Cancer Surveillance: From Data to Public Health Action

Synchronous Session: Concepts, Practice & Application

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Course:
PUBLIC HEALTH TEACHING AND TRAINING



Learning Objectives



Define & Compare

Distinguish between passive, active, sentinel, and syndromic surveillance methods.



Apply Rules

Utilize ICD-O-3, staging systems, and reportability rules to classify cases accurately.



Identify Workflow

Map the end-to-end data lifecycle from case finding to quality reporting.

Session Agenda

1. **Introduction & Poll:** Assessing our baseline knowledge.
2. **Types & Definitions:** The "What" and "How" of surveillance.
3. **Workflow & Reporting:** The journey of a data point.
4. **Breakout Session:** Applying concepts to a "Rural Spike" mystery.
5. **Practical Applications & Q&A:** Wrap-up and next steps.

Live Poll

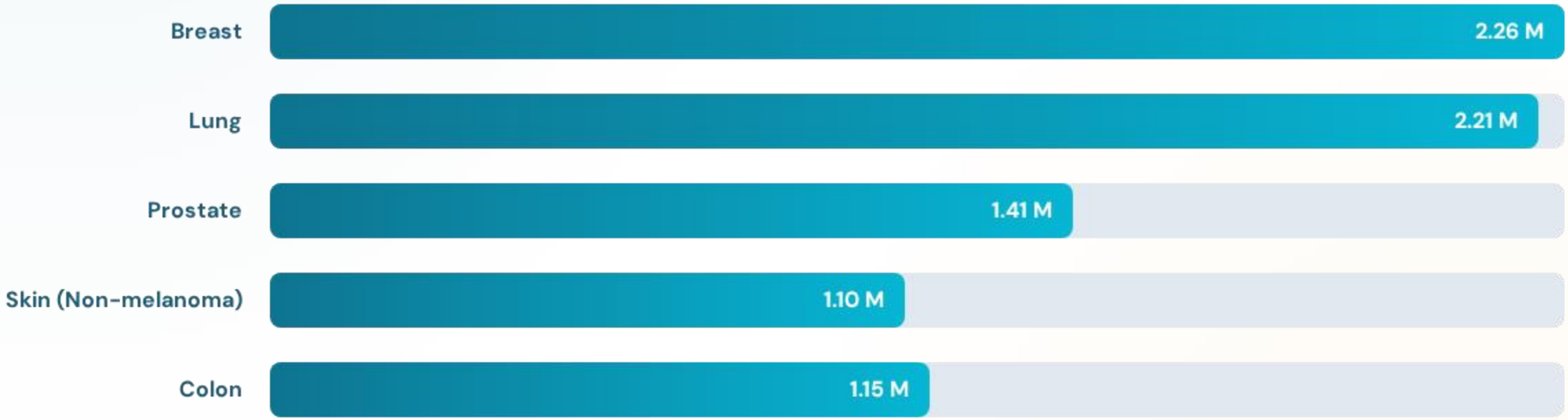
Check-In Question

How confident are you currently in defining **'Passive'** vs **'Active'** surveillance?

> **Instructions:** Please select your answer in the Zoom poll window.

