

Package ‘OmopIndices’

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Type Package

Title Patient-Level Indices from the OMOP Common Data Model

Version 0.1.0

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Description Provides tools to derive standardised, reproducible patient-level indices and covariates from Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM) databases. Functions calculate comorbidity and frailty scores, including the Charlson Comorbidity Index, Electronic Frailty Index, and Hospital Frailty Risk Score, as well as body mass index, polypharmacy, ethnicity, location, and socioeconomic status measures.

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Encoding UTF-8

Suggests CDMConnector, CodelistGenerator, CohortConstructor, DBI, duckdb, gt, here, htmltools, knitr, odbc, omock, PhenotypeR, rmarkdown, RPostgres, testthat, visOmopResults

URL <https://OHDSI.github.io/OmopIndices/>

BugReports <https://github.com/OHDSI/OmopIndices/issues>

Imports cli, clock, dplyr, omopgenerics (>= 1.4.0), PatientProfiles, purrr, rlang

Depends R (>= 4.1.0)

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addBMI	<i>Add Body Mass Index measurement</i>
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Description

Add Body Mass Index measurement

Usage

```
addBMI(
  x,
  conceptSet = NULL,
  indexDate = "cohort_start_date",
  window = c(-Inf, 0),
  order = "last",
  nameStyle = "bmi",
  categories = NULL,
  inObservation = TRUE,
  name = tableName(x)
)
```

Arguments

x	A cdm_table containing a person identifier column named person_id or subject_id.
conceptSet	A named concept set supplied as a codelist, codelist_with_details, concept_set_expression, or named list of concept IDs. It must contain obesity, bmi as concepts. By default, internal codelists are used.
indexDate	A character string naming the Date column in x that defines the index date.
window	A numeric vector of length two, c(min, max), defining the window for BMI in days relative to indexDate. Use -Inf or Inf for an unbounded lower or upper limit.

order	A character string specifying how to select among multiple BMI measurements within the window: last (latest), first (earliest), max (highest), or min (lowest).
nameStyle	A character string specifying the name of the new column.
categories	A named list of numeric vectors, each containing the lower and upper bounds of a BMI interval. An additional categorical column is added, and missing BMI values are labelled missing.
inObservation	Logical; whether to restrict records to the person's observation period.
name	A character string specifying the name of the output table. If NULL, a temporary table is created.

Value

The table x with a new column containing the selected BMI value.

Examples

```
library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

cdm$cohort |>
  addBMI(window = c(-365, 0), order = "last") |>
  select(subject_id, cohort_start_date, bmi) |>
  glimpse()
```

addCharlsonIndex	<i>Add Charlson Comorbidity Index (CCI) value based on Charlson et al. (1987) (Rhrefhttps://doi.org/10.1016/0021-9681(87)90171-8) and Charlson et al. (1994) (Rhrefhttps://doi.org/10.1016/0895-4356(94)90129-5) (age-adjusted) version.</i>
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Description

Add Charlson Comorbidity Index (CCI) value based on Charlson et al. (1987) ([doi:10.1016/0021-9681\(87\)90171-8](https://doi.org/10.1016/0021-9681(87)90171-8)) and Charlson et al. (1994) ([doi:10.1016/0895-4356\(94\)90129-5](https://doi.org/10.1016/0895-4356(94)90129-5)) (age-adjusted) version.

Usage

```
addCharlsonIndex(
  x,
  indexDate = "cohort_start_date",
  ageAdjusted = TRUE,
  conceptSet = getIndexCodelist("charlson"),
  nameStyle = "charlson",
  categories = NULL,
  name = tableName(x)
)
```

