



A Comprehensive Geriatric Evaluation Center for High-Need Patients in an Under-Resourced Community

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Abstract

Background: Although Medicare established the annual wellness visit to encourage incorporation of comprehensive geriatric assessment into primary care practice, uptake has been discouraging low and worse for social-economically disadvantaged groups. A comprehensive geriatric assessment clinic, the Comprehensive Health Evaluation Center (HealthCHEC) was established in 2014, collaborating with Senior Care Action Network (SCAN) within an impoverished region in the western United States to address this need.

Design: Pre-post interventional one-arm study design, assessing quality of chronic illness care from member-patients' and primary care providers' (PCPs) perspectives. SETTING: Central California

Participants: English and Spanish-speaking older patients (n=193) attending HealthCHEC and community providers (n=14).

Intervention: Structured nurse practitioner-administered geriatric assessment, problem-specific patient education, and summary with recommendations to respective PCPs.

Measurements: Data sources were medical records and anonymous surveys: 20- item Patient Assessment of Chronic Illness Care (PACIC) and a 7-item quality assessment provider survey.

Results: Abstracted data demonstrated low education (51% less than 12th grade completed) and high chronic condition burden (mean: 7.2 conditions; 31% with diabetes). Most clinic recommendations related to functional issues. For patient surveys (n=165; 19% Spanish), post-visit PACIC domain scores ranged from 4.0-4.5 with more positive post-visit ratings across all domains (1.4 to 1.7 higher; p<0.001 for each). Provider respondents felt HealthCHEC provided useful (50%) and relevant (64%) information, taught them how to provide better care for other patients (64%), while making it easier (50%). Less than one third (29%) felt their experience discouraged them from using the service again.

Conclusion: HealthCHEC is a useful model for geriatric patients with high need. Findings indicate greatly improved member-perceived care quality and provider acceptance for their patients with high chronic condition burden. Continued enhancements will address unmet provider needs.

Keywords: Geriatric assessment; Chronic conditions; Access; Patient satisfaction

Introduction

Improving healthcare for America's aging population remains a challenge given the uneven implementation of effective programs within primary care settings [1-3]. Using geriatric specialists to deliver primary care for an increasingly older age population has fared no better with absent growth in the geriatric work force. Quality gaps persist for managing chronic conditions [4,5], healthcare maintenance (including immunizations and other preventive strategies) [6,7], and the identification and treatment of functional-related disabilities in gait, cognition, mood, hearing, and vision [8]. Moreover, identification of surrogate decision makers and establishing advance care planning remains below guideline-established targets [9,10].

Medicare has attempted to address the need for comprehensive geriatric assessment with the introduction of the Medicare Annual Wellness Visit (AWV). Whereas response to the AWV has been generally low [11], evidence of use in lower income communities has been even less [12]. Among AWV challenges have been a lack of understanding of its benefits for the provider who may have been disinclined to offer it and for the beneficiary who might not be aware of or request it.

Better healthcare for older patients is particularly challenging in a

fee-for-service environment where geriatric assessment lacks financial support for broad implementation and even more so in underserved communities where needs are even greater [13-15]. Centralized staff-model health maintenance organizations or insurance plans focusing on geriatric populations - in particular, Medicare Advantage (MA) plans - may provide a foundation for innovative specialized centers conducting repetitive assessment activities to improve health care quality for the oldest and most frail members of our society.

One such effort comes from the Senior Care Action Network (SCAN) Health Group. SCAN, a not-for-profit MA plan, initiated the Health-Comprehensive Health Evaluation Center (HealthCHEC),

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a geriatric assessment center. HealthCHEC's first-generation clinic provided geriatric consultative services to SCAN members living in San Joaquin County who were otherwise in receipt of non-geriatric primary care. We describe this innovative care model, its inception, and an evaluation of care processes. We focus on implementation challenges, facilitators of and barriers to success.

Materials and Methods

Planning phase

In the MA community, incentives are more tangible. The AWP requires documentation of conditions that impacts the Risk Adjustment Factor [16] and thus increases remuneration that health plans and providers receive for managing complex patients. SCAN recognized an opportunity to improve chronic illness care while optimizing reimbursement. Independent Practice Associations (IPAs), contracted with SCAN, were encouraged to conduct AWP, but low AWP utilization suggested the need for an alternative strategy. Consequently, SCAN partnered with primary care providers (PCPs) to deliver comprehensive evaluations on behalf of PCPs and contracted an independent medical entity – HealthCHEC – to do this in one particularly vulnerable population in the San Joaquin Valley.

