Date: March 2018

Cannabis Studies

Ekaterina Sedia (BIOL) and Carra Hood (Assoc. Provost)

A recent article in *The New York Times* (https://n

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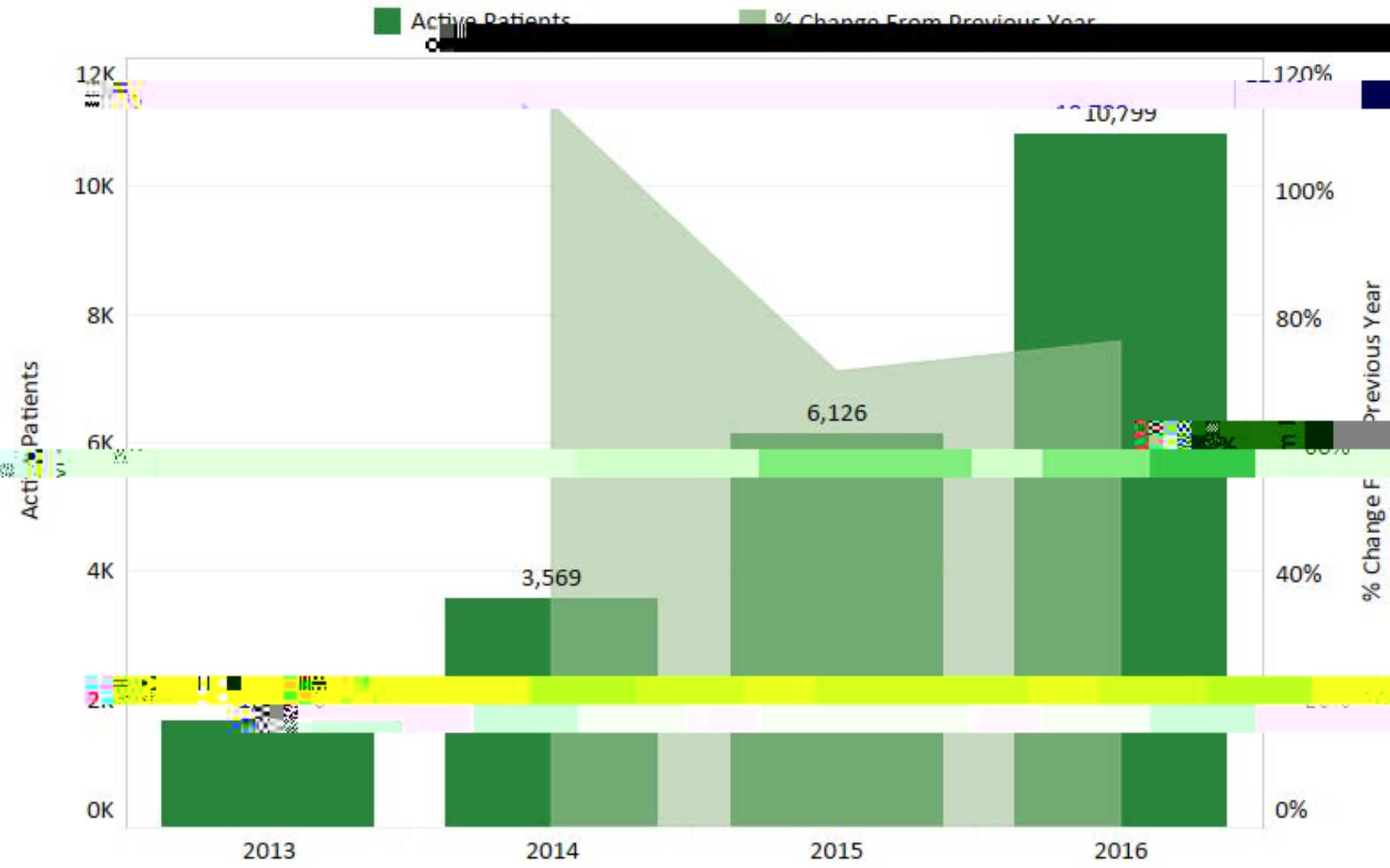
New Jersey Medical Marijuana Patient Count By Year



Source: New Jersey Department of Health

HANOVER RESEARCH

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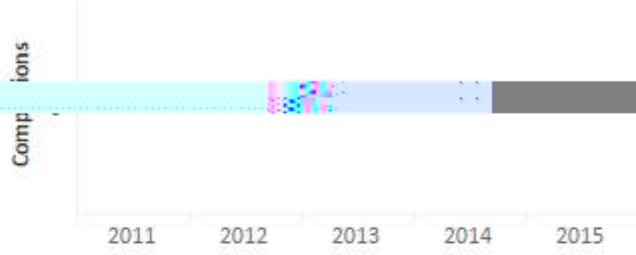

