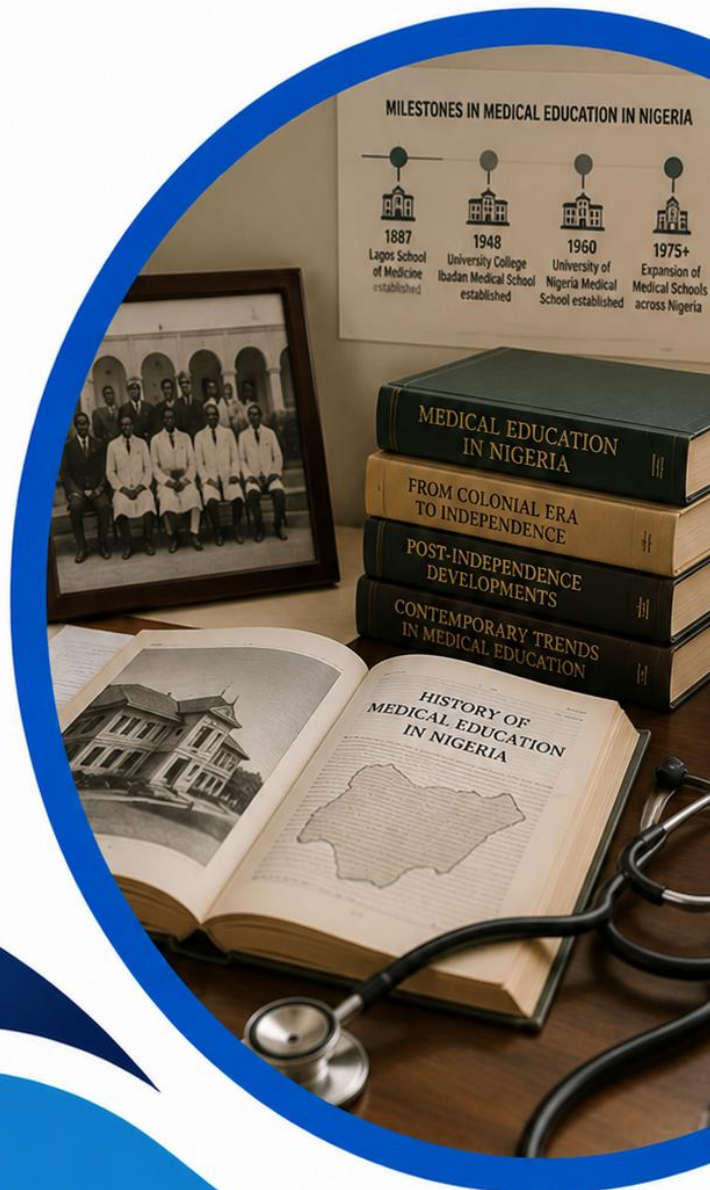




La-Net

MDH 203

EVOLUTION OF MEDICAL EDUCATION IN NIGERIA



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Course code: MDH 203

Course title: Evolution of Medical Education in Nigeria

Course credit load: 1 Unit

Series 1: Ethics and Professionalism

- **Part 1.1: Moral Philosophy and Clinical Ethics**

- Sub Part 1.1.1: What is moral philosophy?
- Sub Part 1.1.2: Ethical theories and their application to medicine
- Sub Part 1.1.3: Clinical ethics in practice

- **Part 1.2: Medical Professionalism**

- Sub Part 1.2.1: Defining professionalism in the Nigerian context
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- Sub Part 1.2.3: Accountability, integrity, and the culture of medicine

- **Part 1.3: Ethical Challenges in Contemporary Nigerian Medicine**

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- Sub Part 1.3.3: Resource allocation and justice in Nigerian healthcare

Introduction

Ethics is not a set of rules posted on the wall of a hospital corridor; it is the reasoning process that guides what clinicians do when faced with difficult questions about right and wrong. Every clinical encounter involves ethical dimensions, from the simple question of whether to tell a patient a difficult truth to the complex question of how to allocate a scarce resource among patients who all need it. A clinician who has not thought carefully about ethics is not avoiding ethical decisions; they are just making them unreflectively, which is considerably more dangerous.

This Series examines the moral foundations of clinical practice and the professional standards expected of a Nigerian physician. It begins with moral philosophy, the intellectual tradition that provides tools for ethical reasoning, and works through the major ethical frameworks and their clinical applications. It then addresses medical professionalism specifically in the Nigerian context, tracing the evolution of professional standards in Nigerian medical education, and concludes with three of the most pressing ethical challenges in contemporary Nigerian clinical practice: informed consent, confidentiality, and justice in resource allocation.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 1.1** explain the major ethical theories in moral philosophy and apply them to clinical situations,
- **SLO 1.2** define medical professionalism, describe its evolution in Nigerian medical education, and explain the standards of accountability and integrity expected of a physician, and
- **SLO 1.3** explain the principles of informed consent and patient autonomy, describe the limits of medical confidentiality, and discuss how justice applies to resource allocation in Nigerian healthcare.

1.1 Moral Philosophy and Clinical Ethics

1.1.1 What is moral philosophy?

Moral philosophy, also called ethics, is the branch of philosophy concerned with questions about what is right and wrong, what we ought to do, and what kind of people we should be. These questions are not merely academic; they arise in every clinical encounter. Should a clinician tell a patient a diagnosis the patient has not asked for? Should a hospital refuse to treat a patient who cannot pay? Should a doctor participate in a procedure they consider unethical? Moral philosophy provides the intellectual tools for thinking through these questions carefully rather than relying on intuition alone or deferring to authority without examination.

What makes moral philosophy distinctive as a discipline is its commitment to reason and justification. It is not enough to say that something feels wrong; moral philosophy asks you to articulate why it is wrong and to test that reasoning against counterexamples and alternative perspectives. This habit of reasoned justification is exactly what clinical ethics demands, because ethical decisions in medicine must be made transparently, documented, communicated to patients and families, and capable of withstanding scrutiny. The clinician who can explain their ethical reasoning is far better placed to navigate difficult situations and to earn the trust of patients and colleagues.

Fill in the blank: Moral _____ is the branch of philosophy concerned with questions about what is right and wrong and what we ought to do; it provides the tools for careful ethical reasoning that clinical practice requires.

1.1.2 Ethical theories and their application to medicine

The three most influential ethical theories in clinical medicine are consequentialism, deontology, and virtue ethics. Consequentialism holds that the right action is the one that produces the best overall outcome. In medicine, this perspective supports decisions that maximise patient benefit and minimise harm across the population, which is why it underpins much of public health reasoning and resource allocation. When a government must decide which vaccines to include in

a national immunisation schedule, it uses something like consequentialist reasoning: prioritising the interventions that will prevent the most illness for the most people.

Deontology holds that certain actions are right or wrong in themselves, regardless of their consequences. From a deontological perspective, telling the truth to a patient is an obligation that holds even when a lie might produce a better outcome. The requirement for informed consent is fundamentally deontological: it rests on the idea that patients have a right to make their own decisions, and that this right exists independently of whether exercising it produces the best medical result. Virtue ethics shifts the focus from rules and outcomes to character, asking not what should I do but what would a good doctor do. It holds that good clinical practice flows naturally from good character traits such as honesty, compassion, courage, and practical wisdom, and that cultivating these virtues is as important as knowing ethical rules.

Fill in the blank: _____ ethics holds that right action is determined by its consequences, producing the best overall outcome; this perspective underpins public health reasoning and many resource allocation decisions.

1.1.3 Clinical ethics in practice

Clinical ethics is the application of moral philosophy to the specific situations that arise in medical practice. The four-principle framework developed by Beauchamp and Childress, which was covered in MDH 201, provides a practical starting point: autonomy, beneficence, non-maleficence, and justice. But applying these principles to real cases requires more than memorising their definitions. It requires the ability to identify which principles are at stake in a given situation, to recognise when they pull in different directions, and to make a reasoned judgement about how to balance them.

A useful practical approach to clinical ethics is to work through a case systematically. First, identify the clinical facts: what is the patient condition, what are the treatment options, and what are their likely outcomes? Second, identify the ethical issues: whose interests are affected, what rights are at stake, and which ethical principles apply? Third, consider the perspectives of all parties: the patient, the family, the clinical team, and the institution. Fourth, identify possible courses of action and evaluate each against the ethical principles. Fifth, make a decision,

document the reasoning, and be prepared to explain and defend it. This process does not guarantee that everyone will agree with the outcome, but it ensures that the decision has been reached thoughtfully rather than carelessly.

Fill in the blank: A systematic approach to clinical ethics involves identifying the clinical facts, identifying the ethical issues, considering the perspectives of all _____, evaluating possible courses of action, and making a documented, defensible decision.

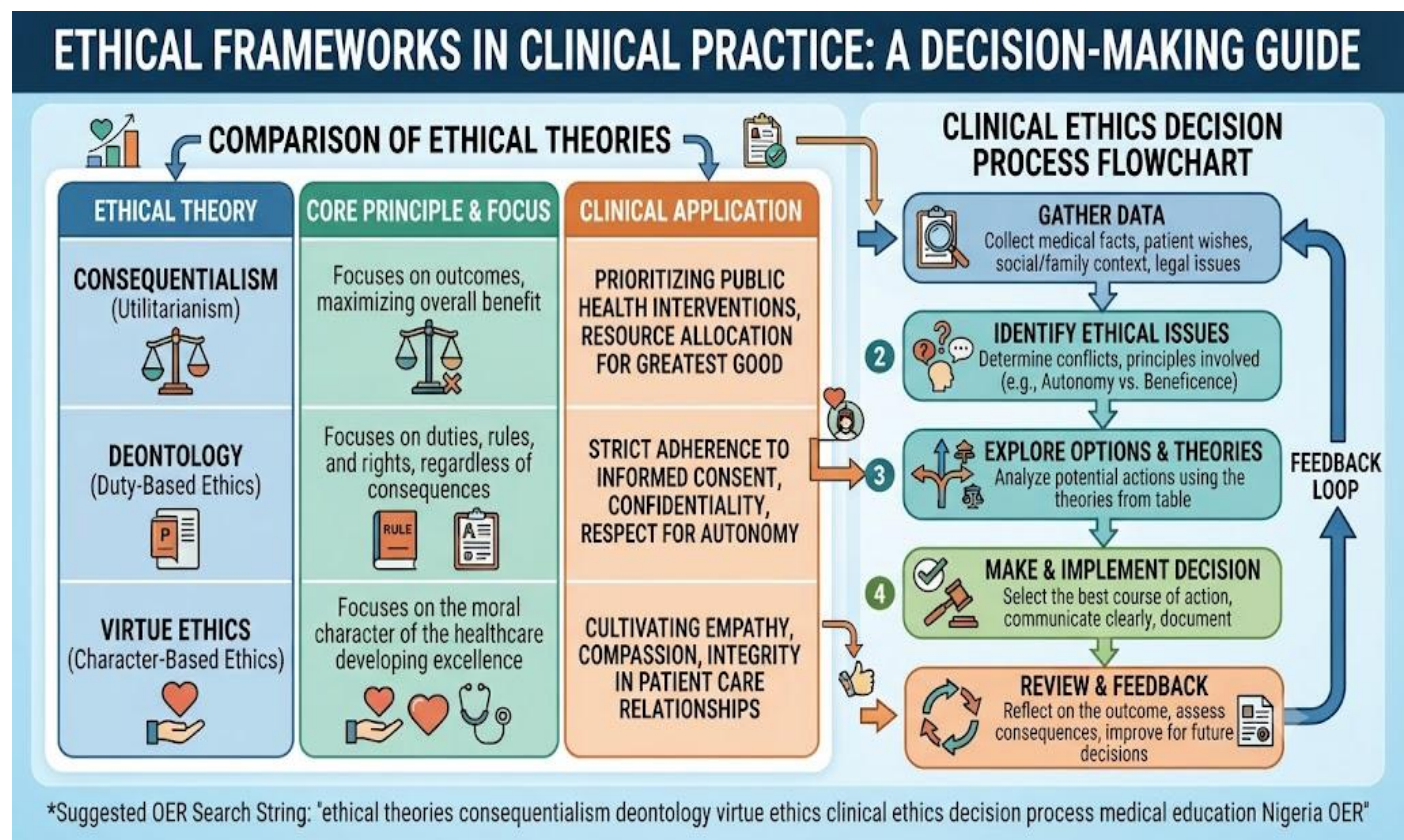


Figure 1.1: Ethical theories and the clinical ethics process

Pilot questions 1.1

1. What is moral philosophy and why is it relevant to clinical practice?
2. Explain consequentialism, deontology, and virtue ethics and give a clinical example of each.
3. Describe a systematic approach to working through an ethical problem in clinical practice.

4. Why is it important for a clinician to be able to articulate the reasoning behind an ethical decision?

1.2 Medical Professionalism

1.2.1 Defining professionalism in the Nigerian context

Professionalism in medicine means holding the values and behaviours that justify the trust patients and society place in doctors. This includes being competent, honest, accountable, and compassionate; maintaining appropriate professional boundaries; treating patients with dignity regardless of their social background; and placing the patient welfare above personal gain. In theory, these expectations are universal. In practice, professionalism is always exercised within a specific social and institutional context, and the Nigerian context presents particular challenges and particular strengths that shape what professionalism looks like in action.

Some of the specific challenges to professionalism in Nigerian medicine arise from the healthcare system itself. Doctors often work in under-resourced facilities with inadequate supplies, insufficient support staff, and very high patient loads that make it difficult to devote the time and attention that each patient deserves. When a doctor has sixty patients to see in a morning clinic, the ethical aspiration to treat each one as a whole person comes under severe practical pressure. Other challenges arise from the social environment: the expectation of gifts or payments beyond official fees, the pressure to favour patients with social connections, and the toleration of poor practice in colleagues out of misplaced loyalty all represent common threats to professional standards that Nigerian clinicians must consciously resist.

Fill in the blank: Medical professionalism means holding the values and behaviours that justify patient and social trust, including competence, honesty, accountability, and compassion, and placing _____ welfare above personal gain.

1.2.2 The evolution of medical education and professional standards in Nigeria

The evolution of medical education in Nigeria has been shaped by colonial inheritance, post-independence nation-building, and the persistent challenges of under-resourcing and brain drain. The first formal medical school in Nigeria, the University of Ibadan College of Medicine, was established in 1948 as a branch of the University of London, reflecting the colonial model of importing standards and curricula from the metropolis. Since independence in 1960, Nigerian medical education has progressively adapted to local needs and priorities, with the establishment of additional medical schools, the creation of the National Postgraduate Medical College, and the development of indigenous specialist training programmes.

The standards of professional conduct in Nigerian medicine are primarily set by the Medical and Dental Council of Nigeria, which has the power to register, regulate, and where necessary discipline medical practitioners. Over the decades, the Council has updated its guidelines to reflect evolving international standards and local realities, including addressing issues such as sexual harassment, fee splitting, and advertising. The ongoing challenge for Nigerian medical education is to cultivate not just technical competence but genuine professional values in its graduates, so that professional behaviour is sustained not merely because the Council requires it but because practitioners genuinely understand why it matters for their patients and their society.

Fill in the blank: The first formal medical school in Nigeria, the University of _____ College of Medicine, was established in 1948, initially as a branch of the University of London and modelled on the colonial approach to medical education.

1.2.3 Accountability, integrity, and the culture of medicine

Accountability in medicine means being answerable for the quality of the care one provides. It operates at multiple levels. At the individual level, each clinician is accountable to their patients for the standard of care they deliver, to their professional body for meeting the standards of the profession, and to the law for conduct that falls below the standard expected of a reasonably competent practitioner. At the institutional level, hospitals and health facilities are accountable to regulatory bodies, to the communities they serve, and to the state for the use of public resources.

Integrity means doing the right thing even when no one is watching, even when it is costly, and even when the culture around you tolerates something different. The culture of medicine matters

enormously in this regard: a medical school or hospital that normalises poor timekeeping, dismissive treatment of patients, or the acceptance of informal payments creates an environment in which these behaviours spread and become the default. Conversely, a culture that models and rewards honesty, diligence, and genuine care for patients gradually shapes the professionals who train and work within it. Students who enter a culture where senior clinicians set high standards are far more likely to internalise those standards than those who observe that the gap between what is taught and what is done is large and tolerated.

Fill in the blank: _____ in medicine means doing the right thing even when no one is watching and even when the culture around you tolerates a different standard; it is a personal quality that is also shaped by the institutional culture in which one works.

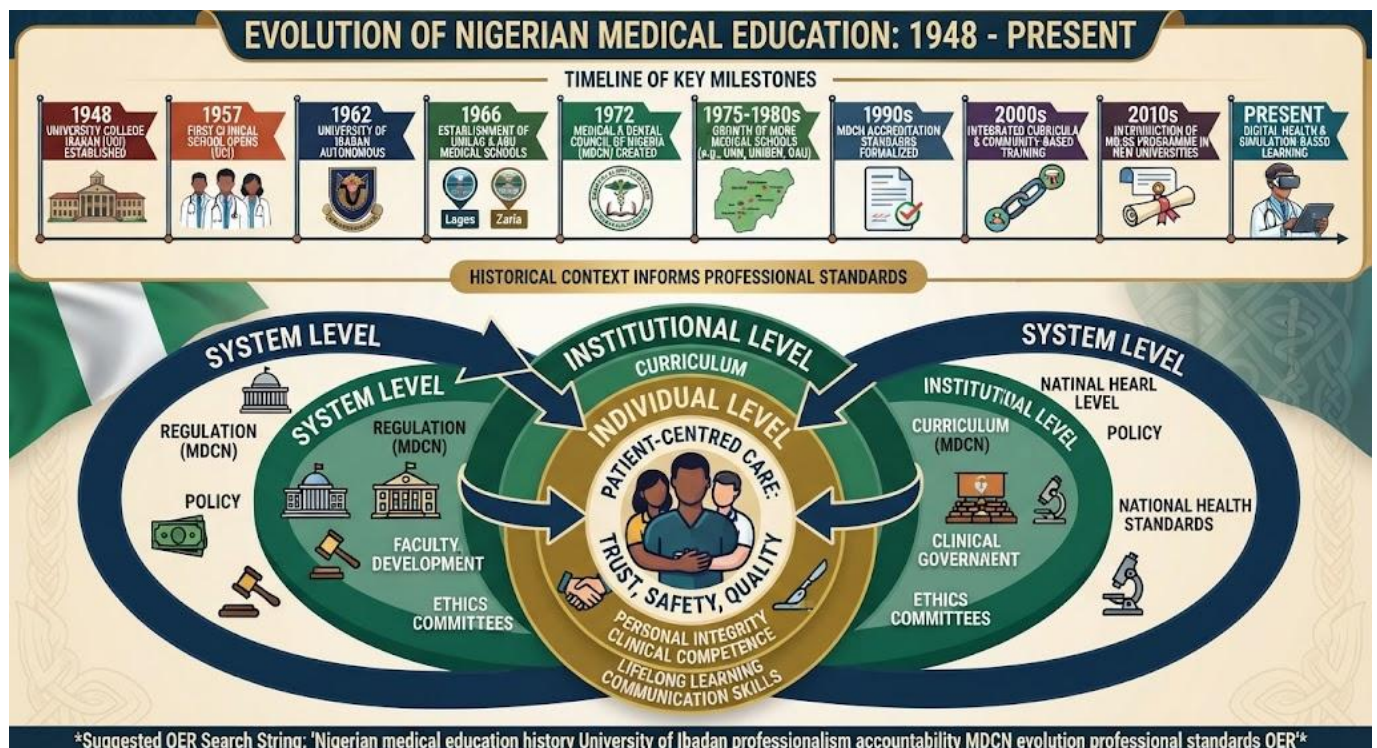


Figure 1.2: Professional standards and their evolution in Nigerian medicine

Pilot questions 1.2

1. What does medical professionalism mean and what specific challenges does it face in the Nigerian healthcare context?

2. Describe the main stages in the evolution of medical education in Nigeria from 1948 to the present.
3. Explain the three levels of accountability in medical practice.
4. Why does the culture of a medical school or hospital matter for the professionalism of its graduates and staff?

1.3 Ethical Challenges in Contemporary Nigerian Medicine

1.3.1 Informed consent and patient autonomy

Informed consent is the process by which a patient agrees to a proposed treatment or procedure after receiving the information they need to make a meaningful decision. For consent to be valid, three conditions must be met. First, the patient must have the capacity to understand the information and make a decision; capacity can be temporarily or permanently impaired by illness, medication, cognitive decline, or extreme distress, and when capacity is in doubt it must be formally assessed. Second, the consent must be given voluntarily, free from coercion or undue pressure from the clinical team, from family members, or from financial circumstances. Third, the patient must be adequately informed about the nature of the procedure, its likely benefits, its possible risks and side effects, and the alternatives available, including the option of no treatment.

In the Nigerian clinical context, informed consent faces specific practical and cultural challenges. Many patients have limited health literacy and may not fully understand medical explanations even when they are given. Family decision-making structures in many Nigerian communities mean that major health decisions are made collectively rather than by the individual patient, which can conflict with the biomedical principle of individual autonomy. The pressure of time in busy clinics means that consent is sometimes obtained as a formality rather than as a genuine process of shared understanding. And patients from lower socioeconomic backgrounds may feel unable to exercise genuine choice when they perceive that disagreeing with the doctor might affect the care they receive. Addressing these challenges requires skill, patience, and genuine respect for the patient as the decision-maker about their own body.

Fill in the blank: For informed consent to be valid, three conditions must be met: the patient must have _____ to understand and decide, the consent must be voluntary and free from coercion, and the patient must be adequately informed about the procedure, its risks, benefits, and alternatives.

1.3.2 Confidentiality and its limits

Medical confidentiality is the obligation to keep information shared by a patient in the course of a clinical relationship private from third parties. This obligation exists for good reason: patients will only disclose the full and frank information that clinicians need for accurate diagnosis and effective treatment if they trust that what they say will not be shared without their permission. Breaching confidentiality destroys this trust, not only for the individual patient whose information has been shared but for the broader relationship between communities and the healthcare system.

Like most ethical obligations, confidentiality is not absolute. There are circumstances in which it may be legitimately overridden. When a patient consents to disclosure, confidentiality is not breached. When disclosure is required by law, as in the notification of certain communicable diseases to public health authorities or in compliance with a court order, the clinician has a legal as well as a professional obligation to disclose. When there is a serious and credible threat to the life of the patient or a third party that cannot be prevented without disclosure, most ethical frameworks support overriding confidentiality, though the minimum information necessary should be disclosed to the minimum necessary recipients. In all cases of disclosure against the patient wishes, the clinician should document carefully the reasons for the decision and the specific information disclosed.

Fill in the blank: Medical _____ is the obligation to keep patient information private from third parties; it can be legitimately overridden with patient consent, by legal requirement, or when there is a serious and credible threat to life that cannot otherwise be prevented.

1.3.3 Resource allocation and justice in Nigerian healthcare

Justice in healthcare means that the benefits and burdens of medical care are distributed fairly across the population. In an ideal world, every patient who needs a particular treatment would receive it. In reality, all healthcare systems operate under resource constraints, and decisions about who receives what care are made constantly, sometimes explicitly and sometimes implicitly. Resource allocation decisions occur at every level of the health system: the national government decides how much of the budget to devote to health and how to divide it between prevention and treatment; hospitals decide how to allocate beds, operating theatre time, and specialist attention; and individual clinicians decide how long to spend with each patient in a busy clinic.

In Nigeria, resource constraints are severe and health inequalities are deep. The question of justice in resource allocation therefore has immediate practical urgency. When a hospital has only one functioning ventilator and two patients who need it, some principle of allocation is necessary, and different principles lead to different decisions. Utilitarian reasoning would allocate to the patient with the better prognosis, maximising the benefit from a scarce resource. An egalitarian approach might use a first-come-first-served or lottery system to treat patients as equals. A needs-based approach would prioritise the most critically ill. In practice, allocation decisions in Nigerian hospitals are often made informally and inconsistently, without explicit criteria, which makes them vulnerable to influence by social status and wealth. Developing explicit, fair, and publicly justifiable criteria for allocation is both an ethical and a governance imperative.

Fill in the blank: _____ in healthcare means that the benefits and burdens of medical care are distributed fairly; in resource-constrained systems, explicit allocation criteria are necessary to prevent decisions being determined by social status or wealth.

Pilot questions 1.3

1. Explain the three conditions that must be met for informed consent to be valid and describe two challenges to obtaining genuine consent in Nigeria.
2. Explain what medical confidentiality is and describe three circumstances in which it may be legitimately overridden.

3. Describe three different approaches to resource allocation and explain the ethical reasoning behind each.
4. Why is the development of explicit allocation criteria important for justice in Nigerian healthcare?

Series Summary

This Series examined the ethical and professional foundations of medical practice, starting from the intellectual tools that moral philosophy provides and working through to the specific challenges that face Nigerian clinicians today. Consequentialism, deontology, and virtue ethics each offer a distinctive lens on ethical problems, and the four-principle framework applies them in the clinical context. The systematic process for working through ethical dilemmas was presented as a practical discipline that allows decisions to be made transparently and defended under scrutiny.

Medical professionalism was examined in the Nigerian context, tracing the evolution of formal medical education from 1948 to the present and exploring the institutional and personal dimensions of accountability and integrity. The Series concluded with three concrete ethical challenges: the conditions for valid informed consent and the cultural factors that complicate it in Nigeria, the scope and limits of medical confidentiality, and the problem of just resource allocation in a health system where constraints are severe and inequalities are deep. These are not abstract problems; they are decisions that Nigerian clinicians face every day.

