

Prostate Clinical Outlook (PCO) Installation Guide

Table of Contents

<u>1.</u>	<u>INTRODUCTION</u>	<u>3</u>
<u>2.</u>	<u>PREREQUISITES</u>	<u>3</u>
<u>3.</u>	<u>INSTALLATION</u>	<u>3</u>
3.1	DOWNLOAD PCO SOURCE TO LOCAL FILE SYSTEM	3
3.2	MAKE PCO INSTALLATION DIRECTORY	3
3.3	COPY DOWNLOADED PCO SOURCE FILE TO INSTALLATION DIRECTORY	3
3.4	CHANGING EXECUTION DIRECTORY TO INSTALLATION DIRECTORY	4
3.5	INSTALL REQUIRED R LIBRARIES	4
3.6	RUN PCO SYSTEM	4
3.7	VIEW THE PCO USING WEB BROWSERS	4

1. Introduction

The Prostate Clinical Outlook(PCO) is a Point of Care Decision Support System to discuss likely outcome of therapy. The PCO based on Historical Data at Georgetown.

The PCO clinical test completed as a stand-alone system by Dr.Dritschilo at radiation department of Medstar Georgetown University Hospital.

2. Prerequisites

The PCO requires the following for installation:

1. Operating System: Mac OS X or Linux based OS
2. Database: MySQL Database Installation
(ref: <https://www.mysql.com>)
(initial userid/passwd(dbname) : shiny/shiny(CDSS))
3. R installation (ref: <https://cran.r-project.org/>)
4. Pandoc installation (ref: <http://pandoc.org/installing.html>)
5. Libraries and JDK installation
libssl-dev
libcurl4-openssl-dev
libmariadb-client-lgpl-dev
default-jdk (openjdk-8)
libv8-3.14-dev

3. Installation

3.1 Download PCO source to local file system

[download [URL:TBD](#)]

3.2 Make PCO installation directory

```
$ mkdir -p /srv/shiny-server/PCO
```

3.3 Copy downloaded PCO source file to installation directory

```
$ cp -rf [PCO download path]/* /srv/shiny-server/PCO/
```