Labor Market Projects

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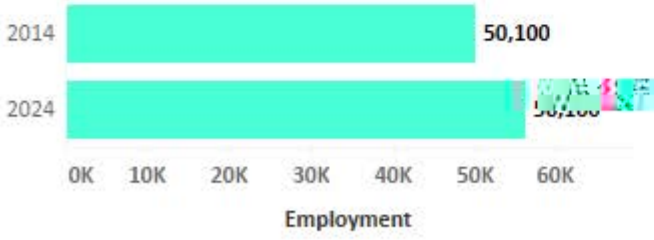

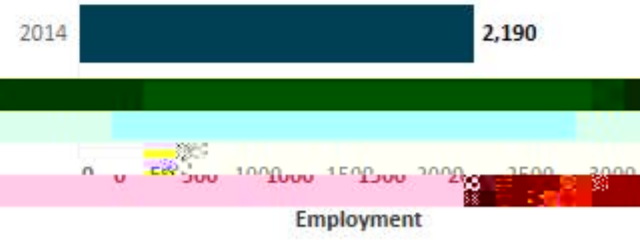

US Change %	11.98%	Regional Change %	12.03%	NJ Change %	17.81%
US Openings	1,770	Regional Openings	400	NJ Openings	90

Completions

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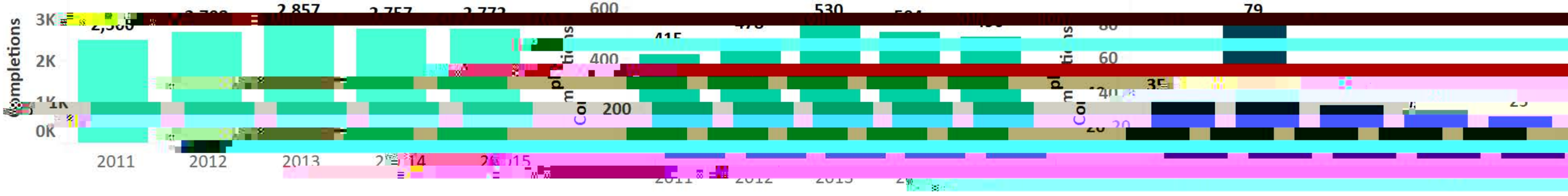

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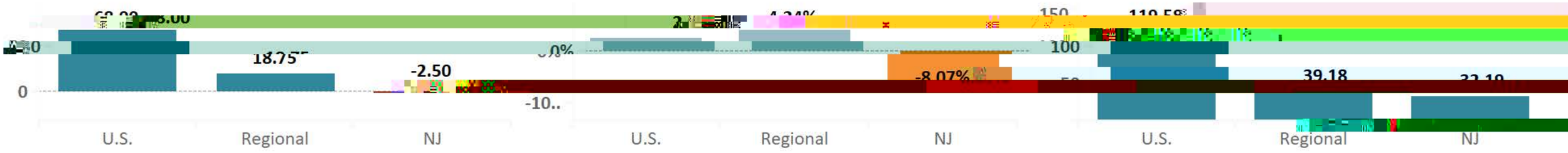

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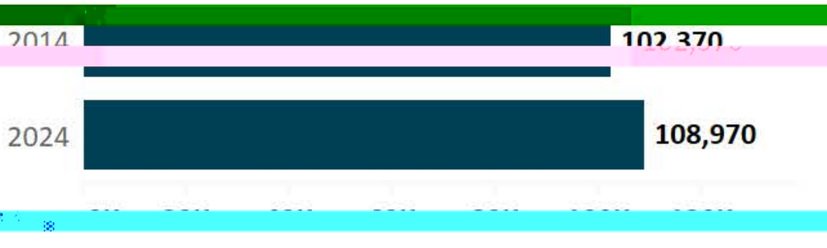

US Change #
194,360
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55,190
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US Change %
5.4...%

US Openings
103,090
Regional Openings
18,660

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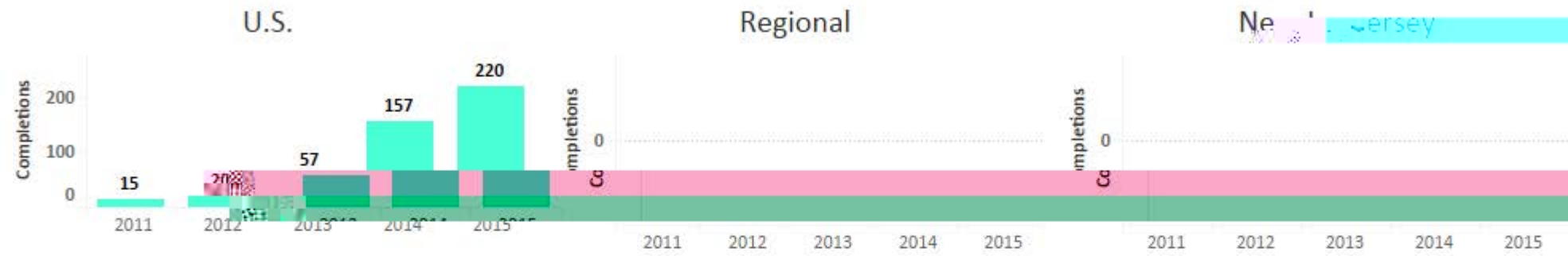

