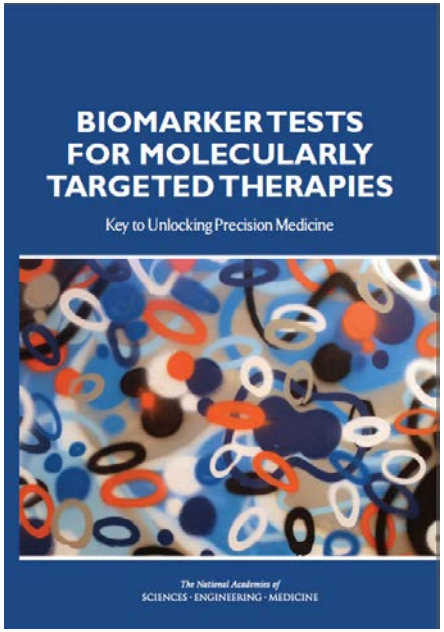
Biomarker Tests for Molecularly Targeted Therapies

Key to Unlocking Precision Medicine

Report from the National Academy of Medicine



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Disclosures

- Robert Nussbaum
  - Employee of Invitae Corporation and holds stock options in the company
  - Former Co-Principal Investigator on NIH grant establishing ClinVar database
  - Chair Rare Disease Therapeutic Area Scientific Advisory Panel, Pfizer
  - Medical Advisory Board, Genome Medical
  - Stock options in Personalis and Informed DNA

Study Sponsors

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Susan G. Komen

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Study Charge

- Examine **policy issues** related to the clinical development and use of **biomarker tests** (including genomic-based tests) for **targeting therapies** to patients
- Review **opportunities** for and **challenges** to the use of biomarker tests to select optimal therapy
- Formulate **recommendations** to accelerate progress in the field

Areas of focus:

- **Regulation:** variability in the regulation of tests and combination products and the role of various oversight bodies
- **Reimbursement**: standards of evidence used by payers to make coverage decisions, and how to generate evidence of clinical utility
- **Clinical practice**: interpretation of molecular tests, clinical decision-making, dissemination of new technologies, and implications for clinical practice

