Models on the Peer Models Network

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Chapter 1

Introduction

This user guide includes information about models hosted on the Peer Models Network.

Chapter 2

ACCEPT

Field	Value
Model Name	Acute COPD Exacerbation Prediction Tool (ACCEPT)
Modelling Team	RESP
Publication	doi:10.1016/S2213-2600(19)30397-2
Purpose	Predict probability, rate, and severity of COPD exacerbations
Video	The ACCEPT Model in 90 Seconds
Interviews	Amin Adibi on the ACCEPT Model for COPD: Why and How
Media	COPD exacerbations: finally, a more than ACCEPTable risk score
Web App	ACCEPT web App
R Package	accept
Excel Sheet	PC Version
API User Guide	Link

Chapter 3

BODE

Field	Value
Model Name	The Body-Mass Index, Airflow Obstruction, Dyspnea, and Exercise Capacity Index
Modelling Team	Celli et al.
Publication	10.1056/NEJMoa021322
Outcome	Mortality Risk
R Package	bode
API User Guide	Link

Chapter 4

CFMortality

Field	Value
Model Name	Mortality prediction models in cystic fibrosis
Modelling Team	Stanojevic et al.
Publication	10.1183/13993003.00224-2019
Outcome	Mortality Risk
Video	
R Package	cfmortality
API User Guide	Link

Chapter 5

CHDWilson

Field	Value
Model Name	Prediction of Coronary Heart Disease Using Risk Factor Categories
Modelling Team	Wilson et al.
Publication	10.1161/01.CIR.97.18.1837
Outcome	Coronary Heart Disease
Excel Sheet	PC Version
R Package	chdwilson
API User Guide	Link

Chapter 6

CODEXCOPD

Field	Value
Model Name	The CODEX (comorbidity, obstruction, dyspnea, and previous severe exacerbations) Index
Modelling Team	Almagro et al.
Publication	10.1378/chest.13-1328
Outcome	Survival and readmission at both 3 months and 1 year after hospital discharge for a COPD exacerbation
R Package	codexcopd
API User Guide	Link

Chapter 7

COVIDSEIR

Field	Value
Model Name	Bayesian SEIR model to estimate physical-distancing effects
Modelling Team	Anderson et al.
Publication	10.1101/2020.04.17.20070086
Outcome	COVID-19 Cases
R Package	covidseir
API User Guide	Link

Chapter 8

CVDAnderson

Field	Value
Model Name	Prediction of Coronary Heart Disease Using Risk Factor Categories
Modelling Team	Anderson et al.
Publication	10.1016/0002-8703(91)90861-B
Outcome	CHD, MI, CHD Mortality, Stroke, CVD, CVD Mortalitye
R Package	cvdanderson
API User Guide	Link

Chapter 9

EPIC

Field	Value
Model Name	Evaluation Platform in COPD (EPIC)
Modelling Team	RESP
Publication	doi:10.1177%2F0272989X18824098
Outcome	Patient-level outcomes, as well as mortality, prevalence, QALYs, costs, etc.
Video	The EPIC Model in 2 Minutes
Interviews	Mohsen Sadatsafavi on the EPIC Model
R Package	epicR
Excel Sheet	PC Version
API User Guide	Link

Chapter 10

FEV1

Field	Value
Model Name	Individualized prediction of lung-function decline in COPD
Modelling Team	RESP
Publication	doi:10.1503/cmaj.151483
Outcome	Lung function over next 11 years
Web App	FEV1 web App
Excel Sheet	PC Version
R Package	fev1
API User Guide	Link

Chapter 11

QRISK3

Field	Value
Model Name	10-Year Cardiovascular Disease Risk Calculator
Modelling Team	Hippisley-Cox et al.
Publication	10.1136/bmj.j2099
Outcome	10-yr risk of heart attack/stroke
R Package	QRISK3
API User Guide	Link

Chapter 12

API Users' Guide

12.1 ACCEPT

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patients provided in the `accept` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("accept", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

Cloud Access through Python

```
import json
import requests
url = 'https://prism.peermodelsnetwork.com/route/accept/run'
headers = {'x-prism-auth-user': YOUR_API_KEY}
model_run = requests.post(url, headers=headers,
json = {"func":["prism_model_run"],"model_input":[{"ID": "10001","male": 1,"age": 57,"smoker": 0,
print(model_run)
results = json.loads(model_run.text)
print(results)
```

Cloud Access through Linux Bash

In Ubuntu, you can call the API with `curl`:

```
curl \
-X POST \
-H "x-prism-auth-user: REPLACE_WITH_API_KEY" \
-H "Content-Type: application/json" \
-d '{"func":["prism_model_run"],"model_input":[{"ID": "10001","male": 1,"age": 57,"smol
https://prism.peermodelsnetwork.com/route/accept/run
```

12.2 BODE

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `bode` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("bode", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

