EXPLORING LATEST ADVANCEMENT IN NURSING EDUCATION AND COMMUNICATION

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ABSTRACT:

Pressure ulcers are a common problem in health care and can be burdensome for both the patient and care givers. There are many contributing factor that are responsible for pressure ulcer like friction, humidity, temperature, unrelieved pressure, nutritional inadequacies and immobility. Because of these factors occlusion from external pressure and from a disruption of circulation related to shearing force.

Its location makes it vulnerable tool damage from trauma, sunlight, pollutants in the environment out of these various disorders like pressure represent a common butt potentially preventable conditions which is seen most often in high risk population such as elderly persons and those with physical impairment due to acute or chronic systemic disorder.

Pressure ulcer remains a major health problem effecting approximately 3 million adults. The epidemiology of pressure ulcers differ among setting 0.04% and 38% in acute care 2.2% and 23.9% in long term care and 17% in home care. The prevalence of pressure in Indian scenario is 5.2%, in Canada is 25%in acute care, 30% in non acute care, 22% in mixed health care setting, 15% in community.

INTRODUCTION:

"An ounce of prevention is worth a pound of care"

(Nancy M, Valentina)

The skin is the largest organ of body in both surface area and weight which covers the entire body. The integumentry system protects, provide shape to body and sensory information about surrounding environment. The entire body organ none is more easily inspected or more exposed to infection, diseases and injury as composed to skin.

Pressure ulcers are a common problem in health care and can be burdensome for both the patient and care givers. There are many contributing factor that are responsible for pressure ulcer like friction, humidity, temperature, unrelieved pressure, nutritional inadequacies and immobility. Because of these factors occlusion from external pressure and from a disruption of circulation related to shearing force.

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A Painful often reddened areas of degeneration ulcerated skin caused by pressure and lack of movement and worsened by exposure to urine and irritating substance on the skin are called pressure ulcer. Commonly involve the body prominence such as sacrum, elbows, knees and ankles. The symptoms of pressure ulcers are redness, tenderness, discomfort, area become cold to touch, local edema and gangrene.

Stage 1: is the most superficial, indicated by non bleachable redness. In this stage skin may be hotter or cooler than normal, have an old texture, or perhaps be painful to the patient.

Stage 2: In this stage epidermis is involved and ulcers are not extended to dermis. The ulcer referred as a blister or abrasion.

Stage 3: In this stage full thickness of the skin involved and ulcer may extend into the subcutaneous tissue. There may be undermining damage that makes the wound much larger than it may see on the surface.

Stage4: In this stage the ulcer become deepest, extending into the muscle tendon or even in bones.

Changing positioning in bed often reduces pressure on any one spot. Care giver need to follow a schedule for turning and responsible after every 15 minute. Using support surface such as special cushions, pads, matters and beds that relieve pressure. It is essential to keep wounds clean to prevent infection.

Gupta N, Loong. B and Loong. (2011) stated Comparing and contrasting knowledge of pressure ulcer, assessment, prevention and management in people with spinal cord injury among nursing staff working into two metropolitan spinal unit and rehabilitation training specialist in a three way. The studies shows response was 79% and 71% from the two spinal cords injury units and 46% from doctors.

Knowledge and management of pressure ulcers was conducted in U.S to determine if a structure workshop on a knowledge and management of pressure ulcers for nurses let to an improvement knowledge in the participants. The result of the study was 28 nurses participated in the workshop. The scores of the control test were compared with scores after teaching a substantial and statically significant development was observed (mean 11.1[SD, 2.1] and mean 14.6 [SD]on 21 items before and after teaching respectively P<100. A Lecture base workshop on knowledge and management of pressure ulcers helped improve nurse's knowledge and allows them bed to overcome training deficiencies.

Schoonhoven L et al (2006) conducted a study on 13 patients to assess the pressure ulcer prevalence in different group during follow up. Result showed that weekly incidence rate was 0.006/week. Highest rate were observed for surgical patient and lower for geriatric and neurological patient.

Tom Defloor, et al (2005) was conducted study on knowledge and attitude of nurse on pressure ulcer prevention in Belgian and aim was the study is to assess the knowledge and attitude of nurses about pressure ulcer prevention in Belgian the result shows that prevalence was 13.55%.Approximately 30% of the patient were at risk .Only 13.9% of their patients received fully adequate preventive care. The mean knowledge and attitude scores were 49.7%-71.3% respectively.

As highlighted by **Brown (2003)** in systemic review about 33.3% of ICU patient died 30 days after the onset of full thickness pressure ulcer and 73.3% had died after 1 year.

