



Industry Forecast

THE POTENTIAL FUTURES OF HAWAII'S MEDICAL MARIJUANA MARKET

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Now that the dispensary licensees have been announced, it is time to begin thinking about the future fiscal landscape of the medical marijuana industry in Hawai'i. Specifically, what patient numbers should the industry expect, how large could the industry become, and what do these numbers mean for dispensaries and patients alike. While this task is obviously complicated by the incredible youth of the medical marijuana industry across the United States, there is enough data to begin to make broad estimates relevant to Hawai'i's potential.

As discussed in the Hawai'i Dispensary Alliance's recent White Paper, *Hawai'i's Medical Marijuana Economy: A Roadmap for the Future*, Hawai'i has a brief window of opportunity to emerge onto the world stage as a provider of quality medical marijuana products and as a center for medical research and technology development. This article will provide a little more detail about the economic potential of these futures for Hawai'i's medical marijuana *economy*.



LAYING A FOUNDATION

The first order of business is to identify solid statistics on which to base projections for Hawai'i's medical marijuana market. Chiefly this means creating accurate projections for both the number of registered patients and the amount each patient is likely to spend at a dispensary every year in Hawai'i. The numbers in this article were developed independently by the Hawai'i Dispensary Alliance based on raw statistics from the Hawai'i State Department of Health; the Hawai'i State Department of Business, Economic Development, and Tourism; the Hawai'i Tourism Authority, and state agencies administering medical marijuana programs across the country (as detailed in an upcoming article in the Hawai'i

Dispensary Alliance's monthly HDA Industry Update, *The Legislation Game: A State-by-State Guide to the Medical Marijuana Industry*). Nationwide pricing statistics were sourced from The Marijuana Business Factbook 2016; and the Alliance's independent twelve month projections align with those in the Factbook.

In addition to simply identifying numbers on which to base projections for Hawai'i's market, it is important to understand the various factors that affect these numbers in order to appropriately adjust the results for Hawai'i. These factors include everything from the length of time a state's medical marijuana program has been established and the unique demographics of that state to the particular set of laws governing a medical marijuana regime and any controversy surrounding its establishment. Right now, only nineteen states both host open medical marijuana dispensaries and collect data on them; only three of those programs have existed for more than five years; and the oldest dispensaries in twelve of those states are less than two years old. This does not mean that the numbers from these states cannot be trusted, but it does mean they must be treated as a baseline from which to extrapolate as opposed to a set metric for Hawai'i's medical marijuana *economy* to follow as it develops.

dispensary program on the list, New Mexico, almost doubled its patient count in the last year after almost ten years of slow growth.

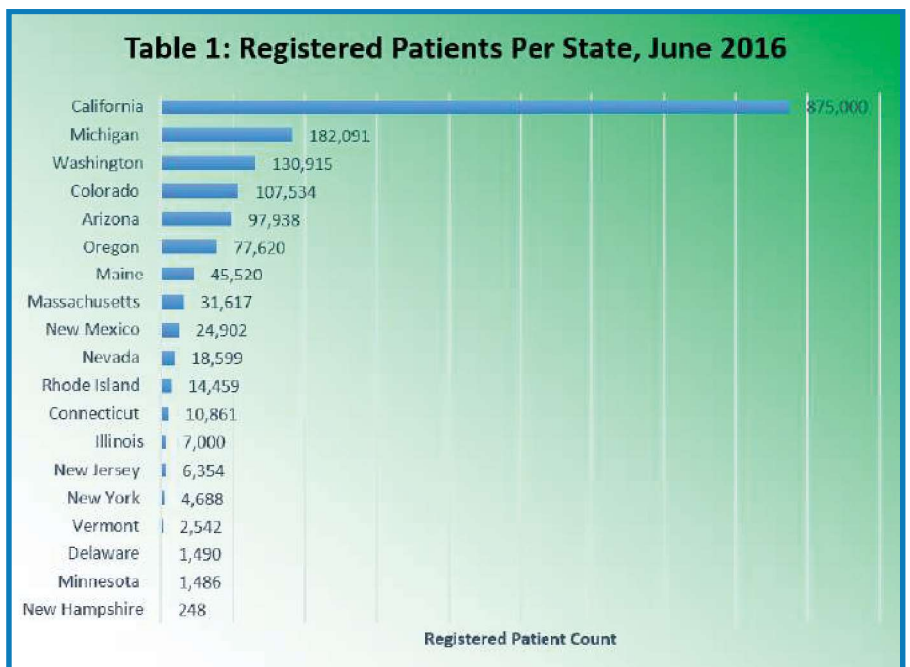
The other important number that the industry considers is the percentage of population in each state who will not only qualify, but who is likely to register to receive a medical marijuana certification. This percentage is notoriously hard to pin down because of the youth of the industry across the country. For instance, based on 2014-2015 growth in medical marijuana markets, the number was pegged by leading industry organizations at around 1.25% of a state's total population. Now, based on patient growth through the middle of 2016, the conventional wisdom is that approximately 2% of a state's population will eventually obtain their registration. Yet, looking at all of the numbers together over time tells a third story: a story of continuing growth with no identifiable upper-bound.

