Managing Adherence with a Mobile Population

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Vice President, Business Development
Avella Specialty Pharmacy
Objectives

• Discuss the impact of non-adherence on patient outcomes.

• Review various messaging strategies and how specialty pharmacies are uniquely suited to implement these programs.

• Understand adherence initiatives and challenges, including barriers to enrollment.

• Case studies on successful programs and partnerships in adherence.
“If medication non-adherence was a disease, it would be an epidemic.”
– Anonymous

“Drugs work in only those that take them.”
– Charles Everett Koop, MD
Non-adherence

- A patient is considered to be non-adherent if he or she misses doses, takes additional doses to those prescribed, or takes doses either in the wrong quantity or at the wrong time (Ruddy, Mayer & Partridge, 2009).

U.S. Patients Do Not Take Medications as Prescribed

- 100% Rx prescribed
- 88% Rx filled
- 76%* Rx taken
- 47%* Rx continued

* 22% of U.S. patients take less of the medication than is prescribed

The Real Drug Problem

*Wall Street Journal - October 21, 2003*

- 31% of all prescriptions are not filled the first time
- 15% of all hospital visits (\$47 billion/annually) are due to medication non-adherence
- 60% of all patients cannot identify their own medications
- 27% of breast cancer survivors fall off their Tamoxifen therapy
- 67% forget to take their medication at times
- 9% said they would keep taking a medication if they started feeling worse
$ 594 billion  Global Loss

$ 188 billion  US Loss

Medication Non-Adherence: The Cost

Medication non-adherence costs the US government over 290 billion dollars annually\(^1\). In addition, Global pharmaceutical companies’ losses are estimated at 594 billion dollars, with the US losing an estimated 188 billion dollars a year in revenue from patients who aren’t taking their medication on time, aren’t refilling their prescriptions, or aren’t picking up their medication at all\(^2\).

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1) New England Health Care Institute
2) Capgemini Consulting
Timeline of Medical Community Interest in Adherence

- 1948: 1st Article
- 1970: Hypertension
- 1990: HAART
- 2000: Resistance

Hardy MC. JAMA
Relation Between Adherence and Treatment Failure


**NNRTI** = nonnucleoside reverse transcriptase inhibitor;

**PI** = protease inhibitor.
Consequences of Non-adherence

• Drug resistance
• Suboptimal response to therapy
• Disease progression
• Death
Roughly 120,000 people in America die every year from failing to take their medications as prescribed.

Center for Health Transformation
Impact of Medication Adherence on Hospitalization Risk

*P<0.05 when compared to the 80-100% group

Sokol et al. Med Care 2005;43: 521-530
Increased Medication Adherence Relates to Reduced Overall Medical costs

Takemoto and associates reviewed over 12,000 Medicare claims for renal transplant patients and compared medication adherence to overall medical costs:

• Patients with higher adherence or MPR rates had an overall reduction (15% less) in medical costs over a 3 year period of time compared to patients that had a lower adherence rate. ($31,000 versus $58,900)

Takemoto SK., Pinkey B., Woodward RS., Outcomes and Costs Associated with Immunosuppressive Compliance.

Conclusion: Increased adherence and persistence equates to lower overall medical expenditure.
Current Practice Patterns for Oral Chemotherapy: Results of a National Survey

Janna C Roop, Horng-Shiuann Wu

Oncology Nursing Forum (Impact Factor: 1.91). 12/2013; DOI:10.1188/14.ONF.41-02AP

Figure 5. Percentage of Agreement With Items for Practices With Specific Policies Compared to Practices Without Policies (N = 377)

Note. Figure does not include midpoint responses or responses of “I don’t know.”
What is Specialty Pharmacy?