Skin care is a fundamental nursing skill. Nursing staff may see this as elementary and not feel the need to focus education energy on skin care. There are many nursing homes that do not have access to expert wound care consultation to stay current, especially in rural area.

Nursing staff face an immense challenge in caring for the skin of patients with bed ridden diseases but by treating them holistically and educating both parents and their care giver; worthy skin integrity can be achieved. The key to successful prevention and treatment of pressure ulcers is the administrative process of setting up proper care plan as well as hands on nursing work so that it ensures the provision of high and satisfactory quality care to the patient and contribute a lot in the reduction of hospital stays due to pressure ulcer eruption that is the common complication after any acute and chronic injury that are difficult to treat and cost more. Its mandatory nurses should have good knowledge and practices while they provide care to those patients at risk of development of pressure ulcer.

Lyder H.C et al studied that preventing pressure ulcers had been a nursing concern for many years. Infact Florence Nightingale in 1859 wrote "if she has a bedsore, it's generally not the fault of the disease, but of the nursing". Others view pressure ulcer as a "visible mark of care giver sin associated with poor nonexistent nursing care.

N Gupta et al (2011) was comparing and contrasting knowledge of pressure ulcer, assessment, prevention and management in people with spinal cord injury among nursing staff working into two metropolitan spinal units and rehabilitation training specialist in a three way. The studies shows response was 79% and 71% from the two spinal cord injury units and 46% from doctors. There is also difference in management knowledge among nurses based on work rather than years of experience.

Altum et al (2011) a study of knowledge and management of pressure ulcers was conducted in U.S. The aim of study was to determine if a structure workshop on knowledge and management of pressure ulcers for nurses let to an improvement knowledge in the participants. The results of the study were 28 nurses participated in the workshop. The scores of the control test were compared with the scores after teaching a substantial and statistically significant development was observed (mean 11.1[SD, 2.1] and mean 14.6 [SD 0.9] on 21 items before after teaching respectively P< 100). A lecture base workshop on knowledge and management of pressure ulcers helped improve nurse's knowledge and allows them bed to overcome training deficiencies.

Janet Guddigen et al (2001) in United State studied that the incidence of bed sores was 0.4% to 38% within long term care, 2.2% to 23.9% and in home care, 0% to 17%. There was the same wide variation in prevalence 10% to 18% in acute care, 2.3% to 28% in long term care 0% to 29% in home care. There was a much higher rate of bedsores in intensive care unit because of immune compromised individual, with 8% to 40% of I.C.U patients developing bedsores.

Nurses play significant role in providing care to the patient and also providing knowledge and information regarding any health problem. **"Prevention is better than cure".** Not all nursing staff are aware of or using the up-to-date protocols and may have not been exposed to current evidence based practice. By determine nursing staff's knowledge deficit, a focused education intervention can be offered to improve their knowledge of pressure ulcer to prevention and treatment. Increased knowledge may improve patient outcome.

Nurses need to recognize the wealth of "people power" that is available to support implementation of mobility and other prevention strategies and they must take steps to integrates these people into an organized team. Nurses are the appropriate practitioners to lead prevention team as their role is to coordinate the nursing plans of care. Frequent interdisciplinary interaction among nurses has a unique role in fostering organizational change that may contribute to prevention of pressure sores through

education.

During clinical area investigators observes the staff nurses cannot followed the standards of care. They do not provide the back rub or massage to the patient and does not change the position of patient on time. Staff nurses cannot use the available resources because of lower level of knowledge regarding prevention of bed sores.

In researcher's view, bedsores are more commonly occurred in patients due to less care given by the staff nurses of due to low level of knowledge in staff nurses regarding prevention of bed sores. Nurses cannot use the available resources effectively because of lack of knowledge and sometimes ignore the client because of over burden of work and not have interest in providing care to the client. Include the staff nurses in study because they are going to provide care to patients with medical conditions and they have significant role in providing care to the patient and also providing knowledge and information about any health problem.

This study will highlight the incidence and prevalence of bedsores is very high because the nurses cannot follow the accurate preventive measures because of lack of knowledge and practice. It also include the over burden on staff nurses that can affect the care of the client.

STATEMENT OF PROBLEM:

A descriptive study to assess the knowledge regarding prevention of bed sores among staff nurses working in the selected private hospitals, Abohar(Punjab)

OBJECTIVES:

1. To assess the knowledge regarding prevention of bed sores among staff nurses.
2. To associate the mean knowledge score regarding prevention of bed sores among staff nurses with selected socio demographic areas.