Arguments

<code>x</code>	A <code>cdm_table</code> containing a person identifier column named <code>person_id</code> or <code>subject_id</code> .
<code>indexDate</code>	A character string naming the Date column in <code>x</code> that defines the index date.
<code>ageAdjusted</code>	Logical; whether to include age adjustment in the Charlson Comorbidity Index.
<code>conceptSet</code>	A named concept set supplied as a codelist, <code>codelist_with_details</code> , <code>concept_set_expression</code> , or named list of concept IDs. It must contain <code>myocardial_infarction</code> , <code>congestive_heart_failure</code> , <code>peripheral_vascular_disease</code> , <code>cerebrovascular_disease</code> , <code>dementia</code> , <code>chronic_pulmonary_disease</code> , <code>connective_tissue_disease</code> , <code>peptic_ulcer_disease</code> , <code>mild_liver_disease</code> , <code>diabetes_without_complication</code> , <code>hemiplegia</code> , <code>severe_chronic_kidney_disease</code> , <code>diabetes_with_complication</code> , <code>any_malignancy</code> , <code>moderate_or_severe_liver_disease</code> , <code>metastatic_solid_tumor</code> , <code>aids</code> as concepts. By default, internal codelists are used.
<code>nameStyle</code>	A character string specifying the name of the new column.
<code>categories</code>	A named list of numeric vectors, each containing the lower and upper bounds of a score interval. An additional column with the suffix <code>_categories</code> is added. Intervals are evaluated in the order supplied, and missing scores are labelled missing.
<code>name</code>	A character string specifying the name of the output table. If <code>NULL</code> , a temporary table is created.

Value

The table `x` with a new column containing the Charlson Comorbidity Index value.

Examples

```
library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
```

```

    name = "cohort"
  )

# Using the internal concept sets:
cdm$cohort |>
  addCharlsonIndex(ageAdjusted = TRUE) |>
  select(subject_id, cohort_start_date, charlson) |>
  glimpse()

# This example uses custom concept sets.
customConceptSet <- list(
  myocardial_infarction = 329847L,
  congestive_heart_failure = 319835L,
  peripheral_vascular_disease = 321052L,
  cerebrovascular_disease = 381591L,
  dementia = 4182210L,
  chronic_pulmonary_disease = 255573L,
  connective_tissue_disease = 4134537L,
  peptic_ulcer_disease = 4027663L,
  mild_liver_disease = 194984L,
  moderate_or_severe_liver_disease = 4212540L,
  diabetes_without_complication = 201820L,
  diabetes_with_complication = 42538715L,
  hemiplegia = 374022L,
  severe_chronic_kidney_disease = 46271022L,
  any_malignancy = 4180914L,
  metastatic_solid_tumor = 432851L,
  aids = 4267414L
)

cdm$cohort |>
  addCharlsonIndex(
    conceptSet = customConceptSet,
    nameStyle = "charlson_custom"
  ) |>
  select(subject_id, cohort_start_date, charlson_custom) |>
  glimpse()

```

addElectronicFrailtyIndex

Add Electronic Frailty Index (eFI) value based on Clegg et al. (2016) ([Rhrefhttps://doi.org/10.1093/ageing/afw039](https://doi.org/10.1093/ageing/afw039)doi:10.1093/ageing/afw039)

Description

Add Electronic Frailty Index (eFI) value based on Clegg et al. (2016) ([doi:10.1093/ageing/afw039](https://doi.org/10.1093/ageing/afw039))

Usage

```
addElectronicFrailtyIndex(
  x,
  indexDate = "cohort_start_date",
  conceptSet = getIndexCodelist("electronic_frailty_index"),
  categories = list(fit = c(0, 0.12), mild = c(0.12, 0.24), moderate = c(0.24, 0.36),
    severe = c(0.36, 1)),
  nameStyle = "efi",
  name = tableName(x)
)
```

