At the November 13 meeting of the RAC, the committee walked through eight potential definitions of the term “net yearly increase,” which helps define the prescription drug wholesale acquisition cost (WAC) increases subject to HB 4005’s reporting requirements. A request was made to provide mathematical formalization of each option to enable more rigorous review of the implications of each definition. This memo is intended to answer that request.

The definitions provided below are intended to clarify the meaning of the formulas provided for options 1-7. Our team was unable to construct a formula to represent option 8 with the information available. If provided with additional information, we will update this memo.

**Definitions:**

- Let $D_n(m)$ represent the number of days in month $m$ in year $n$.
- Let $C_n(m, t)$ represent the wholesale acquisition cost (WAC) of a drug in year $n$ in month $m$ at day $t$. For example $C_{2016}(7, 4)$ represents the WAC of the drug on July, 4, 2016.
- Let $A_n(m) = \frac{\sum_{t=1}^{D_n(m)} C_n(m, t)}{D_n(m)}$ represent the average WAC of the drug in year $n$ in month $m$.
- Let $Y_n = \frac{\sum_{m=1}^{12} (A_n(m) \times D_n(m))}{\sum_{m=1}^{12} D_n(m)}$ represent the average WAC of the drug over the entire year $n$.
- Let $H_n = \max\{C_n(m, t): m = 1, \ldots, 12 \cap t = 1, \ldots, D_n(m)\}$ represent the maximum WAC of the drug over the entire year $n$.
- Let $L_n = \min\{C_n(m, t): m = 1, \ldots, 12 \cap t = 1, \ldots, D_n(m)\}$ represent the minimum WAC of the drug over the entire year $n$.
- In all cases, $n$ is the reporting year and $n - 1$ is the prior year. The reporting year is the year that is the subject of the report. For example, if a drug manufacturer reports to DCBS in 2019 about a price increase in 2018, the reporting year is 2018 and the prior year is 2017.
- If the result for the chosen option is greater than 0.1, the drug underwent a net yearly increase of 10% or more as defined by that option.
Option 1

\[ \frac{C_n(12,31)}{C_{n-1}(12,31)} - 1 \]

This option would calculate a net yearly increase by comparing the WAC on December 31 of the reporting year to the WAC on December 31 of the prior year.

Option 2

\[ \frac{Y_n}{Y_{n-1}} - 1 \]

This option would calculate a net yearly increase by comparing the average WAC in reporting year to the average WAC in the prior year.

Option 3

\[ \frac{A_n(12)}{A_{n-1}(12)} - 1 \]

This option would calculate a net yearly increase by comparing the average WAC in December of the reporting year to the average WAC in December of the prior year.

Option 4

This option would calculate a net yearly increase by summing all percentage WAC increases over the course of the reporting year. The results of this formula are mathematically identical to Option 1.

Option 5

\[ \frac{H_n}{L_{n-1}} - 1 \]

This option would calculate a net yearly increase by comparing the highest WAC in the reporting year to the lowest WAC in the prior year.
Option 6

\[ \frac{H_n}{H_{n-1}} - 1 \]

This option would calculate a net yearly increase by comparing the highest WAC in the reporting year to the highest WAC in the prior year.

Option 7

\[ \max \left( \left\{ \frac{A_n(m)}{A_{n-1}(m)} : m = 1, \ldots, 12 \right\} \right) - 1 \]

This option would calculate a net yearly increase by comparing WAC in each month in reporting year to the WAC in same month of prior year.

Option 8

This option would calculate a net yearly increase by comparing a WAC in effect for at least 60 days prior to 12/31 of a reporting year to a WAC in effect for at least 60 days prior to 1/1 of a reporting year.

Our team was unable to capture this option in a formula because the criteria for determining the WAC prices to compare are not precisely defined.