



# Budget Impact Model User Guide

## *CDC Foundation: Building the Business Case for Hypertension Control*

*Prepared for the CDC Foundation by the Center for Healthcare Economics and Policy at FTI Consulting*

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## Overview of the Budget Impact Model: What Does the BIM Provide?

Previous research shows that nearly half of all United States (US) adults have high blood pressure, also called hypertension, which substantially affects healthcare costs and productivity of employees. In 2019, there were 16.1 million inpatient stays for patients with hypertension, compared to 8 million for diabetes and 6.2 million for chronic respiratory lung disease.<sup>1</sup>

The budget impact model (BIM) provides a way for individual employers to estimate the cost of hypertension in terms of healthcare and productivity loss costs.

- You can use the BIM to *estimate these cost impacts specific to your organization* by entering relevant data about your organization and employee population. You can use default values if you do not have the data. The default data are based on the overall US employee population.
- Although the model is primarily designed for *self-funded employers*, *fully-funded employers* can also use the model to get perspective on costs.



If you are a self-funded employer, the BIM estimates:

- additional medical and pharmacy costs, and
- productivity loss costs

due to hypertension in your covered employee population.



If you are a fully-funded employer, the BIM estimates:

- productivity loss costs

due to hypertension in your employee population. You can use healthcare cost estimates to better understand costs due to hypertension that may impact premiums.

<sup>1</sup> Healthcare Cost and Utilization Project (HCUP) Statistical Briefs [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2006 Feb. Statistical Brief #303. 2022 Dec 15.



## How to Use this User Guide to Estimate the Costs to Your Company of Hypertension

This user guide accompanies the “Budget Impact Model to Estimate the Cost of Hypertension for Employers” Excel file and provides instructions on how to use the model. The guide will provide all information to use the model file organized in **three sections**.

### Section 1: Model Navigation



This section describes how to navigate the model and includes an overview of available buttons and data entry fields.

### Section 2: User Input Data Tabs



This section describes the tabs where you can enter data into the model. You can use the default values for any data points you do not have or use rough estimates or adjustments from the default values. For example, the median hourly wage in the US is \$33, but if your organization is in an industry with generally higher wages than the average US population, you may want to adjust this number to be higher even if you do not have the exact data specific to your organization.

### Section 3: Model Output Tabs



This section describes the results that are provided once all required and optional data entries are complete. Main results include: Total Number of Covered Employees with Hypertension, Additional per Employee Cost due to Hypertension, Additional Total Annual Cost due to Hypertension. Descriptions of graphs and data tables are provided in this section.

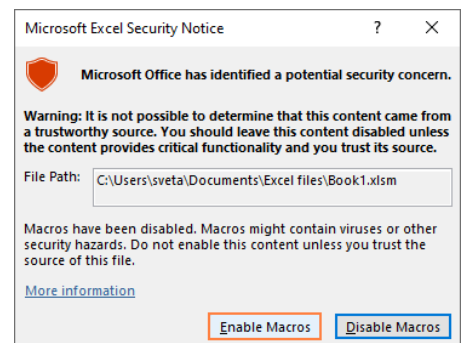
## Section 1: Model Navigation

### Starting the Model

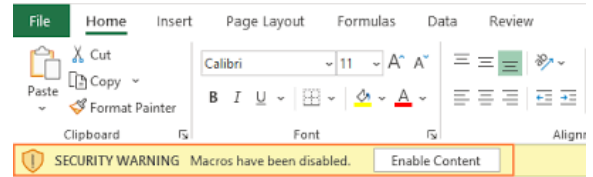
#### Enable Macros

When you open the model Excel file, your first step is to “enable macros”, if the pop-up box is visible.

You will likely see a notice such as the box to the right. Please click on “Enable Content” as shown in the **orange box**. If macros are not enabled, the model file will not function properly.



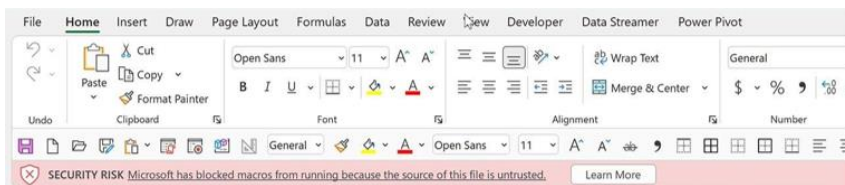
If you do not see this box, there may be a yellow ribbon near the top of your Excel program window to enable macros. If this box appears, please click “Enable Content” (shown on the right), if visible.



The model will automatically start on the cover page (Figure 1) when first opening the file. Clicking the next button will allow you to fully access the model and the next available tab.

## Unblock Macros

Your organization may not automatically allow macros to be enabled in this model. Due to this, macros may have been blocked when first downloading the model (shown below).



Macros can be unblocked and enabled by following the steps below:

1. Close the model file, open Windows File Explorer and go to the folder where you saved the file.
2. Right-click the file and choose Properties from the context menu.
3. At the bottom of the General tab, select the Unblock checkbox and select OK (shown on the right).
4. Reopen the model file.

For additional support, please click [this link](#) or contact your IT department to unblock and enable macros.

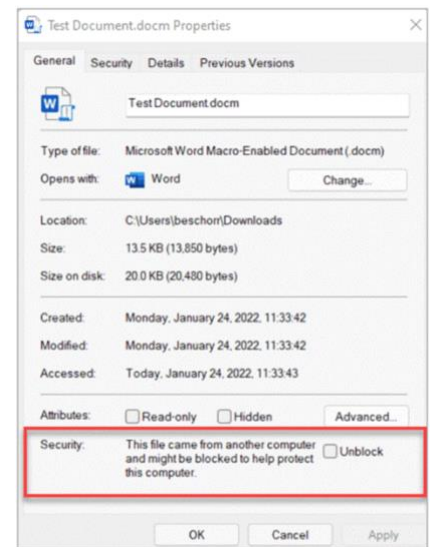
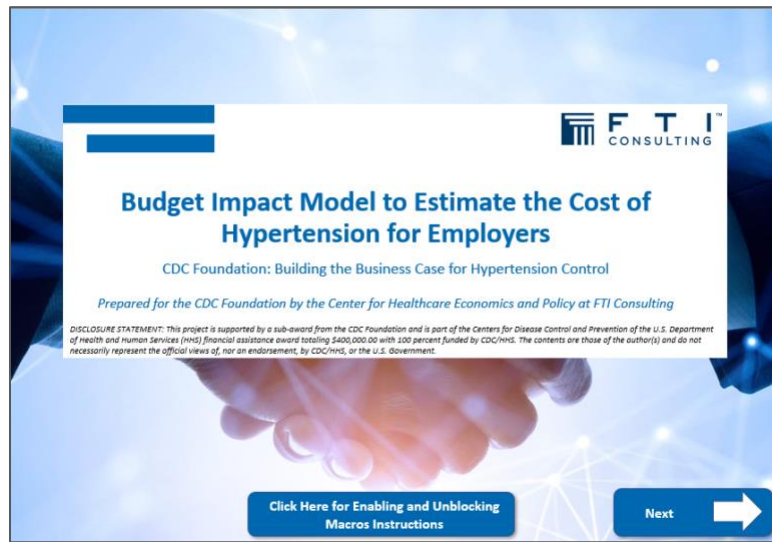