Implementation phase

To implement HealthCHEC, SCAN first contacted IPAs through administrative leadership. IPA owners and MD leadership approved the arrangement but did not get “buy-in” from participating PCPs. SCAN recognized that some PCPs were discouraging patients from responding to HealthCHEC invitations. Therefore, in 2014, physician members from SCAN's executive team held meetings with individual and groups of PCPs to present the pros and cons of HealthCHEC. Attendees remarkably embraced the concept and agreed to send letters to their patients advising them to make assessment appointments. SCAN's PCP approach reinforced the philosophy of ‘facilitation without direction’, by providing information and giving up an element of control. Management decisions were left up to PCPs. For SCAN and HealthCHEC this process has been viewed as a critical element in establishing and sustaining trust and collaboration.

Setting

HealthCHEC provided consultative care in Stockton, a city of 307,000 in the San Joaquin Valley of Central California [17]. The population is 43% white, 11% African American and 40% Hispanic or Latino ethnicity. Overall 11.6% of the population is 65 years and older. Stockton filed for bankruptcy in 2012 due to the 2008 economic recession and at that time was ranked as the second most dangerous city in California after Oakland. Stockton is the third least literate city in the United States (US) and in 2010 was tied with Montgomery, Alabama as the most having the highest obesity rate of any US metropolitan area [18]. Other assessments based on SCAN evaluations characterized the region as having poor health literacy, poor compliance with preventive health recommendations, and preventable use of Emergency Department (ED) services in lieu of regular primary care visits.

Intervention

HealthCHEC, a healthcare delivery approach, provided consultation for newly-enrolled or existing SCAN members who were Stockton residents. A SCAN geriatrician trained a nurse practitioner (NP) and two medical assistants in the components and organization of comprehensive geriatric assessment and hired a receptionist to support clerical needs. Clinic operations were from 8 AM to 5 PM on all five

weekdays. The goals HealthCHEC were to provide comprehensive geriatric evaluations, to educate patients and families about geriatric issues, and to provide PCPs with evaluation results and specific treatment recommendations. Comprehensive 90-minute evaluations included a complete history and physical, medication reconciliation, functional assessment including gait and balance, vision, and hearing assessment. A goals-of-care discussion and whether a health care proxy had been established were also part of the structured visit. The NP utilized a proactive structured HealthCHEC assessment, documented all assessments, and then prepared a report of assessment results including pertinent negatives and identified problems with corresponding evidence-based practice recommendations for PCPs in follow-up visits with their respective patients. Prior to the patient leaving HealthCHEC the NP and assistant provided education and discussed resource options to address problems identified from the assessment and others important to the patient. The SCAN geriatrician reviewed all reports for the first six months of operation and then on a per-month subset. The geriatrician visited HealthCHEC monthly for observation, clinic process review, and feedback. Additional feedback occurred on an as-needed basis and the geriatrician was available to the NP and any PCP requesting further consultation.

Evaluation overview

We measured HealthCHEC patient demographics, clinical characteristics, and recommendation types and frequencies provided to pcps. overall, this evaluation focused on whether healthchec provided added value in addressing geriatric-specific issues. We sought to measure:

1. The number of healthchec-detected geriatric conditions.
2. The type and frequency of recommendations and interventions provided at the time of consultative visit and
3. How well healthchec addressed the needs of patients and pcps through surveying both groups.

Data collection and analysis

Two medically-trained staff conducted medical record abstractions from PDFs of typed paper copies for all patients who received HealthCHEC assessments during the last quarter of 2014. Interrater reliability was measured to determine the level of agreement between the two raters. A simple percent agreement was calculated. Abstracted data included quantification of completed geriatric-specific assessments (e.g., hearing, vision, gait, cognition, goals of care), identified problems by type (e.g., gait impairment, cognitive impairment, and hearing loss), and a tabulation of consult recommendations to PCPs.

To measure satisfaction with HealthCHEC, we collected patient and provider perspectives of the center. We administered surveys to patients who attended HealthCHEC over a three-month period in 2015. Survey assessments utilized the 20-item Patient Assessment of Chronic Illness Care (PACIC) adapted to an 8th grade reading level [19]. The PACIC is a brief, validated patient self-report instrument to assess the extent to which patients with chronic illness receive care that aligns with the Chronic Care Model, and is patient-centered, proactive, and planned and includes collaborative goal setting, problem-solving, and follow-up support activities. We analyzed survey data comparing baseline responses provided at the first HealthCHEC visit and follow-up responses after completion of that same visit. We stratified survey results based on whether the visit was for a new assessment versus follow-up, typically one year after the first visit. A convenience sample of providers, having multiple patients who attended HealthCHEC

during that year, were offered an anonymous 7-item survey to provide their appraisal of HealthCHEC.

