

Technology Mediated Learning in Healthcare

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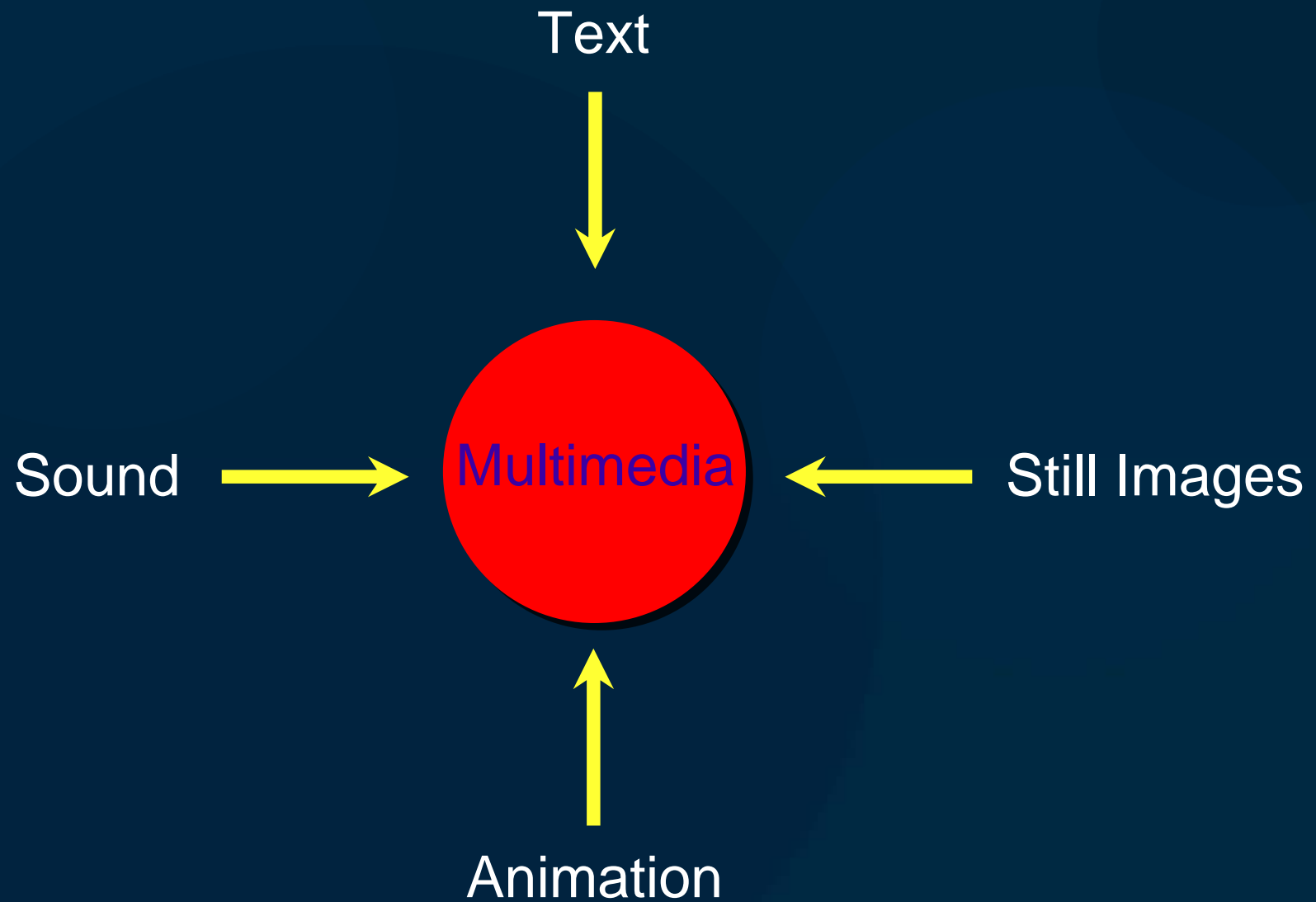
Martin Richardson

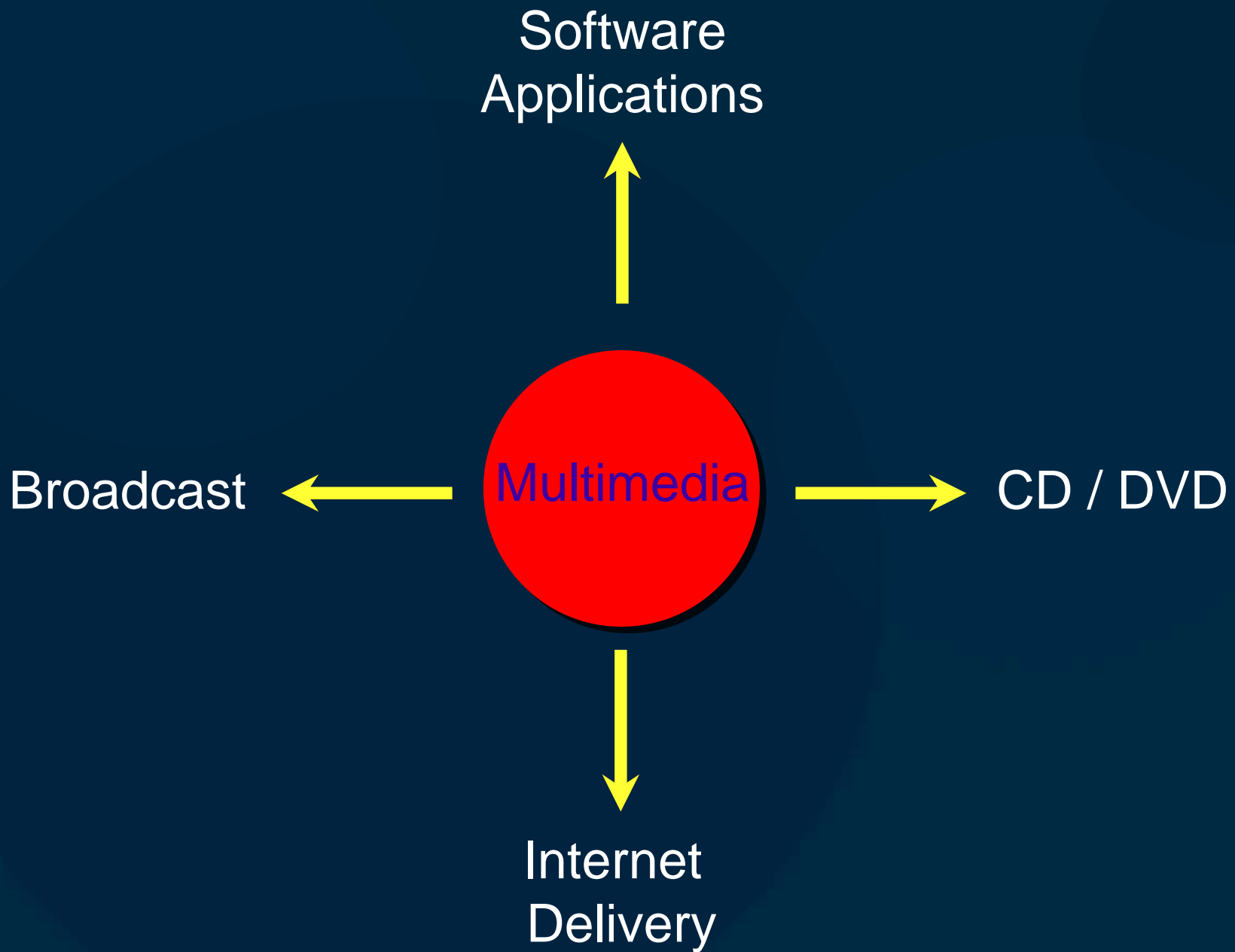
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Introduction

- Technology
 - multimedia
 - digital assets
- Mediated
 - assisted
 - enabled
- Learning
 - knowledge
 - confidence
 - changed behavior





