Summative Narrated Presentation

Name of the Student:

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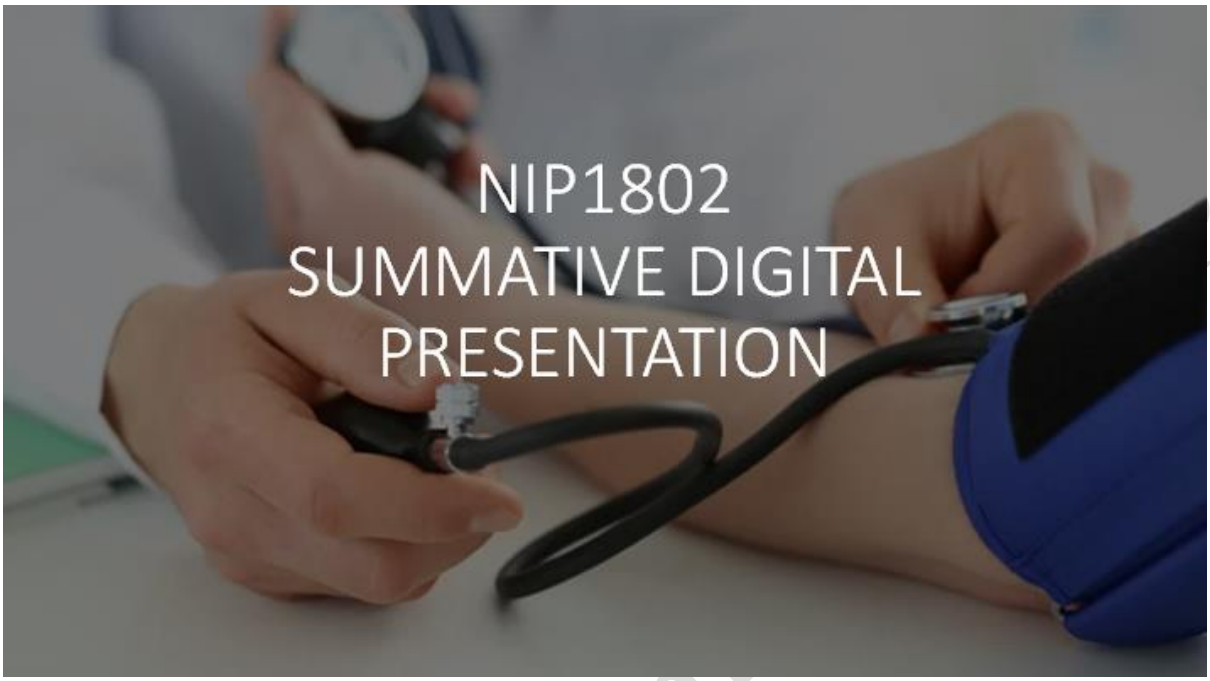
Slide 1



Slide 2

Introduction

- Fred is a 75 years old widow living alone.
- The presentation will discuss the physiological principles underlying blood pressure regulation.
- It will be examined what caused the imbalance as well as possible solutions.
- It will go over Fred's biopsychosocial stresses and offer management techniques for his health.
- It will define pharmacology, pharmacokinetics, and pharmacodynamics.
- The role of a nurse in medicine optimisation in Fred's case will be demonstrated.

SN: In this presentation, the case of Fred will be used as a reference. Fred is a 75 years old widow living alone. He was discovered in weak condition by his daughter and was immediately hospitalised. The presentation will provide an overview of the cardiovascular system. It will discuss the physiological principles underlying blood pressure regulation. It will elaborate on the cause of the imbalance and how the balance can be achieved. It will discuss biopsychosocial stressors for Fred and will provide strategies for his health management. Moreover, terms like pharmacology, pharmacokinetics and pharmacodynamic will be defined. The importance of pharmacology to nurses will be highlighted. The role of a nurse in medicine optimisation in Fred's case will be demonstrated. Lastly, the concept and relevance of the presentation to adult nurses will be summarised.

