# Collaborative Care: Leveraging Technology to Integrate Psychiatric Treatment into Primary Care

**Tom Zaubler, MD, MPH, DLFAPA, FAPM**

CMO, NeuroFlow
Founder & Medical Director, Pegasus Psychiatry Associates
Clinical Professor, Sidney Kimmel Medical College, Thomas Jefferson University

# Disclosure Statement

- Tom Zaubler, MD, is a shareholder in and employed by NeuroFlow as the Chief Medical Officer. NeuroFlow is a health technology company focused on improving access to measurement-based behavioral health and psychiatric care in medical and behavioral health settings.

# Objectives

- Discuss the medical consequences and the morbidity, mortality and costs associated with psychiatric illness.
- Describe the impact of psychiatric illness from a population health perspective.
- Integrate collaborative care as a population-focused, measurement guided, and evidenced-based model of care.
- Explain how technology can be leveraged to enhance clinical care from a population health perspective and to scale collaborative care in medical settings on a regional, state or national level.

# **Mental Illness and Medical Co-morbidity:** Epidemiology, Consequences and Costs When Left Untreated

# Mental Health Care: Prevalence, Costs and Case for Treatment

**High Prevalence**

- Greater than 41 million US adults (18%) had a mental illness, with 9 million (4%) with mental illness causing significant functional impairment on a daily basis
- BH disorders are the leading cause of disability

**High Cost**

- Medical costs for treating pts with chronic medical and comorbid MH/SUD is 2 -3 x higher than in those without this comorbidity
- Depression increases health care costs 50-100%
- Additional healthcare costs incurred by BH comorbidity = $293 billion
- < 14% of those with insurance are receiving treatment for MH/SUD, but they account for > 30% of total healthcare spending

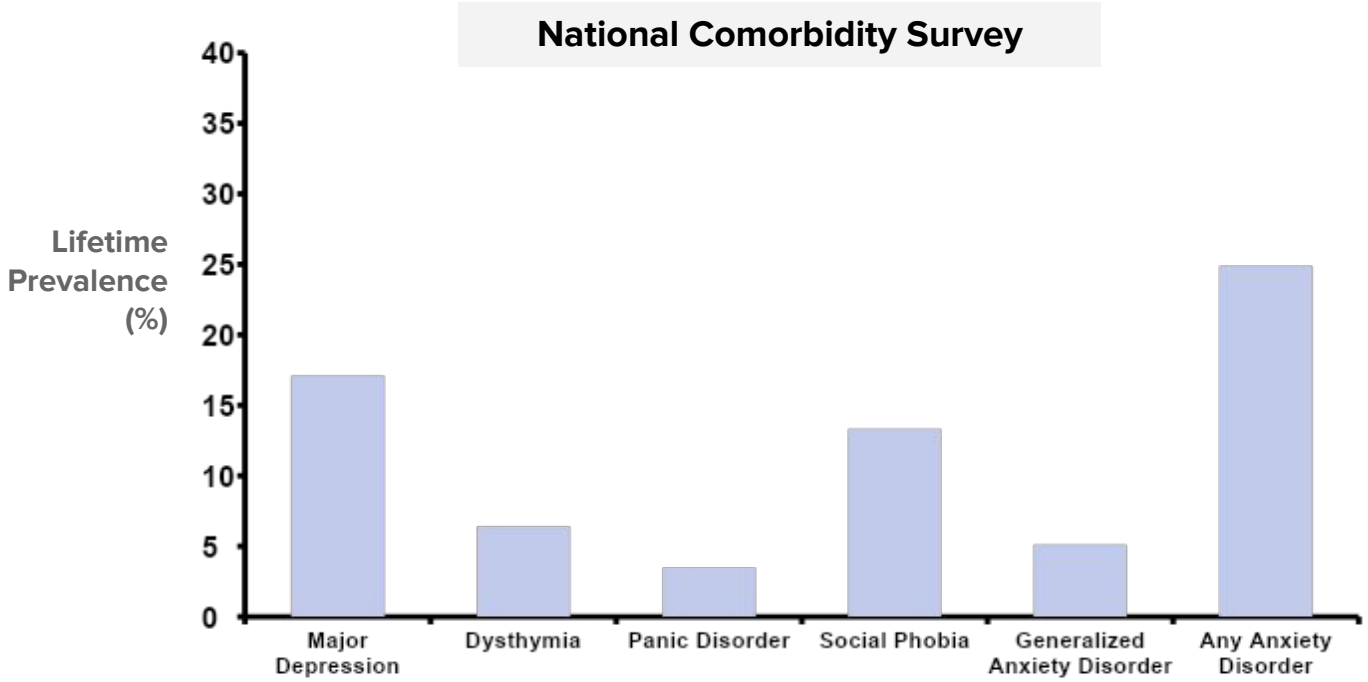
**Inadequate Treatment**

- About 60% of adults with serious BH impairment received no MH tx during the past year, with less than 1/3 of those who do get care showing any improvement

**Effective Care Available**

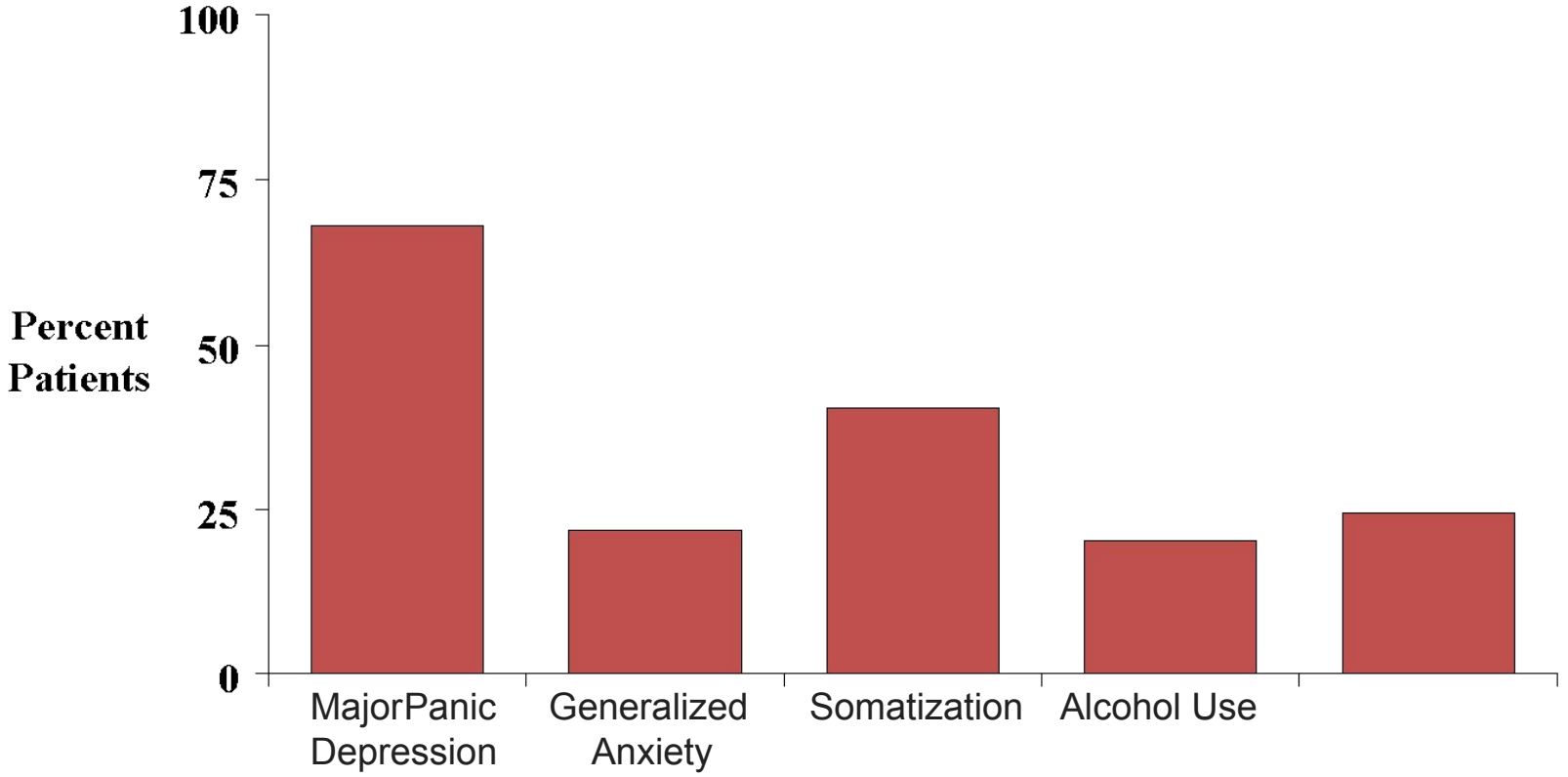
- Rate of improvement following MH tx is 70% - 90%
- $26 - $48 billion of potential annual savings by integrating medical and BH services

