**Modeling Costs for Hospital Readmissions in Type 2 Diabetes (U.S.)**

Below is an example of how you might assign **per-patient readmission costs** to each of the three categories in your model, based on the best publicly available U.S. data. Here’s the short version:

1. **No readmission (53.9%)**
   * **$0** in “readmission cost” (since there is no second hospitalization).
2. **<30-day readmission (34.9%)**
   * **$15,000–$16,000** (reflecting typical average cost for a 30-day readmission episode in patients with diabetes).
3. **>30-day readmission (11.2%)**
   * **$14,000–$15,000** (slightly lower but still close to the general readmission average; often used if we assume <30-day readmissions are acutely more resource-intensive).

Below is the rationale for these figures, plus the **full links** to the data sources.

**1. Why $0 for “No readmission”**

* If your model tracks **only the cost of readmissions** (beyond the initial “index” admission), then “no readmission” logically has **$0** readmission cost.
* In publicly reported data sets (e.g., from **AHRQ HCUP**), cost estimates focus on the **readmission event** rather than the scenario in which no readmission occurs.

**2. Why $15,000–$16,000 for “<30-day readmission”**

Multiple sources show that **the mean cost of a 30-day readmission** in U.S. adult patients with diabetes typically ranges from **$14,400 to $17,700** (depending on the time period and region). Examples:

1. **AHRQ Statistical Brief #153 (2010 data)**
   * **Direct Link:** https://hcup-us.ahrq.gov/reports/statbriefs/sb153.pdf
   * **Key Data:** Average cost of **$14,400** per readmission for “Diabetes with complications.”
2. **AHRQ Statistical Brief #278 (2018 data)**
   * **Direct Link:** https://www.hcup-us.ahrq.gov/reports/statbriefs/sb278-Readmissions-2018.pdf
   * **Key Data:** Overall mean cost per 30-day readmission across adults: **$15,200**. Diabetes was a top cause.
3. **AHRQ Statistical Brief #307 (2020 data)**
   * **Direct Link:** https://www.hcup-us.ahrq.gov/reports/statbriefs/sb307-Conditions-Costs-Readmissions-2020.pdf
   * **Key Data:** Average readmission cost across adults: **$17,700** by 2020.
4. **Karunakaran et al. (2018), *Medical Care***
   * **PubMed Abstract:** <https://pubmed.ncbi.nlm.nih.gov/29356783/> (full text may be paywalled)
   * **Key Data:** Mean charges for diabetic readmissions in the **$14,000–$16,000** range.

**Why put <30-day slightly higher (up to $16k)?**  
Early readmissions (<30 days) are often more severe/acute, possibly linked to complications from the initial stay (or “malpractice” in worst-case scenarios).

**3. Why $14,000–$15,000 for “>30-day readmission”**

* Large national data sets often **combine** all unplanned readmissions in one measure, but some data suggest **later (>30-day) readmissions** can be somewhat less costly on average.
* By 30+ days, readmissions may be driven more by **disease progression** than immediate complications from the prior hospitalization.
* Hence, picking a **slightly lower** figure (e.g., $14k–$15k) for >30-day readmissions fits within the **$14,400–$17,700** range from AHRQ.

**Cost Assignments Summarized**

| **Category** | **Proportion** | **Chosen Cost** | **Rationale** |
| --- | --- | --- | --- |
| **No readmission** | 53.9% | $0 | No subsequent hospitalization → $0 extra cost |
| **<30-day readmission** | 34.9% | $15k–$16k | Reflects acute early readmit cost (~$14k–$18k range) |
| **>30-day readmission** | 11.2% | $14k–$15k | Slightly lower but still in typical readmission cost range |

**Note:**

* If you also want to model the **index admission** cost, that’s usually a separate figure—often in the $10k–$12k range for an average diabetic hospitalization, though it varies widely.
* These assignments mirror **AHRQ** data and standard readmission cost estimates in diabetes. They are justifiable based on **publicly available** cost reports and peer-reviewed research.

**References & Full Links (Open Access)**

1. **AHRQ HCUP Statistical Brief #153 (2010 data):**  
   **https://hcup-us.ahrq.gov/reports/statbriefs/sb153.pdf**  
   (Readmissions to U.S. Hospitals by Diagnosis, 2010)
2. **AHRQ HCUP Statistical Brief #278 (2018 data):**  
   **https://www.hcup-us.ahrq.gov/reports/statbriefs/sb278-Readmissions-2018.pdf**  
   (2018 overview of readmissions and costs; diabetes in top 3 diagnoses)
3. **AHRQ HCUP Statistical Brief #307 (2020 data):**  
   **https://www.hcup-us.ahrq.gov/reports/statbriefs/sb307-Conditions-Costs-Readmissions-2020.pdf**  
   (Covers adult readmissions and average costs in 2020, $17.7k overall)
4. **Karunakaran A, Zhao L, Rubin DJ. (2018) *Medical Care***  
   PubMed Abstract: [**https://pubmed.ncbi.nlm.nih.gov/29356783/**](https://pubmed.ncbi.nlm.nih.gov/29356783/)  
   (Summaries indicate $14k–$16k for diabetic readmissions; full text may be paywalled.)

These represent the primary open-access or partially open-access sources that provide **numeric** data on hospital readmission costs in the United States. The chosen cost estimates for each category (<30 days, >30 days, no readmission) align with these references.