Arguments

<code>x</code>	A <code>cdm_table</code> containing a person identifier column named <code>person_id</code> or <code>subject_id</code> .
<code>indexDate</code>	A character string naming the Date column in <code>x</code> that defines the index date.
<code>conceptSet</code>	A named concept set supplied as a codelist, <code>codelist_with_details</code> , <code>concept_set_expression</code> , or named list of concept IDs. It must contain <code>activity_limitation</code> , <code>anemia</code> , <code>arthritis</code> , <code>atrial_fibrillation</code> , <code>cerebrovascular_disease</code> , <code>chronic_kidney_disease</code> , <code>diabetes</code> , <code>dizziness</code> , <code>dyspnea</code> , <code>falls</code> , <code>foot_problem</code> , <code>fragility_fracture</code> , <code>hearing_impairment</code> , <code>heart_failure</code> , <code>heart_valve_disorder</code> , <code>housebound</code> , <code>hypertension</code> , <code>hypotension_syncope</code> , <code>ischemic_heart_disease</code> , <code>memory_cognitive_disorder</code> , <code>mobility_problems</code> , <code>osteoporosis</code> , <code>parkinsonism_tremor</code> , <code>peptic_ulcer</code> , <code>peripheral_vascular_disease</code> , <code>care_requirement</code> , <code>respiratory_disease</code> , <code>skin_ulcer</code> , <code>sleep_disturbance</code> , <code>social_vulnerability</code> , <code>thyroid_disease</code> , <code>urinary_incontinence</code> , <code>urinary_system_disease</code> , <code>visual_impairment</code> , <code>weight_loss_anorexia</code> as concepts. By default, internal codelists are used.
<code>categories</code>	A named list of numeric vectors, each containing the lower and upper bounds of a score interval. An additional column with the suffix <code>_categories</code> is added. Intervals are evaluated in the order supplied, and missing scores are labelled missing.
<code>nameStyle</code>	A character string specifying the name of the new column.
<code>name</code>	A character string specifying the name of the output table. If <code>NULL</code> , a temporary table is created.

Value

The table `x` with a new column containing the Electronic Frailty Index value.

Examples

```
library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
```

```

    cdm = cdm,
    conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
    name = "cohort"
)

# Using the internal concept sets:
cdm$cohort |>
  addElectronicFrailtyIndex() |>
  select(subject_id, cohort_start_date, efi, efi_categories) |>
  glimpse()

# This example uses custom concept sets.
customConceptSet <- list(
  activity_limitation = 763723L,
  anemia = 439777L,
  arthritis = 4291025L,
  atrial_fibrillation = 313217L,
  chronic_kidney_disease = 46271022L,
  cerebrovascular_disease = 381591L,
  dizziness = 4223938L,
  dyspnea = 312437L,
  falls = 4059015L,
  foot_problem = 4101512L,
  fragility_fracture = 3170964L,
  hearing_impairment = 4234647L,
  heart_failure = 316139L,
  heart_valve_disorder = 4281749L,
  housebound = 4052962L,
  hypertension = 319826L,
  hypotension_syncope = 316447L,
  ischemic_heart_disease = 4185932L,
  memory_cognitive_disorder = 4304008L,
  mobility_problems = 4053076L,
  osteoporosis = 80502L,
  parkinsonism_tremor = 4140090L,
  peptic_ulcer = 4027663L,
  peripheral_vascular_disease = 321052L,
  care_requirement = 3661927L,
  respiratory_disease = 317009L,
  skin_ulcer = 4262920L,
  sleep_disturbance = 435524L,
  social_vulnerability = 4026161L,
  diabetes = 201820L,
  thyroid_disease = 4017052L,
  urinary_incontinence = 197672L,
  urinary_system_disease = 75865L,
  visual_impairment = 4265433L,
  weight_loss_anorexia = 436675L
)

cdm$cohort |>
  addElectronicFrailtyIndex(
    conceptSet = customConceptSet,

```

```

    nameStyle = "efi_custom"
  ) |>
  select(subject_id, cohort_start_date, efi_custom, efi_custom_categories) |>
  glimpse()

```

addEthnicity

Add the ethnicity of a person to a table

Description

Add the ethnicity of a person to a table

Usage

```

addEthnicity(
  x,
  from = c("ethnicity_concept_id", "ethnicity_source_concept_id", "race_concept_id",
    "race_source_concept_id"),
  nameStyle = "ethnicity",
  name = tableName(x),
  missingEthnicityValue = "Missing"
)