Every state's registered medical marijuana population is continuing to grow at rates most economies and markets would be envious of. In fact, only five states currently see less than double-digit annual growth; and with good reason: Colorado, Oregon, and Washington are the only states on the list with legal recreational marijuana dispensaries; California's system does not require registration with the state; and

Calculating Registered Patient Numbers

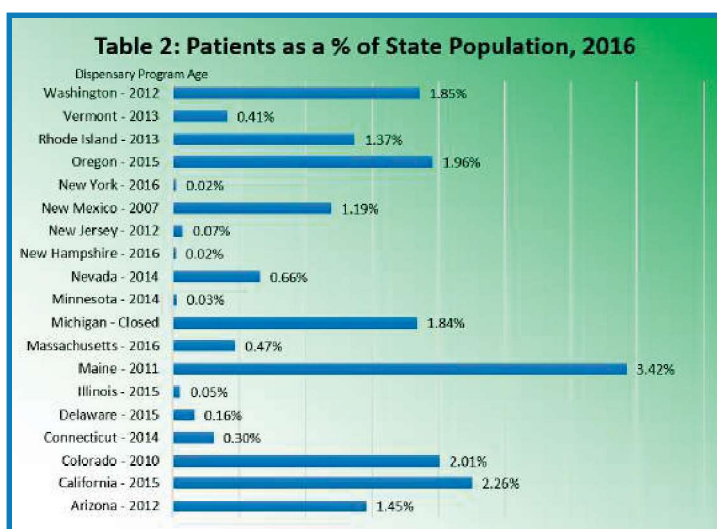
The first element in calculating potential revenue figures is the number of registered patients in the state. Today, the number of registered medical marijuana patients in each state varies widely across America – from under five hundred patients in New Hampshire to almost one million in California (Table 1).

Those numbers are growing across the board, though not uniformly. In the last year alone, both new and established programs have seen incredible growth. In fact, the oldest



Michigan shut down its medical marijuana dispensary system in 2016. These five states maintain the highest medical marijuana patient percentages to date at 2.01%, 1.96%, 1.85%, 2.26%, and 1.84% respectively and are the source of the idea for a 2% ceiling. Yet, despite the addition of a recreational market providing easy access to products without the need for registration, medical marijuana registrations continue to grow between three and nine percent a year – fast enough to soon exceed the 2% ceiling by a considerable margin.

One issue then with treating any of the current patient numbers as the ceiling for patient growth is assuming that the current numbers reflect mature medical marijuana markets. Instead the majority of medical marijuana markets are nascent at best, with the vast majority less than three years old (Table 2). Unfortu-



nately, the young age of the markets and the large differences between state regulations make it quite difficult to extrapolate potential patient numbers based on other factors as well. For instance, there is not yet an identifiable correlation between either elderly populations, veteran populations, or qualifying conditions and medical marijuana patient numbers.

So the idea of a 2% ceiling is predicated on the experience of three markets whose growth was

forested by the introduction of a recreational market; one state with no registration requirements; and one state which no longer maintains a dispensary system. Of greater relevance then to our purpose in projecting Hawai'i's market are those markets like New Mexico, Arizona, and Maine which have had their medical marijuana programs for a number of years (like Hawai'i), but which have seen greatly increased growth rates after the introduction of dispensaries or in concert with relaxed restrictions and greater public awareness. Arizona's market is doubling in size every two years, New Mexico every year, and Maine is doubling every six months. Maine's growth is blowing past the 2% ceiling with almost 3.5% of its population registered as patients. New Mexico, with a dispensary program started in 2007, has seen a tremendous uptick in growth in the last year which the dispensaries attribute to greater public awareness of the industry, generally decreasing social stigma, and dispensary advertising. Based on these examples, Hawai'i will see an increase in its patient numbers simply from the establishment of the dispensaries and institutionalization of the industry. Further efforts by the industry to reduce public stigma and encourage physician and patient registration will likely increase registration numbers further, even in counties that are already over the 2% number.

