Zero Suicide:
Lessons from the Pioneers of Suicide Prevention

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No Disclosures

Agenda

- Introduction to Suicide as a disease
- How to change the health care culture to “Zero”
- Tenets of HFH Zero Suicide
- How to achieve “Zero”!

The Epidemiology of Suicide

Suicide is the 10th leading Cause of Death in the US.

- #1 cause of injury-related death.
- ~48,000 people die of suicide in the US. (14.1/100,000 nationally in 2021)
- 1.7 million suicide attempts each year in the US.
- >10 million people have suicide thoughts each year in the US.
- US suicide rates have not improved over time (with some exceptions).
- Rates are ~25% higher than in 2000; the only top 10 leading cause of death with rising rates (except COVID).
- $1.2 million per suicide in lost work productivity and medical costs.

CDC

Pediatric Suicide

Third leading cause of death ages among all children and adolescents[1]

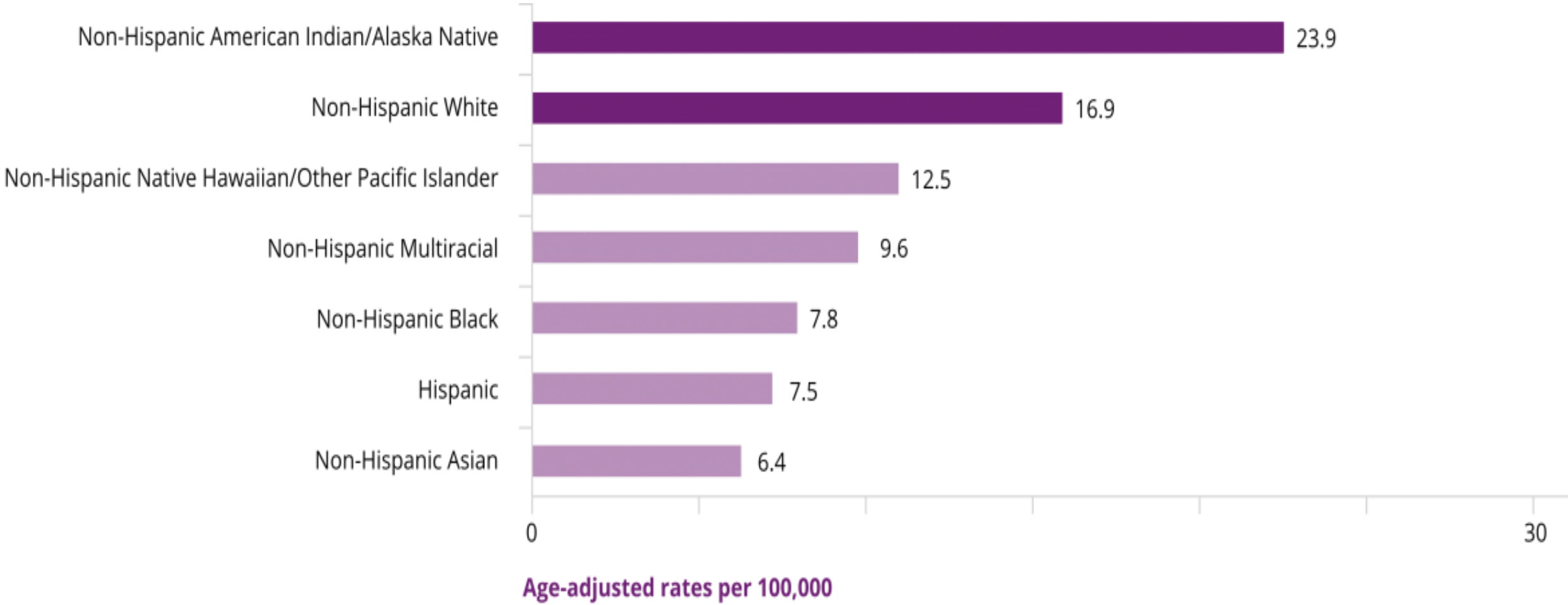
50-100 attempts per completed suicide in adolescents[1]

Effect of pediatric attempts before the age of 16 on adulthood function[2] is devastating:

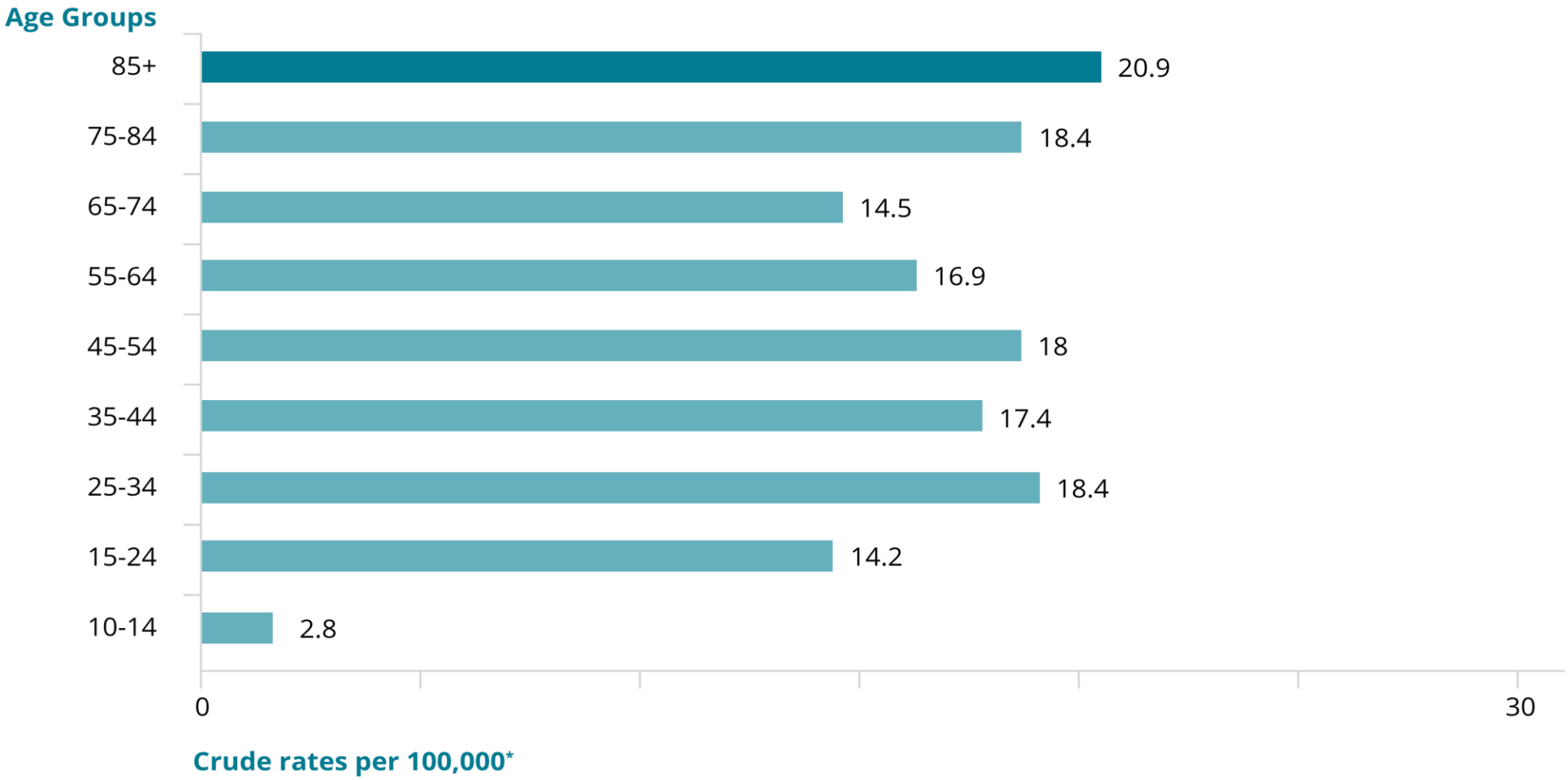
- Increased risk of anxiety disorders (odds ratio 3)
- Increased risk of self-harm behavior (odds ratio 15)
- Increased risk of SUD (odds ratio 3)
- Poorer educational and occupational success (odds ratio 2)

