Applying the BMC Youth Model: three case studies

Presented by

Professor Ian Hickie AM

A/Professor Liz Scott

ian.hickie@sydney.edu.au

e.scott@sydney.edu.au

THE UNIVERSITY OF SYDNEY

Acknowledgements

- Of country
- Of lived experience

BMC Youth Model of Care – Seminar Series

1. A highly personalised and measurement-based model of care to manage youth mental health
2. Combining clinical stage and pathophysiological mechanisms to understand illness trajectories in young people
3. A comprehensive assessment framework for youth mental health care
4. Using the BMC Youth Model to personalise care options – best care, first time!
5. A youth mental health service delivery model to support highly personalised and measurement-based care
6. Maximising the use of digiHealth solutions in youth mental health care

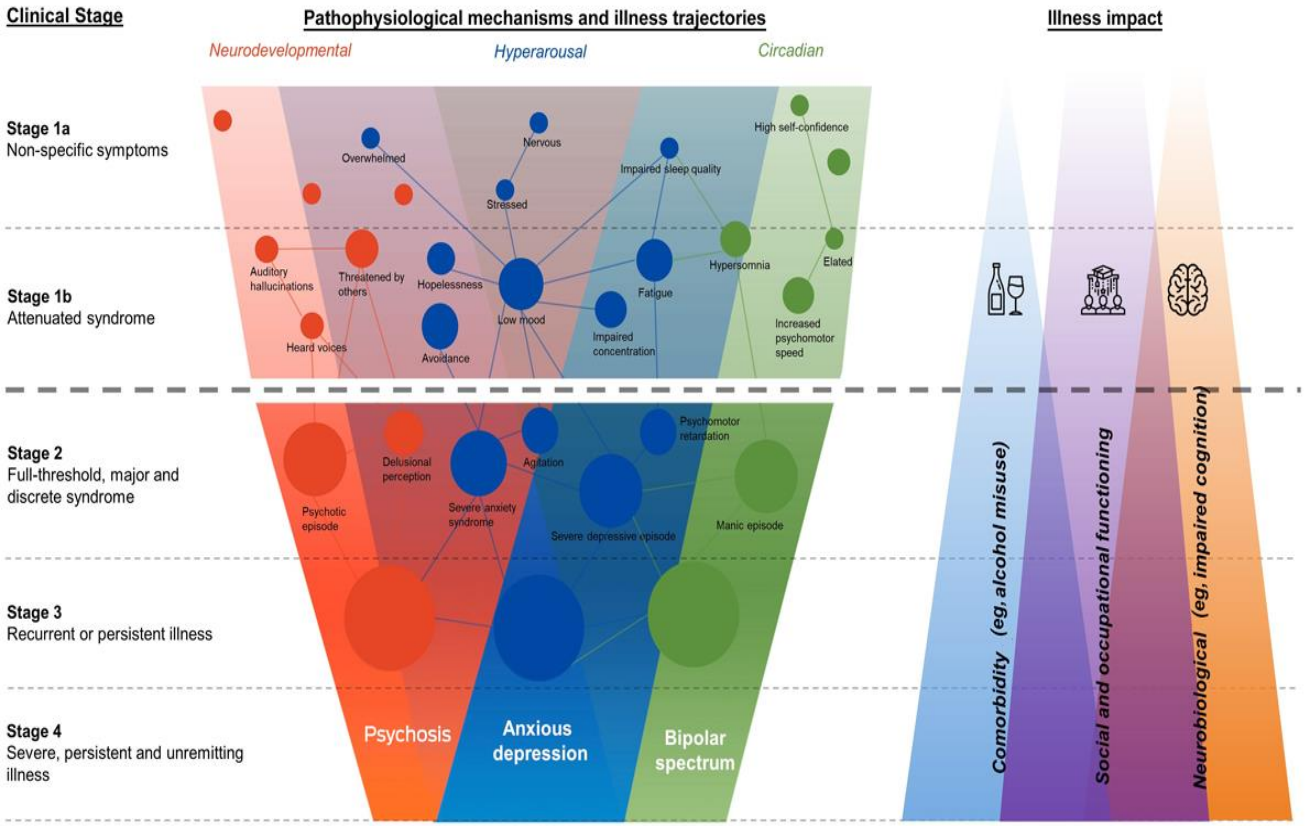
Recap of Seminar #1

- BMC Youth Model aims to **prevent progression to more complex and severe forms of illness**

- First core concept is a **multidimensional assessment and outcomes framework** to address the holistic needs of young people presenting for care

Recap of Seminar #2

- BMC Youth Model's **transdiagnostic framework** is supported by clinical, neuropsychological, neuroimaging, sleep-wake behavior and circadian rhythm evidence
- **Pathophysiological mechanisms and illness trajectories** attempt to describe the processes underlying development of common adolescent-onset mood and psychotic syndromes



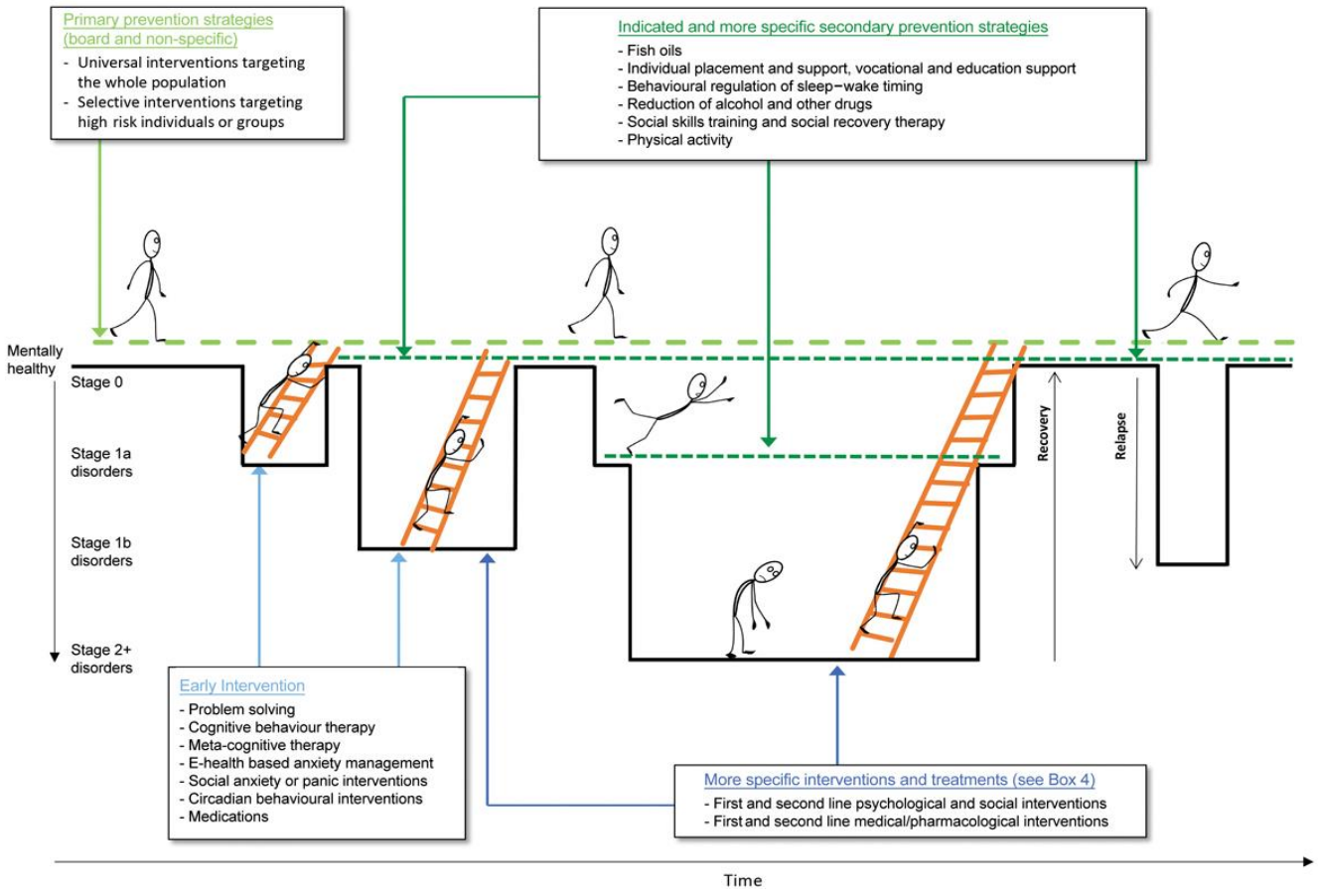
Recap of Seminar #3

- Use of **self-report, clinical and objective measures** allows unprecedented opportunity to refine our understanding of important clinical features in youth mental health care
- Once validated, it will be a major step towards **enabling highly personalised and measurement-based care**

	Standard assessments	Further assessments
Neuropsychological function	• Online neuropsychological testing (eg, Cambridge Neuropsychological Test Automated Battery): ▸ attention ▸ psychomotor speed ▸ memory ▸ executive function ▸ emotion and social cognition	• Comprehensive neuropsychological and social cognitive testing: ▸ immediate and delayed visual and verbal memory ▸ verbal fluency ▸ working memory ▸ attentional switching ▸ impulsivity ▸ theory of mind ▸ facial emotion recognition
Sleep–wake behaviours and circadian rhythms	• Sleep diary • Timing of sleep onset, sleep offset, time in bed (eg, Pittsburgh Sleep Quality Index) • 24-hour actigraphy measurements with standard devices (over at least a 2-week period)	• Overnight melatonin and cortisol assays • Nocturnal core body temperature
Metabolic and immune markers	• Anthropometric measurement: ▸ height, weight, waist circumference, body mass index • Blood pathology analysis: ▸ full blood count ▸ urea, electrolytes and creatinine ▸ thyroid function ▸ non-specific inflammatory markers: C-reactive protein ▸ fasting blood glucose ▸ insulin resistance (eg, homeostasis model assessment)	• Autoantibody screening (eg, N-methyl-D-aspartate receptor, glycine receptor, metabotropic glutamate receptor 5) • More extensive inflammatory marker screening (eg, tumour necrosis factor, interleukin)
Brain structure and function	*Recommended for all stage 2+ patients and stage 1b patients with a psychotic or circadian–bipolar spectrum phenotype* • Magnetic resonance imaging: ▸ cortical and subcortical grey matter volume ▸ cortical thickness	• Diffusion magnetic resonance imaging: ▸ white matter tractography • In vivo magnetic resonance spectroscopy: ▸ metabolite concentrations (eg, glutathione, creatine, N-acetyl-aspartate)