Calculating Patient Spending Numbers

The second element in calculating potential revenue figures is the amount that each patient is likely to spend at a dispensary in a year. While it is difficult to determine a ceiling on patient numbers, it is possible to be considerably more certain about the amount of money that medical marijuana patients are likely to spend at dispensaries.

The average transaction amount at medical marijuana dispensaries across the country is



\$72 – as low as \$50 on the West Coast and as high as \$100 on the East Coast. The average wholesale price per gram for indoor grow medical marijuana across the country is \$5.20 – as low as \$4 on the West Coast and as high as \$7 on the East Coast. Wholesale prices per pound range from \$1,500 to \$3,200 across the United States. The average markup per gram over wholesale price for medical marijuana dispensaries across the country is \$7.13.

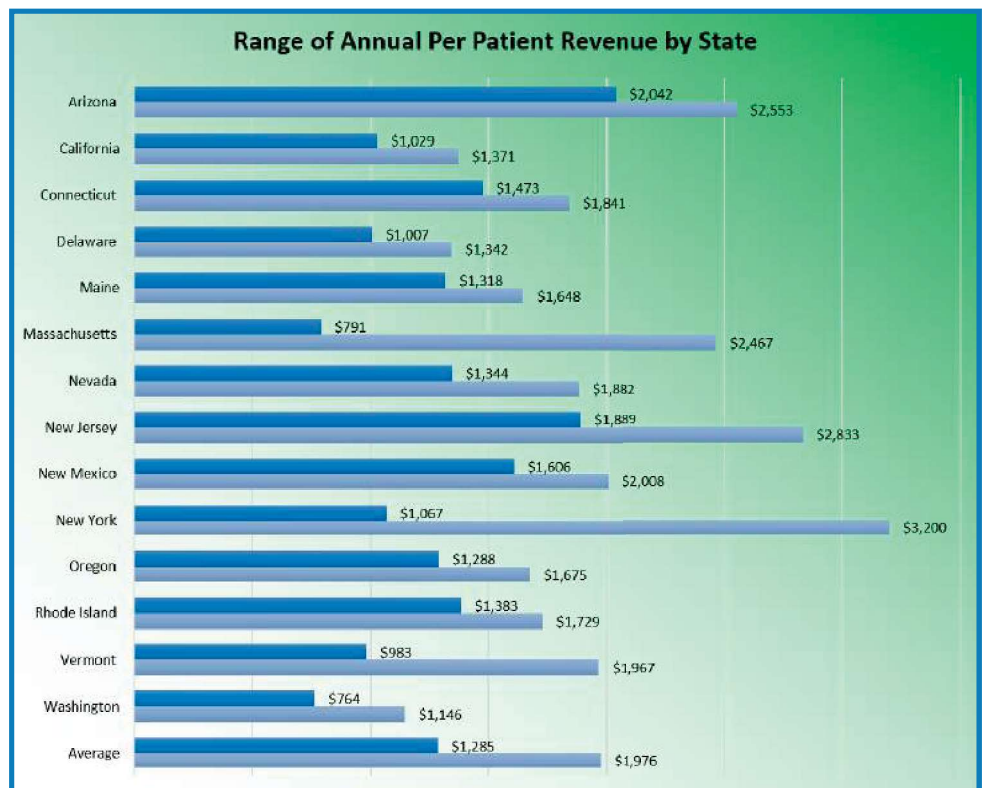
These numbers are the averages reported by Marijuana Business Daily across states that vary widely in both the number of dispensaries competing, the severity of the regulations limiting the amount of product sold to each patient, taxes the customers bear, and whether or not the dispensaries are required to operate as non-profits. Hawai'i performs on the high-end of each of these metrics with a few dispensaries competing in each county, a maximum purchase amount of one-half pound per customer, no additional taxes, and a for-profit regulatory scheme. Additionally, indoor grow marijuana, like that in Hawai'i, commands a premium across the country, often 30% higher than outdoor grow prices.

