



# User Testing to Refine an Electronic Behavioral Health Record for Wraparound: FidelityEHR

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29<sup>th</sup> Annual Research & Policy Conference on Child, Adolescent and Young Adult Behavioral Health

March 15, 2016

# Today's Presentation

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- Overview & Acknowledgments
- Rationale and Functions of FidelityEHR
- Results of User Experience (UX) Testing
- Using of UX Feedback
- Discussion, Conclusions, and Next steps

# Acknowledgments

- Research and commercialization funded by a National Institute of Mental Health STTR grant (Small Business Technology Transfer; R42 MH95516)
- Collaboration between FidelityEHR as the commercialization partner and the University of Washington as the research partner
- Informed by NWI, NWIC, and the Center for Innovation and Implementation at the University of Maryland School of Social Work

# Who is FidelityEHR?

- Founder & CEO Dr. Kelly Hyde
- Formerly called *Social Tecknowledgy*
- TMS- Wrap Logic newly rebranded as **FidelityEHR** in January 2016
- Mission of the company is to improve outcomes for children and families through user-friendly technology

# Why was FidelityEHR developed?

- To provide Wraparound and System Of Care sites with a high-quality, field-tested electronic behavioral health system (EBHIS) that supports fidelity to research-based Wraparound and care coordination models.



# STTR Phase II

## Commercialization Product

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### FidelityEHR Mission Statement:

*To support empowerment, engagement and healthy outcomes through innovations in technology for families and communities.*

# STTR Phase II

## Commercialization Purpose

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- Stimulate technological innovation
- Foster technology transfer through cooperative research and development between small businesses and research institutions
- Increase private sector innovations derived from research and development

# STTR Phase II Research Project

- Three phases:
  - **Phase 1: Development:** Program elements of FidelityEHR
  - **Phase 2: UX Testing:** Determine if FidelityEHR is feasible and user experience is positive
  - **Phase 3: Randomized Control Study:** Determine if FidelityEHR helps facilitate:
    - Better Wraparound implementation by providers and
    - Better outcomes for youth and families



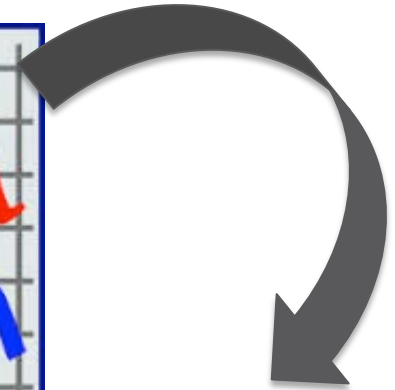
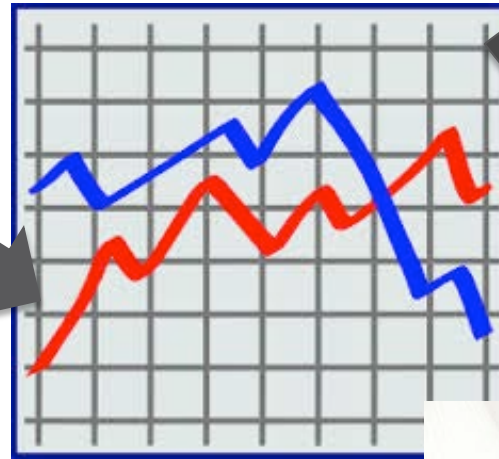
# Wraparound

- Wraparound is the only defined, research-based care coordination process youth with serious emotional and behavioral disorders (SEBD) and their families
- Wraparound is implemented for over 100,000 youths annually, in nearly 1,000 programs across the U.S.
- Now considered “Evidence-Based”

# Quality matters!

- **However**, Wraparound quality matters
- Wraparound implementation often falls short of ideals
  - Teams of people important to the family working together effectively
  - Natural supports on teams
  - Youth and families truly in the driver's seat
  - Clear needs statements
  - Strategies based on needs
  - Strategies based on strengths and culture of the family
  - Collecting and using objective data on progress
- **When implementation is poor, outcomes are poor**

# Hypothesis: Electronic Health Records can facilitate efficiency, fidelity, positive outcomes



# FidelityEHR manages and reports on key information on the Wraparound process



- **Individuals engaged in the process**
  - Youth and family members, team members, providers, natural and community supports, coordination of care
- **Key documentation**
  - Plans of care, strengths, needs, family stories, family history timeline, meeting and appointment times, meeting notes, contact histories, critical incidents, services and costs
- **Service processes**
  - Family satisfaction, fidelity, progress toward needs
- **Outcomes Monitoring and Feedback**
  - CANS data, youth and family support, residential status, educational environment and behavior, youth functioning
- **Provider network management and billing functions**

