

IMPLEMENTING A MEASUREMENT FEEDBACK SYSTEM IN AN ALCOHOL DETOXIFICATION UNIT: RATIONALE, CASE-BASED PRESENTATION AND PRELIMINARY FEASIBILITY DATA

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SUMMARY

Background: Measurement-Based Care, supported by Measurement Feedback Systems, is increasingly recommended to improve psychiatric care. Indeed, such approach offers valuable support for the development of precision medicine by enabling data-informed treatment grounded in collaboration between researchers, clinicians, and patients. However, its implementation in clinical settings remains limited.

Methods: We present a Measurement Feedback System integrated within a research protocol and implemented in a hospital detoxification unit for patients with Severe Alcohol Use Disorder. Capitalizing on the presentation of a clinical case and preliminary patient evaluations, we describe the benefits and limitations of such an approach.

Results: The findings highlight the high acceptability of the tool among patients and underscore the added value of incorporating a Measurement-Based Care framework into standard care in addictive disorders.

Conclusion: This approach facilitates precision medicine through rich patient phenotyping, enhances clinical reflection, and helps to bridge the research-practice gap.

Key words: Alcohol Use Disorder - Measurement-Based Care - Measurement Feedback System - Precision Medicine

Abbreviations: MBC: Measurement-Based Care; MFS: Measurement Feedback System(s); SAUD: Severe Alcohol Use Disorder

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INTRODUCTION

Measurement-Based Care (MBC) and Measurement Feedback Systems (MFS) in Mental Health and in Addiction Care

MBC is a well-established approach in medicine, particularly in the management of chronic conditions like hypertension and diabetes (Goodman et al. 2013). MBC can be defined as the use of standardized, often repeated self-report assessments by the patient to monitor changes (e.g., symptoms) or processes (e.g., motivation), in support of treatment progress monitoring and shared decision-making (Hallgren et al. 2022). Measurement Feedback Systems (MFS) refer to systems enabling the real-time, interpretable, often visual presentations of MBC results to clinicians and/or patients (Peterson & Fagan 2021). The combination of MBC and MFS (MBC/MFS), simultaneously measuring treatment evolution and offering a flexible tool to inform the patients and caretakers of evolution, is widely recommended in psychiatry (Rognstad et al. 2023), as it improves: (1) clinical outcomes compared to treatment-as-usual (Samokhvalov et al. 2024); (2) the detection of non-responders, allowing for quicker treatment adaptation (Hallgren et al. 2022); (3) treatment retention and patient engagement (Kelly & Mee-Lee

2019); and (4) communication between patient and clinicians (Hallgren et al. 2022). However, their practical implementation remains limited.

In addictive care, the existing evidence is limited but indicates benefits of MBC/MFS for treatment adherence (Raes et al. 2011) and outcomes (Schuman et al. 2015), improving both general mental health and substance use (Crits-Christoph et al. 2012). Outpatients in community-based addiction care report enhanced self-reflection and improved treatment efficacy thanks to digital MBC (Frohe et al. 2025). Traditional biological monitoring (e.g., urine tests, breathalysers) is now considered insufficient to track addiction treatment progress (Goodman et al. 2013), broader addiction-related and mental health indicators being recommended for a more holistic view (Bradley et al. 2019). This is supported by addiction clinicians and researchers due to the need for precision medicine rooted in standardised assessment and evidence-based intervention (Samokhvalov et al. 2024).

The need for improved treatment through MBC/MFS is patent in Severe Alcohol Use Disorder (SAUD), which contributes significantly to global morbidity and mortality. In 2019, approximately 3.7% of adults (15 years and older), or 209 million individuals, present with a condition aligned with a SAUD, as defined in the Diagnostic and Statistical Manual of Mental Disorders,

Fifth Edition (DSM-5) (WHO 2024). Despite this burden, a considerable treatment gap persists and among those who do initiate treatment, relapse rates remain high, supporting the characterization of SAUD as a chronic and relapsing disorder (Slidrecht et al. 2019). This challenge highlights the need for a personalised and adaptative care in addiction supported by collaboration and discussion between researchers, clinicians and patients. In this article, we focus on SAUD to show how a MBC/MFS can foster such collaboration and support precision medicine.