The money that medical marijuana patients in Hawai'i could spend each month will depend on prices and the severity of a patient's ailments. This will result in a range of potential industry revenue numbers for Hawai'i, but this is a reflection of current national trends, for instance: the least expensive wholesale product in Connecticut is \$600 more expensive per pound than the most expensive product in Maine and \$800 more expensive per pound than the most expensive product in Washington. In Nevada,

wholesale product will sell for between \$2,100 and \$3,300 per pound; and in California, wholesale product will only sell for between \$1,650 and \$2,100 per pound. Add to these wholesale costs the average markup of \$7.13 a gram at medical marijuana retailers and the range grows even larger.

Based on these national benchmark prices, in Hawai'i each patient could spend as little as \$50 per month to well over \$2,000 per month (if a patient actually buys the monthly limit of one-half pound, which is unlikely). Assuming conservatively then a range on the lower end, each patient in Hawai'i will likely spend between \$100 and \$300 per month, or between \$1,200 and \$3,600 a year, at the dispensaries.

Now, this range may be narrowed to an extent. Rather than working from current medical marijuana prices in dispensaries, it is possible to work backwards from patient numbers and statewide industry revenue. Table 5 shows both a high and low annual spend per patient based on state population projections for 2016.



These numbers range from \$764 per patient in Washington, which has a vibrant recreational industry and the lowest electricity costs in the nation, to \$3,200 in New York's very tightly regulated market. On average then, patients in medical marijuana states spend between \$1,300 and \$2,000 per year, with full patient participation. Given the high electricity costs in Hawai'i, indoor grow requirements, lack of a recreational market, and fairly strict product and testing standards, Hawai'i's average patient spend will likely be towards the higher end of approximately \$2,000 per patient, per year.

Armed with both of these metrics for annual patient spending as well as the population projections for Hawai'i, it is possible to envision Hawai'i's current medical marijuana dispensary market at both the county and state level.

ANALYZING THE PRESENT

Now equipped with information about current population statistics and average annual patient spend, it is a fairly straight forward calculation to determine potential industry revenue at current population levels. There are 14,074 registered medical marijuana patients in Hawai'i as reported by the Hawai'i State Department of Health in May 2016. Based on those patient numbers, the \$1,200– \$3,600 annual patient spend, and a 75% participation rate due to the continuing service of caregivers, gives a rough range for statewide dispensary revenue at current patient numbers between: \$12,666,000 – \$37,999,800. Or at the \$2,000 per patient average: \$21,111,000.

The same calculations for potential countywide revenue:

Kauai: For 1,689 patients, countywide revenue could vary from \$1,159,992 – \$4,559,976.

Maui: For 3,237 patients, countywide rev-

enue could vary from \$2,913,318 – \$8,739,954.

Honolulu: For 3,378 patients, countywide revenue could vary from \$3,039,984 – \$9,119,952.

Hawai'i: For 5,770 patients, countywide revenue could vary from \$5,193,306 – \$15,579,918.

On a per dispensary basis, simply divide the county revenue by the number of dispensaries in the county – one on Kauai, two on Maui, three in Honolulu, and two on Hawai'i. So based on current patient numbers and generic patient spending habits, each dispensary can expect revenue somewhere in the appropriate ranges below, in the first 12 months of operation, all else being equal:

Kauai: \$1,519,992 – \$4,559,976.

Maui: \$1,456,659 – \$4,369,977.

Honolulu: \$1,013,328 – \$3,039,984.

Hawai'i: \$2,596,653 – \$7,789,959.

If patient numbers remain at 14,074, these projections match those of the Marijuana Business Factbook 2016 at between \$15,000,000 and \$20,000,000 for the first twelve months of total industry revenue.

PROJECTING HAWAI'I'S FUTURE

In an effort to demonstrate the potential of the medical marijuana industry as a whole for the state of Hawai'i, it is now necessary to look beyond the current revenue projections and peer into the future to determine what the industry has the potential to develop into over the next few years. This number will chiefly vary based on the growth of the patient population across the state. This section will rely on population statistics and projections from the Hawai'i State Department of Business, Economic Development, and Tourism and the Hawai'i Tourism Authority for 2018.