Figure 1: Model Cover Page



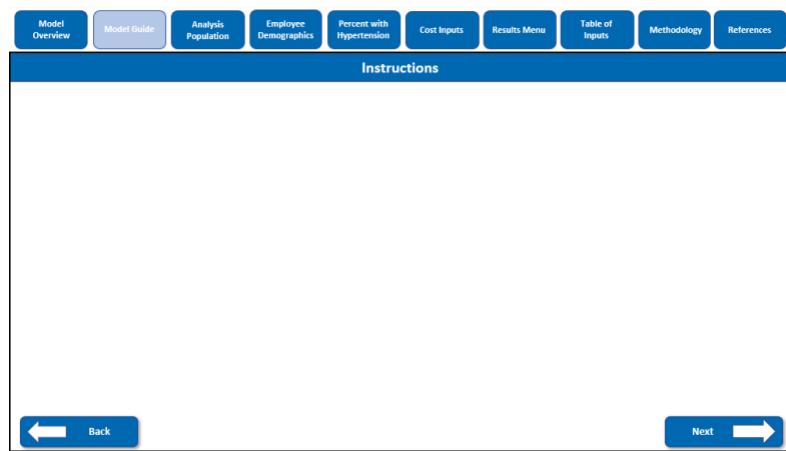
## Model Tab Structure Overview

At the very top of each tab (with the exception of the cover page) there are buttons for each of the model's different functions or tabs (Figure 2).

There are 10 Tabs:

- Each tab has a black bordered box, marking the area where you will enter the data or view results.
- The top of each box has a colored banner that shows instructions for the tab.
- On the bottom of each tab, there are buttons to navigate the model forward and backwards (i.e., the "Next" and "Back" buttons).

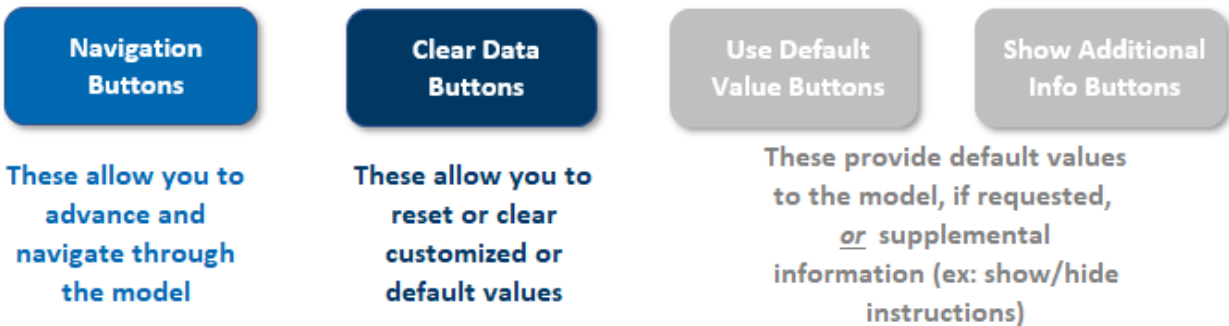
Figure 2: Sample Model Screenshot



## Buttons and Data Entry Fields

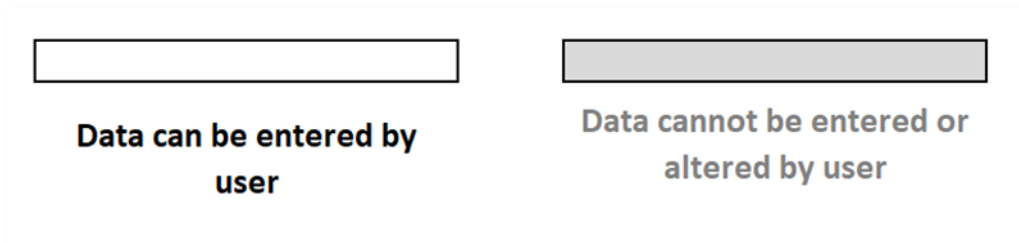
The model is interactive and lets you enter data specific to your organization or use default values to estimate the impact of hypertension. Buttons in the model are color-coded (blue, dark blue, and gray) based on their use – see Figure 3 below.

Figure 3: Button to Navigate the Model



You can enter data into cells or fields that are not shaded. Shaded gray boxes cannot be changed by the user. Figure 4 below shows these two cell types.