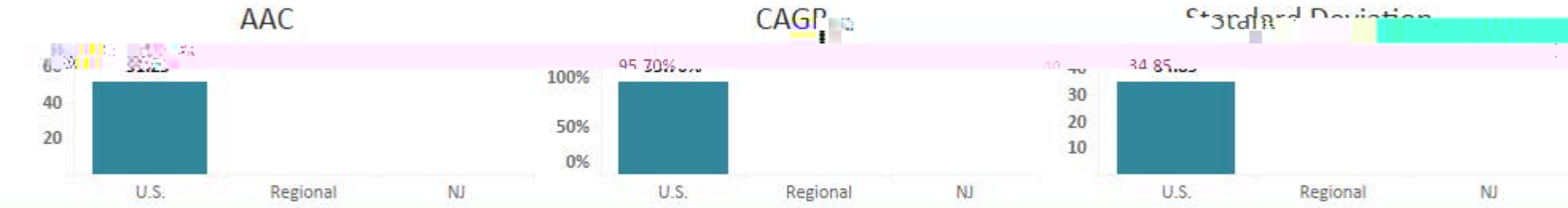

Labor Market Projects

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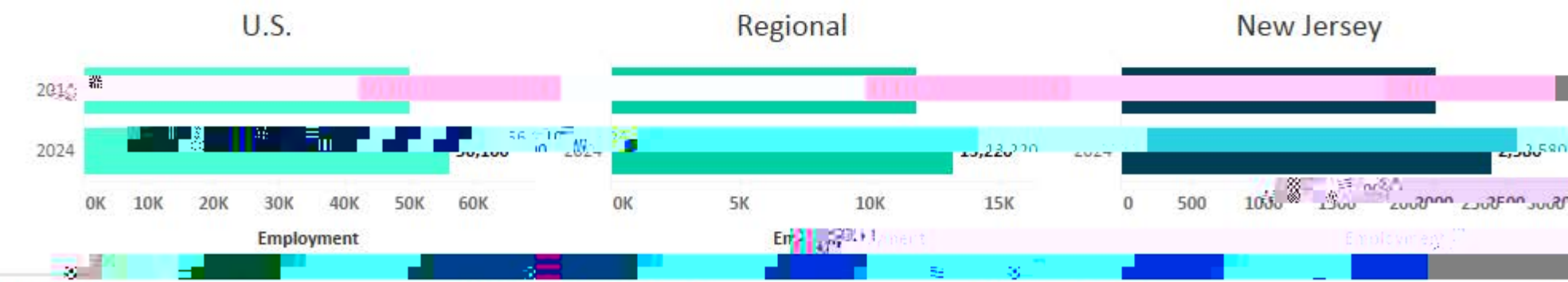

Employment

US Change #	6,000	Regional Change #	1,420	NJ Change #	390
US Change %	11.98%	Regional Change %	12.03%	NJ Change %	17.81%
US Openings	1,770	Regional Openings	401	NJ Openings	90