Glossary of Terms

- **Autonomy:** the ethical principle that patients have the right to make informed decisions about their own healthcare, including the right to refuse treatment.
- **Clinical ethics:** the application of moral philosophy to the specific situations that arise in medical practice.
- **Confidentiality:** the obligation to keep information shared by a patient in the course of a clinical relationship private from third parties.
- **Consequentialism:** the ethical theory that the right action is the one that produces the best overall outcome or consequences.

- **Deontology:** the ethical theory that certain actions are right or wrong in themselves, regardless of their consequences.
- **Informed consent:** the process by which a patient agrees to a proposed treatment after receiving adequate information and exercising voluntary, capacitated decision-making.
- **Integrity:** doing the right thing even when no one is watching and even when the culture around you tolerates a different standard.
- **Justice:** the ethical principle that the benefits and burdens of healthcare should be distributed fairly across the population.
- **Moral philosophy:** the branch of philosophy concerned with questions of right and wrong, providing the conceptual tools for ethical reasoning.
- **Virtue ethics:** the ethical theory that right action flows from good character, emphasising virtues such as honesty, compassion, courage, and practical wisdom.

Concept Check Questions [Series 1]

Objective Questions

1. Moral _____ is the branch of philosophy concerned with questions of right and wrong, providing tools for ethical reasoning in clinical practice. (Linked to SLO 1.1)
2. _____ holds that the right action is the one that produces the best overall outcome; it underpins public health reasoning and resource allocation decisions. (Linked to SLO 1.1)
3. The first formal medical school in Nigeria was the University of _____ College of Medicine, established in 1948. (Linked to SLO 1.2)
4. _____ in medicine means doing the right thing even when no one is watching and even when the surrounding culture tolerates a lower standard. (Linked to SLO 1.2)
5. Medical _____ is the obligation to keep patient information private; it can be overridden by patient consent, legal requirement, or serious threat to life. (Linked to SLO 1.3)

Short-Answer Questions

6. Explain the three ethical theories covered in this Series and describe how each one would approach the decision to disclose a terminal diagnosis to a patient. (Linked to SLO 1.1)
7. Describe the three conditions for valid informed consent and explain two cultural factors that complicate consent in the Nigerian context. (Linked to SLO 1.3)
8. Explain what justice means in the context of healthcare resource allocation and describe two different approaches to allocating a scarce resource. (Linked to SLO 1.3)

Long-Answer Question

9. Discuss the ethical and professional foundations of medical practice in Nigeria, covering the major ethical theories, the evolution of professional standards, and the specific

challenges of informed consent, confidentiality, and resource allocation. (Linked to SLOs 1.1, 1.2, 1.3)

Answers to Concept Check Questions [Series 1]

Objective Questions

1. Philosophy.
2. Consequentialism.
3. Ibadan.
4. Integrity.
5. Confidentiality.

Short-Answer Questions

6. Consequentialism would evaluate the decision to disclose a terminal diagnosis by its likely consequences: if disclosure helps the patient put their affairs in order, make meaningful choices about their remaining time, and maintain trust in the healthcare system, the consequences favour disclosure. If disclosure would cause severe psychological harm without any countervailing benefit, consequentialism might support withholding. Deontology would hold that the patient has a right to know the truth about their own medical condition regardless of the emotional consequences, and that the clinician has a duty of honesty that cannot be overridden by calculations about outcomes. Virtue ethics would ask what a compassionate, courageous, and honest physician would do, and would conclude that a virtuous doctor would find the courage to disclose the truth, while also showing the compassion to do so with care, sensitivity, and appropriate support.
7. Three conditions for valid informed consent: capacity to understand the information and make a decision; voluntariness, meaning the decision is free from coercion or undue

pressure; and adequate information about the procedure, its benefits, risks, side effects, and alternatives. Two Nigerian cultural factors: family decision-making structures in many Nigerian communities mean that relatives expect to be involved in or to make major health decisions on behalf of the patient, which can conflict with the biomedical principle of individual patient autonomy. Limited health literacy means that many patients do not fully understand medical explanations even when they are offered, so that consent may be given without genuine comprehension of what has been agreed to.

8. Justice in resource allocation means distributing healthcare benefits fairly when there is not enough for everyone. Utilitarian approach: allocate the scarce resource to the patient most likely to benefit from it, maximising the total good produced by the limited supply; this would prioritise a patient with a better prognosis over one who is unlikely to survive regardless. Needs-based approach: allocate the resource to the patient whose medical need is greatest, prioritising the most critically ill patient; this treats need as the primary criterion of justice regardless of likely outcome. Both approaches have strengths and weaknesses, and explicit criteria need to be agreed in advance rather than decided case by case under time pressure.

Long-Answer Question

9. Ethical theories: consequentialism (right action produces best outcome; underpins public health decisions and resource allocation), deontology (duties and rights independent of outcomes; underpins informed consent, truth-telling, patient rights), virtue ethics (right action flows from good character; underpins professional formation and compassionate practice); in clinical practice all three are used in combination. Clinical ethics process: identify facts, identify ethical issues, consider all parties, evaluate options, make documented decision. Professionalism: competence, honesty, accountability, compassion, patient welfare above personal gain; specific Nigerian challenges include under-resourcing, high patient loads, informal payment expectations, pressure to favour well-connected patients. Evolution of Nigerian medical education: University of Ibadan 1948 (University of London affiliate); post-independence adaptation; NPMCN established

1979; National Health Act 2014; ongoing brain drain challenge. Accountability: individual (answerable to patients, professional body, law), institutional (governance, quality assurance), system (MDCN regulation, legal framework). Integrity: personal and shaped by institutional culture; high-standard culture shapes high-standard practitioners. Informed consent: capacity plus voluntariness plus adequate information; Nigerian challenges: family decision-making norms, limited health literacy, power imbalance, time pressure. Confidentiality: obligation to keep patient information private; overridden by consent, legal requirement, or serious threat to life; minimum necessary information to minimum necessary recipients. Resource allocation: justice requires fair distribution; utilitarian (best outcome), egalitarian (first come or lottery), needs-based (most critically ill); explicit criteria prevent allocation by social status or wealth.

Answers to Pilot Questions [Series 1]

Part 1.1

1. Moral philosophy is the intellectual discipline that asks what is right and wrong, what we ought to do, and what kind of people we should be. It is relevant to clinical practice because every clinical encounter involves ethical dimensions, and every clinician makes ethical decisions whether or not they recognise them as such. A clinician who has not studied moral philosophy makes these decisions unreflectively, relying on intuition, habit, or deference to authority. A clinician who has engaged with moral philosophy can identify the ethical issues in a situation, consider multiple perspectives and principles, articulate the reasoning behind their decision, and defend it transparently. This transparency is practically important because ethical decisions in medicine must often be communicated to patients, families, and colleagues, and must be capable of withstanding scrutiny from patients, professional bodies, and courts.
2. Consequentialism holds that the right action is the one that produces the best overall outcome. Clinical example: a public health clinician recommends a mass vaccination

campaign for a disease that carries a small risk of vaccine side effects in a minority of recipients, because the total benefit of preventing widespread disease outweighs the harm to the few. Deontology holds that certain actions are right or wrong in themselves regardless of outcomes. Clinical example: a doctor discloses to a patient that they have made a prescribing error, even though the error caused no harm and disclosure will be uncomfortable and potentially damaging to the clinician, because honesty is a professional duty. Virtue ethics holds that right action flows from good character. Clinical example: a junior doctor refuses to go along with a senior colleague who is dismissing a patient complaint without proper investigation, because they have the virtue of courage and the virtue of fairness, even though it would be easier to say nothing.

3. A systematic approach to clinical ethics involves five steps. First, identify the clinical facts: what is the patient condition, what are the treatment options, what are their likely benefits and risks, and what is the patient current clinical status? Second, identify the ethical issues: which principles are at stake, whose interests are affected, and are there any rights, duties, or special obligations in play? Third, consider the perspectives of all parties: the patient may have different values and priorities from the clinical team; family members may have views that differ from the patient; the institution may have policies that constrain the options. Fourth, evaluate possible courses of action against the ethical principles, noting which options best honour autonomy, produce the most benefit, cause the least harm, and treat the patient fairly. Fifth, make a decision, document the reasoning, and communicate it clearly to all relevant parties.
4. The ability to articulate the reasoning behind an ethical decision matters for several reasons. First, it requires the clinician to examine whether their reasoning is sound, which often reveals assumptions or inconsistencies they had not noticed. Second, it enables meaningful communication with patients and families, who deserve to understand why a clinical decision has been made that affects them. Third, it enables accountability to colleagues, professional bodies, and courts, all of which may scrutinise clinical decisions and require explanation of the reasoning behind them. Fourth, it contributes to the broader professional culture by modelling explicit ethical reasoning, which helps colleagues and trainees develop the same habit. A decision that cannot be explained is difficult to defend and difficult to learn from.

Part 1.2

1. Medical professionalism means holding the values and behaviours that justify the trust patients and society place in doctors: competence, honesty, accountability, compassion, appropriate boundaries, respect for patient dignity, and placing patient welfare above personal gain. Specific challenges in Nigeria: first, structural under-resourcing creates conditions in which professional ideals are difficult to sustain; a doctor with sixty patients in a morning clinic cannot give each the time and attention professionalism requires, and systematic underfunding of facilities creates daily compromises that erode professional norms over time. Second, the normalisation of informal payments beyond official fees in some settings creates a culture in which patients who cannot pay receive lower priority, which directly contradicts the professional obligation to treat all patients equitably. Third, loyalty to colleagues can suppress reporting of poor practice, even when patient safety is at risk, prioritising professional solidarity over accountability.
2. The evolution of Nigerian medical education from 1948 to the present has passed through several main stages. The University of Ibadan College of Medicine was founded in 1948 as a branch of the University of London, with curricula and examination standards imported directly from Britain. After independence in 1960, medical schools began to adapt curricula to local health priorities, disease patterns, and community needs. Additional medical schools were established at universities in Lagos, Nsukka, Zaria, Benin, and elsewhere during the 1960s and 1970s, increasing the national training capacity. The National Postgraduate Medical College of Nigeria was established in 1979 to provide specialist training within Nigeria rather than requiring all postgraduate training to occur abroad. The National Health Act of 2014 codified patients rights and professional obligations in law. The persistent challenge throughout has been brain drain, which continually depletes the trained workforce that medical education produces.
3. Accountability in medical practice operates at three levels. At the individual level, each clinician is accountable to their patients for providing care that meets the standard expected of a reasonably competent practitioner in that specialty; to their professional body for adhering to the standards of the profession; and to the law for conduct that is negligent, fraudulent, or otherwise unlawful. At the institutional level, hospitals and

healthcare facilities are accountable to regulatory bodies such as the MDCN and the National Health Insurance Scheme; to the communities they serve; and to the state for the responsible use of public resources and the provision of safe care. At the system level, the health system as a whole is accountable to the Nigerian population through government, law, and civil society for the equitable and effective use of health resources.

4. The culture of a medical school or hospital matters for professionalism because professional values and behaviours are transmitted as much through observation and institutional norms as through formal teaching. Students and junior doctors watch what senior colleagues actually do, not just what they say in lectures. If senior clinicians are routinely late, dismissive toward patients, accepting of informal payments, and tolerant of poor practice in their peers, junior practitioners see this as the real standard of the profession regardless of what is written in codes of conduct. Conversely, when senior clinicians model punctuality, honesty, compassion, and accountability in their daily practice, trainees internalise these behaviours as the natural way medicine is done. Institutional culture also determines whether individuals who try to maintain high standards feel supported or isolated, which directly affects their ability to sustain professionalism over a long career.

Part 1.3

1. The three conditions for valid informed consent: first, capacity, meaning the patient must have the cognitive and emotional ability to understand the information provided and to make and communicate a decision; capacity can be temporarily impaired by illness, medication, or severe distress and must be assessed if in doubt. Second, voluntariness, meaning the consent must be genuinely free from coercion, undue pressure from clinicians, family members, or financial circumstances; a patient who agrees to a procedure because they fear that refusing will result in worse care is not consenting voluntarily. Third, adequate information, meaning the patient must be told in language they can understand what the procedure involves, what its likely benefits are, what the possible risks and side effects are, and what alternatives exist including the option of no

treatment. Two Nigerian challenges: limited health literacy means that many patients cannot fully understand the information given even when it is offered clearly, so that consent may be given without genuine comprehension; and family decision-making norms in many Nigerian communities create situations where the patient agrees to a procedure primarily because family members have decided it is appropriate, rather than because they themselves understand and endorse it.

2. Medical confidentiality is the obligation to keep information shared by a patient during a clinical encounter private from third parties. This obligation rests on the recognition that patients will only share the honest information needed for accurate diagnosis and effective treatment if they trust that it will not be disclosed without their permission. Three circumstances in which confidentiality may be legitimately overridden: first, with the patient consent to disclosure, which means the obligation is not breached but rather waived by the holder of the right; second, when disclosure is required by law, as in the mandatory notification of certain communicable diseases to public health authorities or compliance with a court order; third, when there is a serious and credible threat to the life of the patient or a third party that cannot be prevented without disclosure, in which case most ethical frameworks support overriding confidentiality while limiting disclosure to the minimum information necessary to prevent the harm.
3. Utilitarian approach: allocate the scarce resource to the patient with the best prognosis, meaning the one most likely to survive and benefit, maximising the total good produced from a limited supply. The ethical reasoning is consequentialist: the goal is to produce the best overall outcome for the population, and this is achieved by not using scarce resources on patients who are unlikely to benefit. Needs-based approach: allocate the resource to the patient with the greatest medical need, typically the most critically ill patient, regardless of their prognosis. The reasoning is that need itself creates a claim on available care, and the most vulnerable have the strongest claim. Egalitarian approach: use a first-come-first-served rule or a lottery system to treat all patients as equal claimants on the resource. The reasoning is that people are equal in dignity and deserve equal treatment regardless of their prognosis or the severity of their need.
4. Explicit allocation criteria are important for justice in Nigerian healthcare for several reasons. First, without clear criteria, allocation decisions are made informally and

inconsistently, which means that factors such as social status, personal connection to staff, and ability to pay often determine outcomes rather than clinical need or medical priority. This is both unjust and a violation of the professional obligation to treat all patients equitably. Second, explicit criteria can be made public and subjected to community scrutiny, which allows patients and civil society to hold institutions accountable for the fairness of their decisions. Third, clear criteria protect healthcare workers from the personal burden of making life-and-death decisions without guidance, reducing the moral distress that falls on individuals who must decide who gets the ventilator or the operating theatre slot without any agreed framework to guide them.

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Figures, Plates, Tables, and Boxes

- Figure 1.1: Ethical theories and the clinical ethics process Attribution: AI generated. Suggested OER search string: "ethical theories consequentialism deontology virtue ethics clinical ethics decision process medical education Nigeria OER".
- Figure 1.2: Professional standards and their evolution in Nigerian medicine Attribution: AI generated. Suggested OER search string: "Nigerian medical education history University of Ibadan professionalism accountability MDCN evolution professional standards OER".

Series 2: Healthcare Delivery and Communication

- **Part 2.1: Healthcare Delivery as an Interdisciplinary Profession**
 - Sub Part 2.1.1: The interdisciplinary nature of modern healthcare
 - Sub Part 2.1.2: Human resources for health in Nigeria
 - Sub Part 2.1.3: Roles of various healthcare specialists
- **Part 2.2: Communication and Interviewing Skills**
 - Sub Part 2.2.1: The clinical interview revisited: structure and purpose
 - Sub Part 2.2.2: Difficult conversations: delivering bad news and handling distress
 - Sub Part 2.2.3: Communication with special populations
- **Part 2.3: Teamwork, Leadership, and Healthcare Organisation**
 - Sub Part 2.3.1: Effective clinical teamwork
 - Sub Part 2.3.2: Leadership in healthcare
 - Sub Part 2.3.3: Healthcare delivery challenges in Nigeria

Introduction

No single clinician can provide all the care a patient needs. A patient admitted to hospital with a stroke needs a physician to diagnose and manage the acute event, a nurse to provide continuous monitoring and basic care, a physiotherapist to rehabilitate their movement, a speech therapist to address communication and swallowing difficulties, a social worker to plan discharge support, and perhaps a pharmacist to reconcile their medications and counsel on adherence. Modern

healthcare is inherently interdisciplinary, and the quality of care a patient receives depends at least as much on how well the team works together as on the expertise of any individual member.

This Series examines healthcare delivery as a collective enterprise. It describes the human resource landscape of Nigerian healthcare, the roles that different specialists play, and the communication and leadership skills that hold healthcare teams together. It also addresses some of the most challenging communication tasks a clinician faces, including breaking bad news and communicating effectively with patients who have special communication needs. Together, these topics form a practical foundation for working effectively within the complex social systems of Nigerian healthcare.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 2.1** explain the interdisciplinary nature of healthcare delivery, describe the human resource challenges facing Nigerian healthcare, and outline the roles of major healthcare specialist groups,
- **SLO 2.2** describe the structure and purpose of the clinical interview, explain how to conduct difficult conversations including delivering bad news, and describe communication strategies for patients with special needs, and
- **SLO 2.3** explain the principles of effective clinical teamwork, describe the key qualities of healthcare leadership, and identify the main challenges to healthcare delivery in Nigeria.

2.1 Healthcare Delivery as an Interdisciplinary Profession

2.1.1 The interdisciplinary nature of modern healthcare

Healthcare has become more specialised over the past century as medical knowledge has expanded beyond what any individual can master. At the same time, this specialisation has created a need for coordination between specialists who each understand only a part of the patient total problem. The response to this tension has been the development of the interdisciplinary healthcare team, a group of professionals from different disciplines who share information, coordinate their activities, and make joint decisions in the service of a common patient.

Interdisciplinary care is different from multidisciplinary care, and the distinction matters. In a multidisciplinary team, each professional manages their own domain and reports separately; the patient may receive contributions from many disciplines, but these contributions are not actively integrated. In a truly interdisciplinary team, members work together, share a common care plan, communicate regularly about the patient progress, and modify their individual contributions in response to what others are doing. The evidence consistently shows that interdisciplinary care produces better outcomes for complex patients, reduces errors, shortens hospital stays, and improves patient experience. Achieving it requires deliberate effort, good communication, mutual respect, and clarity about roles and responsibilities.

Fill in the blank: In a truly _____ team, members from different professions work together, share a common care plan, communicate regularly, and adjust their contributions in response to one another, rather than working in parallel without integration.

2.1.2 Human resources for health in Nigeria

Human resources for health refers to the workforce that delivers healthcare services, including doctors, nurses, midwives, pharmacists, laboratory scientists, physiotherapists, community health workers, and administrative and support staff. Nigeria faces a severe and worsening healthcare workforce crisis. The country has far fewer health professionals per capita than it needs to provide even basic health services. The WHO recommends a minimum density of 23 skilled health workers per 10,000 population to achieve adequate coverage of essential services; Nigeria falls well below this threshold in most states, particularly in the north.

The causes of this crisis are multiple and interacting. Medical and nursing schools produce graduates, but many leave the country within a few years of qualifying, drawn by better pay, working conditions, and career opportunities abroad. This phenomenon, known as brain drain, disproportionately affects specialties and regions that are already underserved. Within Nigeria, health workers are concentrated in urban centres and in the relatively well-resourced south, leaving rural communities with very limited access to skilled care. The maldistribution of health workers within the country may actually be a bigger immediate challenge than the total shortfall, because redistributing existing workers to underserved areas could improve access significantly even without increasing total numbers.

Fill in the blank: Nigeria faces a healthcare workforce _____ caused by insufficient production of health workers, emigration of trained professionals, and maldistribution of existing workers between urban and rural areas and between north and south.

2.1.3 Roles of various healthcare specialists

Understanding the roles of different healthcare professionals is essential for effective interdisciplinary collaboration. The physician is responsible for diagnosis, prescribing, and overall medical management. The nurse provides continuous patient care, monitors for deterioration, administers medications, dresses wounds, and ensures that the clinical environment is safe. The pharmacist reviews prescriptions for accuracy, checks for drug interactions, counsels patients on how to take their medications, and manages the pharmacy supply chain. The medical laboratory scientist performs diagnostic tests on blood, urine, tissue, and other specimens, and communicates results that the clinical team needs to make decisions.

The physiotherapist helps patients regain mobility, strength, and function after illness or injury, and manages respiratory conditions in both acute and rehabilitation settings. The radiographer performs diagnostic imaging and works with radiologists to produce and interpret the images the clinical team requires. The community health extension worker, or CHEW, is particularly important in the Nigerian context as the frontline health worker who serves communities that are beyond the reach of hospital-based care, conducting health education, immunisation, antenatal care, and first-line treatment for common conditions. Each of these professionals brings

knowledge and skills that the physician alone does not have, and recognising this is the foundation of effective interdisciplinary collaboration.

Fill in the blank: The community health extension worker, or _____, is the frontline health worker who serves communities beyond the reach of hospital care, providing health education, immunisation, antenatal services, and first-line treatment.

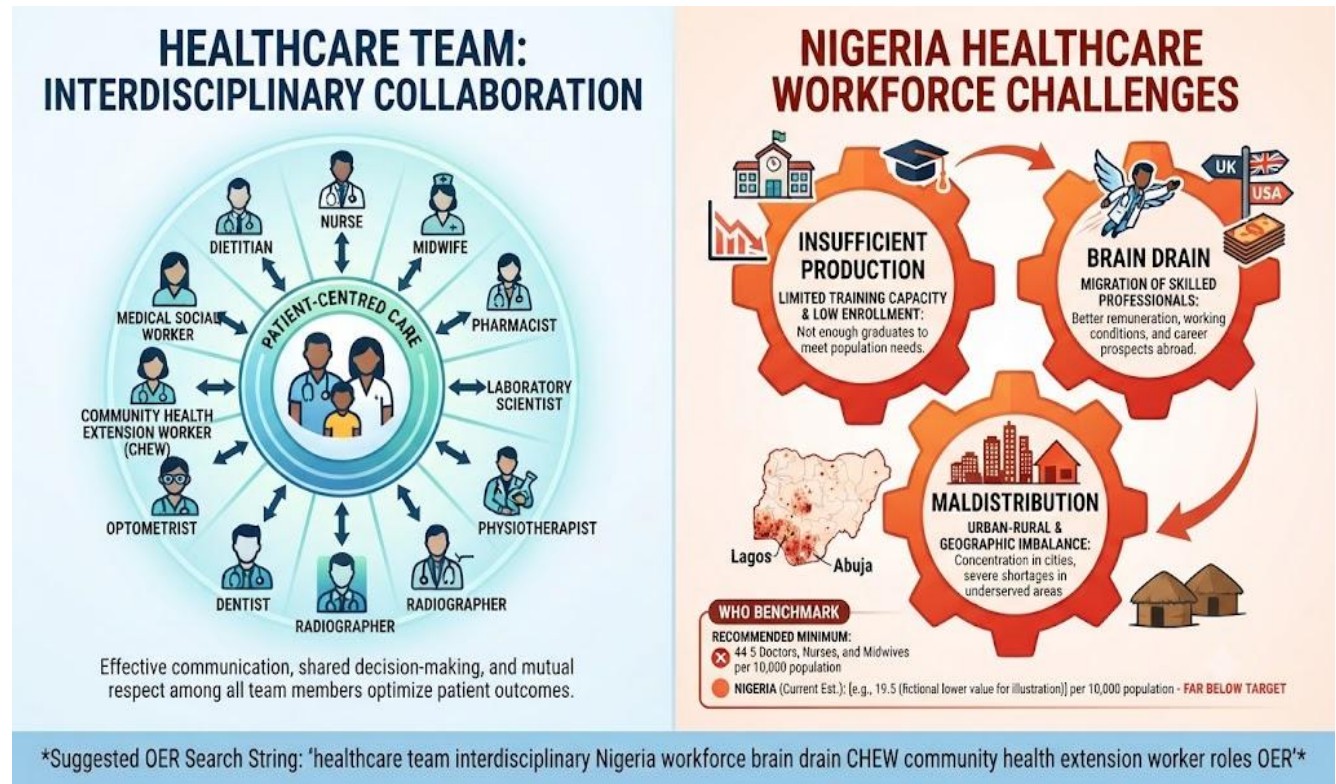


Figure 2.1: The healthcare team and Nigeria workforce landscape

Pilot questions 2.1

1. Explain the difference between multidisciplinary and interdisciplinary healthcare teams.
2. Describe the human resource challenges facing Nigerian healthcare and explain why maldistribution is as important as total numbers.
3. Describe the roles of three healthcare professionals other than the physician in the care of a patient admitted with a stroke.
4. Explain the role of the community health extension worker in Nigerian primary healthcare.

2.2 Communication and Interviewing Skills

2.2.1 The clinical interview revisited: structure and purpose

The clinical interview is the primary instrument through which a clinician gathers the information needed to understand a patient problem and begin formulating a response. Its structure, which moves from open questions at the start through systematic history-taking to clarification and summary at the end, is designed to maximise both the completeness and the accuracy of the information gathered. But the interview is not only an information-gathering exercise; it is also the foundation of the therapeutic relationship. How the clinician listens, responds, and engages during the interview shapes the patient experience of being cared for and determines whether they will be honest, forthcoming, and engaged in subsequent encounters.