Figure 4: Types of Data Cells in the BIM

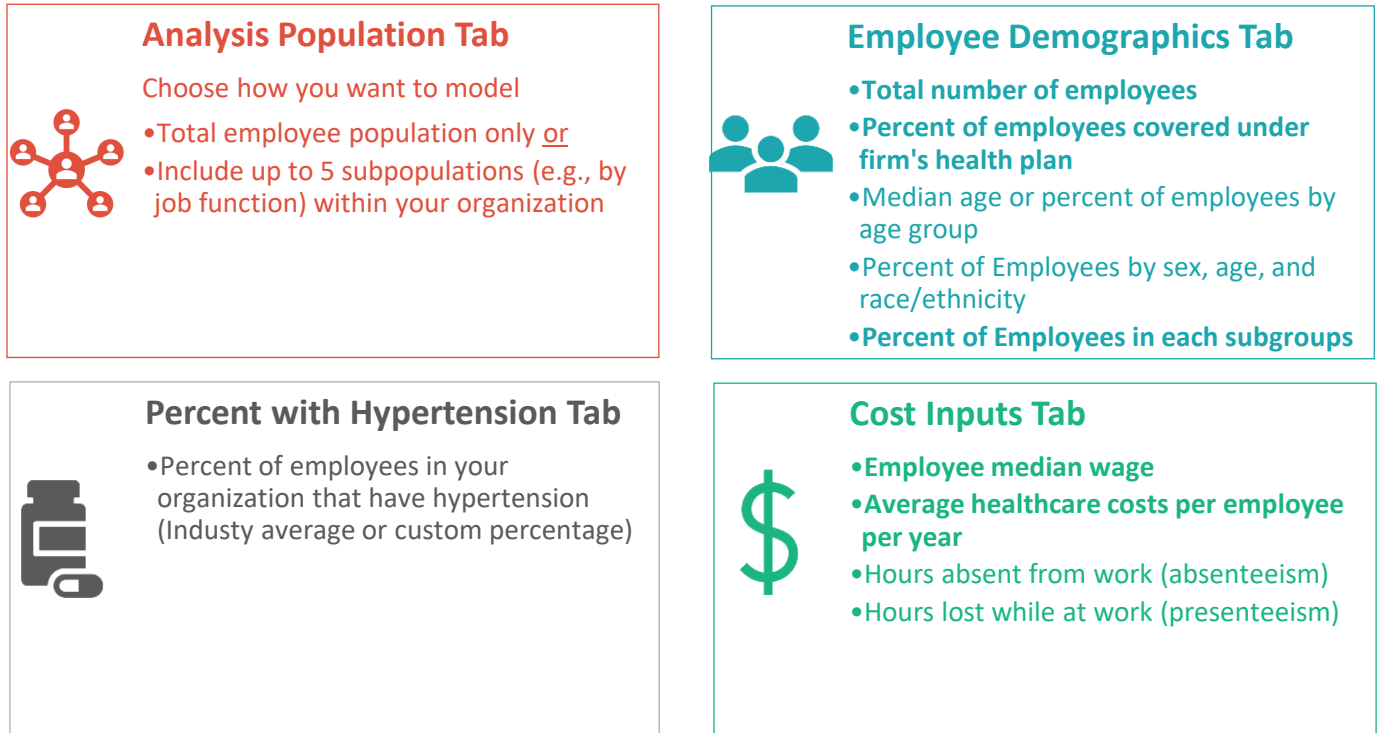


## Section 2: Getting Started on the Model – User Input Data Tabs

There are 4 tabs in the model where you enter data or make choices about how you want to model impact (see Figure 5). You are only required to enter the total number of employees in your organization to use the model (which can be an estimate), but additional organization-specific data will allow you to estimate a more precise impact of hypertension for your organization.



Figure 5: User Input Data Tabs and Data Entry Fields in the Budget Impact Model



### Analysis Population Tab

In this tab, you can decide whether you want to analyze your entire employee population as a whole or examine up to five subpopulations. Subpopulations can be groups by job function or department, location, or any grouping of interest for your specific organization.

- You make this selection in the “Analysis Population” tab of the model by clicking on either the Total Employee Population or the Total Employee and Subpopulations buttons, shown in Figure 6 and Figure 7. [move that up here]

Figure 6: Analysis Population Tab with Total Employee Population Analysis Selected

**Step 1: Select Analysis Population**

Select one of two analysis options below.

Show/Hide Instructions

**Total Employee Population**

Estimate the impact of hypertension for your entire employee population

**Total Employee and Subpopulations**

Estimate the impact of hypertension for up to 5 subpopulations by job function and the total employee population

**Selected Analysis**

**Total Employee Population**

Select your organization's industry from the menu:

--Select Industry (e.g., Professional Specialty)--

[Click here to view industry descriptions](#)

Back Next

Figure 7: Analysis Population Tab with Total Employee and Subpopulation Analysis Selected

**Step 1: Select Analysis Population**

Select one of two analysis options below.

Show/Hide Instructions

**Total Employee Population**

Estimate the impact of hypertension for your entire employee population

**Total Employee and Subpopulations**

Estimate the impact of hypertension for up to 5 subpopulations by job function and the total employee population

**Selected Analysis**

**Total Employee and Subpopulations**

Enter Number of Subpopulations

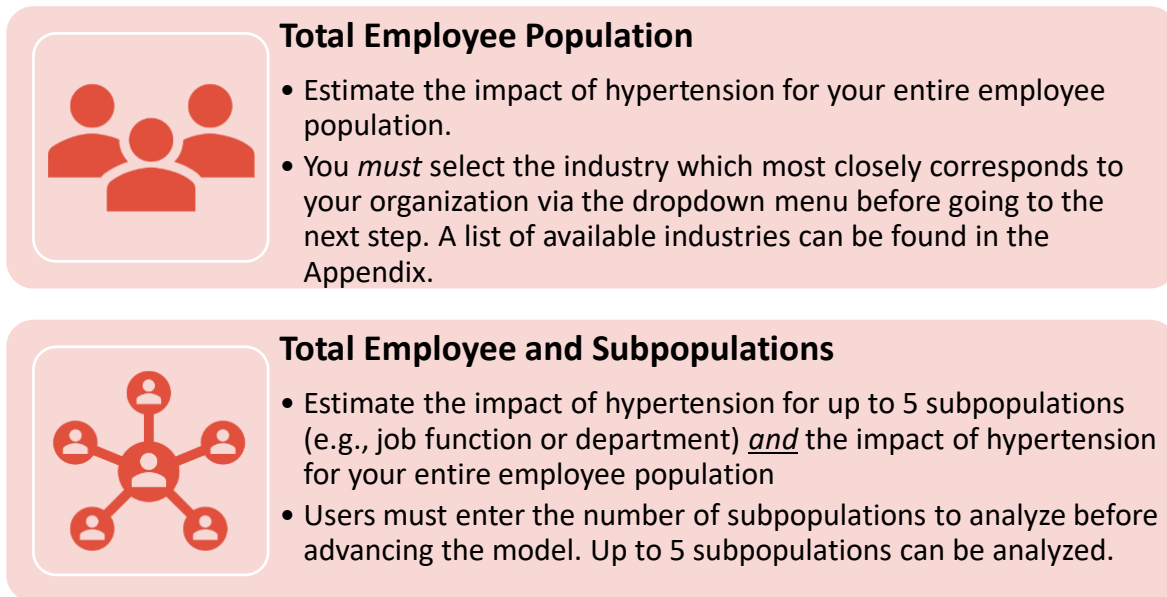
5

Back Next

- If the *Total Employee Population* analysis is selected, you may select an industry from the drop-down menu which best represents your organization (shown in the red box above in Figure 7). Please click on the link labeled “Click here to view industry descriptions” to view industry description and types of occupations under each industry to help inform your choice of industry that best matches yours (the Appendix Table 3 provides more information).
- If the *Total Employee and Subpopulations* analysis was selected, you must enter the number of subpopulations to analyze (shown in yellow box above in Figure 6 as a choice of 5 subpopulations). In next tab (Employee Demographics) you will enter information about the proportion of your total workforce that is in each of these up to 5 subpopulations.

Figure 8 below describes the details of two available analyses.

Figure 8: Employee Population Types for Analysis



## Employee Demographics Tab

*Data required for this tab: total number of employees*

*Data useful to have but not required for this tab: percent of employees covered under firm's health plan; median age or percent of employees by age group, and percent of employees by sex, age, and race/ethnicity*

The “Employee Demographics” tab of the model allows you to enter data about your employee population.

- You are **required** to enter the total number of employees (which can be an estimate) before progressing through the model.
- Other data entries are useful to have but are not required to use the model.
- If you do not have data specific to your organization, you may elect to use default values based on averages in the US employee population or leave the data entry field blank (and default values will be used automatically).
- You can also adjust the default values based on your knowledge of specific industries. For example, the median employee age in the US is 42, but if your organization is in an industry with employees younger than the average US employee population, you may want to adjust this the median to be lower even if you do not have the exact data specific to your organization.

