Outline:

- Introduction.
- General principles.
- Basic facts on relation to anatomy and physiology.
- The acts of defecation.
- Personal habits.
- Factors influencing fecal elimination.
Common problems of intestinal elimination:

- Constipation.
- Fecal impaction.
- Intestinal, distension (tympani is).
- Diarrhea.
- Anal incontinence.
Introduction:

Elimination is essential to rid the body of wastes and materials in excess of bodily needs.

Elimination process is necessary to maintain high level of wellness and even life itself and must continue during illness in health.
General Principles:

- Efficient physiologic functioning requires that waste substances be eliminated from the body.

- Patterns of elimination from the large intestine vary among individuals.

- Stress-producing situations and illness may interfere with normal habits of elimination.
Basic Facts in Relation to Anatomy and Physiology:

1. The large intestine is a tube leading from "the small intestine to the external skin and is about 150-180 cm in length.

   The ileocelecal valve separates the small intestine from the large intestine.

   It opens in one direction; prevent the passage of material in the opposite direction. (Fig: 1).
The Large Intestine

- transverse colon
- descending colon
- ampoule
- cecum
- appendix
- rectum
- anus
- ascending colon
2. The large intestine is divided into:
   - The caucus: lies at the beginning of the large intestine.
   - The colon: lies between the caucus and the rectum and is divided into:
     - The ascending colon goes up on the right side.
     - The transverse colon crosses the abdomen.
     - The descending colon goes down on the left side.
- The sigmoid flexure ends at the rectum.
- The rectum of the adult person is about 15-20 cm.

3. The anal canal is about 2.5 cm, and has two sphincters. The internal sphincter and the external sphincter at the anus, the external sphincter has striated muscles and is under voluntary control.
The anal canal
4. The large intestine, including the anal canal is innervated by autonomic nerve supply:

- **Stimulation of the parasympathetic system** promotes peristalsis and increases muscle tone.

- **Stimulation of the sympathetic nerves** inhibits peristalsis and decreases tone.
5. There are two local-reflexes involved in intestinal elimination:

- **The gastro colic reflex:** peristalsis is stimulated by the intake of food enters the duodenum (about half an hour after-eating or drinking) a mass peristaltic action occurs in the large intestine which is called the gastro colic reflex, and the need to defecate is felt.
The rectal reflex (defecating reflex):

is stimulated by the presence of waste products in the rectum which is producing mechanical pressure. This leads to stimulation of sensory receptors and the need to defecate is felt.
The act of defecation:

Defecation Posture

- Throat closed
- Diaphragm moves down
- Forearm support
- Pelvis
- Abdominal bracing / bulging
The act of defecation:

Defecation:

Is an evacuation of the intestines and is often referred to as a bowel movement.

When a certain amount of fecal matter accumulates in the rectum it becomes distended and the intra-rectal pressure rises.
Sensory nerve endings are stimulated (parasympathetic), the internal and external sphincter relaxes, and the colon contracts, the result is a desire to defecate.

During the act of defecation several additional muscles help in the process:
Voluntary contraction of the additional muscles and closing of the glottis and increasing intra-abdominal pressure that aids in expelling the feces.

Simultaneously, the muscles of the pelvic floor contracts and aid in pushing the fecal mass out.
Personal Habits:

- Regularity and frequency of a bowel movement vary from one person to another e.g. most adults pass one stool each day, others have more or less frequent bowel movements.

- Some persons have a bowel movement two or three times a week, others as often as two or three times a day.
Some people may be used to have the bowel movement after drinking morning coffee or tea...or even having their breakfast.

Immediate response to a felt desire is important in establishing regularity of habit.

Continues inhibitions of the desire to defecate will lead to chronic constipation.
Factors Influencing Fecal Elimination:

1. **Diet:**

   - It is one of the most important factors effecting changes in the secretion and motility of the alimentary canal.

