

# An Integrated Practice Unit Tool for the Military Health System

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**THE INTEGRATED PRACTICE UNIT (IPU) CONCEPT**, first described in 2013, posits a framework in which care is collaboratively organized around the spectrum of needs for a given condition, colocated in 1 facility, and under the oversight of 1 entity, in contrast to the current model, which forces patients to navigate fragmented care through a diffuse network of specialists often siloed from one another.<sup>1</sup> This necessitates a broader concept of the interdisciplinary team to include management of all problems associated with the clinical condition, as well as a single administrative and scheduling structure for all specialties that are required to treat these patients across the pathway of care. Under this model, the handoffs are not optional, not managed by the patient alone or with a simple set of referral guidelines, and not siloed among multiple, geographically dispersed specialists. This shared decision-making results in shared accountability across the care spectrum, rather than accountability stopping at the specialist level in traditional practice. Correctly implemented, the IPU provides the framework for achieving the Quadruple Aim of improving cost of care, health outcomes, patient experience, and provider experience.

The IPU concept has been applied to care for multiple conditions worldwide, including cancer,<sup>2</sup> behavioral health,<sup>3</sup> dermatology,<sup>4</sup> musculoskeletal conditions,<sup>5</sup> and heart disease,<sup>6</sup> among many others. However, although some initiatives have measured performance against the 11 criteria of an IPU,<sup>2</sup> the framework was not intended to be an exact blueprint because every coordinated care center would have slightly different requirements.<sup>1</sup> Therefore, centers wishing to assess their performance as IPUs should consider the criteria in light of patient and organizational needs and adapt specific elements accordingly.

A notable coordinated care center is the National Intrepid Center of Excellence (NICoE), which is the flagship center for treating combat- and training-related traumatic brain injury (TBI) and operational stressors in military service members. From its inception, NICoE has maintained an interdisciplinary model of care in which subspecialists in areas related to TBI treatment, such as neurology and behavioral health, are colocated in 1 facility for ease of evaluation and comprehensive care planning, providing effective recovery.<sup>7,8</sup> This is significant

## ABSTRACT

**Objectives:** To develop a tool for measuring performance of a coordinated care center against the criteria of an integrated practice unit (IPU) and test it against an established care center in the Military Health System (MHS).

**Study Design:** Characteristics of 4 patient care coordination models were sorted using the 11 criteria of the IPU.

**Methods:** Subject matter experts evaluated characteristics and criteria for inclusion or exclusion based on the needs of specialty care in the MHS. The consolidated tool was tested using the example of the National Intrepid Center of Excellence (NICoE), which provides coordinated, colocated care for patients with traumatic brain injury, using responses of yes, partial, no, not applicable, or incomplete.

**Results:** The final tool contained 7 IPU criteria subdivided into 18 measures. NICoE was found in 2020 to meet 11 measures fully and 6 partially, with 1 deemed not applicable. In 2023 it met 17 of 18 measures, with the remaining (translation services) available as an enterprise-wide resource. The tool was seen to need improvement in clarification of 3 measures and in 1 criterion that is evaluated differently by patients vs providers.

**Conclusions:** This IPU assessment tool accurately captures both the strengths and weaknesses of a coordinated care facility within the MHS. Iterative refinement of the tool is expected to inform ongoing discussion of the transformation of care in the MHS and the US and to provide a framework by which to measure the care performance of centers wishing to reorganize as IPUs.

because TBI may present with clusters of symptoms including headache, vestibular disorders, memory and attention difficulties, sleep disturbances, and behavioral health comorbidities, among others, which are best managed in concert to effect lasting recovery.<sup>7</sup> The colocation of NICoE's interdisciplinary team facilitates a patient-centric holistic model capable of such coordinated care because all providers are influenced by the patient's goals and rapid iterative feedback on treatment response. NICoE also sits in the center of a hub-and-spoke model, in which synchronization of the interdisciplinary model is deployed at each spoke Intrepid Spirit Center, allowing for the customized care across the spectrum of brain injury seen at the major military platforms. This provides an additional level of coordination and potential opportunities for iterative performance improvement. A recent initiative at the Marcus Institute for Brain Health in Aurora, Colorado, modeled its IPU for TBI after the system at NICoE,<sup>9</sup> supporting the idea that NICoE implements many principles of the IPU and would serve as a good test for development of an IPU assessment tool for the Military Health System (MHS). Although NICoE serves a predominantly active-duty population, the MHS serves 9.5 million beneficiaries, of whom approximately 80% are non-active duty,<sup>10</sup> and as such it faces many of the same issues seen in the civilian sector with improving cost, quality, and access for patients. The National Defense Authorization Act for Fiscal Year 2017, which set priorities for the Department of Defense, including the MHS, specifically charged the MHS with implementing value-based care.<sup>11</sup> Under this provision the development and assessment of IPUs make intuitive sense.