All data fields that can be used are in black boxes in Figure 9. (Appendix Table 1 describes the data points in the “Employee Demographics” tab and their default values if you want to use these rather than your own data).

Figure 9: Employee Demographics available data entry fields

**Step 2: Enter Employee Demographics**

Note: You do not have to enter data you do not have. The model will automatically use the default value based on the US employee population for fields that are left blank.

**Total Number of Employees\***

\*Required

Use Default

**Percent of Employees Covered Under Firm's Health Plan**

Use Default

**Employee Median Age**

Use Default

**Percent of Employees by Sex (%)**

Male	
Female	
<b>Total</b>	<b>0.0%</b>

Use Default

**Percent of Employees by Age (%)**

18-44	
44-64	
65+	
<b>Total</b>	<b>0.0%</b>

Use Default

**Percent of Employees by Race and Ethnicity (%)**

Non-Hispanic White	
Non-Hispanic Black	
Hispanic	
Non-Hispanic Asian	
Other	
<b>Total</b>	<b>0.0%</b>

Use Default

← Back

Next →

A “Clear All Employee Demographic Data” button is provided to clear all values entered in this tab.

Clear All Employee  
Demographic Data

### Additional Data Elements for Subpopulation Analysis

*Data useful to have but not required for this section: proportion of employees for each of your desired subpopulations*

If you selected to run the analysis for subpopulations in the “Analysis Population” tab, you will be asked to enter Subpopulation data fields are shown in Figure 10 below.

For each subpopulation selected, you will need to select the most appropriate job function for each subgroup. If you are running the analysis for user-defined groups that are not by job function, select the industry of your organization (See the Appendix for industry descriptions) and the percent of employees (out of the total employee population) in each subpopulation. A “Clear All Subpopulation Data” button is provided to clear entered data.

Clear All Subpopulation  
Data

Figure 10: Subpopulation Data Fields

**Step 2.1: Enter Subpopulation Data**

*Note: If no values are entered, the default value based on the US working population averages will be used.*

**Clear All Subpopulation Data**

**Number of Subpopulation Selected**

5

Population	Enter Custom Label	Select Job Function	Enter Proportion of Employees
1		--Select Job Function--	
2		--Select Job Function--	
3		--Select Job Function--	
4		--Select Job Function--	
5		--Select Job Function--	
Total Employee Population			0.0%

[Click here to view job function descriptions](#)

**Back** ←

**Next** →

*This space is left intentionally blank*

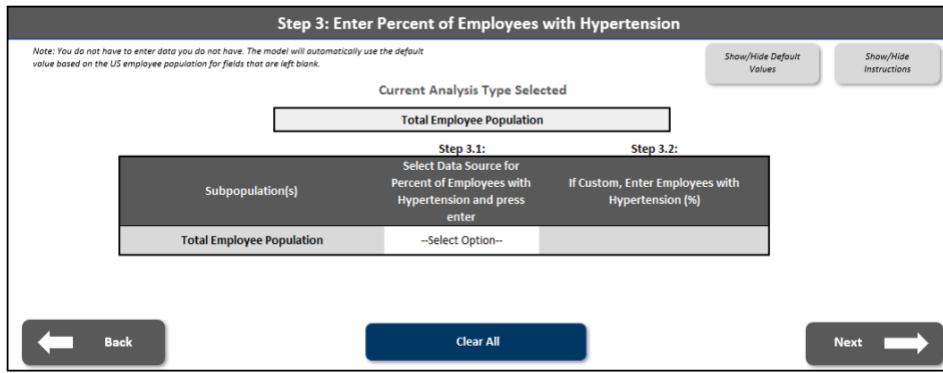


## Percent with Hypertension Tab

Data useful to have but not required for this tab: percent of employees with hypertension (overall or by subpopulation depending on analysis selected)

This tab allows you to enter the percent of employees with hypertension if this data point is known for your organization. If you do not know it, you can use the industry average (Figure 11). If you selected the Total Employee Population analysis from the “Analysis Population” tab, you would only need to choose the industry or enter data specific to your organization.

Figure 11: Percent with Hypertension Data Entry for “Total Employee Population” Option



**Step 3: Enter Percent of Employees with Hypertension**

Note: You do not have to enter data you do not have. The model will automatically use the default value based on the US employee population for fields that are left blank.

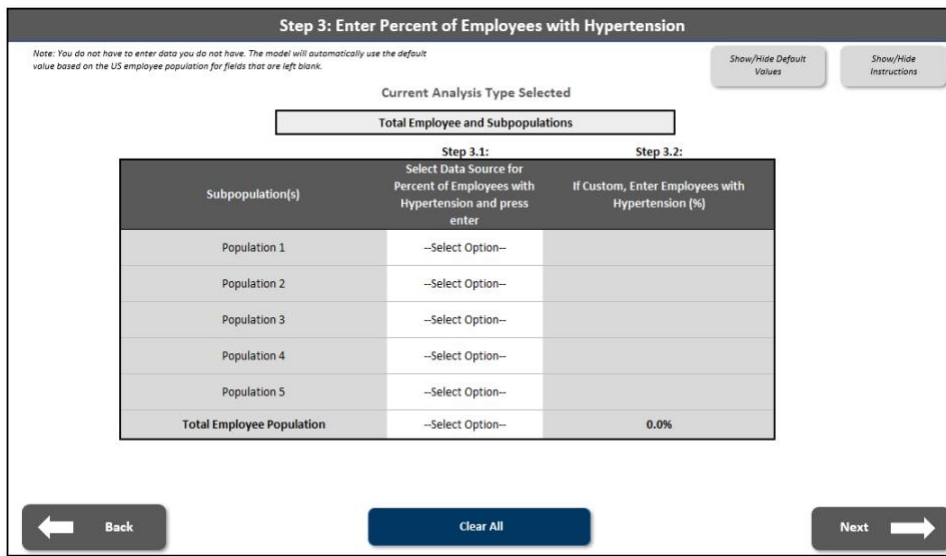
Current Analysis Type Selected: **Total Employee Population**

Subpopulation(s)	Step 3.1: Select Data Source for Percent of Employees with Hypertension and press enter	Step 3.2: If Custom, Enter Employees with Hypertension (%)
Total Employee Population	--Select Option--	

Buttons: Back, Clear All, Next

If the Total Employee and Subpopulations analysis was selected from the “Analysis Population” tab, you may select the industry average for selected subpopulation or enter data specific to each subpopulation (Figure 12), and the percent with hypertension for the total employee population will be calculated automatically.

Figure 12: Percent with Hypertension Data Entry for “Total Employee and Subpopulations” Option



**Step 3: Enter Percent of Employees with Hypertension**

Note: You do not have to enter data you do not have. The model will automatically use the default value based on the US employee population for fields that are left blank.