Complex biotech drugs with different routes of administration: injected, infused, oral and/or medical device

Cold chain of custody that maintains temperature, stability, integrity, and delivery to a set of standards

High cost, with substantial patient out-of-pocket costs

Clinical support from pharmacists who educate patients about drug, disease, side effects, and adherence
## Specialty vs. Retail Pharmacies

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<thead>
<tr>
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<th>Retail</th>
<th>Specialty</th>
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<tbody>
<tr>
<td><strong>Patient Contact</strong></td>
<td>Reactive</td>
<td>Proactive</td>
</tr>
<tr>
<td><strong>Drug Availability</strong></td>
<td>Limited</td>
<td>Carried in stock</td>
</tr>
<tr>
<td><strong>Clinical support</strong></td>
<td>Limited knowledge about lots of drugs</td>
<td>Specialized knowledge</td>
</tr>
<tr>
<td><strong>Availability of clinical staff</strong></td>
<td>Regular hours</td>
<td>24/7</td>
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<tr>
<td><strong>Dispensing vs. patient care</strong></td>
<td>Low patient contact</td>
<td>High Touch</td>
</tr>
<tr>
<td><strong>Adherence/Persistence Tools</strong></td>
<td>Limited to none</td>
<td>Numerous</td>
</tr>
<tr>
<td><strong>Billing</strong></td>
<td>Multiple challenges</td>
<td>Split Billing</td>
</tr>
<tr>
<td><strong>Financial Assistance/Prior Authorizations</strong></td>
<td>Limited to none</td>
<td>Core service</td>
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</tbody>
</table>
Evolution of Adherence Programs
Traditional / Past

• Your doctor tells you what you need to know about your medication.
• You get a brochure at the office telling you about your medication and disease.
• Pick up your prescription at the retail pharmacy and talk with the pharmacist.
• Your pharmacy calls you to remind you to refill your medication.
Evolution of Adherence Programs
Specialty / Future

• A nurse tells you what you need to know about your medication before you leave the doctor’s office.
• Your pharmacy calls you to educate you on your disease and medication, help you with funding and your medication arrives at your door.
• Specialty pharmacies enroll you in customized programs to provide you specific information.
• Technology is employed to address the mobile environment and the expectation of immediate information and feedback.
Types of Adherence Initiatives

• Passive
  • Mailings or brochures
  • One directional web sites

• Live Interventions
  • By phone
  • In person counseling

• Technology Driven
  • Text messaging
  • Electronic reminder devices
  • Web based interactions
  • Other
Passive

There are two ways to clean your hands. One way is to wash them with soap and warm water while rubbing your hands together. When you can see or feel that your hands are dirty, washing them is the only way to kill the germs.

- Hand-foot syndrome, also known as "Palmar-Plantar Erythrodysesthesia," is a side effect caused by several drugs used to treat cancer.
- Hand-foot syndrome happens when too much drug builds up in hands and feet.
- Hand-foot syndrome can be uncomfortable and can interfere with your ability to carry out normal activities.
- Some signs of hand and foot syndrome include:
  - Tingling, burning or numbness
  - Redness
  - Swelling

**CarePoints** information for your health

**The 1, 2, 3 of Hand-Foot Syndrome**

1. **Recognize**
   - Contact your doctor or pharmacist if you have pain, swelling or redness of your hands and feet that prevents normal activity.
   - Cold pack placed on your hands or feet every 15-20 minutes may temporarily relieve pain.
   - Over the counter pain relievers such as acetaminophen (Tylenol) may be helpful.
   - The pharmacy chapels pharmacy recommends one of the following:
     - Emu Oil $24.95/oz
     - Udderly Smooth Cream $26.95/oz
     - For the best results:
       - Avoid using soap that contains dyes or perfumes
       - Use a new bar for each hand
       - Wash hands after using the computer

2. **Prevent**
   - Avoid friction and heat exposure
   - Cover skin and use sunscreen on exposed areas.
   - Don't use creams that require pressure or rubbing (such as many new household items)
   - Avoid hanging or feet for long periods.
   - Avoid long exposure of hands and feet to hot water when bathing or washing dishes.
   - Use cooler water when showering.
   - Avoid using dishwashing gloves as they will be hot against your hands.
   - Keep your skin moisturized:
     - Gravitate towards hand and feet 5-6 times per day.