Cloud Access through Linux Bash

In Ubuntu, you can call the API with `curl`:

```
curl \
-X POST \
-H "x-prism-auth-user: REPLACE_WITH_API_KEY" \
-H "Content-Type: application/json" \
-d '{"func":["prism_model_run"],"model_input":[{"FEV1": 40,"mMRC": 3,"BMI": 22,"walk":
https://prism.peermodelsnetwork.com/route/bode/run
```

12.3 EPIC

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `epicR` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("epic", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

12.4 FEV1

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `fev1` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("fev1", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

Cloud Access through Linux Bash

In Ubuntu, you can call the API with `curl`:

```
curl \
-X POST \
-H "x-prism-auth-user: REPLACE_WITH_API_KEY" \
-H "Content-Type: application/json" \
-d '{"func":["prism_model_run"],"model_input":[{"male":1,"age":70,"smoker":1,"FEV1":2.5,"height":
https://prism.peermodelsnetwork.com/route/fev1/run
```

12.5 CVDAnderson

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `cvdanderson` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("cvdanderson", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

Cloud Access through Linux Bash

In Ubuntu, you can call the API with `curl`:

```
curl \
-X POST \
-H "x-prism-auth-user: REPLACE_WITH_API_KEY" \
-H "Content-Type: application/json" \
-d '{"func":["prism_model_run"],"model_input":[{"age": 33,"gender": 1,"Tchol": 230,"EC
https://prism.peermodelsnetwork.com/route/cvdanderson/run
```

12.6 CHDWilson

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `chdwilson` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("chdwilson", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

Cloud Access through Linux Bash

In Ubuntu, you can call the API with `curl`:

```
curl \
-X POST \
-H "x-prism-auth-user: REPLACE_WITH_API_KEY" \
-H "Content-Type: application/json" \
-d '{"func":["prism_model_run"],"model_input":[{"age": 55,"gender": 1,"TChol": 250,"LDl
https://prism.peermodelsnetwork.com/route/chdwilson/run
```

12.7 CFMortality

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `chdwilson` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("cfmortality", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

Cloud Access through Linux Bash

In Ubuntu, you can call the API with `curl`:

```
curl \
-X POST \
-H "x-prism-auth-user: REPLACE_WITH_API_KEY" \
-H "Content-Type: application/json" \
-d '{"func":["prism_model_run"],"model_input":[{"male": 0,"age": 57,"fvc": 66.7,"fev1": 47.4,"fev
https://prism.peermodelsnetwork.com/route/cfmortality/run
```

12.8 QRISK3

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `QRISK3` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("qrisk3", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

12.9 CODEXCOPD

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `codexcopd` package:

```
remotes::install_github (resplab/peermodels)
library(peermodels)
connect_to_model("codexcopd", api_key = YOUR_API_KEY)
input <- get_default_input()
results <- model_run(input)
```

Cloud Access through Linux Bash

In Ubuntu, you can call the API with `curl`:

```
curl \
-X POST \
-H "x-prism-auth-user: REPLACE_WITH_API_KEY" \
-H "Content-Type: application/json" \
-d '{"func":["prism_model_run"],"model_input":[{"age":40,"charlson":8,"FEV1":40,"mMRC"
https://prism.peermodelsnetwork.com/route/codexcopd/run
```

12.10 COVIDSEIR

Cloud Access through R

Users can access models on the Peer Models Network using the `peermodels` R package, available on GitHub. The following code snippet illustrates how you can run the model for example patient provided in the `covidseir` package:

```
library(peermodels)
connect_to_model("covidseir", api_key = YOUR_API_KEY, bypass_router = T)
input <- get_default_input()
names(input)
input$daily_cases
results <- model_run(input)
names(results)
draw_plots()
```

Cloud Access through Python

```
import json
import requests
url = 'http://model-covidseir.cp.prism-ubc.linaralabs.com/ocpu/library/covidseirPrism/
headers = {'x-prism-auth-user': 'YOUR_API_KEY'}
default_input = requests.post(url, headers=headers,json = {"func":["get_default_input"]
# json_default_input = json.loads(default_input.json()[0]) # OR:
json_default_input = json.loads(json.loads(default_input.text)[0])
response = requests.post(url, headers=headers,json = {"func":["prism_model_run"], "mode
results = json.loads(response.text)
```

Cloud Access through Linux Bash

In Ubuntu, you can call the API with `curl`:

```
curl \
-X POST \
-H "x-prism-auth-user: YOUR_API_KEY" \
-H "Content-Type: application/json" \
```

```
-d '{"func":["prism_model_run"],"model_input":{"daily_cases":[0,0,1,3,1,8,0,6,5,0,7,7,18,9,22,38,
} ' \
http://model-covidseir.cp.prism-ubc.linaralabs.com/ocpu/library/covidseirPrism/R/gateway/json
```