

# Assessing the value of laboratory medicine in clinical care

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On behalf of the IFCC CPD Task Force on the  
Impact of Laboratory Medicine on Clinical  
Management and Outcomes



# Importance of lab medicine

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- Single highest-volume medical activity (Est 10-15 bn tests/year worldwide)
- Patient safety – fast, accurate diagnosis
- Essential to clinically cost-effective delivery of care
- Often the principal basis for costly downstream care – e.g. admission, imaging, biopsy
- Spans primary/secondary care
- Added value at pre- & post-analytical phases

# Laboratory medicine - cost

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- Global IVD market valued at \$49.2 bn in 2012, growing at a rate of 7% from 2012 to 2017
- 3-5% of total healthcare costs worldwide

# Lab results are vital!

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- Example:

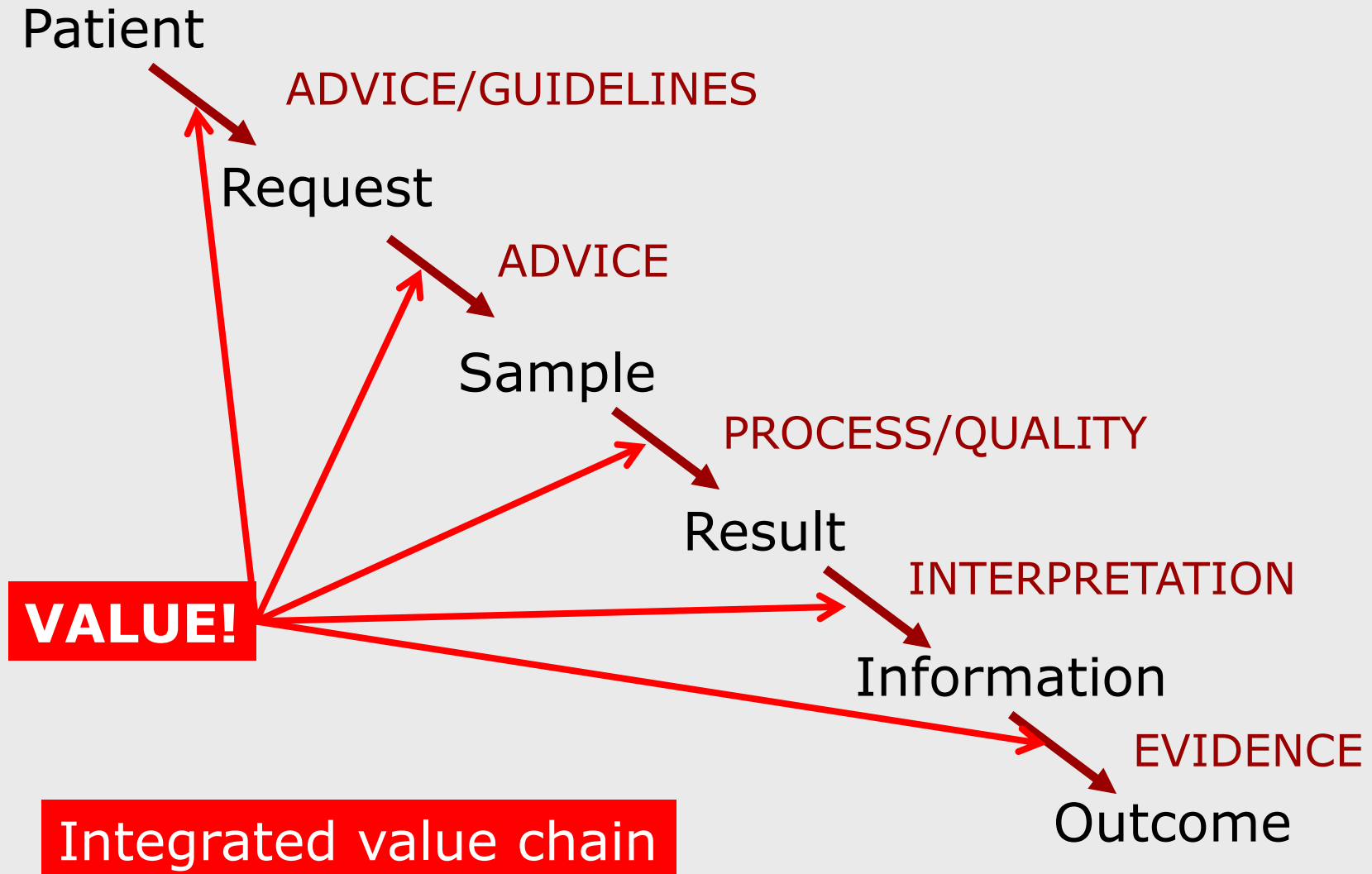
Notification of a critical laboratory result led to change of treatment in

- 98.0% of surgical in-patients
- 90.6% of medical in-patients

More than 40% were previously unsuspected findings

(Piva et al. Clin Biochem 2014; 47: 1163-8)