Results

At the time of evaluation, HealthCHEC was completing five 90-minute assessments per day. Fewer than expected visits were due to several weeks of closure with staffing changes. Of 193 SCAN members attending HealthCHEC during the last quarter of 2014, 59% were women and the mean age was 70 years (Table 1). Forty-nine percent (n=94) were high school (21%) or college graduates and 43.5% were married or living with a significant other. Only four of 193 had identified a caregiver while 14.5% were themselves caregivers. Self-reported conditions are also shown in Table 1. Most common self-reported conditions included high blood pressure (70%; n=135), elevated cholesterol (65%; n=125), osteoarthritis (49%; n=94), cataracts (47%;

n=91), heartburn (45%; n=86), diabetes (31%; n=60), and constipation (31%; n=59). Seventeen percent reported symptoms of anxiety (n=33) and 45% of HealthCHEC attendees had eight or more self-reported health conditions (mean=7.2; standard deviation (SD)=3.3).

Based on in-clinic audiometry (bilateral loss in the 2000 or 4000 Hz frequencies at 40 Decibels), 41% (n=77 of 188) of HealthCHEC patients tested positive for bilateral hearing loss. Of these, only 36% (n=28) had a diagnosis of hearing loss or use of a hearing aid but only four with a pre-visit diagnosis of hearing loss had a normal hearing test (p<0.001). Self-reported hearing difficulty (n=58 of 185) was less prevalent than measured impairment but 66% (n=51 of 77) of those who demonstrated bilateral hearing loss reported having difficulty hearing before testing (p<0.001).

Using a 20-second conservative cutpoint for the Timed up and Go (TUG) gait assessment [20,21], 13% (n=23 of 177 patients) met criteria for an abnormal TUG (Table 2). Based on self-report (n=186), 5% (n=10) reported difficulty getting from bed to chair, 31% (n=57) reported having had a fall in the past year, 48% (n=90) reported fear of falling, and 32% (n=60) were using a walking aid. For those having any of these four self-reported conditions, 65% percent (n=120 of 186) had some form of gait impairment. Notably, an affirmative response to the question of fear of falling (n=92) captured over three fourths of patients with any self-reported gait condition.

Whereas gait impairment was the most common self-reported condition, a large proportion (30%, n=57) reported incontinence as well (Table 2). Thirty-nine patients (20%) reported pain levels of 5 or higher using a range of 0-10; 11 (5.7%) reported a maximal pain level of 10. Using the Patient Health Questionnaire-9 (PHQ-9) for 151 of 193 patients [22], 9% (n=14) had moderate to severe levels of depressed mood. Using a drop in systolic blood pressure (BP) of 20 or more points comparing sitting to standing BPs, only 5 patients (3% of 187) had data supportive of orthostatic hypotension.

Of 193 SCAN members using HealthCHEC, only 29% (n=55) had an identified healthcare proxy and 30% had established advance directives. Table 2 also includes the details of functional and cognitive assessment. Whereas incontinence was the most commonly impaired activity of daily living (ADL) (30%; n= 57), 13% (n=25) needed assistance with bathing. The mean number of impaired ADLs was 0.5 (SD=0.9). Over 8% had two or more ADL impairments. As expected, instrumental activity of daily living (IADL) impairment was more common (mean=1.2; SD=2) impaired IADL functions per SCAN member; 25% needed help with two or more IADLs. Over 30% (n=63) had reported difficulty with driving and 27% (n=52) reported difficulty with getting places; 22% (n=42) had difficulty with housework and/or shopping. Cognitive assessment utilizing the Mini-Cog™ identified 26% (n=51) with impaired scores (<3) within a range of 0-5 exceeding self or proxy-reported memory impairment (13%, n=25) or a diagnosis of Alzheimer's disease (n=1).