# FidelityEHR Functionality

- Improve **teamwork** through:
  - Ease of data entry and management
    - Basic info is all in one place
    - Upload assessments and documents
  - Better communication
    - Internal emails, meeting reminders, team meeting notes
  - Ease of retrieval and access
    - By facilitator, family, and supervisor
  - Transparency
    - Everyone has access to same information

# FidelityEHR Functionality

- Improve **fidelity**:
  - Workflow and records organized by critical Wraparound action steps
  - Standardized assessments and evaluations keeps you “outcome based”
  - Supervisors have real-time access to strategies, services, history, progress, satisfaction

# FidelityEHR Functionality

- Improve **efficiency**:
  - Managing:
    - Workflow
    - Meeting schedules
    - Team information
    - Referral and billing information
    - Task follow-through
  - Auto-populate functions
  - Ease of retrieval for supervision, team meetings
  - Provides information mandated by MCOs

# FidelityEHR Functionality

- Improve **outcomes** by:
  - Integrating **monitoring of progress and feedback**
  - Aid in decision making based on progress
  - Standardized assessment data readily available
  - “Supervision based on needs” (not crisis of the week)
  - Clinical alerts





# Theory of Positive Impact

UX Testing Targets this part of the Theory

Come back next year to hear more about testing this part of the Theory

## FidelityEHR Components

- **Information management:** e.g., family, team, plan, providers, services, billing
- **Fidelity support:** e.g., Workflow pane, reminders, alerts, supervisor reports
- **Standardized assessment:** clinical alerts, treatment recommendations
- **Feedback of information** via dashboard reports on fidelity, services, progress, outcomes
- **Supervisor, manager, administrative reports:** e.g., services, costs, satisfaction, fidelity, outcomes, placements



## Impact on Staff/Teams

- Availability of information
- Transparency and efficiency
- Better collaboration and teamwork
- Adherence to elements of high-fidelity Wraparound
- Options and treatments based on evidence for effectiveness
- More frequent progress review
- Decision-making based on objective data
- More focused, directive, data-informed supervision
- Staff more satisfied and self-efficacious
- Admin/manager-level accountability



## Paths to Family Outcomes

- Goal clarity
- Team communication and consensus
- Better problem-solving
- Greater treatment alliance
- Family and team better engaged, hopeful, and satisfied
- Fidelity to core Wraparound principles
- Shorter self-correction cycles
- More effective treatment
- Reduced staff turnover



## Outcomes

- Families retained in services
- Greater social support
- Greater progress and reduction in top problems
- Reduced youth emotional and behavioral problems
- Improved youth functioning
- Reduced out of home/community placement
- Reduced costs to public systems/MCOs/providers