```

Arguments

- | | |
|------|---|
| x | A <code>cdm_table</code> containing a person identifier column named <code>person_id</code> or <code>subject_id</code> . |
| from | <p>A character vector specifying the ethnicity sources to try, in priority order. The first source that provides a value is used. Available options are:</p> <ul style="list-style-type: none"> • ethnicity_concept_id to assign ethnicity using the <code>concept_name</code> associated with the <code>ethnicity_concept_id</code> column of the person table. • ethnicity_source_concept_id to assign ethnicity using the <code>concept_name</code> associated with the <code>ethnicity_source_concept_id</code> column of the person table. • race_concept_id to assign ethnicity using the <code>concept_name</code> associated with the <code>race_concept_id</code> column of the person table. • race_source_concept_id to assign ethnicity using the <code>concept_name</code> associated with the <code>race_source_concept_id</code> column of the person table. • ethnicity_source_value to assign ethnicity using the value of the column <code>ethnicity_source_value</code> in the person table. • race_source_value to assign ethnicity using the value of the column <code>race_source_value</code> in the person table. • nhs-categories to assign ethnicity using NHS Ethnic Category. • nhs-groups to assign ethnicity using broad groups of NHS Ethnic Category as described in doi:10.1038/s41597024029581. |

nameStyle	A character string specifying the name of the new column.
name	A character string specifying the name of the output table. If NULL, a temporary table is created.
missingEthnicityValue	A character string used to replace missing ethnicity values.

Value

The table x with a new column containing the patient's ethnicity.

Examples

```
library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

cdm$cohort |>
  addEthnicity() |>
  select(subject_id, cohort_start_date, ethnicity) |>
  glimpse()
```

addHospitalFrailtyRiskScore

Add the hospital frailty risk score as defined in Gilbert et al. (2018) ([Rhrefhttps://doi.org/10.1016/S0140-6736%2818%2930668-8](https://doi.org/10.1016/S0140-6736%2818%2930668-8)[doi:10.1016/S01406736\(18\)306688](https://doi.org/10.1016/S01406736(18)306688))

Description

Add the hospital frailty risk score as defined in Gilbert et al. (2018) ([doi:10.1016/S01406736\(18\)30668-8](https://doi.org/10.1016/S01406736(18)30668-8))

Usage

```
addHospitalFrailtyRiskScore(
  x,
  indexDate = "cohort_start_date",
  conceptSet = getIndexCodelist("hospital_frailty_risk_score"),
```

```

categories = list(low = c(0, 5), intermediate = c(5, 15), high = c(15, Inf)),
nameStyle = "hfrs",
name = tableName(x)
)

