
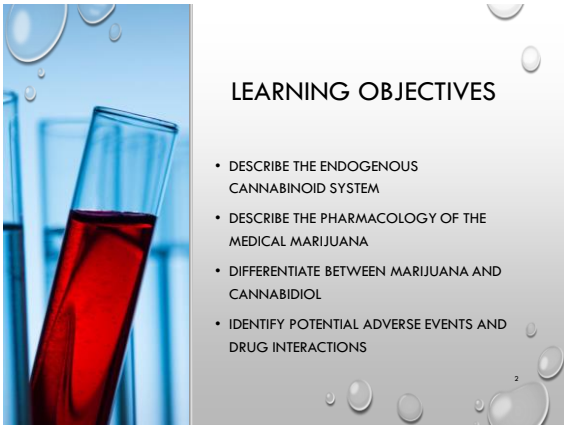




MEDICAL MARIJUANA

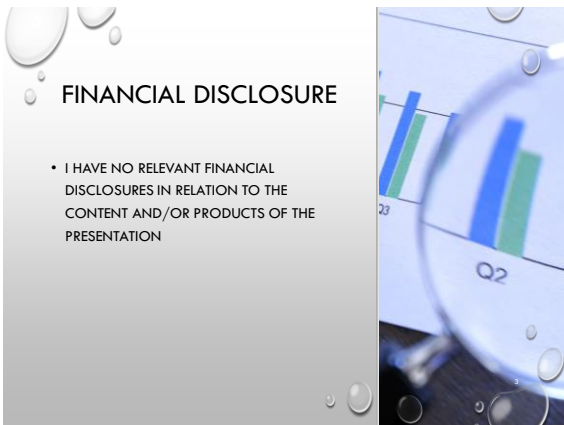
RANDALL L TACKETT, PHD
UNIVERSITY OF GEORGIA COLLEGE OF PHARMACY
ATHENS, GA






LEARNING OBJECTIVES

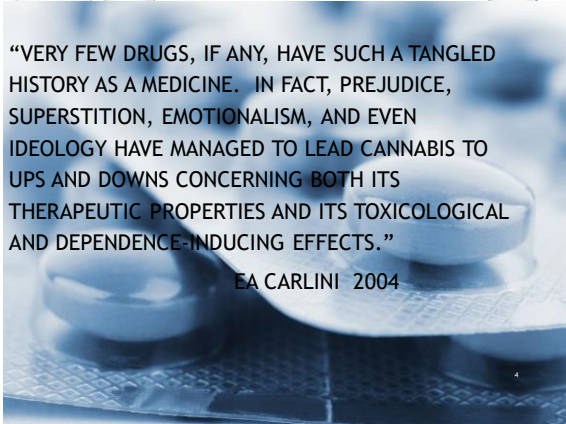
- DESCRIBE THE ENDOGENOUS CANNABINOID SYSTEM
- DESCRIBE THE PHARMACOLOGY OF THE MEDICAL MARIJUANA
- DIFFERENTIATE BETWEEN MARIJUANA AND CANNABIDIOL
- IDENTIFY POTENTIAL ADVERSE EVENTS AND DRUG INTERACTIONS



FINANCIAL DISCLOSURE

- I HAVE NO RELEVANT FINANCIAL DISCLOSURES IN RELATION TO THE CONTENT AND/OR PRODUCTS OF THE PRESENTATION





“VERY FEW DRUGS, IF ANY, HAVE SUCH A TANGLED HISTORY AS A MEDICINE. IN FACT, PREJUDICE, SUPERSTITION, EMOTIONALISM, AND EVEN IDEOLOGY HAVE MANAGED TO LEAD CANNABIS TO UPS AND DOWNS CONCERNING BOTH ITS THERAPEUTIC PROPERTIES AND ITS TOXICOLOGICAL AND DEPENDENCE-INDUCING EFFECTS.”

EA CARLINI 2004



MEDICAL MARIJUANA

RECREATIONAL VS. MEDICAL

BENEFIT VS. HARM

STATE VS. FEDERAL



“CBD WAVE”

- OVER 1000 CBD PRODUCTS BEING SOLD THROUGH INTERNET, DISPENSARIES, PHARMACIES, NATIONAL RETAIL STORES, BOUTIQUE SHOPS, ETC
- EXTENSIVE MEDIA COVERAGE
- INTERNATIONAL BUSINESS WITH ESTIMATED MARKET VALUE IN EXCESS OF \$60 BILLION OVER THE NEXT FEW YEARS



HEALTHCARE UNPREPARED FOR THIS CBD WAVE


- SCHEDULE I STATUS PRODUCED REGULATORY ROADBLOCKS FOR SCIENTIFIC STUDIES
- APPROXIMATELY ONLY 21 PUBLISHED STUDIES INVESTIGATING CBD ALONE
- HOWEVER – CBD IS TOUTED AS A CURE ALL OR WONDER DRUG

CONDITIONS TREATED?

