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Communimetrics Data Roundtable

How good is your workforce at identifying what is, and what isn't, actionable?

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Agenda

- Dan Warner Ph.D. - “Actionability” review
- John Vessey Ph.D. – A possible new definition for becoming ‘CANS Certified’

Communimetrics and Action

- TCOM tools are checklists of what needs to be *worked on*.
  - *Concrete*
  - *Quantifiable*
    - *Action levels*
    - *FTEs*
  - *Instrumental*

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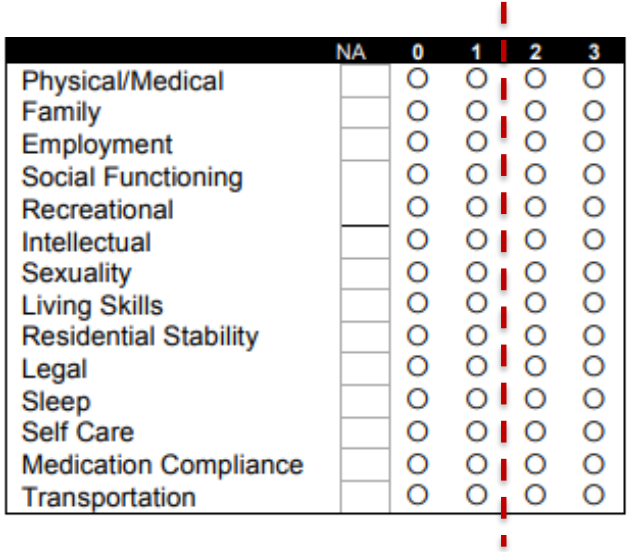
Actionability is the key commuinmetric insight.

- We can agree on what needs to be worked on,
- we can measure parameters of that agreement,
- We can alter service trajectories based on that agreement.



	NA	0	1	2	3
Physical/Medical		○	○	○	○
Family		○	○	○	○
Employment		○	○	○	○
Social Functioning		○	○	○	○
Recreational		○	○	○	○
Intellectual		○	○	○	○
Sexuality		○	○	○	○
Living Skills		○	○	○	○
Residential Stability		○	○	○	○
Legal		○	○	○	○
Sleep		○	○	○	○
Self Care		○	○	○	○
Medication Compliance		○	○	○	○
Transportation		○	○	○	○

How good is your workforce at knowing *what is actionable*?

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What is SPECIFICALLY actionable?

- If the need is not actionable, can you worker score it as nonactionable (0 or 1)?
- Minimize FALSELY actionable items

SENSITIVE to what is actionable?

- If the need is actionable, is your worker scoring it actionably (2 or 3)?
- Maximize TRULY actionable items

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Why actionability identification matters

- This is more than a scoring issue, it's clinical.
- Well identified actionability means
  - Correctly built plans
  - Care is more efficient
  - Less burnout for families and workers
- Poorly identified actionability means
  - Poorly built plans
  - Miss directed treatment
  - Developing burnout for families and workers
- Algorithms, treatment matching … all require that actionability be identified correctly.

This is a management issue: A workforce that is not specific and selective in identifying what is actionable, is not only scoring CANS poorly, but is also spinning wheels, and leading people astray in the system.

How do we know how good our workforce is at identifying what is actionable?

John Vessey, Ph.D. Department of Psychology, Wheaton College

A Possible New Definition for becoming "CANS Certified"

JOHN VESSEY, PHD

DEPTARTMENT OF PSYCHOLOGY, WHEATON COLLEGE

Child and Adolsecent Needs and Strengths (CANS)

- 59 core items representing Needs and Strengths
- Rated 0,1,2,3 on each item

Current methodology for becoming "CANS Certified"

- Rate a vignette on the training site and get an intraclass correlation (ICC) of at least .70 between your ratings and the correct ratings for that vignette
- That methodology is fine and has worked for many years

Potential issues with that approach

- It assumes that the rating scale of 0-3 for each question is an interval or ratio scale—meaning equal distances across the scale. That is, the difference from 0-1 is the same as 1-2, and 2-3.
- Because of that assumption, it assumes that a 1 point mistake is the same across the whole scale from 0-3.
- It assumes that all items are equally important, and consequently, all mistakes in rating items are equally important.
- There are only 15-20 true needs or strengths for any vignette. That means that one kind of mistake (over-identifying a need or strength) is much more likely to be made than the other kind of mistake (under-identifying a need or strength)

