotrophic Lateral Sclerosis (ALS)
- Parkinson's Disease
- Multiple sclerosis
- Damage to the nervous tissue of the spinal cord with objective neurological indication of intractable spasticity
- Epilepsy
- Inflammatory bowel disease (IBS)
- Neuropathies
- Huntington's disease
- Post-traumatic stress disorder (PTSD)
- Intractable seizures
- Glaucoma
- Sickle cell anemia
- Severe, chronic or intractable pain of neuropathic origin or severe chronic or intractable pain in which conventional therapeutic intervention and opiate therapy is contraindicated or ineffective
- Autism
- "Terminally ill" – a medical prognosis or life expectancy of approximately one year or less if the illness runs its normal course.

For more information, please refer to [Senate Bill 3](#).

Rhode Island

Qualifying conditions to become a medical marijuana patient in Rhode Island include:

- Cancer
- Glaucoma
- HIV/AIDS
- Hepatitis C
- Cachexia (wasting syndrome)
- Chronic pain
- Severe nausea
- Seizures, including but not limited to those characteristic of epilepsy
- Severe and persistent muscle spasms
- Multiple sclerosis
- Crohn's disease
- Alzheimer's

For a complete list of qualifying conditions and guidelines, please refer to [Rhode Island's medical marijuana approved qualifying debilitating medical conditions](#), or catch up on the latest [Rhode Island cannabis news](#).

South Carolina

South Carolina allows for the use of [CBD oil](#) only. Qualifying conditions to become a medical marijuana patient in South Carolina include:

- Certain forms of epilepsy as part of a state-run clinical trial

For more information, please refer to the [Medical Cannabis Therapeutic Treatment Research Act](#), or catch up on the latest [South Carolina cannabis news](#).

Tennessee

Tennessee allows for the use of [CBD oil](#) only. Qualifying conditions to become a medical marijuana patient in Tennessee include:

- Intractable seizures (as part of a clinical research study)

For more information, please refer to [Senate Bill 280](#), or catch up on the latest [Tennessee cannabis news](#).

Texas

Texas allows for the use of [CBD oil](#) only. Qualifying conditions to become a medical marijuana patient in Texas include:

- Intractable epilepsy

For more information, please refer to [Senate Bill 339](#), or catch up on the latest [Texas cannabis news](#).

Utah

Utah allows for the use of [CBD oil](#) only. Qualifying conditions to become a medical marijuana patient in Utah include:

- Intractable epilepsy

For more information, please refer to [House Bill 105](#), or catch up on the latest [Utah cannabis news](#).

Vermont

Qualifying conditions to become a medical marijuana patient in Vermont include:

- Cancer
- AIDS/HIV
- Multiple sclerosis

- Cachexia (wasting syndrome)
- Severe pain
- Nausea
- Seizures

For a complete list of qualifying conditions and guidelines, please refer to the [Vermont patient marijuana registry FAQ](#), or catch up on the latest [Vermont cannabis news](#).

Washington

Changes to Washington state's marijuana laws via Senate Bill 5052 will result in the state's medical marijuana industry being absorbed by its recreational cannabis market. These changes will [go into full effect July 1, 2016](#). Until then, medical marijuana dispensaries will still be operational but are ultimately expected to close or incorporate themselves into an existing licensed retail cannabis shop.

Qualifying conditions to become a medical marijuana patient in Washington include:

- Cancer
- HIV/AIDS
- Multiple sclerosis
- Epilepsy or other seizure disorder
- Spasticity disorders
- Intractable pain
- Glaucoma
- Crohn's disease
- Hepatitis C
- Diseases, including anorexia, which result in nausea, vomiting, wasting, appetite loss, cramping, seizures, muscle spasms, or spasticity

For a complete list of qualifying conditions and guidelines, please refer to the [Washington state legislature regarding medical cannabis](#), or catch up on the latest [Washington state cannabis news](#).

Wisconsin

Wisconsin allows for the use of non-psychoactive CBD oil only. Qualifying conditions to become a medical marijuana patient in Wisconsin include:

- Seizure disorders

For more information, please refer to [Lydia's Law \(Act 267\)](#), or catch up on the latest [Wisconsin cannabis news](#).

Wyoming

Wyoming allows for the use of [CBD oil](#) only. Qualifying conditions include:

- Intractable epilepsy

For more information, please refer to [House Bill 32](#), or catch up on the latest [Wyoming cannabis news](#).

From: mailinglist@capitol.hawaii.gov
To: [JDLTestimony](#)
Cc:
Subject: Submitted testimony for SB174 on Feb 22, 2017 09:15AM
Date: Monday, February 20, 2017 10:30:31 PM

SB174

Submitted on: 2/20/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Brett Kulbis	Hawaii Republican Party HD-41 Ewa Beach	Oppose	No

Comments: The Hawaii Republican Party HD-41 opposes SB 174. There is no empirical evidence that marijuana has any medicinal benefits to these added "Debilitating Medical Conditions," uses are based on scientific theories. They often have not been thoroughly tested in humans, and safety and effectiveness have not always been proven, which is why the FDA has never approved marijuana for medicinal use. Some of these conditions are potentially serious, and should be evaluated by a qualified healthcare provider and not just willy-nilly added. Even the Mayo Clinic states that more medical evidence is needed in all of these. Why just these five? Why not just add everything marijuana has been said to help relieve: ADHD, alcohol or drug dependency, alcohol withdrawal, allergies (prevention/treatment), Alzheimer's disease, angioedema (swelling under the skin), ankylosing spondylitis (inflammation of spine joints), arthritis (caused by psoriasis), bipolar disorder, burns, childbirth, claudication (leg pain from clogged arteries), depression, detoxification (narcotic), diabetes, drug withdrawal, hemorrhoids, inflammation, inflammatory bowel disease, inflammatory conditions, migraine, mood, movement disorders, muscle relaxation, nervous system disorders, pain from nerve disorders, pregnancy and labor, spinal cord injury, stomach disorders (increase stomach acid), stomach spasms, stress, tendonitis (tendon inflammation), thrombosis (clot in blood vessel), uterus contraction, urinary tract disorders, urinary tract infection, varicose veins, vitamin C deficiency, vomiting, wound healing.

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Date: Monday, February 20, 2017 2:37:35 PM

SB174

Submitted on: 2/20/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Paul Klink	Honolulu Wellness Center (medical marijuana patient-advocates), www.HonoluluWellnessCenter.com	Support	Yes

Comments: I have already submitted testimony personally and this is as the Patient-Advocate with Honolulu Wellness Center clinic for qualifying patients to acquire their Medical Marijuana 329 Registration Program Card. ON THE FOLLOWING MEASURE: SB174 SD1, RELATING TO MEDICAL MARIJUANA BEFORE THE: SENATE COMMITTEE ON JUDICIARY AND LABOR DATE: Wednesday, February 22, 2017 TIME: 9:15 A.M. LOCATION: State Capitol, Conference Room 016 TESTIFIER: Paul Klink, Patient Advocate at the Honolulu Wellness Center Clinic facilitating the applications for patients for medical marijuana 329 registration program cards. Honorable Chair Keith-Agaran and Members of the Committee: As a stakeholder in the medical marijuana industry, I am writing in STRONG SUPPORT of SB174 SD1 RELATING TO MEDICAL MARIJUANA, which amends the definition of debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, and autism as conditions that qualify for the legal use of medical marijuana. It is my opinion that adding these conditions to the current condition list will encourage greater patient access to the medicines they need. If passed, this measure will also situate Hawaii as one of the more patient friendly state regulated medical cannabis programs in the nation. Including these qualifying conditions on our roster would benefit future medical cannabis studies conducted by the University of Hawaii system as well as those conducted in private by local firms. This is an opportunity to help more patients and to conduct the sound medical research which the international medical industry desperately needs. For these reasons, I stand in STRONG SUPPORT of SB174 SD1. I would like to recommend that this bill will be moved forward for further discussion. Thank you very much for the opportunity to provide testimony on this measure. Respectfully, Paul Klink, Patient Advocate Honolulu Wellness Center Nauru Tower, 4th Floor 1330 Ala Moana Blvd (808) 798-3629

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February 19, 2017

TO: Senator Gilbert S.C. Keith-Agaran, Chair, Committee on Judiciary and Labor
Senator Karl Rhoads, Vice-Chair, Committee on Judiciary and Labor
Members of the House Judiciary Committee

FROM: Gregory Park, MD, Co-founder & Chief Compliance Officer, Maui Grown Therapies

RE: TESTIMONY IN SUPPORT OF SB174 RELATING TO MEDICAL MARIJUANA

SB 174: Amends the definition of debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, autism, anxiety, depression, insomnia, and stress as conditions that qualify for the legal use of medical marijuana.