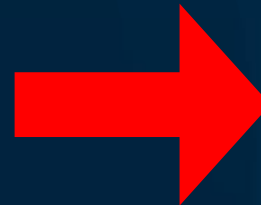


- How we started
- Where have we gone
- What the future holds

- 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

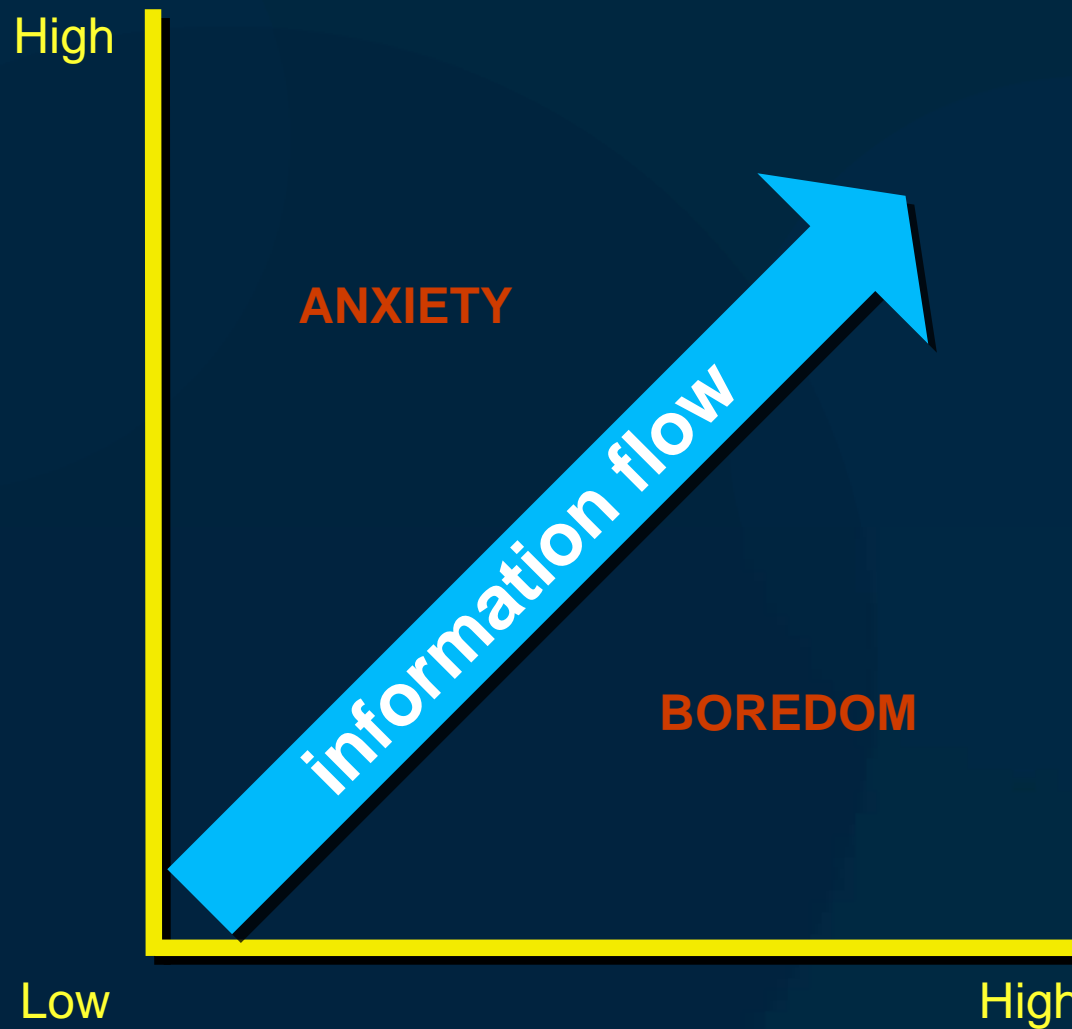




Learning

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

Challenge



Skill

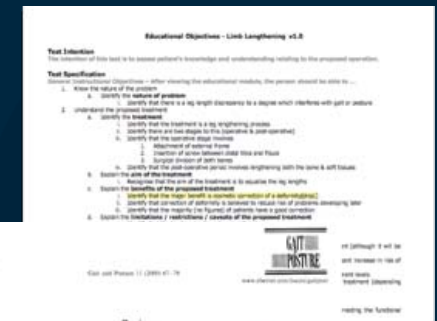


The study

- 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



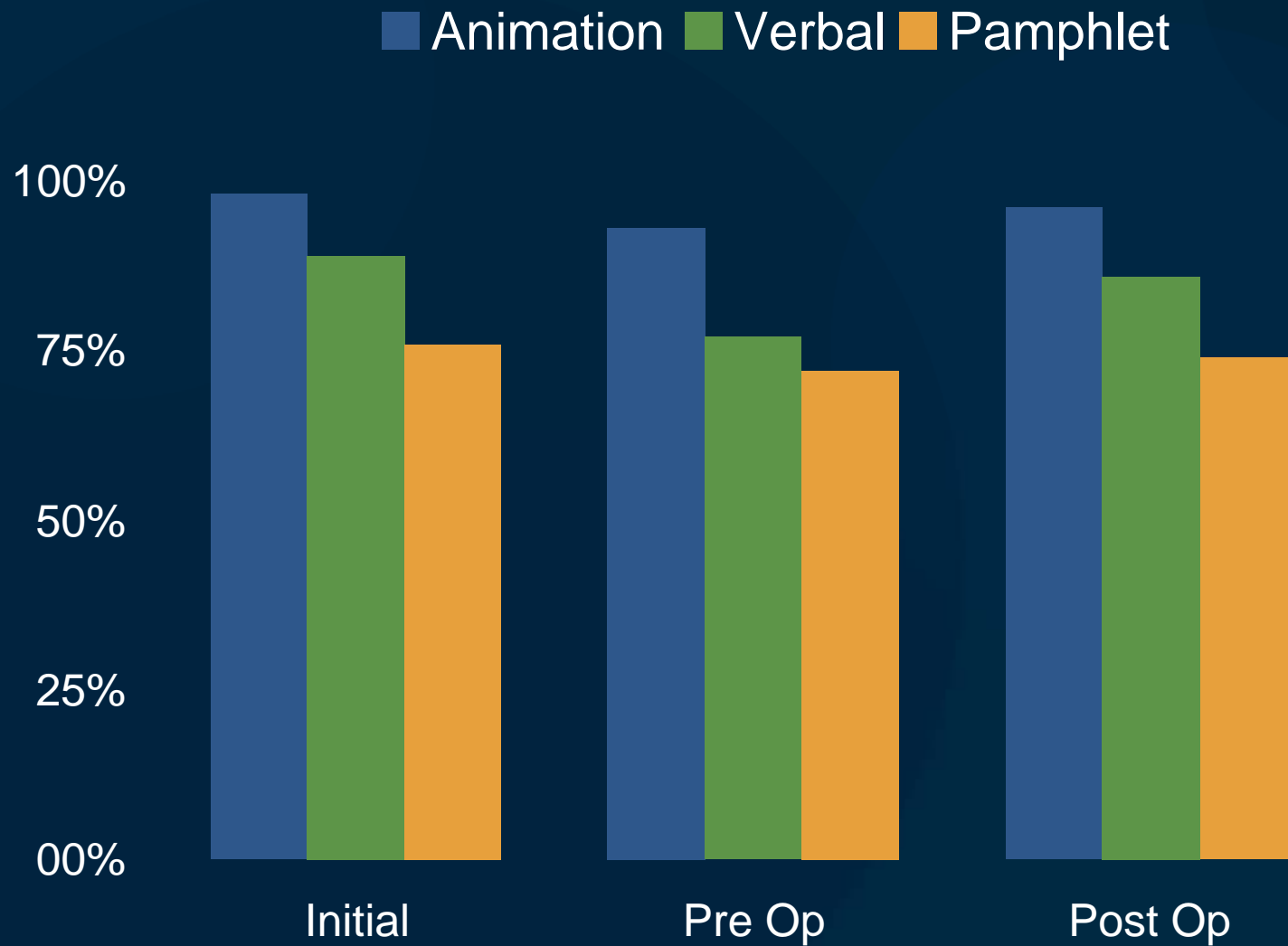
Link Longfellow: Motor Control: Robot v1.0: Summary