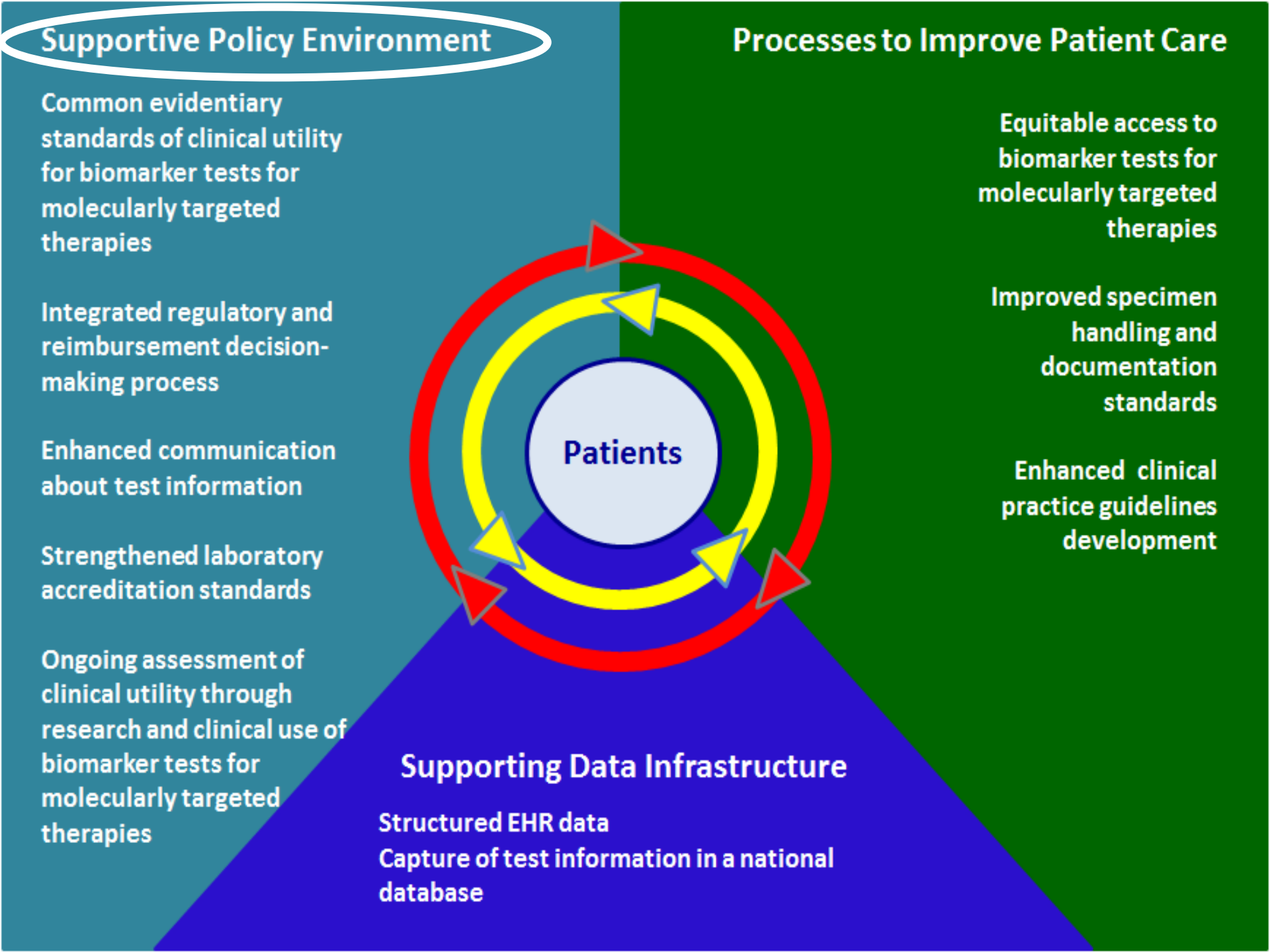
Key Report Themes

- Accurate, reliable, clinically useful, and appropriately implemented biomarker tests for molecularly targeted therapies are **key** to realizing the full potential of **precision medicine**.

- Substantial **variation in the evidence** used to inform regulatory, reimbursement and treatment decisions ultimately limits the broader adoption of potentially useful biomarker tests for molecularly targeted therapies into clinical practice.

- In this rapidly changing field, regulation, coverage, reimbursement and practice guidelines will continue to evolve as evidence is generated and new information becomes available. **Data sharing is essential**.

- A **rapid learning system** represents a framework for collecting and analyzing data and information and enables continuous learning from research and clinical practice.


Supportive Policy Environment
Common evidentiary standards of clinical utility for biomarker tests for molecularly targeted therapies
Integrated regulatory and reimbursement decision-making process
Enhanced communication about test information
Strengthened laboratory accreditation standards
Ongoing assessment of clinical utility through research and clinical use of biomarker tests for molecularly targeted therapies
Processes to Improve Patient Care
Equitable access to biomarker tests for molecularly targeted therapies
Improved specimen handling and documentation standards
Enhanced clinical practice guidelines development
Patients
Supporting Data Infrastructure
Structured EHR data
Capture of test information in a national database

RECOMMENDATION 1

Goal 1: Establish common evidentiary standards of clinical utility—using evidence generated both within and outside the context of clinical trials—across all stakeholders.

Recommendation 1: The Secretary of HHS should **facilitate the development of common clinical utility evidentiary standards** that are applied for initial and ongoing coordinated regulatory, coverage, and reimbursement decisions for biomarker tests for molecularly targeted therapies.

RECOMMENDATION 2

Goal 2: Establish a more coordinated and transparent federal process for regulatory and reimbursement decisions for biomarker tests for molecularly targeted therapies.

Recommendation 2: The Secretary of HHS should facilitate the development of a **new integrated federal review process** involving FDA and CMS to serve as a **pathway for coordinated regulatory**, **coverage, and reimbursement decisions** for IVD, LDT, and/or NGS biomarker tests and corresponding molecularly targeted therapies.

RECOMMENDATION 3

Goal 3: Enhance communication to patients and providers about the performance characteristics and evidence for use of specific biomarker tests for molecularly targeted therapies.