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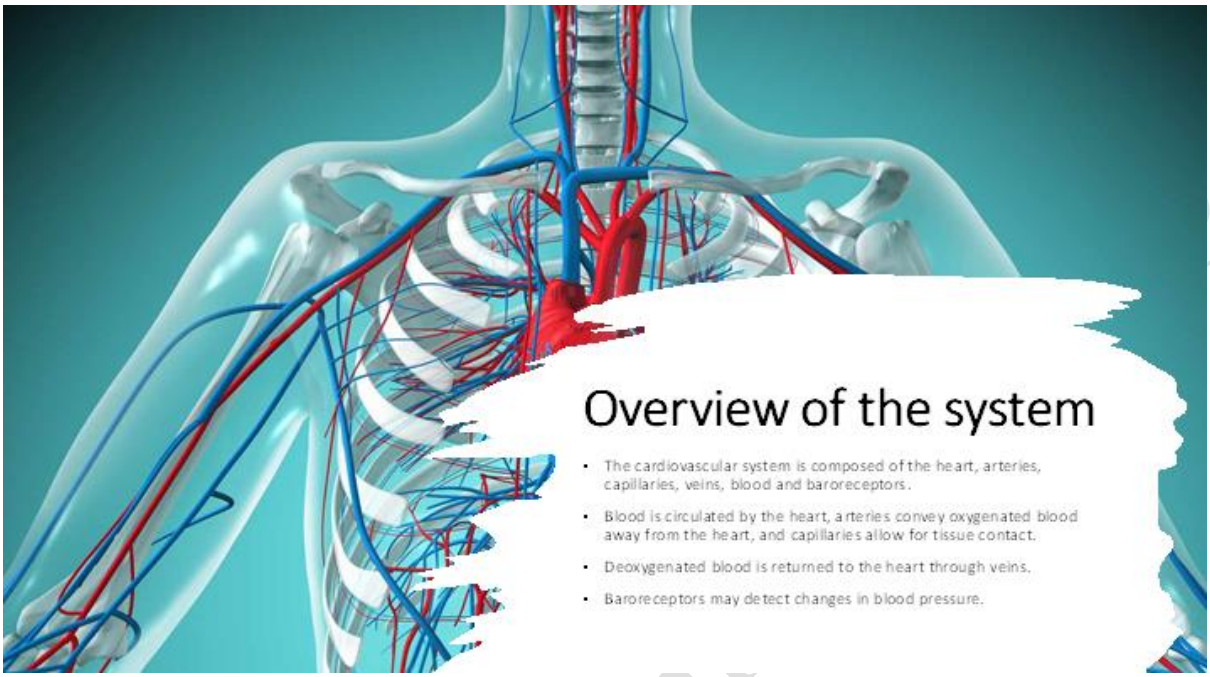

SN: The cardiovascular system is made up of the heart, arteries, capillaries, veins and baroreceptors. Blood is pumped by the heart, while arteries convey oxygenated blood away from the heart and capillaries allow for tissue contact. Deoxygenated blood is returned to the heart through veins (Smith and Fernhall, 2022). Baroreceptors monitor variations in blood pressure and alert the brain to them so that it can adjust. Heart rate, blood vessel constriction, and fluid balance are all affected by hormones like adrenaline and aldosterone. These structures cooperate to maintain healthy blood pressure levels and guarantee the body's normal operation.

