Enhancements to the HBAM Methodology for Fiscal Year 17/18

The Ministry of Health and Long-Term Care (Ministry) works in close collaboration with the hospital sector to continually evaluate the performance of the Health-Based Allocation Model (HBAM) and to develop enhancements as needed. Over the past year, the following two enhancements were implemented:

1. The methodology for "truncation", or severing weights for patients at 365 days, was removed.
2. Adjustment for discharged Acquired Brain Injury Services (ABIBS) expenses in the rehabilitation module.

These enhancements are reflected in the fiscal 2015/16 HBAM results that will inform fiscal 2017/18 funding allocations.

Note: *All funding methodological enhancements for fiscal 2017/18 have been vetted and endorsed by the Hospital Advisory Committee (HAC), which is trilaterally led by the Ministry, the Local Health Integration Networks (LHINs) and the Ontario Hospital Association (OHA).*

1. Removal of Truncation of Weights for the Acute Inpatient Module

What are truncated weights?

The methodology for "truncation" was a long-standing practice that had been used in the Health Based Allocation Model (HBAM) and predecessor models for more than 15 years. This adjustment essentially severed lengths of stay (LOS) for long stay patients at 365 days and discarded any additional weights associated with days of care beyond 365 days. Developed at a time when hospitals were using global budgets, truncation allowed for easier comparisons between annual volumes and hospital expenses which are reported in the Ontario Cost Distribution Methodology (OCDM) on a yearly basis.

Issue

With the implementation of Health System Funding Reform (HSFR) in 2012 and the shift away from global budgets to Patient Based Funding (PBF), truncation of weights was identified to have a potentially material impact on funding for some hospitals. This was particularly true for hospitals who had high volumes of patients with long LOS. For these hospitals, truncating weights at 365 days resulted in weighted cases or activity that did not accurately reflect the actual care they were providing. In a PBF environment this would result in reduced funding. See Example 1 below:

Example 1

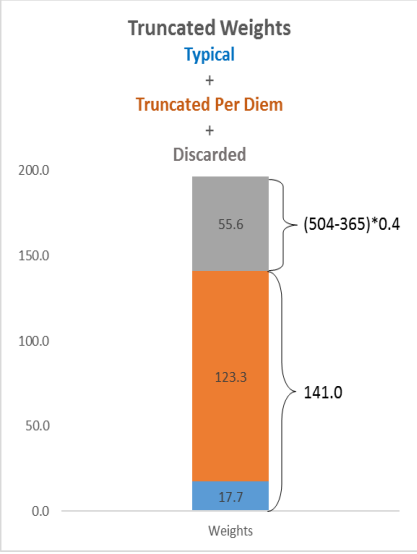
The case below represents a hypothetical patient in HBAM Inpatient Grouping (HIG) 117 'Other Respiratory Intervention'. This patient would typically have a weight of 17.7 weighted cases, expected LOS (ELOS) of 56.8 days and long-stay trim point of 78.9 days. For the purposes of this illustration, the patient is listed with an extended LOS of 504 days. See table 1 below:

Column	Description	Calculation	Value	Explanation
a	Total LOS (days)		504.0	
b	Expected LOS (days)		56.8	
c	Typical Weight		17.7	
d	Long-Stay Outlier Per Diem Weight		0.4	
e	Long-Stay Trim (days)		78.9	
f = a-b	Long-Stay Outlier Days	504.0 - 56.8	447.2	Total LOS - Expected LOS
g = f * d	Long-Stay Outlier Weights	(504.0 - 56.8) * 0.4	178.9	Outlier Days * Per Diem Weight
h = c * g	Total Weights at Discharge	17.7 + 178.9	196.6	Typical Weight + Outlier Weights
i = a - 365	Truncated Days	504.0 - 365.0	139.0	Total LOS - 365
j = d * i	Truncated Weights	139.0 * 0.4	55.6	Truncated Days * 0.4
k = h + j	Weights with Truncation Applied	196.6 - 55.6	141.0	Typical Weight + Truncated Weight

Table 1: *Weighted cases calculation for hypothetical patient in HIG 117 example*

With the old truncated weight methodology, the patient would be assigned a LOS of 365 days and the total per diem weights associated with the additional 139 days of care would be discarded (See Figure 1A below). With the adjusted methodology (i.e. removal of truncated weight methodology), the hospital would accrue 196.6 weighted cases in the discharge year for the same patient (See figure 1B below).

A



B

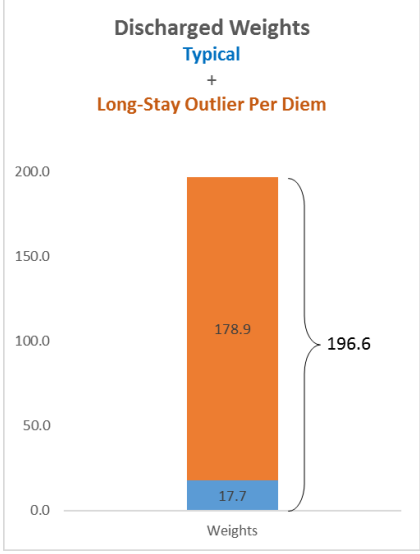


Figure 1: *Removal of truncation of weights for hypothetical patient in HIG 117 example*

Impact of Change

Starting in fiscal 2017/18, hospitals will receive the credit for all of their weighted cases including their long stay patients. Along with better reflecting the actual activity, this change also enables for easier reconciliation between hospitals' internal volume records and the volumes used for HBAM funding by the Ministry.

