

Integrated Primary and Mental Health Care: Evaluating a Nurse-Managed Center for Clients with Serious and Persistent Mental Illness

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Nurse-managed centers have been at the forefront of providing ambulatory care alternatives for underserved populations lacking access to care [1,2]. Providing this care, however, requires reaching the population effectively, assuring informed practice management, and finding solutions to the financial dilemmas in sustaining operations. Typically, the clients served in nurse-managed centers are uninsured or are recipients of Medicaid and Medicare, with additional funding coming from grants, gifts, and in-kind support. Many nurse-managed centers have had to close because of these daunting challenges [3].

Since 1998, the Center for Integrated Health Care (IHC), an academic nurse-managed center of the College of Nursing, University of Illinois at Chicago, has delivered primary and mental health care to a unique and underserved population, clients with serious and persistent mental illness (SPMI) who are enrolled in psychosocial rehabilitation. The authors' experience illustrates the many rewards and the significant challenges that nurse-managed centers face. To evaluate progress, identify future goals, and share the authors' experience

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with others, this article will (1) describe their center's model of integrated care developed for its unique clientele; (2) examine selected performance indicators, including staffing, clinical services, and financing; and (3) discuss implications, opportunities, and challenges ahead.

DEVELOPING A MODEL OF INTEGRATED CARE

Health of people with serious and persistent mental illness

SPMI—such as schizophrenia, bipolar illness, or major depression—is a leading cause of disability [4]. The disability of SPMI is related not only to mental illness, but also to poor physical health. For example, people with SPMI are at higher risk than the general population for hypertension, diabetes, heart problems, and obesity [5,6] and have higher rates of chronic infections such as HIV and hepatitis C [7].

Commonly used psychiatric medications, while efficacious for mental health treatment, can place clients with SPMI at higher risk for obesity, diabetes, and hyperlipidemia [8,9]. Some medications are associated with QT interval prolongation on ECG, movement disorders, or other adverse effects [9]. The health and medication problems now are considered so significant that national consensus conferences are recommending ongoing physical health monitoring in patients receiving antipsychotic drugs [8,9].

Unfortunately, physical health problems in people with SPMI often go undiagnosed and untreated [10]. These unmet health care needs jeopardize successful mental health treatment and are associated with excess and earlier deaths [11]. In part, the poorer health of people with SPMI may be due to cognitive or behavioral factors associated with SPMI or the stigma of SPMI, any of which may make clients unwilling or unable to seek primary care or to receive routine preventive services [10]. But even when clients do want and are willing to use these services, many with SPMI lack access to primary care [12,13].

Integrated care

Because mental health programs are often the only continuing entrée into health care that people with SPMI may have, one solution now being developed is to provide essential primary care services integrated within mental health programs, making them more accessible [14]. This service delivery model can facilitate coordination of comprehensive, high-quality care, reduce medical comorbidities, and prevent excess and earlier deaths [15,16].

Four service delivery models of integrated care recently were studied by the Bazelon Center for Mental Health Law, Washington, DC [15]:

1. Primary care embedded in a program for people with SPMI
2. Unified primary and mental health programs
3. Mental health professionals located in a primary care setting
4. Collaboration between separate mental health and primary care practices.

The authors' nurse-managed IHC fits the first model. Integrated care is the result of primary care services being provided by nurses on site in a psychiatric rehabilitation program [17,18].

The authors' model of integrated care, however, goes beyond just providing primary care on site. Because providers are both primary care and mental health advanced practice nurses, the center's vision is to address together the primary and mental health needs of clients, thereby integrating the care itself. The IHC aims to:

- Integrate concepts, approaches, and processes of mental health nursing into the everyday provision of primary care, particularly those related to therapeutic alliance building and cognitive-behavioral change
- Expand the everyday provision of mental health nursing to incorporate concepts, approaches, and processes of primary care

Based on the Interaction Model of Client Health Behavior [19], the premise of this model is that use of care, adherence to recommended care, and health status will improve when nurses effectively tailor care by providing appropriate health information, responding to each client's affective concerns, and engaging each client's decisional control over health behaviors.