Item	Item Description	Item Name	Item Type	Item
1	Link Longfellow: Motor Control: Robot v1.0: Summary	Link Longfellow: Motor Control: Robot v1.0: Summary	Summary	1
2	Link Longfellow: Motor Control: Robot v1.0: Summary	Link Longfellow: Motor Control: Robot v1.0: Summary	Summary	2
3	Link Longfellow: Motor Control: Robot v1.0: Summary	Link Longfellow: Motor Control: Robot v1.0: Summary	Summary	3
4	Link Longfellow: Motor Control: Robot v1.0: Summary	Link Longfellow: Motor Control: Robot v1.0: Summary	Summary	4
5	Link Longfellow: Motor Control: Robot v1.0: Summary	Link Longfellow: Motor Control: Robot v1.0: Summary	Summary	5
6	Link Longfellow: Motor Control: Robot v1.0: Summary	Link Longfellow: Motor Control: Robot v1.0: Summary	Summary	6
7	Link Longfellow: Motor Control: Robot v1.0: Summary	Link Longfellow: Motor Control: Robot v1.0: Summary	Summary	7
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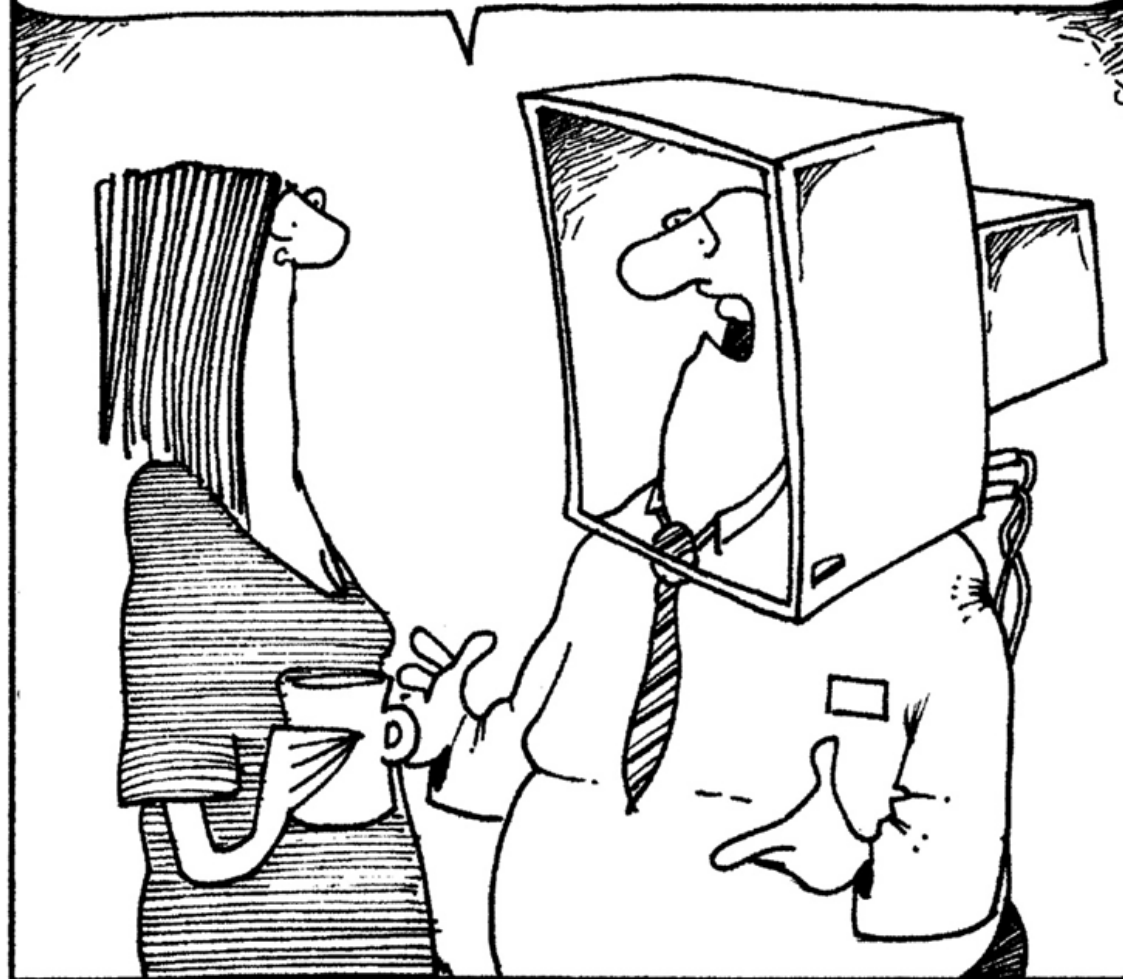
- Knowledge questionnaire
 - initial consultation
 - preoperative assessment
 - postoperative review at six weeks
- Mental state, anxiety and satisfaction measures

