TCOM Algorithms for Decision Points in Care

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"Always return to a focus on the shared vision—the best interests of the people we help." John S Lyons

A few weeks ago, in TCOM Conversations, Nate Israel wrote about improving the health of people-serving systems with *"alignment in decision-making at every level of the system,"* and emphasized the importance of using aggregate data about the actual people served to achieve that alignment. When individuals with complex needs enter care and the intensity of that care is assigned, aligning their voices, the voices of their families, and the knowledge of seasoned practitioners is critical to the possibility of good outcomes. People must be placed in levels and types of care that address their functional needs, rather than in levels and types of care that are physically available or convenient.

The challenge of providing the right amount of care at the right time is complex. We know that variation in levels of care often relates to differences in variables that have little to do with individual or contextual needs and strengths, and more to do with what services are available. We also know that human bias can impair good decision making when it comes to appropriate service assignment.

> *How can we assure that level, or intensity, of care matches the actual hierarchy of needs in the people whose lives we hope to transform?*

TCOM-informed algorithms, which now are in use in multiple jurisdictions and in development in others, are a promising approach to solving the problem. **Five** independent research groups in **four** different states have demonstrated the reliability, validity, and utility of these decision support processes to improve various child and system outcomes. New Jersey's use of algorithms has been associated with a dramatic reduction in the number of children and youth place out of community and detained. These algorithms identify logical, *functional* pathways into levels of care as combinations of actionable needs and levels of need intensity that direct care assignment. Algorithms are not based on cut-off scores, but allow for increasing levels of acuity based on multiple combinations of intra-individual and contextual needs.

Beginning with the determination of decision options, the effectiveness of a TCOM placement or complexity/intensity algorithm results from the action levels of needs and strengths in the TCOM tools. Stakeholder wisdom and consensus on what constellations of needs require more complex care and how evolving eligibility requirements translate into functional requirements for placement are gleaned from focus groups with clients, caregivers, practitioners, and payors/regulators from systems using the CANS, FAST, or ANSA tools. Use of stakeholder focus groups as the starting point for algorithm derivation - as opposed to data analytics on existing individuals in current placement - avoids the risk of institutionalizing existing disparities and disproportionalities in the system of care into decision support moving forward.

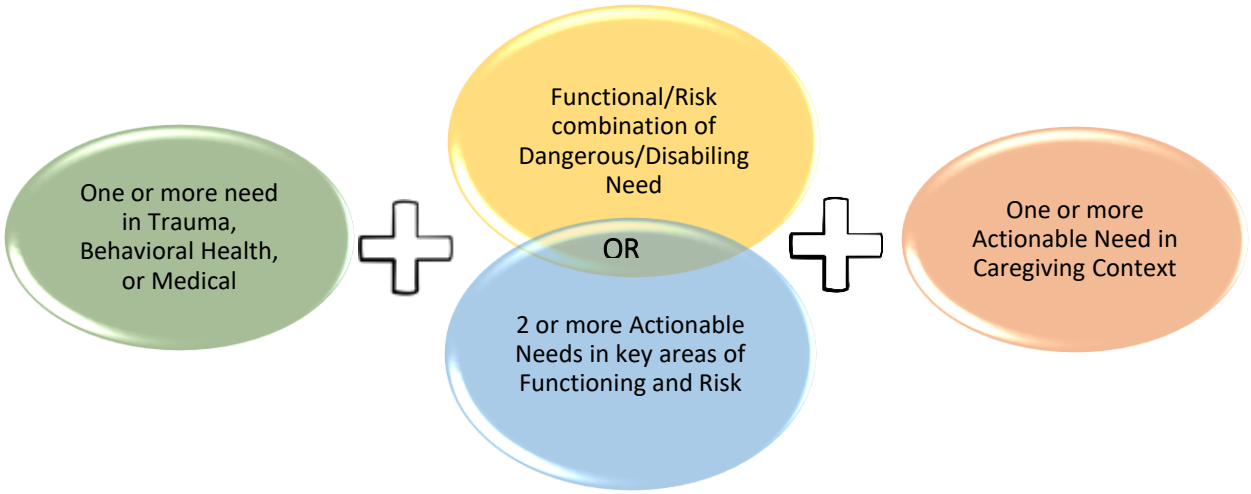
Development of an algorithm is both a clinical and an empirical process. It starts with the definition of the decision options to be supported, followed by clear clinical descriptions of the types of individuals to

be helped with these various options. Those clinical descriptions are converted to Boulean decision models using the action levels and then evaluated empirically.