For clients with SPMI, the authors believe that integrating mental health with primary care nursing is the best foundation for effectively tailoring care. The following are examples from the authors' practice:

- A client being seen by the family nurse practitioner (FNP) for her annual breast examination has a phobia about being touched. The FNP enlists the expertise of the psychiatric clinical nurse specialist (PCNS) to support the client while she is being examined. As a result, the breast exam is completed without anxiety on the part of the client. In fact, the client is able to learn breast self-exam and gives a return demonstration to the nurse.
- The PCNS, hearing a client report of fatigue and dizziness, consults with the FNP regarding the symptoms and makes an appropriate referral for follow-up. The PCNS gives knowledgeable attention to the client's physical symptoms and avoids erroneously attributing the symptoms to mental illness, as health care providers often do [15].
- Diabetes self-management is complex and challenging, even for people without SPMI. The cognitive and motivational deficits that often accompany mental illness further complicate effective patient education and evidence-based diabetes care. The FNP and PCNS working together developed a diabetes care flow sheet for the clinics. The flow sheet integrates tracking of the essential requirements of diabetes care with ongoing assessment of stress and lifestyle that can influence glycemic control profoundly [20].

The Center for Integrated Health Care

IHC had its inception in fall of 1997, when psychiatric nursing students in clinical rotations at a community-based mental health agency observed that many of the clients they were seeing had unmet health care needs such as rashes, dental caries, and obesity. Their instructor, Ms. Nancy Burke, consulted with colleagues at the College of Nursing to determine whether nurse practitioner faculty and students could address some of these needs.

The center opened in spring of 1998, operating one-half day per week in a single room in one of the agency's locations and providing physical exams and

episodic care. Through grants from local foundations and collaboration with the agency, funds were raised to expand services and add mental health nursing. The agency remodeled space into clinics at two of their service sites, each with a reception and office area, a laboratory area, and two examination rooms. One clinic was built within the original service site, a vocational rehabilitation program for young- and middle-aged adults with SPMI, and the second clinic was built within an alternative high school for young adults with SPMI. In 2000, hours were expanded at both locations to 4 days per week. In 2002, a third clinic was opened to serve young mothers with mental illness and their babies one-half day per week, and in 2004 services were added 1 day per week at a community health center located near other program sites of the agency.

Center partnerships

Throughout the center's history, collaborations and partnerships have played a vital role. The center's community partner has been Thresholds Psychiatric Rehabilitation Centers, a large psychosocial rehabilitation agency with locations throughout metropolitan Chicago. Primary care services are provided in collaborative practice with the Department of Family Medicine, University of Illinois at Chicago. Mental health nursing services are provided in collaboration with the psychiatrist who is the medical director of Thresholds Psychiatric Rehabilitation Centers. For all visits, both for primary care and mental health services, IHC staff work closely with each client's Thresholds case manager to assure follow-up and assist with resources needed for recommended care. Other partnerships have included the Scholl College of Podiatric Medicine at Finch University, providing on-site free monthly podiatric care; and the Chicago Partnership for Health Promotion, a University of Illinois at Chicago College of Nursing program, providing ongoing nutrition education on site by a registered dietitian funded by the US Department of Agriculture.

EXAMINING PERFORMANCE INDICATORS

Central to assuring informed practice management is tracking key data over time [21]. Thresholds' staff maintains detailed, up-to-date summaries of information about their clients, including psychiatric diagnoses; age, sex, and ethnicity; and marital and employment status. From the IHC employment and billing records, staff have developed an extensive database tracking indicators such as staffing, numbers of visits, numbers of clients, characteristics of services provided, visit diagnoses, and various funded project outcomes.

For this analysis, the authors summarized Thresholds' 2004 demographic data and analyzed selected indicators from the center's most recent staffing and billing data. For staffing, numbers of visits, and numbers of clients served, the authors compared data from 2001 to 2002, 2002 to 2003, and 2003 to 2004, with subanalyses for mental health and primary care staffing. For staffing, the authors used full-time equivalencies (FTE) to facilitate comparisons with other performance analyses of nurse-managed centers. To examine trends, they calculated the number of visits per clinic day and the number of visits per client

per year. As recommended by Vonderheid and colleagues [21], the authors also calculated clients, visits, and support staff level per advanced practice nurse FTE. For characteristics of services provided and visit diagnoses, they analyzed data during the most recent fiscal year, 2003 to 2004. For mental health office visits, the authors examined types of services and identified the 10 most frequent diagnoses. For primary care office visits, they examined the complexity of services (level of visit) and identified the 10 most frequent diagnoses.