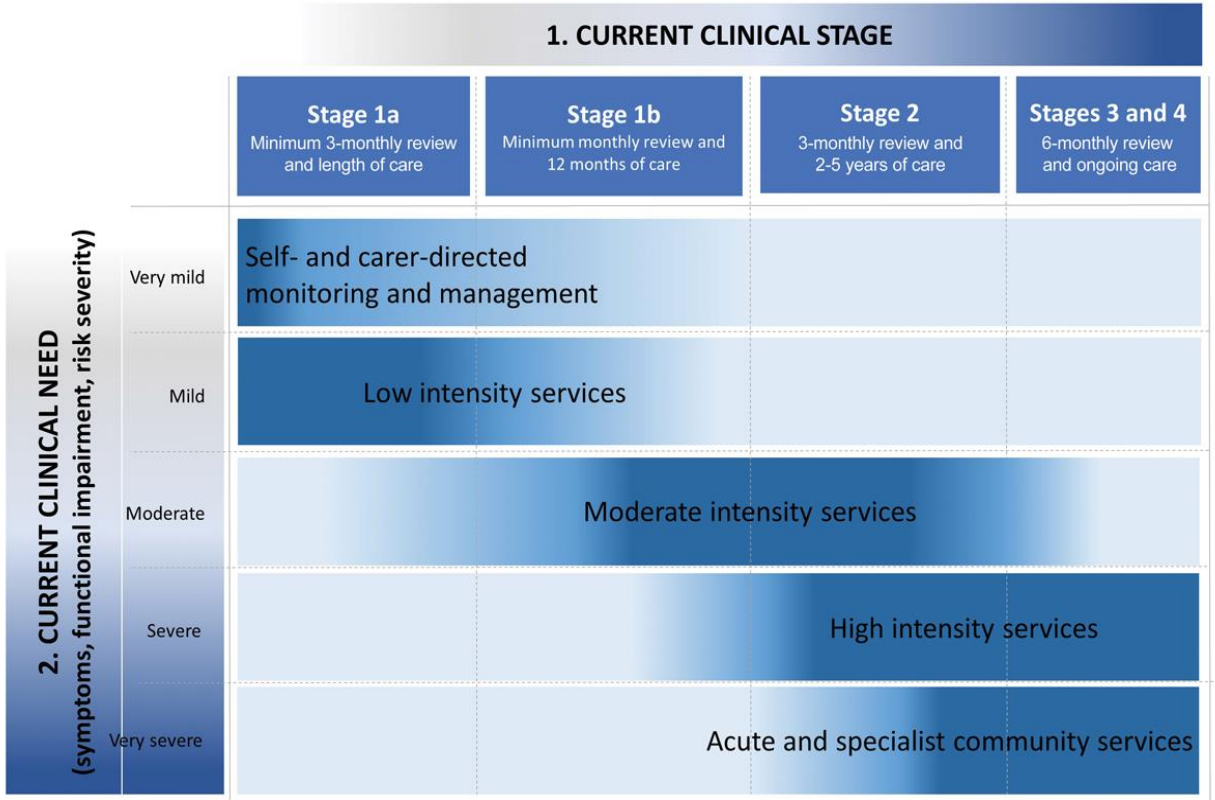
Recap of Seminar #4

- BMC Youth Model outlines a **treatment selection guide for early intervention** incorporating three core concepts:
    1. Multidimensional assessment and outcomes framework
    2. Clinical staging
    3. Three common illness subtypes (psychosis, anxious depression, bipolar spectrum) based on three underlying pathophysiological mechanisms (neurodevelopmental, hyperarousal, circadian)



Recap of Seminar #5

- **BMC Youth Model** explicitly aims to **prevent progression to more complex and severe forms of illness** - made possible through appropriate health service structures
- BMC Youth Model **incorporates** other **evidence-based processes**, including:
    1. Real-time measurement-based care
    2. Use of multidisciplinary teams of clinicians
- Data-driven local **simulation modelling** and personalised **health information technologies** provide crucial infrastructure support to these processes for better access to, and higher quality, mental health care!

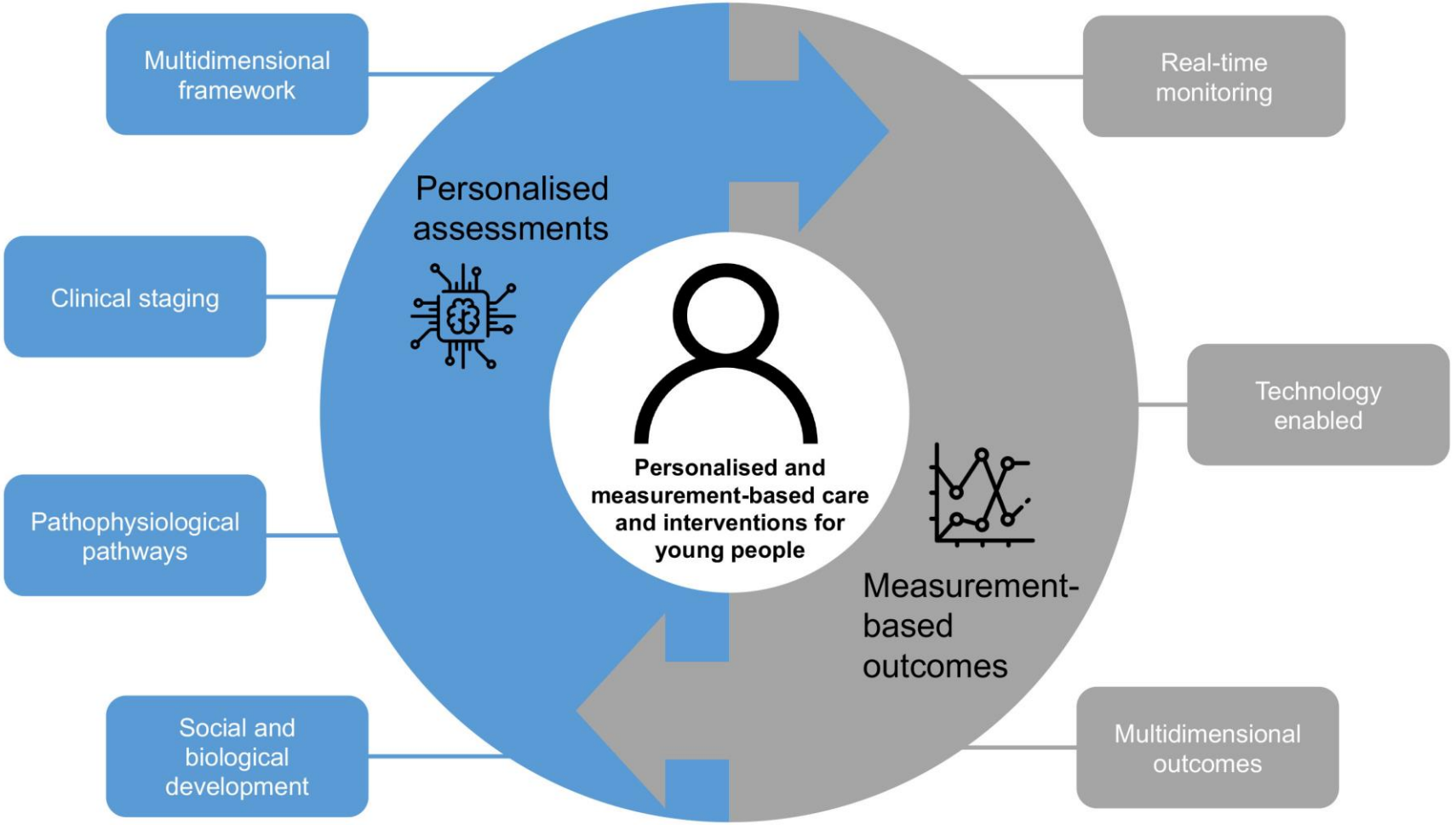


Recap of Seminar #6

- Implementation of the **BMC Youth Model** is made possible through **health information technology** (HIT) infrastructure = **digiHealth**
- HITs improve access, efficiency, outcomes and care continuity by enabling real-time and comprehensive online assessment, self-monitoring and routine outcoming monitoring, facilitation of immediate access to high quality online psychological interventions
- To enable **digiHealth**, there are various digital clinical tools that can be implemented; we use the **InnoWell Platform** as one example

Conflict of interest declaration: The University of Sydney and PwC each have a 45% shareholding in InnoWell. The remaining 10% shareholding is evenly shared between Professor Jane Burns and Professor Ian Hickie

