

The logo for the Karnataka Radiology Education Program (KRER) features the letters 'KRER' in a large, stylized, 3D font. The letters are primarily yellow with blue outlines and are set against a solid red rectangular background.The year '2025' is displayed in a large, stylized, 3D font with blue outlines. The zero is replaced by a circular medical emblem, which is the logo of the Karnataka Medical Council, featuring a caduceus and the text 'KARNATAKA MEDICAL COUNCIL'.

KARNATAKA RADIOLOGY EDUCATION PROGRAM

CLINICAL RESEARCH – BRIDGING IMAGING & INNOVATION

SESSION -2- PYRAMID OF EVIDENCE



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EVIDENCE BASED PRACTICE

- ✓ SYSTEMATIC APPROACH TO FIND, EVALUATE, AND USE SCIENTIFIC EVIDENCE TO INFORM DECISION-MAKING AND PRACTICE IN VARIOUS FIELDS.
- ✓ IT INVOLVES COLLECTING AND ANALYZING DATA TO SUPPORT OR REFUTE A HYPOTHESIS OR RESEARCH QUESTION, AIMING TO USE THE BEST AVAILABLE EVIDENCE TO MAKE INFORMED DECISIONS



WHAT IS LEVEL OF EVIDENCE

- ✓ TO WHAT DEGREE THE INFORMATION CAN BE TRUSTED
- ✓ **TRADITIONAL APPROACH**
 - ✓ OVER RELIABILITY ON MEDICAL EXPERTS
 - ✓ RISK OF BIAS ASSESSMENT WAS IGNORED
- ✓ **EVIDENCE BASED APPROACH**
 - ✓ PRETEST DIAGNOSTIC CONFIDENCE (EXPERT OPINION) +
 - ✓ POSTTEST DIAGNOSTIC CONFIDENCE (LAB & IMAGING REPORTS) +
 - ✓ SYSTEMIC ANALYSIS AND METAANALYSIS DATA



PYRAMID OF EVIDENCE

One way to organize the different types of evidence involved in evidence-based practice research