HANOVER

Completions

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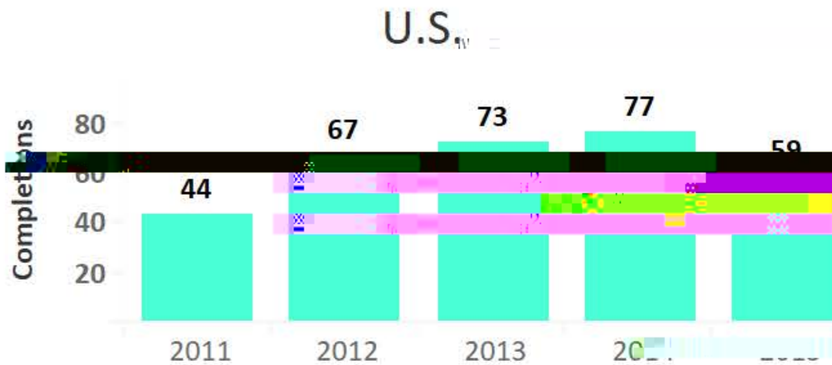
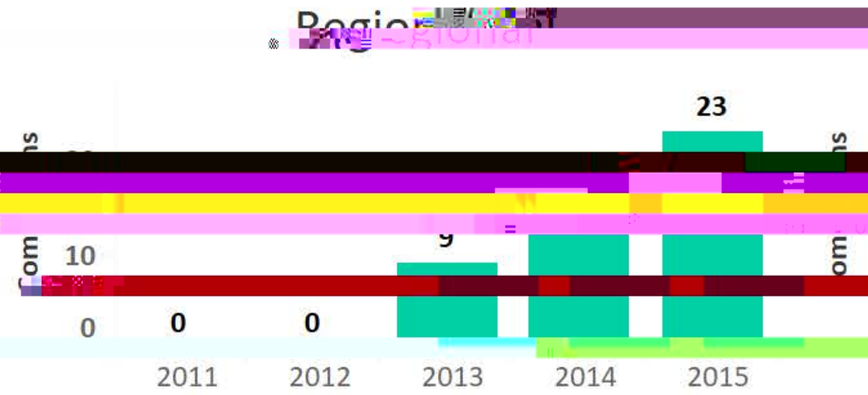
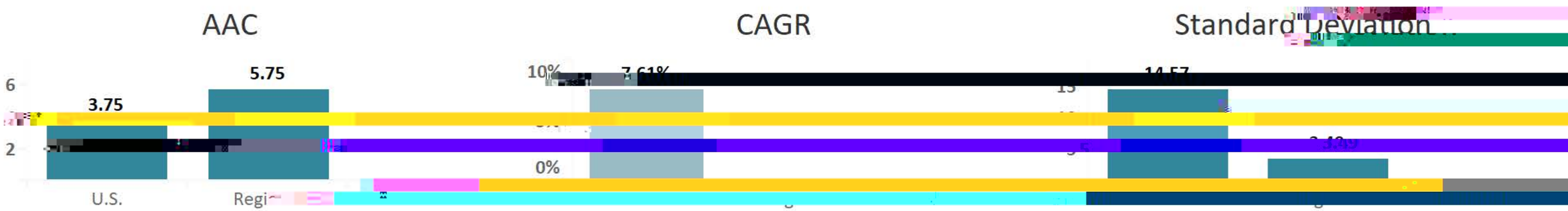
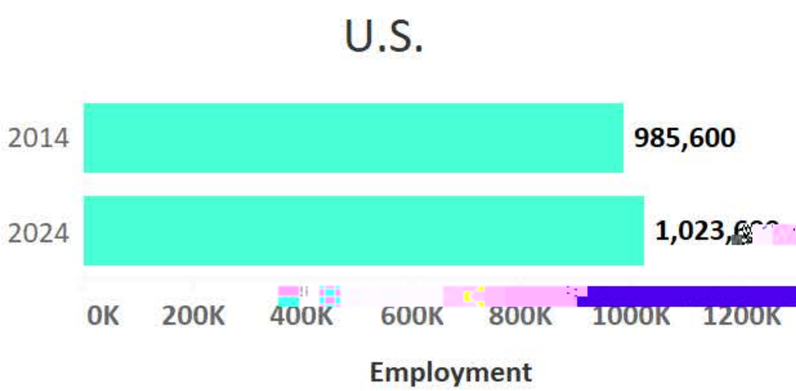






Labor Market Projects

Select CIP 52.0703: Small Business Administration



US Change #	38,000	Regional Change #	6,960	NJ Change #	2,750
US Change %	3.86%	Regional Change %	4.43%	NJ Change %	5.33%
US Openings	25,540	Regional Openings	4,190	NJ Openings	1,470

Journal of Patient Experience
Volume 3: 1-7
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Ta a L. C l

Ab a

Given the necessity to better understand the process patients need to go through in order to seek treatment via medical marijuana, this study investigates this process to better understand this phenomenon. Specifically, Compassion Care Foundation (CCF) and Stockton University worked together to identify a solution to this problem. Specifically, 240 new patients at CCF were asked to complete a 1-page survey regarding various aspects associated with their experience prior to their use of medicinal marijuana—diagnosis, what prompted them to seek treatment, level of satisfaction with specific stages in the process, total length of time the process took, and patient's level of pain. Results reveal numerous patient diagnoses for which medical marijuana is being prescribed; the top 4 most common are intractable skeletal spasticity, chronic and severe pain, multiple sclerosis, and inflammatory bowel disease. Next, results indicate a little over half of the patients were first prompted to seek alternative treatment from their physicians, while the remaining patients indicated that other sources such as written information along with friends, relatives, media, and the Internet persuaded them to seek treatment. These data indicate that a variety of sources play a role in prompting patients to seek alternative treatment and is a critical first step in this process. Additional results posit that once patients began the process of qualifying to receive medical marijuana as treatment, the process seemed more positive even though it takes patients on average almost 6 months to obtain their first treatment after they started the process. Finally, results indicate that patients are reporting a moderately high level of pain prior to treatment. Implication of these results highlights several important elements in the patients' initial steps toward seeking medical marijuana, along with the quality and quantity of the process patients must engage in prior to obtaining treatment. In addition, identifying patients' level of pain and better understanding the possible therapeutic value of medical marijuana are essential to patients and health practitioners.