# Laboratory medicine – adding value



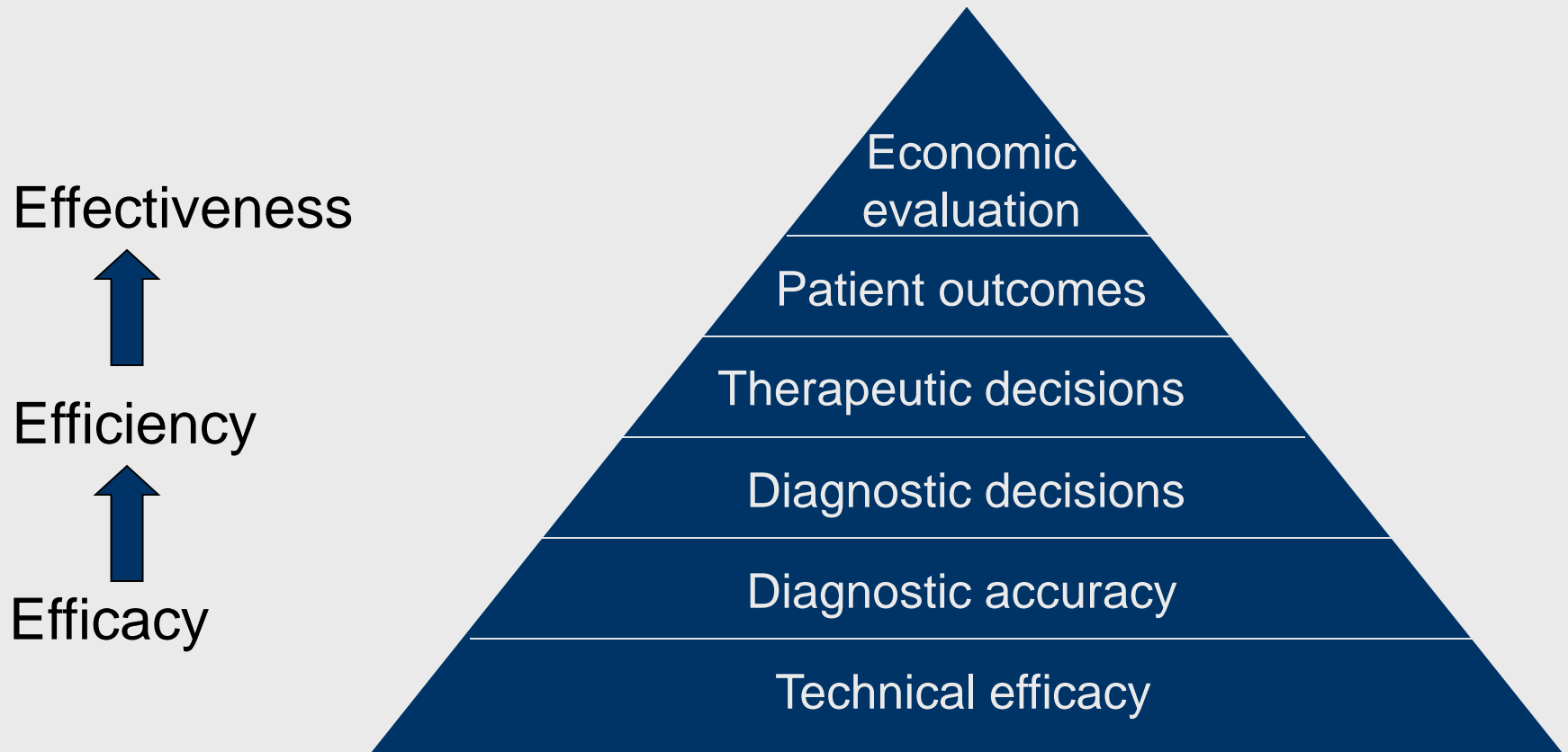
# Lab-related causes of diagnostic error – areas to do better

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- Inappropriate test ordered
- Appropriate test not ordered
- Appropriate test result not used properly
  - Knowledge deficit
  - Failure of synthesis
  - Misleading result
- Appropriate test result delayed/missed
- Appropriate test result wrong/inaccurate

(Epner & Astion, 2012)

# Evaluation of diagnostic tests



Marshall & O'Brien, 2003

# Evaluation of diagnostic tests

Effectiveness



Efficiency



Efficacy

Is this test **HELPFUL**?

Is this test **MEANINGFUL**?

Can I **TRUST** this test?

(P Bossuyt)



# Components of test evaluation

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- Analytical performance
- Clinical performance
- Clinical effectiveness
- Cost effectiveness
- Impact of testing on patient, organization, society

“From biomarkers to medical tests – the changing landscape of test evaluation”. Horvath et al, EFLM Test Evaluation Working Group. Clin Chim Acta 2014; 427: 49-57



# The vision

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- 21st century medicine needs a flexible information resource:
  - that facilitates **selection of the right test** on the right patients at the right time,
  - with **results delivered in a timely fashion** to the right place
  - accompanied by context-specific **interpretation**
  - linked to **guidance on agreed action** to be taken (where appropriate)
  - with **validated patient-oriented clinical and economic outcome measures**

