TECHNICHAL SIWES REPORT

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UNDERTAKEN AT 44 NIGERIAN ARMY REFERENCE HOSPITAL KADUNA STATE

17/MHS07/028

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TECHNICAL REPORT ON

Student industrial work experience scheme (SIWES)

UNDERTAKEN AT

44 NIGERIAN ARMY REFERENCE HOSPITAL KADUNA PHARMACY DEPARTMENT

BY

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17/MHS07/028

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**DEDICATION**

I dedicated this write up to beloved my parents, my father Alhaji Shehu Ahmad and my mother Hajiya Hadiza Abdullahi. I give my gratitude to my siblings and the rest of my family member for their support. Thank you.

**ACKNOWLEDGEMENT**

My sincere appreciation and gratitude to Almighty Allah, for it is with His help everything was done successfully. Special thanks to my supervisor for being there to explain and clear any confusion I have come across. To my parent, am grateful for the encouragement and advices on how to do things properly. And lastly to the pharmacists that took their time to lecture me. Also I am thankful to my family and friends.

**SHEHU SAFIYA AHMAD**

**ABSTRACT**

The 3 months Students Industrial Work Experience Scheme (SIWES) which is a requirement for my course of study, Pharmacology, was undertaken at 44 Nigerian army reference hospital Kaduna state.

I was an Industrial Attaché (IT) at the Pharmacy Department. The Industrial Training was based on working with drugs, counseling patients on how to take their drugs, monthly stocking and I also attended seminars and presentation during my stay at the hospital.

**INTRODUCTION**

SIWES was established by ITF in 1973 to solve the problem of lack of adequate practical skills preparatory for employment in industries by Nigerian graduates of tertiary institutions. The Scheme exposes students to industry based skills necessary for a smooth transition from the classroom to the world of work. It affords students of tertiary institutions the opportunity of being familiarized and exposed to the needed experience in handling machinery and equipment which are usually not available in the educational institutions.

Participation in Industrial Training is a well-known educational strategy. Classroom studies are integrated with learning through hands-on work experiences in a field related to the student’s academic major and career goals. Successful internships foster an experiential learning process that not only promotes career preparation but provides opportunities for learners to develop skills necessary to become leaders in their chosen professions.

One of the primary goals of the SIWES is to help students integrate leadership development into the experiential learning process. Students are expected to learn and develop basic non-profit leadership skills through a mentoring relationship with innovative non-profit leaders.

Participation in SIWES has become a necessary pre-condition for the award of Diploma and Degree certificates in specific disciplines in most institutions of higher learning in the country, in accordance with the education policy of government.

**OBJECTIVES OF SIWES**

 SIWES will provide students the opportunity to test their interest in a particular career before permanent commitments are made.

 SIWES students will develop skills and techniques directly applicable to their careers.

 SIWES will provide students the opportunity to develop attitudes conducive to effective interpersonal relationships, the opportunity to understand informal organizational interrelationships and will increase a student's sense of responsibility as well as to acquire good work habits.

 SIWES students will be prepared to enter into full-time employment in their area of specialization upon graduation and to develop employment records/references that will enhance employment opportunities.

**OBJECTIVES OF PHARMACY DEPARTMENT 44 NIGERIAN ARMY REFERENCE HOSPITAL.**

* Elementary dispensing theory
* Dispensing practical (compounding)
* Storage
* Elementary knowledge on Anti-hypertensive drugs.
* Component of prescription

**HYPERTENSION**

Descriptions of hypertension as a disease came among others from Thomas Young in 1808 and especially Richard Bright in 1836. The first report of elevated blood pressure in a person without evidence of kidney disease was made by Frederick Akbar Mahomed (1849–1884).

Hypertension (HTN or HT), also known as high blood pressure (HBP), is a long-term medical condition in which the blood pressure in the arteries is persistently elevated. Blood pressure is expressed by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively. For most adults, normal blood pressure at rest is within the range of 100–130 millimeters mercury (mmHg) systolic and 60–80 mmHg diastolic. For most adults, high blood pressure is present if the resting blood pressure is persistently at or above 130/80 or 140/90 mmHg. Different numbers apply to children.

**ANTI-HYPERTENSIVE DRUGS**

Antihypertensives are a class of drugs that are used to treat hypertension (high blood pressure). Antihypertensive therapy seeks to prevent the complications of high blood pressure, such as stroke and myocardial infarction. Among the most important and most widely used medications are diuretics, calcium channel blockers, ACE inhibitors, angiotensin II receptor antagonists (ARBs), beta blockers, and vasodilators.