CDC

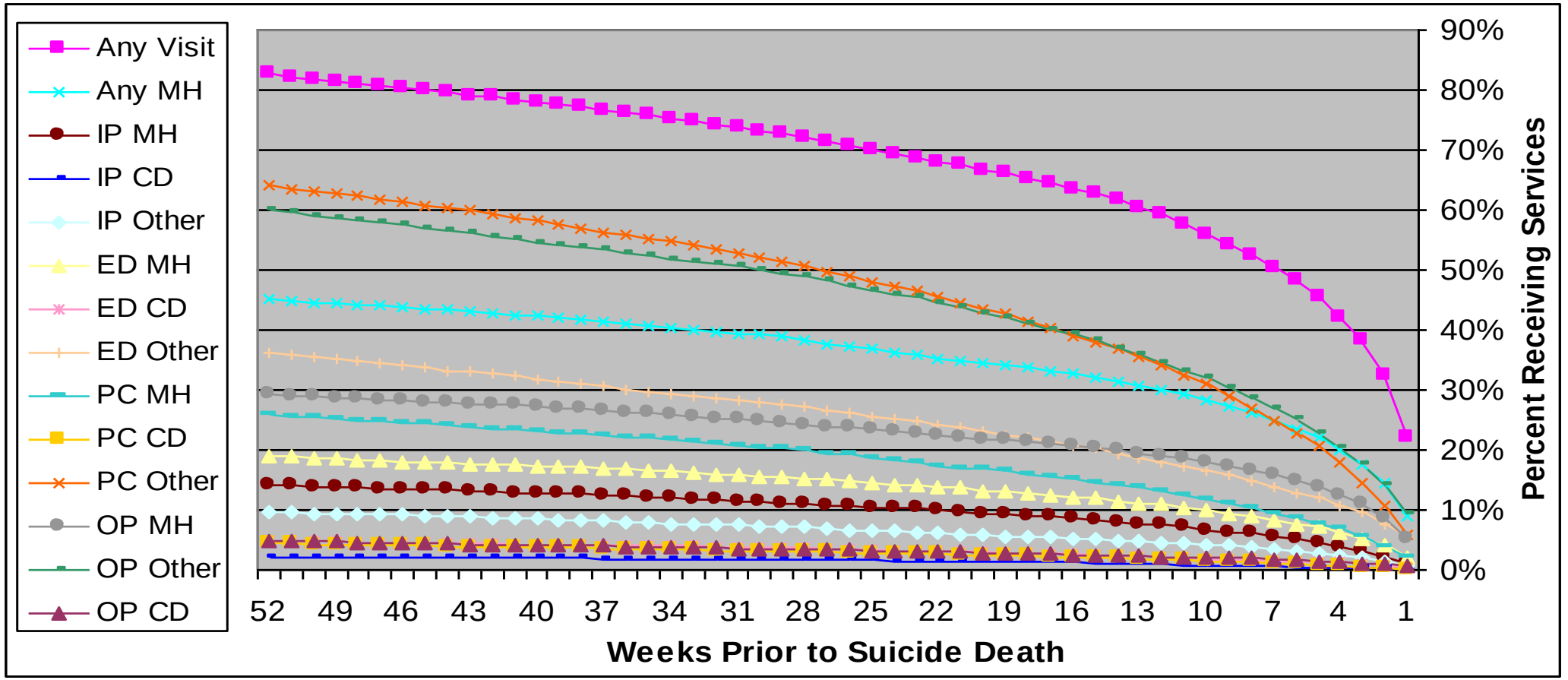
Suicide Rates by Race/Ethnicity
Suicide Rates by Race (CDC 2020)



People Ages >85 years have the Highest Suicide Rate (2020 CDC)



Health care systems are an important environment to prevent suicide



Ahmedani, et al (2014). Health care contacts in the year before suicide death. Journal of General Internal Medicine, 29(6), 870-877. doi:10.1007/s11606-014-2767-3. PMID: 24567199.

Health Care Contacts Before Suicide Death

Most people make health care visits prior to suicide

- ~83% within 1 year of suicide
- ~50% within 4 weeks
- ~22% within 1 week

Most visits occur in primary care and general medical specialty outpatient settings without mental health diagnosis

- >60% within 1 year of suicide for each
- >20% within 4 weeks

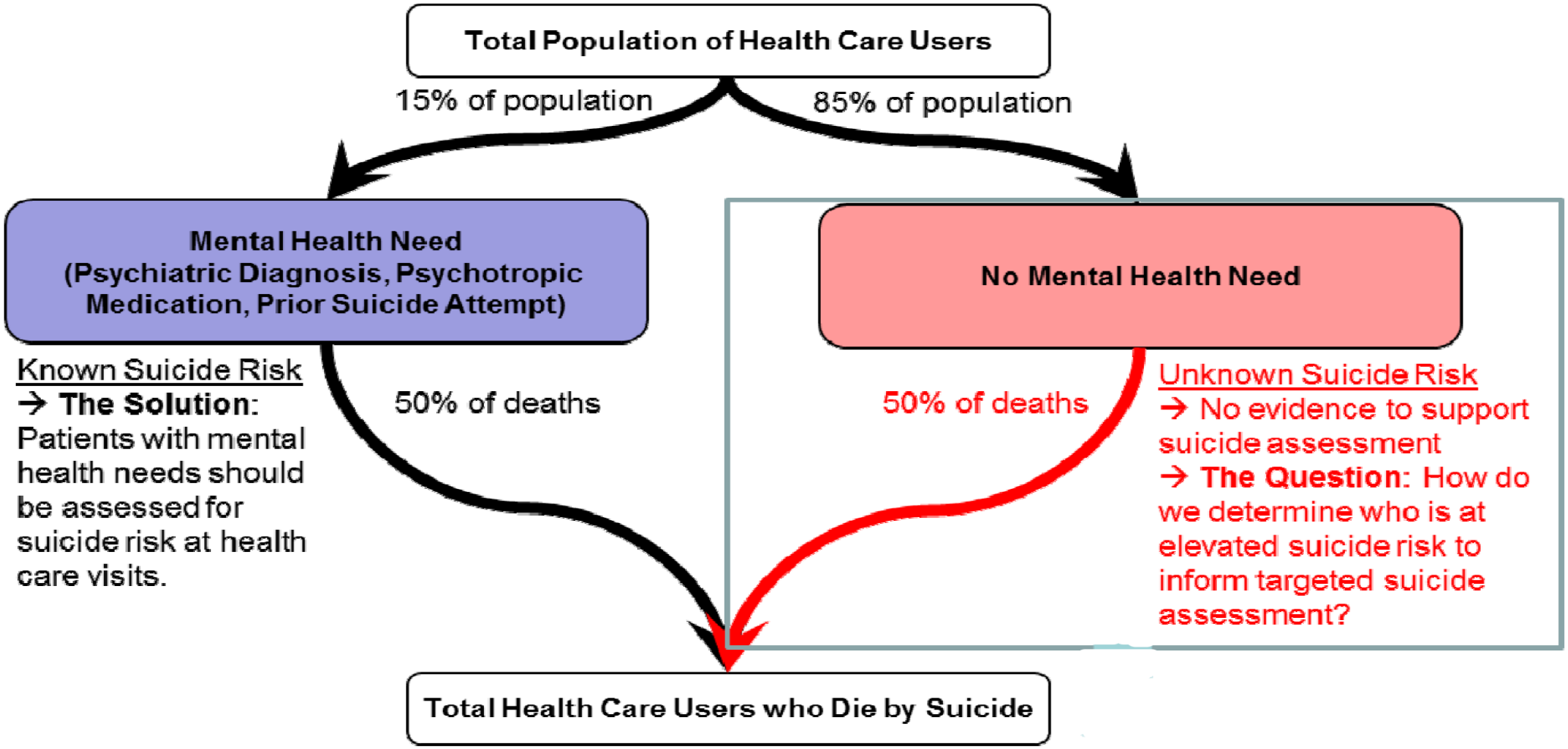
Who else is at risk?