Recommendation 3: FDA should develop a **patient- and provider-friendly standardized label for IVD and LDT biomarker tests**

RECOMMENDATION 4

Goal 4: Update and strengthen oversight and accreditation of laboratories providing biomarker tests for molecularly targeted therapies

Recommendation 4: The Secretary of HHS should establish and enforce **up-to-date laboratory accreditation standards** for biomarker tests for molecularly targeted therapies, either through CMS' CLIA* or in collaboration with an existing up-to-date accreditation organization. Reimbursement should be dependent on meeting these standards.

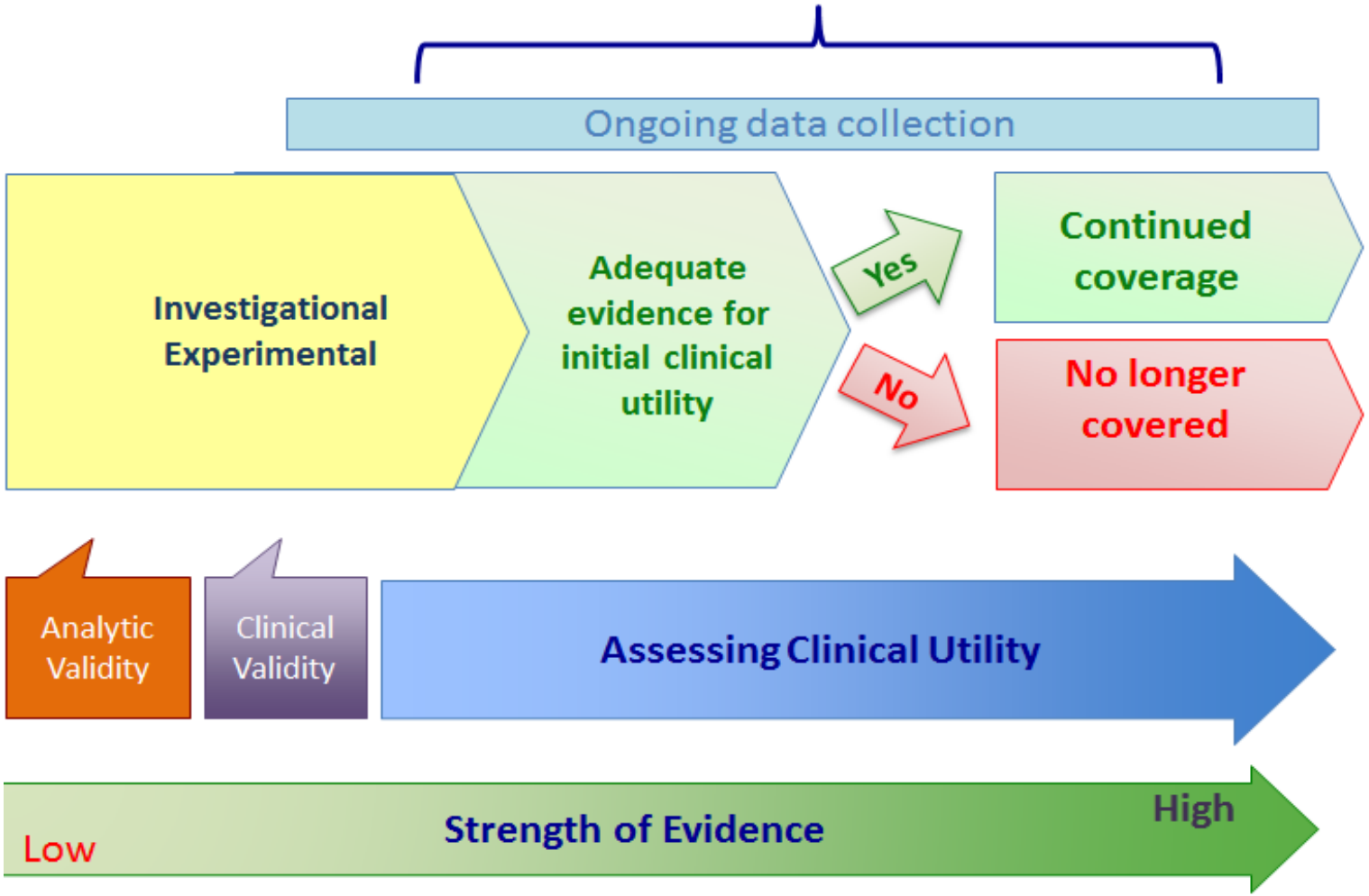
RECOMMENDATION 5

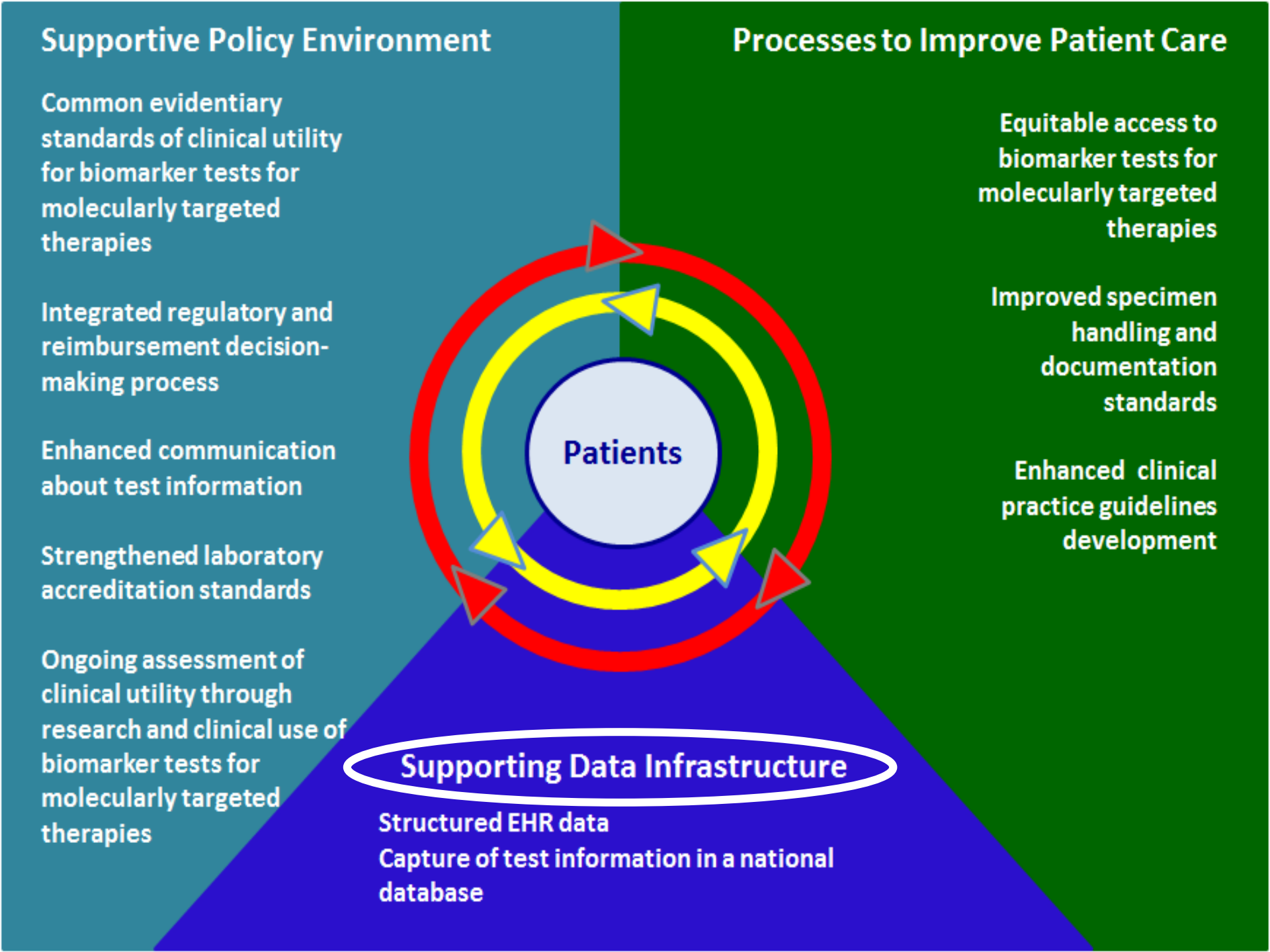
Goal 5: Ensure ongoing assessment of the clinical utility of biomarker tests for molecularly targeted therapies.