A RESEARCH PROJECT WITH A CLINICAL IMPACT

Our project stems from a dual observation: the urgent need for precision medicine in addiction care and the persistent gap between research and practice that hinders its development.

Inspired by the MBC and MFS literature, we launched a study at the Integrated Hepatology Unit Cliniques Universitaires Saint-Luc (Brussels, Belgium), to help bridge this gap through direct clinical impact. The project aims to better understand individual trajectories after detoxification in SAUD by categorizing patients into subgroups presenting distinct relapse pathways based on three neuroscientific domains, inspired from the Addictions Neuroclinical Assessment, a clinical Research Domain Criteria framework (Kwako et al. 2016). The neuroscientific domains are incentive salience (evaluated through craving), negative emotionality (through depression, anxiety, insomnia, alexithymia and some personality traits) and executive function (through impulsivity, metacognition, neurocognitive impairment and evoked potentials). We also assess moderating factors related to recovery, such as strengths (self-efficacy, motivation to change, positive emotion regulation) and psychosocial environment (quality of life, social support, therapeutic alliance). An article detailing the research project has been submitted and is currently under review (Ledouble et al. 2025).

To integrate this research into everyday clinical care, we (1) adapted our test battery to include brief, clinically relevant questionnaires, and (2) incorporated a Measurement Feedback System (MFS) to feed results back into clinical practice.

Creation of the Visualisation Tool

Our MFS or visualisation tool, a web application, was developed through intense collaboration between a team of engineers and psychiatric researchers. It translates questionnaire responses collected via REDCap into clinically intuitive graphical representations.

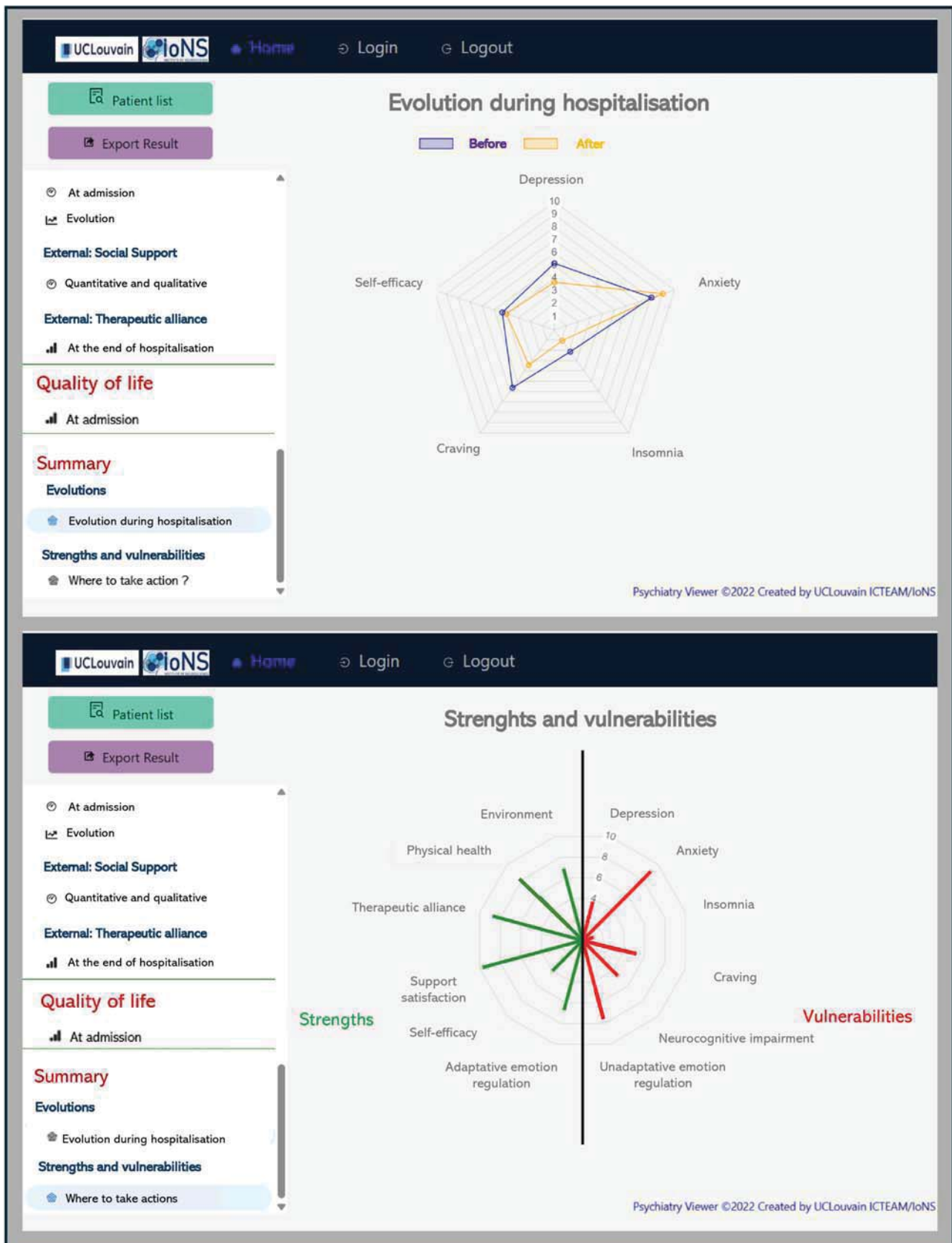
We drew extensively from the literature in designing the tool: (1) to focus on the evolution of key factors

