Behavioral Drivers of Chronic Pain

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Chief Medical Officer, Catasys – February 2018

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Chronic Pain and Behavioral Health Conditions have a bidirectional relationship

Functional Imaging suggests this is partly because of shared neural mechanisms

Heavy overlap exists with Depression, Anxiety and Substance Use Disorders

Smoking, suicide and historical and ongoing sexual violence are common

“Fear-avoidance” model provides framework for understanding and treatment

Non-intoxicant based strategies can be highly effective

People with Chronic Pain deserve social compassion and evidence-based care

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Context and Epidemiology

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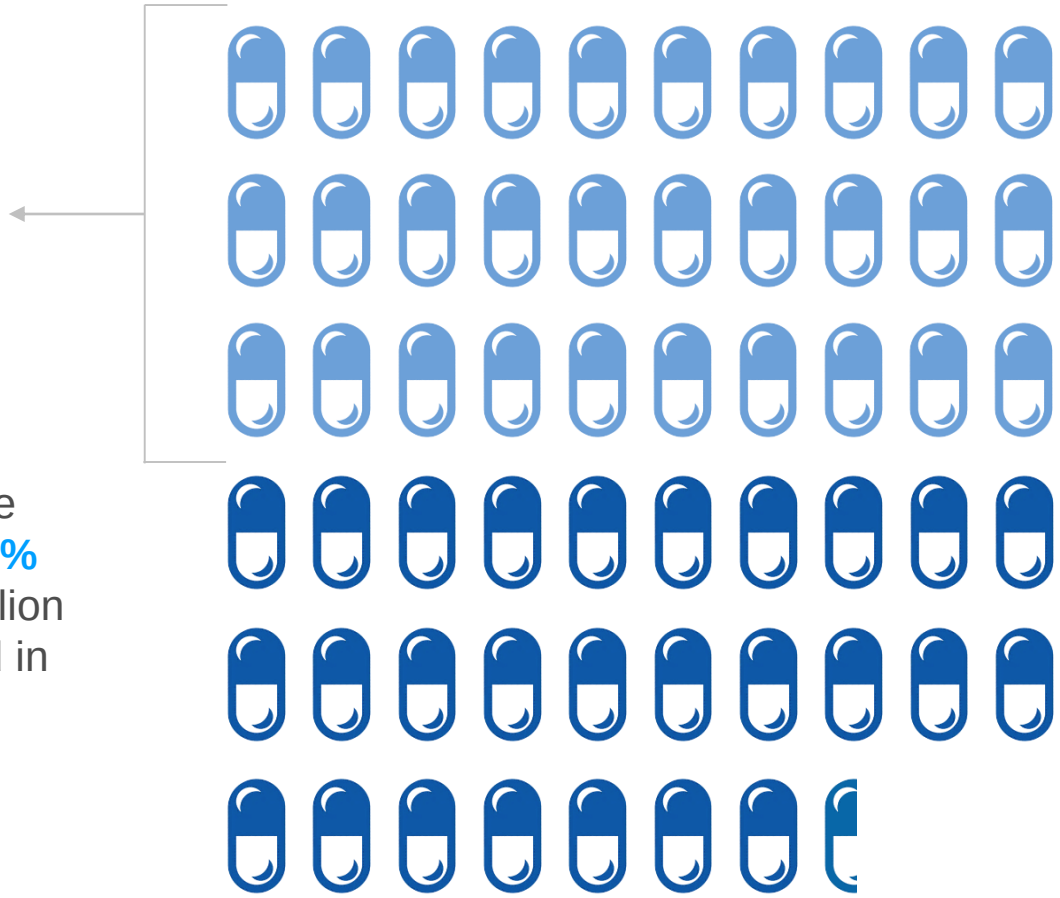
Prescription Opioid Use among Adults with Mental Health Disorders in the United States

Over half of all opioids prescribed in the US are going to adults with mental health disorders.

That's the **16%** of Americans who have mental health disorders receiving **51.4%** of the total opioid prescriptions (60 million of 115 million prescriptions) distributed in the United States each year.



Mental Health Disorders

No Mental Health Disorders

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Fact: 43.8 million adults experience mental illness in a given year

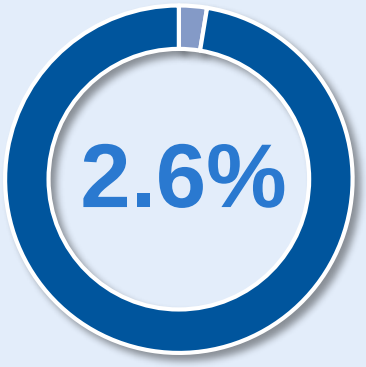
1 in 5 adults in America experience a mental illness.

Nearly 1 in 25 (10 million) adults in America live with a serious mental illness.

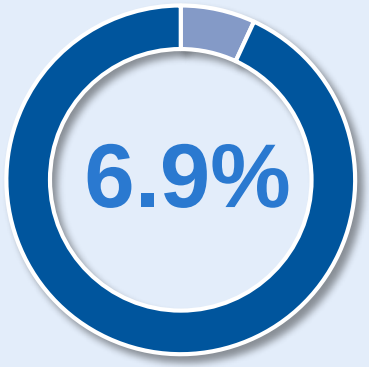
One-half of all chronic mental illness begins by the age of 14; three-quarters by the age of 24.

Prevalence of Mental Illness by Diagnosis

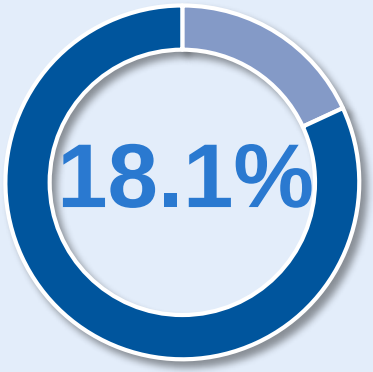
1 in 100 (2.4 million) American adults live with schizophrenia[1]



2.6% (6.1 million) of American adults live with bipolar disorder[1]



6.9% (16 million) of American adults live with major depression[1]



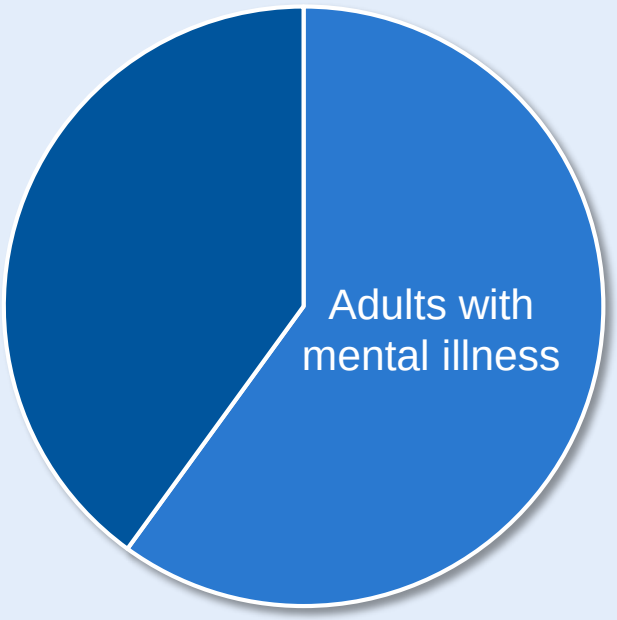
18.1% (42 million) of American adults live with anxiety disorders[1]

[1] National Institute of Mental Health. www.nimh.nih.gov

10.2m

Approximately
10.2 million adults have
co-occurring
mental health and
addiction disorders[1]

