



Medication Adherence

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Outline

- What is adherence and why is it important?
- How do we calculate medication adherence?
- Issues regarding non-adherence
- Potential solutions

Adherence: Definition from World Health Organization (WHO)

- “extent to which a person’s behavior..... corresponds with agreed recommendation from a health care provider”
- Same as compliance?
 - Adherence: requires patient’s agreement to recommendation – implies “collaboration”
 - Compliance: extent to which patient match’s provider’s advice – implies “obedience”

How do you measure adherence?

- Adherence measures
 - Direct
 - *Observation*
 - Indirect
 - *Medication Monitoring*
 - *Self-report measures*
 - *Prescription claims data*

How do you measure adherence? cont.

- **Direct Observation**
 - **Advantages:**
 - Reliable and accurate
 - **Disadvantages**
 - Inpatient only
 - Single point in time
 - Personnel requirement and/or costs

How do you measure adherence? cont.

- Indirect Observation
 - Medication Monitoring (eg. pill counts)
 - *Fail to measure if pill was taken on schedule*
 - Self-report
 - *Reliability of patient recall and/or bias*
 - Prescription Claims Data
 - *Chronic, and not acute*
 - *Prescription Refills based*
 - *However.....studies show to be more complete than documented medical records and is inexpensive and accessible*

How do you measure adherence? cont.

- Prescription Claims Data – Types
 - Proportion days covered (PDC)
 - Medication possession ratio (MPR)
 - Refill compliance rates
 - Compliance ratio
 - Continuous measure of medication gaps

PDC – Proportion of days covered

- *Used by CMS
- Equation:
 - $(\# \text{ days supply of completed therapy} / \# \text{ days in study period}) * 100$
- Can assess multiple drug regimens

Example Patient – How to Calculate Adherence with Various Metrics

- Patient A

Drug	Quantity	Days Supply	Date Refilled	Total Days Supply
Lisinopril 40 mg	30	30	1/1/2015	30
Toprol XL 25 mg	30	30	1/1/2015	30
Lisinopril 40 mg	30	30	1/31/2015	60
<i>Toprol XL 25 mg</i>				60
Lisinopril 40 mg	30	30	3/02/2015	90
Toprol XL 25 mg	30	30	3/02/2015	90

- MDE Calculation
 - # days supply = 60
 - Days in study period = 90
 - **60 / 90 = 66.7%**

MPR – Medication Possession Ratio

- Equation:
 - $(\# \text{ days supply} / [\text{last rx date} - \text{first rx date}] * 100$
- Assesses single drug compliance

Example Patient – How to Calculate Adherence with Various Metrics

- Patient A

Drug	Quantity	Days Supply	Date Refilled	Total Days Supply
Lisinopril 40 mg	30	30	1/1/2015	30
Lisinopril 40 mg	30	30	1/31/2015	60
Lisinopril 40 mg	30	30	3/02/2015	90
Furosemide 40 mg	30	30	1/1/2015	30
<i>Furosemide 40 mg</i>				60
Furosemide 40 mg	30	30	3/02/2015	90

- MPR Calculation

- # days supply for Lisinopril = 90; # days supply for Furosemide = 60
- Days in study period = 90
- **90 / 90 = 100% Lisinopril**
- **60/90 = 66% Furosemide**