(depression, anxiety, insomnia, craving and self-efficacy) rather than only static traits (Knaup et al. 2009), (2) to include general mental health metrics beyond alcohol-specific data (Bradley et al. 2019), (3) to evaluate processes and strengths beyond deficits (Hallgren et al. 2022), (4) to organize results by themes, close to neuroscientific domain, for intuitive navigation, (5) to include two summary graphs (Figure 1) to help identify clinical patterns over time (Tauscher et al. 2021), (6) to add alert functions for critical findings (e.g., suicidal ideation) (Lyon et al. 2016), (7) to deliver feedback to both clinicians and patients (Knaup et al. 2009), and (8) to enable a printable version for offline sharing (Tauscher et al. 2021).

Practical Application

Patients are recruited upon arrival in a detoxification unit offering a three-week program: one week in the ward dedicated to medical withdrawal, one week at home to re-engage with everyday life, and a final in-week to consolidate abstinence. Consenting patients mainly complete our assessment, with self-reports entered via REDCap and researcher assistance. We also administer a brief structured hetero-assessment to evaluate potential neurocognitive impairments. The full assessment is conducted over two 30-minute sessions during both the first and the final week. Follow-up assessments are emailed at 2, 4, 12 weeks, and at 1-year post-discharge, tracking abstinence, follow-up care, and quality of life.

During the hospitalisation, once assessments are completed, the researcher prints and shares two summary graphs, "Evolution" and "Strengths-Vulnerabilities" (Figure 1), with the patient, supporting discussion with the medical team and later with external caretakers (Tauscher et al. 2021). The research team also attends weekly multidisciplinary clinical meetings, facilitating collaboration between researchers and clinicians. Clinicians provide biographical and clinical data; researchers present test results via the visualisation tool, adding contextual information (test conditions, patient attitude, questions or comments). This fully integrated discussion supports a joint interpretation of results, enabling a shared narrative (Russell et al. 2018) and collaborative care planning. Unlike most MFS systems designed for autonomous clinical use (Lambert et al. 2003), our tool includes active researcher involvement, fostering dialogue, knowledge transfer and genuine collaboration between research and practice. It serves as a meeting place for researchers, clinicians and patients but can easily be adapted to be used without researchers, for example with cognitive evaluations administered by clinicians or automated questionnaires supported by nurses or psychologists.



We present here two summary graphs adapted to Mr. X's results. The first graph illustrates changes in five factors measured before and after detoxification. The second graph depicts various dimensions identified as either potential resources or potential vulnerability factors for the patient.

