

# Strengthening Information Capture in Rehabilitation Discharge Summaries: An Application of the Siebens Domain Management Model

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**Objective:** To increase relevant information capture in inpatient rehabilitation discharge summaries.

**Design:** In July 2008, the Siebens Domain Management Model (SDMM) was incorporated into discharge summaries. This model organizes patients' health-related issues into 4 domains: I. Medical/Surgical Issues, II. Mental Status/Emotions/Coping, III. Physical Function, and IV. Living Environment (© Hilary C. Siebens MD 2005). Discharge summary content was measured through retrospective chart review.

**Setting:** An inpatient rehabilitation unit affiliated with a physical medicine and rehabilitation residency program.

**Participants:** Forty cases with discharge summaries: 20 traditional reports (historic controls) and 20 SDMM reports after model introduction randomly chosen from residents' final inpatient rotation week.

**Methods:** A documentation review form included 36 items that covered the 4 SDMM domains and assessed item presence in reports. The Global score and 4 Domain scores per each patient report were calculated to reflect the percentage of items present in the entire report and each domain, respectively. Descriptive statistics for these scores were generated and compared between traditional and SDMM reports by using a 2-group *t*-test.

**Main Outcome Measurements:** Global scores and Domain scores.

**Results:** Global scores increased from 34% to 53% of items present in traditional versus SDMM reports respectively ( $P < .001$ ); Domain Scores also increased in domains I (81% to 92%,  $P = .047$ ), II (9% to 47%,  $P < .001$ ), III (25% to 34%,  $P = .062$ ), and IV (11% to 33%,  $P < .001$ ).

**Conclusion:** Traditional rehabilitation discharge summaries lacked information relevant to rehabilitation care. Information capture and total relevant report content increased significantly after SDMM integration into reports.

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## INTRODUCTION

The Siebens Domain Management Model (SDMM) is a practical framework to structure rehabilitation discharge summaries. This model is designed for integration into clinical processes, for example, physician documentation [1-3]. The framework is easily learned and organizes patients' health-related strengths, problems, and issues into 4 standard domains. Each domain has several subdomains that may be relevant in patient evaluation and/or management at particular points in time (Table 1). This framework can help overcome some of the current-day challenges in health care, including patient complexity, communication of care during care transitions, and multiplicity of providers [4-7]. Its structure reminds clinicians of areas to consider during hectic clinical care. Actual issues addressed are determined by the clinicians themselves, based on their own expertise, the care setting, and patients' conditions. By using this standard structure, clinicians have guidance on the type of relevant information to include in summarizing their care of a

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**Table 1.** *The Siebens Domain Management Model\**


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I. Medical/surgical issues
Symptoms, diseases, prevention
II. Mental status/emotions/coping
Cognition (preceded by communication if any issues)
Emotions
Coping/behavioral symptoms
Spirituality
Patient preferences: advance directives
III. Physical function
Basic activities of daily living
Intermediate activities of daily living
Advanced activities of daily living
IV. Living environment
A. Physical
B. Social
C. Financial and Community Resources

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patient. This is especially germane in interdisciplinary specialty fields, for example, physical medicine and rehabilitation (PM&R). Rehabilitation covers a range of issues in addition to traditional medical management. Multiple disciplines participate, information is distributed in numerous clinical notes, and yet no standard documentation format beyond the traditional format taught in medical schools is currently used or taught in PM&R residency programs.

The information in inpatient rehabilitation discharge summaries is especially important. Given that a hospitalization is a major life-changing event for many patients, a thoughtful transition to home or the next care site ideally includes a discharge summary that briefly and comprehensively covers multiple issues. Without the use of a standardized structure, critical information may be difficult to find or may be omitted completely. Through consistent use, the SDMM can improve the efficiency of information capture. For example, after discharge, the next care setting may miss an important detail or may inefficiently recollect data, a process onerous for the patient and provider alike. In urgent situations, helpful, even critical, information may be hard to locate in settings with a paucity of data (paper records, if available) or voluminous data (electronic medical records).

