Health Based Allocation Model: HBAM Inpatient Group Methodology and Reports at CIHI

The Health Based Allocation Model (HBAM) is a funding methodology of the Ontario Ministry of Health (MOH), under the Health System Funding Strategy.

The **HBAM Inpatient Group (HIG)** methodology is the acute inpatient grouping methodology used within HBAM. Since the release of HIG 2014, the HIG methodology has also been applied to non-acute cases in the Discharge Abstract Database (DAD) at the Canadian Institute for Health Information (CIHI).

**How are HIGs assigned to Ontario inpatient cases?**

HIG groups are assigned using CIHI’s Case Mix Group+ (CMG+) grouping methodology output and additional clinical information from CIHI’s DAD.

83% of cases are assigned to identical HIG and CMG+ groups. The remaining 17% are assigned to 40 HIG groups that are created after applying 1 of the following 4 split types to 20 CMG+ groups:

1. **Diagnosis** — For example, CMG+ group 139 Chronic Obstructive Pulmonary Disease has been split into 2 HIG groups: 139c Chronic Obstructive Pulmonary Disease with Lower Respiratory, and 139d Chronic Obstructive Pulmonary Disease without Lower Respiratory Infection.

2. **Presence/absence of comorbid cardiac conditions among cardiac CMG+ groups** — All diagnoses on the DAD abstract [(types (1), (2), (W), (X) and (Y)] are examined for specific comorbid cardiac conditions, such as congestive heart failure.

3. **Presence of comorbidities in obstetric cases using the CMG+ grouper output comorbidity level (CL)** — Cases with CL 0 are grouped separately from cases with CL 1 to 4.

4. **A single intervention-driven group** — All bone marrow/stem cell transplant interventions group to a single HIG cell across all major clinical categories. This includes CMGs 619 and 620 Allogeneic and Autologous Bone Marrow/Stem Cell Transplants, which were introduced in CMG+ 2022.
HIG resource indicators

The HIG weighting methodology was developed by the MOH and is maintained by CIHI. Cases are assigned resource indicators (base weight and estimated length of stay [ELOS]) using the HIG group and age category. These are further adjusted by the following factors:

- Flagged intervention
- Intervention event
- Out-of-hospital intervention
- Special care unit
- Discharged to home care
- Maternal age 40 or older

<table>
<thead>
<tr>
<th>Model parameter</th>
<th>CMG+</th>
<th>HIG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors</td>
<td>Multiplicative</td>
<td>Additive</td>
</tr>
<tr>
<td>Deaths</td>
<td>Always atypical</td>
<td>Non-palliative deaths are typical</td>
</tr>
<tr>
<td>Age categories</td>
<td>9 age categories</td>
<td>5 age categories</td>
</tr>
<tr>
<td>Flagged interventions</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Out-of-hospital interventions</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of intervention events</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Discharged to home care</td>
<td>Not applicable</td>
<td>Yes</td>
</tr>
<tr>
<td>Special care unit</td>
<td>Not applicable</td>
<td>Yes</td>
</tr>
<tr>
<td>Short-stay adjustments</td>
<td>Not applicable</td>
<td>Yes</td>
</tr>
<tr>
<td>Maternal age ≥40</td>
<td>Not applicable</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Additional resources for HIG

For more information on the HIG grouping and weighting methodologies, Ontario facilities can visit CIHI’s Learning Centre at [https://learning.cihi.ca](https://learning.cihi.ca):

- Introduction to the HIG Grouping and Weighting Methodology for Ontario (self-study course)

For more detailed grouping and weighting examples, as well as a full appendix of HIG weight/ELOS values, Ontario facilities can visit CIHI’s eStore at [https://secure.cihi.ca/estore](https://secure.cihi.ca/estore):

- Assigning HIG Weights and ELOS Values to Ontario Inpatient DAD Cases

Questions or feedback?

Please send an email to [casemix@cihi.ca](mailto:casemix@cihi.ca).

For questions concerning HBAM, please contact the MOH at [hsf@ontario.ca](mailto:hsf@ontario.ca).

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How to cite this document:

Canadian Institute for Health Information. *Health Based Allocation Model: HBAM Inpatient Group Methodology and Reports at CIHI*. Ottawa, ON: CIHI; 2022.