Recommendations and interventions for cognitive, functional and medical conditions

Recommendations included any item suggested to the PCP while interventions included specific discussions (e.g., goals of care), directives to patients regarding self-management, education, counseling, or referrals. For cognitive issues there were 284 recommendations and 290 interventions, whereas there were 64 recommendations and 468 interventions for functional issues (Table 3). These actions reflect the frequency of related diagnoses and care needs. Surprisingly, referral to physical therapy (PT) (25.7%) or PT at home (6.8%) was relatively

Characteristics	
Age (mean, SD)	70.2 (9.2)
Female (n, %)	114 (59.1)
Education – Completed Level (n=192, %)	
Less than 8th grade	57 (29.5)
Some high school	41 (21.2)
High school graduate	41 (21.2)
College graduate	53 (27.5)
Marital status (n, %)	
Widowed	49 (25.4)
Married/Living with significant other	84 (43.5)
Divorced/Separated	36 (18.7)
Single/Never married	24 (12.4)
Has a caregiver (n, %)	4 (2.1)
Relationship to caregiver (n=3, %)	
Child	1 (0.5)
Friend	1 (0.5)
Other	1 (0.5)
Employs someone for healthcare/help	24 (12.4)
If yes, sufficient for needs (n=9, %)	8 (33.3)
Receives help from family members/friends (n =189, %)	30 (15.5)
If yes, sufficient for needs (n=5, %)	5 (.17)
Is a caregiver (n, %)	28 (14.5)
Currently smokes (n=96, %)	32 (33.3)
Daily alcohol consumption (n, %)	10 (5.2)
Conditions (n, %)	
High blood pressure	135 (69.9)
Elevated cholesterol	125 (64.8)
Osteoarthritis	94 (48.7)
Cataracts	91 (47.2)
Heartburn	86 (44.6)
Diabetes	60 (31.1)
Constipation	59 (30.6)
Back pain	40 (20.7)
Angina	38 (19.7)
Anxiety	33 (17.1)
Hearing loss/hearing aid	33 (17.1)
Anemia	32 (16.6)
Hernia	28 (14.5)
Hemorrhoids	28 (14.5)
> 8 health conditions	86 (44.6)
Number of conditions (mean, SD)	7.2 (3.3)

Table 1: Demographics and self-reported conditions (n=193).

Measured Conditions	n (%)
Hearing loss ^a (n=188)	77 (41.0)
Visual Impairment (NOS)	96 (49.7)
Gait Impairment ^b (n=186)	120 (64.5)
Timed up and go (TUG) > 20 seconds (n=177)	23 (13.0)
Pain^c	
No pain	127 (65.8)
Greater than level 4	39 (20.2)
Level 10	11 (5.7)
Depression^d (n=151)	
Minimal (1-4)	130 (67.4)
Mild (5-9)	7 (3.6)
Moderate (10-14)	5 (2.6)
Moderate Severe (15-19)	7 (3.6)
Severe (20-27)	2 (1)
ADL – Difficulty	
Feeding	2 (1)
Bed to Chair	11 (5.7)
Dressing	19 (9.8)
Use of Toilet	10 (5.2)
Bathing	25 (13)
Continence	57 (29.5)
Needing help with > 2 functions	16 (8.3)
Number of impaired functions; mean (SD) ^e	0.5 (0.9)
IADL – Difficulty	
Use of telephone	8 (4.1)
Taking medicine	15 (17.8)
Preparing meals	35 (18.1)
Managing money	31 (16.1)
Shopping for groceries	42 (21.8)
Driving	63 (32.6)
Trouble getting places	52 (26.9)
Needing help with > 2 functions	48 (24.9)
Number of impaired functions; mean (SD)	1.2 (2)
Orthostatic hypotension ^f (n=187)	5 (2.7)
Cognitive impairment ^g (n=192)	51 (26.4)

^aHearing loss defined as undetected sounds using decibel meter of either 2000hz, 4000hz or both frequencies in both ears.
^bGait impairment defined as any of the following: self reported deficits in transfers from bed to chair, fear of falling, prior fall in past year, and use of walking aid.
^cMeasured on scale of 0-10 with 10=worst pain.
^dPatient Health Questionnaire (PHQ-9) 9-items with range of 0-3 reflecting symptom frequency.
^eStandard Deviation.
^fIncrease in systolic blood pressure of at least 20 points from sitting to standing.
^gMini-CogTM (3-item recall=3 points; clock draw=2 points: 0-5 points, <3 points=Impaired.

Table 2: Measured geriatric conditions (n=193).