Knowledge Recall



- 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

physiovisual

your personal physiotherapy course on DVD

Calf Stretch



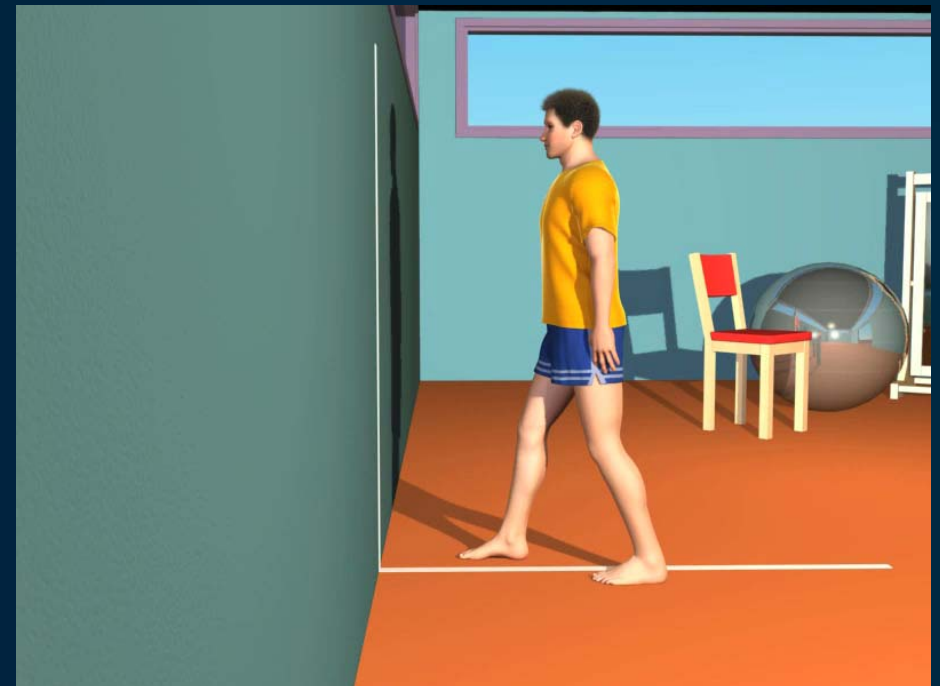
» play all

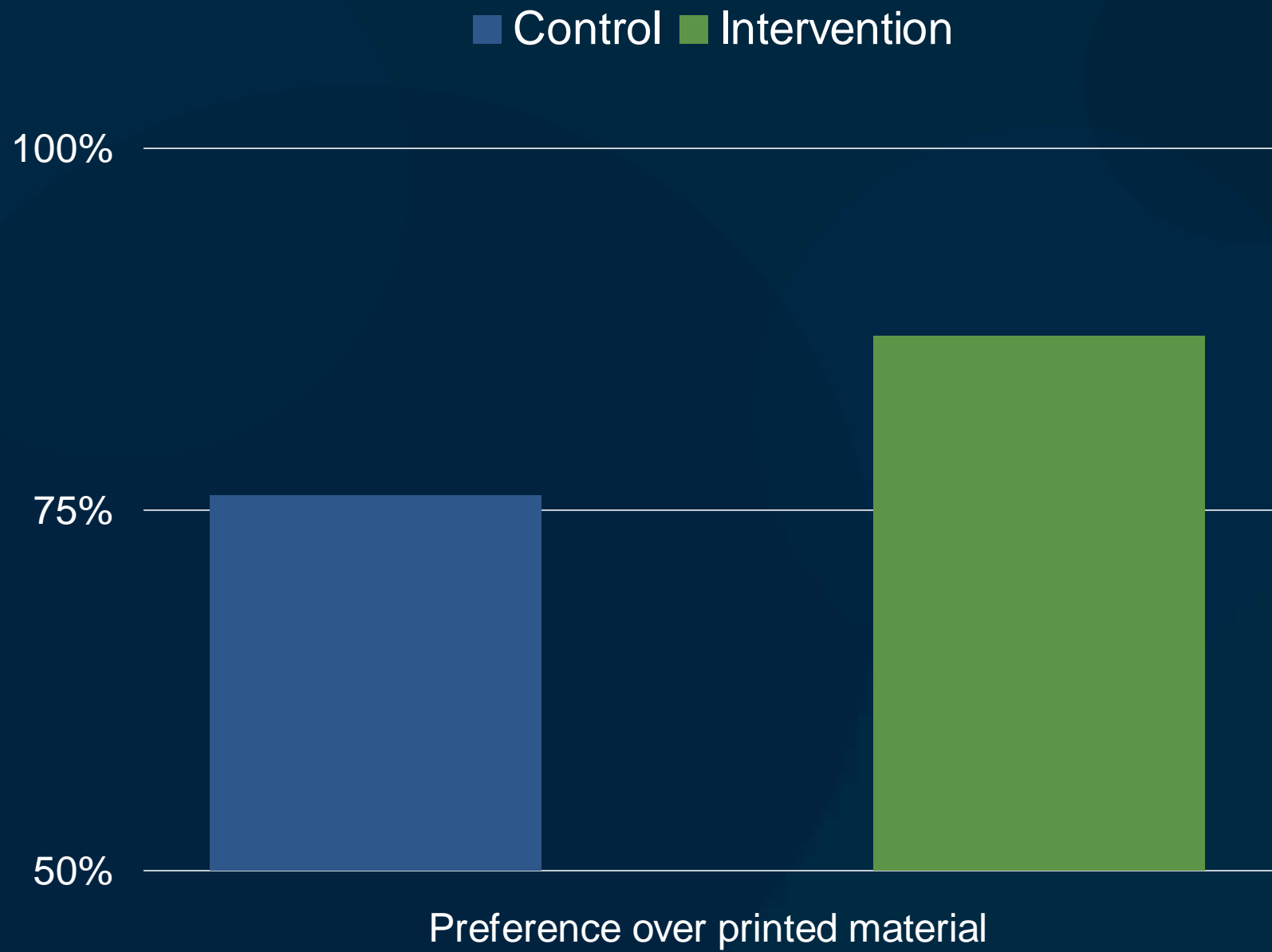
» introduction

» anatomy

» stretch

SURGICAL
MULTIMEDIA
SERVICES



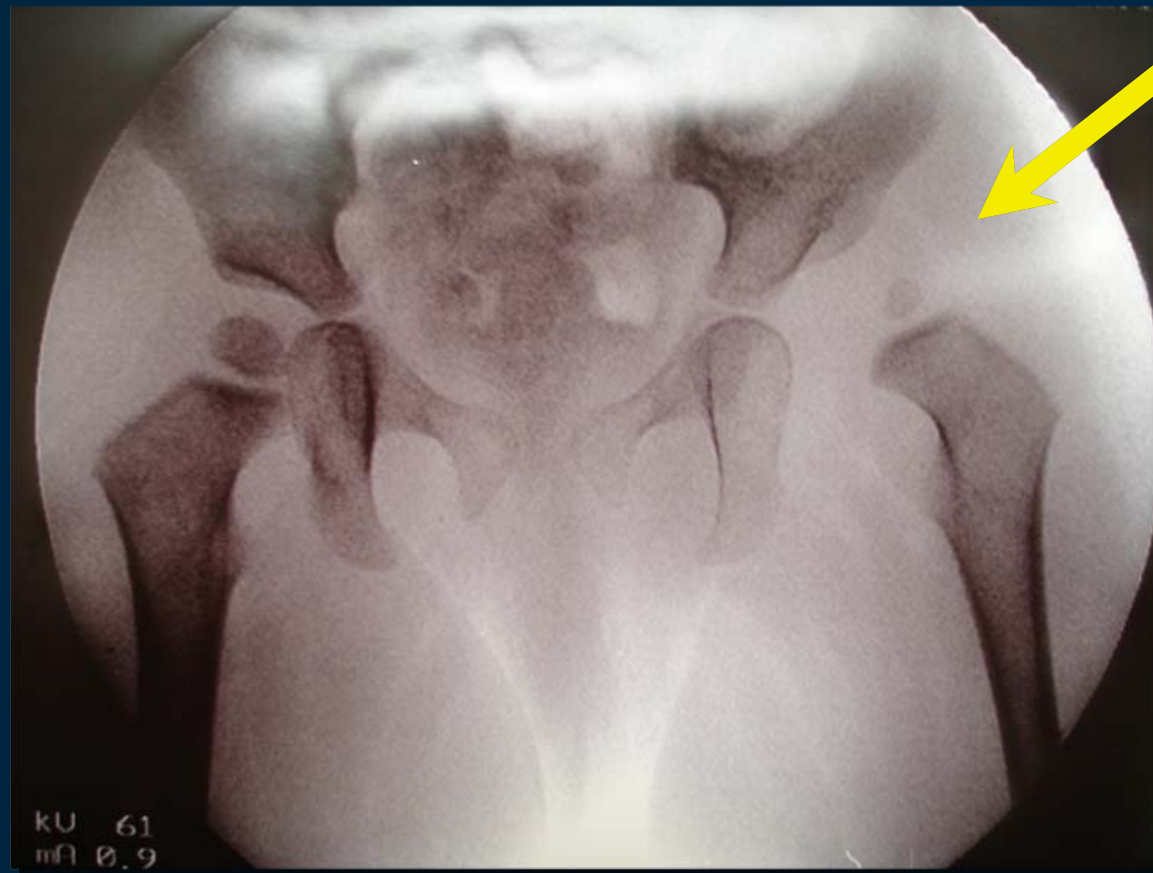


- Qualitative themes
 - clarity of instruction
 - engagement of child
 - minimization of language barriers
 - spontaneous interest