# Stages of FidelityEHR User Experience (UX) Testing

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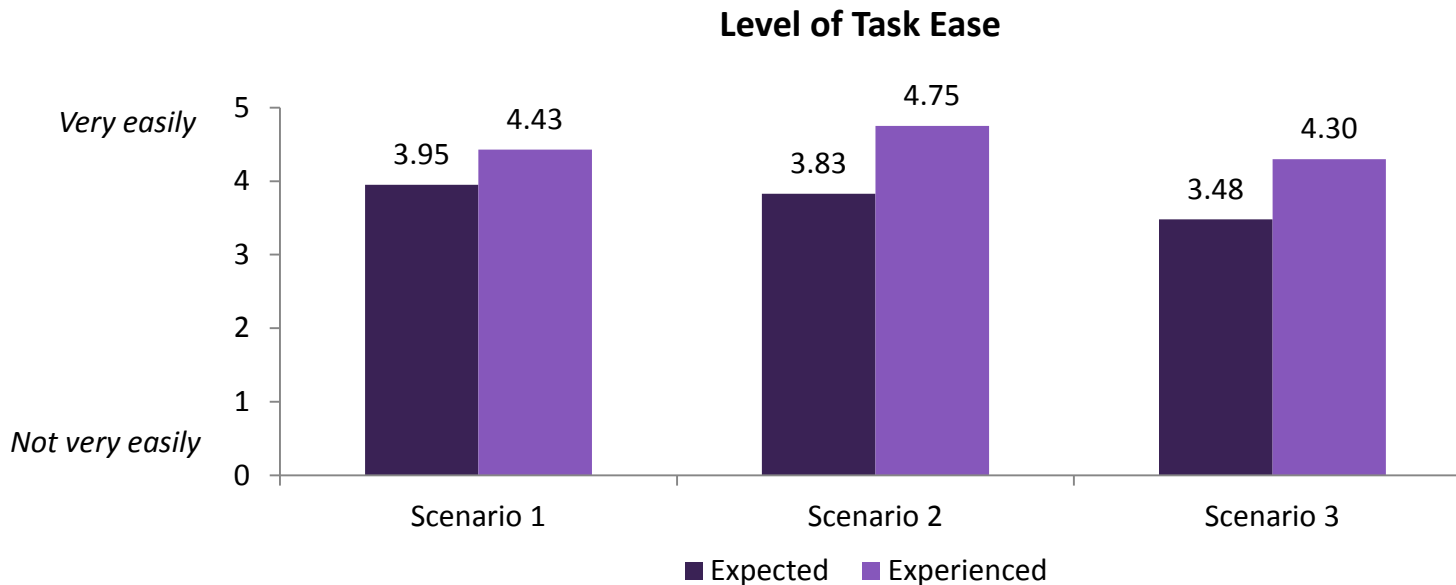
- Lab-based testing of prototype
- Initial field-based testing (“site 1”)
- Field-based testing of refined system with enhanced readiness promotion (“site 2”)

# Overview of Measures

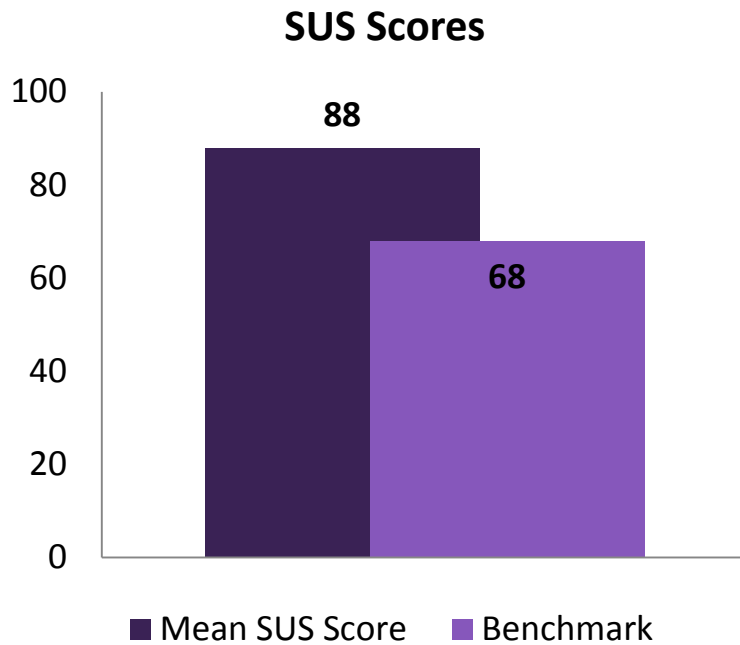
- Lab-based testing
  - System Usability Scale (SUS)
  - System Acceptability and Appropriateness Scale (SAAS)
  - Scenario-based “think aloud” procedure
  - Focus groups and debriefs
- Initial field-based testing
  - SUS, SAAS, focus groups
- Field-based testing of refined system with enhanced readiness
  - SUS, SAAS
  - User “click” patterns
  - Feedback in consultation calls

# Results of Lab-Based Testing

- Users performed tasks grouped into three main “scenarios” in FidelityEHR.
- Users were asked “How easily do you expect to perform this task?” prior to performing each task, and “How easily were you able to perform this task?” upon completion.
- **Overall, users reported that tasks were easier to complete than anticipated.**



# Results of Lab-Based Testing



User average of 88.33 on the SUS, well “above average” compared to national benchmarks

Users reported the most difficulty entering a new youth record when using the Referral Form and enrolling the youth (means= 3.33 and 3.67, respectively, out of 5)