In clinical terms, Specificity becomes far more important than Sensitivity in rating the vignettes and getting a passing score

- It should not necessarily be the case that Specificity should be much more important than Sensitivity in rating the CANS
- Different entities may have different ideas of how relatively important the two are
- We should at least be explicit about the relative importance of the two, and not have specificity always be much more important by default

My idea for a new approach

- To make things simple for now, I dichotomized the 0-3 scale for both needs and strengths into actionable vs. non-actionable
- For needs: 0,1= non-actionable 2,3 = actionable
- For strengths: 0,1 = actionable 2,3 = non-actionable

Specificity

- For all items where the correct rating was “non-actionable” what proportion of those items did the trainee rate as “non-actionable”

Sensitivity

- For all items where the correct rating was “actionable” what proportion of those items did the trainee rate as “actionable”

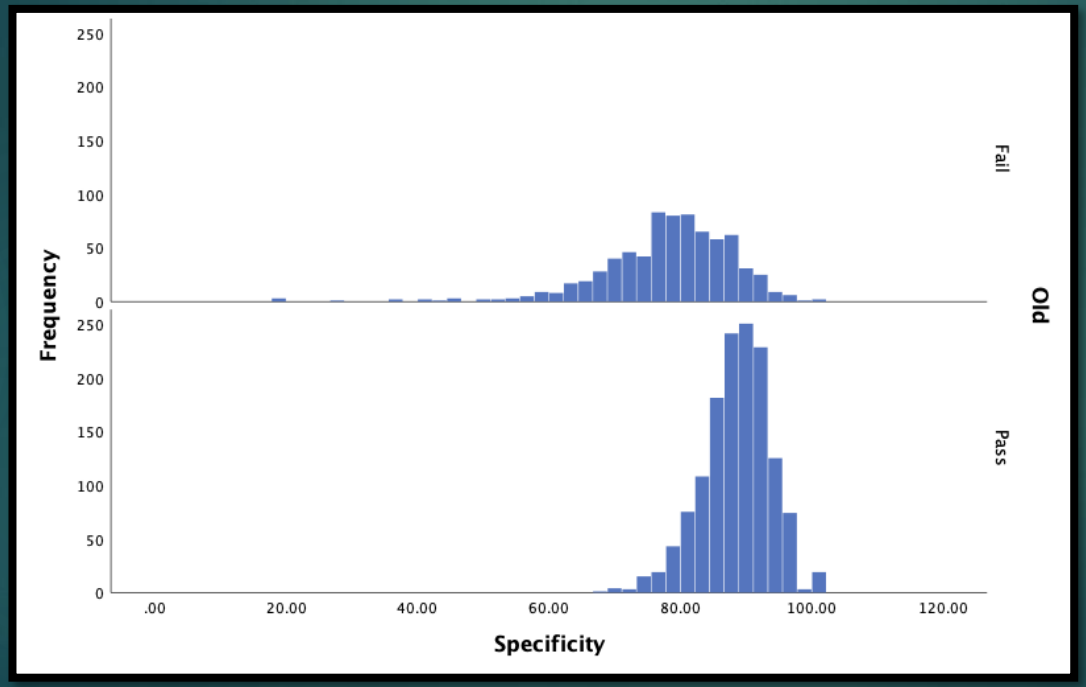
- I was given access to over 2000 attempts at rating 7 different vignettes that utilized the 59 core items of the CANS
- For each attempt, I calculated the specificity and the sensitivity of the trainee.
- This resulted in me knowing not only whether someone had passed or failed (ICC at least .70, or below .70), but also their sensitivity and specificity for that attempt
- Finally, I applied a hypothetical new definition of “passing”
- A person needs to have a specificity of at least .70 and a sensitivity of at least .70 to pass
- This corresponds to the idea that it would be just as important to correctly identify "actionable" needs and strengths as it would be to correctly identify “non-actionable” needs and strengths
- This is one of many possible definitions, but it does force one to be explicit about the relative importance of the two kinds of errors that could be made.

