Open Meeting Presentation I
March 2019

Northeast
Physician Hospital Organization

Agenda

- President's Report
  - Affiliation
  - Quality Scores and Financial Performance Update
  - Health Policy Commission (HPC) Report
- NECoMG Physician Updates
- Health Plan Membership Update
- Medicare ACO and AllWays Health Partners Updates
- Pharmacy Update
  - What Providers Should Know About Patients Using Cannabis

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Affiliation Update
Beth Israel Lahey Health (BILH)

- Merger has been approved with conditions to address two main goals:
  - Preserve health care access for underserved populations in Massachusetts
  - Limit price increases for Massachusetts health care consumers
- Highlights of the conditions include:
  - Ensure MassHealth participation
  - Limit all Fee for Service price increases to 0.1% below the Health Policy Commission Benchmark (currently 3.1 %; limit is for 7 years)
  - Joint planning with Safety Net hospitals in the network
  - Commitment to expand access for community health and behavioral health
- Effective date was 3/1/2019

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Beth Israel Lahey Health (BILH)

- Leadership
  - Strong physician leadership
  - Team built from leaders at BI and Lahey, with a few external/interim
- 4 Key Domains
  1. Hospital & Ambulatory Services
  2. Physician Enterprise
  3. Population Health, includes the clinically integrated network (CIN)

     Beth Israel Deaconess Care Organization (BIDCO)

     Lahey Clinical Performance Network (LCPN)

     Mount Auburn Cambridge Independent Practice Associate (MACIPA))

     Also includes, behavioral health and continuing care services
  4. Administrative And Operational Services

Legal	IT
Philanthropy	Strategy/Business Development/Marketing
Finance/HR	Medical Staff

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Beth Israel Lahey Health (BILH) Vision

- Create an integrated health care system that:
  - Provides high-quality, lower cost care close to where patients live and work
  - Invests in and strengthens local hospitals and community-based care
  - Works to keep our patients healthy and care for them in their communities
  - Advances the science and practice of medicine by investing in research and education
  - Embraces a new model of care that helps contain rising health care costs

Beth Israel Lahey Health

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Beth Israel Lahey Health (BILH)
Access to High-Quality, Lower Cost Care

- Expand and strengthen community-based care
- Offer streamlined access to world-class teaching hospitals
- Keep people healthy through comprehensive, coordinated care management
- Enhance access to behavioral health and addiction services
- 75% of Eastern Massachusetts residents will have a primary care physician within 5 miles of home

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Statewide Market Shares for Inpatient and Outpatient Services

Hospital System/Network	Inpatient Statewide Share[145] (2017)	Outpatient Statewide Share[146] (2015)
Partners	27.4%	26.9%
BIDCO, Lahey, Mt. Auburn combined	**23.6%** (13.0% + 7.9% + 2.7%)	**24.9%** (12.3% + 10.2% + 2.4%)
UMass	7.0%	5.2%
Wellforce	5.8%	6.8%
Steward	5.7%	4.6%
All Other Facilities	30.6%	31.6%

Source: HPC analysis of 2017 CHIA hospital discharge data for all commercial payers (inpatient shares) and 2015 APCD data for the three largest commercial payers (outpatient shares).

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Beth Israel Lahey Health (BILH)

- Community hospitals
  - Addison Gilbert Hospital
  - Anna Jaques Hospital
  - BayRidge Hospital
  - Beth Israel Deaconess Hospital–Milton
  - Beth Israel Deaconess Hospital–Needham
  - Beth Israel Deaconess Hospital–Plymouth
  - Beverly Hospital
  - Lahey Medical Center, Peabody
  - Winchester Hospital

- 4,300+ physicians, including 800+ primary care physicians
- Academic medical centers and teaching hospitals
  - Beth Israel Deaconess Medical Center (Boston)
  - Lahey Hospital and Medical Center (Burlington)
  - Mount Auburn Hospital (Cambridge)
  - New England Baptist Hospital (Boston)

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Beth Israel Lahey Health (BILH)

- Merger impact on Beverly Hospital and NEPHO
  - New collaboration with partner hospitals
- NEPHO will continue to direct referrals with NEPHO network as high priority
- Lahey is our Preferred Tertiary provider, for services that are not available in the PHO network and for Out-of-PHO second opinions
- Need to learn more about other services within the BILH system
- LCPN, BIDCO and MACIPA will transition contracts to new clinically integrated network (CIN)
  - LCPN contract with Tufts renewed 1/1/2019 - 12/31/2021
  - LCPN contracts with BCBS & HPHC term 12/31/2019
- Need to learn more about the transition and impact on NEPHO
  - New contracts, new committees, new policies

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LCPN Commercial 2017 Q4

	Lahey	NEPHO	Winchester
Gate Score- Ambulatory	3.2	3.6	3.4
Gate Score- Hospital (based on HPIP)	3.0	2.2	3.2
Overall Gate Score	3.1	2.9	3.3
TME PMPM (risk adj)	$327.78	$320.15	$330.23
Surplus $ PMPM	$422K $1.05 pmpm	$375K $1.02 pmpm	$372K $1.06 pmpm

LCPN Gate Score = 2.9

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2017 Physician Revenue

- Contracts shifted surplus to fee for service revenue
- NEPHO Physician BCBS Revenue

NEPHO	Total Dollars
BCBS Statewide	$15.5M
BCBS Contracted	$20.2M
FFS increase over statewide	$4.7M
FFS increase over prior contract	$2.4M

- Decline in membership impacted the funds
  - Overall BCBS members
  - Physician practice changes
- Impact of measure changes and targets

Physician Revenue examples

Average Specialist	Total Dollars
BCBS/HPHC/Tufts Statewide	$143K
BCBS/HPHC/Tufts Contract	$207K
FFS increase over Statewide	$65K
% of Statewide	145%
Surplus	$2.5K
% of Statewide after surplus	147%

Withhold is not included in the surplus dollars

Physician Revenue examples

Average PCP	Total Dollars
BCBS/HPHC/Tufts Statewide	$175K
BCBS/HPHC/Tufts Contract	$255K
FFS increase over Statewide	$80K
% of Statewide	146%
Surplus	$9.5K
% of Statewide after surplus	151%

Withhold is not included in the surplus dollars

Physician Revenue examples

Participation in the Lahey Medicare ACO in 2017 impacted surplus and fee for service rates (Rates increased by 1.7% in 2019)

Average Specialist	Total Dollars
Medicare standard	$115K
Medicare at 1.7% increase	$117K
FFS increase	$2K
% of Medicare	101.7%
Surplus	$242
% of Medicare after ACO surplus	101.9%

Physician Revenue examples

Participation in the Lahey Medicare ACO in 2017 impacted surplus and fee for service rates (Rates increased by 1.7% in 2019)

Average PCP	Total Dollars
Medicare standard	$55K
Medicare at 1.7% increase	$56K
FFS increase	$1K
% of Medicare	101.7%
Surplus	$2.3K
% of Medicare after ACO surplus	105.9%

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LCPN Commercial 2018 Q3 Projection

	Lahey	NEPHO	Winchester	Congenial
Gate Score- Ambulatory (projected)	2.2	3.2	2.2	2.1
Gate Score- Hospital	2.7	2.5	3.2	n/a
Overall Gate Score = 2.7	2.5	2.9	2.7	2.1
TME (risk adj)	$278.88	$271.71	$284.90	$309.90
2018 Surplus $ PMPM	$2.6M $6.30 pmpm	$2.4M $6.72 pmpm	$2.5M $6.16 pmpm	$65K $.66 pmpm

What are we working on to reduce Medical Expenses?

- Referral Management - redirections, increase awareness of services in network, scripting/training, outreach to patients
- Incentives to provide PCP visits within 7 days of acute discharge (Tufts Medicare Preferred)
- Plans to focus on Lab ordering/low value care services
- Support the utilization of TigerConnect tool
- Coding efforts – improve chronic condition coding capture

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What are we working on to reduce Medical Expenses?