# Results of Lab-Based Testing

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- **User Feedback:**

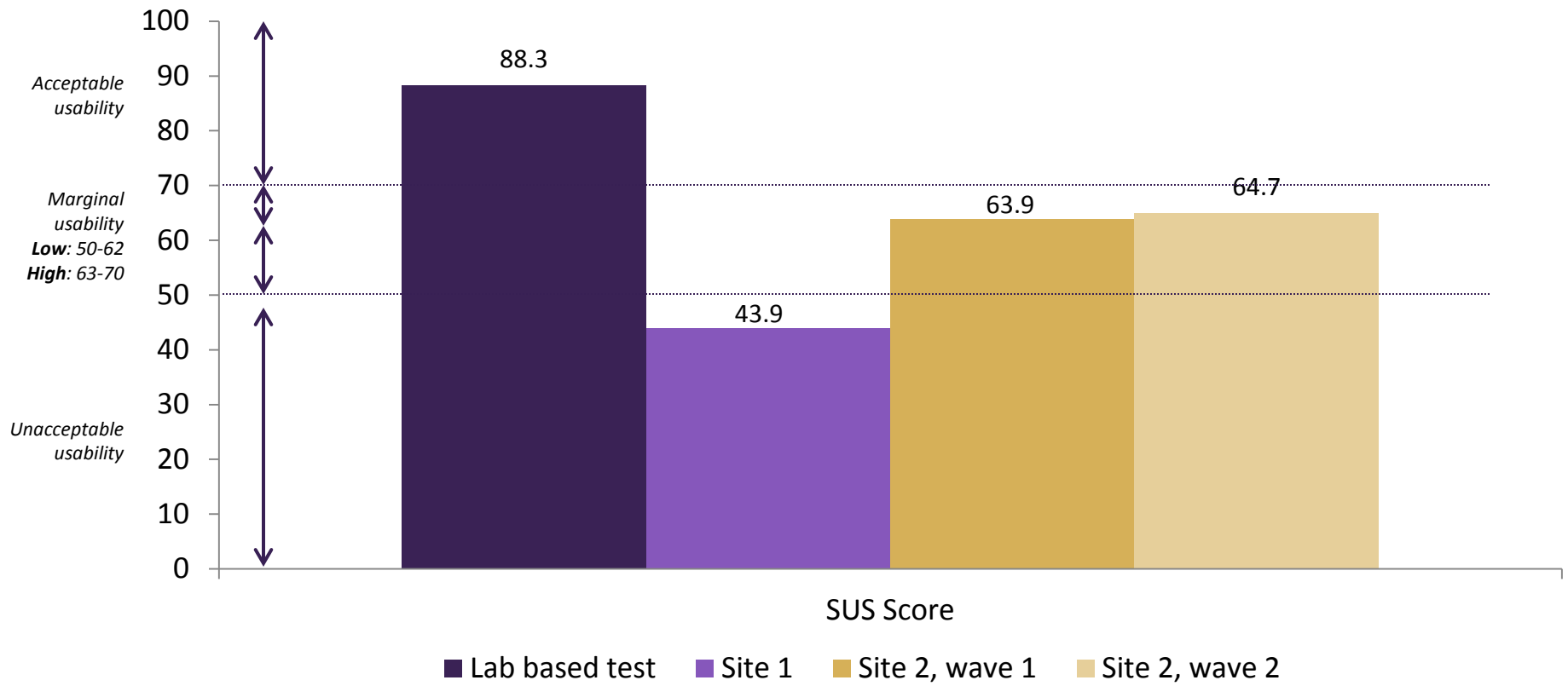
“Like that the information is all in one place.”

“Like that we can send reminders for team meetings through the system.”

“The graph visuals help us track progress over time.”