K

patients perspective, medical marijuana, cannabis, policies and procedures, community engagement project

I

Based on new laws, there are 23 states and the District of Columbia that are legally able to prescribe the use of medical marijuana. However, given the relative novelty of this practice coupled with the federal illegal classification of cannabis, the use of it for medicinal purposes is anything but straightforward (1). As more and more states pass laws legalizing the use of marijuana for medicinal purposes and as research highlights its therapeutic values (2-11), so too will patient demand. However, currently little is known about the process that patients experience prior to obtaining the use of medical marijuana.

The US Drug Enforcement Administration lists marijuana and its cannabinoids as schedule 1 controlled substances. This means that they cannot legally be prescribed under federal law due to (a) high potential for abuse, (b) no currently accepted medical use in treatment in the United States, and (c) lack of accepted safety for use under medical supervision (2). Despite this however, some physicians and the general public alike are in broad agreement that Cannabis sativa shows promise in combating diverse medical illnesses (1). Given the federal law, physicians could wind up in jail for writing a prescription for medical marijuana, and thus,

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many states have passed laws allowing the use for medicinal purposes. In those states, health-care practitioners provide an "authorization" for that use and, based on previous court action, are considered by federal courts to be protected physician–patient communication (12). However, even though by law health-care practitioners are able to prescribe medical

getting approved to use medical marijuana, overall experience, length of time the process took, and baseline pain of patients prior to their first treatment at CCF. In order to measure the 9 variables associated with the process, along with overall satisfaction, a 10-point systematic differential scale (negative to positive) was developed, 1 question per variable due to patient time restraints (see Appendix A for the entire 1-page survey). In addition, time of process was operationalized by months, and baseline pain was operationalized by a pictorial version of the pain scale (Wong-Baker Face pain rating scale; this scale was chosen by CCF administration).

P

Data were collected for 8 months between the months of June 2014 and January 2015 and were completely voluntary (informed consent was also provided). Any patient seeking treatment for the first time at CCF during these months was asked to fill out the above 1-page survey.

Sa

By the end of the 8 months, paper surveys were filled out by N ¼ 240 total new patients: 32% female, 50.7% male, and 17% missing for gender. The age of the patients ranged from 9 to 84 years, with a mean of 49.3 and standard deviation of 13.6.

R

In order to answer the above RQs, basic descriptive and frequency statistics were computed on SPSS. The following are the results:

RQ1: For what diagnosis are people using medical marijuana?

Rank	Diagnosis	n	Percentage
1st	Intractable skeletal spasticity	72	30%
2nd	Chronic/severe pain	62	26%
3rd	Multiple sclerosis	41	17%
4th	Inflammatory bowel disease	24	10%
5th	Seizure disorder	14	
6th	Terminal illness/cancer	12	5%
7th	Glaucoma	10	4%
8th	Muscular dystrophy	4	0.016%
9th	Lateral sclerosis	3	0.012%
	Cancer (specific types)	3	0.012%
	Crohn disease	3	0.012%
10th	Nausea	2	Less than 1%
11th	Reflex Sympathetic Dystrophy	2	Less than 1%
12th	Depression/anxiety/bipolar	1	Less than 1%
	Epilepsy	1	Less than 1%
	Rheumatoid Arthritis	1	Less than 1%
	Langerhans cell histiocytosis	1	Less than 1%

RQ2: How did patients begin the process to seek medical marijuana?

What prompted patients to seek treatment	Total number	Percentage
Their physician	132	55
Written information	37	15
Friend	31	13
Media	25	10
Relative	21	8
Website	8	3
Support group	3	1
Conducted their own research on alternative treatments	187	78
Used the Internet to conduct research	104	43
Sought information from a physician	15	6

RQ3: a. What did patients experience during the process?

Steps in the process	Range	Mean	Standard Deviation
Locating a certified Myeloma			

b. How long did the process take?

c. How satisfied were patients with the overall experience?

RQ4: What was patient's level of pain?

D

Given the necessity to better understand the process patients need to go through in order to seek treatment via medical marijuana, this study investigates this with hopes to paint a

clearer picture of this process. Specifically, these findings shed light on various aspects associated with patients' experience prior to their use of medicinal marijuana. First, results reveal numerous patient diagnoses that medical marijuana is being prescribed. The top 4 most common are intractable skeletal spasticity, chronic and severe pain, multiple sclerosis, and infla

Appendix A

[illegible]

Please respond to the following questions prior to obtaining services at Compassionate Care.

1. What initially prompted you to seek alternative treatment for your condition? (circle all that apply) Physician Friend relative Written information media Web site Support group Other

2. Did you do any research on your own about alternative treatment? Yes No

   If yes, where did you obtain your information?