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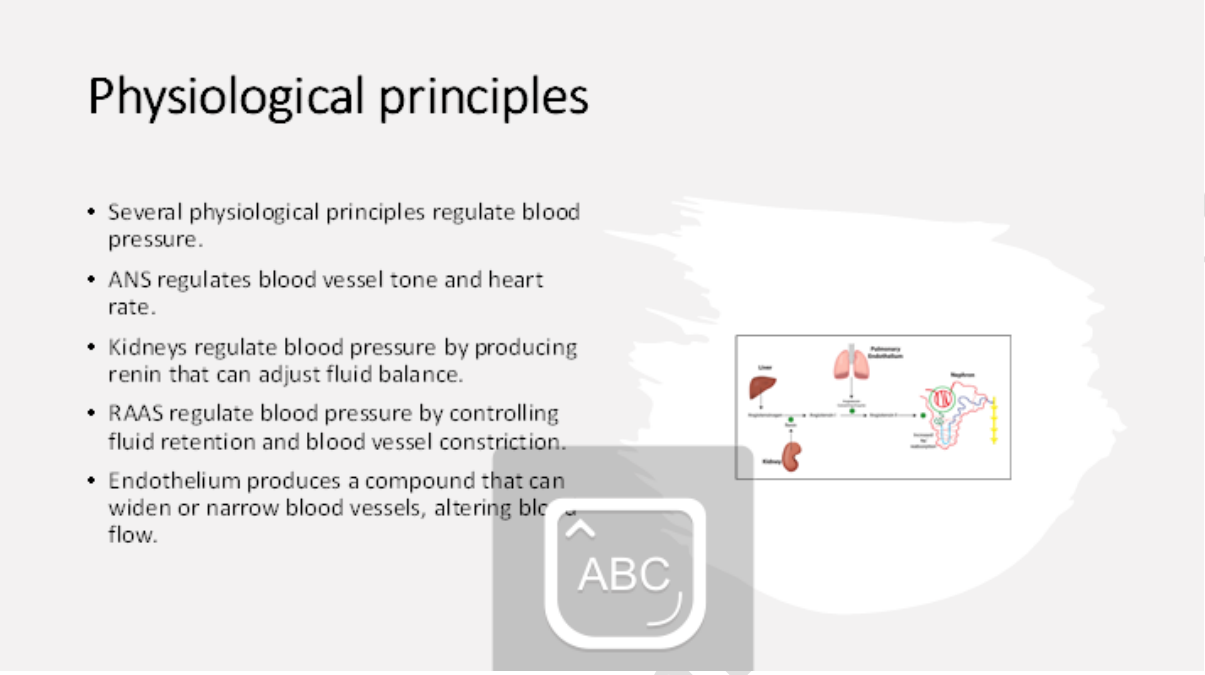

SN: It is crucial for sustaining good health for the cardiovascular system to regulate blood pressure. This procedure involves a number of physiological principles. These principles include the regulation of the Autonomic Nervous System (Billman, 2020). ANS regulates blood vessel tone and heart rate. Kidneys regulate blood pressure by producing renin that can adjust fluid balance. The liver produces angiotensin and aldosterone is produced by the adrenal cortex. The Renin-Angiotensin-Aldosterone System also contributes to the control of blood pressure (Almeida *et al*., 2020). The RAAS accomplishes it by increasing the reabsorption of sodium ions and retention of water. The compounds produced by the endothelium, the lining of the blood vessels, can widen or narrow blood vessels, altering blood flow. Fred was the primary caregiver of his wife who has recently passed away. This loss led Fred to ignore his health resulting in symptoms like poor personal cleanliness and weakness. He also forgot to take his blood pressure medicines. This

emphasises the significance of taking into account physiological principles in figuring out Fred's existing state of health. It also emphasises the requirement for medical care to maintain his blood pressure and general well-being.