Dear Chair Keith-Agaran, Vice-Chair Rhoads, and Members of the Committee:

I write to you to express my support for Senate Bill (SB) 174, which proposes to broaden the list of debilitating medical conditions for which medical marijuana can be recommended under Hawai'i law.

As a medical oncologist with 36 years of experience practicing medicine in Hawai'i, I have witnessed first-hand the range of therapeutic effects marijuana can bring to patients. Medical cannabis is useful to help relieve a variety of symptoms that cancer patients often experience including: gastrointestinal symptoms and nausea from the disease and its treatment, lack of appetite resulting in weight loss, pain and anxiety. The plant can safely be used for these conditions and often adds to and complements the conventional pharmaceutical medicines we use to help our patients.

I believe that including lupus, epilepsy, multiple sclerosis, arthritis and autism as qualifying conditions is sound, rational and compassionate. However, the list of debilitating medical conditions for which marijuana can be recommended under current Hawai'i law lags peer-reviewed clinical findings; there is data to support its use in anxiety, sleep and neurological disorders in adults.

In the case of anxiety – which is a very common symptom of numerous illnesses, but can also manifest as a standalone debilitating condition – there is data that suggests that cannabidiol (commonly referred to as CBD), a non-psychoactive compound found in certain types of marijuana, is a powerful and non-addictive anti-anxiety agent. The usual agents used to treat anxiety, including the benzodiazepines, can be addictive and can cause harmful side effects. Medical cannabis high in CBD offers an excellent alternative to these medicines which are so commonly used to treat anxiety. I believe that anxiety disorders warrant inclusion in the list of debilitating conditions.



Included with my testimony are links to recent abstracts from peer-reviewed journals relating to the medical use of CBD as an anti-anxiety agent. I respectfully ask the members of the committee to evaluate the findings of this clinical research during your deliberations on the current measure.

<https://www.ncbi.nlm.nih.gov/pubmed/22729452>

<https://www.ncbi.nlm.nih.gov/pubmed/24923339>

<https://www.ncbi.nlm.nih.gov/pubmed/21307846>

<https://www.ncbi.nlm.nih.gov/pubmed/20829306>

Respectfully,

Gregory Park, M.D.

PATIENTS WITHOUT TIME



TO: HAWAII STATE LEGISLATURE
TESTIMONY

Aloha Legislators,

Please, LEGALIZE MARIJUANA NOW!

The marijuana prohibition is founded on paranoia incited by corporate greed. The CDC reports that 90,000 Americans die from alcohol every year, while marijuana kills ZERO Americans. How can Hawaii justify celebrating the success of Hawaii's wineries and microbreweries, allowing tourists to visit tasting rooms for alcohol products, while cannabis grow centers are required to be concealed from the public, and kept under 24/7 video surveillance.

In 2000, Hawaii rejected the federal prohibition on marijuana by establishing medical marijuana laws. Since then, Hawaii has protected registered patients from prosecution (because marijuana is medicine), while sending other citizens to jail for "marijuana" crimes (because marijuana has no medical value). There exists a clear, facial contradiction between marijuana's classification as a schedule I drug and its allowable use by qualifying patients for medical conditions. Hawaii is practicing SELECTIVE PROSECUTION against marijuana consumers.

The only just solution is to legalize marijuana. Tax and regulate Hawaii's estimated billion-dollar-a-year recreational marijuana industry, and raise over 100 million dollars every year in revenue. Legalization of cannabis will also decrease expenses incurred in fighting the failed prohibition, clear court dockets, save families broken by incarceration, and create thousands of new legal jobs and business. WIN- WIN -WIN

Mahalo for your kind consideration,

PATIENTS WITHOUT TIME
Maui, HI Brian Murphy, Director

From: mailinglist@capitol.hawaii.gov
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Subject: Submitted testimony for SB174 on Feb 22, 2017 09:15AM
Date: Saturday, February 18, 2017 2:53:35 PM

SB174

Submitted on: 2/18/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Joseph Kohn MD	We Are One, Inc. - www.WeAreOne.cc - WAO	Support	No

Comments: www.WeAreOne.cc

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Date: Tuesday, February 21, 2017 11:54:19 AM

SB174

Submitted on: 2/21/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Alan Yoshimoto	Individual	Support	No

Comments: I support SB174. Medical cannabis is exceptionally effective at providing relief for symptoms of epilepsy and the other medical conditions stated in this bill. Other states allow similar measures to cover patients with these ailments.

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SB174

Submitted on: 2/21/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Anthony Makana Paris	Individual	Support	No

Comments:

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Date: Saturday, February 18, 2017 7:00:00 AM

SB174

Submitted on: 2/18/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Brian Murphy	Individual	Oppose	No

Comments: Aloha Senators, Please, amend this bill to legalize marijuana. How can Hawaii law list all of these maladies for marijuana to treat, when Hawaii sends good folks to jail because Hawaii law also states that marijuana has no medical value? Which is it, Senators? Is marijuana medicine, or not? Are you practicing SELECTIVE PROSECUTION?

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SB174

Submitted on: 2/21/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Carla Houser	Individual	Support	No

Comments: I strongly support this measure to add various new medical conditions as qualifying for legal use of medical cannabis.

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From: [Clif Otto](#)
To: [JDLTestimony](#)
Subject: SB174 SD1
Date: Tuesday, February 21, 2017 12:13:19 PM
Attachments: [ALS and Cannabis-Carter-2010.pdf](#)
[Marijuana and Parkinson"s-Lange-2015.pdf](#)

Dear JDL,

Thank you for considering SB174 SD1.

I would like to ask that you please also consider adding the following two debilitating conditions:
Amytrophic Lateral Sclerosis (ALS): a progressive fatal disease.
Parkinson's Disease: a progressive severely debilitating disease.

I believe there is sufficient clinical evidence of the benefit of marijuana in these two conditions to warrant adding to Hawaii's program.

Adding legislatively would spare DOH the process of performing their own internal review, and raise awareness of the potential benefit of the medical use of marijuana in these two patient groups.

Peer-reviewed references attached for your consideration.

Thank you.