- Case management – restructure, Optum, engagement with hospital departments
- Readmission reduction programs - Lahey health at home, COPD/CHF
- Serious Illness training - advance directives, MOLST
- Urgent care vs ER services where appropriate – direct to in network urgent care
- Specialty pharmacy and Commercial patient consultations

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Health Policy Commission (HPC)

Summary of the 2018 Annual Health Care Cost Trends Report:

- Trends in Spending
- Low Value Care
- Provider Variation
- Recommendations

Trends in Spending

- Massachusetts health care expenses grew 1.6 percent from 2016 to 2017 (lower than the 3.6 percent health care cost growth benchmark set by the HPC)
- The average annual rate of growth in health care expenses in Massachusetts from 2012 to 2017 was 3.2 percent
- Improvement in controlling the increase in inpatient admissions but trends for Readmissions and ER visits are still high
- Highest growth areas in 2017:
  - Prescription drug @ 4.1 percent
  - Hospital outpatient department @ 4.9 percent
  - increases for both were slightly below rates the previous year

Low Value Care (LVC) in the Commonwealth: Background

- **Background:** Choosing Wisely, an initiative of the American Board of Internal Medicine (ABIM) Foundation, convened specialist organizations in 2012 to select procedures in their fields that had little to no value to patients
- **Aim:**
  - Identify instances of provision of certain low-value care services in the Massachusetts APCD
  - Quantify the extent of these services, overall and by provider group

Unnecessary screening tests
Vitamin D deficiency screening
Homocysteine screening
Carotid artery disease screening for those at low-risk
Pap smears for women under 21
Unnecessary pre-operative testing
Cardiac stress test before low-risk, non-cardiac surgery
Pulmonary function test (PFT) for low and intermediate risk surgery
Unnecessary procedures
Spinal injections for low-back pain
Arthroscopic surgery for knee osteoarthritis
IVC Filters

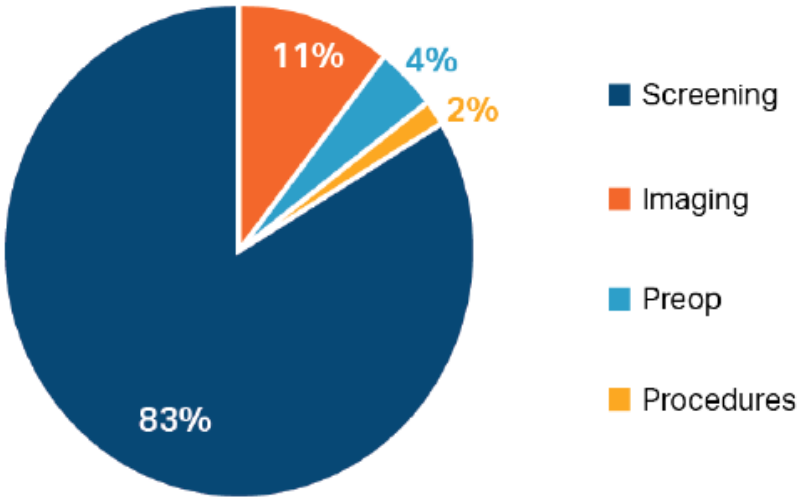
Unnecessary Imaging
Head imaging for uncomplicated headache
Back imaging for patients with non-specific low back pain
Head imaging in the evaluation of syncope
Electroencephalogram (EEG) for uncomplicated headache
Imaging for diagnosis of plantar fasciitis/heel pain
Neuroimaging in children with simple febrile seizure
Sinus CT for simple sinusitis
Abdominal CT with and without contrast
Thorax CT with and without contrast
Inappropriate prescribing
Inappropriate antibiotics for sinusitis, pharyngitis, suppurative otitis media, and bronchitis

Low Value Care: Key Findings

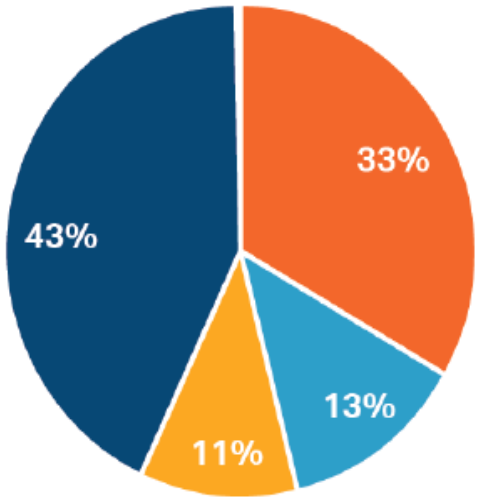
Among the three major commercial health plans in the Commonwealth:

- **485,377** of 2.36 million members (**20.5%**) received at least one low value care service in a 2-year time period
- All 19 low value care procedures accounted for **$80.0 million ($12.2 million out of pocket)** in health care spending in the 2 year period between 2013-2015*

Total LVC encounters for 19 measures, commercial APCD 2013-15[1]



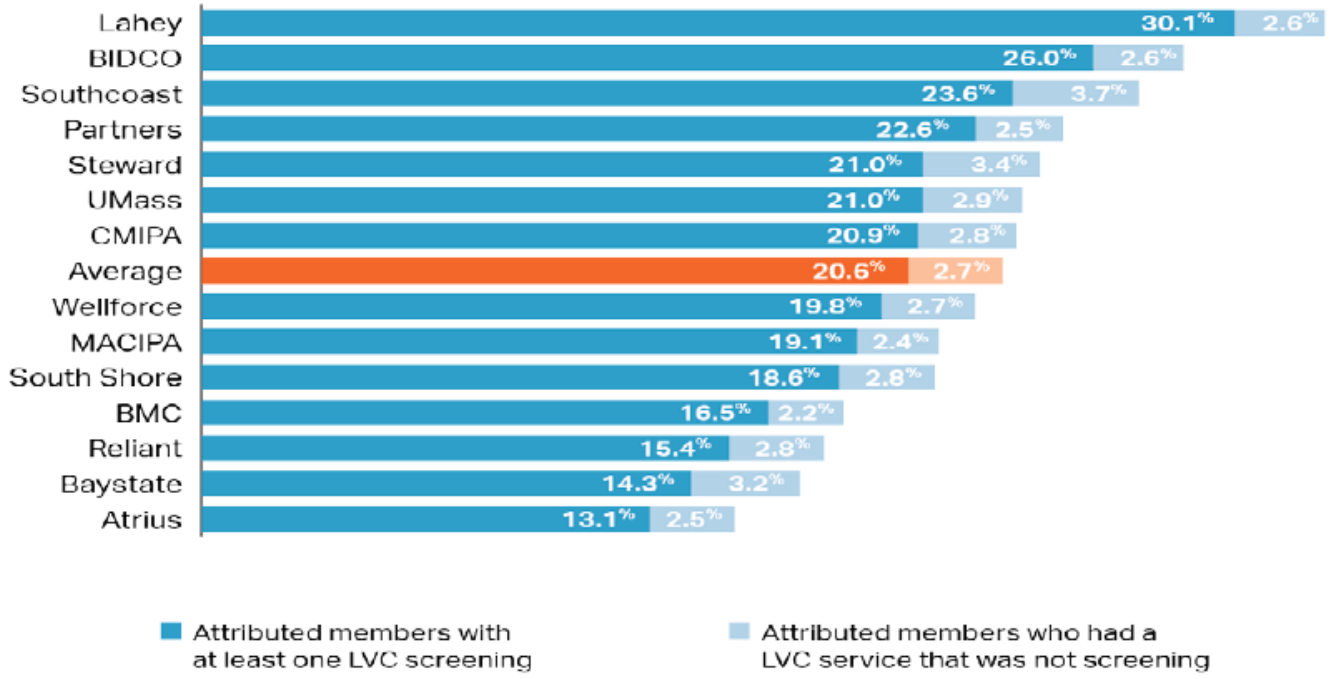
Total LVC spending for 19 measures, commercial APCD 2013-15[1]



Variation in rates of low value care by provider organization are driven primarily by low value screening

- 1.6 million members were attributed to one of the top 14 largest provider organizations based on their primary care provider
- Members experiencing at least one low value care service by attributed provider organization varied from 15.5% (Atrius) to 32.7% (Lahey)
- If low value screening is excluded, member rates of receiving low value care ranged from 2.2% (BMC) to 3.7% (Southcoast)

Attributed members with at least one low value care service by provider organization