This article describes the development at NICoE of an IPU assessment tool for the MHS, followed by the testing of that tool against the care pathway at NICoE. Results demonstrate both strengths and opportunities for improvement in the tool as well as NICoE itself and are expected to inform discussion for other health systems looking to develop or improve care as IPUs.

## METHODS

The MHS IPU assessment tool was developed across 3 working sessions 1 to 2 hours long with health care practitioners from across the federal Defense Health Agency, which provides oversight to the MHS. The first workshop was focused primarily on MHS-specific criteria for establishing an IPU, which included but were not limited to the roles of clinical leaders, outcome measurements, and the necessity of investments in health care informatics and analytics. Considerable time was spent discussing the need to lower the administrative burden for health

care practitioners, ostensibly through increased automation or elimination of redundancy, leading to the initial hypothesis that these improvements would manifest in increased patient satisfaction and outcomes. These initial criteria were sorted against the IPU framework developed by Porter and Lee.<sup>1</sup>

Next, participants compared the initial criteria with those of 4 other care frameworks: the Patient-Centered Medical Home criteria developed by the National Committee for Quality Assurance (NCQA),<sup>12</sup> the similar Primary Care Medical Home criteria of The Joint Commission,<sup>13</sup> the Patient-Centered Specialty Practice of the NCQA,<sup>12</sup> and the 7 characteristics of a learning health system as described by the National Academy of Medicine.<sup>14</sup> The working group refined the 4 sets of measures into the final 18 according to the following process. First, the 7 criteria used in our assessment were derived by combining the original 11 IPU criteria where it made sense in the context of care for the MHS. For the individual measures, greater weight was assigned to those that concurred with the IPU criteria, appeared in multiple assessment lists (eg, colocated providers), were more relevant to TBI and its sequelae, were reflective of MHS priorities (eg, learning health system), and could be easily assessed at NICoE. As with the IPU criteria, closely related measures were combined where it made sense to do so. Remaining measures that did not fall into these categories were included or excluded by consensus over follow-up meetings and other communications.

A third workshop, held at NICoE, cross-referenced the core set of 18 MHS IPU criteria and set out to test (1) whether the criteria were fulfilled by the NICoE and (2) whether the best practices of the NICoE were adequately represented in the criteria set. Over the course of several follow-up meetings in 2019 and 2020, NICoE staff members evaluated the ability of the center to meet each set of criteria using 1 of 4 responses: yes, partial, no, or not applicable. The evaluation was repeated in 2023 after the Defense Health Agency designated NICoE as the headquarters of its TBI Program of Record specialty care network, which drove organic improvement across the center.

## RESULTS

The team selected 18 measures, which fell into 7 criteria, as follows: organization of care around a clearly defined medical condition or group of closely related conditions spanning the full cycle of care (3 measures); structure and governance (1 measure); care ideally delivered in a colocated area in a dedicated Military Treatment Facility (MTF) with location optimized across multidisciplinary services and facilities, MTFs, and purchased-care systems,

including intake procedures, common scheduling process, and electronic health record (EHR) workflows (3 measures); prevention, patient engagement, patient education, adherence, follow-up, and mitigation of potential barriers integrated into the care process across the full spectrum of care (5 measures); oversight of patient's care by clinician (provider or clinical care manager or both) with deference to expertise (2 measures); measurement of outcomes (clinical and patient-reported), costs, care processes, and patient experience using a common platform, and acceptance of joint accountability for results (2 measures); and regular formal and informal team meetings to discuss individual patient care plans, and process improvements aimed to improve results and control costs (2 measures). A complete list of measures is available in the [Table](#).

The first assessment of NiCoE against the tool took place in 2020. At that time, 11 of 18 measures were completely fulfilled, 6 were partially fulfilled, and 1 was deemed not applicable (Table). Three criteria (1, 2, and 5) were completely fulfilled, whereas criterion 4 (prevention, patient engagement, patient education, adherence, follow-up, and mitigation of potential barriers integrated into the care process across the full spectrum of care) was largely unfulfilled, with 1 "yes" response, 2 "partial" responses, 1 not applicable, and 1 for which fulfillment could not be determined. The remaining 3 criteria (3, 6, and 7) were partially fulfilled with a mix of "yes" and "partial" responses.