In the Nigerian context, the clinical interview faces specific challenges that require specific adaptations. Language is one: with over 500 languages in the country, clinicians frequently encounter patients who do not share their primary language, and consultations through interpreters or in a second language reduce the nuance and completeness of what is communicated. Social hierarchy is another: patients from lower socioeconomic backgrounds or from communities with strong deference to authority may be reluctant to volunteer information they think the doctor does not want to hear, to ask questions they fear will seem ignorant, or to disagree with an assessment they believe to be wrong. Recognising and actively working against these dynamics, by explicitly inviting questions, by asking patients to repeat back what they have understood, and by creating an atmosphere of genuine openness, is an essential clinical communication skill.

Fill in the blank: In the Nigerian clinical context, _____ hierarchy and deference to authority can prevent patients from volunteering information, asking questions, or disagreeing with the clinician, requiring deliberate effort to create an atmosphere of genuine openness.

2.2.2 Difficult conversations: delivering bad news and handling distress

Delivering bad news is one of the most challenging communication tasks in medicine. The way in which a serious diagnosis is disclosed shapes how a patient and family respond to the illness

for months or years to come. A disclosure that is abrupt, cold, or poorly timed can leave patients traumatised and unable to engage with the treatment that follows. A disclosure that is compassionate, well-paced, and accompanied by emotional acknowledgment allows the patient to begin the process of adjustment and to participate meaningfully in decisions about their care.

The SPIKES protocol, described in MDH 201, provides a structured framework for breaking bad news: Setting, Perception, Invitation, Knowledge, Emotions, Strategy. The Emotions step deserves particular emphasis here. When a patient receives devastating news, their immediate emotional response is not primarily to the medical facts; it is to the meaning of those facts for their life. A patient diagnosed with cancer does not first think about treatment options; they think about their children, their unfinished work, their faith, their fear. Acknowledging this emotional reality before moving on to management is not a clinical weakness; it is the most therapeutically important thing a clinician can do in that moment. The patient who feels that their emotional response has been seen and respected is far better able to hear and process the clinical information that follows.

Fill in the blank: In the SPIKES protocol for breaking bad news, the _____ step involves acknowledging and responding to the patient emotional reaction before moving on to discuss management, allowing the patient to feel heard before processing further information.

2.2.3 Communication with special populations

Some patients require specific adaptations to standard communication approaches. Children cannot be communicated with in the same way as adults; the appropriate approach depends on the child developmental stage. A toddler needs simple, concrete language and the reassurance of a parent presence. A school-age child can understand simple cause-and-effect explanations and deserves age-appropriate truthfulness. An adolescent should be engaged as a developing autonomous person, with their own privacy and right to be involved in decisions about their care respected, though parental involvement remains appropriate in most circumstances.

Elderly patients may have hearing impairment, reduced processing speed, or early cognitive decline that requires the clinician to speak more slowly, use shorter sentences, confirm understanding more frequently, and provide written summaries of key information. Patients with

mental illness require communication that does not discriminate or dismiss on the basis of their diagnosis; a person with schizophrenia who presents with chest pain deserves the same thorough cardiovascular assessment as any other patient, and their subjective report of symptoms deserves the same respectful attention. Patients with physical disabilities that affect communication, such as deafness, aphasia following stroke, or intellectual disability, may require specialist communication aids, sign language interpreters, or adapted consultation formats. In all these cases, the fundamental principle is the same: the clinician has a responsibility to adapt their communication to the patient, not to expect the patient to adapt to the clinician.

Fill in the blank: The fundamental principle of communicating with special populations is that the _____ has a responsibility to adapt their communication approach to the patient, rather than expecting the patient to conform to a standard consultation format.

CLINICAL COMMUNICATION: BREAKING BAD NEWS & SPECIAL POPULATIONS

SPIKES PROTOCOL FOR BREAKING BAD NEWS

- 1 S-SETTING UP**
 - Find a private place, ensure adequate time, involve significant others (if patient wishes).
- 2 P-PERCEPTION**
 - Assess patient's understanding.
 - Ask open-ended questions: "What have you been told?"
- 3 I-INVITATION**
 - Obtain permission to give information.
 - Ask: "Would you like me to discuss the details?"
- 4 K-KNOWLEDGE**
 - Give the information. Start with a warning shot: "I'm afraid I have some difficult news".
 - Use simple language, avoid jargon, pause frequently.
- 5 E-EMOTIONS**
 - Address patient's emotions with empathy.
 - Use the NURSE protocol (Name, Understand, Respect, Support, Explore).
 - Offer reassurance.
- 6 S-STRATEGY & SUMMARY**
 - Summarize and create a plan.
 - Check understanding, involve the team, arrange follow-up.

NIGERIAN CULTURAL NOTE ON FAMILY PRESENCE

In Nigerian culture, the 'extended family' is often considered the primary decision-making unit. While patient autonomy is respected, involving key family members in difficult conversations is crucial for support, consensus, and care planning. The physician should sensitively navigate who the patient identifies as 'family'.

COMMUNICATION ADAPTATIONS FOR SPECIAL POPULATIONS

Population: CHILDREN	 Use simple language, play therapy, involve parents, draw diagrams.
ELDERLY PATIENTS	 Speak clearly and slowly, face the patient, reduce background noise, allow extra time.
HEARING-IMPAIRED PATIENTS	 Use visual aids, written information, face-to-face communication, sign language interpreter (if available).
PATIENTS WITH MENTAL ILLNESS	 Use short sentences, be calm and non-judgmental, validate feelings, repeat information, involve caregivers

*Suggested OER Search String: 'SPIKES breaking bad news difficult conversations special populations children elderly hearing impairment mental illness clinical communication Nigeria OER'

Figure 2.2: Clinical communication across challenging contexts

Pilot questions 2.2

1. What specific communication challenges arise in clinical interviews in the Nigerian context, and how should a clinician address them?
2. Explain why the Emotions step in the SPIKES protocol is particularly important when breaking bad news.
3. Describe how you would adapt your communication approach when consulting an elderly patient with early dementia.
4. What considerations should guide communication with an adolescent patient about a sensitive health issue?

2.3 Teamwork, Leadership, and Healthcare Organisation

2.3.1 Effective clinical teamwork

Effective clinical teamwork does not happen automatically just because a group of professionals are assigned to the same patient. It requires shared goals, clear roles, reliable communication, mutual trust, and a culture in which every team member feels safe to speak up when they have a concern. When these elements are present, teams perform better than individuals working independently. When they are absent, teams can actually perform worse than individuals, because coordination failures, communication gaps, and unspoken tensions create new sources of error on top of the individual limitations each member brings.

One of the most important conditions for effective teamwork is psychological safety: the belief that one can speak up, ask questions, raise concerns, or admit mistakes without being punished, humiliated, or ignored. In hierarchical healthcare environments, which is what most Nigerian hospitals represent, psychological safety is often absent in the lower-ranked members of the team. A student who notices something concerning about a patient may not feel able to mention it to the consultant; a nurse who believes a prescription is in error may not feel empowered to question it; a pharmacist who has a concern about a drug interaction may be dismissed rather than engaged. These silences are not just unfortunate; they are dangerous. Building a team

culture in which every voice is valued and every concern is taken seriously is not a luxury; it is a patient safety essential.

Fill in the blank: Psychological _____, the belief that one can speak up, raise concerns, or admit mistakes without punishment or humiliation, is one of the most important conditions for effective and safe clinical teamwork.

2.3.2 Leadership in healthcare

Leadership in healthcare is not synonymous with seniority. The consultant who leads the ward round is exercising formal positional leadership. But the nurse who coordinates a ward crisis before the doctor arrives, the house officer who ensures that test results are followed up when no one else has remembered, and the community health worker who motivates a reluctant community to accept a vaccination campaign are all exercising leadership in ways that directly affect patient outcomes. Leadership in healthcare is distributed and contextual; it is exercised by whoever is best placed to move the situation forward at a given moment.

Good healthcare leaders share several qualities. They communicate clearly and listen genuinely. They take responsibility without deflecting blame onto others. They create environments in which team members feel valued and supported. They make decisions under uncertainty without paralysis, while remaining open to revising those decisions as new information emerges. They develop the people around them, investing time in mentoring students and junior colleagues. And they maintain their professional values under pressure, resisting the temptation to cut ethical corners when time is short or resources are scarce. These qualities are not innate; they are developed through practice, reflection, feedback, and the kind of deliberate professional formation that medical education should explicitly cultivate.

Fill in the blank: Good healthcare leaders make decisions under _____ without paralysis while remaining open to revision; they take responsibility, develop those around them, and maintain professional values under pressure.

2.3.3 Healthcare delivery challenges in Nigeria

Healthcare delivery in Nigeria faces a cluster of overlapping challenges that together produce a health system performing far below its potential. Infrastructure is inadequate: many facilities lack reliable electricity, clean water, functioning diagnostic equipment, and essential medicines. The financing of healthcare is fragmented and inequitable: out-of-pocket payments remain the dominant mode of financing, which means that access to care is determined primarily by ability to pay rather than by need. The National Health Insurance Scheme exists but covers only a small fraction of the population, leaving the majority unprotected against catastrophic health expenditure.

Governance and accountability are also significant challenges. Medicines and supplies that are purchased with public funds do not always reach the facilities they were intended for. Absenteeism among health workers is high in some settings, particularly in rural areas, with workers maintaining positions in government facilities while conducting private practice elsewhere. Corruption in procurement, regulation, and service delivery diverts resources from patient care and undermines the trust that is essential for the health system to function. These systemic problems require systemic solutions: better governance, stronger accountability mechanisms, more equitable financing, and investment in the physical and human infrastructure that patient care depends on. Individual clinicians cannot solve these problems alone, but they can refuse to be part of them, and they can advocate actively for the changes that would allow them to serve their patients better.

Fill in the blank: Out-of-pocket payments remain the dominant mode of health financing in Nigeria, which means that access to care is determined primarily by ability to _____ rather than by clinical need, producing deep inequalities in health outcomes.

Pilot questions 2.3

1. What is psychological safety in the context of clinical teamwork and why is it particularly important in hierarchical healthcare settings?
2. Explain what distributed leadership means and give two examples from the Nigerian healthcare context.

3. Describe three healthcare delivery challenges in Nigeria and explain how each affects patient care.
4. What can an individual clinician do within a dysfunctional healthcare system to maintain professional standards and advocate for improvement?

Series Summary

This Series examined healthcare delivery as a collective enterprise shaped by professional roles, communication skills, and organisational dynamics. Modern healthcare is inherently interdisciplinary, and the quality of patient care depends as much on how different professionals coordinate as on the expertise each brings individually. Nigeria faces serious human resource challenges, including insufficient numbers of health workers, severe brain drain, and maldistribution between urban and rural areas, that limit what even the most dedicated team can achieve.

Communication skills were examined across their most demanding applications: the clinical interview adapted to the Nigerian context, the delivery of bad news using the SPIKES framework, and the adaptations required when consulting children, elderly patients, and those with special communication needs. The Series concluded by examining clinical teamwork and leadership, emphasising that psychological safety and distributed leadership are as important as technical skill, and addressing the systemic healthcare delivery challenges in Nigeria that frame every clinical encounter. Individual excellence matters, but it operates within and is shaped by the quality of the systems and teams that surround it.

Glossary of Terms

- **Brain drain:** the emigration of trained healthcare workers to higher-income countries, depleting the domestic workforce, particularly specialists.
- **CHEW (Community Health Extension Worker):** the frontline health worker who serves communities beyond the reach of hospital care in Nigeria, providing primary healthcare services.
- **Distributed leadership:** the idea that leadership in healthcare is exercised by whoever is best placed to move a situation forward at a given moment, not only by those with positional authority.

- **Human resources for health:** the full healthcare workforce, including doctors, nurses, pharmacists, laboratory scientists, physiotherapists, and community health workers.
- **Interdisciplinary team:** a healthcare team in which members from different professions actively share information, coordinate their activities, and integrate their contributions around a common care plan.
- **Maldistribution:** the unequal geographic spread of health workers within a country, with concentration in urban areas and shortage in rural and underserved regions.
- **Multidisciplinary team:** a healthcare team in which multiple professions contribute to a patient care but manage their own domains separately without active integration.
- **Psychological safety:** the belief that one can speak up, raise concerns, ask questions, or admit mistakes without fear of punishment, humiliation, or being ignored.
- **SPIKES protocol:** a six-step framework for breaking bad news: Setting, Perception, Invitation, Knowledge, Emotions, Strategy.
- **Teach-back:** a communication technique in which a patient is asked to repeat back key information in their own words to verify genuine understanding rather than superficial compliance.

Concept Check Questions [Series 2]

Objective Questions

1. In a truly _____ team, members from different professions share a common care plan and actively integrate their contributions rather than working in parallel. (Linked to SLO 2.1)
2. The _____, or CHEW, is the frontline health worker who provides primary healthcare services to communities beyond the reach of hospital-based care in Nigeria. (Linked to SLO 2.1)
3. In the SPIKES protocol, the _____ step involves acknowledging the patient emotional reaction before moving on to discuss management. (Linked to SLO 2.2)
4. Psychological _____, the belief that one can raise concerns without fear of punishment, is one of the most important conditions for safe clinical teamwork. (Linked to SLO 2.3)
5. Out-of-pocket payments as the dominant mode of health financing mean that access to care in Nigeria is determined primarily by ability to _____ rather than by clinical need. (Linked to SLO 2.3)

Short-Answer Questions

6. Explain the difference between a multidisciplinary and an interdisciplinary healthcare team, and describe why the distinction matters for patient outcomes. (Linked to SLO 2.1)
7. Describe how you would deliver a diagnosis of cancer to a patient using the SPIKES protocol, emphasising the Emotions step. (Linked to SLO 2.2)
8. Describe three healthcare delivery challenges in Nigeria and explain the effect of each on patients. (Linked to SLO 2.3)

Long-Answer Question

9. Discuss healthcare delivery as an interdisciplinary profession in Nigeria, covering the healthcare workforce, communication skills, teamwork, and the systemic challenges that affect quality of care. (Linked to SLOs 2.1, 2.2, 2.3)

Answers to Concept Check Questions [Series 2]

Objective Questions

1. Interdisciplinary.
2. Community health extension worker.
3. Emotions.
4. Safety.
5. Pay.

Short-Answer Questions

6. In a multidisciplinary team, different professionals manage their own domain independently and contribute separately to the patient care without active coordination; each may write their own notes and make their own plans without necessarily knowing what the others have decided. In an interdisciplinary team, professionals actively share information, discuss the patient together, and integrate their contributions around a shared care plan that everyone understands and contributes to. The distinction matters for patient outcomes because complex patients, such as those with multiple comorbidities, post-stroke disability, or advanced cancer, benefit from integrated care that addresses all their needs simultaneously and consistently; fragmented multidisciplinary contributions can lead to contradictory advice, missed problems, and poor coordination, whereas integrated interdisciplinary care reduces errors and improves the patient experience.
7. Setting: arrange a private room, ensure the patient is comfortable and seated, switch off your phone, and ask who they would like present. In the Nigerian context, family

members often expect to be present and this is appropriate if the patient consents.

Perception: begin by asking "What do you understand about your test results so far?" to establish what the patient already knows and to hear their current framing. Invitation: ask "Would you like me to explain what we found?" Knowledge: say clearly and in plain language "I am afraid the results show that you have cancer of the colon" and then pause. Avoid jargon. Emotions: this is the most important step. The patient will react, perhaps with shock, tears, silence, or denial. Before you say anything else, acknowledge what you are seeing: "I can see this is very difficult to hear. Take all the time you need." Sit with them in the silence. Do not rush to management. Strategy: only after the emotional reaction has been acknowledged do you say "When you are ready, I would like to talk about what we can do next."

8. Infrastructure inadequacy: many Nigerian health facilities lack reliable electricity, clean water, functional diagnostic equipment, and essential medicines; this means that even when patients arrive at a facility, the tools needed to diagnose and treat them may not be available, forcing clinicians to make decisions without adequate information and patients to pay for tests and drugs elsewhere. Out-of-pocket financing: the majority of Nigerians pay for healthcare from their own income at the time of illness, which means that those who cannot pay do not receive care, or delay seeking care until the disease is severe; catastrophic health expenditure is a major cause of household impoverishment. Maldistribution of health workers: health workers are concentrated in urban areas, leaving rural communities, which are also the poorest, without adequate access to skilled care; a woman in labour in a remote village in Zamfara State may have no skilled birth attendant within reach, which contributes directly to preventable maternal and neonatal mortality.

Long-Answer Question

9. Interdisciplinary care: modern healthcare requires coordinated teams rather than individual practitioners; interdisciplinary differs from multidisciplinary in the active integration of contributions around a shared care plan; effective interdisciplinary care

reduces errors, shortens hospital stays, and improves outcomes for complex patients. Roles: physician (diagnosis, prescribing, overall management), nurse (continuous care, monitoring, medication), pharmacist (medication review, counselling), medical laboratory scientist (diagnostic testing), physiotherapist (rehabilitation), radiographer (imaging), CHEW (frontline community primary care, immunisation, health education). Human resource challenges: insufficient numbers relative to WHO benchmark of 23 skilled workers per 10,000; brain drain removing trained professionals to UK, Canada, USA; maldistribution concentrating workers in urban south, leaving rural north severely underserved; CHEW cadre as partial community-level solution. Clinical interview: structured conversation moving from open questions through systematic history to summary; Nigerian challenges include language diversity, social hierarchy discouraging disclosure, and limited health literacy; solutions include plain language, interpreter use, teach-back, and explicitly inviting questions. Breaking bad news: SPIKES protocol (Setting, Perception, Invitation, Knowledge, Emotions, Strategy); Emotions step most important; in Nigerian context family presence often expected and appropriate. Special populations: children (developmental stage-appropriate language), elderly with cognitive decline (short sentences, written summaries, confirm understanding), hearing impaired (clear speech, written information, interpreter), mental illness (same rigour for physical complaints). Teamwork: effective teams need shared goals, clear roles, reliable communication, mutual trust, psychological safety; hierarchical structures in Nigerian hospitals suppress lower-ranked team members from raising concerns, creating patient safety risk. Leadership: distributed and contextual, not synonymous with seniority; qualities: clear communication, responsibility without deflection, creating supportive environments, deciding under uncertainty, mentoring. Systemic challenges: infrastructure inadequacy, out-of-pocket financing producing access by ability to pay, maldistribution, absenteeism, corruption in procurement; individual response: maintain standards, refuse to participate in corruption, advocate for systemic change.

Answers to Pilot Questions [Series 2]

Part 2.1

1. A multidisciplinary team brings together professionals from different disciplines who each manage their own domain and contribute separately, but without active coordination of their plans. A physician might recommend one approach, a physiotherapist another, and a nurse a third, each in isolation from the others. An interdisciplinary team, by contrast, actively integrates these contributions. Members communicate regularly, share a common understanding of the patient goals and care plan, and adjust their individual interventions in response to what others are doing. The distinction matters for patient outcomes because complex patients require coordinated, consistent care. When different professionals give contradictory advice or make independent decisions that conflict with each other, patients are confused, adherence suffers, and errors multiply. Active integration prevents these failures.
2. Nigeria faces a three-part healthcare workforce challenge. The first is insufficient production: there are not enough medical schools, nursing schools, and training programmes to produce the number of health workers the country needs. The second is brain drain: large numbers of trained professionals leave Nigeria every year, drawn by far higher salaries and better working conditions in the UK, Canada, the USA, and other countries. The third is maldistribution: even the health workers who remain in Nigeria are not where they are most needed. They are concentrated in urban areas, particularly in the south, while rural areas in the north have extremely limited access to skilled healthcare. Maldistribution is arguably as important as total numbers because it means that the shortage is felt far more acutely in some places than others, and that redistributing existing workers through better deployment and incentives could improve access substantially without increasing total supply.
3. Nurse: after a stroke, the nurse provides continuous monitoring of vital signs and neurological status, detects early signs of deterioration and alerts the medical team, assists with feeding and hygiene, prevents complications such as pressure sores and aspiration pneumonia through positioning and care, and provides emotional support to the patient and family. Physiotherapist: the physiotherapist assesses the patient motor deficits and begins active rehabilitation from early in the admission, working to restore limb

strength, coordination, and mobility through exercises and functional training. Delayed physiotherapy allows secondary complications such as contractures and muscle wasting to develop. Speech and language therapist: many stroke patients experience aphasia, which affects their ability to speak, understand language, read, or write, as well as dysphagia, which impairs swallowing safely. The speech therapist assesses both of these, provides targeted rehabilitation, and advises on safe feeding to prevent aspiration pneumonia.

4. The community health extension worker is a cadre of health worker trained to provide primary healthcare services at the community level in Nigeria. Their training is shorter than that of nurses or doctors, which allows them to be produced in larger numbers and deployed to communities that cannot attract more highly trained professionals. They provide essential primary care services including immunisation, health education and promotion, antenatal and postnatal care, treatment of common conditions such as malaria and diarrhoea using approved protocols, identification and referral of patients who need higher-level care, and community outreach during disease outbreaks and public health campaigns. In the current Nigerian health workforce landscape, the CHEW cadre represents the primary contact point between the formal health system and millions of Nigerians who live beyond the reach of hospital-based care.

Part 2.2

1. Language: Nigeria has over 500 languages, and clinicians frequently consult patients in a language that is not the patient primary language; this reduces the patient ability to express symptoms fully and understand what they are being told; solutions include using plain everyday vocabulary, providing pictorial or translated materials, using an interpreter where available, and confirming understanding through teach-back. Social hierarchy: patients from lower socioeconomic backgrounds or from communities with strong deference to authority tend not to volunteer information they think the doctor does not want to hear, not to ask questions they fear may seem ignorant, and not to contradict an assessment they believe to be wrong; the clinician must actively work against this by

explicitly inviting questions, creating an atmosphere of openness, and reassuring the patient that there are no wrong questions. Limited health literacy: many patients do not have the health knowledge to contextualise their symptoms or understand clinical explanations given in medical terms; plain language, analogies the patient can relate to, and visual aids help bridge this gap.

2. The Emotions step deserves particular emphasis because it is the point at which most clinicians fail when breaking bad news. When a patient receives devastating information, their immediate response is emotional, not cognitive. They are not processing treatment options; they are experiencing shock, fear, grief, or disbelief. If the clinician moves straight from delivering the news to discussing management, the patient is not in a state to receive or retain that information, no matter how clearly it is delivered. The Emotions step requires the clinician to pause after delivering the news, to observe the patient response without rushing to fill the silence, to name what they see ("I can see this is very hard to hear"), and to explicitly validate the emotional reaction before saying anything else. This takes only a minute or two, but it is the most therapeutically significant thing a clinician does in the encounter, because it allows the patient to feel that their humanity has been acknowledged before being asked to engage with the clinical plan.
3. When consulting an elderly patient with early dementia, speak more slowly than usual and use short, simple sentences, because processing speed and working memory are reduced and long complex sentences are harder to follow. Use the patient name frequently to help maintain their attention and orientation to the consultation. Check understanding frequently rather than at the end: ask "Can you tell me what you will do with this tablet?" after explaining the medication, rather than asking "Do you understand?" at the conclusion. Provide written instructions that the patient and their caregiver can refer to at home, because short-term memory difficulties mean that what was explained in the consultation may not be recalled later. Involve a trusted family member or caregiver in the consultation where the patient consents, as they can help reinforce the information and support the patient in following the plan. Avoid changing routines unnecessarily, as familiar structures help patients with cognitive decline feel secure and supported.

4. An adolescent patient consulting about a sensitive health issue such as sexual health, substance use, or mental health should be seen alone for at least part of the consultation, without parents present, to allow them to speak freely. Most Nigerian medical students will know from their training that adolescents above a certain age have a degree of legal and ethical entitlement to confidentiality that must be respected even when their parents might expect to be involved. The clinician should explain at the start of the consultation what confidentiality means and what its limits are: that what is said stays private unless the patient is at serious risk of harm to themselves or others. The adolescent should be addressed directly rather than through a parent, their views and preferences should be actively sought and respected, and they should be involved in decisions about their care as a developing autonomous person. A non-judgmental tone is essential; adolescents who sense disapproval quickly disengage from healthcare.

Part 2.3

1. Psychological safety is the shared belief among team members that they can speak up, raise concerns, ask questions, or admit mistakes without being ridiculed, dismissed, or punished. It is particularly important in hierarchical healthcare settings because these settings have strong pressures operating against speaking up: junior staff, students, and lower-ranked professionals have social and professional reasons to defer to seniors, and this deference can extend to situations where the senior is wrong or where important information is being missed. When a nurse does not feel safe questioning a consultant prescription, or a student does not feel able to mention an abnormal finding they noticed, information that could prevent harm to the patient is suppressed. Psychological safety removes these barriers, allowing information to flow from wherever it originates to wherever it is needed, regardless of where the information holder sits in the professional hierarchy.
2. Distributed leadership means that leadership in healthcare is exercised by whoever is best placed to move the situation forward at a given moment, rather than being the exclusive domain of those with positional seniority. Two Nigerian examples: first, a community

health extension worker who identifies an outbreak of watery diarrhoea in a village, immediately mobilises community members to boil drinking water, notifies the local government health authority, and begins oral rehydration therapy for affected children before a doctor or nurse arrives from the nearest town is exercising distributed leadership in the most direct possible sense: they are the person best placed to act, and they do so. Second, a ward pharmacist who notices that three patients on the same ward have developed unusually similar adverse drug reactions and raises this with the clinical team as a possible batch contamination or drug interaction issue is exercising leadership by bringing critical safety-relevant information to the team despite not being the most senior person in the room.