```

Arguments

<code>x</code>	A <code>cdm_table</code> containing a person identifier column named <code>person_id</code> or <code>subject_id</code> .
<code>indexDate</code>	A character string naming the Date column in <code>x</code> that defines the index date.
<code>conceptSet</code>	A named concept set supplied as a <code>codelist</code> , <code>codelist_with_details</code> , <code>concept_set_expression</code> , or named list of concept IDs. It must contain <code>abnormal_results_of_function_studies</code> , <code>abnormalities_of_gait_and_mobility</code> , <code>abnormalities_of_heart_beat</code> , <code>acute_renal_failure</code> , <code>agent_resistant_to_penicillin_and_related_antibiotics</code> , <code>alzheimers_disease</code> , <code>artificial_opening_status</code> , <code>blindness_and_low_vision</code> , <code>calculus_of_kidney_and_ureter</code> , <code>care_involving_use_of_rehabilitation_procedures</code> , <code>carrier_of_infectious_disease</code> , <code>cellulitis</code> , <code>cerebral_infarction</code> , <code>cerebral_ischaemic_attacks</code> , <code>chronic_renal_failure</code> , <code>cognitive_functions_and_awareness</code> , <code>convulsions_not_elsewhere_classified</code> , <code>decubitus_ulcer</code> , <code>deficiency_of_other_b_group_vitamins</code> , <code>degenerative_diseases_of_nervous_system</code> , <code>delirium</code> , <code>dementia_in_alzheimers_disease</code> , <code>dependence_on_enabling_machines_and_devices</code> , <code>depressive_episode</code> , <code>diarrhoea_and_gastroenteritis</code> , <code>disorders_of_kidney_and_ureter</code> , <code>disorders_of_mineral_metabolism</code> , <code>duodenal_ulcer</code> , <code>dysphagia</code> , <code>epilepsy</code> , <code>exposure_to_unspecified_factor</code> , <code>fall</code> , <code>fall_involving_bed</code> , <code>fall_on_and_from_stairs_and_steps</code> , <code>fever_of_unknown_origin</code> , <code>fluid_electrolyte_and_acid_base_balance</code> , <code>fracture_of_femur</code> , <code>fracture_of_lumbar_spine_and_pelvis</code> , <code>fracture_of_ribs_sternum_and_ribs</code> , <code>fracture_of_shoulder_and_upper_arm</code> , <code>gangrene_not_elsewhere_classified</code> , <code>general_sensations_and_perceptions</code> , <code>hemiplegia</code> , <code>hypotension</code> , <code>infections_of_skin</code> , <code>intracranial_injury</code> , <code>mental_and_behavioural_disorders_due_to_use_of_alcohol</code> , <code>nausea_and_vomiting</code> , <code>nervous_and_musculoskeletal_systems_r_29_6_tendency_to_fall</code> , <code>nosocomial_condition</code> , <code>open_wound_of_forearm</code> , <code>open_wound_of_head</code> , <code>osteoporosis_with_pathological_fracture</code> , <code>osteoporosis_without_pathological_fracture</code> , <code>other_abnormal_findings_of_blood_chemistry</code> , <code>other_anaemias</code> , <code>other_and_unspecified_injuries_of_head</code> , <code>other_arthrosis</code> , <code>other_bacterial_agents</code> , <code>other_bacterial_intestinal_infections</code> , <code>other_cerebrovascular_disease</code> , <code>other_diseases_of_digestive_system</code> , <code>other_disorders_of_pancreatic_internal_secretion</code> , <code>other_disorders_of_urinary_system</code> , <code>other_fall_on_same_level</code> , <code>other_functional_intestinal_disorders</code> , <code>other_hearing_loss</code> , <code>other_joint_disorders_not_elsewhere_classified</code> , <code>other_medical_procedures</code> , <code>other_noninfective_gastroenteritis_and_colitis</code> , <code>other_septicaemia</code> , <code>other_soft_tissue_disorders_not_elsewhere_classified</code> , <code>parkinsons_disease</code> , <code>personal_history_of_other_diseases_and_conditions</code> , <code>personal_history_of_risk_factors</code> , <code>pneumonia_organism_unspecified</code> , <code>pneumonitis_due_to_solids_and_liquids</code> , <code>polyarthrosis</code> , <code>problems_related_to_care_providers</code> , <code>problems_related_to_life_management_difficulty</code> , <code>problems_related_to_medical_facilities</code> , <code>problems_related_to_social_environment</code> , <code>prosthetic_devices_implants</code> , <code>respiratory_failure_not_elsewhere_classified</code> , <code>retention_of_urine</code> , <code>scoliosis</code> , <code>senility</code> , <code>sequelae_of_cerebrovascular_disease</code> , <code>somnolence_stupor_and_coma</code> , <code>speech_disturbances_not_elsewhere_classified</code> , <code>spinal_stenosis_secondary_code_only</code> , <code>streptococcus_and_staphylococcus</code> , <code>superficial_injury_of_head</code> , <code>superficial_injury_of_lower_extremity</code> , <code>symptoms_and_signs_concerning_food_and_fluid_intake</code> , <code>symptoms_and_signs_involving_emotional_state</code> , <code>syncope_and_collapse</code> , <code>thyrotoxicosis_hyperthyroidism</code> , <code>ulcer_of_lower_limb_not_elsewhere_classified</code> .

	unknown_and_unspecified_causes_of_morbidity, unspecified_acute_lower_respiratory_infection, unspecified_dementia, unspecified_fall, unspecified_haematuria, unspecified_renal_failure, unspecified_urinary_incontinence, vascular_dementia, vitamin_d_deficiency, volume_depletion as concepts. By default, internal codelists are used.
categories	A named list of numeric vectors, each containing the lower and upper bounds of a score interval. An additional column with the suffix <code>_categories</code> is added. Intervals are evaluated in the order supplied, and missing scores are labelled missing.
nameStyle	A character string specifying the name of the new column.
name	A character string specifying the name of the output table. If NULL, a temporary table is created.

