

# Holland Bloorview Kids Rehabilitation Hospital

July 21, 2014

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Kids Rehabilitation Hospital

**Bloorview**  
RESEARCH INSTITUTE

**Transforming Care by Leading the System – Supporting Clinically Driven Research When Developing Customized Access Technologies**

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Learning Objectives

As a result of this activity, participants will be able to:

1. Identify the benefits of clinically driven research
2. Identify potential collaborators
3. Gain ideas on ways in which to enhance collaborations

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Overview

- Description of services
- Service delivery models and initial collaboration
- Rationale for enhanced collaboration
- Enhanced collaboration
- Benefits of enhanced collaboration
- Future directions

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Description of Services  
Holland Bloorview Kids Rehabilitation Hospital

- Located in Toronto (Ontario), Canada
- Canada’s largest pediatric rehabilitation hospital
- Teaching hospital fully affiliated with the University of Toronto



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Description of Services  
Communication and Writing Aids Service

- Community Program at Holland Bloorview Kids Rehabilitation Hospital
- Consultative service for children ages 0-18
- Expanded Level AAC Clinic
- Interdisciplinary teams


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Description of Services  
Communication and Writing Aids Service



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## Description of Services Communication and Writing Aids Service

- Clients with complex clinical/technological needs
- Range of abilities and needs
- Multiple diagnoses
- Limited or no reliable access method
- Requiring alternate access

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## Description of Services PRISM Lab

PRISM Lab (Pediatric Rehabilitation Intelligent Systems Multidisciplinary Lab)

- Created in 2004 by Dr. Tom Chau
- Part of Bloorview Research Institute
- Team made of:
  - Graduate students
  - Postdoctoral fellows
  - Engineers



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## Description of Services PRISM Lab

- Clinically oriented lab
- Focus on access innovations
  - Physical access pathways
  - Physiological access pathways

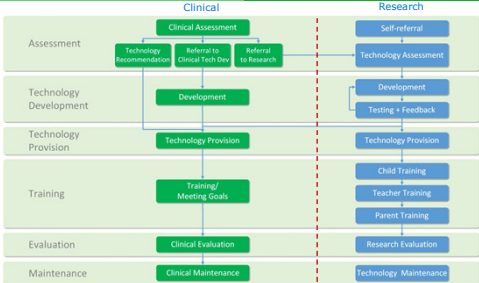
Virtual Music Instrument      Muscle Vibration Switch      Brain-Computer Interface

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## Service Delivery Models/Initial Collaboration

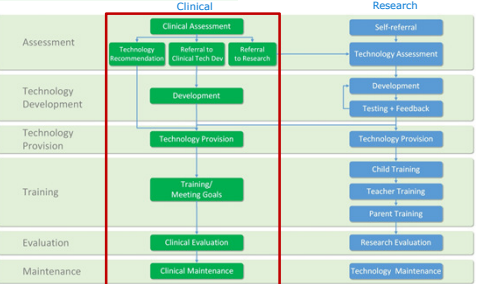


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## Service Delivery Model Communication and Writing Aids Service

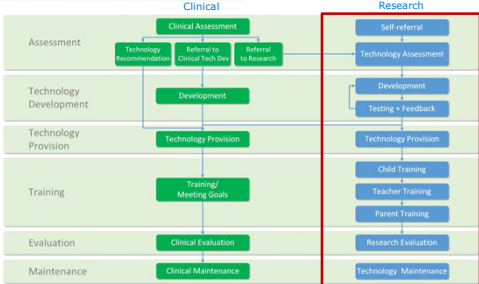


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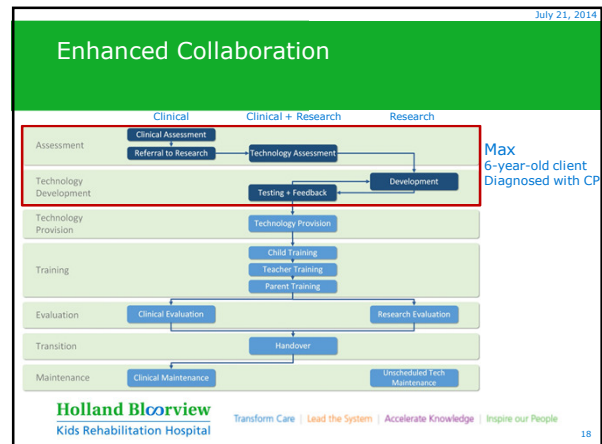
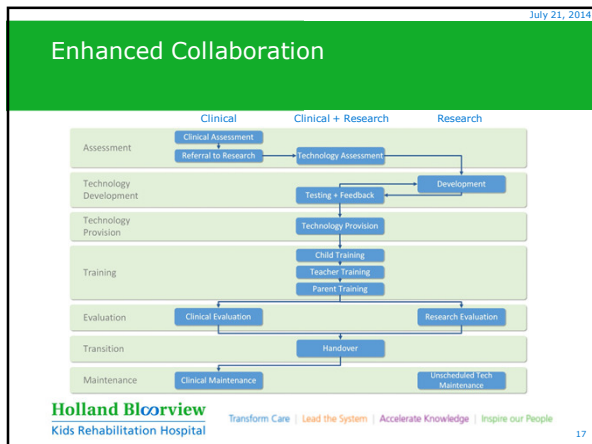
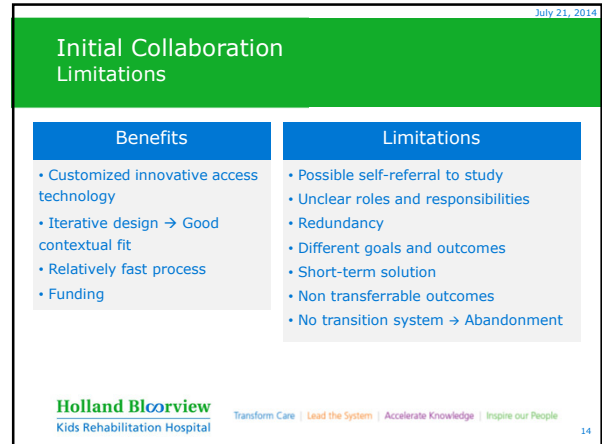
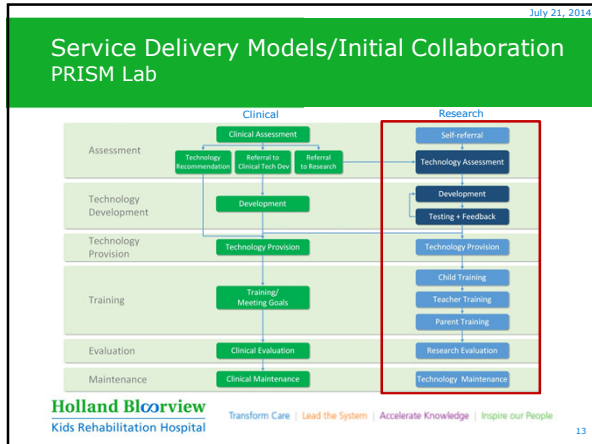
## Service Delivery Model PRISM Lab