- 9 physical health conditions including back pain, brain injury, cancer, CHF, COPD, epilepsy, HIV/AIDS, hypertension and sleep disorders were associated with suicide
- Multimorbidity was present in 38% of cases versus 15.5% of controls and represent nearly more than twofold the risk of suicide. Multiple health conditions increase suicide risk substantially

- Hypertension and back pain were most common conditions for individuals who died by suicide in both the control group and when adjusting for age, sex, mental health, SUD
- TBI had the largest increased odds related to risk of suicide after adjusting for other variables
- HIV/AIDS was also strongly associated with suicide
- A diagnosis of a sleep disorder showed increased odds for suicide risk at almost 19% compared with less than 5% of the control group.

	Control (n=267400)	Case (n=2674)	Adjusted Odds Ratio (age, sex; *indicates also significant after adjustment for psych diagnoses).		
Condition	% (n)	% (n)	aOR	CI	p-value
Asthma	5.6 (15021)	6.2 (166)	**1.30**	**1.11, 1.52**	**<0.001**
Back Pain	11.5 (30669)	22.6 (603)	**1.97**	**1.79, 2.16**	**<0.001***
Brain Injury	0.5 (1210)	6.4 (120)	**14.95**	**12.60, 17.73**	**<0.001***
Cancer	3.3 (8883)	8.7 (232)	**1.59**	**1.38, 1.83**	**<0.001***
CHF	1.3 (3463)	4.4 (118)	**1.78**	**1.45, 2.19**	**<0.001***
COPD	4.0 (10657)	10.1 (269)	**2.04**	**1.79, 2.33**	**<0.001***
Diabetes	6.1 (16380)	11.6 (311)	**1.18**	**1.04, 1.34**	**0.008**
Epilepsy	0.4 (1111)	1.4 (38)	**3.27**	**2.35, 4.54**	**<0.001***
HIV/AIDS	0.1 (380)	0.8 (21)	**3.39**	**2.17, 5.27**	**<0.001***
Heart disease	3.2 (8643)	8.3 (221)	**1.19**	**1.02, 1.37**	**0.023**
Hypertension	15.4 (41162)	27.8 (742)	**1.37**	**1.24, 1.52**	**<0.001**
Migraine	1.9 (5174)	3.5 (94)	**2.82**	**2.29, 3.49**	**<0.001***
Multiple sclerosis	0.2 (611)	0.4 (10)	**1.85**	**0.99, 3.48**	**0.055**
Osteoporosis	1.5 (3941)	1.8 (48)	**1.21**	**0.90, 1.62**	**0.216**
Parkinson's	0.2 (507)	0.8 (21)	**1.87**	**1.20, 2.91**	**0.006**
Psychogenic pain	0.5 (1288)	1.1 (30)	**3.20**	**2.21, 4.62**	**<0.001**
Renal disorder	2.3 (6255)	6.4 (172)	**1.48**	**1.26, 1.74**	**<0.001**
Sleep disorders	4.6 (12334)	18.5 (495)	**3.66**	**3.30, 4.05**	**<0.001***
Stroke	0.9 (2372)	3.3 (88)	**1.97**	**1.58, 2.47**	**<0.001**

Many People Who Die By Suicide Do Not Have Known Risk



Identifying WHO is at Risk – People with Known Risk of Suicide

- Having a mental health diagnosis within the last year is associated with higher suicide risk (51.3%)
- Highest risk:
  - Bipolar Disorder (especially females)
  - Schizophrenia Spectrum Disorder
  - Depressive Disorders
- Diagnosis of an anxiety disorder showed elevated risk for suicide

Mental Health Diagnosis[c]	Controls (n=267,400)	Cases (n=2,674)
Anxiety Disorder	13,760 (5.15)	673 (25.17)
ADHD	4,282 (1.60)	67 (2.51)
Bipolar Disorder	1,717 (0.64)	213 (7.97)
Depressive Disorders	22,213 (8.31)	1,126 (42.11)
Schizophrenia Spectrum	329 (0.12)	61 (2.28)
Any Mental Health Condition	34,049 (12.73)	1,371 (51.27)
Suicide Attempt	871 (0.33)	301 (11.3)

Yeh HH, Westphal J, Hu Y, Peterson EL, Williams LK, Prabhakar D, Frank C, Autio K, Elsiss F, Simon GE, Beck A, Lynch FL, Rossom RC, Lu CY, Owen-Smith AA, Waitzfelder BE, Ahmedani BK. Diagnosed mental health conditions and risk of suicide mortality. *Psychiatr Serv*. 2019;70(9):750-757.Prabhakar D, Peterson EL, Hu Y, Chawa S, Rossom RC, Lynch FL, Lu CY, Waitzfelder BE, Owen-Smith AA, Williams LK, Beck A, Simon GE, Ahmedani BK. Serious suicide attempts and risk of suicide death. *Crisis.* 2021;42(5):343-350.

Suicide Data

Defined as a Suicide within 30 days of an ED or inpatient discharge and within 90 days of an outpatient visit.

ENTITY	2022 SUCIDE/ 100,000 LIVES
U.S. GENERAL POPULATION	14.3/100,000
U.S. PSYCHIATRIC INPT POP	200-300/100,000
U.S. PSYCHIATRIC OUTPT POP	60-80/100,000

Suicide after Inpatient Psychiatric Discharge

After patients leave inpatient psychiatric care, their suicide death rate is high.

- 300 times higher (in the first week) and
- 200 times higher (in the first month) compared to the general population
- Suicide risk remains high for 3 months
- 14% of people have a hospital visit before suicide
- 5% of people have a psychiatric hospitalization before suicide

Factors related to Suicide

- Access to means
- Alcohol and Drug Use/Abuse
- Chronic medical Illness
- History of Suicide Attempts
- Economic Hardship
- Family history of suicide
- Mental Illness: But many people (>50%) without a mental illness die by suicide
- Acute Stressors

What is Zero Suicide?

The core principle behind “Zero Suicide” is that the suicide deaths of patients under our care are preventable.

Zero Suicide Initiative

Zero Suicide is…

- A focus on error reduction and safety in healthcare
- A framework for systematic, clinical suicide prevention in behavioral health and health care systems
- A set of best practices and tools

Designing for Zero

- Common in aviation and nuclear power
- Common in the auto industry for “zero defects”
- Rare in health care
- If we do not set the goal of “zero”, we may be complacent to just being a little better.