Value

The table `x` with a new column containing the Hospital Frailty Risk Score value.

Examples

```
library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

cdm$cohort |>
  addHospitalFrailtyRiskScore() |>
  select(subject_id, cohort_start_date, hfrs, hfrs_categories) |>
  glimpse()
```

addIndexOfMultipleDeprivation

*Add socioeconomic status as a column to a table using the
[Rhrefhttps://athena.ohdsi.org/search-terms/terms/35812882](https://athena.ohdsi.org/search-terms/terms/35812882) Index of
 Multiple Deprivation*

Description

Add socioeconomic status as a column to a table using the **Index of Multiple Deprivation**

Usage

```
addIndexOfMultipleDeprivation(
  x,
  indexDate = "cohort_start_date",
  window = c(-Inf, Inf),
  order = "last",
  nameStyle = "socio_economic_status",
  name = tableName(x),
  missingSocioEconomicStatusValue = "Missing"
)
```

Arguments

<code>x</code>	A <code>cdm_table</code> containing a person identifier column named <code>person_id</code> or <code>subject_id</code> .
<code>indexDate</code>	A character string naming the Date column in <code>x</code> that defines the index date.
<code>window</code>	A numeric vector of length two, <code>c(min, max)</code> , defining the window for <code>socio_economic_status</code> in days relative to <code>indexDate</code> . Use <code>-Inf</code> or <code>Inf</code> for an unbounded lower or upper limit.
<code>order</code>	A character string specifying which record to select when multiple records are found: <code>first</code> or <code>last</code> .
<code>nameStyle</code>	A character string specifying the name of the new column.
<code>name</code>	A character string specifying the name of the output table. If <code>NULL</code> , a temporary table is created.
<code>missingSocioEconomicStatusValue</code>	A character string used to replace missing socioeconomic status values.

Value

The table `x` with a new column containing the Index of Multiple Deprivation value.

Examples

```
library(omock)
library(duckdb)
library(omopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

cdm$cohort |>
  addIndexOfMultipleDeprivation() |>
  select(subject_id, cohort_start_date, socio_economic_status) |>
```

glimpse()

addLocation	<i>Add the location to a table</i>
-------------	------------------------------------

Description

Add the location to a table

Usage

```
addLocation(  
  x,  
  from = c("location_id", "care_site_id"),  
  nameStyle = "location",  
  name = tableName(x),  
  locationSource = "location_source_value",  
  missingLocationValue = "Missing"  
)
```

Arguments

- | | |
|----------------------|---|
| x | A cdm_table containing a person identifier column named person_id or subject_id. |
| from | A character vector specifying the location sources to try, in priority order. The first source that provides a location is used. Supported values are location_id and care_site_id. |
| nameStyle | A character string specifying the name of the new column. |
| name | A character string specifying the name of the output table. If NULL, a temporary table is created. |
| locationSource | A character string specifying the column to retrieve from the location table. Supported values include location_source_value, city, state, zip, county, country_concept_id, and country_source_value. |
| missingLocationValue | A character string used to replace missing location values. |

Value

The table x with a new column containing the patient's location.

Examples

```
library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

cdm$cohort |>
  addLocation() |>
  select(subject_id, cohort_start_date, location) |>
  glimpse()
```

addPolypharmacyCount	<i>Add the maximum number of ingredients to which an individual is simultaneously exposed within a specified window</i>
----------------------	---

Description

Add the maximum number of ingredients to which an individual is simultaneously exposed within a specified window

Usage

```
addPolypharmacyCount(
  x,
  indexDate = "cohort_start_date",
  window = c(0, 0),
  overlap = TRUE,
  nameStyle = "polypharmacy_count",
  name = tableName(x)
)
```

Arguments

x	A cdm_table containing a person identifier column named person_id or subject_id.
indexDate	A character string naming the Date column in x that defines the index date.
window	A numeric vector of length two, c(min, max), defining the window for polypharmacy in days relative to indexDate. Use -Inf or Inf for an unbounded lower or upper limit.

overlap	Logical; if TRUE, count drug eras that overlap in time. If FALSE, count drug eras that occur within the window without requiring them to overlap one another.
nameStyle	A character string specifying the name of the new column.
name	A character string specifying the name of the output table. If NULL, a temporary table is created.

