Medical technology is one of the foundations health care systems in the world.

Up to now several tools were originally created for morbid monitoring e.g. pain scale and bedsores protection to help patients communicate about their pain.

However, in spite of the importance and prevalence of pain, there are currently no clinically accepted tools to objectively monitor changes in pain level, requiring physicians to rely on patients' subjective assessment, or to simply guess, when patients cannot describe their pain.

This article aimed to provide the theoretic framework for improving patient safety system, and enhances the ability of health care professionals to coordinate care by providing a patient's health information.
This **framework** is based on Morbid-Monitoring Systems include:

- Pain and Unconsciousness Scales-measurements
- Thermal Wound Injury Prevention System (TWIP)

The **multi-methods** approaches to monitor these processes are:

- Morbid Motion Monitoring
- Facial expressions and effective
- Thermal Radiation.

I) Pain and Unconsciousness Scale Measurements

Two *methods* have described for the measurement of pain rate:

1. Morbid mobility monitoring

   - Motion of morbid has been defined as the rate of pine and it is linked with various co-morbid conditions.

   - The system is used to show and describe the displacement of the morbid on the bedside.

   - The system is used to show and describe the displacement of the morbid on the bedside. The amount of ill transmitted to the morbid increase the motion ratio.

   - **Motion Ratio** is the ratio of the displacement of the morbid.
2. Facial expressions and Micro expression

- Emotional facial expressions represent facial displays of emotions which determine different patterns of muscular correlates, cognitive responses, and brain activation. (Michela Balconi, 2012)

- Behavioural/facial markers of pain refer to a variety of responses that typically accompany the experience of pain. (Miriam Kunz, 2015)

II) Prevention of Thermal Wound Injury and Pressure Ulcers

- A pressure ulcer is a localized injury to the skin or underlying tissue, usually over a bony prominence, as a result of unrelieved pressure. (Am Fam Physician, 2008)

- Pressure ulcers are caused by unrelieved pressure, applied with great force over a short period (or with less force over a longer period), that disrupts blood supply to the capillary network, impeding blood flow and depriving tissues of oxygen and nutrients. (Am Fam Physician, 2008)
MAP System (Wellsense Inc, Nashville, TN)

- is a thin mat placed on a mattress that has a color monitor attached. The mat contains thousands of sensors, and is secured to the top of the mattress with straps. These sensors measure pressures through a sensing area measuring 1945 mm x 805 mm. The sensors display specific areas of pressure, and the system provides live feedback to clinicians as they reposition patients.

- The monitor acts as an educational tool for staff, patients, and family by indicating where the pressure points are located. It can also assist clinicians in optimal surface selection and detection of malfunctioning mattresses. Other features include a bed alarm that can be set to sound at the desired interval to alert for turning. (Stephanie L. Bennett; Rafik Goubran; Frank Knoefel. 2016.)

III) Hospital Application Integration

Hospital Application Integration (HAI) is an integration framework composed of a collection of technologies and services to integrate a set of hospital computer applications. Hospital Computer Applications (HCA) is computer software used to integrate a set of hospital computer applications.
Conclusion

With the help of this system nurses can monitor the pain and unconsciousness scales with help of motion detection techniques and facial expressions. Nurses can also identify and prevent risk factors associated with hospital-acquired pre-existing pressure. Consequently, the system can enhance the ability of health care professionals to coordinate care by providing a patient’s health information.

References