

The Future of Life Sciences

Progressi in Medicina

Tavola Rotonda: INTRODUZIONE DI SCENARIO **Prevenzione oncologica, diagnosi precoce e** **«intercettazione»**

VENEZIA

Ospedale Ss. Giovanni e Paolo - Sala San Domenico | Campo Santi Giovanni e Paolo, 6777

8, 9 e 10 SETTEMBRE 2025



Adriana Albini

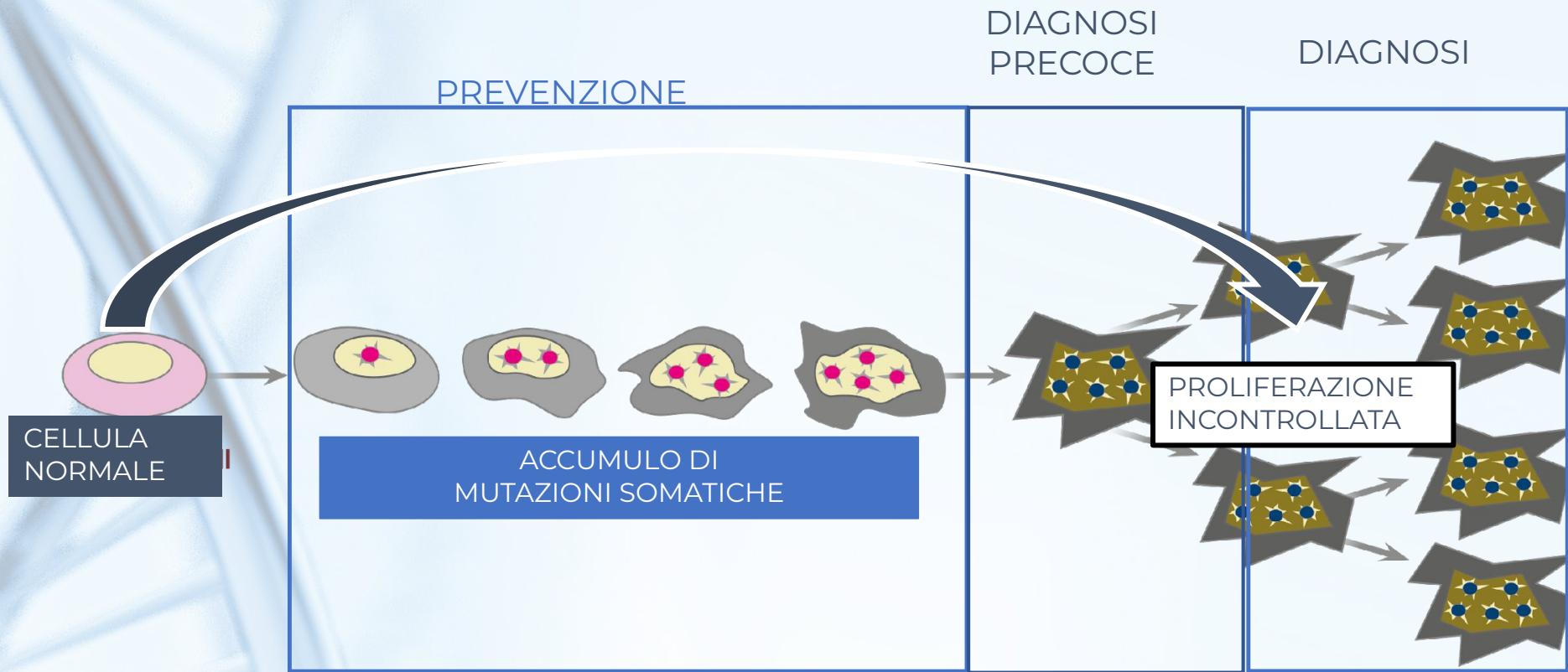
***Senior Scientist- IRCCS European
Institute of Oncology IEO, Milan.***

***Past-Chair - "Cancer Prevention
Working Group-CPWG", AACR
(American Association for Cancer
Research), Philadelphia, USA***