ASSUMPTIONS:

Staff nurses have knowledge regarding Prevention of Bed sores.

DELIMITATIONS:

- The study was delimited to staff nurses working at selected private hospitals Abohar.
- The study was delimited to 30 staff nurses.

OPERATIONAL DEFINITIONS:

1. KNOWLEDGE:- It refers to the information provided to staff nurses regarding prevention of bedsores.

2. STAFF NURSES:- A professionally skilled personnel's having RN and RM numbers.

3. BED SORE:- An ulcerated area of the skin caused by continuous pressure on part of the body.

4. PREVENTION:- Refers to the activities carried out by staff nurses to prevent bed sores.

5. PRIVATE HOSPITAL:- A private hospital is a hospital owned by a profit company or a non-profit organization and privately funded through payment for medical services by patients themselves, by insures, by governments through national health insurance schemes or by foreign embassies.

REVIEW OF LITERATURE

Review of literature is important in any research project to develop a deeper insight into a research problem. An extensive literature reviewed for the present study by following Google scholar, pubmed, Medline and other internet sources. Review of literature for present has been organized under following headings:

- Studies related prevalence of bed sores.
- Studies related to nurse knowledge regarding prevention of bed sores.

The National Pressure Ulcer Advisory Panel (NPUAP) (2008) was conducted a descriptive study to assess the risk factors for pressure ulcers and study revealed that In India, pressure ulcer incidence in patients undergoing surgery is reported to be up to 29.5% common known risk factors for pressure ulcer development include compressive and shearing forces which are unnoticed. Untreated bedsore can lead to serious complications. It is the responsibility of the health care provider to prevent the bed sore in cost effective manner. Once bedsore developed, it is difficult to cure.

A team of experts from the **PGIMER (2018)** conducted a study to compare the effectiveness of two training strategies for caregivers on prevention of bedsores.The study was conducted in Chandigarh where in 78 bedridden patients being taken care in their homes were identified. They were then divided into two segments: Group A and Group B.

The Group A received 'Prevention Package 1' that included self-instruction manual (SIM), training and counselling. The various components involved in training included positioning of the patients, changing their postures, changing their bedsheets and clothes and feeding them among others."The caregivers were advised to change the bedsheets of the patients daily, to perform a range of motion active and passive exercises at least twice a day, and to change the position of the patients every two to three hours," mentions the study.

Group B received 'Prevention Package 2' that included only self-instruction manual.All patients were observed for one year for their bedsore development."During every visit, the percentage reduction of number of patients at risk of bedsore development was more in Group A as compared to Group B," the study finds.There was 100% improvement in mobility level of the patients, who were totally dependent in both groups. "However, in moderately dependant patients, the improvement in mobility level was more in Group A at 87% as compared to Group B at 75%," the study says.

Ozdemier et al(2008) conducted a descriptive study in3 intensive care unit in Turky to describe the level of preventive care provided to intensive care unit (ICU) patients at risk for development of pressure ulcers by using Braden scale scores among 30 nurses. Data were collected until 90

observation. The study result showed the critical care unit nurses did not consistently provided preventive care for pressure ulcers.

Beeckman et al(2011) conducted a cross-sectional study in Belgian hospitals to assess the knowledge and attitudes of nurses about pressure ulcers prevention. The study was performed in a random sample of 14 Belgian hospitals, representing 207 wards. Out of that group, 94 wards were randomly selected (2105 patients) clinical observations were performed to assess the adequancy of pressure ulcer prevention and pressure ulcer prevalence. The study results showed that pressure ulcer prevalence was 13.05%(284/2105),30%(625/2105) of the patients were at risk. Only 13.9%(87/2105) of these patients received fully adequate prevention. The mean knowlegde and attitude scores were 49.7% and 71.3% respectively.

Altum Insaf et al (2011) conducted a workshop on knowledge and management of pressure ulcers among 28 nurses by using Multiple Choice Questions (MCQs). The test was repeated after the teaching session to determined participants'knowlegde and practical skills. The study results revealed that the scores of control test were compared with scores after teaching the nurses'knowlegde was low regarding pressure ulcer prevention. Before test mean was 11.1 and after teaching mean was 14.6 respectively.

Ba Pham et al (2011) conducted a study on cost effective analysis regarding pressure ulcer prevention in long term care by using validated Marker model. The study revealed that pressure ulcers are common in many care settings with adverse health outcomes and high treatment costs. We evaluated the cost effectiveness of evidence based strategies to improve current prevention practice in longterm care facilities.

