

- These will be the differences between Elhusseiny's Essentials 2021 and 2023. If you already have 2021 Edition, you don't have to buy 2023 Edition again.
- The differences include the extra information from FA and UW 2022.
- The highlighted text is the UW notes form the newly added questions 2022.
- For every block added, you will be able to know in which **book and page number you can add it.**

Behavioral Science Book

1. Epidemiology & Biostatistics

Likelihood ratio (Page 12)

$$LR^+ = \frac{\text{probability of positive result in patient with disorder}}{\text{probability of positive result in patient without disorder}} = \frac{\text{sensitivity}}{1 - \text{specificity}} = \frac{\text{TP rate}}{\text{FP rate}}$$

$$LR^- = \frac{\text{probability of negative result in patient with disorder}}{\text{probability of negative result in patient without disorder}} = \frac{1 - \text{sensitivity}}{\text{specificity}} = \frac{\text{FN rate}}{\text{TN rate}}$$

$LR^+ > 10$ indicates a highly specific test, while $LR^- < 0.1$ indicates a highly sensitive test.

Pretest probability \times LR = posttest odds. Posttest probability = posttest odds / (posttest odds + 1).

Types of Observational Studies (Page 16)

A. Case report:

- A detailed report of the symptoms, signs, diagnosis, treatment, and follow-up of an **individual patient**.
- Usually **describe an unusual or novel occurrence**.

B. Case series:

- Describes **several individual patients** with the same diagnosis, treatment, or outcome.
- Description of clinical findings and symptoms.
- Has **no comparison group**, thus cannot show risk factor association with disease.

C. Ecological study:

- Compares frequency of disease and frequency of risk-related factors **across populations**.
- Measures population data not necessarily applicable to individuals (**ecological fallacy**).
- Used to **monitor population health**.
- COPD prevalence was higher in more polluted cities.

D. Meta analysis:

- An epidemiological method of **pooling the data from several studies addressing the same question** to conduct an analysis having a relatively larger statistical power than that of the individual studies.
- Meta-analytic results are considered **the most trustworthy source of evidence by the evidence-based medicine literature**.

Experimental Studies (Clinical Trials, Intervention Studies) Page 23

- Experimental study involving humans. Compares therapeutic benefits of ≥ 2 interventions (treatment vs placebo, treatment vs treatment). Clinical trials **occur after preclinical studies** and consist of five phases (“Can I **SWIM**?”).
- **Phases of Clinical Trials:**
 - A. **Phase 0:**
 - **Study population:** **very small number** of either healthy volunteers or patients with disease of interest. Open-label.
 - **Main purpose:** Initial pharmacokinetic and pharmacodynamic assessment via microdosing. Often skipped.
 - B. **Phase 1:**
 - **Study population:** **Small number** of either healthy volunteers or patients with disease of interest. Open-label.
 - **Main purpose:** Safety assessment via dose escalation. Determines maximum tolerated dose.
 - C. **Phase 2:**
 - **Study population:** **Moderate number** of patients with disease of interest. Randomized, controlled, anonymized.
 - **Main purpose:** Efficacy assessment (does it **Work**?). Provides additional data on short-term adverse effects.
 - D. **Phase 3:**
 - **Study population:** **Large number** of patients with disease of interest. Randomized, controlled, anonymized.
 - **Main purpose:** Effectiveness assessment via comparison with current standard of care (any **Improvement**?).
 - E. **Phase 4:**
 - **Study population:** Postmarketing surveillance of patients after treatment is approved. Open-label.
 - **Main purpose:** Provides data on long-term or rare adverse effects (can it stay on the **Market**?).

Off-label drug use (page 24)

- Use of a drug to treat a disease in a form, population group, or dosage that is not specifically approved by the FDA.
- Reasons for off-label use include treatment of an illness with no approved pharmacologic treatment or exploring alternative treatments after failure of approved options.
- **Example:** use of tricyclic antidepressants for treating neuropathic/chronic pain.