Med J Aust 2019; 211 (9): S1-S46. || doi: 10.5694/mja2.50383

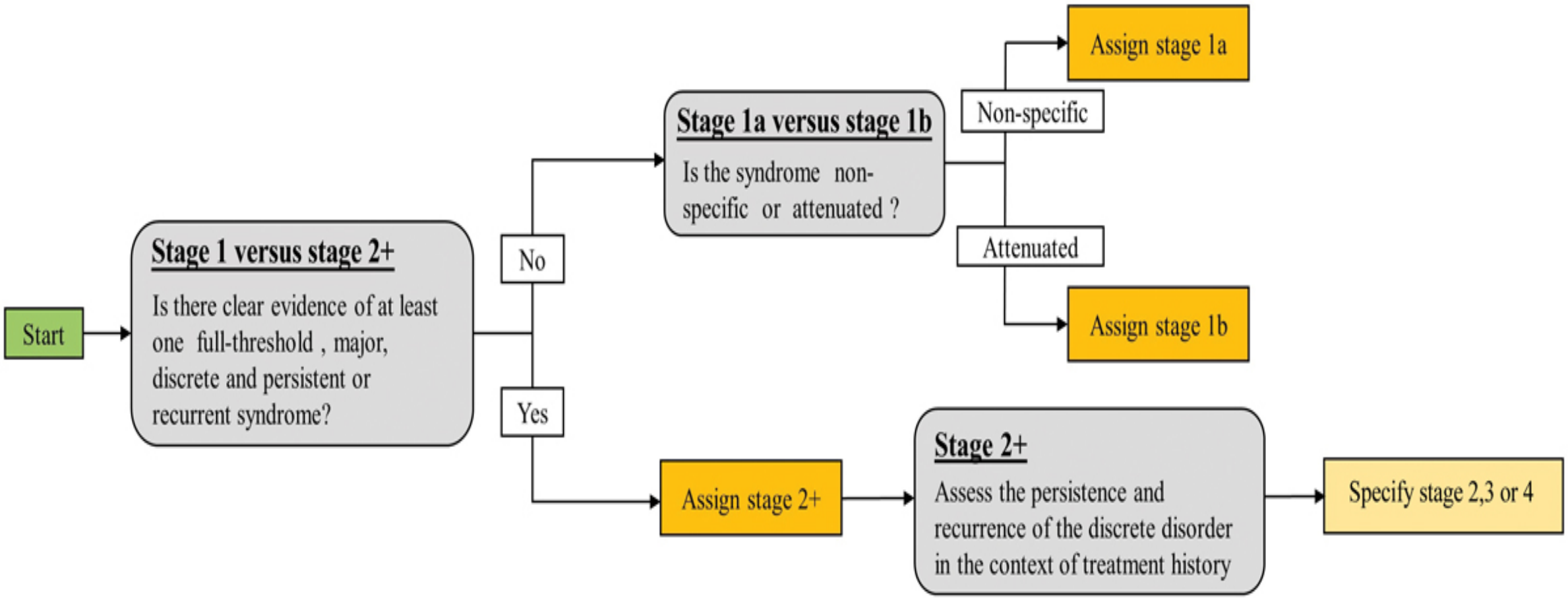


Outline for Case Studies webinar

- Applicability of the BMC Youth Model using three case studies:
  - Case study 1: JANE (17 years old)
  - Case study 2: ANNE (22 years old)
  - Case study 3: SIMON (19 years old)

- Key concepts that will be highlighted:
  - Multidimensional assessment
  - Pathophysiological mechanisms and illness trajectory
  - Staged care decisions and recommended treatment options
  - Routine outcome monitoring
  - Use of HITs in clinical practice (e.g. the InnoWell Platform)

Conflict of interest declaration: The University of Sydney and PwC each have a 45% shareholding in InnoWell. The remaining 10% shareholding is evenly shared between Professor Jane Burns and Professor Ian Hickie



Clinical decision-making principle: *Assign highest achieved in lifetime, and when in doubt, rate down and re-assess in 4–6 weeks.*

Case study 1: JANE (17 years old) is in her final year of high school. She presented to *headspace* at the request of her parents who were worried about her "increasing anxiety" in the lead up to final school exams. Jane is also having trouble sleeping and experiencing daytime fatigue which is getting in the way of her ability to complete school-work. Following a poor performance in trial examinations, she feels a sense of failure and now a reluctance to go to school and has started to talk about leaving before sitting final exams.

Function/ symptoms on presentation	Medical/ psychological history	Family history

• Jane denies sustained low mood but is anxious and pessimistic about her future
 	
• <u>Mental State Examination</u>:
  • At her *headspace* in-clinic appointment she appeared of normal weight and neatly dressed in her school uniform
  • Jane reported feeling nervous, her eye contact was intermittent, and she shifted around in the chair
  • While she expressed normal cognitive functioning and her thought processes appeared logical, she did show some evidence of catastrophising
	• Since the beginning of Year 10, Jane has been isolating herself more and more – turning down invitations with her friends to hang out and often ignoring her mobile phone when it rings
	
	• Recently, her parents have observed some disturbed eating behaviours such as binging and recurrent dieting
		• As a young man, Jane's father was diagnosed with social anxiety and has often used alcohol to cope

Jane's profile and dashboard of results

Jane Doe

Preferred name:	Jane
Date of birth:	2003-03-08T00:00:00
Suburb:	Sydney
State:	NSW
Primary language:	English
Indigenous status:	No
Gender identity:	Female
Gender at Birth:	Female
Number of Children:	No Children
Level of Education:	Year 12 or equivalent
Disability:	No
Government Benefits:	No
Living Circumstances:	Living with family (including partners and dependents), friends, or flatmates)
Support Circumstances:	Dependent on services, relatives, or the people with whom you live
Relationship Status:	Single (and have never been married)
Sexual Identity:	Straight

INNOWELL

Set up video calls | I need help now

Dashboard

Download your results (PDF)

Health Cards | Health History | Profile

Overall Health

Mild | Moderate | Good | Poor

No Change | Updated 17m ago

Mental Health

Moderate | Mild | Marked | Borderline | Severe | Good | Extreme

No Change | Updated 17m ago

Everyday Function

Mild | Moderate | Good | Poor

Deterioration | Updated 17m ago

Suicidal Thoughts and Behaviours

Mild | Moderate | None | High

No Change | Updated 17m ago

Social Connectedness

Moderate | Good | Poor

No Change | Updated 17m ago

Updating your questionnaires

By keeping up-to-date you can track your health and well-being over time.

A Support Person

You can invite a support person to answer some questions about your overall health and wellbeing

INNOWELL

Set up video calls | I need help now

Your Health Cards

Click on a health card to find fact sheets, browse a number of care options and review your results.

fitbit

Connect to my fitbit

Your health priorities

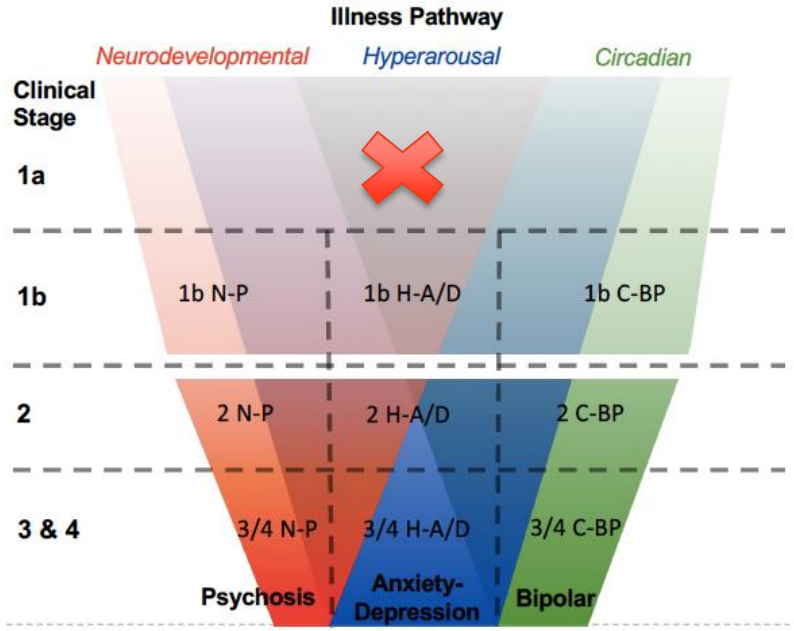
Poor Social Connectedness No Change 1h	Moderate Anxiety	Poor Sleep-Wake Cycle

Update

Moderate Psychological Distress Improvement 1h	None Suicidal Thoughts And Behaviours No Change 1h	No concern Psychosis-Like Experiences	No concern Mania-Like Experiences	Moderate Social And Occupational Function
None Self-Harm	Moderate Tobacco Use	Low Alcohol Use	Mild Depressed Mood	Good Physical Health
None Post-Traumatic Stress	Probable concern Eating Behaviours And Body Image	Low Cannabis Use		

Not disclosed during her headspace in-clinic appointment

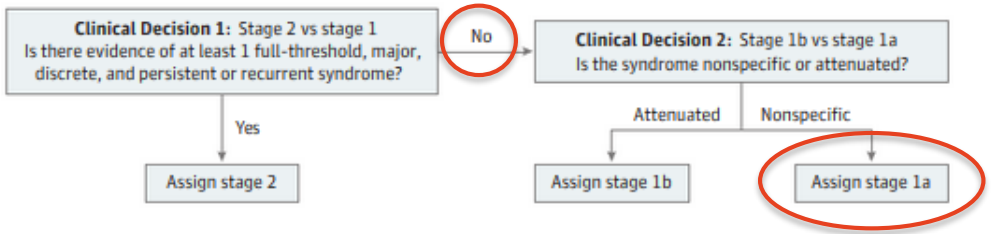
Staged care decisions for Jane?



Reference: Iorfino F, Scott E, Carpenter J, Cross S, McGorry P, Hickie I. JAMA Psychiatry. 10.1001/jamapsychiatry.2019.2360

Figure 1. Two-Step Decision-Making Process Used to Assign Those Presenting to Care to the Appropriate Stage