   - It also influences the type and amount of bacteria entering the digestive system. This in turn will affect the fecal characteristics.
Balanced food content with varied bulk is important to the production of feces and its movement along the intestinal tract. Fluid intake has to do with stool consistency.
2. **Psychological Factors:**

In period of stress caused by fear, grief, or anger, or peristaltic activity and muscle spasms may increase or decrease, diarrhea, or occasionally, constipation may result.
2. **Psychological Factors:**

Constipation is often secondary to psychiatric conditions (e.g. depression, chronic psychoses, and anorexia nervosa).
3. Physical Activity:

- Physical activity influences elimination by promoting the development of muscle tone as well as by stimulating appetite and peristalsis.

- Increased activity will stimulate the colon.
3. **Physical Activity Cont:**

- Immobility or sleep will depress the colon.

- Changes in posture, such as standing up, lying down, or sitting during a bowel movement influences ease of emptying the rectum.
4. **Neutrogena Conditions:**

- Neutrogena conditions caused by traumatic lesions and organic diseases of the nervous system, such as multiple sclerosis, brain and cord tumours, and meningitis, frequently leave a person with chronic constipation.
Central nervous system (brain and spinal cord)

Myelin sheath of healthy nerve

Axon

In multiple sclerosis the myelin sheath, which is a covering that wraps around the axon, is destroyed with inflammation and scarring.
5. Muscular Condition:

- Abdominal, pelvic, and diaphragmatic muscles play an important role in initiating and completing defecation.

- Injuries or other conditions affecting the strength of these muscles will therefore make evacuation difficult.

- Weakness from muscle atony may be caused by laxative abuse or severe malnutrition.
6. **Mechanical Obstruction:**

- Obstruction that results in an abnormal physical state of the bowel content may retard propulsion and cause constipation or distension.

- Actual physical blockage or narrowing of the intestine's interior may be caused by neoplasm and inflammatory lesions.

- Haemorrhoids, fissures, and abscesses can inhibit voluntary muscle relaxation and result in constipation.
7. **Malabsorption:**

- It is a common cause of diarrhoea, may involve significant excess or deficiency in intake of fat, protein, carbohydrates, vitamins and minerals.
8. Disease Conditions:

- E.g. inflammatory disease caused by pathogenic organisms such as salmonella, amoebas, and enter viruses, or by ulcerative colitis or by cathartics may produce diarrhoea.
9. Constipation may be present in several disease conditions including carcinoma of the large bowel, Hemorrhoids, and fissure, and perineal abscess.
9. **Drugs:**

- e.g. Constipation is often attributed.
Common Problems of Intestinal Elimination:

1) **Constipation:**

The passage of unusually dry, hard stools produced by undue delay in the passage of feces.
Causes

- Poor elimination habits. If the desire for defecation is ignored repeatedly, the feces become hard and dry because of increased water absorption.
- Lack of sufficient roughage or bulk in diet.
- Lack of enough fluid intake.
- Lack of muscle tone due to too much stimulation by irritating substances such as laxatives.
- Emotional Tension may cause the gastrointestinal tract to become spastic and fecal content is not moved along the large intestine sufficiently well.

- Interference with normal reflexes because of pain associated with defecation, e.g., piles, and fissure etc

- Lack of essential vitamins such as vitamin B. group or mineral as potassium.
- Lack of exercise:
  - Decreased peristaltic movement.
  - Loss of muscle tone.

- Actual mechanical obstruction caused by compression of a mass e.g., tumor or edema of the intestinal wall, hernia or fecal impaction.
Assessment of Patient with Constipation

- Passage of hard stools associated with a decrease in the usual frequency of defecation.

- Feeling of rectal fullness.

- Abdominal distension (the abdomen feels hard upon palpation) caused by accumulation of fecal matter as well as gases.
- **Complaints of tenesmus** (frequent painful straining in attempts to defecate).