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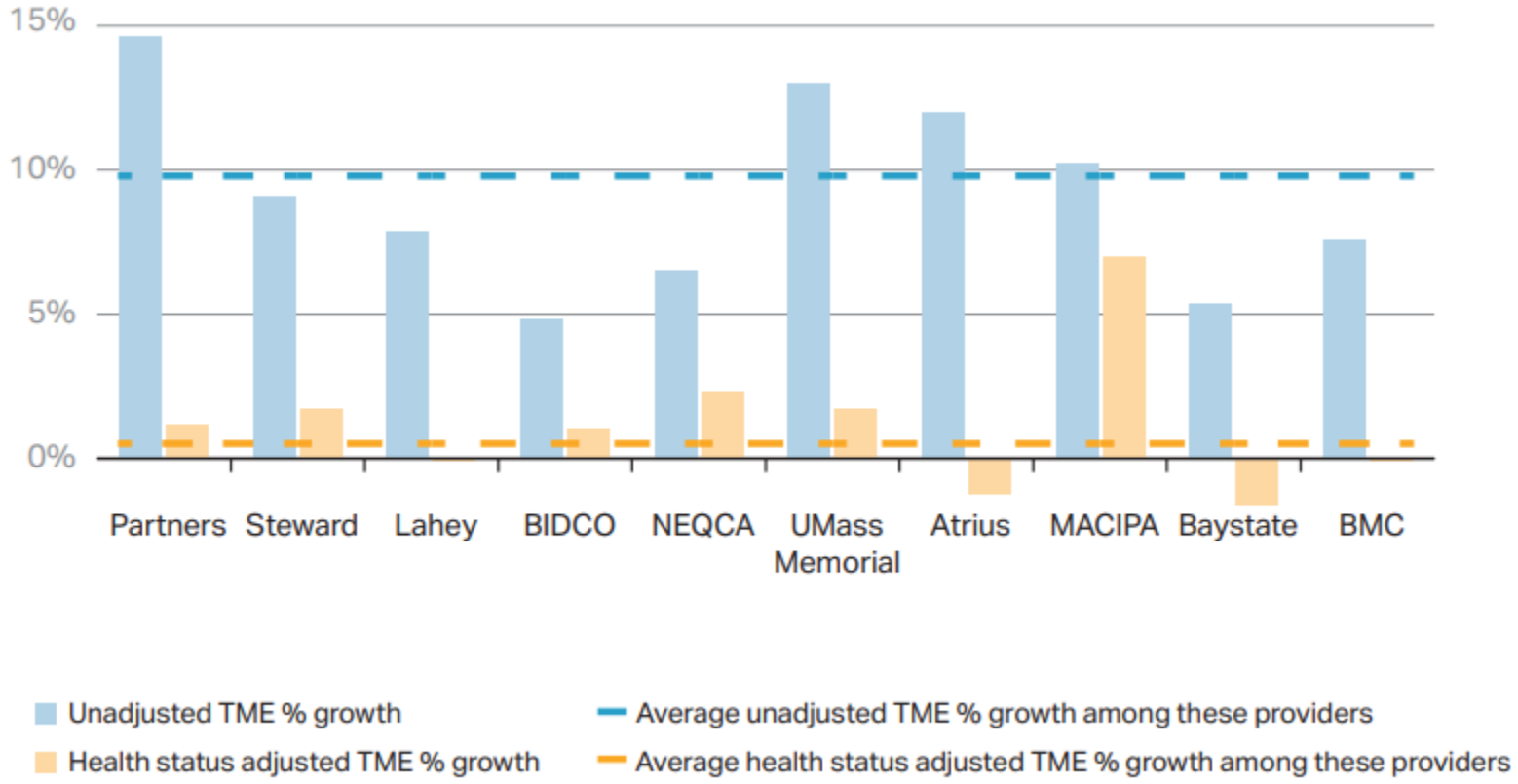
Provider Variation
Unadjusted TME Trends 2015 – 2017



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HPC Recommendations

In order to continue progress in achieving the Commonwealth's goal of better health, better care, and lower costs, the HPC recommends action within the following 2 priorities:

1. Strengthen market functioning and system transparency

- Administrative Complexity
- Pharmaceutical Spending
- Out-of-Network Billing
- Provider Price Variation
- Facility Fees
- Demand-Side Incentives

2. Promoting An Efficient, High-quality Health Care Delivery System

- Unnecessary Utilization
- Social Determinants of Health (SDH)
- Health Care Workforce
- Innovation Investments
- Alignment and Improvement of APMs

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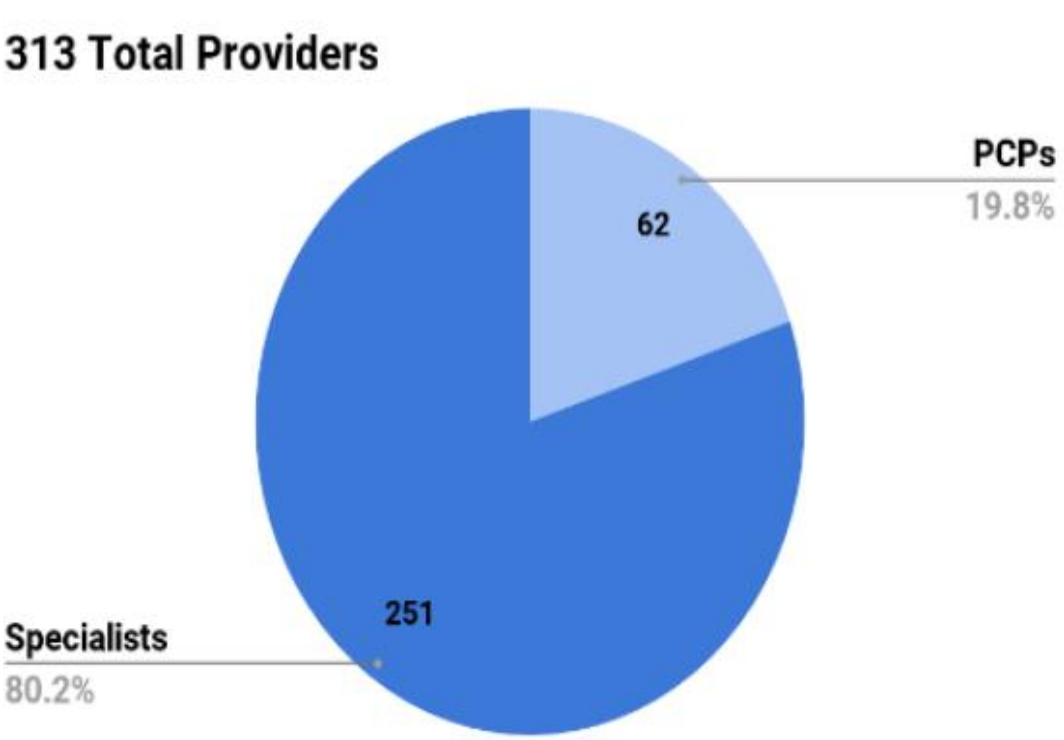
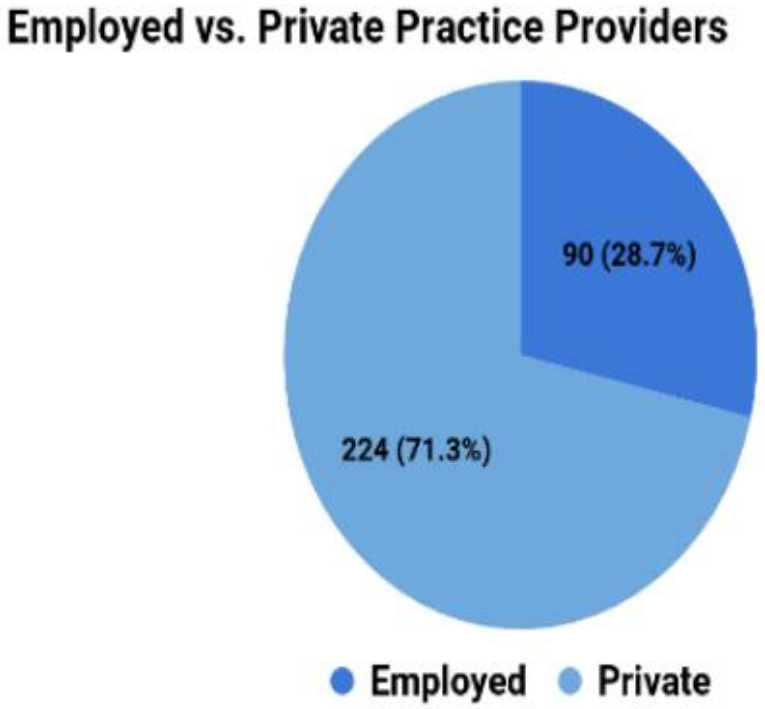
NECoMG Membership
March 2019





