



Human Factors Improvement Series

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Outline

- Human factors improvement series
- Human factors and labels
 - Principles
 - Self-Assessment
- Discussion and action planning

Human Factors Improvement Series

QHN

Goals of HFIS

- To apply human factors principles to make changes *and* guide the acquisition and design of new equipment, materials and processes.
- To share discoveries and implemented changes among the participants.

Measures of Success

Number of changes made to system features based on human factors principles.

Level of awareness of human factors science.

Shift in safety culture so that system design is considered using human factors science as a guide for change and decision making.

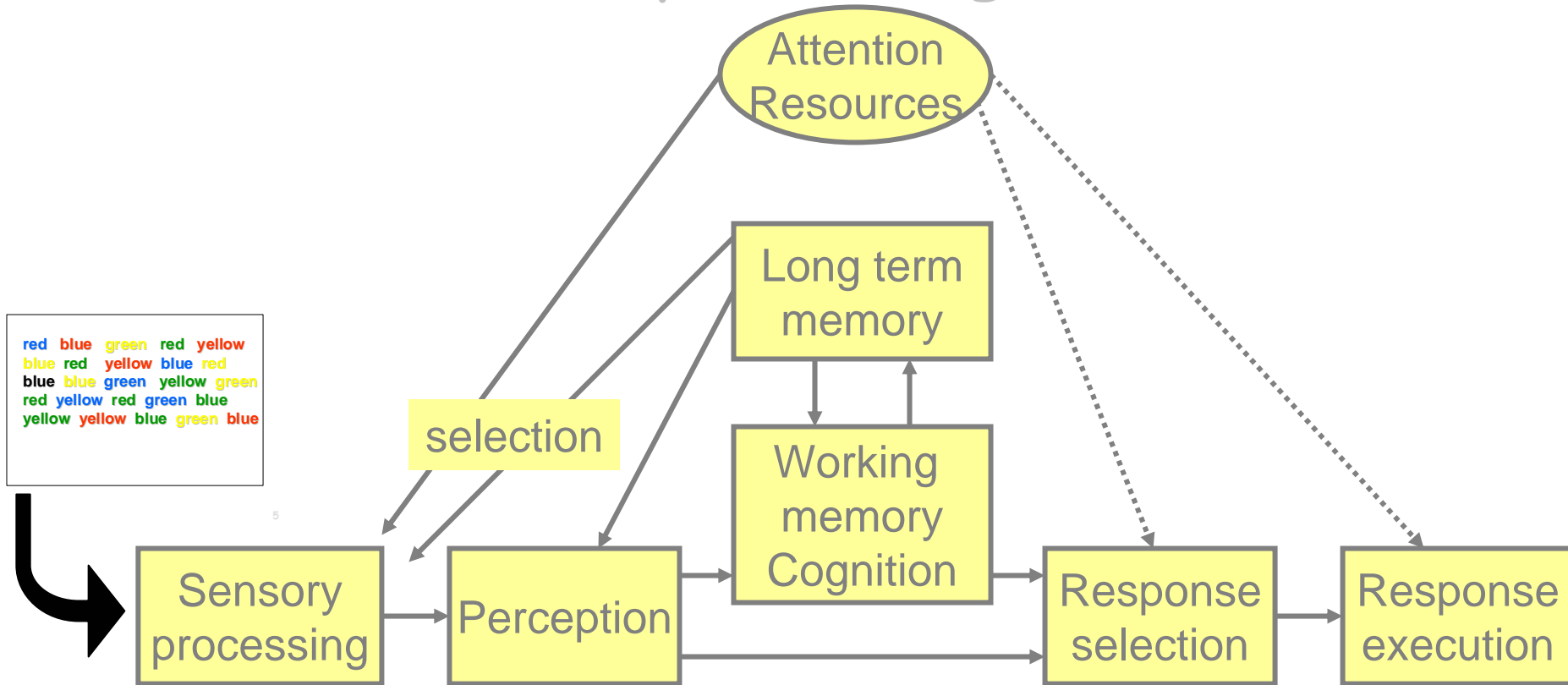
OTHERS?