- **General symptoms**: e.g. headache, malaise, anorexia, and bad breath.
Nursing Management of Constipation

- Provide adequate fluid intake 500 - 2000 cc/day.
- Provide a well-balanced diet with enough roughage from fruits and vegetables and vitamins.
- Encourage regularity of time for defecation and prompt response to the desire of defecation.
- Encourage regularity of meal's time.
Provide adequate time for complete evacuation.

Provide privacy for patients to promote relaxation.

Provide posture (position) as close to normal as possible.
Provide physical and emotional comfort and alleviation of pain.

Provide physical exercises especially for abdominal muscles.

Consider the patient's habit in relation to defecation.
Prevention of Constipation

- Encourage exercise as walking.
- Avoid excessive emotional stress.
- Establish regularity of meals and defecation time.
- Discourage unnecessary use of laxatives.
- Intake of proper diet containing enough vegetables and vitamins.
- Intake of sufficient fluids per day.
Composes 75% of Brain

Regulates Body Temperature

Helps carry Nutrients and Oxygen to cells.

Moistens Oxygen for Breathing

Helps Convert Food into Energy

Protects and Cushions Vital Organs

Removes Waste

Accounts for 22% of Bones

Cushions Joints

Makes up 83% of Blood

Makes up 75% of Muscles

Illustration by Seth Larson
2. Fecal Impaction:

Definition

A prolonged retention or an accumulation of fecal material which forms a hardened mass in the rectum, it may be of sufficient size to prevent the passage of normal stools. (fig: 2)
Signs and Symptoms

- Distended abdomen (hand upon palpation and feels rigid).
- Rectal pain due to pressure of the fecal mass.
- Passage of small amount of liquid stool due to mechanical irritation of the rectum.
Causes

- Prolonged constipation and poor habits of defecation.
- Prolonged bed rest, vary in paralyzed or unconscious patients.
- Prolonged use of anti-diarrheas drugs.
- Following administration of Barium for x-ray examination of the G.I.T.
Nursing Management

- Administration of mineral oil by mouth especially in cases of prolonged constipation for regulation of habits.

- Oil retention enema followed by cleansing enema.

- Digital manipulation of the fecal mass should be under physician order or supervision because it can stimulate vague nerve in the rectal wall which can slow patient's heart leading to cardiac arrhythmia, so observe patient's pulse rate, facial pallor and diaphoresis during manipulation.
Prevention

- Careful observation of the patient's bowel movements in terms of amount, consistency, and frequency.

- Prevention of constipation.

- Special attention to patients who received barium for x-ray of the G.I.T.
Enemas are fluid solutions introduced into the rectum and colon. The most common reason for giving enemas is to stimulate the urge to defecate.
Purpose

- To empty the rectum and the lower colon when constipation is present.

- To relieve gas from colon and rectum.

- To provide nutrients for a patient who cannot take food orally.
**Purpose**

- To administer medications.
- Pre-operative, especially in intestinal tract operations to remove fecal.
- To soothe irritated intestinal wall. In diagnosis e.g. Barium enema.
3) **Intestinal Distension (tympanitis):**

**Definition**

- Excessive formation and accumulation of gases in the intestines
Causes

- Excessive intake of gas forming foods.
- Prolonged constipation or impaction.
- Inability of the small intestines to expel gases due to weakness e.g., in post-operative periods after abdominal surgery.
Causes

- Lack of exercise and prolonged bed-rest.
- Drugs which slow down the intestinal peristalsis such as sedatives and tranquilizers.
- Swallowing large amount of air while eating or drink or tube feeding (in very old and children).
Signs and Symptoms

- Distended abdomen that gives a drum like sounds upon percussion.

- Colicky pain that is generalized in the abdomen.

- Shortness of breath and dyspnea may result if distention causes pressure on the diaphragm and the thoracic cavity, (e.g. bedridden patients).
Nursing Intervention

- Prevention of the cause.

- Encourage exercises in bed or ambulate patients for short walk.

- Avoid gas forming foods.
4) **Diarrhoea:**

**Definition**

The passage of loose, watery stool and an increase in the frequency of bowel movements, diarrhea may or may not be accompanied by abdominal cramping.