***Member Scientific Council - CNR
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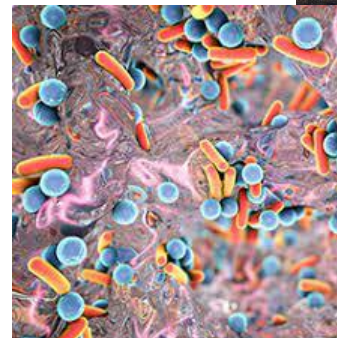
***President - Club Top Italian Women
Scientists (TWIS) of Fondazione
Onda***

Il percorso di una cellula tumorale e dove intercettarlo



Il nostro ambiente può aumentare il rischio di cancro

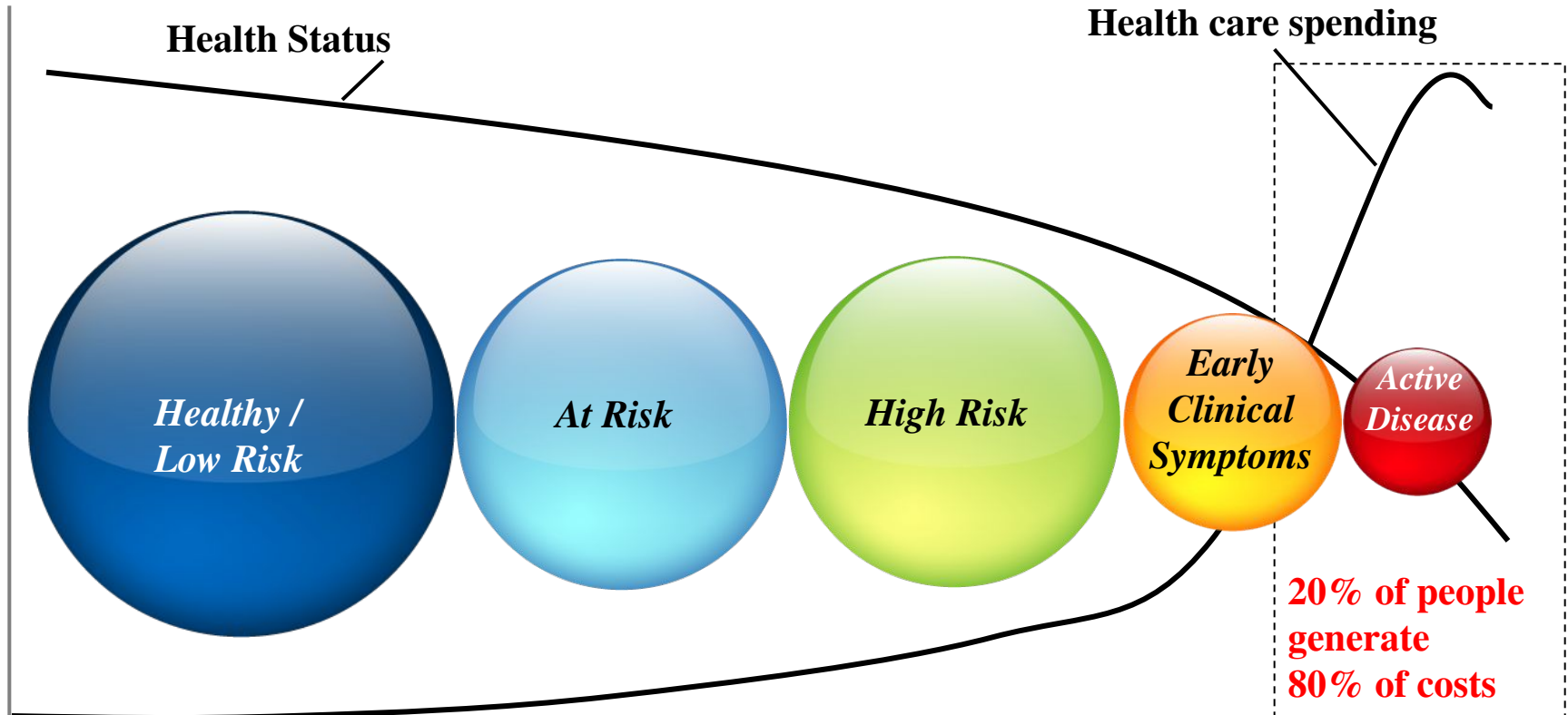
- **Esposizione occupazionale**
 - Amianto, metalli pesanti, altre esposizioni individuali
- **Stile di vita:**
 - Fumo
 - Cattiva Alimentazione
 - Sedentarietà
- **Ambientale**
 - Contaminazione dell'acqua, Aflatossine negli alimenti, inquinamento atmosferico
 - Idrocarburi policiclici aromatici
 - esposizioni ai raggi X e UV
- **Infezioni**
 - Virus (EBV, epatite B, papilloma)
 - Batteri (Helicobacter)
- **Socio-economico**
 - Formazione scolastica
 - Stato economico



