PULMONARY HYPERTENSION OUTCOMES RISK ASSESSMENT
A Personalized Counselor for Optimal Pulmonary Arterial Hypertension Therapy

USER GUIDE

version: 11-05-2018

Basic Features

This tutorial covers the basic features of the PHORA application. It is accessible over the Internet through a current web browser. It has been tested on several PC/Mac-based browsers, as well as iPhone/iPad. Note that Internet Explorer is not supported. We recommend Chrome.

1. To access PHORA, click or enter the following URL in your browser: **https://app.myPHORA.org**
2. As a first step, you will be asked to accept the terms of service, affirm your role and login with a username and password. If you do not already have login credentials, please register by selecting Sign Up.
3. Once logged in, it will take you to the list of patient profiles. There are two tabs:
   - "Demo" patients tab
   - An organization-specific tab which is accessible only to you and your organization

   Note that the demo patients are hypothetical case profiles, provided by our experts.

What is PHORA?

PHORA is a decision-support software tool for pulmonary arterial hypertension. This research is supported by the Heart, Lung, and Blood Institute of the National Institutes of Health. Our goals are:

- To provide personalized prognostic tools for physicians for survival and adverse events associated with pulmonary hypertension management.
- To capitalize on advanced computer learning and data mining technology.
- To assist the professional team with managing workflow.

The project was initiated in April 2017 and will continue through January 2021.

IMPORTANT: The current version of PHORA is provided for DEMONSTRATION PURPOSES ONLY. It has NOT been fully validated. It is not intended for evaluating patients or affecting clinical decisions.

4. Click **New** to add a new patient profile to your list. A popup will prompt you to fill in a name, age and WHO category. Click **OK** to save the profile.
5. You will see two panes on the Prognosis screen. To calculate a baseline risk score you will be prompted to enter additional information in the right pane. (Alternatively, on a small screen/iPad, the panes may be displayed vertically.)
   - The baseline variables are based on the REVEAL variable list.

- We suggest you enter at least seven (7) fields to get a meaningful REVEAL score (You may enter fewer or greater variables).

Please note that all numerical variables are "binned" meaning that they are categorized (e.g. high, nominal, low, very low…), nevertheless you must enter them numerically. Other variables that are purely categorical (Sex male/female) can be clicked directly

Click **Save**. This profile will be your baseline profile
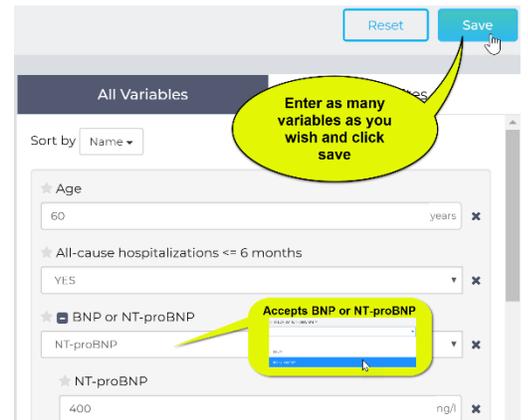
6. The risk scores for the baseline profile appear.
   - On a desktop/laptop, the left pane contains the graph reflecting the output of our Bayesian prognosis model and REVEAL 2.0 scores. (In the future you may see additional risk calculators.)
   - The right pane contains the variables used for the predictions.

You can enlarge the graph or perform "what if" analysis and update this profile(below).

Using myPHORA Features

Chart Featues

Popout Chart
The chart can be enlarged to full screen size by clicking the "pop out" arrows in the top right. To return to the dashboard, select escape (computer) or the "pop in" arrows (all platforms) to return to
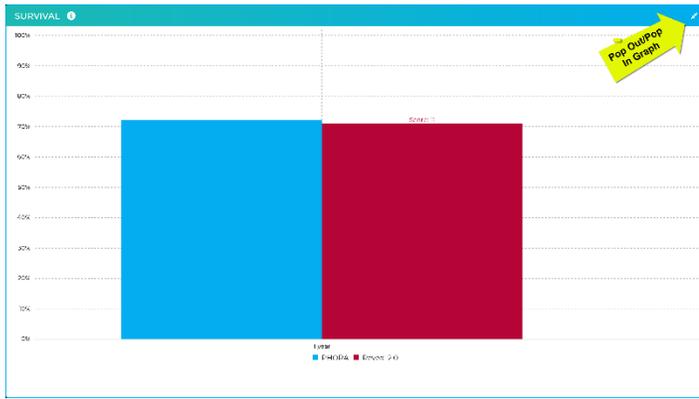
the dashboard. (In the future we will provide other visualizations, based on feedback from users like you!)