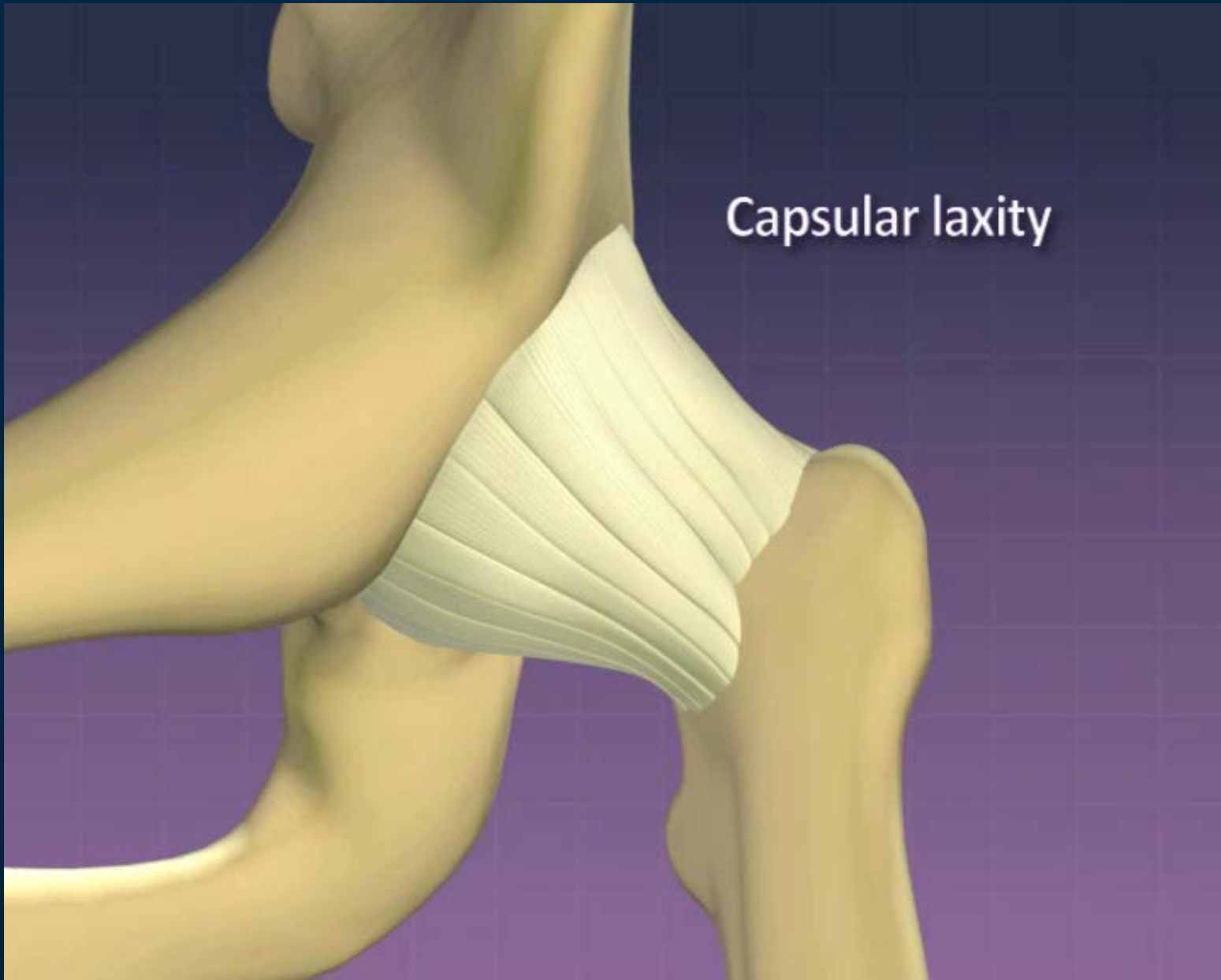
Early detection of hip instability

- 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

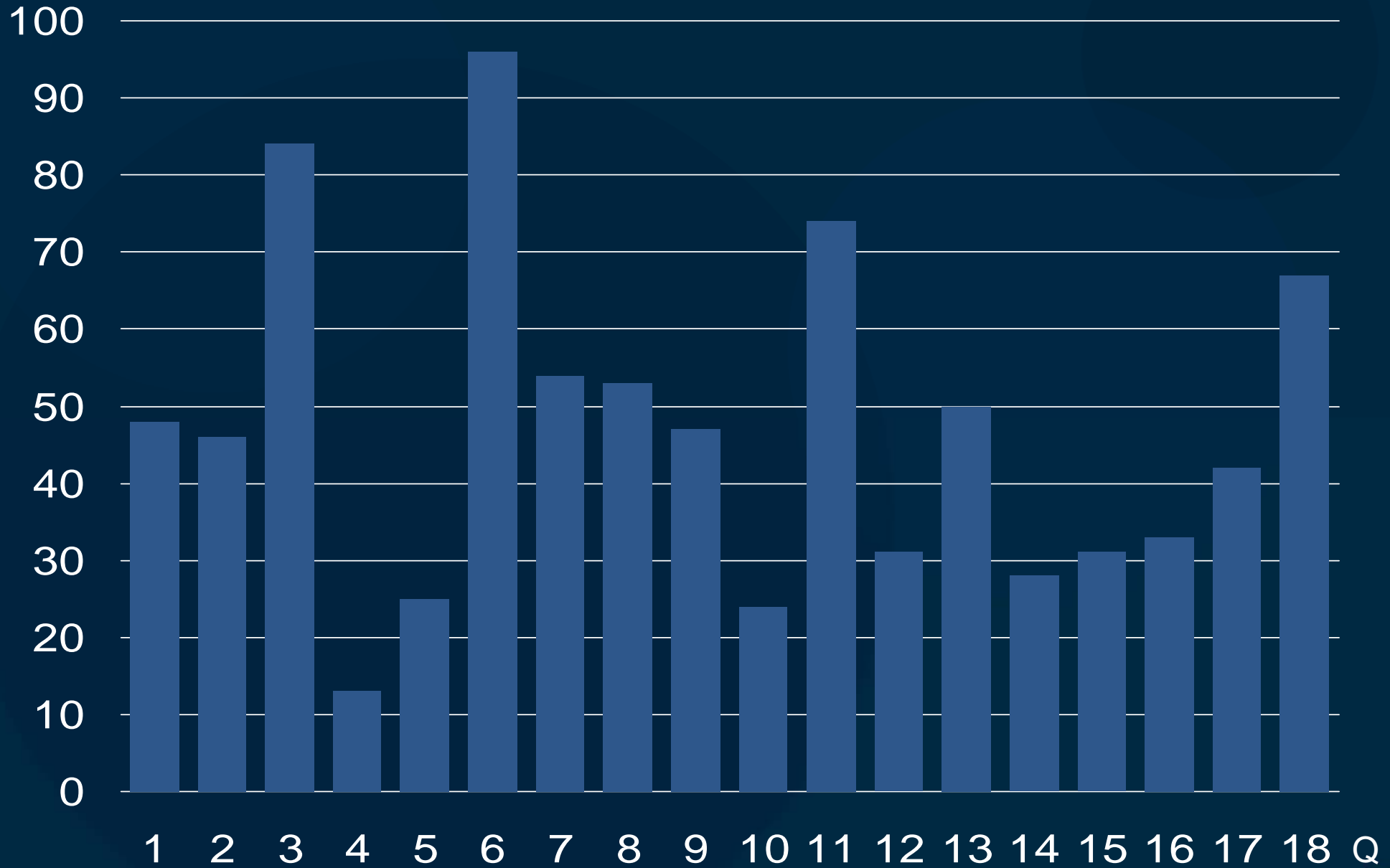
- Maternal and Child Health Nurses
- Range of municipalities
- 203 recruited

