CHAPTER 1
MEDICATION ADHERENCE MEASUREMENT

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Measuring Adherence--One Extreme

• “I firmly believe that if the whole *materia medica* as now used could be sunk to the bottom of the sea, it would be all the better for mankind--and all the worse for the fishes.”
Measuring Adherence--The Other Extreme

D.O.T.
Measuring Adherence--The Middle Ground

- Methods that quantify missed and taken doses
Self-Report

Pro’s

- Cheap
- Correlated with virologic outcomes (report of non-adherence is more reliable than report of adherence)

Con’s

- Overestimates adherence
Clinician-Estimated Adherence

<table>
<thead>
<tr>
<th>Pro’s</th>
<th>Con’s</th>
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<tbody>
<tr>
<td>• Cheap</td>
<td>• Most poorly correlated of all measures with actual adherence</td>
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PROVIDERS ARE TERRIBLE JUDGES OF ACTUAL ADHERENCE AND OF THEIR PATIENTS’ ABILITY TO ADHERE!
Pill Counts

<table>
<thead>
<tr>
<th>Pro’s</th>
<th>Con’s</th>
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<tr>
<td>• Cheap</td>
<td>• Overestimates adherence</td>
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<tr>
<td>• Useful adjunct to self-report</td>
<td>– “Pill dumping”</td>
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<td></td>
<td>• Time consuming</td>
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<td></td>
<td>• Casts provider in role of medication</td>
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<td>monitor, not ally/advocate</td>
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Pharmacy Records

Pro’s
• Cheap
• Useful adjunct to self-report

Con’s
• Cannot stand alone as adherence measurement method
  – One patient may use many pharmacies
  – Picking up prescriptions does not equate with taking medications
  – Patients may have other sources of medications
# Electronic Monitoring

## Pro’s
- Best correlation with virologic outcomes
- Data is available in a computer accessible format
- Allows more detailed view of non-adherence patterns (weekends, nighttime, etc.)

## Con’s
- Expensive
- Poor patient acceptance
- Not infallible (patients can open bottle and not take pill)
- Not compatible with pillbox
- Usually only measures one medication
Measuring Adherence--The Middle Ground

• Methods that measure physiologic effects
Indirect Laboratory Markers

- AZT\text{----------} \rightarrow \text{Increased MCV}
- ddI\text{-------------} \rightarrow \text{Increased uric acid}
- Indinavir\text{---------} \rightarrow \text{Increased bilirubin}
Laboratory Markers

- Viral load
- CD4
- Genotypic/phenotypic resistance
Measuring Adherence--The Middle Ground

- Methods that assess systemic blood levels of drug
Plasma Levels

**Pro’s**
- Correlates with virologic outcomes
- Only method that ensures that the patient actually ingested the drug
- May allow insight into absorption or drug interaction problems

**Con’s**
- Very expensive
- Levels are extremely variable
- Only provides information about the last dose