Screening & Prevention

Student Led Seminar

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MCQ

Q1. What does Multiphasic mean?

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B. Screening done by more than one test to detect **one** disease.
C. Screening applied selectively to high risk groups.
D. Screening of persons who come to health practitioner for some other purpose.

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B. Breastfeeding
C. Oral contraceptives
D. Exercise

Q4. Which form of prevention is Screening considered?

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Q5. Which of the following methods is a prevention method for prostate cancer?

A. Guaiac-based FOBT
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Q6. Which of the following methods is a screening tool for lung cancer?

A. MRI
B. Chest X-ray
C. Low dose CT
D. High dose CT

1. To define screening/prevention and its uses in family practice

Noura AlTawil

Screening

WHO Definition

Screening is defined as the presumptive identification of unrecognized disease in an apparently healthy, asymptomatic population by means of tests, examinations or other procedures that can be applied rapidly and easily to the target population.

Screening

Oxford Handbook of General Practice

The ability to diagnose and treat a potentially serious condition at an early stage when it is still treatable.

An early disease detection or **Secondary Prevention.**

The Aim of Screening

1. To be able to diagnose and treat a potentially serious condition at an early stage when it is still treatable.

2. To prevent or delay the development of advanced disease in the subset with preclinical disease.

Prevention

Actions aiming at eradicating, eliminating, or minimizing the impact of disease and disability, or if none of these is feasible, retarding the progress of disease and disability.

Primary Prevention

- **Intervening before health effects occur. (Prevention of disease occurrence)**

▸ Vaccination and post-exposure prophylaxis of children, adults and the elderly.

▸ Health education.

▸ Nutrition intervention and food supplementation.

▸ Sanitation of the environment.

▸ Lifestyle modification.

▸ Inclusion of disease prevention programmes at primary and specialized health care levels, such as access to preventive services (ex. counselling)

Secondary Prevention

- **Screening to identify diseases in the earliest stages, before the onset of signs and symptoms. (Controlling disease in early form)**

▸ Population-based screening programmes for early detection of diseases.

▸ Provision of maternal and child health programmes, including screening and prevention of congenital malformations.

▸ Provision of chemoprophylactic agents to control risk factors (e.g. hypertension)

Tertiary Prevention

- Managing disease post diagnosis to slow or stop disease progression. (Prevention of complications once the disease is present)

▸ Rehabilitation program e.g. cardiac or stroke rehabilitation programs.

▸ Palliative therapy.

▸ Limiting complications /disability in patients with established disease by regular surveillance, e.g.: trying to prevent Diabetic complications by good control, regular fundoscopic exam, foot care.

Uses in family medicine

- One of the fundamental goals of primary care medicine is the prevention or early detection of disease through screening. Screening can lead to interventions that may decrease morbidity and mortality, but it can also lead to increased morbidity and mortality if performed inappropriately.

- Screening tests are available for many common diseases and encompass biochemical (e.g., cholesterol, glucose), physiologic (e.g., blood pressure, growth curves), radiologic (e.g., mammogram, bone densitometry), and cytologic (e.g., Pap smear) approaches.

2. To understand the criteria for screening tests

Maryam Saidan

Wilson-Jungner Criteria for screening

- The condition being screened for should be an important health problem
- The natural history of the condition should be well understood
- There should be a detectable early stage
- Treatment at an early stage should be of more benefit than at a later stage
- A suitable test should be devised for the early stage

Cont.

- The test should be acceptable
- Intervals for repeating the test should be determined
- Adequate health service provision should be made for the extra clinical workload resulting from screening
- The risks, both physical and psychological, should be less than the benefits
- The costs should be balanced against the benefits

3. To identify screening types and examples of targeted people for each type

Norah AlKhayyal

Types of screening

1) Mass screening

2) High risk / selective / targeted screening

3) Multiphasic screening

4) Multipurpose screening

5) Opportunistic / case finding screening

1) Mass screening

Application of screening test to large, **unselected** population. Everyone is screened **regardless** of the probability of having the disease or condition.

Examples:

- ★ Visual defects in school children.
- ★ Mammography in women aged 40 years and above.
- ★ Newborn screening program
- ★ Scoliosis
- ★ Tuberculosis

2) High risk / selective / targeted screening

It is applied **selectively** to **high risk groups**.

Examples:

- ★ Screening foetus for Down's syndrome in a mother who already has a baby with Down's syndrome.
- ★ Screening for familial cancers, HTN and DM.
- ★ Screening for cancer cervix in low social groups.
- ★ Screening for HIV in risk groups.

3) Multiphasic screening

The screening in which various diagnostic procedures are done during the **same screening program**, to carry out screening tests for **single diseases.**
The procedure may include questionnaire, clinical examination and a range of measurements and investigations.

Examples:

- ★ DM - FBS & Glucose tolerance test
- ★ Sickle cell anemia - CBC & Hb electrophoresis

4) Multipurpose screening

The screening of a population by **more than one test** done **simultaneously** to detect **more than one disease.**

Examples:

- ★ Screening of a pregnant women for VDRL, HIV & HBV by serological tests.

5) Opportunistic / case finding screening

Screening of persons who come to health practitioner for **some other purpose.**

Examples:

- ★ Screening for high blood pressure when a patient comes in for a flu shot.

4. To identify appropriate approaches for prevention and screening of the common problems in primary care

Kayan Kaaki

Breast Cancer

- Screening and prevention method? **Conventional Digital Mammography**

- Population? **40 years of age and above**

- Women should continue screening mammography as long as their overall health is good and they have a life expectancy of 10 years or more.