Current Analysis Type Selected: **Total Employee and Subpopulations**

Subpopulation(s)	Step 3.1: Select Data Source for Percent of Employees with Hypertension and press enter	Step 3.2: If Custom, Enter Employees with Hypertension (%)
Population 1	--Select Option--	
Population 2	--Select Option--	
Population 3	--Select Option--	
Population 4	--Select Option--	
Population 5	--Select Option--	
Total Employee Population	--Select Option--	0.0%

Buttons: Back, Clear All, Next

If you do not enter any data, the model will automatically use the US average of 48.1% of individuals with hypertension.<sup>2</sup>

Figure 13 below summarizes the available data options for percent of employees with hypertension.

Figure 13: Percent with Hypertension Data



### Use industry average

Apply the industry average for the total employee population or for each subpopulation.



### Use Custom Hypertension Rate

Input a custom percentage of employees with hypertension for the total population or for each subpopulation

To clear all data, you may click the “Clear All” button located at the bottom of the tab.

**Clear All**

## Cost Inputs Tab

*Data useful to have but not required for this tab: median hourly wage, average healthcare costs per employee per year, average number of hours absent from work in the past two weeks (absenteeism), average number of hours lost while at work in the past two weeks (presenteeism)*

In this tab, you will be asked to enter employee wage, healthcare costs, and productivity data to calculate the cost of hypertension for the entire employee population and each subpopulation depending on the type of analysis selected from the “Population Analysis” tab (i.e., Total Employee Population or Total Employee and Subpopulations). Data entry figures are shown in Figure 14 below.

<sup>2</sup> Estimated Hypertension Prevalence, Treatment, and Control Among U.S. Adults. Last accessed: 5/31/2023 Available at: [https://millionhearts.hhs.gov/data-reports/hypertension-prevalence.html#:~:text=Nearly%20half%20of%20adults%20have,5%20adults%20\(25.0%20million\).](https://millionhearts.hhs.gov/data-reports/hypertension-prevalence.html#:~:text=Nearly%20half%20of%20adults%20have,5%20adults%20(25.0%20million).)

Figure 14: Cost Inputs Data Entry





<a href="#">Click here to enter data for:</a>		<b>Total Employee Population</b>	
		<u>Average Hours within Past 2 Week per Employee</u>	
<b>Median Hourly Wage</b>	<b>Average Healthcare Costs per Employee per Year</b>	<b>Hours Absent from Work (Absenteeism)</b>	<b>Hours Lost While at Work (Presenteeism)</b>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<small>Use Default</small>	<small>Use Default</small>	<small>Use Default</small>	<small>Use Default</small>

Figure 15 describes four key data points that you can enter to calculate costs. (Table 2 in the Appendix shows the default values that you can use for the four data points in this tab, if you do not want to enter company-specific data.)

If you do not have the data, you may select the default option based on or you may leave the data entry box blank (and the model will automatically use the default). You can also adjust the default values based on your knowledge of specific industries. For example, the median hourly wage in the US is \$33, but if your organization is in an industry with generally higher wages than the average US population, you may want to adjust this number to be higher even if you do not have the exact data specific to your organization.

If you only know average annual salary, you can estimate it by dividing the annual salary by (number of hours in the work week x 52 weeks). For example, if the annual salary is \$75,000, the hourly wage would be  $\$75,000 / (40 \times 52) = \$36.06$  per hour.

Figure 15: Cost Input Data

<b>Employee Wage</b>	<b>Employee Health Costs</b>	<b>Absenteeism</b>	<b>Presenteeism</b>
			
Average hourly median wage for the total employee population or for each subgroup	Average healthcare costs per employee per year	Hours absent from work (e.g., paid time off, sick days) per employee in past two weeks	Hours lost while at work (e.g., time away from desk) per employee in the past two weeks

## Section 3: Model Output Tabs

### Key Results Tab

All results are estimated based on user-entered data or default values. The “Results Menu” tab will highlight, at a high-level, the impact of hypertension on your employee workforce and for each subpopulation based on analysis type selected. Figure 16 below sets out the overall results estimated for the total population and each subpopulation, and Figure 17 provides an example of the high-level results that are produced in this tab.

Figure 16: Key Results Estimated by the BIM








		
<p><b>Total Number of Covered Employees with Hypertension</b></p> <p><i>Total number of employees who are covered under your firm's health plan with hypertension</i></p>	<p><b>Additional per Employee Cost due to Hypertension</b></p> <p><i>The total additional cost to your firm, per employee, that can be explained by hypertension</i></p>	<p><b>Additional Total Annual Cost due to Hypertension</b></p> <p><i>The total additional cost (healthcare costs and productivity loss cost) for your firm that can be explained by hypertension</i></p>

Figure 17: High-level results example

 <p><b>Total Employee Population</b></p>		<p>Estimated Total Number of Covered Employees with Hypertension</p>	<p><b>46,473,547</b></p>
		<p>Additional per Employee Cost due to Hypertension</p>	<p><b>\$3,588</b></p>
		<p>Additional Total Annual Cost due to Hypertension within Workforce</p>	<p><b>\$166,764,022,954</b></p>