# Prevalence of Depressive & Anxiety Disorders



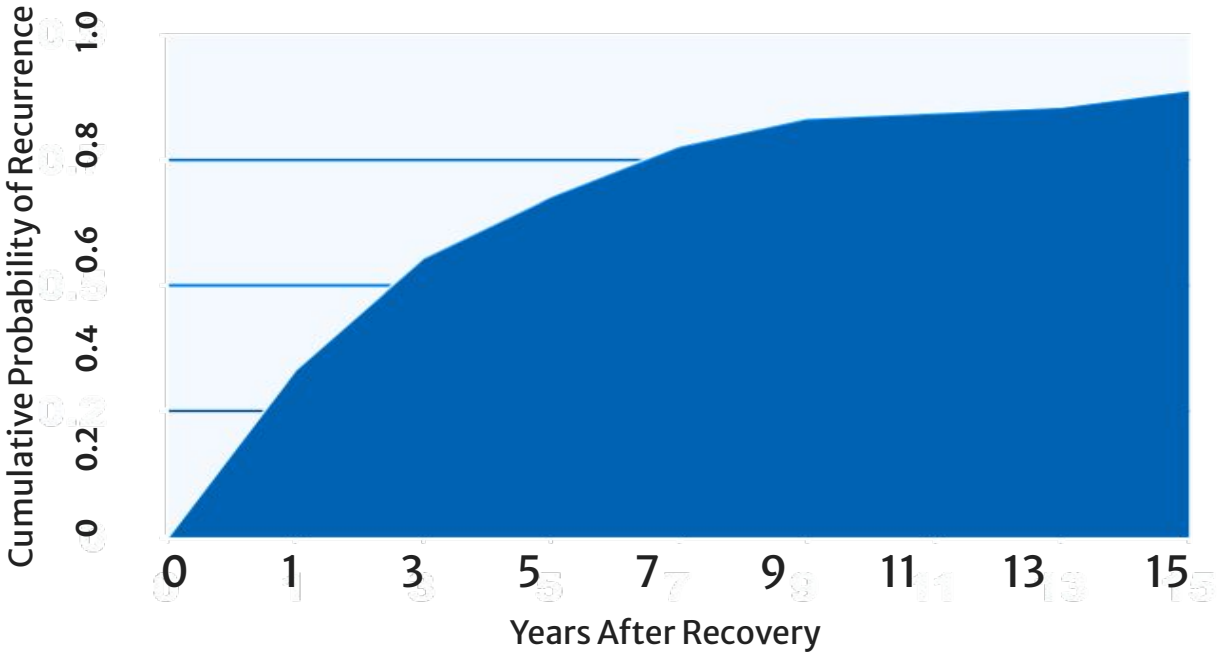

*Kessler et al. Arch Gen Psychiatry. 1994;51:8.*

# Lifetime Mental Disorders Of Distressed High Utilizers Of General Medical Care (N=119)



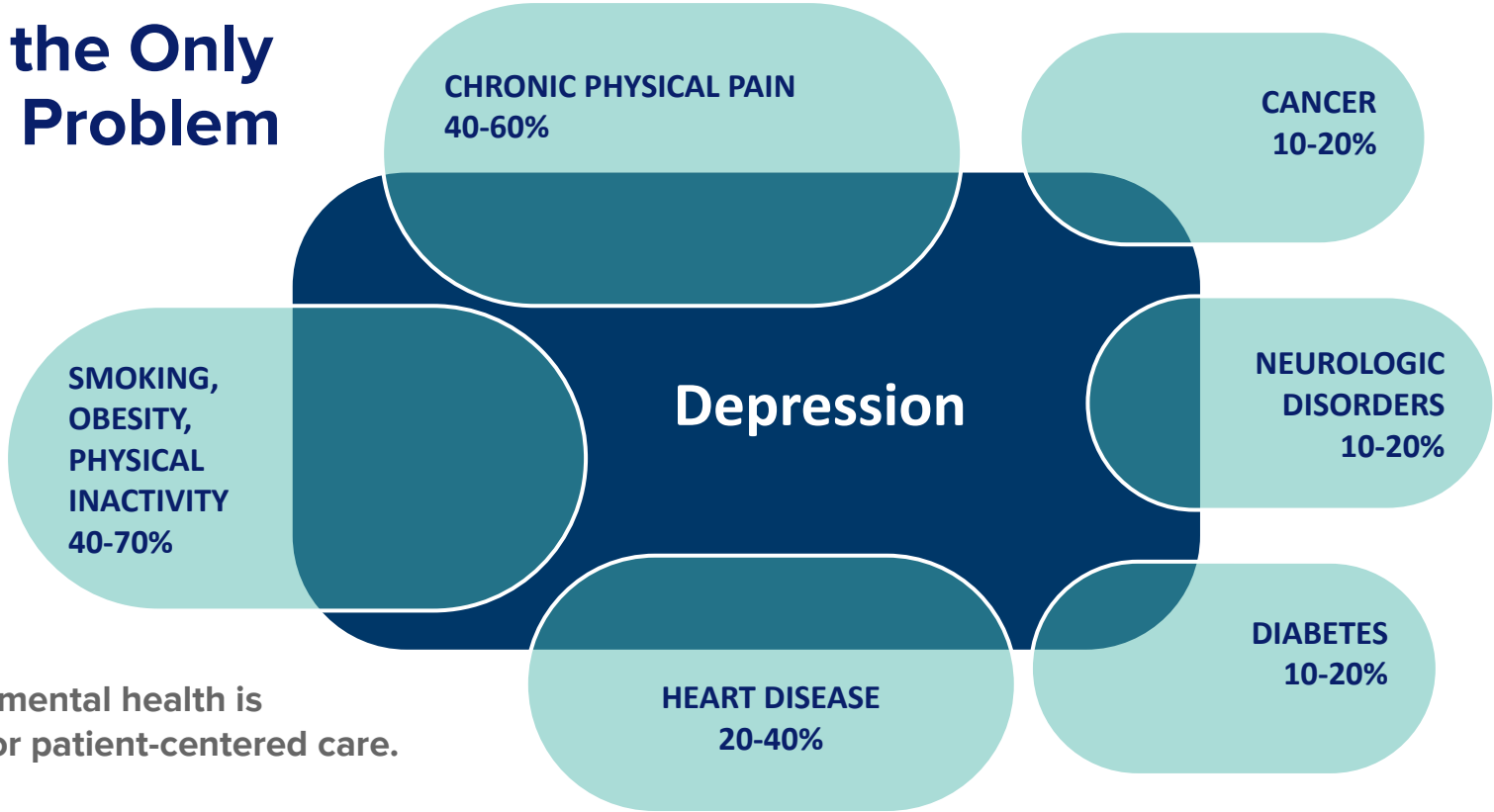
# Depression is a Chronic Disease [5]

## 15 years after recovery, *85% of patients have experienced a recurrence [1,2]



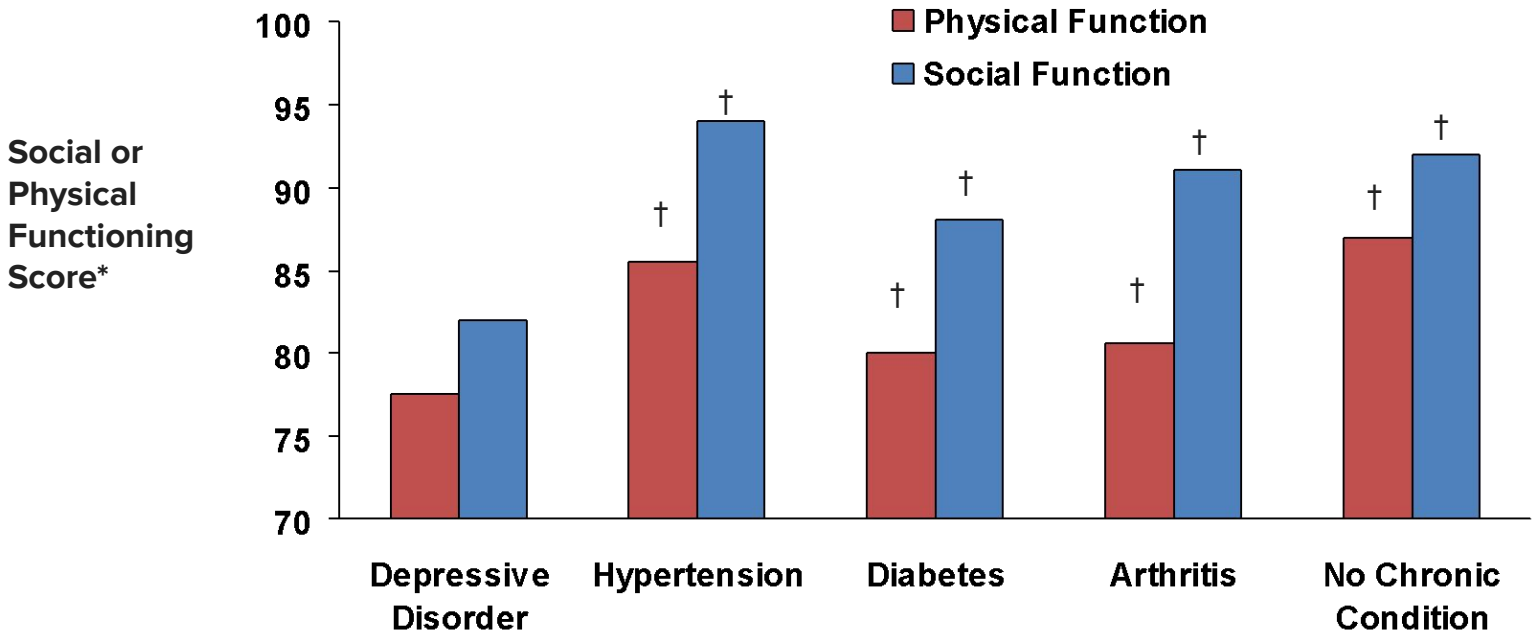
# Depression is Rarely the Only Health Problem

