





Peter Zumthor





Tadeo Ando





Louis Kahn















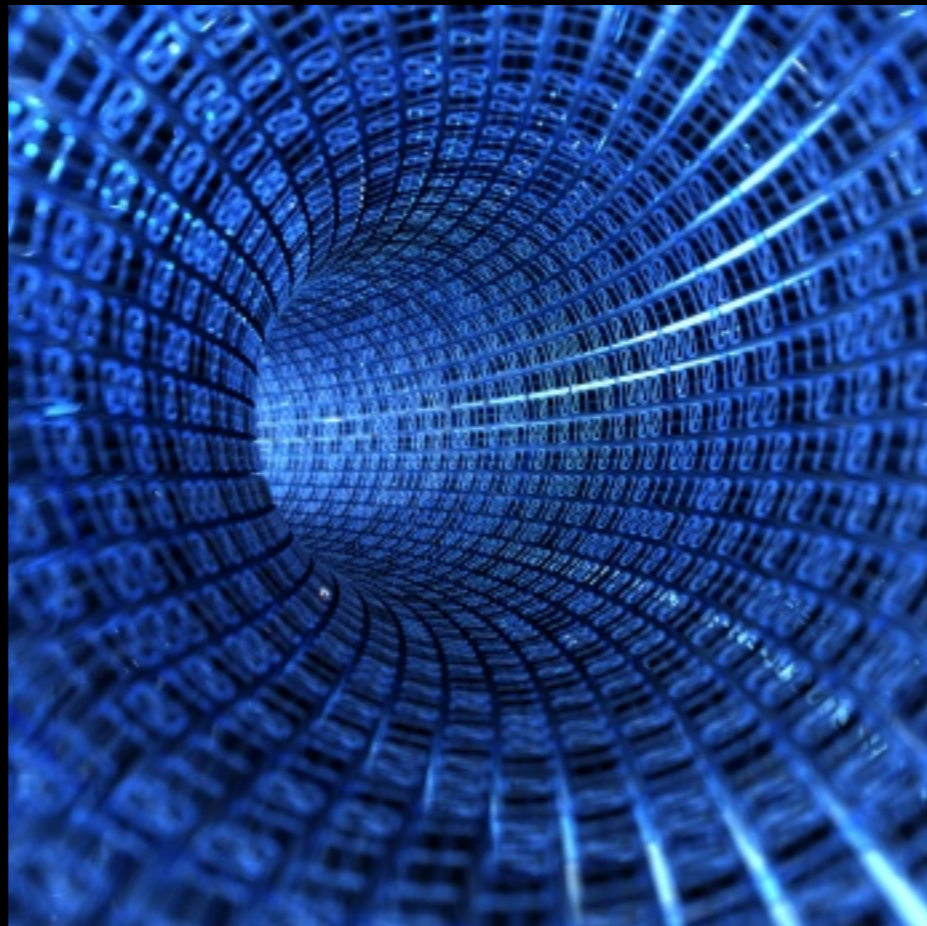


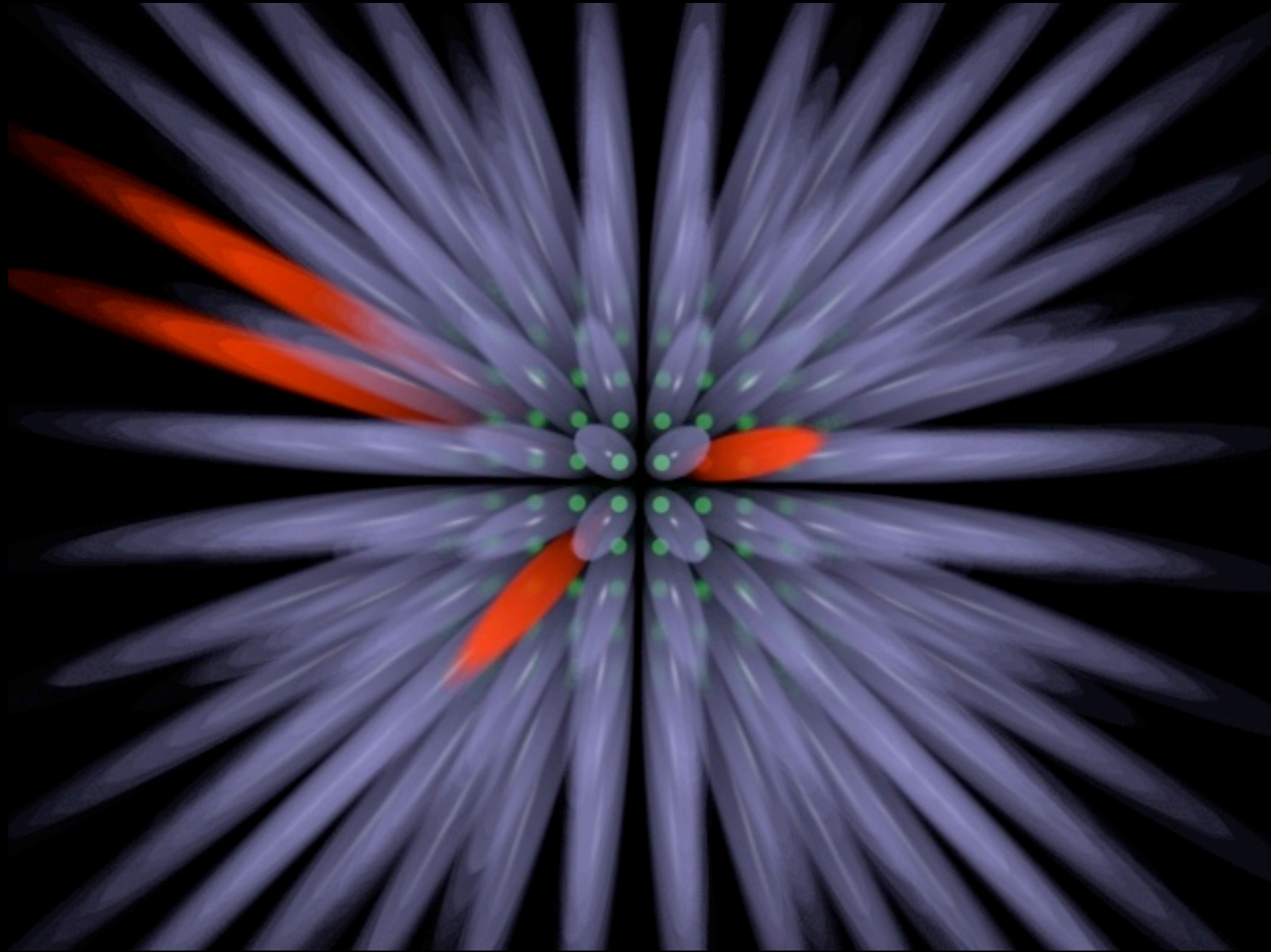
one more time  
**AND THEN**  
*Always it, it's always about it.*  
+ FLUID ARCHITECTURE **WRONG**  
The design has gone  
Something is missing  
But I can't put my finger on it