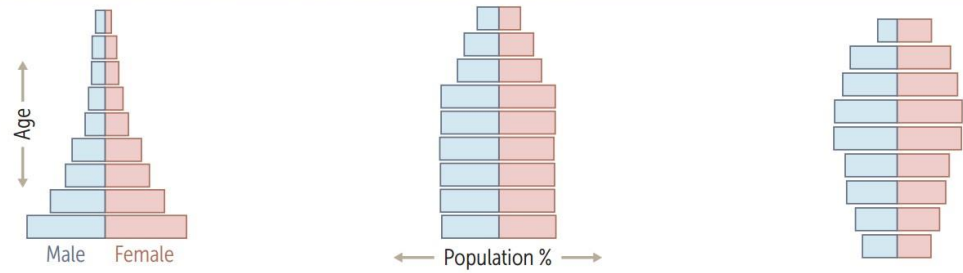
Bradford Hill criteria (Page 26)

- A group of principles that provide limited support for establishing evidence of a causal relationship between presumed cause and effect.
- Strength:** Association does not necessarily imply causation, but the stronger the association, the more evidence for causation.
 - Consistency:** Repeated observations of the findings in multiple distinct samples.
 - Specificity:** The more specific the presumed cause is to the effect, the stronger the evidence for causation.
 - Temporality:** The presumed cause precedes the effect by an expected amount of time.
 - Biological gradient:** Greater effect observed with greater exposure to the presumed cause (dose-response relationship).
 - Plausibility:** A conceivable mechanism exists by which the cause may lead to the effect.
 - Coherence:** The presumed cause and effect do not conflict with existing scientific consensus.
 - Experiment:** Empirical evidence supporting the presumed cause and effect (animal studies, in vitro studies).
 - Analogy:** The presumed cause and effect are comparable to a similar, established cause and effect.

Demographic transition

As a country proceeds to higher levels of development, birth and mortality rates decline to varying degrees, changing the age composition of the population.

Population pyramid



Birth rate

↑↑

↓

↓↓

Mortality rate

↑

↓

↓

Life expectancy

Short

Long

Long

Population

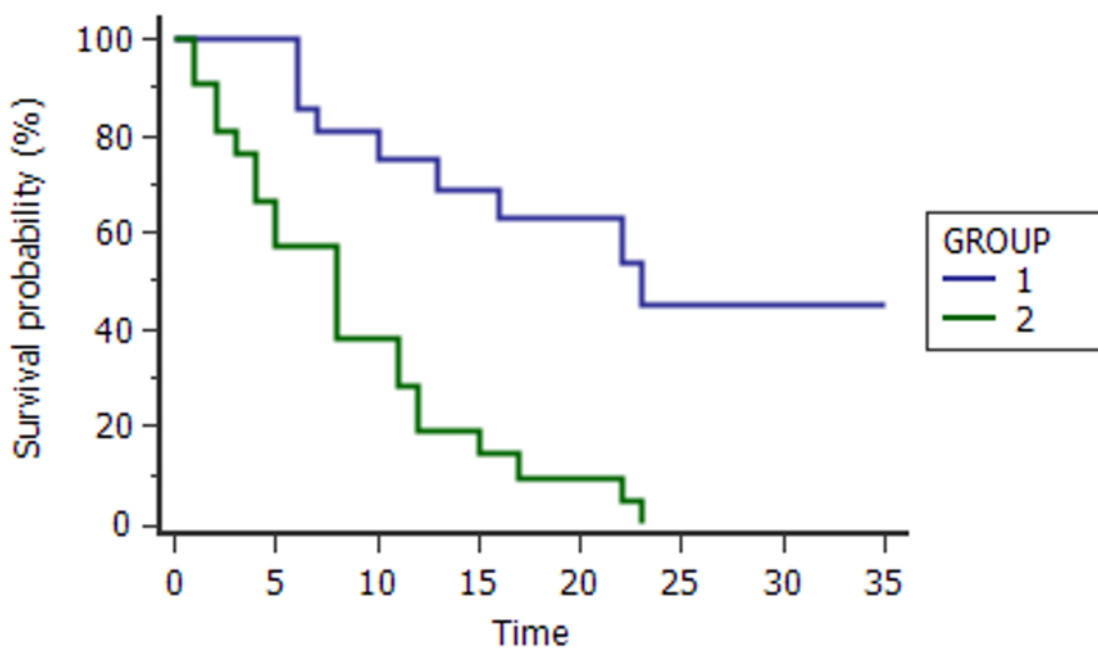
Growing

Stable

Declining

Kaplan-Meier curve (Page 27)

- Graphic representation of **event probability (y-axis) vs length of time (x-axis)**.
- Useful for displaying “time-to-event” data. Outcomes examined may include any event, but frequently include **mortality**.
- Survival probability = 1 – (event probability).