1. CCF is a nonprofit corporation organized in the state of New Jersey to provide therapeutic relief by dispensing pharmaceutical-grade medical marijuana to patients with qualifying medical conditions. Founded in 2011, Compassionate

Therapeutic Value of Medical Marijuana in New Jersey Patients: A Community Partnership Research Endeavor

ABSTRACT

Objective: The Public Health Program at the Stockton University in New Jersey partnered with Compassionate Care Foundation (CCF) to ascertain the impact of Medical Marijuana on patients.

Methods: Patients completed a survey once a month for 8 months to explore various aspects of Medical Marijuana. Patients volunteered to complete a survey to identify their use, form and strain of medical marijuana and then how it influences not only their pain, but 12 other physical and mental health variables. In addition, patients are asked about an increase or decrease in other medication they are taking and whether or not they have experienced any unexpected outcomes. While the database is made up of 950 patients, the total number of participants varies from N=501 for visit 1, N=290 for visit 2, and N=179 for visit 3.

Results: Results provide insight into what diagnosis patients are using medical marijuana for along with the strains they are using. In addition, results indicate the following: increase mood, general overall condition, and energy as the highest consequences; level of pain in the middle range; most frequent usage as 3-4 times a day; [illegible] unexpected; and 56-65% indicate a reduction in the use of other pain medication. Results of a repeat measures from patients visit one to visit two posits that patients reported statistically significant differences after using medical marijuana increase general quality of life, mobility, and mood, while a decrease inflammation, intraocular pressure, spasms, seizures, and pain. Additional results from visit one to three indicate significant differences: decrease seizures, intraocular pressure, spasms, nausea and pain, along with increase energy and mobility. No differences were found for these results by patient diagnosis or age. However, women report higher decrease inflammation and increase of mood, but males reported higher increase of energy.

Conclusion: Results support positive therapeutic benefits of medical marijuana and despite methodological limitations, contribute to the growing body of literature that points toward the need to reclassify medical marijuana and the continuation of research.

Keywords: Medical Marijuana, Cannabis, Patient Pain, Therapeutic Value of Marijuana, Community Partnership

INTRODUCTION

As more and more states pass laws legalizing the use of marijuana for medicinal purposes, the need for accurate information regarding the possible therapeutic effects are necessary. In order for individuals to make informed decisions about the use of traditionally prescribed pharmaceutical drugs

anything but straightforward. The body of research on the possible therapeutic values of cannabis is still extremely young and given the restriction of a Schedule I controlled substance makes broad based research difficult. As stated above states there have been fewer studies of marijuana than cannabinoid pharmaceutical, in part due to regulatory regulation restrictions and current studies on medical marijuana had a tendency to enroll small number of patients.[1] These gaps in available evidence likely adversely influence the quality of decisions by patients and clinicians. However, marijuana and cannabinoid pharmaceuticals have been studied for a number of medical applications including treatment of nausea, pain, anorexia and weight loss, seizures, spasticity and glaucoma and shown promising results.[1] Similarly, studies on the effects of medical marijuana with HIV patients found a decrease in neuropathic pain.[5,6] In addition, medical marijuana studies have found positive results in inflammatory bowel disease,[7] possible reduction of blood pressure,[8]

permits may be nonprofit or for-profit entities."[14] Then, in August 2012, the New Jersey Medical Marijuana Program opened a web-based patient registration system and patients were required to have a physician's recommendation, a government-issued ID, and proof of New Jersey residency to register.

Physicians determine how much marijuana a patient needs and give written instructions to be presented to an alternative treatment center. The maximum amount for a 30-day period is two ounces. The approved conditions for the use of medical marijuana is as follows: Seizure disorder, including epilepsy, intractable skeletal muscular spasticity, glaucoma; severe or chronic pain, severe nausea or vomiting, cachexia, or wasting syndrome resulting from HIV/AIDS or cancer; amyotrophic lateral sclerosis (Lou Gehrig's Disease), multiple sclerosis, terminal cancer, PXVFXODU GVWURSKV RU LQIODPPDWRU\ ERZHO GLVHDVH if the physician has determined a prognosis of less than 12 months of life or any other medical condition or its treatment that is approved by the Department of Health and Senior Services.[15]

In October 2012, the Department of Health issued the first dispensary permit to Greenleaf Compassion Center, allowing it to operate as an Alternative Treatment Center and dispense marijuana. As of Apr. 23, 2014, there were Alternative Treatment Centers with permits to operate in all three regions of the state as designated by the medical marijuana program: north, central, and south. CCF (Compassionate Care Foundation) is one of these Alternative Treatment Centers located in the southern region of New Jersey.