3. Infrastructure inadequacy: many Nigerian health facilities, particularly at the primary and secondary level, lack reliable electricity, clean water, functional diagnostic equipment, and consistent supply of essential medicines; a patient who arrives at a facility needing an emergency blood test may have to travel to a private laboratory to get it done, at their own expense and with significant delay, because the facility laboratory is not functioning; or a patient needing a caesarean section may be at risk because the operating theatre lights and suction equipment are dependent on a generator that has run out of fuel. Out-of-pocket health financing: the majority of Nigerians pay for healthcare at the time of illness from their own income; those who cannot afford to pay either do not seek care or delay until the illness is severe enough that they cannot avoid it; this pattern means that preventable conditions become severe and expensive to treat, that maternal and child deaths occur because families cannot afford the cost of skilled delivery, and that chronic disease management is interrupted repeatedly because patients cannot consistently afford medications. Absenteeism among health workers: in some settings, health workers maintain government positions while conducting private practice elsewhere, resulting in government facilities that are nominally staffed but where workers are unreliable in attendance; the patient who arrives at the scheduled clinic time finds no clinician, returns home untreated, and may not come back.
4. An individual clinician working within a dysfunctional healthcare system can take several practical steps. First, refuse to participate in the specific corrupt or unprofessional practices that perpetuate the dysfunction: do not accept informal payments, do not absent

yourself from the facility during working hours to run a private practice, do not create unnecessarily complex prescription or referral processes that incentivise patients to pay for convenience. Second, maintain rigorous professional standards within your own practice regardless of what colleagues do, because institutional culture is shaped by the sum of individual behaviours and the clinician who consistently does the right thing contributes to a culture that makes it slightly easier for others to do the same. Third, use the professional and democratic channels available to advocate for change: the NMA, civil society organisations, patient advocacy groups, and elected representatives are all legitimate channels through which clinicians can press for better health system governance, funding, and accountability.

References and Attributions

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Figures, Plates, Tables, and Boxes

- Figure 2.1: The healthcare team and Nigeria workforce landscape Attribution: AI generated. Suggested OER search string: "healthcare team interdisciplinary Nigeria workforce brain drain CHEW community health extension worker roles OER".
- Figure 2.2: Clinical communication across challenging contexts Attribution: AI generated. Suggested OER search string: "SPIKES breaking bad news difficult conversations special populations children elderly hearing impairment mental illness clinical communication Nigeria OER".

Series 3: Complementary and Alternative Medicine

- **Part 3.1: Introduction to Complementary and Alternative Medicine**

- Sub Part 3.1.1: Defining CAM and its global context
- Sub Part 3.1.2: Herbal and traditional medicine
- Sub Part 3.1.3: Spiritual and energy medicine

- **Part 3.2: Biologically Based and Mind-Body Practices**

- Sub Part 3.2.1: Biologically based practices
- Sub Part 3.2.2: Mind-body medicine
- Sub Part 3.2.3: Manipulative and body-based practices

- **Part 3.3: CAM in the Nigerian Context**

- Sub Part 3.3.1: Public health aspects of CAM in Nigeria
- Sub Part 3.3.2: The clinician approach to patients using CAM
- Sub Part 3.3.3: Integrating CAM and biomedical practice responsibly

Introduction

Complementary and alternative medicine, commonly abbreviated as CAM, encompasses a broad and diverse range of healthcare practices that exist outside the mainstream of conventional biomedical medicine. These practices are not marginal curiosities; they are used by the majority of the world population, including most Nigerians, and they represent systems of knowledge that have accumulated over centuries or millennia in response to the health needs of human

communities. The clinician who dismisses them without understanding them is not only poorly informed but is also ill-equipped to have honest conversations with the patients who use them.

This Series introduces the major categories of CAM practice, from herbal and traditional medicine through spiritual and energy healing to biologically based supplements and mind-body techniques. It examines their prevalence, their claimed mechanisms, the evidence for and against them, and their public health implications in Nigeria. It concludes by addressing the practical challenge every Nigerian clinician faces: how to engage constructively with patients who use CAM alongside or instead of biomedical treatment, and how to integrate what is valuable from traditional practice with the standards of evidence-based medicine.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 3.1** define complementary and alternative medicine, describe the major categories of CAM practice including herbal medicine and spiritual healing, and explain their prevalence and significance in Nigeria,
- **SLO 3.2** describe the main biologically based, mind-body, and manipulative CAM practices, explain their claimed mechanisms, and evaluate the evidence for their effectiveness and safety, and
- **SLO 3.3** explain the public health implications of CAM use in Nigeria, describe how a clinician should approach a patient who is using CAM, and discuss the principles of responsible integration of CAM with biomedical practice.

3.1 Introduction to Complementary and Alternative Medicine

3.1.1 Defining CAM and its global context

Complementary and alternative medicine refers to a diverse group of medical and healthcare systems, practices, and products that are not currently considered part of conventional medicine. The word complementary is used when a practice is used alongside conventional medicine, while alternative describes a practice used instead of conventional medicine. The broader term integrative medicine is used when conventional and non-conventional approaches are deliberately combined within a coherent clinical framework. These distinctions matter clinically because a patient using herbal remedies alongside their prescribed antihypertensives presents a different set of considerations from one who has replaced those antihypertensives entirely with herbal treatment.

Globally, CAM use is enormous. The World Health Organization estimates that between 65 and 80 percent of the world population relies on traditional medicine as its primary source of healthcare. In many African countries, this proportion is even higher. People use CAM for many reasons: because it is culturally familiar and trusted, because it is locally available and affordable, because they distrust or have had unsatisfactory experiences with conventional medicine, because they believe it addresses the spiritual dimensions of illness that biomedical medicine ignores, or because they want to use everything available to address a serious or chronic condition. Understanding why patients use CAM is as important as knowing what they use, because it shapes the clinical conversation.

Fill in the blank: The term _____ medicine is used when a practice is used alongside conventional treatment, while alternative medicine describes a practice used instead of conventional treatment.

3.1.2 Herbal and traditional medicine

Herbal medicine is the use of plant-derived materials for therapeutic purposes and is the oldest and most widespread form of medicine in the world. In Nigeria, herbal medicine is practised within multiple traditional systems including Yoruba traditional medicine, Hausa traditional

medicine, Igbo traditional medicine, and the practices of many smaller ethnic groups, each with its own pharmacopoeia of medicinal plants and its own explanatory framework for illness and healing. Many of the plants used in Nigerian traditional medicine have genuine pharmacological activity; artemisinin, derived from *Artemisia annua* and now a cornerstone of malaria treatment, is a celebrated example of a traditional remedy validated by modern science.

The safety of herbal medicine cannot be assumed simply because a preparation is natural. Many plants contain compounds that are toxic to the liver, kidneys, or other organs, particularly when taken in concentrated form, combined with pharmaceutical drugs, or used over extended periods. Heavy metal contamination of herbal preparations is also documented, as is microbial contamination when preparations are made under non-sterile conditions. Drug-herb interactions are a particular clinical concern: St John Wort, for example, induces hepatic enzymes that significantly reduce the blood levels of antiretroviral drugs, oral contraceptives, and anticoagulants. In the Nigerian context, clinicians must routinely ask about herbal remedy use and be alert to the possibility that unexplained clinical deterioration or treatment failure is related to an unrecognised herb-drug interaction.

Fill in the blank: Drug-herb interactions are a clinical concern because some herbal preparations alter the metabolism of pharmaceutical drugs; for example, St John Wort induces hepatic _____ that reduce the blood levels of antiretroviral drugs and other medications.

3.1.3 Spiritual and energy medicine

Spiritual medicine encompasses healing practices that attribute illness to disruption in the patient relationship with God, ancestors, spirits, or the moral and social order, and that use prayer, ritual, and the intervention of spiritually empowered healers to restore this relationship and thereby heal the body. In Nigeria, spiritual healing is practised by traditional diviners, herbalist-healers who combine plant remedies with ritual, Pentecostal Christian faith healers who attribute illness to demonic forces and healing to divine intervention, and Islamic healers who use Quranic recitation and blessed water. These practices are not fringe activities; they are the primary healthcare framework for a significant proportion of the Nigerian population, and understanding them is essential for any clinician working in Nigeria.

Energy medicine is based on the premise that the body is surrounded by or permeated with energy fields that can be manipulated to promote healing. Practices in this category include therapeutic touch, Reiki, and traditional Chinese qigong. The scientific evidence for the existence of the therapeutic energy fields postulated by these practices is weak, but this does not mean that all energy medicine practices are without effect; the therapeutic encounter itself, the attention, intention, and compassionate presence of the healer, may produce real psychological and physiological benefits through mechanisms that are recognised by mainstream science, such as relaxation, reduced anxiety, and placebo effects. The clinician should neither endorse the specific metaphysical claims of energy medicine nor dismiss the possibility that the practices have some real clinical benefit.

Fill in the blank: Spiritual medicine attributes illness to disruption in the patient relationship with God, ancestors, or spirits, and uses prayer, _____, and the intervention of spiritually empowered healers to restore this relationship and heal the body.

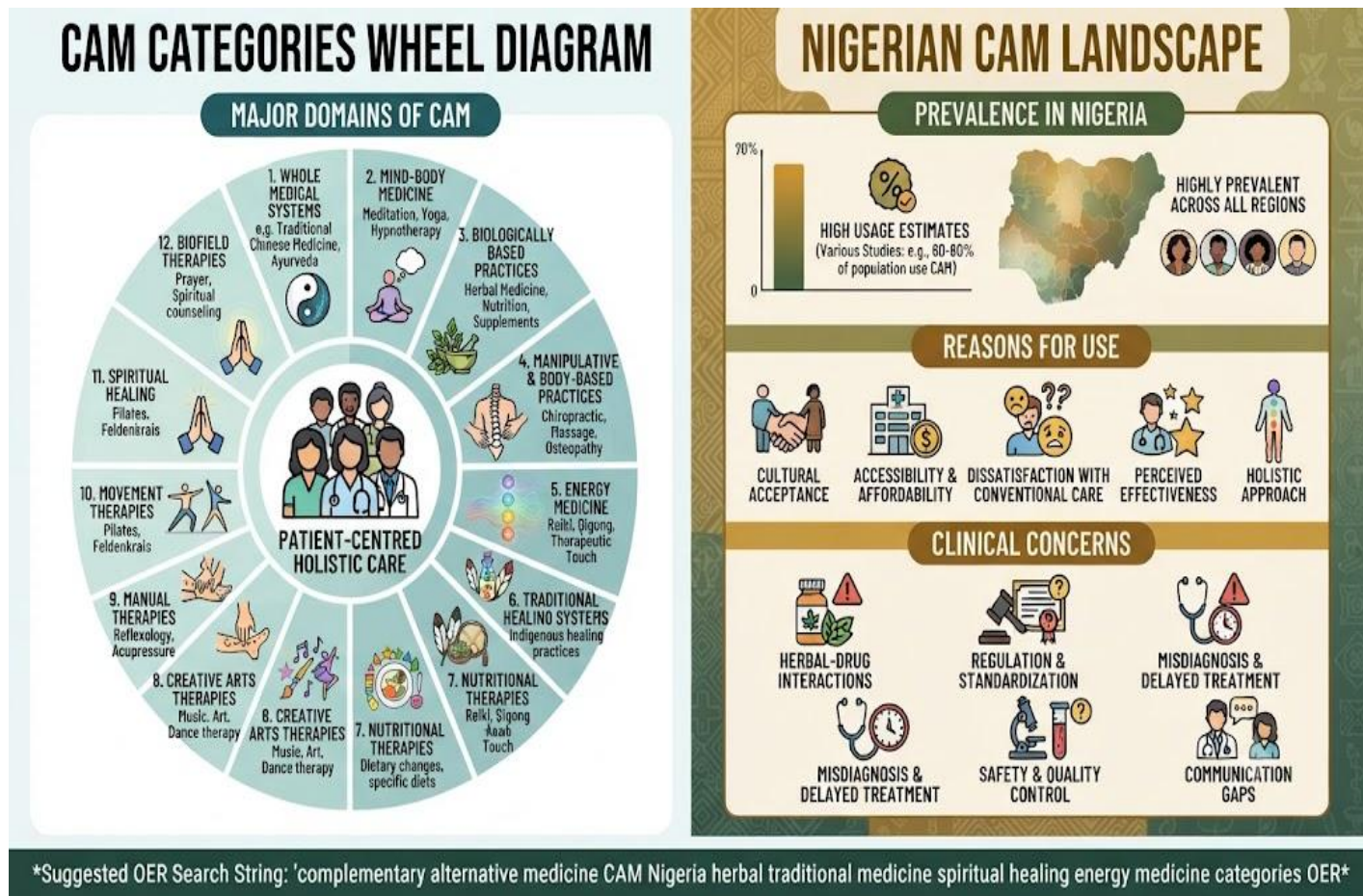


Figure 3.1: Categories of CAM and their prevalence in Nigeria

Pilot questions 3.1

1. Define complementary, alternative, and integrative medicine and explain the clinical significance of the distinction.
2. Explain why herbal medicines cannot be assumed to be safe simply because they are natural.
3. Describe the role of spiritual healing in Nigerian healthcare and explain why a biomedical clinician needs to understand it.
4. What is the WHO estimate of global traditional medicine use and what reasons do patients give for using CAM?

3.2 Biologically Based and Mind-Body Practices

3.2.1 Biologically based practices

Biologically based CAM practices use naturally occurring substances, including vitamins, minerals, dietary supplements, and special diets, with the aim of preventing or treating disease. This category shades into areas of genuine biomedical medicine, since vitamin and mineral supplementation for documented deficiencies is clearly evidence-based, and the role of diet in chronic disease prevention is well established. The distinction becomes relevant when supplements are used at doses far above established nutritional requirements on the basis of claimed therapeutic benefits that are not supported by high-quality clinical evidence.

High-dose vitamin C supplementation, for example, has been promoted for decades as a treatment for cancer, cardiovascular disease, and infections, but rigorous clinical trials have generally not confirmed the dramatic therapeutic effects claimed by proponents. Fat-soluble vitamins such as vitamins A, D, E, and K can accumulate to toxic levels when taken in large doses over extended periods. In the Nigerian context, the sale of dietary supplements has become a large and poorly regulated industry, with products making therapeutic claims that far exceed the evidence, and with patients spending significant sums on supplements rather than on evidence-based treatments. The clinician role is to help patients distinguish between supplements with genuine evidence of benefit and those being marketed on the basis of hope rather than proof.

Fill in the blank: Fat-soluble vitamins including A, D, E, and K can accumulate to _____ levels when taken in high doses over extended periods, unlike water-soluble vitamins that are excreted when taken in excess.

3.2.2 Mind-body medicine

Mind-body medicine encompasses practices based on the understanding that the mind and body are not separate systems but interact continuously, and that mental states can influence physical health and vice versa. This is not a fringe belief; it is well supported by the science of psychoneuroimmunology, which has established that psychological states such as stress,

depression, and social isolation have measurable effects on immune function, cardiovascular physiology, and inflammatory processes. Mind-body practices include meditation, relaxation training, biofeedback, guided imagery, hypnosis, and yoga, each of which uses different techniques to induce states of reduced physiological arousal that counteract the harmful effects of chronic stress.

The evidence base for mind-body practices is better than for many other CAM modalities. Mindfulness-based stress reduction has been shown in rigorous trials to reduce symptoms of anxiety and depression, improve quality of life in patients with chronic pain, and reduce inflammatory markers in stressed populations. Relaxation training and biofeedback have documented effects on hypertension, tension headaches, and irritable bowel syndrome. Prayer and spiritual practice, which are mind-body practices with a specific spiritual dimension, are associated with better psychological wellbeing and possibly with better physical health outcomes in observational studies, though separating the effects of prayer itself from the social support of religious community is methodologically difficult. These practices have a low harm profile and can be offered alongside conventional treatment for appropriate conditions.

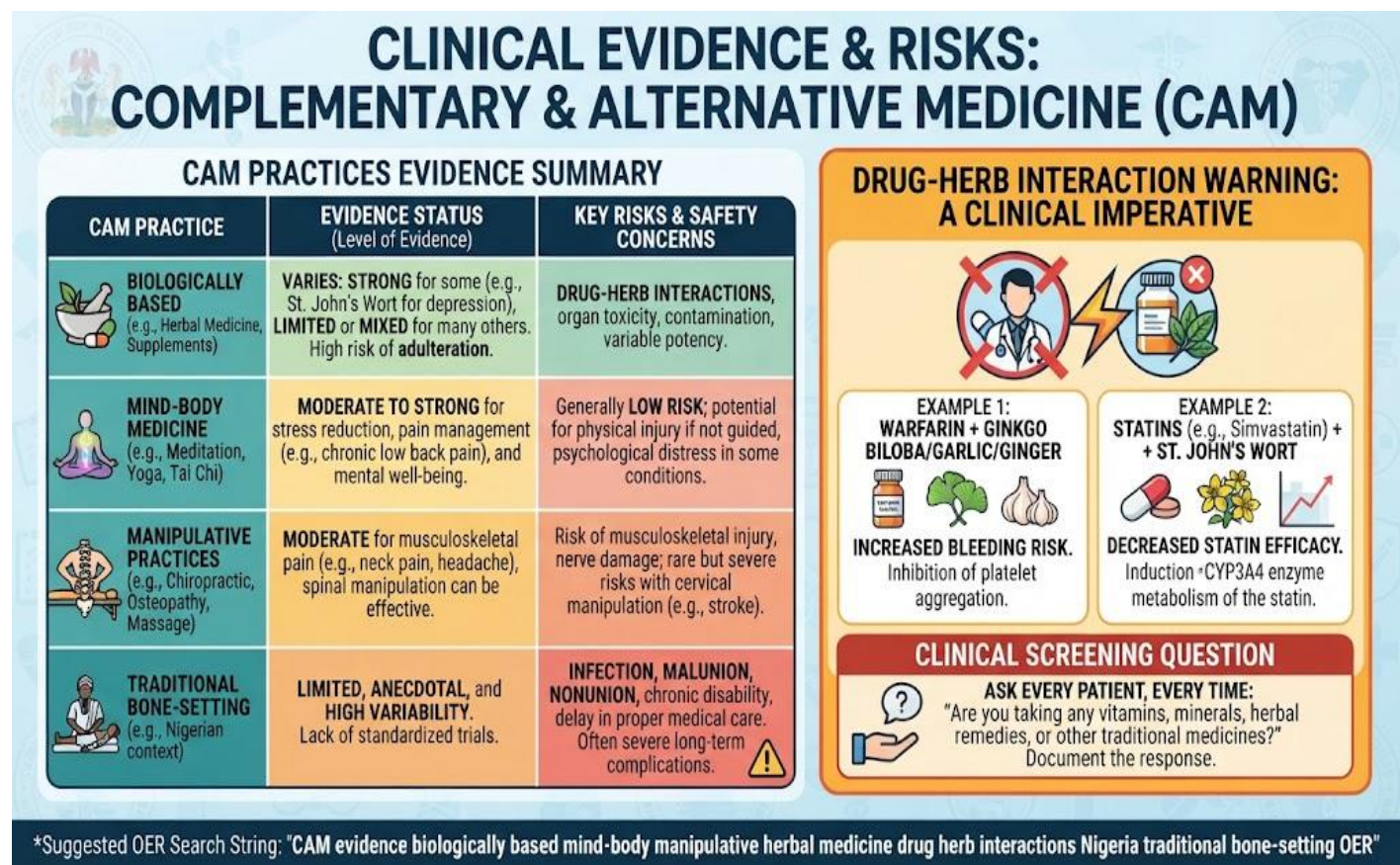
Fill in the blank: The science of psycho_____ has established that psychological states such as stress and depression have measurable effects on immune function, cardiovascular physiology, and inflammatory processes, providing the biological basis for mind-body medicine.

3.2.3 Manipulative and body-based practices

Manipulative and body-based CAM practices involve physical manipulation of the body to produce therapeutic effects. Traditional bone-setting is one of the most widely practised forms of manipulative medicine in Nigeria. Traditional bone-setters manage fractures, dislocations, and musculoskeletal injuries using splinting, manipulation, and herbal applications. In communities where hospital-based orthopaedic care is inaccessible or unaffordable, bone-setters fill a genuine healthcare gap, and many patients prefer to seek them first. However, complications of traditional bone-setting, including compartment syndrome from tight splints, avascular necrosis, malunion, and severe infections, are a significant cause of preventable disability and amputation in Nigerian hospitals, where patients often present late after unsuccessful traditional treatment.

Massage therapy uses manual manipulation of soft tissue to relieve pain, reduce muscle tension, improve circulation, and promote relaxation. It has a reasonable evidence base for musculoskeletal pain and is low in risk when performed by a trained practitioner on an appropriate patient. Chiropractic and osteopathy use spinal manipulation to treat musculoskeletal and other conditions; there is moderate evidence for their effectiveness in low back pain, which is one of the most common and costly musculoskeletal problems globally. These practitioners are not widely available in Nigeria, but the principles underlying their practice, that the musculoskeletal system influences health more broadly than simply as a structural support for the body, are relevant to any clinician managing patients with chronic pain or physical disability.

Fill in the blank: Complications of traditional bone-setting in Nigeria include compartment syndrome from tight splints, avascular necrosis, malunion, and severe infections, and are a significant cause of preventable _____ and amputation when patients present late after unsuccessful traditional treatment.



*Suggested OER Search String: "CAM evidence biologically based mind-body manipulative herbal medicine drug herb interactions Nigeria traditional bone-setting OER"

Figure 3.2: Evidence evaluation framework for CAM practices

Pilot questions 3.2

1. Explain why the distinction between evidence-based nutritional supplementation and unproven dietary supplement use matters clinically.
2. Describe three mind-body practices and explain the scientific basis for their potential effectiveness.
3. Describe the complications of traditional bone-setting in Nigeria and explain why patients continue to use it despite these risks.
4. What does the evidence show about the effectiveness of mindfulness-based stress reduction?

3.3 CAM in the Nigerian Context

3.3.1 Public health aspects of CAM in Nigeria

From a public health perspective, the widespread use of CAM in Nigeria has both positive and negative dimensions. On the positive side, traditional medicine practitioners are present in communities where biomedical facilities are not, providing a healthcare safety net for populations that would otherwise have no access to any formal care. Many traditional practices, such as the use of oral rehydration therapy for diarrhoea, which existed in various forms in Nigerian traditional medicine before it was formalised by biomedical science, align with evidence-based approaches and provide genuine benefit at low cost.

On the negative side, CAM use can cause direct harm through toxic preparations, unrecognised drug interactions, and the mechanical complications of manipulative practices. It can also cause indirect harm by delaying biomedical treatment for conditions where timely intervention is critical: a child with cerebral malaria who is taken first to a prayer house or traditional healer before reaching hospital, or a woman in obstructed labour who is treated with herbal oxytocics at home rather than undergoing emergency caesarean section, may die from a condition that was treatable. Addressing these public health challenges requires engagement with traditional medicine practitioners and religious healers as partners, not as adversaries; collaboration between

the formal health system and community healers on referral pathways, danger sign recognition, and safe practice has been shown to improve outcomes in several African settings.

Fill in the blank: CAM can cause indirect harm by _____ biomedical treatment for conditions where timely intervention is critical, such as cerebral malaria or obstructed labour, where delay can be fatal.

3.3.2 The clinician approach to patients using CAM

The most important first step in managing a patient who uses CAM is to ask about it. Studies consistently show that patients do not spontaneously disclose CAM use to their biomedical clinicians, most commonly because they anticipate a dismissive or disapproving response. If the clinician does not ask, they will not know, and they cannot manage what they do not know. The question should be part of every medication and social history: not just "what medications are you taking?" but "are you taking any herbal preparations, supplements, traditional remedies, or other treatments from a traditional healer, prayer house, or elsewhere?"

Once the patient discloses, the clinician response should be non-judgmental and practically focused. If a preparation is known to be harmful or to interact with prescribed medication, this should be explained clearly and alternative approaches suggested. If a preparation is unknown, the clinician should acknowledge this honestly rather than pretending to know more than they do. If a practice is likely harmless, there may be no clinical need to discourage it, and doing so may damage the therapeutic relationship and reduce the patient willingness to share information in future. If a patient is using CAM instead of evidence-based treatment for a serious condition, the clinician must explain clearly, kindly, and without condescension what the evidence shows and what the consequences of untreated disease are, while ultimately respecting the patient right to make their own informed decision.

Fill in the blank: Patients do not spontaneously disclose CAM use because they anticipate a _____ or disapproving response; the clinician must therefore ask specifically and respond in a non-judgmental, practically focused way.

3.3.3 Integrating CAM and biomedical practice responsibly

Responsible integration of CAM and biomedical practice means applying the same standards of evidence and safety to both. A CAM practice that has good evidence of benefit and a reasonable safety profile can be offered alongside or instead of biomedical treatment when the patient prefers it. A biomedical treatment with poor evidence and significant side effects is not automatically superior to a traditional remedy with reasonable evidence and a better safety profile, even though it carries the institutional authority of conventional medicine. The standard should be the evidence, not the system of origin.

In the Nigerian healthcare context, responsible integration also means treating traditional medicine practitioners with professional respect and seeking to establish collaborative relationships that benefit patients. When a traditional healer recognises a patient with a condition that requires biomedical investigation or treatment and refers them to hospital, this is exactly the kind of collaboration that serves patient welfare. When a clinician dismisses a patient traditional remedies without asking about them or provides care that ignores the patient spiritual and cultural framework, they are missing an opportunity to provide care that the patient will actually engage with and benefit from. The goal is not to choose between tradition and science but to bring the best of both to the patient who needs help.

