

# Predicting Functional Recovery

## *(Part 1 of a 4 Part Series)*

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Medicare considers admissions to inpatient rehabilitation facilities (IRFs) reasonable and necessary if patients meet certain conditions. These conditions are evaluated during the pre-admission screening process. Patients must meet all of the conditions in order to be considered appropriate candidates for admission to an IRF program. One of

the conditions is the capacity to achieve a significant practical improvement in functioning. This assessment requires the individual responsible for admission decisions to make a prediction about the estimated change in function that will occur over the course of treatment. Yogi Berra once said "It's tough to make predictions, especially about the future." Outside the context of science, prediction is often confused with an informed guess or opinion. While science uses the scientific method to test hypotheses, predictions about human behavior can be very tricky. A prediction about human responses might be valid if the predictor is a knowledgeable person in the field and is employing sound reasoning and accurate data. Such predictions bring together all available past and current data as a basis upon which to develop reasonable expectations about the future.

Fortunately, in the field of inpatient rehabilitation, there is a rich pool of data from which to learn about patient outcomes and apply the information to future events. However, the savvy predictor must be armed with such information in order to be prepared to make reliable predictions. Several key indicators provide essential information about the potential for functional recovery. They include: 1) admission functional status; 2) change in function between admission and discharge; 3) discharge functional status; 4) discharge to the community; and 5) impact of active comorbidities. If each of these indicators is studied in the aggregate and the information is applied to admission decisions, the result is a significant

advantage in identifying appropriate candidates for IRF care.

Another critical variable in predicting the potential for significant practical improvement is assignment of the primary impairment. Once the impairment group code (IGC) is assigned, it is then mapped to a rehabilitation impairment group (RIC). Case mix group or CMG is determined by several factors, including motor functioning scores, cognitive scores and age. Raw scores from functional assessment are entered into the grouper software and a case mix group is designated. By studying outcomes in the aggregate, admission decisions can, to some extent, be data driven. The key to using outcomes in this manner is to estimate the admission score at the time of pre-admission and compare it to historical data. There are several important tools to aid in this process. First is the patient's functioning as described by the therapists' notes and "translated" into descriptions and measures employed by the Functional Independence Measure. The second is knowledge of the hierarchy of function, which ranks items by level of difficulty. The third is recognizing which items have the greatest impact on calculation of the CMG. The fourth is an opportunity to speak with the patient, family member or staff member providing direct care. Finally, another consideration is an assessment of the family's capacity for caregiving. Past research has demonstrated that with discharge scores in the range of 80-90 points, patients will need one-two hours of assistance per day with activities included in the Functional Independence Measure.

For the purposes of writing this article, a sample of patients from the eRehabData aggregate database was examined. The sample included patients in RIC 1 (Stroke) whose primary insurance was Medicare and who were discharged in calendar year 2009. The sample included 14,864 patients in the following CMGs:

CMC	Number	Adm Scores	DC Scores	Change	DC Comm
0101	389	83.07	99.08	16.01	93.6%
0102	809	78.04	96.31	18.27	93.2%
0103	186	64.49	84.27	19.78	82.8%
0104	1615	69.53	89.41	19.87	84.1%
0105	1515	63.22	84.92	21.70	78.2%
0106	1506	57.77	80.96	23.19	74.2%
0107	1407	52.45	74.96	22.51	64.5%
0108	1577	35.42	52.08	16.66	35.3%
0109	1159	47.77	71.46	23.69	62.2%
0110	4701	33.43	52.12	18.70	38.0%

This table shows that admission scores for patients with stroke ranged from 33.43 for the most severe stroke CMG 0110 to 83.07 for the least severe stroke CMG 0101. Discharge scores ranged from 52.12 for CMG 0108 to 99.08 for CMG 0101. Change in function was highest for patients in CMG 0109 (23.69) and lowest for patients in CMG 0101 (16.01). Discharge to community settings was highest for patients in CMG 0101 (93.6%) and lowest for patients in CMG 0108 (35.3%). As a reminder in interpreting this information, CMG 0108 represents patients with weighted motor scores less than 26.15 and age greater than 84.5. CMG 0109 represents patients with weighted motor scores in the range of 22.35 to 26.15 and CMG 0110 represents patients with motor scores less than 22.35 and ages less than 84.5.

Turning our attention to community discharges, this table shows that only 35.3% of patients in CMG 0108 are discharged to the community, closely followed by patients in CMG 0110, with 38.0% of patients being discharged to community settings. Those numbers stand in stark contrast to patients in CMGs 0106-0101 where 74.2% to 93.6% of patients are discharged to community settings. Admission scores of about 58 for patients with stroke predict that about three-quarters of patients will have gains in the 16-23 points range and be discharged to community settings. Admission scores in the 30s are poor indicators of community discharges, but since about one-third of them will be discharged home, other factors should be closely examined. Admission scores in the 47-57 point range represent patients who will achieve about 22-24 points' gain and 62-65% of patients are discharged to community settings. When examining a program's performance, all CMGs are considered, so much of this information must also be interpreted in the context

of case mix, which adds another level of complexity. In any case, being aware of the information contained in the aggregate data or the national experience can provide a context for decision making at the point of pre-admission, which is now under such immense scrutiny.

The purpose of this introductory article is to present the notion of studying our available data and beginning to understand the impact of our programs on key variables. The true power of data is its predictive value. If we can begin to understand the rehabilitation experience from our historical data, then we can begin to prognosticate about future experiences. This is a key to identifying appropriate candidates for inpatient rehabilitation. The next few articles will concentrate on details of the tools mentioned on page one, continue to look at data on other RICs, compare and contrast outcomes for patients in different CMGs and present information about the need for clinical decision making at the time of pre-admission screening. Yogi Berra also said, "You can observe a lot by just watching." If we watch the history of our work through the study of our collective outcomes, we will observe our true impact on those with disabilities.

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