Percentage with comorbid behavioral condition



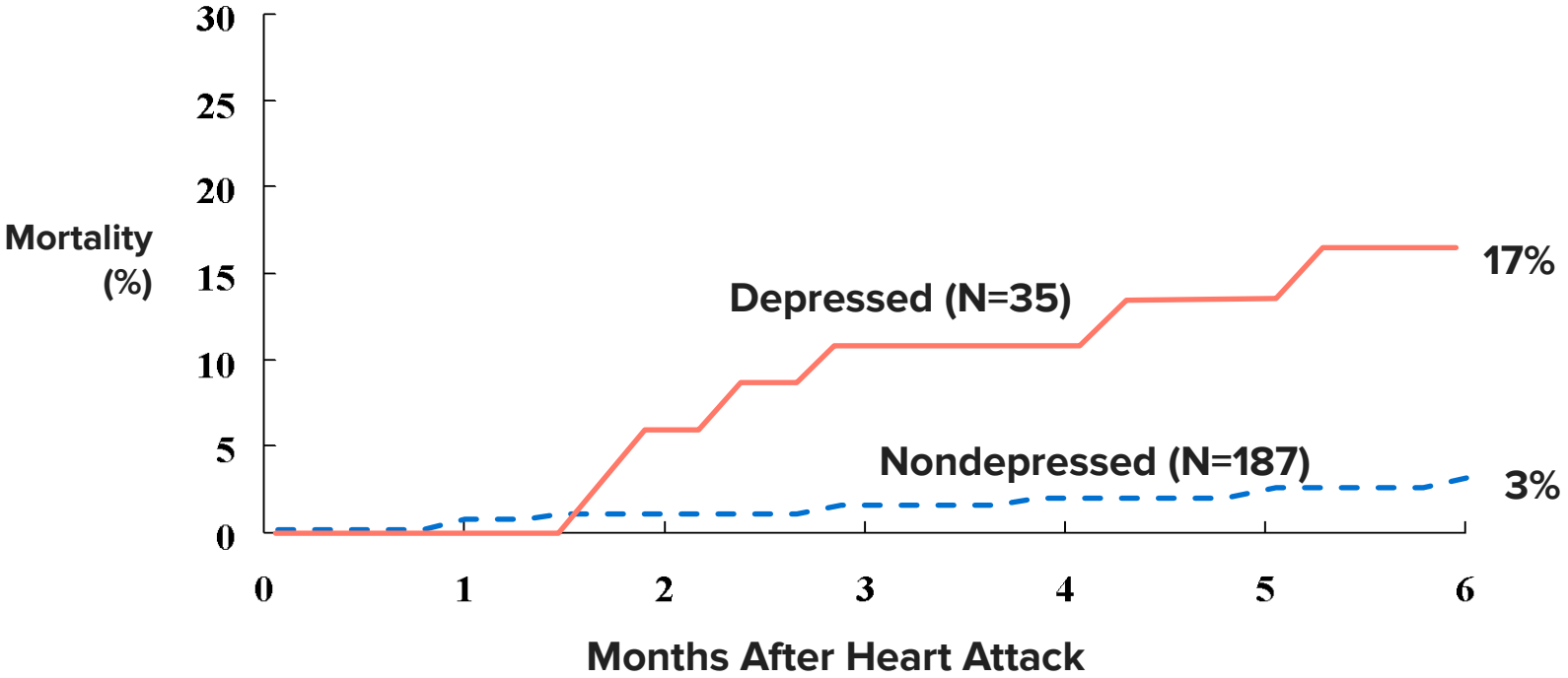

**Addressing mental health is necessary for patient-centered care.**

# Physical and Social Functioning in Patients With Depressive Disorders



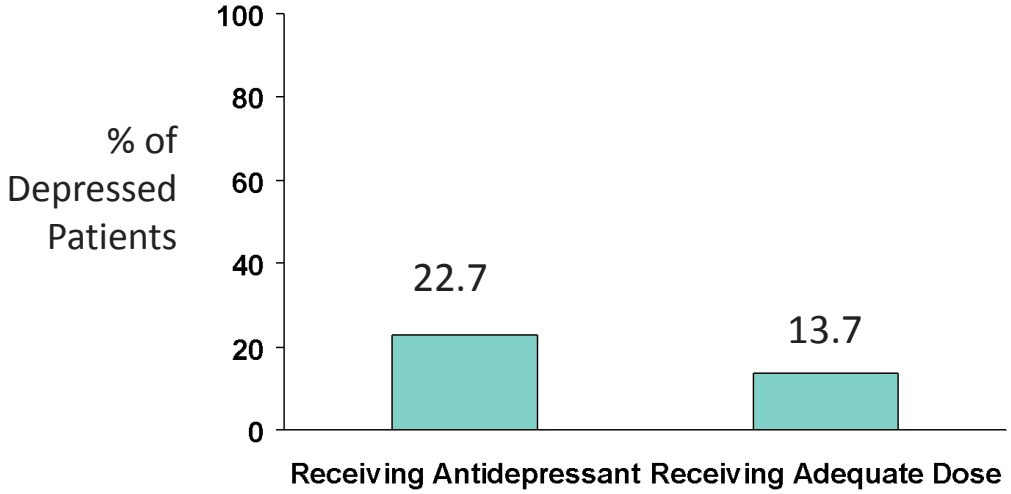

*Score of 100 = perfect functioning.
†*P* <.05 vs depressive disorder.
Wells KB et al. *JAMA*. 1989;262:914-919.

# Cumulative Mortality For Depressed And Nondepressed Patients Following Heart Attack



# Depression Is Underdiagnosed and Undertreated

Medical Outcomes Study



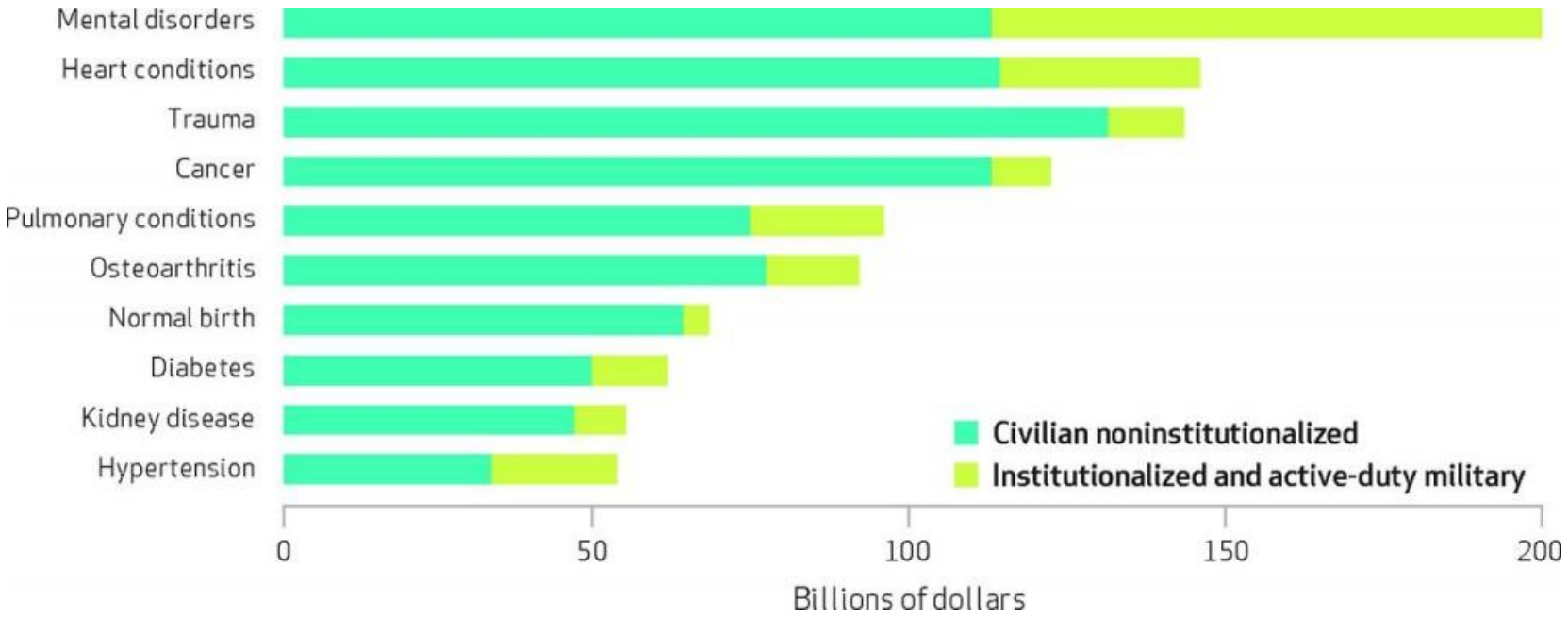

Wells KB et al. *Am J Psychiatry.* 1994;151:694-700.

# Impact of Major Depressive Disorder on Individuals and Society

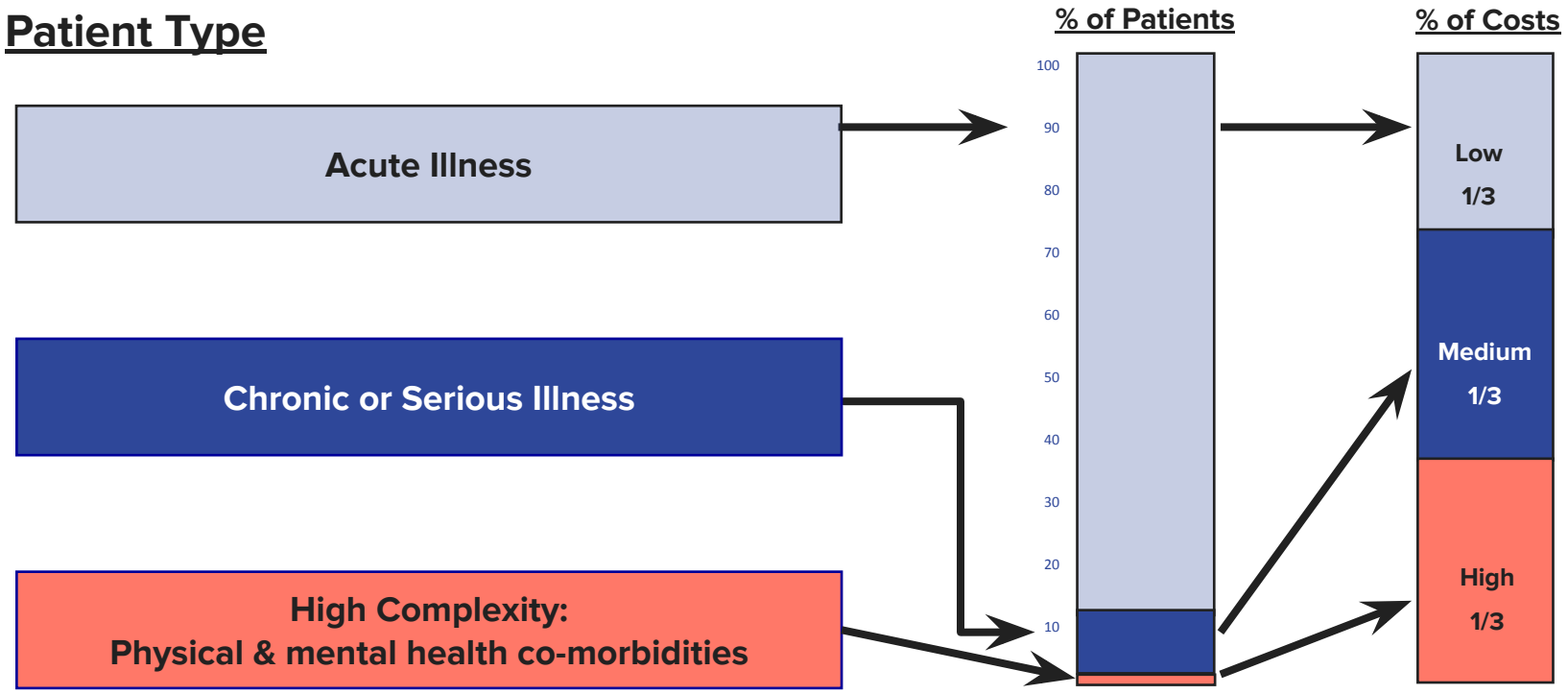
- Major depressive disorder interferes with social and physical functioning more than other serious chronic diseases such as hypertension, diabetes, arthritis, and back pain
- Burden on society
  - Increased number of lost days of work
  - Less productivity at work
- Increased healthcare utilization
  - More physical illnesses
  - Increased mortality due to suicide

Ormel J et al. *J Am Geriatr Soc.* 1998;46:39-48.
Wells KB et al. *JAMA.* 1989;262:914-919.
Depression Guideline Panel. *Depression in Primary Care: Vol 1. Detection and Diagnosis. Clinical Practice Guideline No. 5.* 1993.
Finkelstein SN et al, Consensus Conference on Undertreatment of Depression; 1996.

# Cost of Mental Health Care



# Health Complexity Requires Individualized Physical and Mental Condition Care Integration

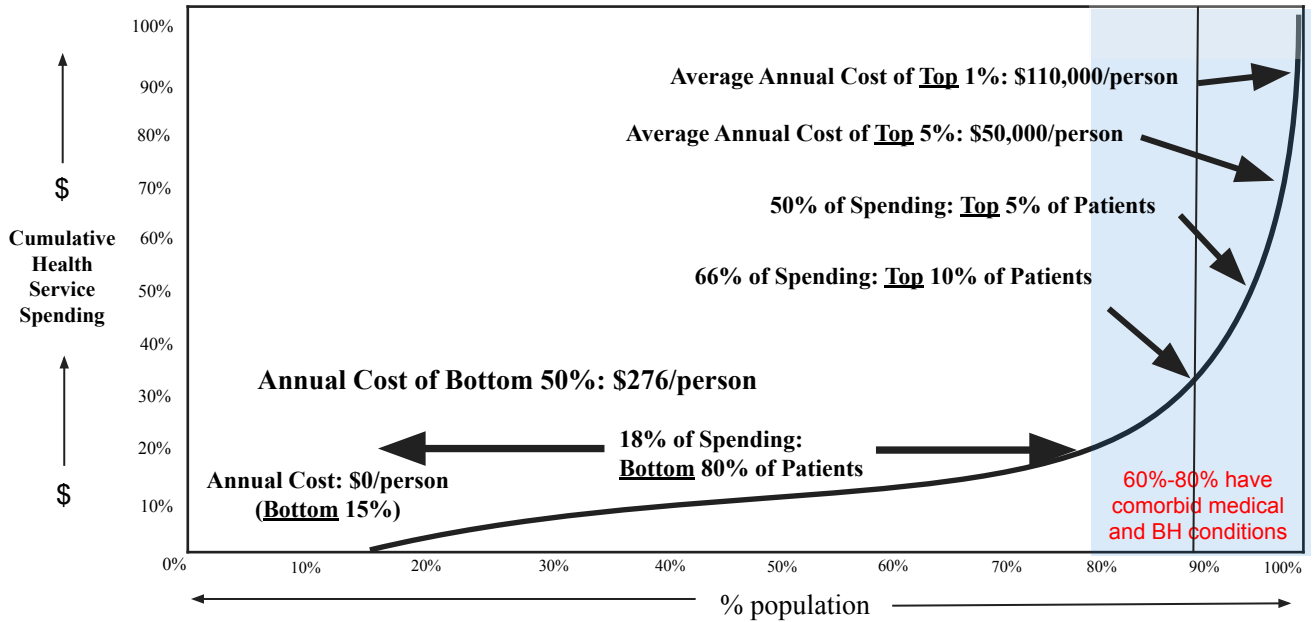



Cartesian Solutions, Inc.™ ©

Adapted from Meier DE, J Pall Med, 7:119-134, 2004

# Cumulative US Health Care Costs for Patients, 2019

Average Per Capita Health Care Costs in US Dollars: $11,500 in 2019 ($10, 345 in 2018)