Alla ricerca dei Cancer Driver: Combination Early Detection?



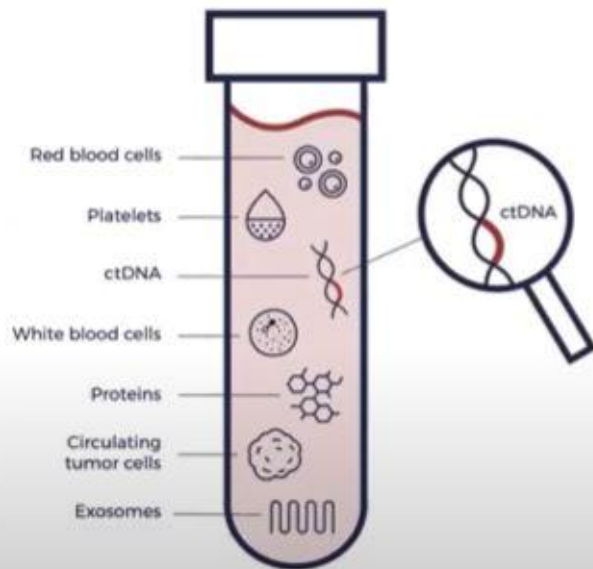
L'identificazione della malattia attiva è troppo tardiva?



Can we exploit medical data to intervene earlier?

- Early detection of at-risk patients
- Provide personalized evidence to enable pro-active decisions

Innovazione in diagnosi precoce e intercettazione: la biopsia liquida e ciò che ci rivela

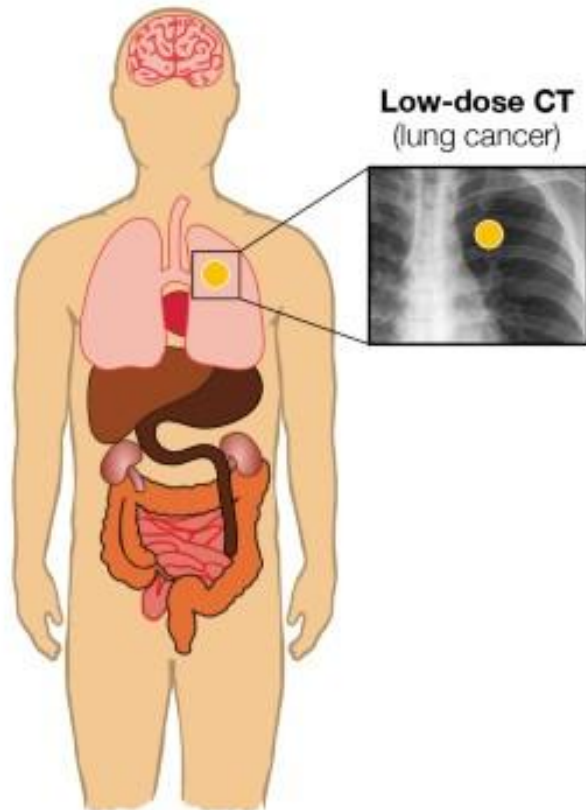


Application in multi-cancer early detection (MCEd) testing

Simultaneous detection of multiple cancer types—including those without recommended screening—with a single liquid biopsy test