The main plot depicts one year survival, and currently provides two risk calculations,

The Prognostic Model.

PHORA is based on a Bayesian model of the patients in the REVEAL database. (Further versions will incorporate data from numerous clinical trials, currently in progress)

namely PHORA and REVEAL 2.0. In the near future it will also include survival other risk stratification methods, as suggested by you.

Display Chart Values

Simply hover over the chart to see a table of the values in the chart.

1 Year Survival		
PHORA	72%	High Risk
Reveal 2.0	71%	High Risk

What If Analysis and Update Baseline

To explore "what if" scenarios, you may edit any of the data elements on the right. You can continue to make changes and PHORA will automatically recalculate, displaying the baseline risk score and the scenarios scores side-by-side in the graph for comparison.
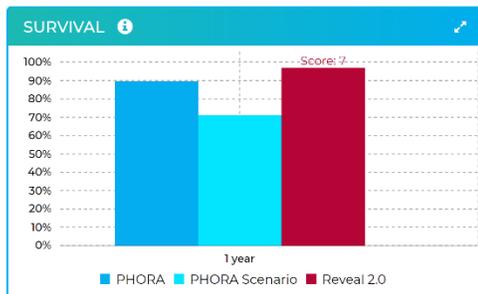
Clicking "Reset" will return the plot to the current baseline set of data.

Update Baseline

To save the scenario set of variables as the new baseline just click "Update."

Important Note: The original baseline will be overwritten and cannot be retrieved.

Filtering Favorites and Sorting Variables

You will also notice at the top of the right column is a selection of data sets: *All Variables* and *Favorites*. In the future there may be additional categories. The latter category(ies) simply hides some of the variables to make them easier to navigate.

Favorites: To add a "favorite" variable to your *Favorites* list, click inside the star next to its name

below in the *All Variables* list. You may remove the variable from *Favorites* by toggling on its star.

Sorting variables: You can sort variables either alphabetically, e.g. when you want to find a particular variable, by group or by "influence." (See figure on left.) The latter only applies to the PHORA model and may be somewhat counter-intutive, because the most influential variables do not necessarily alter the results the most. They are simply the variables that are most tightly tied to prognosis. In other words they affect the accuracy, or "uncertainty" of the PHORA model. In the future version, we will represent this using error guages. Then this will provide you some guidance about which tests or labs that might be most useful to improve the accuracy of the prognosis for a given patient.
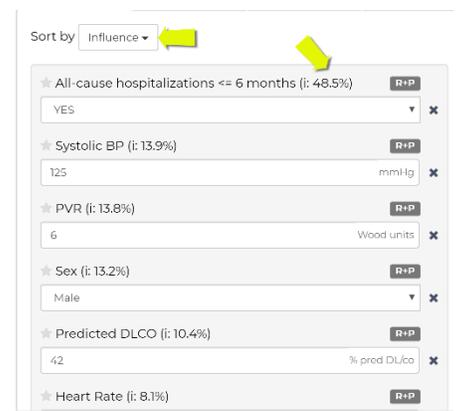
Future Versions

Your feedback on features is needed! In a future version of the app, we propose adding other risk stratification scores as well asTreatment Recommendations based on the baseline risk score. These profile-specific recommendations will be pulled from the current ERS Treatment Guidelines. The PHORA app will be Epic compatible in the future, enabling institutions to integrate Epic with PHORA.

Support

Assistance, Bugs or Feedback

Should you require assistance or find a bug in the application, please email us at support@myphora.org. Include "Bug", "App Assistance" or "Feedback" in the subject, along with the details of your request and if you desire followup from us. A **real live person** from our team (with technical expertise) will contact you! Note that we can only make US domestic phone calls at this time, but we can set up a web meeting for real time assistance with screen sharing.

Downtime

It is unnecessary to inform us if the site goes down, as we have a service that automatically contacts us if the site is offline. However at this time we do not have capability to display additional status information on the website. We will add such notifications as we get closer to implementing the final production version. Since PHORA is hosted on a research supercomputer, we may not provide the uptime you are accustomed to in commercial software.