45 % of PCPs are employed
25 % of Specialists are employed

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New PCPs

Physician	Specialty	Practice Affiliation
Matthew Plosker, MD	Family Practice	Family Medicine Associates, Manchester
Robert Slocum, DO	Family Practice	Gloucester Family Health Center

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New Specialists

Physician	Specialty	Practice Affiliation
Elizabeth Emberley, DO	OBGYN	Essex County OBGYN
Leroy Kelley, DPM	Podiatry	NPA Cape Ann Foot & Ankle
Raymond Kelly, DO	Emergency Medicine	Lahey Urgent Care, Danvers & Gloucester
Ashling O'Connor, MD	General Surgery	Lahey Outpatient Center, Danvers - Breast Health
Marie Peloquin, MD	Internal Medicine/Geriatrics	Center for Healthy Aging
Veljko Popov, MD	Radiology	Beverly Radiological Associates
Edward Schleyer, MD	Orthopedic Surgery	Coastal Orthopedic Associates
Marc Shnider, MD	Anesthesiology	Beverly Anesthesia Associates
Benjamin Solky, MD	Dermatology	Robert O'Brien Jr., M.D. & Associates
Michael Walger, MD	Emergency Medicine	Northeast Emergency Associates
Courtney Yegian, MD	Anesthesiology	Beverly Anesthesia Associates

Payor Membership trends

Payor	Nov-17	Nov-18	NEPHO Δ	MA State Δ
BCBS HMO Blue	12,903	12,853	0%	0.1%
BCBS PPO	9,008	9,118	1%	
HPHC	6,991	6,445	-8%	-4%
Tufts	5,585	5,603	0%	-8%
Cigna	2,233	1,979	-11%	8%
Fallon	1,051	320	-70%	-4%
Commercial Sub-Total:	37,771	36,318	-4%	
ACO	8,894	9,289	4%	0.4%
Tufts Medicare Preferred	3,034	2,994	-1%	0.5%
HPHC-Stride	63	50	-21%	12%
Medicare Sub-Total:	11,991	12,333	3%	
Tufts Health Public Plans	6,513	8,475	30%	24%
Boston Medical Center HealthNet	2,445	3,374	38%	39%
UniCare	722	759	5%	4%
Commonwealth Care Alliance	120	223	86%	17%
MassHealth ACO	0	2,206		
Other Sub-Total:	9,800	13,264	40%	
TOTAL:	59,562	63,688	7%	-0.2%

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Medicare ACO

- Track 1 ended 12/31/2018 with 6 month extension through 6/30/2019
- New final rule: “Pathways to Success”
- Two tracks for 5 year terms – BASIC and ENHANCED (5 levels in BASIC)
  - Lahey evaluated Level B and Level E to compare the potential surplus and losses, as well as other operational benefits
  - Data shows improved performance for Lahey in 2018
- Beth Israel Deaconess Care Organization (BIDCO) and Mount Auburn IPA (MACIPA) were in downside risk tracks
  - If we join with them into single ACO, we would need to participate in downside risk
- Lahey voted for Level B
  - Upside only, no downside risk
  - Surplus share changes from 50% to 40%
  - Merit-based Incentive Payment System Alternative Payment Models (MIPS APM) continues for fee schedule adjustment
  - Potential to change tracks and/or join with BIDCO and MACIPA in 2020

Historical and Projected Performance

AllWays Health Partners

- Neighborhood Health Plan is now AllWays Health Partners
- They have shifted from being a primary payer for MassHealth patients to a commercial plan competing with Tufts, HPHC, and BCBS
- Partners Health Care employees moved from BCBS PPO to this AllWays Health Partners PPO
  - There are an estimated 2,700 Partners employees that have Lahey PCPs
- Effective 1/1/19, NEPHO providers are part of the LCPN/AllWays Health Partners contract
  - 2 year contract that has competitive rates and quality surplus potential
  - includes all plan products

Pharmacy Update

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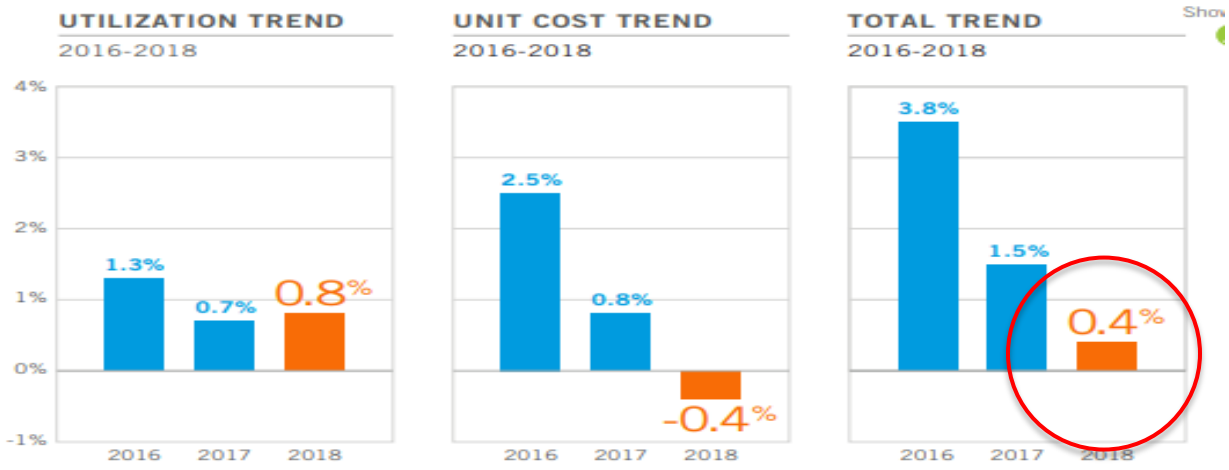
Pharmacy

2018 US drug spending increased *0.4%* (commercial)
lowest trend in 25 years *(Express Scripts)*
NEPHO YTD Q3.2018 = *-2.9%*

2019 Targets: *Pharmacy trend no greater than 2018*

- Dermatology Specialty YTD Q3 *(20.7%)*
- Rheumatology Specialty YTD Q3 *(41.1%)*