[1] National Institute of Mental Health. www.nimh.nih.gov



60%

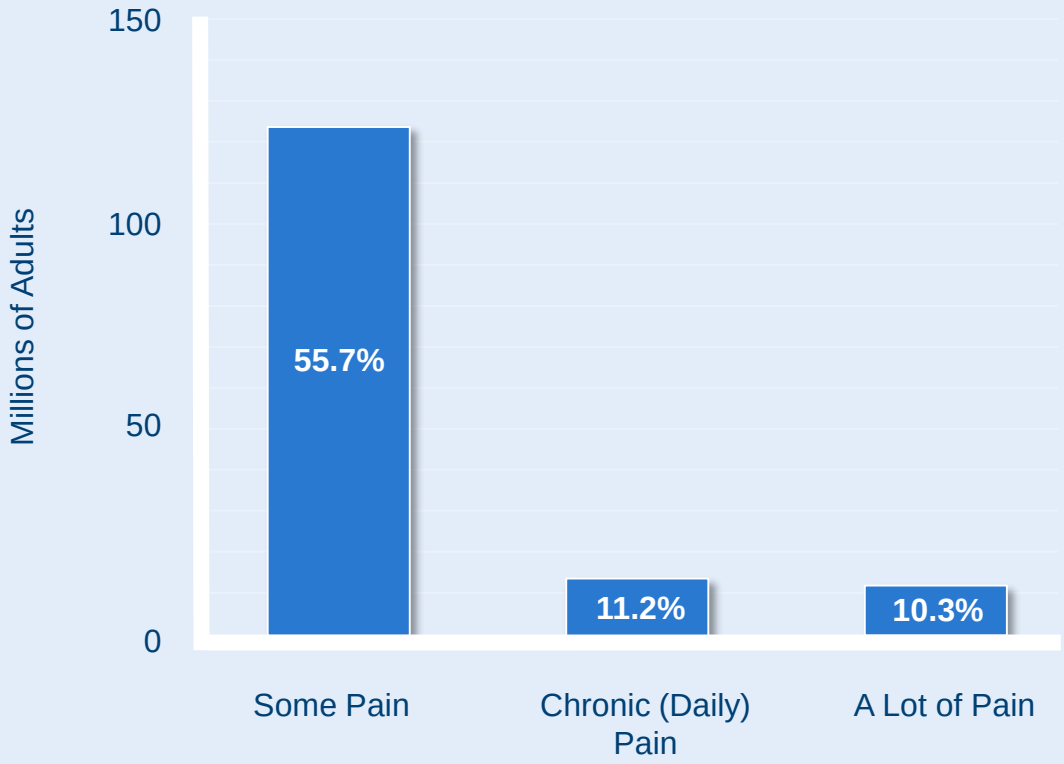
Nearly 60% of adults with a mental illness didn’t receive mental health services in the previous year[4]

[4] Substance Abuse and Mental Health Services Administration

Chronic Pain is Common

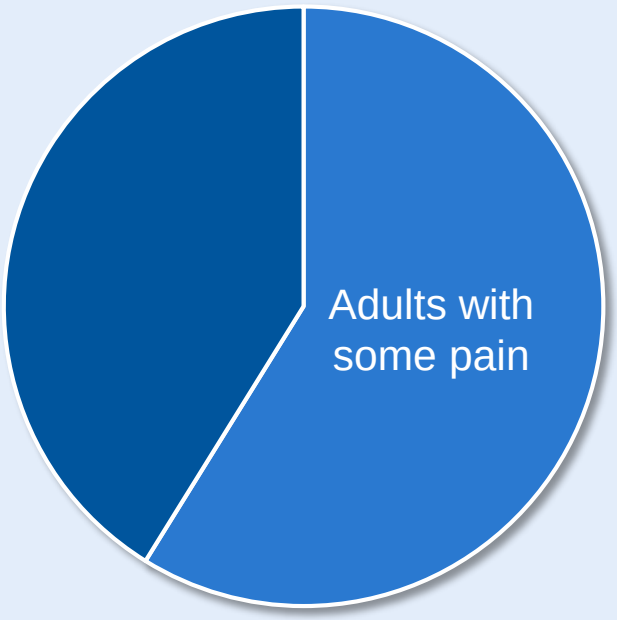
Self-reported Pain in US Adults

(days with pain in the last 3 months)



Data are included for 8,781 adults who completed the Functioning and Disability Supplement

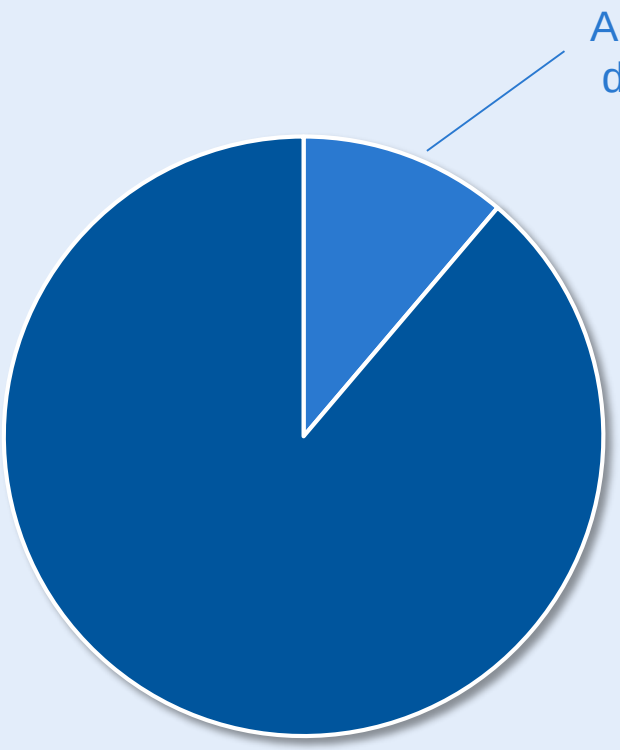
J Pain. 2015 Aug;16(8):769-80. doi: 10.1016/j.jpain.2015.05.002. Epub 2015 May 29.



55.7%

It is estimated that **126.1 million** adults reported some pain

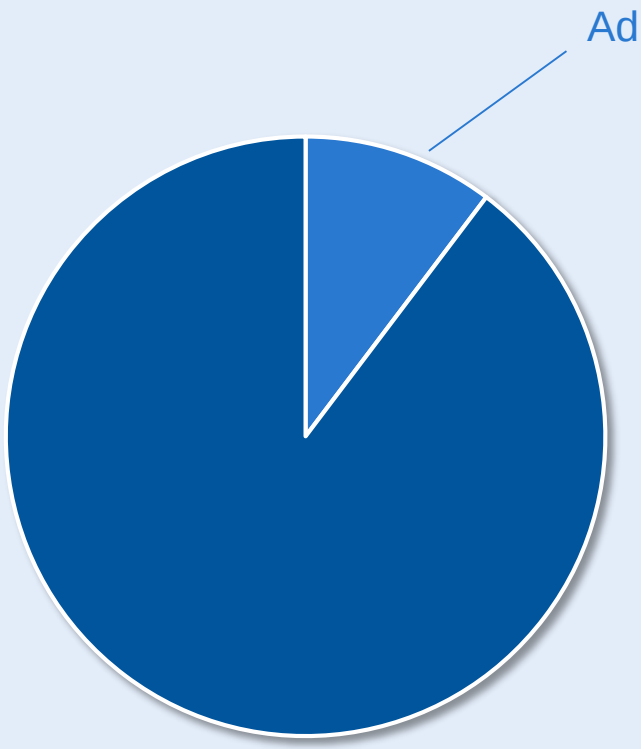
J Pain. 2015 Aug;16(8):769-80. doi: 10.1016/j.jpain.2015.05.002. Epub 2015 May 29.



11.2%

with **25.3 million adults** suffering from daily (chronic) pain

J Pain. 2015 Aug;16(8):769-80. doi: 10.1016/j.jpain.2015.05.002. Epub 2015 May 29.



10.3%

23.4 million reporting a lot of pain

J Pain. 2015 Aug;16(8):769-80. doi: 10.1016/j.jpain.2015.05.002. Epub 2015 May 29.