3.4 Changing execution directory to installation directory

```
$ cd /srv/shiny-server/PCO
```

3.5 Install Required R libraries

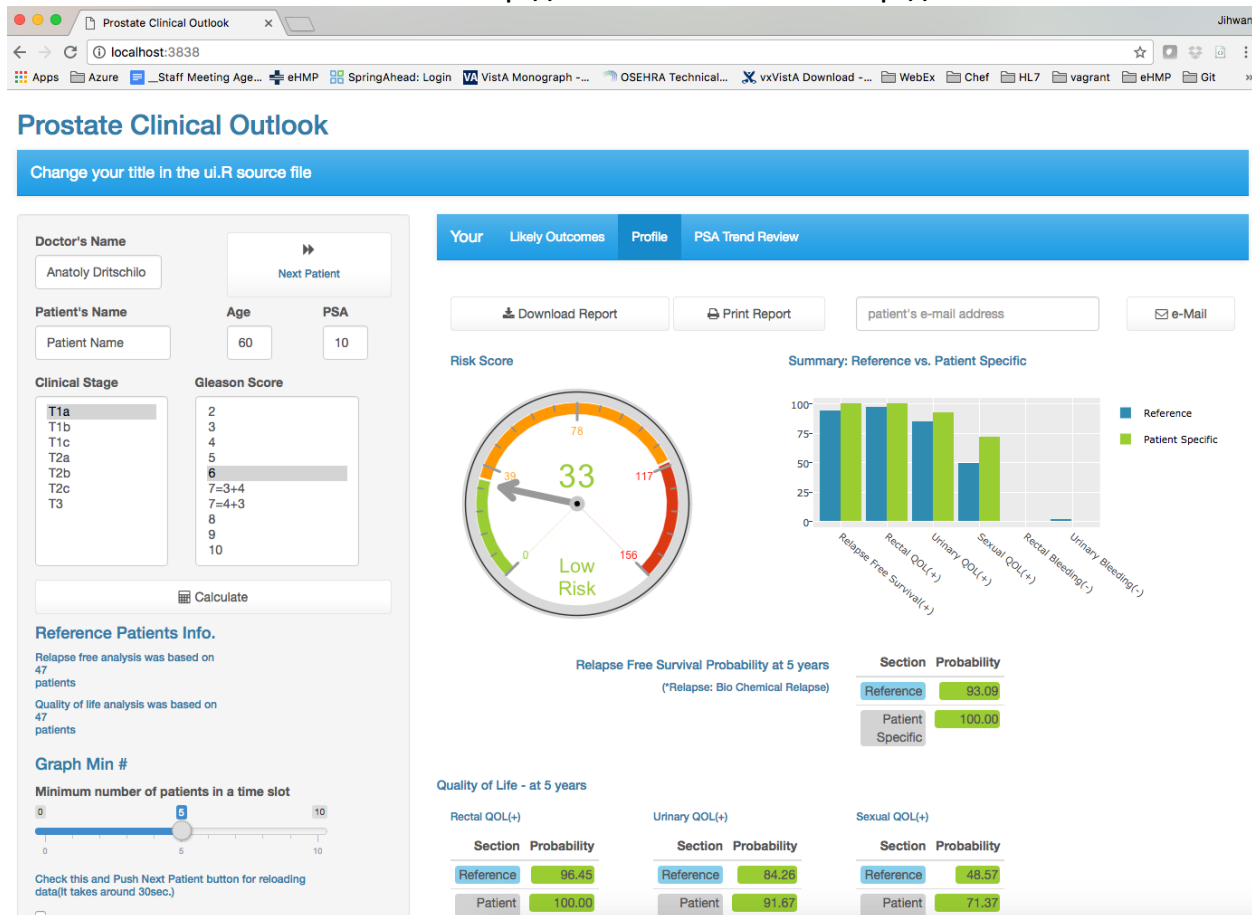
```
$ Rscript ./install_libraries.R
```

3.6 Run PCO system

```
$ sh ./PCO
```

3.7 View the PCO using web browsers

connect to the URL: <http://localhost:3838> or <http://127.0.0.1:3838>



Prostate Clinical Outlook (PCO) User Manual

Table of Contents

<u>THE PROSTATE CLINICAL OUTLOOK(PCO) FUNCTIONS</u>	<u>3</u>
<u>LONGITUDINAL LIKELY OUTCOME SCREEN</u>	<u>4</u>
<u>PSA TREND REVIEW SCREEN</u>	<u>5</u>
<u>USER INPUT FORM</u>	<u>6</u>
<u>REPORT FILE FUNCTION</u>	<u>7</u>
<u>REPORT FILE EXAMPLE</u>	<u>8</u>

The Prostate Clinical Outlook(PCO) Functions

The PCO has Navigation Bar, User Input form, Report File Function Buttons, and Dashboard Screen. On the bottom line, it shows disclaimer texts.

Prostate Clinical Outlook

Change your title in the ut.R source file

User Input

Doctor's Name
Anatoly Dritschilo

Patient's Name
Patient Name

Age
60

PSA
10

Clinical Stage
T1a
T1b
T1c
T2a
T2b
T2c
T3

Gleason Score
2
3
4
5
6
7=3+4
7=4+3
8
9
10

Calculate

Reference Patients Info.
Relapse free analysis was based on 47 patients
Quality of life analysis was based on 47 patients

Graph Min #
Minimum number of patients in a time slot
0 5 10

Check this and Push Next Patient button for reloading data(it takes around 30sec.)
☐ Reloading ON/OFF

☒ First Load

Navigation Bar

Your Likely Outcomes Profile PSA Trend Review

Download Report Print Report e-Mail

Report File Functions

Dashboard Screen

Risk Score
33
Low Risk

Summary: Reference vs. Patient specific

Relapse Free Survival Probability at 5 years
(Relapse: Bio Chemical Relapse)

Section	Probability
Reference	93.5%
Patient Specific	100.0%

Quality of Life - at 5 years

Section	Probability
Reference	95.4%
Patient Specific	100.0%

Section	Probability
Reference	94.2%
Patient Specific	91.6%

Section	Probability
Reference	49.0%
Patient Specific	71.3%

Section	Probability
Reference	0%
Patient Specific	0%

Section	Probability
Reference	0.9%
Patient Specific	0.0%

Disclaimer - Not for use for patient care, this information is for investigational use only.
This site is powered by shiny/MIT License, formatable/MIT License, R and R shiny

Disclaimer

Longitudinal Likely Outcome Screen

To see the longitudinal plots such as relapse free survival probability and quality of life(QOL) trend, select “Likely Outcomes” on the navigation bar.

On the plots, comparing the “Patient Specific” line to the “Reference” line.