CCF is a non-profit corporation organized in the state of New Jersey to provide therapeutic relief by dispensing pharmaceutical-grade medical marijuana to patients with qualifying medical conditions. Founded in 2011, Compassionate Care is led by a Board of Directors whose members are medical professionals, former health department regulators,

RQ1c: In what form are they using medical marijuana? For all three times, participants indicated smoking as the most frequent form of medical marijuana; chart below indicates all responses.

INSERT TABLE 2

RQ1d: In what strains of medical marijuana are being used? The following chart reports strains of medical marijuana for each of the three visits, along with the total frequency and percentage. The top three reported strains are Pineapple, Various / Mixed and NS / Nightshade.

INSERT TABLE 3

RQ2a: In what ways is medical marijuana influencing patients? Results of frequencies and G H V F U L S W L Y H V W D W L V W L F V L Q G L F D W H W K H I R O O R Z L Q J S D quality of life, decrease in pain, inflammation, nausea, intraocular pressure, spasms, seizure, and increased in appetite, mobility, mood and energy; level of pain; unexpected consequences; and reduction of other medication as an influence of medical marijuana.

INSERT TABLE 4

*See Appendix B for means of all 12 variables for all 3 times.

RQ2b: Do these influences change over time? Differences between Visit # 1 and Visit # 2

13 General Linear Model Repeat Measures were run between visits 1 and 2 (independent Variable) and pain scale and the following 12 dependent variables: S D U W L F L S D Q W V ¶ L P S U R general condition and quality of life, decrease in pain, inflammation, nausea, intraocular pressure, spasms, seizure, and increased in appetite, mobility, mood and energy. Results indicate 8 statistically signidlly signidlly signidlly sigui?(see<004468 iff 0.000 f 0.000 f 0.000 f 0.000 f 0.000 f

F = 4.209, df (240), p = .041; IV = Visits and DV= Decrease Intraocular Pressure, F = 13.109, df (161), p = .000; IV = Visits and DV= Decrease Spasms, F = 9.650, df (242), p = .002; IV = Visits and DV= Decrease Seizures, F = 13.722, df (142), p = .000; IV = Visits and DV= Increase Mobility, F = 8.381, df (253), p = .004; IV = Visits and DV= Increase in Mood, F = 4.321, df (283), p = .039; and IV = Visits and DV= Pain Scale, F = 4.301, df (280), p = .04

Differences between Visit # 1 and Visit #3: 13 General Linear Model Repeat Measures were run between visits 1 and 2 and pain scale and the above 12 variables. Results indicate statistically significant differences between visits and these variables: IV = Visits and DV= Decrease Seizures = Linear F = 13.722, (sums of square 92.490), df (73); p = .000; Quadratic F = 4.813, (sums of square 30.83), df (73), p = 4.813, p = .023; IV = Visits and DV= Pain Scale = Linear F = 5.05, df (175), p = .03; IV = Visits and DV= Increase Energy, Quadratic F = 3.975, df (168), p = .05; IV = Visits and DV= Decrease Spasms = Quadratic F = 10.122, df (145), p = .002; IV = Visits and DV= Decrease Intraocular Pressure = Linear F = 5.250, df (129), p = .023; IV = Visits and DV=Decrease Nausea = Linear F = 5.258, df (129), p=.023; and IV = Visits and DV= Increase Mobility = Quadratic F = 10.122, df (149), p = .002

RQ3: Are there difference in the influences of medical marijuana based on diagnosis?

Results of 13 different General Linear Model Repeat Measure with visits as independent variable and the dependents of pain scale and variables listed above as within subject and diagnosis (7 different diagnoses) as between subject indicates no significant difference based on diagnosis

RQ4: Are there difference in the influences of medical marijuana based on gender?

Results of 13 different General Linear Model Repeat Measure with visits as independent variable and the dependents variables of pain scale and variables listed above as within subject and

gender as between subject indicates 3 significant differences based on gender. Decrease Inflammation – Linear F = 4.21, df (110), p = .043, women higher; Increase Mood – Linear F = 5.069, df (131), p = .026, women higher; and Increase Energy – Linear F = 4.733, df (129), p = .031, men higher.

RQ5: Are there difference in the influences of medical marijuana based on age? Results of RQ2

The overwhelming majority of the patients' use of smoking as their preferred method is not surprising, especially given that inhalation of the marijuana or cannabionoid may be better than oral ingestion for treating their conditions. Specifically, research states

> "Smoked cannabis offers both rapid response and titration based on the number of inhalations. In the manner of patient-controlled analgesia (the bed side narcotics pumps used in medical settings), smokers can dose themselves repeatedly throughout the day, inhaling enough THC to get analgesic benefit but not enough to sustain mother or psychoactive adverse effects that will dissipate rapidly, if they occur at all" [17, 18, 19].

However, despite this research, many negative stereotypes are still associated with the use of marijuana, especially the image of smoking marijuana. For example, it has been stated that "[m]arijuana makes you lazy" [20]. This idea is what contributes to the stigma that surrounds medical marijuana. This is what happens to most occasional users who only experience temporary mild perceptual changes accompanying a general sense of well-being and ease with the world [21].

