Medication Possession Ratio

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Medication Possession Ratio (MPR)

- ***What is MPR?***
  - Measure of adherence
  - Ratio of the no. of doses dispensed relative to the dispensing period
  - Measures the (% of) time an individual has possession of medicines

Adherence

- Appropriate consumption of patient medication as prescribed by a healthcare provider (patient driven)

- ***Why do we measure adherence?***
  - Optimal medical care
  - Clinically effective treatments
  - Indicator of chronic use (occasionally)

    (e.g. adherence of >90% per year could possibly indicate chronic use)

Measuring adherence through pharmacy administrative dataset

- **Medication possession ratio (MPR)**
- Proportion of days covered (PDC)
- Persistence
- Continuous Measure of Medication Acquisition (CMA)
- Continuous Multiple Interval Measure of Oversupply (CMOS)
- Medication Refill Adherence (MRA)
- Continuous Measure of Medication Gaps (CMG)
- Continuous, Single Interval Measure of Medication Aquisition (CSA)
- Refill Compliance Rate (RCR)
- Dates Between Fills Adherence Rate (DBR)
- Compliance Rate (CR).
- Dispensing data/prescription refills

MPR

- **How to calculate MPR?**
  - *Number of days of medication supplied within the dispensing (refill) interval / number of days in dispensing (refill) interval*
  - *Need at least 2 dispensing (refill) dates*

- **Fixed MPR (FMPR)**
- **Variable MPR (VMPR)**

MPR cont.

- **FMPR** - *the number of days for which prescribed medication was available during the observation year*

- **VMPR** - *the number of days for which prescribed medication was available between the first and last refill in the observation year divided by number of days between these refills.*

FMPR

$$= \frac{\textit{total Rx days of supply}}{\textit{fixed interval (365 days)}}$$

Numerator:

sum (*Quantity*) = total Quantity

total Rx days = total Quantity / *Daily Dose*

FMPR cont.

- *Denominator*
  - Fixed period of time between the 2 dispensing (refill days) such as 365 days.

- FMPR preferred if patient is dispensed medicines on Day 1 and has continued to Day last.

VMPR

$$= \frac{\text{total Rx days of supply}}{\text{last Rx date - first Rx date + last Rx days of supply}}$$

OR

$$\frac{\text{total Rx days of supply - last Rx days supply}}{\text{last Rx date - first Rx date}}$$

Numerator – same as for FMPR

Denominator = (Rx date) + (Last Rx supply)

MPR: dual and triple therapy

Dual therapy = $$\frac{\text{total Rx days of supply} \,/\, 2}{\text{last Rx date} - \text{first Rx date} + \text{last Rx days of supply}}$$

Triple therapy = $$\frac{\text{total Rx days of supply} \,/\, 3}{\text{last Rx date} - \text{first Rx date} + \text{last Rx days of supply}}$$

- Useful for chronic conditions (CVD, HIV, Diabetes, fixed-dose combination therapies)

MPR cont.

- ***Continuous measure***
  - Relevance of increasing MPR value and clinical significance (e.g. increase from 75 to 80%)
- ***Categorical (Dichotomous)***
  - Has a cut-off value (arbitrary depending on medicines)
- ***MPR > 1***
  - Over adherence?
    - ❑ overlapping to the next year, multiple dispensing, over use, early refill, change in regimen, etc.
    - ❑ truncate?

Some limitations:

- Accuracy of imputed data
- Change in patient regimen (discontinuation, dose change, samples, changes between patient and prescriber, etc.)
- Possession does not guarantee administration (measures the rate of drug acquisition and not drug exposure)
- Assessment of adherence over short time intervals is likely to be imprecise and could bias the MPR upwards (< 90 days)

Thank You

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