Your

Likely Outcomes

Profile

PSA Trend Review

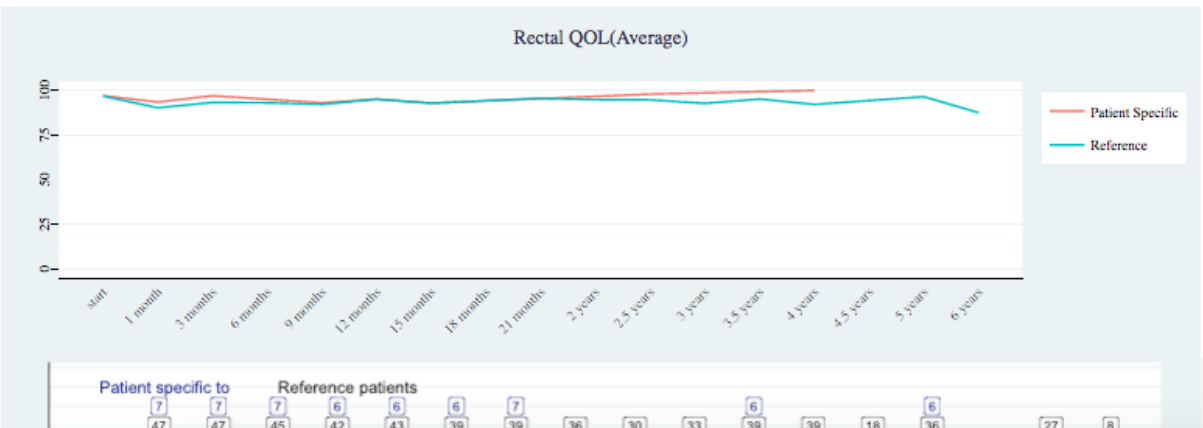
1. Relapse Free Survival Probability

(* Relapse: Biochemical Relapse)



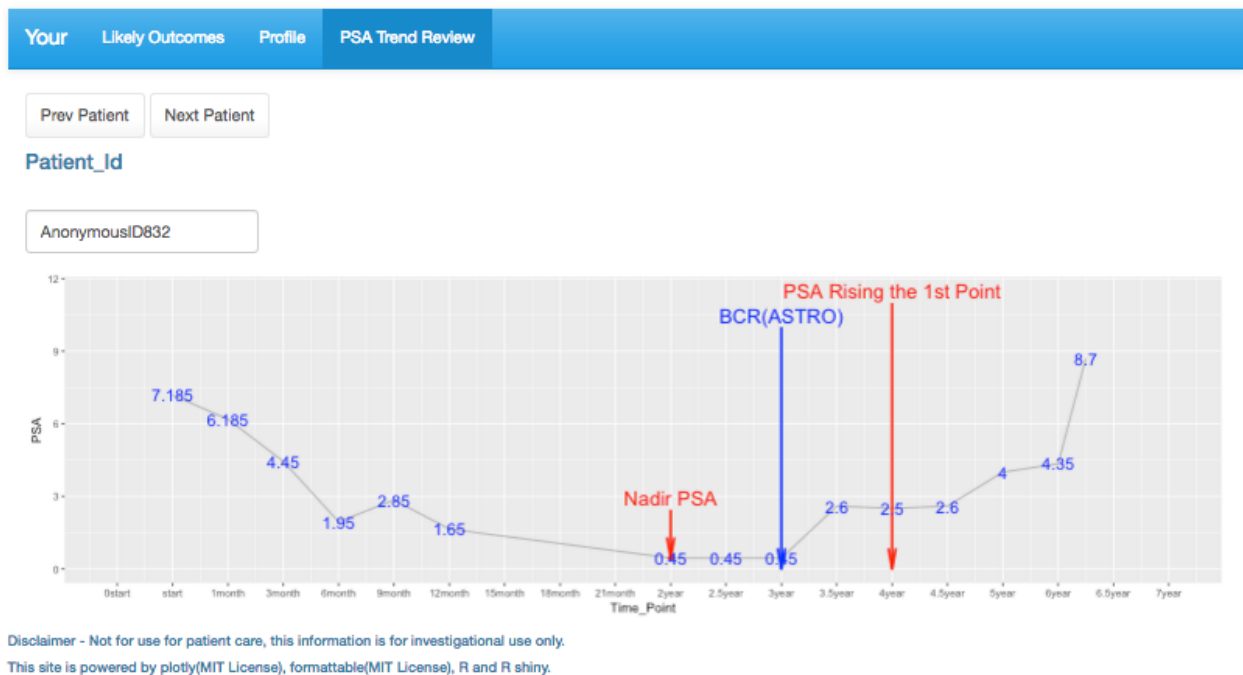
2. Rectal Quality of Life

2.1 Rectal Quality of Life Overall



PSA Trend Review Screen

Using the “Prev Patient” and “Next Patient” button, to navigate the patient’s PSA value trends, Nadir PSA, and Bio Chemical Relapse(BCR) information.