Results of the work done to date suggest that greater use of the SDMM would be helpful. Its face validity is supported through its inclusion in peer-reviewed medical publications and in clinically related projects, and its use early in adopting clinical sites [8-16]. Preliminary work in 1 PM&R residency program's inpatient unit was positively received by the attending physicians and the residents [17,18]. The model is consistent with 2 theoretical health models: (1) the Engel biopsychosocial model, which emphasizes the roles of psychological and social factors in human illness [19, 20]; and (2) the Stineman biopsychosocial-ecological model, which views health and disability through considerations of patients' in-

ternal and external life spaces [21-24]. The SDMM is also consistent with the comprehensive International Classification of Functioning, Disability, and Health and applies International Classification of Functioning, Disability, and Health principles to day-to-day patient care [25]. The framework complements the subjective, objective, assessment, and plan (SOAP) note documentation process [26,27]. In these notes, the subjective and objective sections include the data collected about a patient. The assessment and plan reflect physician decision making by listing the problems identified and their management plans. The SDMM provides a framework to systematically organize these assessment and plan sections of comprehensive reports and "hospital course" sections of discharge summaries. This is accomplished, in part, through the use of the 4 domain headings, with a brief discussion of relevant issues in each domain. The process facilitates efficient, yet comprehensive, documentation of patients' medical, psychological, and functional issues as well as contextual features, such as patients' physical and social environments.

Starting in July 2008, the inpatient rehabilitation attending physician (A.J.D.) at the West Los Angeles VA Medical Center, a facility with a comprehensive electronic medical record system, incorporated the SDMM into discharge templates in collaboration with its creator (H.C.S.). The residents were offered this template along with printed materials about the model and communication in clinical care. We questioned whether the content of documentation was improved by using this approach because prior presentations about SDMM implementations did not include quantitative data [17,28]. Therefore, we addressed 2 hypotheses: (1) that conventional inpatient discharge summaries do not adequately communicate important aspects of rehabilitation care; and (2) that the use of the SDMM would improve organization and documentation of rehabilitation care through the increased capture of relevant care items.

## METHODS

The study design was approved by the VA Greater Los Angeles Institutional Review Board. The study site was an inpatient rehabilitation unit that serves adult veterans. The measurement of the inpatient rehabilitation discharge summary content was evaluated by using retrospective chart review. These reports were written by second-year (postgraduate year 2) residents, with the attending physicians making minor corrections as needed before signing off on the summaries. Starting in mid 2009, discharge summaries were chosen at random from the final week of residents' inpatient rotation (week 6). Twenty traditional reports (historic controls) from July 2007 through June 2008 and 20 SDMM discharge summaries from July 2008 through March 2009 after the introduction of the model were scored by either a research resident or a research

**Strengthening Physician Communication using the Siebens Domain Management Model (SDMM) – Level II Version 1 Rehabilitation Documentation Review Form For PM&R Project page 1 (Version 2.1)**

