



3 November 2006

To: Oregon Hospitals
From: Leslie Ray, Oregon Patient Safety Commission
Re: Use of Colored Wristbands for Hospital Patients in Oregon

The Quality Manager at an Oregon Hospital recently brought concerns regarding the use of multiple colors of patient wristbands to convey clinical information to the Commission. In responding, the Commission has found that the issue of using colored wristbands, coded to indicate various alerts and patient conditions, has prompted increasing questions and concerns. This report provides some history of the issue, describes current practices in Oregon hospitals, and presents some conclusions based on the available information.

Background:

A recent near-miss incident in Pennsylvania led to a survey revealing a wide variation in colors and meanings in a group of hospitals within one county in that state. The initial activity around colored wristbands comes from the Pennsylvania Patient Safety Authority. More recently Arizona and 5 bordering states have developed an action plan around the use of colored wristbands. The Joint Commission will be taking up the topic at a meeting the middle of November.

Incidents precipitating examination of colored wristband use include:

- A hospital in Pennsylvania submitted a report to the Pennsylvania Patient Safety Reporting System describing an event in which clinicians nearly failed to rescue a patient who had a cardiopulmonary arrest because the patient had been incorrectly designated as “DNR” (do not resuscitate). The source of the confusion was that a nurse had incorrectly placed a yellow wristband on the patient. In this hospital, the color yellow signified that the patient should not be resuscitated. In a nearby hospital, in which this nurse also worked, yellow signified “restricted extremity,” meaning that this arm is not to be used for drawing blood or obtaining IV access. Fortunately, in this instance, another clinician identified the mistake, and the patient was resuscitated. (*Patient Safety Advisory, v2 supp2 December 14, 2005*).
- A hospitalized patient with a prior anaphylactic reaction to latex was given a green bracelet which, in this hospital, signaled a latex allergy. During his stay, he was transported to an ambulatory diagnostic center for a test. Staff at the center were not aware that green bracelets meant a latex allergy and performed the testing with latex-containing vials/syringes. The patient experienced an anaphylactic reaction and required medical treatment to correct the situation. (*ISMP Newsletter March 9, 2006 Confusion over meaning of color-coded wristbands*.)

http://www.ismp.org/Newsletters/acutecare/articles/20060309_3.asp

Arguments AGAINST the use of colored wristbands include:

- Staff working in different systems may mistake the meaning of the colors.
- Staff are less likely to seek more specific information from the patient record (e.g., allergies).
- Current methods of use are problematic (e.g., different color shadings; handwritten rather than preprinted information {name of allergy} on the band; too many different colors to remember; social-issue colored wristbands worn by some patients may be a source of confusion).