Clifton Otto, MD
Honolulu, HI

Cannabis and Amyotrophic Lateral Sclerosis: Hypothetical and Practical Applications, and a Call for Clinical Trials

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Gregory T. Carter, MD, MS¹, Mary E. Abood, PhD²,
Sunil K. Aggarwal, PhD³, and Michael D. Weiss, MD^{1,4,5}

Abstract

Significant advances have increased our understanding of the molecular mechanisms of amyotrophic lateral sclerosis (ALS), yet this has not translated into any greatly effective therapies. It appears that a number of abnormal physiological processes occur simultaneously in this devastating disease. Ideally, a multidrug regimen, including glutamate antagonists, antioxidants, a centrally acting anti-inflammatory agent, microglial cell modulators (including tumor necrosis factor alpha [TNF- α] inhibitors), an antiapoptotic agent, 1 or more neurotrophic growth factors, and a mitochondrial function-enhancing agent would be required to comprehensively address the known pathophysiology of ALS. Remarkably, cannabis appears to have activity in all of those areas. Preclinical data indicate that cannabis has powerful antioxidative, anti-inflammatory, and neuroprotective effects. In the G93A-SOD1 ALS mouse, this has translated to prolonged neuronal cell survival, delayed onset, and slower progression of the disease. Cannabis also has properties applicable to symptom management of ALS, including analgesia, muscle relaxation, bronchodilation, saliva reduction, appetite stimulation, and sleep induction. With respect to the treatment of ALS, from both a disease modifying and symptom management viewpoint, clinical trials with cannabis are the next logical step. Based on the currently available scientific data, it is reasonable to think that cannabis might significantly slow the progression of ALS, potentially extending life expectancy and substantially reducing the overall burden of the disease.

Keywords

cannabis, endocannabinoids, amyotrophic lateral sclerosis, clinical trials, motor neuron disease

Introduction

Amyotrophic lateral sclerosis (ALS), with an incident rate of 5 to 7 per 100 000 population, is the most common form of adult motor neuron disease.¹ Amyotrophic lateral sclerosis is a rapidly progressive neuromuscular disease that destroys both upper and lower motor neurons, resulting in weakness, spasticity, and ultimately death from respiratory failure. The vast majority of ALS cases are acquired and occur sporadically. Emerging evidence suggests that increased oxidative stress from free radical toxicity and/or excessive glutamate activity is what leads to motor neuron cell death in the brain and spinal cord.²⁻⁵ Inherited forms of the disease, which occur in approximately 5% to 10% of all patients with ALS, are largely because of mutations in the superoxide dismutase gene, presumably producing a marked increase in oxidative stress. Presentations of familial ALS have more variability than in sporadic ALS and are mutation specific with the most aggressive form because of the A4V mutation.⁵ Recent results have established that ALS also involves other nonneuronal cells including astroglia and microglia.^{6,7} Other putative mechanisms involved in motor neuron degeneration in ALS include

mitochondrial dysfunction, neuroinflammation, growth factor deficiency, and glutamate excitotoxicity.^{2,3}

Significant advances have been made regarding our understanding of the molecular mechanisms of ALS.⁸⁻¹² However, this has not yet translated into an effective therapeutic treatments. To date, the only food and drug administration- (FDA) approved therapy available for ALS is the antilglutamatergic agent Riluzole, which has limited therapeutic efficacy.¹⁰ Given

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this perspective, there remains an ongoing search for novel therapeutic approaches. There is increasing evidence that cannabinoids and manipulation of the endocannabinoid system may have beneficial disease-modifying potential in ALS.¹³⁻²¹ Moreover, the clinical effects of cannabis, the principal cannabinoid-producing botanical agent, have been reported to be useful in managing the symptomatology in ALS, as well as many other neurodegenerative disorders.²²⁻³⁴ Thus, significant efforts are now being directed at evaluating the role of the endocannabinoid system in the pathophysiology of ALS. In addition, there is an emerging body of science that points to a role of exogenous cannabinoids in both clinical symptom management and a positive disease-modifying effect.¹³⁻²¹

The Physiology and Pharmacology of Cannabinoids

Prior to the last decade, there was little known about the specific pharmacological and molecular effects of cannabis. However, important advances have taken place recently, which have greatly increased the understanding of the receptors and ligands composing the endogenous cannabinoid system.³⁵⁻⁵⁴ Research has shown that 2 major cannabinoid receptor subtypes exist, including the cannabinoid receptor, type 1 (CB1) subtype, which is predominantly expressed in the brain, and the cannabinoid receptor, type 2 (CB2) subtype, which is primarily found on the cells of the immune system.^{35,49,50} A variety of ligands for these receptors based on the cannabinoid structure have been synthesized and studied. Experiments performed with several types of neural cells that endogenously express the CB1 receptor suggest that activation of protein kinases may be responsible for some of the cellular responses elicited by these receptors.⁵¹ The discovery of the endocannabinoids, that is, endogenous metabolites capable of activating the cannabinoid receptors, and the understanding of the molecular mechanisms leading to their biosynthesis, release, and inactivation, have created a new area in research on the pharmaceutical applications of cannabinoid-based medicines.⁵² The characterization of endocannabinoids such as anandamide and the detection of widespread cannabinoid receptors in the brain and peripheral tissues suggest that the cannabinoid system represents a previously unrecognized ubiquitous network in the nervous system.

Cannabinoid receptors are G protein-coupled, 7-segment transmembrane proteins, similar to the receptors of other neurotransmitters such as dopamine, serotonin, and norepinephrine.^{51,52} Dense receptor concentrations are found in the cerebellum, basal ganglia, and hippocampus, likely accounting for the effect of exogenously administered cannabinoids on motor tone and coordination as well as mood state.⁵³⁻⁵⁵ Low concentrations are found in the brain stem, accounting for the low potential for lethal overdose with cannabinoid-based medicines.⁵⁶⁻⁵⁹ A growing number of strategies for separating sought-after therapeutic effects of cannabinoid receptor agonists from the unwanted consequences of CB1 receptor activation are emerging. Recently, ligands have been developed that

are potent and selective agonists for CB1 and CB2 receptors, as well as potent CB1—selective antagonists and inhibitors of endocannabinoid uptake or metabolism.⁶⁰ In addition, varieties of cannabis are known to contain a mix of partial cannabinoid agonists and antagonists, which can be rationally used. This knowledge may lead to the design of synthetic cannabinoid agonists and antagonists as well as cannabis strains with high therapeutic potential. The fact that both CB1 and CB2 receptors have been found on immune cells suggests that cannabinoids play an important role in the regulation of the immune system. Recent studies show that cannabinoids downregulate cytokine and chemokine production, both mechanisms that suppress inflammatory responses.⁶¹⁻⁶⁴ Manipulation of endocannabinoids (ie, via the use of exogenous cannabis) has great potential treatment viability against inflammatory disorders, including the inflammation seen in the central nervous system (CNS) of the patients with ALS. The potential use of cannabinoids as a novel class of anti-inflammatory agents may become one of the predominant indications, as that includes not only neuro-modulation but pain as well.^{65,66} Indeed, any number of inflammatory processes that are at least partially triggered by activated T cells or other cellular immune components could be treated with cannabis and other cannabinoid-based medicines.

Cannabinoids are chemically classified as terpenes. These are lipid-soluble hydrocarbons that function as major biosynthetic cellular messengers in many forms of life. Terpenes are widespread in plants and most species of animals as well, including humans. Any compound that resembles the basic terpenes structure, yet may be modified chemically via oxidation or other processes, is termed a terpenoid. Many hormones, including estrogens, are terpenoids, and share the same basic organic chemical structure as cannabinoids.^{53,54} All terpenes are organic, readily penetrate the highly lipophilic CNS.

