UNIVERSITY MEDICINE • EXERCISE SHEET

12.7 Critical appraisal and applying evidence

Name: _____ Class: _____ Date: _____ **Total: 24 marks**

KEY WORDS GRADE

Objective

Appraise a fictional abstract; recompute before applying.

1 Key knowledge and worked examples

■ **The spine**

PICO → validity → size → applicability ✓. GRADE: start from design; downgrade for bias, inconsistency, indirectness, imprecision; upgrade for large effects.

■ **Worked example: the transplant rule**

Baseline 5 % with the same RR turns ARR 8 % into 2 % and NNT 13 into 50 ✓ – relative effects travel, absolutes are local.

2 Practice

2.1 Name the four PICO elements. [3]

2.2 Give two GRADE downgrades. [3]

2.3 Why is a valid-but-tiny effect still weak evidence? [3]

3 Exam-style questions

3.1 A fictional abstract: randomised, double-blind, n = 400; RR 0.75 (95 % CI 0.60–0.94); the studied patients were older and sicker than your clinic's.

Appraise in order: validity (randomised, blinded – good), size (25 % relative reduction; interval excludes 1), applicability (older, sicker population) ✓. Grade the certainty (starts high; no obvious downgrade features stated) and name what would lower it (small n imprecision, surrogate outcome, industry reporting) ✓. [8]

3.2 The same trial's control event rate was 20 % (treated 15 %).

Compute ARR (5 %) and NNT (1/0.05 = 20) in the trial population ✓. Your patient's baseline risk is 4 %: with the same relative risk reduction, ARR = 5 % × 4/20 = 1 % → NNT 100 ✓. State what else must be weighed before applying (harms, patient values, alternatives) ✓. [7]

Solutions

2.1

- Population, intervention, comparison, outcome ✓.

2.2

- Any two: risk of bias, inconsistency, indirectness, imprecision, publication bias ✓.

2.3

- Importance needs size: a valid but trivial effect doesn't change decisions ✓.

3.1

- Validity: randomised + double-blind – strong ✓.
- Size: RR 0.75, CI 0.60–0.94 excludes 1 ✓.
- Applicability: older, sicker – my patient may differ ✓.
- Certainty: starts high; imprecision (n = 400) mild; surrogate outcomes or selective reporting would lower it ✓.

3.2

- ARR = 20 % − 15 % = 5 %; NNT = 20 ✓.
- At baseline 4 %: ARR = 5 % × 4/20 = 1 % → NNT = 100 ✓.
- Weigh harms, patient values and alternatives before applying ✓.

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