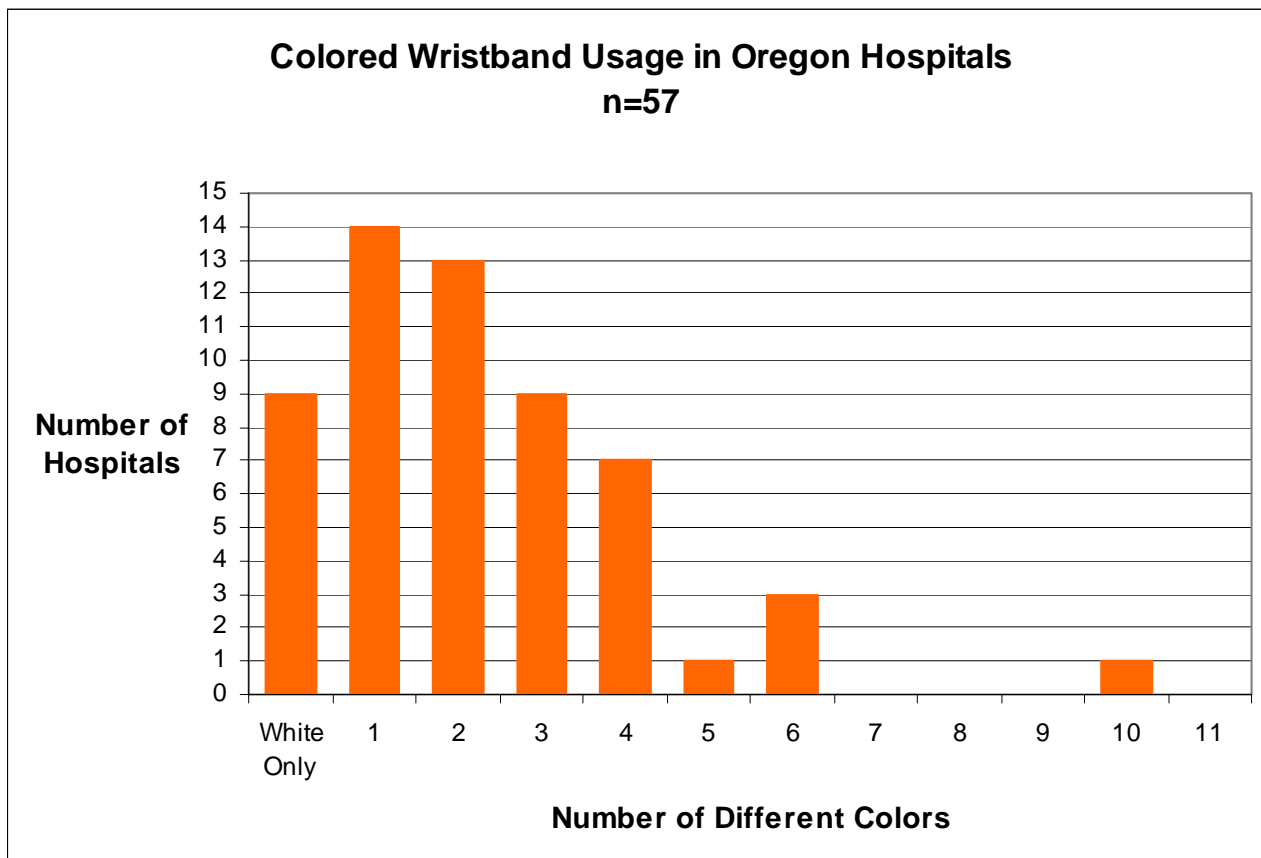
Arguments FOR the use of colored wristbands include:

- Immediate information is provided for alert situations (when common understandings exist).
- Colored wristbands are currently in widespread use.

Current practice in Oregon (57 of 60 hospitals responded with information regarding the colors they use and the meanings attached to the colors.)

Scope of Usage:

- 48 hospitals (84%) use colored wristbands; nine (16%) use only white inpatient ID bands
- 36 of the 48 (75%) hospitals use three or fewer different colors
- 14 of the 48 (29%) hospitals use a single colored wristband; of this group, 8 use a color to designate allergies, but among them use 4 different colors



Type of Usage:

- In hospitals using some type of color-coded system, eight different colors represent 21 different alerts or situations
- Seven different colors are used to designate allergies
- Four hospitals use blue to designate DNR, which may be confused with Code Blue (calling the resuscitation team)
- In 8 instances, (e.g., identification of an aggressive patient), the identifier is used at only one hospital
- 14 hospitals use wristbands to identify allergies
- 12 hospitals use wristbands to identify restricted limbs
- 11 hospitals use wristbands to identify patients at risk for falling
- 8 hospitals use wristbands to identify DNR instruction

Clinical Situation	Orange	Blue	Red	Purple	Green	Pink	Yellow	Lime/ Neon Green
Allergies	4	4	14	1	4	1	6	
DNR	1	4	1	2				
Outpatient ID	1	1			1			
Fall Risk	5					1	5	
Blood	1		13				1	
Restricted Limb (e.g. lymphedema)						11	1	
Latex allergy					4		1	
Trauma					2			4
Inpatient ID		5	1					
No Blood					2			
Modified Code							2	
No Allergies		1						
Dialysis							1	
Surgery	1							
Operative Extremity					1			
Operative Side		1						
Inpatient Rehab				1				
Aggressive pt				1				
ED pt			1					