Interestingly, tamoxifen, which is an antagonist of the estrogen receptor in breast tissue, is terpenoid and chemically resembles cannabinoids. Tamoxifen's primary use is as a FDA-approved drug for the treatment of breast cancer.⁶⁷⁻⁶⁹ However, phase II clinical trials of tamoxifen in ALS have now demonstrated preliminary efficacy and safety.⁶⁸ A phase 2B study demonstrated increased survival after 2 years in patients with ALS taking higher doses of tamoxifen, with no effect seen in 2 lower dose groups.⁶⁸ The 3 higher dose groups experienced a 4- to 6-month prolongation of survival over a 24-month trial, with no significant side effects observed.⁶⁸ Interestingly, glutamate uptake in cultured retinal cells is inhibited by tamoxifen, thus this mechanism may be part of a possible beneficial effect in ALS.⁶⁷ The chemical similarity between cannabinoids and tamoxifen points to a possible shared mechanism of action for neural protection.⁶⁹

The cannabis plant is a remarkably complex plant, with several phenotypes, each containing over 400 distinct chemical moieties.⁷⁰⁻⁷³ Approximately 70 of these are chemically unique and classified as cannabinoids.⁷⁰⁻⁷³ Delta-9 tetrahydrocannabinol (THC) and delta-8 THC appear to produce the majority of the psychoactive effects of cannabis.^{74,75} Delta-9 THC, the active ingredient in dronabinol (Marinol), is the most abundant

cannabinoid in the plant, which historically led researchers to erroneously hypothesize that it was the main source of the drug's impact. It is now known that other major plant cannabinoids, including cannabidiol and cannabinol, modify the pharmacology of THC and have distinct effects of their own. Cannabidiol is the second most prevalent of cannabis's active ingredients and may produce most of its therapeutic effects. Cannabidiol becomes THC as the plant matures and this THC over time breaks down into cannabinol. Up to 40% of the cannabis resin in some strains is cannabidiol.⁷² The amount varies according to plant. Some varieties of *Cannabis sativa* have been found to have no cannabidiol.⁷² Cannabidiol breaks down to cannabinol as the plant matures. Much less is known about cannabinol, although it appears to have distinct pharmacological properties that are quite different from cannabidiol. Cannabinol has significant anticonvulsant, sedative, and other pharmacological activities likely to interact with the effects of THC.⁷⁵⁻⁷⁸ Cannabinol may induce sleep and may provide some protection against seizures for epileptics.⁷⁸

Hypothetical Applications

Preclinical Studies of the Endocannabinoid System in ALS

The primary murine model for human ALS is the G93A-SOD1 mutant mouse, which is genetically engineered to replicate familial ALS.⁴ There is strong evidence in the G93A-SOD1 mouse model of ALS that the endocannabinoid system is involved, both directly and indirectly, in the pathophysiology of the disease. Several recent studies have highlighted this. Rossi et al¹⁷ investigated both excitatory and inhibitory synaptic transmission in the striatum of symptomatic G93A-SOD1 ALS mice, along with the sensitivity of these synapses to CB1 receptor stimulation. They reported a reduced frequency of glutamate-mediated spontaneous excitatory postsynaptic currents and increased frequency of GABA-mediated spontaneous inhibitory postsynaptic currents in recordings from striatal neurons in ALS mice. This is likely due to some presynaptic defects in transmitter release. The sensitivity of CB1 receptors in controlling both glutamate and GABA transmission was potentiated in ALS mice. This provides good evidence that adaptations of the endocannabinoid system might be involved in the pathophysiology of ALS. This is not inconsistent with current theories on pathophysiological mechanisms of ALS, which still remain largely a pathophysiologic enigma.⁷⁹⁻⁸³

Bilsland et al¹⁸ showed that treatment of postsymptomatic, 90-day-old SOD1G93A mice with a synthetic cannabinoid, WIN55,212-2, significantly delayed disease progression. Furthermore, genetic ablation of the fatty acid amide hydrolase (FAAH) enzyme, which results in raised levels of the endocannabinoid anandamide by preventing its breakdown, prevented the appearance of disease signs in 90-day-old SOD1G93A mice. Surprisingly, elevation of cannabinoid levels with either WIN55,212-2 or FAAH ablation had no effect on life span. Ablation of the CB1 receptor, in contrast, had no effect on disease onset in SOD1G93A mice but significantly extended life

span. Together, these results indicate that cannabinoids have significant neuroprotective and disease-modifying effects in this model of ALS and suggest that these beneficial effects may be mediated by non-CB1 receptor-based mechanisms.

It is now known that during active neurodegeneration from disease or trauma in the CNS, the concentration of tumor necrosis factor alpha (TNF- α) rises well above normal levels during the inflammatory response. Addition of exogenous TNF- α , both in vitro and in vivo, to neurons has been shown to significantly potentiate glutamatergic excitotoxicity. Thus, the discovery of drug targets reducing excess TNF- α expression may help protect neurons after injury. Zhao et al⁸⁴ investigated the neuroprotective role of the CB1 receptor after TNF- α exposure in the presence or absence of CB1 agonists. They demonstrated that CB1 activation blocks the TNF- α -induced increase in inflammation, thus protecting the neurons from damage. Thus, neuroprotective strategies which increase CB1 activity may help to reduce damage to motor neurons in ALS that are mediated by CNS inflammation.

Additionally, CB2 receptors are dramatically upregulated in inflamed neural tissues associated with CNS disorders, including ALS.⁸⁵ In G93A-SOD1 mutant mice, endogenous cannabinoids are elevated in spinal cords of symptomatic mice.²¹ Furthermore, treatment with nonselective cannabinoid partial agonists prior to, or on, symptom appearance minimally delays disease onset and prolongs survival through undefined mechanisms. Shoemaker et al¹⁴ demonstrated that messenger RNA (mRNA) levels, receptor binding, and function of CB2, but not CB1, receptors are dramatically and selectively upregulated in spinal cords of G93A-SOD1 mice in a temporal pattern paralleling disease progression. Daily injections of the selective CB2 agonist AM-1241, initiated at symptom onset, increased the survival interval after disease onset by 56%.¹⁴

Disease-Modifying Treatment of ALS

Clinical trials for ALS have been largely based on preclinical work using the G93A-SOD1 mouse. Unfortunately, translation of therapeutic success in mice to humans has proven quite difficult and a cure for ALS is not yet known. Many factors have been implicated in explaining the predominantly negative results of numerous randomized clinical trials in ALS, including methodological problems in the use of animal-drug screening, the lack of assessment of pharmacokinetic profile of the drugs, and methodological pitfalls of clinical trials in patients with ALS. Riluzole is currently the only agent approved by the FDA for the treatment of ALS.¹⁰ This drug inhibits the presynaptic release of glutamate and reduces neuronal damage in experimental models of ALS. Four controlled trials of a total of 974 riluzole-treated and 503 placebo-treated patients showed that it prolonged survival opposed to placebo, although the benefit was fairly modest.¹⁰ Because oxidative stress is one of the proposed pathogenic factors in ALS, antioxidants have been extensively tested, including vitamin E, vitamin C, coenzyme Q, B-carotene, *N*-acetylcysteine, and creatine, an amino acid naturally found in skeletal.¹¹ To date, trials of

neurotrophic factors, antioxidants, glutamate antagonists, and creatine have all failed to show any significant benefit in humans, although most had significant benefit shown in mice.¹¹ It is currently felt that a cocktail approach may be the ideal treatment strategy, including glutamate antagonists, antioxidants, and neurotrophic factors.⁶⁸ Recently, the kynurenine pathway (KP) has emerged as a potential target for ALS treatment.⁸ The KP is a major route for the metabolism of tryptophan, generating neuroactive intermediates in the process. These catabolites include the excitotoxic *N*-methyl-D-aspartate (NMDA) receptor agonist, quinolinic acid (QUIN), and the neuroprotective NMDA receptor antagonist, kynurenic acid (KYNA). These catabolites appear to play a key role in the communication between the nervous and immune systems and also in modulating cell proliferation and tissue function. Targeting the KP, hence, could offer a new therapeutic option to improve ALS treatment, and several drugs that block the KP are already under investigation.

Although other potential neuroprotective agents have been evaluated in randomized clinical trials, none have shown unequivocal benefit for the treatment of ALS. Thus, there remains an enormous need for more trials to test other putative disease-modifying therapies. As the effectiveness of such drugs can only be definitively established by large, costly, phase III randomized controlled studies, it is imperative that researchers target compounds that have potential benefit based on demonstrated pharmacological and physiological mechanisms.