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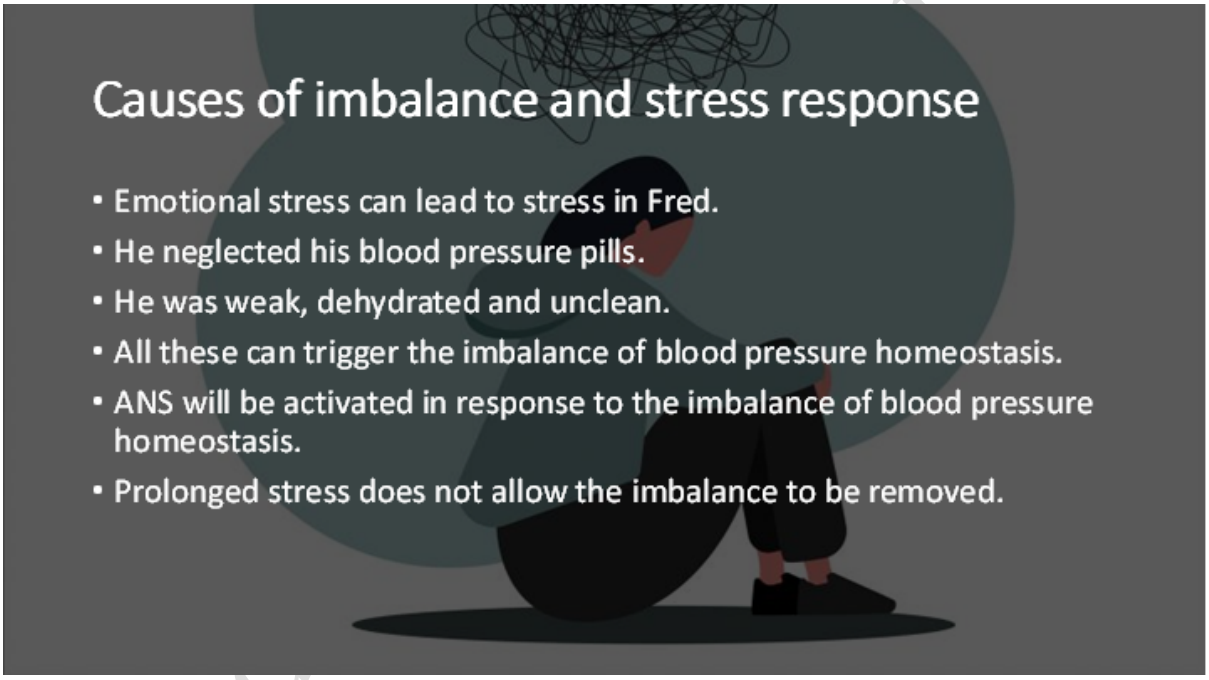

SN: Several elements in Fred's case study can cause an imbalance in the way his body regulates blood pressure. His body's natural stress response could be disrupted by the emotional strain of losing his wife Lucy. This could have had an impact on blood pressure control. He may have neglected to take his blood pressure medicine as prescribed. Poor personal cleanliness and indicators of dehydration were found in Fred. A degraded physical state with weakness on one side

could have an adverse effect on Fred's ability to control his blood pressure. He may have felt socially isolated as he lives alone, further exacerbating the physiological imbalance. ANS will be activated in reaction to this imbalance in blood pressure regulation. This leads to increasing heart rate, constricting blood vessels, and releasing stress hormones like cortisol. An increase in blood flow seeks to re-establish balance. Unfortunately, persistent stress might impair this reaction, resulting in additional physiological imbalances. This leads to problematic blood pressure regulation.

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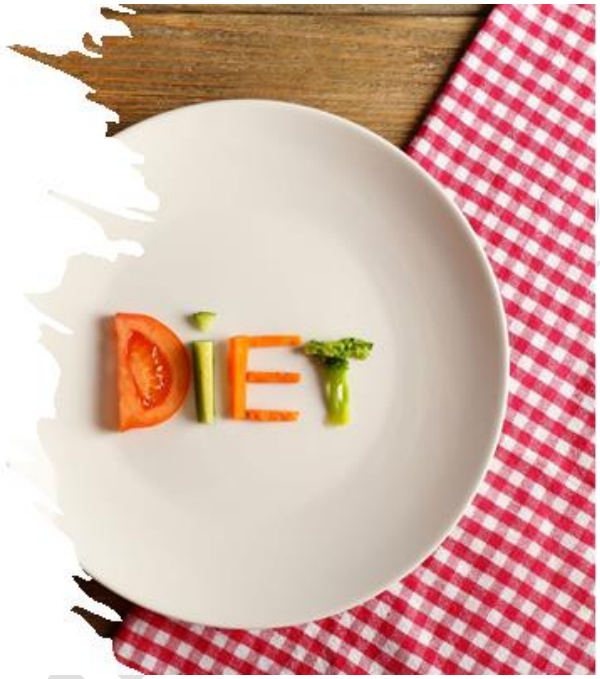
How is the balance achieved

- Fred's health demands will be met through the application of both positive and negative feedback.
- The objective is to balance Fred's physical and mental wellness.
- The daughter calls for an ambulance, which results in quick medical attention.
- The hospital staff offers diet, medication, physical therapy, and water to promote healing.