Overlap of Chronic Pain and Anxiety

Studies Reporting on the Diagnostic Frequency of all Axis 1 Disorders (DSM-III, DSM-III-R, DSM-IV) in Chronic Pain Patients, Except for Affective Disorders and Substance-related Disorders

	Study			
	Fishbain *et al.* [17]	Reich *et al.* [29]	Katon *et al.* [30]	Large [39]
Chronic pain patients, *n*	283	43	37	50
Diagnostic measure	DSM-III, 2-hr semi-structured interview, flowsheets	DSM-III, flowsheets	DSM-III, DIS	DSM-III, Maudsley style
	Diagnostic frequency, %			
Somatoform disorders				
Somatization disorder	3.9	5	16.2	8
Conversion disorder	37.8	2		8
Psychogenic pain/pain disorder	0.3	32		
Hypochondriasis	0.7			
Anxiety disorders				
Panic disorder			11	
Agoraphobia with panic attacks and simple phobia	2.1			
Generalized anxiety disorder	15.2			
Obsessive-compulsive disorder	1.1			
PTSD acute and chronic	1.1			
Adjustment disorder with anxious mood	42.8			
Phobic disorder				
Total suffering from anxiety	62.5	7		8
Organic mental disorders				
Delirium	0.4			
Dementia	7.8			
Other disorders				
Intermittent explosive disorder	9.9			
Factitious disorder		2		
Adjustment disorder with work inhibition	13	5		
Psychologic factors affecting physical condition	0	19	0	34
Uncomplicated bereavement	3.5			
Marital problem	8.2	7		
No diagnosis	5.2			
Nonpsychotic disorders				
Schizophrenia	0	0		
Phychotic disorders				

DIS—National Institute of Mental Health Interview Schedule; DSM—Diagnostic and Statistical Manual; PTSD—posttraumatic stress disorder; SCID—Structured Clinical Interview.

Approximately 5 to 6 percent of chronic pain patients have no diagnosis on Axis I.

Fishbain DA, Cutler BR, Rosomoff HL, Rosomoff RS. Comorbidity between psychiatric disorders and chronic pain. *Current Review of Pain*. 1998;2(1):1-10. doi:10.1007/s11916-998-0057-7.

Overlap of Chronic Pain and SUD
3.2% - 18.9%

Studies Reporting on the Diagnostic Frequency of Substance-related Disorders in Chronic Pain Patients

	Study										
	Fishbain *et al.* [17]	Reich *et al.* [29]	Katon *et al.* [30]	Portenoy and Foley [32]	Steele-Rosomoff *et al.* [33]	Rafii *et al.* [34]	Evans [35]	Medina and Diamond [36]	Hoffman *et al.* [37]	Chabel *et al.* [38]	Polatin *et al.* [31]
Chronic pain patients, *n*	283	83	37	38	218	255	56	62	414	76	200
Diagnostic measure	DSM-III, 2-hr semi-structured interview, flowsheets	DSM-III, flow-sheets	DSM-III, DIS	Clinical impression	Urine toxicology	Urine toxicology	Clinical impression	Clinical impression	DSM-III-R, Sudds/Addis structured interview	DSM-III-R, checklist designed by authors	DSM-III-R, SCID
	Diagnostic frequency, %					Diagnostic frequency, %					
Substance-related disorders											
Current alcohol abuse/ dependence	4.3	2	5.4						10.6		
Alcohol abuse/dependence in remission	7.4		35.1						6.5		
Current drug dependence (opoids, barbiturates, sedatives, and cannabinoid)	10.6	25.5	24.3	5.2			16	9.6	20.3	34	
Opioid dependence in remission	0.4								4.5		
Total current alcohol and other drug dependence	14.9								23.4		19
Current illicit drug abuse					6.41	12.5					

DIS—National Institute of Mental Health Interview Schedule; DSM—Diagnostic and Statistical Manual; SCID—Structured Clinical Interview.

Fishbain DA, Cutler BR, Rosomoff HL, Rosomoff RS. Comorbidity between psychiatric disorders and chronic pain. *Current Review of Pain*. 1998;2(1):1-10. doi:10.1007/s11916-998-0057-7.

Estimated Prevalence

Estimated Prevalence of Depression, Anxiety and Substance Use Disorders in Commonly Occurring Chronic Pain Conditions

Variable	Prevalence (%)
Depression	
Spinal pain (lumbar, thoracic, or neck)[26-29]	2-56
Neuropathic pain[33-36]	4-12
Fibromyalgia[17-23]	21-83
Migraine headache[37-41]	17-28
Temporomandibular joint disorder[24,25]	16-65
Pelvic pain[42-46]	19-22
Abdominal pain[30-32]	9-54
Arthritis[23,37,38,47-49]	3-39
Anxiety	
Spinal pain (lumbar, thoracic, or neck)[26-29,38]	1-26
Neuropathic pain[34-36]	5-27
Fibromyalgia[18-21,23]	18-60
Migraine headache[38,39,41]	2-45
Temporomandibular joint disorder[50-52]	15-65
Pelvic pain[42,53]	12-41
Abdominal pain[30,32]	21-51
Arthritis[23,37,38,48,49]	1-35
Substance use disorder	
Spinal pain (lumbar, thoracic, or neck)[26-29]	4-14
Neuropathic pain[54-56]	1-9
Fibromyalgia[19,20,23]	1-25
Migraine headache[40]	1-6
Arthritis[23,49]	1-12

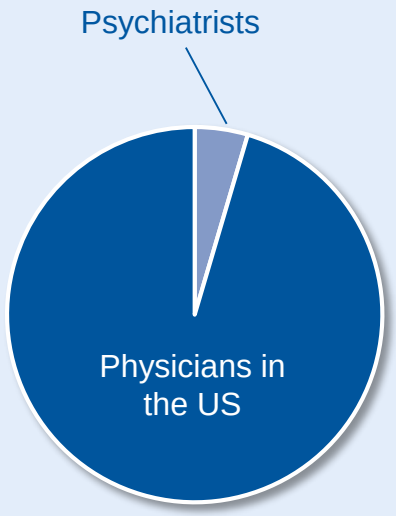
Current and 12-mo prevalence rates grouped together.

Hooten WM. *Chronic Pain and Mental Health Disorders*. Mayo Clinic Proceedings. 2016;91(7):955-970. doi:10.1016/j.mayocp.2016.04.029

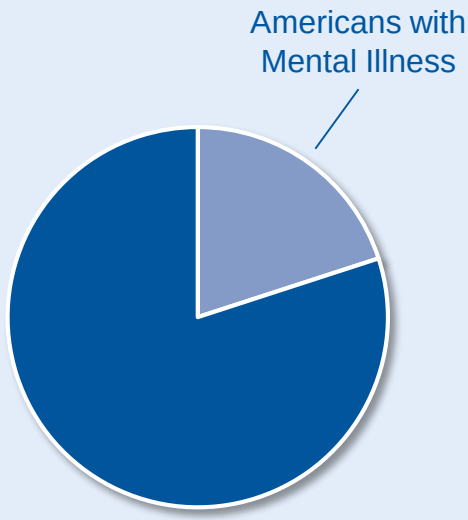
45,580 Psychiatrists

7,670 BH Nurse Practitioners

1,280 BH PA's



Psychiatrists represent less than 5% of the approximately 950,000 physicians in the US



Mental Illness affects 20% of Americans

People Just Like You More Than Us

8 times

as many undiagnosed, asymptomatic adults stated more likely to see PCP than a psychiatric professional for help with a mental health issue

National Mental Health Association. *America's Mental Health Survey*, May 2000. Conducted by Roper Starch Worldwide, Inc. www.roper.com/Newsroom/content/news189.htm

Most See PCPs Anyway

54%

of people with diagnosed psychiatric conditions are treated in primary care only

Druss BG, Marcus SC, Olfson M Pincus HA. The most expensive medical conditions in America. Health Aff (Millwood). 2002 Jul-Aug;21(4):105-11.

Treating Depression in Primary Care is Hard

PCP's write

79%

of all antidepressant prescriptions.

PCP's see

60%

of all people being treated for depression

- They do this with very little support from specialist services.
- Psychiatry has the responsibility for supporting the primary care delivery of MH treatment but has not succeeded.
- Even Collaborative Care (an evidence-based model and significant improvement) fails to engage the majority of people with many conditions. (example: SUMMIT trial)

Yale J Biol Med. 2013 Jun; 86(2): 139–146. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2652574

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Treating Depression in Primary Care is Difficult

25-50%

are not identified.[1]

Many

are under-dosed.[2]

Most

do not continue medications beyond 90 days.[3]

Not unique to depression:

Otschega et al. found that in 2006 only one-third of Americans with hypertension received effective treatment to lower blood pressure below recommended levels

[1] Am J Prev Med. 2012 May;42(5):550-2.