There remains the possibility that ALS could represent a state of clinical endocannabinoid deficiency (CED).^{28,31} The endocannabinoid anandamide demonstrates dopamine-blocking and anti-inflammatory effects and is also tonically active in the periaqueductal gray matter.⁸¹ Endocannabinoids also modulate glutamatergic neurotransmission indirectly via NMDA receptors, and these pathways can be modulated to produce a clinical effect, such as reduction in motor tone, seizure threshold, and perception of pain and mood state.⁸²⁻⁹³ These clinical, biochemical, and pathophysiological patterns could reflect an underlying abnormality in the endocannabinoid system in ALS that could be potentially treated with exogenous cannabinoids, that is, via clinical use of cannabis or some derivative thereof.

Practical Applications

Symptom Management in ALS

As discussed previously, animal studies strongly suggest that the endocannabinoid system is implicated in the pathophysiology of ALS, either directly as part of the underlying disease mechanisms, or indirectly, inasmuch as this system plays a role in the homeostatic functioning of the neuromuscular system. Irrespective, it is clear that cannabinoids are able to slow down the progression of ALS in mice, likely by acting as an antioxidant, among other mechanisms.¹⁵⁻¹⁸ In addition to the neuroprotective effect, patients report that cannabis helps in treating symptoms of the disease, including alleviating pain

and muscle spasms, improving appetite, diminishing depression, and helping to manage sialorrhea (excessive drooling) by drying up saliva in the mouth.²⁴ Indeed, in a large survey it was noted that patients with ALS who were able to obtain cannabis found it preferable to prescription medication in managing their symptoms. However, this study also noted that the biggest reason patients with ALS were not using cannabis was their inability to obtain it, due to legal or financial reasons or lack of safe access.^{24,26}

There are many other clinical problems faced by patients with ALS that could be helped by cannabis. The majority of patients with ALS experience significant pain.²⁴ The pain is largely due to immobility, which can cause adhesive capsulitis, mechanical back pain, pressure areas on the skin, and more rarely, neuropathic pain.^{24,31} Pain in ALS is a frequent symptom especially in the later stages of disease and can have a pronounced influence on quality of life and suffering.⁹⁴⁻⁹⁸ Treatment of pain, therefore, should be recognized as an important aspect of palliative care in ALS. A recent Cochrane review of the evidence for the efficacy of drug therapy in relieving pain in ALS revealed no randomized or quasi-randomized controlled trials showing significant benefit. Despite the major pain problems encountered by patients with ALS, there are no clear guidelines and few randomized clinical trials about how to manage pain in ALS. However, as noted previously, the cannabinoids have been shown to produce an anti-inflammatory effect by inhibiting the production and action of TNF and other acute phase cytokines.³⁵ Additionally, cannabis may reduce pain sensation, likely through a brain stem circuit that also contributes to the pain-suppressing effects of morphine.⁹⁹ Cannabinoids produce analgesia by modulating rostral ventromedial medulla neuronal activity in a manner similar to, but pharmacologically distinct from, that of morphine.^{100,101} This analgesic effect is also exerted by some endogenous cannabinoids (anandamide) and synthetic cannabinoids (methanandamide) and may be prevented by the use of selective antagonists.¹⁰²⁻¹⁰⁴ Thus, cannabinoids are centrally acting analgesics with a different mechanism of action than opioids, although the analgesia produced by cannabinoids and opioids may involve similar pathways at the brain stem level.¹⁰³⁻¹⁰⁵

There are now multiple, well-controlled clinical studies using cannabis to treat pain, showing ample evidence of analgesic efficacy.¹⁰⁶ A recent systematic review and meta-analysis of double-blind randomized controlled trials that compared any cannabis preparation to placebo among participants with chronic pain showed a total of 18 completed trials. The studies indicate that cannabis is moderately efficacious for the treatment of chronic pain.¹⁰⁶ In the setting of ALS, the medications should be titrated to the point of comfort. Concomitant use of narcotics may also be beneficial because, as noted above, the opioid receptor system is distinct from the cannabinoid system. In that regard, the antiemetic effect of cannabis may help with the nausea sometimes associated with narcotic medications.

In addition to pain, spasticity is also a major problem for patients with ALS. Spasticity in ALS is induced both at the

motor cortex and at the spinal cord level through the loss of motor neuron inhibition.¹⁰⁷⁻¹¹⁰ Cannabis has an inhibitory effect via augmentation of γ -amino-butyric acid (GABA) pathways in the CNS.¹¹¹ This produces motor neuron inhibition at spinal levels in mice. Several past studies have suggested that cannabinoid therapy provide at least a subjective reduction of spasticity, although virtually all of the studies have been done in patients with multiple sclerosis (MS).^{29,112} A survey study has shown that patients with ALS do subjectively report that cannabis helps alleviate symptoms of spasticity.²⁴

In addition to pain and spasticity, there are other pharmacological effects of cannabis that may be useful for patients with ALS. Patients with ALS and bulbar symptoms also usually have difficulty controlling and swallowing the saliva that is normally present in the oral cavity.¹¹³ Cannabis is a potent anti-salivatory compound that swiftly dries the oral cavity and upper airway, potentially reducing the risk of aspiration pneumonia and increasing patient comfort.^{22,24}

Cannabis also increases appetite and may help prevent “ALS cachexia,” a phenomenon experienced by some patients where weight loss occurs in excess of that caused by muscle atrophy and reduced caloric intake.¹¹⁴⁻¹¹⁶ In addition to improving appetite, cannabis appears to also help with mood state and sleep. Patients with ALS previously have reported that cannabis is at least moderately effective at reducing symptoms of pain, spasticity, drooling, appetite loss, and depression.²⁴

Cannabinoids will vaporize at temperatures in the range of 200°F and can be inhaled via a hot mist.¹¹⁷⁻¹¹⁹ This delivers the cannabinoids rapidly, allowing for ease of titration and letting patients with ALS having severe dysarthria rapid access to the drug’s effects. Vaporizing also helps dry up oral secretions.²⁴ Cannabis may also be ingested orally or through a feeding tube, although absorption is much slower. Cannabis can be titrated to desired effect, with individual, patient-specific dosing.¹²⁰⁻¹²² In terms of clinical trials for disease-modifying effects, dosing paradigm would be more complex. Fortunately, the low toxicity of cannabis would allow for trail and error. Based on the available studies, a typical dosing range for clinical effects would likely be 1 to 2 g/d of cannabis, with an average THC content of 20% by weight.¹²²

A Call for Clinical Trials

In terms of symptoms management, cannabis is a substance with many pharmacological properties that are directly applicable to the clinical care of patients with ALS. These include analgesia, muscle relaxation, bronchodilation, saliva reduction, appetite stimulation, sleep induction, and mood elevation.²⁴ From a pharmacological perspective, cannabis is remarkably safe with realistically no possibility of overdose or frank physical addiction. There is a valid, logical, scientifically grounded rationale to support the use of cannabis in the pharmacological management of ALS. Indeed, cannabis, as a single compound, could potentially replace and provide the benefits of multiple standard medications, including analgesics, antispasmodics, anxiolytics, antidepressants, appetite stimulants, and agents

used to dry the mouth (typically anticholinergic medications). There is ample clinical evidence to warrant the empiric use of cannabis to manage the symptoms of ALS.