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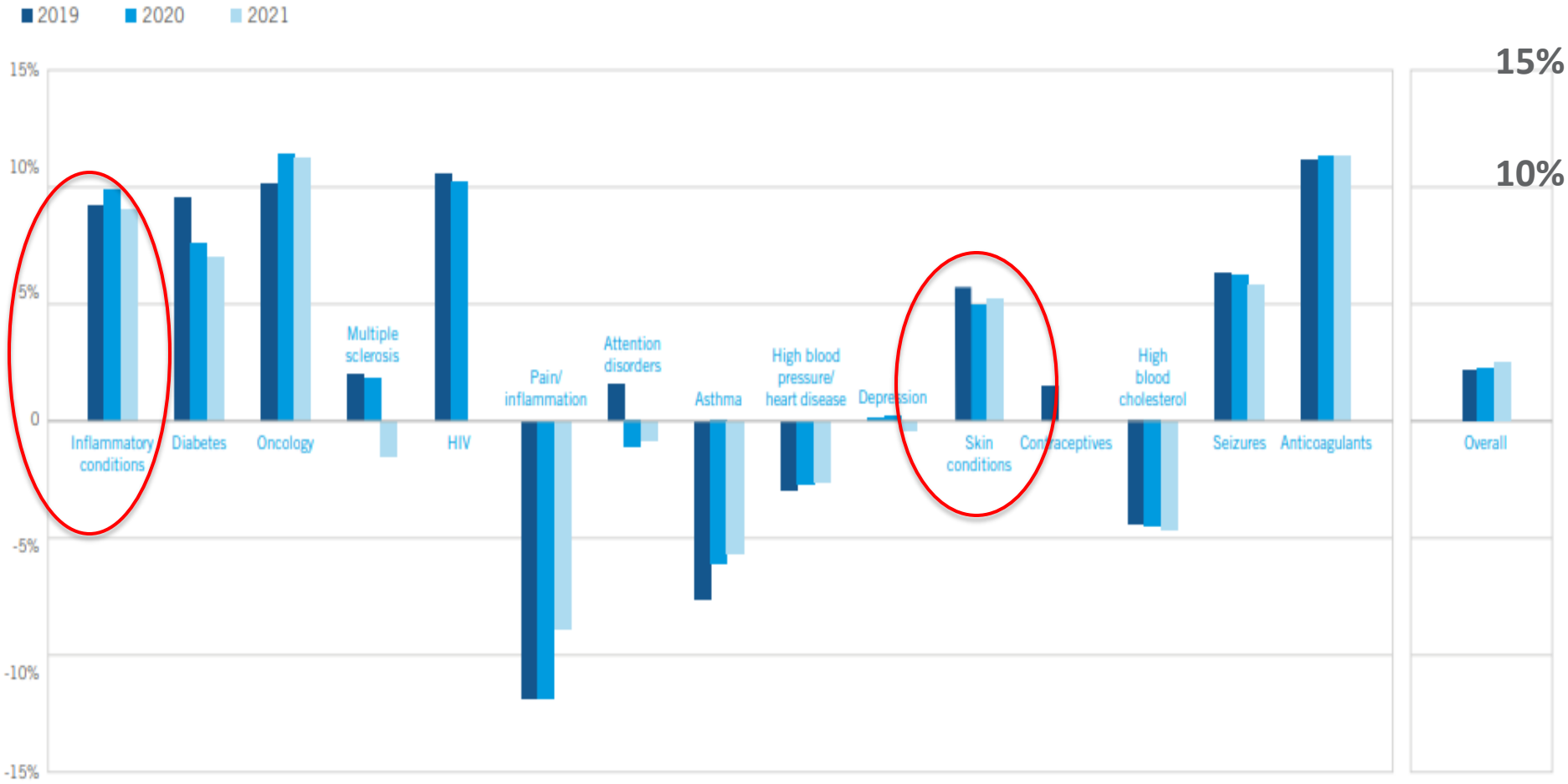
FORECASTING 2019-2021 TREND FOR COMMERCIAL PLANS

We expect drug spending to increase about 2% over each of the next three years, less than projected U.S. inflation rates.



What Providers Should Know About Patients Using Cannabis

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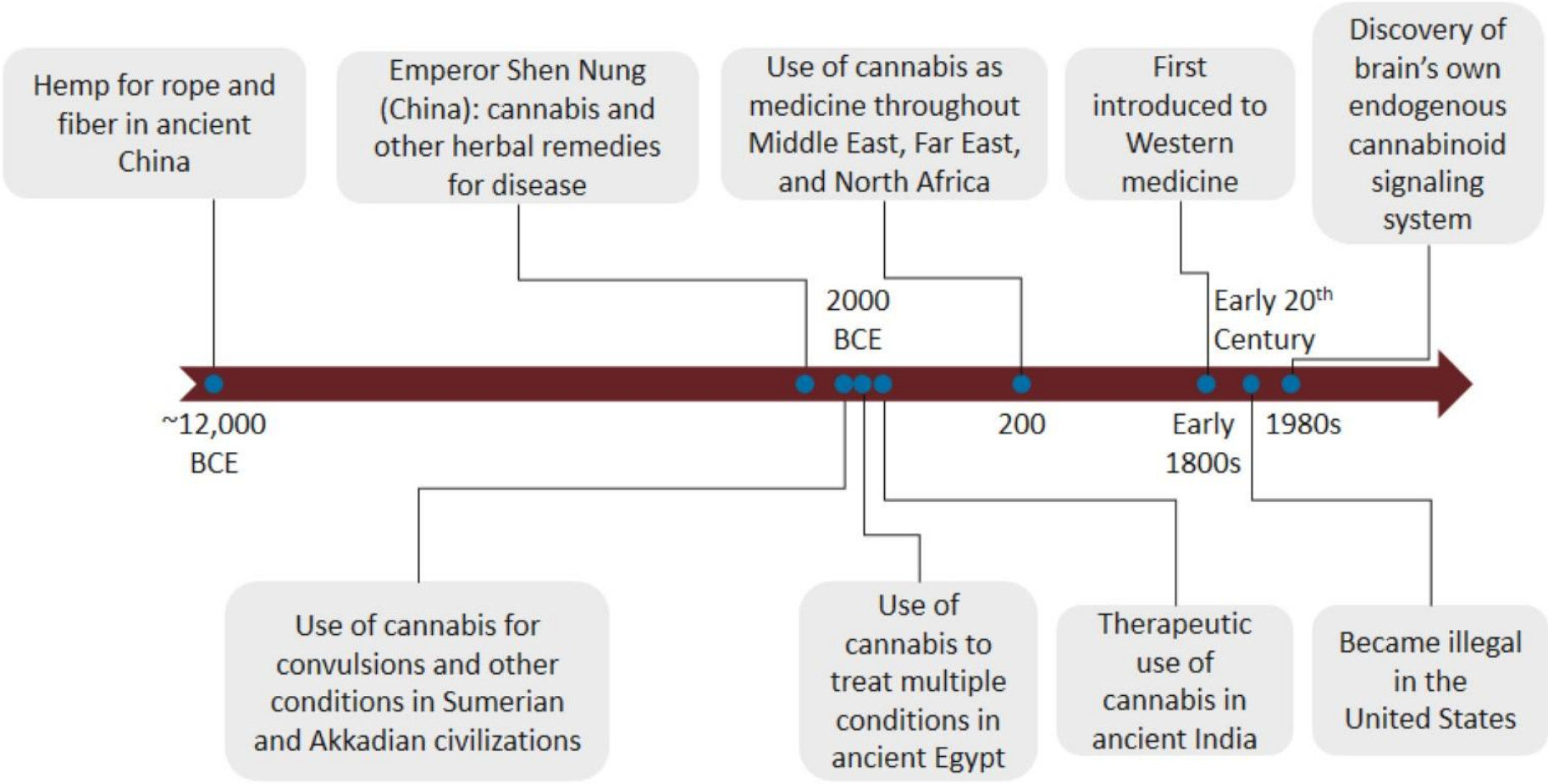
Objectives

1. Overview & understanding of cannabis products; availability and access
2. Awareness of potential drug interactions with cannabis
3. Evidence of Efficacy / Inefficacy
4. Discussion of “complementary alternative medicines” (CAM); cannabis use; documentation in medical chart
5. Talking points for patients using cannabis

History of Cannabinoid Use in Medicine



Pharmaceutical- vs Dispensary-Sourced Cannabinoids: What's the Difference?
Authors: Daniel Friedman, MD, MSc; Anup D. Patel, MD

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Cannabis Background

Cannabis = synonym for marijuana

FDA Approved, Recreational (Adult-Use) &

Medical Marijuana (MMJ)

Federal:

- Schedule I in the US
- US federal law prohibits all possession, sale, and use of marijuana
- Most parts of the cannabis plant and its derivatives *(exception: Hemp derived CBD is legal < 0.6%)*

Massachusetts:

- *Cannabis Control and Advisory Board* - ensures safe access to marijuana; may possess 1 oz./10 oz. at home

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Cannabis Plant Family

3 major species :

- *cannabis sativa* (most common, highest level of THC)
- *cannabis indica* (typically more CBD than THC)
- *cannabis ruderalis* (few psychogenic properties)

3 major types of cannabinoinds; > 100 chemical entities:

Plant (phytonacannabinoids) Synthetic Endogenous

Phytonacannabinoids - therapeutic activity

- **THC (delta-9-tetrahydrocannabinol)** psychotropic activity
- **CBD (cannabidiol)** non-psychotropic activity
- Terpenes – responsible for smell and taste of cannabis