Knowledge



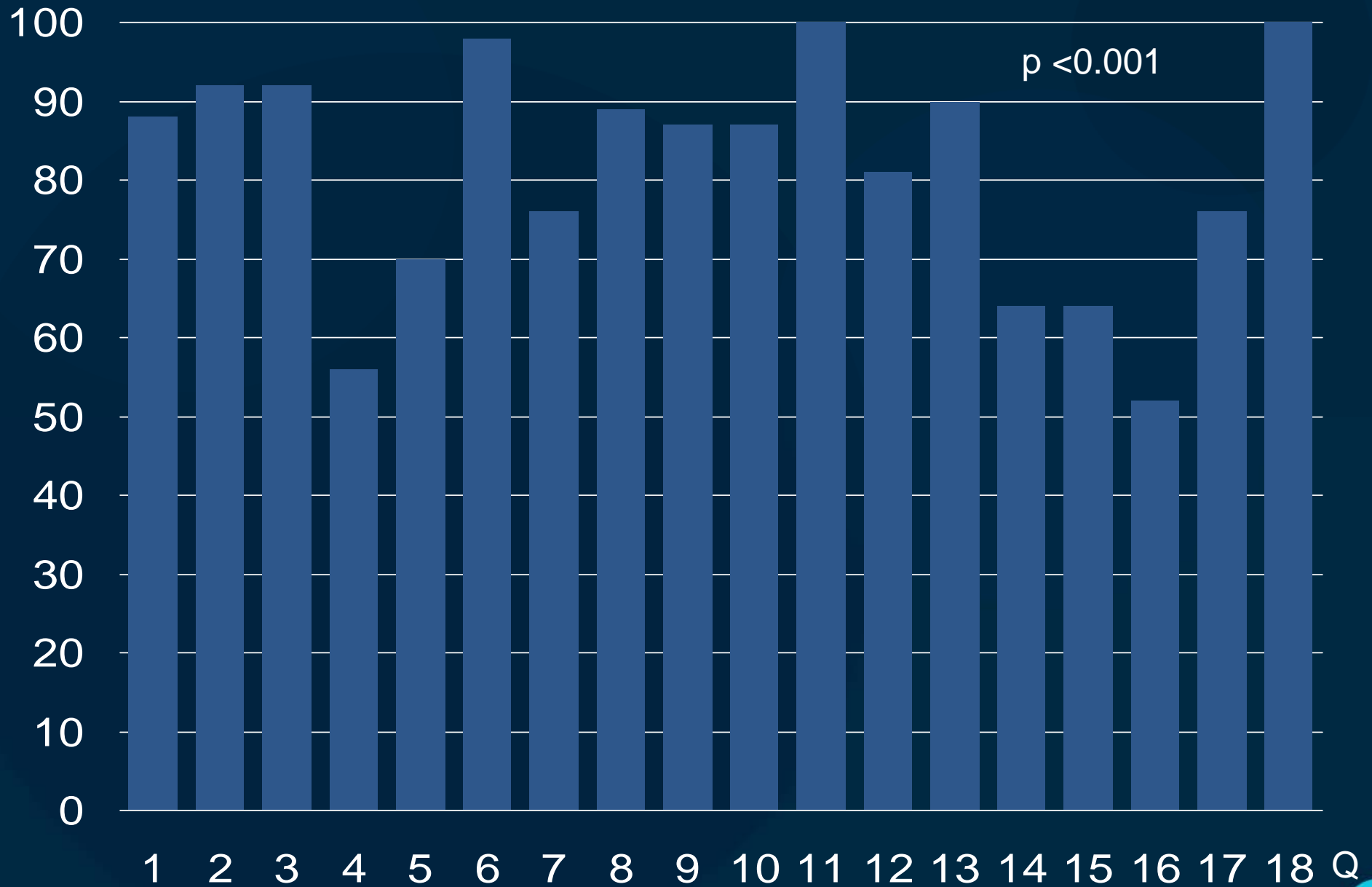
Pre Test

% correct

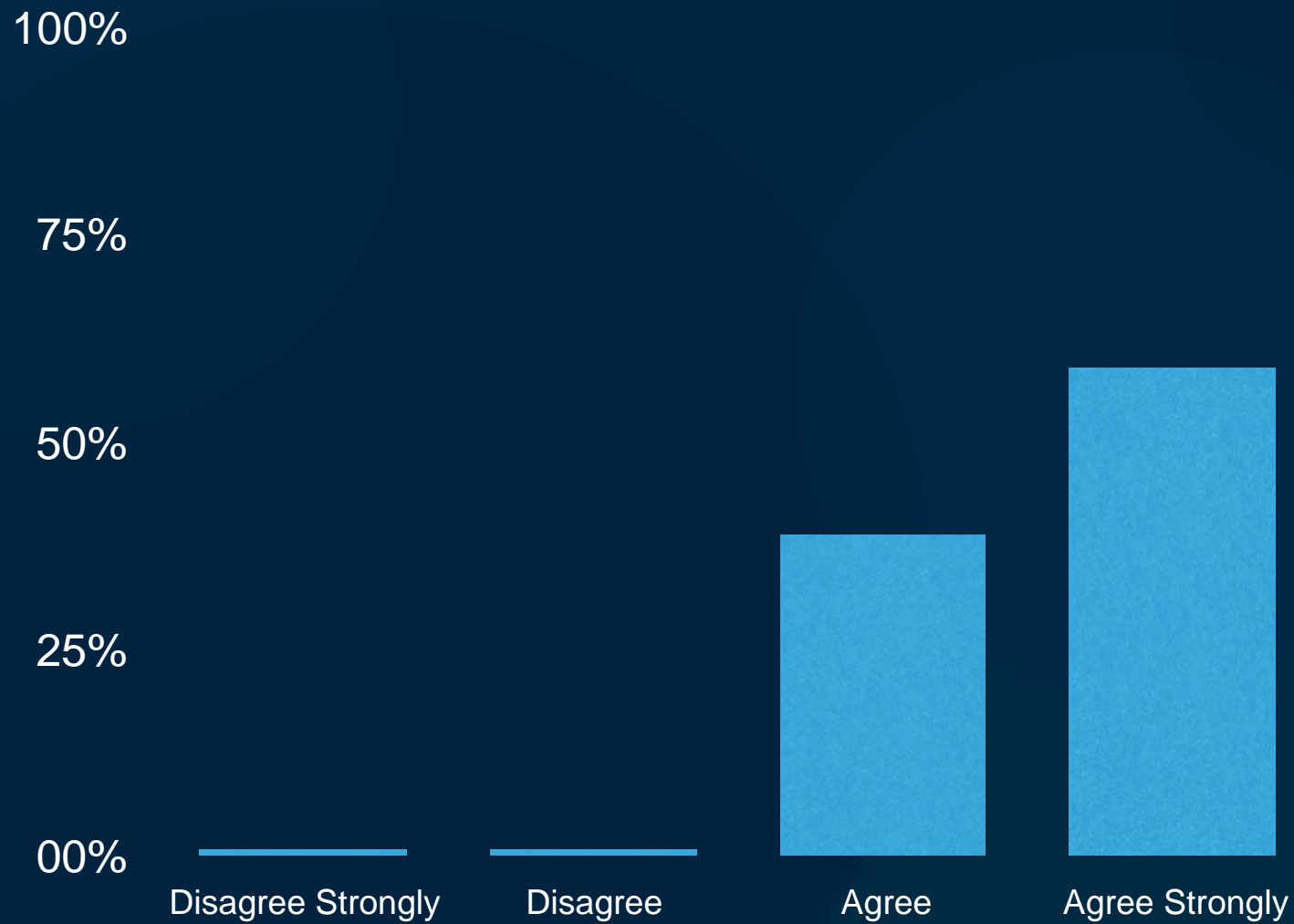


Post Test

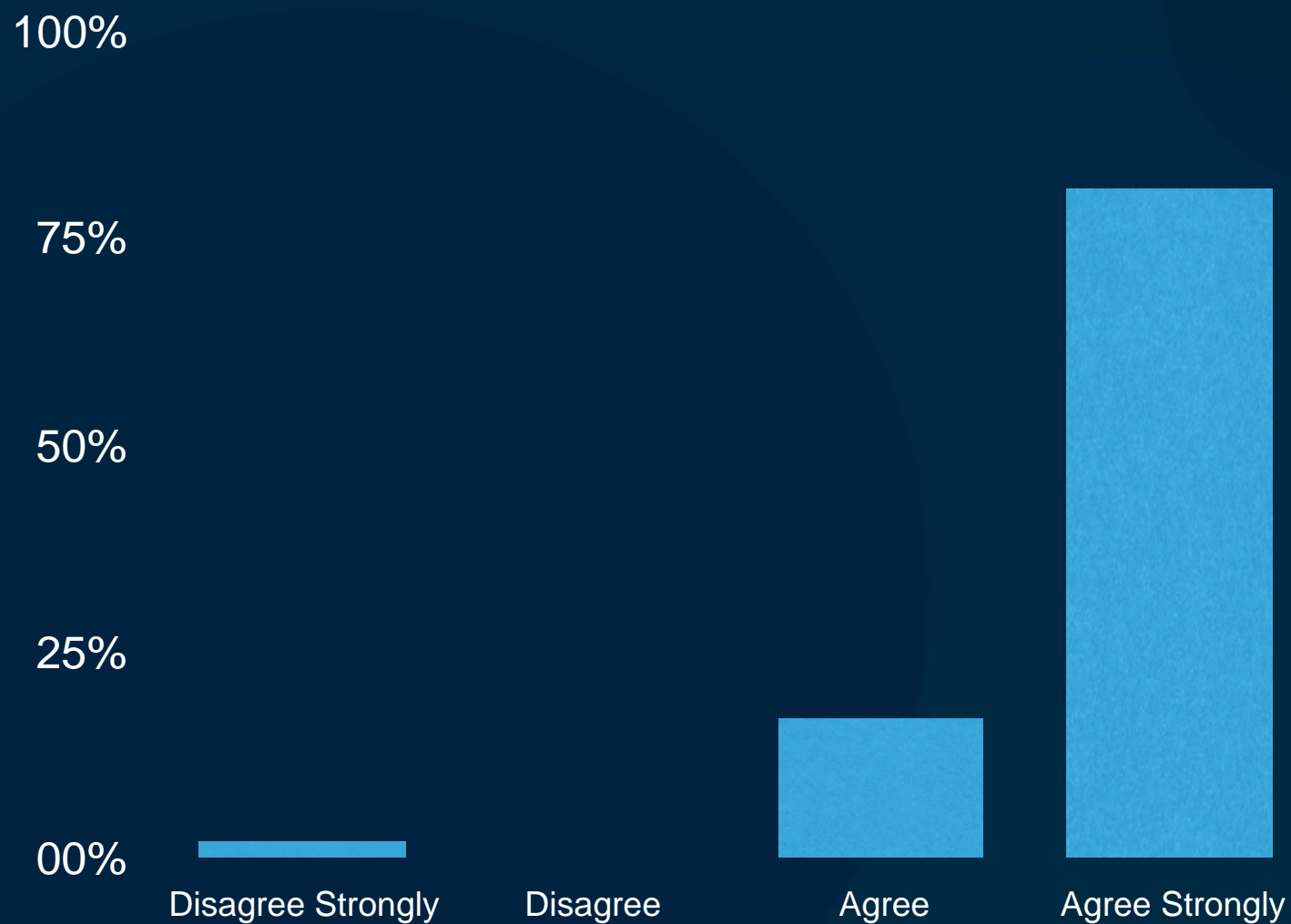
% correct



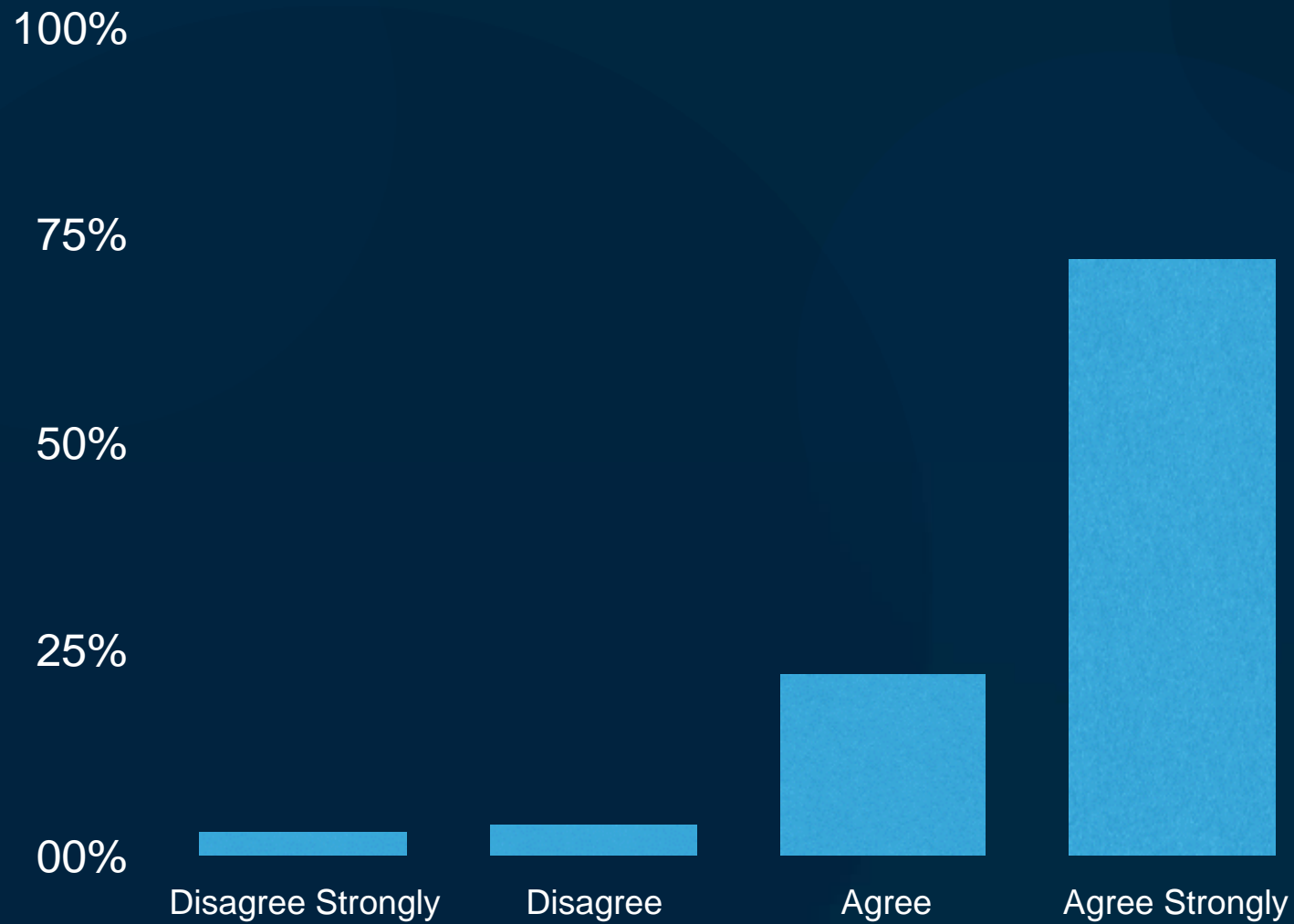
Information easy to understand



Recommend the use of the module



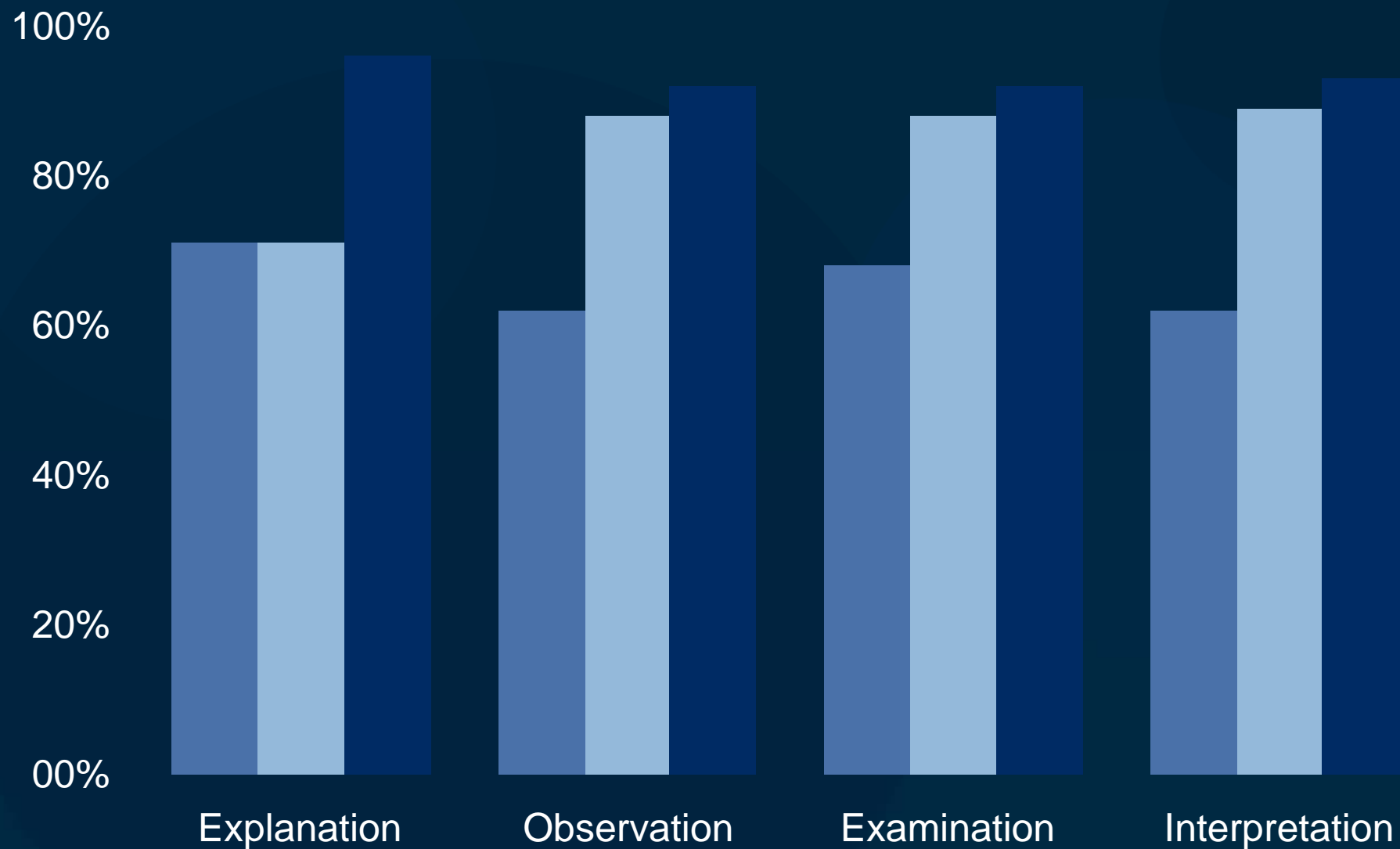
Module met educational needs



Confidence



■ Pre DVD ■ Post DVD ■ Three Months



$p < 0.001$