Subject Number: \_\_\_\_\_ Reviewer: \_\_\_\_\_ Date: \_\_\_\_\_

Identification and Summary of Clinical Problems			
	Yes	No	N/A*
<b>I. Medical/Surgical Issues</b>			
1. Primary diagnosis - _____			
Etiology	1	<input type="checkbox"/>	<input type="checkbox"/>
Treatment	2	<input type="checkbox"/>	<input type="checkbox"/>
Risk Factors			
Medical	3	<input type="checkbox"/>	<input type="checkbox"/>
Lifestyle (social habits, activity levels, etc)	4	<input type="checkbox"/>	<input type="checkbox"/>
2. Other medical/surgical issues (pertinent ones listed, status reported)			
Comorbidities (in PMHx, mentioned with medication lists, etc)	5	<input type="checkbox"/>	<input type="checkbox"/>
New medical problems during rehab inpatient stay (include brief explanations for any new meds, why any admit meds stopped)	6	<input type="checkbox"/>	<input type="checkbox"/>
Reason for any remaining medications	7	<input type="checkbox"/>	<input type="checkbox"/>
3. Prevention/prophylaxis of any other relevant disease/conditions or potential complication			
<b>II. Mental Status/Emotions/Coping</b>			
1. Cognition – mention of cognitive status, communication issues	9	<input type="checkbox"/>	<input type="checkbox"/>
2. Emotions – mention of emotional status (pertinent negatives ie absence of depression, anxiety)	10	<input type="checkbox"/>	<input type="checkbox"/>
3. Coping – mention of patient behaviors, adjustment to crisis of any 11 new disability (such as learning, asking questions, cooperation with staff, realistic discharge planning)		<input type="checkbox"/>	<input type="checkbox"/>
4. Mention of patient’s preferences - specific concerns, goals	12	<input type="checkbox"/>	<input type="checkbox"/>
5. Advance Directive – any mention of patient’s medical power of attorney & medical directive (DNR, DNI, DNH(do not hospitalize), etc.)			
Health Care Agent/Power of Attorney for Health Care	13	<input type="checkbox"/>	<input type="checkbox"/>
Medical Directive	14	<input type="checkbox"/>	<input type="checkbox"/>
*N/A – Not Applicable	<b>Subtotal (sum of Yes + N/A’s) (max = 14)</b>		

**Strengthening Physician Communication using the Siebens Domain Management Model (SDMM) – Level II Version 1 Rehabilitation Documentation Review Form For PM&R Project page 2 (Version 2.1)**

Identification and Summary of Clinical Problems			
	Yes	No	N/A
<b>III. Physical Function (Activities and Participation)</b>			
A. Basic ADLs – status of self-care; if problems, who is to help	15	<input type="checkbox"/>	<input type="checkbox"/>
B. Intermediate/Instrumental ADLs – mention of any issues with medication management, shopping, etc. and if help needed, by whom	16	<input type="checkbox"/>	<input type="checkbox"/>
C. Advanced ADLs			
Enjoyable activities, hobbies (avocation)	17	<input type="checkbox"/>	<input type="checkbox"/>
Return to productive work, volunteering (vocation), etc	18	<input type="checkbox"/>	<input type="checkbox"/>
Resumption of social/family/religious roles or activities	19	<input type="checkbox"/>	<input type="checkbox"/>
Physical Activity/exercise	20	<input type="checkbox"/>	<input type="checkbox"/>
D. Mobility – home (bed transfers, walking)			
In Local Community	21	<input type="checkbox"/>	<input type="checkbox"/>
Driving	22	<input type="checkbox"/>	<input type="checkbox"/>
Driving	23	<input type="checkbox"/>	<input type="checkbox"/>
<b>IV. Living Environment</b>			
A. Physical (home, community)			
Physical type of home	24	<input type="checkbox"/>	<input type="checkbox"/>
Home evaluation	25	<input type="checkbox"/>	<input type="checkbox"/>
B. Social			
Identification of social support (significant others/family/friends)	26	<input type="checkbox"/>	<input type="checkbox"/>
Mention of family (s.o., friends) coping	27	<input type="checkbox"/>	<input type="checkbox"/>
Family training in home care	28	<input type="checkbox"/>	<input type="checkbox"/>
Family training in community visit	29	<input type="checkbox"/>	<input type="checkbox"/>
C. Financial and Community Resources			
Mention if personal financial concerns or not	30	<input type="checkbox"/>	<input type="checkbox"/>
Status of health insurance	31	<input type="checkbox"/>	<input type="checkbox"/>
Ability to pay for medications	32	<input type="checkbox"/>	<input type="checkbox"/>
Other community resources offered	33	<input type="checkbox"/>	<input type="checkbox"/>
<b>Follow-up Processes</b>			
PCP identified, cc’ed on Dictations	34	<input type="checkbox"/>	<input type="checkbox"/>
Mention of phone conversation with PCP	35	<input type="checkbox"/>	<input type="checkbox"/>
Identification of Other Referred Services(Outpatient Rehab, MDs, etc)	36	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subtotal page 2 (sum of Yes + N/A’s) (max 22)</b>			
<b>Subtotal page 1</b>			
<b>Total Score percent: Score / 36 x 100 = _____ % Total Score</b>			