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How Cannabis Works

Endocannabinoid System (ECS) – Internal Homeostatic System

- plays a critical role in the nervous system
- regulates multiple physiological processes including:
  - modulation of pain, appetite, digestion, mood & seizure threshold
  - influences immunomodulation, cardiovascular functions, sensory integration, fertility, bone physiology, the hypothalamic-pituitary-adrenal axis, neural development & intraocular pressure

Cannabinoids block/stimulate receptors in ECS

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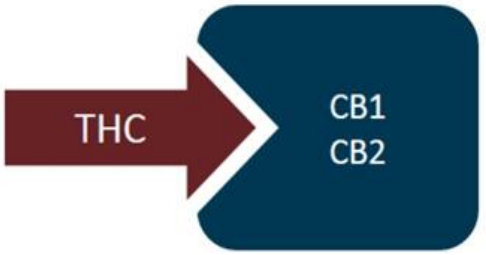
THC (delta-9-tetrahydrocannabinol) Pharmacology

THC binds to exogenous CB1 and CB2 receptors:

- CB1 receptors in CNS (brain, spinal cord, hippocampus, cerebellum, peripheral nerves)
- CB2 receptors outside the brain, immune system and peripheral cells



Activation of these receptors cause:

- euphoria
- impaired memory/cognition
- reduced locomotor function
- analgesic
- sleep-promoting effects
- psychosis
- antiemetic
- increased appetite
- anti spasticity

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CBD (cannabidiol) Pharmacology

CBD - low affinity for CB1 receptors (non-psychogenic)

Activation of these receptors:

- analgesia
- anxiolytic
- antipsychotic
- anti-inflammatory (decrease pain)
- antiepileptic

Pharmaceutical vs Dispensary Sourced Cannabinoids ; What's the Difference Medscape Education CME Released March 21, 2018

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FDA Approved Products

Synthetic (THC based)

Dronabinol

- *Marinol* synthetic version of THC (2.5 mg, 5 mg, 10 mg capsules) ~$800 #60
- *Syndros* 5mg/ml 30ml ~ $1400
- Tx of refractory CINV ; anorexia associated weight loss in patients with AIDS
- Off label: Sleep apnea

Nabilone (*Cesamet*)

- Chemically similar to THC (1 mg capsule) $2000 #60
- Tx of refractory CINV

Plant (CBD based)

Cannabidiol (*Epidiolex* - anticonvulsant); purified CBD 100mg/ml $$$$

- Tx certain types of refractory childhood-onset seizures due to Dravet & Lennox-Gastaut syndromes

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Recreational (Adult-Use) Cannabis

Unregulated ratios of THC to CBD

THC concentration in plants varies based on cultivation and manipulation of plants

1980s – THC 3%

2009 – averaged 13%

Now – ranges from 15% to 20%; up to 37%

Massachusetts:

- Taxed; > 21 years can purchase
- Some regulation for safety and efficacy
- Possession: 1 oz. on person / up to 10 oz. in home
  grow up to 6 plants home

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Medical Marijuana (MMJ)

Higher ratio of CBD to THC; fewer psychoactive effects

Plant species (sativa, indica or hybrid) - cultivated under quality controlled / reproducible THC & CBD levels

Strictly regulated for product safety /efficacy

Assayed for: cannabidilols; heavy metals; pesticides etc.

Massachusetts:

- Not taxed
- MA resident; ≥ 18 years old
- < 18 years requires 2 MA licensed certifying MDs
- Cannabis card; physician certification

https://www.mass.gov/lists/medical-use-of-marijuana-laws-regulations-and-guidance#guidance-for-health-care-providers-

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Medical Marijuana (MMJ)

Debilitating medical conditions:

Cancer	AIDS	glaucoma		HIV
Crohn's Dx	Hep C	ALS	PD	MS

"Debilitating" defined as causing weakness, cachexia, wasting syndrome, intractable pain, or nausea, or impairing strength or ability and progressing to such an extent that one or more of patient's major life activities is substantially limited.

Medical Marijuana Access Process

Patient

Self Referral or Provider Referral

Application for Medical Marijuana Card

On-line via Cannabis Control Commission

Takes 2-3 weeks

https://www.mass.gov/orgs/medical-use-of-marijuana-program

Certification Process

MMJ Physician Practice
David Rideout (Salem)

Casco Bay Medical
Jeremy Spiegel (Danvers)

Delta 9 Medical
Harold Altvater (Methuen & Malden)

Medical Marijuana Dispensary

Alternative Therapies Group (Salem)

Healthy Pharms Medical Cannabis Dispensary (Georgetown)

- *As of January 2019: 49 RMDs (Registered Marijuana Dispensaries); 59,161 active patients & 288 registered providers*

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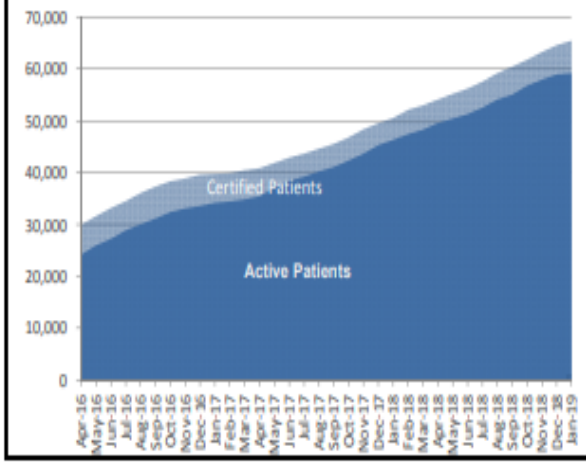
Massachusetts Medical Use of Marijuana Program: External Dashboard — Jan-19

REGISTRATION

Patient Count Snapshot

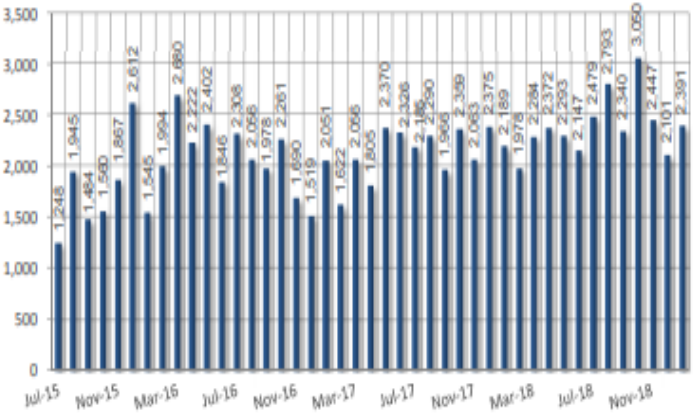


Patient and Caregiver Metrics	New in January	Total through January 31
Total Active Patient Certifications	2,740	65,423
Total Active* Patients	2,391	59,161
Total Active** Caregivers	364	7,039

* certified and registered
** registered

Certified Healthcare Providers Metrics	New in January	Total through January 31
Registered Physicians	5	244
Registered CNP	2	44

New Active* Patients

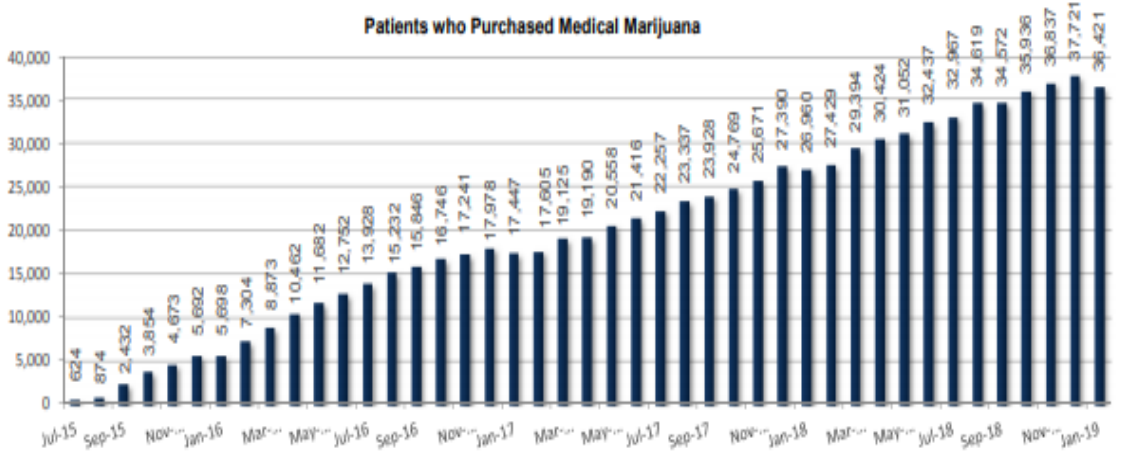


COMPLIANCE

Aggregate RMD Business Activity	New in January	FY Total through January 31
Unique Patients Served	36,421	59,860
Unique Caregivers Served	1,495	3,061
MMJ Sold, oz.	36,156	255,062