- ANXIETY
- CANNABIS USE DISORDER
- CROHN DISEASE
- DIABETES
- EPILEPSY
- HUNTINGTON DISEASE
- PARKINSONISM
- OPIOID USE DISORDER
- SCHIZOPHRENIA/PSYCHOSIS
- AUTISM
- CANCER
- SLEEP DISORDERS
- PAIN

FORMS OF CANNABINOIDS

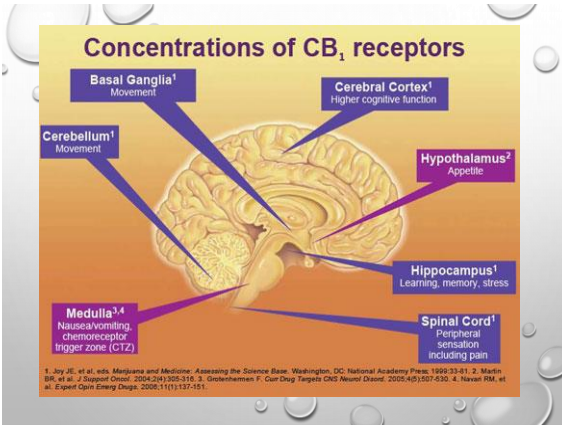
- ENDOCANNABINOIDS
 - DERIVATIVES OF ARACHIDONIC ACID
 - ENDOGENOUS
- PHYTOCANNABINOIDS
 - INCLUDE HUNDREDS OF NATURALLY OCCURRING COMPOUNDS IN C. SATIVA
 - INCLUDES THC, CANNABINOL AND CANNABIDIOL
- SYNTHETIC CANNABINOIDS
 - LABORATORY PRODUCED CONGENERS OF THC AND CANNABIDIOL



CANNABINOIDS

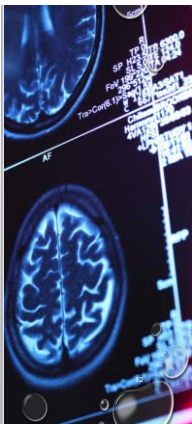
- **THC**
 - PSYCHOACTIVE, EUPHORIA, INCREASED REACTION TIME, LOSS OF MEMORY /COGNITIVE FUNCTIONING DECREASES, CLEARANCE HALF-LIFE OF LESS THAN 30 MINUTES AND IS NOT DETECTABLE IN URINE
- **CB1 (CANNABINOL)**
 - PAIN RELIEF, ANTI-INSOMNIA, PROMOTES GROWTH OF BONE CELLS, ANTIBACTERIAL, ANTI-INFLAMMATORY, ANTI-CONVULSIVE, APPETITE STIMULANT
- **CBD**
 - MAY MODIFY THC EFFECTS, INHIBITS CONVERSION OF THC TO 11-OH-THC (CYP450), FORMATION OF CBD FROM THC DOES NOT OCCUR BY HEAT FROM SMOKING NOR BY HUMAN METABOLISM, BLOCKS ANXIETY AND PSYCHOLOGICAL SIDE EFFECTS PRODUCED BY THC INTAKE
- **THC-COOH**
 - LIPID SOLUBLE COMPONENT (METABOLITE), CAN BE STORED IN FAT CELLS FOR WEEKS TO MONTHS, FOUND IN BLOOD AND URINE, TYPICALLY APPEARS IN THE URINE WITHIN 60 MINUTES, BUT CAN TAKE AS LONG AS 4 HOURS, PRESENCE OF THE MAJOR THC-COOH >LOQ INDICATES EXPOSURE TO THC WITHIN 3 DAYS AFTER A SINGLE USE, TO APPROXIMATELY 30 DAYS IN HEAVY CHRONIC USERS

Marijuana Δ⁹-Tetrahydrocannabinol (THC), 2015, Mayo Clinic: Drugs of Abuse Testing, <http://www.mayomedicallaboratories.com/test-info/drug-book/marijuana.html> (August 10, 2015)
 Huestis, M. 2009, Human Cannabinoid Pharmacokinetics, National Institute of Health: Chem Biodivers, v. 4(8), p. 1770-1804.



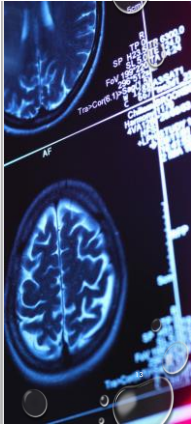
CB-1 RECEPTORS

- CONCENTRATED IN CNS
 - FRONTAL CORTEX, BASAL GANGLIA, HIPPOCAMPUS, CEREBELLUM
 - PLEASURE, MOVEMENT, LEARNING, MEMORY, PAIN
 - MESOLIMBIC REWARD CENTER
 - REINFORCE PLEASURABLE ACTIVITIES
- PRESENCE IN CEREBELLUM AND BASAL GANGLIA
 - NEGATIVE - DISCOORDINATION AND CLUMSINESS (RECREATIONAL USERS)
 - POSITIVE - AMELIORATION OF SPASTICITY IN UPPER MOTOR NEURON DISEASES (MULTIPLE SCLEROSIS)