**Causes**

Due to several causes either organic disease or psychic factors:
Signs and symptoms

- Generalized abdominal pain which is spasmodic in nature due to strong peristaltic action.
- Pains are accompanied by feeling of urgency in the need to defecate.
- Complaints of tenesmus and may pass a small watery discharge.
Increase in the frequency in the number of stool (stool is watery in nature).

Signs and symptoms of dehydration may occur if diarrhea is very severe or over a long time such as: poor skin turgor, thirst, and acute weight loss.

General weakness and general malaise.
Nursing care of patients with diarrhea

- Assessment and observation of the patient, this includes:
  - Assessment of the stool in terms of frequency, consistency, odor and presence of foreign matter as mucous, pus, blood or undigested food.
  - Observation of the patient for signs and symptoms of the dehydration and electrolyte loss. With diarrhea there is acute loss of potassium and sodium chloride.
Diet: Provision of proper diet for maintenance of proper nutrition.

- Diet free from roughage.
- Rich in liquids.
- Free from irritants and low in fat.
- Rich in proteins such as white meat boiled chicken and other.
If diarrhea is psychogenic, provide for psychological comfort and relaxation.

- Assist the patient to identify the causes and act upon it.

Provide for physical comfort and hygienic care.

- Local irritation of the anal and region is common. Careful washing and drying after each movement is necessary.

- Medicated creams will help prevent skin irritation, e.g., Zink oxide.
Patient's clothes and bed linen must be dry and clean.

If diarrhea is due to infection, isolation technique must be followed:

- Stool should be disinfected immediately before being discarded.

(N.B: All diarrheas should be considered infectious until proved).
6) **Anal Incontinence:**

**Definition**

- Inability of the aospomaer to control the discharge offers, i.e. loss of voluntary control over the act of defecation.
Causes

- Organic diseases causing weakness of the anal sphincter.
- Impingent in the nerve supply to the anal sphincter.

(i.e. relaxed external sphincter).
Nursing care

- Supportive and encouraging attitude by the nurse should be initiated to eliminate embarrassment due to incontinence.

- Special nursing care to prevent bad odor, skin irritation and bed sores.

- Patient's clothing and bedding should be changed whenever necessary.
Thanks
Reasons to Treat Pain

- It is the human thing to do
- Ethical, moral, and legal obligation
- Unrelieved pain causes unnecessary harm and suffering
- Pain diminishes activity, appetite, sleep, and quality of life
- Pain further debilitates already weakened patients
Goals of Pain Control

- Enhance quality of life
- Maintain autonomy, dignity, emotional, and cognitive capacity
- Control depression and anxiety related to poorly controlled pain
- Preservation of function and rehab potential
The patient’s self report is the Gold Standard of measurement

The Clinician must accept the patient’s report of pain
Painful Facts

- Pain affects more Americans than DM, heart disease & cancer combined

- 75 million people today have severe disabling persistent pain another 25 million experience acute pain each year

- Pain is the number one reason people seek healthcare, but only 1 in 4 receive adequate pain treatment

- Over 75% of cancer patients experience moderate to severe pain—Less than half get pain relief
Obstacles to Successful Pain Management: Health Care Provider

- Lack of knowledge (ignorance) or understanding of pain physiology & management
- Lack of or inadequate assessment
- Under treatment
Obstacles to Successful Pain Management: Health Care Provider

- Inadequate knowledge of medications or other treatment options

- Fear of addiction

- Legal barriers—regulatory scrutiny

- False judgment of patient
Mild pain
(0-3)
Moderate pain
(4-6)
Severe pain
(7-10)

Acetaminophen
Codeine
Morphine

By the mouth
By the clock
By the ladder

WHO pain ladder
Tolerance & Dependence

- Tolerance - Physical Phenomenon
  - Expected neuroadaptation to continuous opioid use
  - Effectiveness/duration of analgesia is reduced over time therefore higher doses are needed
  - In long term therapy the need for escalation of drugs usually slows & then trends downward
Physical Dependence