Baseline Projections

The first order of business is to establish a rough calculation of future revenue projections. Recall the current revenue projections for the first twelve months of operation: \$12,666,000 – \$37,999,800 for 14,074 patients. Building on these numbers, the most basic projections for the potential size of Hawai‘i’s medical marijuana industry require a general move towards patient numbers across the state totaling 2% of the population. State population projections for 2018 place the total population at 1,450,000 people, and 2% of that is 29,000 potential patients. Based on those patient numbers, the \$1,200– \$3,600 annual patient spend gives a rough range for potential statewide industry revenue of: \$34,800,000 – \$104,400,800. At the alternative annual, per-patient revenue number of \$2,000, the medical marijuana industry in Hawai‘i will likely bring in \$50,000,000 annually in 2018.

Specific Projections

It is possible to further refine these initial estimates at the county-level. The difficulty with the rough, baseline projection comes from using a statewide 2% patient population that does not accurately reflect county-specific population considerations. Consider again the current county-specific patient totals, this time with added information concerning the patient count as a percentage of population.

	Patients	% of Pop.
Kauai:	1,689	2.52%
Maui:	3,237	2.24%
Honolulu:	3,378	0.35%
Hawai‘i:	5,770	3.12%

Patients in Hawai‘i currently total only 1.01% of the population. To reach the generic 2% population target while remaining true to that same generic 2% rule would require Kauai,

Maui, and Hawai‘i to lose between 25% and 65% of their currently registered patients.

A more likely scenario, based on the discussion above about the origin of the generic 2% number, is that patient numbers in all of the counties will grow in response to the new legality and ease of access to medical marijuana at rates similar to those in other states. Those counties with a current patient population percentage over 2% will grow at monthly rates similar to Oregon or Washington – about 7%; and Honolulu, the only county currently below 2%, could grow as quickly as Maine or Connecticut, at approximately 19% per month.

Kauai: 1,689 current patients, 7% monthly growth rate for 2017, is a 2018 patient population of 5% or 3,322.

Maui: 3,237 current patients, 7% monthly growth rate for 2017, is a 2018 patient population of 4.5% or 6,367.

Honolulu: 3,378 current patients, 19% monthly growth rate for 2017, is a 2018 patient population of 2% or 19,236.

Hawai‘i: 5,770 current patients, 7% monthly growth rate for 2017, is a 2018 patient population of 6% or 11,350.

This creates countywide revenue in 2018 of:

Kauai: \$3,986,400 – \$11,959,20.

Maui: \$7,640,400 – \$22,921,200.

Honolulu: \$23,083,200 – \$69,249,600.

Hawai‘i: \$13,620,000 – \$40,860,00.

Together these numbers paint a more specific picture of potential statewide dispensary revenue in 2018: \$48,330,000 – \$144,990,000, with a likely target of: **\$80,550,000.**

This number is necessarily higher than the \$50,000,000 predicted by the flat 2% population number because it includes actual growth for both the outer islands and for Honolulu.



Visitor Projections

The final piece of the puzzle in predicting potential industry revenue numbers for 2018 is the potential for a medical marijuana tourism market. Act 241 stipulated that the Department of Health may begin recognizing medical marijuana certifications issued by other states in January 2018. If the Department of Health chooses to open this door to medical marijuana tourism, then dispensary revenue across the islands could grow considerably. In fact, states that currently maintain medical marijuana reciprocity, such as Arizona and Nevada, report that out-of-state visitors generate 20%-40% of their annual dispensary revenue. This percentage, applied to Hawai'i's 2018 projections from above, yields rough potential visitor revenue figures of \$9,666,000 – \$57,996,000.

But these numbers for the potential size of the visiting medical marijuana market in Hawai'i can be further refined by looking at county-by-county visitor projections of medical marijuana card holders, visitor length-of-stay numbers, and average medical marijuana purchase numbers. The Department of Business, Economic Development, and Tourism publishes predictions for the number of visitors-per-county from those states which currently allow medical marijuana in some form. Applying the metrics for the percentage of a population with medical marijuana cards yields the following range of potential medical marijuana visitors in 2018:

	Visitors	1%	2%
Kauai:	947,945	9,479	18,959
Maui:	1,914,835	19,148	38,297
Honolulu:	2,502,761	25,028	50,055
Hawai'i:	1,023,327	10,233	20,467
Total:	6,388,868	63,889	127,777

It is also necessary to adjust the per-patient spend on medical marijuana for visitors.

