mHealth Training Institute
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MH²™: Mobile Health for Mental Health

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http://obssr.od.nih.gov
Guiding Principles

• Mental health problems are common, treatable and costly.

• Adherence to national treatment guidelines are (expected to be) associated with improved clinical outcomes.
• Communication is key for good care
  – Diagnosis & treatment
  – Between patient-provider
    • Therapeutic relationship/time
  – Inclusion of other decision makers
    • Child/youth/parent/adult caregiver
  – Across providers
    • Care coordination
    • Multiple sectors
      – Schools, foster care, juvenile justice, residential tx facilities
Guiding Principles

• Shared care decision processes may shift/time
  – Child development
  – Clinical status
    • Major depression
    • Psychosis
    • Legal authority/competence
Guiding Principles

• Mental health care for vulnerable populations is.....complicated.
Guiding Principles

- Care is often multi-level
  - Patient, caregiver/family, community, system
Guiding Principles

• Mental health care system is fragmented
• Access to care is often poor
Key Terms

• DSM-5 Diagnostic Criteria
• Evidence-based psychotherapies
• Psychotropic medication classes & side effect profiles
• Treatment guidelines & national quality measures
• Treatment fidelity
• Medication adherence
• Medication titration
• Can mHealth improve:
  – Access to mental health care?
  – Continuity of care?
  – Adherence to recommended care?
  – Patient-provider communication?
  – Care coordination?
  – Patient-centered care?
Reaching Out to Experts – Who and Why?

• **Community-Academic Partnerships/time**
  – End-users
    • Mental health consumers
    • Primary caregivers of children with mental health problems
    • Providers from multiple disciplines and settings
    • Quality assurance
    • Agency leaders

• **Social Scientists**
• **Methodologists**
• **Computer Scientists**
• **Legal/Intellectual Property**
Case Study: A Humble Start

Optimizing Stimulant Medication Treatment for Children with ADHD

MH2™
Case Study: The Problem

Attention Deficit Hyperactivity Disorder

• **Common**
  – 3-7% of U.S. children

• **Treatable**
  – stimulant medication

• **Long-term adverse outcomes**
  – school failure, accidental injuries, substance abuse, vocational success

• **Costly**
  – ≥ costs for asthma
Case Study: The Problem

- National treatment guidelines require use of standardized rating scales to make diagnosis and monitor medication
  - Paper forms
  - ↑ burden on parent and teachers
  - Inconsistent completion
- Medication follow-up visits are brief
- Quality of care in community is poor
Use mHealth Technologies to target:

- Follow-up clinic visit attendance
- Medication adherence
- Parent-provider communication
- Parent-centered medication management
Case Study: System Architecture
Parent Interface (smartphone)

Reminders
- Medication
  - Daily
  - Adherence prompt (yes/no)
  - Button for med name, dose, frequency

MH²™ Features
Parent Interface (smartphone)

Reminders

- Clinic visit appointments
  - 1 week, 3 day, 1 day prior to next visit
  - Button for clinic contact information
MH²™ Features

Parent Interface (smartphone)

Symptoms and Side Effect Ratings

- Daily
- Standardized rating scales
- Compliant with national tx guidelines
- Promotes parent learning of how to monitor medication efficacy and side effects
Parent Interface
(smartphone)

Parent education and support replies following completion of tasks

Parent sets timers for times convenient for them
Parent Interface (smartphone)

My Report allows parent to track their ratings between visits

Teacher Interface (link via email)

- Twice weekly symptom ratings
- Meets national recommendations to rate symptoms in more than one setting
MH²™ Features

Provider (iPad)

Medication adherence report

• Capacity to clarify missing dates with parent during visit and recalculate adherence rate
MH²™ Features

Provider (iPad)

Capacity to enter next clinic visit appointment
  • Updates information in parent smartphone
  • Sets dates internally for new clinic visit reminders
MH²™ Features

Provider (iPad)

Aggregates symptom and side effect ratings from parent and teacher

- Capacity to drill down by:
  - Medication adherence rate
  - Inattentive vs. hyperactive symptoms
  - Physical vs. emotional side effects
Case Study: Challenges

- Continuity in software development & refinement
- Research Center server upgrades → bugs
- Pilot testing in the community is slow
- Compliance
  - HIPAA
  - IRB
  - County of Los Angeles Department of Mental Health
  - Clinical trials.gov
- Trademark & copyright
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  – San Fernando Child and Family Guidance Center
  – Parents, teachers and child psychiatrists participating in the pilot testing
Discussion
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