library RespiratoryAssistDevicesFaceToFacePrepopulation version '0.1.0'

using FHIR version '4.0.0'

include FHIRHelpers version '4.0.0' called FHIRHelpers

include CDS\_Connect\_Commons\_for\_FHIRv400 version '1.0.2' called CDS

include DTRHelpers version '0.1.0' called DTR

codesystem "LOINC": 'http://loinc.org'

codesystem "HCPCS": 'https://bluebutton.cms.gov/resources/codesystem/hcpcs'

//Motor Neuron Disease or Spinal Muscular Atrophy Disorder

valueset "Neuromuscular Disease": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113762.1.4.1219.44'

//Chronic Obstructive Lung Disease (COPD)

valueset "COPD": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113762.1.4.1219.6'

//Hypoventilation Disorder

valueset "Hypoventilation Disorder": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113762.1.4.1219.121'

//Sleep Apnea or Breathing Related Sleep Disorder

valueset "Apnea Sleep Disorder": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113762.1.4.1219.31'

//Apnea Hypopnea Index Rate Measurement

valueset "AHI\_Codes": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113762.1.4.1219.123'

//Maximal Inspiratory Pressure Measurement

valueset "MIP\_Codes": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113762.1.4.1219.125'

//Forced Vital Capacity (FVC) Measurement Prediction

valueset "FVC\_Codes": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113762.1.4.1219.131'

//Forced Expiratory Volume in One Second (FEV1)/Forced Vital Capacity (FVC) Measurement

valueset "FEV1\_FVC\_Ratio\_Codes": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113762.1.4.1219.124'

// LOINC code 'FEV1 measured/predicted' observation

code "20152-5": '20152-5' from "LOINC"

parameter device\_request DeviceRequest

context Patient

define "HasNeuromuscularDisease": exists([Condition: "Neuromuscular Disease"])

define "HasCOPD": exists([Condition: "COPD"])

define "HasCSAorCompSA": exists([Condition: "Apnea Sleep Disorder"])

define "HasHypoventilationDisorder": exists([Condition: "Hypoventilation Disorder"])

define "HasOSA": exists([Condition: "Apnea Sleep Disorder"])

define "AHI": DTR.GetObservationValue(CDS.MostRecent(CDS.WithUnit(CDS.Verified(CDS.ObservationLookBack([Observation: "AHI\_Codes"], 9 months)), '/h')))

define "MIP": DTR.GetObservationValue(CDS.MostRecent(CDS.WithUnit(CDS.Verified(CDS.ObservationLookBack([Observation: "MIP\_Codes"], 9 months)), 'cm[H2O]')))

define "FEV1\_FVC\_Ratio": DTR.GetObservationValue(CDS.MostRecent(CDS.WithUnit(CDS.Verified(CDS.ObservationLookBack([Observation: "FEV1\_FVC\_Ratio\_Codes"], 9 months)), '%')))

define "FVC": DTR.GetObservationValue(CDS.MostRecent(CDS.WithUnit(CDS.Verified(CDS.ObservationLookBack([Observation: "FVC\_Codes"], 9 months)), '%')))

// Observation code lists

define "FEV1\_predicted": { "20152-5" }

define "FEV1": DTR.GetObservationValue(CDS.MostRecent(CDS.WithUnit(CDS.Verified(CDS.ObservationLookBack([Observation: "FEV1\_predicted"], 9 months)), '%')))