FOR THE HISTORY OF THE

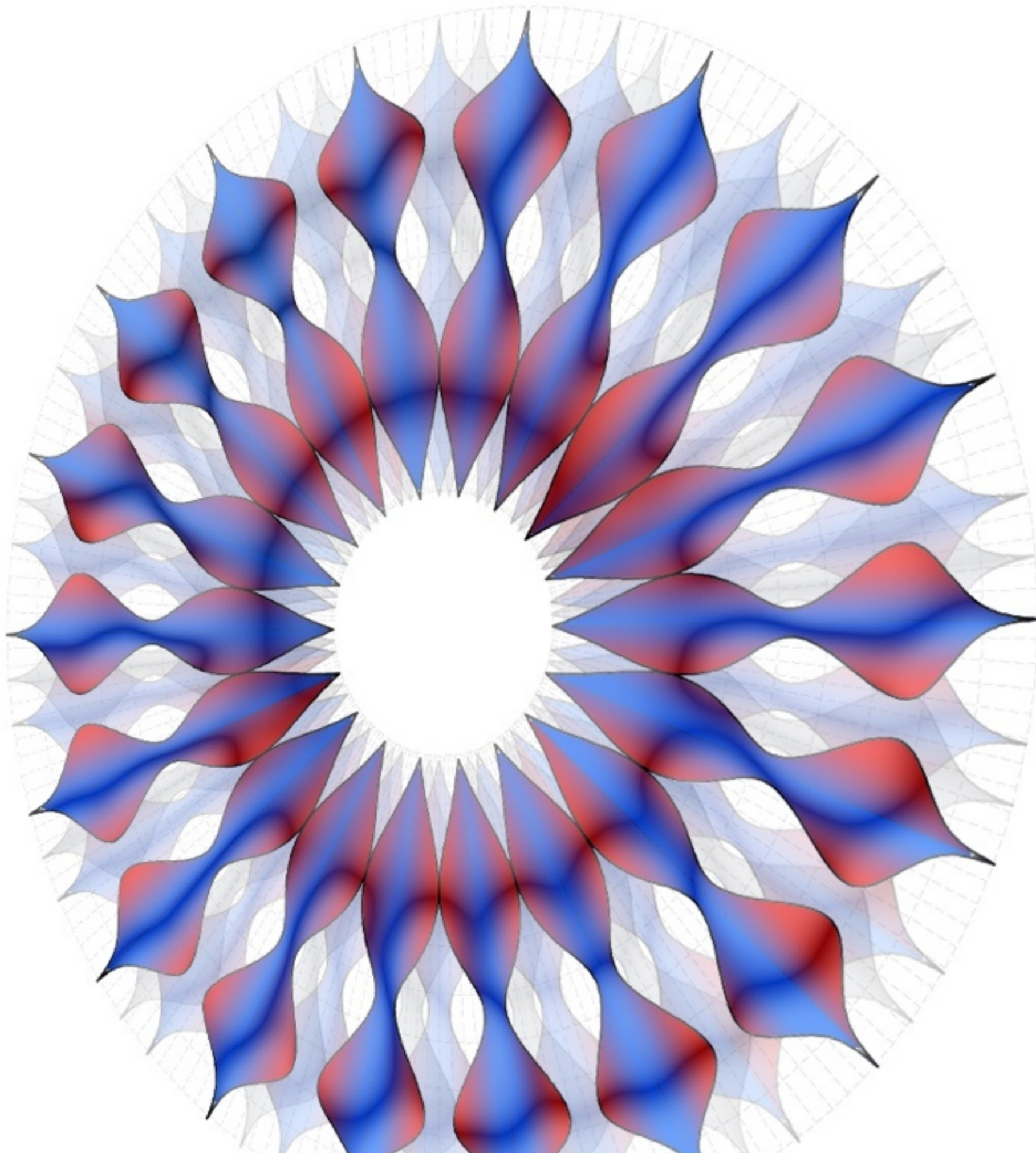
Marcos Novak



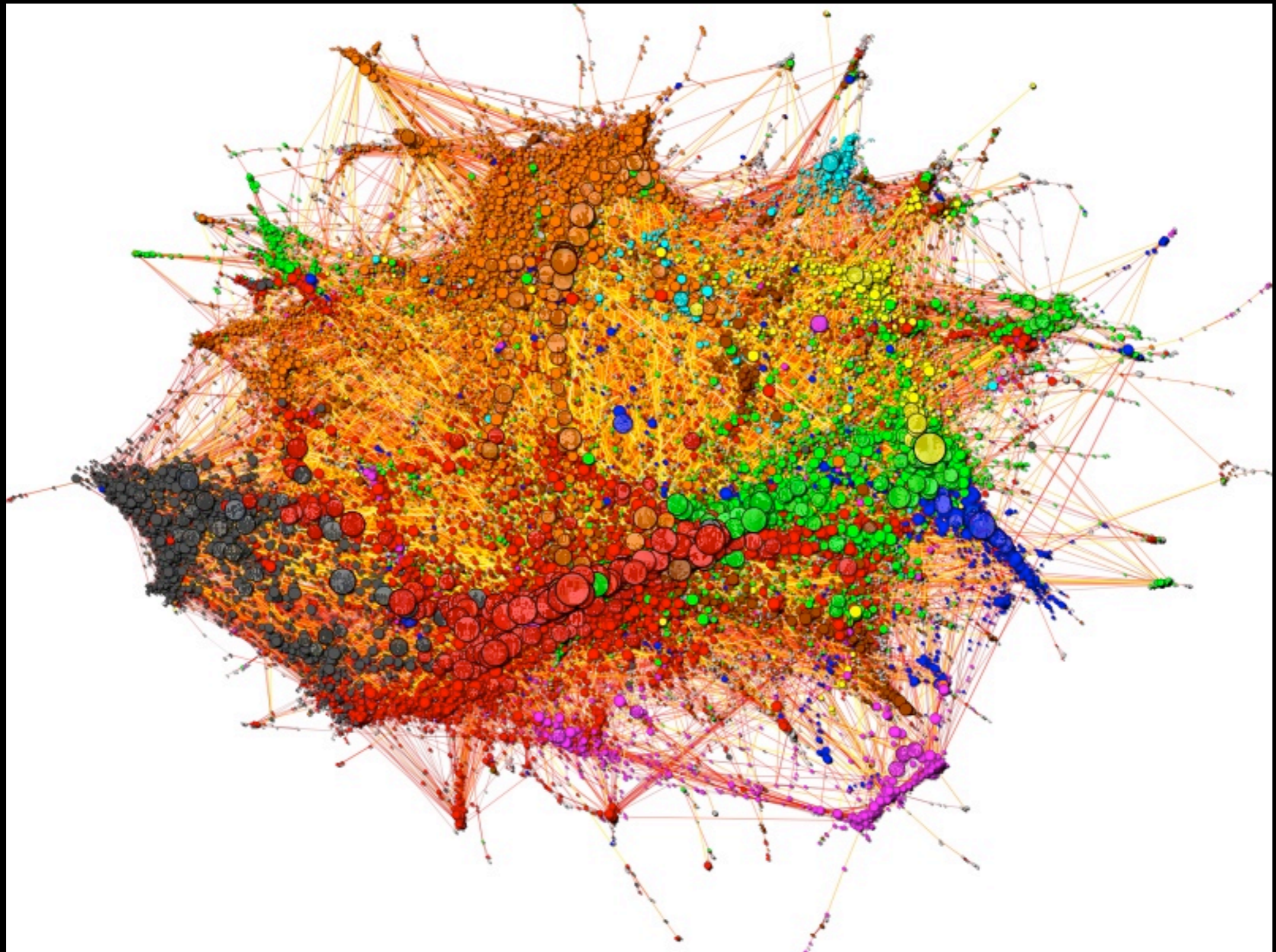






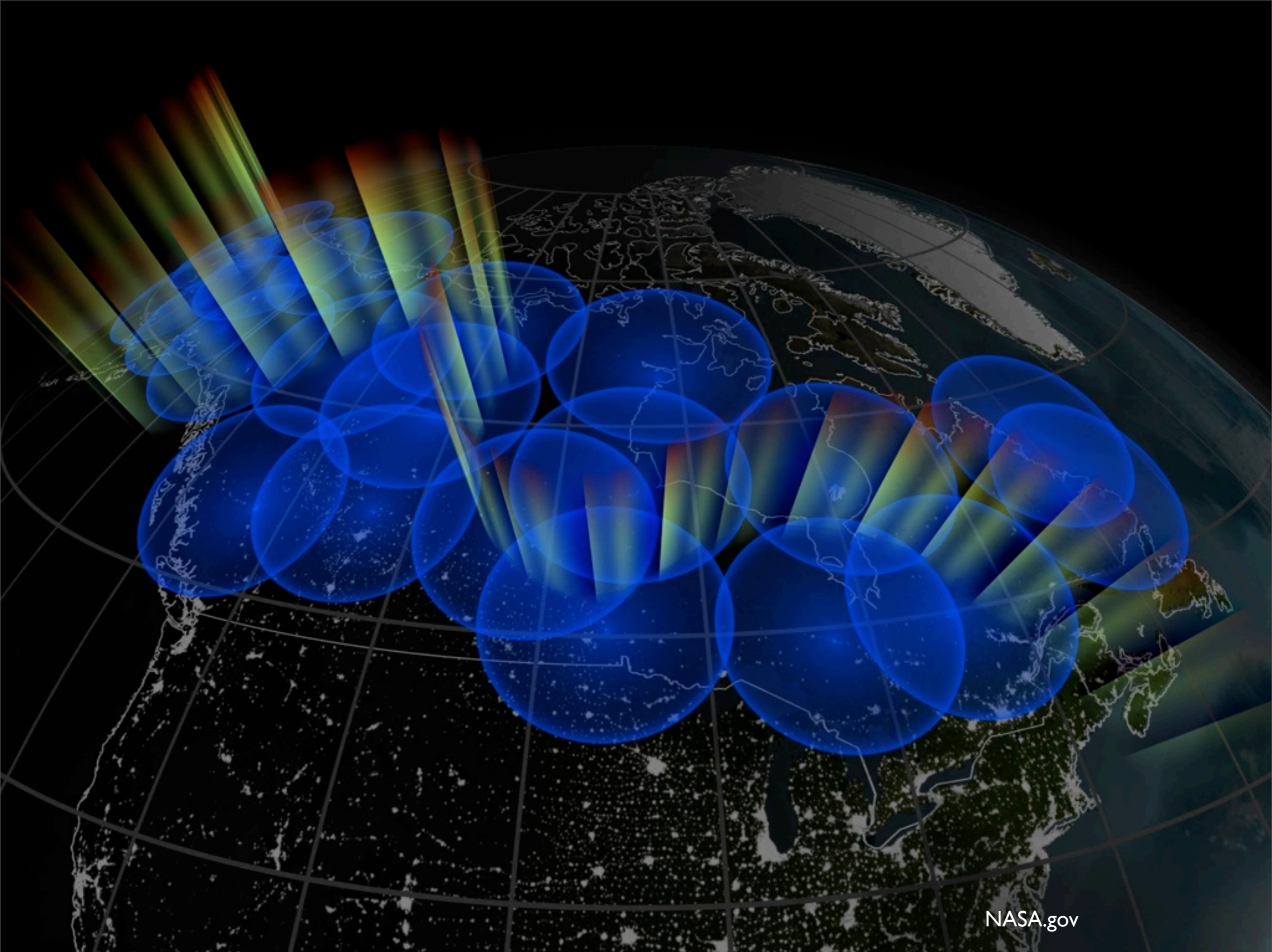






Drew Conway





NASA.gov



VisAlert File Database Views Help Window

Wall Clock: 2005-Jul-05 16:45:37  
Show: 2005-Jul-05 18:02:58  
Log

Update  
Visualization  
History  
Navigation  
Views

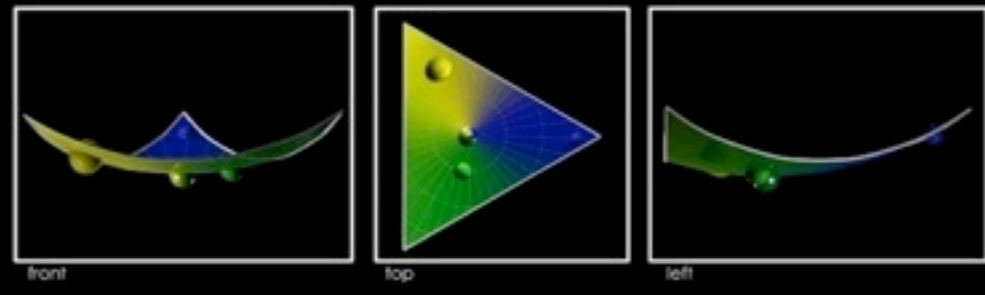
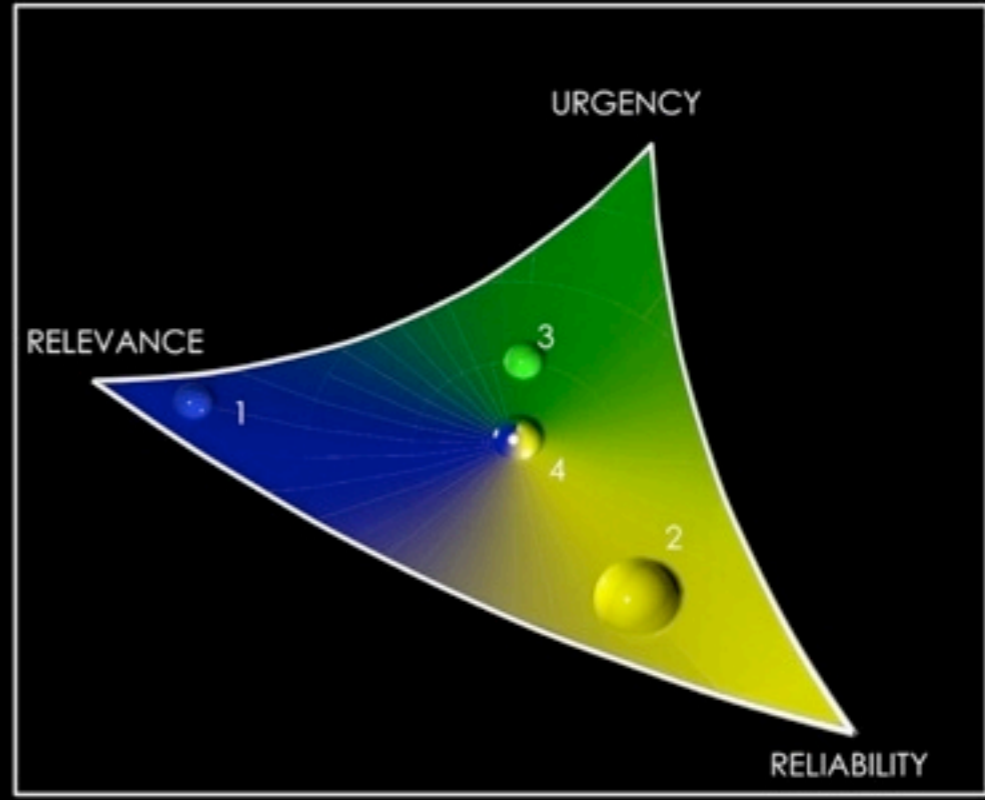
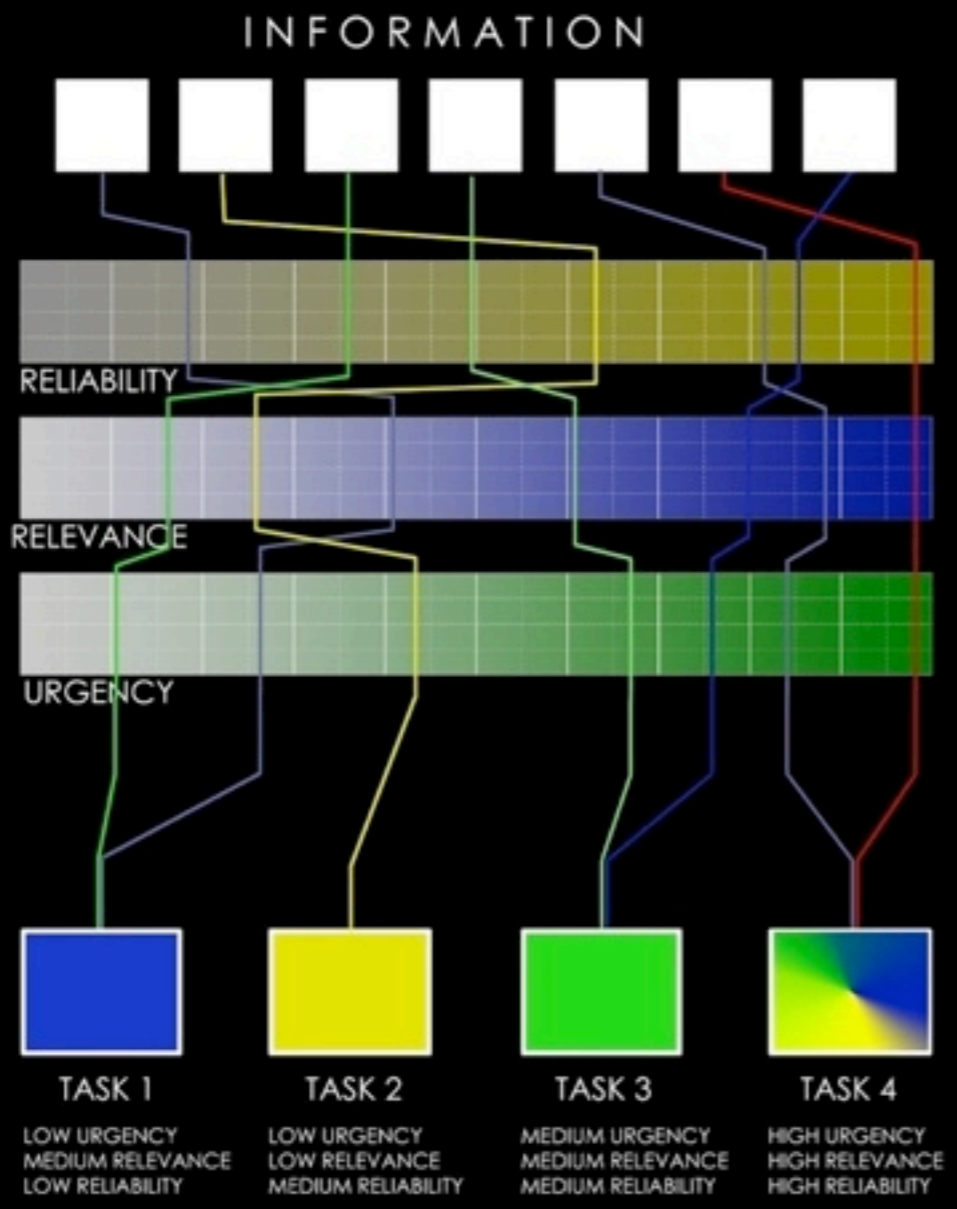
Enclave 1   
Enclave 2   
Enclave 3   
Enclave 4

Show all

Alert types

The image displays a software interface for network visualization. The main area is divided into four quadrants, each showing a circular network diagram. The diagrams use various colors (yellow, blue, green, red) to represent different network components or alerts. The interface includes a menu bar at the top with 'File', 'Database', 'Views', 'Help', and 'Window'. On the left, there is a control panel with a 'Wall Clock' showing '2005-Jul-05 16:45:37', a 'Show' field with '2005-Jul-05 18:02:58', and a 'Log' button. Below this are sections for 'Update', 'Visualization', 'History', 'Navigation', and 'Views'. The 'Views' section has four radio buttons labeled 'Enclave 1', 'Enclave 2', 'Enclave 3', and 'Enclave 4', all of which are currently unselected. A 'Show all' button is located below the enclave options. At the bottom left, there is a label 'Alert types'. The top right of the window shows system status icons, including a battery icon labeled '(Charged)', the time '12:04 PM', and the user name 'Shaun Moon'.









**Interaction** is a kind of **action** that occurs as two or more objects have an **effect** upon one another.

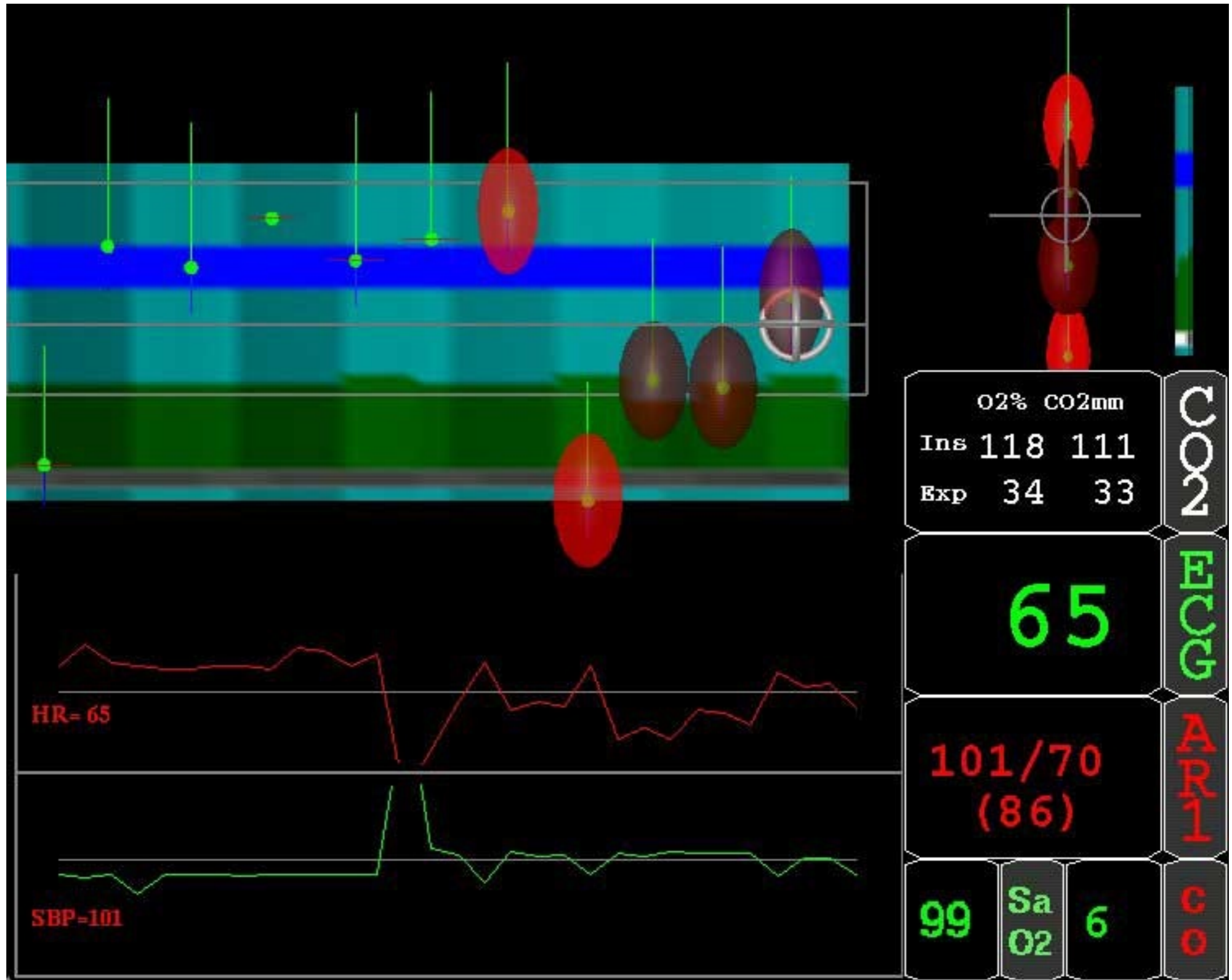




Interaction Designers  
strive to **create**  
meaningful  
**relationships** between  
**people** and the  
**products** and **services**  
that they use, from  
computers to mobile  
devices to appliances  
and beyond.

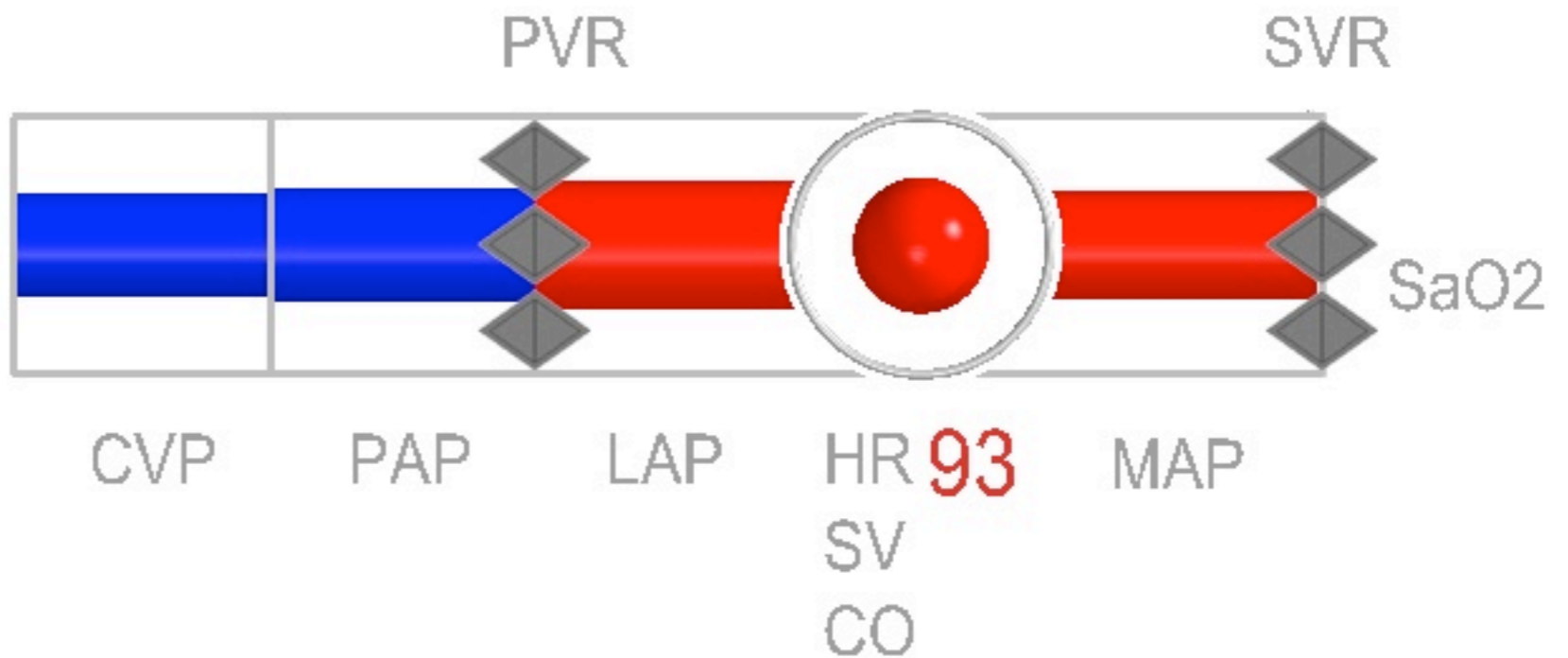
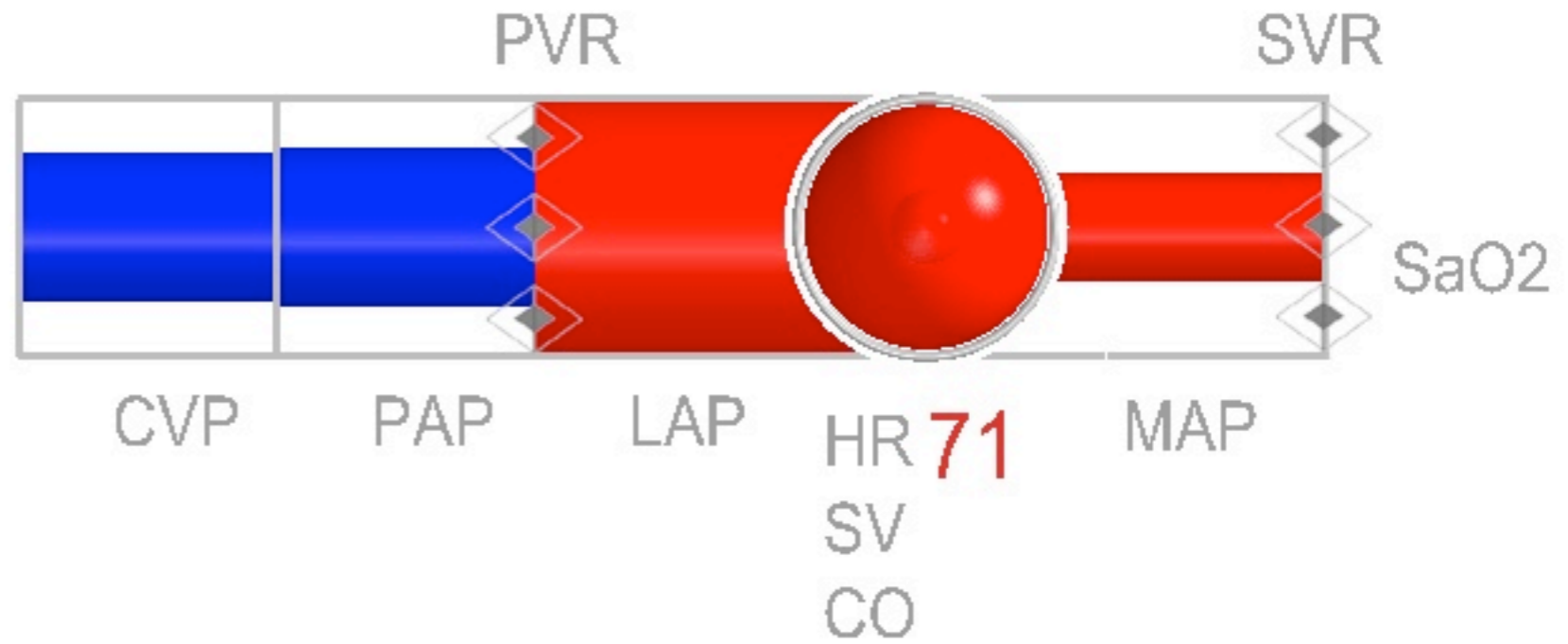
[IXDA.ORG](http://IXDA.ORG)