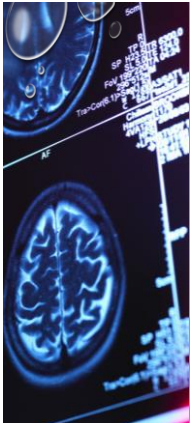
CB-1 RECEPTORS

- HIPPOCAMPUS - MODULATE MOOD
- PREFRONTAL CORTEX AND HIPPOCAMPUS - INFLUENCE CONCENTRATION, SHORT-TERM MEMORY, ATTENTION, AND TRACKING BEHAVIOR
- HYPOTHALAMUS - APPETITE (“MUNCHIES”)
- SPINAL CORD DORSAL PRIMARY AFFERENT TRACTS AND CENTRAL PAIN PATHWAYS - ANALGESIC ACTIONS



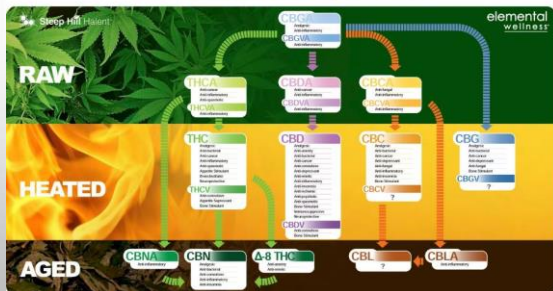
CB-1 RECEPTORS

- DOPAMINERGIC PATHWAYS IN REWARD CENTER - ABUSE AND DEPENDENCE
- VERY FEW RECEPTORS IN BRAINSTEM - MINIMAL EFFECT ON ANS
 - NO KNOWN LETHAL OVERDOSE REPORTED WITH THC



UNDERSTANDING MEDICAL CANNABIS

Cannabinoids and Their Therapeutic Effects



<http://steephillab.com/wp-content/uploads/2014/01/Understanding-Medical-Cannabis-2.jpg>



AVAILABLE CANNABINOIDS

- DRONABINOL (US)
- NABILONE (US)
- EPIDIOLEX (US)
- NABIXIMOLS (CANADA)
- RIMONABANT (EUROPE)
 - NOT APPROVED IN US DUE TO CONCERNS OVER DEPRESSION AND SUICIDE



DRONABINOL (MARINOL)

- APPROVED 1985
- SCHEDULE III
- SYNTHETIC THC
- INDICATIONS
 - CHEMOTHERAPY INDUCED NAUSEA AND VOMITING
 - AIDS RELATED ANOREXIA AND WASTING



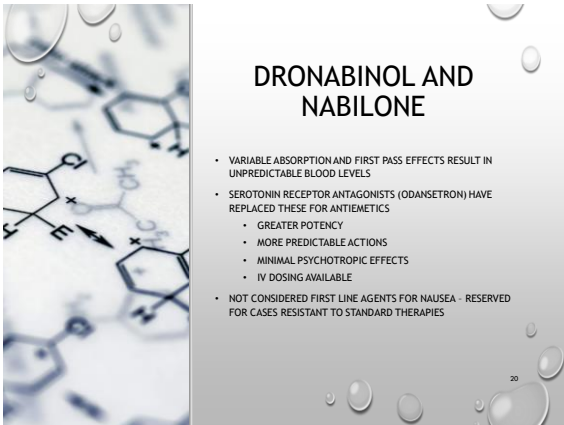
NABILONE (CESAMET)

- SYNTHETIC ANALOG OF THC
- SCHEDULE III
- SAME INDICATIONS AS DRONABINOL



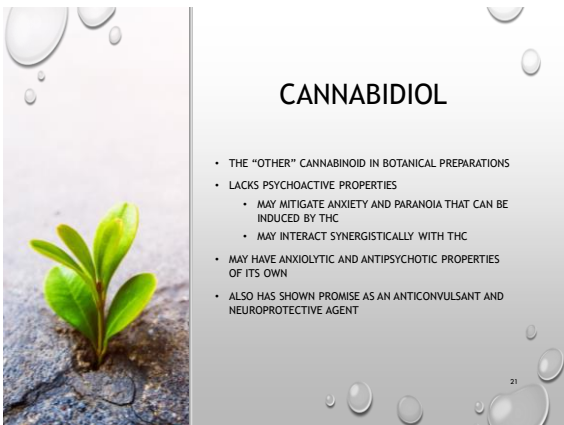
DRONABINOL AND NABILONE

- DRONABINOL HAS GRADUAL ONSET OVER 30-60 MIN WITH DURATION OF EFFECT OF UP TO 6 HRS
- NABILONE'S ONSET IS 60-90 MIN BUT CAN LAST UP TO 12 HRS
- ANTIEMETIC EFFECT OF BOTH AGENTS IS APPROXIMATE OR GREATER TO THAT OF PHENOTHIAZINES
- NARROW GAP BETWEEN THERAPEUTIC DOSE AND ADVERSE EFFECTS
 - EUPHORIA, DYSPHORIA, COGNITIVE CLOUDING, DROWSINESS, DIZZINESS
 - ADVERSE EFFECTS MORE PROBLEMATIC IN NAÏVE USER