Fill in the blank: Responsible integration of CAM and biomedical practice means applying the same standards of _____ and safety to both, without automatically privileging one system over the other solely on the basis of institutional authority.

Pilot questions 3.3

1. Describe two positive and two negative public health dimensions of widespread CAM use in Nigeria.
2. Why do patients not spontaneously disclose CAM use to their clinicians, and how should a clinician ask about it?
3. Describe how a clinician should respond when a patient discloses they are using a herbal preparation alongside their prescribed hypertension medication.

4. What does responsible integration of CAM and biomedical practice require of the individual clinician?

Series Summary

This Series examined complementary and alternative medicine as a major dimension of healthcare in Nigeria and globally. CAM encompasses herbal and traditional medicine, spiritual and energy healing, biologically based practices, mind-body techniques, and manipulative therapies. The majority of Nigerians use some form of CAM, and understanding why they do so, and what the evidence and the risks are, is a clinical necessity rather than an optional cultural sensitivity. Herbal medicines can have genuine pharmacological activity and can also cause direct harm through toxicity and drug interactions; spiritual healing addresses dimensions of illness that biomedical medicine does not; and mind-body practices have a growing evidence base for conditions including anxiety, chronic pain, and hypertension.

The Series concluded by addressing the practical challenge of managing CAM use in clinical practice. The first step is always to ask, because patients will not spontaneously disclose unless the clinician creates the conditions for honest disclosure. The response to disclosure should be non-judgmental, practically focused, and guided by evidence rather than institutional tradition. And the longer-term goal for Nigerian healthcare is responsible integration: bringing the genuinely beneficial elements of traditional and alternative practice into a framework that applies consistent standards of evidence and safety to all interventions, regardless of their origin.

Glossary of Terms

- **Alternative medicine:** a practice used instead of conventional biomedical medicine, rather than alongside it.
- **Biologically based CAM:** practices using naturally occurring substances such as vitamins, minerals, dietary supplements, and special diets for therapeutic purposes.
- **Complementary medicine:** a practice used alongside conventional biomedical medicine.
- **Drug-herb interaction:** a pharmacological interaction in which a herbal preparation alters the absorption, metabolism, or effect of a pharmaceutical drug.

- **Energy medicine:** CAM practices based on the premise that the body is permeated by energy fields that can be manipulated for therapeutic effect.
- **Herbal medicine:** the use of plant-derived materials for therapeutic purposes; the oldest and most widespread form of medicine globally.
- **Integrative medicine:** the deliberate combination of conventional and non-conventional healthcare approaches within a coherent clinical framework.
- **Mind-body medicine:** practices based on the interaction between mental states and physical health, including meditation, relaxation, biofeedback, and yoga.
- **Psychoneuroimmunology:** the science studying the interactions between psychological states, the nervous system, and immune function.
- **Traditional bone-setting:** a widely practised form of manipulative medicine in Nigeria managing fractures and musculoskeletal injuries; associated with significant complications when applied inappropriately.

Concept Check Questions [Series 3]

Objective Questions

1. _____ medicine is used alongside conventional treatment, while alternative medicine is used instead of it. (Linked to SLO 3.1)
2. St John Wort induces hepatic _____ that reduce blood levels of antiretrovirals, oral contraceptives, and anticoagulants. (Linked to SLO 3.1)
3. The science of psycho_____ has established that psychological states have measurable effects on immune function and cardiovascular physiology. (Linked to SLO 3.2)
4. Complications of traditional bone-setting include compartment syndrome, avascular necrosis, malunion, and severe infections leading to preventable _____. (Linked to SLO 3.2)
5. Patients do not spontaneously disclose CAM use because they anticipate a _____ or disapproving response from their biomedical clinician. (Linked to SLO 3.3)

Short-Answer Questions

6. Explain two specific safety risks of herbal medicine use that a Nigerian clinician should be aware of. (Linked to SLO 3.1)
7. Describe three mind-body practices and explain the evidence for their effectiveness. (Linked to SLO 3.2)
8. Explain how a clinician should ask about and respond to CAM use in a patient with hypertension who is also taking prescribed medication. (Linked to SLO 3.3)

Long-Answer Question

9. Discuss complementary and alternative medicine in the Nigerian healthcare context, covering its major categories, safety considerations, public health implications, and the approach a clinician should take with patients who use it. (Linked to SLOs 3.1, 3.2, 3.3)

Answers to Concept Check Questions [Series 3]

Objective Questions

1. Complementary.
2. Enzymes.
3. Neuroimmunology.
4. Disability.
5. Dismissive.

Short-Answer Questions

6. Drug-herb interactions: some herbal preparations significantly alter the metabolism of pharmaceutical drugs, reducing or increasing their effective blood levels; St John Wort induces hepatic CYP enzymes that reduce blood levels of antiretrovirals, potentially causing treatment failure in HIV-positive patients, as well as reducing the effectiveness of oral contraceptives and anticoagulants. The clinician must ask about herbal use and check for known interactions before attributing treatment failure to non-compliance or pharmacological resistance. Hepatotoxicity: several plants used in Nigerian traditional medicine contain compounds toxic to the liver; patients using herbal preparations for extended periods or in concentrated form may develop hepatotoxicity that is initially attributed to another cause; unexplained elevated liver enzymes or acute liver failure should prompt enquiry about herbal remedy use.
7. Mindfulness-based stress reduction (MBSR): a structured eight-week programme teaching meditation and present-moment awareness; evidence from multiple randomised trials shows significant reduction in anxiety and depression symptoms, improved quality of life in chronic pain patients, and reduction in inflammatory markers. Biofeedback: uses real-time physiological monitoring to give patients feedback on their own autonomic responses such as blood pressure, heart rate, and muscle tension, allowing them to learn to control these responses; moderate evidence for effectiveness in hypertension, tension headaches, and irritable bowel syndrome. Relaxation training: teaches techniques such as

progressive muscle relaxation and slow diaphragmatic breathing to reduce physiological arousal; evidence supports its use for anxiety, insomnia, and stress-related conditions; low-risk and easily taught in primary care.

8. The clinician should include CAM enquiry as a routine part of the medication history, asking specifically: "Are you taking any herbal preparations, traditional remedies, or supplements alongside your blood pressure tablets?" in a tone that conveys curiosity rather than disapproval. If the patient discloses herbal use, the clinician should ask what preparation it is and how it is being used, then check for known interactions between the preparation and the prescribed antihypertensive. If an interaction is known or suspected, this should be explained clearly and practically: "This preparation may reduce how well your blood pressure tablet works, which is why your pressure has not come down as expected." If the preparation is unknown, the clinician should say so honestly and offer to investigate. If the preparation appears harmless, there is no need to discourage it unless the patient is using it instead of their prescribed medication.

Long-Answer Question

9. CAM definition: complementary (alongside), alternative (instead of), integrative (deliberate combination); WHO estimates 65-80% of world population relies on traditional medicine as primary healthcare; Nigerian prevalence higher; reasons for use: cultural familiarity, affordability, spiritual frameworks, distrust of biomedical system. Categories: herbal medicine (plant-derived, ethnic pharmacopoeias, genuine pharmacological activity in many plants, artemisinin as paradigm case; risks: hepatotoxicity, heavy metal contamination, drug-herb interactions including St John Wort and antiretrovirals); spiritual healing (prayer, ritual, diviners, faith healers, Quranic healing; addresses spiritual dimensions of illness; widely used across Christian and Muslim populations in Nigeria); energy medicine (Reiki, therapeutic touch; weak evidence for specific metaphysical claims; possible psychological benefit through therapeutic encounter); biologically based practices (vitamins, minerals, supplements, special diets; some well-supported for deficiencies; many claims exceed evidence; fat-

soluble vitamin toxicity risk); mind-body medicine (meditation, MBSR, relaxation, biofeedback, yoga, prayer; moderate to good evidence for anxiety, depression, chronic pain, hypertension; low harm profile; psychoneuroimmunology provides biological basis); manipulative practices (traditional bone-setting widely used in Nigeria where orthopaedic care is inaccessible; complications: compartment syndrome, avascular necrosis, malunion, late presentations to hospital; massage and chiropractic: moderate evidence for musculoskeletal pain). Public health: positive (community presence of traditional healers, some aligned with evidence-based approaches, cost-effective); negative (toxic preparations, drug interactions, delay in biomedical care for serious conditions). Clinician approach: ask routinely and non-judgmentally; respond practically; explain known risks without condescension; respect patient autonomy. Responsible integration: apply same evidence standards to both; respect traditional practitioners as partners; collaborate on referral and danger sign recognition.

Answers to Pilot Questions [Series 3]

Part 3.1

1. Complementary medicine refers to a practice used alongside conventional biomedical treatment, so that both are employed simultaneously. Alternative medicine refers to a practice used instead of conventional treatment, replacing it entirely. Integrative medicine describes a deliberate, coordinated approach in which conventional and non-conventional practices are combined within a coherent clinical framework. The clinical significance lies in the different risks associated with each use pattern. A patient who uses herbal remedies alongside antihypertensives faces the risk of drug-herb interactions and the possibility of additive effects, both of which the clinician needs to monitor. A patient who has replaced antihypertensives entirely with herbal treatment may have uncontrolled blood pressure and organ damage accumulating without the clinician or the patient recognising it. And a patient in an integrative framework may be receiving genuinely coordinated care where the contributions of both systems have been considered together.

2. The assumption that natural equals safe is incorrect for several reasons. First, many plants contain compounds that are inherently toxic to the liver, kidneys, or other organs; the toxicity is not caused by the fact that the preparation is processed or synthetic but by the chemical nature of the plant compounds themselves. Second, herbal preparations are not subject to the same quality control standards as pharmaceutical drugs, so the dose of active compound in a preparation may vary widely between batches, increasing the risk of accidental overdose. Third, some preparations are contaminated with heavy metals such as lead, mercury, and arsenic, particularly when prepared in non-sterile conditions or with mineral additives. Fourth, herbal preparations can interact with pharmaceutical drugs in clinically significant ways, either enhancing or reducing their effect, sometimes dangerously.
3. Spiritual healing occupies a central place in Nigerian healthcare because the majority of Nigerians hold spiritual explanatory models of illness; they understand disease not only as a biological event but as a sign of spiritual imbalance, moral failing, divine test, or ancestral displeasure. For a person with this understanding, biomedical treatment that addresses the body without addressing the spiritual dimension is incomplete. Spiritual healers, including traditional diviners, church-based prayer healers, and Islamic Mallams, address the dimension of illness experience that biomedical medicine does not, and they do so within the patient cultural and linguistic framework. A biomedical clinician who does not understand this will consistently fail to grasp why patients delay seeking hospital care, why they stop treatment early, and why they attend prayer houses for conditions that are easily treatable with medication. Understanding spiritual healing is not about endorsing it uncritically; it is about understanding the patients the clinician is serving.
4. The WHO estimates that between 65 and 80 percent of the world population relies on traditional medicine as its primary source of healthcare, and in many African countries this proportion is even higher. Patients use CAM for multiple reasons that often overlap. Cultural familiarity is perhaps the most fundamental: traditional medicine is the system in which patients grew up, which their parents and grandparents used, and which is embedded in the cultural understanding of illness and healing in their community. Affordability and accessibility matter enormously in a country where formal healthcare

requires transport, consultation fees, and medication costs that many households cannot sustain. Spiritual explanatory frameworks lead patients to seek spiritual healing for what they understand to be spiritually caused conditions. Distrust of conventional medicine, based on past negative experiences or community narratives, leads others to prefer traditional approaches they see as more trustworthy. And for serious or chronic conditions, many patients want to use everything available, combining biomedical and traditional approaches simultaneously.

Part 3.2

1. The distinction between evidence-based supplementation and unproven supplement use matters because it determines whether the patient is receiving genuine benefit or spending money on an intervention that is at best useless and at worst harmful. Vitamin D supplementation for a patient with documented deficiency, for example, has strong evidence for preventing rickets, osteomalacia, and potentially reducing cardiovascular and immune risks; it is evidence-based medicine using a naturally occurring compound. High-dose vitamin C for cancer treatment, by contrast, has been studied in rigorous randomised trials and has not demonstrated the dramatic therapeutic benefits claimed by its proponents; recommending it as a cancer treatment would be misleading the patient. The clinician role is to apply the same standard of evidence to all interventions, including supplements, and to help patients understand which claims are supported by rigorous trial data and which are not.
2. Mindfulness-based stress reduction teaches participants to observe their thoughts and sensations with non-judgmental present-moment awareness through a structured eight-week programme of meditation exercises; multiple randomised controlled trials have shown it reduces anxiety and depression symptoms, improves pain tolerance, and reduces inflammatory cytokine levels. Biofeedback provides patients with real-time information about their own physiological responses, such as heart rate, blood pressure, or muscle tension, and teaches them to voluntarily control these responses; evidence supports its use for hypertension, tension headaches, and irritable bowel syndrome. Progressive muscle

relaxation teaches patients to systematically tense and then release major muscle groups to achieve deep physical relaxation; evidence supports its use for anxiety disorders, insomnia, and stress-related hypertension. The scientific basis for all three lies in the established connection between mental states and autonomic nervous system activity, which psychoneuroimmunology has demonstrated through measurable changes in immune and cardiovascular function.

3. Despite the significant complications associated with traditional bone-setting, patients continue to use it for several reasons. Accessibility is primary: in many rural communities and even in urban areas, a traditional bone-setter is nearby, available at any time, and charges far less than hospital orthopaedic care. Many patients have seen neighbours or relatives recover well after bone-setting, which is a powerful social proof that the practice works. Cultural familiarity and trust in the bone-setter, who is often a well-known community figure, makes consulting them feel natural. There is also a fear of hospitals and surgery among some patients, who are more afraid of the operating theatre than of the bone-setter treatment. The complications occur not because bone-setting never works but because some injuries require surgical management that bone-setting cannot provide, and because tight splints applied without vascular monitoring can cause compartment syndrome and ischaemia that progresses unrecognised.
4. The evidence for mindfulness-based stress reduction (MBSR) is among the strongest of any CAM intervention. Multiple well-designed randomised controlled trials have shown that an eight-week MBSR programme produces significant reductions in self-reported anxiety and depression, with effect sizes comparable to those of antidepressant medication for mild to moderate presentations. Studies in patients with chronic pain have shown improved pain tolerance, reduced pain catastrophising, and better functional capacity, even when the underlying physical cause of the pain is unchanged. Research in stressed populations including caregivers, medical students, and cancer patients has shown reductions in inflammatory cytokine levels and improvements in immune function markers, providing biological evidence that the psychological changes induced by MBSR have measurable downstream effects on physiology.

Part 3.3

1. Two positive public health dimensions: first, traditional medicine practitioners are present in communities where biomedical facilities do not reach, providing a healthcare safety net for populations that would otherwise have no access to any professional care; in this context, traditional healers are a real public health asset that the formal system cannot afford to ignore. Second, many traditional practices are genuinely aligned with health-promoting behaviours; oral rehydration for diarrhoea, use of antimalarial plants, and community-based birth practices that have been validated by biomedical research represent examples where traditional knowledge and evidence-based medicine converge. Two negative dimensions: first, some CAM preparations are directly harmful through hepatotoxic plant compounds, heavy metal contamination, or dangerous mechanical complications of manipulative practices such as bone-setting. Second, CAM use delays biomedical treatment for conditions where early intervention is critical; malaria, obstructed labour, sepsis, and appendicitis all have high mortality when treatment is delayed, and this delay is frequently attributable to prior consultation with traditional or faith healers.
2. Patients do not spontaneously disclose CAM use primarily because they anticipate that the clinician will disapprove, dismiss their choice, or make them feel embarrassed or judged. They may also believe that the clinician is not interested in what they do outside formal healthcare, or that the two systems are entirely separate and that what they tell one provider does not need to be shared with the other. The clinician must therefore ask explicitly and frame the question in a way that makes disclosure feel safe: "Many of my patients use herbal preparations or see traditional healers alongside their clinic treatment. Are you taking anything like that?" is less likely to produce defensive denial than "You are not taking any of those bush medicines, are you?" The clinician should ask about herbs, supplements, traditional remedies, prayer healing, and any other treatments the patient is using, and should respond to disclosure with curiosity and practical focus rather than with expressions of disapproval.
3. The clinician should begin by asking what preparation the patient is using, what dose and frequency, and for how long they have been taking it. This information allows a check for

known interactions between the herbal preparation and the antihypertensive medication. If a known interaction exists, it should be explained in plain language: "This preparation can reduce how well your blood pressure tablet works, which may be why your blood pressure is still high despite the medication." The clinician should then discuss options with the patient: stopping the herbal preparation, switching to an antihypertensive less affected by the interaction, or increasing the monitoring frequency so any deterioration is detected early. If the herbal preparation is not known to interact with the medication and appears safe, the clinician should acknowledge this honestly and continue monitoring. If the patient is using the herbal preparation instead of their prescribed medication, the clinical conversation must address the evidence for and consequences of uncontrolled hypertension clearly and non-condescendingly.

4. Responsible integration requires the clinician to evaluate each CAM practice on the basis of evidence and safety rather than on the basis of whether it belongs to a traditional or a biomedical system. This means applying the same critical standards to both: asking what the evidence shows, what the risks are, and how the intervention fits with the patient overall clinical situation and values. It requires genuine curiosity about traditional and alternative practices rather than dismissiveness, because dismissiveness prevents patients from disclosing what they are using and prevents the clinician from managing potential harms. It requires building respectful relationships with traditional medicine practitioners in the community, treating them as potential partners in care rather than as obstacles to be overcome, and creating referral pathways that allow patients to move between systems when their condition requires it. And it requires honesty with patients: acknowledging the genuine uncertainties in both biomedical and traditional medicine rather than presenting one system as all-knowing and the other as purely superstitious.

References and Attributions

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Figures, Plates, Tables, and Boxes

- Figure 3.1: Categories of CAM and their prevalence in Nigeria Attribution: AI generated. Suggested OER search string: "complementary alternative medicine CAM Nigeria herbal traditional medicine spiritual healing energy medicine categories OER".
- Figure 3.2: Evidence evaluation framework for CAM practices Attribution: AI generated. Suggested OER search string: "CAM evidence biologically based mind-body manipulative herbal medicine drug herb interactions Nigeria traditional bone-setting OER".

Series 4: Nutrition, Critical Care, and Psychology

- **Part 4.1: Human Nutrition**

- Sub Part 4.1.1: Principles of human nutrition
- Sub Part 4.1.2: Malnutrition in Nigeria: undernutrition and overnutrition
- Sub Part 4.1.3: Nutrition in clinical practice

- **Part 4.2: Critical Care Medicine**

- Sub Part 4.2.1: Principles and scope of critical care
- Sub Part 4.2.2: Recognition and initial management of the critically ill patient
- Sub Part 4.2.3: Critical care challenges in Nigeria

- **Part 4.3: Psychology in Medical Practice**

- Sub Part 4.3.1: Psychological dimensions of physical illness
- Sub Part 4.3.2: Mental health in the Nigerian clinical context
- Sub Part 4.3.3: The psychology of the clinician

Introduction

Nutrition, critical care, and psychology might appear at first to be unrelated topics, but they share a common thread: each addresses a dimension of patient care that is easily overlooked when clinical attention is focused on the specific organ or system disease that prompted the consultation. A patient admitted with diabetic ketoacidosis needs insulin, but they also need their nutritional status assessed, because malnutrition worsens insulin resistance and impairs recovery.

A patient in the intensive care unit needs organ support, but their psychological state, their fear, their disorientation, and the distress of their family, is also part of the clinical picture and affects outcomes. And the clinician who cares for all of these patients brings their own psychology to the encounter, shaped by training, experience, stress, and the cumulative weight of clinical responsibility.

This Series examines each of these three dimensions in turn. It introduces the principles of human nutrition and their clinical application in the Nigerian context, where both undernutrition and the rising burden of overnutrition-related disease require clinical attention. It then surveys the field of critical care medicine, covering the recognition and initial management of the critically ill patient and the specific challenges of critical care in Nigerian hospitals. Finally, it addresses the psychological dimensions of illness and clinical practice, from the patient experience of serious disease to the mental health needs of the clinician.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 4.1** describe the principles of human nutrition, explain the burden of both undernutrition and overnutrition in Nigeria, and describe the nutritional assessment and support of patients in clinical practice,
- **SLO 4.2** explain the principles and scope of critical care medicine, describe the recognition and initial management of the critically ill patient, and identify the specific challenges of critical care in Nigerian hospitals, and
- **SLO 4.3** explain the psychological dimensions of physical illness for patients, describe the burden of mental health problems in Nigeria, and explain why the psychology of the clinician matters for patient care.

4.1 Human Nutrition

4.1.1 Principles of human nutrition

Nutrition is the process by which living organisms obtain and use food to support growth, maintenance, reproduction, and the metabolic processes of life. The food a person eats provides macronutrients, which are the energy-yielding components of the diet, and micronutrients, which are required in small amounts to support specific biochemical processes. The macronutrients are carbohydrates, which are the primary fuel for the brain and muscles; proteins, which provide amino acids for tissue synthesis, enzyme production, and immune function; and fats, which provide essential fatty acids, fat-soluble vitamins, and a concentrated energy source. Each gram of carbohydrate or protein yields approximately 4 kilocalories of energy, while each gram of fat yields approximately 9 kilocalories.

Micronutrients include vitamins and minerals, which are required in much smaller quantities than macronutrients but are essential for specific physiological functions. Vitamin A is required for vision, immune function, and epithelial integrity; its deficiency is the leading cause of preventable childhood blindness worldwide. Iron is essential for haemoglobin synthesis; iron deficiency anaemia is the most prevalent nutritional deficiency globally, affecting a disproportionate share of Nigerian women and children. Iodine is required for thyroid hormone synthesis; iodine deficiency causes goitre and, in severe cases during pregnancy, cretinism in the offspring. Vitamin D is required for calcium absorption and bone mineralisation. Understanding these relationships is the foundation of clinical nutritional assessment and of the recognition that dietary deficiencies contribute to the burden of many diseases commonly seen in Nigerian clinical practice.

Fill in the blank: Vitamin _____ deficiency is the leading cause of preventable childhood blindness worldwide and also impairs immune function and epithelial integrity.

4.1.2 Malnutrition in Nigeria: undernutrition and overnutrition

Nigeria carries a double burden of malnutrition: at one end of the spectrum, undernutrition, including protein-energy malnutrition, micronutrient deficiencies, and stunting, remains a major

public health problem, particularly in the north and in conflict-affected communities. At the other end, overnutrition and diet-related non-communicable diseases, including obesity, type 2 diabetes, hypertension, and cardiovascular disease, are increasing rapidly in urban populations. These two problems are not separate; they often coexist within the same household, and the nutritional transitions occurring in Nigerian cities are creating a situation where a mother may be overweight while her child is stunted.

Protein-energy malnutrition in children presents as either marasmus, in which there is severe depletion of both protein and energy stores producing a thin, wasted appearance, or kwashiorkor, in which protein deficiency is disproportionate to energy intake, producing oedema, skin changes, and a distended abdomen despite a relatively preserved weight. Both conditions impair immune function, delay development, and carry significant mortality without treatment. In adults, undernutrition is common in hospitalised patients, where it worsens outcomes, prolongs hospital stay, and increases the risk of post-operative complications; it is systematically underrecognised and undertreated in Nigerian hospitals where nutritional assessment is not routinely integrated into clinical care.

Fill in the blank: Protein-energy malnutrition in children presents as either _____ , characterised by severe wasting due to deficiency of both protein and energy, or kwashiorkor, in which protein deficiency produces oedema and skin changes.

4.1.3 Nutrition in clinical practice

Nutritional assessment is the process of evaluating a patient nutritional status to identify deficiencies, excesses, or imbalances that are affecting their health or that require attention during clinical management. It draws on four types of information, often remembered by the acronym ABCD: Anthropometric measurements (height, weight, body mass index, mid-upper arm circumference, and in children weight-for-age and height-for-age z-scores), Biochemical markers (serum albumin, pre-albumin, haemoglobin, serum electrolytes, and specific vitamin and mineral levels), Clinical signs (muscle wasting, oedema, skin changes, hair and nail abnormalities, and the signs of specific micronutrient deficiencies), and Dietary history (what the patient eats, how much, how often, and what barriers exist to adequate food intake).

Nutritional support for patients who cannot meet their needs through normal oral intake takes several forms. Oral nutritional supplements provide additional energy and protein in a drinkable form. Enteral nutrition delivers liquid feed directly into the gastrointestinal tract through a nasogastric or gastrostomy tube and is preferred over parenteral nutrition whenever the gut is functioning, because it maintains gut mucosal integrity and reduces the risk of infection. Parenteral nutrition delivers nutrients directly into the bloodstream through a central venous catheter and is used when the gastrointestinal tract cannot be used. In the Nigerian clinical context, the practical availability of these supports is limited in most facilities outside major teaching hospitals, making the prevention of malnutrition through dietary counselling and community nutrition programmes especially important.

Fill in the blank: The acronym _____ summarises the four components of nutritional assessment: Anthropometric measurements, Biochemical markers, Clinical signs, and Dietary history.