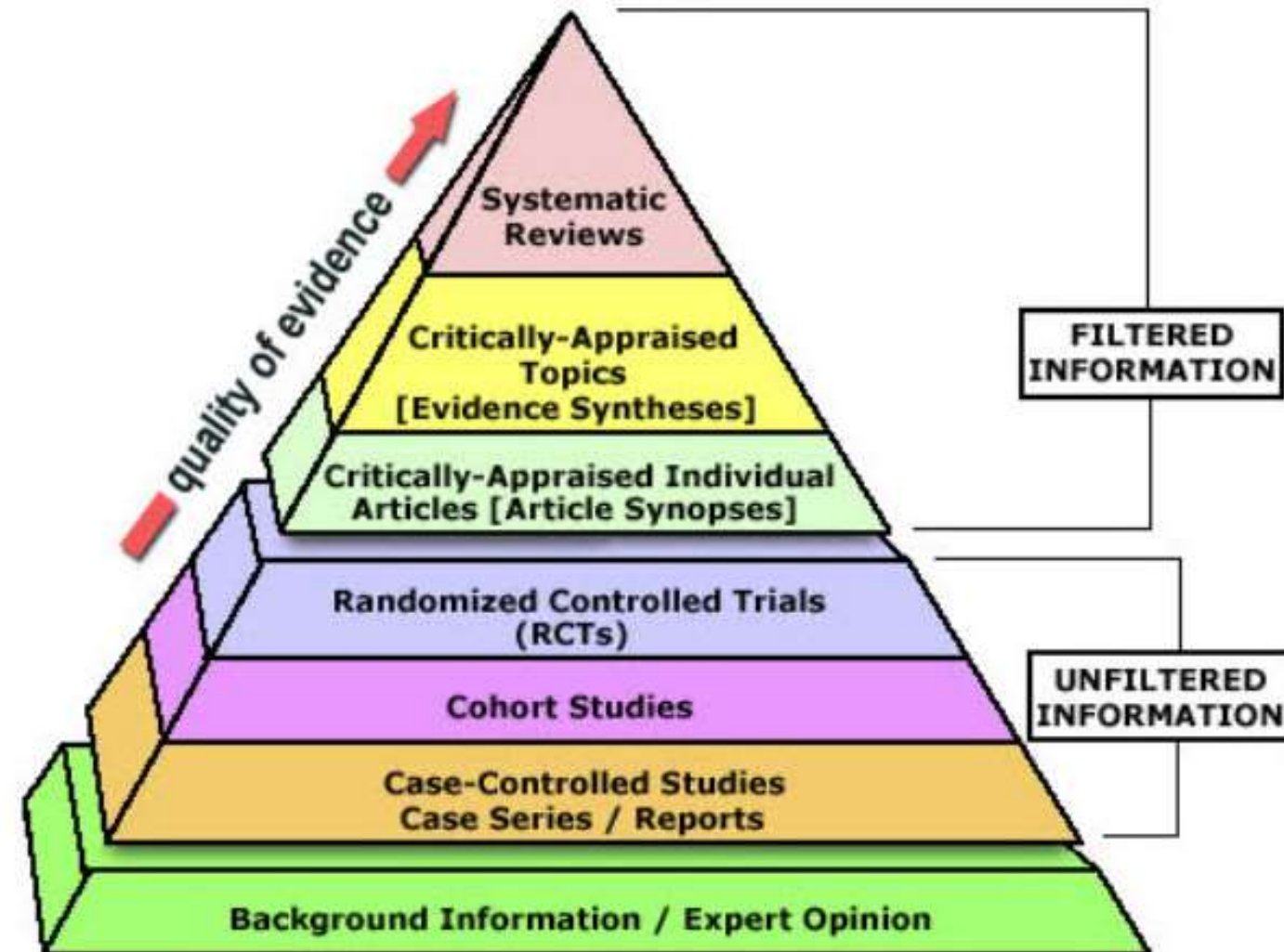
FILTERED RESOURCES

- ✓ PRE-EVALUATED
- ✓ EXAMPLES:
 - ✓ SYSTEMIC REVIEWS
 - ✓ CRITICALLY-APPRAISED TOPICS
 - ✓ CRITICALLY-APPRAISED INDIVIDUAL ARTICLES

UNFILTERED RESOURCES

- ✓ FIRST PERSON ACCOUNT
- ✓ EXAMPLES:
 - ✓ RANDOMIZED TRIALS
 - ✓ COHORT STUDIES/ CASE CONTROL STUDIES
 - ✓ CASE SERIES/ REPORTS
 - ✓ BACKGROUND INFORMATION/ EXPERT OPINION

PYRAMID OF EVIDENCE



DEFINITIONS OF EACH LEVEL OF EVIDENCE

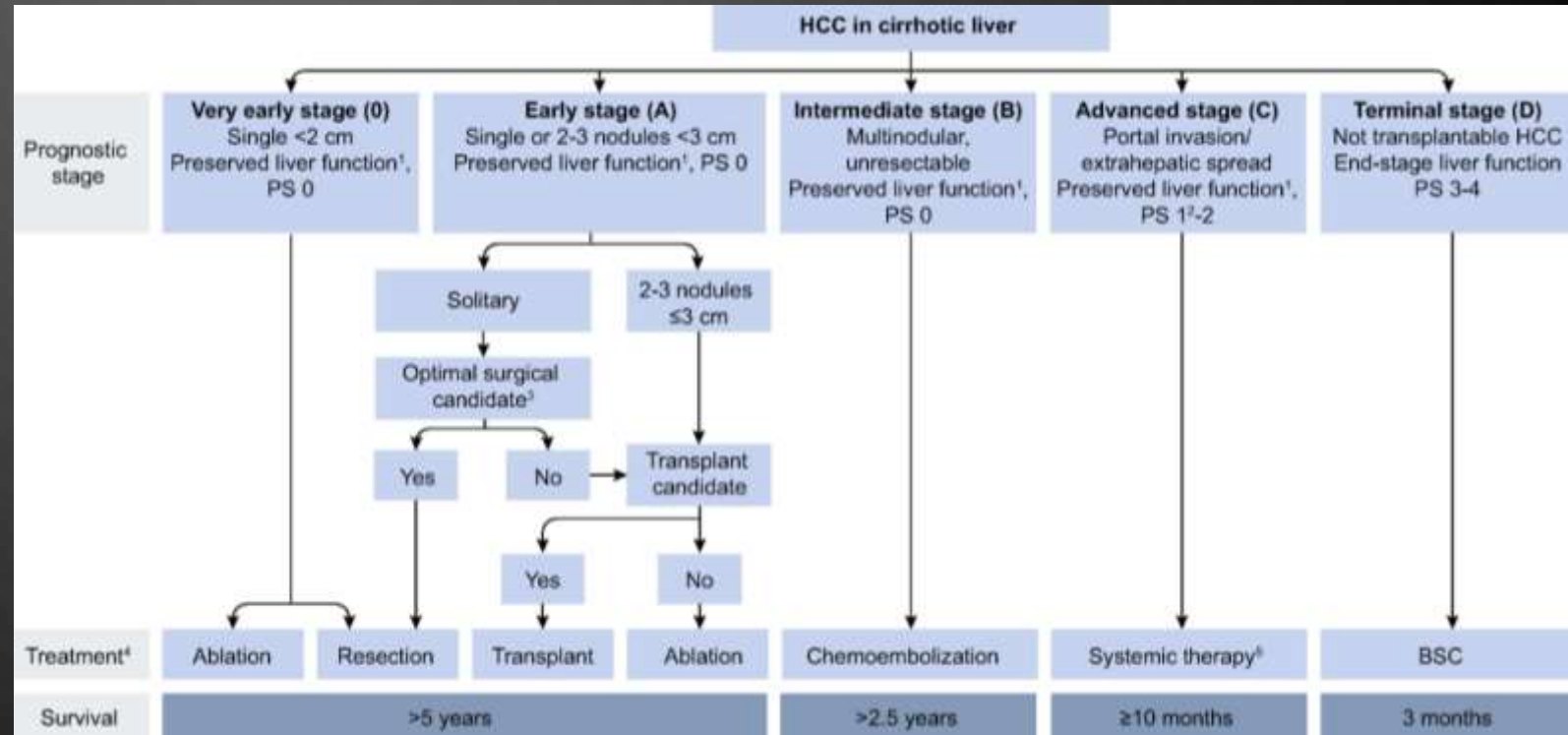
Level of Evidence	Description
1. Systematic Reviews & Meta-Analyses	Comprehensive summaries of multiple studies addressing a particular research question.
2. Randomized Controlled Trials (RCTs)	Participants are randomly assigned to groups to compare the effects of interventions.
3. Cohort Studies	Observational studies that follow groups with different exposures over time to compare outcomes.
4. Case-Control Studies	Studies comparing individuals with a condition (cases) to those without it (controls), looking for differences in exposure or risk factors.
5. Cross-Sectional Studies	Research that looks at data from a population at a single point in time to identify associations between variables.
6. Case Reports & Case Series	Detailed descriptions of individual cases or groups of cases, providing insights into rare conditions or unique outcomes.
7. Expert Opinion & Anecdotal Evidence	Information based on individual experiences and expert knowledge rather than systematic research.