From an experimental, disease-modifying perspective, it is not likely that a single mechanism agent would treat all of the abnormal physiological processes occurring simultaneously in this devastating disease.¹²³⁻¹²⁷ Thus, some experts are now advocating for a combination drug approach to slowing the progression of ALS.⁸⁰ Based on what is known about the pathophysiology of ALS, a multidrug regimen would include glutamate antagonists, antioxidants, a CNS anti-inflammatory agent, a microglial cell modulators, including TNF- α inhibitors, an antiapoptotic agent, 1 or more neurotrophic growth factors, and a mitochondrial function-enhancing agent.^{127,128} Remarkably, cannabinoids appear to have at least some activity in all of those categories.¹²⁹⁻¹³¹ Moreover, there is a particularly strong, growing, body of preclinical data indicating that cannabis has powerful antioxidative, anti-inflammatory, and protective neuromodulatory effects.¹³²⁻¹³⁵ In the G93ASOD1 ALS mouse, this has translated to prolonged neuronal cell survival.^{15,16,18,43}

There is an overwhelming amount of preclinical and clinical evidence to warrant initiating a multicenter randomized, double-blind, placebo-controlled trial of cannabis as a disease-modifying compound in ALS. Secondary outcome measures could include clinical management, with end points such as pain scores, quality-of-life measures, and so on. Developing a multicenter clinical research trial using cannabis would pose many unique barriers that would have to be overcome. Inasmuch as there is no commercial manufacturer of cannabis, the study would have to be funded either by the federal government or privately. Presumably, there would be no industry funding. Obtaining the trial drug would require the investigators to gain access to a large, reliable supply of cannabis that is legal for medical research. At present, the only source of cannabis that can be legally used in research in the United States is through the National Institute on Drug Abuse (NIDA). National Institute on Drug Abuse provides low-potency material and makes the cannabis available only to projects it approves. National Institute on Drug Abuse supplies cannabis with a THC content, by weight, of 2% to 4% typically, although it has supplied cannabis with an 8% by weight THC content on occasion.^{136,137} The average THC content of cannabis at randomly surveyed medical cooperatives in California is approximately 15% to 20%.^{26,117,121} Thus, an independent source of cannabis would be needed to ensure a consistently high cannabinoid content that may be strong enough to possibly alter the disease progression. An independent cannabis source would also allow investigators to avoid NIDA’s arbitrary and lengthy review process that it mandates before providing any cannabis for research. Historically, NIDA has derailed clinical trial plans by refusing to supply cannabis, even after the research protocols were approved by the FDA.¹¹⁷ Nonetheless, it is possible, with coordinated effort, to effectively do double-blind, randomized, placebo-controlled clinical trials with cannabis.¹³⁸⁻¹⁴¹ To properly evaluate both subjective and objective

effects, cannabinoid blood levels should be followed as well, to further ensure adequate data for a dose–response curve.

Clinical trials with cannabis would also address the issue of single versus multiple drug clinical trials. Arguable, multiple drug trials would increase the chances of success but also exponentially increase the difficulty of completing the trial and analyzing the data. Cannabis, as a single agent, in essence provides the advantages of a multiple drug trial due to its multiple mechanisms of action. Cannabis is a unique compound that possesses significant internal therapeutic synergy. The search for the underlying cause of ALS continues.^{142,143} With respect to treatment, from both a symptom management and disease modifying viewpoint, the logical next step, based on the available science, would be clinical trials with cannabis. Although not expected to be necessarily curative, it is not unreasonable to think that cannabis might significantly slow the progression of ALS, potentially extending life expectancy and substantially reducing the overall burden of the disease.

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Herbal Marijuana and Its Application in the Treatment of Parkinson's Disease

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Editorial

Medical (herbal) marijuana (*Cannabis sativa*) is becoming a popular therapy for treatment of degenerative neurological diseases, including Parkinson's disease (PD) and other medical conditions [1,2]. Extracts from this plant have been used by ancient herbal practitioners over millennia in the treatment for a wide variety of diseases, which forms the basis of many claims today [3]. There are other forms of marijuana (Dronabinol, Nabilone and Nabiximole) available some having approval by federal agencies (Drug Enforcement Agency) [1]. However, clinical efficiency has been shown to be highly variable regarding the various forms of cannabinoids⁴. Use of herbal marijuana has been shown with a good degree of scientific certainty to be effective in treatment of some diseases [4,5]. Most notably, this agent has been shown to be beneficial regarding multiple sclerosis (MS) [6]. Recently, there has also been suggestion of its benefit for motor and non-motor symptoms of PD [7].

Alternative therapies are commonly included in treatment of PD patients along with conventional practices [8]. Presently, much of the initiative in using marijuana for treating PD and other types of neurological problems has been based on anecdotal information. Many of the claims regarding benefits of marijuana have not been adequately evaluated; although, current studies do suggest some applicability for treatment of pain, nausea, muscle spasticity, anorexia, sleep disturbances, in support of cancer (including chemotherapy), glaucoma, and Tourette syndrome, as examples [5]. Marijuana contains over 100 pharmacological active compounds and metabolites that can be generated each having a wide variety of physiological effects. In animal studies, marijuana and derivatives have been reported to provide protection, in some form, of the substantia nigra and as such reduce those neurons from damage or deterioration [9]. What should also be noted, similar findings have also been observed for Huntington's disease, MS, and Alzheimer's disease [1]. One of the major issues with using the herbal form of this drug for treatment relates to inconsistent concentrations of the active ingredients from available sources [10].

Few actual scientific studies have been conducted on herbal marijuana and PD. A subjective study reported benefits to PD patients [11]. This investigation noted that benefits may not be observed for months after application of this agent, indicating long-term use is necessary in achieving positive results. Insufficiency

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of treatment time may be one reason for inconsistent results reported in the literature [12]. In a small investigation [11], it was suggested cannabis consumption (smoking) improved motor function, and reduced tremor, rigidity and bradykinesia [7] which is similar to the subjective study. However, extracts of marijuana was shown to be ineffective in treatment of long-term levodopa induced dyskinesia [13]. Due to a small number of patients these studies must be considered pilot investigation [5] making conclusions difficult. Based on the study by Venderova et al. (2004) [11], not all patients report improvement from use of herbal marijuana, which may be considered a confounder due to the variability and differences in PD. It appears that about 15% of PD patients respond; although, when applied through long-term application, this increased to about 50% [11]. Herbal marijuana may only have a benefit for a sub-population of PD patients. When all the studies are evaluated together along with a self-reporting investigation [14], benefits of herbal marijuana for PD patients appear to exist. Many of the positive benefits reported include difficult to quantify outcomes (i.e. mood improvement) creating inconsistencies among studies.

Use of herbal marijuana has been shown to have benefits increasing the quality of life for those afflicted in PD. Studies evaluating this agent have employed small populations limiting conclusions, but overall can be considered positive. It is likely a select group of PD patients will benefit from use of this herb. Large randomized clinical trials are needed to better elucidate efficacy of this herb and methods of delivery for PD patients.

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February 21, 2017

ON THE FOLLOWING MEASURE:

SB174 SD1, RELATING TO MEDICAL MARIJUANA

BEFORE THE: SENATE COMMITTEE ON JUDICIARY AND LABOR

DATE: Wednesday, February 22, 2017 TIME: 9:15 A.M.

LOCATION: State Capitol, Conference Room 016

TESTIFIER: Dustin Verity, CPA

Dear Honorable Chair Keith-Agaran and Members of the Committee:

As a stakeholder in the medical marijuana industry, I am writing in **STRONG SUPPORT of SB174 SD1 RELATING TO MEDICAL MARIJUANA**, which amends the definition of debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, and autism as conditions that qualify for the legal use of medical marijuana.

It is my opinion that adding these conditions to the current condition list will encourage greater patient access to the medicines they need. If passed, this measure will also situate Hawaii as one of the more patient friendly state regulated medical cannabis programs in the nation. Including these qualifying conditions on our roster would benefit future medical cannabis studies conducted by the University of Hawaii system as well as those conducted in private by local firms. This is an opportunity to help more patients and to conduct the sound medical research, which the international medical industry desperately needs.