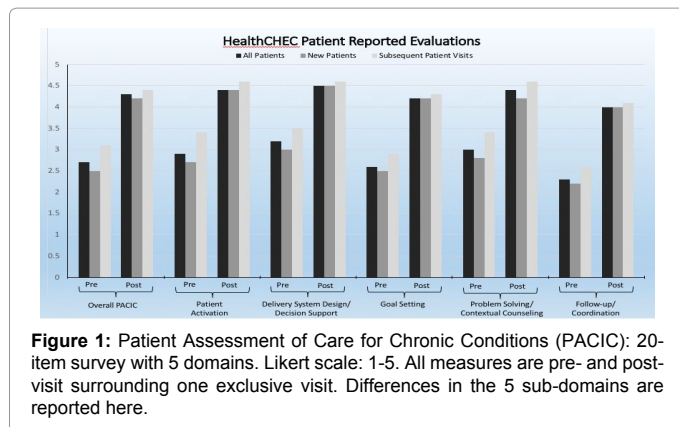
infrequent given that gait impairment was identified in almost two thirds of those who visited HealthCHEC. The frequency of education provided for incontinence (27% of all coded interventions) was proportionally similar to reported prevalence. The most frequent educational intervention was for exercise (n=421, 18.8%). By intention, the HealthCHEC infrequently made medication changes in deference to the role of the PCP and consultative nature of HealthCHEC’s clinical role. The level of agreement between the two medical record raters was 100%. These data were counts and not left up to individual rater interpretations.

Member satisfaction: Of 165 member PACIC surveys completed in 2015, new members comprised 67% of this sample (n=110); all others were follow-up visits (typically one year after initial visit). Eighty-one

Cognitive-Based	
Recommendations	n (%) ^b
Monitor self-care, mood, behavior	81 (28.2)
Follow up advance directives	64 (22.2)
Reevaluate cognition	47 (16.4)
Neurology evaluation	23 (8.0)
Establish healthcare proxy	20 (7.0)
Retest PHQ-9	12 (4.2)
Add medication for depression	11 (3.8)
Interventions	
Education about Memory	72 (21.2)
Provide Advance Directives – Five Wishes	64 (18.8)
Provide Advance Directives - POLST	62 (18.2)
Education about Depression	54 (15.9)
Continue Medications	11 (3.2)
Refer to Alzheimer’s Association	10 (2.9)
Defer care to Primary Care Physician	9 (2.6)
Refer for Case Management	8 (2.4)
Functional-Based ^a	
Recommendations	n (%) ^a
Otolaryngology referral	29 (39.1)
Physical therapy referral	19 (25.7)
Home physical therapy referral	5 (6.8)
Repeat vision (Snellen) evaluation	5 (6.8)
Ophthalmology referral	4 (5.4)
Medication discontinuation	2 (2.7)
Interventions	
Education urinary incontinence	132 (27.0)
Provide incontinence supplies	4 (5.4)
Referral case management	92 (18.8)
Education safety	79 (16.2)
Counseling ophthalmology appointment	70 (14.3)
Education about supplies for hearing	33 (6.7)
Defer to ophthalmology	31 (6.4)
Referral physical therapy	16 (3.3)
Defer care to primary care provider	6 (1.2)
Counseling hearing care	5 (1.0)
Medical-Based ^a	
Recommendations	n (%) ^h
Laboratory evaluation (related conditions)	206 (26.6)
DEXA (osteoporosis evaluation) Scan	96 (12.4)
Medication addition for osteoporosis	73 (9.4)
Medication additions (other)	60 (7.7)
Medication deletions (other)	49 (6.3)
Medication addition for Vitamin D deficiency	21 (2.7)
Medication deletion for high risk medications	16 (2.1)
Diagnostic investigation (COPD)	14 (1.8)
Medication addition for constipation	13 (1.7)
Interventions	
Education on exercise	421 (18.8)
Education on diet	416 (18.6)
Education on BP	161 (7.2)
Education on weight	129 (5.8)
Medication continuation	127 (5.7)
Education on cholesterol	111 (5.0)
Defer to primary care provider	98 (4.4)
Education tobacco	72 (3.2)
Education diabetes	71 (3.2)

^a Highest occurring code
^b % of total codes: n=287
^c n=340
^d Highest occurring codes
^e % of total codes: n=74
^f n=489
^g Highest occurring codes
^h % of total codes: n=775
ⁱ n=2239

Table 3: Recommendations/Interventions ^a.