Innovazione: Paradigmi di rilevamento multi-cancro

A "One test-one cancer" approach



B "One test-many cancers" approach

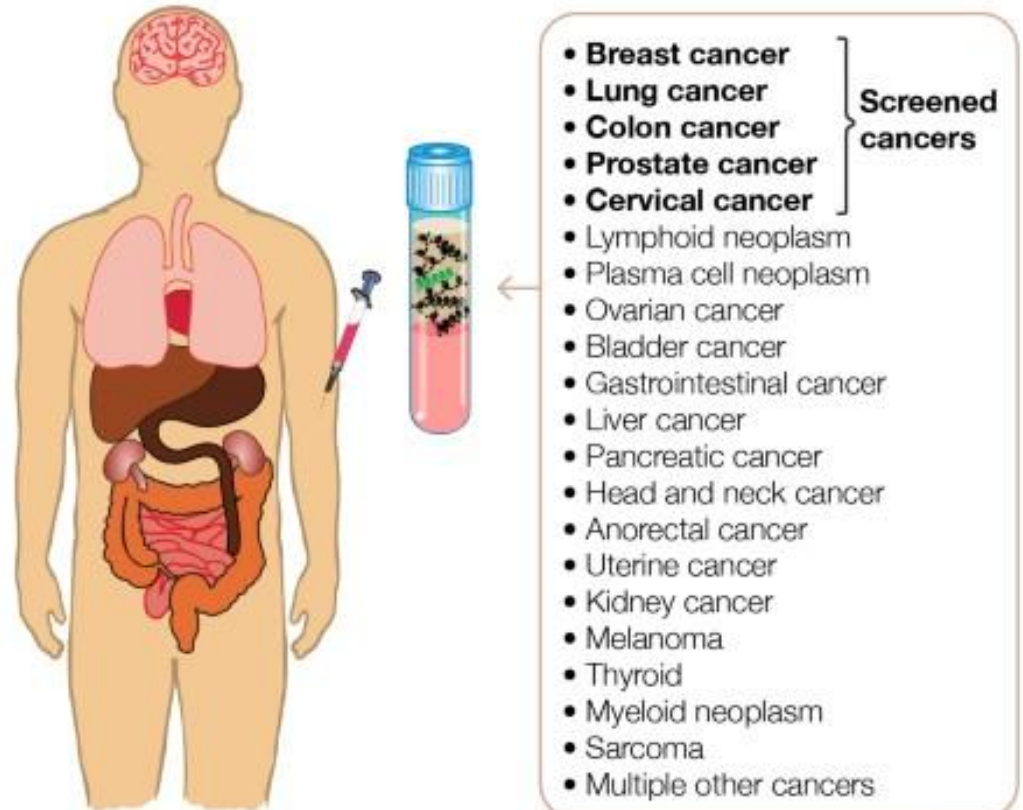


Figure 2. Cancer screening paradigms. (A) Currently, cancer screening tests are organ-specific, meaning that results from one test in one organ do not provide patients or their physicians any information about other types of cancer in other parts of the body. Only five types of cancer (breast, lung, colon, cervical and prostate*) are screened in the general population. **(B)** A blood-based multi-cancer early detection test could detect >50 types of cancer, many of which are unscreened, from a single blood draw. CT, computed tomography. *Prostate cancer screening is performed on a per-patient basis.