User Input form

1. Insert or select required information for blue dot numbers such as 1.Doctor's Name, 2.Patient's Name, 3.Age, 4.PSA Value, 5.Clinical Stage, and 6.Gleason Score.
2. To see the patient specific likely outcome result, press orange number 1. Calculate button. For next patient, press orange number 2. Next Patient button for reset previous information on the screen.
3. Green number 1 shows number of patient to calculate result.
4. Green number 2 represents the minimum number of patient in a time slot on the longitudinal plots on the "Likely Outcome" screen
5. To reload data, check the green number 3 "Reloading ON/OFF" check box on. To see the result of new data, press the orange number 2 "Next Patient" Button.

Doctor's Name ①
Anatoly Dritschilo

Patient's Name ②
Patient Name

Age ③
60

PSA ④
10

Clinical Stage ⑤
T1a
T1b
T1c
T2a
T2b
T2c
T3

Gleason Score ⑥
2
3
4
5
6
7=3+4
7=4+3
8
9
10

Calculate ①

Next Patient ②

Reference Patients Info. ①
Relapse free analysis was based on 47 patients
Quality of life analysis was based on 47 patients

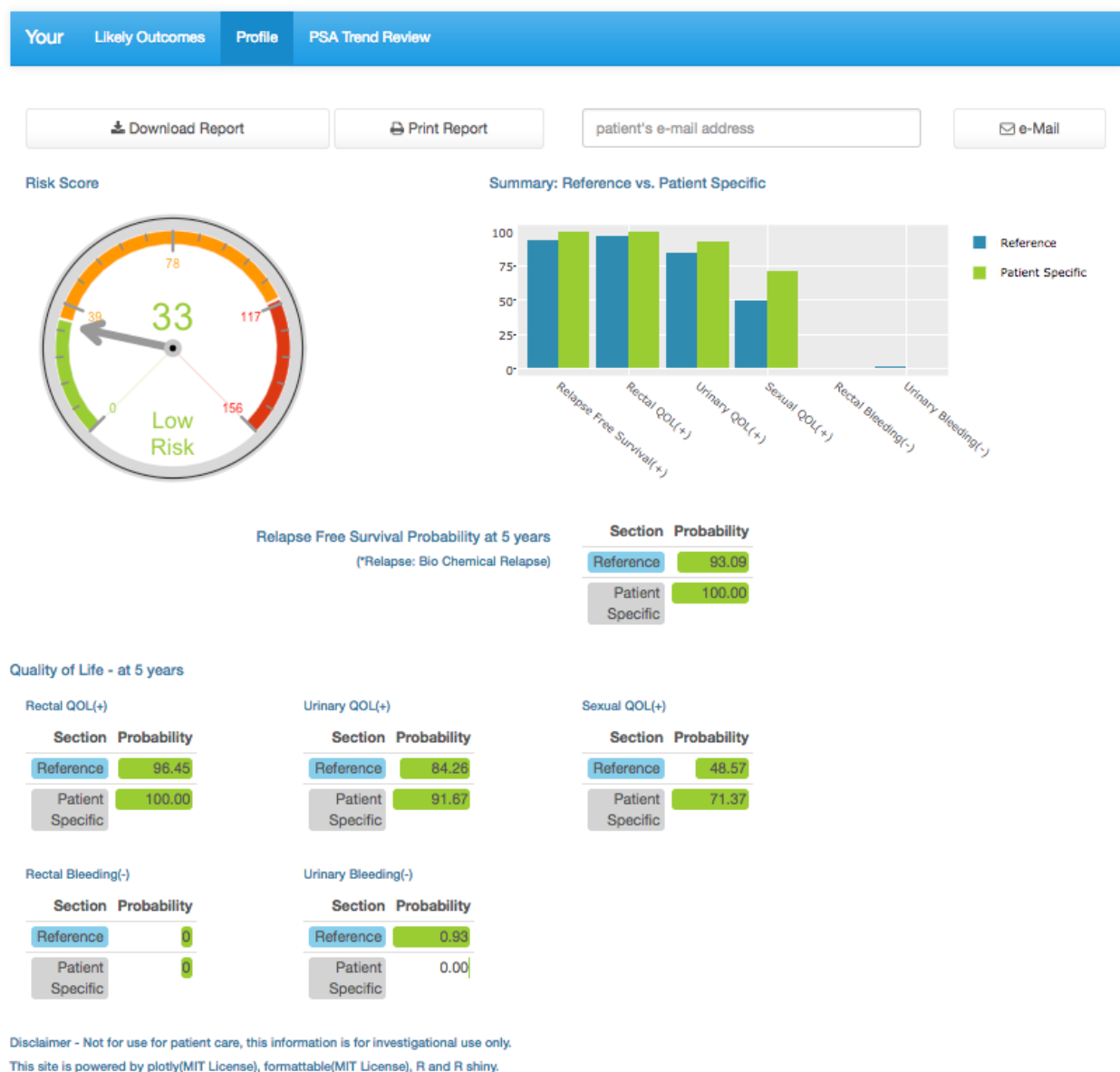
Graph Min # ②
Minimum number of patients in a time slot
0 5 10