Focus on Error Reduction: Shift in Perspective

FROM	TO
Accepting suicide as inevitable	Every suicide in a system is preventable
Assigning blame	Nuanced understanding: ambivalence, resilience, recovery
Risk assessment and containment	Collaborative safety, treatment, recovery
Stand alone training and tools	Overall systems and culture changes
Specialty referral to niche staff	Part of everyone's job
Individual clinician judgment & actions	Standardized screening, assessment, risk stratification, and interventions
Hospitalization during episodes of crisis	Productive interactions throughout ongoing continuity of care
"If we can save one life…"	"How many deaths are acceptable?"

Prevention Approaches

Universal:

- Low-intensity approaches delivered broadly (e.g., screening in primary care).

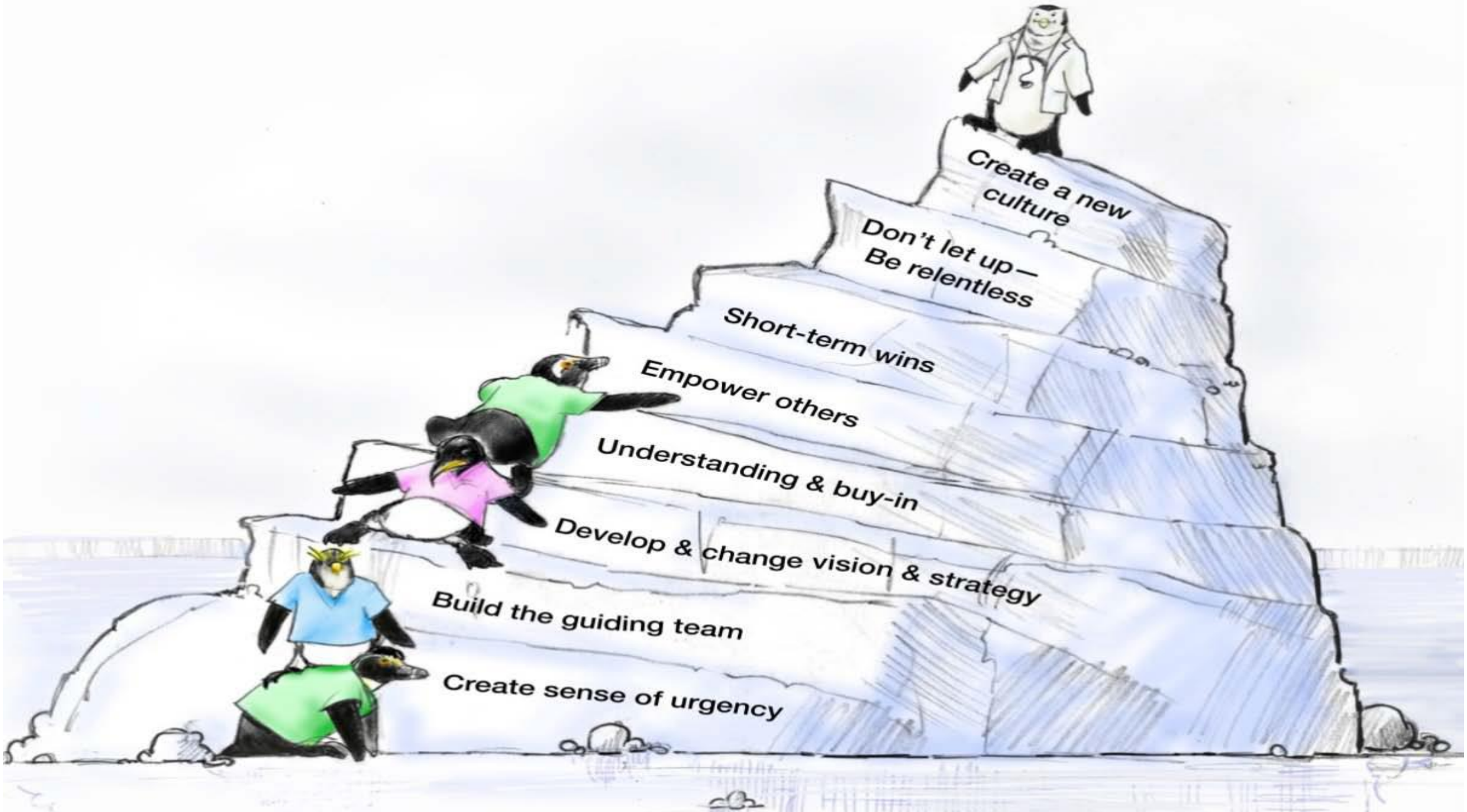
Selective:

- Moderate to High intensity approaches delivered to individuals at increased risk (e.g., individuals with mental health conditions, previous suicide attempts).

Key Elements in Guideline Design

- How to change the culture to Zero Suicide
- How to conceptualize suicide assessment
- How to restructure care
- How to train (retrain) staff
- How to measure progress and success

How to change the culture to Zero Suicide


Create a new culture
Don't let up—Be relentless
Short-term wins
Empower others
Understanding & buy-in
Develop & change vision & strategy
Build the guiding team
Create sense of urgency

CORE VALUES

The belief that suicide can be eliminated in the population under your care

- Leadership leading to cultural transformation
- Continuity of care and shared service responsibility
- Immediate access to care
- Alliance of patient and clinical team
- Evaluate performance and quality improvement; data driven

ZERO SUICIDES

- Map out a “perfect” delivery of care model
- Policies and procedures must support this model
- The care model must be integrated into workflow
- The care model must be integrated into your EMR

HIGH RELIABILITY HEALTHCARE

- The essential step in the pursuit of quality and safety improvement
- An organization that maintains consistent excellence during an extended period of time
- Organizations and the individuals who work in them are acutely aware that even small failures in safety protocols and processes can lead to serious adverse events.

How to reconceptualize suicide assessment

Suicide Risk Assessment

- Clinicians are not able to predict suicide but can and must assess risk
- **Assessment does not rely on suicidal ideation as the main determinant of risk**
- Suicide risk assessment must be part of ever patient encounter.
- There is no such thing as a psychiatric patient with NO suicide risk
- KEY TO ZERO SUICIDE IS TO IDENITFY AND TO MODIFY RISK

Suicide Risk Assessment

- Current uncontrolled mania
- Current psychosis with command hallucinations and/or severe paranoid delusions
- Suicidal plan
- Suicidal intent
- Severe hopelessness
- Suicide attempt within the last 30 days without intervening mental health treatment

Acute Risk

Suicide Risk Assessment

- History of suicide attempt in the last year
- Severe anhedonia
- PHQ-9 Question #9 with response of 2 or 3
- Alcohol abuse/substance abuse within the last month
- Severe anxiety/panic
- Acute stressor; particularly real or perceived loss
- Chronic non-lethal self-injury
- Global insomnia
- Mental Health ED visit within last 3 months
- Severe depression (e.g. PHQ-9 >20)
- Current intoxication with alcohol or substances

High Risk

Suicide Risk Assessment

- Moderate depression
- Current hypomania
- Drug use disorder within the last 5 years
- Moderate anxiety/panic
- Suicidal ideation or PHQ-9 Question #9 with response of 1
- History of suicide attempts (> than 1 year ago)
- Family history of suicide
- Chronic severe pain
- LGBTQ
- Armed Services: Veteran and active duty
- Current eating disorder
- Traumatic Brain Injury within the last year
- Inpatient psychiatric care in last year
- Opiates abuse within the last year
- Impulsivity (particularly in teens and young adults)

Moderate Risk

Suicide Risk Assessment

- Anxiety Disorder (not moderate or severe)
- Depressive disorder, mild to in
- remission
- Bipolar disorder, in remission
- Psychotic disorder, in remission
- Multiple chronic medical problems
- Any other mental health or
- personality disorder

Low Risk

How to restructure care

Suicide Prevention : Outpatient Organization of Care

- Suicide risk mandates a psychiatric evaluation
- Psychiatric evaluation on the same day if Acute risk
- Psychiatric evaluation within 48 hours if High risk
- Psychiatric evaluation within 7 days if Moderate risk with anxiety disorders or mood or psychotic disorders in remission
- If Low Risk, timing of psychiatric evaluation relates to patient's current needs and response to treatment
- Requirement of psychotherapy for Acute/High risk

Suicide Risk Assessment

Risk Determines the Treatment Intervention:

- Level of care: IPD, PHP, IOP, OPD
- Somatic treatments (medication, ECT, TMS)
- Psychotherapy: must be evidence-based
- Remove weapons from the home
- Involve family: this must always be considered
- Community referrals
- Self-management tools

Suicide Prevention Guideline: Weapon Removal

<u>EVERY patient must be asked about weapon availability</u>

Remove weapons from the home

Weapon availability should be re-evaluated periodically

“Stashes of medications” should also be considered weapons.