On the very low end, if the \$72 average transaction amount reported for all medical marijuana dispensary patients is taken as a patient's total monthly spend (considerably lower than discussed above); then, for the average 8.5 days that registered patients stay in Hawai'i, each will spend \$21. Conversely, on the very high end, visiting patients could purchase the full 8 oz. monthly allowance permitted under the Interim Dispensary Rules for upwards of \$2,000. A more realistic high end number would be the \$300 monthly patient spend discussed above. Adding in these patient spending numbers yields potential visitor revenue per county of:

	\$21 Low End	\$300 High End
Kauai:	\$199,068	\$5,687,671
Maui:	\$402,115	\$11,489,008
Honolulu:	\$525,580	\$15,016,568
Hawai'i:	\$214,899	\$6,139,960

In sum, if the Department of Health chooses to open the door to medical marijuana tourism, total potential visitor spending in 2018 could range between \$1,341,662 and \$57,996,000.

Bringing It All Together

To recap: at 14,074 patients, Hawai'i's medical marijuana dispensary system can expect revenues between \$12,000,000 and \$38,000,000 annually.

Projecting forward to 2018 and beyond as the caregiver system is phased out and the patient count grows across the state to between 30,000 and 40,000 patients, the dispensaries may expect industry revenues between \$30,000,000 and \$144,000,000.

Similarly, visiting patients may supply an additional \$1,300,000 to \$58,000,000 in statewide industry revenue.

In total, dispensaries in 2018 and beyond may expect industry-wide, annual revenue between

\$31,300,000 and \$202,000,000.

This range is very wide, the number will most likely land somewhere around **\$80,550,000** plus some level of revenue from visiting patients.

These projections will be updated over the next eighteen months based on the specific contours of Hawai'i's emerging medical marijuana *economy* as it gets off the ground, establishes prices, and experiences patient growth.


CONCLUSION

The numbers discussed here are possible, even the largest numbers, but many things will need to go right: qualified patients must obtain certifications, doctors must be willing to certify patients, and dispensaries must routinely produce good products – establishing a solid reputation that encourages patients to return instead of relying on the black market. Patients are sophisticated consumers with experience in established markets and expectations of quality, product diversity, and presentation that the dispensaries will need to exceed in order to attract new patients to the industry. But eight businesses with individual reputations for producing quality medicine is not enough to grow an industry.

Industry revenue is directly tied to the number of patients in the state and it will take funding to grow the current patient counts: doctors and nurses need to be trained on the medicinal properties and uses of cannabis and the system for certifying patients; potential patients across the islands need to learn that their ailments qualify for medical cannabis and how to talk to their doctor about certification; the public at

large needs to hear about the positive medical, crime, tax, and addiction outcomes in other states; and visitors from across the country will need to know how to use their own medical marijuana certifications in Hawai'i so that they can have uninterrupted access to their medicine. The dispensaries, related businesses, patients, and state agencies need to work together to fund programs that provide this education to all levels of society.

And the dispensaries will not be the only ones to benefit from the growth of this industry. For every \$1 spent in dispensaries, states with established medical marijuana industries report that \$3 of additional economic value is injected into the economy at the local level. This expansive economic benefit comes through competitive wages and local businesses who will provide products and services to both dispensaries and patients across the state. The State of Hawai'i and the Department of Health will also benefit substantially from the resulting dispensary licensing fees, normal GET taxes, and state-income taxes collected from the dispensaries and ancillary businesses.

Hawai'i has the momentum right now to develop, grow, and evolve. The Hawai'i Dispensary Alliance believes that the best way forward is through the creation of a dynamic, creative, regenerative, local, world-class medical marijuana *economy* here in Hawai'i. As discussed in the Alliance's White Paper, *Hawai'i's Medical Marijuana Economy: A Roadmap for the Future*, the dispensaries will have to collaborate with the government, the public, related industries, and with each other for this to work. We must integrate the values of transparency, compliance, flexibility, proactivity, and vision into the industry and capitalize on Hawai'i's strengths in agriculture, medical tourism, medical innovation, technology development, and social climate. Together, Hawai'i's community can build this industry right the first time – creating great medicine, good jobs, and a brighter future for all of Hawai'i. 



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