Urine Colour Scale - UCS

Objective, Simple, Visual, Easy to Use Communication Tool

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Background
To develop a urine colour scale with a set of succinct instructions that could be used by staff, patients and carers to facilitate objective description of urine colour and the context in which the urine is being observed
METHODOLOGY

- Practice development project
- Patient-focussed
- Multidisciplinary approach
- Evolutionary
Action Research
• Oct 2009 Multidisciplinary meeting
• Prototype urine colour scale & photos circulated for discussion
• Pt consent obtained and photographs taken
• Funding sought
• Hesta “Innovation in Nursing Award” in 2010 $10,000 to fund project
• Human Research Ethics Committee approved as low risk
STUDY 1 - Getting the colours

Collecting and photographing actual urine samples

Urologists chose colours

Second draft of the scale with 3 colours depicting hydration status and 4 depicting macroscopic haematuria, together with instructions for use on the reverse side.
STUDY 2· Part 1

Demonstrated the need for and benefit of having a urine colour reference scale

Results

30 nurses were asked to describe 10 samples of urine demonstrating varying degrees of haematuria and concentration, without the assistance of any prompts.

Sample 1 - 6 descriptions
Sample 2 - 8 descriptions
Sample 3 - 11 descriptions
Sample 4 - 5 descriptions
Sample 5 - 10 descriptions
Sample 6 - 14 descriptions
Sample 7 - 5 descriptions
Sample 8 - 9 descriptions
Sample 9 - 12 descriptions
Sample 10 - 7 descriptions
The same 30 nurses, referring to the same 10 samples of urine demonstrating varying degrees of haematuria and concentration, were then asked to give the colour a number using the sample UCS rather than describe the colour.

Results

Sample 1 - No. 4 x 30
Sample 2 - No. 2 x 30
Sample 3 - No. 6 x 21
Sample 4 - No. 5 x 9
Sample 5 - No. 7 x 30
Sample 6 - No. 5 x 29
Sample 7 - No. 4 x 1
Sample 8 - No. 1 x 30
Sample 9 - No. 3 x 30
Sample 10 - No. 2 x 30
Sample 11 - No. 6 x 20
Sample 12 - No. 5 x 10
Sample 13 - No. 4 x 28
Sample 14 - No. 5 x 2
Study 3 and Study 4

**Study 3** - 200 photographs of urine; 100 depicting varying degrees of haematuria & 100 depicting varying degrees of concentrated urine
- 6 individuals used the scale to number each sample, then waited 3 days and repeated the test.

**Study 4** - 10 samples of real urine with varying degrees of haematuria and 10 samples with varying degrees of concentration were shown to another 6 individuals who used the scale to number the samples
- 30 minutes later repeated the exercise.

Thus studies 3 and 4 were testing intra-rater and inter-rater reliability.

(Figure 3 - using Pearson’s correlation coefficient)

<table>
<thead>
<tr>
<th></th>
<th>Haematuria scale</th>
<th>Hydration scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Photographs</td>
<td>r = 0.8418 to 0.9839</td>
<td>r = 0.8636 to 0.9129</td>
</tr>
<tr>
<td>Intra-rater reliability</td>
<td>r = 0.8175 to 0.9315</td>
<td>r = 0.7642 to 0.9225</td>
</tr>
<tr>
<td>Inter-rater reliability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Real urine specimens</td>
<td>r = 0.8175 to 0.9999</td>
<td>r = 0.7945 to 9932</td>
</tr>
<tr>
<td>Intra-rater reliability</td>
<td>r = 0.7610 to 0.9880</td>
<td>r = 0.5886 to 0.9583</td>
</tr>
<tr>
<td>Inter-rater reliability</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WHO WAS INVOLVED

- Prof Julia Thompson – Practice Development Facilitator
- Urologists
- Level 9 Nursing Staff and Management
- Nurses throughout SVPH - particularly OT and ICU
- Discharge Planning & Nursing Administration
- Nursing Research Institute – Dr Jed Duff & Prof Kim Walker
- Walter McGrath Librarian – Caroline Yeh
- Medici Graphics - Wil Cheung and Julie Murray
- Hospital executives – Robert Cusack and Jose Aguilera
- SVPH Legal Advisors
EVOLUTION OF THE UCS
UCS – URINE COLOUR SCALE Version 2
A SIMPLE, EFFECTIVE, OBJECTIVE, VISUAL TOOL TO COMMUNICATE URINE COLOUR

Match urine to nearest colour on scale (use white background behind tubing)

Information doctor will require:

HYDRATION
- nearest number / colour
- hourly urine output
- fluid intake (IV/oral)
- observations (BP,HR,T)
- medications

BLEEDING
- nearest number / colour
- irrigation on or off
- transparency / clots
- observations (BP,HR,T)
- medications

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Match urine to nearest colour on scale
(use white background if possible)

Contact your Doctor or Nurse
as advised

Information which may be required:
• urine colour scale number
• how much you have been drinking
• any blood clots in urine?
• difficulty passing urine?
• passing urine frequently?
• pain on passing urine?
• any fevers, shakes or shivers?
• medications you are taking

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REFERENCES