Sofie Verhaeghe et al (2011) conducted a cross sectional multi centered study for assessing positive adequacy of pressure ulcer prevention in Belgian hospitals. The total sample consisted of 19968 patients. Thestudy results showed that overall prevalence of pressure ulcers was 12.1% only 10.8% patient were at risk received fully adequate prevention. More than 70% of patients not at risk received some pressure ulcer prevention while lying or sitting. The study revealed that there is a limited use of adequate preventive intervention for pressure ulcers in hospitals which reflects a rather low quality of preventive care.

Esther Meesterberends et al (2011) conducted a prospective multi center study in Netherland and nursing homes in Germany followed for a period of 12 weeks by using questionnaire. The study result showed that 18.3% of nursing homes residents developed pressure ulcer within 12 weeks after admission. The study reveal that nurses have low knowledgeable about prevention of pressure.

Rap et al (2010) conducted a study on practices and outcomes of pressure ulcer management in nursing facilities to compare Reported pressure ulcer prevention and treatment practices. A 26 item survey on implementation of nationally accepted standard for pressure ulcer prevention and treatment. The study result showed that there were no statically significant differences on reported pressure ulcer prevention interventions based on pressure ulcer prevalence.

Chianca TC et al (2010) conducted a cross sectional study to evaluate nurses knowledge about pressure ulcer prevention bye using Pressure Ulcer Knowledge Test(PUKT) among 106 nurses. The participants were asked to indicate whether 33 statements about pressure ulcer prevention and 8 about pressure ulcer assessment and Staging were true or false. The average number answered correctly was 4.59(SD 1.62). The findings showed that nurses had overall knowledge regarding prevention of pressure ulcer. It was concluded that then was needed to facilitate the implementation of evidence based care.

Tillan strand et al (2010) conducted a descriptive study to assess the knowledge of nurses in Intensive Care units regarding pressure ulcer prevention in Swedish hospital to investigate registered nurses' and enrolled nurses'knowledge by using questionnaires. This study highlights areas where measures can be made to facillitate pressure ulcer prevention in Intensive Care Units. It was concluded that there was need to raised knowledge and made pressure ulcer prevention a part of daily care.

Margareth et al (2010) conducted a descriptive study to assess the knowledge of nursing professionals regarding prevention of pressure ulcers by using Validated Questionnaire among 386 professionals. The findings showed that 64.8% were nursing auxiliaries' technicians and 35.2% baccalaureate nurses(B.Sc.). The mean percentage of correct answers on the knowledge test was 79.4%(SD=8.3%) for nurses and 73.6%(SD=9.8%) for nursing auxiliaries technicians. The study results revealed that both professional categories displayed knowledge deficits in some areas related to the theme.

Kallman v et al (2009) conducted a cross-sectional study to assess the knowledge, attitude and practice among nursing staff concerning pressure ulcer prevention and treatment in Swedish health care setting by using Questionnaires. A total of 230 questionnaires were distributed to an equal number of Registered Nurses and Nursing Assistants in both municipality as well as hospital are setting. The findings showed that only 37%(n=55) of the participants said that they had an agreed strategy for the prevention of pressure ulcers in their unit. These short coming may affect the quality of care provided to the patient and lead to pressure ulcers developing as a consequence. The study highlighted the need to further reduce the gap between research and practices.

Eman S.M.Shalin et al(2008) conducted a study on incidence, prevention and treatment of pressure ulcers in intensive care patient. The objective study is to assess pressure ulcers incidence in intensive patients, the factors related to pressure ulcer incidence and the course of pressure after admission to

an Intensive Care Unit. The result of this study shows a total incidence of 3.3%(4.5% in nephrological patient and 2.9% in surgical patient).

Sixteen patients with a total of 21 pressure ulcers admitted to the Intensive care unit. During the patient stay at the intensive care unit six pressure ulcers developed newly and five pressure ulcers healed. The mean of APACHE 2 score of patients with new pressure ulcer(16.6) were higher than in patients without new pressure ulcers.

Inge C bus et al (2007) a study on pressure ulcer prevention, nursing homes of Dutch to elucidate the views and beliefs of enrolled nurses and about issues related with pressure ulcer prevention by conducting an interview. The study results revealed that enrolled nurses have no intention to change the care , they deliver with regard to pressure ulcer prevention. It was concluded that a systematic approach was necessary to change nursing thinking and acting with regard to pressure ulcer prevention.