Figure 1. Example of summary graphs

Below, we present a clinical case from a study participant, along with preliminary patient feedback on the tool, to explore its benefits and limitations. The patient provided informed consent for our study, and clinical details were modified to ensure anonymity.

CLINICAL CASE

Mr X: Clinical Evaluation and Testing

Mr X., aged 52, is admitted to the unit for his third inpatient detoxification. He reports consuming an average of 15 alcohol units per day. Problematic alcohol use began five years ago. He is married and has been on medical leave from his job for a month. He receives bi-monthly psychological counselling and takes low-doses benzodiazepines to treat anxiety. His goal is long-term abstinence.

The hospitalisation proceeded without major issue, except the consumption of approximately three alcohol units on a stressful occasion during the week at home. Although he was able to identify relevant factors contributing to his condition (e.g., anxiety, mother's substance use, low self-esteem), exploring these in depth proved difficult, with a tendency to minimise their significance.

Psychometric assessments revealed a SAUD with significant craving at admission, which improved but remained present at discharge. Depressive symptoms improved but remained moderate, while anxiety remained severe. Assessments indicated impulsivity, especially on the sensation-seeking and urgency sub-scores. Alexithymia was present, with high scores in difficulty in identifying and describing feelings. Emotion regulation strategies were predominantly non-adaptive (rumination and self-blame), though some adaptive mechanisms were reported (mainly perspective-taking). Self-efficacy did not improve during the stay. Social support was assessed as broadly available and highly satisfactory. The patient also reported a positive therapeutic alliance with the care team.

Sharing Results and Multidisciplinary Discussion

The results of the MBC were shared with Mr X, who recognised himself in the persistent anxiety-depressive symptoms, emotional regulation difficulties, and impulsivity. He related these findings to specific life experiences and expressed a desire to work on them further. In the multidisciplinary meeting, the persistence of clinical and psychometrically objectified anxiety-depressive symptoms, supported the initiation of a Selective Serotonin Reuptake Inhibitor medication and the implementation of psychiatric follow-up. The prescription of Acamprosate was discussed due to persistent craving but was ultimately not pursued.

The perceived high quality of the social support, identified by the questionnaires was discussed as a strength. However, although Mr X expressed satisfaction regarding his support network during the testing process and clinical interviews, he also briefly alluded to interpersonal difficulties within his couple. The clinical team noted his tendency to idealise relationships and avoid discussing conflicts, suggesting that this potential resource should not be taken for granted. This impression was reinforced by the patient's uniformly positive responses on assessments of social support, which lack nuances, suggesting an idealized perception of their social environment. Given the patient's overall vulnerability (low self-efficacy, ruminative tendencies, persistent anxiety), both researchers and clinicians, supported a couple interview, accepted by the patient and his wife. This provided a space to address marital challenges and highlighted signs of exhaustion in his spouse.

The systematic psychometric assessment of Mr. X supported and enriched clinical impressions regarding the persistence of anxiety-depressive symptoms and the idealization of support figures. It also revealed low self-efficacy and alexithymia which were not spontaneously addressed by the clinical team but were essential to consider in the planning and delivery of care.

Patient Feedback on the Research Protocol and MFS

For our approach to efficiently enhance patient care, it is essential to ensure that the protocol is acceptable and that patients perceive the MFS as beneficial. To this end, we developed a 15-item questionnaire using a 5-point Likert scale, from (1) Strongly disagree to (5) Strongly agree, to evaluate: (a) the acceptability of the research protocol, (b) the overall perception of our MBC/MFS, and (c) the perceived effects of the MBC/MFS (Table 1). This evaluation is conducted iteratively, allowing us to refine and adapt our approach over time. Here, we present the preliminary results of the first iteration, based on responses from 10 patients.

