Technology Mediated Learning in Healthcare

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Introduction

- Technology
  - multimedia
  - digital assets

- Mediated
  - assisted
  - enabled

- Learning
  - knowledge
  - confidence
  - changed behavior
- How we started
- Where have we gone
- What the future holds
- take four orthopaedic surgeons
  - add three animators
  - a pinch of naivety
  - mix until ....
Informed Consent for Surgery

- Complex and difficult
- Encompasses
  - nature of the problem
  - treatment alternatives
  - aim of the operation
  - operative details
  - post operative course
  - expected benefits
  - consequences
  - complications

Information Overload
YOU MAY FEEL A SLIGHT PRICK...
Learning

- Education level
- Cultural background
- Social class
- Literacy skills
- Trust in the information
- Emotional state
The study

- Prospective randomized trial
- Knee arthroscopy
- Verbal, printed or multimedia
Developing the Module

- Focus groups
- Literature review
- Educational objectives
- Outcome measures
- Script development
- Story board
- Animation
Knowledge questionnaire
  - initial consultation
  - preoperative assessment
  - postoperative review at six weeks

Mental state, anxiety and satisfaction measures
- Trend to reduced anxiety at all time points
- Significant improvement in satisfaction with information delivered when compared to pamphlet
IT'S THE ONLY WAY I CAN GET SOME OF MY PATIENTS TO LISTEN TO ME!
Home based exercise

- Teaching exercises to children
  - challenging
  - time consuming
  - expertise often not available
  - requires repeated visits to be effective
The Study

- Comparison of printed versus multimedia
- Randomised controlled single blind trial
- Delphi consensus to determine elements of a successful stretch
Preference over printed material

Control

Intervention

100%

75%

50%
• Qualitative themes
  • clarity of instruction
  • engagement of child
  • minimization of language barriers
  • spontaneous interest
Early detection of hip instability

- A condition of the hip where there is an abnormal relationship between the “ball and cup”

- Range of disorders including - instability, subluxation and dislocation
What does it look like?
Capsular laxity
- If unstable hips are not detected and treated they may
  - not develop properly or dislocate
The Impetus to do something

- Children were still presenting late with dislocated hips despite screening programs and use of ultrasound
- Children facing lifelong disability from a condition that is easily managed if detected early
- Families distraught with the diagnosis
The Problem

- High number of late diagnoses
- No uniform standard of examination
- Inconsistency in terminology
- Increased reliance on imaging
- Unclear referral mechanisms
The Solution

- Target the front line clinicians
- Understand their difficulties
- Define the barriers to early detection
- Standardise the clinical examination
- Apply education theory principles
- Streamline the referral process
Objectives

- **Knowledge** - terminology, anatomy, pathology, associations, risk factors, examination, imaging

- **Change practice** - improve clinical skills, confidence and referral procedures

- **Standardise approach** - consistency across all health professionals
The Study

- Maternal and Child Health Nurses
- Range of municipalities
- 203 recruited
Knowledge
Post Test

% correct

p < 0.001

The Royal Children's Hospital Melbourne
Information easy to understand

- Disagree Strongly
- Disagree
- Agree
- Agree Strongly
Recommend the use of the module
Module met educational needs
Confidence
Explanation Observation Examination Interpretation

Pre DVD Post DVD Three Months

p < 0.001
Change in Clinical Practice
Clicky Hips

Do you refer all infants with “clicks” in isolation for further assessment?

p<0.001
Hip creases are the most important physical feature of DDH.
Examination technique

In a relaxed baby it is important to push firmly in testing for hip instability

\[ p < 0.004 \]
Summary

- This initiative is aimed at improving the health and well-being of children by facilitating early diagnosis and referral of DDH.

- The module significantly improves the clinicians' knowledge, skills, and confidence in making the diagnosis.

- Aim to ultimately reduce the need for complex surgery due to late diagnosis.
Learnings

- Delivery
  - efficient, accessible, available, consistent
- Valid
  - tested format, effective medium
- Accommodates all learning styles
  - visual, auditory, written, kinesthetic
- Resource updatable
  - an ehealth application
The Future

- Build on experience
  - multimedia skill set
  - research methodology
  - team approach

- Ensure the evidence is strong
  - test
  - publish

- Achieve sustainability
  - projects
  - funding
"I was close to a breakthrough when the grant money ran out."