A Process



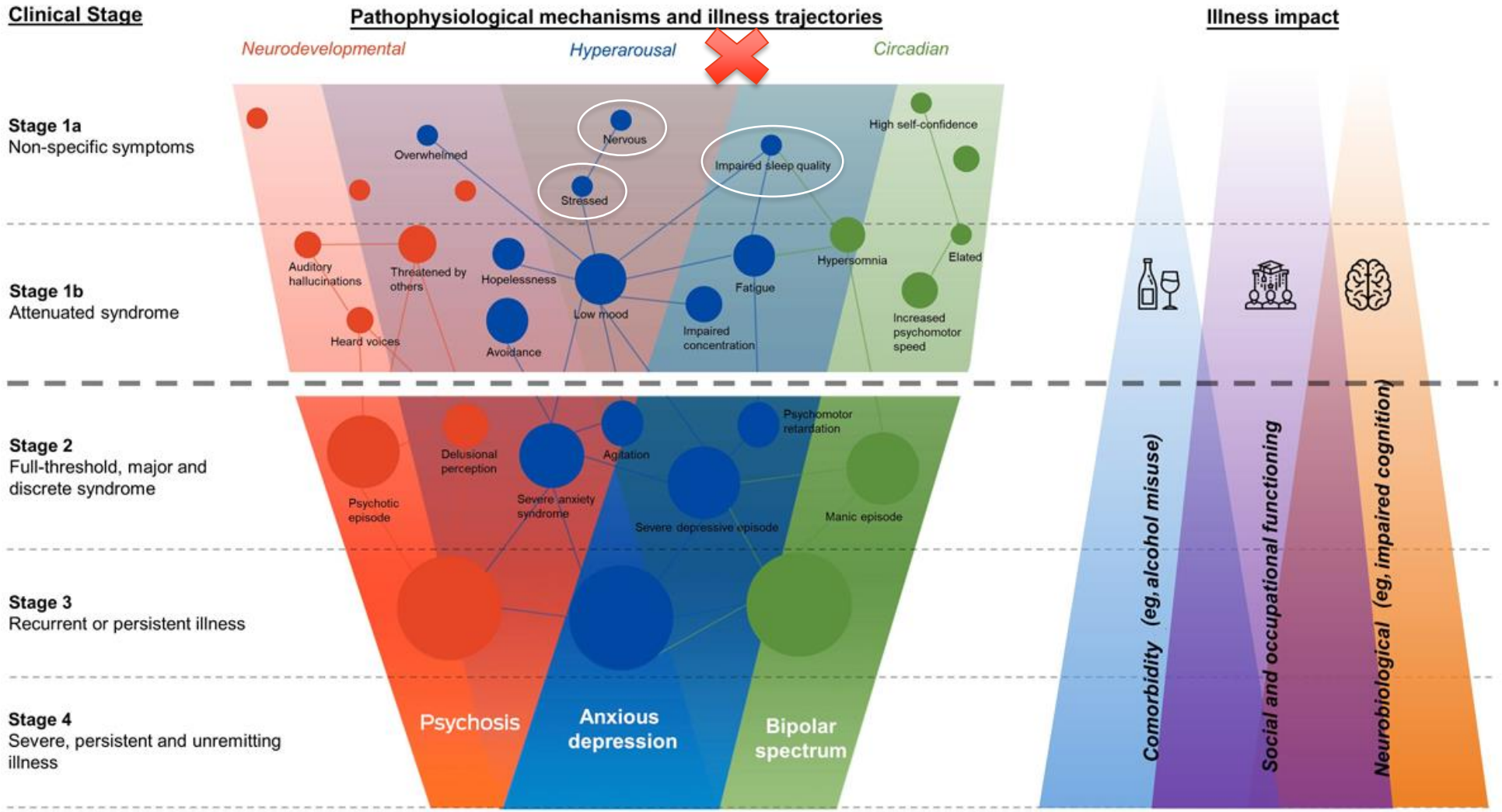
B Guidelines

Clinical decision-making principle: Assign highest achieved in lifetime, and when in doubt, rate down and reassess in 4 to 6 wk.

Clinical Decision 1: Stage 2 vs stage 1	**Clinical Decision 2:** Stage 1b vs stage 1a	
Stage 2: Full-threshold, major, discrete, and persistent or recurrent	Stage 1b: Attenuated syndrome	Stage 1a: Nonspecific symptoms
Functioning Episode of illness is clearly having an ongoing and major impact on social, educational, or occupational functioning +	**Functioning** Episode of illness is having a moderate to severe impact on social, educational, or occupational function +	**Functioning** Episode of illness is having a mild to moderate impact on social, educational, or occupational function +
Mania Clear manic syndromes (not just symptoms) for more than 4 d during a specific illness event; hypomanic symptoms or brief hypomanic syndromes alone do not constitute a discrete disorder	**Depression** Depressive syndromes of moderate severity without specific features indicative of a stage 2 syndrome	**Depression** Mild to moderate levels of depressive ideation without specific features indicative of a more disabling syndrome
Psychosis Clear psychotic syndrome for more than a week	**Anxiety** Specific and more severe symptoms of anxiety, such as the development of avoidant behavior	**Anxiety** Mild to moderate levels of arousal without significant or persistent avoidant behaviors
Depression Features indicative of more severe syndromes including psychomotor retardation, marked agitation, impaired cognitive function, severe circadian dysfunction, psychotic features, brief hypomanic periods, severe neurovegetative changes, pathological guilt, or severe suicidality	**At-risk mental states** Hypomanic symptoms less than 4 d; and/or attenuated or brief psychotic symptoms	
Anxiety Features indicative of more severe syndromes, such as significant or persistent avoidant behaviors, and moderate to severe depressive syndromes, typically associated with marked agitation, fixed irrational beliefs, overvalued ideas, or attenuated psychotic symptoms or substantial and persistent substance misuse	**Comorbidity** Syndromes that are somewhat mixed in terms of their symptomatology or complicated by alcohol or substance misuse	
Comorbidity Significant and clear symptoms (depressive, manic, or psychotic) within the context of a more severe persistent syndrome. The significant comorbidity may include alcohol or substance misuse, abnormal eating behavior, or other relevant psychological syndromes		

A, Process used to assign clinical stage. B, Guidelines used to make these decisions.

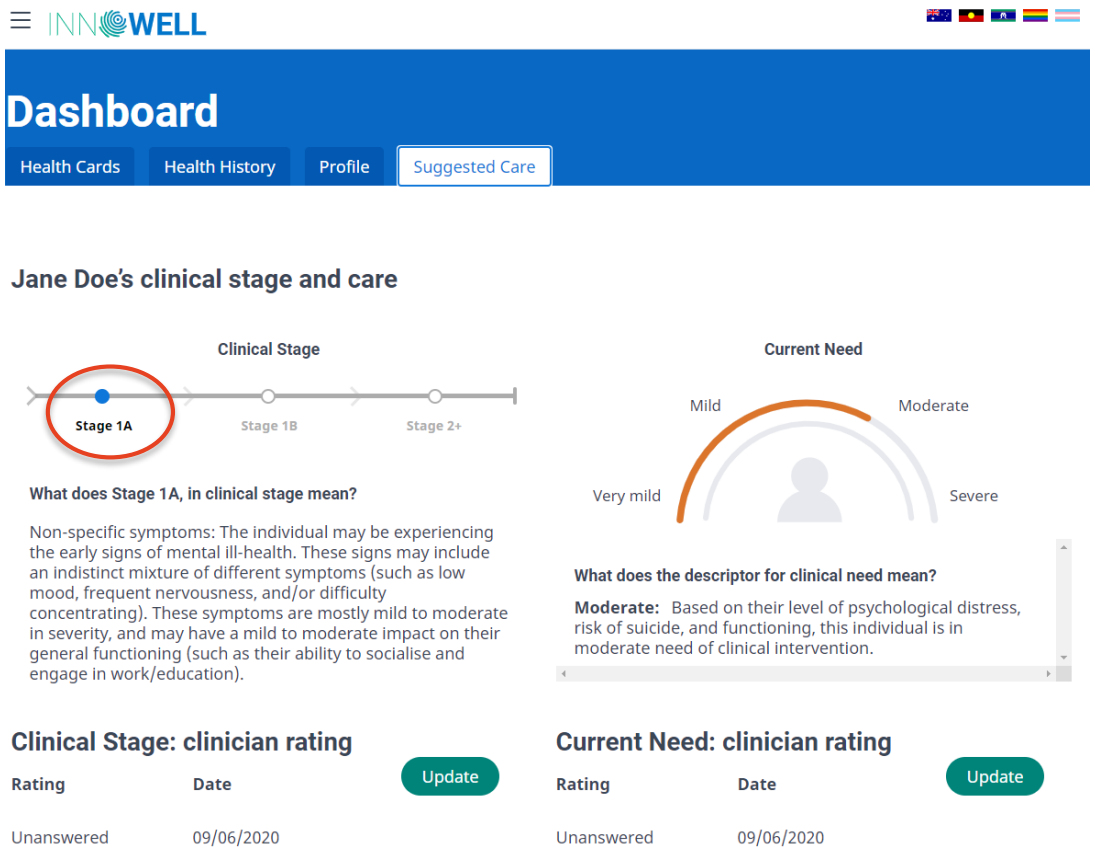
Jane's pathophysiological mechanisms and illness trajectory?

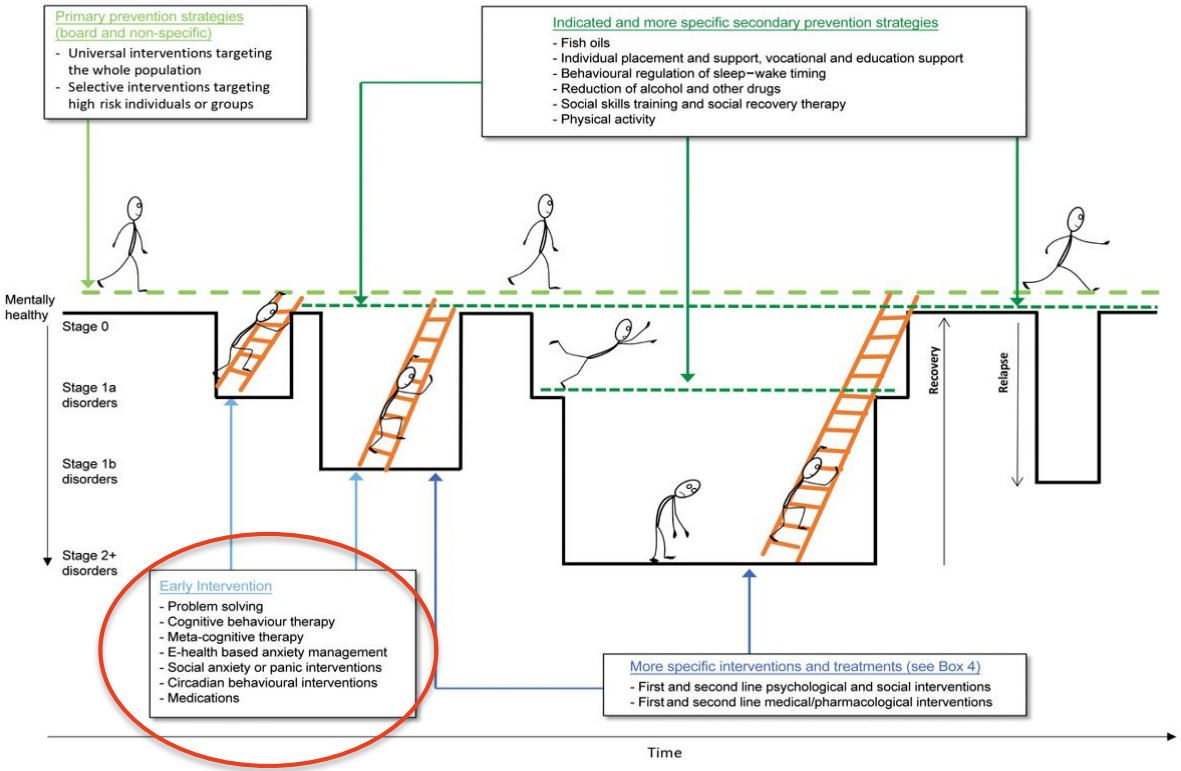


Recommended care options for Jane?