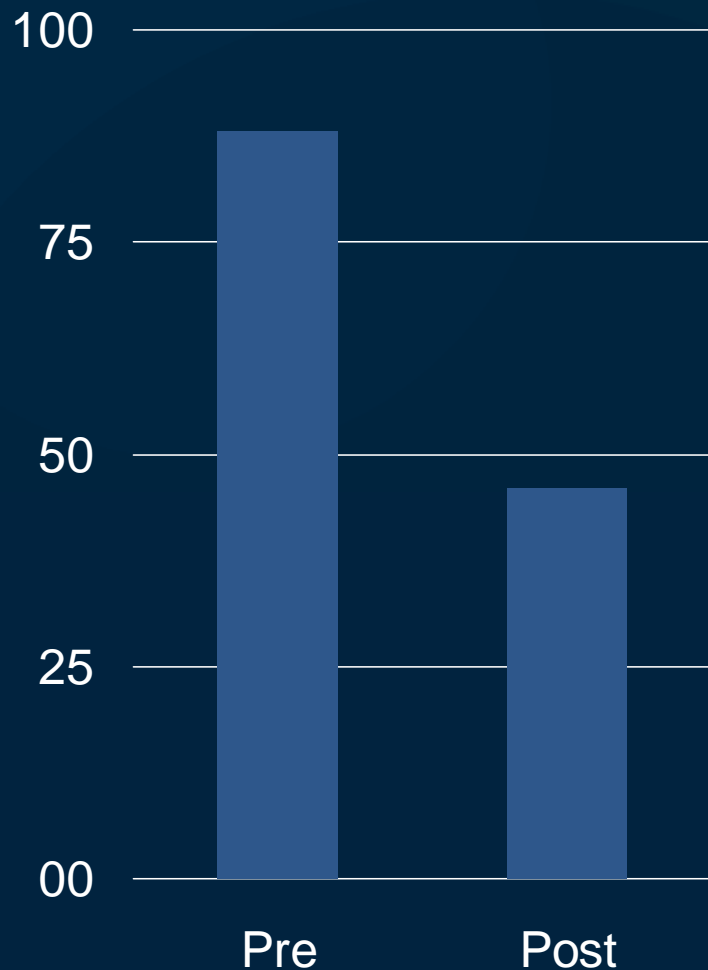


Change in Clinical Practice



Clicky Hips

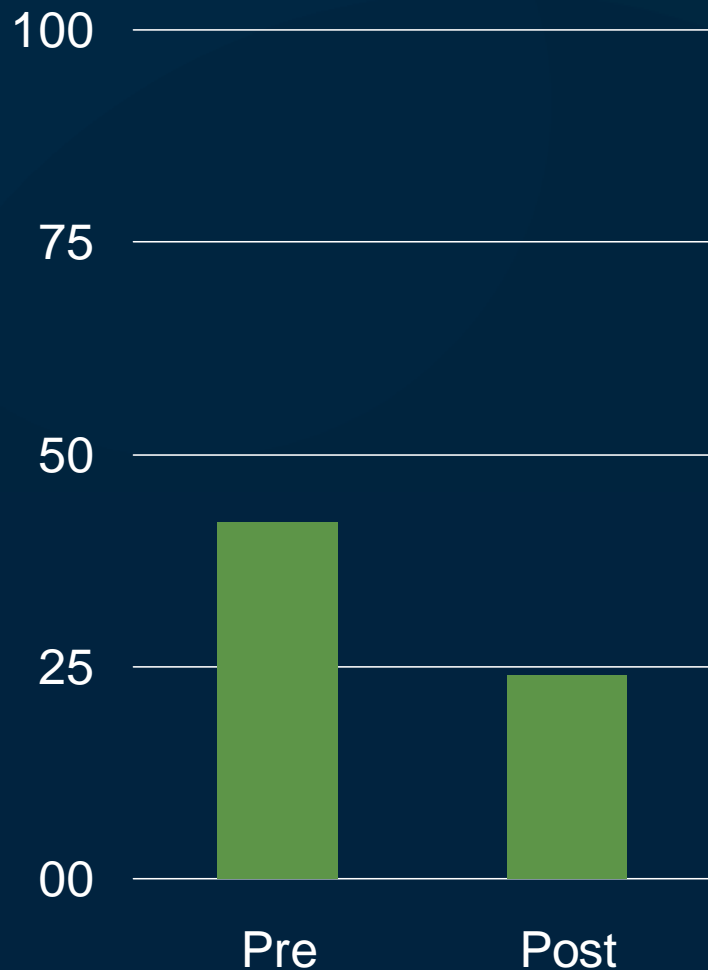
Do you refer all infants with “clicks” in isolation for further assessment?



$p < 0.001$

Thigh Creases

Hip creases are the most important physical feature of DDH

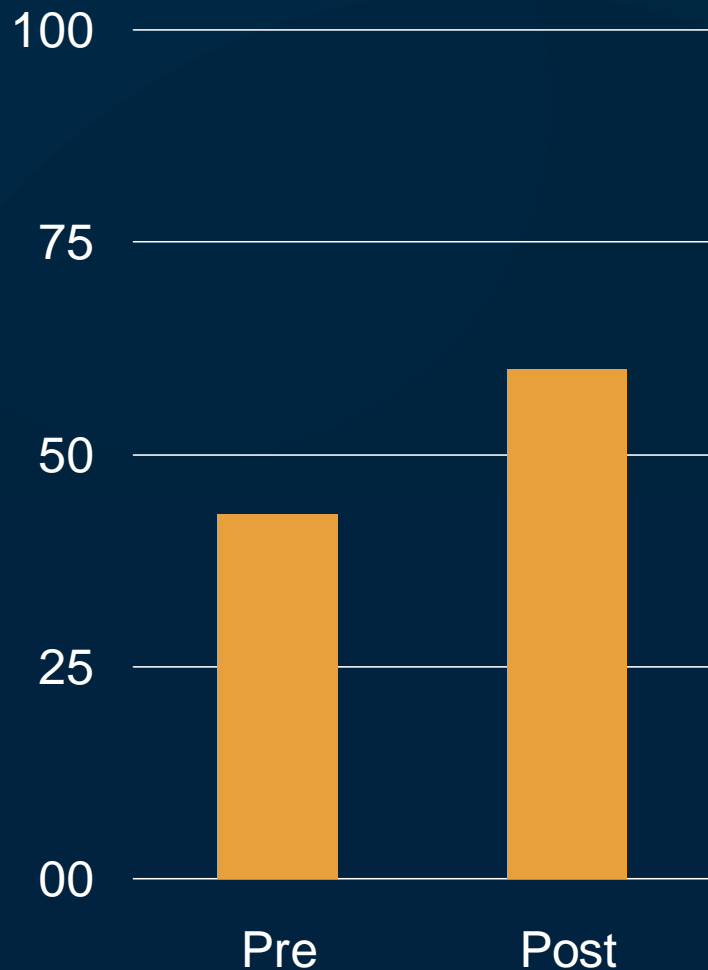


$p < 0.002$



Examination technique

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