[2] Simon GE. Evidence review: Efficacy and effectiveness of antidepressant treatment in primary care. Gen Hosp Psychiatry. 2002;24(4):213–224

[3] Olfson M, Marcus SC, Tedeschi M, Wan GJ. Continuity of antidepressant treatment for adults with depression in the United States. Am J Psychiatry. 2006;163(1):101–108

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An Added Burden

- Behavioral health conditions have the same challenges as chronic medical conditions and the added burden of significant impairment in relationships, trust, activation, mood, hope and self-efficacy
- Stigma and shame play a significant role in care avoidance
- Standard Chronic Disease approaches will not work if fundamental drivers of impaired engagement are not addressed

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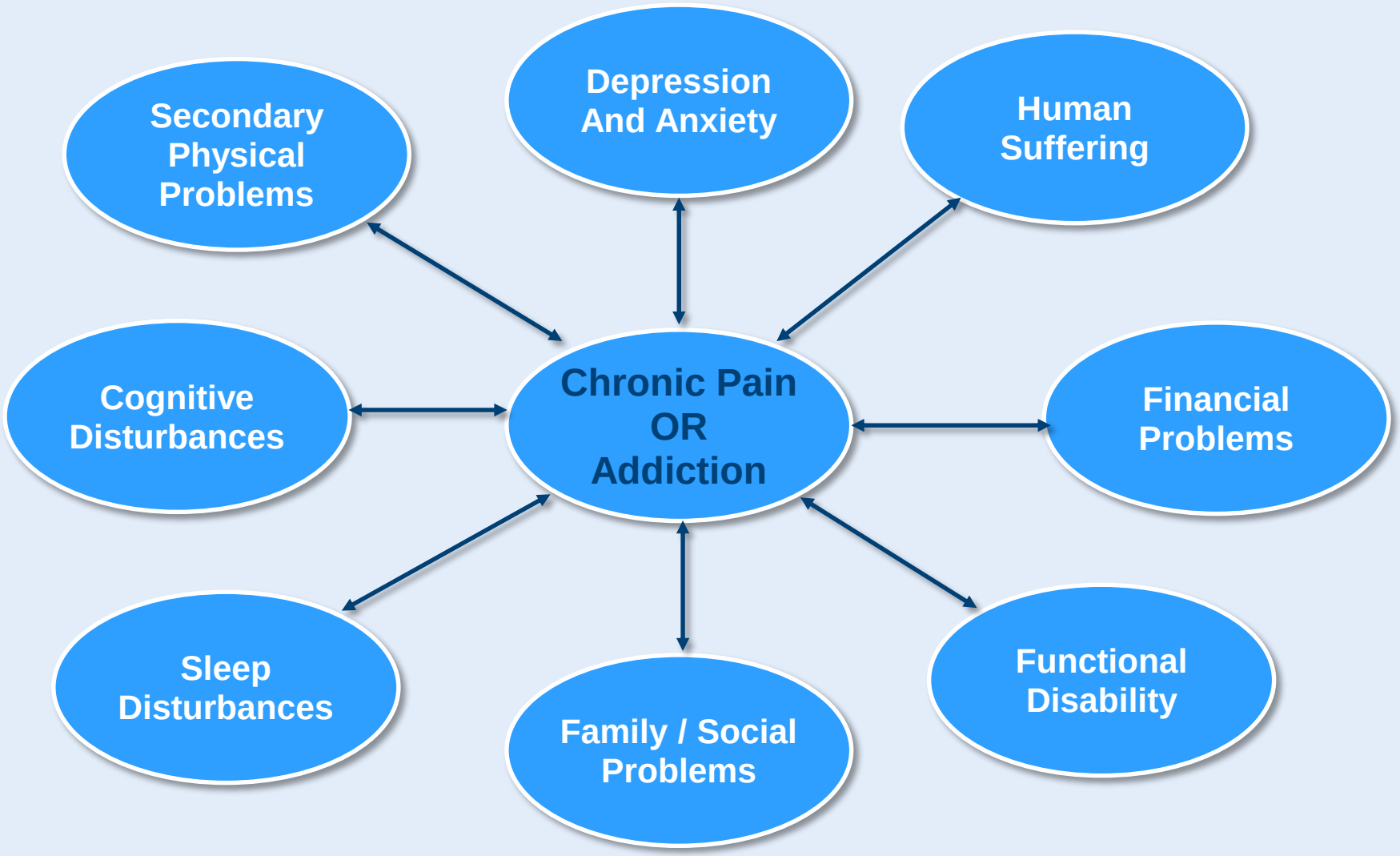
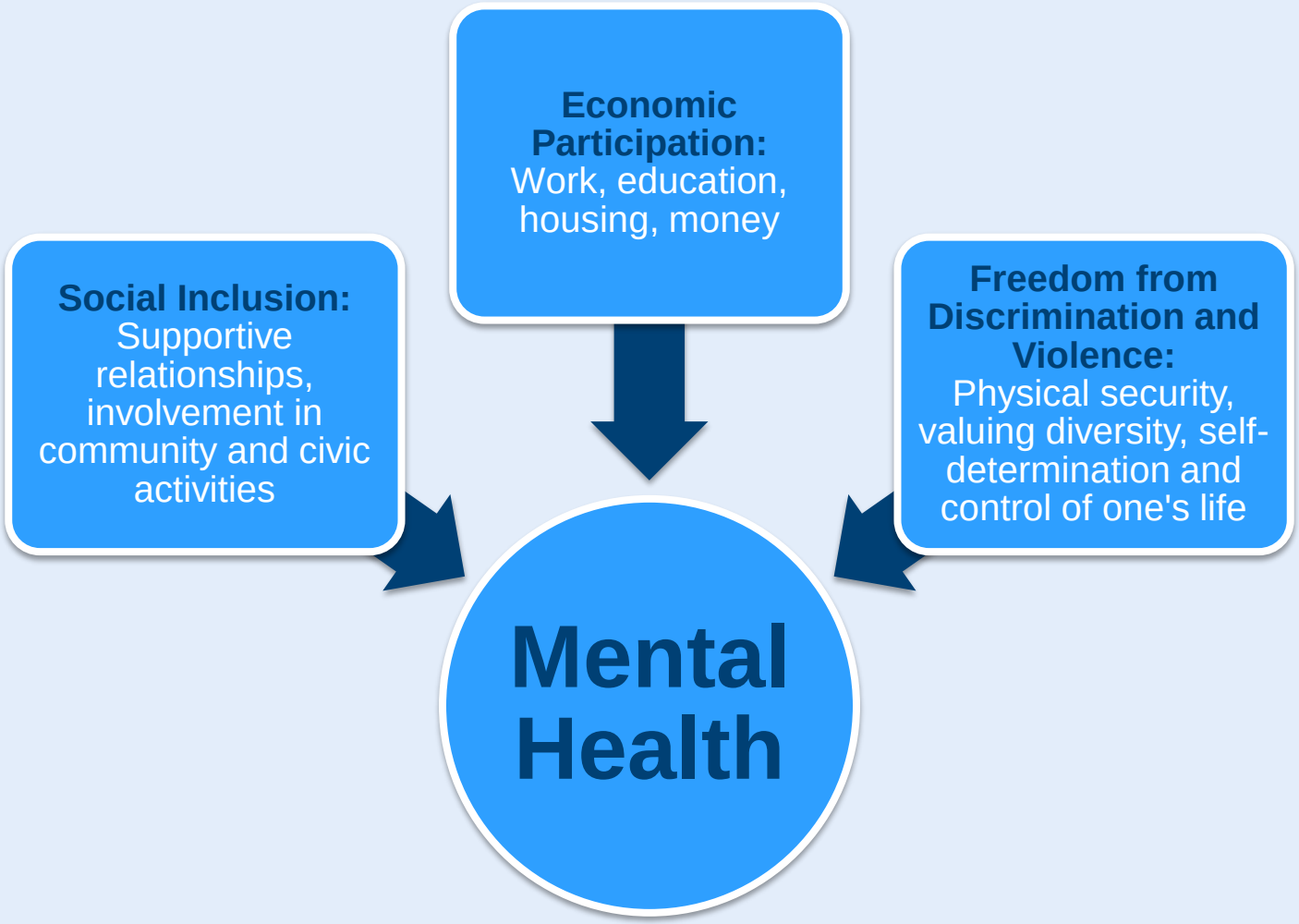
Social and Other Determinants of Illness



The Determinants of Mental Health



Adapted from the determinants of mental health framework developed by the Victorian Health Promotion Foundation in Australia.