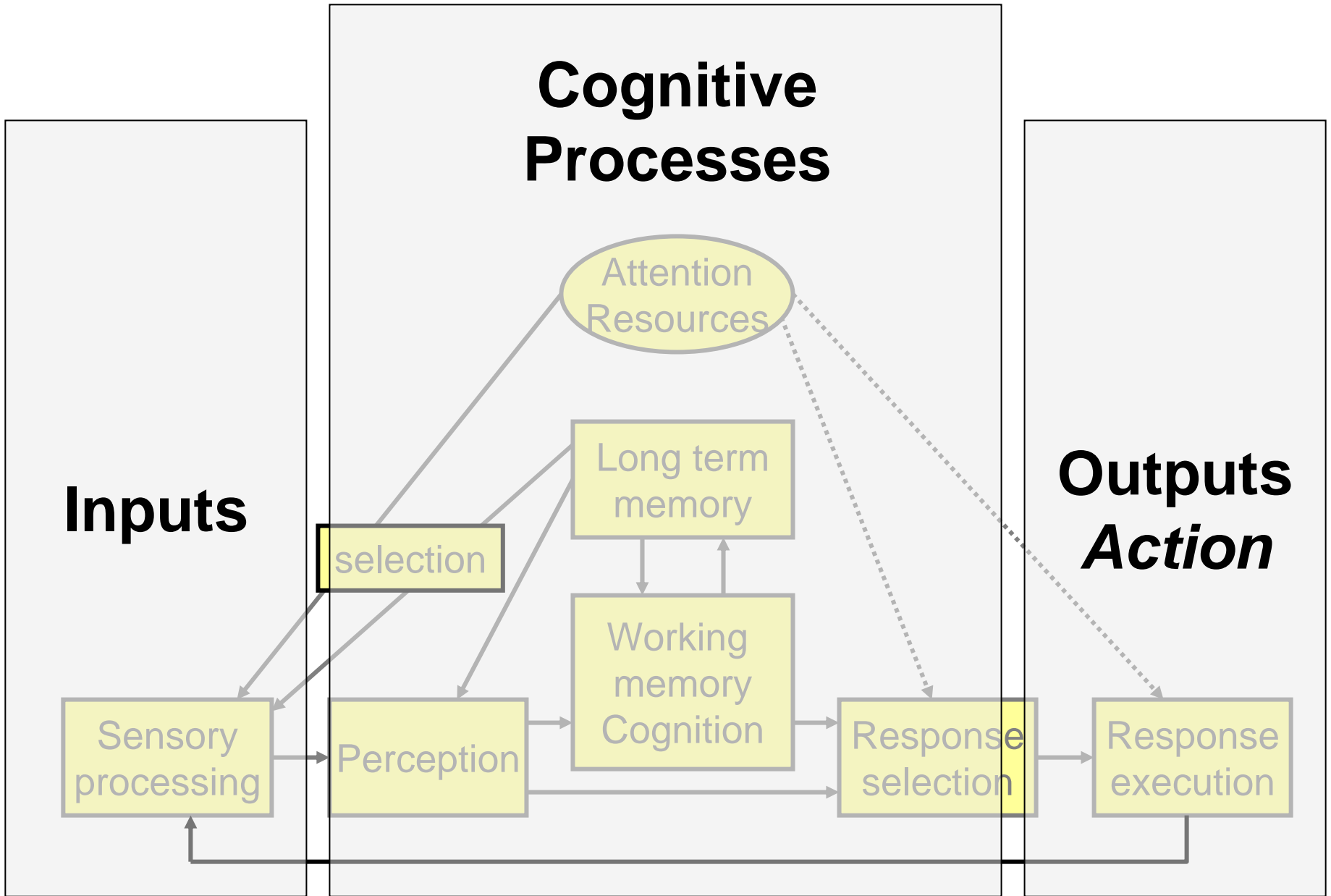
Expectations for Participants

- Commit to joining the collaborative and participating
- Apply self-assessment tools and principles in situations that suit local needs
- Conduct a small test on their findings prior to Spring Forum May 2004
- Provide feedback on use of tools and principles and the changes made.
- Share specific opportunities for improvement and action taken to address them.
- Provide input on the next project series topic based on opportunity and local needs.