Demographics

An overview of Thresholds' data provides a snapshot of the clients served by IHC. In 2004, 48% had schizophrenia; 35% had mood disorder such as bipolar disorder or major depression, and 31% had other SPMIs such as obsessive-compulsive disorder, alone or in combination with schizophrenia or mood disorder. In terms of demographics, 90% of Thresholds' members were between the ages of 20 and 59; 59% were male; 43% were white, and 50% were black. About 5% were living with a spouse or partner, while 72% were single and never married. Only 15% were fully employed, with the rest partially employed or unemployed (personal communication, Thresholds Research Department, April 28, 2005).

Staffing and clinical services

Table 1 displays data for staffing, visits, and clients for fiscal years 2001 to 2002, 2002 to 2003, and 2003 to 2004. Over 80% of the center's FTEs for all 3 years were provided by family nurse practitioners delivering primary care, with the other 16% to 18% of FTEs being psychiatric clinical nurse specialists and a psychiatric nurse practitioner providing mental health care. Reflecting the FTEs, over 80% of visits were for primary care, and the other 10% to 18% were visits for mental health care.

Although total FTEs were similar across the 3 years, the number of unduplicated clients served increased 15% in the first two years (2001 to 2002 and 2002 to 2003) and then declined slightly, from 638 in 2002 to 2003 to 622 in 2003 to 2004. During 2001 to 2002, 40% of the clients seen were new clients. The percentage of new clients declined each year thereafter, from 24.7% in 2002 to 2003 to 20.5% in 2003 to 2004. Similar to trends in clients served, total visits increased 24% from 2001 to 2002 to 2002 to 2003 but increased only 6% in the second and third years (2002 to 2003 and 2003 to 2004). From 2002 to 2003, support staff was added at each clinic site, and this contributed to increased productivity. In the following year, there were no changes in support staffing levels and little change in total visits or visits per clinic day.

Visits per client per year ranged from 6.24 to 7.33 visits across the 3 years. This is approximately twice as many visits per year as the 3.4 visits persons without SPMI make for ambulatory care each year [22] and may reflect the multiple comorbidities of the center's population. Visits per clinic day increased 24% (6.3 to 7.8 visits per day) during the first 2 years (2001 to 2002 and 2002 to 2003) and increased a lesser amount, to 8.3 visits per day, from 2003 to 2004. There was no clinical support staff from 2001 to 2002 (only administrative

Table 1

Integrated Health Care staffing and clinical services for fiscal years 2001–2002, 2002–2003, and 2003–2004

Integrated Health Care (IHC) indicator	2001–2002	2002–2003	2003–2004
Staffing (FTE)			
Mental health (%)	0.5 (17.9)	0.5 (16.1)	0.5 (18.5)
Primary care (%)	2.3 (82.1)	2.6 (83.9)	2.2 (81.5)
Total APN	2.8	3.1	2.7
Support staff	0.8	2.8	2.8
Clients served ^a			
New clients (%)	222 (40)	158 (24.8)	128 (20.6)
Established clients (%)	333 (60)	480 (75.2)	494 (79.4)
Total clients	555	638	622
Visits provided			
Mental health care (%)	351 (10.1)	687 (15.9)	662 (14.5)
Primary care (%)	3113 (89.9)	3625 (84.1)	3896 (85.5)
Total visits	3464	4312	4558
Utilization and performance indicators			
Visits per clinic day ^b	6.3	7.8	8.3
Visits per client per year ^c	6.2	6.8	7.3
Number per total APN FTE			
Support staff	0.3	0.9	1.0
Visits per year	1237.1	1390.9	1688.1
Clients per year	198.2	205.8	230.4

Abbreviations: APN, advanced practice nurse; FTE, full-time equivalent.

Support staff is comprised of clinical (receptionist, registered nurse) and administrative (IHC director) staff.