EVIDENCE HIERARCHY FOR EACH STRATA OF STUDIES

	Level of Evidence	
Randomized controlled trials	1.	a. Systematic review of RCTs b. Individual RCTs c. All-or-none studies
Cohort studies	2.	a. Systematic review of RCTs b. Individual cohort studies c. Outcomes research
Case-control studies	3.	a. Systematic reviews of case-control studies b. Individual case-control studies
Case series / Case study	4.	a. Includes poorly designed cohort and case-control studies
Anecdotal evidence	5.	a. Animal research b. Bench research c. Unpublished clinical observations

EVIDENCE BASED GUIDELINES AND SUMMARIES

- ✓ DEVELOPED BY SYNTHESISING THE HIGHEST LEVEL OF EVIDENCE AVAILABLE ON DIAGNOSTIC/ TREATMENT CHOICES
- ✓ GUIDELINES PROVIDE RECOMMENDATIONS SUPPORTED BY THE EVIDENCE
- ✓ MAY TAKE INTO ACCOUNT RESOURCES AND PRACTICES RELEVANT TO THE ORGANIZATION
- ✓ CONCISE & CLINICALLY RELEVANT



GUIDELINES ON MODIFIED BCLC STAGING SYSTEM & TREATMENT STRATEGY

SOURCES FOR FILTERED RESOURCES

Type of Filtered Information	Description	Databases
Systematic Reviews	Authors ask a specific clinical question, perform a comprehensive literature review, eliminate poorly done studies, and make practice recommendations based on well-done studies. Includes only experimental, quantitative studies.	1. Cochrane Database of Systematic Reviews 2. JB I EBP Database 3. Database of Abstracts of Reviews of Effects (DARE) 4. CINAHL Plus with Full Text
Critically-Appraised Topics	Authors evaluate and synthesize multiple research studies. Similar to short systematic reviews focused on a particular topic.	1. Annual Reviews 2. Guideline Central 3. JB I EBP Database 4. National Institute for Health and Care Excellence (NICE)
Critically-Appraised Individual Articles	Authors evaluate and summarize individual research studies.	1. EvidenceAlerts 2. ACP Journal Club 3. Evidence-Based Nursing