Chronic Pain and Behavioral Health: Overlapping Neurobiology

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Pain Matrix is Impacted by Emotions, Memory, Attention and Cognition

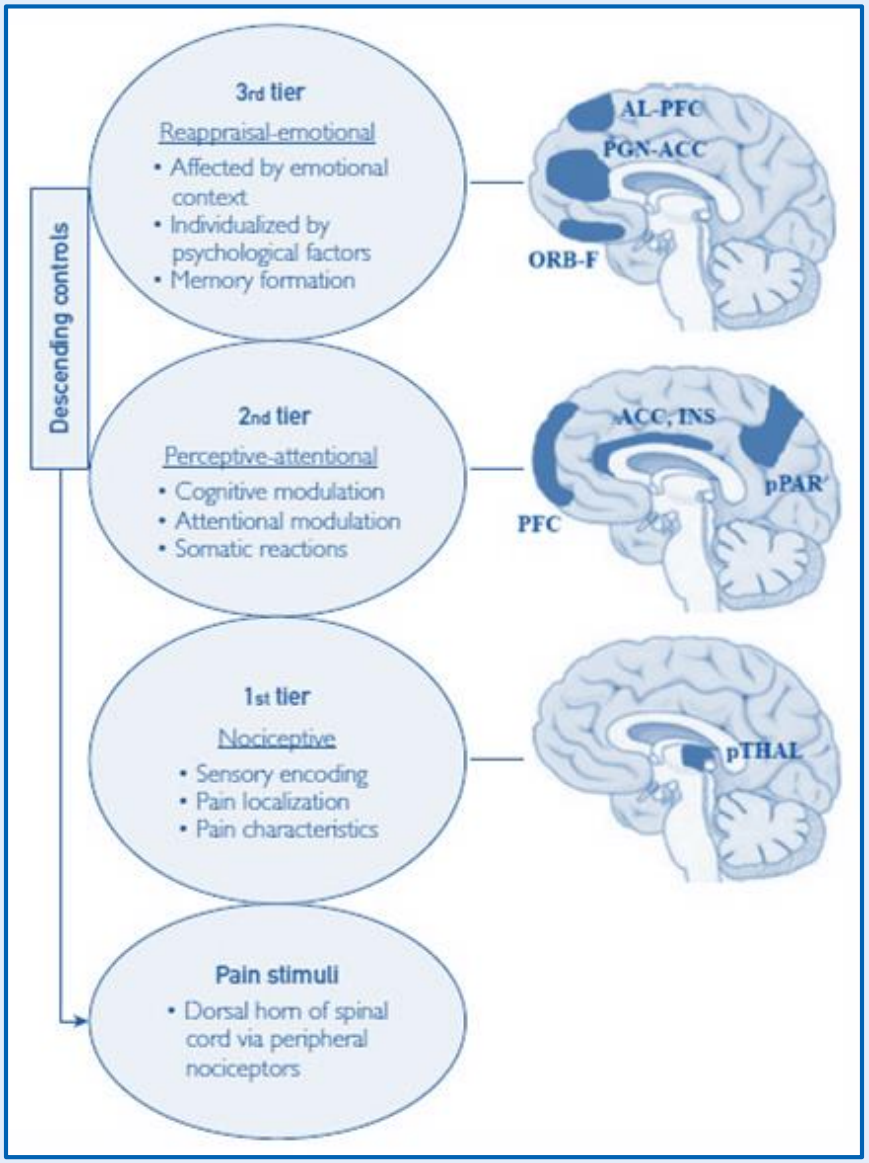

FIGURE 1. Schematic representation of the 3-tiered pain matrix. ACC = anterior cingulate cortex; AL-PFC = anteriolateral prefrontal cortex; INS = insula; ORB-F = orbitofrontal; PFC = prefrontal cortex; PGN-ACC = perigenual anterior cingulate cortex; pPAR = posterior parietal cortex; pTHAL = posterior thalamus.

Hooten WM. *Chronic Pain and Mental Health Disorders.* Mayo Clinic Proceedings. 2016;91(7):955-970. doi:10.1016/j.mayocp.2016.04.029

Garcia-Larrea L, Peyron R. *Pain matrices and neuropathic pain matrices: a review.* Pain. 2013;154(suppl 1):S29-S43.

Example: Migraine and Anxiety

Migraine patients

2-3x

more likely to have anxiety disorder than general population

Anxiety patients

2x

more likely to have migraine than the general population

Thalamus, Prefrontal Cortex, and Anterior Cingulate Cortex activated by both conditions

Saunders K, Merikangas K, Low NC, Von Korff M, Kessler RC. Impact of comorbidity on headache-related disability. Neurology. 2008;70(7):538-547

Hsieh JC, Hannerz J, Ingvar M. Right-lateralised central processing for pain of nitroglycerin-induced cluster headache. Pain. 1996;67(1):59-68.

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Screening for Behavioral Health Conditions

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Screening for BH Conditions

Sensitivities and Specificities of Screening Questionnaire Cutoff Scores for Depression, Anxiety and Substance Use Disorder

Variable	Cutoff score	Sensitivity (%)	Specificity (%)
Depression			
Beck Depression Inventory[8]	15	77	61
Hamilton Rating Scale for Depression[8]	17	81	65
Center for Epidemiologic Studies Depression Scale[9]	27	82	68
Patient Health Questionnaire Depression[8] (PHQ-9)	10	79	60
Anxiety			
Hospital Anxiety and Depression Scale—Anxiety[10,11]	8	88	81
Beck Anxiety Inventory[12]	5.5	76	77
Patient Health Questionnaire Anxiety[13] (Generalized Anxiety Disorder-7)	10	89	82
Substance use disorders			
Alcohol Use Disorders Identification Test[14]	8	88	77
CAGE questionnaire for alcohol misuse[15]	2	71	90
Drug Abuse Screening Test[16]	2	85	78
Current Opioid Misuse Measure[16]	10	84	82

Hooten WM. *Chronic Pain and Mental Health Disorders*. Mayo Clinic Proceedings. 2016;91(7):955-970. doi:10.1016/j.mayocp.2016.04.029