^aCombines unduplicated mental health care clients and primary care clients.^bCalculated at 400 days of primary care plus 125 days of mental health care provided at two clinic sites plus 50 half days of pediatric care provided at Mother-Baby program for a total of 550 clinic days.^cCombines mental health visits and primary care visits.

support), but 0.6 and 0.7 clinical staff per advance practice nurse (APN) FTE was added in the following 2 years. This likely contributed to the growth in visits per year per APN FTE from 1237.1 visits in the first year (2001 to 2002) to 1688.1 visits in the third year (2003 to 2004), a 36% increase over the 3 years. Clients per year per APN FTE also increased, from 198.2 clients in the first year (2001 to 2002) to 230.4 clients in the third year (2003 to 2004), a 16% increase over the 3 years.

Visit characteristics and diagnoses

Table 2 displays visit characteristics and the top 10 diagnoses during 2003 to 2004 visits. For mental health care, individual psychotherapy visits of 20 to 30 minutes were provided most frequently, accounting for 94% of visits. Similar to Thresholds' demographics, in which 48% of the clients had a diagnosis of schizophrenia and schizo-affective disorder, 51.3% of the mental health visits were related to these same two diagnoses. Mood disorders such as bipolar disorder or depression affected 35% of the agency's clients but were cited less

Table 2

Visit characteristics and diagnoses for mental health care visits and primary care visits, Integrated Health Care fiscal year 2003–2004

Mental health care visits ^a		Primary care visits ^a	
Type of service	%	Level of visit	%
Individual psychotherapy, 20–30 min	94	Level 1	24.8
Individual psychotherapy, 45–50 min	6	Level 2	28.4
		Level 3	32.5
		Level 4	7.0
		Level 5	7.4
Top 10 mental health diagnoses		Top 10 primary care diagnoses	
Schizophrenia	29.9	Diabetes type 2	8.8
Schizoaffective disorder	21.4	Hypertension	8.7
Bipolar disorder	16.5	Obesity	8.4
Substance abuse	15.8	Medication use; high-risk/long-term	7.7
Depression	5.7	Hyperlipidemia	7.6
Generalized anxiety disorder	3.6	Tobacco abuse	6.0
Psychosis	2.3	General medical exam, adult	3.8
Conduct disorder	1.4	Tuberculosis screening	3.2
Obsessive-compulsive disorder	1.4	Immunization, one or more	2.4
Post-traumatic stress disorder	0.8	Counseling, dietary	2.1

^aCombines new and established patients.

often in relation to mental health visits, where 22.2% of the diagnoses were for bipolar disorder or depression.

Primary care office visits classified by level of complexity indicate that low complexity level 1 and 2 visits accounted for slightly over half of all visits from 2003 to 2004, with moderate and higher complexity visits requiring greater decision making accounting for the remainder. The diagnoses cited most frequently reflect this distribution of complexity, with more straightforward provision of immunizations, dietary counseling, screening for tuberculosis, and monitoring of high-risk medication use accounting for 4 of the top 10 diagnoses cited. Four other diagnoses, however, are among the top 20 diagnoses in ambulatory care (hypertension, diabetes, general medical examination, and lipid disorders), and education regarding diet, weight reduction, and tobacco use are among the top 10 services provided in ambulatory care [22].

Financial indicators

IHC has had significant grant funding since opening in 1998, with the Alberto Culver Jump Start Foundation (\$10,000), the Washington Square Foundation (\$38,500), and the Visiting Nurses Association (\$58,267) providing key start-up support for salaries and equipment purchases. In 1999, the College of Nursing was awarded a 5-year \$1.2 million Basic Nurse Education and Practice grant by the US Department of Health and Human Services, Bureau of Health Professions, Division of Nursing (DON), to implement the IHC program. These funds were instrumental in providing the needed staff and management infrastructure as the integrated model of care was developed.

Table 3 displays revenue sources for fiscal years 2001 to 2004 and revenue projections for fiscal years 2004 to 2007. From 2001 to 2002, grant funding, primarily the DON grant, provided 80% of the center's support. Grants continued to provide significant funding, although levels declined to 64% and 44% of total funding during the following 2 years. Clients are insured primarily by Medicaid (70% of clients) and Medicare (27%). As such, insurance revenues have contributed only approximately 20% of total funding per year. Small service contracts for school nursing and medication management contribute another 2% to 3% of funding. As Table 3 indicates, in-kind contributions by both the College of Nursing and Thresholds have provided the critical margin to continue operations, rising to 28% of total funding by 2003 to 2004.