NPE and progress notes changed to prompt steps related to weapons/means reduction

Suicide Prevention: Family Involvement

- Family involvement is an essential part of these guidelines and a major part in how we conceptualize treatment
- There must be a rationale as to why not to involve the family
- Families can provide important collateral information and help assess and mediate risk

UNDERSTANDING AND HELPING SOMEONE WHO IS SUICIDAL

Be Aware of the Warning Signs

There is no typical suicide victim. It happens to young and old, rich and poor. Fortunately there are some common warning signs which, when acted upon, can save lives. Here are some signs to look for:

A suicidal person might be suicidal if he or she:

- Talks about committing suicide
- Has trouble eating or sleeping
- Experiences drastic changes in behavior
- Withdraws from friends and/or social activities
- Loses interest in hobbies, work, school, etc.
- Prepares for death by making out a will and final arrangements
- Gives away prized possessions
- Has attempted suicide before
- Takes unnecessary risks
- Has had recent severe losses
- Is preoccupied with death and dying
- Loses interest in their personal appearance
- Increases their use of alcohol or drugs

What To Do

Here are some ways to be helpful to someone who is threatening suicide:

- Be direct. Talk openly and matter-of-factly about suicide.
- Be willing to listen. Allow expressions of feelings. Accept the feelings.
- Be non-judgmental. Don't debate whether suicide is right or wrong, or feelings are good or bad. Don't lecture on the value of life.
- Get involved. Become available. Show interest and support.
- Don't dare him or her to do it.
- Don't act shocked. This will put distance between you.
- Don't be sworn to secrecy. Seek support.
- Offer hope that alternatives are available but do not offer glib reassurance.

Suicide Prevention : Self-Management

- Self-management: a key to successful treatment
- The patient is now an active member who helps direct the course of treatment
- HFHS digital library of patient and family resources

Suicide Prevention: Community Resources

- Community referral and support: the “community” is now part of every treatment plan
- Community support may include NAMI, AA, NA, and other support groups

How to train (retrain) staff

Training & Retraining of Staff

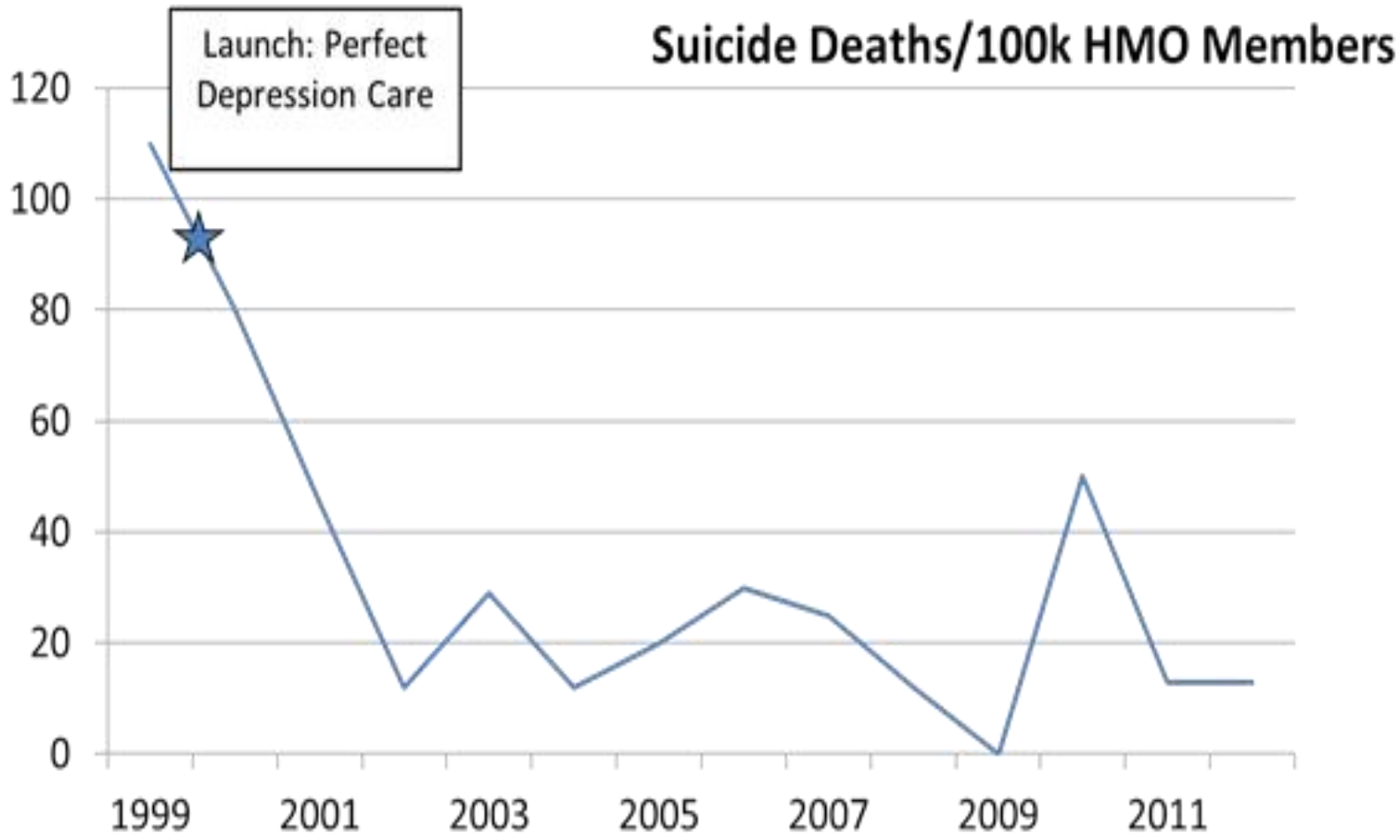
- Evidence-based psychotherapies: CBT and DBT
- Essentials in pharmacotherapy
- Use of “new” interventions:
  - Safety plan
  - Data driven outcome measures
  - Caring cards

