Description of the call light systems observed and the usability challenges associated with each system.

| Call light system type | System description | Usability issues and challenges with the system |
|------------------------|--------------------|-----------------------------------------------|
| Traditional/type 1     | • Two lights above residents’ room  
                          • One console without a display at the nurse station  
                          • Four lights at the ceiling above the nurse station area to indicate 4 different areas in the unit  
                          • Auditory alarms are broadcasting at a nurse station in addition to multiple locations in the unit  
                          • Two speeds of auditory alarms—slow beeping for bedrooms call and fast beeping for bathroom calls  
                          • One nurse station in a U-shaped unit | • Nurse station is not occupied; no one to monitor the console/central display  
                          • Low/no discriminability  
                          • Lack of prioritization  
                          • If more than 1 area light is on, staff must check all these areas  
                          • Noise; load speakers  
                          • False alarms because of broken parts  
                          • Lack of feedback  
                          • Noise  
                          • Lights above the resident’s rooms |
| Traditional/type 2 | • Alarms can be canceled from residents’ rooms are not visible because of layout |
|-------------------|--------------------------------------------------------------------------------|
|                   | • Two lights above residents’ doors |
|                   | • Console with a display at the nurse station |
|                   | • Auditory alarms are broadcast at the nurse station |
|                   | • One nurse station in a T-shaped unit |
|                   | • Alarms cannot be heard from inside rooms at the end of the hallways |
|                   | • No sound differences between alarms from bedroom and bathroom |
|                   | • Staff can mute the console |
|                   | • Alarms can be canceled from residents’ rooms |
|                   | • The nurse station is not staffed |
|                   | • The console can only display 1 room number |
|                   | • Low/no discriminability; is it a bedroom or bathroom |
|                   | • Lack of prioritization |
|                   | • Many broken parts/false alarms and redundancy of work |
|                   | • Console and auditory alarms are not accessible from residents’ room and end of the hallways |
|                   | • The new alarm ”overwrites” previous alarm |
|                   | • The lights above the resident’s rooms are not visible because of layout |
| Pager-based system |  |  |
|--------------------|---|---|
| • Console with a display at the nurse station  
  • The console can only display 1 room number and will keep switching between different room numbers in case of more than 1 alarm  
  • Auditory alarms are broadest on the nurse station in addition to a beeping sound from the pagers  
  • Alarms must be canceled from both the residents’ rooms and the pagers |  | • The staff can mute the system  
• The nurse station is not staffed  
• There is a lack of directional information. Console switches between room numbers every 5 seconds, and staff might cancel the wrong alarm  
• Pagers are muted most of the time  
• The staff has a busy schedule and cannot grab the pager every time they have an alarm  
• Certified nurse assistants must make trips to the nurse station to cancel the alarm, and alarms must be canceled from the pager and the console/center display |
| • The lights above the resident’s rooms are not visible because of layout |
| • Staff might take a pager that is not for them (they take the pager at the beginning of the shift) |