One possible avenue to increase revenue is to pursue enhanced reimbursement for Medicare and Medicaid visits, as would be available under a Bureau of Primary Health Care Federally Qualified Health Center (FQHC) designation. The projections in Table 3 for 2004 to 2007 display this possible scenario.

IMPLICATIONS, OPPORTUNITIES, AND CHALLENGES AHEAD

IHC faces substantial challenges over the next 3 years. Chief among these is financial sustainability, the linchpin of program planning [23]. The services provided must produce enough revenue that services can continue. The stark reality is no margin, no mission [23,24].

The evaluation data reviewed in this article indicate that the center's sustainability is at risk because of several factors well recognized in the literature. The population IHC serves is underinsured [21] (97% Medicaid and Medicare), so that reimbursements only account for 20% of income (see Table 3). Because most Thresholds' clients rely on Medicaid and Medicare, as is commonly the case in people with SPMI, the prospects appear unlikely for IHC to develop

Table 3

Integrated Health Care actual and projected revenue sources by percent of total funding for fiscal years 2001–2007

	Percent of total funding by fiscal year					
	Actual			Projected		
	2001– 2002	2002– 2003	2003– 2004	2004– 2005	2005– 2006	2006– 2007
Grants	80	64	44	67	43	13
Service contracts	0	2	3	2	1	1
Gifts	1	1	6	1	1	1
In-kind*	5	13	28	14	11	11
Medicaid/Medicare						
Standard rate	14	20	19	16	8	0
FQHC rate	N/A	N/A	N/A	N/A	36	74

*In-kind contributions include direct revenue into the program for items such as salary expenses by the university and participating partners. These data do not include fully additional in-kind contributions by both partners for items such as rent and utilities.

diverse revenue sources such as private insurance reimbursements and capitated contracts [21,24–26]. Yet reliance on grant funding places IHC at risk of closure. Since the late 1970s, the US Department of Health and Human Services, Health Resources and Services Administration (HRSA) through DON, Bureau of Health Professions has funded nurse-managed centers to provide care in the community while educating students and providing practice opportunities for faculty [27]. Unfortunately, funding for these programs lasts only 5 years and, as the case of the IHC illustrates, once funding is over, nursing centers find it difficult to generate the needed revenue to keep their doors open. In fact, during the period from 1993 to 2001, 70 nursing centers were funded by HRSA, and 27 (39%) have been forced to close [28].

Community Health Centers (CHCs) and FQHCs are the nation's designated safety net providers [29]. Nurse-managed centers are similar to CHCs and FQHCs in the clients they serve [28], but the safety net they are providing is frequently invisible, leaving them to struggle on their own with reimbursement policies that limit their ability to fulfill their role [30]. For CHCs and FQHCs, the federal government's prospective payment system provides a higher level of reimbursement for Medicaid and Medicare patients, allowing them to recover 89% of costs [28]. The system also makes a capitation payment for each client with no insurance to cover the cost of uninsured care [28].

Although the IHC is too small and would face obstacles as an academic entity in becoming an FQHC itself, partnering with an FQHC could be a viable means to provide for future sustainability. In 2004, IHC partnered with a CHC affiliated with the University of Illinois at Chicago. This is the first step toward fully realizing the potential of FQHC partnership to enable most if not all of encounters to be reimbursed at FQHC rates. As was shown in the Table 3 projections, FQHC reimbursement mechanisms could provide greater than 70% of funding by fiscal year 2006 to 2007 if the necessary partnerships can be made. If successful, IHC would be on its way to financial security. Significant, positive factors operating are that Thresholds is supporting and assisting the IHC in these efforts. The center's unique mission of serving people with SPMI has attracted substantial funding over the years, including the current funding from The Robert Wood Johnson Foundation's Local Initiative Funding Partners Program. This award was made possible because Thresholds raised the required matching funds. It includes FQHC partnership among its goals.

A second area of challenges for IHC lies in improving patient volume, numbers, productivity, and efficiency. Clients with SPMI are certainly resource intensive, and this is another risk factor affecting sustainability [24]. At present, the attainable visit volume for IHC clients appears to be about one visit per hour, and the typical client is making seven visits per year (see Table 1). A more optimal patient mix would include patients needing less frequent preventive or minor episodic care [21], freeing up time for more billable visits.