SN: In the case study of Fred, both positive and negative feedback mechanisms can be used to establish balance. After seeing Fred his daughter discovered the severity of his neglect, dehydration, and starvation. She called for an ambulance and got him admitted to the hospital. This acted as a positive feedback mechanism Fred's critical medical needs were addressed right away, halting the further decline. The medical staff can use negative feedback mechanisms to improve Fred's health once he is admitted to the hospital. They can start physical therapy to address his frailty and increase his mobility. They can deliver IV fluids to rehydrate him and provide correct nutrition to address his malnutrition (Grillo *et al*., 2019). They can control his blood pressure with medications to address his untreated hypertension. These interventions aim to balance Fred's overall health by reducing the negative effects of his untreated medical condition.

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SN: Many biopsychosocial stressors in the scenario may have an impact on Fred's capacity to maintain homoeostasis. In terms of biology, Fred is a 75-year-old age and male. He has existing medical issues like blood pressure. This could have affected his body's capacity to control physiological processes and preserve equilibrium. Fred suffered from high levels of stress due to the recent loss of his wife. His mental health may be impacted by these psychological stresses (Maguire *et al*., 2021). This may also impair his body's capacity to maintain homoeostasis. Social factors such as Fred's living arrangement could affect how well he can manage his health and well-being. However, his body's capacity to maintain homoeostasis might be impacted by lifestyle elements. He is not sleeping and eating well as he was found in a weakened state by his daughter.

Finally, the ability of his body to maintain equilibrium may be impacted by external stresses like the cold environment and pollution of his house.

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SN: Multifaceted strategies will be required to manage Fred's condition. Medicines may be provided for Fred to control his blood pressure and any other issues identified post to his admission in hospital. Fred's general health and well-being can be restored by implementing healthy lifestyle changes. This includes improving his food, increasing his physical activity, and obtaining enough sleep (Sims *et al*., 2020). It further includes managing stress through relaxation techniques or counselling. Any physical deficiencies or mobility problems Fred may be having can be addressed with the help of physical therapy. Establishing a strong social network can give Fred emotional support helping him combat his loneliness. His environmental conditions like proper house heating and cleanliness can help improve his condition.

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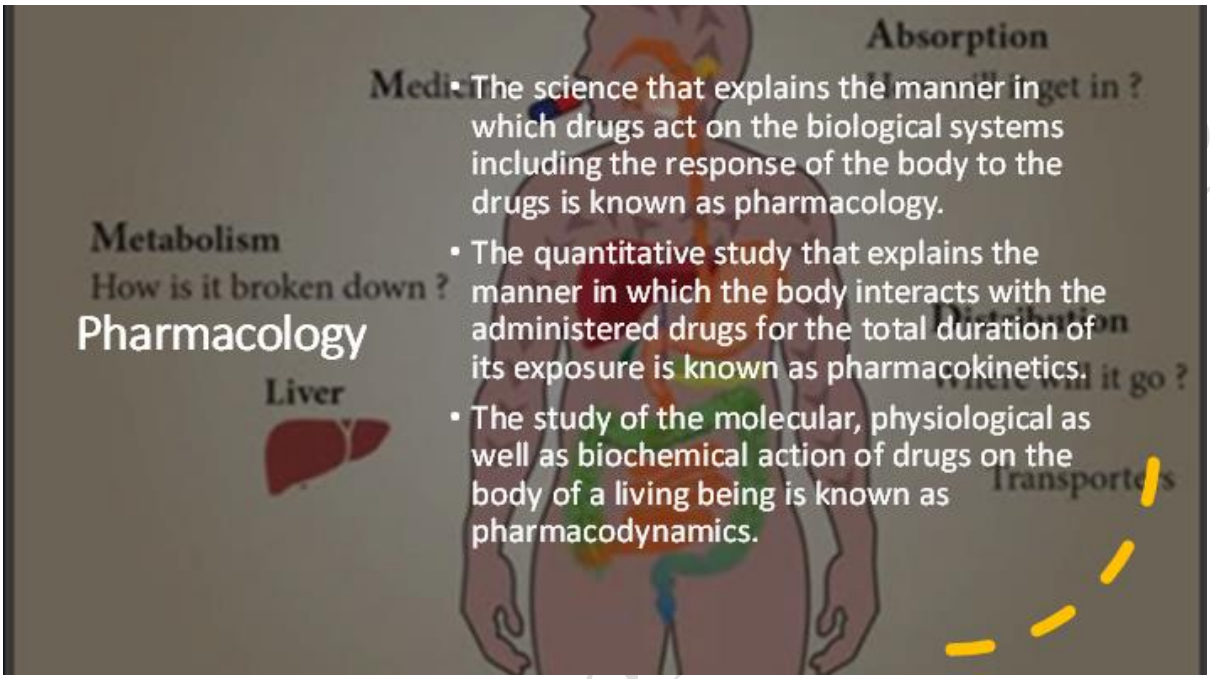