$p < 0.004$

Summary

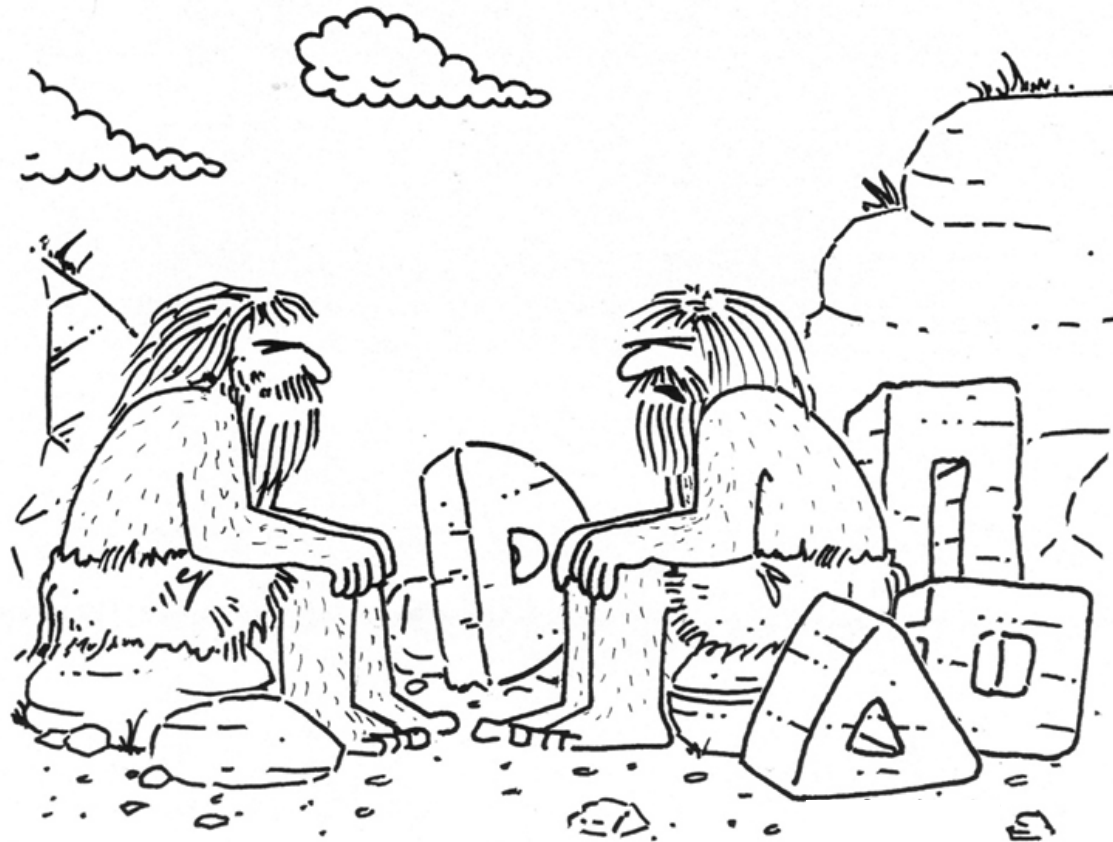
- This initiative is aimed at improving the health and well being of children by facilitating early diagnosis and referral of DDH
- The module significantly improves the clinicians knowledge, skills and confidence in making the diagnosis
- Aim to ultimately reduce the need for complex surgery due to 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."