Immature Defense Mechanisms (Page 60)

- A. **Fixation:** Partially remaining at a more childish level of development (**vs regression**).
 - **Example:** A college student studying for a stressful exam begins sucking her thumb.

Child Abuse (Page 66)

	Physical abuse	Sexual abuse	Emotional abuse
Signs	<p>Fractures, bruises, or burns.</p> <p>Injuries often in different stages of healing or in patterns resembling possible implements of injury.</p> <p>Includes abusive head trauma (shaken baby syndrome), characterized by subdural hematomas or retinal hemorrhages.</p> <p>Caregivers may delay seeking medical attention for the child or provide explanations inconsistent with the child's developmental stage or pattern of injury.</p>	<p>STIs, UTIs, and genital, anal, or oral trauma.</p> <p>Most often, there are no physical signs; sexual abuse should not be excluded from a differential diagnosis in the absence of physical trauma.</p> <p>Children often exhibit sexual knowledge or behavior incongruent with their age.</p>	<p>Babies or young children may lack a bond with the caregiver but are overly affectionate with less familiar adults.</p> <p>They may be aggressive toward children and animals or unusually anxious.</p> <p>Older children are often emotionally labile and prone to angry outbursts.</p> <p>They may distance themselves from caregivers and other children.</p> <p>They can experience vague somatic symptoms for which a medical cause cannot be found</p>
Epidemiology	<p>40% of deaths related to child abuse or neglect occur in children < 1 year old.</p>	<p>Peak incidence 9-12 years old.</p>	<p>~80% of young adult victims of child emotional abuse meet the criteria for ≥ 1 psychiatric illness by age 21</p>

(Page 75)

Sleep stages		
	EEG pattern & frequencies	Characteristics
Non-REM stage 1 (N1)	<ul style="list-style-type: none"> • Theta waves (4-7.9 Hz) 	<ul style="list-style-type: none"> • Wakefulness-sleep transition • Easy to wake
Non-REM stage 2 (N2)	<ul style="list-style-type: none"> • Theta waves (4-7.9 Hz) • Sleep spindles & K complexes 	<ul style="list-style-type: none"> • Largest percentage of sleep
Non-REM stage 3 (N3)	<ul style="list-style-type: none"> • Delta waves (<4 Hz) 	<ul style="list-style-type: none"> • Prominent 1st half of night • Difficult to wake • Sleepwalking & night terrors
REM	<ul style="list-style-type: none"> • EEG resembles wakefulness • Occasional sawtooth waves 	<ul style="list-style-type: none"> • Prominent 2nd half of night • Dreams, REMs, muscle atonia • REM sleep behavior disorder & nightmare disorder

EEG = electroencephalogram; **REM** = rapid eye movement.

Enuresis (Page 79)

- Nighttime urinary incontinence ≥ 2 times/week for ≥ 3 months in person > 5 years old.
- **First-line treatment:** behavioral modification (scheduled voids, nighttime fluid restriction) and positive reinforcement.
- **For refractory cases:** bedwetting alarm, oral desmopressin (ADH analog; preferred over imipramine due to fewer adverse effects).

Disruptive mood dysregulation disorder (Page 85)

- Onset before age 10.
- Severe, recurrent temper outbursts out of proportion to situation.
- Child is constantly angry and irritable between outbursts.
- **Treatment:** CBT, stimulants, antipsychotics.

Intermittent explosive disorder (Page 85)

- Onset after age 6.
- Recurrent verbal or physical outbursts representing a failure to control aggressive impulses.
- Outbursts last < 30 minutes and are out of proportion to provocation and may lead to legal, financial, or social consequences. Episodes are not premeditated and may provide an immediate sense of relief, followed by remorse.
- **Treatment:** psychotherapy, SSRIs.

Gambling disorder (Page 141)

- Persistent, recurrent, problematic gambling that cannot be better explained as a manic episode.
- Diagnosis made if patient meets ≥ 4 of the following criteria:
 - Is **preoccupied** with gambling.
 - Requires **more gambling** to reach desired level of excitement.
 - Has **failed efforts** to limit, cut back, or stop gambling.
 - **Becomes restless or irritable** when limiting or attempting to stop gambling.
 - **Gambles to escape or relieve feelings** of helplessness, guilt, anxiety, or depression.
 - After losing money gambling, continues gambling in an attempt to recover losses.
 - Lies to conceal the extent of gambling.
 - Puts at risk or has lost significant relationship, career, or academic pursuits because of gambling.
 - Relies on money from others to fix financial collapse due to gambling
- Treatment: psychotherapy.