- Jane's multidimensional assessment, illness trajectory and clinical stage suggests she has a **mild-moderate need for care** and a reason to **track over time** (at least 3 months)
- This could be done **online** (apps and etools, including CBT) in association with a **digital navigator** using **video-visits**

Some recommended care options may include:





Case study 2: ANNE (22 years old) is in her third year of studies at university. She presented to the university's student counselling service on the suggestion of one of her tutors who noticed that Anne was teary when asked why she didn't submit her assessment on time. Anne currently lives in a share-house, but over the past couple of months has almost completely withdrawn from social activities because she believes her friends (and others) are talking about her "ugly" Eurasian appearance. She is also drinking heavily, self-harming and experiencing some suicidal thoughts.

Function/ symptoms on presentation	Medical/ psychological history	Family history

• Anne presents with low mood and a general loss of pleasure in her usual activities
 	
• Mental State Examination:
  • At her in-clinic appointment with the university's counsellor, Anne appeared to be of sleight stature, wearing loose-fitting clothing and hair grown out to cover her face
  • While her cognitive function appeared to be above-average, she seemed distracted and asked many questions to be repeated
  • Anne reported some 'odd ideas' about her Eurasian appearance and paranoia that her friends think she's "ugly" (no hallucinations)
  • She was tearful but responsive to interpersonal cues
	• Anne was treated for a major depressive episode at 18 years old
	
	• She also has a prior two-year history of increasing social anxiety and panic attacks
	
	• As a result of her mental ill-health, Anne has called in sick to her part-time job nearly every shift in the past two weeks
		• Anne is of mixed European and Asian heritage
		
		• Her father passed away suddenly from late-detection pancreatic cancer when she was 14 years old

Anne's profile and dashboard of results

Anne Shirley

Preferred name:	Anne
Date of birth:	1998-01-05T00:00:00
Suburb:	Ryde
State:	NSW
Primary language:	English
Indigenous status:	No
Gender identity:	Female
Gender at Birth:	Female
Number of Children:	No Children
Level of Education:	Year 12 or equivalent
Disability:	No
Government Benefits:	No
Living Circumstances:	Living with family (including partners and dependents), friends, or flatmates)
Support Circumstances:	Partially supported by services, relatives, or the people with whom you live
Relationship Status:	Single (and have never been married)
Sexual Identity:	Gay or Lesbian

Not disclosed during her in-clinic appointment

INNOWELL — Set up video calls — I need help now

Dashboard

Download your results (PDF)

Health Cards | Health History | Profile

Overall Health
Mild · Moderate · Good · Poor
No Change | Updated 20s ago

Mental Health
Moderate · Mild · Marked · Borderline · Severe · Good · Extreme
No Change | Updated 20s ago

Everyday Function
Mild · Moderate · Good · Poor
No Change | Updated 20s ago

Suicidal Thoughts and Behaviours
Mild · Moderate · None · High
No Change | Updated 20s ago

Social Connectedness
Moderate · Good · Poor
Deterioration | Updated 20s ago

Updating your questionnaires
By keeping up-to-date you can track your health and well-being over time.

A Support Person
You can invite a support person to answer some questions about your overall health and wellbeing

INNOWELL — Set up video calls — I need help now

Your Health Cards

Click on a health card to find fact sheets, browse a number of care options and review your results.

fitbit
Connect to my fitbit

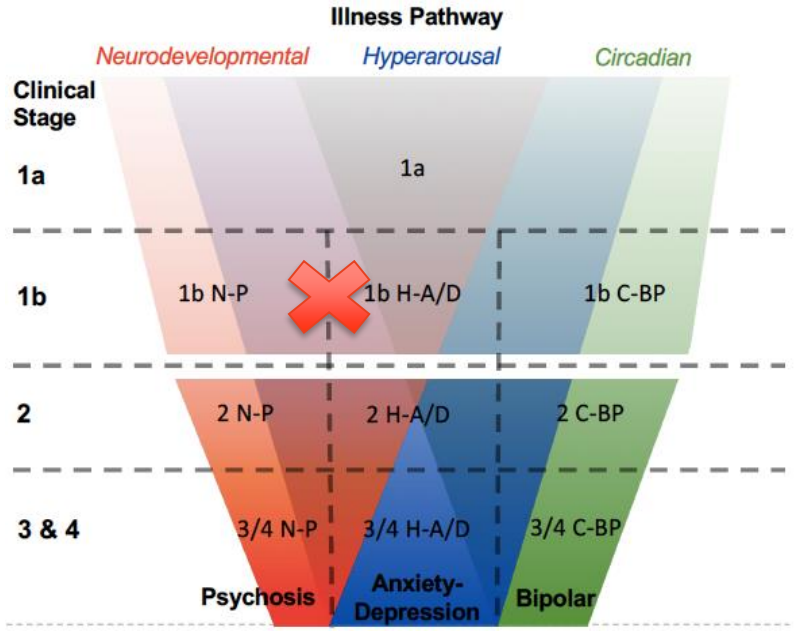
Your health priorities

Moderate Suicidal Thoughts And Behaviours No Change 14m	Moderate Self-Harm Improvement 25m	High Depressed Mood

Update

High Psychological Distress	Possible concern Psychosis-Like Experiences Deterioration 4m	No concern Mania-Like Experiences	Moderate Social And Occupational Function Improvement 27m	Low Tobacco Use
Moderate Alcohol Use Improvement 24m	Poor Social Connectedness Deterioration 14m	Moderate Anxiety	Moderate Physical Health Deterioration 19m	Poor Sleep-Wake Cycle
None Post-Traumatic Stress	No concern Eating Behaviours And Body Image	Low Cannabis Use		

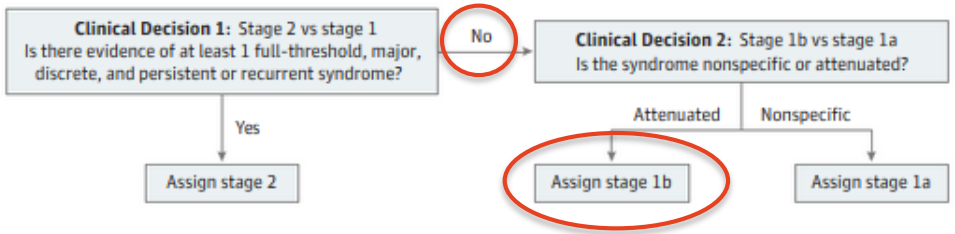
Staged care decisions for Anne?



Reference: Iorfino F, Scott E, Carpenter J, Cross S, McGorry P, Hickie I. JAMA Psychiatry. 10.1001/jamapsychiatry.2019.2360

Figure 1. Two-Step Decision-Making Process Used to Assign Those Presenting to Care to the Appropriate Stage

A Process



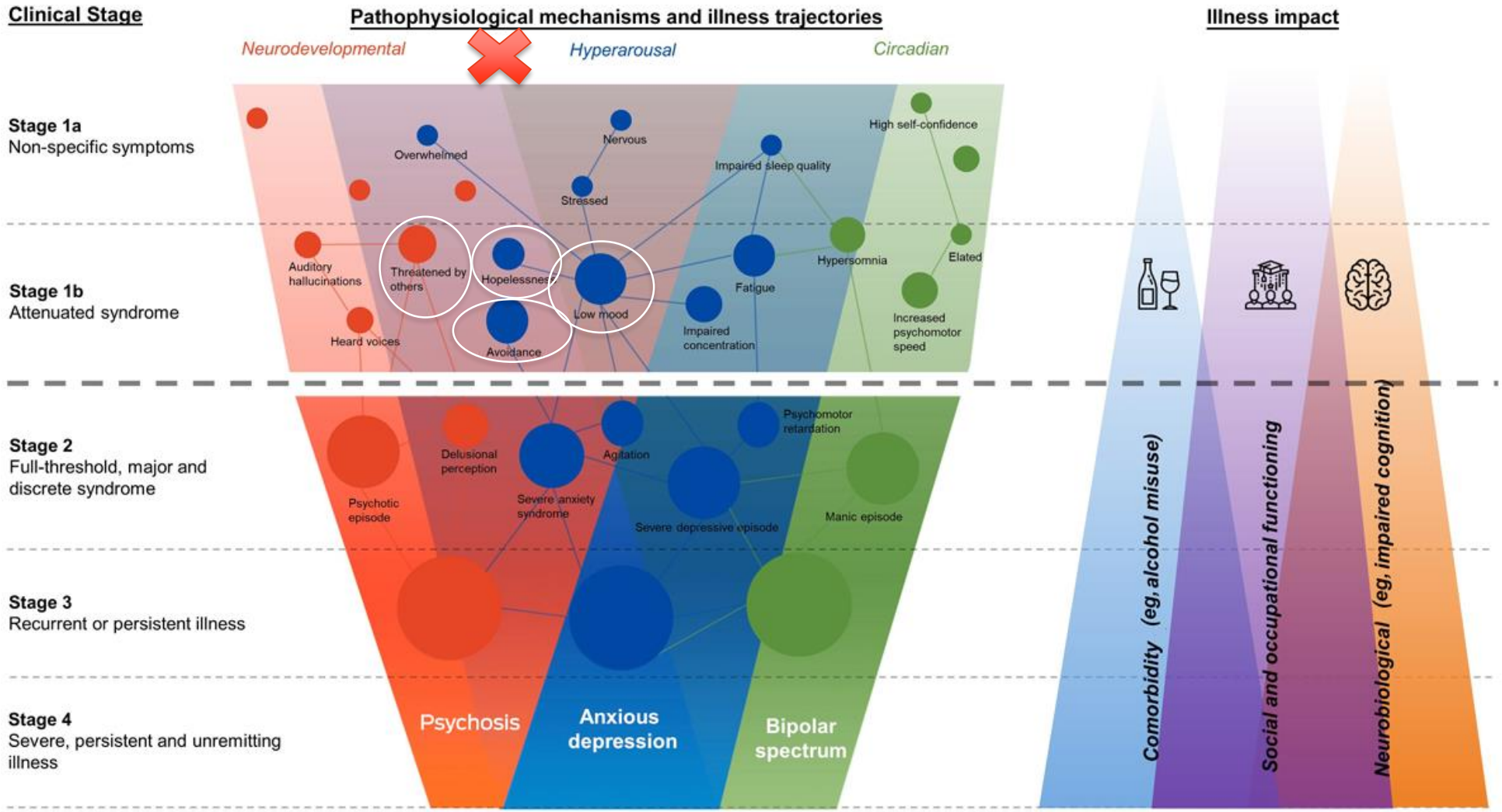
B Guidelines

Clinical decision-making principle: Assign highest achieved in lifetime, and when in doubt, rate down and reassess in 4 to 6 wk.

