13.7 Public health and health systems

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

KEY WORDS screening • over-diagnosis

Objective

Level the prevention; test the screen; name the system.

1 Key knowledge and worked examples

■ **Three levels + criteria**

Primary prevents (vaccination); secondary screens the well; tertiary limits damage ✓. Screening: important, treatable-early, valid, acceptable + pool arithmetic (yield is PPV) with over-diagnosis counted ✓.

■ **Worked example: financing**

Beveridge (taxation, national service), Bismarck (social insurance), private, out-of-pocket – each sets coverage, payment, gatekeeping ✓.

2 Practice

2.1 Which level is smoking-cessation advice? [3]

2.2 Why does a screen test "the well"? [3]

2.3 Name the two financing models built on pooled public funds. [3]

3 Exam-style questions

3.1 A fictional country considers a screening programme for a common cancer: prevalence of detectable pre-clinical disease 2 %; test Se 90 %, Sp 90 %.

Compute the yield per 1,000 screened (20 diseased → 18 TP; 980 well → 98 FP → PPV 18/116 ≈ 15.5 %) ✓. Judge against the criteria (condition important ✓; treatable early – is the pool real?) and count the harm (98 false positives per 1,000, over-diagnosis risk) ✓. State the one design lever that most changes the yield (the screening interval – the pre-clinical pool) ✓. [8]

3.2 Two fictional systems: Beveridge-funded with gatekeeping generalists; Bismarck-funded with free specialist access.

Contrast coverage and payment at the point of care (tax-funded, free at use vs wage-funded insurance) ✓. Predict one access consequence of each (gatekeeping delays but coordinates; free access raises use and cost) ✓. State in one line why every consultation inherits these macro-choices ✓. [7]

Solutions

2.1

- Primary – it prevents the disease occurring ✓.

2.2

- Screening tests asymptomatic people; testing the symptomatic is diagnosis ✓.

2.3

- Beveridge (general taxation) and Bismarck (social insurance) ✓.

3.1

- 20 diseased (2 %) → 18 TP, 2 FN ✓.
- 980 well → 98 FP; PPV = 18/116 ≈ 15.5 % ✓.
- Criteria: importance ✓; treatable-early needs a real pool; harm: 98 false positives + over-diagnosis per 1,000 ✓.
- Lever: the interval – the pre-clinical pool sets prevalence and thus PPV ✓.

3.2

- Beveridge: tax-funded, free at the point of use; Bismarck: wage-funded insurance funds ✓.
- Gatekeeping coordinates but can delay; free access raises use and cost ✓.
- Every consultation inherits what is covered, who pays, who gates ✓.

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