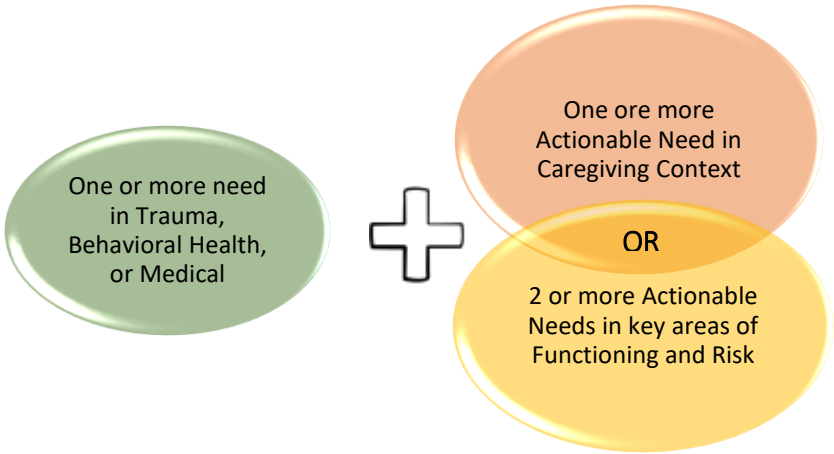
Once developed, algorithms can be refined using aggregated CANS, FAST, or ANSA assessments on people receiving the care that will be driven by the algorithm. In true communimetric fashion, algorithms can be updated with new information from real people being served. Because TCOM algorithms extract level of acuity from a full assessment of individual and caregiver needs and strengths, they lead to embedded, system-level decision-making strategies that are rooted in the actual needs of individuals and their families.

Example of level of care algorithm:

High Level



Medium Level



Algorithms also reduce the bias potential in level-of-care assignment by matching the level of placement (and subsequently the intensity or richness of available resources for care) to the level of functional and contextual needs that individuals have as they enter care. As needs increase or decrease, intensity of care can be strengthened or lessened, matching richness and restrictiveness of services to actual level of current need. Individuals, then, are well-matched to appropriate services, while caseload ratios are derived from actual care intensity and complexity.

A growing body of findings suggests that care placements consistent with TCOM algorithms can serve to engineer more effective decision making in systems of care. In studies of decisions to place youth in residential treatment, for example, Chor and colleagues (2012, 2014) found that level-of-care placement decisions concordant with algorithms were associated with better rates of clinical change than discordant placement decisions. In a look at child welfare/prevention decisions, Epstein and colleagues (2015) found that TCOM algorithm-driven placements were less likely to disrupt than algorithm-discordant placements.

Multiple jurisdictions across the United States now are working with TCOM algorithms to improve the alignment of system decision making. In December, for example, New York State implemented a TCOM-infused approach to determining youth Medicaid eligibility for health home level of care. New York State's Health Home Care Managers are completing the CANS-NY (an enhanced, collaboratively expanded version of the CANS functional assessment) to determine the acuity level of care management assigned to each youth. The initial algorithm was developed with New York stakeholders, and then refined using the CANS-NY assessments (conducted by CANS-savvy providers) of 800 youth across the Medicaid service array in New York.

Level of acuity determined by CANS-NY assessments will drive resource allocation for care management and subsequent service intensity; needs and strengths identified by those same assessments will be used to drive care planning and outcomes monitoring. The algorithm will continue to be refined through stakeholder engagement and data analysis, assuring the development of a shared vision, across the system of what constellations of needs require (and benefit from) the most intensive levels of service.

New York State's innovative use of a TCOM-derived algorithm is just one example of beginning with a shared vision of the needs and strengths of youth, families, and adults to improve decision making and strengthen systems at entry into care. TCOM algorithms have been used, or are being used in behavioral health and child welfare systems across the country. As people-serving systems continue to align the actual needs and strengths of those they serve with decisions about type and intensity of care, their potential to use resources effectively and achieve better outcomes will continue to grow.

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