DRONABINOL AND NABILONE

- VARIABLE ABSORPTION AND FIRST PASS EFFECTS RESULT IN UNPREDICTABLE BLOOD LEVELS
- SEROTONIN RECEPTOR ANTAGONISTS (ODANSETRON) HAVE REPLACED THESE FOR ANTIEMETICS
 - GREATER POTENCY
 - MORE PREDICTABLE ACTIONS
 - MINIMAL PSYCHOTROPIC EFFECTS
 - IV DOSING AVAILABLE
- NOT CONSIDERED FIRST LINE AGENTS FOR NAUSEA - RESERVED FOR CASES RESISTANT TO STANDARD THERAPIES



CANNABIDIOL

- THE "OTHER" CANNABINOID IN BOTANICAL PREPARATIONS
- LACKS PSYCHOACTIVE PROPERTIES
 - MAY MITIGATE ANXIETY AND PARANOIA THAT CAN BE INDUCED BY THC
 - MAY INTERACT SYNERGISTICALLY WITH THC
- MAY HAVE ANXIOLYTIC AND ANTIPSYCHOTIC PROPERTIES OF ITS OWN
- ALSO HAS SHOWN PROMISE AS AN ANTICONVULSANT AND NEUROPROTECTIVE AGENT

THC AND CANNABIDIOL **OPPOSE** EACH OTHER

THC

- EUPHORIA
- ANXIETY
- PSYCHOSIS
- COGNITIVE IMPAIRMENT
- HUNGER

CANNABIDIOL

- NO EUPHORIA
- ANTI-ANXIETY
- ANTI-PSYCHOTIC
- NO COGNITIVE IMPAIRMENT

22



NABIXIMOLS (SATIVEX)

- AVAILABLE IN CANADA - PHASE III TRIALS IN US
- INDICATIONS
 - CANCER PAIN
 - NEUROPATHIC PAIN (MULTIPLE SCLEROSIS)
- AVAILABLE AS AN ORAL SPRAY (2.7 MG THC + 2.5 MG CBD)
- CONTAINS BOTH THC AND CANNABIDIOL
- PROVIDES RAPID ONSET WITHOUT SEDATION AND MEMORY IMPAIRMENT

23



NABIXIMOLS (SATIVEX)

- PEAK THC CONCENTRATIONS ARE APPROXIMATELY 20X LOWER THAN THOSE OBTAINED WITH SMOKED CANNABIS
- LOWER THC LEVELS REDUCE POTENTIAL FOR DEPENDENCE

24

EPIDIOLEX

- PURIFIED FORM OF CBD
- FIRST FDA APPROVED PLANT DERIVED CBD PRODUCT
- INDICATED FOR SEVERE FORMS OF EPILEPSY
- ORIGINALLY APPROVED AS A SCHEDULE I BUT RECLASSIFIED TO SCHEDULE V
- LABEL WARNING:
 - DRUG TESTING
 - ADVISE PATIENTS OF THE POTENTIAL FOR POSITIVE CANNABIS DRUG SCREENS.



2018 FARM BILL

- EXCLUDED HEMP AND HEMP DERIVATIVES FROM SCHEDULE I DEFINITION OF CANNABIS
- ALLOWED FARMERS TO PRODUCE INDUSTRIAL HEMP
 - LED TO A HEMP SURPLUS
- CANNABIS PLANTS CONTAINING <0.3% DELTA-9-THC AND THEIR DERIVED PRODUCTS WERE NO LONGER SCHEDULED PRODUCTS
 - CBD
 - DELTA-8-THC
 - DELTA-10-THC
 - TETRAHYDROCANNABINOL-O ACETATE



CBD PRODUCTS

- RECENT JAMA ARTICLE
 - 84 CBD PRODUCTS TESTED FROM 31 DIFFERENT ONLINE DISTRIBUTORS
 - 7 OUT OF 10 PRODUCTS HAD DIFFERENT LEVELS OF CBD THAN SPECIFIED ON THE LABEL
 - HALF OF THE PRODUCTS HAD MORE CBD THAN INDICATED
 - QUARTER OF THE PRODUCTS HAD LESS CBD
 - THC IN 18 OF THE SAMPLES TESTED
- CONCERN OVER OFF-LABEL USE





CBD SAFETY

- LARGELY DERIVED FROM EPIDIOLEX CLINICAL DATA
- DOSE RELATED INCREASE IN HEPATIC ENZYMES AND LIVER INJURY
- METABOLISM
 - CYP3A4 AND 2C19 SUBSTRATE
- INCREASED RISK OF SEDATION/DROWSINESS WHEN USED WITH OTHER CNS DEPRESSANTS

28

DELTA-8-THC

- OCCURS AT VERY LOW LEVELS IN LEGAL HEMP PLANTS
- CAN BE READILY SYNTHESIZED FROM CBD
 - SYNTHETIC DELTA-8-THC CAN BE ADDED IN HIGH CONCENTRATIONS TO EDIBLES AND INHALATION PRODUCTS AND MARKETED AS LEGAL HEMP
- PLANT MATERIAL WITH LOW DELTA-8- AND DELTA-9-THC ARE BEING LACED WITH SYNTHETIC DELTA-8 THC RESULTING IN MUCH HIGHER CONCENTRATIONS OF DELTA-8-THC THAN PRESENT NATURALLY