The second assessment of NiCoE took place in 2023, following the center's new designation as headquarters for the Defense Health Agency's TBI Program of Record specialty care network, currently coordinating 13 sites across the MHS. At this time, NiCoE was found to meet 17 of 18 measures and all 7 criteria. Measure 11, "IPU has translator services available for use during every patient encounter (in-person, virtual, teleconferencing, etc) to ensure clear communication and patient-centric care," is an enterprise-wide resource available to NiCoE on request, and therefore it remains listed as not applicable.

## DISCUSSION

### RESULTS OF ASSESSMENT

Overall, the study's results demonstrate the ability to combine existing models into an IPU assessment tool that is applicable to a given Center of Excellence within the MHS. This pilot application of the tool, in 2020, identified both strengths and weaknesses at NiCoE. The strengths were criterion 1 ("organization of care around a clearly defined medical condition or group of closely related conditions spanning the full cycle of care"), criterion 2 ("structure and governance of IPU"), and criterion 5

("oversight of patient's care by clinician [provider or clinical care manager or both] with deference to expertise"). These were fulfilled as described in the Results, although some clarification is needed to ensure consistency in measurement in other care areas.

The biggest weakness was seen in criterion 4 ("prevention, patient engagement, patient education, adherence, follow-up, and mitigation of potential barriers [ie, resources, diversity, and language] integrated into the care process across the full spectrum of care"), with only 1 "yes" response (measure 8) across 5 relevant measures. One measure was deemed not applicable (measure 11, translation services) and another incomplete as described in the Results, whereas the remaining 2 (measures 9 and 10) were partially fulfilled. Both of these measures describe patient education across the care spectrum, and therefore these results suggested that patient follow-up remained an opportunity for improvement.

NiCoE is now recognized as the headquarters of the Defense Health Agency's TBI Program of Record specialty care network, which comes with expanded visibility and increased responsibilities that in turn drive the organic and iterative process of improvement. As described in the Results, 17 of 18 measures are now fulfilled, with measure 11 (translation services) remaining an enterprise-wide resource available to NiCoE patients and deemed not applicable.

These improvements have come about through changes in both policy and practice. One notable change is that NiCoE now has a single point of entry referral process to ensure that patients who have experienced a TBI or anomalous health incident are seen at the NiCoE hub or Intrepid Spirit spoke sites (measure 5). Another is the involvement of NiCoE personnel with diversity, equity, and inclusion training at Walter Reed National Military Medical Center in Bethesda, Maryland, an important consideration given that disparities in TBI care have been observed for minority-race patients in the Veterans Health Administration and in civilian health systems.<sup>15,16</sup> Although assessment of disparities at NiCoE is beyond the scope of this study, prior studies' results have established substantial mitigation of disparities in military-provided care,<sup>17</sup> and preliminary work suggests that the IPU model can reduce racial disparities in care,<sup>5</sup> particularly if the care center accounts for this during development of its IPU.<sup>18</sup> Additional improvements focused on patient and family education. Service members and their treatment teams now have access to educational modules supporting the program goals in neurological and behavioral health and wellness rehabilitation for all active-duty service members and veterans seen in the MHS (measure 9). All patients at NiCoE also have the option to include