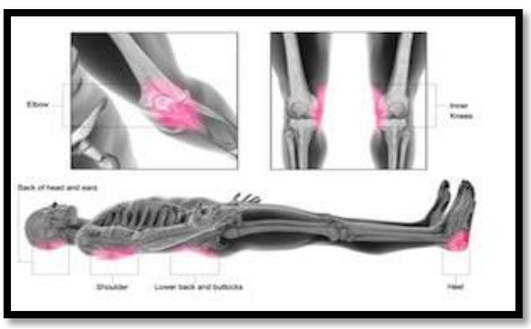
Mirjam A Hulsenboom et al (2007) conducted a cross-sectional and comparative study among nurses to assess the knowledge regarding pressure ulcer prevention in Dutch hospitals by using written Questionnaire. Data of 522 respondents meeting the inclusion criteria were analyzed and compared with results of 351 nurses included in the 1991 study. The study results revealed that nurses were moderately aware of the usefulness of preventive measures. Nurses employed in organizations that monitored pressure ulcers did not display greater knowledge than those employed in organizations that did not do so.

1. .

INTRODUCTION:

"Bed sores are the Red Areas of sores on the skin." They are also called Pressure Ulcers and Decubitus Ulcers. They can occur over any bony part of the body.

(Wound Care Communications Network)



Bed sores (also termed bedsores, Bed sores, decubitus ulcers, ulcers of heel, hip, tailbone, or mid-foot) is a term that describes an area that has unrelieved pressure over a defined area of the skin that is usually covers a bony prominence like the hip, sacrum, or heels, that results in local ischemia (poor or inadequate blood flow), and can progress to local skin cell death and eventually deep tissue necrosis. Although the term bedsores is utilized frequently, especially in the lay press, pressure sores is a broad term that includes pressure problems that can originate from other conditions than just the hospital or home bed.

Bed sores develop when a large amount of pressure is applied to an area of skin over a short period of time. Or, they can occur when less force is applied but over a longer period of time. The extra pressure disrupts the flow of blood through the skin. Without a blood supply, the affected area of skin becomes starved of oxygen and nutrients. It begins to break down, leading to the formation of an ulcer. Healthy people do not get Bed sores because they are continuously and subconsciously adjusting their posture and position so that no part of their body is subjected to excessive pressure. However, people with health conditions that make it difficult for them to move their body often develop Bed sores. In addition, conditions that can affect the flow of blood through the body, such as type 2 diabetes, can make a person more vulnerable to Bed sores

- ***What Are Causes & Risk Factors for Bed sores?***

The main risk factor for Bed sores to develop is immobility. Patients who are confined to the bed (for example, are comatose or paralyzed) or confined to a wheelchair and have difficulty or cannot move their bodies are at high risk for developing pressure sores. Other risk factors are described above. The areas at highest risk for developing pressure sores are the hips and buttocks (70%).

Bed sores develop when sustained pressure is placed on a particular part of the body and interrupts the blood supply to that part of the body. Blood contains oxygen and other nutrients that are needed to help keep tissue healthy. Without a constant blood supply, tissue damage occurs and the tissue will eventually die. The lack of blood supply means that the skin no longer receives infection-fighting white blood cells. Once an ulcer has developed, it can become infected by bacteria. People with normal mobility do not develop Bed sores as their body automatically makes hundreds of regular movements that prevent pressure building up on any part of their body. For example, while you are asleep you may think you are lying still, but you may shift position up to 20 times a night. The risk factors for Bed sores can be divided into one of two categories:

- **Intrinsic risk factors** - you have an underlying health condition or other factor that makes you more vulnerable to developing Bed sores
- **Extrinsic risk factors** - factors in your immediate environment that put you at risk of developing Bed sores

In some cases, a person may have both intrinsic and extrinsic risk factors, which are discussed in more detail below.

Intrinsic risk factors

Intrinsic risk factors for Bed sores include:

- **Mobility problems** - anything that affects your ability to move some or all of your body
- **Poor nutrition** - for your skin to remain healthy it requires nutrients that can only be supplied by eating a nutritious diet
- **An underlying health condition,** which disrupts your blood supply or makes your skin more vulnerable to injury and damage
- **Being over 70 years old**
- **Urinary incontinence and/or bowel incontinence**
- **Serious mental health conditions**

Mobility problems

Possible reasons for having a mobility problem are:

- Having a spinal cord injury that causes some or all of your limbs to be paralysed
- Brain damage caused by an event such as a stroke or severe head injury, which results in paralysis
- Having a condition that is causing progressive damage to the nerves your body uses to move parts of the body, such as Alzheimer's disease, multiple sclerosis or Parkinson's disease
- Having severe pain that makes it difficult to move some or all of your body
- Having a fractured or broken bone
- Recovering from the effects of surgery
- Being in a coma
- Having a condition, such as rheumatoid arthritis, that makes it difficult to move your joints and bones
- Poor nutrition