Dependence-Physical Phenomenon
-Natural adaptation of the body to prolonged use of drug
-Abstinence syndrome develops if drug is withdrawn sharply or if antagonist added
-Difficulties avoided through proper management-taper doses before discontinuing drug, do not co-administer antagonist or agonist antagonist drugs
Obstacles to Successful Pain Management: Health Care Provider

- Concerns about opioids:
  - **Addiction**: hallmark of addiction is using despite harm to self and others
  - **Respiratory depression**: “No patient has succumbed to respiratory depression while awake.” (APS, 1999)
  - **Sedation**: precedes respiratory depression; therefore sedation is a vital component of monitoring and assessment of patients with PCA.” (Hagle et al, 2004)
Increased morbidity and mortality

Unrelieved pain causes a stress response which initiates a cascade of events

Increased catabolic demand; poor wound healing, weakness, and muscle breakdown
PSYCHOLOGIC EFFECTS OF PAIN

- Negative emotions: anxiety, fear, hopelessness, and depression
- Sleep deprivation
- Existential suffering: may lead to patients seeking end of life
- Decreased quality of life
- Decreased coping skills
The general goals of pain management include prevention and reduction of pain, improvement in function, improvement in mood and sleep patterns, and anticipation and treatment of side effects.
**Assessment Facts & Considerations:**

- Pain management goals do not include reducing the analgesic dose to as low a level as possible.

- The dose that relieves the patient’s pain and allows them to meet their goals is the appropriate dose.
What causes pain in the person with cancer?

Pain may be acute, persistent or intermittent
Pain may be nociceptive, neuropathic or mixed

- Tumor involvement
- Treatment-related
- Unrelated to cancer

Factors Influencing Pain Severity\textsuperscript{1,2}

- Type of Cancer
- Stage of Disease
- Cancer Therapy
- Pain Threshold

\textsuperscript{2}National Cancer Institute. \textit{Pain}, modified 1/23/07; p 5-8.
Antineoplastic Therapy

- Surgery
- Chemotherapy
- Radiotherapy
- Biological Therapies
- Combination Therapy

Evaluate Pain Mechanism To Determine Treatment Options

Follow the example of auscultation

* Know what to listen for
* Appreciate the significance of what you hear
* Develop appropriate treatment plan
* Listen for changes in report
The first step in the assessment of pain is to determine the goal of treatment:

- Is it to diagnose and eliminate the pain by removing the source?
- Is it palliative? A plan to improve comfort and quality of life?
Pain Types

- Somatic
- Breakthrough
- Chronic
- Neuropathic
- Visceral
- Referred
- Acute
Pain Quality

Nocioceptive

Somatic
  Localized
  Throbbing
  Aching
  Sore
  Sharp
  Stabbing

Visceral
  Deep
  Cramping
  Referred
  Aching
  Gnawing
Pain Quality

Neuropathic

Central
Peripheral

Burning
Piercing
Electric
Pricking
Numb
Sharp
Pain Assessment

Remember, pain ratings above 3 significantly interfere with activity and mood; above 5 interfere with quality of life.

OLD CART

O= Onset - When did the pain start? How often does it occur? Has its intensity changed?

L= Location – Where is your pain? Does it radiate or travel to other sites? Touch where your pain is. (There may be multiple sites)
PAIN ASSESSMENT (Cont.)

D= Duration - How long does the pain last? Is it constant? Is it intermittent?

C= Characteristics – What words describe your pain? What does your pain feel like? 0-10; Quality?

Neuropathic or nerve (sharp, shooting, burning, electrical)

Nociceptive Somatic (dull, aching); Visceral (cramping, squeezing)
PAIN ASSESSMENT: (Cont.)