In addition to the social implication of patients' chosen form of medical marijuana, there may be other medical implications. Consider that marijuana smoke contains toxins and carcinogens and their link to other negative health illnesses, vaporization may be preferable as a way to inhale because it has less potential to harm. Past research states smoking is not an optimal delivery; long-term use of smoked cannabis is associated with symptoms of obstructive lung disease [21]. Similarly, the American Lung Association (2015) posits "Smoke is harmful to lung health, whether from tobacco or marijuana, toxins and carcinogens are released from the combustion of materials. Smoke from marijuana combustion has been shown to contain many of the same toxins, irritants and carcinogens as tobacco smoke. In addition, marijuana is typically smoked differently than tobacco. Marijuana smokers tend to inhale more deeply and hold their breath longer than cigarette smokers, which leads to a greater exposure per breath to tar. Research shows that smoking marijuana causes chronic bronchitis and marijuana smoke has been shown to injure the cell linings of the large

airways, which could explain why smoking marijuana leads to symptoms such as chronic cough, phlegm production, wheeze and acute bronchitis[23,24]. Another potential threat to those with weakened immune systems is Aspergillus[23], a mold that can grow on marijuana, which if then smoked, exposes the lungs to this fungus, which can cause a lung disorder. Thus, it identifies a need for quality studies that can assess the long term effects of different forms of marijuana and cannabinoid products. This supports other ¶ V FsOhDtLa Additional high-quality studies of marijuana and cannabinod pharmaceuticals would better elucidate the clinical effects of the various strains of marijuana and the bioactive compounds found within it[1]. These studies could better assess how best to administer marijuana and its bioactive components.

These results paint a clearer picture of some of the logistics associated with the S H D W L H Q W V ¶ use of medical marijuana. While further findings indicate some of the impacts associated with S D W L H Q W V ¶ use of medical marijuana, specifically, low to moderate amount of pain, over half reduced number of other medication and the majority reported unexpected consequences. Based on the limited qualitative data from open ended questions, the following are the drugs patients report a reduction with: Aspirin, Bceclofen, Dorzolimize, Lynce Amteplen, Morphine, Oxicodon, Painkillers, and Zolpiden; and the unexpected outcomes were elimination of tremors and a better sleep experience.

Along with the above results, statistics analysis provide insight into medical marijuana use and patients ¶ level of decreased pain, inflammation, nausea, intraocular pressure, spasms, seizures, and increase in mobility, mood, energy, appetite, quality of life, and general condition; and how this impact may change overtime. Although time varied from S D W L H Q W V ¶ Y L V L W R C two, statistical differences were found for nine of the variables. Results indicate that patient using medical marijuana reported an increase in overall general condition, mobility and mood

based on diagnosis and age. These preliminary findings could hold promise as to general impact of medicinal marijuana regardless of diagnosis or age and supported by past research indicating therapeutic finds for the use of medical marijuana with various illnesses[1,5,6,7,8,9,10,11,12,13]. However, these relationships should be further investigated with studies that break down patients based on specific diagnosis. Some patients in this study reported more than one diagnosis and other diagnosis were underrepresented which resulted in unequal groups. Similarity, patients age should be equally represented.

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16. [illegible]

From: Mary Lou Galantino
To: Carra Hood and Kathy Sedia
Date: April 5, 2018

Dear Carra,

Thank you for our meeting this morning regarding the plans for the newly proposed minor in Cannabis Studies.

This correspondence serves as confirmation that the Biobotanical Track will no longer be offered through the Holistic Health Minor as of fall 2018. Formerly, this initiative was to explore student interest and enrollment in this area.

in that area of focus as we advance this initiative forw

Thank you and wishing you well, Mary Lou

Mary Lou Galantino, PT, MS,PhD, MSCE
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March 6, 2018

Harvey Kesselman, Ed.D.
President
Stockton University
101 Vera King Drive - Room K203
Galloway, New Jersey 08205- 9441

RE: Internship Commitment

Dear President Kesselman:

Please accept this correspondence as our organization's forma l written commitment to accept Stockton University student internships into Relevant's cannabis enterprise.

If appropriate and necessary, we would welcome student internships in the early stages of our development, as the industry is just being expanded i
experience. We anticipate receiving licensure and, as such, would accept internships in the following areas:

Retail	Growing, Soil & Energy
Marketing	Packing & Distribution
Social Media	Public Health
Graphics & Communication	Administration
Research	Legal

The above fields are only intended to be used as examples, as we are available to any student who may be inter ested in exploring our internship program.

We welcome the opportunity to work together with you and/or your designated representatives concerning this internship opportunity and, as always, look forward to continuing our positive business relationship wit h Stockton University.

Very truly yours,

631 Tilton Road