- In addition to the listed colors and uses above, at least six other colors and alert types are used, e.g. tabs, stripes, dots, purple with blue, white with red, blue, etc.
- 5 hospitals put colored wristbands on visitors indicating parents/immediate family of hospitalized children (green, 5 hospitals), authorized pediatric visitors (orange, 4 hospitals), or visitors with infants (pink, 1 hospital)
- hospitals also use colors patient charts, at the bedside, and on whiteboards to indicate various conditions

Additional considerations:

- There is no current evidence regarding the impact of the use (or not) of colored wristbands to convey patient data. A search of the literature over the past 5 years found several papers discussing bar-coded wristbands and a single article regarding colored patient wristbands: Briefings on patient safety. (2006). *Use colored wristbands carefully: limit colors, coordinate with other hospitals.* v7 no5 pp1.5-6
- Following its investigation, the Pennsylvania Patient Safety Authority recommended that hospitals who do not use colored wristbands currently, maintain that practice. Their advisories on colored wristbands may be downloaded from their website: <http://www.psa.state.pa.us/psa/site/default.asp>
- For those hospitals that do use colored wristbands, the Pennsylvania PSA recommends:
 - ◆ Limiting the spectrum of color-coded wristbands
 - ◆ Standardizing the meanings associated with each color — see below
 - ◆ Purchasing wristbands with preprinted, embossed text, rather than relying solely on color to communicate the meaning
 - ◆ Avoiding handwriting on the band except in emergent situations
 - ◆ Allowing only nurses to apply or remove wristbands
 - ◆ Labels or stickers used in the medical record to communicate the same risk factors as colored wristbands will use corresponding colors and text
 - ◆ Prohibiting non-healthcare, “community” wristbands in the healthcare setting, with nurses removing them (or covering them, when patients do not consent to removal) on admission
 - ◆ Educating patients and their families on the risks associated with community bands and on the meanings of the colored wristbands applied in the healthcare setting
 - ◆ Pennsylvania established a five-color classification of color/indications for the state

Figure 1. Patient Wristband Colors and Meanings Established by the Color of Safety Task Force

Band Color	Communicates
Red	Allergy
Yellow	Fall Risk
Green	Latex Allergy
Blue	DNR
Pink	Restricted Extremity

- Other work on colored wristbands comes from a consortium of 6 southwestern states: Arizona, California, Colorado, Nevada, New Mexico, and Utah. This group, led by the Arizona Hospital and Healthcare Association <http://www.azhha.org/public/quality/> is rolling out their recommendations November 10th, and is similar to the Pennsylvania color scheme.
 - ◆ Arizona recommendations are for 3 colors:



*Note that the DNR color is purple rather than Pennsylvania's recommended blue. The Arizona task group believed that the use of Code Blue to call a resuscitation team is widespread and would confuse the use of blue to indicate do *not* resuscitate. For those hospitals wishing to use color designations for Latex allergy and restricted limb, Arizona is recommending the Pennsylvania colors for those conditions.

- Newer, barcoded wristbands are available and in use, some with patient pictures:



- To complicate matters further, some vendors are promoting different colored tabs to attach to wristbands:



Conclusions:

- For all their utility, colored wristbands represent a potential patient safety risk. Although the scope and degree of risk is not clear, it is probably associated with:
 - Inconsistent use of color schemes, hospital to hospital.
 - Increases in the number of colors used (some hospitals use up to 10 unique color codes).
- Most Oregon hospitals use colored wristbands in one form or another. However, some hospitals (including the VA and others) have chosen not to use them at all.
- Among hospitals in Oregon that use colored wristbands, we found a great deal of variation – in color schemes used and in the meaning attached to specific colors.
- There is no national standard governing the use of colored wristbands. However, some states have moved to adopt a single color scheme.