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**Figure 1.** The Siebens Domain Management Model documentation review form.

attending physician. A total of 4 different scorers (W.K., B.C., E.Y.C., H.S.K.), all authors, scored reports. Each report was scored by only one scorer. Reports by residents who participated in the research project were excluded.

Each report was scored by using a form with 36 items, the SDMM Documentation Review Form (Figure 1) (Siebens Patient Care Communications). The items were distributed over the 4 SDMM subdomains (8 in Domain I, 6 in Domain II, 9 in Domain III, and 10 in Domain IV) and 3 process items that relate to care continuity. The form’s items or topics were based on clinical experience, literature review, and feedback from physiatrists who had used the form to evaluate their own work. The project’s attending physiatrists concurred that the items were appropriate to include in discharge summaries. Scoring was based on whether or not topics were addressed. The items were scored as present, absent, or not applicable. Scoring rules for each item were established through iterative report scoring and adjustment of scoring rules among 5 raters until there was consensus on the scoring

rules. How the items were addressed clinically was not assessed.

**Data Analysis**

First, the degree of agreement (interrater reliability or  $\kappa$  value) for each SDMM item (multicategory by the multiple raters) was estimated and tested by using the Fleiss multirater method [29,30]. The average  $\kappa$  value per domain and overall (36 items) were also estimated. Second, for each of the 40 reports (20 traditional and 20 SDMM reports), the individual Domain Score was calculated as the percentage of items present in that domain by summing across all items, dividing by the total number of items in that domain, and multiplying by 100. Similarly, a Global Score was calculated as the percentage of items present across all 36 items. “Not applicable” was treated as a missing response for the purpose of analysis. Descriptive statistics (mean [standard deviation]) for each of the 5 scores (1 Global and 4 Domain Scores) were

generated and compared between the traditional and SDMM groups by using a 2-group *t*-test. All statistical analyses were carried out with the SAS System for Windows (Version 9.2) (SAS Institute Inc, Cary, NC).

## RESULTS

### Interrater Reliability for Scoring Form

The interrater reliability when using the Fleiss multirater  $\kappa$  statistic identified 8 of the 36 SDMM items (2 in each of the 4 domains) as having a good to excellent level of agreement ( $\kappa > 0.67$ ;  $P < .001$ ) [30]. The average  $\kappa$  value for 2 of the 4 domains, the medical and mental domains, was 0.40, which indicates moderate reliability.

### Case Demographics

Twenty traditional report (historic control) cases and 20 SDMM report (after SDMM implementation) cases each included 1 woman and 19 men. The traditional and SDMM cases' diagnostic groups were similar: 75% and 80% orthopedic, respectively; 15% neurologic in each; and 10% and 5% complex medical, respectively. Due to the de-identification process, age data were unavailable. However, all the subjects were veterans and therefore adults.

### Global and Domain Scores

An improvement in the overall information captured was observed (mean Global Score, 34% to 53% for traditional vs. SDMM, respectively;  $P < .001$ ) (Table 2). The amount of information captured for each domain increased from the traditional versus SDMM reports in Domain I (81% to 92%,  $P = .041$ ), Domain II (9% to 47%,  $P < .001$ ), Domain III (25% to 34%,  $P = .062$ ), and Domain IV (11% to 33%,  $P < .001$ ), respectively.

