

# Adherence Assessment and Management in Adolescents and Young Adults (A/YA) with Cancer

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## Leukemia & Lymphoma in A/YA

- ▶ Over 110,000 A/YA have been diagnosed with leukemia or lymphoma in the United States
- ▶ Initial treatment
  - Consists of intensive chemotherapy
  - Delivered in the hospital setting
- ▶ Maintenance phase of therapy:
  - Complicated schedule of oral chemotherapy
  - Patient/caregiver are largely responsible for regimen administration
  - In home



## Leukemia and Lymphoma: Oral Medications

- ▶ Purpose of medications
  - *Chemotherapy* (e.g. 6-Mercaptopurine (6MP), Methotrexate, Steroids)
  - *Infection Prophylaxis* (e.g., Bactrim)



## Adherence in A/YA with Cancer

- Adherence rates among adolescents with cancer are similar to non-cancer populations (e.g., asthma, diabetes, and inflammatory bowel disease)
- Rates of oral medication non-adherence are high in A/YA with cancer (Range: 27 – 60%) (Butow et al., 2010; Kennard et al., 2004; Pai et al., 2008)
- Rates of non-adherence are higher among adolescents than younger children (Festa et al., 1992; Lau et al., 1998; Lennard et al., 1995)

## Non-Adherence in A/YA with Cancer: Consequences

- Non-adherence is associated with severe clinical consequences
- 27% of adolescents prescribed antibiotics had no detectable levels of the medication in blood (Kennard et al., 2004).
- Mortality rates are 5.5 X higher for A/YA with ALL, categorized as non-adherent to prophylactic anti-infective regimens as compared to their more adherent counterparts (Kennard et al., 2004).



## Clinical Needs

- ▶ Systematic and routine assessment
  - Multiple methods of assessing adherence (Quittner, et al., 2007)
  - Clinical systems to collect multiple measures of adherence
- ▶ Promotion and intervention
  - Fundamental adherence education
  - Fundamental adherence support and monitoring (e.g., make adherence discussions apart of standard of care)
  - Methods to provide additional adherence support for those identified adherence problem



## Goal

To improve adherence to oral medication regimens in A/YA with cancer

## Aims

- **Aim 1:** To implement and evaluate a standardized clinic-based adherence assessment procedure for Adolescents and Young Adults (A/YA) with leukemia or lymphoma
- **Aim 2:** To implement and evaluate clinic-based interventions to promote adherence to oral medication regimens for A/YA with leukemia or lymphoma

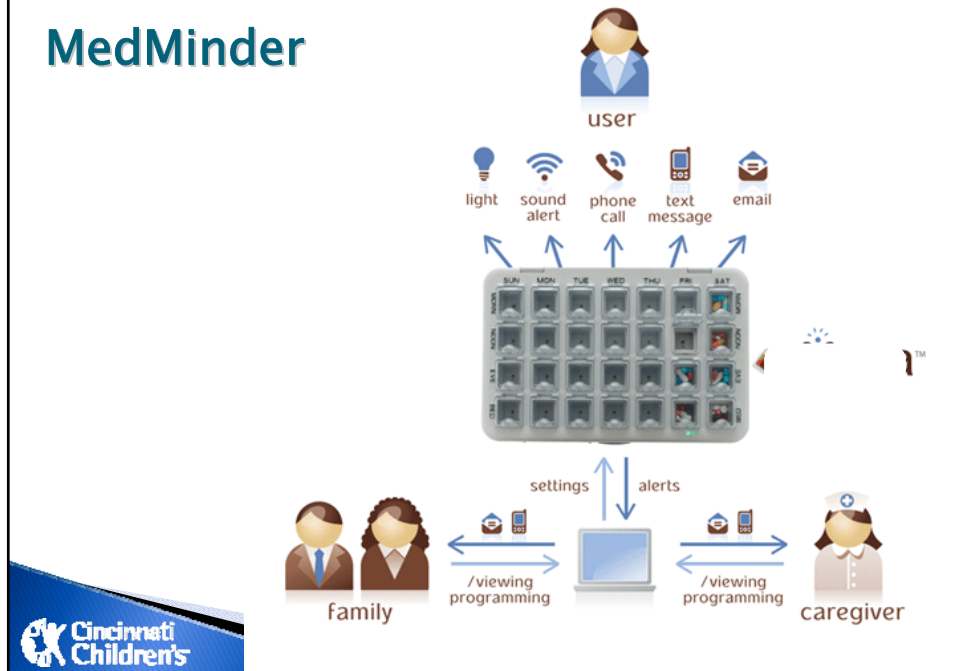
## Method

- ▶ Patients
  - ≥11 y.o.
  - Diagnosed with leukemia or lymphoma
  - Prescribed oral medication
- ▶ Procedures
  - Intervention training sessions provided to nurses
  - Deliver assessments and intervention sessions at routine clinic visits conducted every 4 weeks
  - Chart documentation and review