# ER INFORMATION SYSTEM

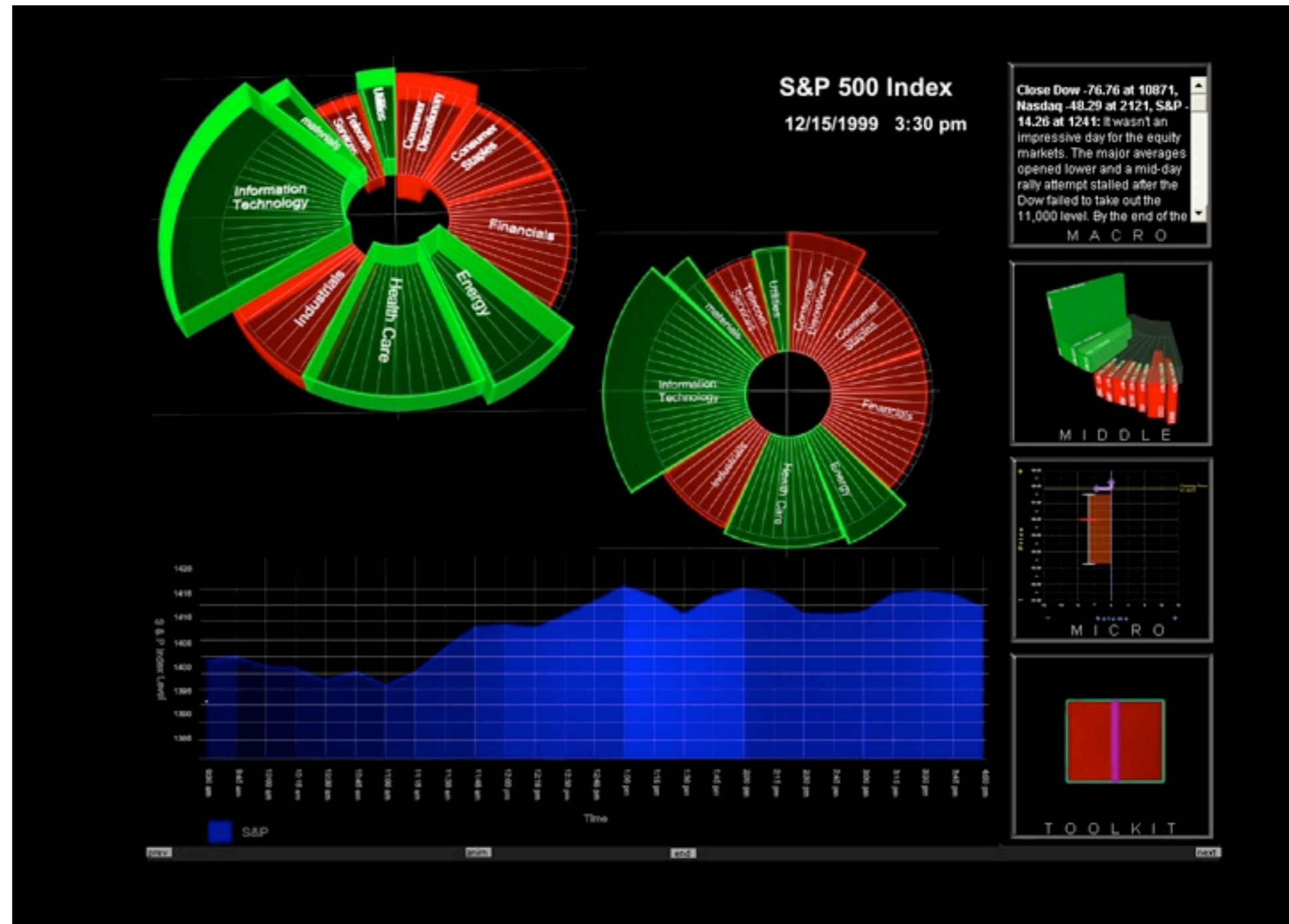




# CARDIOVASCULAR INFORMATION SYSTEM

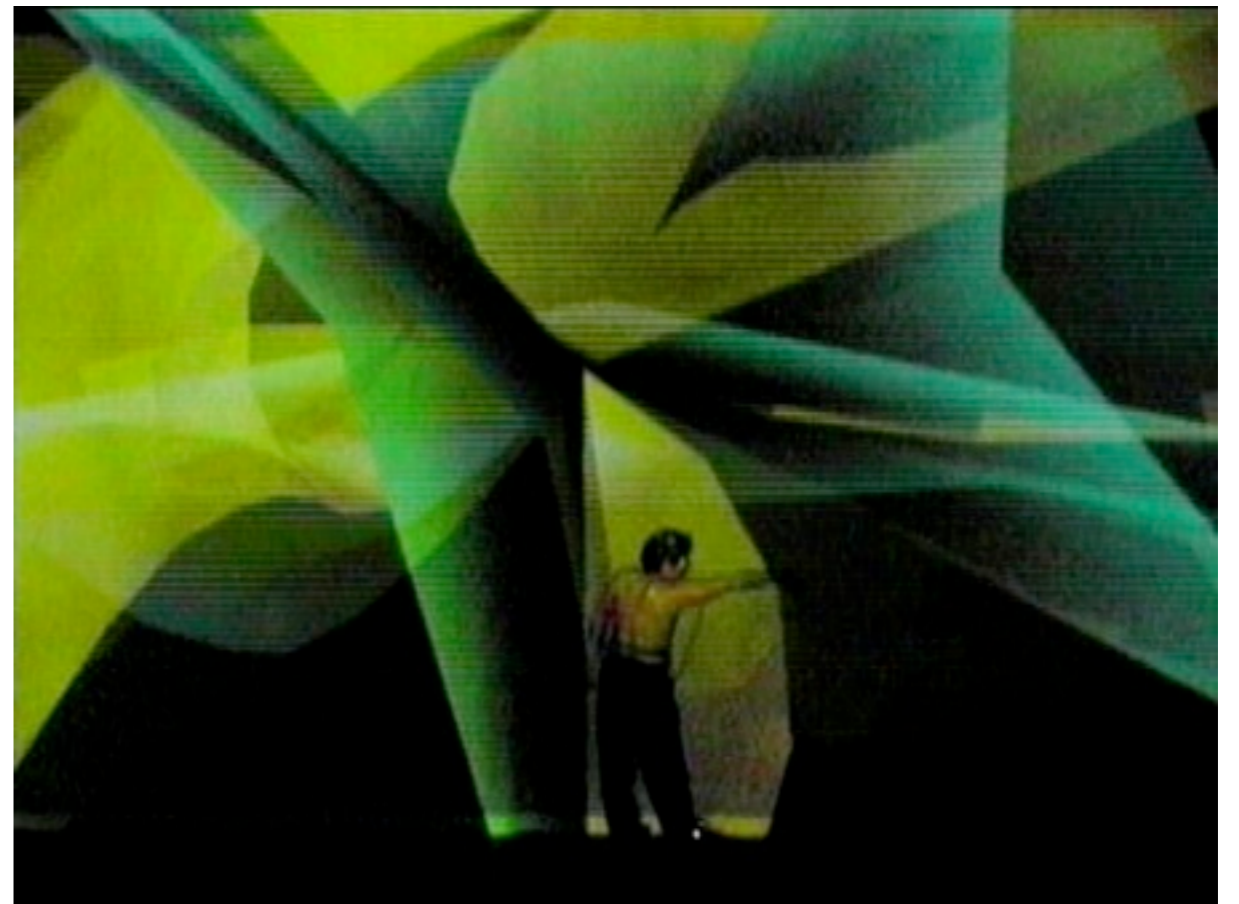


# FINANCE DASHBOARDS





# REAL-TIME 3-D PHYSIOLOGIC DISPLAY



# MEDICINE



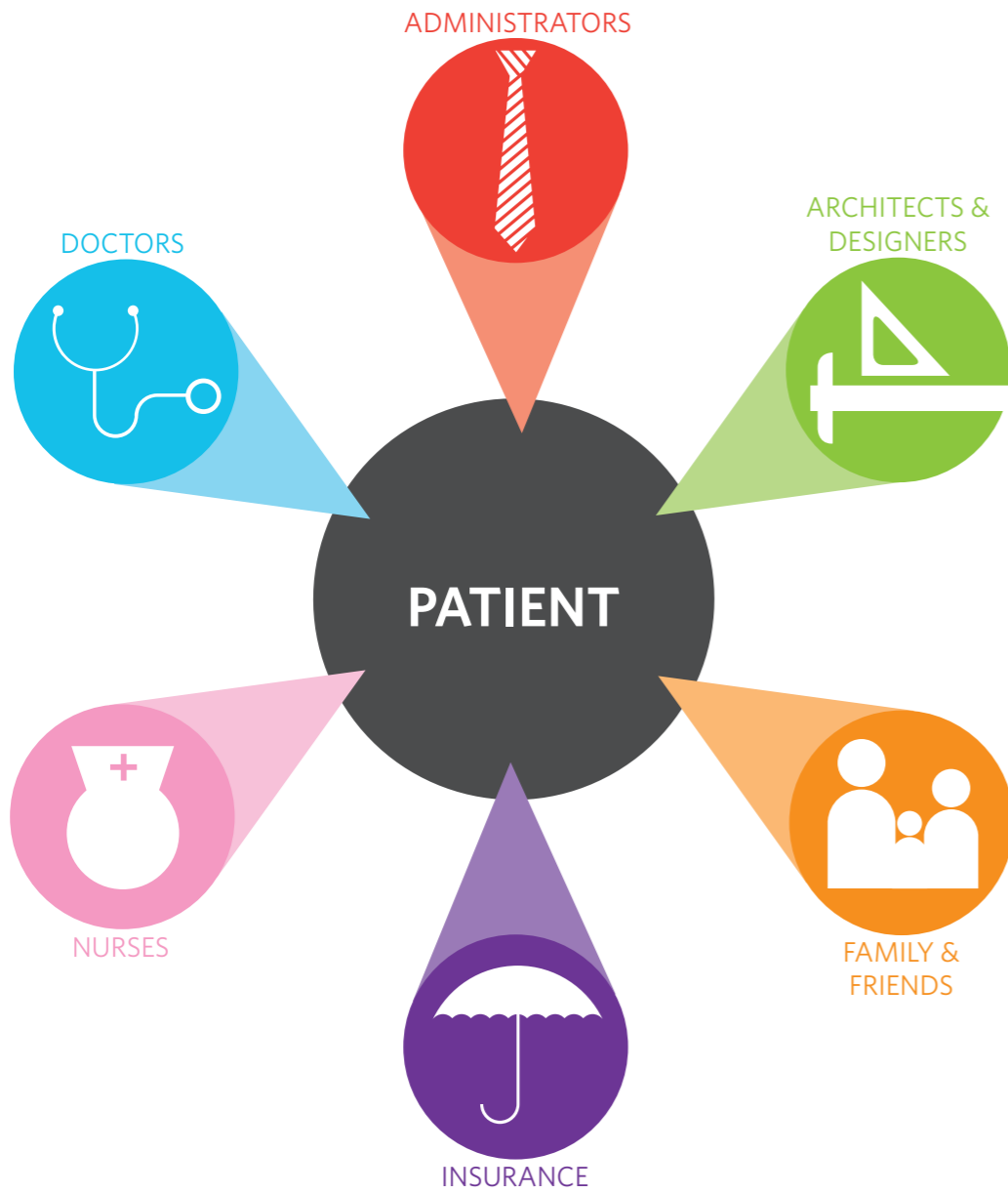


**EMPATHETIC INNOVATION IN HEALTH CARE**

**A FOCUS ON THE PATIENT EXPERIENCE**

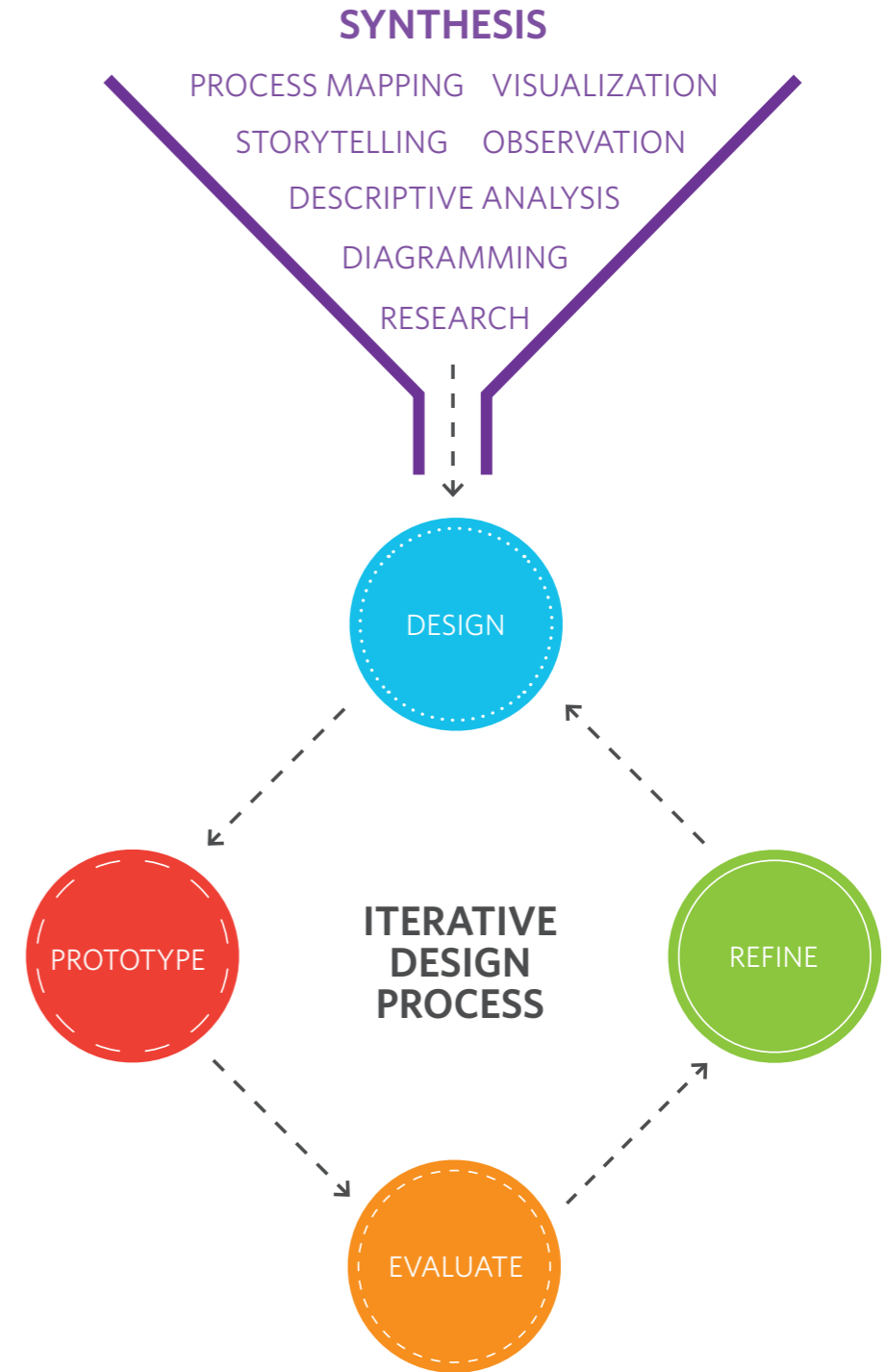
HUMAN CENTERED DESIGN:  
**THE PATIENT FROM MULTIPLE PERSPECTIVES**

After spending a few weeks with the patient's point of view, we shifted our focus to all the external people who play a critical role in shaping the experience. This included interviews with hospital administrators, health care architects and wayfinding designers, family and friends of patients, insurance agents, nurses and clinicians, and doctors. We also spent some time following doctors while they did rounds as a way to contextualize the different points of view.