Clinical Decision 1: Stage 2 vs stage 1	**Clinical Decision 2:** Stage 1b vs stage 1a	
Stage 2: Full-threshold, major, discrete, and persistent or recurrent	Stage 1b: Attenuated syndrome	Stage 1a: Nonspecific symptoms
Functioning Episode of illness is clearly having an ongoing and major impact on social, educational, or occupational functioning + **Mania** Clear manic syndromes (not just symptoms) for more than 4 d during a specific illness event; hypomanic symptoms or brief hypomanic syndromes alone do not constitute a discrete disorder **Psychosis** Clear psychotic syndrome for more than a week **Depression** Features indicative of more severe syndromes including psychomotor retardation, marked agitation, impaired cognitive function, severe circadian dysfunction, psychotic features, brief hypomanic periods, severe neurovegetative changes, pathological guilt, or severe suicidality **Anxiety** Features indicative of more severe syndromes, such as significant or persistent avoidant behaviors, and moderate to severe depressive syndromes, typically associated with marked agitation, fixed irrational beliefs, overvalued ideas, or attenuated psychotic symptoms or substantial and persistent substance misuse **Comorbidity** Significant and clear symptoms (depressive, manic, or psychotic) within the context of a more severe persistent syndrome. The significant comorbidity may include alcohol or substance misuse, abnormal eating behavior, or other relevant psychological syndromes	**Functioning** Episode of illness is having a moderate to severe impact on social, educational, or occupational function **Depression** Depressive syndromes of moderate severity without specific features indicative of a stage 2 syndrome **Anxiety** Specific and more severe symptoms of anxiety, such as the development of avoidant behavior **At-risk mental states** Hypomanic symptoms less than 4 d; and/or attenuated or brief psychotic symptoms **Comorbidity** Syndromes that are somewhat mixed in terms of their symptomatology or complicated by alcohol or substance misuse	**Functioning** Episode of illness is having a mild to moderate impact on social, educational, or occupational function + **Depression** Mild to moderate levels of depressive ideation without specific features indicative of a more disabling syndrome **Anxiety** Mild to moderate levels of arousal without significant or persistent avoidant behaviors

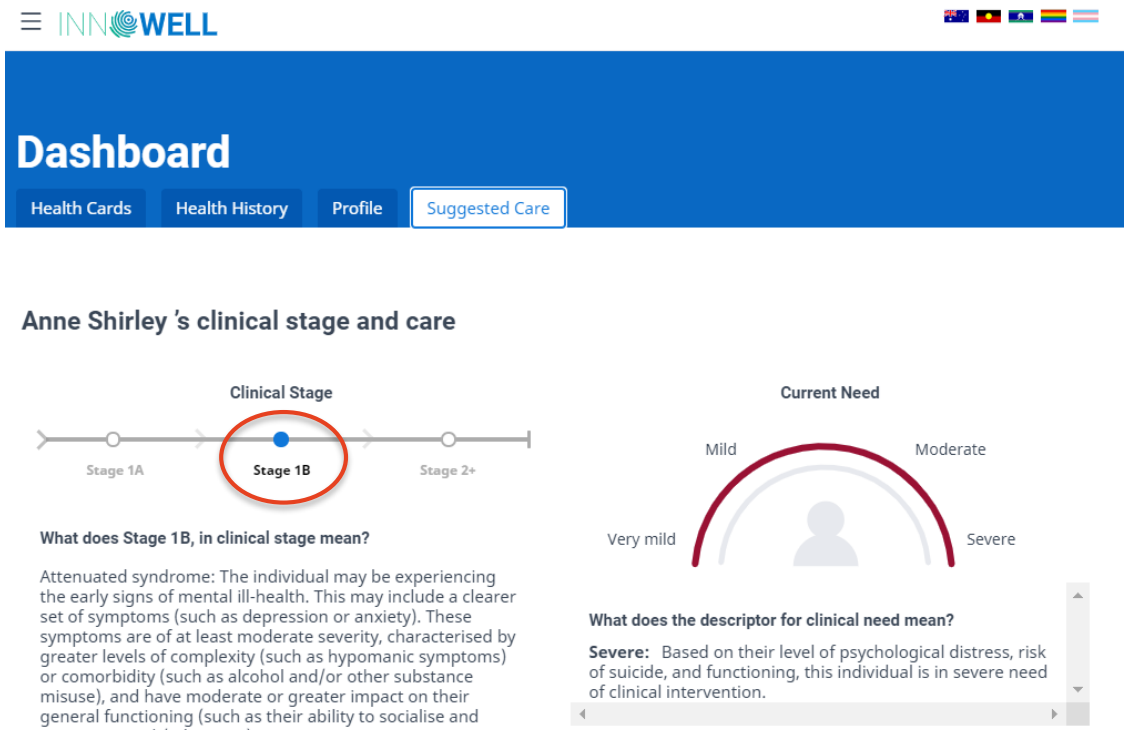
A, Process used to assign clinical stage. B, Guidelines used to make these decisions.

Anne's pathophysiological mechanisms and illness trajectory?



Recommended care options for Anne?

- Anne's multidimensional assessment, illness trajectory and clinical stage suggests she has a **moderate-severe need for care** and a reason to **track over time** (up to 12 months).
- This could be done predominantly **online (video-visits)** and supplemented with in-clinic appointments if required.



Some recommended care options may include:

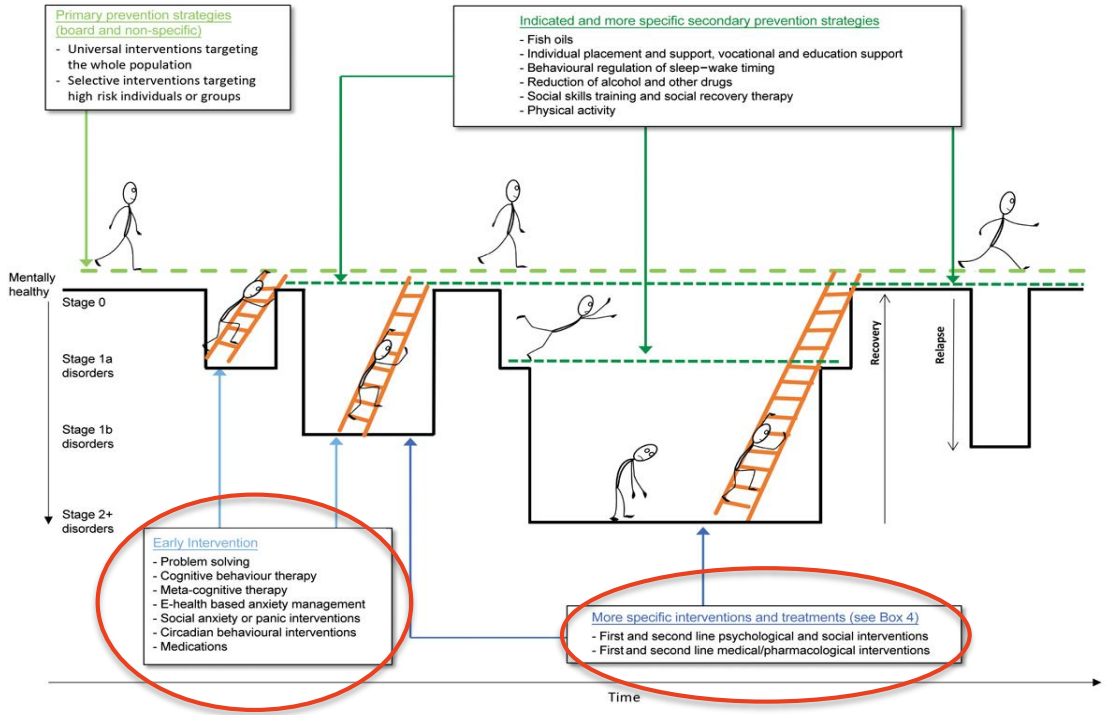
BeyondNow suicide safety plan

Psychological therapies for depression, anxiety, psychosis-like experiences

MoodGYM TRAINING PROGRAM

Smiling Mind

Daybreak – alcohol support



Case study 3: SIMON (19 years old) presented to his local Aboriginal Health Service with symptoms of severe depression. He is the father of a one-year old boy and lives with his girlfriend in a small public housing unit. Simon has recently withdrawn from both his TAFE studies and job. His dream was to become a Hollywood actor, but he is now unmotivated to go to any auditions for fear of even more rejection. Until recently, Simon was working full-time at a local Gloria Jean's café but as he struggled to get to work on time (if at all), he was recently fired. As a result of COVID-19, he has decided not to look for any other work.