--AHRQ Statistical Brief #521, February 2019; Kathol R, Cartesian Solutions; Malek, S, Malek Consulting

# Health & Cost Impact of Comorbidity at the Patient Level

| Patient Groups | Annual Cost of Care | Illness Prevalence | % with Comorbid BH Condition* | Annual Cost with BH Condition | % Increase with BHI Condition |
|---|---|---|---|---|---|
| All Insured | $5,110 | 17% | | | |
| Arthritis | $12,290 | 7.7% | 33% | $24,200 | 97% |
| Asthma | $9,810 | 3.7% | 29% | $23,610 | 141% |
| Cancer | $21,340 | 2.7% | 31% | $35,660 | 67% |
| Diabetes | $16,210 | 5.6% | 29% | $25,980 | 60% |
| CHF | $20,560 | 1.9% | 39% | $31,950 | 55% |
| Endocrine | $12,510 | 17.6% | 32% | $21,610 | 73% |
| COPD | $17,350 | 0.9% | 45% | $33,030 | 90% |

*Approximately 10% of comorbid patients receive evidence-based BH treatment

Kathol R, Cartesian Solutions; Malek, S, Malek Consulting

# Health Costs for All Patients with BH Claims Regardless of Presentation Location

## (2014-2015 benefits)

| | **Total** Population **Served** | **% of Pop. with BH Claims** | **Total Annual Spend** | **% BH* Spend on Total Pop.** | **% of Total Medical Claims Incurred by BH Pop.** |
|---|---|---|---|---|---|
| Commercial | 200.1M | 18% | 1.1T | 5.8% ($63.8B) | 32.7% ($358.6B) |
| Medicare: Medicaid | 142.8M (57.7:75.1) | 15% (10:20) | 1.1T | 8.4% (1.9:15.2) ($91.4B) | 27.0% (21.8:32.6) ($295B) |
| **Total** | **342.9M** | **16%** | **2.2T** | **6.0% ($130B)** | **28.4% ($622B)** |

Melek et al , Milliman Report, 2018

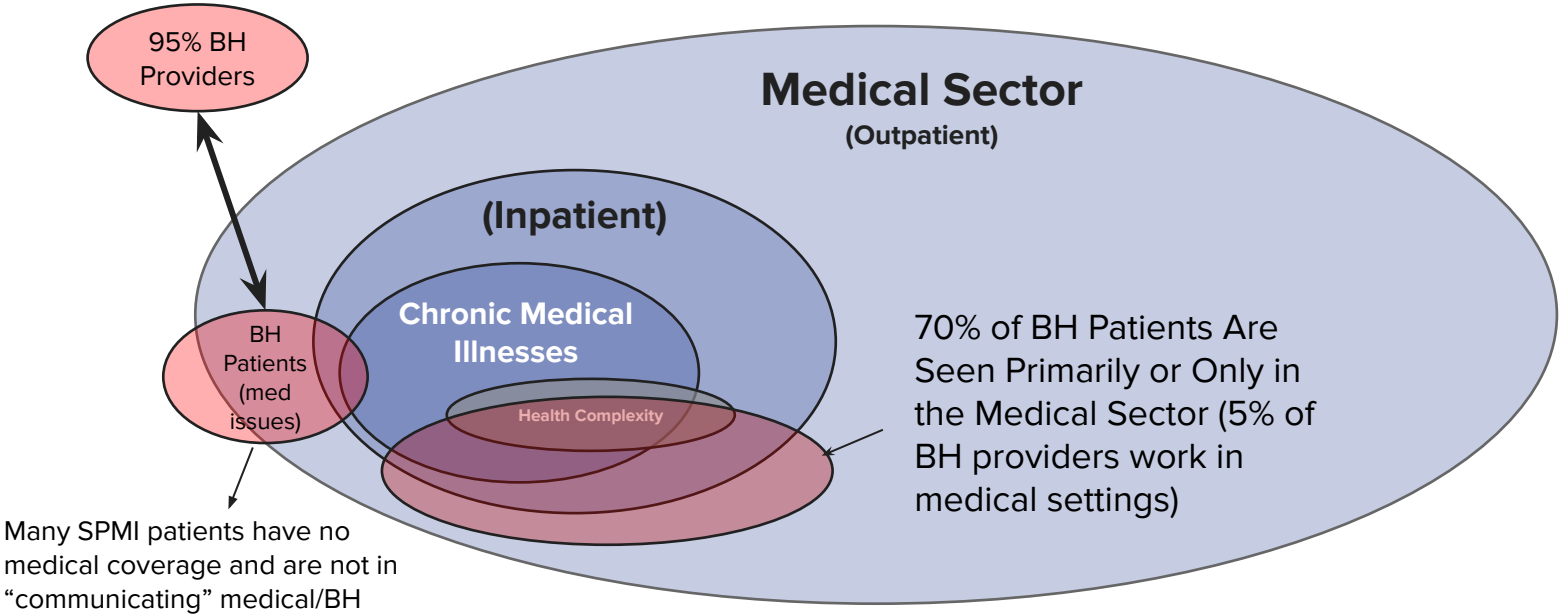
--the cost of medical services is 4.7 times BH services but lives in a separate payment world

# The Need for Integrated Care

# The Effect of Delivery System Segregation

**Behavioral Health Sector** { BH Patients Seen in the BH Sector (30%)

1. Integrated service delivery is not possible in the segregated system
2. High total health cost for comorbid patients is a natural outcome








Kathol R, Cartesian Solutions; Malek, S, Malek Consulting

# Prevalence of MH/SUD Disorders and Low Rates of Detection + Treatment for Adults in Primary Care

**Psychiatric conditions are already mostly treated in primary care**

- 20-40% of primary care patients have behavioral care needs
- Up to 80% of antidepressants are prescribed by primary care physicians
- Depression goes undetected in >50% of primary care patients
- Only 20-40% of patients improve substantially in 6 months without specialty assistance
- Only about half of patients referred to specialty mental health actually follow through

Mitchell AJ, et al: Clinical diagnosis of depression in primary care:a meta-analysis.The Lancet; 2009; 374:609-619.
Schulberg HC, Block MR, Madonia MJ, et al: Treatment of major depression in primary care practice:
8-month clinical outcomes. Arch Gen Psychiatry 1996; 53:913-919

# Adolescents: Prevalence and Consequences of Psychiatric Illness

**Pediatricians are de facto mental health providers**

About 50% of all pediatric office visits involve behavioral, psychosocial or emotional concerns.

**Prevalence of mental illness in adolescence**

- 20% of adolescents experience an episode of depression by age 18.
- 8% - 12% of teens have an anxiety disorder.
- 50% of all lifetime cases of mental illness start before 14 yo and 75% before 24

**Deficiencies in identification and care delivery**

- Despite the prevalence, fewer than 1 in 5 adolescents receive any psychiatric care; 60% of those with depression and 80% of those with anxiety do not get any treatment.
- When treatment is started, there is an 8 to 10 yr delay between onset of symptoms and treatment initiation.

**Consequences of untreated mental illness**

Depression is associated with increased risk for suicide, school failure, substance misuse, nicotine dependence, early pregnancy and social isolation.

Long term, depression in adolescence results in a significantly increased risk of low socio-educational achievement, unemployment, recurrent depression, maladaptive illness behaviors and poor health.

# Shortage of Mental Health Providers In the US

- 2/3 of all PCPs report trouble finding mental health specialists
- 55% of counties in the US have no psychiatrist; 77% report a severe shortage
- In some states such as Maine there was a 50% drop in the number of psychiatrists between 2015 and 2020. leading to wait times of up to 1 ½ years
- 70% of psychiatrists are 50 years old or older
- Demand for psychiatrists will outstrip supply by 25% in 2025

Psychiatric Times: Psychiatric Care in the US, April 2022

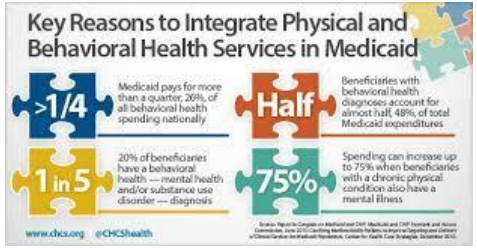
# Consultation vs Co-location vs Integration in Primary Care

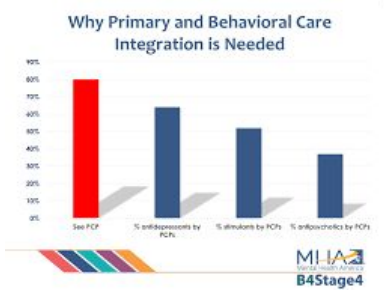
# BHI: Evidence Base and Challenges

- There is a lot written about the value of integrating behavioral health in primary care.
  - In Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care (2021) the Nat'l Academy of Science, Engineering and Medicine emphasizes that "the evidence is convincing that behavioral health integration for both child and adult populations is effective at improving clinical outcomes and lowers costs and should be advanced, scaled and accessible **immediately**." (p.167)
- Multiple well-researched, comprehensive guides have been published over the last 30 years (with increasing frequency in the last decade) intended to enable primary care practices to provide integrated access to behavioral health care.
- There has been progress in the adoption of integrated behavioral health, but it is difficult to find data on the extent to which practices have incorporated behavioral health in their operations. Estimates of the percentage of practices that have done so vary from 14% to 30%.