Labels
Human Factors
Principles

Model of human information processing





Labels and Displays

Human Factors Principles

- Design of Message
 - legibility and readability
- Message Transmission
 - environmental factors
- Message Receipt
 - personal and perception factors

Design of message

Legibility

(recognition of letters, numbers and other graphics)

- Font or Typeface - Sans-Serif
- **Use of UPPER or lower case (preferred)**
- Limit **bold** and *italic*
- Size of characters
- Colour combinations

Design of message

Readability

(ease of reading when characters are legible)

- **Conditions of use**
- Glossy paper and curved surfaces
- Use of highlighter, borders, underlining
- Icons, symbols and machine bar codes

Message Transmission

- **Viewing angle and orientation**
- **Lighting**
 - Ambient
 - Task
 - Displays

Message Receipt

- **Bottom up and Top down processing**
 - **Message context, precedence, expectation**
- Brief and concise
- Codes, abbreviations and icons
- Redundancy
- Physical separation

Human Factors Self-Assessment Tool

Human Factors Self Assessment

HUMAN FACTORS CHECKLIST

Alarms

Point of Care Ergonomics

Are all alarms audible by care providers at the bedside?^(1, 2)
Alarming devices are positioned to enable alarms to be heard.
Alarm volume is set at 10dB above ambient noise.
Audibility testing is conducted periodically to ensure alarms are audible.
Alarm sound level is adjustable.
Alarms can be heard and responded to even if bedside is unattended.

Grade: ____
Notes:

Is the meaning of the alarms readily apparent?⁽³⁻⁶⁾
The alarming device is easily identified at the bedside.
Alarms have distinct tone or are positioned to enable identification of source device.

Grade: ____
Notes

Point of Care Environment

Are distractions that could interfere with alarm response kept to a minimum?
All auditory interference such as cell phones, conversation and intercoms are minimized.

Grade: ____
Notes:

Individual Human Factors

Are alarms set to reduce the number of alarms to those that are critical?^(7-10, 15)
Equipment is maintained to reduce false alarms.
Settings of alarm levels reduce the number of auditory alarms to those that require corrective or monitoring response.