Hospitals with acute inpatient long-stay patients that were discharged in fiscal 2015/16 will see an increase in both their actual weighted cases for fiscal 2015/16 and their expected weighted cases for fiscal 2017/18.

The elimination of truncation will have the greatest impact on large community hospitals, which have had had the largest number of truncated weighted cases as a proportion of long-stay total weights. See table 2 below:

Facility Type	Total Long-Stay Weights	Total Weights After Adjustment	Truncated Weights	Truncated Weights as a % of Total Weights
Large Community	11,704	7,051	4,653	39.8%
Teaching	6,003	3,952	2,051	34.2%
Small	1,495	1,053	442	29.6%
HSFR Overall	17,707	11,004	6,704	37.9%

Table 2: *Truncated weighted cases as a proportion of long-stay total weights by hospital type*

2. Adjustment of ABIBS Expenses in the Rehabilitation Module

How were Acquired Brain Injury Services (ABIBS) accounted for in HBAM?

Regular Rehabilitation Cost Weights (RCWs) do not reflect the high cost of providing Acquired Brain Injury Services (ABIBS). Accordingly, ABIBS costs for the small number of hospitals that provide these services (four in total) are protected through an adjustment in the HBAM models that removes activity for Acquired Brain Injury (ABI) patients from the rehabilitation service component (to avoid double counting) and adds them back to the non-modelled components of HBAM at a rate of $1,600 per day.

Issue

The rehabilitation weighted cases used for funding are calculated based on **discharges** during that fiscal year, while the ABI patient days that are used to remove expenses and activity from the rehabilitation module are based on **in-year** activity. This method will either "over-carve" or "under-carve" ABI patient days. Patients who are still receiving care within a hospital at the end of the fiscal year have their activity removed from the rehabilitation service module, even though the rehabilitation case weights used for funding do not include their activity as they have not been discharged, resulting in an "over-carve". Or, patients with a large length of stay within the previous fiscal year and a small stay in the discharged year will be "under-carved". See Example 2 below:

Example 2:

Eileen is a 76-year-old ABI patient who was admitted on January 1, 2014 and discharged ten months later on October 1, 2014. Her total LOS spans 273 days, of which 183 were in fiscal 2014/15 (See Figure 2 below).

Alice is a 64-year-old ABI patient who was admitted on April 1, 2014 and stayed for over a year, eventually being discharged on September 1, 2015. Alice's total length of stay was 518 days, with 365 of them being spent in fiscal 2014/15 (See Figure 2 below).

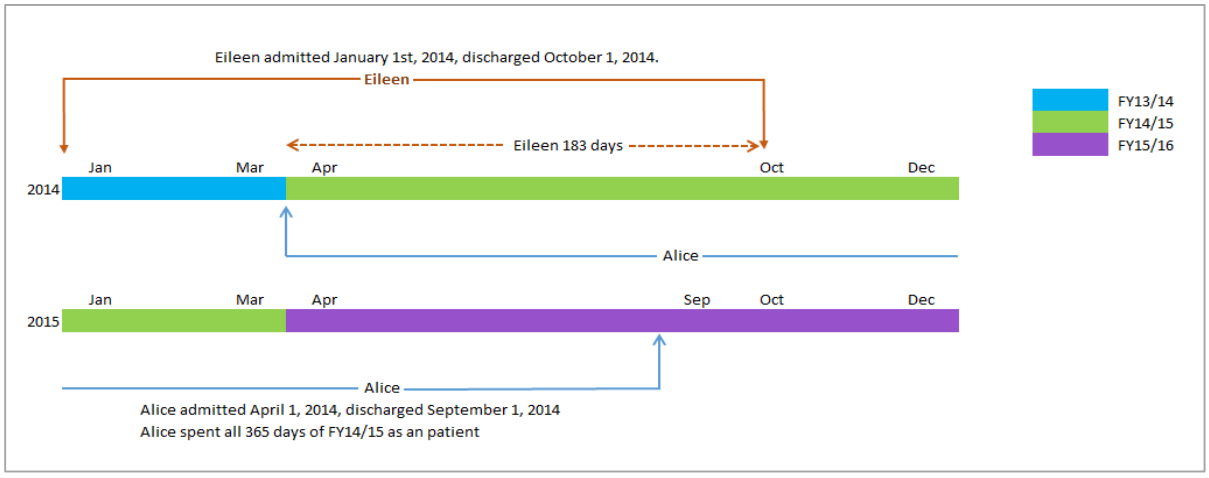


Figure 2: *Excluding ABIBS discharge activity was from the modelling methodology*

In these examples, before the ABIBS discharged expenses adjustment, the rehabilitation service component would have only registered 273 days of activity. These would have all been based on Eileen, who was discharged in fiscal 2014/15. However, 548 days associated with the in-year activity for both Eileen and Alice (183 days and 365 days respectively) would have been removed from the rehabilitation service component. By using in-year activity to remove ABI days in this example, an extra 275 days are being removed (548 total in-year days less 273 days of weighted activity). This artificially increases the amount of ABIBS expenses calculated for protection in the model.

Impact of Change

Staring in fiscal 2017/18, the new methodology will adjust the rehabilitation weights for a given fiscal year only based on ***discharged*** ABI days. This will increase the accuracy of the calculation and avoid "over/under-carving" of ABI weights from the rehabilitation service component.

In the example outlined before, Eileen would have weights associated with the 273 days of her stay removed from the rehabilitation service component in fiscal 2014/15. There would be no adjustment made for Alice for fiscal 2014/15, as she was not discharged within that year. In fiscal 2015/16, the total rehabilitation weighted cases would reflect 518 days of ABI services, as Alice was discharged during that fiscal year.