

# Mediglyphs™: A Visual Health Literacy System

## Qualitative Research Summary

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Nationwide Children's Hospital's Mediglyphs™ System focuses on the urgent need for the pharmacy and healthcare community to address how low literacy and/or lack of language skills directly affect the quality of patient care. **The mission of this unique pediatric health literacy system is to use pediatric specific images that increase patient/caregiver adherence to prescription instructions, thereby reducing medication errors.**

The Mediglyphs™ System was created in 2002, targeting all patients who receive medications through the Nationwide Children's Hospital Outpatient Pharmacy; and physicians, pharmacists and all other healthcare providers who provide medication related education.

### Hypothesis

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The *Mediglyphs*™ System will lead the way for change within pharmaceutical and healthcare delivery systems.

**Specific Aim 1:** Assess efficacy of Mediglyphs™ education material in comparison to standard medication education material.

**Specific Aim 2:** Extend current knowledge on patient/caregiver medication adherence when provided Mediglyphs™ education material.

**Specific Aim 3:** Reduce medication errors through increased use of Mediglyphs™ education material.

### Validation Methods:

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#### **Provider Training Evaluation:** February 2004

Research was conducted by Community Research Partners, an independent research group.

- A retrospective pre-test/post-test measured quantitative changes in knowledge and skill.
- Non-participant observers measured qualitative aspects of the training.

#### **Pictogram Focus Group:** April 2004

The Columbus Literacy Council conducted group discussions with 150 students in their English as a Second Language and Adult Basic Literacy classes (5th grade reading level and below). These focus groups were asked to look at a set of three individual pictograms: some with English captions, some with English/Spanish captions combined, and some with no captions were randomly presented to the groups.

Qualitative Objective: Evaluate the *Mediglyph*™ character, readability, comprehension and overall clarity of the pictograms.

#### **Mediglyphs™ Asthma Library Evaluation:** January 2005

Eighty-six random surveys were administered to patients and caregivers to assess understanding of eight individual education sheets, as they would be provided by the pharmacist. All surveys

were administered by one pharmacy intern. These instructions were specific to asthma and included:

Take By Diskus®

Miscellaneous: How To

Take By Inhaler

Take By Inhaler with Spacer

Take By Inhaler with Spacer & Mask

Take By Nebulizer

Take By Nebulizer with Mask

Qualitative Objective: Randomly assess clarity of pictograms as they will be used in the pharmacy environment. Do captions enhance pictogram readability?

## Baseline Results:

### Provider Training Evaluation

- All training groups reported gains in knowledge and skills as a result of the training curriculum.
- Participants also found the training to be highly relevant.
- Using the online pictograms as a tool corresponded to an increase in participants' skills gained.

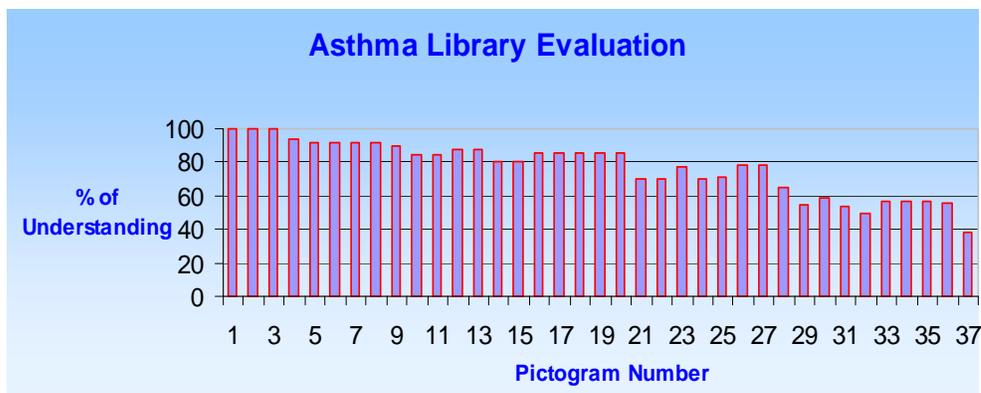
### Pictogram Focus Group:

- Ninety-nine percent of the participants reported that the *Mediglyphs*<sup>TM</sup> character did not represent a specific ethnic group.
- None of the participants found the character offensive in any way.
- In all surveyed students had a more detailed understanding of the instructions when the pictogram was paired with captions.
- Combining English with Spanish captions caused confusion for Basic Adult Literacy students; they thought the Spanish captions were English text they could not read.
- Pictograms without captions were interpreted as instructions for drug abuse prevention; none of the students interpreted the pictogram as instructions for taking medication.

### Mediglyphs<sup>TM</sup> Asthma Library Evaluation:

- Twenty-seven of 28 randomly surveyed patient caregivers believed captions do enhance pictogram readability.
- Fifty-four percent of the pictograms assessed were clearly understood, scoring  $\geq 80\%$ .
- Ninety-seven percent of the pictograms assessed were clearly understood, scoring  $\geq 50\%$ .
- One pictogram scored  $< 50\%$  of caregivers understood its meaning.

The graph below summarizes patient and caregiver understanding of asthma specific pictogram instructions



## Summary and Conclusion

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The Mediglyphs™ System is an innovative tool designed to assist the healthcare community in educating patients and caregivers on the proper ways to administer medications.

### Qualitative Findings:

- Visually enhanced medication instructions are understood more clearly than standard written instructions.
- Instructions using pictograms with the use of simple captions increase the patient and caregiver understanding of complex medication treatments associated with asthma care.
- Healthcare professionals recognize the importance of health literacy and benefit from a structured training curriculum.