How to measure progress and success

Data to track success

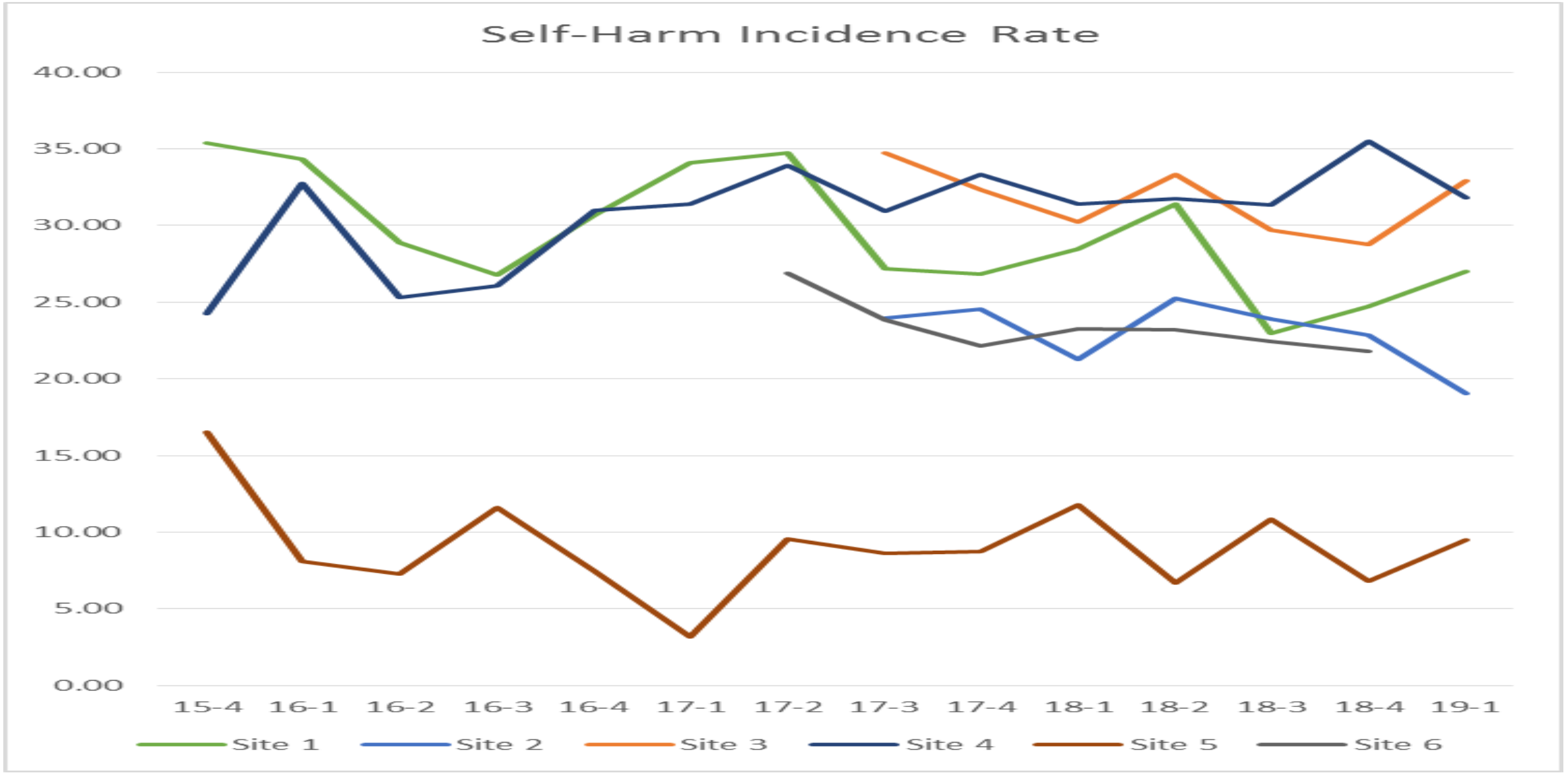
- PHQ-9 and GAD-7 for every outpatient encounter
- Fidelity to the model
- State of Michigan death data monthly
- Claims data regarding any suicide attempt

Dramatic reduction in suicide rates (by 80 % in our health plan members) by carefully assessing patients for risk of suicide and adopting measures to reduce the likelihood that a patient will attempt suicide