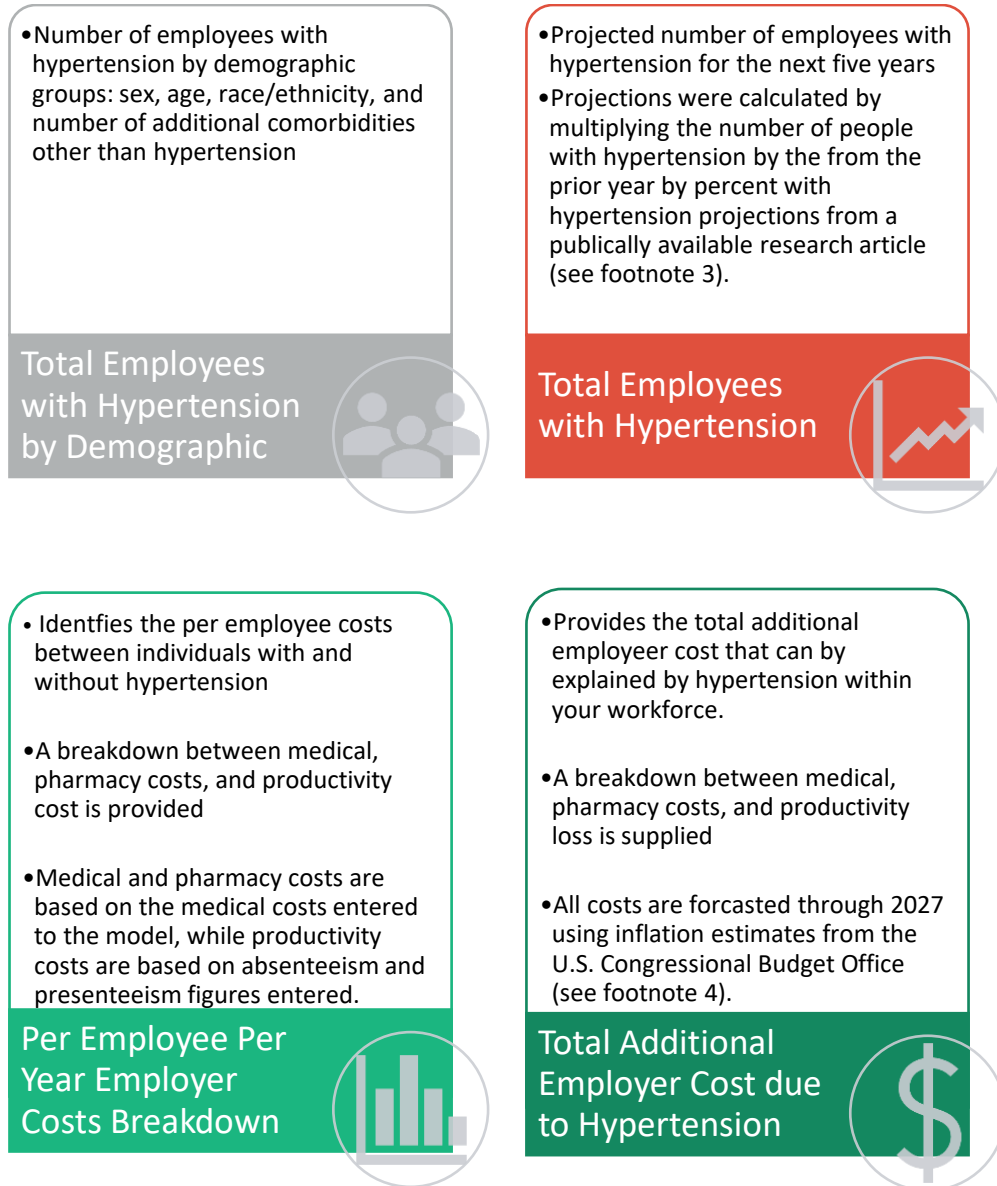
## Viewing Detailed Hypertension Impact Results

More detailed results on the impact of hypertension can be accessed by clicking on the blue population buttons on the left side of the “Results Menu” tab (see Figure 17 above).

The available results are shown in Figure 18 below. Detailed descriptions of all figures this model are in their respective sections below. Results shown in the figures below are from using all default data in the model (estimated for the US working population). Tables for each figure can be accessed when clicking the “Show/hide data tables” buttons located on each detailed results tab (total employee population and all subpopulation analyses).

*This space intentionally left blank*



Figure 18: Detailed Results Descriptions<sup>3,4</sup>

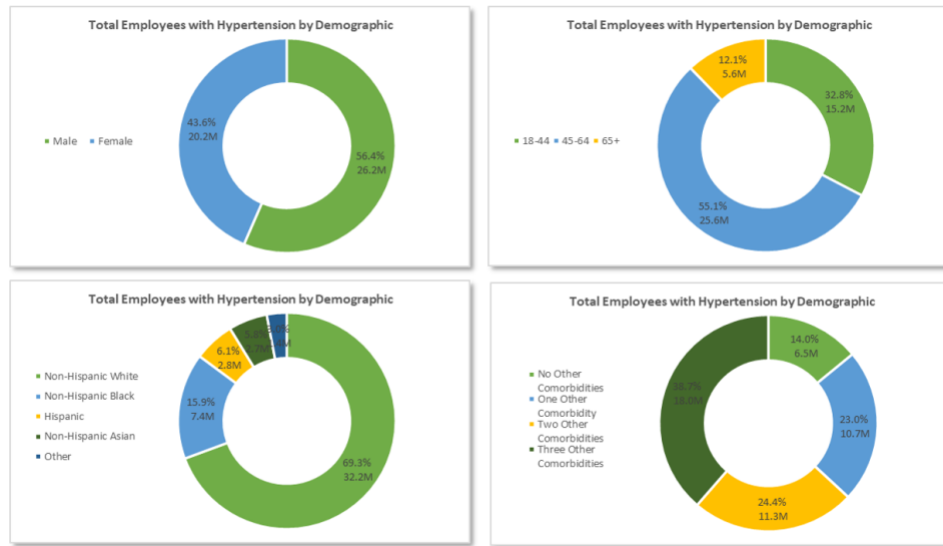
### Total Employees with Hypertension by Demographic Subgroups Graph

This graph is dynamic so you can change the subgroups of interest by using the buttons located above the graph. You can view the number of employees by demographic characteristics: sex, age, and race/ethnicity. You can also view the number employees with hypertension by the number of comorbidities that they are estimated to have. (Figure 19).

<sup>3</sup> Nelson, S., Whitsel, L., Khavjou, O., Phelps, D., & Leib, A. (2016). Projections of cardiovascular disease prevalence and costs. RTI International.

<sup>4</sup> Congressional Budget Office. (2021). The Economic Outlook for 2023 to 2033 in 16 Charts. Retrieved from <https://www.cbo.gov/publication/58957#:~:text=CBO%20projects%20that%20inflation%20as,of%20%20percent%20by%202026>.

Figure 19: Total Employees with Hypertension by Demographic Subgroups (Example)

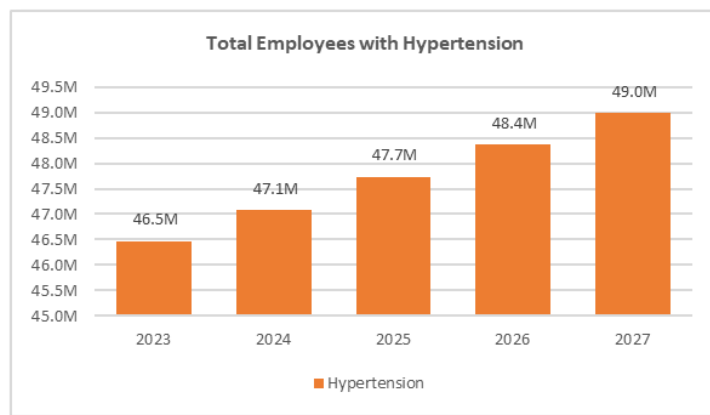


### Estimated Employees with Hypertension Graph

Figure 20 shows the estimated total employees in your company with hypertension in the current year and projections for the next four years.

The graph was generated under two assumptions. First, it assumes that the projections represent the total employees with hypertension if no intervention were implemented (i.e., if status quo continues). Thus, employers may manage and control hypertension in their employee population to reduce the number of employees with hypertension in future years. Second, the projections assume no growth or change in the employee population growth. Thus, projection numbers may differ slightly as employees enter and leave the population.