Recommendation 5a: CMS and other payers should develop **reimbursement models that support the ongoing collection of data within a rapid learning system**. **Clarify and expand appropriate implementation of coverage with evidence development (CED)**

Recommendation 5b: PCORI and NIH, as well as other funding groups, should develop **granting mechanisms that support the assessment of the clinical utility**

Reimbursement Policy Mechanism to Support Ongoing Assessment of Biomarker Tests for Molecularly Targeted Therapies

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RECOMMENDATION 6

Goal 6: Ensure development and use of EHRs and related biomedical informatics tools and assessments that support the effective clinical use of biomarker tests for molecularly targeted therapies.

Recommendation 6a: EHR and LIS vendors and relevant software developers should **enable the capture and linkage of biomarker tests, molecularly targeted therapies, and longitudinal clinical patient data in the HER**

Recommendation 6b: EHR vendors and relevant software developers should **enable EHRs to facilitate point-of-care decision support** for biomarker test ordering, reporting, and shared clinical decision making.

RECOMMENDATION 6 (con't)

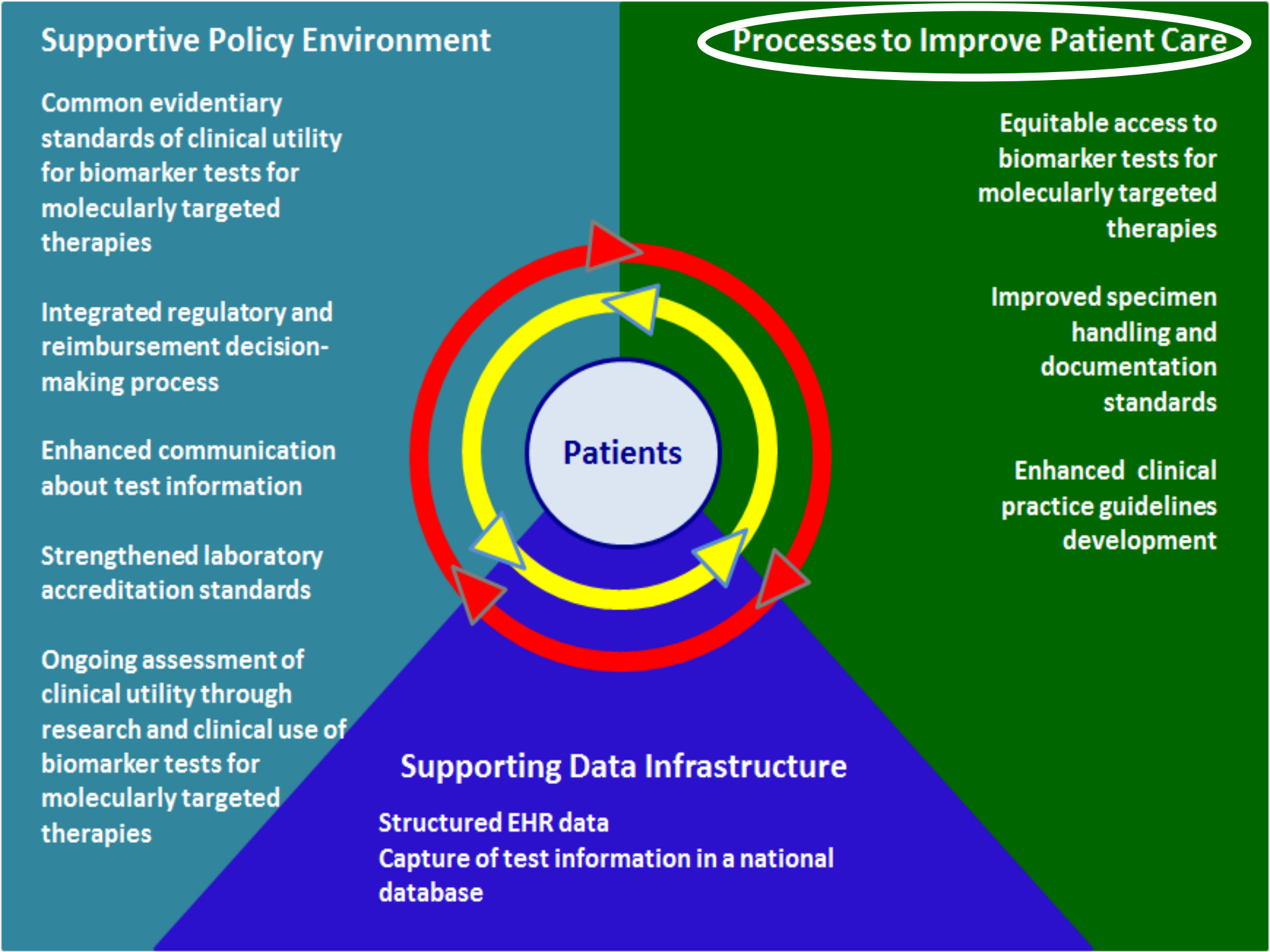
Recommendation 6c: Health care institutions and physician practices should **use EHRs that facilitate point-of-care decision support** for biomarker test ordering, reporting, and clinical decision making.