Avoid skipping steps and ask us how to incorporate your care plan into your routine.
Hepatitis C Clinical Management Process

New Hepatitis C Prescription Referral

- Demographics and clinical information entered in database
- Insurance Benefit Investigation performed
- Review of medication
- Review of disease state, adverse drug effects
- Management of adverse drug effects
- Adherence and persistence education
- Clinician notified of any potential issues

Opt-in monthly text messaging program
- Educational treatment tips
- Patient surveys
- Laboratory reminders
- Refill reminders

Day 1: Hepatitis C Program Enrollment (Opt-in/out) Outbound Patient Call

Day 10: Mid-therapy Assessment - Outbound Patient Call

Day 24: Refill/Wellness Check-Outbound Patient Call

Daily text messaging:
Scheduled medication adherence reminders
Impact of Live Counseling – Oral Oncology Agent

Patients Called: 170
Patients Opted Out: 53

Ave Days on Therapy – Opt In: 235
Ave Days on Therapy – Opt Out: 194
Bi-Directional Text Messaging Program

- Text messaging program
  - Daily reminders to take medication
  - Reminders for lab work
  - Educational tips, e.g. blood pressure monitoring
  - Motivational messaging
  - Patient surveys

- Gather lab values

- Pharmacist intervention for any indication of non-compliance
  - Clinician notified
  - Weekly emails to clinical staff

- Refill Reminders
Bi-Directional Text Messaging Program

Increase in Refill Rates after Adoption

Pre-adoption rate: 69.4%
Post-adoption rate: 89.4%

Growth in refill rate after adoption of text messaging program

29%
MediCAM: Medication (Ingestion) Event Monitoring Solution

Clinical Study: Naltrexone Medication for Opioid Users
University Partner: UCLA, ISAP
FDA approves ingestible sensor for medication adherence monitoring

Sensor can be integrated with drugs

AUGUST 2, 2012 | BY ALARIC DEARMENT

REDWOOD CITY, Calif. — Big Doctor is watching you — to make sure you’re taking your drugs as prescribed, that is.
MEMS Device
Pill-Aide™

- Organizes medication in advance
- Alerts patient when it is time to take their medication
- Device can be filled by pharmacist, Caregiver, or patient
- Alarm sounds and/or flashes for up 30 minutes or until patient takes the medication.
Glow Cap®
Patients Differ…What Works for Adherence Differs, too.
Higher Risk Patients for Non-Adherence

- Medically Underserved
- Age >65yo
- Patient perceptions
- Lack of Support
- Poor communication
- Psychiatric illness

- Knowledge
- Forgetfulness
- Medication Costs
- Multiple daily dosing
- Complicated administration instructions
- “Specialty Drugs”
## Benchmark Adherence Rates

<table>
<thead>
<tr>
<th>Disease</th>
<th>Rates of Non-Adherence</th>
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<tbody>
<tr>
<td>Epilepsy</td>
<td>30% to 50%</td>
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<tr>
<td>Arthritis</td>
<td>50% to 71%</td>
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<tr>
<td>Hypertension</td>
<td>40% (average)</td>
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<tr>
<td>Diabetes</td>
<td>40% to 50%</td>
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<tr>
<td>Oral contraceptives</td>
<td>8%</td>
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<tr>
<td>HRT</td>
<td>57%</td>
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<tr>
<td>Asthma</td>
<td>20%</td>
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<tr>
<td>Kidney Transplant</td>
<td>35.6%</td>
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<tr>
<td>Heart Transplant</td>
<td>14.5%</td>
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<tr>
<td>Liver Transplant</td>
<td>6.7%</td>
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<tr>
<td>CML (Imatinib)</td>
<td>25%</td>
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Variability in Persistence in Clinical Trials and Real-World Setting

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<thead>
<tr>
<th>Therapy</th>
<th>Clinical Trial</th>
<th>% adherence</th>
<th>Duration (yrs)</th>
<th>Real World</th>
<th>% adherence</th>
<th>Duration (yrs)</th>
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<tbody>
<tr>
<td>Imatinib (CML)(^1)</td>
<td></td>
<td>91</td>
<td>1.67</td>
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<td>56</td>
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<tr>
<td>Letrozole(^1)</td>
<td></td>
<td>84</td>
<td>4.3</td>
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<td>77</td>
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<tr>
<td>Tamoxifen(^2)</td>
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<td>71.7</td>
<td>3.9</td>
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<td>77.9</td>
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<tr>
<td>Capecitabine(^3) Clinical Trial</td>
<td></td>
<td>83</td>
<td>0.35</td>
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<tr>
<td>Tamoxifen(^4) initial hormonal therapy for women (&lt;= 40)yo</td>
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<td></td>
<td>50.7</td>
<td>&lt;5yrs</td>
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</table>