The acceptability of the study was positively evaluated by all patients, with 100% indicating they would recommend it to another patient. The duration of the questionnaire sessions appeared to be well tolerated as no patient agreed with the statement that the questionnaires were too long. Regarding satisfaction and perceived usefulness of receiving feedback, all patients either Agreed or Strongly Agreed with the related statements. However, the integration of the feedback into clinical with the discussion of results between patients and healthcare providers emerged as an area for improvement. Notably, 67% of patients who did not have the opportunity to discuss their results with the care team expressed a desire to do so. Patients also reported

Table 1. Preliminary results of ten patients' evaluation

Dimensions and items	Mean *
Acceptability of the Research Protocol	
1. I appreciated participating in the study proposed during my hospitalization	5
2. I found participation in this study too demanding	1.3
3. I felt that the duration of the questionnaire sessions was too long	1.6
14. I would recommend participation in this study to other patients hospitalized for the same condition	5
MFS Usefulness Perception, Satisfaction, and Integration	
5. I am satisfied with having received feedback on my results during my hospitalization	5
6. I find the feedback on my results useful	4.9
7. The graphs were easy to understand	4.6
8. I understood all the terms used to explain the graphs and results to me	4.5
10. I had the opportunity to discuss the information displayed in the feedback with the care team of Unit 74	2.9
11a. I would have liked to discuss the information displayed in the feedback with the care team of Unit 74	4 (6 patients)
11b. Discussing the information displayed in the feedback with the care team of Unit 74 was helpful	4.5 (4 patients)
13. I intend to share the feedback with my external care providers after discharge	4.8
15. I would find it useful to retake some of the tests in the future, once I am no longer hospitalized, and to receive updated feedback to track my progress	4.9
Perceived Effects of the MBC/MFS	
4. Participating in this study helped me reflect on certain aspects highlighted in the questionnaires	4.6
9. The feedback helped me better understand my strengths and vulnerabilities	4.7
12. I can rely on the information displayed in the feedback to reflect on my care after hospitalization	4.8

* Likert scale from 1: Strongly disagree to 5: Strongly agree

perceivable effects of the study and feedback process on their self-reflection, self-awareness, and sense of empowerment regarding future care. The patient feedback and comments thus offered a very positive and encouraging preliminary evaluation of the clinical efficacy and practical adaptability of our protocol.

DISCUSSION: PRACTICAL CONTRIBUTIONS AND LIMITATIONS

This combined clinical-research framework benefits patients, clinicians, and researchers alike by providing support for a precision medicine approach in SAUD (Samokhvalov et al. 2024). As presented in the patients' evaluation, they valued structured feedback and found it helpful in understanding their condition and planning further care (Frohe et al. 2025). Clinicians benefited from objectified data, either reinforcing clinical impressions or highlighting previously overlooked areas, thus enriching clinical reasoning and supporting decision-making (Lambert et al. 2003). The systematic assessments covered both neuroscience and recovery domains, enabling precise phenotyping which can be related to each patient's lived experience. These preliminary results open the door to precision medicine, without excluding the interpersonal approach that is central to psychiatry. MBC/MFS systems also facilitate the identification of patients with poor clinical trajectories, such as Mr. X and his anxiety, for whom these tools

have demonstrated their greatest effectiveness (Crits-Christoph et al. 2012). A subsequent step will be to assess how the study is perceived by members of the care team. Researchers gained insights into the complexity and limitations behind quantitative data through clinical discussions, which provided context and grounded interpretations. Overly positive responses (e.g., high self-efficacy, social support scores, ...) might sometimes represent an under-evaluation of the actual difficulties by the patient rather than actual strengths. Our tool aims to support and enhance clinical expertise by providing objective, data-driven insights and not to replace it. Triangulating data with clinical impressions and narrative accounts is crucial to accurately capture patient trajectories.

Despite these benefits, our approach is not without limitations. Study participation requires a significant time investment, and non-participating patients do not benefit from the approach. Among care providers, initial enthusiasm was tempered by reluctance to directly engage with the test results. Clinicians preferred discussing findings with researchers rather than independently interpreting them. Such reluctance is partly rooted in a certain mistrust regarding research-based self-reported assessments (Bickman et al. 2016). Some clinicians also fear of care being dictated by MBC metrics. However, the case of Mr X demonstrates that data-informed recommendations remain open to clinical discretion, the final decision emerging from a com-

promise between objective data and subjective clinical feelings. For example, while MBC might recommend a specific medication (e.g., Acamprosate), the clinical team can underline its moderate efficacy for a specific patient (Acamprosate NNT: 9) and patients can be reluctant due to inconvenient regimens (e.g., Acamprosate's thrice-daily dosing), illustrating how MBC can inform but not dictate practice. Complementary limits to our approach are that the presence of researchers during questionnaire administration, although integral to the study design, poses challenges for broader dissemination in its current form. Repeated assessments were limited to two time points due to constraints specific to the unit setting. Furthermore, our web application requires further development to enable integration into the hospital's IT infrastructure, which would likely facilitate caregiver access and enhance their autonomous engagement (Tauscher et al. 2021).