Recommendation 6d: Licensing and specialty boards should recognize CME, CEU and MOC achieved through interaction with point-of-care decision support educational materials.

RECOMMENDATION 7

Goal 7: Develop and maintain a sustainable national database for biomarker tests for molecularly targeted therapies through biomedical informatics technology to promote rapid learning for the improvement of patient care.

Recommendation 7: The Secretary of HHS should charge FDA and NIH to convene a **Task Force to develop a sustainable national repository** of biomarker tests, molecularly targeted therapies, and longitudinal clinical patient data to facilitate rapid learning approaches.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RECOMMENDATION 8

Goal 8: Promote equity in access to biomarker tests for molecularly targeted therapies and the expertise for effective use of the results in clinical decision making.

Recommendation 8a: Funding to **identify and overcome barriers to promote equity, access, and public understanding of precision medicine.**

RECOMMENDATION 8 (con't)

Recommendation 8b: **Support demonstration projects** to enable and assess the effectiveness of collaboration between community health care providers and larger health care centers and/or academic medical centers to be part of a rapid learning system.

Recommendation 8c: Licensing and specialty boards **should ensure that** health care professionals have and maintain competencies needed for effective use of biomarker tests for molecularly targeted therapies.

RECOMMENDATION 9

Goal 9: Enhance specimen handling and documentation to ensure patient safety and the accuracy of biomarker test results.

Recommendation 9a: Professional organizations and accrediting entities should develop, and health care institutions and providers should implement **standards for**

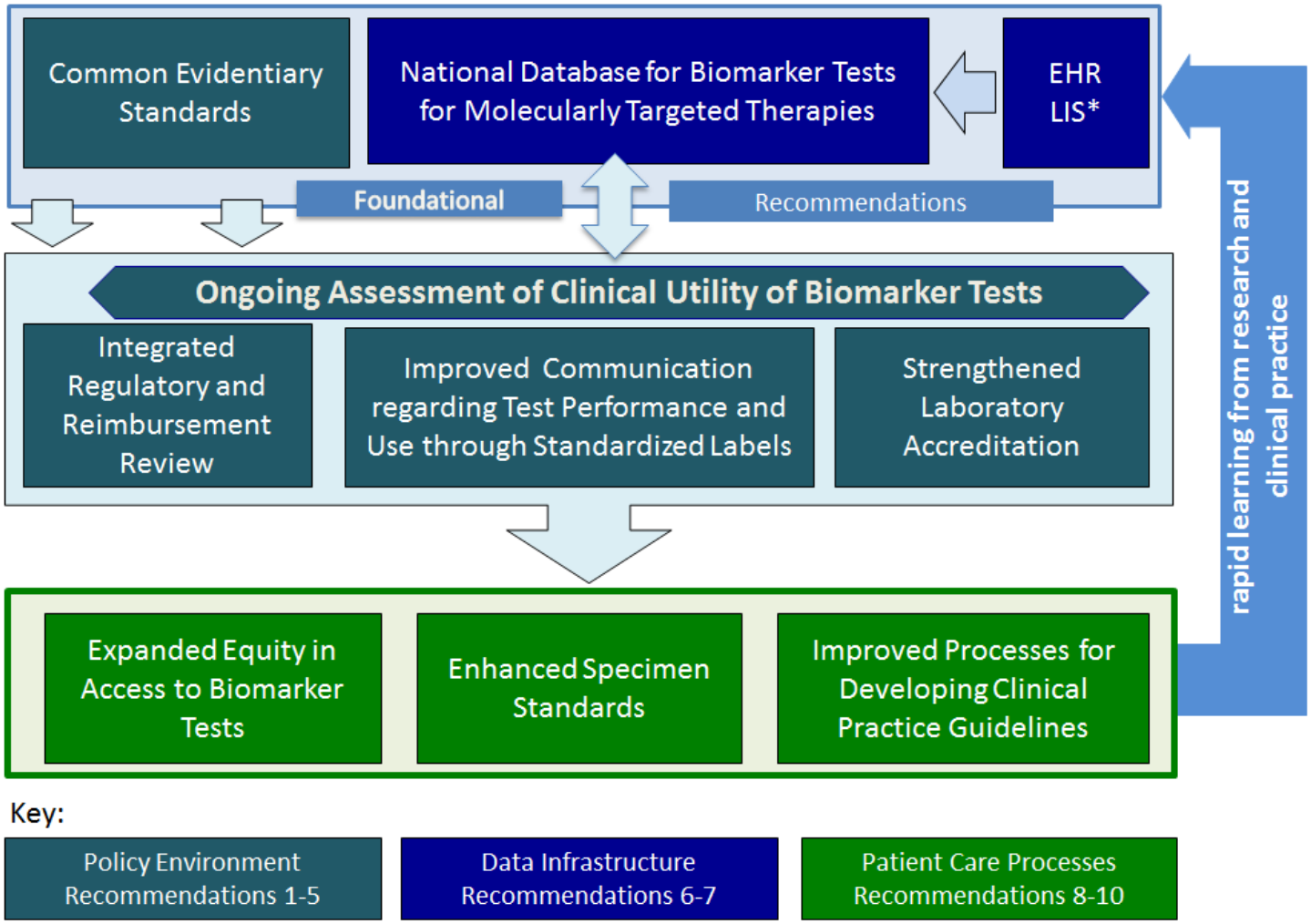
- **specimen requirements, handling, and documentation through an interdisciplinary effort**
- **reduce unnecessary repeat specimen collections.**