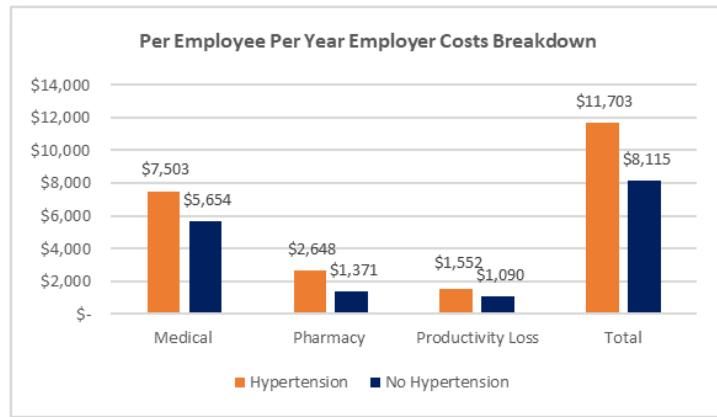
Figure 20: Total Employees with Hypertension outlook example



### Per Employee Per Year Employer Costs Breakdown Graph

The purpose of this graph is to show employer costs both for employees with and without hypertension (Figure 21). There are three sources of costs: medical, pharmacy, and productivity loss. For example, per person total costs are \$11,703 and \$8,115 for those with and without hypertension, respectively.

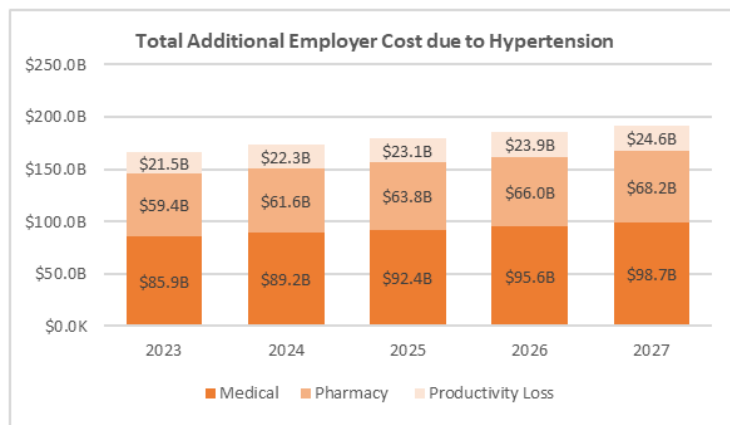
Figure 21: Per Employee Per Year Employer Costs Breakdown example



### Total Additional Employer Cost due to Hypertension Graph

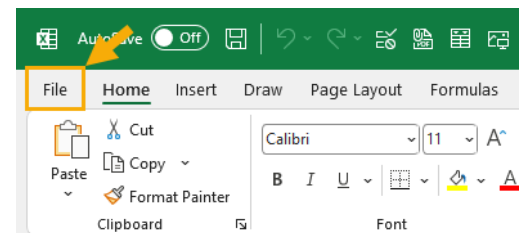
This graph identifies the total additional cost an organization accumulated, at the expense of the employer, due to hypertension (Figure 22). For example, the total employer cost of hypertension is \$166 billion in the employed US adult population in 2023, and \$85.9 billion of the total is estimated to be medical costs.

Figure 22: Total Additional Employer Cost due to Hypertension example



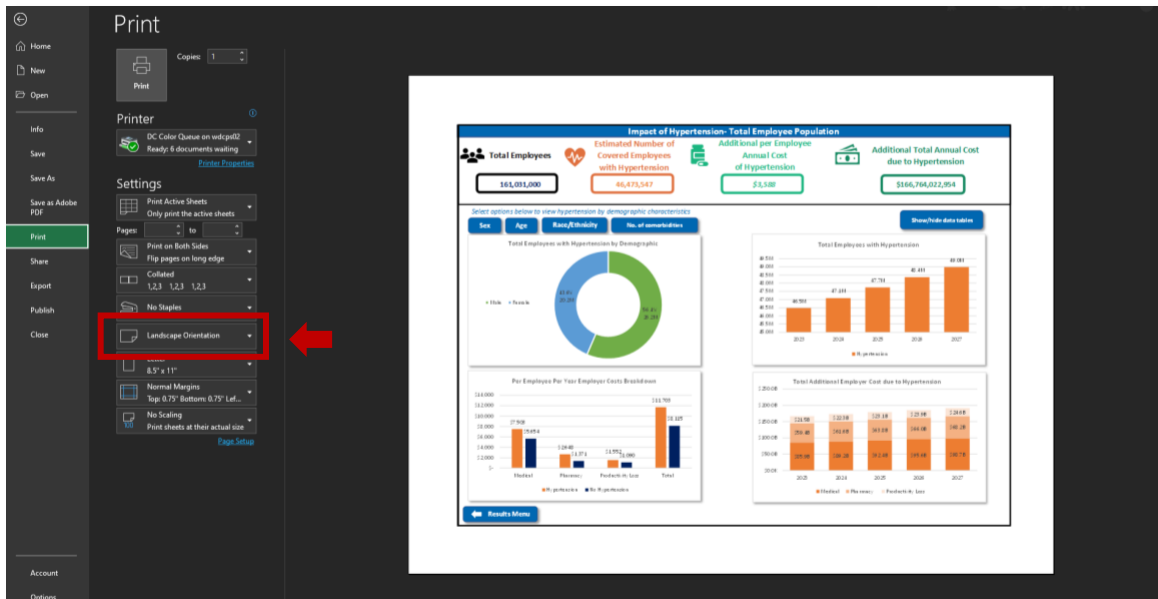
### Saving and Printing Results

Saving model results requires you to manually save the file. You can manually save the file by clicking “File” at the very top of the Excel ribbon (yellow box in the picture to the right) and clicking “Save As”. Please select your desired location and file name to complete this process.



Printing results from the model requires you to select “File” at the top of the Excel ribbon (shown above) and selecting the “Print” option. Please ensure that the setting in the print tab identifies the pages will be printed in landscape orientation (red box in Figure 23 below)

Figure 23: Printing Results Example



## Additional Model Tabs

All other tabs within the model program, which were not discussed in this document, are supplemental. In total, there are three supplemental tabs available to view for users: “Table of Inputs”, “Methodology”, and “References”. Figure 24 below provides additional detail on the additional model tabs provided in the model program.

Figure 24: Additional model tabs overview



### Table of Inputs

- Provides a detailed list of the specific data points used withing the model. Sources are all given.



### Methodology

- Provides and overview of the model structure to estimate the impact of hypertension



### References

- Provides all citations utilized to generate the model

## Model Assumptions and Limitations

### Assumptions

The following assumptions were made to model the budget impact of hypertension based on available data and parameters in the literature.