**TABLE.** IPU Tool and NICoE Assessment, 2020 and 2023

Required criteria for establishing IPU	IPU certification criteria checklist of measures	Criteria met in 2020	Criteria met in 2023
1. Organization of care around a clearly defined medical condition or group of closely related conditions spanning the full cycle of care	1. IPU is inclusive of a primary condition, co-occurring conditions, and across the spectrum of care (eg, outpatient, inpatient, rehabilitative stay).	Yes	Yes
	2. IPU utilizes relevant care pathways as selected by respective clinical communities.	Yes	Yes
	3. IPU has a standardized method in place to communicate with key providers outside of IPU (eg, primary care manager, referring provider, other specialists) and documents this communication in EHR.	Yes	Yes
2. Structure and governance of IPU	4. IPU designates a lead clinical provider as the primary oversight to define limits of the IPU, incorporate necessary specialists in the IPU, and lead optimization.	Yes	Yes
3. Care ideally delivered in colocated area in a dedicated MTF with location optimized across multidisciplinary services and facilities, MTFs, and purchased-care systems. This also includes common scheduling processes and EHR workflows, including the intake process.	5. IPU has a single process for appointing and referral management in place to optimize patient access (right care at right time at right place).	Partial	Yes
	6. IPU has workflows built into the EHR that are accessible across the spectrum of care. If this infrastructure is not yet rolled out, a workaround needs to be documented until EHR is available.	Yes	Yes
	7. All services are clearly defined and identified within IPU and are ideally colocated or available by phone for timely clinical advice when necessary.	Yes	Yes
4. Prevention, patient engagement, patient education, adherence, follow-up, and mitigation of potential barriers (eg, resources, diversity, and language) are integrated into the care process across the full spectrum of care	8. IPU utilizes and documents shared decision-making between patient and provider/care team.	Yes	Yes
	9. IPU integrates patient education, prevention, adherence support, follow-up, and mitigation of barriers to treatment success (patient resources, diversity, and language) in all treatment decisions.	Partial	Yes
	10. Patient's support system is included as appropriate in relevant education, treatment decisions, etc. If patient does not wish for support system to be included, this deferral conversation should be documented in EHR.	Partial	Yes
	11. IPU has translator services available for use during every patient encounter (in-person, virtual, teleconferencing, etc) to ensure clear communication and patient-centric care.	NA	NA
	12. IPU has a standardized practice of acknowledging and following up with patient emergency department visits and/or inpatient admissions.	Partial	Yes
5. Oversight of patient's care by clinician (provider or clinical care manager or both) with deference to expertise	13. Patient actively engaged with IPU provider in creation of written treatment plan with a clearly identified clinical leader; identification of clinical specialists.	Yes	Yes
	14. IPU has method of recording the patient's care plan and current clinical leader in both the patient's written care plan and their EHR.	Yes	Yes

continued ▶

**TABLE.** (Continued) IPU Tool and NiCoE Assessment, 2020 and 2023

Required criteria for establishing IPUs	IPU certification criteria checklist of measures	Criteria met in 2020	Criteria met in 2023
6. Measurement of outcomes (clinical and patient-reported), costs, care processes, and patient experience using a common platform and accept joint accountability for results	15. Entire IPU utilizes at least 1 patient-reported outcome measure across the entire enterprise.	Yes	Yes
	16. IPU has standardized process in place to review outcomes with care team and identify potential areas for improvement.	Partial	Yes
7. Regular formal and informal team meetings to discuss individual patient care plans, and process improvements aimed to improve results and control costs. Providers see themselves as part of a common, cohesive organizational unit.	17. IPU establishes regular team meeting cadence to review patient cases, performance improvement initiatives, etc.	Yes	Yes
	18. IPU has process for educating team members on cost awareness (eg, value-based health care, cost transparency).	Partial	Yes

EHR, electronic health record; IPU, integrated practice unit; MTF, Military Treatment Facility; NA, not applicable; NiCoE, National Intrepid Center of Excellence.

members of their support system in education and treatment decisions as appropriate, and this is documented in social work processes (measure 10).

Possibly the biggest change was in patient follow-up after emergency department visits or inpatient admission (measure 12), which was left unanswered in 2020 due to the challenge of collecting these data from private-sector institutions where MHS beneficiaries may also receive care.<sup>3</sup> NiCoE and the Intrepid Spirit Centers now support the Department of Defense's quality metric on acute concussion care to ensure patient follow-up within 72 hours.

The updates also included changes at the organizational and administrative levels. NiCoE established a chartered group to assess program effectiveness, including weekly coordinated meetings among clinical operations and research and administration leads, as well as in-person outbrief meetings with each service member to improve program care and follow-up care (measure 16). Finally, each service group meets biweekly, led by the service chiefs, to review productivity and assess effectiveness of scheduling and patient access. An application in the TBI Portal provides monthly accountability for provider performance to leadership (measure 18).