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12

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## Enhanced Collaboration Case Study - Max

Assessment: Clinical Assessment, Referral to Research, Technology Assessment

Technology Development: Testing + Feedback, Development

Max

6-year-old boy  
Cerebral Palsy  
Non-verbal

Low-tech communication

Access

Not reliable

→ Appropriate referral to research  
→ Clinically driven goals

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## Enhanced Collaboration Case Study - Max

Assessment: Clinical Assessment, Referral to Research, Technology Assessment

Technology Development: Testing + Feedback, Development

Max

Video-based smile switch

Muscle vibration switch

→ Issues immediately detected  
→ Optimized technology development

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## Enhanced Collaboration Case Study - Noah

Assessment: Clinical Assessment, Referral to Research, Technology Assessment

Technology Development: Testing + Feedback, Development

Technology Provision: Technology Provision

Training: Child Training, Teacher Training, Parent Training

Evaluation: Clinical Evaluation, Research Evaluation

Transition: Handover

Maintenance: Clinical Maintenance, Unintegrated Tech Maintenance

Noah  
7-year-old client  
Diagnosed with CP

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## Enhanced Collaboration Case Study - Noah

Training: Child Training, Teacher Training, Parent Training

Evaluation: Clinical Evaluation, Research Evaluation

Transition: Handover

Noah

Writing

Home + School

Clinical Training Positioning Writing

Research Training Protocol Tech Support

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## Enhanced Collaboration Case Study - Noah

Training: Child Training, Teacher Training, Parent Training

Evaluation: Clinical Evaluation, Research Evaluation

Transition: Handover

Noah

Clinical

Goal attainment

Research

Appropriateness  
Usage  
Contextual impact

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## Enhanced Collaboration Case Study - Noah

Training: Child Training, Teacher Training, Parent Training

Evaluation: Clinical Evaluation, Research Evaluation

Transition: Handover

Noah

Clear transition plan

Clinical Research

New school team training  
Tech support

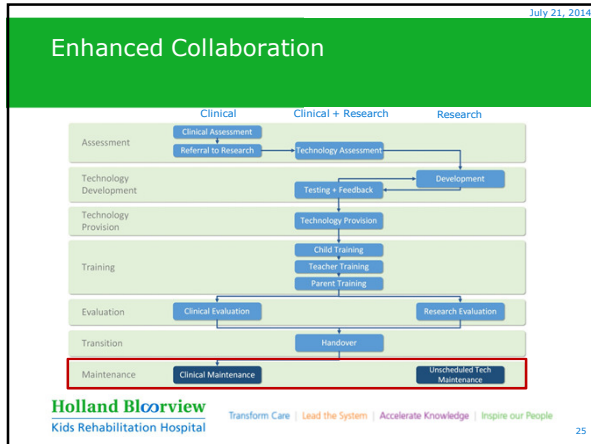
→ Successful transition out of research

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- ## Benefits of Enhanced Collaboration
- Appropriate referral system
  - Concrete understanding of roles and responsibilities
  - Optimization of resources
  - Sustainability
  - Successful transition back to clinical services
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- ## Future Directions
- Official collaborative service delivery model
  - Formal maintenance plan
  - Reassessment options
  - Knowledge translation
  - Joint publications
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## Questions

Thank you!

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## References

- Chow, K., Desai, T., Mumford, L., & Chau, T. (2013). *A Training and Implementation Protocol to Address Access Technology Abandonment in the Classroom*. Manuscript in preparation.
- Mumford, L. (2011). *Identification and Development of Individualized Access Pathways Based on Response Efficiency Theory* (Doctoral dissertation, University of Toronto).
- Mumford, L., Lam, R., Wright, V., & Chau, T. (2013). An access technology delivery protocol for children with severe and multiple disabilities: A case demonstration. *Developmental Neurorehabilitation*, (0), 1-11.
- Tai, K., Blain, S., & Chau, T. (2008). A review of emerging access technologies for individuals with severe motor impairments. *Assistive Technology*, 20(4), 204-221.

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29