Acute Pain → Chronic Pain

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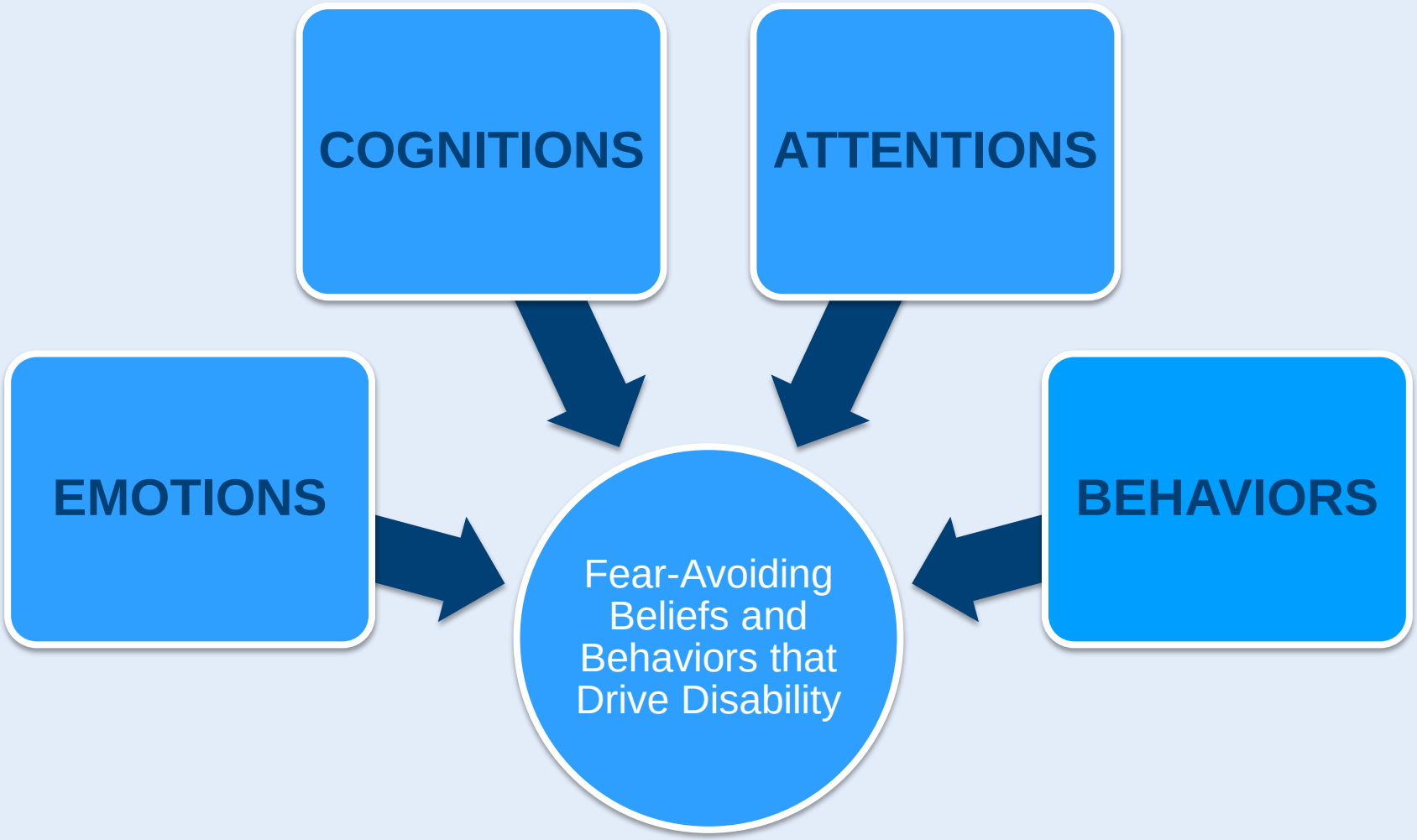
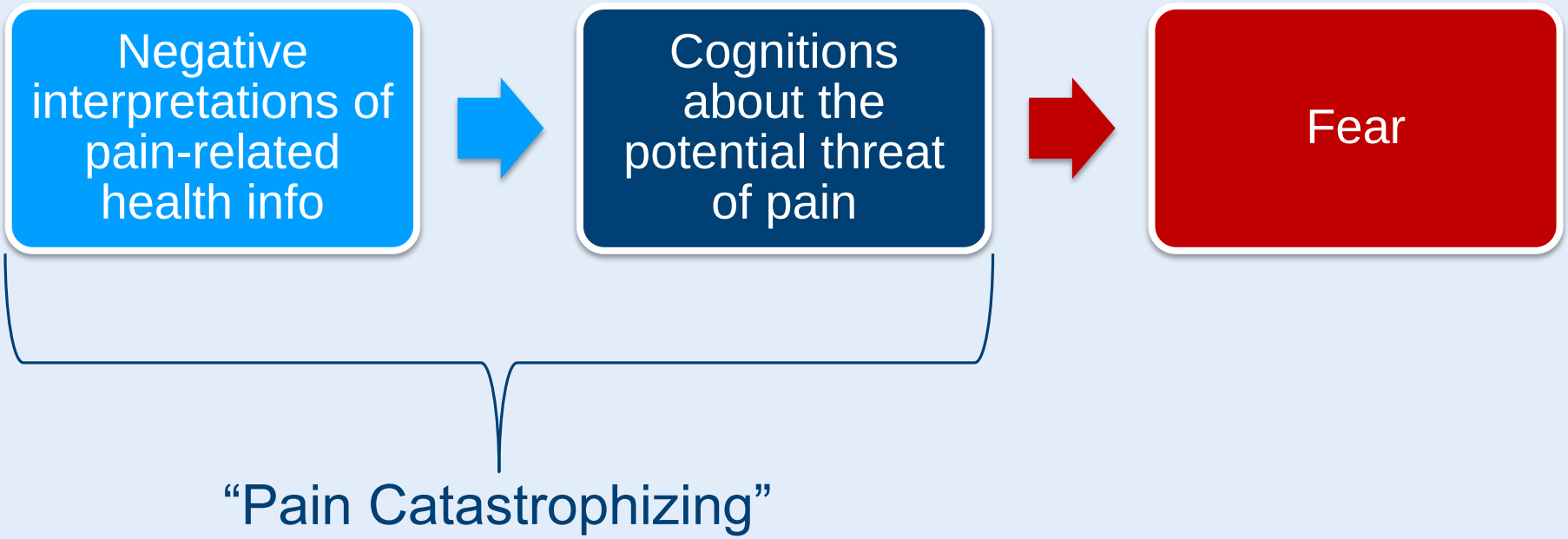
Psychological Processes Mediate the Transition from Acute Pain to Chronic Pain

Fear Avoidance Model



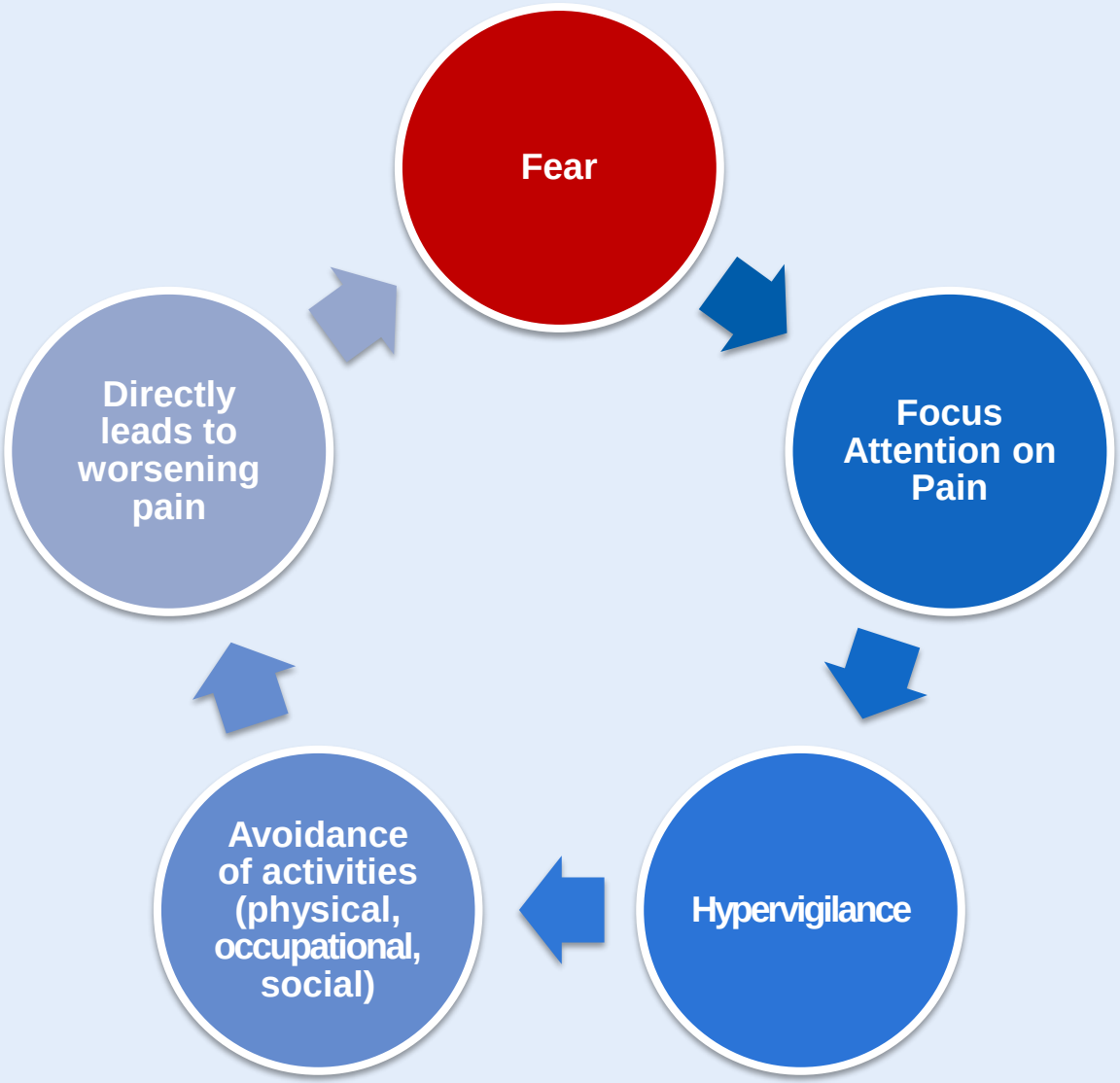
Vlaeyen JW, Linton SJ. *Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art.* Pain. 2000; 85(3):317-332.