Communication skills and patient safety rules (Page 181)

1. In general, a patient has the right to know a diagnosis.
 - If family members ask for information to be withheld, it is imperative for the physician to understand their reasoning.
 - Occasionally, it is in the patient's best interest to withhold especially distressing news (if a severely depressed patient might become suicidal). Therefore, it is best to clarify the situation with the concerned family members first before deciding how best to proceed.
2. It's important to maintain professional conduct when dealing with patients of all types, ranging from hostile to seductive. Several actions suggest that the patient could have boundary issues. These include:
 - A. Arrival at unscheduled times and/or at closing time (when others are less likely to be available).
 - B. Insistence on seeing the same physician for each visit (for mild conditions) and in private.
 - C. Frequent return visits for nonspecific complaints.
 - D. Health complaints that necessitate examination of private areas or undressing, despite recent normal findings.
 - Physicians should respond politely but firmly to inappropriate patient requests. Maintaining professional boundaries is an important component of the physician-patient relationship.
3. When dealing with an angry patient, the most appropriate response is to remain non-defensive, acknowledge that the patient is upset, and begin the discussion with an open-ended question.
4. Accepting gifts from Interested third parties can Influence a physician's practice in subtle or subconscious ways.
 - Only nonmonetary gifts that are of minimal value and that directly benefit the patient, such as unbiased educational material or drug samples, should be considered.
5. In the absence of an advance directive, a life-saving blood transfusion can be given to a Jehovah's Witness who lacks decision-making capacity.
6. When treating patients who have been referred for specialty care or a second opinion, it is imperative to not undermine the patient's relationship with the primary physician.
 - A physician should avoid making negative comments about the quality of care rendered by that practitioner unless practices are imminently dangerous or far outside acceptable standards of care.
7. A pregnant woman who has capacity has the right to refuse treatment, even if it places her unborn child at risk.
 - In the United States, the mother is considered to have ultimate rights over her unborn child, assuming she has capacity. When a mother refuses a procedure or treatment that is in the best interest of the fetus, the physician should provide counseling and education as to why the procedure is necessary.
 - If the mother continues to refuse a procedure that would prevent irreversible harm to the fetus, the hospital ethics committee should be consulted, but the mother should not be coerced or otherwise forced into accepting any form of treatment she does not want.

8. Abortion is a legal medical procedure in the United States and is performed routinely in specialty clinics and doctors' offices. Although first-trimester abortions are unrestricted, states have different restrictions on second-trimester abortions, including mandatory waiting periods, parental consent for pregnant minors, and mandatory discussion of options.
 - Physicians are not required to provide medical services that are against their personal beliefs. In such cases, the physician should provide referral to providers who will perform the requested procedure.
9. When delivering bad news, a face-to-face visit in a comfortable private setting is preferred as it allows the physician to respond to nonverbal aspects of communication and provide empathy and emotional support as needed.
 - It is also important to assess the patient's understanding of the condition and how much the patient actually wants to know. Other steps include gaining an understanding of cultural/educational/religious issues, making medical information understandable to the patient, and formulating a collaborative treatment plan.
10. Physicians should respond to disclosure of past sexual abuse with empathy and concern. Clearly acknowledging the trauma and communicating a willingness to discuss it when the patient is ready will help strengthen the physician-patient relationship.
11. Taking a sexual history is a key part of comprehensive care and requires an inclusive and nonjudgmental approach. Physicians should avoid making assumptions about a patient's sexual history and use an open-ended inquiry about all sexual partners.
12. The ethical dilemma of using newly deceased patients for training purposes involves weighing the conflicting considerations of respect for patient integrity with the need to train health care providers to perform lifesaving procedures.
 - According to ethical guidelines, permission must be obtained from the family (or from the patient prior to death) before procedures can be performed on a newly deceased patient for training purposes.
13. The Health Insurance Portability and Accountability Act protects health information by requiring verbal or written authorization for release of information.
 - Hospitals and physicians' offices frequently have additional policies requiring written forms for release of information and procedures to verify the identity of phone callers.
 - It is important that health care providers be familiar with these rules and disclose only the minimum necessary information.
14. Preventable medical errors involve harm to the patient by an act of commission or omission rather than from the underlying disease and are the result of failure to follow evidence-based best practice guidelines.
15. Sleep deprivation in physicians often causes cognitive impairment, resulting in medical errors. Although mandated resident work-hour limitations are in place, it is the responsibility of all physicians to self-regulate their workloads to promote patient safety.
16. A discharge checklist detailing medication changes and follow-up appointments can significantly facilitate a patient's transition from the hospital and improve adherence to outpatient treatment.