FDA WARNINGS –DELTA-8-THC

- DELTA-8-THC PRODUCTS HAVE NOT BEEN EVALUATED OR APPROVED BY THE FDA
 - FDA CONSIDERS THESE PRODUCTS AS SUPPLEMENTS
 - CONCERNS OVER VARIABILITY IN PRODUCT FORMULATIONS
 - MAY BE MARKETED AS "HEMP PRODUCTS"
- ADVERSE EVENTS REPORTED
- DELTA-8-THC HAS PSYCHOACTIVE PROPERTIES
- SYNTHESIS OF DELTA-8-THC SYNTHESIS INVOLVES TOXIC CHEMICALS





DELTA-8-THC

- ACTIONS SIMILAR TO DELTA-9-THC
- LESS POTENT AND SHORTER DURATION OF ACTION THAN DELTA-9-THC (DOSE RELATED)
- SOME PRODUCTS CONTAIN VERY HIGH CONCENTRATIONS OF DELTA-8-THC LEADING TO ADVERSE EFFECTS



TETRAHYDROCANNABINOL- O ACETATE

- MORE POTENT THAT DELTA-9-THC
- RELEASES TOXIC KETENE GAS WHEN HEATED




CANNABIS – DISEASE CONTRAINDICATIONS

- POTENTIAL RISKS OUTWEIGH BENEFITS UNDER THE FOLLOWING CONDITIONS
 - HYPERSENSITIVITY
 - UNDER THE AGE OF 25
 - PERSONAL OR FAMILY HISTORY OF PSYCHOSIS OR SCHIZOPHRENIA
- CURRENT OR PAST HISTORY OF CANNABIS USE DISORDER OR OTHER ACTIVE SUBSTANCE USE DISORDER
- SIGNIFICANT CVS OR PULMONARY DISEASE
- PREGNANT OR BREAST FEEDING



COLORADO MARIJUANA ANALYSIS - MARCH 2015

- DENVER LAB ANALYZED MORE THAN 600 SAMPLES OF BUD PROVIDED BY CERTIFIED GROWERS AND SELLERS
- AVERAGE THC LEVEL WAS 18.7%, AND SOME RETAIL POT CONTAINED 30% THC OR MORE
- LITTLE OR NO CANNABIDIOL (CBD) —THE AVERAGE CBD AMOUNT: 0.1%
 - RECALL: CBD LACKS DETECTABLE PSYCHOACTIVITY AND INSTEAD HAS ANTI-INFLAMMATORY, ANALGESIC, ANTI-NAUSEA, ANTI-EMETIC, ANTI-PSYCHOTIC, ANTI-ISCHEMIC, ANXIOLYTIC, AND ANTI-EPILEPTIFORM EFFECTS - THE "MEDICAL" IN MEDICAL MARIJUANA.



RECREATIONAL VS MEDICAL USE

- DIFFERENCE IN METHOD OF USE
- IMPURITIES IN RECREATIONAL MARIJUANA (DUPONT, 2000)
 - 400 DIFFERENT CHEMICALS FROM 18 DIFFERENT CHEMICAL FAMILIES
 - SMOKE CONTAINS MORE THAN 2000 CHEMICAL COMPOUNDS



CHALLENGES OF USING CANNABIS

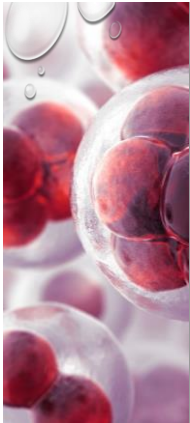
- METHOD OF DELIVERY AND QUALITY CONTROL
 - SMOKING RAW CANNABIS IS MOST COMMON AND EASIEST
 - DOSE VARIES DUE TO CONCENTRATION IN PLANT
 - RATION OF THC AND CANNABIDIOL VARIES
 - MAY VARY BY GEOGRAPHIC ORIGIN
 - CAN VARY DEPENDING ON PORTION OF PLANT USED
 - TECHNIQUES OF INHALATION/EXHALATION VARIES
 - SUGGESTION OF ADOPTING A CENTRALIZED SOURCE OF CANNABIS
- ADEQUATE MONITORING AND PREVENTION OF ADDICTION



CHALLENGES OF USING CANNABIS

- CONTAMINANTS
 - ASPERGILLUS FUNGUS AND BACTERIA - CAN LEAD TO PNEUMONIA
 - HEAVY METALS (ALUMINUM, CADMIUM)
- ORGANOPHOSPHATE PESTICIDES
- GLASS BEADS AND SAND IN STREET CANNABIS - USED TO INCREASE WEIGHT BUT CAN DAMAGE ORAL MUCOSA AND LUNGS