HFH Success

The Success of Zero Suicide

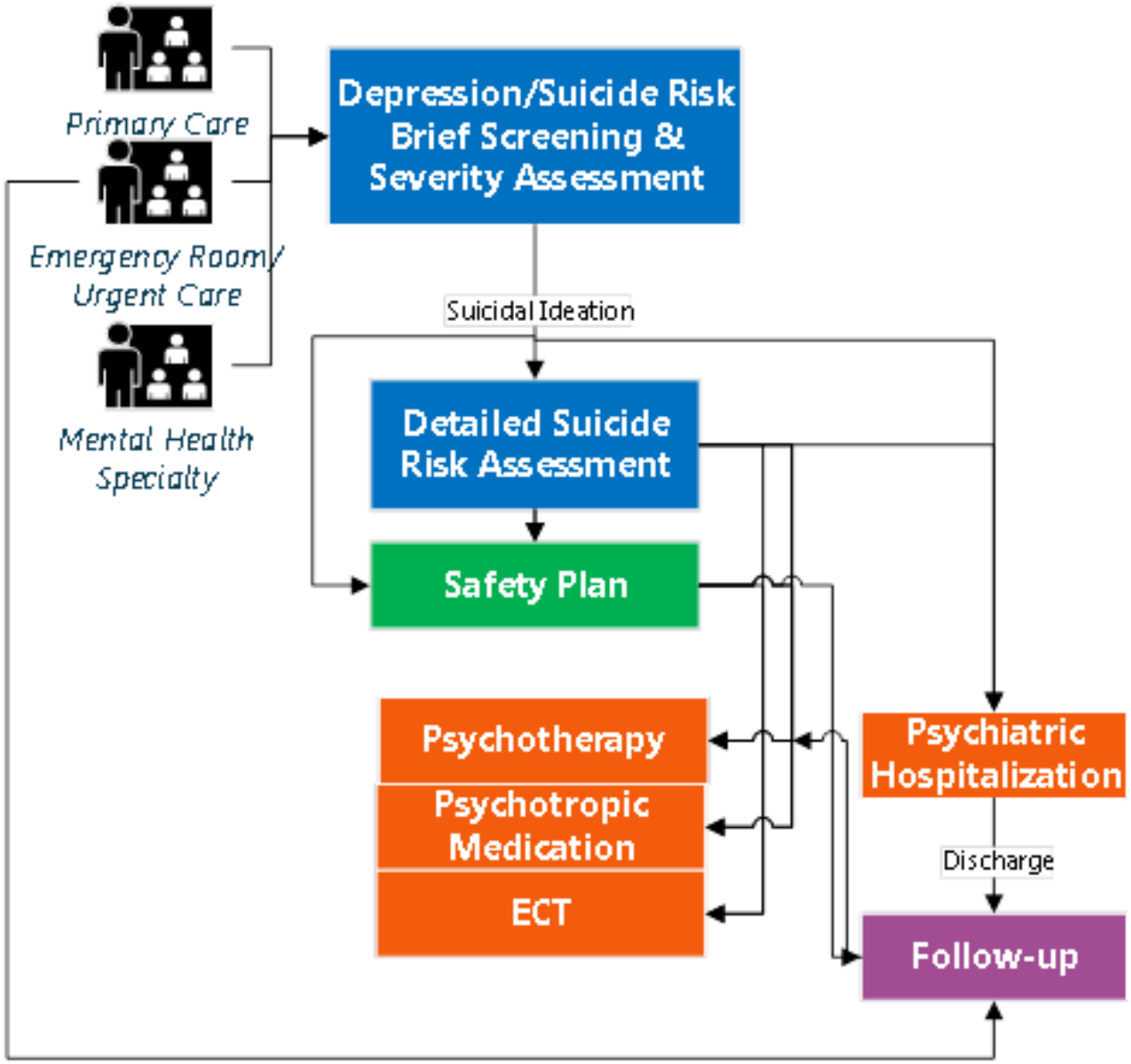


MHRN Zero Suicide Implementation Study

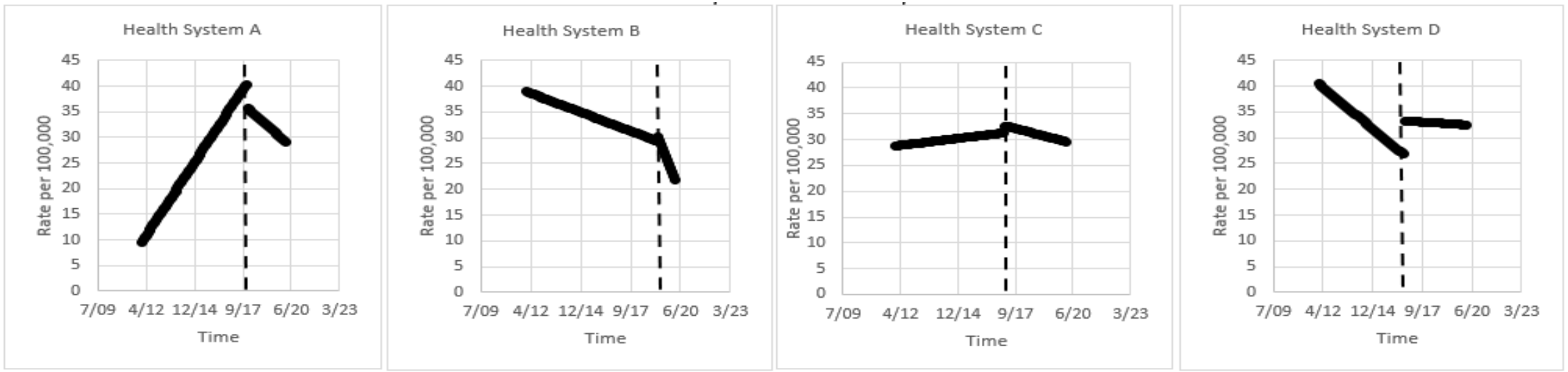
- Title: *An Evaluation of the National Zero Suicide Model Across Learning Healthcare Systems* (U01MH114087).
- Sites: Henry Ford Health, KP Washington, KP Northwest, KP Southern California, KP Northern California, KP Colorado
- More than 10 million patients/year including >130,000 age 13+/month in outpatient care
- ZS 'Clinical' Components
  - Suicide Risk Identification (PHQ-9, C-SSRS, other)
  - Care Coordination and Follow Up (Caring Contacts)
  - Treatment (Safety Plan; Suicide-Specific Psychotherapy)
- Measurement tracking via the Electronic Health Record Systems (*Epic*), Insurance Claims, and Mortality Records.
  - Established data sources in MHRN *Virtual Data Warehouse.*
  - New ZS data sources in *Epic/Claims.*
  - State and government mortality records.

Making Sense of the Clinical Pathway Across Settings

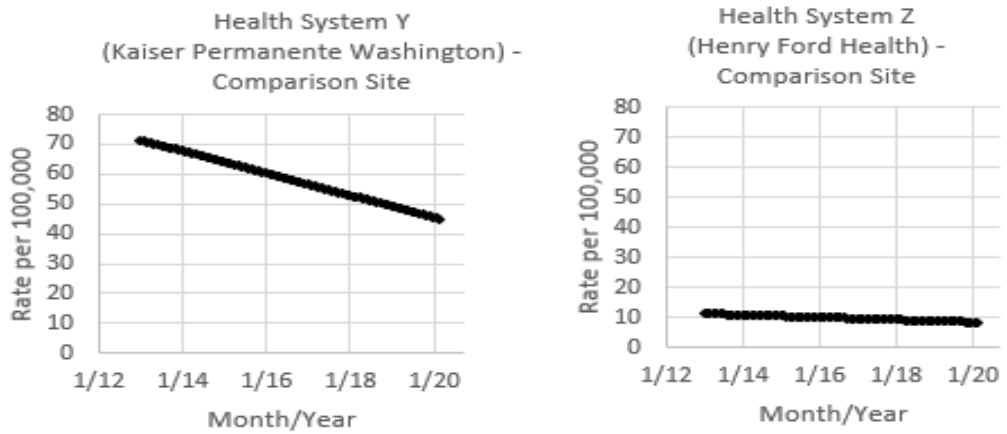
Richards, et al. An implementation evaluation of "Zero Suicide" using normalization process theory to support high-quality care for patients at risk of suicide. Implement Res Pract. 2021 Jan 1;2:10.



Suicide Attempt Rates in MH Specialty: ZS implementation in outpatient settings are associated with population-level reductions in suicide attempts and deaths



Panel B: Comparison Group Sites




MIMIND

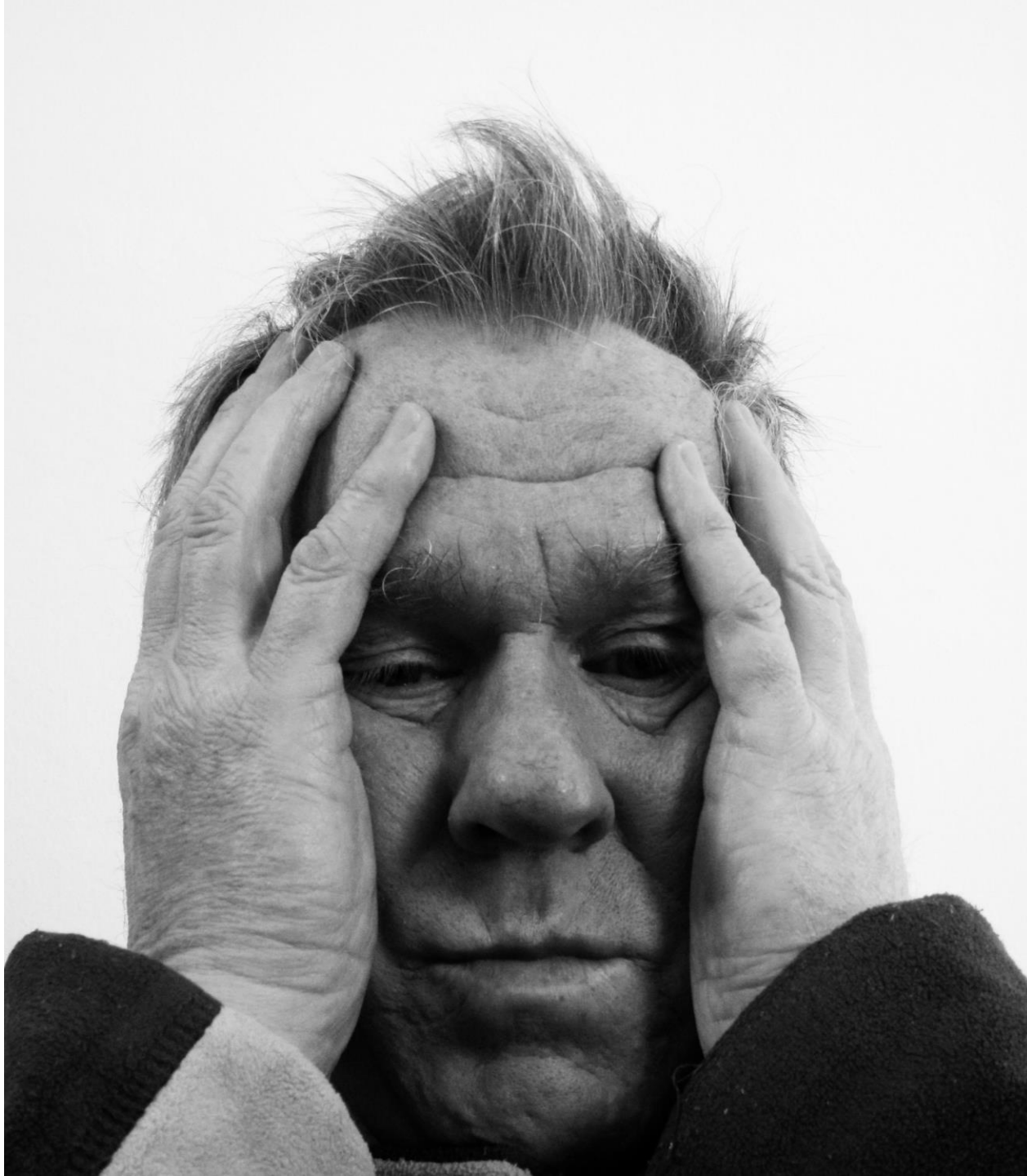
MI-Mind
Michigan Mental Health Innovation Network for Clinical Design