Pain Catastrophizing Cognitions Drive Fear

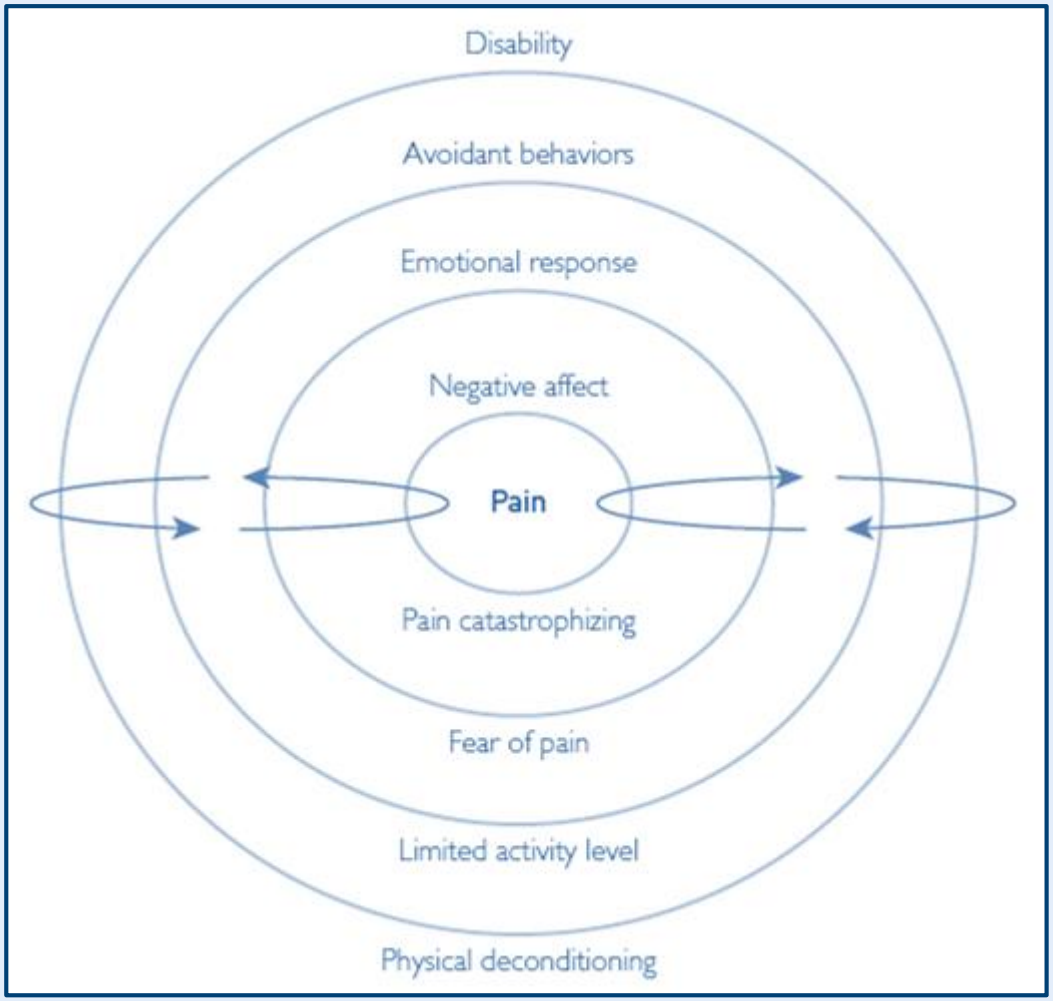


Vlaeyen JW, Linton SJ. *Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art.* Pain. 2000; 85(3):317-332.

Chronic Fear is Bad for Pain



Fear Avoidance Model Schema



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Treatment Strategies

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Treatment

Multidisciplinary Pain Rehabilitation

Cognitive Behavioral Therapy

Acceptance and Commitment Therapy

Psycho-pharmacology

Chronic Disease Model

Cognitive Behavioral Therapy

- Targets harmful effects of:
  - Pain catastrophizing and avoidant cognitions
  - Fear
  - Avoidant behaviors
- Goal: to develop coping strategies to confront and self-manage the threats posed by pain
- Techniques/tactics
  - Homework
  - Altering thoughts
  - Relaxation
  - Time-based activity pacing
  - Extinguishing *pain behaviors*

Acceptance and Commitment Therapy

- Based on the idea that inflexible beliefs about chronic pain lead to reduced pursuit of important life values and that leads to disability and desperation.
- Uses techniques to enhance nonjudgmental acceptance of pain
- Uses techniques that help people commit to life-goals
- Results in enhanced functioning driven by the acceptance of pain in context

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There is Broad Empirical Support for these Approaches

There are at least 5 RCT's that support the efficacy of ACT.

A meta-analysis of 22 RCTs of psychological treatments for chronic back pain indicated that psychological interventions, contrasted with various control conditions, had positive effects on pain, pain-related interference with activities, health-related quality of life, and depression.

Cochrane review of CBT found significant efficacy on a number of pain outcomes.

Psychopharmacology of Chronic Pain / BH Comorbidity

Summary of Medications with Dual Analgesic and Mental Health Effects

Medication	FDA indication: Pain	FDA indication: Mental health	NNT (95% CI): Pain	Dosing
SNRI				
Duloxetine	C-MSP DPN Fibromyalgia	GAD MDD	C-MSP: 6.0 (4.0-11.0)[148] FM: 8.2 (6.0-13.2)[149] NP[b]: 6.4 (5.2-8.4)[150]	60-120 mg/d, single or 2 divided doses
Venlafaxine	–	GAD MDD Panic disorder Social phobia	NP[b]: 6.4 (5.2-8.4)[150]	150-225 mg/d, single dose extended release formulation
Milnacipran	Fibromyalgia	–	FM: 11.0 (8.3-16.3)[149]	100-200 mg/d, 2 divided doses
TCA				
Amitriptyline	–	Depression	NP[b]: 3.6 (3.0-4.4)[150] FM: 3.5 (2.7-5.0)[149]	50-150 mg/d, single dose
Nortriptyline	–	Depression	NP[b]: 3.6 (3.0-4.4)[150]	50-100 mg/d, single dose
Anticonvulsant				
Pregabalin	DPN Fibromyalgia SCI pain PHN	–	NP[b]: 7.7 (6.5-9.4)[150] FM: 6.6 (5.0-9.9)[151]	150-600 mg/d, 2 divided doses
Gabapentin	PHN	–	NP[b]: 7.2 (5.9-9.1)[150] FM: 5.0 (2.8-21.7)[151]	1800-3600 mg/d, 3 divided doses

[a]C-MSP = chronic musculoskeletal pain; DPN = diabetic peripheral neuropathy; FDA = Food and Drug Administration; FM = fibromyalgia; GAD = generalized anxiety disorder; MDD = major depressive disorder; NNT = number needed to treat; NP = neuropathic pain; PHN = postherpetic neuralgia; SCI = spinal cord injury; SNRI = serotonin-norepinephrine reuptake inhibitor; TCA = tricyclic antidepressant.

[b]Neuropathic pain diagnostic groups and/or drug class combined to yield a pooled NNT value.

Hooten WM. *Chronic Pain and Mental Health Disorders.* Mayo Clinic Proceedings. 2016;91(7):955-970.

If something doesn’t seem right, trust your gut.

“TOLD YOU SO.”