Breast Cancer

40 and 44 years	**Offered Annual** screening mammography
45 years	**Initiated Annual** screening mammography at average risk
55 years	Preferred **Biennial** screening with the option of screening each year.

Colorectal Cancer

- Population? **Men and women, 45 to 85 years**

- From 76 to 85 screening should be based on: ♦ Patient's preference ♦ Life expectancy ♦ Health ♦ Screening history

- Screening is discourage after the age of 85 due to risk of increased mortality & screening complications

Colorectal Cancer

Stool-Based Screening

Guaiac-based FOBT	Annually
Fecal immunochemical test	Annually

OR

Multitarget stool DNA test	Every 3 years

OR

Colorectal Cancer

Direct Visualization Screening

Flexible sigmoidoscopy	Every 5 years, flexible sigmoidoscopy can be performed alone, or consideration can be given to combining flexible sigmoidoscopy performed every five years with a highly sensitive FOBT or fecal immunochemical test performed annually

OR

Double-contrast barium enema	Every 5 years

OR

Colonoscopy	Every 10 years

OR

CT colonography	Every 5 years

Lung Cancer

- Screening and prevention method? **Low-dose CT**

- Population? **Current or former smokers 55 to 74 years of age in good health with at least a 30 pack-year history**

- Clinicians should initiate a discussion about **annual** lung cancer screening with apparently healthy patients 55 to 74 years of age who have at least a 30 pack-year smoking history and who currently smoke or have quit within the past 15 years; a process of informed and shared decision making with a clinician related

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Cervical Cancer

- Population? **women above 21 years of age**

-What about Women who have had a total hysterectomy?

Population	Screening test or procedure	Screening Intervals
21 to 29 years of age	Pap test	Every three years
30 to 65 years of age	Pap test and HPV DNA test	Every five years with both the HPV test and the Pap test (preferred) or every three years with the Pap test alone (acceptable)
66 years or older	Pap test and HPV DNA test	Women 66 years or older who have had three or more consecutive negative Pap tests or two or more consecutive negative HPV and Pap tests within the past 10 years, with the most recent test occurring in the previous five years, should stop cervical cancer screening

Endometrial Cancer

-**No** Screening test or procedure

-Population: women, **at menopause**

-At the time of menopause, women should be informed about risks and symptoms of endometrial cancer and strongly encouraged to report any unexpected bleeding or spotting to their physicians

Prostate Cancer

- Screening and prevention method? **Prostate specific antigen test with or without digital rectal examination**

- Population? **Men, 55 to 69 years**

- Men who have at least a 10-year life expectancy, screening should not occur without an informed decision-making process due to the potential benefits, risks and uncertainties associated with the screening.

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5. To explain pros and cons of screening

Nourah AlKharraz

The Advantages:

1) Improved prognosis for some cases detected by screening.

2) Less radical treatment for some early cases.

3) Reassurance for those with negative test results.

4) Increased information on natural history of disease and benefits of treatment at early stage.

5) Economic saving on future treatment.

The Disadvantages:

1) Longer morbidity in cases where prognosis is unaltered.

2) False reassurance for those with false-negative results.

3) Anxiety, Unnecessary intervention and sometimes morbidity for those with false-positive results.

6. To justify the rationale for selection of a screening test with practical case /condition. Examples include Ca. breast, Ca. colon, Ca. prostate cancer.

Areeb AlOgaiel

Breast Cancer

1ry prevention by: breastfeeding, pregnancy, exercising

And avoiding: smoking, being obese, OCP, hormonal replacements...

Screening: Mammography.

When? 40 years old.

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Cervical Cancer

Benefits	Harms
-Screening aims to **identify high-grade** precancerous cervical lesions. -Treatment of precancerous lesion is less invasive than treatment of cancer and results in fewer adverse effects. -High-grade precancerous lesions may be treated with ablative and excisional therapies. -Early-stage cervical cancer may be treated with surgery (hysterectomy) or chemoradiation.	-Abnormal test results can lead to more frequent testing and invasive diagnostic procedures, such as colposcopy and cervical biopsy. -Harms from these diagnostic procedures include vaginal bleeding, pain, infection, and failure to diagnose (due to inadequate sampling) -Some treatments for precancerous lesions (such as cold-knife conization and loop excision) are associated with adverse pregnancy outcomes

Cytology every 3 years

The USPSTF concludes that for women 21 to 65 years of age, there is **high** certainty that the benefits of screening with cytology every three years substantially outweigh the harms.

Cytology and HPV testing (co-testing) every five years

-For women 30 to 65 years of age, there is **high** certainty that the benefits of screening with a combination of cytology and HPV testing (co-testing) every five years outweigh the harms.

-For women younger than 30 years, there is **moderate** certainty that the potential harms of screening with HPV testing (alone or in combination with cytology) outweigh the potential benefits.

Screening itself

-For women younger than 21 years, regardless of sexual history, there is **moderate** certainty that the harms of screening outweigh the benefits.

-For women older than 65 years who have had adequate prior screening and are not otherwise at high risk of cervical cancer, there is **moderate** certainty that the benefits of screening do not outweigh the potential harms.

Colon Cancer

1ry prevention: high fiber diet and avoiding smoking, alcohol, visceral obesity and constipation; moreover, reducing red meat and processed food consumption

Screening:

1-high-sensitivity fecal occult blood tests (FOBT)

2-definit measure: colonoscopy

Prostate Cancer

1ry prevention: fruits and vegetables,vigorous exercise and reducing meat and processed food consumption

Screening:

1-prostate-specific antigen (PSA)

2-digital rectal exam (DRE)

When? 50 years old

CASE: Sara is a 51 year old smoker, who came for a regular check up, what are the things you want to screen her for ?

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References

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QUESTIONS?

THANK YOU!