Overall Goal: To bring to the forefront the morbidity and mortality of mental illness in the State of Michigan and to provide solutions

Initial goal: Eliminate suicide deaths and attempts in the State of Michigan

Two-prong strategy to <u>eliminate</u> suicide:
A partnership with Primary Care and Psychiatry using novel clinical strategies

1. Behavioral Health utilizes Zero Suicide guidelines at every patient visit
2. Primary care screens for suicide at every visit



Key Features of PCP Prevention of Suicide

- Screening for suicide is now on par with screening for heart disease or certain types of cancer
- The Patient Health Quesitonnaire-9 (PHQ-9) is the screening tool
- Recommend PHQ-9 administered every visit
- Research indicates that >83% of individuals who die by suicide, and >92% of those who attempt suicide, have a healthcare visit in the months leading up to their death.
- Only ~33% of those who die by suicide *ever* had a behavioral health visit.

Why the PHQ-9 as the suicide risk screening tool?

- Recent research indicates that patients that respond with a "2 or 3" to question #9 account for more than 50% of all suicide attempts and deaths within 2 years following a positive screen.[6,7]

- Research indicates a "2 or 3" on question #9, increases risk of a suicide attempt 5-10 times within 30 days and 4-7 times within 90 days.

- Nevertheless, there is a near negligible increase of same day suicide with a positive screen.

- 2.9% of patients score a "2 or 3" on question #9 in primary care populations.

Simon GE et al 2013; Simon GE et al, 2016

How does the PHQ-9 compare to other health risk screening tools?

- Data from the Framingham Risk Model (CV risk) indicates that those in the highest risk bucket account for 20-30% of CHD and 33% of incidence of stroke, hypertensive heart disease, and intermittent claudication over an 8-year period (Remember Question #9 is 50% of suicide attempts and deaths over a 2-year period following a positive screen).
- Like the Framingham Score, the PHQ-9, question does not indicate when an event will occur, but that there is an elevated longitudinal risk that can and should be addressed through assessment and interventions.

D'Agostino RB e et al 2001 and 2008; Wilson PW et al 1998

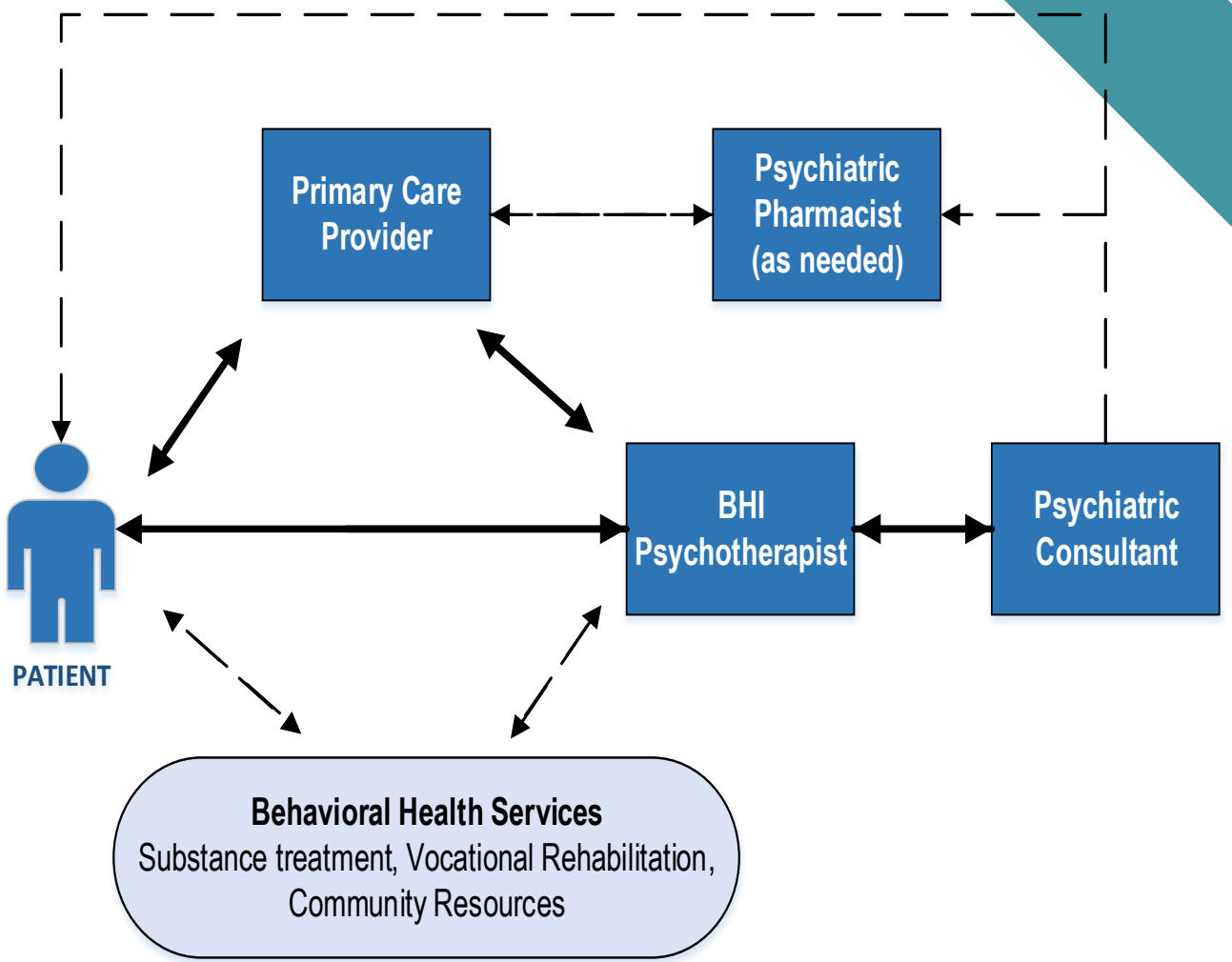
The Collaborative Care Model

Patient-centered care

- Cut appointment wait time from *months* to days
- Convenient follow up at patient's medical home
- Evidence-based treatment to remission

PCP-centered care

- Additional resources to evaluate and treat patients
- Improved outcomes for depression and anxiety
- Better access and availability to Behavioral Health Services
- Therapists maintain a registry to track all patients in the program



The Highly Variable Nature of Suicide

On the bridge, Baldwin counted to ten and stayed frozen. He counted to ten again, then vaulted over. “I still see may hands coming off the railing,” he said. As he crossed the chord in flight, Baldwin recalls, “I instantly realized that everything in my life that I’d thought was unfixable was totally fixable—except for having just jumped.”

Zero Suicide

- Not just the responsibility of the individual clinician
- Not just the responsibility of the clinical team
- A system wide approach to care

Questions?