HUMAN CENTERED DESIGN:  
**SYNTHESIS AND DESIGN**

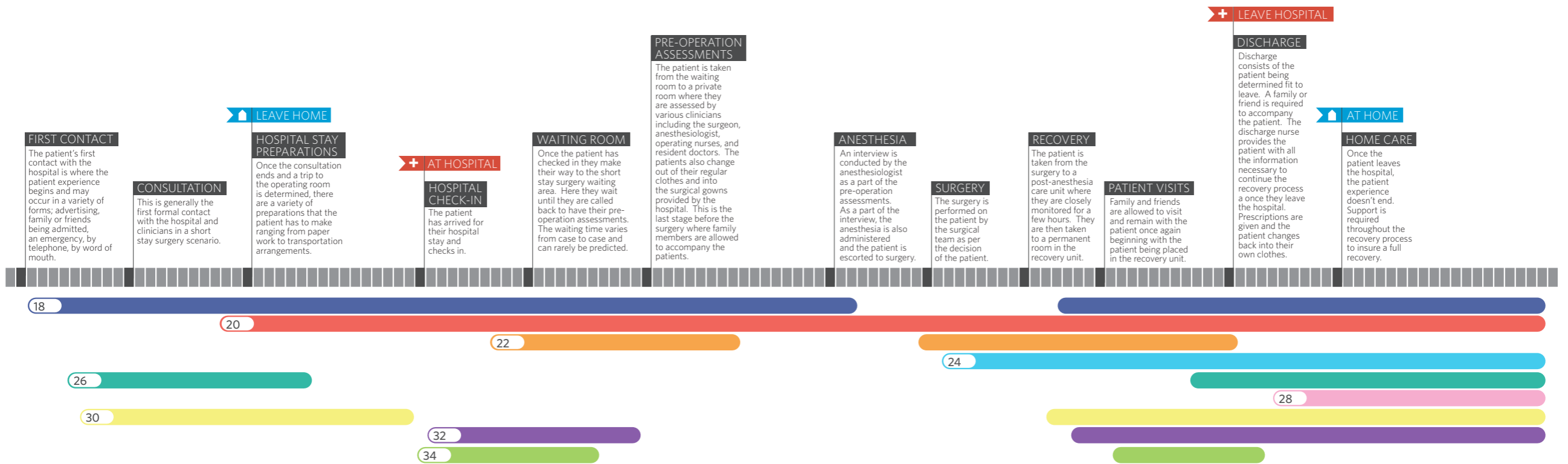
Once the interviews and contextual research was completed, we synthesized our findings and used that as a basis to begin the design phase. Following an iterative design process, we generated ideas and prototyped them to a certain level before presenting them to one another to receive critical and constructive feedback. We refined our ideas based on the feedback and then repeated the process.





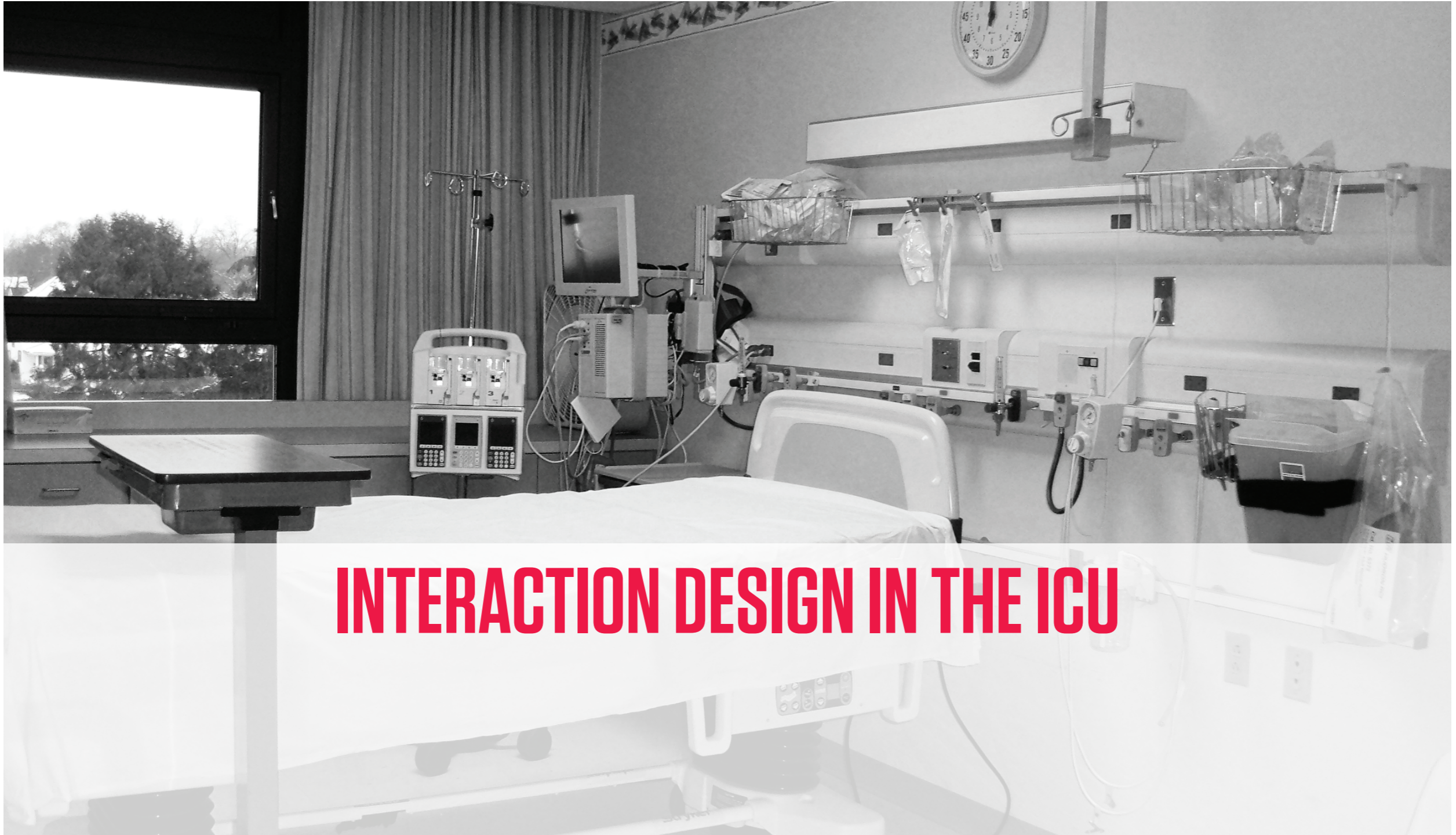
## THE PATIENT EXPERIENCE: SHORT STAY SURGERY SCENARIO

The patient experience has many different facets and incarnations. We focused on the short stay surgery scenario and the patient experience in the context of that process. The short stay surgery experience, as we observed it, is mapped below with each milestone along with a description of each key event experienced by the patient.



## DESIGN INTERVENTIONS: WHERE THEY ENHANCE THE PATIENT EXPERIENCE

The different design interventions provide support and enhance the patient experience in different ways. Each intervention is mapped in context with the patient experience to show where and when they augment the patient experience.



# INTERACTION DESIGN IN THE ICU



# INTERACTION DESIGN IN THE ICU PROCESS :

RESEARCH



SYNTHESIS



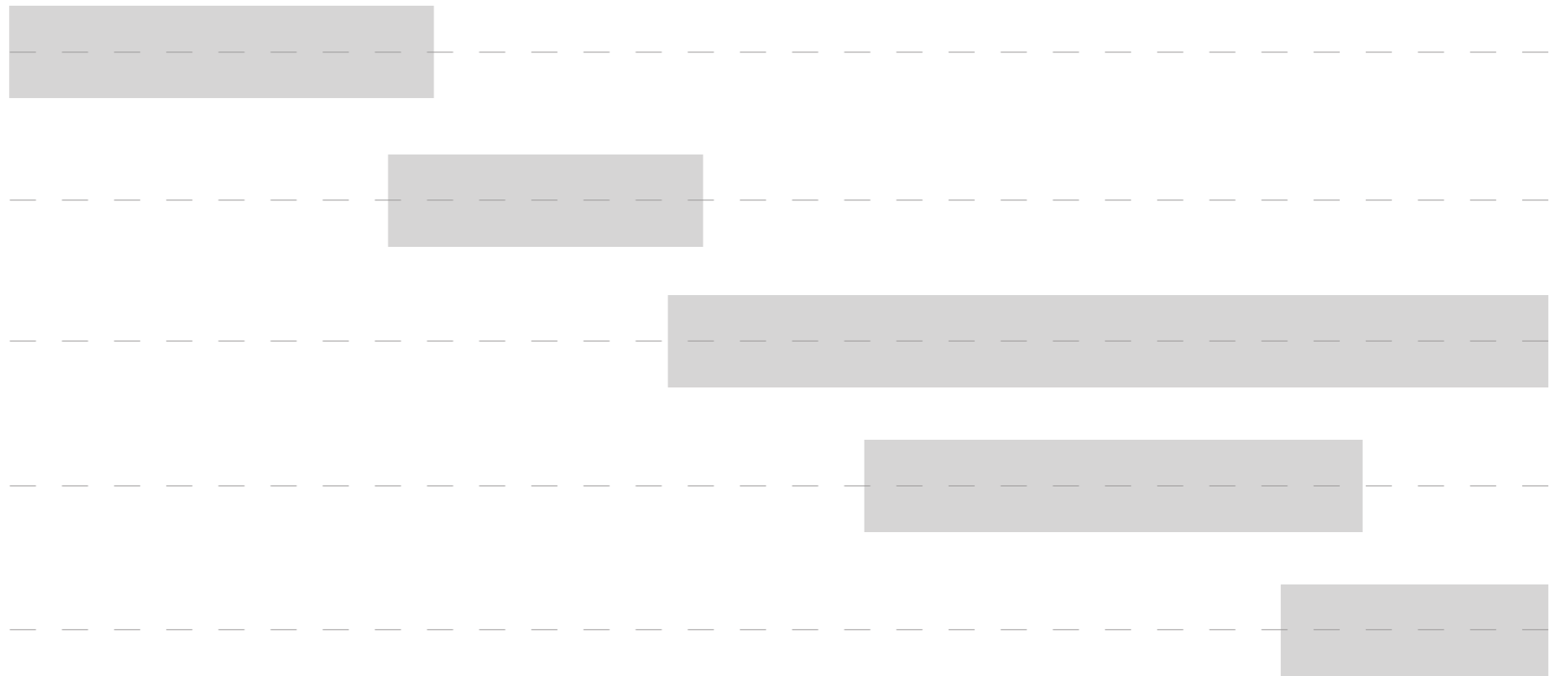
DESIGN



VALIDATION



CONCLUSION



# RESEARCH

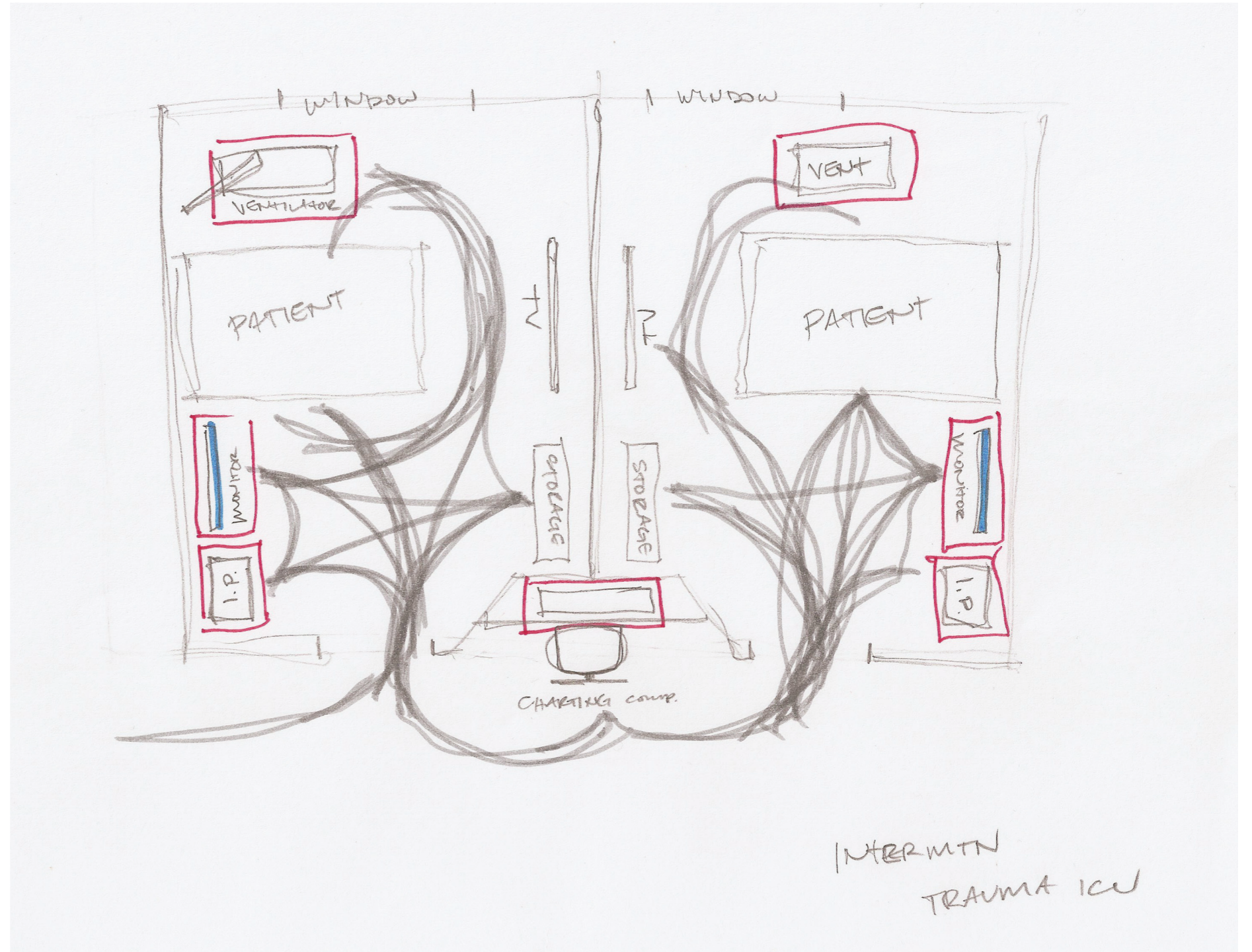
## CONTEXTUAL OBSERVATION





# RESEARCH

## WORKFLOW MAPPING





# RESEARCH DOCUMENTATION

|      |   |   |   |              |                          |
|------|---|---|---|--------------|--------------------------|
| un10 | Checks urine output   | o | R | Monitoring   | Urine Output             |
| un10 | Check urine output  | o | R | Monitoring   | Urine Output             |
| un10 | Checking Vitals on Computer (assessment): updates Vitals by clicking at top of column.  | o | O | Organization | Charting                 |
| un10 | Number for pain ranking are subjective, but he charts it anyway.  | o | O | Organization | Charting                 |
| un10 | Notes on chart that patient said she was in pain but didn't want pain meds.   | o | O | Organization | Charting                 |
| un10 | Emar: Charts Heparin. Marks time and where med was administered (on body).  | o |   | Organization | Charting                 |
| un10 | Charts assessment   | o | O | Organization | Charting                 |
| un10 | Gets syringe to suck air out of the IV line.  | o | R | Organization | Equipment                |
| un10 | Computer said that he needed to give the patient a med but it conflicted with a med the pharmacy had just ordered so he marked the old med as not given and made a note of why it wasn't given.   | o |   | Organization | Medication               |
| un10 | Check s sliding scale on computer to see what level of insulin patient needs with her blood sugar level.  | o | O | Organization | Medication               |
| un10 | Double checks (assistant's) written chart to make sure the patients blood sugar level was correct in the computer so that he knows he is getting the right amount of insulin.   | o | O | Organization | Medication               |
| un10 | Goes to med room to get insulin.  | o | O | Organization | Medication               |
| un10 | Prints off information about all of the meds that need to be administered throughout the day, and keeps notes on that paper   | o | R | Organization | Pocket Notes             |
| un10 | Gets out notepad to write down temp.  | o | R | Organization | Pocket Notes             |
| un10 | Writes down urine output  | o | R | Organization | Pocket Notes             |
| un10 | Notes urine output on paper.  | o | R | Organization | Pocket Notes             |
| un10 | Administering Meds: (Heparin) Asks patient how she is feeling, asks her to rate her pain (1 to 10) is that comfortable?, she says no. He asks if she wants something for the pain, she says no. Puts on his gloves. Got out saringe, got specified amount out of bottle, walked around the bed and connected it to the IV. Tells the patient "thank you".   | o | R | Task         | Administering Medication |
| un10 | Assessment: tells patients he is going to listen to her heart. Gets out stethoscope. Listens to heart. Asks her easy questions, what hospital she's in and what month it is. Listens to lungs, bowels, pupils, fingers, pulses. Replaces sheet on patient. Takes temperature.   | o | R | Task         | Assessment               |
| un10 | Assessment: Gets out stethoscope, listens to lungs, listens to bowels, asks patient to squeeze his fingers, "give me the peace sign", asks patient to wiggle toes, checks pulses in feet. Prepares patient for flashlight in eyes, checks pupils. Ask patient to open his eyes. Takes patients temp (after getting new ear cap).  | o | R | Task         | Assessment               |
| un10 | Bathing: puts on gloves, checks urine output while other nurse gets bucket with water and towels ready. Nurse removes patients bed pan and takes it to the disposing room. Adjust the fan for her. Begins wiping patient down. Other nurse returns. Asks if she wants her feet washed or not. Dips towel in water and washes her off (new towel every time). Bring laundry basket for towels to a better location. Patient is awake enough to roll and turn for them (makes it easier). Asks patient how she is doing. Change sheets and adjust patient to make her more comfortable. | o | R | Task         | Bathing                  |
| un10 | Goes to the computer to chart. Charts insulin.  | o | R | Task         | Charting                 |
| un10 | Flushes out the IV: Gets the syringe with saline, plugs the IV line and injects the saline. Screws off Syringe, throws it away, resets the IV.  | o | R | Task         | Flush Out IV             |
| un10 | Oral care: (every 4 hours when patient is sedated). Gets pack off the wall. Silences ventilator, raises to 100% oxygen, explains what is going on to the patient. Cleans around tubes and inside the mouth, alarm sounds and he asks patient if he is in pain. Resets alarm. Turns off feeding tube (which can choke patient when oral cleaning is going on). Throws away tooth brush. Lets patient know that he is going to suction out his breathing tube.  | o | R | Task         | Oral Care                |
| un10 | Patient asks for apple sauce, nurse remembers her diet restrictions (didn't pass swallow test), he offers to get her some nectar.   | o | R | Task         | Patient Comfort Measures |
| un10 | Knocks on patients door, tells her they only had apple. Pours it into a cup. Looks for a spoon but cannot find one. Looks in food room for spoon. Didn't know where to look. Finds one and brings it to patient. Starts raising the bed up, explaining to her that she has to be at 90 degrees to drink liquid. Tries to feed patient but she doesn't want him to. Hands cup to husband.  | o | R | Task         | Patient Comfort Measures |
| un10 | Nurse walks into the room to check out respiratory tubes.   | o | R | Task         | Patient Comfort Measures |
| un10 | Nurse gets washcloth for RT.  | o | R | Task         | Patient Comfort Measures |
| un10 | Repositioning patient: Finds nurse to help reposition patient, put on gloves, unstrap patients arms, lower bed so that it is totally flat, pull patient to one side and remove pillows that were underneath him, lay patient flat again. Inform the patient that they are repositioning him, push patient to other side, move around pillows, tied straps back down.  | o | R | Task         | Patient Comfort Measures |
| un10 | Asks patient if he is hot and whether or not he wants a cool wash cloth.  | o | R | Task         | Patient Comfort Measures |
| un10 | Leaves to go get a washcloth from the linen room. Grabs washcloth and enters the room. Family is praying so he leaves the room. Returns when the family is finished. Gets washcloth wet, places it on patients forehead and walks out.  | o | R | Task         | Patient Comfort Measures |
| un10 | Suctioning: lets him know what he is doing. Pushes button down, suction. "Sorry". States he'll moisturize patients mouth, asks if he likes that, asks if he would like to be suctioned out again, patient say yes. He does it. "Sorry".   | o | R | Task         | Suctioning               |