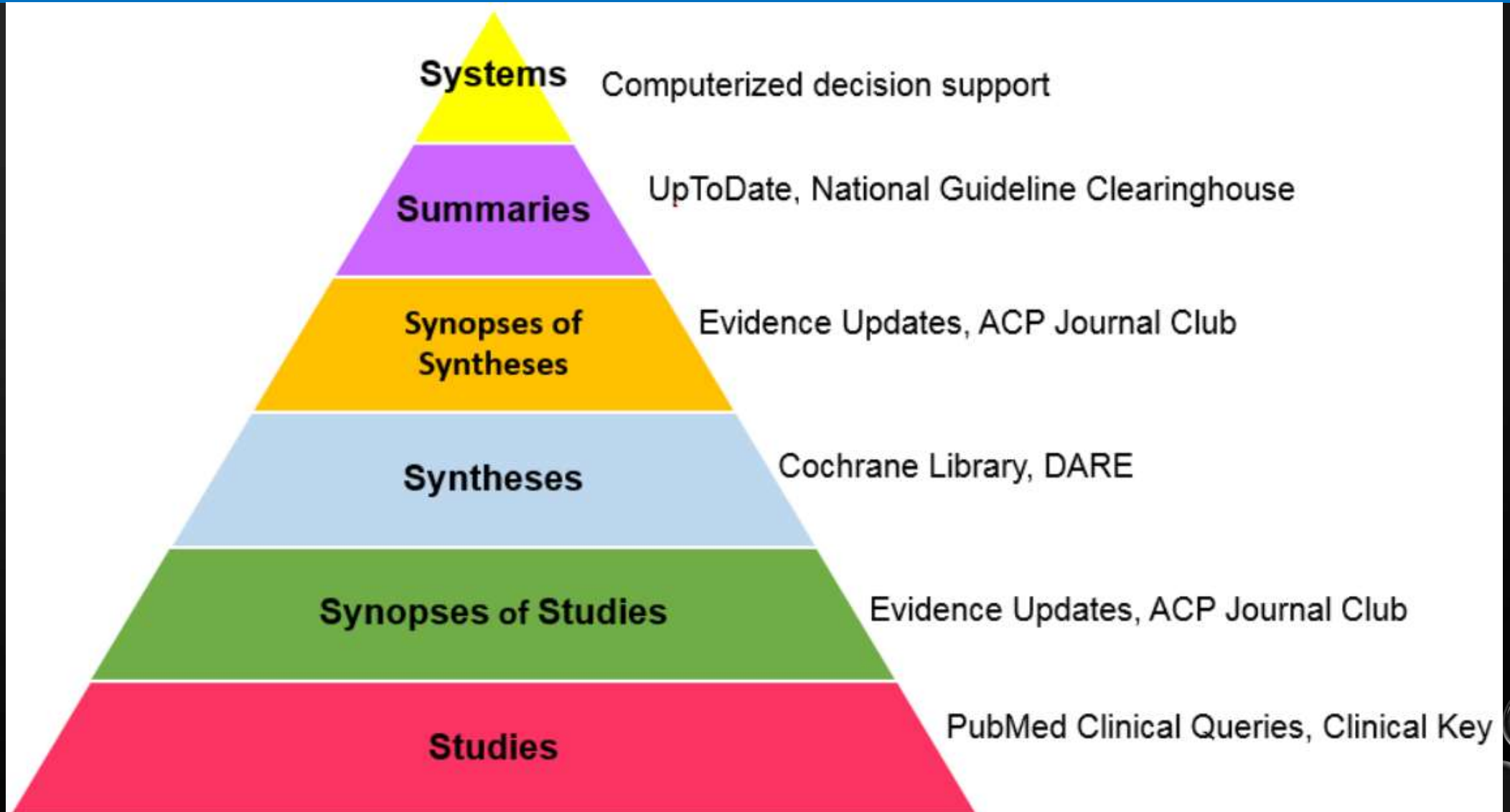
SOURCES FOR UNFILTERED RESOURCES

Type of Study	Databases
Randomized Controlled Trials	1. CINAHL Plus with Full Text 2. MEDLINE with Full Text
Cohort Studies	1. CINAHL Plus with Full Text 2. MEDLINE with Full Text
Case-Control Studies, Case Series, and Case Reports	1. CINAHL Plus with Full Text 2. MEDLINE with Full Text 3. TRIP Database

SOURCES FOR BACKGROUND INFORMATION & EXPERT OPINION

Databases	Description
Family Physicians Inquiries Network: Clinical Inquiries	Structured search, critical appraisal, authoritative recommendations, clinical perspective, rigorous peer review. Best evidence for point-of-care use.
Harrison's Manual of Medicine (Harrison & Fauci, 2009)	Clinical portions of Harrison's Principles of Internal Medicine.
Lippincott Manual of Nursing Practice (8th ed., 2006)	Background information on clinical nursing practice.
Medscape: Drugs & Diseases	Open-access, point-of-care medical reference with clinical information from top physicians and pharmacists.
Virginia Henderson Global Nursing e-Repository	Open-access repository sponsored by Sigma Theta Tau International, the Honor Society of Nursing. Contains both expert opinion and evidence-based practice articles.

SEARCHING EVIDENCE FOR CLINICAL QUESTIONS!!



QUIZ

WHAT IS THE ROLE OF AUTOMATION
AND ARTIFICIAL INTELLIGENCE IN THE
EVIDENCE BASED PRACTICE ??

ANSWER – COMPUTERIZED DECISION SUPPORT



THANK YOU