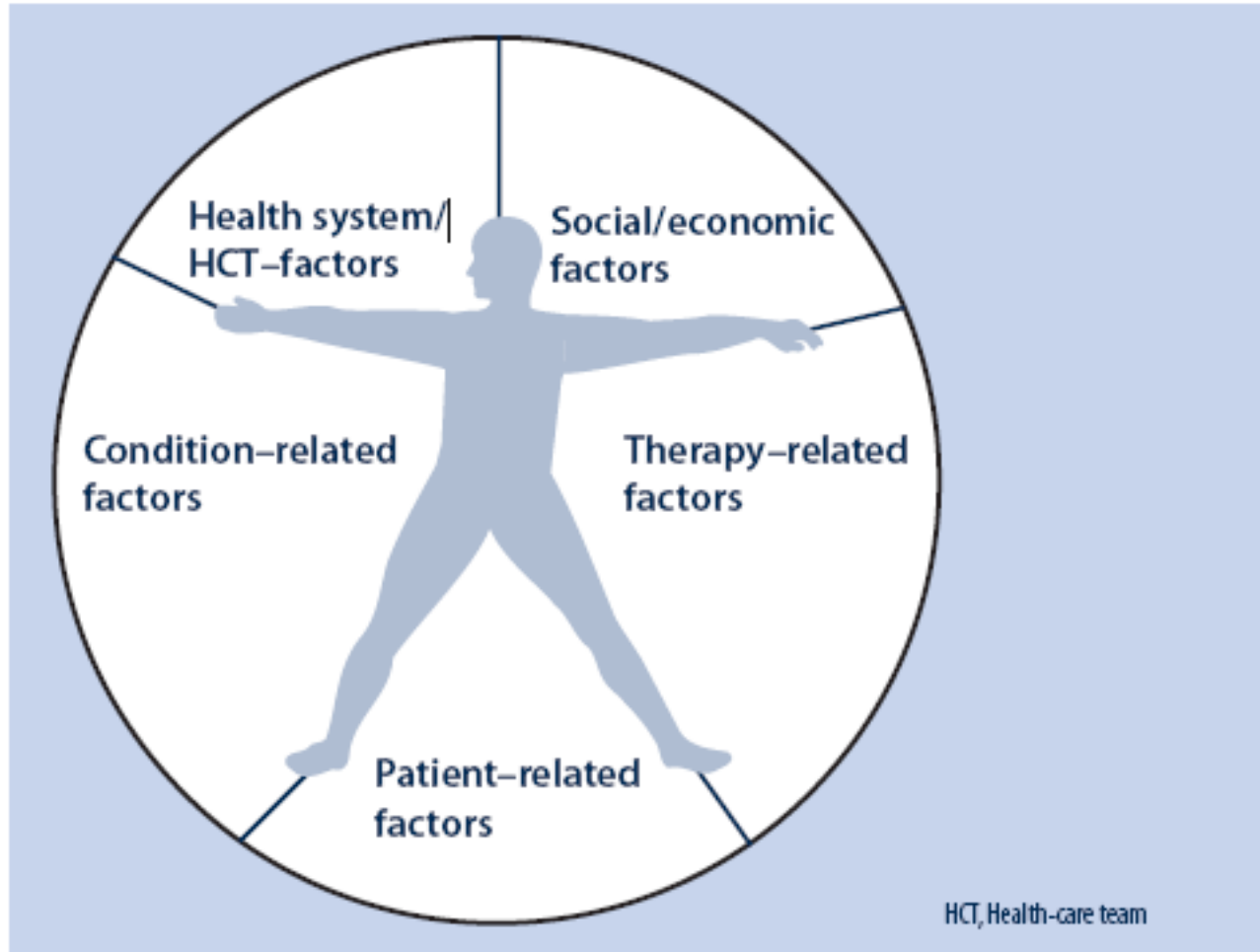
Statistics from WHO – IMPACT

- Adherence for chronic diseases in developed countries averages 50%
- Amount of chronic diseases is increasing:
 - Estimated 65% worldwide will have mental diseases, HIV/AIDs, or tuberculosis in 2020

Types of Non-Adherence

- Primary
- Non-Persistence
- Unintentional non-adherence
- Non-conforming

What causes non-adherence?



Why does this matter?

- Associated with poorer health outcomes
 - Increase severity and worsens quality of life
 - Increases cost
 - Worsens future health benefits
 - Example: Antibiotic Use
 - Amoxicillin 500 mg TID (three times a day) x 10 days
 - Consultation: Take for the full duration, **even if you are feeling better**

Why does this matter? cont.

- Metrics

- Ex: CMS evaluation of Medicare Part D plans *star ratings*

- Proportion of days covered (PDC)

- Measured in %, (0 – 100)

- >80% for individual = high adherence

- (>90% for HIV/AIDS patients)

Medicare Part D – 2013 Average Rates for PQA-endorsed Measures

Part D Plan Rating	MA-PD	PDP
PDC – Diabetes	73.7 %	75.8 %
PDC - Hypertension	73.9 %	76.8 %
PDC – Cholesterol	69.0 %	71.0 %
Diabetes – RASA Use	84.3 %	82.3 %
High-Risk Medications	7.8 %	8.8 %

*PQA: Pharmacy Quality Alliance

**MA-PD = Medicare Advantage plans that include drug benefits

***PDP = Prescription Drug Plans

Improvements

- Collaboration
- Communication
- Education
- Simplification
- Behavioral/Social Support

Conclusions

- Medication adherence is essential to a patient's overall health state
- Adherence can be measured in many ways – each with its own advantages and disadvantages
- These metrics are crucial to determining areas of improvement in health care

References

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