# RESEARCH DOCUMENTATION

|      |   |   |   |              |                          |
|------|---|---|---|--------------|--------------------------|
| un10 | Checks urine output   | o | R | Monitoring   | Urine Output             |
| un10 | Check urine output  | o | R | Monitoring   | Urine Output             |
| un10 | Checking Vitals on Computer (assessment): updates Vitals by clicking at top of column.  | o | O | Organization | Charting                 |
| un10 | Number for pain ranking are subjective, but he charts it anyway.  | o | O | Organization | Charting                 |
| un10 | Notes on chart that patient said she was in pain but didn't want pain meds.   | o | O | Organization | Charting                 |
| un10 | Emar: Charts Heparin. Marks time and where med was administered (on body).  | o |   | Organization | Charting                 |
| un10 | Charts assessment   | o | O | Organization | Charting                 |
| un10 | Gets syringe to suck air out of the IV line.  | o | R | Organization | Equipment                |
| un10 | Computer said that he needed to give the patient a med but it conflicted with a med the pharmacy had just ordered so he marked the old med as not given and made a note of why it wasn't given.   | o |   | Organization | Medication               |
| un10 | Check s sliding scale on computer to see what level of insulin patient needs with her blood sugar level.  | o | O | Organization | Medication               |
| un10 | Double checks (assistant's) written chart to make sure the patients blood sugar level was correct in the computer so that he knows he is getting the right amount of insulin.   | o | O | Organization | Medication               |
| un10 | Goes to med room to get insulin.  | o | O | Organization | Medication               |
| un10 | Prints off information about all of the meds that need to be administered throughout the day, and keeps notes on that paper   | o | R | Organization | Pocket Notes             |
| un10 | Gets out notepad to write down temp.  | o | R | Organization | Pocket Notes             |
| un10 | Writes down urine output  | o | R | Organization | Pocket Notes             |
| un10 | Notes urine output on paper.  | o | R | Organization | Pocket Notes             |
| un10 | Administering Meds: (Heparin) Asks patient how she is feeling, asks her to rate her pain (1 to 10) is that comfortable?, she says no. He asks if she wants something for the pain, she says no. Puts on his gloves. Got out saringe, got specified amount out of bottle, walked around the bed and connected it to the IV. Tells the patient "thank you".   | o | R | Task         | Administering Medication |
| un10 | Assessment: tells patients he is going to listen to her heart. Gets out stethoscope. Listens to heart. Asks her easy questions, what hospital she's in and what month it is. Listens to lungs, bowels, pupils, fingers, pulses. Replaces sheet on patient. Takes temperature.   | o | R | Task         | Assessment               |
| un10 | Assessment: Gets out stethoscope, listens to lungs, listens to bowels, asks patient to squeeze his fingers, "give me the peace sign", asks patient to wiggle toes, checks pulses in feet. Prepares patient for flashlight in eyes, checks pupils. Ask patient to open his eyes. Takes patients temp (after getting new ear cap).  | o | R | Task         | Assessment               |
| un10 | Bathing: puts on gloves, checks urine output while other nurse gets bucket with water and towels ready. Nurse removes patients bed pan and takes it to the disposing room. Adjust the fan for her. Begins wiping patient down. Other nurse returns. Asks if she wants her feet washed or not. Dips towel in water and washes her off (new towel every time). Bring laundry basket for towels to a better location. Patient is awake enough to roll and turn for them (makes it easier). Asks patient how she is doing. Change sheets and adjust patient to make her more comfortable. | o | R | Task         | Bathing                  |
| un10 | Goes to the computer to chart. Charts insulin.  | o | R | Task         | Charting                 |
| un10 | Flushes out the IV: Gets the syringe with saline, plugs the IV line and injects the saline. Screws off Syringe, throws it away, resets the IV.  | o | R | Task         | Flush Out IV             |
| un10 | Oral care: (every 4 hours when patient is sedated). Gets pack off the wall. Silences ventilator, raises to 100% oxygen, explains what is going on to the patient. Cleans around tubes and inside the mouth, alarm sounds and he asks patient if he is in pain. Resets alarm. Turns off feeding tube (which can choke patient when oral cleaning is going on). Throws away tooth brush. Lets patient know that he is going to suction out his breathing tube.  | o | R | Task         | Oral Care                |
| un10 | Patient asks for apple sauce, nurse remembers her diet restrictions (didn't pass swallow test), he offers to get her some nectar.   | o | R | Task         | Patient Comfort Measures |
| un10 | Knocks on patients door, tells her they only had apple. Pours it into a cup. Looks for a spoon but cannot find one. Looks in food room for spoon. Didn't know where to look. Finds one and brings it to patient. Starts raising the bed up, explaining to her that she has to be at 90 degrees to drink liquid. Tries to feed patient but she doesn't want him to. Hands cup to husband.  | o | R | Task         | Patient Comfort Measures |
| un10 | Nurse walks into the room to check out respiratory tubes.   | o | R | Task         | Patient Comfort Measures |
| un10 | Nurse gets washcloth for RT.  | o | R | Task         | Patient Comfort Measures |
| un10 | Repositioning patient: Finds nurse to help reposition patient, put on gloves, unstrap patients arms, lower bed so that it is totally flat, pull patient to one side and remove pillows that were underneath him, lay patient flat again. Inform the patient that they are repositioning him, push patient to other side, move around pillows, tied straps back down.  | o | R | Task         | Patient Comfort Measures |
| un10 | Asks patient if he is hot and whether or not he wants a cool wash cloth.  | o | R | Task         | Patient Comfort Measures |
| un10 | Leaves to go get a washcloth from the linen room. Grabs washcloth and enters the room. Family is praying so he leaves the room. Returns when the family is finished. Gets washcloth wet, places it on patients forehead and walks out.  | o | R | Task         | Patient Comfort Measures |
| un10 | Suctioning: lets him know what he is doing. Pushes button down, suction. "Sorry". States he'll moisturize patients mouth, asks if he likes that, asks if he would like to be suctioned out again, patient say yes. He does it. "Sorry".   | o | R | Task         | Suctioning               |

# SYNTHESIS

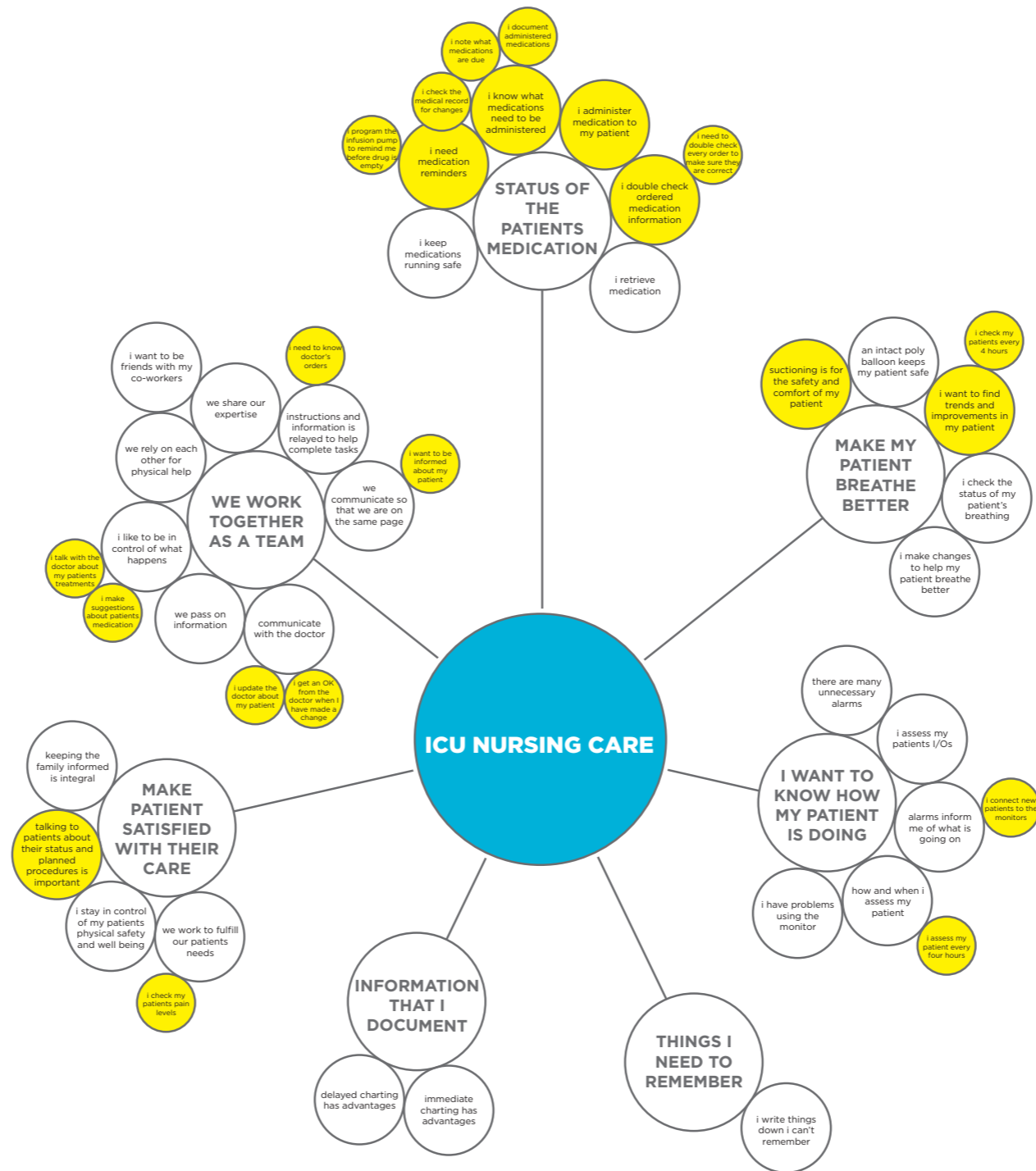
## AFFINITY DIAGRAM





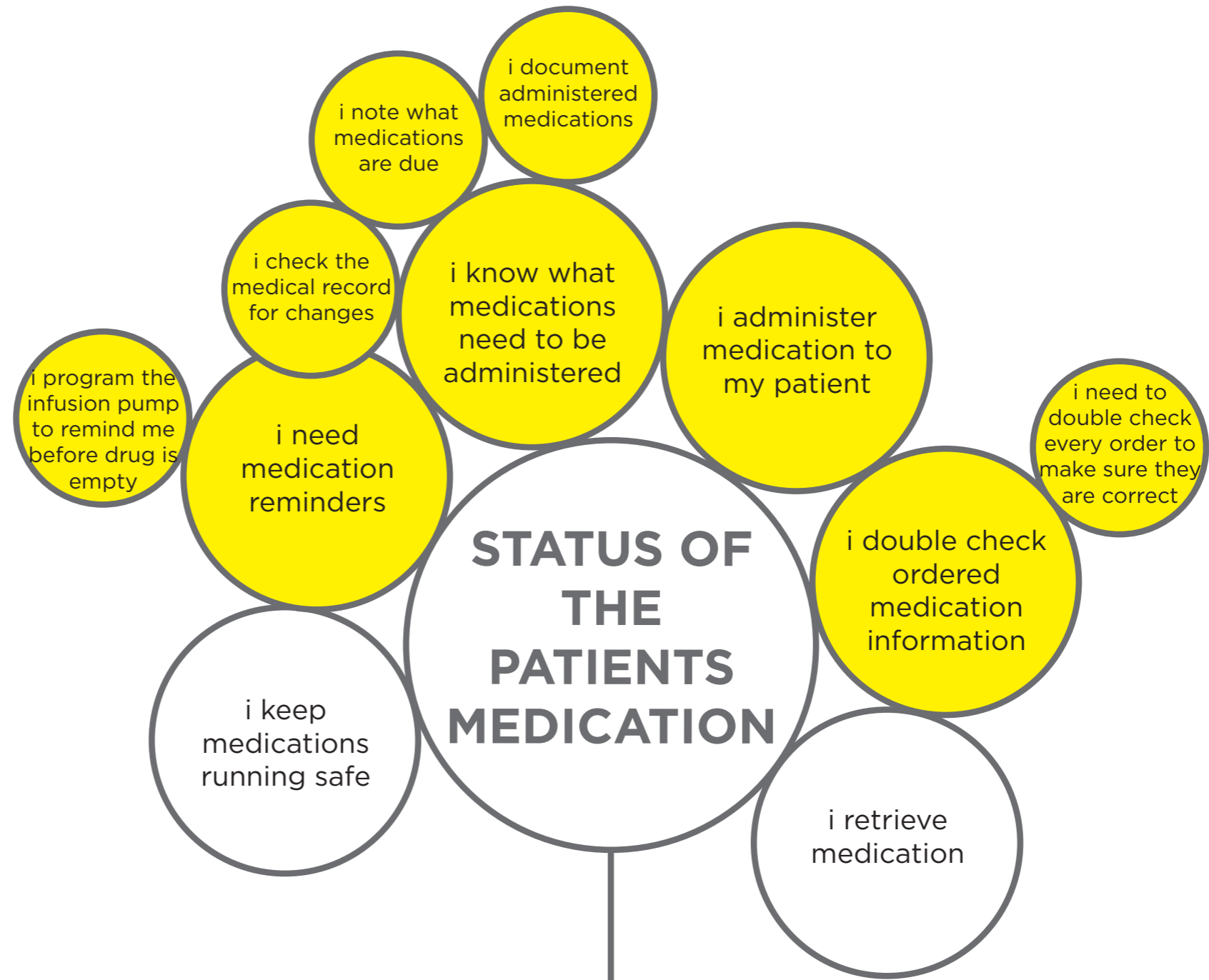
# SYNTHESIS

## AFFINITY DIAGRAM



# SYNTHESIS

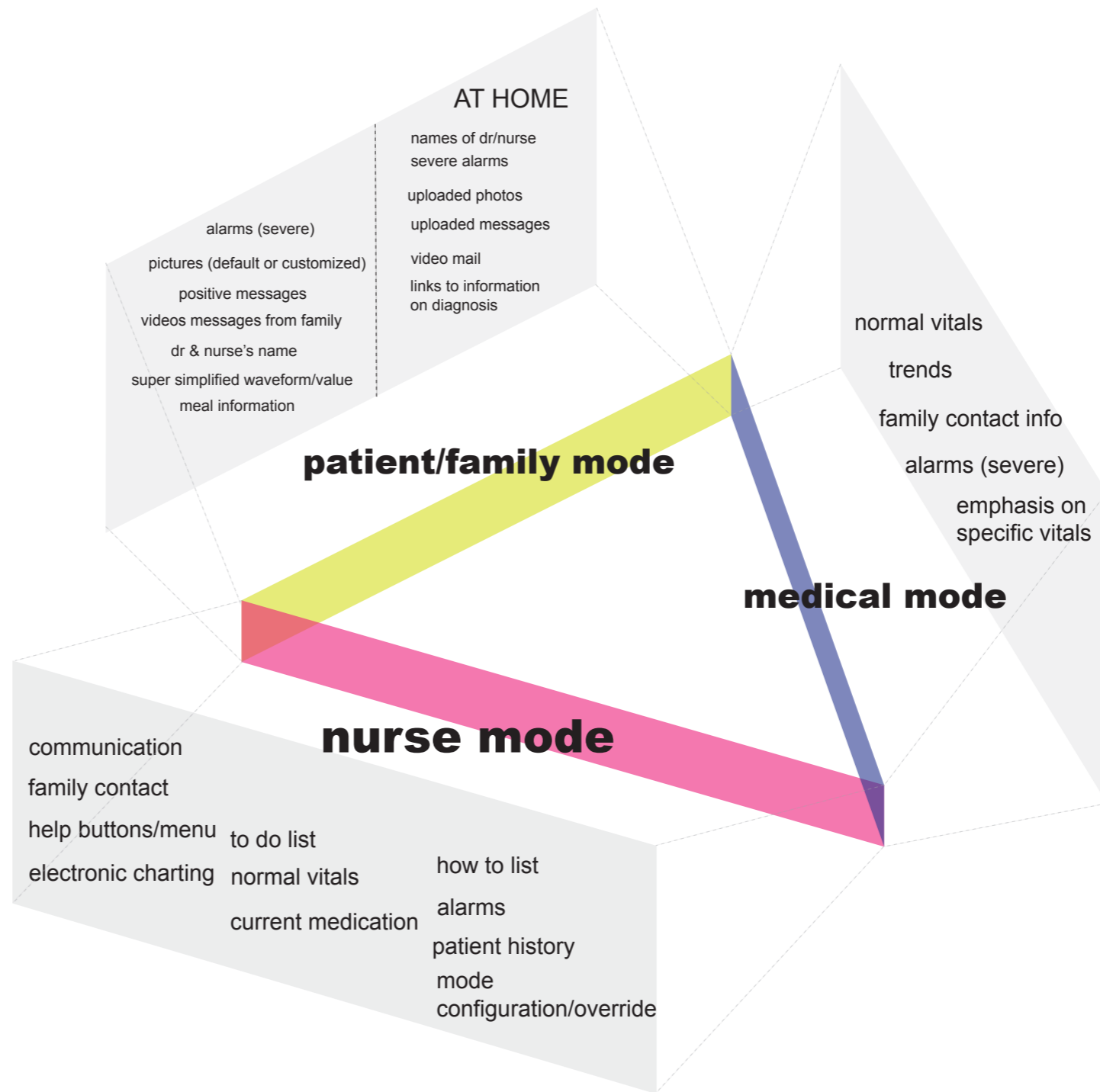
## AFFINITY DIAGRAM





# SYNTHESIS

## BROAD SCOPE



# SYNTHESIS

## NARROW SCOPE

### nurse mode

#### current medication

time left/flow  
more information about med  
protocol  
specific orders  
compatibility  
new medications  
changes  
arrival of med