Function/ symptoms on presentation	Medical/ psychological history	Family history

• Simon is severely depressed and often does not get out of bed for days at a time. He has insomnia and likes to binge drink most nights as this helps him fall asleep. He also smokes cannabis daily
• Simon describes his motivation and energy levels as "scarily low" and frequently thinks how easy it would be to just "disappear"
 	
• <u>Mental State Examination</u>:
  • Simon appeared to slump in the chair and avoided all eye contact with his health practitioner
  • His thoughts and movements were noticeably slow, and he had minimal reaction to any social or emotional cues
  • His health practitioner also noted that Simon spoke very slowly, had little intonation and flat effect
	• Simon reported a history of depressive symptoms throughout adolescence - this included mood swings from depressive lows to manic highs (such as increased sex drive and risk taking behaviours)
	
	• He had previously sought help for his depressive symptoms and was prescribed an SSRI (Fluoxetine). He also attended 10 sessions of CBT with a psychologist. Simon attributes this care to getting him through high school
		• 10 years ago, Simon's mum was diagnosed with Bipolar Disorder. Simon notes that he always suspected his mum had Bipolar Disorder and has often wondered about his own symptoms
		
		• Simon's mum has also attempted to take her life on at least three occasions

Simon's profile and dashboard of results

Simon Bindi

Preferred name:	Si
Date of birth:	2000-10-23T00:00:00
Postcode:	2222
Suburb:	Moodlu
State:	QLD
Primary language:	English
Indigenous status:	Aboriginal
Gender identity:	Male
Gender at Birth:	Male
Number of Children:	1 Child
Level of Education:	Year 10 or equivalent
Disability:	No
Government Benefits:	Yes: Unemployment benefit (eg. Youth Allowance or Newstart Allowance)
Living Circumstances:	Living with family (including partners and dependents), friends, or flatmates)
Support Circumstances:	Independent
Relationship Status:	Married or living with partner
Sexual Identity:	Straight

INNOWELL

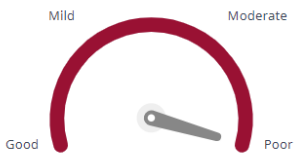
Set up video calls | I need help now

Dashboard

Download your results (PDF)

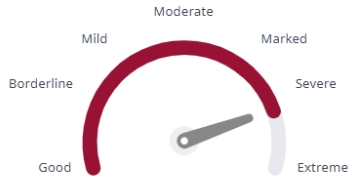
Health Cards | Health History | Profile

Overall Health



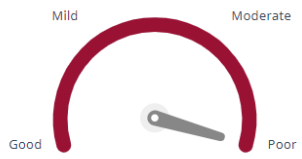
No Change | Updated 1m ago

Mental Health



Improvement | Updated 1m ago

Everyday Function

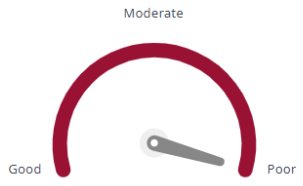


No Change | Updated 1m ago

Suicidal Thoughts and Behaviours

No Change | Updated 1m ago

Social Connectedness



No Change | Updated 1m ago

Updating your questionnaires
By keeping up-to-date you can track your health and well-being over time.

A Support Person
You can invite a support person to answer some questions about your overall health and wellbeing

INNOWELL

Set up video calls | I need help now

Click on a health card to find fact sheets, browse a number of care options and review your results.

fitbit
Connect to my fitbit

Your health priorities

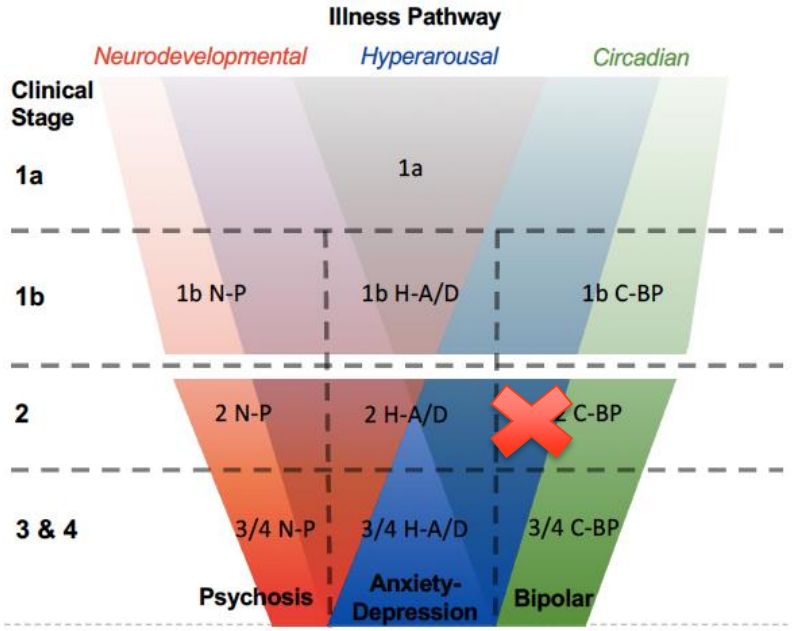
Update answers

Poor Social And Occupational Function Deterioration 1y SB	Very high Depressed Mood No Change 1y SB	Moderate Suicidal Thoughts And Behaviours No Change 1m ET SB

Update

No concern Mania-Like Experiences Improvement 15h	Moderate Self-Harm Deterioration 15h	Low Tobacco Use Improvement 1y	High Alcohol Use Deterioration 15h SB	Poor Social Connectedness No Change 1m
Poor Physical Health Deterioration 15h	Poor Sleep-Wake Cycle Deterioration 15h SB	None Post-Traumatic Stress Improvement 15h	High Cannabis Use Deterioration 15h SB	Moderate Psychological Distress Improvement 15h
No concern Psychosis-Like Experiences Improvement 15h	Moderate Anxiety Deterioration 15h	No concern Eating Behaviours And Body Image		

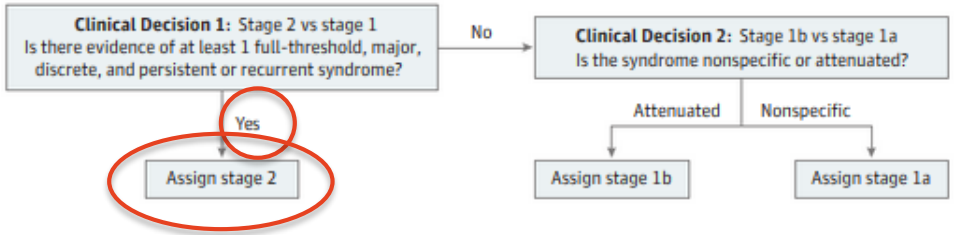
Staged care decisions for Simon?



Reference: Iorfino F, Scott E, Carpenter J, Cross S, McGorry P, Hickie I. JAMA Psychiatry. 10.1001/jamapsychiatry.2019.2360

Figure 1. Two-Step Decision-Making Process Used to Assign Those Presenting to Care to the Appropriate Stage

A Process



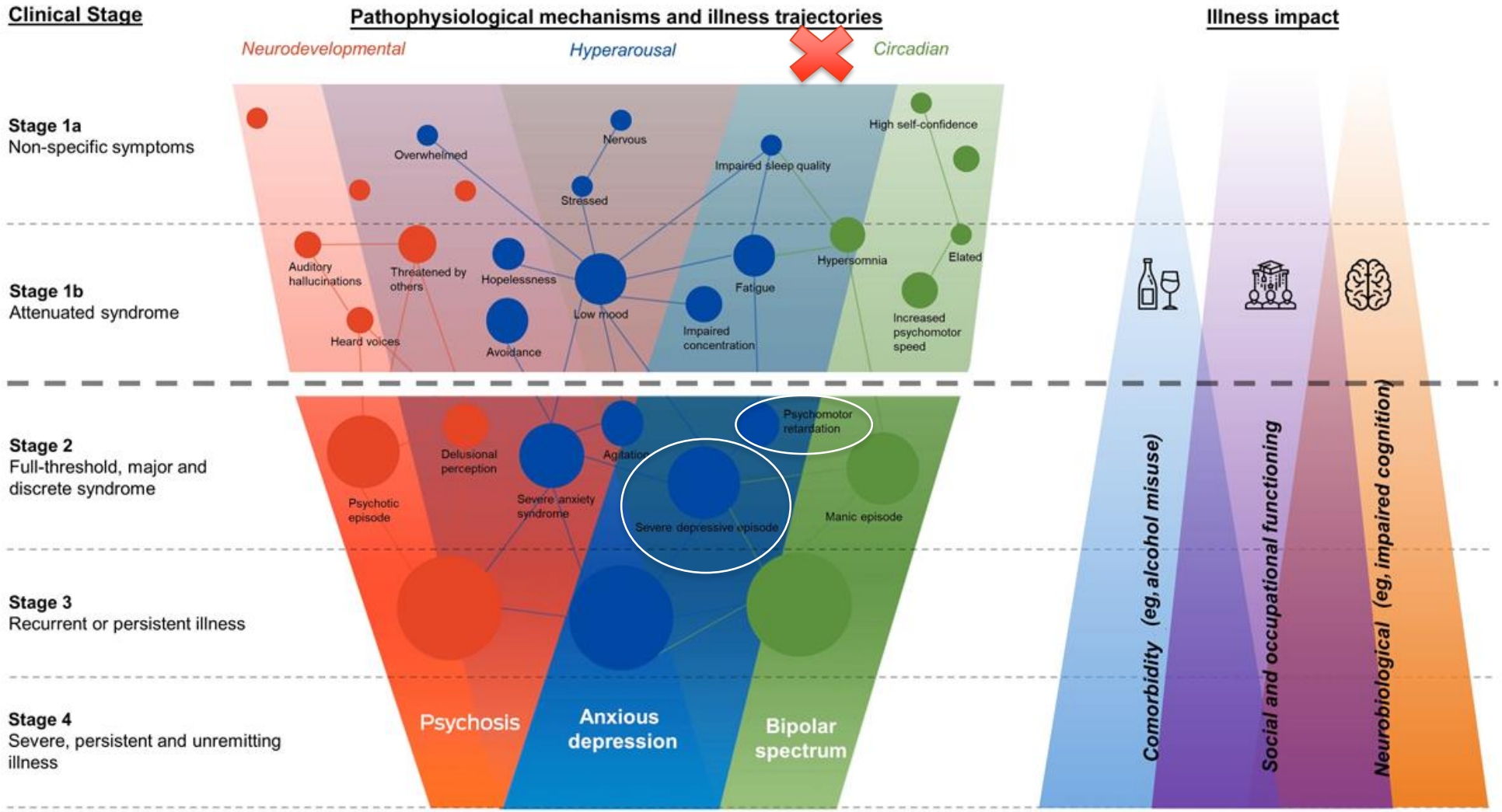
B Guidelines

Clinical decision-making principle: Assign highest achieved in lifetime, and when in doubt, rate down and reassess in 4 to 6 wk.