Reasons that your diet may lack nutrition include:

- Anorexia nervosa - a mental health condition where a person has an unhealthy obsession with maintaining a low body weight
- Dehydration - you do not have enough fluids in your body
- Dysphagia - difficulty swallowing food

Health conditions

Health conditions that can make you more vulnerable to Bed sores include:

Type 1 diabetes and type 2 diabetes - the high levels of blood sugar that is associated with diabetes can disrupt normal blood flow

- Peripheral arterial disease - the blood supply in the legs becomes restricted due to a build-up of fatty substances in the arteries of the legs
- Heart failure - previous damage to the heart means it is no longer able to pump enough blood around the body
- Kidney failure - the kidney loses most or all of its functions; this can lead to a build-up of dangerous toxins (poisons) in the blood, which can cause tissue damage
- Chronic obstructive pulmonary disease (COPD) - a collection of lung diseases; the low levels of oxygen in the blood associated with COPD can make the skin more vulnerable to damage

Aging skin

There are several reasons why ageing skin is more vulnerable to Bed sores. These include:

- With age, the skin loses some of its elasticity (stretchiness), which makes it more vulnerable to damage
- Reduced blood flow to the skin due to the effects of ageing
- The amount of fat under the skin tends to decrease as people get older

Incontinence

Both urinary incontinence (inability to control your bladder) and bowel incontinence (inability to control your bowels) can cause certain areas of the skin to become moist and vulnerable to infection. This can trigger Bed sores to form.

Mental health conditions

People with severe mental health conditions such as schizophrenia (a condition where people have problems telling the difference between reality and imagination) or severe depression have an increased risk of Bed sores for a number of reasons:

Their diet tends to be poor

They often have other physical health conditions, such as diabetes or incontinence

They may neglect their personal hygiene, making their skin more vulnerable to injury and infection

Extrinsic risk factors

Extrinsic risk factors for Bed sores include:

Pressure from a hard surface, such as a bed or wheelchair

- Pressure that is placed on the skin through involuntary muscle movements, such as muscle spasms
- Moisture, which can break down the outer layer of the skin (epidermis)

The time it takes for a pressure ulcer to form will depend on:

- The amount of pressure
- How vulnerable a person's skin is to damage

  Grade three or four Bed sores can develop over short time periods. For example, in susceptible people, a full-thickness pressure ulcer can sometimes develop in just one or two hours. However, in some cases the damage will only become apparent a few days after the injury has occurred. The risk areas are as follows:
- Hips
- Buttocks
- Sacrum and coccyx (tailbone)
- Spine
- Heels
- Shoulders
- Ankles
- Back of head
- Between the knees (legs rubbing together)

➢ **What Are the Signs and Symptoms of the Various Stages of Bed sores?**

➢ The signs and symptoms of pressure sores vary with the stage or condition of skin and muscle at the body site. Pressure sores are staged according to their development and the signs and symptoms vary with the stage. Consequently, the signs and symptoms depend upon the stage of development of the pressure sores. Depending upon what experts are quoted, pressure sores can be categorized into about four or six stages, but no matter which experts describe stages, they all agree it can be a progressively serious problem.

This article presents the stages of pressure sores according to the National Pressure Ulcer Advisory Panel (NPUAP) that lists six categories but only four stages. The symptoms and signs of all six categories will be presented.

- Suspected deep tissue injury: Discolored skin (purple or dark red) is intact or may have blood-filled blisters; there are no breaks or tears in the skin, but patients may experience some pain.

- **Stage I**: Intact discolored skin that still may blanch (skin turns white when pressed with finger); erythema; area may be chronically swollen and warmer than surrounding skin.



- **Stage II**: There is partial-thickness loss of skin, including the epidermis and some of the dermis; skin is painful, tender to touch, and ulcers may begin to develop.



- **Stage III**: There is full-thickness loss of skin, including some of the subcutaneous tissue but not through the underlying fascia; ulcers may be deep but do not show muscle or bone. Some patients in stage III and stage IV may not feel pain due to extensive tissue destruction.



- **Stage IV**: There is full-thickness tissue loss with extension to the muscle, bone, tendon or joint, often with pus production that can be colored (yellow, gray, green, brown, or black).