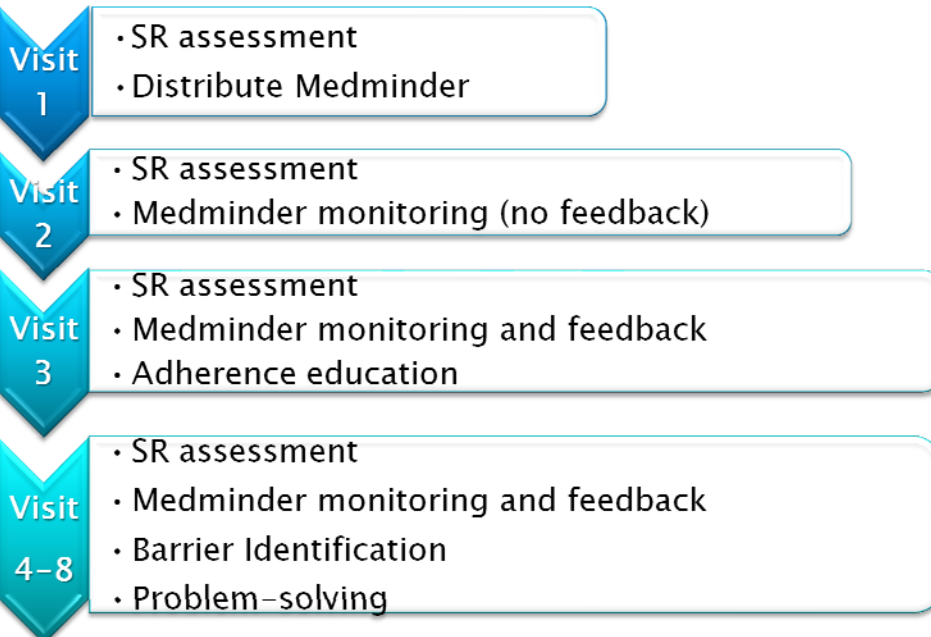
## Adherence Measures

- ▶ Self-Report of Adherence
  - “How many doses did you miss in the past (4) weeks?”
- ▶ Medminder (Electronic Monitor)
  - Time and date of dosage administration for the past 4 weeks.
- ▶ 6-MP Blood Levels
  - When clinically indicated either for medical or adherence reasons

# MedMinder



## Collaborative Adherence Problem-Solving



## Six Plan-Do-Study-Act Ramps

- ▶ [Ramp 1](#): SR Adherence Assessment
- ▶ [Ramp 2](#): SR Adherence Assessment Documentation
- ▶ [Ramp 3](#): Electronic Adherence Assessment
- ▶ [Ramp 4](#): Electronic Adherence Assessment Documentation
- ▶ [Ramp 5](#): Adherence Intervention
- ▶ [Ramp 6](#): Adherence Intervention Documentation

### PDSA Ramp 1: SR Adherence Assessment



#### TEST 1

*What:* SR assessment

*Where:* CCHMC L&L clinic

*When:* 6/27/11 - 7/18/11 (first 5 study visits)

*Who executes:* Nurses

*Results:* Self-report question was easy to ask and facilitated conversations about the patient and families views of adherence. *Adopt.*

## PDSA Ramp 2: SR Adherence Assessment Documentation



### TEST 1

**What:** SR assessment doc  
**Where:** CCHMC L&L clinic  
**When:** 6/27/11 - 7/18/11 (first 5 study visits)  
**Who executes:** Nurses  
**Results:** Location and content of SR assessment documentation not consistent



### TEST 2

**What:** SR assessment documentation template created for EPIC  
**Where:** CCHMC L&L clinic  
**When:** 7/18/11-10/10/11  
**Who executes:** Nurses  
**Results:** Adapt. Content of SR assessment documentation not consistent. EPIC ". Phrase" created and distributed.



### TEST 3

**What:** EPIC template for SR assessment documentation  
**Where:** CCHMC L&L clinic  
**When:** From 10/18/11-present  
**Who executes:** Nurses  
**Results:** Adopt



## PDSA Ramp 3: Electronic Adherence Assessment



### TEST 1

**What:** Medminder assessment  
**Where:** CCHMC L&L clinic  
**When:** 7/11 - 9/11 (visit 2 and after for enrolled patients)  
**Who executes:** Nurses  
**Results:** Adapt. Medminder site difficult to quickly assess adherence



### TEST 2

**What:** Medminder reports created.  
**Where:** CCHMC L&L clinic  
**When:** 9/14/11-10/10/11  
**Who executes:** Sarah  
**Results:** Adapt. Calendars provided but nurses cannot independently or quickly create



### TEST 3 (IN PROGRESS)

**What:** Medminder programing developed  
**Where:** CCHMC L&L clinic  
**When:** From 10/18/11-present  
**Who executes:** Sarah, Nurses  
**Results:** Unknown. Still creating calendars manually. Data management team to develop program to convert data for clinical use. Patient feedback on medminder reports being collected.



## Conclusions

- ▶ First study to attempt to integrate comprehensive adherence assessment and promotion into standard clinical care for A/YA with cancer
- ▶ Self-report assessments
  - Easy to implement
  - Facilitate conversations about adherence
- ▶ Assessment documentation
  - Templates developed and information valued
- ▶ Increased coordination/complexity of system
  - Coordination of identifying which patients should be provided the intervention
  - Communication regarding study visits

## Potential Impact

- ▶ Prevention of adherence difficulties
- ▶ Faster identification of adherence difficulties
- ▶ More effective allocation of resources to assist with adherence problems
- ▶ Improved overall adherence

## Barriers to be addressed

- ▶ Technological barrier:
  - Cell service limited in some areas
  - Existing Medminder Reports not helpful for identifying adherence patterns
  
- ▶ Patient Barriers:
  - Do not want to use pillbox
  - Believe that they do not need adherence support

## Next Steps

- ▶ Data programming for MedMinder
- ▶ PDSA documentation procedures for Medminder and intervention components.
- ▶ Make multiple types of electronic monitoring devices available to better meet the preference of patients.
- ▶ Disseminate assessment and intervention procedures to additional care team members