↓ Model used in other fields

↓ Collaborative development

↓ Shared experience

↓ Build a series of tools

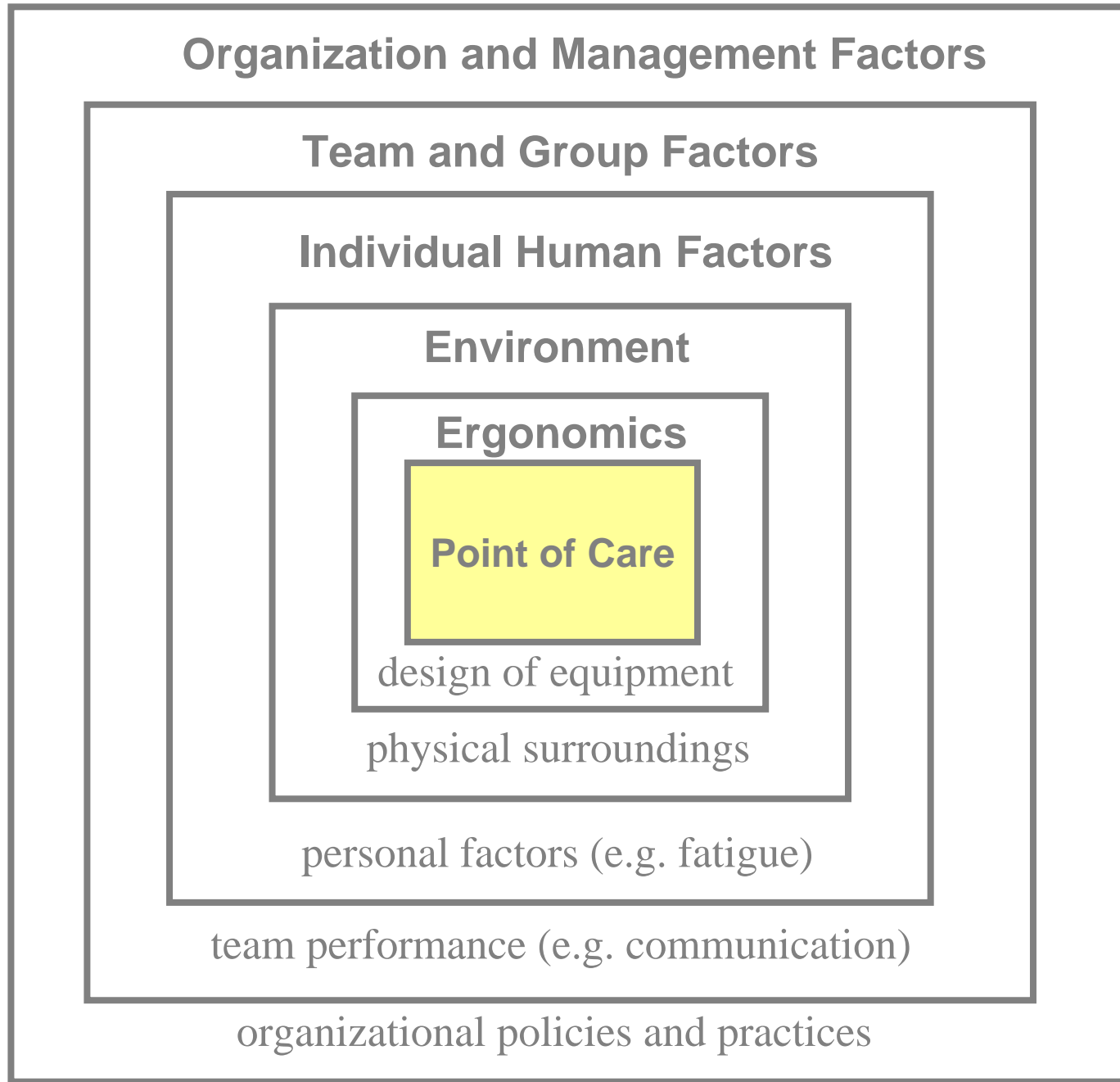
Human Factors Self-Assessment Tool

- Purpose and Scope
- Framework
- Assessment Process
- Your Responses
- Resources

Purpose and Scope

- Purpose:
 - Direct attention to human factors elements
 - Guide for change
 - Improve SYSTEM reliability
 - Educate about Human Factors
 - Build a culture that focuses on systems
- Scope
 - Limited to Human Factors
 - Assumptions (e.g. evidence-based care)

Framework
for the
Human Factors
Self-
Assessment Tool



Labels Self-Assessment

- Labels
 - Medication labels, breast milk, specimens, embossing cards, patient ID, equipment labels, tubes, and containers.

Organization and Management Factors

Team and Group Factors

Individual Human Factors

Environment

Ergonomics

Point of Care

design of equipment

physical surroundings

personal factors (e.g. fatigue)

team performance (e.g. communication)

organizational policies and practices

Labels Self-Assessment

- Point of Care Ergonomics
 - Are processes established to ensure correct labels are applied?
 - ➔ Prepared labels are accessible and well marked.
 - ➔ Label printing equipment and materials are organized and marked to minimize confusion.

Labels Self-Assessment

- Point of Care Ergonomics
 - Are labels legible and readable?
 - ➔ Labels follow principles for legibility and readability.
 - ➔ Verify this by finding and examining labels in-use.

Labels Self-Assessment

- Point of Care Ergonomics
 - Are product labels unique and clearly marked?
 - ➔ Labels with similar color schemes are supplemented with clear and unique markings and stored separately.

Labels Self Assessment

- Point of Care Environment
 - Is there adequate ambient or task lighting available to read labels?

Labels Self Assessment

- Individual Human Factors
 - Are staff familiar with human factors principles for message design, transmission and receipt?
 - Are staff aware of their personal vision characteristics and do they make adjustments to accommodate?

Labels Self-Assessment

- Team and Group Factors
 - Is there a process for communicating changes in labels?
 - Are people using standard abbreviations, symbols and colour codes?

Labels Self-Assessment

- Organizational and Management Factors
 - Does the selection and implementation of labeling systems and devices consider human factors and the potential for error?
 - ➔ Human factors principles are used as criteria in the selection process.
 - ➔ Trials of labels and devices include evaluation of legibility, readability and other human factors in consideration of error potential.

Systems Approach



Assessment Process

- Assessment Team
- Process
 - Preparation
 - Walk-through
 - Meeting
 - Action Planning

Checklist Responses

- The team assigns 'Grade':
 - A** This characteristic is adequate at this time.
 - B** This characteristic is being modified or changed.
 - C** This characteristic requires further investigation.
 - D** This characteristic is not adequate.
- Checklist is for your use
- Honesty and team consensus important

Discussion and Action Planning