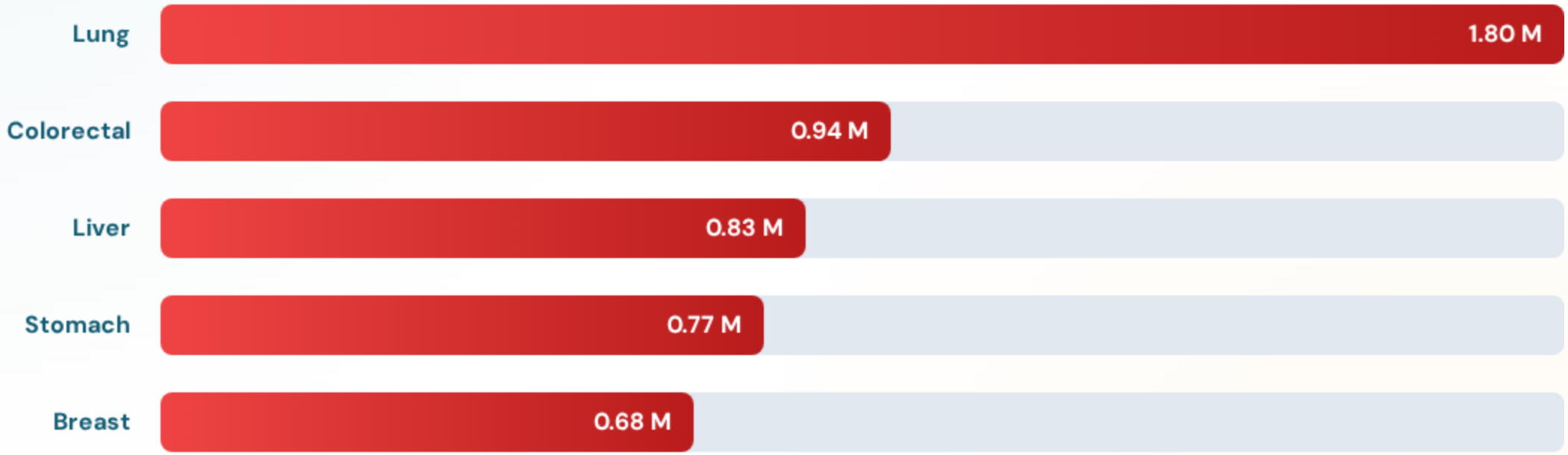


Global Cancer Burden: Incidence (2022)



Breast and Lung cancer account for the highest volume of new cases globally.

Global Cancer Burden: Mortality (2022)



Lung cancer dominates mortality, highlighting the need for early detection.

The Burden Summary

Incidence Insights

- ~20 million new cases annually.
- Breast cancer is the most diagnosed.
- High prevalence implies a growing need for survivorship care.

Mortality Insights

- ~9.7 million deaths annually.
- Lung cancer is the leading cause of death.
- Disparities in outcomes persist globally.

Surveillance Approaches

Type	Mechanism	Best For	Challenges
Passive	Facilities submit reports	Scale & Covenge	Variable Quality
Active	Registry staff seek data	Completeness	Resource Intensive
Syndromic	Selected sites	Rare Cancers	Representatveness
Syndromic	Early signals (ED/Rx)	Early Warning	Low Specificity

From Data to Screening



- **Lung:** Low-dose CT for high-risk smokers.
- **Breast:** Mammograms for women 40+.
- **Colorectal:** Colonoscopy or Stool tests for 45+.
- **Prostate:** PSA testing for men 45+.

Effective surveillance identifies at-risk populations to target these interventions.

Right Data → Right Test → Right Time



Surveillance turns signals into saved lives.

Defining the Case

ICD-O-3 Standards

The global standard for coding cancer cases.

- **Topography:** Site of origin (e.g., C50.9 Breast)
- **Morphology:** Cell type (e.g., 8500/3 Infiltrating Duct)

Reportability Rules

Determines which cases must be included in the registry.

- **Malignant (/3):** Always reportable.
- **In Situ (/2):** Most are reportable
- **Benign (/0):** Generally not, except CNS.

Staging & Rules



TNM Staging

- **T**umor size
- **N**odes involved
- **M**etastasis.

Used for clinical treatment planning



SEER Summary

- Localized
- Regional
- Distant.