**DIURETICS**

The drugs under this class are;

1. Loop diuretics:

* furosemide
* torsemide

1. Thiazide diuretics:

* hydrochlorothiazide and chlorothiazide
* bendroflumethiazide

1. Thiazide-like diuretics:

* indapamide
* Clopamide

1. Potassium-sparing diuretics:

* amiloride
* spironolactone

MECHANISM OF ACTION

Diuretics help the kidneys eliminate excess salt and water from the body's tissues and blood. Loop and thiazide diuretics are secreted from the proximal tubule via the organic anion transporter-1 and exert their diuretic action by binding to the Na(+)-K(+)-2Cl(-) co-transporter type 2 in the thick ascending limb and the Na(+)-Cl(-) co-transporter in the distal convoluted tubule, respectively.

**CALCIUM CHANNEL BLOCKERS**

The drugs under this class are;

1. Dihydropyridines:

* amlodipine
* nifedipine

1. Non-dihydropyridines:

* diltiazem
* verapamil

MECHANISM OF ACTION

Calcium channel blockers block the entry of calcium into muscle cells in artery walls resulting in the reduction in contraction of the arteries and cause an increase in arterial diameter, a phenomenon called vasodilation

**ANGIOTENSIN-CONVERTING ENZYME (ACE)**

The drugs under this class are;

* captopril
* enalapril
* fosinopril
* lisinopril

MECHANISM OF ACTION

ACE inhibitors inhibit the activity of angiotensin-converting enzyme (ACE), an enzyme responsible for the conversion of angiotensin I into angiotensin II, a potent vasoconstrictor. ACE inhibitors block the conversion of Angiotensin I (ATI) to Angiotensin II (ATII). They thereby lower arteriolar resistance and increase venous capacity; decrease cardiac output, cardiac index, stroke work, and volume; lower resistance in blood vessels in the kidneys; and lead to increased natriuresis (excretion of sodium in the urine).

**ANGIOTENSIN II RECEPTOR ANTAGONISTS**

The drugs under this class are;

* losartan
* olmesartan
* telmisartan

MECHANISM OF ACTION

Angiotensin II receptor antagonists work by antagonizing the activation of angiotensin receptors. They block the activation of angiotensin II AT1 receptors. Blockage of AT1 receptors directly causes vasodilation, reduces secretion of vasopressin, and reduces production and secretion of aldosterone, among other actions. The combined effect reduces blood pressure.

**ADRENERGIC RECEPTOR ANTAGONISTS**

The drugs under this class are;

1. Beta blockers

* atenolol
* carvedilol
* propranolol

1. Alpha blockers:

* phentolamine
* prazosin

1. Mixed Alpha + Beta blockers:

* carvedilol
* labetalol

MECHANISM OF ACTION

Antiadrenergic agents inhibit the signals of epinephrine and norepinephrine. They are primarily postsynaptic adrenergic receptor antagonists (alpha and beta adrenergic receptor antagonists, or "blockers"), inhibiting the downstream cellular signaling pathways of adrenergic receptors.

**VASODILATORS**

The drugs under this class are;

* HydralazineHydralazine
* Sodium nitroprusside,

MECHANISM OF ACTION

Vasodilators act directly on the smooth muscle of arteries to relax their walls so blood can move more easily through them; they are only used in hypertensive emergencies or when other drugs have failed, and even so are rarely given alone.

**CHOICE OF INITIAL MEDICATION**

In hypertensive patients aged 55 and over, or black patients of any age, first choice of initial therapy should be either a calcium channel blocker or a thiazide-type diuretic. In hypertensive patients younger than 55, first choice initial therapy should be an ACE inhibitor (or an angiotensin receptor blocker if an ACE inhibitor is not tolerated). If initial therapy was with a calcium channel blocker or thiazide-type diuretic and a second drug is required, add an ACE inhibitor (or angiotensin receptor blocker if ACE inhibitor is not tolerated). If initial therapy was with an ACE inhibitor, then add a calcium channel blocker or a thiazide-type diuretic. If treatment with three drugs is required, the combination of ACE inhibitor (or an angiotensin receptor blocker), calcium channel blocker and thiazide-type diuretic should be used.

SIDE EFFECTS;

* Cough, Skin rash
* Diarrhea or constipation and Nausea or vomiting
* Dizziness or lightheadedness or Feeling nervous
* Erection problems
* Headache, feeling tired, weak, drowsy, or a lack of energy
* Weight loss or gain without trying

**PROBLEMS ENCOUNTERED**

The problems I have encountered during my SIWES training are basically lack of equipment and supplies from the government are not always in time.

**RECOMMENDATION**

Government should provide enough equipment and whenever there is need for new supplies of drugs it should be in time for wellbeing of the patient.

**CONCLUSION**

**In the** 3months of my training I have learned skills of dispensing drugs, compounding of drugs.