CALM technology-supported intervention: synopsis of evidence for an emerging class of practice tool

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This first column on Evidence-Based Behavioral Medicine (EBBM) has two goals. First, we describe secondary evidence reports that constitute helpful infrastructure in EBBM. Second, to illustrate, we provide a synopsis of research on a technology-supported tool to guide the treatment of anxiety disorders in primary care.

EBBM helps decision makers find, appraise, and apply the highest quality, most relevant evidence available to solve problems. Information overload, a major barrier, is overcome in evidence-based practice by creating resources that consolidate primary research reports into pithier, more rapidly accessible, user-friendly form. A classic paper by Haynes [1] organizes evidence resources into a pyramid of “5S’s.” At the base and most numerous are individual empirical studies. At the apex and most consolidated are computerized decision support systems that link unique client and contextual characteristics to pertinent evidence. Increasingly, we will see such systems connect to electronic health records and draw upon data from the published literature, local practice, and population surveillance. In the middle of the pyramid are synopses that briefly describe an original study or a systematic review. Entire journals are dedicated to publishing synopses (e.g., *ACP Journal Club*, *Evidence-Based Medicine*, *Evidence-Based Nursing*), though this format remains novel in behavioral medicine. To illustrate, we present a synopsis of research about the effectiveness of a system. The Coordinated Anxiety Learning and Management (CALM) system affords real-time, web-based outcomes and computerized decision support to help non-expert clinicians provide cognitive behavioral treatment (CBT) for anxiety disorders.

Question: In primary care clinics with low mental health expertise, can a care delivery model that incorporates the CALM system for treating anxiety disorders, as compared to usual care, achieve greater symptom improvement during 18 months of follow-up?

Design: Randomized controlled trial

Blinding: Blinded (outcome assessors)

Allocation: Concealed

Follow-up period: 18 months

Implications

Practice: Technology-supported interventions can connect patient and provider to support delivery of complex, intensive, cognitive-behavioral interventions.

Policy: Decision support technologies can help under-resourced practice teams compensate for low mental/behavioral-health expertise.

Research: Research is needed on how connective intervention technologies can optimize the delivery of behavioral interventions in community settings.

Setting: 17 primary care clinics in four cities in the USA

Participants: 1,004 patients 18 to 75 years of age (mean, 43 years; 71% women), English or Spanish speaking, who met DSM-IV criteria for panic, generalized anxiety, social anxiety, or post-traumatic stress disorders, with or without major depression. Inclusion criteria were at least moderate anxiety severity and impairment and no ongoing CBT or medication from a psychiatrist. Exclusion criteria were marked cognitive impairment, active suicidal intent or plan, psychosis, bipolar I disorder, and substance abuse or dependence except for nicotine, alcohol, and marijuana abuse.

Intervention: Experimental patients ($n=503$) chose CBT (six to eight weekly sessions), medication, or both, for 3–12 months. Treatment was delivered in person by trained masters level anxiety case managers who used the CALM system to track symptoms, deliver CBT, and guide medication management. Control patients ($n=501$) were treated by their physician in the usual manner.

Outcomes: 12-item Brief Symptom Inventory (BSI-12) anxiety and somatic symptoms score; percent responders ($>50\%$ reduction from pre-treatment BSI-12)

Participant follow-up: 80% (intention-to-treat analysis)

Main results: BSI-12 scores were lower for intervention than for control at 12 months (mean difference, -2.63 points; 95% CI, -3.73 to -1.54 ; $P < .001$) and 18 months (mean difference, -1.63

points; 95% CI, -2.73 to -0.53; $P=.05$). Percent responders for intervention versus usual care were 63.66% (95% CI, 58.95–68.37%) versus 44.68% (95% CI, 39.76–49.59%) at 12 months and 64.64% (95% CI, 59.95–69.32%) versus 51.47% (95% CI, 46.49–56.45%) at 18 months.

Conclusions: In primary care clinics with low mental health expertise, intervention that incorporated the CALM decision support system surpassed usual care in improving anxiety disorder symptoms over 18 months of follow-up.

Comment: Technology-supported interventions will continue to revolutionize healthcare. Many new tools are being marketed directly to consumers. Such targeting is consistent with the movement for patient-centered care that encourages individuals to take responsibility for managing their own health. Concern has been raised that technology-based care may drive a wedge into the patient-provider relationship. To date, however, most researches indicate superior results when technology is embedded in a “warm surround” that preserves contact and relationship with a human. The CALM system elegantly illustrates how technology can connect rather than separate patient from provider. During treatment, the two sit side by side, responding to prompts on the computer. Both clinicians and patients described the program as very helpful; they also say they understood the materials and developed skills in CBT [2].

The CALM trial also demonstrates how intensive psychosocial interventions can be implemented

in settings that lack behavioral expertise. Given some additional training, care managers were able to use decision support infrastructure in the computerized system to deliver a complex cognitive behavioral treatment. The Affordable Care Act now mandates that all preventive services graded “A” or “B” by the U.S. Preventive Services Task Force shall be covered by insurance without co-pays. Most preventive services that have “A” or “B” level evidence are intensive behavioral treatments (e.g., for intervening against tobacco use, obesity, poor quality diet, or risky sexual behavior) [3]. Elsewhere in this issue [4], we questioned why we are so quick to dismiss the feasibility of intervening intensively against health risk behaviors in primary care. The CALM trial suggests a way forward by demonstrating that technological systems can effectively support the implementation of quite complex interventions within busy, under-resourced, practice settings.

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4. Spring, B. (2011). Translational behavioral medicine: a pathway to better health. *Translational Behavioral Medicine*, 1.