RMD Status	New in January	FY Total through January 31
RMDs With Final Certificate, approved to sell	0	49
RMDs with Final Certificate, not yet approved to sell	0	3
Expired Provisional Certificates	0	3
RMDs with Provisional Certificate, in Inspection Phase	0	103

Patients who Purchased Medical Marijuana



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Medical Marijuana Products

Flowers, Edibles, Capsules, Topicals, Tincture, Lozenges, Concentrates (vaping)

Flower | Edibles | Topicals | Concentrates

Medical only

Brother Jonathan's White Chocolates: Sativa

Strain type: Sativa

Genetics: Gorilla Glue

Description: Brother Jonathan's Alchemy sativa white chocolates. Each package contains six servings. Each serving contains 10 mg of cannabis oil.

Cannabinoid Profile:

TAC: 72.54 mg D9-THC: 72.54 mg

Pricing: $30 each

Medical only

Brother Jonathan's White Chocolates: High CBD

Strain type: Hybrid

Genetics: Cannatonic

Description: Brother Jonathan's Alchemy indica High CBD chocolates. Each package contains six servings. Each serving contains 10 mg of cannabis oil.

Cannabinoid Profile:

TAC: 61.62 mg CBD: 46.02 mg
D9-THC: 15.6 mg

Pricing: $30 each

Medical only

Brother Jonathan's Capsules: Indica

Strain type: Indica

Genetics: White Rhino

Description: Brother Jonathan's Alchemy indica gelcap capsules. Each package contains 30 capsules. Each capsule contains 10 mg of cannabis oil.

Cannabinoid Profile:

TAC: 344.4 mg CBD: 27.9 mg
CBD-A: 0.9 mg THC-V: 1.8 mg
D9-THC: 302.4 mg CBC: 4.8 mg
CBN: 6.6 mg

Pricing: $50 each

Medi
onl

Brother Jonathan's Capsules: Sativa

Strain type: Sativa

Genetics: Gorilla Glue

Description: Brother Jonathan' Alchemy sativa gelcap capsule Each package contains 30 capsules. Each capsule contair 10mg of cannabis oil.

Cannabinoid Profile:

TAC: 294.3 mg CBD: 1.5 mg
THC-V: 2.1 mg D9-THC: 290.7

Pricing: $50 each

Consumable Cannabis Products





	Flower	Concentrate	Edible	Tincture*	Topical/Transdermal*
Consumption Method	Inhalation	Inhalation	Ingestion	Methods Vary Can be ingested or taken sublingually	Applied to Skin
Onset	Within 1 Minute	Within 1 Minute	30-120 Minutes	15-60+ Minutes Depending on consumption method	30-120 Minutes Dependent upon application location, additional ingredients, & other factors
Duration Depends on potency & individual metabolism	0.5 to 2 Hours	0.5 to 2 Hours	3+ Hours	1-4+ Hours Depends on consumption method and dose amount	1-4+ Hours Depends on application location, additional ingredients, & other factors (Could last as long as 72 hours)
Benefits	Easy to titrate dose	Less undesired plant material consumed	Discreet, no inhalation, longer-lasting effect	No inhalation, lasting effect, dose control	No ingestion, discreet, lasting effect, targeted relief, compatible w/ daily activities
Amount of Max THC	5-30%	40-90%	Typically 0-100 mg understanding serving size is crucial	Typically 0-100 mg understanding dosing is crucial	0-50 mg per application

***Clinical studies for these products are insubstantial. The figures above are estimated ranges based on the limited data available.**

MCR Labs Framingham MA accessed website February 21, 2019

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Edible Labeling

Each single serving must be marked, stamped, or imprinted with a symbol indicating it contains marijuana

Brownies with the printed THC stamp at the Zoots marijuana edibles production facility in Denver in 2016.
—*Bob Pearson / The Boston Globe*

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Gaps in Mass MMJ Process

Physician “certifiers” NOT “prescribers”; no prescription

law requires “annual” recertification

Patient sent to dispensary:

Dispensary Agent, Compassion Care Technician, Patient Liaison or BUDTENDER

Inconsistent training; certification programs (4 hrs); some on-line (several modules); on-the-job training; some testing & exams

Dosing: Little or no guidelines; “Start slow, go low”

Delivery method determined by patient & budtender

RPh Dispenses: NY, Conn, PA, Minnesota & VA

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Drug-drug and Food Interactions

THC and CBD are primarily metabolized by Cytochrome P450 enzymes

- **Inhibitors** of these enzymes

  increase THC & CBD blood levels

- **Inducers** of these enzymes

  decrease THC & CBD blood levels

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Drug-Drug and Drug-Food Interactions

Cannabidiol (CBD)

Inhibitors Increase CBD Levels

Ritonavir
Verapamil
Voriconazole
Fluconazole
Omeprazole

Inducers Decrease CBD Levels

Carbamazepine
St. John's wort
Primidone
Rifampin

CBD Increases Substrates Below:

Amiodarone
Warfarin
Clopidogrel
Fenofibrate
Amitriptyline
Citalopram
Fluoxetine

Carbamazepine
Clobazam
Lamotrigine
Phenytoin
Valproic acid
morphine

CBD may Increase or Decrease Substrates

Amitriptyline
Bupropion
Cyclobenzaprine

CNS depressants (e.g. alcohol, opioids, benzodiazepines) → SE (e.g. dizziness, drowsiness)

High calorie / fat food → increases CBD absorption

Delta-9-tetrahdrocannabinol (THC)

Inhibitors Increases THC Levels

Sulfamethoxazole
Clarithromycin
Telithromycin
Voriconazole
Fluconazole
Ketoconazole
Grapefruit
Ritonavir
Indinavir
Viekira Pak
Verapamil
Conivaptan
PPIs
Ginko

Inducers Decrease THC Levels

Carbamazepine
Phenytoin
St John's Wort

Displaces highly protein bound drugs → higher drug levels, ADEs & toxicities

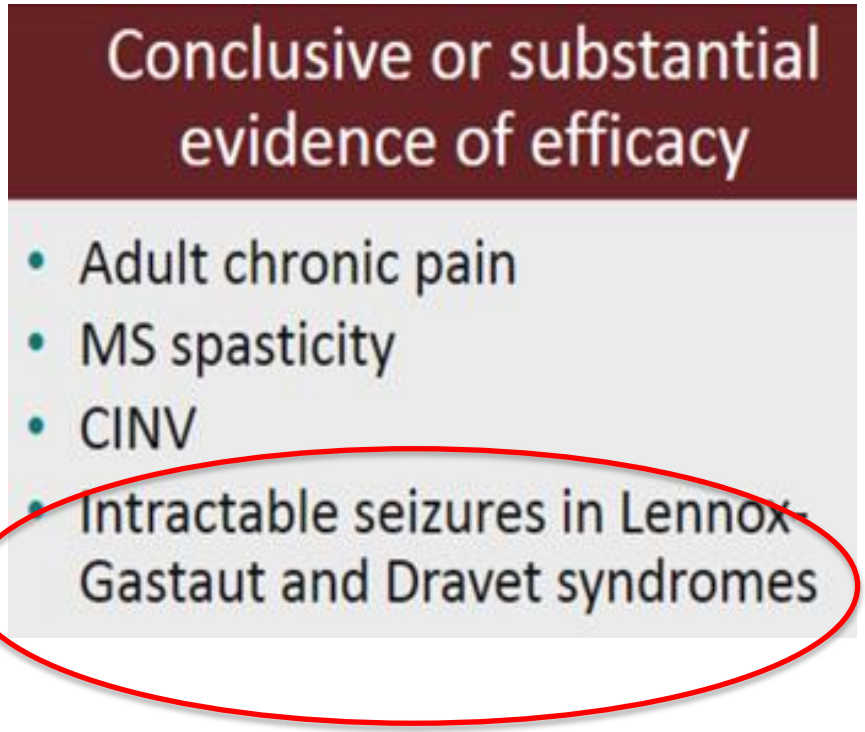
e.g. monitor & adjust dosing of cyclosporine & warfarin when starting or changing THC doses

THC may have additive effects with hypnotics, sedatives, psychotropics & alcohol

References: The Answer Page
Comparison of Cannabinoids Prescriber Letter Sept 2018

What is the evidence of efficacy?