37



SOME IMPORTANT CONCERNS

- THC AND OTHER COMPONENTS OF MARIJUANA AFFECT NEUROTRANSMITTERS AND CELL GROWTH PATHWAYS
- THC CAN STAY IN THE BODY FOR WEEKS, ESPECIALLY IN MATERNAL TISSUES THAT MAY SERVE AS RESERVOIRS (DOG STUDIES)
- THC HAS HALF-LIFE OF 8 DAYS IN FAT DEPOSITS AND CAN BE DETECTED IN BLOOD FOR UP TO 30 DAYS
- THC READILY CROSSES THE PLACENTA, WHICH CAN SLOW CLEARANCE AND PROLONG HUMAN FETAL EXPOSURE

38

SOME IMPORTANT CONCERNS

- CONCENTRATIONS OF THC HAS INCREASED SIGNIFICANTLY SINCE 1970 (25-FOLD) AND MAY BE STRONGER IN EDIBLE FORMS
- THC AND CANNABINOIDS INTERFERE WITH FOLIC ACID
- CANNABINOID SIGNALING IS IMPORTANT ROLES IN DEVELOPMENT OF MOUSE EMBRYO





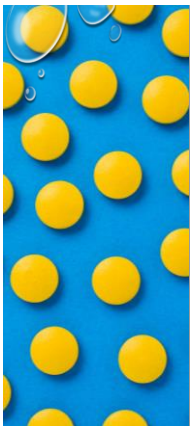
INCREASED HOSPITALIZATIONS DUE TO SYNTHETIC THC

- SEVERAL PATIENTS HOSPITALIZED
- SEVERE HALLUCINATIONS, NO GAG REFLEX, DIFFICULT BREATHING
- PRODUCTS INCLUDED "BOTANICAL SACHET", "SEXY MONKEY", "CRAZY MONKEY"



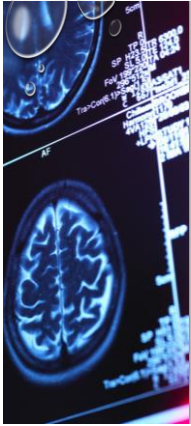
MARIJUANA ADDICTION?

- MARIJUANA USE DISORDER (ADDICTION IN SEVERE CASES)
- 30% OF THOSE WHO USE MARIJUANA MAY HAVE MARIJUANA USE DISORDER
- PEOPLE WHO BEGIN USING MARIJUANA BEFORE THE AGE OF 18 ARE 4-7X MORE LIKELY TO DEVELOP MARIJUANA USE DISORDER



MARIJUANA USE DISORDER

- OFTEN ASSOCIATED WITH DEPENDENCE
- WITHDRAWAL SYMPTOMS
- SYMPTOMS:
 - IRRITABILITY
 - MOOD AND SLEEP DIFFICULTIES
 - DECREASED APPETITE
 - CRAVINGS
 - RESTLESSNESS



MARIJUANA USE DISORDER

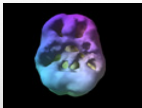
- SYMPTOMS PEAK WITHIN FIRST WEEK AND LASTS UP TO 2 WEEKS
- DEPENDENCE OCCURS DUE TO BRAIN REDUCING PRODUCTION AND SENSITIVITY TO ENDOCANNABINOID RECEPTORS (DOWNREGULATION)
- IN 2015, ESTIMATED THAT 4 MILLION PEOPLE IN THE US MET CRITERIA FOR MARIJUANA USE DISORDER WITH 138,000 VOLUNTARILY SEEKING TREATMENT.

SCROMITING CANNABIS HYPEREMESIS SYNDROME

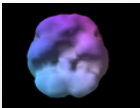
- SCREAMING + VOMITING
- HEAVY MARIJUANA USE
 - MULTIPLE TIMES/WEEK >YEAR AT HIGHEST RISK
- TYPICALLY STOPS WITH MARIJUANA DISCONTINUATION
- RELATED TO THC CONCENTRATION
 - 90'S - 1-3 MG/JOINT
 - CURRENT - 18 MG/JOINT
- DOES NOT APPEAR TO BE CAUSED BY CBD



■ MARIJUANA:



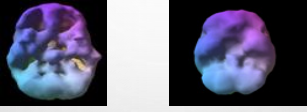
16 y.o.
2 year history of daily abuse



Normal

underside surface view of prefrontal and temporal lobe activity
© 2006 Andrew Reed, MD

MARIJUANA:



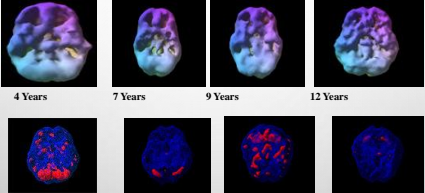
13 y.o.
3 year history of 45 week

Normal

underside surface view of prefrontal and temporal lobe activity
© 2010, Albert Einstein, M.D.