percent of surveys were in English with the remainder in Spanish. Patients completed most surveys without help from family (75% pre-visit; 76% post-visit). For four of five survey areas, Cronbach's alpha was 0.92 to 0.80, but one question, "I was satisfied that my care was well organized," lowered this measure for those questions covering delivery system design/decision support (alpha range: 0.69 and 0.60). Using a likert scale of 1 to 5 (1=none of the time; 5=always), members provided better ratings across all five domains with pre-visit to post-visit improvement of 1.4 to 1.7 ($p < 0.001$ for all). The initial PACIC overall score had an overall mean of 2.7 (SD: 1.2). Follow-up PACIC improved to 4.3 (SD: 0.9); $p < 0.001$. New patient satisfaction scores were consistently higher than those for returning patients (Figure 1).

Provider satisfaction: Fourteen of 20 providers who had patients seen at HealthCHEC provided survey responses. Using a 7-item survey with a 5-level likert ranging from "strongly disagree" to "strongly agree", providers agreed or strongly agreed that the AC provided useful information (50%), taught them how to provide better care (64%), provided information that was relevant to their patient's care (64%), and made it easier for them to provide care to their other patients (50%). Less than 30% of PCPs provided negative ("disagree" or "strongly disagree") responses.

Discussion

These data representing 193 individuals attending HealthCHEC indicate a unique demographic with considerable chronic disease burden. This population included slightly more women – 59% compared to 56% in 2013 US data [23]. Over half (57%) of older Americans live with their spouse compared to less than 44% in this evaluation. The HealthCHEC population was considerably less well educated with only 49% having at least a high school diploma compared to 84% of older Americans in 2014 [1,24].

Comorbid conditions of high blood pressure and osteoarthritis, measured at 70% and 49% respectively, were near identical to the general US population; however, diabetes (31%) prevalence was considerably

higher than the overall US prevalence of 21% [25]. The overall level of chronic disease for this population was quite high with a mean of 7.2 chronic conditions and 45% having 8 or more self-reported health conditions. As expected with a high rate of chronic disease, functional disability was similarly high with almost two thirds having some aspect of gait impairment and almost all having some level of hearing impairment. That only a little more than one quarter self-reported any hearing loss underscores the value of ambulatory assessment in identifying important unrecognized conditions. Cognitive and IADL impairment prevalence was consistent with other community-based samples [26]. High rates of difficulty with driving and getting places raises concern for access to care, especially in an environment lacking an effective public transportation system.

HealthCHEC participants consistently reported positive improvement in satisfaction relative to their HealthCHEC experience. This supports the belief that implementing the HealthCHEC delivery approach into the healthcare continuum support care that is meaningful to patients and meets many of their geriatric needs. While patient enthusiasm for their clinical experience was evident, provider satisfaction was not as strong. Although the patient sample was large enough to be representative (n=165), the provider sample was much smaller (n=14) even as a proportion of the larger provider network and our findings may not reflect general provider sentiments about HealthCHEC. Overall, more providers were positive about the utility of HealthCHEC than those who were not.

Conclusion

The creation of HealthCHEC is a response to the absence of specialized geriatric care in the management of older patients with chronic comorbid conditions. The evaluation of this center has enabled us to highlight a geriatric population with extensive chronic disease burden and functional disability. The proactive identification of new problems and potentially unaddressed prior problems by an NP and supported by a geriatrician, offers the opportunity to intervene with evidence-based practice recommendations and treatments that result in improved quality of care and anticipated health benefits. Evaluation also enables HealthCHEC leadership to identify clinical care processes that (1) may be inconsistent across patients or (2) may over or under identify problems requiring clinical examination. This process evaluation, including the experience of those exposed to HealthCHEC, sheds light on modifying processes and protocols to improve quality. Finally, these data equip HealthCHEC leadership with new ideas to enhance clinical care, increase efficiency, and ensure ongoing monitoring for continuous quality improvement. Financial assessment, while beyond the scope of this evaluation, must be conducted within the context of the larger costs and revenues of the organization and as such, financial data will have different ramifications for different healthcare structures. Ongoing dissemination to other regions served by SCAN will continue to offer a model for geriatric assessment clinics that provide a model for managed care insurance plans worth considering.

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Sponsor's Role

The sponsor, SCAN Health Plan, played no role in the design, methods, subject recruitment, data collections, analysis and preparation of paper.

Conflict of Interest

Dr. Osterweil and Dr. Batra are employees of SCAN but played no role in data collection or its analysis. The other authors have no actual or potential financial or personal conflicts.

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