For these reasons, I stand in **STRONG SUPPORT** of **SB174 SD1**.

I would like to recommend that this bill be moved forward for further discussion. Thank you very much for the opportunity to provide testimony on this measure.

Respectfully,

A handwritten signature in black ink, appearing to read 'Dustin Verity', with a stylized flourish at the end.

Dustin Verity, CPA

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SB174

Submitted on: 2/16/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Frances	Individual	Support	No

Comments: Strongly Support adding Medical Conditions to qualify for Medicinal Marijuana

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SB174

Submitted on: 2/19/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Geoffrey Lasr	Individual	Support	No

Comments: This is very important and timely a no brainer so to speak Science the medical community people across the country have changed their opinion on marijuana use age TAX IT MAKE MONEY ON IT LEGALIZE IT AND NOT JUST FOR A SELECT BUNCH THANK YOU GEOFFREY LAST LONG TIME RESIDENT HAWAII

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SB174

Submitted on: 2/17/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Georgina Mckinley	Individual	Support	No

Comments: The additional qualifying conditions under consideration will allow more residents of Hawaii an opportunity to improve their health and wellness, using a safe and often very effective medicine. Therefore, I fully support SB174

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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Date: Wednesday, February 15, 2017 7:45:05 PM

SB174

Submitted on: 2/15/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Jari S.K. Sugano	Individual	Support	Yes

Comments: SB 174 Dear chair Keith-Aragan, vice chair Rhodes and members of the Judiciary Committee My name is Jari Sugano and I am a caregiver of a minor in the Hawaii medical marijuana program and a member of the medical marijuana dispensary working group. I strongly support changing the debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, autism, anxiety, depression, insomnia, and stress as conditions that qualify for the legal use of medical marijuana. Please note: epilepsy is currently a debilitating medical condition under the medical marijuana program. Our family is also affected by lupus, multiple sclerosis, arthritis, autism anxiety, depression, insomnia and distress. We see the long term pain and suffering associated with these conditions and hope our family members will also be able to obtain access of medical marijuana as an adjust treatment option. We currently use medication such as methylphenidate to control focus, hyper activeness and spontaneous rage issues for symptoms relating to autism which causes side effects such as eating and social disorders. We look forward to evaluating new treatment options that may one day bring natural relief to our family members.

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Subject: Submitted testimony for SB174 on Feb 22, 2017 09:15AM
Date: Saturday, February 18, 2017 7:08:05 PM

SB174

Submitted on: 2/18/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
John Gelert	Individual	Support	No

Comments: I agree that marijuana is good for treating these conditions listed in this bill.

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I am writing to voice support of SB174 SD1 to include lupus, epilepsy, MS, arthritis, autism, anxiety, depression, insomnia, and stress to the conditions that qualify for legal use of medical marijuana. Each of these conditions has shown promise for treatment with marijuana and will give doctors a wider range of treatment options rather than just prescription pharmaceuticals. Mahalo,

Jordan Moniuszko

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Subject: Submitted testimony for SB174 on Feb 22, 2017 09:15AM
Date: Saturday, February 18, 2017 8:53:41 AM

SB174

Submitted on: 2/18/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
LJ Bates III	Individual	Support	No

Comments: It is absurd to limit the use of marijuana in any way, given what we know about the benefits of this plant and it suppressed use for so many decades. Make Marijuana LEGAL in every way!

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From: [Lynn Robinson-Onderko](#)
To: [JDLTestimony](#)
Subject: SB174 SD1
Date: Monday, February 20, 2017 1:59:35 PM

Aloha Chair and Committee Members, I am writing in strong support for SB174. All of the conditions listed in the bill are known to be effectively treated with medical marijuana. I ask that you please do the right thing and advocate for patients that suffer from these debilitating diseases. Vote yes for SB174. Mahalo, Lynn Robinson-Onderko, Ewa Beach

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Subject: Submitted testimony for SB174 on Feb 22, 2017 09:15AM
Date: Tuesday, February 21, 2017 1:02:22 PM

SB174

Submitted on: 2/21/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Marilyn Mick	Individual	Support	No

Comments: I strongly support this bill.

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Date: Saturday, February 18, 2017 6:36:39 AM

SB174

Submitted on: 2/18/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Mary Whispering Wind	Individual	Support	No

Comments: Aloha Senators, Please, legalize marijuana. Hawaii rejected the federal prohibition on marijuana in 2000, when the Hawaii legislature passed land mark legislation to legalize medical marijuana. Back then, Hawaii lead the nation in marijuana reform. Now, Hawaii lags far behind, still sending good citizens to jail, on the excuse that marijuana is NOT medicine. SELECTIVE PROSECUTION is illegal. Please, consider that, there is no good reason for marijuana to be illegal, when highly addictive, and deadly alcohol, is legal. It makes no sense. 90,000 Americans die every year form alcohol, while marijuana has killed zero Americans, according to CDC stats. Please, reconsider your hard stance against legal marijuana. A majority of Hawaii's citizens want marijuana legalized. Please, listen to the voice of the people.

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Matthew Brittain, MA, LCSW, DCSW, DABFSW
Diplomate, Clinical Social Work, NASW
Diplomate, American College of Forensic Examiners

Date: 02/19/2017

Gilbert S.C. Keith-Agaran, Chair, and Karl Rhoads, vice-Chair,
Senate Committee on Judiciary and Labor

REGARDING: SB174 SD-1

As a Licensed Clinical Social Worker (LCSW) specializing in Forensic cases and Medical Marijuana issues, I SUPPORT SB 174 SD-1, with the following comments:

Cannabis is very effective for the treatment of Major Depressive Disorder (MDD), DSM 5 296.3X. Current antidepressant medications often are not effective to treat this life-threatening disease, and in some cases make the disorder worse, resulting in suicide. Cannabis has no known side effect of creating suicidal ideation, and is much less toxic than the existing antidepressant medications. For this reason, I petition this committee to reinstate MDD as a qualifying condition for the use of medicinal cannabis.

I am very confident that lives will be saved by including MDD as a qualifying condition for the 329 program.

I speak on behalf of some 2,300 certified 329 card holders, and know for sure that there would be many more who qualify when MDD is added to the list of qualifying conditions.

As a Licensed Mental Health Professional, I know that cannabis is effective in relieving symptoms of the following diagnoses:

**Agoraphobia
Dysthymia
Major Depressive Disorder
Panic Disorder
Premenstrual dysphoric disorder
Opioid Use Disorders
Insomnia Disorder
Female Orgasmic Disorder
Female Sexual Interest/Arousal Disorder
Disruptive Mood Dysregulation Disorder
Social Anxiety Disorder
Male Hypoactive Sexual Desire Disorder
Personality Disorders**

The most important of these conditions to note are those of Major Depressive Disorder, Disruptive Mood Dysregulation Disorder, Premenstrual Dysphoric Disorder and Personality Disorders. The reason that these conditions are of most importance in the context of cannabis therapeutics is because extreme and violent/suicidal behavior can be reduced very effectively through the use of cannabis therapy in an applied treatment plan paradigm.

Approval of cannabis for the relief of symptoms in the above-listed population will reduce personal suffering from the subjective experience of these symptoms, secondary family/friend suffering as witnessing the symptoms in loved ones/friends.

The load on judicial and police actions/proceedings caused by untreated patients engaging in crimes, human resource management in private and public employment settings, and general social order concerns will all be lessened once cannabis is approved for these conditions.

Quality of life improvements will be significantly better once cannabis is approved for such things as insomnia disorder, female orgasmic/interest disorders, and male hypoactive sexual desire disorder.