### Individual Item Results

The average percentages of items present for each individual item are given in Table 3. In Domain I, the 1 item that showed a significant change between the traditional reports and the

**Table 3.** Percentage of individual items in traditional and SDMM reports

Items*	Traditional Reports, % items present (N = 20) <sup>†</sup>	SDMM Reports, % items present (N = 20)
Domain I		
1 Etiology	75	90
2 Treatment	90	100
3 Medical risk factors	82	89
4 Lifestyle <sup>‡</sup>	29	72
5 Comorbidities	95	100
6 New medical problems	74	88
7 Reasons for medications	90	100
8 Prevention	95	90
Domain II		
9 Cognition <sup>‡</sup>	35	80
10 Emotions <sup>‡</sup>	15	60
11 Coping <sup>‡</sup>	5	45
12 Patient preferences <sup>‡</sup>	5	50
13 Power of attorney	5	15
14 Medical directive <sup>‡</sup>	5	30
Domain III		
15 Basic ADL	95	100
16 Intermediate ADL <sup>‡</sup>	5	35
17 Enjoyable activities	5	10
18 Return to work	0	11
19 Social role	10	16
20 Physical activity	5	10
21 Home mobility	90	84
22 Community mobility	15	30
23 Driving	10	11
Domain IV		
24 Physical home <sup>§</sup>	35	94
25 Home evaluation	5	11
26 Social support <sup>§</sup>	45	95
27 Family coping	5	0
28 Family home training	11	12
29 Family community training	5	0
30 Financial concerns <sup>‡</sup>	5	30
31 Health insurance	0	18
32 Ability to pay for medications	5	0
33 Community resources	15	40

SDMM = Siebens Domain Management Model; ADL = activity of daily living.  
\*Items from SDMM Documentation Review Form © Hilary C. Siebens MD 2010.

<sup>†</sup>Items scored as not applicable to the clinical case are treated as missing in the analysis.

<sup>‡</sup> $P < .05$ .

<sup>§</sup> $P < .001$ ,  $\chi^2$  test.

**Table 2.** Global and Domain Scores

Score	Traditional Reports % items present (SD), (N = 20)	SDMM reports % items present (SD), (N = 20)	P Value
Global	34 (9)	53 (11)	<.001
Domain			
I	81 (20)	92 (10)	.047
II	9 (15)	47 (28)	<.001
III	25 (11)	34 (20)	.062
IV	11 (12)	33 (15)	<.001

SDMM = Siebens Domain Management Model; SD = standard deviation.

SDMM reports was an increased mention of lifestyle risk factors from 29% to 72%, respectively ( $P = .011$ ). In Domain II, there was increased capture of cognitive and/or communication status (35% to 80%,  $P = .004$ ), emotions (15% to 60%,  $P = .003$ ), coping (5% to 45%,  $P = .004$ ), patient preferences (5% to 50%,  $P = .001$ ), and medical directive (5% to 30%,  $P = .038$ ) in traditional versus SDMM reports, respectively. Power of attorney for health, a possible indica-

tion of social support, remained low but showed some non-significant increase in the SDMM reports. In Domain III, items discussed regularly included basic activities of daily living (ADL) (95% and 100%) and home mobility (90% and 84%) in traditional versus SDMM reports, respectively. Some increase occurred in intermediate (or instrumental) ADLs (5% to 35%,  $P = .018$ ) and community mobility (15% to 30%, although not significant) comparing traditional versus SDMM reports, respectively. All other items were mentioned in fewer than 15% of all reports. In Domain IV, almost all items were captured 25% or less except for increased mention of physical home setting (35% to 94%,  $P < .001$ ), social support (45% to 95%,  $P = .006$ ), and financial concerns (5% to 30%,  $P = .038$ ). In all the reports, few items were scored as not applicable (4% in traditional reports, 7.5% in SDMM reports).