#### normal vitals

trends  
suctioning/intubated  
specific  
vent check  
lab results  
(recent) w/ time  
see select values in  
other rooms

#### mode configuration

configures own screen  
overrides family mode or  
medical mode

#### communication help

call for help by function  
nurse, RT doctor  
order meds  
send messages  
doctor next shift nurse, RT  
connect to emergency  
contacts  
see others contacting you

#### electronic charting

automatic charting  
vitals, trends  
confirmation of  
auto chart  
similar look/format  
to paper charting  
write on screen  
charts meds  
assessments

#### to do list

reminders  
organize list  
prioritize  
sort  
check off  
turn optional tasks on/off  
see required tasks only  
remove items w/ or w/o  
reason  
task completed, should I chart  
doctors orders - send response  
other orders  
suctioning/procedures  
leave note for self (audio)  
prepare list for next nurse  
request additional information  
different views (by task, source)

#### patient history

medication history  
allergies  
procedures performed  
lab results  
previous assessments  
visual history (wounds)

#### family contact information

names                      pictures  
phone number          email

#### how to list

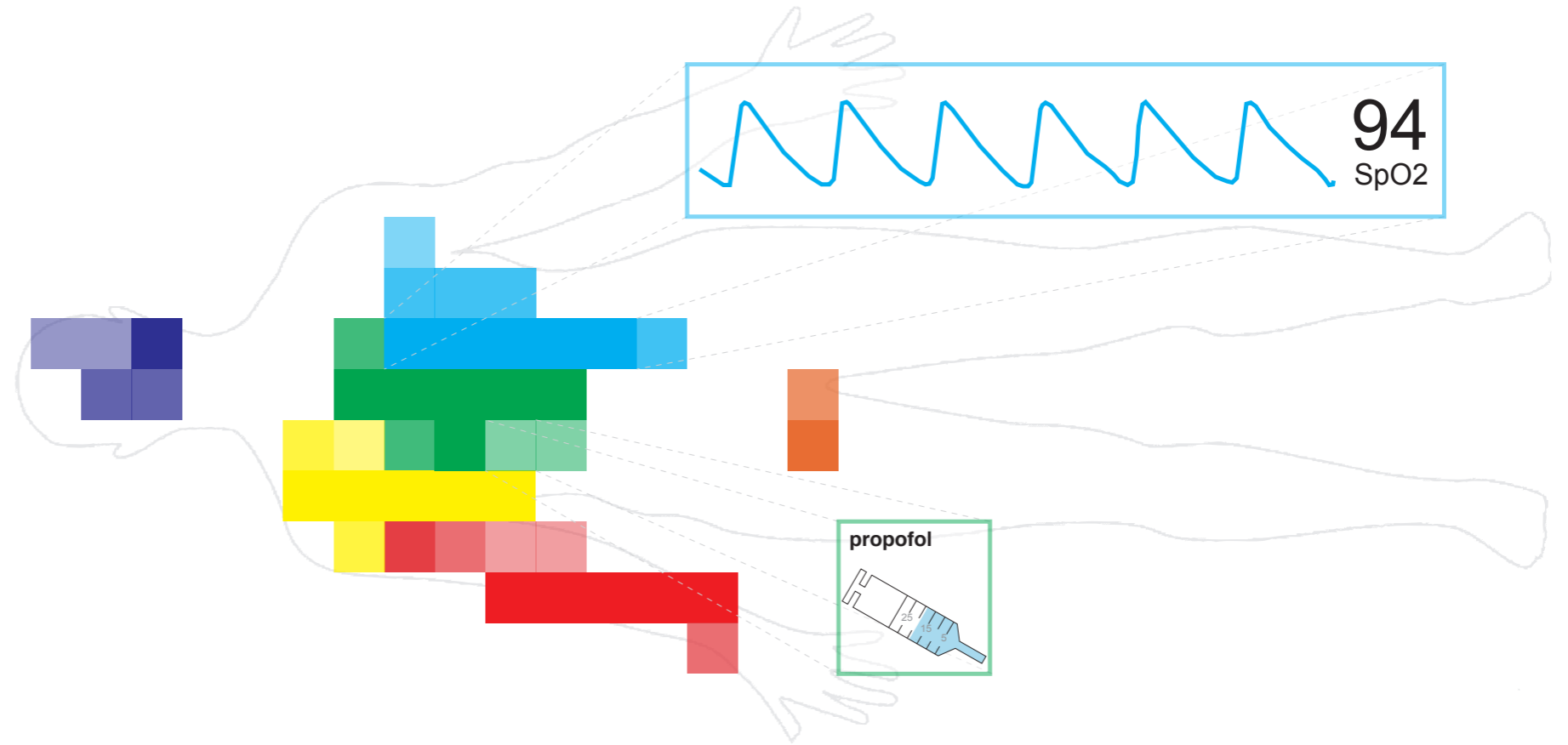
protocol  
procedures



# DESIGN

INFORMATION ORGANIZATION

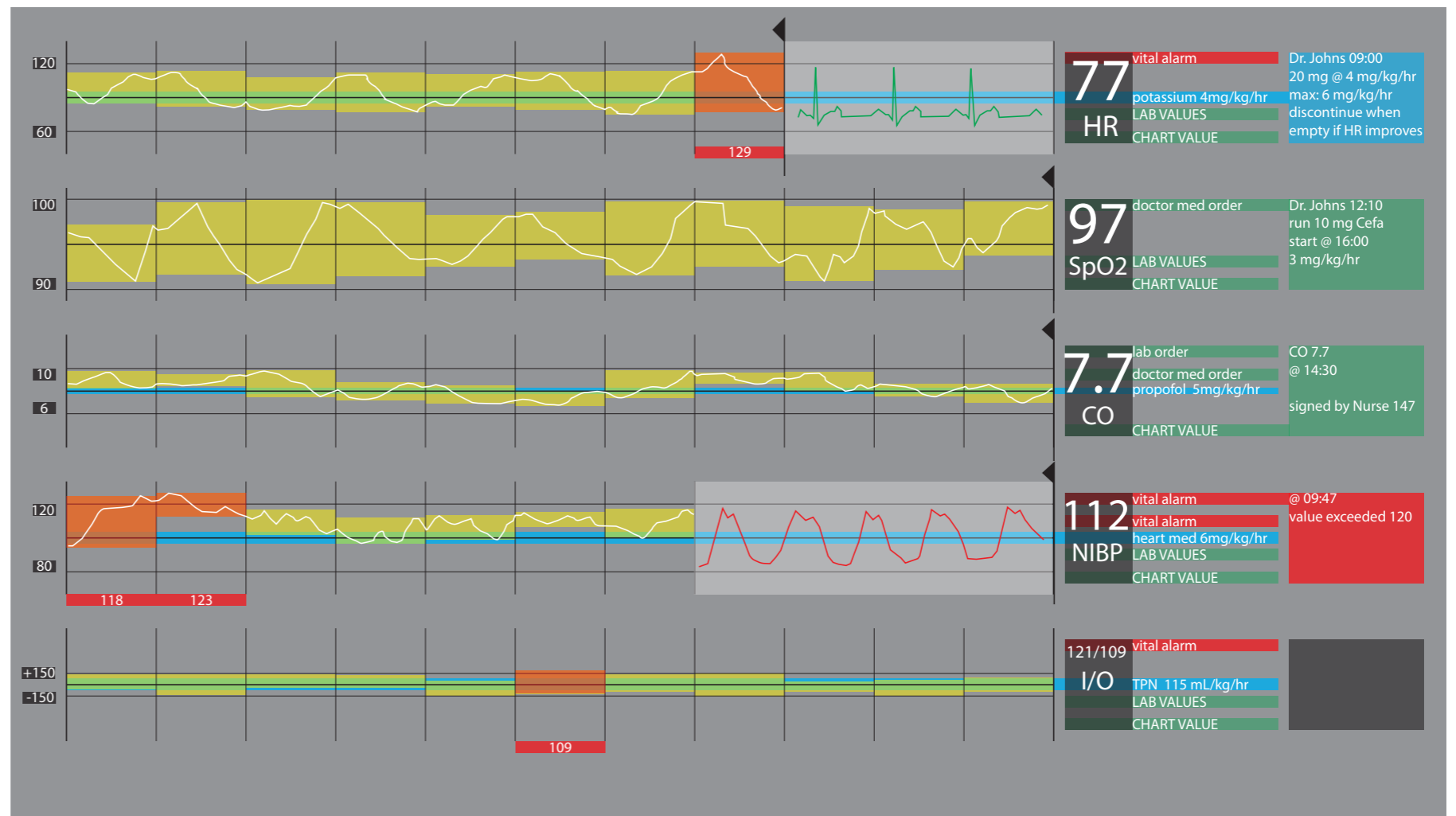
BODY BASED



# DESIGN

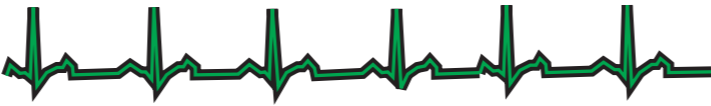
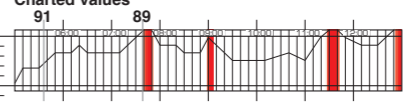


## INFORMATION ORGANIZATION

## TREND CENTERED



# DESIGN

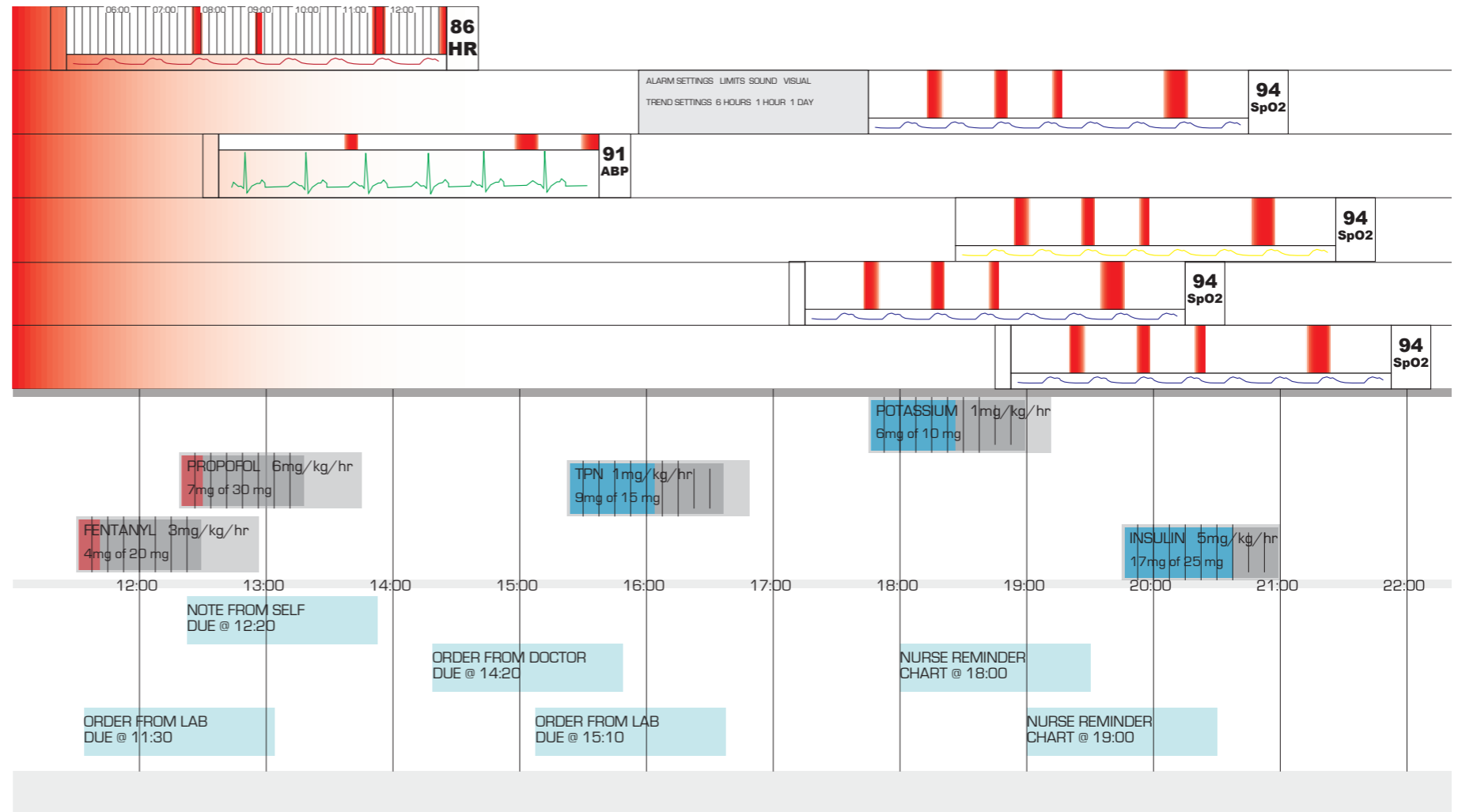
## INFORMATION ORGANIZATION MONITOR PLUS

| VITALS   | CHARTING  | COMMUNICATION | MEDICATIONS  |
|--|---|---------------|--|
|  <p><b>90</b><br/>HR</p>   | <p>SILENCE 3min<br/>SOUND on<br/>VISUAL off</p> <p>Charted values<br/>91 89</p>  |               | <p><b>POTASSIUM</b><br/>5.4 mg @ 3mg/kg/hr<br/><b>00:12:47</b></p> |
|  <p><b>94</b><br/>SpO2</p> | <p>Normal Values<br/>EMR Information<br/>Lab Results<br/><b>CHECK VENTILATOR</b></p>  |               | <p><b>INSULIN</b><br/>17 mg @ 10mg/kg/hr<br/><b>02:40:47</b></p>   |
|  <p><b>80</b><br/>NIBP</p> | <p>Send current value to:<br/>Dr. Franks</p> <p>New order from Dr. Johns</p>  |               | <p><b>TPN</b><br/>289 ml @ 100ml/kg/hr<br/><b>01:56:41</b></p>     |
| <p><b>6.7</b><br/>MINUTE<br/>VOLUME</p>  |   |               | <p><b>PROPOFOL</b><br/>22 mg @ 8mg/kg/hr<br/><b>03:40:47</b></p>   |
| <p><b>37°</b></p>  |   |               | <p><b>AMIODINE</b><br/>25 mg @ 5mg/kg/hr<br/><b>PAUSED</b></p>     |
| <p><b>6</b><br/>CO</p>   |   |               | <p><b>CYCLO</b><br/>25 mg @ 3mg/kg/hr<br/><b>PAUSED</b></p>        |
| <p>04:00 06:00 08:00 10:00 12:00</p> <p>+75 ml +61 ml -15 ml -22 ml +21 ml</p> <p><b>150/122</b><br/>I/O</p> |   |               | <p><b>FENTANYL</b><br/>25 mg @ 3mg/kg/hr<br/><b>PAUSED</b></p>     |
|  |   |               | <p>SCAN MEDS HERE</p>  |