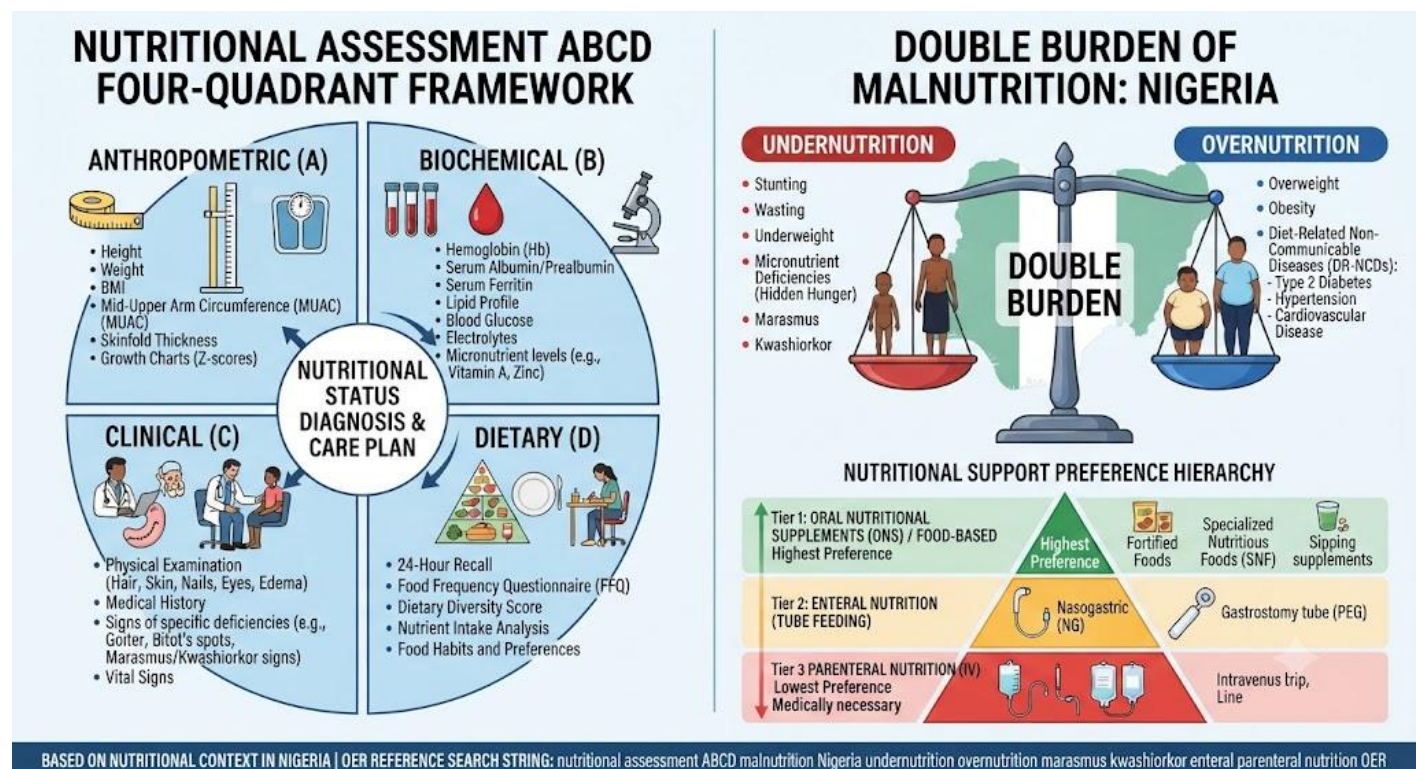


Figure 4.1: Nutritional assessment and the double burden of malnutrition in Nigeria

Pilot questions 4.1

1. Explain the roles of carbohydrates, proteins, and fats as macronutrients and state the energy yield of each.
2. Describe the clinical features that distinguish marasmus from kwashiorkor.
3. Explain what is meant by the double burden of malnutrition and why it is relevant to Nigeria.
4. Describe the ABCD framework for nutritional assessment and explain when enteral nutrition is preferred over parenteral.

4.2 Critical Care Medicine

4.2.1 Principles and scope of critical care

Critical care medicine is the specialty concerned with the diagnosis and management of patients whose condition is immediately life-threatening or who are at high risk of deteriorating to that point without intensive monitoring and intervention. The core philosophy of critical care is that a small number of physiological derangements, if identified and corrected early, can prevent progression to multi-organ failure and death. These derangements include inadequate oxygen delivery to tissues, haemodynamic instability, acute respiratory failure, severe metabolic disturbances such as acidosis and electrolyte disorders, and acute failure of individual organ systems including the kidneys, liver, and brain.

The intensive care unit, or ICU, is the physical environment designed to deliver critical care, equipped with continuous monitoring of vital signs, facilities for mechanical ventilation, invasive haemodynamic monitoring, and the full range of organ support technologies. However, critical care as a discipline extends beyond the walls of the ICU; the principles of early recognition of physiological deterioration, prompt resuscitation, and systematic management of organ dysfunction apply in every clinical setting, from the emergency department to the general ward. In Nigeria, where dedicated ICU beds are scarce and concentrated in a small number of tertiary

facilities, the ability of every clinician to apply critical care principles in less well-equipped settings is a matter of practical urgency.

Fill in the blank: The core philosophy of critical care is that early identification and correction of a small number of physiological _____ can prevent progression to multi-organ failure and death.

4.2.2 Recognition and initial management of the critically ill patient

The first step in managing a critically ill patient is rapid recognition that they are critically ill. This seems obvious, but clinical deterioration is frequently missed or delayed because the early warning signs are subtle or because ward staff are not trained to act on them. Several early warning score systems have been developed to assist with this recognition; the National Early Warning Score, or NEWS, assigns points based on six physiological parameters: respiratory rate, oxygen saturation, systolic blood pressure, pulse rate, level of consciousness, and temperature. A rising NEWS score triggers escalation of care according to a defined protocol, ensuring that deteriorating patients are identified and reviewed before they reach the point of cardiac arrest.

The initial management of the critically ill patient follows the structured ABCDE approach: Airway (ensure the airway is open and protected; if not, open it or secure it), Breathing (assess respiratory rate, effort, and oxygen saturation; administer supplemental oxygen; consider assisted ventilation if needed), Circulation (assess heart rate, blood pressure, and peripheral perfusion; establish intravenous access; give fluid resuscitation if indicated; identify and treat the cause of circulatory compromise), Disability (assess level of consciousness using the AVPU scale or Glasgow Coma Scale; check blood glucose; treat hypoglycaemia immediately), and Exposure (fully expose the patient to identify all potential sources of deterioration including wounds, rashes, bleeding, and abdominal distension). This systematic approach ensures that immediately life-threatening problems are addressed in order of priority before moving to more detailed assessment.

Fill in the blank: The ABCDE approach to the critically ill patient stands for Airway, Breathing, Circulation, _____ (level of consciousness and blood glucose), and Exposure.

4.2.3 Critical care challenges in Nigeria

Nigeria faces severe challenges in delivering critical care to patients who need it. The most fundamental is the scarcity of dedicated ICU resources: a country of over 220 million people has a very small number of ICU beds concentrated almost entirely in tertiary teaching hospitals in major cities. A patient who develops multi-organ failure in a district hospital may have no realistic prospect of transfer to a higher-level facility, and must therefore be managed with whatever monitoring and support equipment is locally available, which is often extremely limited. Electricity supply is a particular problem, since most critical care interventions, from mechanical ventilation to continuous cardiac monitoring, depend on reliable power, and generator failures in under-resourced facilities are not uncommon.

Human resource challenges compound the infrastructure limitations. Critical care nursing, which requires a high nurse-to-patient ratio and specialist competence in managing ventilated patients, invasive monitoring, and complex drug infusions, is a specialty that is poorly developed in most Nigerian hospitals. Pharmacological support for the critically ill, including vasoactive drugs for haemodynamic support, sedation and analgesia for ventilated patients, and broad-spectrum antibiotics for sepsis, is intermittently available in many facilities. Addressing these challenges requires investment in infrastructure, training, and supplies, but it also requires that every clinician in every setting masters the fundamentals of early recognition and initial stabilisation of the critically ill, because these steps, which require minimal equipment, save lives before specialist resources become available.

Fill in the blank: Critical care nursing requires a high nurse-to-patient _____ and specialist competence in managing ventilated patients, invasive monitoring, and complex drug infusions; this specialty is poorly developed in most Nigerian hospitals.

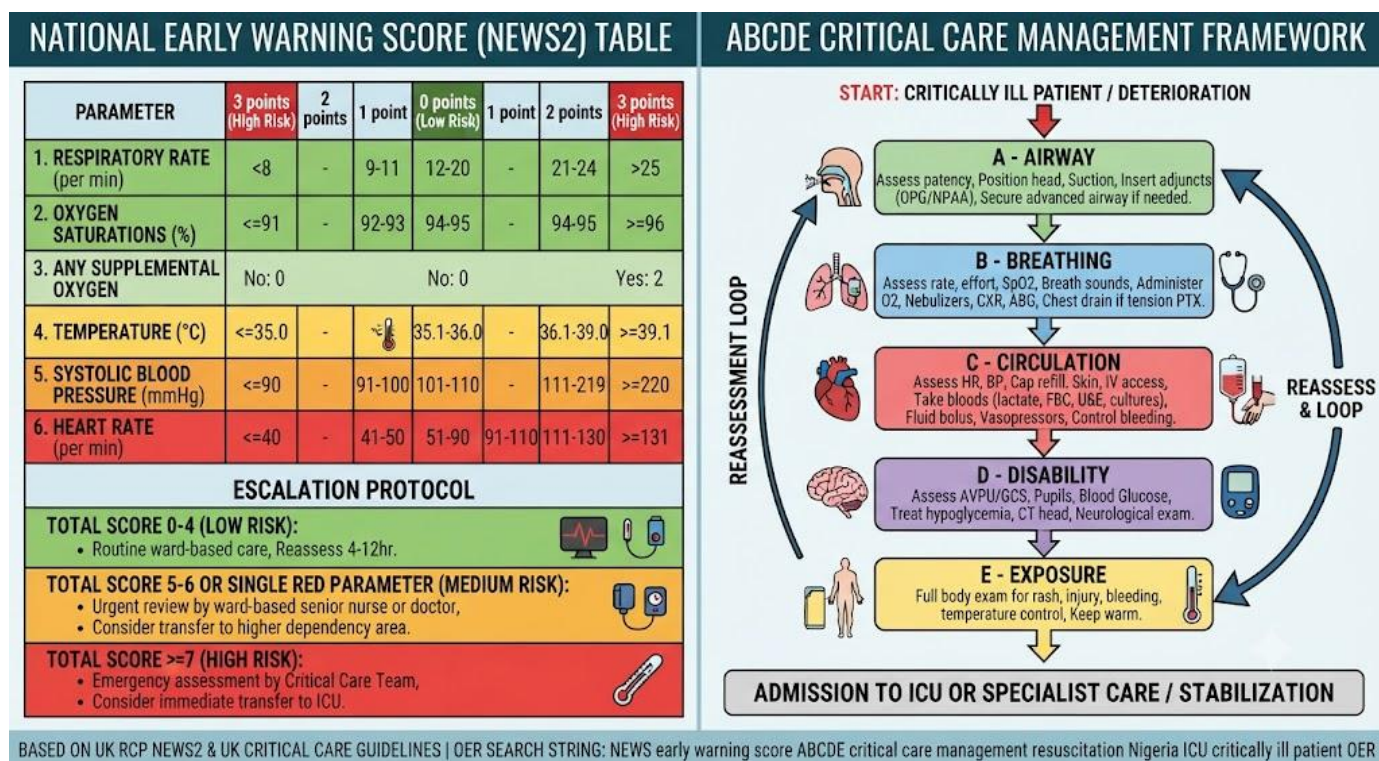


Figure 4.2: Critical care: recognition and management framework

Pilot questions 4.2

1. Explain the core philosophy of critical care medicine and describe what the intensive care unit provides.
2. Describe the ABCDE approach to the initial management of a critically ill patient.
3. What is the National Early Warning Score and how does it help in the recognition of deteriorating patients?
4. Describe three challenges to critical care delivery in Nigerian hospitals and explain their consequences.

4.3 Psychology in Medical Practice

4.3.1 Psychological dimensions of physical illness

Physical illness is never a purely biological event. When a person receives a serious diagnosis or is admitted to hospital, the psychological impact begins immediately and continues throughout the illness course. Common psychological responses to serious illness include anxiety about the

diagnosis and its implications, depression related to loss of function, role, and future plans, denial as a protective mechanism that may delay engagement with treatment, anger directed at the illness, at fate, or at the healthcare system, and grief for the life that existed before the illness. These responses are normal and expected; they are not signs of psychological weakness or failure.

What distinguishes a normal psychological response to illness from a clinical disorder requiring treatment is largely a matter of severity, duration, and functional impairment. A patient who is anxious for the first few days after a cancer diagnosis is having a normal reaction. A patient who remains in a state of paralysing anxiety six months later, who cannot make decisions about their treatment or engage with their family, and who has developed physical symptoms driven by the anxiety, has developed an anxiety disorder that requires clinical attention. Similarly, sadness after a major diagnosis is appropriate; depression that persists, deepens, and impairs the patient capacity to engage with life and treatment is a clinical condition that responds to psychological and pharmacological intervention and should not be left untreated.

Fill in the blank: Common psychological responses to serious illness include anxiety, depression, _____ as a protective mechanism, anger, and grief; these are normal responses that only become clinical disorders when they are severe, prolonged, and functionally impairing.

4.3.2 Mental health in the Nigerian clinical context

Mental health conditions are common, underdiagnosed, and undertreated in Nigeria. Depression and anxiety disorders affect millions of Nigerians and contribute significantly to the burden of disability and to poor outcomes in chronic physical illness. A patient with hypertension and untreated depression is less likely to adhere to antihypertensive medication, more likely to engage in unhealthy behaviours such as smoking and excessive alcohol use, and has a higher risk of cardiovascular events than a patient with hypertension alone. Treating the depression is therefore not a luxury; it is an integral part of managing the cardiovascular risk.

The treatment gap for mental illness in Nigeria is enormous. Fewer than 10 percent of people with a mental health condition receive any treatment, reflecting a shortage of trained mental health professionals, inadequate funding for mental health services, heavy stigma that prevents

people from seeking help, and cultural attribution of mental illness to spiritual causes that directs help-seeking toward prayer and traditional healing rather than clinical services. The primary care clinician is therefore in a uniquely important position, because they are often the only health professional the patient with a mental health condition ever sees. The ability to screen for depression and anxiety, to provide brief counselling, and to refer appropriately is not a specialist skill; it is a core competency of general clinical practice.

Fill in the blank: Fewer than _____ percent of Nigerians with a mental health condition receive any treatment, reflecting workforce shortages, inadequate funding, stigma, and cultural explanatory models that direct help-seeking away from clinical services.

4.3.3 The psychology of the clinician

The clinician brings their own psychology into every clinical encounter. Their mood, their stress level, their assumptions about particular types of patients, their past experiences with similar cases, and their emotional state all influence how they listen, what they notice, how they communicate, and what decisions they make. This is not a flaw to be eliminated but a human reality to be understood and managed. A clinician who is aware of their own psychological state is better placed to compensate for its effects on their clinical judgment than one who believes they are purely objective.

Empathy is the capacity to understand and share the feelings of another person, and it is one of the most clinically important psychological qualities a clinician can have. Research shows that clinicians who demonstrate genuine empathy have patients who disclose more relevant information, who adhere better to treatment, who are more satisfied with their care, and who achieve better health outcomes. At the same time, empathy has a cost. The emotional labour of consistently engaging with human suffering, of sitting with patients who are frightened, in pain, or dying, accumulates over a career and is a major contributor to burnout. Protecting the capacity for empathy, rather than allowing it to be eroded by volume, stress, and disillusionment, is one of the most important self-care tasks of a clinical career.

Fill in the blank: _____ is the capacity to understand and share the feelings of another person; clinicians who demonstrate genuine empathy have patients who disclose more, adhere better, and achieve better health outcomes.

Pilot questions 4.3

1. Describe four common psychological responses to serious illness and explain when they become clinical disorders requiring treatment.
2. Explain why untreated depression in a patient with hypertension is a cardiovascular risk factor.
3. What is the treatment gap for mental illness in Nigeria and what are its causes?
4. Explain what empathy contributes to clinical practice and describe the risk it carries for the clinician over time.

Series Summary

This Series examined three dimensions of clinical practice that cut across specialties and patient presentations. Nutrition was introduced through the macronutrient and micronutrient foundations of human physiology, applied to the double burden of undernutrition and overnutrition that characterises the Nigerian health landscape, and grounded in the ABCD framework for clinical nutritional assessment and support. Critical care was framed as a discipline whose principles apply in every clinical setting, not only in the ICU; the NEWS score for early recognition of deterioration and the ABCDE approach to initial management provide practical tools that every clinician needs regardless of their specialty or level of facility.

Psychology was examined at three levels: the normal and abnormal psychological responses that patients have to serious illness, the burden of mental health conditions in Nigeria and the role of the primary care clinician in closing the treatment gap, and the psychology of the clinician themselves, including the centrality of empathy to good clinical outcomes and the need to protect that empathy from the erosion that sustained clinical work can produce. Each of these three topics is a reminder that medicine is wider than organ systems and pathophysiology; it is the care of whole human beings in their biological, psychological, and social complexity.

Glossary of Terms

- **ABCDE approach:** a systematic framework for initial assessment and management of the critically ill patient: Airway, Breathing, Circulation, Disability, Exposure.
- **ABCD nutritional assessment:** a framework for evaluating nutritional status through Anthropometric, Biochemical, Clinical, and Dietary components.
- **Double burden of malnutrition:** the coexistence of undernutrition and overnutrition-related disease within the same population or household.
- **Empathy:** the capacity to understand and share the feelings of another person; a key clinical quality associated with better patient disclosure, adherence, and outcomes.

- **Enteral nutrition:** delivery of liquid nutrition directly into the gastrointestinal tract via nasogastric or gastrostomy tube; preferred over parenteral when the gut is functioning.
- **Kwashiorkor:** a form of protein-energy malnutrition characterised by oedema and skin changes due to disproportionate protein deficiency.
- **Marasmus:** a form of protein-energy malnutrition characterised by severe wasting due to deficiency of both protein and energy.
- **National Early Warning Score (NEWS):** a scoring system using six physiological parameters to identify patients at risk of clinical deterioration and trigger appropriate escalation.
- **Parenteral nutrition:** delivery of nutrients directly into the bloodstream through a central venous catheter; used when the gastrointestinal tract cannot be used.
- **Treatment gap:** the difference between the prevalence of a condition and the proportion of affected people who receive appropriate treatment; very large for mental illness in Nigeria.

Concept Check Questions [Series 4]

Objective Questions

1. Vitamin _____ deficiency is the leading cause of preventable childhood blindness worldwide. (Linked to SLO 4.1)
2. The ABCD nutritional assessment framework stands for Anthropometric, Biochemical, Clinical, and _____ history. (Linked to SLO 4.1)
3. The ABCDE approach to the critically ill patient stands for Airway, Breathing, Circulation, _____, and Exposure. (Linked to SLO 4.2)
4. Fewer than _____ percent of Nigerians with a mental health condition receive any form of treatment. (Linked to SLO 4.3)
5. _____ is the capacity to understand and share the feelings of another person and is associated with better patient disclosure, adherence, and health outcomes. (Linked to SLO 4.3)

Short-Answer Questions

6. Explain the double burden of malnutrition in Nigeria and describe its implications for clinical practice. (Linked to SLO 4.1)
7. Describe the ABCDE approach to a patient who arrives at a casualty department unconscious with no history available. (Linked to SLO 4.2)
8. Explain why a primary care clinician in Nigeria needs to be able to screen for and manage depression. (Linked to SLO 4.3)

Long-Answer Question

9. Discuss nutrition, critical care, and psychology as dimensions of clinical practice in Nigeria, covering their principles, their specific challenges in the Nigerian context, and their integration into everyday clinical work. (Linked to SLOs 4.1, 4.2, 4.3)

Answers to Concept Check Questions [Series 4]

Objective Questions

1. A.
2. Dietary.
3. Disability.
4. Ten.
5. Empathy.

Short-Answer Questions

6. The double burden of malnutrition describes the coexistence of undernutrition and overnutrition-related disease within the same population, and in Nigeria within the same communities and sometimes the same households. Undernutrition, including stunting in children, protein-energy malnutrition, and micronutrient deficiencies such as iron, vitamin A, and iodine deficiency, remains prevalent particularly in rural northern Nigeria and in conflict-affected communities. Overnutrition, including obesity, type 2 diabetes, hypertension, and cardiovascular disease, is increasing rapidly in urban populations as dietary patterns shift toward processed, calorie-dense foods. Clinical implications: the clinician must be alert to both ends of the nutritional spectrum regardless of the setting; nutritional assessment should be integrated into routine clinical practice; and nutritional counselling should address both undernutrition risk in vulnerable populations and overnutrition risk in urban adults.
7. Airway: assess and open the airway using head tilt-chin lift; look, listen, and feel for breath sounds; clear any obstruction; consider an oropharyngeal airway or call for anaesthetic support if airway cannot be maintained. Breathing: assess respiratory rate and chest movement; attach pulse oximeter; administer supplemental oxygen at high flow; if breathing is absent or inadequate, begin bag-mask ventilation. Circulation: check pulse and blood pressure; establish two large-bore intravenous cannulae; draw blood for glucose, electrolytes, full blood count, and blood cultures; give a 500 mL crystalloid

bolus if shocked. Disability: assess level of consciousness with AVPU (Alert, Voice, Pain, Unresponsive); check blood glucose immediately; if hypoglycaemic, give 50% dextrose intravenously. Exposure: fully expose the patient and look for wounds, rashes, bleeding sources, abdominal rigidity or distension, medical alert bracelets, or signs of trauma; then reassess from A.

8. The treatment gap for mental illness in Nigeria is vast: fewer than 10 percent of affected people receive any treatment, meaning that the great majority of patients with depression, anxiety, or other mental health conditions will never see a psychiatrist or psychologist. The primary care clinician is often the only health professional these patients ever encounter, making the ability to identify and respond to mental health conditions at this level essential rather than optional. Untreated depression worsens physical health outcomes, reduces adherence to treatment for chronic diseases such as diabetes and hypertension, and increases healthcare utilisation without improving health. Brief, validated screening tools such as the PHQ-2 or PHQ-9 can identify probable depression in minutes in a busy clinic; brief psychological support and referral for more complex cases are within the competence of a well-trained primary care clinician.

Long-Answer Question

9. Nutrition: macronutrients (carbohydrates 4 kcal/g, proteins 4 kcal/g, fats 9 kcal/g; carbohydrates primary energy source, proteins for tissue synthesis and immune function, fats for essential fatty acids and fat-soluble vitamins); micronutrients (vitamin A: vision and immune function, deficiency causes blindness; iron: haemoglobin synthesis, most prevalent global deficiency; iodine: thyroid function, deficiency causes goitre and cretinism; vitamin D: calcium absorption and bone mineralisation). Double burden of malnutrition: undernutrition (stunting, marasmus (wasting, both protein and energy deficient), kwashiorkor (protein deficient, oedema, skin changes), micronutrient deficiencies; predominantly rural north) and overnutrition (obesity, type 2 diabetes, hypertension, cardiovascular disease; predominantly urban; coexisting in same households during nutritional transition). Nutritional assessment: ABCD

(Anthropometric: weight, height, BMI, MUAC; Biochemical: albumin, haemoglobin, specific vitamins; Clinical: wasting, oedema, skin and hair signs; Dietary: food frequency, barriers). Nutritional support: oral supplements first, then enteral (nasogastric or gastrostomy tube, preferred when gut is functioning, preserves mucosal integrity), then parenteral (central venous catheter, when gut cannot be used). Critical care: core philosophy of early correction of physiological derangements (oxygen delivery, haemodynamic stability, metabolic homeostasis) to prevent multi-organ failure; NEWS scoring (respiratory rate, SpO₂, BP, pulse, consciousness, temperature; score above 7 triggers emergency response); ABCDE initial management (A: airway, B: breathing and oxygenation, C: circulation and IV access, D: consciousness and glucose, E: exposure and identification of all pathology; reassess after each step). Nigerian critical care challenges: scarce ICU beds concentrated in tertiary urban hospitals; electricity supply failure interrupts monitoring and ventilation; under-developed critical care nursing; intermittent drug availability; solution: master early recognition and initial stabilisation skills in every clinician. Psychology of illness: normal responses (anxiety, depression, denial, anger, grief); become clinical disorders when severe, prolonged, and functionally impairing; adjustment disorder versus clinical depression. Mental health in Nigeria: depression and anxiety affect millions; fewer than 10% receive treatment; untreated depression worsens chronic disease outcomes and adherence; primary care clinician as essential first-line responder; screen with PHQ-2/PHQ-9; brief counselling; appropriate referral. Psychology of clinician: mood, stress, assumptions, and past experience influence clinical judgement; empathy (associated with better disclosure, adherence, and outcomes) has emotional cost that accumulates over career; protect empathy through self-awareness, self-care, and peer support to prevent burnout and maintain capacity for therapeutic engagement.