SN: The science that explains the manner in which drugs act on the biological system of living beings like humans or micro-organisms including the response of the body to the drugs is known as pharmacology (Hilmer *et al*., 2019). It includes researching medication interactions, side effects, therapeutic applications, and mechanisms of action. The quantitative study that explains the manner in which the body interacts with the administered drugs for the total duration of its exposure is known as pharmacokinetics (Hilmer *et al*., 2019). This encompasses the drug's absorption, distribution, metabolism, and excretion by the body. Pharmacokinetics provides information on how medicine interacts with the body and how best to administer it. The study of the molecular, physiological as well as biochemical action of drugs on the body of a living being is known as pharmacodynamics (Eyler and Shvets, 2019). Drug development as well as optimal

dosing depend heavily on pharmacodynamics, which explains the connection between drug concentration and effects.

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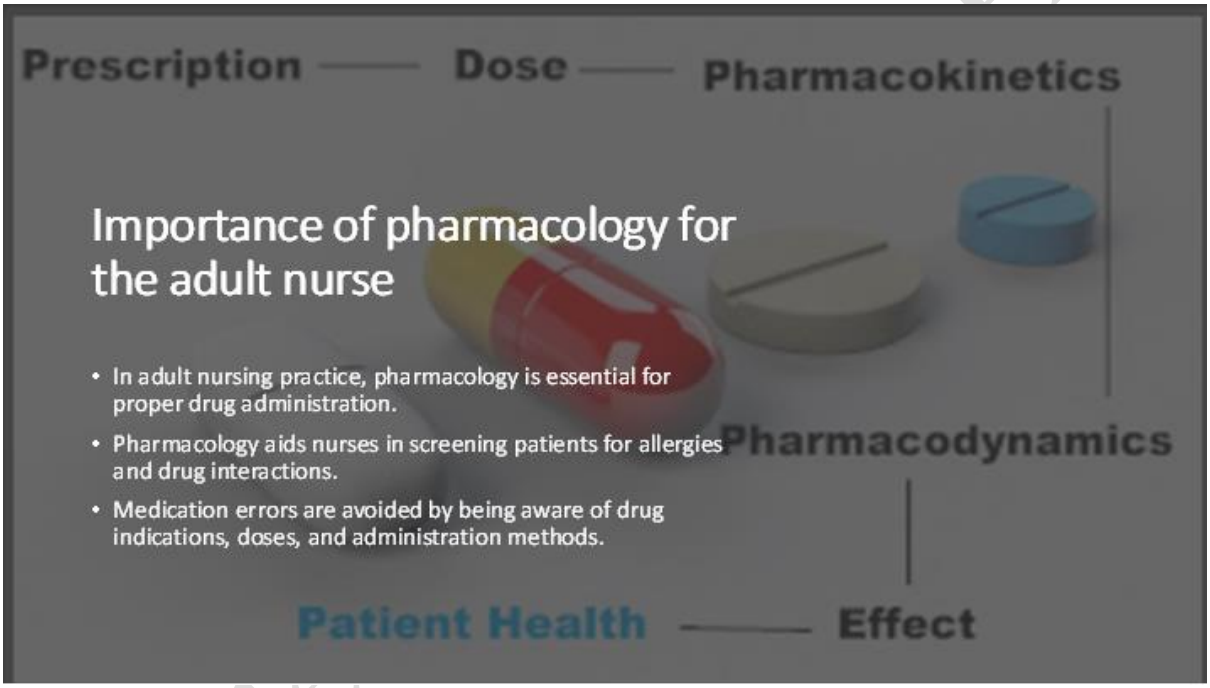