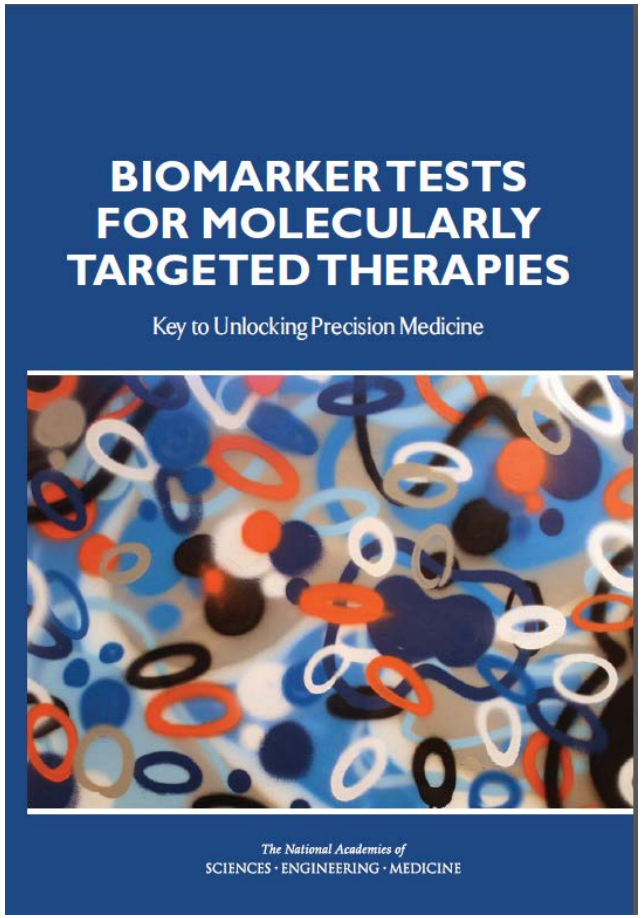
RECOMMENDATION 10

Goal 10: Improve the processes for developing and updating clinical practice guidelines for the effective use of biomarker tests for molecularly targeted therapies.

Recommendation 10: Guideline-developing organizations should **expand interdisciplinary collaborations to develop integrated guidelines** on the appropriate use of biomarker tests for molecularly targeted therapies.

Rapid Learning System for Biomarker Tests for Molecularly Targeted Therapies





To download the report, and view more resources, visit: nas.edu/biomarkers