# Proposed Goals for BHI

1. Improvement in patient symptoms.
2. Improved patient perception of quality of life
3. Reduction in primary care clinician's reports of burn-out and burden
4. Reduction in the cost of care (lower morbidity and mortality and use of emergency care)
5. Improved access to behavioral health care for underserved populations (health equity)
6. Reduction in stigma



# Principles and Steps for BHI: Not quite parallel

**CoCM: Five Principles Required**

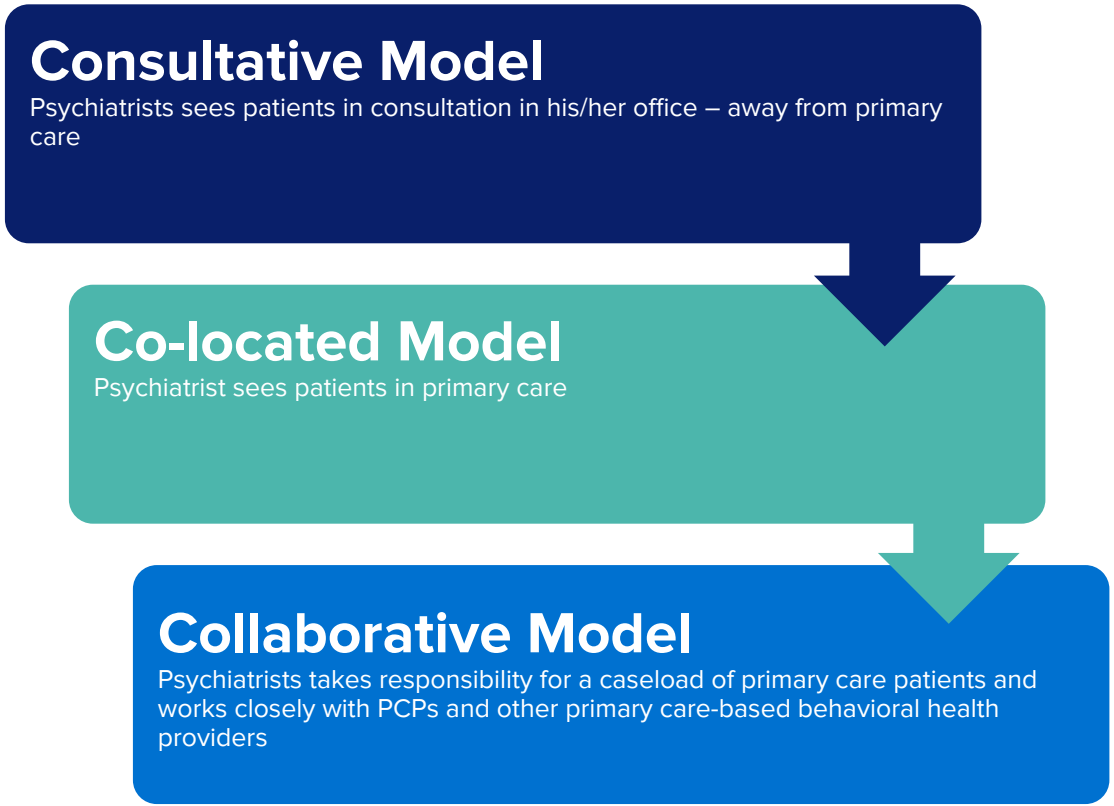
Montefiore DOING MORE

| | | |
|---|---|---|
| **Patient-Centered Team Care** |  | **Systematically Screen for BH Conditions Using Patient Self Report Methods**<br>• e.g. PHQ9, GAD7, AUDIT-C<br>• Collaborative agreement with specialty BH provider |
| **Population-Based Care** |  | **Repeated Measurement of a Measure Outcome Using a Tracking Tool**<br>• Assertive Follow-Up/Care Management to Promote adherence to treatment |
| **Measurement-Based Treatment to Target** |  | **Improve Teamwork in Practice**<br>• Everyone contributes to whole health<br>• Integrated patient visits |
| **Evidence-Based Care** |  | **Expand Roles of Office Staff to Play Care Management Roles** |
| **Accountable Care** |  | **Establish Warm Handoff Capability with on Site or Off Site BH Provider** |

H Chung, MD, Advancing the Integration of Behavioral Health into Primary Care for Small Practices

# Psychiatry and Primary Care

An evolving relationship

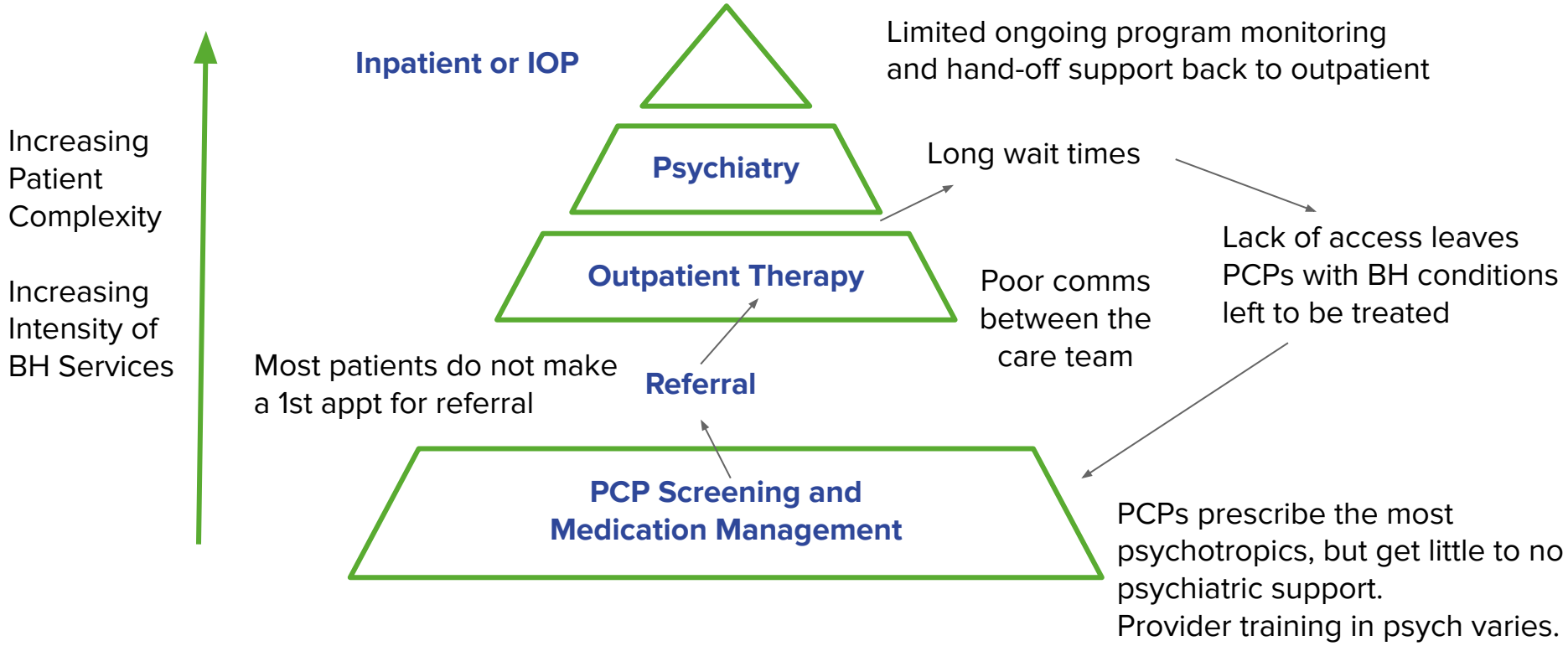


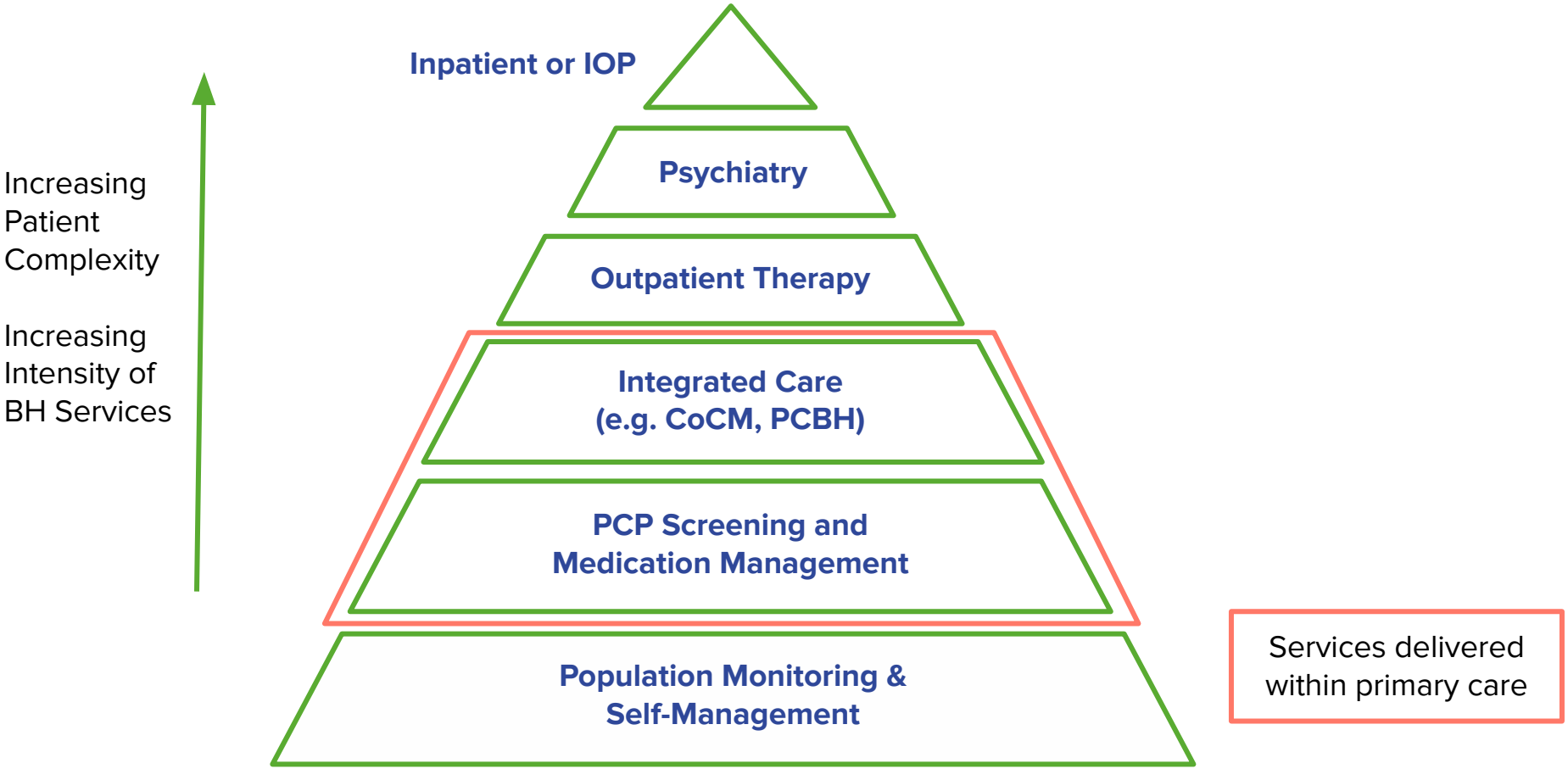
# There is a spectrum…

| Referral | | Co-Located | | Integrated | |
|---|---|---|---|---|---|
| Key Element: Communication | | Key Element: Physical Proximity | | Key Element: Practice Change | |
| **Level 1** Minimal collaboration | **Level 2** Basic collaboration at a distance | **Level 3** Basic collaboration on site | **Level 4** Close collaboration on site with some system integration | **Level 5** Close collaboration approaching an integrated practice | **Level 6** Full collaboration in a transformed / merged integrated practice |
| *Behavioral health, primary care, and other healthcare providers work:* | | | | | |
| In separate facilities | In separate facilities | In the same facility, not necessarily the same office | In the same space within the same facility | In the same space within the same facility with some shared spaces | In the same space within the same facility, sharing all practice space |

The National Council for Behavioral Health. (May 15, 2014). Primary Care Behavioral Health.
Retrieved from https://www.thenationalcouncil.org/wp-content/uploads/2013/10/May-15-Learning-Forum-Slides.pdf?daf=375ateTbd56

# Challenges of Current Allocation of Behavioral Health Resources



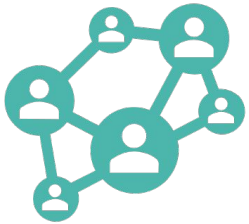

Increasing Patient Complexity
Increasing Intensity of BH Services
Inpatient or IOP
Psychiatry
Outpatient Therapy
Integrated Care (e.g. CoCM, PCBH)
PCP Screening and Medication Management
Population Monitoring & Self-Management
Services delivered within primary care

# Integrated Behavioral Health Care

Behavioral health and physical health services are integrated when:

Care is provided simultaneously within one location

Care is documented within a shared record



Care provision is coordinated within an interdisciplinary team

The National Council, 2014
AHRQ, n.d.