Individuals who experience a smooth transition from the inpatient to the outpatient setting are at lower risk for early rehospitalization.

17. **Communication failures** between physicians during patient handoffs are a large contributor to medical errors and adverse patient outcomes.
 - Medical errors resulting from communication failures between medical providers are most effectively addressed by implementing a **systematic signout process that includes checklists to improve efficacy and accuracy**.
 - Checklists are an important tool to prevent undesired medical outcomes that result from physician communication failures during the patient handoff process.

18. Patients' misunderstanding of medication use can result in medication errors, including potential overdose, toxicity, and withdrawal.
 - Physicians must assess the patient's understanding and provide targeted education to address **misconceptions**.

19. Empiric antibiotic therapy for patients with uncomplicated upper respiratory infections is contraindicated.
 - Responding to requests for inappropriate antibiotics involves a **patient-centered approach that validates the patient's concerns, educates the patient about the adverse effects of antibiotics and their lack of efficacy in treating viral infections, and provides options to treat the patient symptomatically**.

20. **Physicians are ethically obligated to question orders that raise concern about potential harm to patients**. Issues should initially be discussed directly with the physician who made the order.

21. Deaf and hard of hearing **patients should be offered the services of an interpreter trained in medical translation and American Sign Language, subject to patient preference and consent**. Alternate modes of communication include computer-assisted real-time transcription and assistive listening devices.

Communicating with deaf & hard of hearing patients

Modes of communication	<ul style="list-style-type: none"> • Interpreter (or provider) fluent in medical communication & American Sign Language • Alternate modes: <ul style="list-style-type: none"> ○ Computer-assisted real-time transcription ○ Assistive listening devices ○ Lip reading* ○ Family/friends* ○ Written communication*
Supplemental measures	<ul style="list-style-type: none"> • Printed information sheets • Captioned videos
* Not recommended unless preferred by the patient.	

Communicating with patients who have limited English proficiency	
Initial consent	<ul style="list-style-type: none"> • Determine patient's primary/preferred language • Obtain consent for interpreter services
Preferred mode of communication	<ul style="list-style-type: none"> • Interpreter (or provider) fluent in both medical communication & patient's preferred language
Alternate modes*	<ul style="list-style-type: none"> • Telephonic or remote interpreter service • Nonprovider staff (eg, medical assistant, receptionist) • Family/friends • Written communication
*Not recommended if medical interpreter can be obtained & patient consents.	

22. Initial encounters with new patients often set the tone for the physician-patient relationship. When in doubt about how to address patients, the physician should ask them their preferred form of address.
23. Low literacy can be a significant barrier to appropriate treatment and may be difficult to identify. For patients with suspected low literacy, alternative methods of communication (visual resources) should be used to improve understanding.
24. Identifying and managing nonadherence is critical to improving outcomes for many chronic conditions, including hypertension. Creating an alliance by validating the patient's perspective and using an open-ended, nonjudgmental question is the most effective way to initiate a discussion.
25. Avoiding the use of unsafe abbreviations and trailing zeros in medication orders can help reduce the incidence of medication errors.
26. Risk of wrong-site surgery can be reduced by requiring "dual identifiers" (usually a nurse and physician) to independently confirm that they have the correct patient, site, and procedure. Checks must be truly independent to ensure patient safety.
27. Effective discharge planning requires collaboration of multiple disciplines (physician, nurse, social worker). A social worker can be instrumental in assessing whether the patient has adequate family or caregiver support at home.
28. Health care providers working on a team should employ closed-loop communication, in which team members repeat back the information received to ensure that the correct information has been conveyed. This highly effective form of communication reduces the risk of medical errors in the health care setting.