### PERFORMANCE OF TOOL

The pilot test and follow-up also showed areas where the tool could be improved, particularly through clarification of terms. Measure 2 ("IPU utilizes relevant care pathways as selected by their respective clinical community") needs clarification because this covers the care pathways

for both primary and co-occurring conditions, which may be governed under different specialties in the MHS. Measure 12 ("IPU has standardized practice of acknowledging and following-up with patient emergency department visit and/or inpatient admissions") was deemed incomplete in 2020, in part because care may be delivered in the civilian sector via the TRICARE insurance benefit, making follow-up difficult. Measure 18 ("IPU has process for educating team members on cost awareness [value-based health care, cost transparency])" will need further clarification as described above to ensure that all providers understand "value" according to the same terms. Criterion 4, focused on patient education, has shown improvement at NiCoE, while still presenting an opportunity to improve the tool, as it appears to give incongruent results via this tool vs by patient survey. The tool showed in 2020 that several measures were only partially fulfilled, whereas in practice, patient education has been a hallmark of the center since inception and has been consistently identified by patient survey as a strength of the treatment program. Patient education supports the third of the 3 goal sets of NiCoE care, defined as self-efficacy and self-advocacy<sup>7</sup>; the challenge was in following up with patients and families.

Measure 11 ("IPU has translator services available for use during every patient encounter [eg, in-person, virtual, teleconferencing] to ensure clear communication and patient-centric care") was deemed not applicable because this is a standard requirement for MTFs, including NiCoE; therefore, refinement of the tool should include

discussion of whether to include measures that are already in MHS-wide standard use. We expect that testing of this tool against other areas of MHS care will provide further opportunities for refinement.

### APPLICABILITY TO OTHER CARE CENTERS

Although results of this study support both the effectiveness of the assessment tool and the performance of NICoE as an IPU, 2 factors should be considered before generalizing to other care centers within or outside of the MHS. The first is that coordination of care at this level is more complex than simply increasing efficiency and communication across an existing network or adhering to a checklist, and the second is that implementation of an IPU should be done in the context of value-based care, rather than pursuing IPU status for its own sake.<sup>19</sup> Although providers may be used to considering themselves part of a care team, true IPU-level coordination is an entirely different paradigm, such as might be trained by an interdisciplinary team of residents assigned to 1 patient, rather than the current model of 1 resident being assigned a caseload of multiple patients.<sup>19</sup> The consideration of value-based care is also significant, as an ideal model would be able to sustain longitudinal efficiency while incentivizing provider teams and passing the cost savings along to patients, which has yet to be realized among IPUs in general.<sup>19</sup> These last 2 ideals are somewhat less applicable in the military-provided direct care sector of the MHS, in which providers are salaried and patients are not charged for services, but are highly relevant to the private sector. Coordinated care centers wishing to organize as IPUs should take both the soft cost of coordination and the full scope of value into account when designing their programs.

The authors suggest that this work could serve as a guideline or impetus for existing coordinated care centers wishing to develop assessment tools of their own. As other assessment tools are not currently available for comparison, development of new tools will help to build the knowledge base for continued development and refinement of these tools and, by extension, lead to improvement in coordinated, patient-centered care.


### LIMITATIONS

This study includes several limitations. First, as a pilot test, the study has not identified all areas for improvement of the IPU tool. Further testing against other care centers, including those that are not expected to meet the criteria, is recommended in order to further refine the tool. Second, the examination of NICoE against the tool included the care provided only at NICoE itself and not at other military facilities or in the civilian sector. The working group engaged in

significant discussion to determine whether the reach of the assessment tool should extend to the Intrepid Spirit Centers or the entire MHS TBI pathway. Such enterprise-wide integration and assessment are well beyond the scope of this study but suggest potential future directions following completion of this study and further refinement of the assessment tool. Third, this study did not assess which elements of the tool correspond with the various clinical outcomes measured by the NICoE's care pathway, either from a value-based or patient health perspective. Further research is needed to answer these questions.

Overall, this tool represents a significant contribution to the literature as the first published adaptation of IPU criteria and assessment of a condition-centered care facility using these criteria. Additionally, although NICoE itself deals with TBI, its sequelae, and comorbidities predominantly among active-duty service members, the criteria and measures in this tool are sufficiently broad so as to be readily adaptable to other conditions and populations.

### CONCLUSIONS

This study's results demonstrated that an IPU assessment tool could be built for the MHS, using the principles of a Patient-Centered Specialty Practice for specific measures, and tested against an existing Center of Excellence. The results demonstrated opportunities to improve the tool as well as to track evolution and improvement of operational processes demonstrated at NICoE. Its measures are broad enough to be tested against other centers of excellence in the MHS, and this testing is recommended to refine the assessment tool. This study represents the first published measure of an IPU assessment tool specifically developed for an existing care center and therefore can inform discussion for other health systems intending to produce similar tools. 

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