# Integrated Care Models

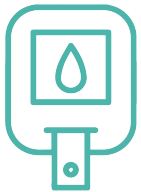
**Primary Care Behavioral Health**

- Co-located and integrated behavioral health specialists
- Evidence-based screening with diagnosis by primary care provider
- Warm hand-offs to behavioral health specialist
- Evidence-based behavioral treatments customized for primary care
- Treatment duration is ≤ 6 sessions (time-limited)

**Psychiatric Collaborative Care**

- Co-located or remotely integrated care manager with behavioral health training
- Evidence-based screening with diagnosis by primary care provider
- Decision support for complex mental health needs provided by a psychiatric consultant
- Algorithm-based, stepped care with proactive patient follow-up and monitoring
- Treatment duration is 3-12 months

## Key Concept: Measurement based treatment to target

| | Diabetes | Hypertension | Anxiety & Depression |
|---|---|---|---|
| MEASUREMENT |  |  |  |
| TREATMENT | Lifestyle Changes<br>Insulin Therapy<br>Medication | Lifestyle Changes<br>Medical Procedures<br>Medication | Lifestyle Changes<br>Cognitive Behavioral Therapy<br>Medication |

# Collaborative Care Model

# Collaborative Care Team

**Patient**

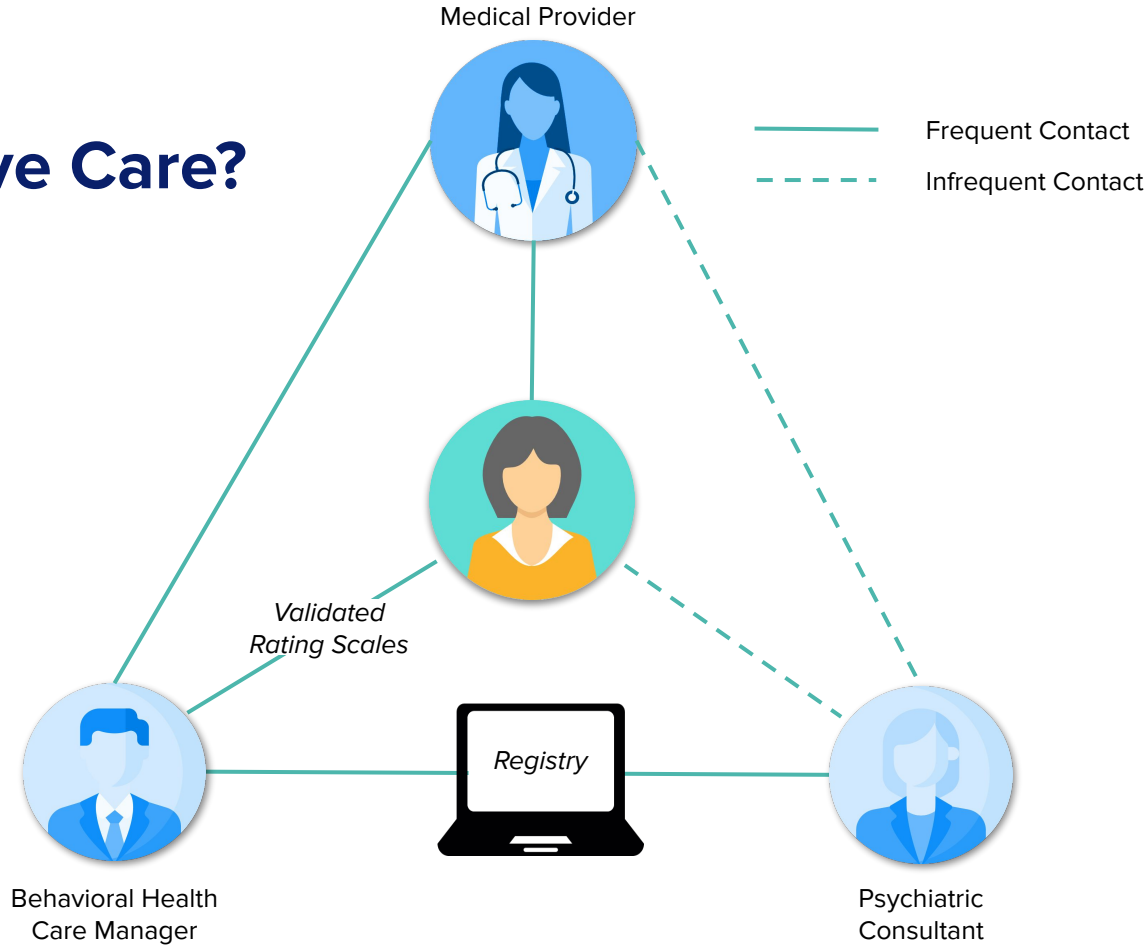
Chooses treatment in consultation with provider(s):
-Antidepressants and/or psychotherapy
-ETOH/substance use counseling

**Primary care provider**

Refers; prescribes psychiatric medication

**+ Clinician/Depression Care Manager (MSW)**
**+ Consulting psychiatrist**

# What is Collaborative Care?



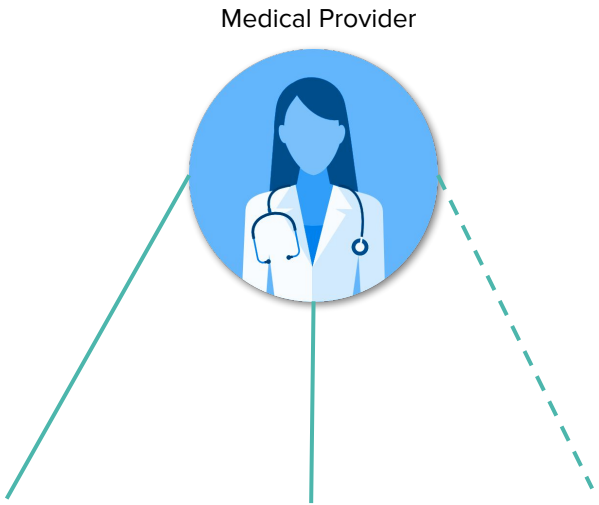
# Role: Medical Provider (PCP)

1. **The prescriber that is responsible for this patient**
   Most often this is a PCP, but it could be a chronic pain or other provider that manages the overall health of a patient.

2. **Responsible for identifying and referring patients**
   Refer patients to the program and responsible for gaining consent.

3. **Do the least (generally)**
   May get messages through the EHR or otherwise notified for any treatment recommendations on a patient, including medication changes. Otherwise no other action is needed of them to bill.

4. **Liability and billing**
   Despite the little work, they are ultimately responsible for the patient and compliance.



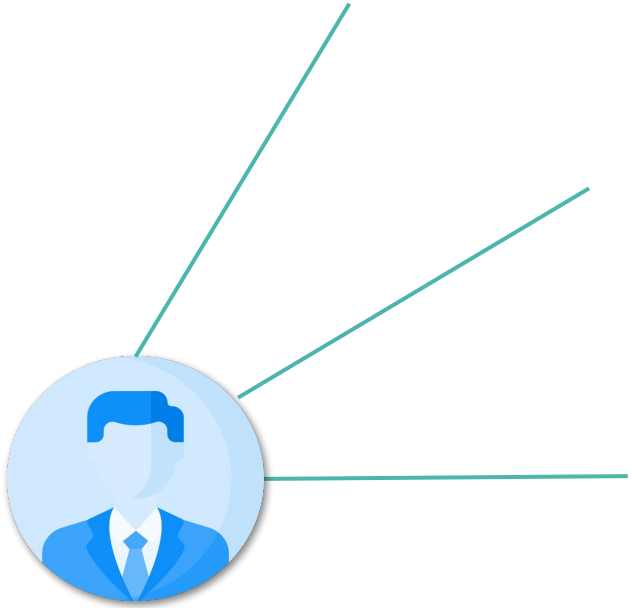
# Role: BH Care Manager (BHCM)

1. **“The Quarterback”**
   The point person for the patient, identifies patients for case review, and ensures the PCP is notified of any treatment recommendations.

2. **Shared Care Manager vs. Care Manager**
   Some models have multiple care managers, with bachelor-level doing most of the calls with oversight (e.g., LCSW) for suicide assessments or other support.

3. **Responsible for meeting time requirements**
   Must document their activities and associated time. Only care manager time counts toward the 36/31 minutes needed to bill.

4. **Must perform a brief intervention**
   Must contact the patient to complete one brief intervention, including goal setting, motivational interviewing, and CBT exercises (e.g., behavioral activation)



Behavioral Health Care Manager

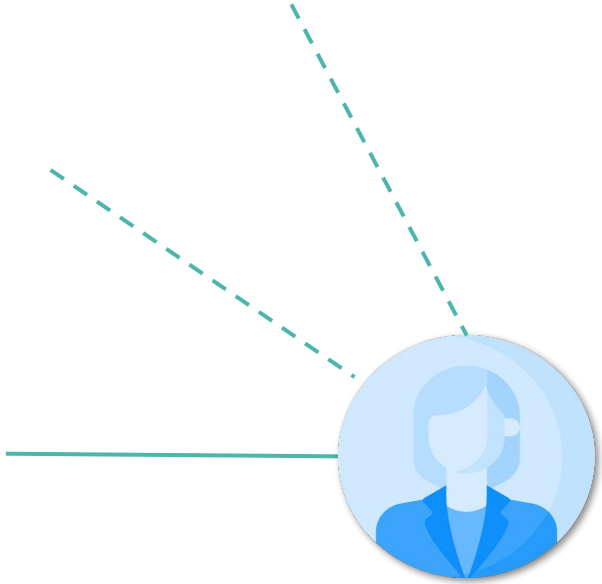
# Role: Psychiatric Consultant

1. **Must be a psychiatrist or psychiatric nurse practitioner**
   Involved in medication management and have to understand how underlying medical conditions may contribute to BH condition.

2. **Takes part in weekly (generally) caseload reviews**
   Discusses patient progress with BH Care Manager. Each patient will be discussed at least once per month, but patients can be “flagged” multiple times in a month for review.