Value

The table x with a new column containing the maximum number of simultaneous ingredients in the window of interest.

Examples

```
library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

cdm$cohort |>
  addPolypharmacyCount(window = c(-30, 0)) |>
  select(subject_id, cohort_start_date, polypharmacy_count) |>
  glimpse()
```

addSocioEconomicStatus

Add socioeconomic status as a column to a table

Description

Add socioeconomic status as a column to a table

Usage

```
addSocioEconomicStatus(
  x,
  indexDate = "cohort_start_date",
  window = c(-Inf, Inf),
  order = "last",
```

```

    from = c("imd", "townsend"),
    nameStyle = "socio_economic_status",
    name = tableName(x),
    missingSocioEconomicStatusValue = "Missing"
  )

```

Arguments

<code>x</code>	A <code>cdm_table</code> containing a person identifier column named <code>person_id</code> or <code>subject_id</code> .
<code>indexDate</code>	A character string naming the Date column in <code>x</code> that defines the index date.
<code>window</code>	A numeric vector of length two, <code>c(min, max)</code> , defining the window for <code>socio_economic_status</code> in days relative to <code>indexDate</code> . Use <code>-Inf</code> or <code>Inf</code> for an unbounded lower or upper limit.
<code>order</code>	A character string specifying which record to select when multiple records are found: <code>first</code> or <code>last</code> .
<code>from</code>	A character vector specifying the socioeconomic status sources to try, in priority order. Supported values are <code>imd</code> , for the Index of Multiple Deprivation , and <code>townsend</code> , for the Townsend deprivation index .
<code>nameStyle</code>	A character string specifying the name of the new column.
<code>name</code>	A character string specifying the name of the output table. If <code>NULL</code> , a temporary table is created.
<code>missingSocioEconomicStatusValue</code>	A character string used to replace missing socioeconomic status values.

Value

The table `x` with a new column containing the patient's socioeconomic status.

Examples

```

library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

cdm$cohort |>
  addSocioEconomicStatus() |>
  select(subject_id, cohort_start_date, socio_economic_status) |>
  glimpse()

```

addTownsend	<i>Add socioeconomic status as a column to a table using the Townsend deprivation index</i>
-------------	--

Description

Add socioeconomic status as a column to a table using the **Townsend deprivation index**

Usage

```
addTownsend(
  x,
  indexDate = "cohort_start_date",
  window = c(-Inf, Inf),
  order = "last",
  nameStyle = "socio_economic_status",
  name = tableName(x),
  missingSocioEconomicStatusValue = "Missing"
)
```

Arguments

x	A cdm_table containing a person identifier column named person_id or subject_id.
indexDate	A character string naming the Date column in x that defines the index date.
window	A numeric vector of length two, c(min, max), defining the window for socio_economic_status in days relative to indexDate. Use -Inf or Inf for an unbounded lower or upper limit.
order	A character string specifying which record to select when multiple records are found: first or last.
nameStyle	A character string specifying the name of the new column.
name	A character string specifying the name of the output table. If NULL, a temporary table is created.
missingSocioEconomicStatusValue	A character string used to replace missing socioeconomic status values.

Value

The table x with a new column containing the Townsend deprivation index.