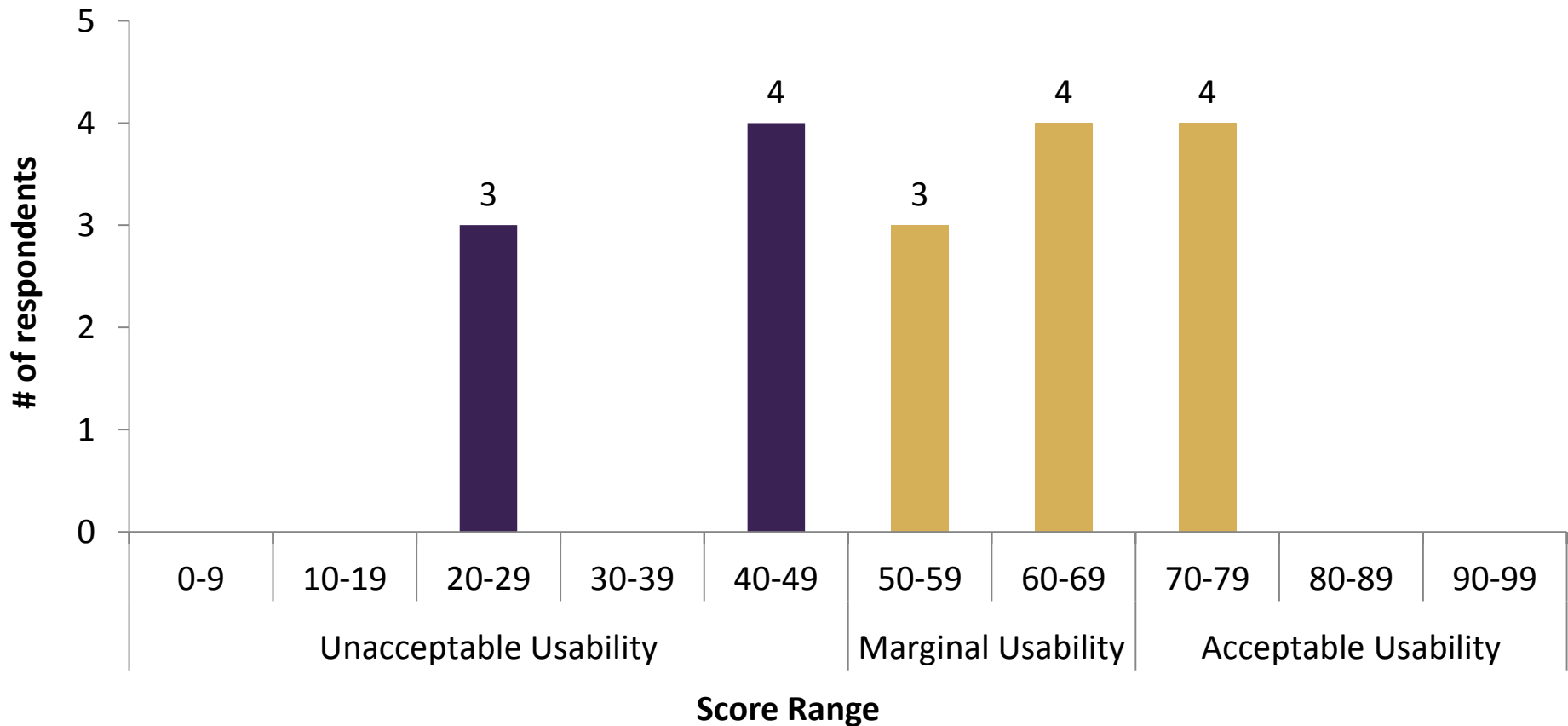
# Results of Field-Based Testing

## System Usability Scale (SUS) Scores



# Results of Field-Based Testing Site 2

**11 of 18 respondents scored FidelityEHR with “Marginal” or “Acceptable” usability**





# Results of Field-Based Testing



Users rated FidelityEHR as a compatible addition to their agency

- Relevance to client population (mean=3.5/5.0)
- Align with treatment modality (3.5/5.0)
- Fit with overall service delivery approach (3.4/5.0)

Training tools were unhelpful and did not contribute to expertise

- User Manual (1.8/5.0)
- Video training library (2.0/5.0)
- Technical assistance (2.2/5.0)

# Results of Field-Based Testing

- **User Feedback Largely Positive:**
  - “I always use the Contact and Service Notes sections.”
  - “It’s been very easy to update the Plan of Care.”
  - “It’s really helpful to be able to log in remotely and type up notes after a meeting rather than going back to the office.”
  - 12 of 15 users reported the system “made their life better” in consultation calls