46


MARIJUANA SPECT SCANS



4 Years 7 Years 9 Years 12 Years

With Permission Amens Clinics

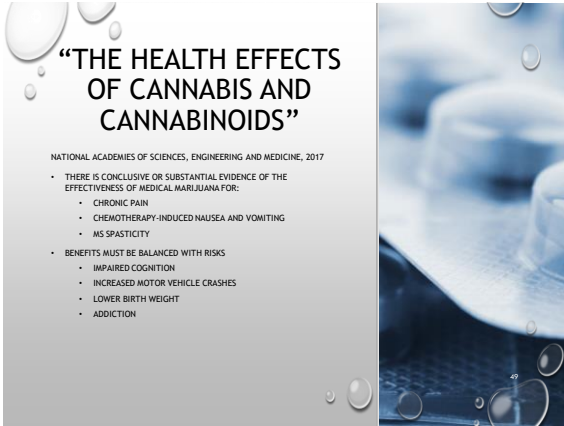
Merrill Norton Pharm.D.,Ph.D.,JCCDP-D



ARE PRESCRIBERS PREPARED?

- SURVEY OF MEDICAL SCHOOL DEANS, RESIDENTS, AND SEARCH OF MEDICAL SCHOOL CURRICULA (EVANOFF ET AL. DRUG ALCOHOL DEPENDENCE, 2017)
- RESULTS
 - 75% OF MEDICAL SCHOOL DEANS REPORTED THAT THEIR GRADUATES WERE NOT ALL PREPARED OR ONLY SLIGHTLY PREPARED TO ANSWER QUESTIONS ABOUT MEDICAL MARIJUANA
 - 94% OF MEDICAL SCHOOL DEANS REPORTED GRADUATES ARE NOT AT ALL PREPARED OR ONLY SLIGHTLY PREPARED TO PRESCRIBE MARIJUANA

48



“THE HEALTH EFFECTS OF CANNABIS AND CANNABINOIDS”

NATIONAL ACADEMIES OF SCIENCES, ENGINEERING AND MEDICINE, 2017

- THERE IS CONCLUSIVE OR SUBSTANTIAL EVIDENCE OF THE EFFECTIVENESS OF MEDICAL MARIJUANA FOR:
 - CHRONIC PAIN
 - CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING
 - MS SPASTICITY
- BENEFITS MUST BE BALANCED WITH RISKS
 - IMPAIRED COGNITION
 - INCREASED MOTOR VEHICLE CRASHES
 - LOWER BIRTH WEIGHT
 - ADDICTION



THERAPEUTIC BENEFITS OF CANNABINOIDS

- “INSUFFICIENT EVIDENCE EXISTS FOR THE USE OF MEDICAL CANNABIS FOR WHICH ITS USE IS ADVOCATED. DESPITE THE LACK OF EVIDENCE, VARIOUS US STATE GOVERNMENTS HAVE RECOMMENDED CANNABIS FOR THE MANAGEMENT OF MORE THAN 50 MEDICAL CONDITIONS”
- “CANNABIS IS USEFUL FOR SOME CONDITIONS, BUT PATIENTS WHO MIGHT BENEFIT MAY NOT GET APPROPRIATE TREATMENT BECAUSE OF SUFFICIENT AWARENESS REGARDING THE EVIDENCE SUPPORTING ITS USE OR CONFUSION FROM FEDERAL LAW DEEMING CANNABIS ILLEGAL.”

KP HILL. JAMA 322: 974-75



HEALTH CONCERNS

- RISKS OF FALLS IN ELDERLY ESPECIALLY WHEN COMBINED WITH OTHER CNS DRUGS OR BP MEDS
- NO CONTROL OVER WHAT THE PATIENT IS GETTING IN DISPENSARIES
- PATIENTS OFTEN DO NOT KNOW HOW MUCH THC OR CBD THEY ARE ON.



ALABAMA MEDICAL MARIJUANA

- PRESCRIBER MUST PASS AN EXAM ON MEDICAL MARIJUANA
- MUST VERIFY PATIENT HAS A QUALIFYING CONDITION
- CONVENTIONAL THERAPY OR MEDICAL TREATMENT HAS FAILED

52


QUALIFYING CONDITIONS

<ul style="list-style-type: none"> • AUTISM SPECTRUM DISORDER • PANIC DISORDER • DEPRESSION • PTSD • CROHN'S DISEASE • TOURETTE'S SYNDROME • PARKINSON'S DISEASE • SPASTICITY ASSOCIATED W/MOTOR NEURON DISEASE 	<ul style="list-style-type: none"> • SICKLE CELL ANEMIA • EPILEPSY OR SEIZURE CONDITION • TERMINAL ILLNESS • HIV/AIDS RELATED NAUSEA OR WEIGHT LOSS • CANCER RELATED CACHEXIA, NAUSEA, VOMITING, WEIGHT LOSS, OR CHRONIC PAIN • PERSISTENT NAUSEA NOT RESPONSIVE TO TRADITIONAL TREATMENT • CHRONIC OR INTRACTABLE PAIN NOT RESPONSIVE TO CONVENTIONAL TREATMENT
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53

ALABAMA MEDICAL MARIJUANA

- PATIENT SHOWS PROOF OF ALA RESIDENCY
- MED MARIJUANA CARD ISSUED (\$65)
- PATIENT ENTERED INTO STATEWIDE CANNABIS REGISTRY
- MINORS
 - UNDER 19 YO GOES THROUGH SAME PROCESS
 - MUST HAVE A DESIGNATED CAREGIVER
 - BOTH MINOR AND CAREGIVER MUST BE ALA RESIDENTS AND REGISTERED WITH STATE CANNABIS COMMISSION