Here is the result:

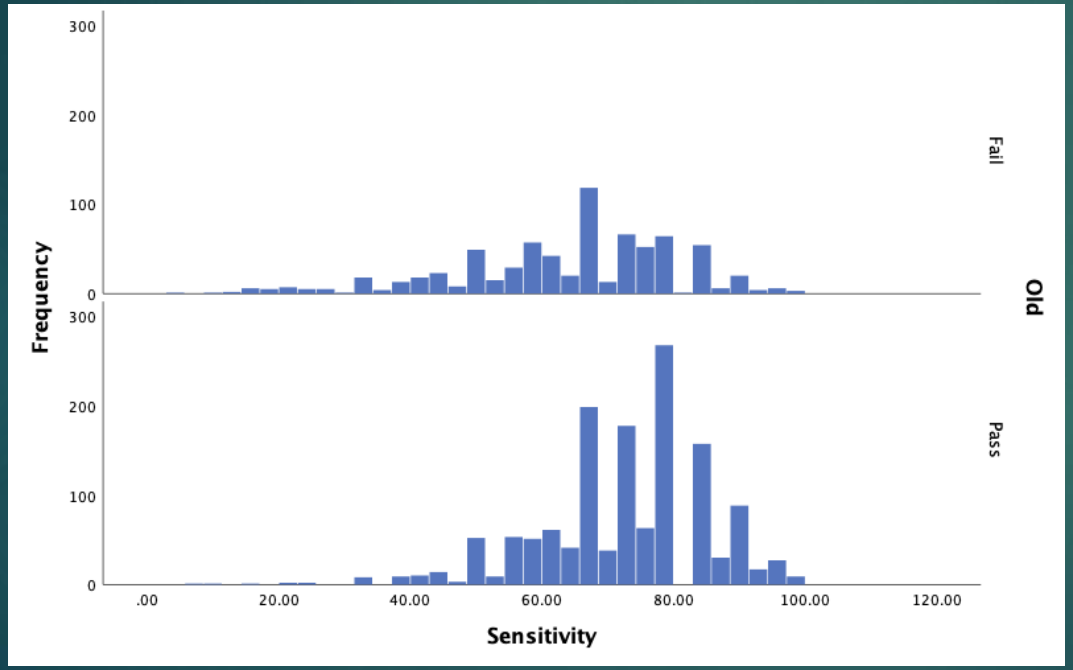
		NEW DEFINITION	
		FAIL	PASS
	FAIL	512	224
CURRENT DEFIINITION		(69.6%)	(30.4%)
	PASS	521	872
		(37.4%)	(62.6%)

- Examples of attempts that passed under the current definition, but would have failed under the new:
  - Specificity 97.9% Sensitivity 8.3%
  - Specificity 97.6% Sensitivity 11.1%
- Examples of attempts that failed under the current definition, but would have passed under the new:
  - Specificity 89.4% Sensitivity 75%
  - Specificity 83.0% Sensitivity 83.3%

Specificity for all attempts by pass or fail under current definition



Sensitivity for all attempts by pass or fail under current definition



- With the current definition of becoming "CANS Certified", Failing to identify a true need or strength is treated as far less serious an error than over-identifying a need or strength.
- Is that true?
- Whether it is true or not, we should perhaps be more explicit about how serious each kind of error is rather than have that decided for us by default.

Some questions to consider given these results

- What is worse, a false negative or a false positive? Right now it is a false positive by default
- Are some items more important to identify and get right than others? Is it not important if certain items are always under-identified?
- Are some needs and strengths in vignettes just not as vivid or recognizable as when they are presented in real life?
- Are additional needs and strengths likely to be identified over time, so that it is not so important to identify them at intake? Or does failing to identify them and developing a treatment plan around the non-missed ones make it less likely that they will be identified and addressed later, and possibly lead to a less effective treatment plan?
- Others Questions?

Thank you!

April 23, 2020 – Ryan Torie (CDR) – Using a Gradient Boosting Machine Learning Algorithms to Improve Treatment Matching