- The model presents average, population wide estimates and cannot be used to estimate costs of individual employees.
- The distribution of ages within each age group (e.g., 45-64) is assumed to be the same as the general population. This parameter, along with the employee median age, is used to obtain the age distribution of employees.
- Kirkland et al. (2018)<sup>5</sup> estimated health care expenditures attributed to hypertension using the Medical Expenditure Panel Survey (MEPS), which includes all payer types (i.e., Public, Private, Uninsured). Private expenditures were assumed to be commercial expenditures and employer-specific costs in the model. Public was assumed to be Medicare and Medicaid when transforming total medical expenditures to private and public amounts based on ratios published in the literature.
- Kirkland et al. (2018) reported unadjusted total medical expenditures for individuals with and without hypertension and adjusted incremental costs of hypertension. We assumed by using the risk-adjusted incremental costs of hypertension reported in Kirkland that the distribution of risk factors that impact health care costs in a specific employee population follow that of individuals with hypertension in the general population (since MEPS data are nationally representative).

### Limitations

This model has a number of limitations.

- Specific demographic subgroups may have different health care costs, but the model uses risk-adjusted incremental costs to address these differences. Prevalence of hypertension by different subgroups were estimated.
- The health care cost parameters are based on data from a nationally representative sample from 2003 to 2014. Health care practice and cost patterns may have changed since the publication of this study, but the study was the most comprehensive assessment of hypertension costs nationally available. To address this limitation, medical CPU was used to inflate the costs to 2023 USD.
- Indirect costs are derived from self-reported survey data and subject to some bias. However, indirect costs are adjusted based on employee characteristics.
- The model does not consider employee growth, decline, rehire, and retention rates.

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<sup>5</sup> Kirkland, E. B., Heincelman, M., Bishu, K. G., Schumann, S. O., Schreiner, A., Axon, R. N., ... & Moran, W. P. (2018). Trends in healthcare expenditures among US adults with hypertension: national estimates, 2003–2014. *Journal of the American Heart Association*, 7(11), e008731.



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## Appendix

### Input Tables

Table 1: Employee Demographic Data

Data Element	Default Value	Data Source	Additional Notes
<b>Total Employee Population*</b>	161,031,000	<a href="#">Bureau of Labor Statistics, 2023</a>	Data as of April 2023
<b>Percent of Employees Covered Under Firm's Health Plan</b>	60%	<a href="#">Kaiser Family Foundation, 2022</a>	
<b>Employee Median Age</b>	42	<a href="#">Bureau of Labor Statistics, 2022</a>	Last modified: September 8 <sup>th</sup> , 2022. If a median age is entered, the percent of employees 18-44 and 44-64 cannot be customized.
<b>Percent of Employees by Sex (%)</b>			
<i>Male</i>	53.2%	<a href="#">Bureau of Labor Statistics, 2023</a>	Data as of April 2023 (individuals aged 20+)
<i>Female</i>	46.8%	<a href="#">Bureau of Labor Statistics, 2023</a>	Data as of April 2023 (individuals aged 20+)
<b>Percent of Employees by Age (%)</b>			
<i>18-44</i>	54.7%	Calculated based on BLS median age and % of employees 65+	
<i>44-64</i>	38.7%	Calculated based on BLS median age and % of employees 65+	
<i>65+</i>	6.7%	<a href="#">Bureau of Labor Statistics, 2022</a>	
<b>Percent of Employees by Race and Ethnicity (%)</b>			
<i>Non-Hispanic White</i>	60.9%	<a href="#">Bureau of Labor Statistics, 2021</a>	
<i>Non-Hispanic Black</i>	11.9%	<a href="#">Bureau of Labor Statistics, 2021</a>	
<i>Hispanic</i>	18.3%	<a href="#">Bureau of Labor Statistics, 2021</a>	
<i>Non-Hispanic Asian</i>	6.3%	<a href="#">Bureau of Labor Statistics, 2021</a>	
<i>Other</i>	2.7%	<a href="#">Bureau of Labor Statistics, 2021</a>	
<b>Subpopulation Data elements**</b>			
<i>Custom label</i>	N/A	N/A	User can generate a custom label for each subpopulation
<i>Select job function</i>	N/A	N/A	User can select a job function for each population
<i>Percent of Employees</i>	N/A	N/A	User can enter the total the percent of employees, of the total employee population, that each subpopulation represents

\*Data element is required before advancing the model; \*\*Data elements only available when "Total Employee and Subpopulations" analysis was selected.

Table 2: Cost Input Default Values

Data Element	Default Value	Data Source	Additional Notes
Median hourly wage	\$33.36	<a href="#">Bureau of Labor Statistics, 2023</a>	Data as of April 2023. For salaried employees please convert average annual salary and by divide by the average hours employees work for annually (40 hours may be used as a standard).
Average healthcare cost per employee per year	\$8,528.55	Calculated from <a href="#">Kirkland, 2018</a> ; <a href="#">Congressional Budget Office, 2022</a> ; <a href="#">Zuckerman, 2019</a>	
Absenteeism (hours absent from work) within the past two weeks per employee	0.76	Calculated from <a href="#">Unmuessig, 2016</a>	
Presenteeism (hours lost while at work) within the past two weeks per employee	1.22	Calculated from <a href="#">Unmuessig, 2016</a>	

## Industry Descriptions

Table 3 below contains the available industries for users to select. Below each industry category contains the average industry percent of workers with hypertension, as well as example occupations. Industries, percent of workers with hypertension within each industry, and example occupations derive from a publicly available research study.<sup>6</sup>

Table 3: Industry Description

Executive, administrative, managerial	Professional specialty	Technicians/relative support	Sales	Administrative support, including clerical	Private household	Protective service	Service except private or protective	Farming, forestry, fishing	Precision, production, craft, repair	Machine operators, assemblers	Transportation/material moving	Handlers, equipment, cleaners, helpers, laborers
20.7%	17.6%	19.8%	24.3%	23.5%	10.5%	25.7%	21.7%	17.0%	19.9%	24.9%	27.9%	21.8%
Executives	Engineers	Technicians	Supervisors and proprietors	Secretaries	Private service occupations	Protective service occupations	Waiter and Waitresses	Farm Operators	Mechanics	Machine operators	Motor vehicle operators	Laborers
Administrators	Architects	Relative support occupations	Sales representatives	Stenographers			Cooks	Farm supervisors	Repairers	Fabricators		Construction Laborers
Managers	Scientists		Sales workers	Typists			Food preparers	Farm managers	Construction Trades	Assemblers		Freight, stock, and material Movers
Management-related occupation	Health diagnosis and assessment professions		Retail	Information Clerk			Cleaning and build service	Farm and nursery workers	Extractive and precision production	Inspectors		Equipment cleaners
	Teachers	Personal service	Records processing occupations			Personal Service	Agricultural, forestry, and fishing	Textile, apparel, and furnishing machine operators	Samplers			Hand packagers and laborers
	Writers		Material recording									
	Artists		Scheduling									
	Entertainers		Distribution clerks									
	Athletes											
	Other professional specialty occupations											

<sup>6</sup> Davila, E. P., Kuklina, E. V., Valderrama, A. L., Yoon, P. W., Rolle, I., & Nsubuga, P. (2012). Prevalence, management, and control of hypertension among US workers: does occupation matter?. *Journal of occupational and environmental medicine*, 1150-1156.