Objectives

- **Primary**: Determine the difference in adherence rates between the intervention group and control group
- **Secondary**:
  - Evaluate the significance of real-time interventions (Intervention Group Only)
  - Determine the Incremental Cost-Effectiveness Ratio (ICER)
  - Evaluate patient satisfaction and likeliness to use a smart pill-bottle

Introduction

- According to the Network for Excellence in Health Innovation (NEHI), in the United States poor medication adherence alone accounts for $290 billion of the annual $750 billion wasted healthcare spend\(^1\)
- In 2015, majority of the medications that were approved were oral oncolytics\(^2\)
- Medication non-adherence with complex oral oncolytic regimens that patients take from home can lead to ineffective treatments, hospitalizations, and unnecessary disease progression

Methods

- Prospective, randomized, single-blind, controlled study
- The intervention group (N=20) received a pill bottle with activated lights, noise alerts, and text message reminders plus pharmacist follow up for weekly adherence rates <85%
- The control group (N=20) received an identical pill bottle with all alerts deactivated and no additional pharmacist follow up
- Using real-time data from individual pill bottles adherence rates between the intervention group and control group were compared using Mann-Whitney U test

Patient inclusion Criteria:

- New to lenalidomide therapy
- Have access to a cellular phone
- Able to unscrew a child safety cap
- Able to transfer medications from one pill bottle to another

Results

- Adherence rate of lenalidomide patients (median)

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<th>Intervention Arm (n = 16)</th>
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- **Daily dosage timing for patients with high compliance (>95%)**

<table>
<thead>
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<th>Test Patient 1</th>
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<th>Control Patient 1</th>
<th>Control Patient 2</th>
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<tbody>
<tr>
<td>Compliance: 100%</td>
<td>Compliance: 100%</td>
<td>Compliance: 95%</td>
<td>Compliance: 100%</td>
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Reasons for Discontinuation:

- Lost signal (1)
- Inappropriate use (2)
- Every other day dosing (1)
- Transferred out (1)
- Deceased (1)
- Held during first cycle (2)

- Test patients have very regulated behavior (83% in window)
- Control patients have variable dosing, which may lead to lower ongoing compliance (22% in window)

- **Implications**
  - Smart pill-bottle significantly improved patients adherence
  - Longer use may lead to improved medication persistence and clinical outcomes
  - Very expensive; viable option in select patient population
  - Positive feedback from intervention group

References


Disclosures / Contact

Authors of this presentation have the following to disclose: Joseph Mauro, Kelly Mathews, Eric Sredzinski: Nothing to Disclose

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