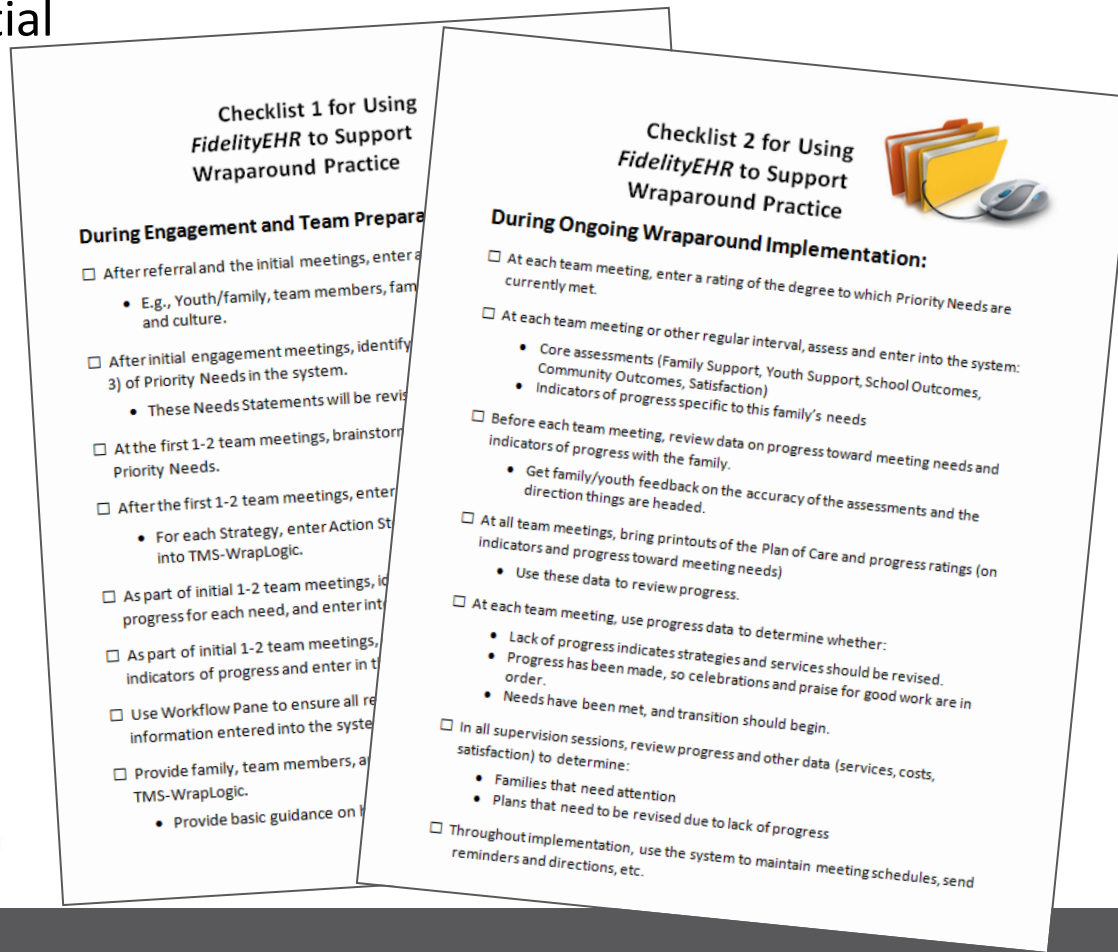
# Data-informed System Improvement:

## Recommendations Based on Qualitative Feedback

- Improve the training tutorial(s) and materials
- Streamline how to enter demographic information in one place
- Ensure all features of FidelityEHR have the auto-save functionality
- Make the Crisis Plan easier to read
- Improve the functionality of Adding/Editing Diagnoses
- Add a notification feature for new messages

# Data-Informed Consultation: Supporting Wraparound Fidelity

- UW WERT and FidelityEHR support high-fidelity Wraparound with consultation calls and checklists to guide users and maximize FidelityEHR potential