3. **Rarely will speak to patient directly**
   Will help the BH Care Manager to determine the best behavioral interventions to deliver and PCP on other relevant treatments, but rarely interact with the patient themselves.

4. **May refer to a higher level of care**
   May facilitate referrals to appropriate levels of care as indicated.



Psychiatric Consultant

# Key Requirements

1. **Validated assessment**
   PHQ or other validated measure related to their BH condition must be completed to track treatment progress.

2. **Brief intervention**
   Phone call is placed to complete at least one brief intervention, such as motivational interviewing or problem solving treatment. Evidence shows that it is best to contact the patient every two weeks. Schedule time rather than cold calling to ensure time is not wasted.

3. **Caseload review**
   Each patient must be considered at least once per month by the care manager and psychiatric consultant during a case review. This is generally done over the registry and can be completed remotely.

4. **Document time requirements**
   Ensure that care management time requirements are met and documented.

# Key Concepts

## Population-Based Care

Care team shares a defined group of patients tracked in a registry to ensure no one falls through the cracks.

Practices track and reach out to patients who are not improving and mental health specialists provide caseload-focused consultation, not just ad-hoc advice.

*It's not as simple as what is the minimum action needed per patient, it is putting more effort to focus on patients most at-risk.*

## Measurement-Based Treatment to Target

*Aiming for 50% reduction and changing treatments until we get there.*

Each patient's treatment plan should clearly articulate personal goals and clinical outcomes that are routinely measured. Treatments are actively changed if patients are not improving as expected until the clinical goals are achieved.

Change the treatment every 10-12 weeks until the patient has at least a 50% reduction in measured symptoms.

# Collaborative Care

Caseload-focused psychiatric consultation supported by a care manager

## Better Access

PCPs get input on their patients' behavioral health problems within a days /a week versus months

Focuses in-person visits on the most challenging patients

## Regular Communication

Psychiatrist has regular (weekly) meetings with a care manager

Reviews all patients who are not improving and makes treatment recommendations

## More patients covered by one psychiatrist

Psychiatrist provides input on 10 – 20 patients in a half day as opposed to 3-4 patients

## "Shaping over time"

Multiple brief consultations

More opportunity to 'correct the course' if patients are not improving



http://uwaims.org

# Effective Care Models

## Patient Centered Team Care / Collaborative

- Effective collaboration requires more than physical co-location

## Population-Based

- Patients tracked in a registry: no one falls through the cracks

## Measurement-Based Treatment to Target

- Treatments are actively changed until the clinical goals are achieved

## Evidence-Based

- Treatments used are evidence-based

## Accountable

- Providers are accountable and reimbursed for quality of care and clinical outcomes, not just the volume of care provided

# Understanding the four codes

| | Type of Service | Total Duration of CoCM | Bill Code(s) |
|---|---|---|---|
| **G2214** | Mid-point, 30 minutes | (16-30 minutes) | G2214 |
| **99492** | Initial, 70 minutes | (36-85 minutes) | 99492 |
| **99493** | Subsequent, 60 minutes | 31-75 minutes | 99493 |
| **99494** | Initial plus each additional increment up to 30 min | Initial, 86-115 minutes<br>Subsequent, 76-105 minutes | 99492 x1, 99494 x1<br>99493 x1, 99494 x1 |

# CoCM: Evidence Base and Outcomes

# Evidence to Support Collaborative Care

- **Over 80 randomized studies of collaborative vs usual depression treatment in primary care**
  - 50% reduction in depression vs 19% in usual care group
  - Outcomes improved as long as 2 to 5 years
  - Improved medical, financial, satisfaction and functional outcome measures compared with usual care
- **Collaborative care effectively treats depression in**
  - **Cancer patients** — Improvements in fatigue, depression, and anxiety levels
  - **Coronary artery disease patients** – Improvements in prognosis, depression, and satisfaction
  - **Diabetes patients** – Improvements in mortality, diabetes control, functioning

Unutzer J, et al: Transforming mental health care at the interface with general medicine: report for the President's Commission.
Psychiatric Services 2006; 57:37-47.
Gilbody S, Bower P, Fletcher J, et al: Collaborative care for depression: a cumulative meta-analysis and review of longer-term outcomes.
Arch Internal Medicine 2006; 166:2314-2321.
Verghese J, Chattopadhyat SK, Sipe TA, et al: Economics of collaborative care for management of depressive disorders. Am J Prev Med 2012;42:539-549.

# IMPACT reduces health care costs (over 4 yrs)
# ROI: $ 6.5 saved / $ 1 invested

| Cost Category | Intervention group cost in $ | Usual care group cost in $ | Difference in $ |
|---|---|---|---|
| IMPACT program cost | 522 | 0 | 522 |
| Outpatient mental health costs | 558 | 767 | -210 |
| Pharmacy costs | 6942 | 7636 | -694 |
| Other outpatient costs | 14160 | 14456 | -296 |
| Inpatient medical costs | 7179 | 9757 | -2578 |
| Inpatient mental health / substance abuse costs | 61 | 169 | -108 |
| Total health care cost | **29422** | **32785** | **-3363** |

# Effectiveness of Collaborative Care

- Less depression and anxiety, as well as interventions for alcohol and substance misuse
- Less physical pain, better functioning, higher quality of life
- Greater patient and provider satisfaction
- More cost-effective care
- Can be performed at-distance to address supply/demand
- Consistent with quadruple aim of healthcare: improved pt experience, improved health of populations and decreased cost, improved provider satisfaction
- Shift from fee-for-service to population-based care, capitation systems and value-based care.

# Leveraging Technology to Augment and Scale BHI/CoCM

# Historical Perspective

- First healthcare revolution (1850- 1960): advent of antibiotics, advances in understanding of physiology and human anatomy.
- Second healthcare revolution (1960 – 2000): advent of RCTs, transplantation medicine, stents, improved imaging technology
- Third healthcare revolution (2000 – present): personalized and population-focused medicine based on genetics and behaviors, predictive analytics.
    - Increased focus on leveraging technology to improve access and outcomes
    - Pulling and pushing data to  create predictive analytics ensuring that care is timely, tailored and effective

# Technology and Mental Health Care:

- Improve access to care and evidence-based treatments
- Reduce waiting times for mental health services
- Facilitating choices of the mental health care they receive
- Addressing mental health care equity
- Helping to manage and reduce the stigma associated with mental illness
- Can facilitate economies of scale, more efficient and effective value-based care
- Provide information to drive quality of care
    - Measurement-based care
    - Predictive analytics

## Digital Therapeutics


## Measurement & Testing


## Mental Wellness, Meditation & Sleep


## Non-Tech & Other

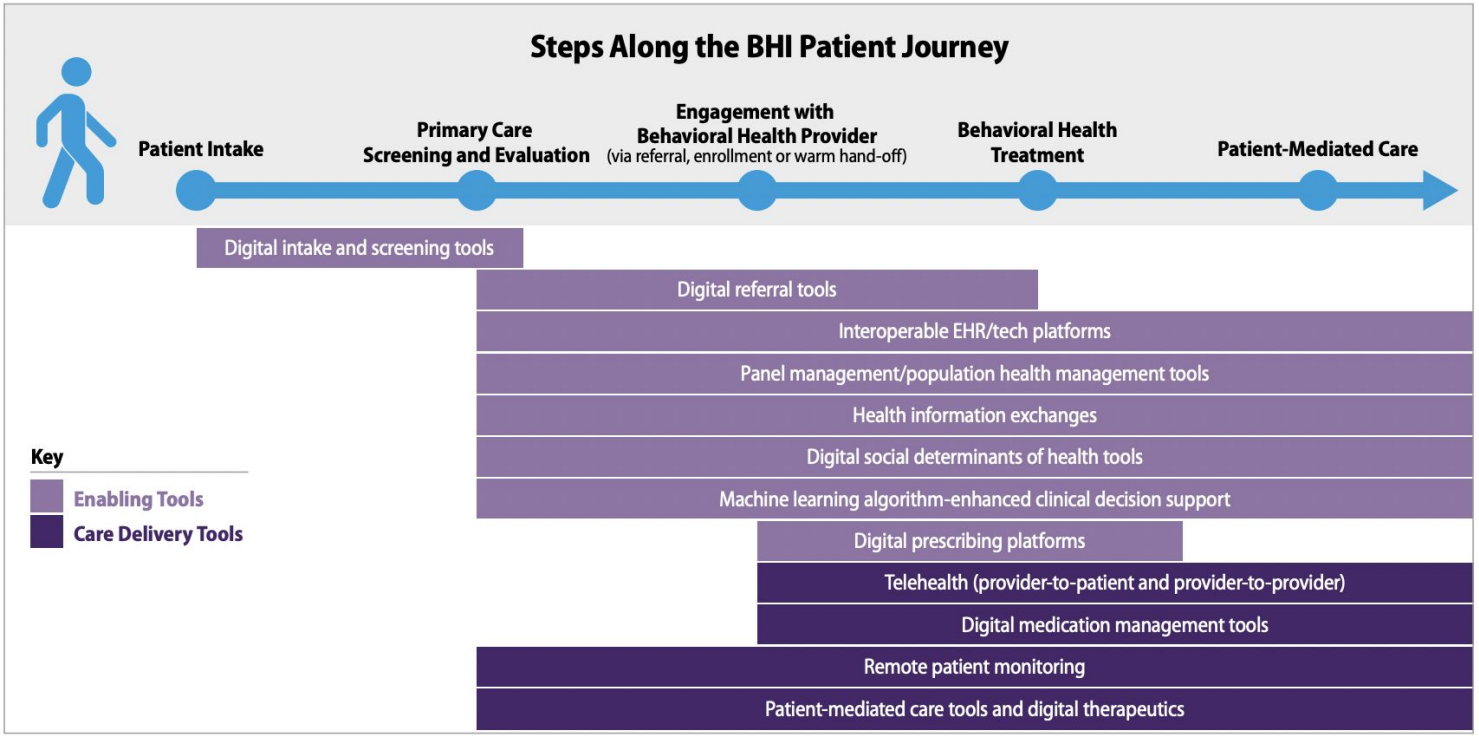

## B2B / Sourcing


## Telehealth


## Peer 2 Peer


*Sources: PitchBook.com, CrunchBase, Capital IQ, Press, What If Ventures proprietary database, and hundreds of conversations with founders in the space*