**A= Aggravating Factors** – What makes your pain worse? (Moving, Walking, Sitting, Turning, Chewing, Breathing, Defecating, Urinating, Swallowing,

**R= Relieving Factors** - What makes pain better? What medical and non-medical interventions relieve the pain?
Pain Assessment: (Cont.)

**T=Treatment** – Medications – What meds have you tried for your pain?
Current pain management regimen?

****Past medication use ACTUAL
Nonpharmacological interventions (e.g., heat cold massage, distraction, etc)
Number versus Function

On a **scale of 0 - 10**, with 0 being no pain and 10 being the worst pain you can imagine, how would you rate your pain **right now**?

How would you rate it at its **worst**?

How would you rate it at its **best**?

When was it **best controlled**?

Was your **goal** pain score?
Evaluation of Pain

Simple Descriptive Scale

| none | mild | moderate | severe | v severe | worst |

Numeric Scale

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Visual Analog Scale

| no pain | worst pain |
Psychosocial Assessment

- Effect of pain on patient, family, caregivers, and other significant relationships
- Financial impact of pain and treatment
- Patient’s usual coping response
- Mood changes
- Preference of pain method management
Psychosocial Assessment

- How does the pain affect your physical and social function?
- How does the pain impact sleep, mood, or activities?
- Meaning of pain to patient
- Non-verbal clues
Psychosocial Assessment (cont.)

- Effect and understanding of diagnosis/treatment on patient and caregiver

- Past experiences with pain and patient’s interpretation

- Patient and family member’s concerns about use of opioids or controlled substances
Intubated and/or unconscious persons

Self report limited by:
- Delirium
- Cognitive and communication limitations
- Level of consciousness
- Presence of an endotracheal tube
- Sedatives
- Neuromuscular blocking agents
Intubated and/or unconscious persons

- Existing medical condition
- Traumatic injuries
- Surgical/medical procedures
- Invasive instrumentation
- Blood draws
- Routine care such as suctioning, turning, positioning, drain and catheter removal, and wound care
Intubated and/or unconscious persons

- Facial tension
- Grimacing
- Frowning
- Wincing
- Physical movement
- Immobility
- Increased muscle tone
- Tearing and diaphoresis in the sedated paralyzed and ventilated patient represents autonomic responses to discomfort
Ongoing Pain Assessment

Pain should be assessed and documented:

- At regular intervals after initiation of the treatment plan
- With each new report of pain
- At a suitable interval after each pharmacologic or nonpharmacologic intervention
- Continue or alter drug therapy based on assessment findings and treatment plan

Nonpharmacologic Interventions

- Physical Modalities
  - Physical Therapy / Exercise
  - Acupuncture

- Psychosocial Modalities
  - Relaxation and imagery
  - Distraction
  - Education
  - Counseling and/or support groups
  - Hypnosis
Pharmacologic Interventions

- Acetaminophen
- Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Antidepressants
- Anticonvulsants
- Topical anesthetics
- Opioids
Medications

- May require increasing doses due to tolerance - NOT addiction
- May need to use more than one type of pain medication
- Long-acting medications
- Breakthrough medications
Opioid Dosing

- Breakthrough dose should be 10-15% of 24 Hour long acting dose

- To titrate opioid, increase by at least 50% or calculate the amount of breakthrough doses given and add to the 24H dose
Clinical Pearl: Although all opioids are “equivalent” at equianalgesic doses, there is significant inter-patient variability.

If appropriate dose escalations yield inadequate pain control, it is logical to SWITCH to a different opioid!
Common Mistakes

- Transdermal Fentanyl
- Withdrawal Syndrome
- Medication reconciliation
- Overdose
- Under dose opioid
- Concurrent use of two long acting agents
Managing Side Effects

- Constipation - never develop a tolerance
- Nausea
- Drowsiness
- Itching
- Others
PLAN

- Develop a multimodal plan involving client in all areas. Educate client.

- Give the client a sense of control in pain management. Educate client.

- Consider financial status/reimbursement for pain medication prescriptions. Educate client.