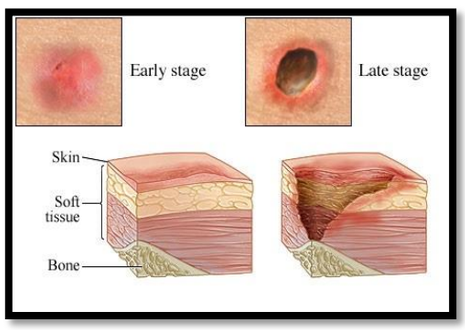


- Unstageable: There is full-thickness tissue loss with the base covered by sloughed tissue, pus, or eschar, where the full depth of the wound (pressure ulcer) is initially undetermined.

In some individuals, because these pressure sores advance in severity over time, signs and symptoms may overlap.

➢ **How Do Physicians Assess and Diagnose Bed sores?**

- Physicians assess pressure sores by the patient's history and physical exam.
- In most patients, the diagnosis is made clinically and is categorized or staged as described above.
- Laboratory studies determine the extent of the problem and some of its underlying contributing problems. For example, nutritional parameters can be determined by looking at tests that determine serum protein levels transferrin levels, albumin levels, and others like the WBC count, blood cultures, and ESR (erythrocyte sedimentation rate) tests may identify signs of anemia, sepsis, and/or osteomyelitis.
- Other tests such as bone scans, X-rays, MRIs, and/or bone biopsies may be utilized to help stage pressure sores.



➢ **What Is the Treatment for Bed sores?**

Bed sores are a complex health problem arising from many interrelated factors. Therefore, your care may be provided by a team that is made up of different types of healthcare professionals. This type of team is sometimes known as a multidisciplinary team (MDT).

Your MDT may include:

A tissue viability nurse (a nurse who specialises in wound care and prevention)

A social worker

- A physical therapist
- An occupational therapist
- A dietician

❖ Medical and surgical experts with experience in pressure ulcer management

❖ Changing position:

It is important to avoid putting pressure on areas that are vulnerable to Bed sores or where Bed sores have already formed. Moving and regularly changing your position helps to:

- Prevent Bed sores developing in vulnerable areas
- Relieve the pressure on any grade one or grade two Bed sores that have developed

After your risk assessment is completed, your care team will draw up a 'repositioning timetable', which states how often you need to be moved. For some people, this may be as often as once every 15 minutes. Others may need to be moved only once every two hours.

The risk assessment will also consider the most effective way to avoid putting any vulnerable areas of skin under pressure whenever possible.

A nurse or physical therapist may also give you training and advice about:

- Correct sitting and lying positions
- How you can adjust your sitting and lying position
- How often you need to move or be moved
- How best to support your feet
- How to keep a good posture
- The special equipment that you should use and how to use it

❖ **Mattresses and cushions:**

There are a range of special mattresses and cushions that can relieve pressure on vulnerable parts of the body. Your care team will discuss the types of mattresses and cushions that are most suitable for you.

People who are thought to be at risk of developing Bed sores, or who have pre-existing grade one or two Bed sores, usually benefit from resting on a specially designed foam mattress, which relieves the pressure on their body.

People with a grade three or four pressure ulcer will require a more sophisticated mattress or bed system. For example, there are mattresses that can be connected to a constant flow of air, which is automatically regulated to reduce pressure as and when required.

❖ **Dressings:**

Specially designed dressings and bandages can be used to protect Bed sores and speed up the healing process. Examples of these types of dressing include:

- **Hydrocolloid dressings** - these contain a special gel that encourages the growth of new skin cells in the ulcer while keeping dry the surrounding healthy area of skin

- **Lginate dressings** - these are made from seaweed and contain sodium and calcium, which are known to speed up the healing process

❖ **Topical preparations:**

Topical preparations, such as cream and ointments, can be used to help speed up the healing process and also prevent further tissue damage.

❖ **Antibiotics:**

If you have a pressure ulcer, you will not routinely be prescribed antibiotics. Antibiotics are usually only prescribed to treat an infected pressure ulcer and prevent the infection from spreading.

Antiseptic cream may also be applied directly to Bed sores to clear out any bacteria that may be present.

❖ **Nutrition:**

Certain dietary supplements, such as protein, zinc and vitamin C, have been shown to accelerate wound healing.

If your diet lacks these vitamins and minerals, your skin may be more vulnerable to developing Bed sores. As a result of this, you may be referred to a dietician so that a suitable dietary plan can be drawn up for you.

❖ **Debridement:**

In some cases, it may be necessary to remove dead tissue from the ulcer to help stimulate the healing process. This procedure is known as debridement.