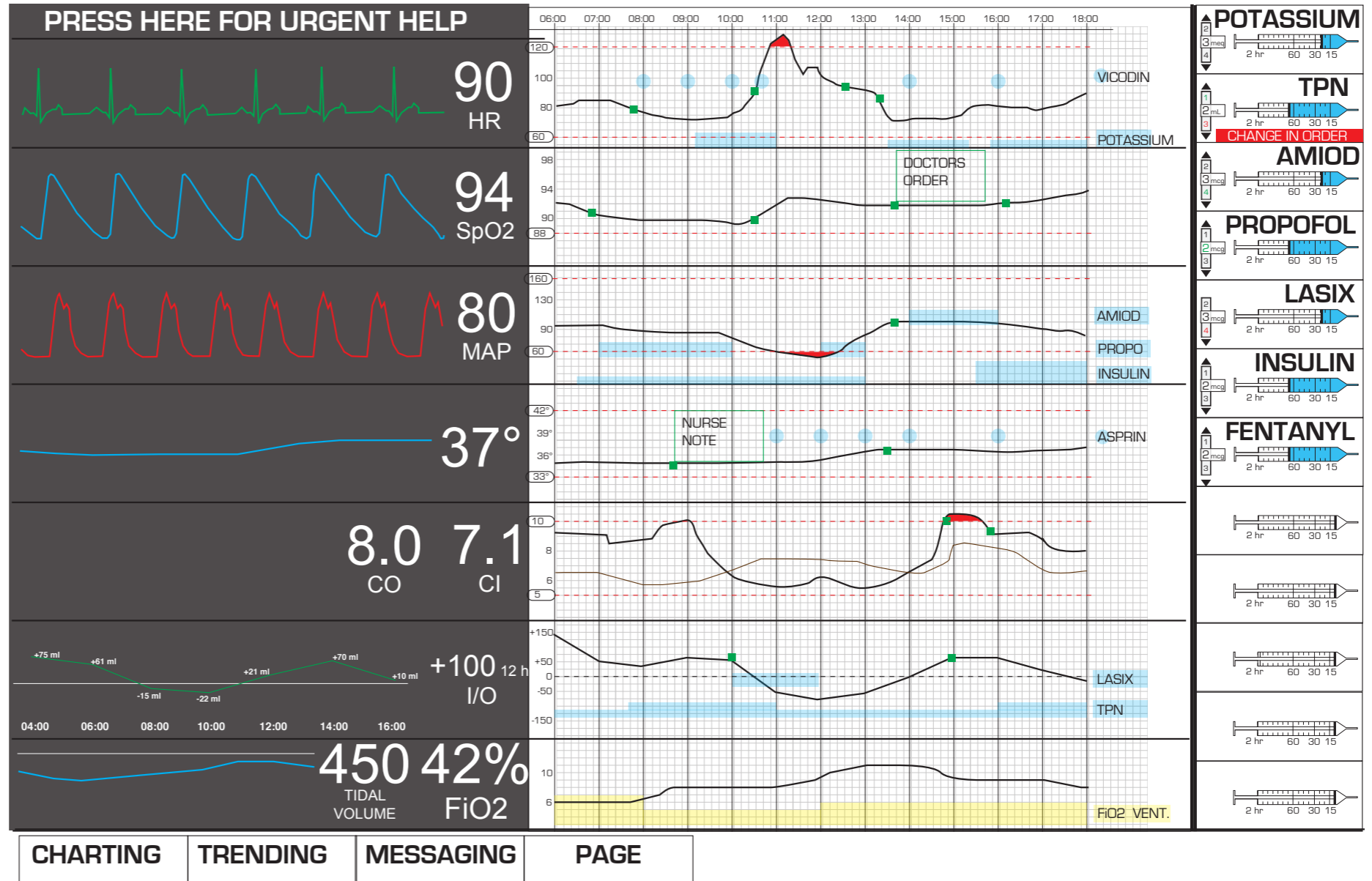
# DESIGN

## INFORMATION ORGANIZATION TASK CENTERED



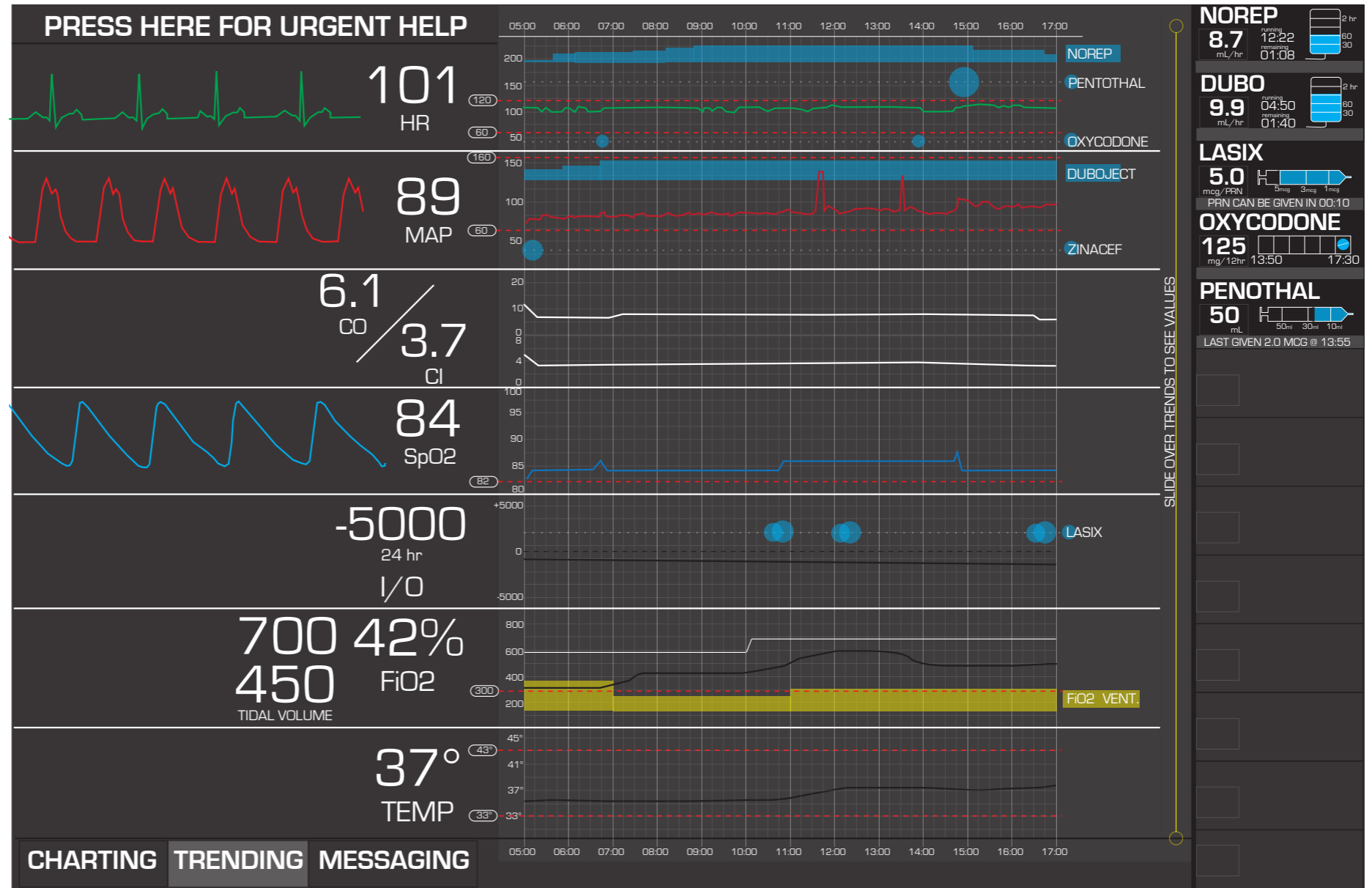
# DESIGN

## EVALUATION & REFINEMENT



# DESIGN

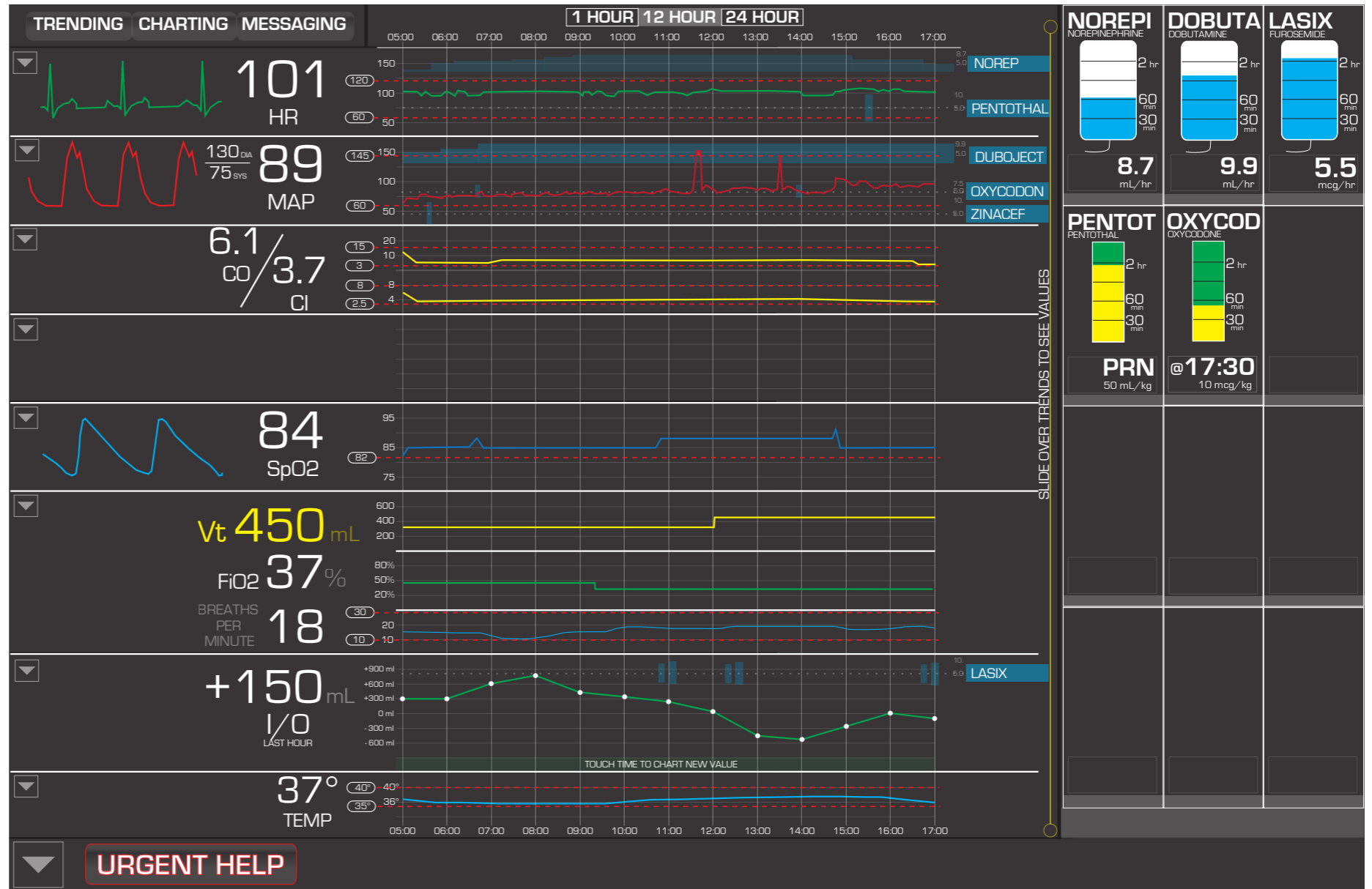
## EVALUATION & REFINEMENT





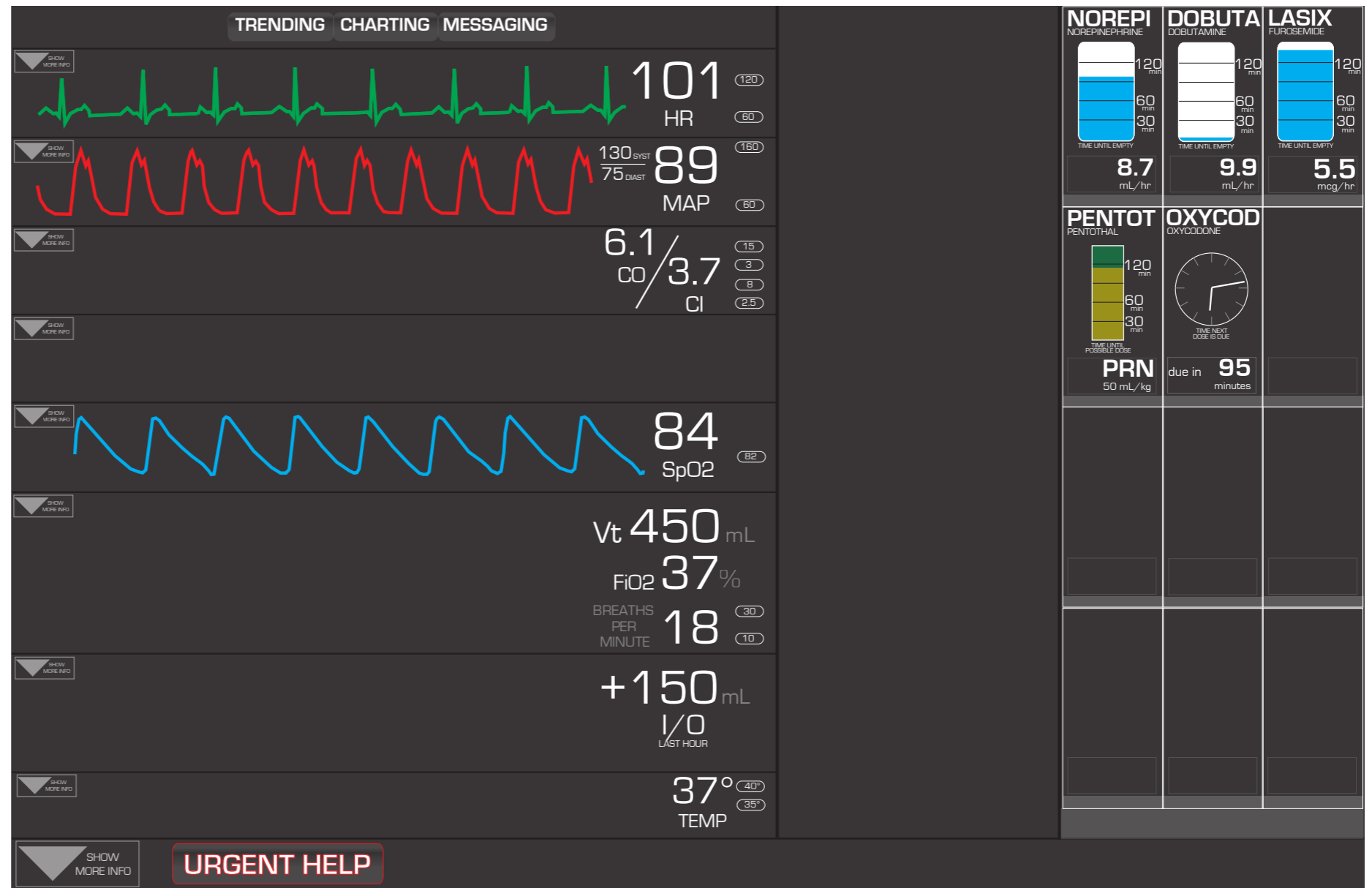
# DESIGN

## EVALUATION & REFINEMENT



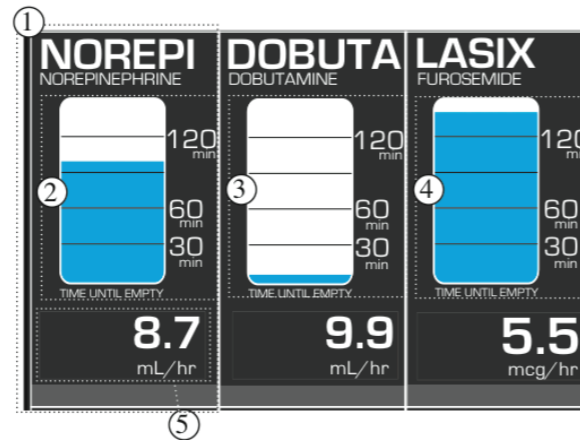
# DESIGN

## EVALUATION & REFINEMENT



# VALIDATION

## USABILITY & ACCURACY



Element 1 is showing:  
 A) current med  
 B) upcoming med  
 C) PRN med  
 D) don't know

Element 2 is showing:  
 A) volume of medication  
 B) time until empty  
 C) time until medication is due  
 D) don't know

Element 2 is showing:  
 A) 30 minutes  
 B) 25 minutes  
 C) 7 minutes  
 D) 30 ml  
 E) 25 ml  
 F) 7 ml  
 G) don't know

Element 3 is showing:  
 A) 100 minutes  
 B) 12 minutes  
 C) 1.6 minutes  
 D) 100 ml  
 E) 12 ml  
 F) 1.6 ml  
 G) don't know

Element 4 is showing:  
 A) 12 minutes  
 B) 2.5 minutes  
 C) 150 minutes  
 D) 12 ml  
 E) 2.5 ml  
 F) 150 ml  
 G) don't know

Element 7 is showing:  
 A) volume left  
 B) current rate  
 C) concentration  
 D) don't know

**What is your opinion of the information presentation?**

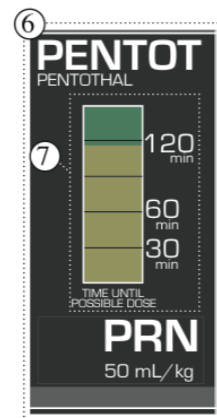
- Strongly dislike
- dislike
- somewhat dislike
- neither like nor dislike
- somewhat like
- like
- strongly like

**This presentation of information would help me do my job:**

- Strongly disagree
- disagree
- somewhat disagree
- neither agree nor disagree
- somewhat agree
- agree
- strongly agree

**I prefer this presentation of information over the presentation I currently use:**

- Strongly disagree
- disagree
- somewhat disagree
- neither agree nor disagree
- somewhat agree
- agree
- strongly agree



Element 6 is showing:  
 A) current med  
 B) upcoming med  
 C) PRN med  
 D) don't know

Element 7 is showing:  
 A) time until medication ends  
 B) volume of medication  
 C) possible time next dose can be given  
 D) don't know

Element 7 is showing:  
 A) 110 minutes  
 B) 60 minutes  
 C) 15 minutes  
 D) 110 ml  
 E) 60 ml  
 F) 15 ml  
 G) don't know



Element 8 is showing:  
 A) current med  
 B) upcoming med  
 C) PRN med  
 D) don't know

Element 9 is showing:  
 A) time until medication ends  
 B) volume of medication  
 C) time next dose is due  
 D) don't know

Element 10 is showing:  
 A) time until medication ends  
 B) volume of medication  
 C) time until next dose is due  
 D) don't know



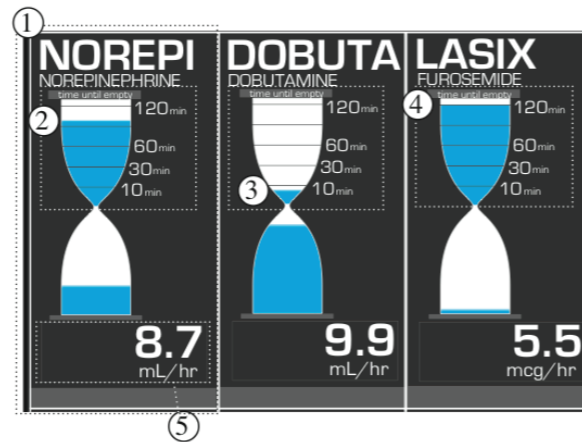
Element 11 is showing:  
 A) med is due now  
 B) recent order  
 C) med is paused  
 D) don't know

How could this be improved to help you do your job better? \_\_\_\_\_



# VALIDATION

## USABILITY & ACCURACY



Element 1 is showing:

- A) currently running med
- B) scheduled med
- C) PRN med
- D) don't know

Element 2 is showing:

- A) volume of medication
- B) time until empty
- C) time until medication is due
- D) don't know

Element 2 is showing:

- A) 7 minutes
- B) 100 minutes
- C) 120 minutes
- D) 7 ml
- E) 100 ml
- F) 120 ml
- G) don't know

Element 3 is showing:

- A) 7 minutes
- B) 100 minutes
- C) 120 minutes
- D) 7 ml
- E) 100 ml
- F) 120 ml
- G) don't know

Element 4 is showing:

- A) 7 minutes
- B) 100 minutes
- C) 120 minutes
- D) 7 ml
- E) 100 ml
- F) 120 ml
- G) don't know

Element 5 is showing:

- A) volume left
- B) current rate
- C) concentration
- D) don't know

What is your opinion of the information presentation?