Check this and Push Next Patient button for reloading data(it takes around 30sec.)
☐ Reloading ON/OFF ③
☒ First Load ④

- ① Doctor's Name
- ② Patient's Name
- ③ Age
- ④ PSA Value
- ⑤ Clinical Stage
- ⑥ Gleason Score
- ① Likely Outcome Calculate Button
- ② Next Patient Button(Reset Button)
- ① Number of patient to calculate result
- ② For Longitudinal Plot, Set Minimum Number of Patient in a Time Slot
- ③ Data Reloading Check Button
- ④ First Load Check Button(System Only Option, Always On)

Report File Function

1. To download report pdf file, press the “Download Report” button
2. To print dashboard screen, press the “Print Report” button(Safari web browser optimized)
3. To send pdf report file, insert email receiver address into “patient’s e-mail address” box and press the “e-Mail” button.



From the left top side, Risk Score gauge chart, Likely outcome summary bar plot, Relapse Free Survival Probability at 5 years table, and Quality of Life at 5 years tables.

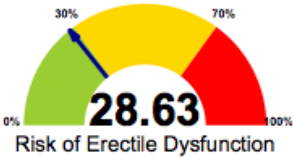
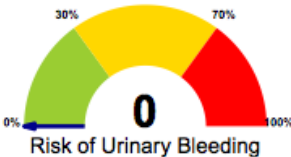
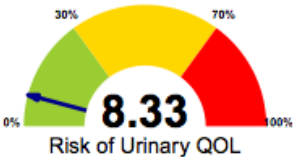
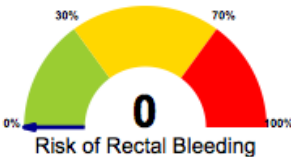
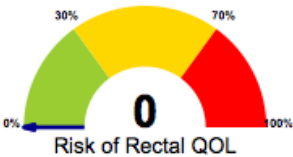
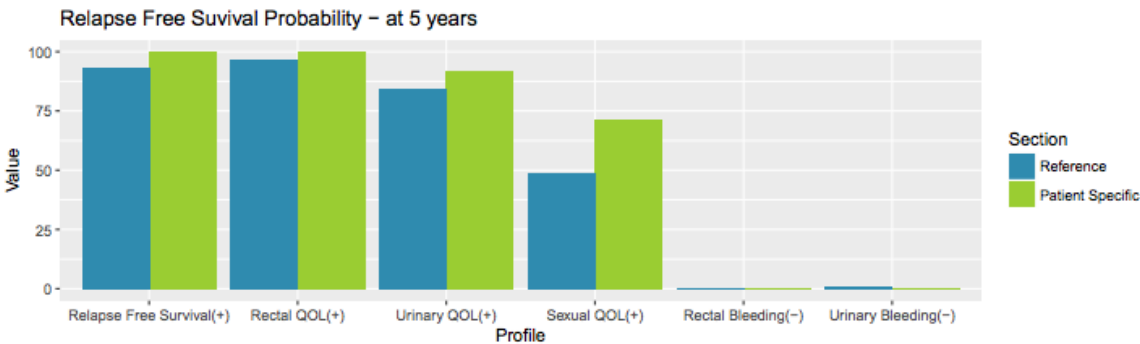
Report File Example

This is example of report file

Patient's Report / Date: 2017-04-25 / Doctor: Anatoly Dritschilo

Table 1: Patient Information

Name	AGE	T_Stage	GleasonsSum	PSA
Patient Name	60	T1a	6	10



Disclaimer - Not for use for patient care, this information is for investigational use only.