## DISCUSSION

Our findings provide evidence to support our 2 hypotheses. The results on scoring traditional discharge summaries, those that did not use the SDMM, confirmed our first hypothesis that important aspects of rehabilitation care are often not communicated or included in these summaries. The pattern of missing information in Domains II, III, and IV is likely explained by traditional medical training that emphasizes biomedical components of care that are familiar to second-year residents. We believe that 6 weeks of an inpatient rotation are insufficient to fully teach a comprehensive rehabilitation approach. Likewise, our traditional documentation standard was not structured to help reinforce documentation of rehabilitation information. Eighty-one percent of Domain I items were present. In contrast, the 3 other domains included fewer than 30% of the items. The rehabilitation team likely addressed some of these issues. However, if it addressed these issues, then the standardized discharge summary did not capture this information. These results are similar to an earlier report in which elements in Domains II through IV were absent in 15 discharge summaries for patients who had had strokes [31].

Our second hypothesis is supported by the increase in the percentage of items included in discharge summaries by using the SDMM compared with traditional reports. Almost one third of items showed an increase in reporting frequency. However, in Domain III there was only a trend toward increased data capture. This may reflect the emphasis on basic ADLs in the inpatient setting. Intermediate and advanced ADLs may have been addressed, albeit briefly, by occupational, physical, and recreational therapies. However, this work was not captured in the discharge summaries.

Reliable and valid scoring of the SDMM domains was possible through the use of a standardized scoring form. The form was selected because it was comprehensive and yet easy to use. Development of consensus on scoring rules was

relatively straightforward. We believe that the rates of inter-rater reliability were acceptable for this first study using this approach, given the breadth of clinical items scored and the large number of raters. The face validity of items was supported through the agreement of the physician research team that the items were clinically important.

The SDMM can serve as a teaching framework for rehabilitation residents during their inpatient rotation. It provides a simple checklist of topics to be considered and included if relevant. Concerns with the traditional format for writing discharge summaries are the risk of repetitiveness and the lack of logical organization. Use of the SDMM addresses both issues by guiding residents and attending physicians, and by keeping them from becoming mired in redundant, often medical, information that obscures essential components in the 3 other domains. Qualitative feedback from attending physicians after SDMM implementation at the PM&R residency program at the University of Virginia reported that the teaching of residents was improved [18]. Some residents there, who dictated discharge summaries, reported that the SDMM structure made it easier to complete the reports efficiently. This qualitative evidence supports the SDMM's intention of facilitating streamlined, efficient, yet comprehensive organization of relevant information. Also, much of the information covered by the review form items may be known by the physician and yet not documented due to the lack of an expectation or place to record this information. Although physicians and residents have reported that documentation time is not increased, in 1 limited survey, the residents' responses on this issue were mixed at 1 site. Some residents reported that it required more time and other residents reported that it did not [18]. The time spent on discharge summary reports was not formally assessed in this study. However, the time requirement is likely reasonable because (1) the SDMM design is meant to work within time constraints of clinical applications; (2) no resident concerns were voiced about time requirements for SDMM-format discharge summaries; and (3) the format remains in use today, 4 years after its introduction.

Historically, the documentation of patients with multiple issues has been a challenge. Weed [27] started addressing the issue in the 1960s through the creation of the POMR (problem-oriented medical record). The SOAP notes became widely used to describe the 4-part progress note that followed, more or less, the recommended format for the POMR [32]. Documentation nonetheless remained difficult for patients with multiple issues [33].