ALA MED MARIJUANA LAW:

- DOES NOT LEGALIZE MARIJUANA FOR EVERYONE
- RECOGNIZES THAT "RECREATIONAL MARIJUANA REMAINS A SIGNIFICANT THREAT TO PUBLIC HEALTH AND SAFETY"
- PENALTY FOR VIOLATING THE LAW
 - CLASS B FELONY IF YOU POSSESS, DISTRIBUTE, MANUFACTURE, OR USE MARIJUANA W/O LICENSE INCLUDING IF YOU'RE GIVEN THE DRUG BY A REGISTERED PATIENT, CAREGIVER OR DISPENSARY
 - JAIL IF YOU POSSESS >70 DAILY DOSES, EVEN WITH MED MARIJUANA LICENSE

55



ALA MED MARIJUANA - DOSE

- CAN BE PRESCRIBED FOR UP TO 12 MONTHS AT A TIME
- DAILY DOSAGE CAN'T EXCEED 50 MG THC BUT MAY BE INCREASED TO 75 MG IF PRESCRIBER DETERMINES IT'S "MEDICALLY APPROPRIATE" OR IF PATIENT IS TERMINALLY ILL
- IF DOSAGE EXCEEDS 75 MG, PATIENT'S DRIVER LICENSE WILL BE SUSPENDED.

56




ALA MEDICAL MARIJUANA – ACCEPTABLE FORMS

- ORAL TABLET, CAPSULE OR TINCTURE
- NON-SUGAR COATED GELATINOUS CUBE, CUBOID OR LOZENGE
- GEL, CREAM, OIL OR OTHER TOPICAL PREPARATION
- TRANSDERMAL PATCH
- NEBULIZER
- LIQUID OR OIL ONLY FOR AN INHALER
- SUPPOSITORY

57

**ALA
MEDICAL
MARIJUANA
– NON-
APPROVED
DOSAGE
FORMS**

- CANNOT BE SMOKED OR VAPED
- CANNOT BE SUGAR-COATED, PUT IN FOOD OR SOLD AS A RAW PLANT
- STATE CANNIBIS COMMISSION WILL ESTABLISH "ONE UNIVERSAL FLAVOR" FOR THE JELLY CUBES AND LOZENGES



**ALA MED MARIJUANA
AND THE WORKPLACE**

- EMPLOYERS DO NOT HAVE TO ALLOW OR ACCOMMODATE THE USE OF MEDICAL MARIJUANA
 - THEY CAN REFUSE TO HIRE OR LET SOMEONE GO EVEN IF DRUG IS USED LEGALLY
- MAY CREATE A DRUG TESTING POLICY AGAINST MED MARIJUANA
- MAY REQUIRE EMPLOYEES TO NOTIFY THEM IF THEY START USING THE DRUG LEGALLY
- EMPLOYERS AREN'T REQUIRED TO PAY FOR DRUG THROUGH MEDICAL INSURANCE OR REIMBURSEMENT PLANS
- CAN DENY WORKERS COMP FOR SOMEONE WHO FAILS A DRUG TEST OR REFUSES TO TAKE ONE



**ALA MED MARIJUANA -
WORKPLACE**

- LITTLE LEGAL DEFENSE FOR EMPLOYEE
 - CAN'T SUE THE EMPLOYER
 - IF FIRED – CAN BE CONSIDERED HAVING BEEN DISCHARGED FROM JOB BECAUSE OF MISCONDUCT
 - MAY BE MORE DIFFICULT TO COLLECT UNEMPLOYMENT





ALA MEDICAL MARIJUANA – WHEN IS IT AVAILABLE

- STATE HAS NOT BEGUN IMPLEMENTING THE NEW LAW AND ESTABLISHING THE BUREAUCRATIC POLICIES
- REGISTRY HAS TO BE CREATED
- DISPENSARIES NOT ESTABLISHED

61



CBD – DRUG TESTING

- INGESTION OF COMMERCIALY AVAILABLE COLD-PRESSED HEMP SEED OIL RESULTED IN POSITIVE WORKPLACE DRUG TEST (J ANAL TOXICOL 21, 1997)
 - THC- COOH DETECTED
 - NO BEHAVIORAL EFFECTS OBSERVED
- PRODUCTS MAY HAVE THC
- VERY HIGH DOSING



MEDICAL MARIJUANA MISCALCULATION

- A 52-YEAR-OLD MAN WHO HAD RECEIVED TREATMENT FOR ANAPLASTIC ASTROCYTOMA PRESENTED TO THE ED WITH ACUTE DELIRIUM AND GARBLED SPEECH. THE INITIAL WORKUP IDENTIFIED NO CLEAR CAUSE. IT WAS THEN LEARNED THAT HE HAD BEEN USING A HIGHLY CONCENTRATED FORMULATION OF LIQUID MARIJUANA AT HOME, WITH 10 TO 20 TIMES THE RECOMMENDED DOSE OF TETRAHYDROCANNABINOL PER 0.1 ML OF FLUID.

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