Examples

```
library(omock)
library(duckdb)
library(OmopIndices)
library(dplyr)
```

```
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

cdm$cohort |>
  addTownsend() |>
  select(subject_id, cohort_start_date, socio_economic_status) |>
  glimpse()
```

addUpdatedCharlsonIndex

Add Updated Charlson Comorbidity Index (CCI) value based on Quan et al. (2011) ([doi:10.1093/aje/kwq433](https://doi.org/10.1093/aje/kwq433))

Description

Add Updated Charlson Comorbidity Index (CCI) value based on Quan et al. (2011) ([doi:10.1093/aje/kwq433](https://doi.org/10.1093/aje/kwq433))

Usage

```
addUpdatedCharlsonIndex(
  x,
  indexDate = "cohort_start_date",
  ageAdjusted = TRUE,
  conceptSet = getIndexCodelist("updated_charlson"),
  nameStyle = "updated_charlson",
  categories = NULL,
  name = tableName(x)
)
```

Arguments

<code>x</code>	A <code>cdm_table</code> containing a person identifier column named <code>person_id</code> or <code>subject_id</code> .
<code>indexDate</code>	A character string naming the Date column in <code>x</code> that defines the index date.
<code>ageAdjusted</code>	Logical; whether to include age adjustment in the updated Charlson Comorbidity Index.

conceptSet	A named concept set supplied as a codelist, codelist_with_details, concept_set_expression, or named list of concept IDs. It must contain congestive_heart_failure, dementia, chronic_pulmonary_disease, connective_tissue_disease, mild_liver_disease, hemiplegia, severe_chronic_kidney_disease, diabetes_with_complication, any_malignancy, moderate_or_severe_liver_disease, metastatic_solid_tumor, aids as concepts. By default, internal codelists are used.
nameStyle	A character string specifying the name of the new column.
categories	A named list of numeric vectors, each containing the lower and upper bounds of a score interval. An additional column with the suffix _categories is added. Intervals are evaluated in the order supplied, and missing scores are labelled missing.
name	A character string specifying the name of the output table. If NULL, a temporary table is created.

Value

The table x with a new column containing the updated Charlson Comorbidity Index value.

Examples

```
library(omock)
library(duckdb)
library(omopIndices)
library(dplyr)
library(CohortConstructor)

cdm <- mockCdmFromDataset(datasetName = "GiBleed", source = "duckdb")
cdm$cohort <- conceptCohort(
  cdm = cdm,
  conceptSet = list(sinusitis = c(257012L, 4283893L, 4294548L, 40481087L)),
  name = "cohort"
)

# Using the internal concept sets:
cdm$cohort |>
  addUpdatedCharlsonIndex(ageAdjusted = TRUE) |>
  select(subject_id, cohort_start_date, updated_charlson) |>
  glimpse()

# This example uses custom concept sets.
customConceptSet <- list(
  congestive_heart_failure = 319835L,
  dementia = 4182210L,
  chronic_pulmonary_disease = 255573L,
  connective_tissue_disease = 4134537L,
  mild_liver_disease = 194984L,
  moderate_or_severe_liver_disease = 4212540L,
  diabetes_with_complication = 42538715L,
  hemiplegia = 374022L,
  severe_chronic_kidney_disease = 46271022L,
  any_malignancy = 4180914L,
```

```

    metastatic_solid_tumor = 432851L,
    aids = 4267414L
  )

cdm$cohort |>
  addUpdatedCharlsonIndex(
    conceptSet = customConceptSet,
    nameStyle = "updated_charlson_custom"
  ) |>
  select(subject_id, cohort_start_date, updated_charlson_custom) |>
  glimpse()

```

getIndexCodelist	<i>Get the codelists used for a specified index calculation</i>
------------------	---

Description

Get the codelists used for a specified index calculation

Usage

```
getIndexCodelist(index)
```

Arguments

index	A character string identifying the index for which to retrieve internal codelists. Supported values are "body_mass_index", "charlson", "electronic_frailty_index", "hospital_frailty_risk_score", and "updated_charlson".
-------	---

Value

A codelist containing the concepts used for the selected index.

Examples

```

library(OmopIndices)

getIndexCodelist("charlson")

```

Index

addBMI, [2](#)
addCharlsonIndex, [3](#)
addElectronicFrailtyIndex, [5](#)
addEthnicity, [8](#)
addHospitalFrailtyRiskScore, [9](#)
addIndexOfMultipleDeprivation, [11](#)
addLocation, [13](#)
addPolypharmacyCount, [14](#)
addSocioEconomicStatus, [15](#)
addTownsend, [17](#)
addUpdatedCharlsonIndex, [18](#)

getIndexCodelist, [20](#)