Sincerely,

Your Intuition

Behavioral Drivers of Chronic Pain

Catasys®

Integrating Care Reducing Cost Changing Lives

superior healthplan

Solving the Hidden Problem of
Untreated Behavioral Health Conditions

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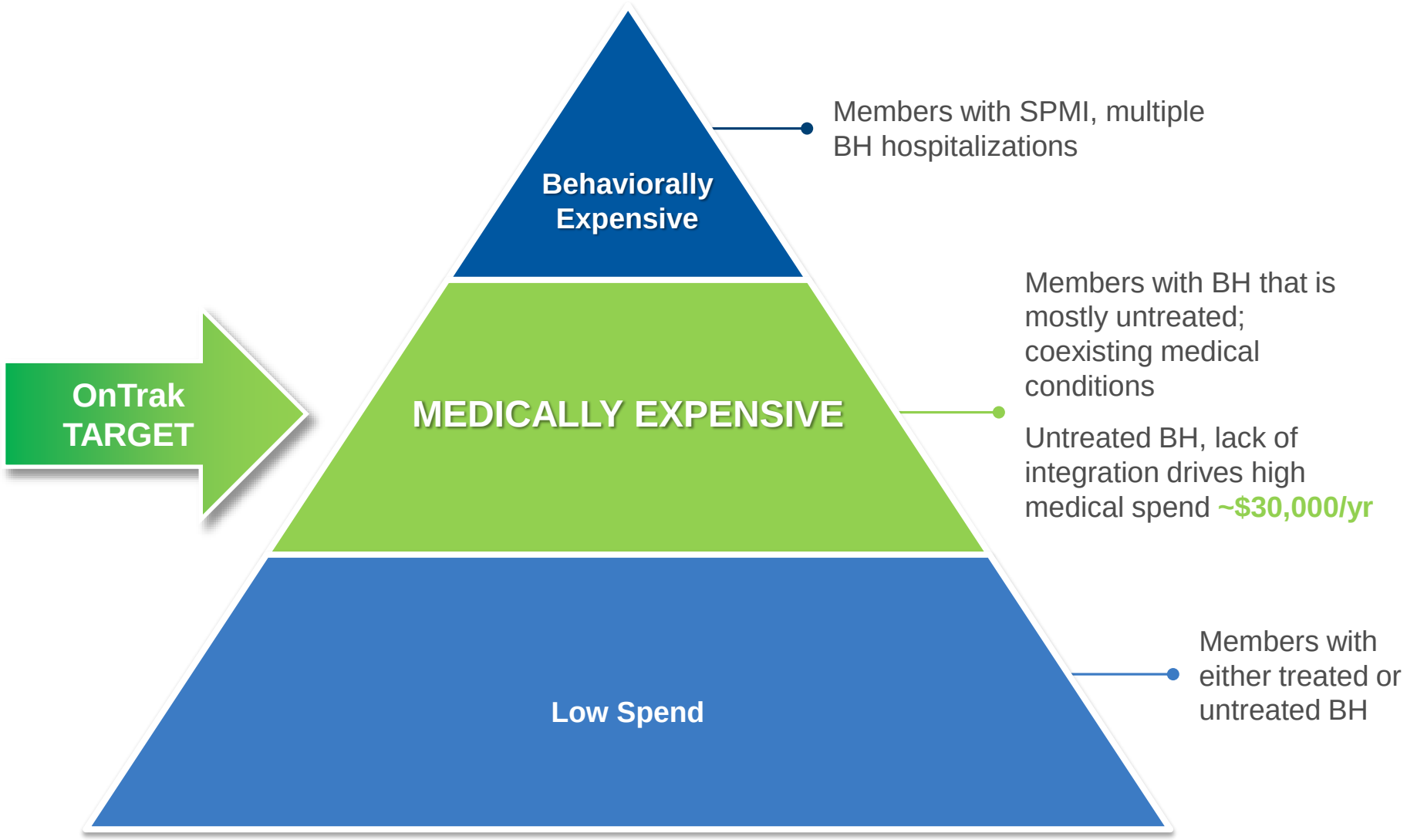
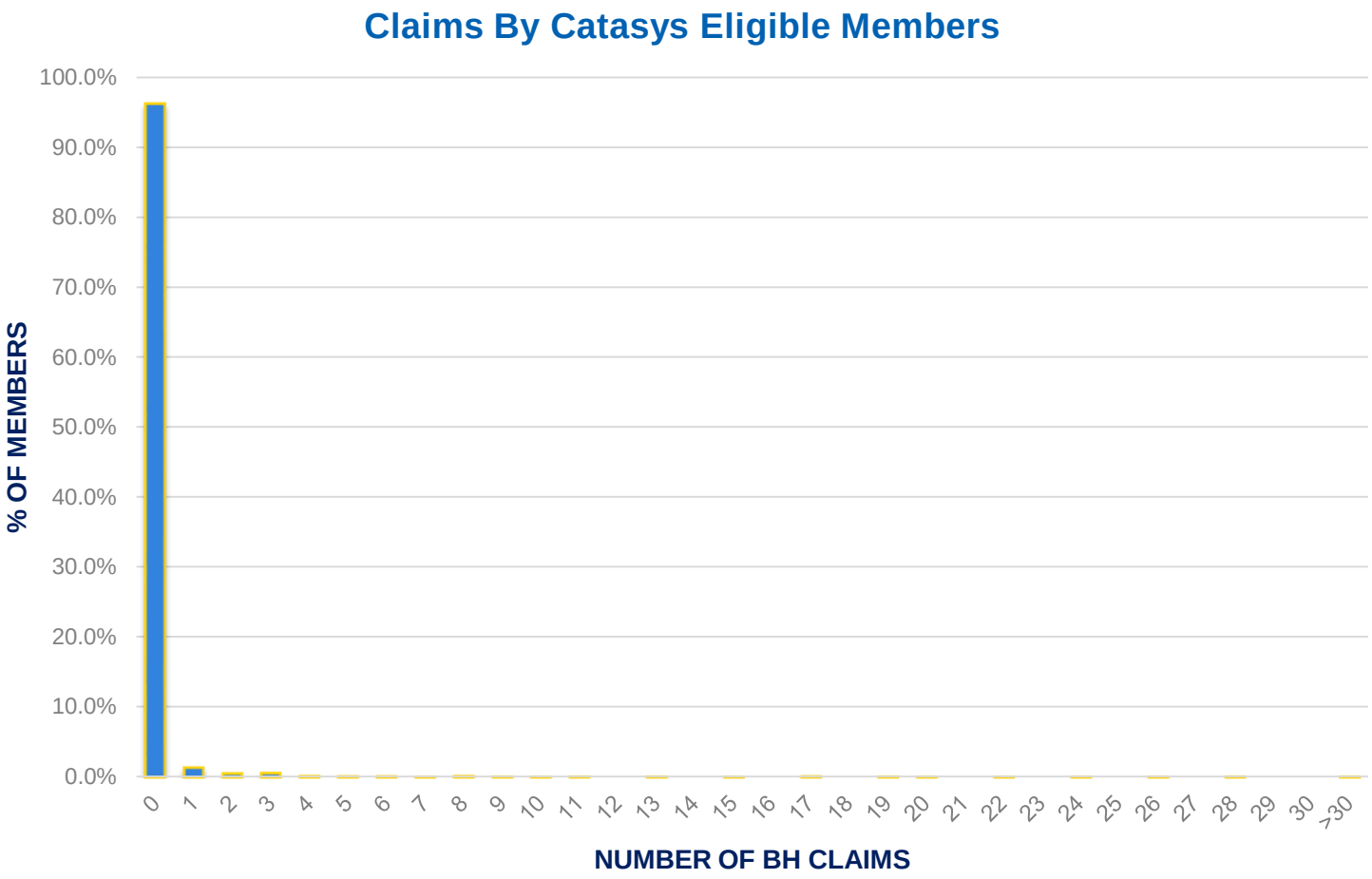
Catasys OnTrak Targeted Members



96.2% of Catasys Eligible Members: Zero BH Treatment Claims



*Claims of Catasys Eligible Health Plan Members

Finding and Engaging the Hidden Member

Catasys®

On*Trak* Integrated Treatment Approach

Merges engagement, medical, psychosocial and 52 weeks of care coaching

Evidence Based medical and psych best practices as per SAMHSA

Establishes treatment protocols, standards and outcome metrics

Coordinates care delivery & reduces practice pattern variation

Medical & Pharmacological

- Evidence based practices
- Medical evaluation and assessment
- Pharmacological intervention

Psychosocial

- Evidence based practices
- Motivational Enhancement Therapy and Cognitive Behavioral Therapy
- Flexibility to integrate with other therapies as required (e.g. AA 12 Steps, etc.)

Care Coaching

- Personal Care Coach
- Helps assess, manage and support members' recovery
- 52 weeks continuous support and relapse prevention

Catasys®

Our Clients

BlueCross BlueShield of Oklahoma

Humana®

superior healthplan

aetna℠

HCSC
Health Care Service Corporation

CENTENE®
Corporation

network health

mhs health wisconsin™

Health Alliance℠