Used for population-level comparison and Epidemiology

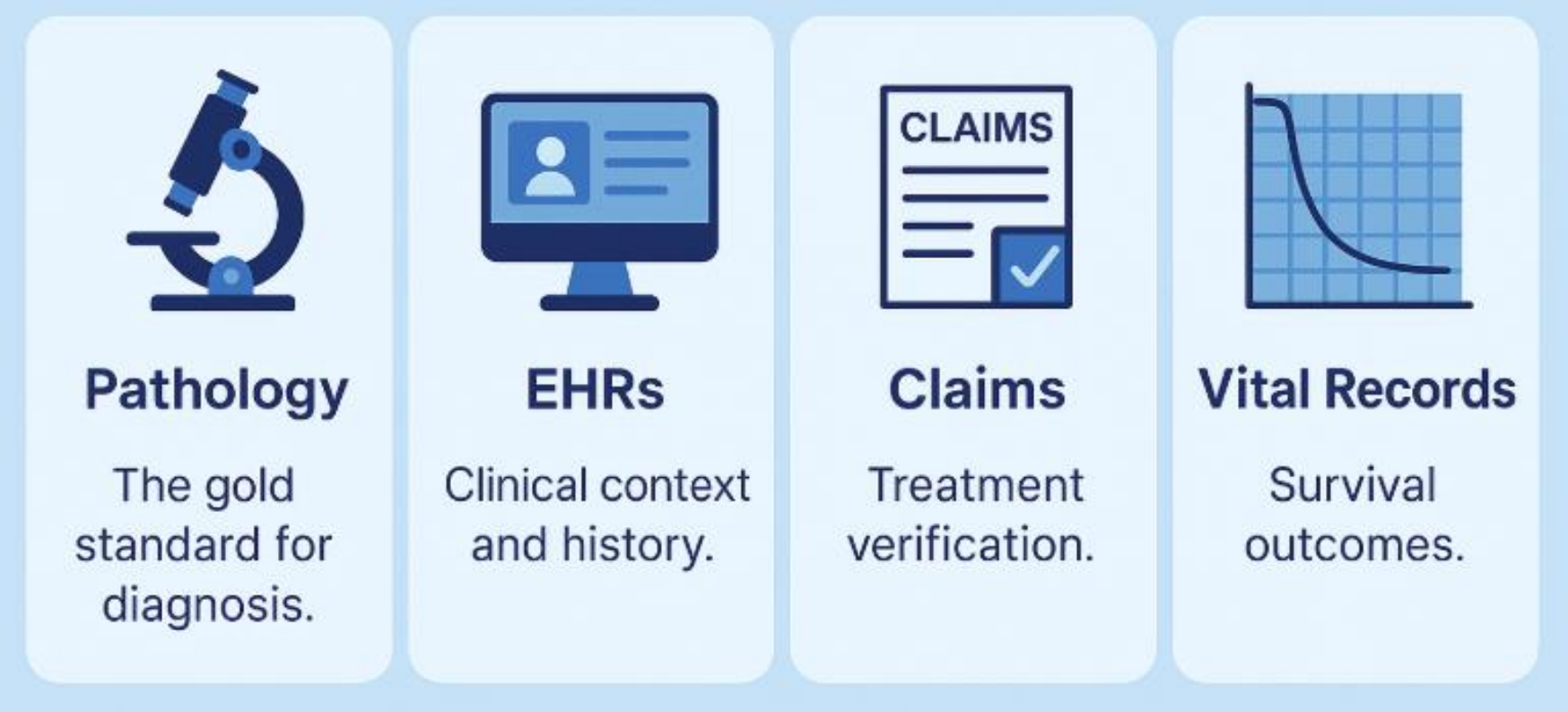


Date Rules

Anchor to the first definitive diagnosis (usually the pathology report date).

The Data Ecosystem

Cancer data is an aggregation of multiple streams:



5 Dimensions of Data Quality



Are we capturing all eligible cases?



Are standards applied uniformly over time?



Is the data correct and valid?



Is data available rapidly enough for action?



Are there duplicates in the System?

NPCR Data Quality Targets



Meeting these standards ensures data is “Fit for Use”

Breakout Session: The “Rural Spike”

Group Activity



Task Overview (10 Mins)

Scenario: A 20% spike in late-stage lung cancer in a rural county after a new EHR rollout.

Your Mission:

1. Is this a real cluster or a data artifact?
2. Which Quality Dimension is at risk?
3. Propose one check to verify.

Privacy & Security Cycle

Protecting Patient Trust



RBAC: Role-Based Access Control ensures only authorized staff see data



Encryption: Data is encrypted in transit (VPN) and at rest.



Audit Logs: Every access is tracked and monitored.

Reporting Safely

Balancing usefulness and privacy in Cancer data



Small-Cell Suppression

- Never publish counts fewer than <5-10 cases (follow state laws and policy).
- Combine or suppress cells to prevent re-identification in small populations



Aggregation

- Report data by larger geographic areas (e.g., region vs. zip code)
- Use multi-year aggregates (e.g., 3-5-years) to ensure statistical stability and privacy.

Goal: useful data, low disclosure risk

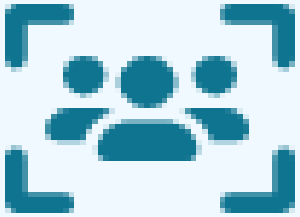


Session Resources



Skeleton Notes

- A fillable handout to help you follow along and capture key metrics during the session.
- Check the chat for the download link.



Case Study Guide

A reference sheet for the "**Rural Spike**" breakout activity, including the rubric for your group's diagnosis.

Questions?

Thank you for your active participation.

Next Steps: Complete the post-session assessment.

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