How to succinctly record all these types of multiple issues remains a challenge. In rehabilitation medicine, Reinstein et al [34] in 1973 surveyed 113 inpatient rehabilitation history and physical reports, and found that only 42% documented patient ambulation, less than 14% documented ADLs, 48% described patients' social milieu, 27% described patients' vocation, and 20% noted patients' speech characteristics. A rehabilitation evaluation system, which included 18 areas,

was proposed to ensure that rehabilitation-related issues were systematically addressed in addition to traditional medical issues [35]. However, despite this pioneering work, in current practice, no rehabilitation standard exists regarding the organization of multiple types of issues that rehabilitation providers address. This may reflect a larger trend. Through an extensive historic literature review, Alonso [36] identified that academic and institutional settings have been writing more about the holistic concept of health. However, there has not been a parallel change in the practical domains of medicine. Stated differently, the biopsychosocial theoretical model had been described but not operationalized into day-to-day care. Our findings support the concept that use of the SDMM in structured inpatient rehabilitation discharge summaries is 1 practical approach to implement the biopsychosocial model as well as the biopsychosocial model in daily patient care. The model encourages systematic and brief reporting on the multiple relevant dimensions, including context, of patients' health-related issues.

The overall information capture of 53%, compared with 34% in traditional discharge summaries, is an improvement. However, we believe that this is still not adequate for conveying patient information to subsequent care providers, such as primary care physicians or teams at other care sites. Although some of this information may be available in other team member reports (eg, social worker, rehabilitation therapist, case manager), other physicians and care providers (1) may not have access to other nonphysician disciplines' documentation and/or (2) will not have the time to review all these documents to learn about the issues addressed during rehabilitation. In contrast, clinicians expect to receive a discharge summary by a physician that reports the essential findings of a hospital stay. Our results have clarified discharge summary topics that require more educational focus. Future efforts on our unit to improve the efficiency and comprehensiveness of our reports may include (1) reviewing current template design, (2) reassessing how the SDMM is taught, and (3) reviewing resident documentation of team conferences, because team conference discussions often include items missing in the discharge summaries (eg, patients' preferred leisure activities from recreational therapy, nutritional information, patients' behaviors as observed by nursing staff).

There are several study limitations. Scoring of SDMM reports may have been positively biased. The SDMM use in the discharge summaries could not be blinded because the 4 domain headings were present. However, the team adhered to scoring rules. The choice of charts for review and the names of residents who wrote the discharge summaries were all blinded. In addition, the SDMM creator (H.C.S.), who provided training about the model, did not participate in data collection or analysis. Because use of the SDMM was voluntary, the residents who used the model may have been more enthusiastic and attentive to their summaries. We do not believe that this occurred, because the majority of residents

chose to use the SDMM. Another possible limitation is generalizability. Our findings are from 1 inpatient unit. The SDMM use was semistructured specifically to our site. However, the implementation process was fairly straightforward, and we believe that it could be replicated elsewhere. Other limitations are that some  $\kappa$  levels were not high. This is not unexpected, given that the number of raters was high, that some items required clinical judgment and that this was a pilot project. However, we did find adequate interrater reliability for the purposes of this study. Also, the vast majority of patients were male. It is unclear whether findings would be any different with female patients. Another possible limitation is that the diagnoses for the study cases were primarily orthopedic rather than an equal distribution of orthopedic, neurologic, and complex medical conditions. However, we believe that this model can apply to any impairment category and may be of special benefit in more complex cases with problems in all 4 domains. What may also be seen as a limitation is that other important aspects of discharge summaries, such as inclusion of allergies, duration of newly started medications, and pending laboratory tests, were not examined [37]. However, these issues were not the focus of this project.

Future studies can evaluate the introduction of the SDMM in other residency training sites and in nontraining clinical care sites. Anecdotal feedback at our site from other physicians, nurses, and rehabilitation therapists familiar with the project and who read the reports was positive and merits quantitative evaluation. More complex and systematic studies will be needed to determine whether documentation by using the SDMM is associated with any beneficial changes in clinical processes and outcomes.

## CONCLUSION

Inpatient rehabilitation discharge summaries in our program lacked information relevant to rehabilitation care. Using a practical clinical model, the SDMM, as a standardized framework, improved information capture, achieving more consistent communication to future clinicians in the next levels of care.

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