# Data-Informed Consultation: User Clicks in FidelityEHR

Percent of page clicks by task category, as a function of all clicks

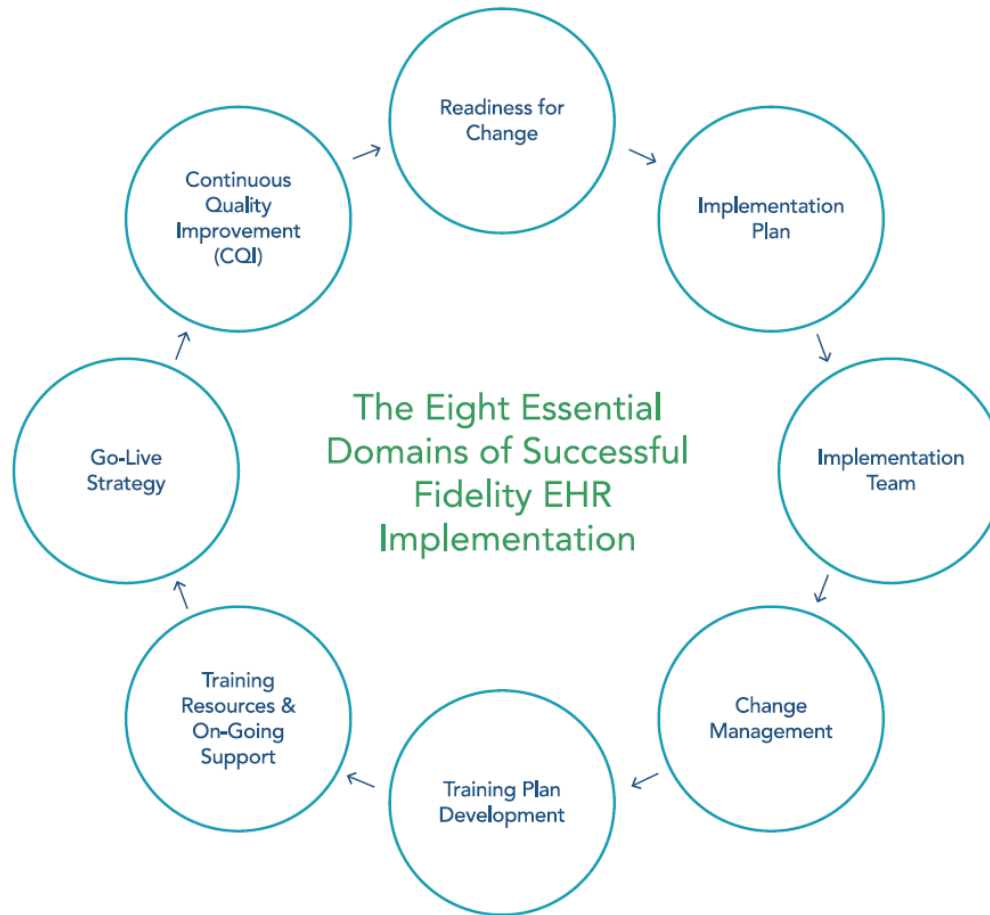
User Task Category	First month of use	Second month of use	% Change
Communicating with the Team	20.78%	40.53%	<b>+95.0%</b>
Core Assessments	0.30%	2.31%	<b>+6.7%</b>
Maintaining Service Notes	11.97%	14.95%	<b>+24.9%</b>
Managing Information	21.98%	1.20%	<b>-94.5%</b>
Updating & Developing the POC	36.84%	20.78%	<b>-43.6%</b>
User Settings	18.13%	20.23%	<b>+11.6%</b>

# Data-Informed Consultation: User Clicks in FidelityEHR

Example report of clicks by user for one month by task category,  
Compared to mean number of clicks for the site overall

User Task Category	Facilitator 1	Facilitator 2	Site Mean
Communicating with the Team	440	817	<b>720</b>
Core Assessments	35	26	<b>29</b>
Maintaining Service Notes	214	576	<b>326</b>
Managing Information	191	386	<b>323</b>
Updating & Developing the POC	489	377	<b>597</b>
User Settings	257	540	<b>469</b>