CONCLUSION

This research project presents a novel integration of neuroscientific assessment and recovery-oriented principles, made accessible in clinical practice through a MFS platform. By involving both clinicians and patients in the interpretation and application of results, it lays the groundwork for a precision medicine approach in addiction medicine. This approach enables the implementation of precise phenotyping in clinical settings and facilitates its integration into the narrative discourse of both clinicians and patients. This allows a precise adaptation of treatment to individual patient characteristics. Through collaborative, interdisciplinary exchange, this model supports clinical personalised care while informing and enriching ongoing research.

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Conflict of interest: None to declare.

Contribution of individual authors:

Claire Ledouble participated in creating the study design, conducted literature research, collected and analyzed data, wrote the first draft of the paper, and made revisions.

Pierre Maurage & Philippe de Timary participated in the creation of the study design and made critical revisions of the manuscript.

Nausica Germeau, Theodore Mystakelis, Mairi Athanasiadi & Peter Starkel contributed to data interpretation and manuscript revision.

All authors approved the final manuscript.

References

1. Bickman, L., Douglas, S. R., De Andrade, A. R. V., Tomlinson, M., Gleacher, A., Olin, S., & Hoagwood, K. (2016). Implementing a measurement feedback system: A tale of two sites. *Administration and Policy in Mental Health and Mental Health Services Research*, 43, 410-425. <https://doi.org/10.1007/s10488-015-0647-8>
2. Bradley, K. A., Caldeiro, R. M., Hallgren, K. A., & Kivlahan, D. R. (2019). Making Measurement Based Care for Addictions a Reality in Primary Care. *Addiction (Abingdon, England)*, 114(8), 1355. <https://doi.org/10.1111/add.14605>
3. Crits-Christoph, P., Ring-Kurtz, S., Hamilton, J. L., Lambert, M. J., Gallop, R., McClure, B., Kulaga, A., & Rotrosen, J. (2012). A preliminary study of the effects of individual patient-level feedback in outpatient substance abuse treatment programs. *Journal of substance abuse treatment*, 42(3), 301-309. <https://doi.org/10.1016/j.jsat.2011.09.003>
4. Frohe, T., Cohn, E. B., Frost, M. C., Johnson, T. R., & Hallgren, K. A. (2025). Using digitally delivered measurement-based care in substance use disorder treatment: qualitative analysis of patients' perspectives. *The American journal of drug and alcohol abuse*, 1-11. <https://doi.org/10.1080/00952990.2025.2458626>
5. Goodman, J. D., McKay, J. R., & DePhilippis, D. (2013). Progress monitoring in mental health and addiction treatment: a means of improving care. *Professional Psychology: Research and Practice*, 44(4), 231. <https://doi.org/10.1037/a0032605>
6. Hallgren, K. A., Cohn, E. B., Ries, R. K., & Atkins, D. C. (2022). Delivering remote measurement-based care in community addiction treatment: engagement and usability over a 6-month clinical pilot. *Frontiers in psychiatry*, 13, 840409. <https://doi.org/10.3389/fpsy.2022.840409>
7. Kelly, J. F., & Mee-Lee, D. (2019). Quality, accountability, and effectiveness in addiction treatment: The Measurement-Based Practice Model. In *The Assessment and Treatment of Addiction* (pp. 207-217). Elsevier. <https://doi.org/10.1016/b978-0-323-54856-4.00015-8>
8. Knaup, C., Koesters, M., Schoefer, D., Becker, T., & Puschner, B. (2009). Effect of feedback of treatment outcome in specialist mental healthcare: meta-analysis. *The British Journal of Psychiatry*, 195(1), 15-22. <https://doi.org/10.1192/bjp.bp.108.053967>