Innovazione: intelligenza artificiale per diagnosi precoce



Review

The Role of Artificial Intelligence in Early Cancer Diagnosis

Benjamin Hunter ^{1,2} , Sumeet Hindocha ^{1,3} and Richard W. Lee ^{1,4,5,*} 

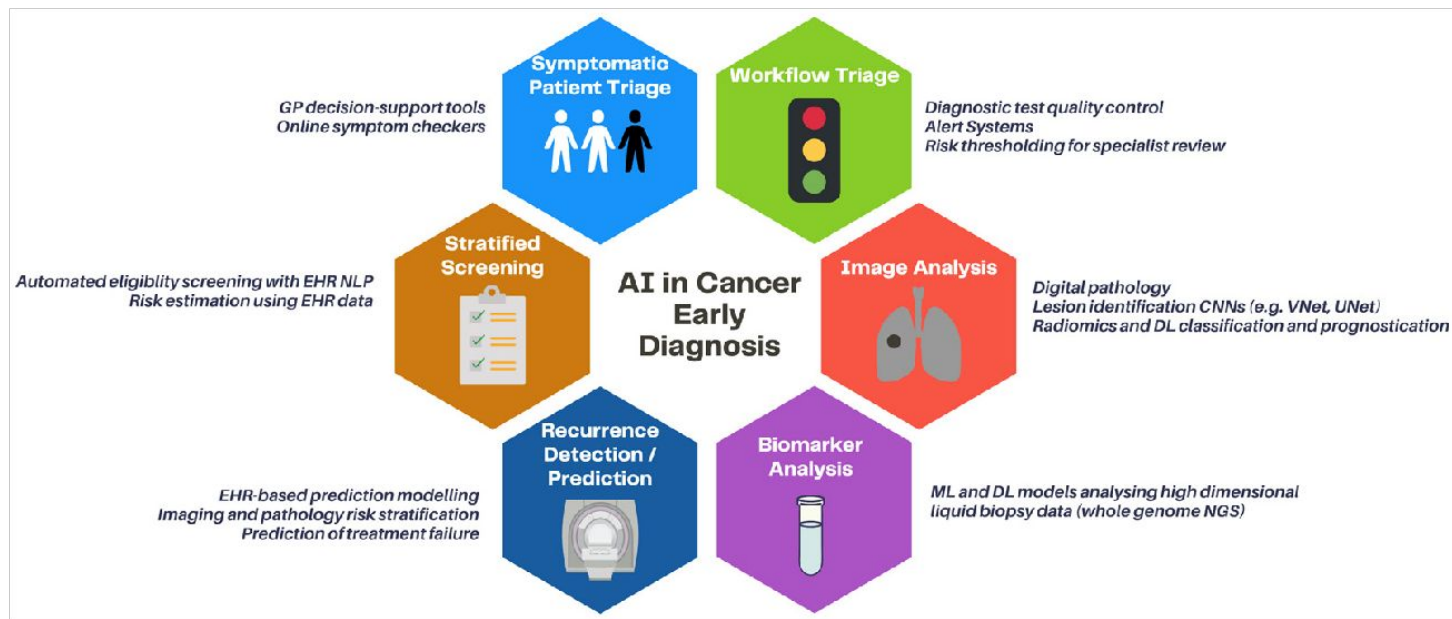
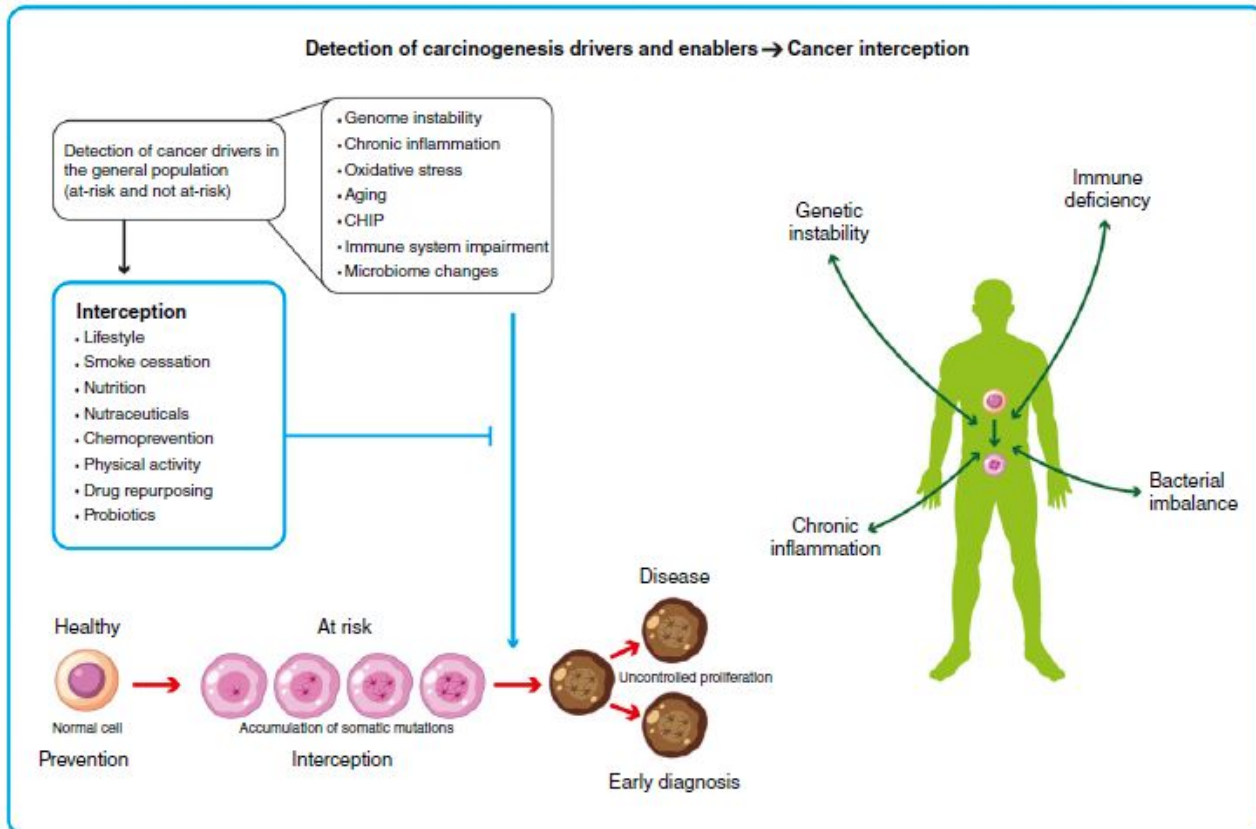
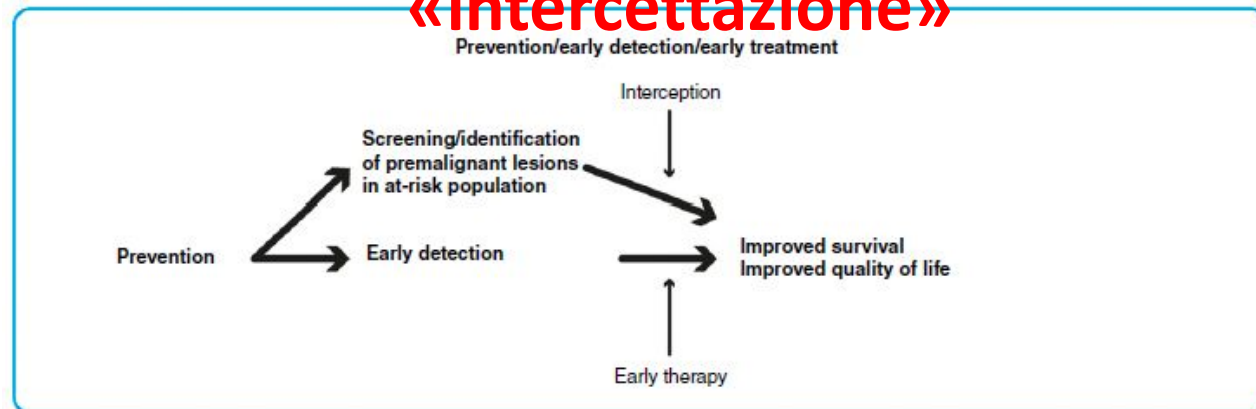