If there is a small amount of dead tissue, it may be possible to remove it using specially designed dressings and paste. Larger amounts of dead tissue may be removed using mechanical means. Some mechanical debridement techniques include:

- **Cleansing and pressure irrigation** - where dead tissue is removed using high-pressure water jets
- **Ultrasound -** dead tissue is removed using low-frequency energy waves
- **Laser** - dead tissue is removed using focused beams of light
- **Surgical debridement** - dead tissue is removed using surgical instruments, such as scalpels and forceps

A local anaesthetic will be used to numb the area of skin and tissue around the ulcer so that debridement does not cause any pain or discomfort.

Maggot therapy:

Maggot therapy, also known as larvae therapy, is an alternative method of debridement. Maggots are ideal for debridement because they feed on dead and infected tissue without touching healthy tissue. They also help to fight infection by releasing substances that kill bacteria and stimulate the healing process.

During maggot therapy, the maggots are mixed into a wound dressing and the area is covered with gauze. After a few days, the dressing is taken off and the maggots are removed.
Many people may find the idea of maggot therapy off-putting but research has found that it is often more effective than more traditional methods of debridement
Surgery:
Sometimes, it may not be possible for a grade three or four pressure ulcer to heal. In such cases, surgery will be required to seal the wound and prevent any further tissue damage occurring.
Surgical treatment involves cleaning the wound and closing it by bringing together the edges of the wound (direct closure) or by using tissue moved from a nearby part of the body (flap reconstruction).
Pressure ulcer surgery can be challenging, especially because most people who have the procedure are already in a poor state of health. As a result of the risk factors, a large number of possible complications can occur after surgery, including:
Infection

- Tissue death of the implanted flap
- Muscle weakness
- Blisters - small pockets of fluid that develop inside the skin
- Recurrence of the Bed sores
- Blood poisoning
- Infection of the bone - the medical term for this is osteomyelitis
- Internal bleeding
- Abscesses - painful collections of pus that develop inside the body
- Deep vein thrombosis - a blood clot that develops inside the veins of the leg

Despite the risks, surgery is often a clinical necessity to prevent life-threatening complications of Bed sores developing. Such complications include blood poisoning and gangrene (the decay or death of living tissue).

- **Are There Any Home Remedies Bed sores?**

- In general, pressure sores (especially types II to IV) are best cared for by the patient's doctors.
- Some home remedies can help most types of pressure sores to have a better chance to heal. For example, purchase of a good mattress, relatives or family members who are trained to rotate and/or mobilize the patient at home, and following the directions for treatment of underlying causes (such as diabetes) will help.
- Family and friends can also help by performing good wound care at home and by administering appropriate barrier creams and other agents that preserve skin after pressure sores heal.
- In addition, if the patient can cease smoking and follow the recommendations for a high-protein diet, they may reduce the chance of recurrent pressure sores.

- **What Are Some of the Complications of Bed sores?**

Pressure sores, if treated early (stage I), have few if any complications. However, complications become more likely as the disease progresses. Complications can include the following:

- Anemia
- Fistula formation (urethral, fecal)
- Osteomyelitis
- Pyarthrosis (infectious arthritis)
- Altered cells may become malignant
- Autonomic dysreflexia (sudden onset of high blood pressure)
- Renal failure
- Amyloidosis (progressive deposition of amyloid in organs)
- Bacteremia
- Sepsis
- Coma/death

- **Is It Possible to Prevent Bed sores?**

- Yes, pressure sores can be prevented. Prevention can start either at home or in the hospital setting by making sure to avoid long-term or constant pressure on any part of the patient's body.
- This can be done in part by encouraging mobility, by moving or rotating an immobile patient regularly (determined by the patient's physician), avoiding shear forces on skin made by pulling on sheets or by pulling the patient across sheets, and by avoiding situations that lead to damaged skin (patient laying in urine or feces for extended time periods).
- Good skin care with moisturizers and/or other creams may also help prevent pressure sores.
- Treatment of underlying causes, such as diabetes, anemia, and poor nutrition, can also help prevent skin breakdown and pressure sores.
- In addition, ceasing cigarette smoking may reduce the risk of developing pressure sores.

- **What Is the Prognosis of Bed sores?**

The prognosis or outcomes of pressure sores is usually good if they are treated early the disease process. Complications can develop as the disease progresses, and stages III, IV, and "undetermined" may have a prognosis that ranges from fair to poor, depending upon the location of the pressure sore(s) and the patient's response to treatments. Patients with paraplegia have a death rate of about 7%-8% due to pressure sores.