# Utilizing User Feedback



# Utilizing User Feedback

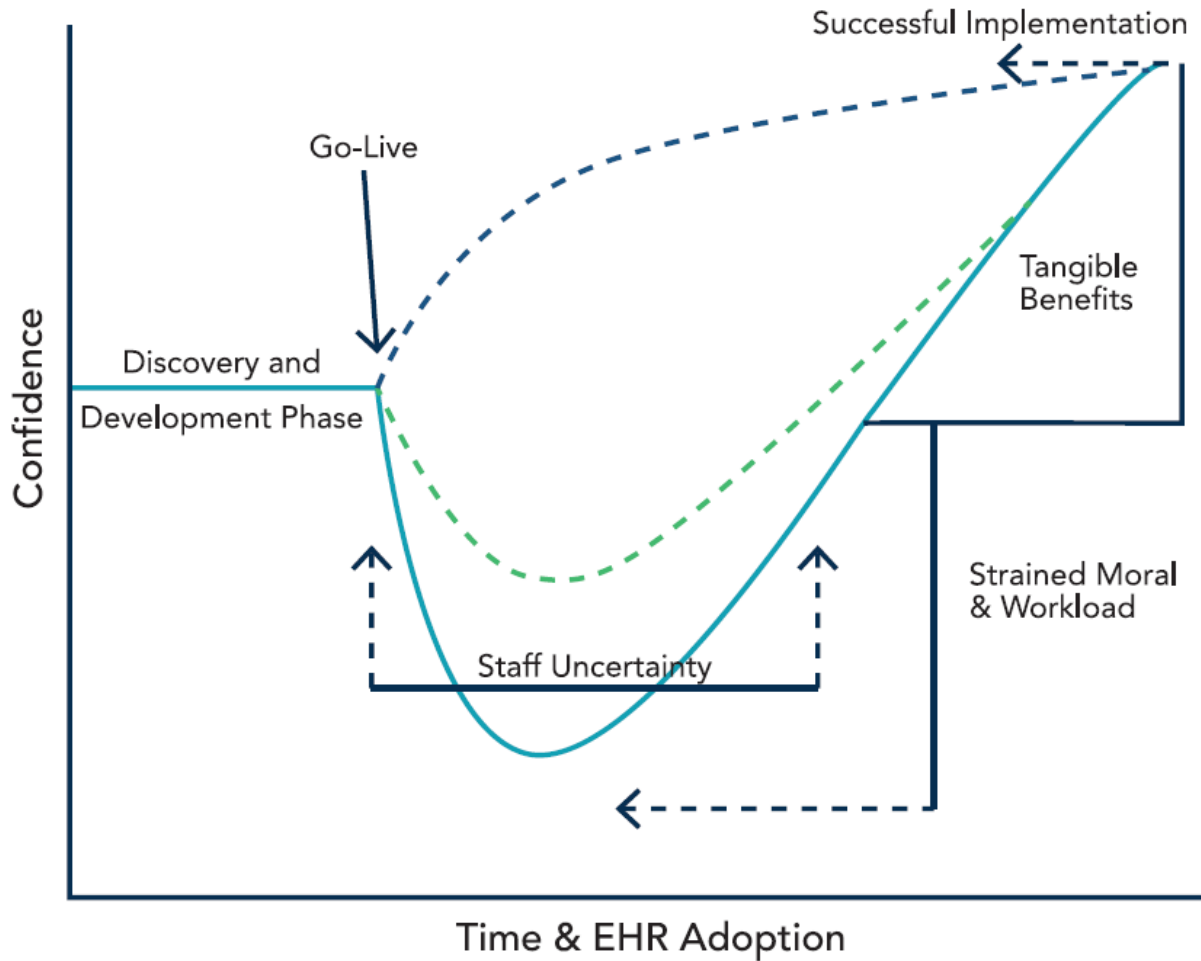
Observations about User Training	Training Development
<ul style="list-style-type: none"><li>• Usability likely related to Training more than system .</li><li>• Improvement needed in training resources and structure of methods.</li></ul>	<ul style="list-style-type: none"><li>• Assess User learning preferences</li><li>• Utilize PowerPoint presentations</li><li>• Demonstration in Software</li><li>• Role-based practice scenarios</li><li>• Team-based activities</li><li>• User Videos and Manuals</li><li>• Increase Structure of Training</li></ul>



# Utilizing User Feedback (cont'd)

User Software Feedback	Software Development
<ul style="list-style-type: none"><li>• System changes suggested to increase ease of use.</li><li>• Develop more Wraparound-centered features.</li><li>• User adoption of new POC process requires additional training.</li></ul>	<p>User feedback led system improvements:</p> <ul style="list-style-type: none"><li>• Removed duplicate data entry</li><li>• Implemented Auto-Save</li><li>• Increased usability of ICD and DSM search and diagnostic add/edit fields</li><li>• User friendly Search function for Youth Record and Service/Contact Notes</li><li>• Family friendly POC and Crisis Plan Reports</li><li>• Implemented Inbox and Client Portal messaging with notifications</li></ul>

# User Confidence Levels During Fidelity EHR Implementation



# Conclusion: Impact of User Testing on Software Development and Usefulness

- 1. Developed expertise in EHR implementation science and best practices in team-based training**
- 2. Improved training structure and support materials for on-site and ongoing team-based learning**
- 3. Strengthened Wraparound-centered software features**

The application of family-centered Wraparound practice principles applied to the crisis plan, client portal, and POC report
- 4. Implemented feedback to improve User Experience and Acceptability**

# Lessons Learned from Research and Experience

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- Findings emphasize importance of:
  - Assessment & procedures for development customization
  - Collaborative implementation planning
  - Initial workflow analysis
  - Comprehensive user- and site-specific training



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