



Screening and early diagnosis: what is the difference?

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EDITORIAL

Definitions

The World Health Organization ¹ defined the two approaches of early case detection (or finding): early diagnosis, that is the recognition of symptomatic disease in patients; and screening, which is the identification of asymptomatic disease in an apparently healthy population. Early diagnosis focuses on detecting symptomatic patients as early as possible, while screening consists of testing healthy individuals to identify those who are more likely to have a hidden disease before any symptoms appear (Figure 1).²

Benefits

The practice of early detection and treatment during early stages of illness prevents progression of many

diseases and can even be life-saving. It also helps patients to be financially and mentally prepared for dealing with the disease.³ Early detection whether as screening or early diagnosis are secondary preventive measures. However, it is important to remember that early detection and treatment is not always best. Such tests should be done on solid reasons of necessity.

Early diagnosis is required for all disease both acute and chronic; however screening is beneficial in some diseases that have a long latency period before onset of manifestations.

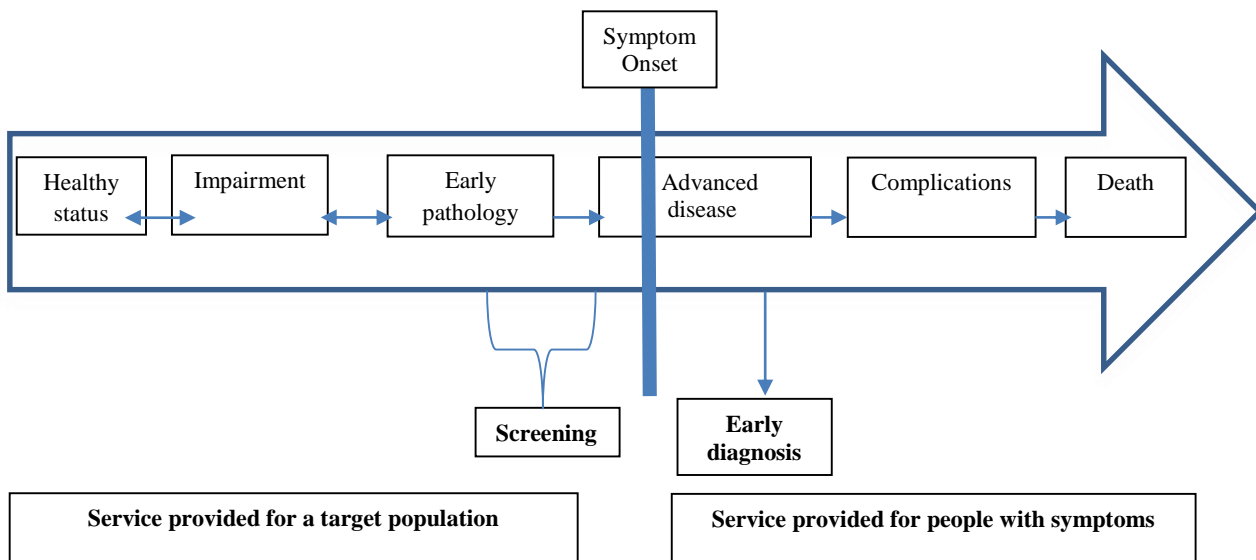


Figure (1): Screening vs. early diagnosis [Modified after WHO ²]

Raising awareness of community specially the high risk groups is a prerequisite for effective early case findings. To improve early diagnosis people should be sensitized enough to consult health professionals once symptoms appear, without being delayed by any financial, logistical or psychosocial barriers; together with appropriate and rapid reaction of health staff, clear referral guidelines and availability and accessibility of diagnostic and treatment services of optimal quality.²

Early case detection offers the best chance of cure. However it is not beneficial in some diseases that are slowly progressive, risks of treatments outweigh the benefits or there is no effective treatment e.g. sarcoidosis, osteoarthritis as well as common colds and many other viral infections.⁴ Furthermore, earlier case finding does not necessarily lead to better outcomes; sometimes it makes matters worse.⁵

Early detection is beneficial in some diseases because it allows for effective treatment and improves outcome. It saves costs and life and treats the disease before it worsens.³ Patients can be prepared mentally, financially and legally with appropriate lifestyle changes.

Drawbacks:

Early (timely) diagnosis requires ensuring rapid patient presentation, diagnosis and treatment as soon as first symptoms appear. Early diagnosis programs aim at reducing the proportion of patients who are diagnosed at late stages of the disease.² This depends on many individual and health system factors.⁶ It is relevant to all types of diseases; acute or chronic, communicable or non-communicable. Early diagnosis programs are comparatively easy and inexpensive to implement; since they cover symptomatic patients only, they are less extensive than screening programs that target entire populations.

Screening, on the other hand, is relevant to a subset of diseases only – namely chronic diseases of a

long latency period with available valid screening test and effective treatment. Public health screening is the practice of examining apparently healthy individuals to detect unrecognized disease. Early treatment slows disease's progression, and reduces the probability of premature death.^{6,7}

A screening test is never 100% accurate; it does not provide certainty but only a probability that a person is at risk (or risk-free) from the condition of interest. Currently, many screening programs exist targeting many diseases. Technology and skills are advancing and diagnosis can be made at early stage of the disease process before appearance of clinical manifestations.⁸ Compared to early diagnosis, screening is a distinct and more complex public health strategy that mandates additional resources, infrastructure and coordination.⁹

Barriers:

There are many barriers to early case finding that reduce chances of timely diagnoses and treatment. It could be a waste of time cost and effort in self-limited non-progressive diseases. Watchful waiting is better than aggressive testing. Invasive diagnostic tests have risks of complications that should be taken in considerations. The overuse of early testing may be ineffective.³ Poor awareness of the public; suboptimal knowledge of health care workers about warning signs and symptoms, screening, follow-up; poor accessibility, low quality of diagnostic and treatment services (e.g. waiting lists, diagnostic errors); and financial, logistical, psychosocial barriers as well stigma prevent patients from timely care seeking.^{2,6}

Barriers to screening include fear of positive results, hazards of false positives and false negatives, cost of screening, false reassurance, over diagnosis, availability and accessibility of screening, diagnostic and treatment facilities, among others.^{9,10} Also social inequality is an important barrier for early case detection. These inequalities are a consequence of a

complex interaction of social determinants of health, that are the specific characteristics and the ways in which social conditions affect health^{11,12,13}

In conclusion the practice of early disease detection and treatment is very important in less progressive diseases. In many cases, early detection and treatment can be life-saving. To promote the practice of early case finding there is a need to increase awareness of early signs of diseases, among physicians and other health care providers and the general public; encourage early help-seeking behavior; improve

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