Figure 3. Clinical applications of AI in early cancer diagnosis. Abbreviations: GP: general practitioner, NLP: natural language processing, EHR: electronic healthcare record, ML: machine learning, DL: deep learning, NGS: next-generation sequencing.

Prevenzione oncologica, diagnosi precoce e «intercettazione»



Adriana Albini, Dario Trapani, Francesco Bertolini, Douglas M Noonan, Roberto Orecchia, Giovanni Corso. **From combination early detection to multicancer testing: shifting cancer care toward proactive prevention and interception.** *Cancer Prev Res (Phila)*. 2025 Jul 7

Prevenzione e intercettazione del cancro

- Non fumare o smetti di fumare
- Mantieni il tuo peso entro limiti sani.
- Bevi poco o niente alcool
- Segui una dieta sana e variata
- Evita le infezioni croniche e infiammazioni
- Mantieni una buona flora intestinale
- Fai attività fisica regolarmente
- Evita un'eccessiva esposizione al sole
- Rispetta e fatti rispettare dal tuo ambiente
- Fai uno screening regolare



Perspective

Clinical
Cancer
Research

Cancer Prevention and Interception: A New Era for Chemopreventive Approaches

Adriana Albini¹, Andrea DeCensi², Franco Cavalli³, and Alberto Costa⁴