Answers to Pilot Questions [Series 4]

Part 4.1

1. Carbohydrates are the primary fuel for the brain and skeletal muscles; they are digested to glucose, which is the preferred substrate for neural function and for high-intensity physical activity; each gram yields approximately 4 kilocalories. Proteins provide amino acids that are required for the synthesis of structural proteins in muscle and connective tissue, enzymes that drive metabolic reactions, antibodies and immune signalling molecules, and transport proteins such as haemoglobin and albumin; each gram yields approximately 4 kilocalories. Fats serve multiple essential functions: they provide the essential fatty acids that cannot be synthesised by the human body and must be obtained from food; they carry the fat-soluble vitamins A, D, E, and K; they form the phospholipid bilayer of cell membranes; and they are a concentrated energy reserve yielding approximately 9 kilocalories per gram, more than double the energy density of carbohydrates or protein.
2. Marasmus is caused by severe deficiency of both protein and energy, producing marked loss of subcutaneous fat and muscle mass; the affected child appears very thin, with loose skin, prominent bones, and a wizened facial appearance; there is no oedema; the child is alert but listless; weight-for-age is severely reduced. Kwashiorkor is caused primarily by protein deficiency against a background of more adequate energy intake; the cardinal feature is bilateral pitting oedema, which may mask the underlying muscle wasting; skin changes including hyperpigmentation, peeling, and ulceration are characteristic; hair may be discoloured and easily pluckable; the abdomen is distended due to both hepatomegaly and ascites; the child is miserable and withdrawn. In practice, many children present with features of both conditions, a state called marasmic-kwashiorkor.
3. The double burden of malnutrition refers to the simultaneous existence of undernutrition and overnutrition-related disease within the same population. It is relevant to Nigeria because the country is undergoing a nutritional transition in which traditional diets high in complex carbohydrates and vegetables are being replaced in urban settings by

processed, calorie-dense, and nutrient-poor diets, producing rising rates of obesity, type 2 diabetes, and cardiovascular disease. At the same time, undernutrition, including stunting in children, protein-energy malnutrition in food-insecure communities, and micronutrient deficiencies, remains prevalent, particularly in rural northern Nigeria and in communities displaced by conflict. These two problems can coexist within the same household, where a mother may be overweight while her child is stunted, and the clinician must be alert to both dimensions of nutritional risk regardless of the patient socioeconomic appearance.

4. The ABCD nutritional assessment framework provides a structured approach to evaluating a patient nutritional status. Anthropometric measurements include weight, height, body mass index, mid-upper arm circumference, and in children the weight-for-age and height-for-age z-scores that indicate stunting and wasting. Biochemical markers include serum albumin and pre-albumin as indicators of protein status, haemoglobin and serum iron as indicators of iron status, and other specific markers for vitamins and minerals of clinical concern. Clinical signs include visible muscle wasting, oedema, skin and hair changes, and specific signs of micronutrient deficiency such as night blindness for vitamin A deficiency. Dietary history covers what the patient eats, how often, in what quantities, and what barriers they face to adequate food intake. Enteral nutrition is preferred over parenteral whenever the gastrointestinal tract is functioning because it maintains gut mucosal integrity, preserves the gut microbiome, and is associated with lower rates of infection and other complications than parenteral nutrition.

Part 4.2

1. The core philosophy of critical care is that life-threatening physiological derangements, identified early, can be corrected before they cascade into irreversible multi-organ failure. The key derangements are inadequate oxygen delivery to tissues, haemodynamic instability, acute respiratory failure, severe metabolic disturbances including acidosis and electrolyte disorders, and acute organ failure. The intensive care unit provides the environment and technology for continuous monitoring of these parameters: cardiac monitors, pulse oximeters, invasive arterial and central venous pressure monitoring,

mechanical ventilators for patients who cannot breathe adequately on their own, infusion pumps for vasoactive drugs and complex drug infusions, renal replacement therapy for acute kidney injury, and the nurse staffing ratios needed to implement all of these interventions safely around the clock.

2. Airway: ensure the airway is open; look in the mouth for obstruction; perform head tilt-chin lift or jaw thrust if needed; suction secretions; consider an oropharyngeal or nasopharyngeal airway; if the airway cannot be maintained, call for immediate senior support. Breathing: count the respiratory rate; assess chest movement and air entry; attach pulse oximeter; administer high-flow oxygen immediately; if breathing is absent or severely compromised, begin assisted ventilation with a bag-mask device. Circulation: palpate pulse and measure blood pressure; assess capillary refill time and skin temperature; insert two wide-bore intravenous cannulae; collect blood for urgent investigations; give a bolus of crystalloid fluid if there are signs of shock; identify any source of bleeding and apply pressure. Disability: assess consciousness using AVPU; check blood glucose with a glucometer; administer intravenous dextrose immediately if hypoglycaemia is detected; consider whether the altered consciousness could reflect raised intracranial pressure. Exposure: expose the patient fully to look for all potential causes including trauma, skin rashes suggesting meningococcal sepsis, abdominal rigidity, and any other findings; then return to A and reassess.
3. The National Early Warning Score uses six physiological parameters to generate a score that indicates the degree of physiological instability: respiratory rate, oxygen saturation, systolic blood pressure, pulse rate, level of consciousness, and temperature. Each parameter is scored based on how far it deviates from the normal range, and the individual scores are added together. A low total score indicates physiological stability; a rising or high score indicates deterioration and triggers a defined escalation response, from increased monitoring frequency at low scores to emergency medical review at high scores. It helps because deterioration often occurs hours before cardiac arrest, and the early warning signs are sometimes missed when busy ward staff do not systematically measure and interpret physiological observations. The NEWS provides a structured, objective trigger for escalation that does not rely on individual clinical intuition.

4. Scarcity of ICU beds: Nigeria has far fewer intensive care beds per capita than is needed, and they are concentrated in a small number of tertiary urban hospitals; a patient developing multi-organ failure in a district hospital or a rural setting has very limited access to the monitoring and organ support they need, and transfer to a tertiary centre may be impossible because of distance, transport, or the patient clinical instability. Consequences: patients who could survive with appropriate critical care die from conditions that are manageable in better-resourced settings. Unreliable electricity supply: critical care interventions including mechanical ventilation, infusion pumps, cardiac monitoring, and laboratory analysis all depend on continuous electricity; generator failure or fuel shortage in under-resourced hospitals can interrupt these interventions at critical moments. Consequences: a ventilated patient during a power failure is at immediate risk of death. Under-developed critical care nursing: the high nurse-to-patient ratio and specialist competence required for safe critical care nursing is not available in most Nigerian hospitals; consequence: even when equipment exists, it may not be used safely or effectively because trained personnel are unavailable.

Part 4.3

1. Four psychological responses and when they become clinical disorders: Anxiety is the most common immediate response to serious illness; it is adaptive in the short term because it motivates help-seeking and treatment engagement, but becomes a clinical disorder when it is persistent, severe, and functionally disabling, preventing the patient from making treatment decisions, leaving their home, or engaging with their family. Depression is a normal and expected response to loss of health, function, and role, but becomes a clinical disorder when it deepens and persists beyond a few weeks, involves pervasive hopelessness and worthlessness, impairs the patient capacity to engage with treatment and relationships, and is accompanied by neurovegetative features such as sleep disturbance and anorexia. Denial is a protective mechanism that can be adaptive in the very early stages of a serious diagnosis by allowing gradual emotional assimilation of distressing information, but becomes clinically problematic when it is prolonged and

prevents the patient from engaging with necessary treatment. Anger is a natural expression of the unfairness of illness, but becomes a problem when it alienates the clinical team and family, or when it is directed inward as self-blame in ways that worsen depression.

2. Depression reduces the motivation and cognitive capacity needed for self-management of chronic disease. A depressed patient with hypertension is less likely to take their antihypertensive medication consistently, less likely to attend clinic appointments, less likely to make the lifestyle changes (dietary modification, physical activity, alcohol reduction) that are essential components of cardiovascular risk management, and more likely to engage in health-damaging behaviours such as smoking and excessive alcohol use that further increase cardiovascular risk. At a biological level, depression activates the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system, chronically elevating cortisol and catecholamines that raise blood pressure, increase heart rate, promote platelet aggregation, and accelerate atherosclerosis. Depression is therefore not a separate problem from the hypertension; it is a cardiovascular risk factor in its own right that must be addressed as part of comprehensive hypertension management.
3. The treatment gap for mental illness in Nigeria refers to the large difference between the number of people who have a mental health condition and the number who receive any treatment for it; estimates suggest that fewer than 10 percent of those affected receive any form of treatment. The causes of this gap are multiple. First, there is a severe shortage of mental health professionals: Nigeria has very few psychiatrists and psychologists relative to its population, and they are concentrated in a small number of urban centres. Second, mental health services are inadequately funded relative to the burden of disease, resulting in facilities that are poorly equipped and difficult to access. Third, stigma around mental illness is pervasive; many patients and families are deeply reluctant to acknowledge psychological distress or to seek care from a mental health service, fearing social shame and discrimination. Fourth, cultural explanatory models attribute mental illness to spiritual causes and direct help-seeking toward prayer and traditional healing rather than clinical services.
4. Empathy contributes to clinical practice in several documented ways. When patients experience genuine empathy from their clinician, they disclose more relevant clinical

information, including sensitive symptoms and concerns they might otherwise conceal, because they feel safe from judgment. They are more likely to understand and remember the information given to them, because empathic communication tends to be clearer and more adapted to the patient emotional state. They adhere better to treatment recommendations, because they trust the clinician and feel that the recommendations are made in their genuine interest. And they achieve better health outcomes across a range of conditions. The risk that empathy carries for the clinician over time is the emotional cost of sustained engagement with human suffering. Each encounter with pain, fear, and death exacts a psychological toll, and when this accumulates without adequate recovery through rest, social support, and self-care, it erodes the clinician capacity for empathy, contributing to depersonalisation, disillusionment, and burnout. Protecting empathy is therefore not only ethically important but professionally necessary.

References and Attributions

Textual References (Books and External Sources)

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Figures, Plates, Tables, and Boxes

- Figure 4.1: Nutritional assessment and the double burden of malnutrition in Nigeria Attribution: AI generated. Suggested OER search string: "nutritional assessment ABCD malnutrition Nigeria undernutrition overnutrition marasmus kwashiorkor enteral parenteral nutrition OER".
- Figure 4.2: Critical care: recognition and management framework Attribution: AI generated. Suggested OER search string: "NEWS early warning score ABCDE critical care management resuscitation Nigeria ICU critically ill patient OER".

Series 5: Public Health and Medical Jurisprudence

- **Part 5.1: Foundations of Public Health**

- Sub Part 5.1.1: What is public health and why does it matter?
- Sub Part 5.1.2: Epidemiology and disease surveillance
- Sub Part 5.1.3: Health promotion and disease prevention in Nigeria

- **Part 5.2: Medical Jurisprudence**

- Sub Part 5.2.1: Medical jurisprudence: definitions and scope
- Sub Part 5.2.2: Professional liability and medical negligence
- Sub Part 5.2.3: Medico-legal aspects of clinical practice

- **Part 5.3: The Clinician as a Public Health Advocate**

- Sub Part 5.3.1: The physician role in public health
- Sub Part 5.3.2: Health systems strengthening in Nigeria
- Sub Part 5.3.3: The future of medicine in Nigeria

Introduction

Public health and medical jurisprudence represent the outermost rings of the clinician responsibility. Clinical medicine focuses on the individual patient in front of you; public health asks what is happening to the health of populations and what can be done at the collective level to prevent disease and promote wellbeing. Medical jurisprudence asks what legal and ethical obligations attend the practice of medicine, and what happens when those obligations are not

met. Both disciplines are essential to the complete formation of a physician who understands not only how to treat individual patients but how to situate their work within the broader social, legal, and public health frameworks that determine what healthcare means and what it can achieve.

This final Series of the course brings together public health principles and medico-legal knowledge in the Nigerian context. It examines epidemiology and disease surveillance as the scientific tools of public health, health promotion and prevention as the primary instruments of population health improvement, and the legal framework that governs clinical practice and professional liability in Nigeria. It concludes by asking what role the individual physician can play as a public health advocate and as an agent of health system improvement in a country that needs both skilled clinicians and engaged citizens.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 5.1** define public health, explain the principles of epidemiology and disease surveillance, and describe the major strategies for health promotion and disease prevention in Nigeria,
- **SLO 5.2** define medical jurisprudence, explain the elements of professional liability and medical negligence, and describe the medico-legal obligations of clinical practice, and
- **SLO 5.3** explain the physician role in public health advocacy, describe the priorities for health systems strengthening in Nigeria, and articulate a vision of the future of medicine in Nigeria.

5.1 Foundations of Public Health

5.1.1 What is public health and why does it matter?

Public health is the science and art of preventing disease, prolonging life, and promoting health through the organised efforts of society. The defining feature of public health is its focus on populations rather than individuals. While clinical medicine asks what is wrong with this patient and how can I treat them, public health asks why are people in this community getting sick and what can be done at the population level to prevent it. This population focus allows public health to address the upstream determinants of disease, including poverty, poor sanitation, inadequate nutrition, and environmental hazards, that clinical medicine cannot reach one patient at a time.

The impact of public health interventions has historically been greater than that of clinical medicine in reducing mortality and improving life expectancy. The decline in mortality from infectious diseases in the nineteenth and twentieth centuries in Europe was largely attributable to improvements in sanitation, housing, and nutrition rather than to medical treatment; antibiotics and vaccines, when they arrived, accelerated an improvement that was already underway through public health action. In the Nigerian context, the most powerful tools available for reducing preventable death are public health tools: safe water and sanitation, universal immunisation, skilled birth attendance, effective tuberculosis control, and the reduction of malaria transmission. Every clinician who understands and supports these programmes is contributing to health improvements that no amount of individual clinical excellence could achieve alone.

Fill in the blank: Public health is the science and art of preventing disease, prolonging life, and promoting health through the organised efforts of _____, focusing on populations rather than individual patients.

5.1.2 Epidemiology and disease surveillance

Epidemiology is the study of the distribution and determinants of health and disease in populations, and the application of this knowledge to the control of health problems. It provides the scientific foundation of public health by answering three fundamental questions: who is getting sick, where are they getting sick, and when are they getting sick. The answers to these

questions, expressed as the person, place, and time characteristics of a disease, allow epidemiologists to generate hypotheses about what is causing the disease and to design interventions to reduce it. John Snow traced the 1854 Broad Street cholera outbreak by mapping the addresses of cases and identifying the contaminated pump as the source, long before the causative organism had been identified; this is the paradigmatic example of epidemiological reasoning applied to disease control.

Disease surveillance is the continuous, systematic collection, analysis, and interpretation of health data, used to guide public health action. In Nigeria, disease surveillance operates through the Nigeria Centre for Disease Control, which maintains an Integrated Disease Surveillance and Response system that collects weekly reports on a list of notifiable diseases from health facilities and community informants across all states. Notifiable diseases are conditions that clinicians are legally required to report to public health authorities when they diagnose them; they include cholera, yellow fever, meningococcal meningitis, measles, polio, Lassa fever, and Ebola virus disease. Timely reporting of these conditions is not optional; it is a legal and professional obligation that every clinician must fulfil, because the early detection of outbreaks depends on the accuracy and speed of routine clinical reporting.

Fill in the blank: Disease _____ is the continuous, systematic collection, analysis, and interpretation of health data used to guide public health action, operated in Nigeria through the Nigeria Centre for Disease Control.

5.1.3 Health promotion and disease prevention in Nigeria

Health promotion refers to the process of enabling people to increase control over and improve their health. It operates through education, community action, policy development, and the creation of supportive environments that make healthy choices easier. Disease prevention is more specifically focused on reducing the incidence, prevalence, or severity of specific diseases. Primary prevention aims to prevent disease from occurring at all, through vaccination, sanitation, dietary change, and reduction of risk behaviours. Secondary prevention aims to detect disease early, before symptoms appear or while treatment is most effective, through screening

programmes. Tertiary prevention aims to reduce the impact of established disease through effective treatment, rehabilitation, and management of chronic conditions.

In Nigeria, the priorities for health promotion and disease prevention reflect the double burden of communicable and non-communicable disease that characterises the epidemiological transition. Immunisation programmes, particularly the expanded programme on immunisation, are among the most cost-effective public health interventions and have dramatically reduced mortality from vaccine-preventable diseases including polio, measles, and meningococcal disease, though coverage gaps remain a significant challenge. Malaria prevention through insecticide-treated bed nets and indoor residual spraying continues to be a major priority. And as the burden of non-communicable diseases including hypertension, diabetes, and cancer grows, programmes targeting tobacco use, physical inactivity, unhealthy diet, and harmful alcohol consumption become increasingly important alongside the traditional infectious disease focus.

Fill in the blank: _____ prevention aims to prevent disease from occurring at all through vaccination, sanitation, and risk reduction; secondary prevention aims to detect disease early through screening; and tertiary prevention reduces the impact of established disease through treatment and rehabilitation.

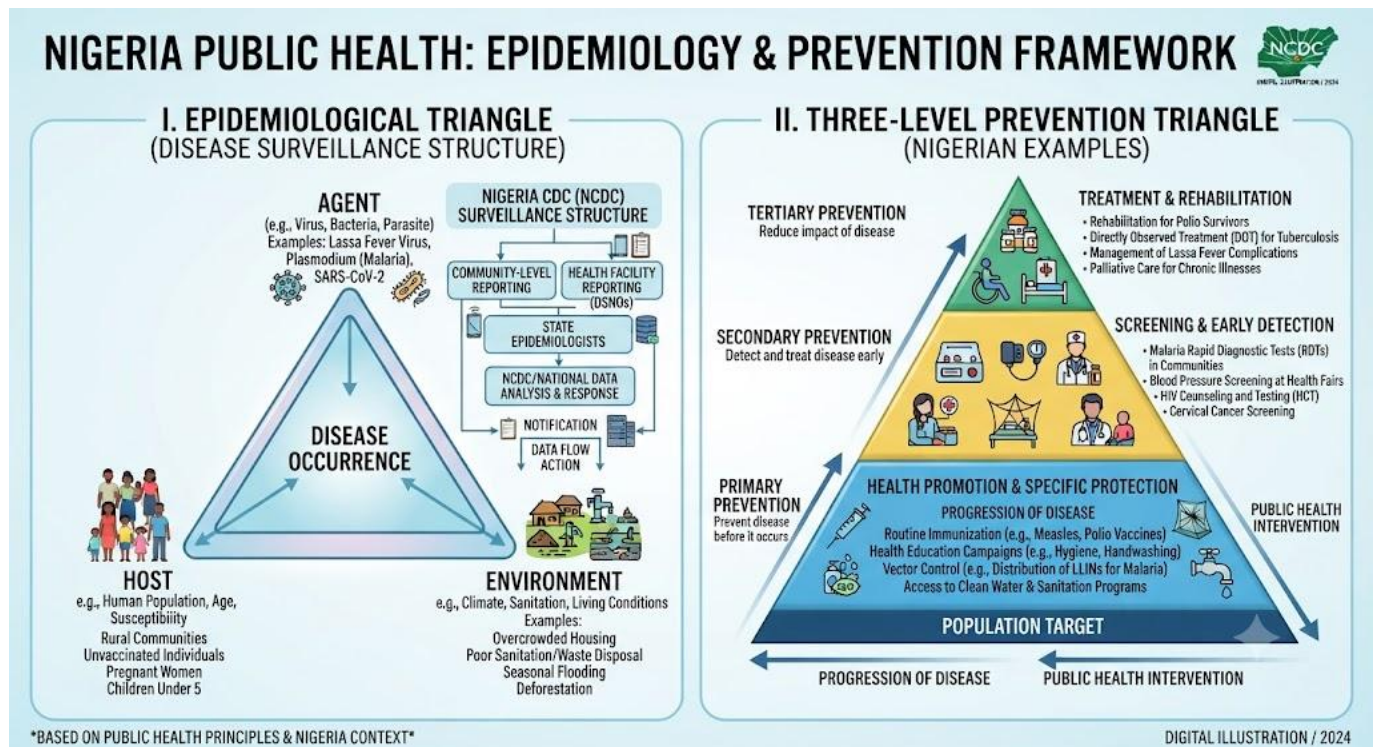


Figure 5.1: Epidemiology, surveillance, and disease prevention in Nigeria

Pilot questions 5.1

1. Define public health and explain why population-level interventions have historically had greater impact on mortality than clinical medicine.
2. Explain the concept of epidemiology and describe how John Snow applied epidemiological reasoning to the 1854 cholera outbreak.
3. What are notifiable diseases and what is the clinician obligation when they encounter one?
4. Distinguish between primary, secondary, and tertiary prevention and give a Nigerian example of each.

5.2 Medical Jurisprudence

5.2.1 Medical jurisprudence: definitions and scope

Medical jurisprudence, also called forensic medicine or medical law, is the branch of knowledge concerned with the application of medical science to the purposes of the law, and with the legal obligations and rights of medical practitioners and their patients. It sits at the intersection of two large disciplines, each of which has developed complex and sometimes conflicting principles, and its scope in clinical practice is wider than most medical students initially appreciate. Medical jurisprudence is not only relevant to dramatic forensic situations such as determining the cause of death in a homicide case; it is relevant to every informed consent discussion, every clinical record that a doctor writes, every prescription that is issued, and every professional relationship that is entered into.

In Nigeria, medical jurisprudence is governed by a combination of statute law, common law principles inherited from the colonial legal tradition, and the regulatory framework of the Medical and Dental Council of Nigeria. The National Health Act of 2014 is the most important single piece of legislation for the practising clinician; it codifies patients rights including the right to informed consent, the right to confidentiality, and the right to emergency care regardless of ability to pay, and it establishes obligations on healthcare providers and facilities. The criminal law, the law of tort, and the law of contract all intersect with medical practice in specific ways that clinicians need to understand in order to practise safely and ethically within the legal framework.

Fill in the blank: Medical _____ is the branch of knowledge concerned with the application of medical science to the purposes of the law, and with the legal obligations and rights of medical practitioners and patients.

5.2.2 Professional liability and medical negligence

Professional liability in medicine arises when a clinician fails to meet the standard of care expected of a reasonably competent practitioner in their field, and that failure causes harm to a patient. In the law of tort, this is called negligence. For a claim of medical negligence to succeed, three elements must be established. First, the clinician must have owed a duty of care to the patient; this is generally established simply by the existence of a clinical relationship. Second, the clinician must have breached that duty by falling below the standard expected of a reasonably

competent practitioner with equivalent training and experience. Third, the breach of duty must have caused the patient harm, and that harm must be of a kind recognisable in law.

The standard of care in Nigerian medical negligence cases is assessed against what a reasonably competent Nigerian medical practitioner with the relevant training would have done in the same circumstances. This standard acknowledges the resource constraints under which Nigerian clinicians work, but it does not excuse failures that fall below what is reasonably expected given those constraints. Common sources of clinical negligence claims include failures of diagnosis, errors in prescribing and drug administration, surgical complications attributable to technical error or inadequate consent, failures to refer when referral was indicated, and failures of communication that lead to patients being unable to give informed consent or to understand the treatment they are receiving. Every clinician should treat each of these areas with particular care, because this is where medicolegal risk is concentrated.

Fill in the blank: For a claim of medical _____ to succeed, three elements must be established: duty of care, breach of that duty by falling below the expected standard, and causation of recognisable harm to the patient.

5.2.3 Medico-legal aspects of clinical practice

Several routine aspects of clinical practice carry specific medico-legal significance that clinicians must understand. The clinical record is both a clinical tool and a legal document; an accurate, contemporaneous, and legible clinical record is the clinician primary defence in any medico-legal challenge, because it provides the documented evidence of what was assessed, decided, and communicated at the time of the clinical encounter. A record that is incomplete, altered, or written long after the encounter is of far less evidential value and may itself become evidence of poor practice.

Death certification is a medico-legal obligation that requires the certifying clinician to have attended the patient during the last illness and to state the cause of death accurately to the best of their knowledge and belief. Certifying a death with a false cause of death, whether to assist the family, to avoid investigation, or for any other reason, is a criminal offence. Certification of fitness for specific purposes, such as fitness to drive, fitness to work, or fitness for insurance

purposes, creates a legal relationship between the clinician and any third party who relies on that certification, and must therefore be based on a genuine clinical assessment rather than on the patient request alone. And the management of controlled drugs, including opioid analgesics, carries specific legal obligations around prescription, storage, and record-keeping that clinicians must know and follow.

Fill in the blank: The clinical _____ is both a clinical tool and a legal document; an accurate, contemporaneous, and legible record is the clinician primary defence in any medico-legal challenge.