SN: Adult nurses need to understand pharmacology because it supports secure medication management, prevents negative drug responses, and fosters successful patient outcomes. Nurses need to assess potential drug interactions and allergies. They need to be knowledgeable about the indications, contraindications, doses, and routes of administration of various medications. This information gives patients the power to follow their recommended drug schedules (Barber and Robertson, 2020). This, in turn, assists in the prevention of medication errors enabling prompt

intervention in the event of bad reactions. In adult nursing practice, pharmacology is crucial for providing secure and efficient patient care.

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Role of Nurse in medicine optimisation

- Medicine optimisation refers to providing patients with proper medicines at the proper time ensuring their safety.
- The nurses ensure accurate drug administration and medication reconciliation.
- They monitor patients for therapeutic responses and side effects.
- The nurse can evaluate and track Fred's medication compliance.
- They can also explain the value of following the recommended medication schedule.
- They can work with the medical staff to assess and modify Fred's prescription.

SN: Medicine optimisation refers to providing patients with proper medicines at the proper time ensuring their safety (Tarrant *et al*., 2023). Nurses play a crucial role to optimise medicine. The nurses ensure accurate drug administration and medication reconciliation. They monitor patients for therapeutic responses and side effects of administered drugs. The nurse is crucial to Fred's situation since they can help him manage his medicines in the best way possible. The nurse can

evaluate and track Fred's medication compliance when his daughter observed that he was not taking his blood pressure medicine as prescribed. They can discuss any obstacles Fred may encounter in taking his medicines consistently with him and his daughter. They can also explain the value of following the recommended medication schedule. Taking into account Fred's age, medical history, and recent hospitalisation, the nurse can evaluate Fred's prescription regimen for possible drug interactions. They can work with the medical staff, including the doctor to assess and modify Fred's prescriptions. Weakness on one side was a problem faced by Fred as noticed by his daughter. The nurses can keep an eye on and deal with the negative side effects that Fred might encounter.

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Link between pharmacology and medicine Optimisation

- Pharmacology plays a critical role in medicine optimisation.
- The knowledge of pharmacokinetics can help nurses in comprehending the effect of the drug.
- The cognizance of pharmacodynamics will assist them in understanding the action of the drugs.

SN: Pharmacology plays a critical role in medicine optimisation. Pharmacology lays the groundwork for an understanding of how medications function. It aids in understanding how drugs might be utilised successfully to treat a variety of diseases. Knowledge of pharmacological aspects of drugs like pharmacokinetics, and pharmacodynamics can aid nurses (Barber and Robertson, 2020). The knowledge can help them in administering the proper dose to specific patients. The knowledge can help them to react effectively in case of any negative reaction to the drugs to the patients. The knowledge of pharmacokinetics can help nurses in comprehending the effect of the drugs. On the other hand, the cognizance of pharmacodynamics will assist them in understanding the action of the drugs.

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SN: The case of Fred has highlighted the context of blood pressure regulation. The adult nurse can learn a lot while studying and applying these scenarios. The knowledge of pharmacology is vital for adult nurses. It will aid in making their job easier. It will make them more efficient and able. It will ensure that patients like Fred are treated properly in case of emergency as mentioned in the scenario.

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