9. Kwako, L. E., Momenan, R., Litten, R. Z., Koob, G. F., & Goldman, D. (2016). Addictions neuroclinical assessment: a neuroscience-based framework for addictive disorders. *Biological psychiatry*, 80(3), 179-189. <https://doi.org/10.1016/j.biopsych.2015.10.024>
10. Lambert, M. J., Whipple, J. L., Hawkins, E. J., Vermeersch, D. A., Nielsen, S. L., & Smart, D. W. (2003). Is it time for clinicians to routinely track patient outcome? A meta-analysis. *Clinical psychology: Science and practice*, 10(3), 288. <https://doi.org/10.1093/clipsy.bpg025>
11. Ledouble, C., Maurage, P., Macq, B., & de Timary, P. (2025). A Multidimensional Battery Integrating Domains of the Addictions Neuroclinical Assessment and Recovery Concepts: Bridging the Gap between Research and Clinical Practice. Manuscript submitted for publication.
12. Lyon, A. R., Lewis, C. C., Boyd, M. R., Hendrix, E., & Liu, F. (2016). Capabilities and characteristics of digital measurement feedback systems: Results from a comprehensive review. *Administration and Policy in Mental Health and Mental Health Services Research*, 43, 441-466. <https://doi.org/10.1007/s10488-016-0719-4>
13. Peterson, A. P., & Fagan, C. (2021). Improving measurement feedback systems for measurement-based care. *Psychotherapy Research*, 31(2), 184-199. <https://doi.org/10.1080/10503307.2020.1823031>
14. Raes, V., De Jong, C. A., De Bacquer, D., Broekaert, E., & De Maeseneer, J. (2011). The effect of using assessment instruments on substance-abuse outpatients' adherence to treatment: a multi-centre randomised controlled trial. *BMC health services research*, 11, 1-9. <https://doi.org/10.1186/1472-6963-11-123>
15. Rognstad, K., Wentzel-Larsen, T., Neumer, S.-P., & Kjøbli, J. (2023). A systematic review and meta-analysis of measurement feedback systems in treatment for common mental health disorders. *Administration and Policy in Mental Health and Mental Health Services Research*, 50(2), 269-282. <https://doi.org/10.1007/s10488-022-01236-9>
16. Russell, K. C., Gillis, H. L., Law, L., & Couillard, J. (2018). A pilot study examining outcomes associated with the implementation of progress monitoring at a substance use disorder treatment program for adolescents. *Child & Youth Care Forum*, <https://doi.org/10.1007/s10566-018-9437-2>
17. Samokhvalov, A. V., Levitt, E., & MacKillop, J. (2024). Using measurement-based care as a precision medicine strategy for substance use disorders. *Current Psychiatry Reports*, 26(5), 215-221. <https://doi.org/10.1007/s11920-024-01495-3>
18. Schuman, D. L., Slone, N. C., Reese, R. J., & Duncan, B. (2015). Efficacy of client feedback in group psychotherapy with soldiers referred for substance abuse treatment. *Psychotherapy Research*, 25(4), 396-407. <https://doi.org/10.1080/10503307.2014.900875>
19. Sliedrecht, W., de Waart, R., Witkiewitz, K., & Roozen, H. G. (2019). Alcohol use disorder relapse factors: A systematic review. *Psychiatry Research*, 278, 97-115. <https://doi.org/10.1016/j.psychres.2019.05.038>
20. Tauscher, J. S., Cohn, E. B., Johnson, T. R., Diteman, K. D., Ries, R. K., Atkins, D. C., & Hallgren, K. A. (2021). What do clinicians want? Understanding frontline addiction treatment clinicians' preferences and priorities to improve the design of measurement-based care technology. *Addiction science & clinical practice*, 16(1), 38. <https://doi.org/10.1186/s13722-021-00247-5>
21. WHO (2024). *Global status report on alcohol and health and treatment of substance use disorders*. Geneva: World Health Organization.

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