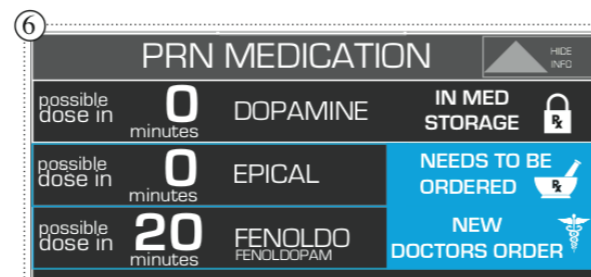
- Strongly dislike
- dislike
- somewhat dislike
- neither like nor dislike
- somewhat like
- like
- strongly like

This presentation of information would help me do my job:

- Strongly disagree
- disagree
- somewhat disagree
- neither agree nor disagree
- somewhat agree
- agree
- strongly agree

I prefer this presentation of information over the presentation I currently use:

- Strongly disagree
- disagree
- somewhat disagree
- neither agree nor disagree
- somewhat agree
- agree
- strongly agree



Element 6 is showing:

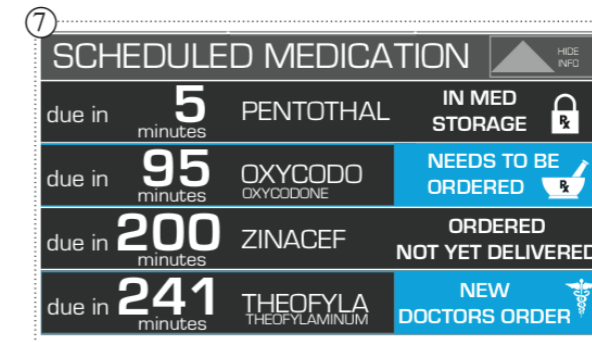
- A) currently running med
- B) scheduled med
- C) PRN med
- D) don't know

When can the next dose of Fenolopam be given:

- A) 0 minutes
- B) 5 minutes
- C) 20 minutes
- D) don't know

What is the status of Epical:

- A) it is in Med Storage room
- B) it needs to be ordered from pharmacy
- C) it is a new doctors order
- D) don't know



Element 7 is showing:

- A) currently running med
- B) scheduled med
- C) PRN med
- D) don't know

What is the status of Theofylaminum:

- A) it is in Med Storage room
- B) it needs to be ordered from pharmacy
- C) it is a new doctors order
- D) don't know

When does Pentothal need to be given:

- A) in 0 minutes
- B) in 5 minutes
- C) in 20 minutes
- D) don't know

How could this be improved to help you do your job better? \_\_\_\_\_

# VALIDATION

## USABILITY & ACCURACY

TOUCH HERE TO ENTER A NOTE

13:30 RATE WAS LOWERED DUE T....  
11:22 RATE WAS RAISED DUE TO....  
11:04 MED WAS STARTED LATE D....  
10:05 ORDER WAS RECEIVED BY....

**ADDITIONAL INFORMATION**  
STANDARD DOSE:  
2-75 mcg/kg/min  
BOLUS:  
5-50 mg  
EFFECTS:  
A sedative hypnotic agent for use in the introduction and maintenance of anesthesia or sedation. Very rapid onset.  
STANDARD MIXTURE:  
10 mg/ml  
SPECIAL CONSIDERATIONS:  
Due to lipid base the vial needs to be wiped with alcohol prior to spiking. Tubing and bottle are changed at least every 12 hours.  
Apnea may occur with administration of drug; should only be given to patients who are intubated or for short term procedures. Hypotension may occur with either a bolus or continuous infusion. Do not give to patients who are allergic to eggs.  
[SEE MED PROTOCOL](#)

### PROPOFOL

**ORDER FROM DOCTOR:**  
12:15 6/11/08  
15 mg / 2 hours @  
34 mcg/kg/min  
[SET TO DOCTOR'S RATE](#)

**MED RATE** [ENTER NEW RATE](#)  
[RUN @ NEW RATE](#)  
[PAUSE MEDICATION](#)

**REORDER** [ORDER AMOUNT](#)  
[SEND TO PHARMACY](#)

**BOLUS** [BOLUS AMOUNT](#)  
POSSIBLE IN 30 MINUTES [BOLUS DURATION](#)  
[GIVE BOLUS](#)

1 2 3  
4 5 6  
7 8 9  
. 0 enter  
units/kg mcg/kg mL/kg

LOCATION: not yet determined  
LAB VALUES: none taken yet

|  |  |   |
|--|--|---|
| <b>NOREPI</b><br>NOREPINEPHRINE<br>8.7 mL/hr<br>COMPATIBLE<br>PROPOFOL<br>PAUSED<br>TOUCH HERE TO START MEDICATION AT ORDERED RATE OF 34.0 | <b>DOBUTA</b><br>DOBUTAMINE<br>9.9 mL/hr<br>COMPATIBLE | <b>METHY</b><br>METHYLPREDNISOLONE<br>1.5 mg/hr<br>INCOMPATIBLE |
|--|--|---|

**SCHEDULED MEDICATION**

|                    |           |                           |
|--------------------|-----------|---------------------------|
| due in 5 minutes   | PENTOTHAL | IN STORAGE                |
| due in 95 minutes  | OXYCODONE | NEEDS TO BE ORDERED       |
| due in 200 minutes | ZINACEF   | ORDERED NOT YET DELIVERED |
| due in 241 minutes | THEOPHYLA | NEW DOCTORS ORDER         |

**SCHEDULED MEDS**    **PRN MEDS**

To start the new medication, Propofol, you scanned it on the side of the monitor and then appeared on the monitor in yellow.

Which medication below is shown as not compatible with Propofol:  
A) Norepinephrine  
B) Methylprednisolone  
C) none  
D) don't know

Is Propofol currently being delivered:  
A) Yes  
B) No  
C) don't know

Which medication will run out first:  
A) Norepinephrine  
B) Methylprednisolone  
C) Dobutamine  
D) don't know

**What is your opinion of the information presentation?**

- Strongly dislike
- dislike
- somewhat dislike
- neither like nor dislike
- somewhat like
- like
- strongly like

**This presentation of information would help me do my job:**

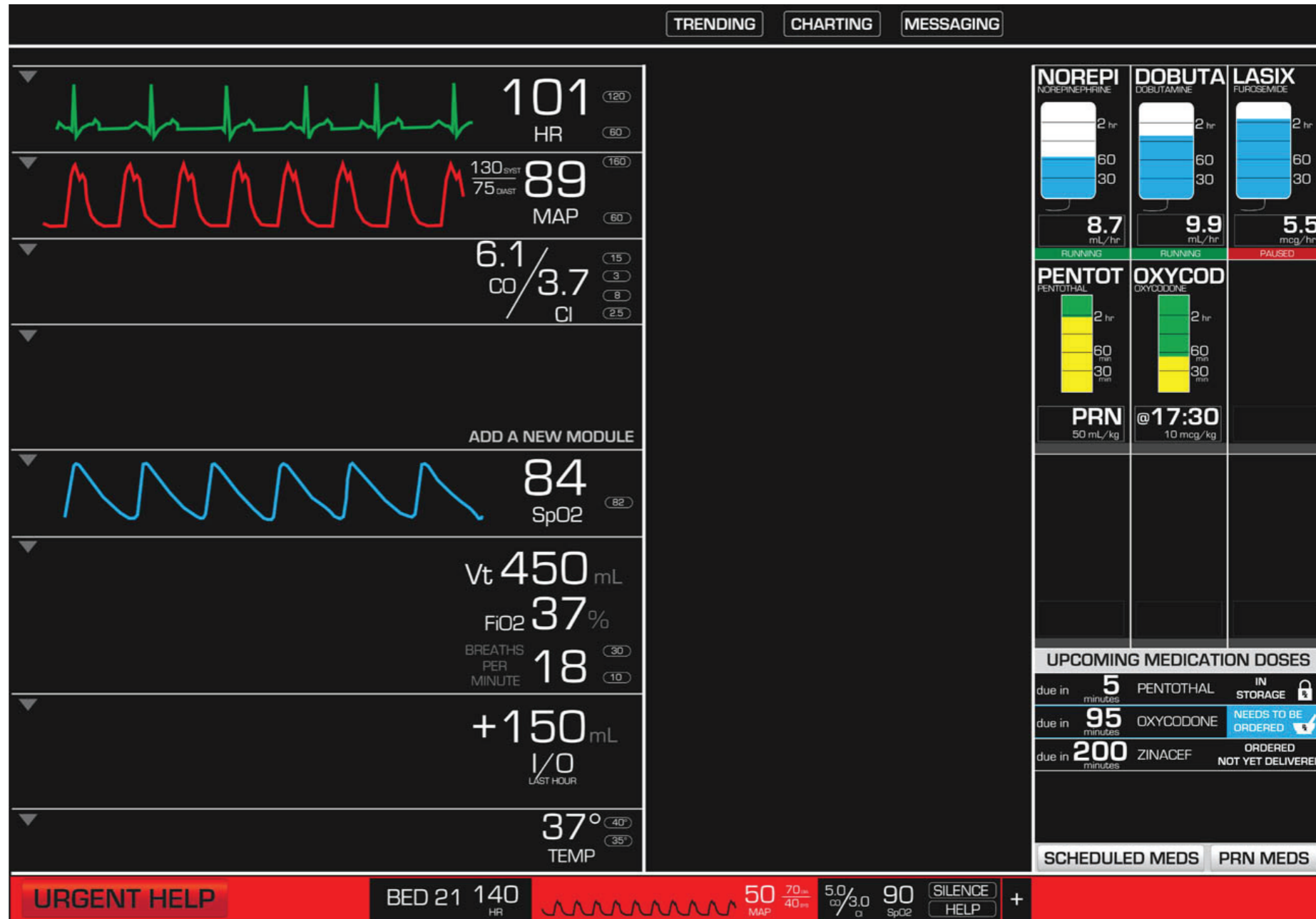
- Strongly disagree
- disagree
- somewhat disagree
- neither agree nor disagree
- somewhat agree
- agree
- strongly agree

**I prefer this presentation of information over the presentation I currently use:**

- Strongly disagree
- disagree
- somewhat disagree
- neither agree nor disagree
- somewhat agree
- agree
- strongly agree

# CONCLUSION

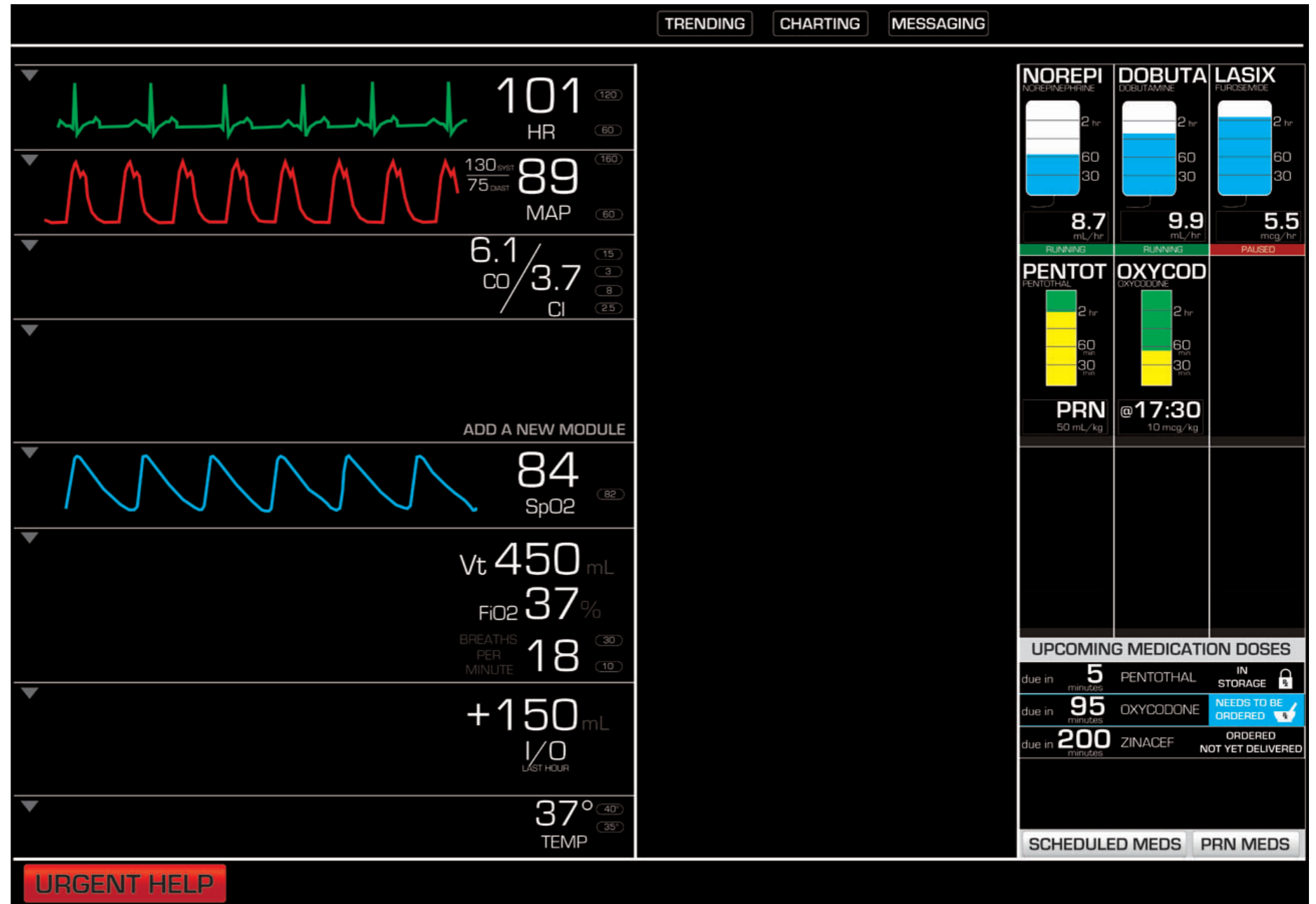
## SCREEN BUILDS





# CONCLUSION

## SCREEN BUILDS



# CONCLUSION

## SCREEN BUILDS

TRENDING CHARTING MESSAGING

101 HR (120) (60)

130<sub>SYST</sub> 89 (160) (60)  
75<sub>DIAST</sub> MAP

6.1 CO / 3.7 CI (15) (3) (8) (2.5)

ADD A NEW MODULE

84 SpO2 (82)

Vt 450 mL  
FiO2 37%  
BREATHS PER MINUTE 18 (30) (10)

+150 mL I/O LAST HOUR

37° TEMP (40°) (35°)

RESPIRATORY THERAPIST  
PAGE EMAIL CALL

NURSE AIDE  
PAGE EMAIL CALL

NURSING STATION  
PAGE EMAIL CALL

RESIDENT ON CALL  
PAGE EMAIL CALL

DISTANT MONITORING CLINICIAN  
PAGE EMAIL CALL

OTHER CONTACTS  
PAGE EMAIL CALL

FROM (2) NEW

RESP. THERAPIST 12:30  
PHARMACY 09:10  
PROPOFOL WILL BE DELI.....

RESIDENT ON CALL 08:10  
NEW MED ORDER VASOPR.....

CHARGE NURSE 23:30  
PATIENT'S FAMILY CALLED.....

RESIDENT ON CALL 20:30

NURSING STATION 11:10

RESIDENT ON CALL 08:10  
NEW MED ORDER VASOPRESSIN  
40 UNITS IN 10 ml OF NS GIVEN VIA IV/IO/ETT

REPLY ARCHIVE

NOREPI NOREPINEPHRINE 8.7 mL/hr (RUNNING)

DOBUTA DOBUTAMINE 9.9 mL/hr (RUNNING)

LASIX FUROSEMIDE 5.5 mcg/hr (PAUSED)

PENTOT PENTOTHAL 50 mL/kg (PRN)

OXYCOD OXYCODONE 10 mcg/kg @ 17:30

UPCOMING MEDICATION DOSES

due in 5 minutes PENTOTHAL IN STORAGE

due in 95 minutes OXYCODONE NEEDS TO BE ORDERED

due in 200 minutes ZINACEF ORDERED NOT YET DELIVERED

SCHEDULED MEDS PRN MEDS

URGENT HELP

# CONCLUSION

## SCREEN BUILDS

