Comprehensive Medical Research Guide

Step-by-Step Instructions From Idea to Publication

PHASE 1 – RESEARCH FOUNDATIONS

Module 1:

Selecting a Topic

Key Steps Checklist :

- Start with your clinical observations
- Identify a clear gap using reliable sources
- Ensure feasibility
- Match your question to an appropriate study design
- Narrow your topic using the 5W's
- Discuss and refine your idea with a supervisor
- Conduct a literature search to confirm novelty

1. Start With What You Know (or Want to Learn)

Research is more enjoyable and successful when rooted in curiosity or passion.

Ask yourself:

• **What** topics caught your attention in lectures or rounds?

• **Which** fields (e.g., cardiology, infectious disease, neurology) do you want to explore further?

• Have you encountered a patient case that made you think: **Why** is this not better understood?

Example:

A 23-year-old patient had uncontrolled asthma despite regular follow-up.

→ You wonder: Are doctors following the most updated asthma management protocols?

2. Identify a Knowledge Gap

Strong research often solves a real-world problem or investigates a gap in existing knowledge.

Common Sources of Research Problems:

• Clinical issues with unclear best practices

• Variations in care across regions or hospitals rotations

• Lack of data on local populations or settings

Where to Look:

• PubMed or Google Scholar (especially review articles)

• WHO reports, Ministry of Health data

Example Gap:

→ There is NO published data on patient satisfaction after same-day discharge in minor surgeries in Jordan.

3. Keep It Feasible: Assess your time, Resources, and Skills

A good idea is only useful if you can finish it. Use the T-R-S Filter:

Factor	Ask Yourself
Time	Can I complete this in a few months?
Resources	Do I have access to data, patients, or labs?
Skill	Can I do the analysis, or do I need help or training?

🚫 Avoid starting with randomized clinical trials or lab-based research if you don't have infrastructure.

4. Match Your Idea to the Right Study Design

Different ideas call for different approaches. Choose what best fits your objective.

Measure awareness or opinions → Survey

Ex: Nurses' awareness of catheter infections

Find how common something is → Cross-sectional

Ex: Prevalence of vitamin D deficiency in medical students

Compare two groups → Case-control / Cohort

Ex: Outcomes of patients treated with Drug A vs Drug B

Report a rare case → Case report or series

Ex: Unusual presentation of Wilson's disease

Summarize existing literature → Systematic review or meta-analysis

Ex: Non-drug approaches to migraine prevention

Tip: Always align the question with the method.

5. Narrow Your Topic Using the "5W" Filter

If your topic feels too broad, ask these:

Question	Use it to…	Example
Why?	Define your purpose	"Why are female residents more likely to report burnout?"
Who?	Define population/stakeholders	"Interns, patients, hospital staff…"
What?	Clarify focus	"Antibiotic prescribing, patient education, vaccine hesitancy…"
Where?	Choose a setting	"Government hospitals in Amman"
When?	Define a time frame	"During COVID-19 lockdown" or "In the past 12 months"

Example Refinement:

• Too Broad: "Study of hospital infections"

• ✅Better: "Knowledge and practice of central line care among nurses in pediatric ICUs in Jordan (2024)"

6. Make It Interesting and Personal

Your research journey will be long so choose something you care about.

🎯 Tips:

• Choose a topic you find intellectually stimulating or emotionally important.

• If you're still unsure, pick something practical: Does this affect patients? Could it improve hospital practice?

Example:

If you're interested in climate and health:

➡️ "Impact of seasonal temperature changes on emergency admissions for COPD in Zarqa hospitals"

7. Talk to a Mentor or Supervisor

Don't try to design your entire project alone.

Ask your mentor:

• Has this topic been done before?

• Is it worth studying?

• What's the best way to approach it?

A vague idea can become a research project with 10 minutes of mentor feedback.

8. Know Where to Search

If you're unsure whether your idea is new or valid:

Resource	Use It To…
PubMed	Search for prior studies
Google Scholar	Get broader context
Hospital databases	Find protocols and local reports

Pro Tip:

Search your idea → read abstract → skip to the Discussion → look for "future directions"!

9. Understand Why You Might Not Be Finding Enough Info

If you're struggling to find literature:

- Too specific → Broaden the population or region
- Too new → Look for recent news, conference abstracts

Example:

Topic: "Genetic diversity in 3 tribes in Ghana"

❌ Too narrow ✅ Try: "Genetic markers in West African populations"

10. Brainstorm Research Ideas (Examples)

Infectious Disease

"Awareness of disinfection protocols for medical equipment in ICUs"

Psychiatry

"Stigma of mental health care among medical students"

Public Health

"Hand hygiene practices in rural vs urban clinics"

OB/GYN

"Contraceptive knowledge among female university students"

Cardiology

"Awareness of hypertension complications among diabetic patients"

11. Final Checklist Before You Start

Ask yourself:

✔ Is this topic relevant to my field or community?

✔ Is it doable in the time and resources I have?

✔ Is it interesting enough to sustain my effort?

✔ Has it already been overdone in literature?

✔ Can I clearly define my target population and outcomes?

A great research idea doesn't have to be big, it just has to be focused, useful, and achievable !

Start small. Stay curious. Finish strong.