The growth of the client base also warrants attention. Trends in the total number of clients, the number of new clients, the total number of visits, and visits per clinic day may indicate that the IHC clinic sites were reaching capacity

by 2003 to 2004 given staffing levels, practice efficiencies, patient use patterns, and marketing outreach. As Table 1 indicates, volume was stabilizing at about 4500 visits, 600 clients, and a declining percentage of new clients each year. A significant expansion is underway with the "Doorway to Integrated Health Care" initiative funded by The Robert Wood Johnson Foundation's Local Initiative Funding Partners Program. The main goal of this award is to offer services to all clients of Thresholds from 2004 to 2007, thus expanding IHC's client base and generating more visits.

The visits per client per year (see Table 1) may indicate inappropriate use of care, reflecting the ready accessibility of the IHC clinics within psychosocial treatment programs. Mental health services, however, typically involve multiple visits, as does continuing care of chronic conditions such as hypertension, hyperlipidemia, or diabetes. Because cognitive and motivational deficits typically accompany SMPI, a higher number of visits per client may be needed to manage health goals appropriately. These differing explanations indicate an area for research in the future.

Compared with nurse-managed centers in the Michigan Academic Consortium (MAC) [21], IHC performance indicators (see Table 1) are on the low end of reported ranges. For support staff per APN FTE, the IHC range was 0.3 to 1.0, and the MAC range was 0.65 to 2.48, indicating higher levels of support staff for MAC. For visits per year per APN FTE, the IHC range was 1237.1 to 1688.1, and the MAC range was 1088 to 3917, indicating more visits per APN per year for MAC. For clients per year per APN FTE, the IHC range was 198.2 to 230.4, and the MAC range was 252 to 1479, indicating that MAC APNs had larger panels of patients. None of the MAC centers served clients with SPMI, so these differences may reflect the resource-intensive nature of IHC's practice.

The levels of visits and most frequent primary care diagnoses (see Table 2) indicate areas in which efficiencies could be gained. From 2003 to 2004, level 1 visits comprised almost 25% of visits, and these are visits that could be provided by a registered nurse or assistant rather than an APN. Similarly, in that 4 of the 10 most frequent diagnoses were for straightforward problems such as tuberculosis screening, reconfiguration of clinical staff to provide such services could optimize productivity of APNs to provide more level 3 and 4 visits for higher reimbursements [24]. Increased attention could also be given to appropriate coding of visits to properly reflect the complexities of caring for clients with SPMI and maximize receivables [21,25].

The third area of challenges relates to the IHC mission and model of care. Although it is clear that ensuring sustainability, growing productivity, and increasing efficiencies are vital priorities, providing primary care for people with SPMI is different than it is for people without SPMI. It involves a different set of approaches and competencies the authors believe IHC is uniquely prepared to identify, develop, and disseminate in concert with its community partner. This is the promise of IHC's model of integrated care, and the challenge is to preserve and grow the model while working on performance and sustainability. Thus in pursuing an FQHC affiliation, the authors believe that it is

essential the IHC's voice as a nurse-managed center and that of its community partner be assured. As part of an FQHC affiliation, participation in the oversight of care in addition to providing the care itself would afford ongoing opportunities to further operationalize and rationalize IHC's model of care in the context of a new, three-way partnership between IHC, Thresholds, and an FQHC. If successful, this would provide lasting benefits for IHC clients and others in mental health treatment programs, and it would have applications for behavioral health programs in primary care generally.

This evaluation provides a beginning appraisal of the accomplishments and prospects for IHC's unique model of care. For evaluation to be comprehensive, further analysis is needed of costs and quality and outcomes of care [3,24,25,31,32]. Because providing care for people who have SPMI may have different costs, quality indicators, and outcomes than care in other populations, these evaluations will be important contributions to understanding whether mental health treatment can be improved by providing integrated care and how it can be provided best.

Many people living with SPMI lack access to primary care [12]. By embedding primary care services within a mental health program, individuals with SPMI are able to directly access primary care [15]. The authors believe their model of integrated care will help deliver improved health outcomes for clients with SPMI. If the financial sustainability of IHC can be secured through an FQHC affiliation, developing and testing the model and demonstrating its outcomes through well-designed clinical research will be among the challenges ahead for advancing knowledge about integrated care.

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