Cannabis & Cannabinoids
Evidence of Efficacy
Conclusive



- Treatment **Chronic Pain** in Adults
- Antiemetics in treatment of **chemotherapy-induced nausea & vomiting (CINV)** (oral cannabinoids)
- Improving patient-reported **MS spasticity** symptoms (oral cannabinoids)

MacCallum CA, et. Eur J Intern Med. 2018;49:12-19

The Health Effects of Cannabis & Cannabinoids: Current State of Evidence & Recommendations for Research; National Academies of Sciences, Engineering, & Medicine January 2017

Evidence of Efficacy
Moderate

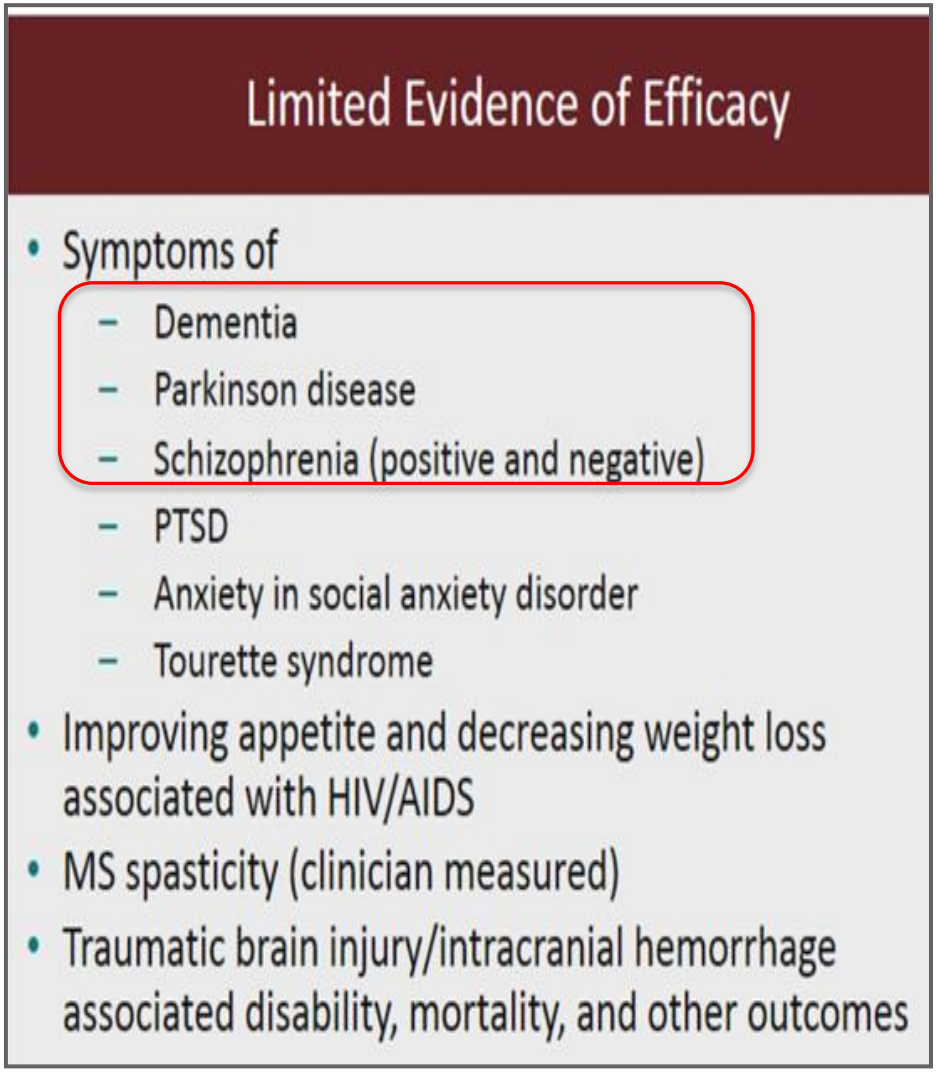
Moderate evidence of efficacy

- Improving sleep disturbance associated with
  - Chronic pain
  - Fibromyalgia
  - MS
  - Obstructive sleep apnea
- Decreasing intraocular pressure associated with glaucoma

- Improving short-term sleep outcomes in sleep disturbance associated with
  - **obstructive sleep apnea**
  - **Fibromyalgia**
  - **Chronic pain**
  - **MS**

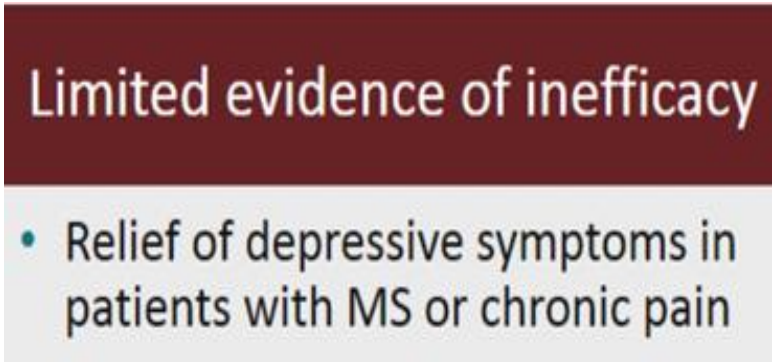
  (cannabinoids, primarily nabiximols)

Evidence of Efficacy
Limited



- Increasing appetite & decreasing **weight loss associated w/ HIV/AIDS** (cannabis & oral cannabinoids)
- Improving clinician-measured **MS spasticity** symptoms (oral cannabinoids)
- Improving **symptoms of Tourette syndrome** (THC capsules)
- Improving **anxiety symptoms**, as assessed by public speaking test, in individuals with **social anxiety disorders** (cannabidiol)
- Improving **symptoms of PSTD** (nabilone 1 trial)
- Better outcomes (i.e. mortality, disability) after **a traumatic brain injury or intracranial hemorrhage**

Evidence of <u>Inefficacy</u>
Limited



- Dementia (cannabinoids)
- Intraocular pressure associated with glaucoma (cannabinoids)
- Depression symptoms in patients with chronic pain or MS (nabiximols, dronabinol and nabilone)

Evidence of Efficacy or Inefficacy

Insufficient

Insufficient evidence of efficacy or inefficacy

- Addiction abstinence
- Cancers, including glioma
- Cancer-associated anorexia, cachexia syndrome, and anorexia nervosa
- Symptoms of
  - Irritable bowel syndrome
  - Amyotrophic lateral sclerosis
  - Chorea and some neuropsychiatric associated with Huntington disease

- Cancers, including gliomas (cannabinoids)
- CA associated anorexia cachexia syndrome & anorexia nervosa (cannabinoids)
- IBS symptoms (dronabinol)
- Spasticity (pts w/ spinal cord injury (cannabinoids)
- ALS symptoms (cannabinoids)
- Chorea & certain neuropsychiatric symptoms associated with Huntington's disease (oral cannabinoids)
- PD motor symptoms or levodopa-induced dyskinesia (cannabinoids)
- Dystonia (nabilone & dronabinol)
- Mental health outcomes in pts with schizophrenia or schizophreniform psychosis (cannabidiol)

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Take Away

FDA approved products different from MMJ; state oversight

- Little or no regulation of on-line or street products

Patient Talking Points:

- Safety / Storage
- Use the same approach counseling as would for any other medication, including discussing risks associated w/impairment, toxicities, and side-effects
- Contraindicated in pregnancy & breastfeeding
- Discussion of potential drug interactions
- Assess for all OTC, (CAM) complementary alternative medications; herbals, cannabis, etc.

Cannabis use is a “polarizing topic”; more research needed