Clinical Decision 1: Stage 2 vs stage 1	**Clinical Decision 2:** Stage 1b vs stage 1a	
Stage 2: Full-threshold, major, discrete, and persistent or recurrent	Stage 1b: Attenuated syndrome	Stage 1a: Nonspecific symptoms
Functioning Episode of illness is clearly having an ongoing and major impact on social, educational, or occupational functioning +	**Functioning** Episode of illness is having a moderate to severe impact on social, educational, or occupational function +	**Functioning** Episode of illness is having a mild to moderate impact on social, educational, or occupational function +
Mania Clear manic syndromes (not just symptoms) for more than 4 d during a specific illness event; hypomanic symptoms or brief hypomanic syndromes alone do not constitute a discrete disorder	**Depression** Depressive syndromes of moderate severity without specific features indicative of a stage 2 syndrome	**Depression** Mild to moderate levels of depressive ideation without specific features indicative of a more disabling syndrome
Psychosis Clear psychotic syndrome for more than a week	**Anxiety** Specific and more severe symptoms of anxiety, such as the development of avoidant behavior	**Anxiety** Mild to moderate levels of arousal without significant or persistent avoidant behaviors
Depression Features indicative of more severe syndromes including psychomotor retardation, marked agitation, impaired cognitive function, severe circadian dysfunction, psychotic features, brief hypomanic periods, severe neurovegetative changes, pathological guilt, or severe suicidality	**At-risk mental states** Hypomanic symptoms less than 4 d; and/or attenuated or brief psychotic symptoms	
Anxiety Features indicative of more severe syndromes, such as significant or persistent avoidant behaviors, and moderate to severe depressive syndromes, typically associated with marked agitation, fixed irrational beliefs, overvalued ideas, or attenuated psychotic symptoms or substantial and persistent substance misuse	**Comorbidity** Syndromes that are somewhat mixed in terms of their symptomatology or complicated by alcohol or substance misuse	
Comorbidity Significant and clear symptoms (depressive, manic, or psychotic) within the context of a more severe persistent syndrome. The significant comorbidity may include alcohol or substance misuse, abnormal eating behavior, or other relevant psychological syndromes		

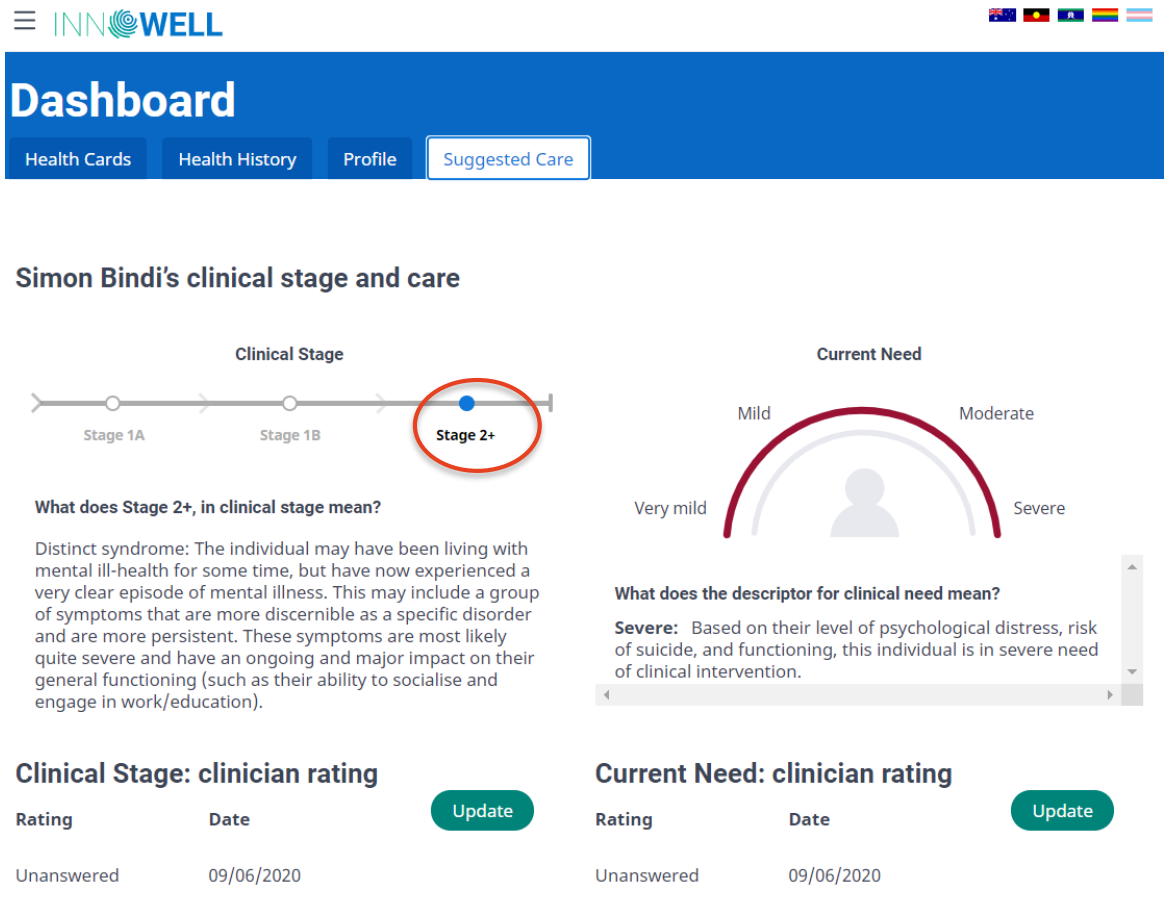
A, Process used to assign clinical stage. B, Guidelines used to make these decisions.

Simon's pathophysiological mechanisms and illness trajectory?



Recommended care options for Simon?

- Simon's multidimensional assessment, illness trajectory and clinical stage suggests he has a **severe need for care** and a reason to **track over time** (for <u>2 to 5 years</u>)
- This might be done by in-clinic appointments and supplemented with more frequent **online video-visits** to monitor change real-time



Some recommended care options may include:

BeyondNow suicide safety plan

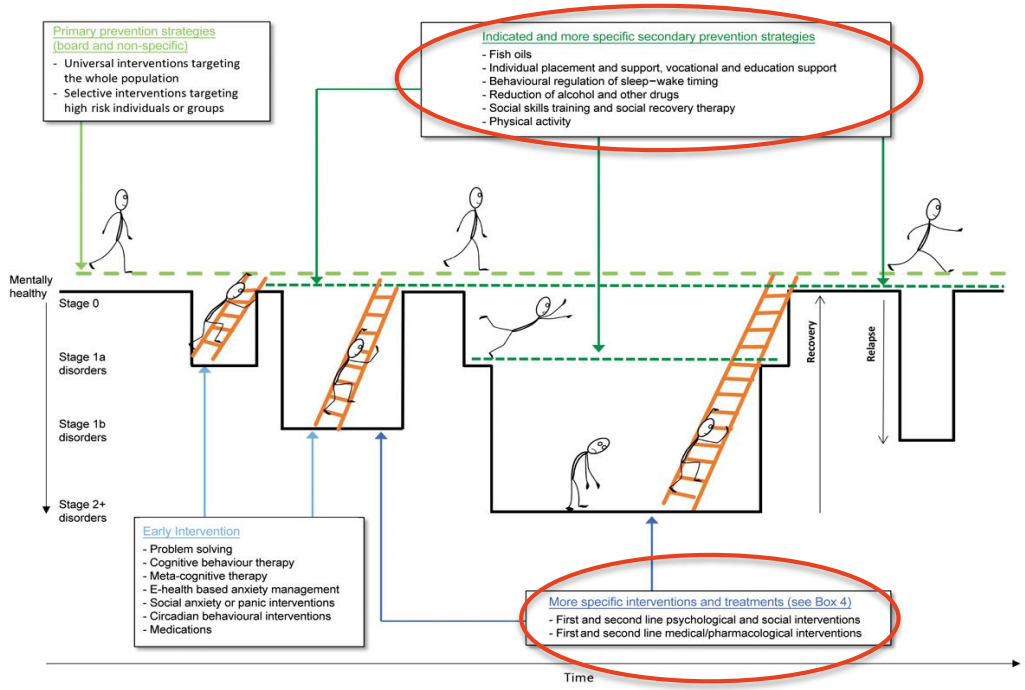
Psychological therapies for depression, functioning, alcohol misuse & cannabis use

Individual placement and support

Daylio Journal – mood tracker

Managing insomnia course

Positive choices – alcohol & drug information



Summary…

- BMC Youth Model can be easily adopted into clinical practice if health professionals are well guided
- Use of HITs support health professionals in providing highly personalised and measurement-based care, as exemplified by the three case studies presented
- Training in use of the BMC Youth Model can also be delivered specific to a service by one of the BMC's clinician-researchers (such as A/Professor Elizabeth Scott). If you are interested, please contact grace.lee@sydney.edu.au

BMC Youth Model of Care – Seminar Series

What	Additional Resources (including video recording)
1. A highly personalised and measurement-based model of care to manage youth mental health	https://bmc-research.engagementhub.com.au/page/educational-webinars
2. Combining clinical stage and pathophysiological mechanisms to understand illness trajectories in young people	
3. A comprehensive assessment framework for youth mental health care	
4. Using the BMC Youth Model to personalise care options – best care, first time!	
5. A youth mental health service delivery model to support highly personalised and measurement-based care	
6. Maximising the use of digiHealth solutions in youth mental health care	

Thank you!

A recording will be uploaded on
bmc-research.engagementhub.com.au

The Brain and Mind Centre would like to thank our research partners, such as

THE UNIVERSITY OF SYDNEY

Future Generation Global
INVESTMENT & SOCIAL RETURNS

END