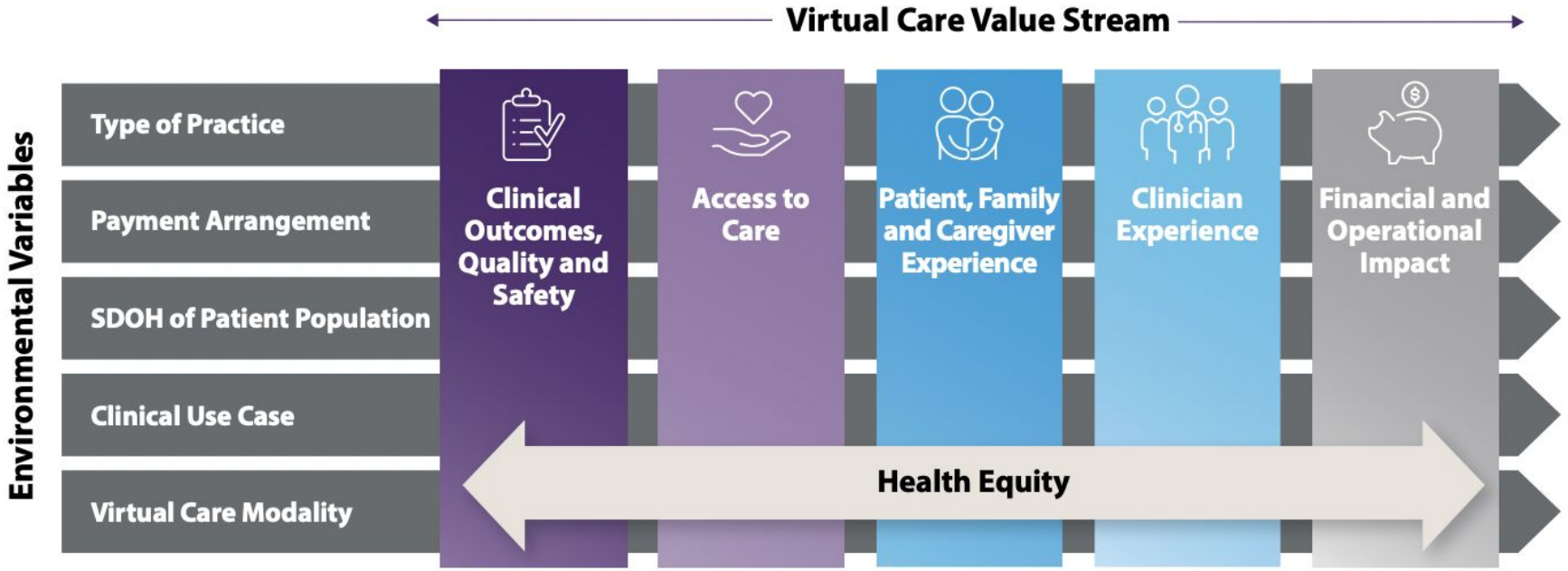
# “Accelerating and Enhancing BHI Through Digitally Enable Care,” AMA Report




*AMA, “Accelerating and Enhancing BHI Through Digitally Enable Care” 2022*

# “Accelerating and Enhancing BHI Through Digitally Enable Care,” AMA Report

FIGURE 2. FRAMEWORK FOR MEASURING THE VALUE OF DIGITALLY ENABLED CARE




*AMA, “Accelerating and Enhancing BHI Through Digitally Enable Care” 2022*

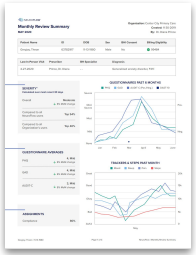
# Technology and BHI

- Patient facing technology
  - Apps + Cloud-based services  Self management
  - Text messaging and Apps  Practice Extenders
  - Digital Therapeutics Practice Extenders
- Building PCP capacity to treatment mild to moderate BH conditions
  - Clinical decision supports  Embedded in EHR or Registry
  - eConsult  Consult platform, PCP to specialist
  - Project Echo Telementoring and Education
  - Remote Tele-Hub  Pediatric Child Collaborative
- Virtual Visit
  - Remote Telehub  Pediatric Child Collaborative
  - Telepsychiatry  Direct evaluation

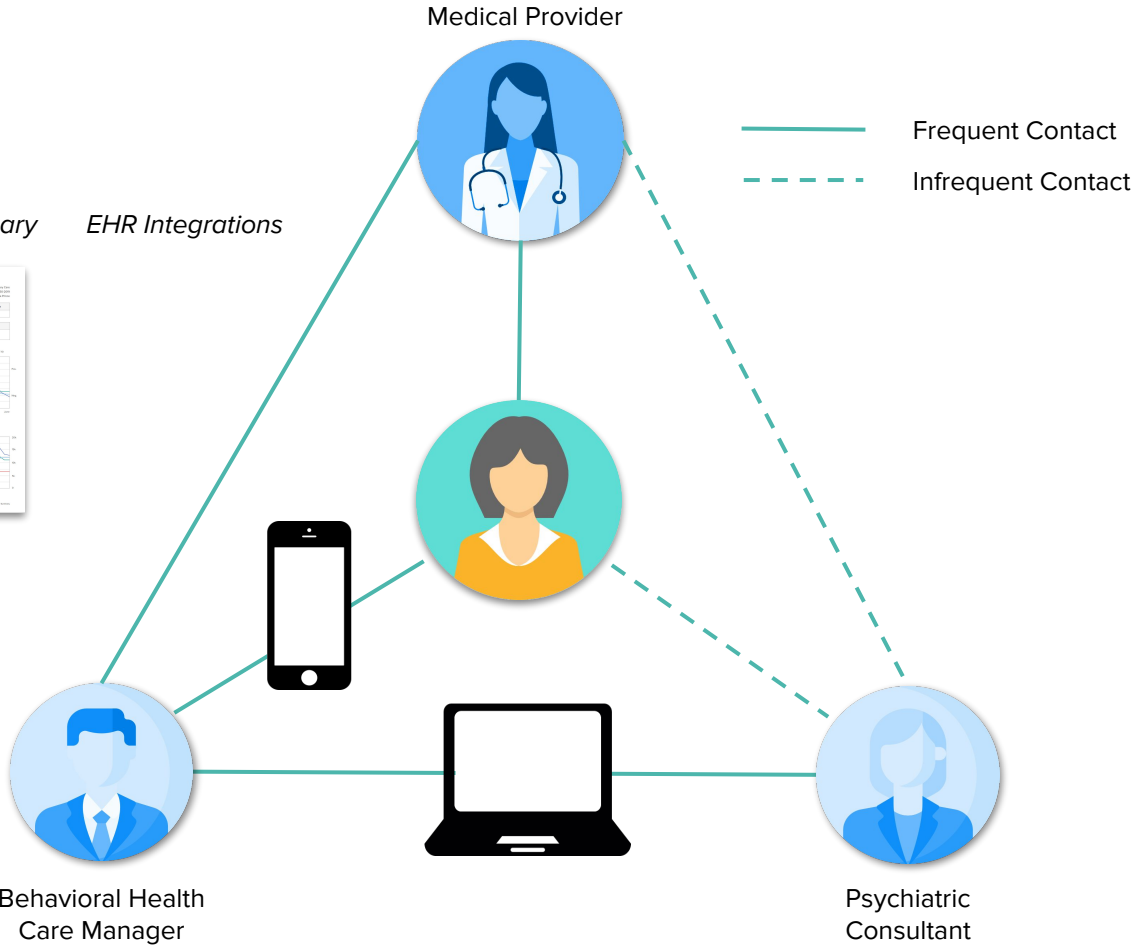
| | | |
|---|---|---|
| Screening | Paraprofessional | • Secure portal |
| • In the clinic of before entering | | • Text messaging |
| | | • App prompt |
| | | • Table/kiosk in waiting area |
| • Data analytics and screen | | • Triage engine identifies |
| • Outreach and engagement | | • Data aggregators (utilization) prompt screening via an app |
| | | • Automated voice response |
| | | • App prompt |
| | | • Text messaging |
| | | • Wearable sensors |
| Treatment | | |
| • Med algorithms for PCP | Professional | • Decision support tools for PCPs |
| • F/U brief interventions, MI, BA | Paraprofessional | • App prompt |
| | | • SMS text |
| | | • Automated voice response |
| • Computerized therapy | | • dCBT |
| • Direct virtual consultation | Professional | • Telepsychiatry/Teletherapy |
| Repeated measures | Paraprofessional | • App prompt |
| | | • SMS |
| | | • Secure portal |
| Curbside consultation | Professional | • eConsult/email/secure messaging |
| | | • Asynchronous videoconferencing |
| Registry review | Professional | • Teleconsultation |
| | | • Cloud-based registry |
| | | • Tasking function in the HER to prompt PCP |
| Educational | Professional | • Project Echo/eConsult/Clinical decision supports |
| Reimbursement | Admin | • Time tracking |

# Where technology can augment CoCM

*Monthly Summary*



*EHR Integrations*



# Digital Augmentation

1. Whole-population identification & monitoring
2. Self-directed digital care
3. Automated referrals
4. Proactive suicide crisis support
5. Tech-enabled integrated care

# Digital Technology to Facilitate Triaging Populations to the Right Level of Care

## Population Data

- Assessment Results
- Journal Entries
- Behavior Tracking
- Crisis Resource Utilization
- Social Determinants of Health
- Physical Activity
- Medication Data
- Client Data Inputs

## TRIAGE ENGINE

- Severity score modeling
- Population-wide risk stratification
- Natural Language Processing (NLP)
- Alerts IDing safety concerns
- Logic-based triggers

## Behavioral Health Care

- Suicide Prevention Outreach
- Referral Network
  - Tele-psychiatry
  - Tele-therapy
- *Client Resource*
- Integrated Care Programs
- dCBT
- Digital Wellness & Self-care

level of severity

EHR and care mgmt integrations enable insights & reporting to populate within existing workflows

# Ecological Momentary Assessment

- Reliance on global, retrospective reports limits ability to understand, characterize, and change behavior in “real world settings.”
- EMA entails the following:
  - Data collected in real-world environments as subjects live their daily lives.
  - Assessments focus on subject’s current state minimizing the error and bias associated with retrospection.
  - Moments are strategically selected for assessment including sampling schemes like random selection or or particular features of interest.
  - Subjects complete multiple assessments over time taking into account how experiences and behaviors vary over time and across situations.

# Emerging Evidence Base Supporting Tech Augmented BHI/CoCM

- Decreased suicidality and PHQ/GAD scores through digital interventions in a tech-augmented BHI model
- Digital triage and severity scoring identifying patients at high risk
- Digital augmentation in primary care and Ob/Gyn practices resulted in a 34% reduction in ED utilization and significant improvement in depression/anxiety.
- SPIRIT study, telepsychiatry CoCM as effective (and more resource efficient) as telepsychiatric enhanced referral in patient with bipolar disorder and PTSD.
- Significant improvement in PHQ/GAD scores over 12 months with digital only interventions in patients receiving pain treatment in multi-site pain program.

Pardes, IDDB 2022
Pardes, Clin Prac + Epi in MH, Vol 18, 2022
Lynch, JMIR 2021
Fortney, JAMA Psychiatry 2021
Zaubler, Oral presentation, 2022, Acad CL Psychiatry

# Challenges with New Technologies

- Perpetuate and reinforce inequities
  - Access to technology
  - Language
- Limited evidence of efficacy
- Ethics of monitoring
- Privacy and risk issues
- Regulation
- Rapidly outdated and costly

# Conclusion

- Integrated care solutions are needed to address the mental health crisis in the US.
  - Siloed BH delivery models do not meet the needs for the vast majority of people with mental illness.
  - There are not enough MH providers to address MH needs across the population of the US.
- There is a substantial evidence base supporting both clinical and financial outcomes of BHI models of care, particularly CoCM.
- Key components of BHI include
  - Pt-centered Team Care
  - Population-Based Care
  - Measurement-Based Treatment to Target
  - Evidence-Based Care
  - Accountable Care
- Digital technology can augment and facilitate scaling of BHI/CoCM models across large populations in addition to leading to improved outcomes.