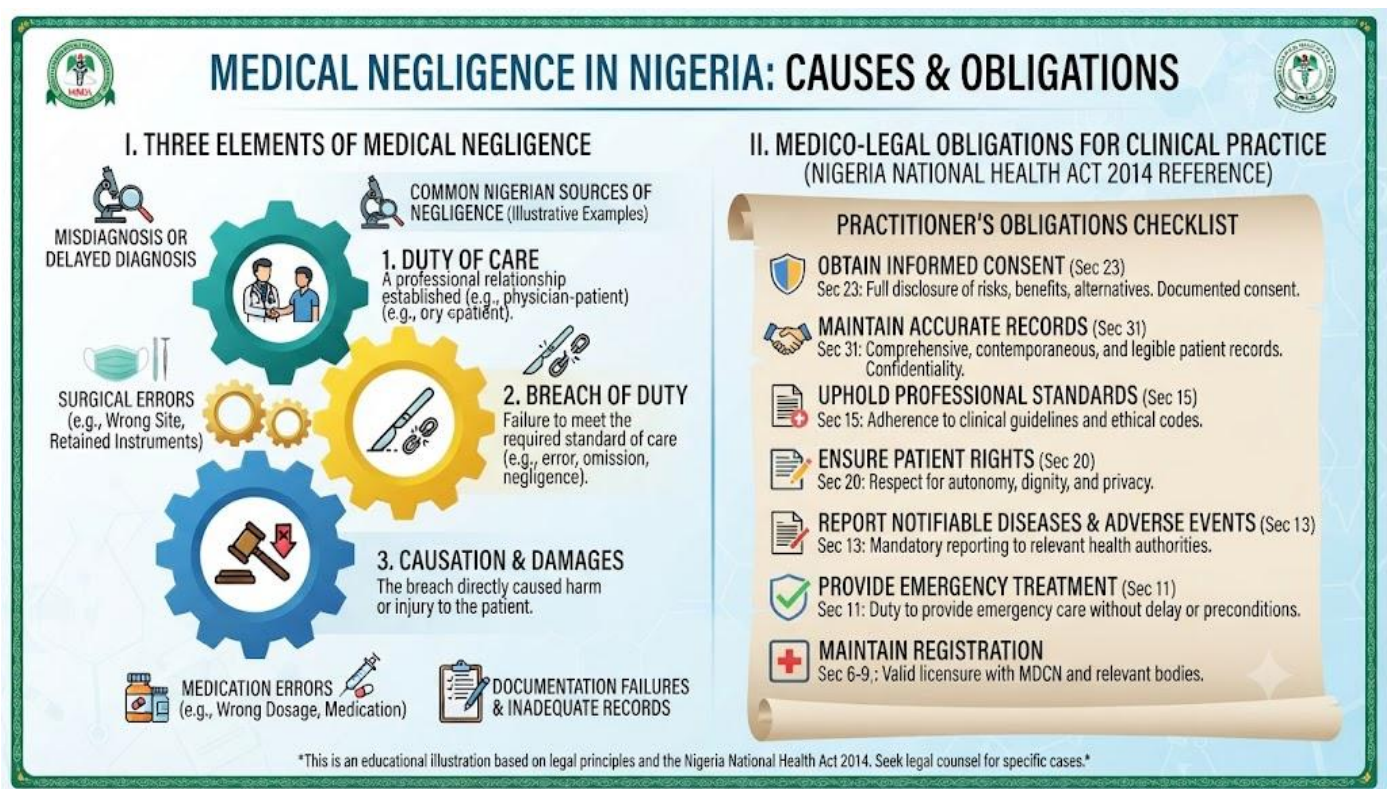


Figure 5.2: Medical negligence and medico-legal obligations in clinical practice

Pilot questions 5.2

1. Define medical jurisprudence and explain its scope in everyday clinical practice.
2. Explain the three elements required for a successful claim of medical negligence.
3. Describe four medico-legal aspects of routine clinical practice that every Nigerian clinician must understand.

4. Explain what the National Health Act 2014 provides for patients and clinicians in Nigeria.

5.3 The Clinician as a Public Health Advocate

5.3.1 The physician role in public health

The physician occupies a unique position in the public health landscape. They are trusted by their patients and communities in a way that few other professionals are, and that trust creates both an opportunity and a responsibility. When a physician speaks about vaccination, about tobacco, about safe water, or about the importance of seeking antenatal care, their words carry authority that public health campaigns delivered through less personal channels often lack. Every clinical consultation is therefore also a potential public health intervention, and the cumulative effect of thousands of clinicians having honest, evidence-based health conversations with their patients is a significant contribution to population health.

Beyond the individual consultation, physicians can contribute to public health through several channels. They can participate in immunisation campaigns, outbreak investigations, and screening programmes. They can engage with media as authoritative voices against health misinformation, which is a growing public health challenge in an era of social media. They can serve on hospital and community health committees that set policy and allocate resources. They can contribute to research that generates the evidence base for public health programmes. And they can train students and junior colleagues in public health thinking, embedding a population perspective into the next generation of clinicians. These contributions do not require a formal public health qualification; they require only the commitment to use the physician platform in service of the broader community.

Fill in the blank: Every clinical consultation is a potential public health intervention because the physician _____ carries authority with patients and communities that less personal public health communication channels often cannot match.

5.3.2 Health systems strengthening in Nigeria

Health systems strengthening refers to the process of improving the performance of the six building blocks of a health system, as identified by the World Health Organization: health workforce, health financing, health information systems, essential medicines and technologies, service delivery, and governance and leadership. In Nigeria, all six building blocks face significant challenges. The health workforce is insufficient in numbers, poorly distributed, and hemorrhaging to emigration. Health financing remains overwhelmingly out-of-pocket, leaving the majority of the population unprotected against catastrophic health expenditure. Health information systems are weak, with incomplete and often unreliable data on disease burden, facility performance, and health expenditure. Essential medicines are intermittently available and subject to counterfeiting. Service delivery is fragmented and uneven in quality. And governance of the health sector is weakened by corruption, inadequate accountability mechanisms, and the fragmentation of responsibility between federal, state, and local government levels.

Strengthening this system requires action at multiple levels simultaneously. At the national level, increased government investment in health as a proportion of the national budget, universal health coverage through an expanded National Health Insurance Scheme, and effective regulation of medicine quality and health worker practice are priorities. At the facility level, improving quality through clinical audit, staff training, equipment maintenance, and reliable supply chains makes a direct difference to the patients seen every day. At the individual clinician level, the commitment to practise to the highest attainable standard within available resources, to refuse to participate in corruption, and to advocate openly for the conditions needed to provide good care are contributions that every physician can make regardless of their seniority or specialty.

Fill in the blank: The WHO identifies six building blocks of a health system: health _____ , health financing, health information systems, essential medicines and technologies, service delivery, and governance and leadership.

5.3.3 The future of medicine in Nigeria

The future of medicine in Nigeria will be shaped by several converging forces. The disease burden will continue to evolve, with non-communicable diseases growing relative to infectious diseases as the population ages and urbanises, even as infectious disease threats including antimicrobial resistance and pandemic preparedness remain critical concerns. Technology will transform diagnostic and therapeutic possibilities, with digital health tools, telemedicine, and eventually artificial intelligence making capabilities available in community settings that were previously confined to tertiary hospitals. The healthcare workforce will continue to change, both through the expansion of training capacity and through the challenge of retaining trained professionals in a country that struggles to offer competitive salaries and working conditions.

What will not change is the fundamental nature of the work. Medicine will always be, at its core, the encounter between a person in need and a person with the knowledge and commitment to help. The institutions, the technologies, the diseases, and the social context will all continue to evolve, but the physician who enters that encounter with competence, honesty, compassion, and a genuine commitment to the patient in front of them and to the community around them will always be practising medicine in its truest sense. The student who completes this course is not yet a physician, but they are already a member of a profession with a proud history, a demanding present, and a future that will need their very best.

Fill in the blank: The fundamental nature of medicine, the encounter between a person in need and a person with the knowledge and _____ to help, will remain constant even as diseases, technologies, and social contexts continue to evolve.

Pilot questions 5.3

1. Describe three ways in which a physician can contribute to public health beyond their individual clinical practice.
2. Explain the six building blocks of a health system and describe the main challenge facing each in Nigeria.
3. What does universal health coverage mean and why is it a priority for Nigeria?
4. What qualities will future Nigerian physicians need in order to meet the health challenges of the coming decades?

Series Summary

This Series completed the course by situating the individual clinician within the broader frameworks of public health and the law. Public health was defined as the science and art of preventing disease and promoting health through organised societal effort, and epidemiology was identified as its primary scientific tool, enabling the understanding of disease distribution and the design of interventions to control it. Disease surveillance through the Nigeria Centre for Disease Control and the system of notifiable disease reporting connects the individual clinician to the national public health response, making timely and accurate reporting a professional and legal obligation rather than an optional courtesy.

Medical jurisprudence addressed the legal dimension of clinical practice, from the elements of medical negligence and the standard of care to the specific medico-legal obligations attached to clinical records, death certification, fitness assessments, and controlled drug management. The National Health Act 2014 was identified as the central legislative framework for patients rights and clinician obligations in Nigeria. The Series concluded by reflecting on the physician as a public health advocate, on the priorities for health systems strengthening, and on the future of medicine in a country that needs clinicians who are not only technically skilled but deeply committed to the communities they serve.

Glossary of Terms

- **Disease surveillance:** the continuous, systematic collection, analysis, and interpretation of health data used to guide public health action; operated in Nigeria through the NCDC.
- **Duty of care:** the legal obligation of a clinician to provide care to a patient with whom a clinical relationship has been established.
- **Epidemiology:** the study of the distribution and determinants of health and disease in populations, and the application of this knowledge to the control of health problems.

- **Health promotion:** the process of enabling people to increase control over and improve their health through education, community action, policy, and supportive environments.
- **Health systems strengthening:** improving the performance of the six WHO building blocks of a health system: workforce, financing, information systems, medicines and technologies, service delivery, and governance.
- **Medical jurisprudence:** the branch of knowledge concerned with the application of medical science to the purposes of the law, and with the legal obligations and rights of medical practitioners.
- **Medical negligence:** failure to meet the standard of care expected of a reasonably competent practitioner, causing harm to the patient; requires proof of duty, breach, and causation.
- **Notifiable diseases:** conditions that clinicians are legally required to report to public health authorities when diagnosed, enabling early detection of outbreaks.
- **Primary prevention:** action to prevent disease from occurring at all, through vaccination, sanitation, dietary change, and risk behaviour reduction.
- **Universal health coverage:** ensuring that all people have access to needed health services of sufficient quality without suffering financial hardship.

Concept Check Questions [Series 5]

Objective Questions

1. Public health is the science and art of preventing disease, prolonging life, and promoting health through the organised efforts of _____. (Linked to SLO 5.1)
2. Disease _____ is the continuous systematic collection and analysis of health data used to guide public health action, operated in Nigeria through the NCDC. (Linked to SLO 5.1)
3. Medical _____ is the branch of knowledge concerned with applying medical science to the purposes of the law and with the legal obligations of practitioners. (Linked to SLO 5.2)
4. For a medical negligence claim to succeed, three elements must be proved: duty of care, breach of duty, and _____ of recognisable harm. (Linked to SLO 5.2)
5. The WHO identifies six building blocks of a health system, including health _____, financing, information systems, medicines and technologies, service delivery, and governance. (Linked to SLO 5.3)

Short-Answer Questions

6. Explain the concept of notifiable diseases and describe the clinician obligation when a notifiable disease is diagnosed. (Linked to SLO 5.1)
7. Explain the three elements of medical negligence and describe two common sources of negligence claims in Nigerian clinical practice. (Linked to SLO 5.2)
8. Describe three priorities for health systems strengthening in Nigeria and explain the contribution an individual clinician can make. (Linked to SLO 5.3)

Long-Answer Question

9. Discuss public health and medical jurisprudence as dimensions of medical practice in Nigeria, covering epidemiology, disease prevention, professional liability, and the physician role in health systems strengthening. (Linked to SLOs 5.1, 5.2, 5.3)

Answers to Concept Check Questions [Series 5]

Objective Questions

1. Society.
2. Surveillance.
3. Jurisprudence.
4. Causation.
5. Workforce.

Short-Answer Questions

6. Notifiable diseases are conditions that clinicians are legally required to report to public health authorities when they diagnose them. They are designated as notifiable because early detection of cases enables rapid investigation and response that can prevent wider outbreaks. In Nigeria, the list of notifiable diseases includes cholera, yellow fever, meningococcal meningitis, measles, polio, Lassa fever, and Ebola virus disease, among others. When a clinician diagnoses or suspects a notifiable disease, they are legally required to notify the nearest public health authority, typically the local government disease surveillance officer, as quickly as possible. This notification must be made even when the diagnosis is only suspected rather than confirmed, because the value of surveillance lies in early detection, and waiting for laboratory confirmation introduces delay that can allow an outbreak to spread.
7. Three elements of medical negligence: first, duty of care, which is established by the existence of a clinical relationship between the clinician and the patient; any clinician

who agrees to provide care to a patient thereby assumes a duty of care. Second, breach of duty, meaning that the clinician fell below the standard expected of a reasonably competent practitioner with equivalent training and experience in the same circumstances. Third, causation of recognisable harm, meaning that the breach of duty directly caused harm to the patient that is of a type recognised by the law. All three elements must be proved for a claim to succeed. Two common sources of negligence claims in Nigeria: diagnostic failure, where a condition that should have been detected and treated was missed or delayed, resulting in avoidable harm; and prescribing errors, where a wrong drug, wrong dose, or failure to check for drug interactions results in the patient being harmed by their treatment.

8. Three priorities for health systems strengthening in Nigeria: expanding universal health coverage through the National Health Insurance Scheme, so that more Nigerians can access healthcare without catastrophic out-of-pocket expenditure; investing in the health workforce by increasing training capacity and creating retention incentives that reduce emigration and improve the distribution of workers to underserved areas; and strengthening governance and accountability mechanisms to reduce corruption in procurement and service delivery and to ensure that public health resources reach the patients they are intended for. Individual clinician contribution: maintain rigorous professional standards within your own practice regardless of the institutional environment; refuse to participate in corrupt practices such as informal payments or falsification of records; use the professional channels available, including the NMA and civil society engagement, to advocate openly for the system improvements that would allow better patient care.

Long-Answer Question

9. Public health: defined as science and art of preventing disease and promoting health through organised societal effort; population focus distinguishes it from clinical medicine; historical impact greater than clinical medicine through sanitation, clean water, nutrition, and immunisation before antibiotics arrived. Epidemiology: study of

distribution and determinants of disease in populations; person, place, and time analysis; John Snow Broad Street pump 1854 as paradigm case; epidemiological triangle (agent, host, environment). Disease surveillance: NCDC Integrated Disease Surveillance and Response system; weekly facility-level reporting; notifiable diseases (cholera, yellow fever, meningococcal disease, measles, polio, Lassa fever, Ebola); clinician legal obligation to notify promptly. Prevention: primary (vaccination, sanitation, bed nets, tobacco control), secondary (screening for hypertension, diabetes, cervical cancer, TB contact tracing), tertiary (treatment, rehabilitation, chronic disease management); expanded programme on immunisation as priority. Medical jurisprudence: application of medical science to law; National Health Act 2014 (patients rights to consent, confidentiality, emergency care); intersects with law of tort (negligence), criminal law, contract law. Medical negligence: three elements: duty of care (clinical relationship), breach of duty (below reasonable standard), causation of recognisable harm; common sources: diagnostic failure, prescribing error, inadequate consent, failure to refer, communication failure. Medico-legal obligations: clinical records (contemporaneous, accurate, legible, never alter; primary legal defence); death certification (legal obligation, criminal offence to falsify); fitness certifications (genuine assessment required); controlled drugs (legal prescription and storage requirements). Physician in public health: trusted platform for health communication; vaccination campaigns, screening, outbreak investigation; countering health misinformation; policy engagement and research contribution; training next generation with population perspective. Health systems strengthening: WHO six building blocks (workforce, financing, information systems, medicines and technologies, service delivery, governance); Nigeria challenges in all six; priorities: universal health coverage expansion, workforce retention, governance strengthening; individual clinician role: maintain standards, refuse corruption, advocate for change. Future of medicine in Nigeria: non-communicable disease burden growing; digital health and telemedicine expanding access; workforce challenges continuing; fundamental nature unchanged: competent, honest, compassionate encounter between clinician and patient in need.

Answers to Pilot Questions [Series 5]

Part 5.1

1. Public health focuses on populations rather than individuals, allowing it to address the upstream social, environmental, and behavioural determinants of disease that clinical medicine cannot reach one patient at a time. Population-level interventions have historically had greater mortality impact because they can reach everyone simultaneously rather than only those who seek clinical care. The decline in deaths from infectious diseases in Europe in the nineteenth and twentieth centuries is the classic evidence: mortality from tuberculosis, cholera, and typhoid had been falling for decades before effective drug treatments existed, driven by improvements in sanitation, clean water supply, housing quality, and nutrition. Immunisation and antibiotics then accelerated an improvement that public health action had begun. In the Nigerian context, providing safe water and sanitation to all communities, achieving universal immunisation coverage, ensuring skilled attendance at all deliveries, and achieving effective malaria vector control would each save more lives than any equivalent investment in curative clinical services.
2. Epidemiology is the scientific study of the distribution and determinants of health and disease in populations, and the application of this knowledge to the control of health problems. John Snow applied epidemiological reasoning to the 1854 Broad Street cholera outbreak in London by systematically mapping the residential addresses of all cholera deaths onto a street map of the Soho district. He observed that the deaths clustered around the Broad Street water pump, while residents who obtained water from other sources were largely spared. He also noted two apparent exceptions that tested his hypothesis: a brewery near the pump whose workers did not get cholera, but who drank beer rather than pump water, and a woman who lived far away but who was sent water from the Broad Street pump by her son because she preferred its taste, and who also died. These exceptions confirmed rather than refuted his hypothesis. Snow persuaded the local authority to remove the handle from the Broad Street pump, and the outbreak subsided.

He achieved this without knowing that cholera was caused by the bacterium *Vibrio cholerae*, which Pasteur and Koch would only identify decades later.

3. Notifiable diseases are conditions that clinicians are legally required to report to designated public health authorities when they diagnose or strongly suspect them. They are designated as notifiable because early detection enables early response, and early response is essential for containing outbreaks of diseases that can spread rapidly through communities. In Nigeria, the list includes cholera, yellow fever, meningococcal meningitis, measles, polio, Lassa fever, Ebola virus disease, and several others. The clinician obligation is to notify the nearest disease surveillance officer, typically at the local government area level, as promptly as possible after diagnosis or strong clinical suspicion. Notification should not wait for laboratory confirmation in diseases where delay could allow spread; the notification system is designed to trigger investigation and response that may itself generate the laboratory confirmation. Failure to notify a notifiable disease is a breach of both professional and legal duty.
4. Primary prevention acts before disease occurs by removing risk factors or conferring protection. Nigerian examples: childhood immunisation through the expanded programme on immunisation protects children from measles, polio, and meningococcal disease before they encounter the pathogens; distribution of insecticide-treated bed nets prevents malaria transmission in endemic communities. Secondary prevention detects disease at an early and treatable stage before symptoms appear or cause significant damage. Nigerian examples: blood pressure screening in adults identifies hypertension before it has caused stroke or kidney damage, enabling treatment that prevents these complications; screening of HIV-positive pregnant women with CD4 count allows antiretroviral therapy to be initiated before the immune system is severely depleted. Tertiary prevention reduces the impact and complications of established disease. Nigerian examples: oral rehydration therapy and nutritional rehabilitation for children with established protein-energy malnutrition reduces the mortality and developmental consequences of the condition; physiotherapy and occupational therapy for patients who have had a stroke reduces long-term disability.

Part 5.2

1. Medical jurisprudence is the branch of knowledge concerned with the application of medical science to the purposes of the law, and with the legal obligations and rights of practitioners and patients. Its scope in everyday clinical practice is wider than most students initially appreciate. It is relevant to the informed consent discussion before every procedure, because consent that is not properly obtained exposes the clinician to potential liability for battery or negligence. It is relevant to every clinical record that is written, because the record is a legal document that may be submitted as evidence in professional conduct proceedings or civil litigation. It is relevant to every death certificate, because falsifying a death certificate is a criminal offence. It is relevant to every prescription for a controlled drug, because there are specific legal requirements governing how these prescriptions must be written and stored. And it is relevant to every interaction involving patient confidentiality, because unauthorised disclosure of patient information may breach both professional standards and the law.
2. Duty of care: the first element is establishing that the clinician owed the patient a duty of care, which arises from the existence of a clinical relationship; when a doctor agrees to consult, assess, or treat a patient, they accept a duty to that patient. Breach of duty: the second element is proving that the clinician breached their duty by providing care that fell below the standard expected of a reasonably competent practitioner with equivalent training and experience in the same circumstances; the standard is not perfection but reasonable competence. Causation of recognisable harm: the third element is proving that the breach of duty was the direct cause of harm to the patient, and that the harm is of a type recognised by the law; it is not sufficient to show that the clinician was negligent if the patient would have suffered the same harm regardless of the negligence. Common sources of negligence claims in Nigerian practice: diagnostic failure, where a serious condition such as ectopic pregnancy, pulmonary embolism, or meningococcal septicaemia is missed or delayed because of inadequate history-taking, failure to examine, or failure to arrange appropriate investigation; and inadequate informed consent, where a procedure is performed without the patient having been given adequate

information about its risks, resulting in a complication that the patient would have considered and possibly declined if properly informed.

3. Three priorities and individual clinician contribution: Universal health coverage: expanding the National Health Insurance Scheme to cover the majority of Nigerians who currently pay out-of-pocket is the most important single structural reform; the individual clinician can support this by registering their eligible patients with available schemes, by providing the documentation required for reimbursement, and by advocating for scheme expansion through professional bodies and community engagement. Health workforce retention and distribution: retaining trained professionals and redistributing them to underserved areas requires systemic incentives including competitive salaries, improved working conditions, and career development opportunities; the individual clinician can contribute by choosing to serve in underserved areas when the opportunity exists, by mentoring students and junior colleagues, and by speaking publicly about the conditions that drive emigration. Governance and anti-corruption: reducing corruption in procurement and service delivery requires both structural accountability mechanisms and individual integrity; the individual clinician can refuse to participate in informal payments, to falsify records, or to prescribe or refer inappropriately for financial incentives, and can report observed misconduct through appropriate channels.
4. Medical jurisprudence is defined as the branch of knowledge concerned with the application of medical science to the purposes of the law, and with the legal rights and obligations of practitioners and patients. Its scope in everyday clinical practice encompasses every informed consent discussion, every clinical record, every death certificate, every fitness certification, and every prescription for a controlled drug. The National Health Act of 2014 is the primary legislation governing medical practice in Nigeria; it enshrines patients rights to informed consent, to confidentiality, and to emergency care regardless of ability to pay, and it creates corresponding legal obligations on healthcare providers to honour these rights. A clinician who fails to obtain valid informed consent before a procedure, who discloses patient information without authorisation, who refuses emergency care to a patient unable to pay, or who falsifies a clinical record is in breach of both professional standards and the National Health Act,

and may face disciplinary action from the MDCN and civil or criminal liability under Nigerian law.

Part 5.3

1. Three channels beyond individual clinical practice: public health communication, where the physician uses their trusted community platform to provide accurate health information, counter harmful misinformation about vaccines or treatments, and promote evidence-based health behaviours through media appearances, community talks, and social media engagement; participation in organised public health programmes, including immunisation campaigns, outbreak investigation teams, screening programmes for hypertension, diabetes, and cervical cancer, and tuberculosis contact tracing and directly observed therapy; and policy engagement, where the physician contributes their clinical expertise to hospital committees, local government health committees, professional body advocacy, and engagement with elected representatives on health policy issues, using their evidence-based understanding of what the health system needs to influence the decisions that shape it.
2. The six WHO health system building blocks and their main challenges in Nigeria: Health workforce: insufficient numbers trained relative to population need, severe brain drain to higher-income countries, maldistribution with concentration in urban south. Health financing: dominant out-of-pocket payment model excludes the poor from care and produces catastrophic expenditure; NHIS covers only a small fraction of the population. Health information systems: incomplete and often unreliable data on disease burden, facility performance, and health resource flows, preventing evidence-based planning. Essential medicines and technologies: intermittent availability of essential medicines, significant counterfeit medicine problem, inadequate maintenance of diagnostic equipment. Service delivery: fragmented, uneven quality across facility levels, inadequate integration of primary and secondary care, poor referral systems. Governance and leadership: corruption in procurement and service delivery, fragmented responsibility across three tiers of government, weak accountability mechanisms.

3. Universal health coverage means ensuring that all people can access the health services they need without suffering financial hardship in doing so. It is a priority for Nigeria because the current predominantly out-of-pocket financing system means that millions of Nigerians are excluded from healthcare by cost, or are driven into poverty by the expense of accessing care when they fall ill. Nigeria has one of the highest rates of catastrophic health expenditure in the world, meaning that paying for healthcare pushes a significant proportion of households below the poverty line each year. Expanding the National Health Insurance Scheme to provide financial protection to the majority rather than the minority of the population would allow people to seek care earlier, when diseases are more treatable, rather than waiting until illness is severe and expensive to manage; it would also reduce the inequity whereby the poor, who bear the greatest disease burden, have the least access to care.
4. Future Nigerian physicians will need technical clinical competence, which has always been the foundation of the profession, but the challenges of the coming decades will also demand additional qualities. Adaptability is one: the disease burden is shifting toward non-communicable diseases, digital tools are transforming diagnostics and communication, and new infectious disease threats will continue to emerge; the physician who cannot update their practice as the evidence and the environment change will be ill-equipped. Digital literacy is another: telemedicine, electronic health records, AI-assisted diagnosis, and digital public health tools are becoming part of clinical practice and will be central to the healthcare of the future. Commitment to equity matters enormously: in a country where health disparities are extreme, the physician who can only work effectively with educated, urban, well-resourced patients is serving only a fraction of those who need them. And the qualities of character that have always defined the best physicians, honesty, compassion, accountability, and genuine commitment to the patient in front of them, will be needed as much in the future as they have ever been.

References and Attributions

Textual References (Books and External Sources)

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Figures, Plates, Tables, and Boxes

- Figure 5.1: Epidemiology, surveillance, and disease prevention in Nigeria Attribution: AI generated. Suggested OER search string: "epidemiology surveillance NCDC disease notification prevention health promotion Nigeria public health OER".
- Figure 5.2: Medical negligence and medico-legal obligations in clinical practice Attribution: AI generated. Suggested OER search string: "medical negligence duty care breach causation medico-legal obligations clinical records death certification Nigeria National Health Act OER".