1 - J Onc Prac vol 7 issue 1 Jan 2011  
3 - J Clin Onc 28:2418-2422, 2010  
4 - Br J of Cancer April 26 2011
Abandonment of Oral Oncolytics
J Onc Practice May 2011, vol.7 no.3s;46s-51s

• **Methods:**
  - Review reversed claims from 2007-2009
  - WK data base of Medicare and Commercial
  - Abandonment defined as reversal of a paid claim without a subsequent paid claim within 90 days

• **Results:**
  - 10% abandonment rate
    - Copays > $500 accounted for 25% of the abandoned prescriptions
  - High cost, age, increased prescription activity, lower income, Medicare coverage were associated with higher abandonment
Measuring Adherence

- Patient self-reports
- Clinical outcomes
- Pill counts
- Refill records
- Biological & chemical markers
- Microelectronic monitoring systems (MEMS)

- MAS
  - Medication Adherence Scale
- BMQ
  - Brief Medical Questionnaire
- ITAS & ITBS
  - IST Adherence Scale
  - IST Barrier scale
- LTMBS
  - Long-term Medication Behaviour Self-Efficacy scale
The Role of the Nurse in Facilitating Oral Medication Adherence

- Assess adherence
  - ASK-20 survey (Hahn et al, 2008)
  - ASK-12 survey (Matza et al, 2009)

- \textit{ASK-20} is a valid and reliable self-administered survey for patients that can identify 20 specific, actionable barriers to medication adherence across a spectrum of chronic diseases.

**Taking Medicine—What Gets in the Way?**

Think about all of the medicines you take. Mark one answer for each item below.

### Lifestyle

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### Attitudes and Beliefs

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### Help From Others

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### Talking With Healthcare Team

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### Taking Medicines

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### Have You...

<table>
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<tr>
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<td>16</td>
<td></td>
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*May warrant further discussion with healthcare provider.*

If you checked any answers in the dark blue boxes, talk with your doctor or healthcare professional.
Adherence Pilot Program

Objective of Pilot:
- Assess the effectiveness of adherence tools (e.g. GlowCap) on Gleevec® and Tasigna® patients.

- Patient Selection:
  - Patients with at least 6-mo history prior to program start
  - Patient Disease States
  - All Gleevec GIST patients
  - All Tasigna CML patients
How Do GlowCaps® Remind Patients?

1. GlowCap® flashes orange at reminder time for the 1st hour

2. GlowCap® flashes orange and plays ringtone for the 2nd hour

3. Patient receives automated phone call

“A quick reminder from your friends at Vitality: Don't forget to take your <time of day> pill in your GlowCap®.”
Key Program Elements

- Patients were screened for eligibility and opted-in both verbally and via signed consent form.
- Pharmacy enrolled patients into the vendor portal based on the prescribed regimen.
- Behaviors that triggered pharmacy interventions:
  - No activity for > 72 hours
  - Weekly adherence rates of less than 85%
  - Refills not matching the device activity
- Prescribers also were notified of the adherence
Patient Adherence Comparison between Avella GlowCap® Users vs. Non-Users.

Early data show Avella patients with GlowCap had better adherence in their first 4 months of therapy.

The gap between the groups seems to grow over time, especially for Tasigna patients.

Tasigna Patient Adherence by GlowCap Use
Our pilot program demonstrated a **50% increase in medication adherence** at month 4 of therapy for Tasigna® patients using GlowCap (vs. control group).
Considerations for Successful Adherence Programs

• Easy for patient to obtain and understand
• ACTIVE interventions – a device alone will not be as effective
• Prescribers are aware and supportive of the programs
• The program meets the needs of the patient and the therapy
• Measurable results
• HIPAA compliant
Thank You!