It should be noted here that cannabis is currently being used as a replacement therapy to successfully treat opioid addiction. This is a significant treatment that is of high importance, given the current opioid addiction epidemic that is happening now.

Respectfully submitted,

Matthew Brittain, MA, LCSW, DCSW, DABFSW
Clinical Forensic Social Worker

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Date: Thursday, February 16, 2017 8:10:19 AM

SB174

Submitted on: 2/16/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Michelle Ogata	Individual	Support	No

Comments: I am in great support!!

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SB174

Submitted on: 2/15/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Mike Golojuch	Individual	Support	No

Comments: We need to take care of all those who need medical marijuana so please pass SB174.

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SB174

Submitted on: 2/20/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Paul Klink	Individual	Support	Yes

Comments: ON THE FOLLOWING MEASURE: SB174 SD1, RELATING TO MEDICAL MARIJUANA BEFORE THE: SENATE COMMITTEE ON JUDICIARY AND LABOR DATE: Wednesday, February 22, 2017 TIME: 9:15 A.M. LOCATION: State Capitol, Conference Room 016 TESTIFIER: Paul Klink (808) 721-7777, Makiki Hawaii 96822 MAILING ADDRESS: PO Box 8948, Honolulu, HI 96830 Honorable Chair Keith-Agaran and Members of the Committee: As a stakeholder in the medical marijuana industry I am writing in STRONG SUPPORT of SB174 SD1 RELATING TO MEDICAL MARIJUANA, which amends the definition of debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, and autism as conditions that qualify for the legal use of medical marijuana. It is my opinion that adding these conditions to the current condition list will encourage greater patient access to the medicines they need. If passed, this measure will also situate Hawaii as one of the more patient friendly state regulated medical cannabis programs in the nation. Including these qualifying conditions on our roster would benefit future medical cannabis studies conducted by the University of Hawaii system as well as those conducted in private by local firms. This is an opportunity to help more patients and to conduct the sound medical research which the international medical industry desperately needs. For these reasons, I stand in STRONG SUPPORT of SB174 SD1. I would like to recommend that this bill will be moved forward for further discussion. Thank you very much for the opportunity to provide testimony on this measure. Respectfully, Paul Klink

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SB174

Submitted on: 2/18/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Rachel Zachry	Individual	Support	No

Comments: I suffer from anxiety, ptsd, and chronic pain. My father is an epileptic. Marijuana is a natural, lifesaving, herb that literally allowed my dad to get off the three very potent anti-epileptic drugs and have has been seizure free for over 6 years. Please make medical Marijuana legal, and make it legal like Colorado has done. We can certainly use the tax revenue, and it cuts down on crime.

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Date: Tuesday, February 21, 2017 12:26:02 PM

SB174

Submitted on: 2/21/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Stephen Farrell	Individual	Comments Only	No

Comments: I am 65 years old and have degenerative disc disease. This, combined with arthritis, can make for a pretty uncomfortable situation when a person has a blue collar trade like I do. (Furniture Repair) Under doctors orders, I formerly took 2 opioid pills per day to minimize pain. After many years, dependence issues were becoming evident. I did not abuse this medication, but when I tried to quit, I experienced very bad insomnia for many weeks running. When I tried cannabis (legally with a card) as a remedy...I was amazed how well it worked both for insomnia and also as a pain reliever. I guess the strength of marijuana nowadays is far more effective as medicine. I was able to stop the Vikodin type pills easily many months ago and have not returned. Bottom line? I still don't endorse Marijuana as a recreational drug on moral grounds - since Intoxication is all too often a negligent irresponsible behavior) But as a medicine for those of us with legitimate ailments like I have - It works great! and should be legally available. Mind you, I am only taking 1-3 puffs at a time on days where I feel particularly sore, and am receiving wonderful benefits - So it's not a situation where I am sitting around getting stoned daily and drooling.... Far from it. Please help pass laws that make this terrific health remedy available to the great people of Hawaii - especially to help them not have to deal with the "black" market or criminal elements to obtain it. Mahalo Steve Farrell Koloa,Hi. 96756

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ON THE FOLLOWING MEASURE:

SB174 SD1, RELATING TO MEDICAL MARIJUANA

BEFORE THE:

SENATE COMMITTEE ON JUDICIARY AND LABOR

DATE: Wednesday, February 22, 2017 **TIME: 9:15 A.M.**

LOCATION: State Capitol, Conference Room 016

TESTIFIER: Stephen P. Pingree, J.D.

Honorable Chair Keith-Agaran and Members of the Committee:

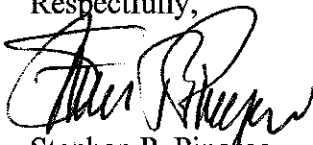
As a stakeholder in the medical marijuana industry I am writing in **STRONG SUPPORT of SB174 SD1 RELATING TO MEDICAL MARIJUANA**, which amends the definition of debilitating medical condition to include lupus, epilepsy, multiple sclerosis, arthritis, and autism as conditions that qualify for the legal use of medical marijuana.

It is my opinion that adding these conditions to the current condition list will encourage greater patient access to the medicines they need. If passed, this measure will also situate Hawaii as one of the more patient friendly state regulated medical cannabis programs in the nation. Including these qualifying conditions on our roster would benefit future medical cannabis studies conducted by the University of Hawaii system as well as those conducted in private by local firms. This is an opportunity to help more patients and to conduct the sound medical research which the international medical industry desperately needs.

For these reasons, I stand in **STRONG SUPPORT** of **SB174 SD1**.

I would like to recommend that this bill be moved forward for further discussion. Thank you very much for the opportunity to provide testimony on this measure.

Respectfully,



Stephen P. Pingree
SPP/ccp

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Subject: *Submitted testimony for SB174 on Feb 22, 2017 09:15AM*
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SB174

Submitted on: 2/18/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Vickery	Individual	Support	No

Comments:

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SB174

Submitted on: 2/16/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Teri Heede	Individual	Support	No

Comments: This is a ludicrously short list.

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SB174

Submitted on: 2/18/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Tulsi Greenlee	Individual	Support	No

Comments:

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SB174

Submitted on: 2/15/2017

Testimony for JDL on Feb 22, 2017 09:15AM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Victor K. Ramos	Individual	Oppose	No

Comments: Much too broad.

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TO: THE SENATE COMMITTEE ON JUDICIARY AND LABOR

FROM: Wendy Gibson R.N.

BILL: SB174 SD1, RELATING TO MEDICAL MARIJUANA

HEARING DATE: Wednesday, February 22, 2017, TIME: 9:15 A.M.

LOCATION: State Capitol, Conference Room 016

Dear Senate Chair Keith-Agaran, Vice Chair Rhoads and Members of the committee,

Thank you for the opportunity to provide testimony in SUPPORT of SB174. Although the Hawaii Department of Health has recently acknowledged a need to start the process to add more qualifying conditions, lupus, epilepsy, multiple sclerosis, arthritis, and autism could be **added to the list of qualifying conditions a lot sooner** if SB174 passes.

If I am correct, the intention of passing Act 228 back in 2000 was go allow patients access to cannabis medicines as soon as possible.

I see no need to delay patient access, waiting until Hawaii's Department of Health has completed setting up a system to approve additional conditions, one by one. Once in place, it will be an arduous and time-consuming process, involving many hours of review of research and public hearings which ultimately leads to delays in patient's having access to their medicines. It could also result in the denial of adding the condition to the list.

Patients with lupus, **epilepsy**, multiple sclerosis, arthritis, and autism could begin to use (and possibly benefit from) their medicine immediately instead of waiting for a series of reviews. Some of these conditions have similar disease processes that are already on the list of qualifying conditions.

Thank you for your consideration of passing SB174. I fully support this bill.

Wendy Gibson R.N., BSN