# Call to action (IFCC Task Force)

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- Agree definition and validation of effectiveness measures – a “common currency” for outcomes
- Benchmark existing and new biomarkers in specified situations using commonly accepted effectiveness measures
- Improve utilization of new and existing biomarkers –
  - optimum testing strategies based on presenting complaint
  - support of effective requesting
  - timely and appropriate result transmission
  - availability of consultation and interpretation
  - audit of effectiveness in practice

# Changing role of lab medicine

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## ■ From:

- Specimen-centred
- Clinical testing
  
- Lab. performance
- Provider of results

## ■ To:

- Patient-centred
- Clinical decision-making
  
- Patient outcomes
- Partner in care

# Get involved!

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- IFCC is always looking for scientists and doctors who are willing to help develop the evidence supporting the value of laboratory medicine.
- Contact the IFCC office in the first instance:  
email [ifcc@ifcc.org](mailto:ifcc@ifcc.org)

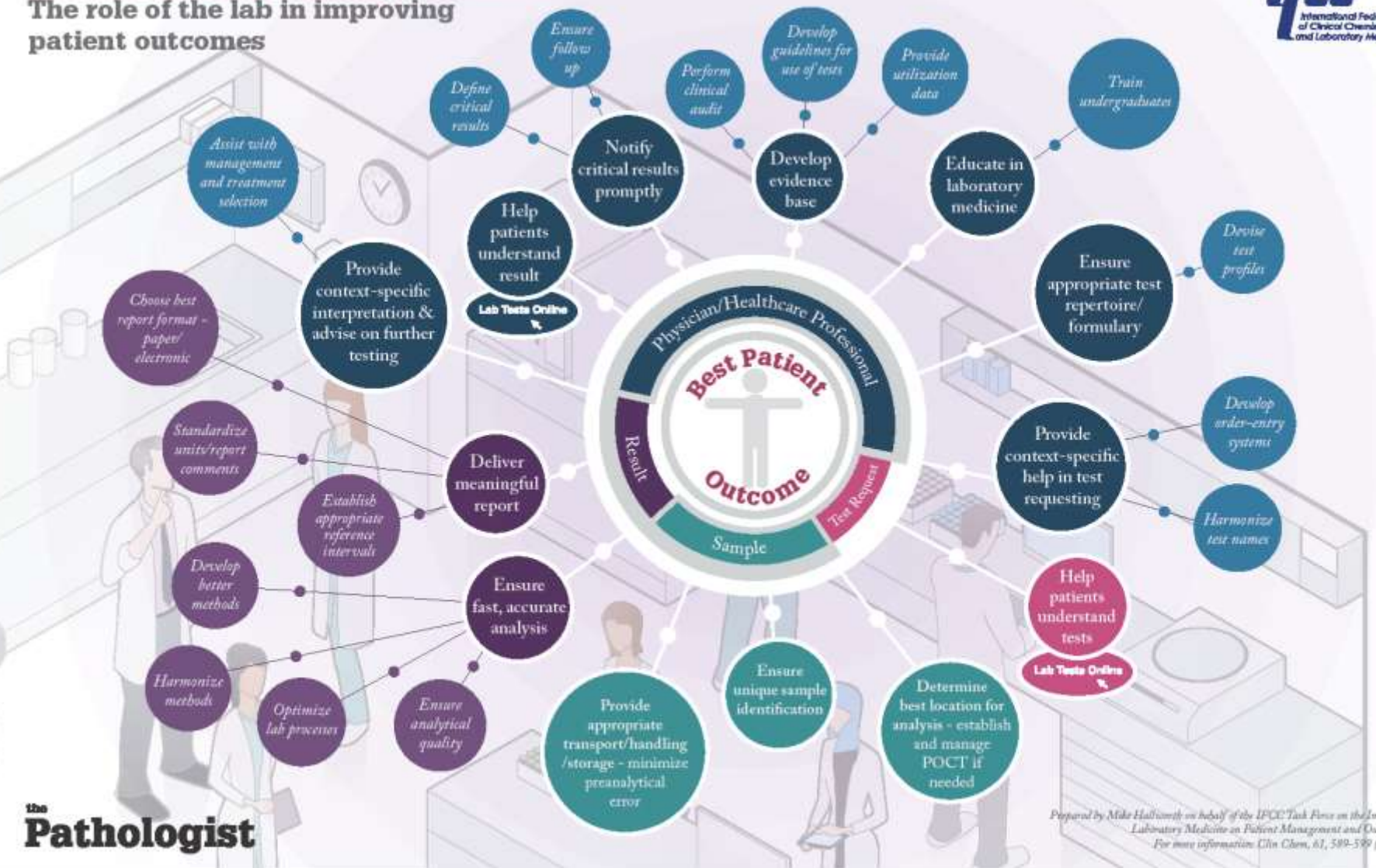
# References

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- Special issue eJIFCC January 2015  
[www.ifcc.org](http://www.ifcc.org)
- IFCC Task Force report  
“Current Evidence and Future Perspectives on the Effective Practice of Patient-Centered Laboratory Medicine”: Hallworth MJ et al.  
Clinical Chemistry – April 2015  
(doi:10.1373/clinchem.2014.232629)

# Patient-Centered Laboratory Medicine

## The role of the lab in improving patient outcomes



**The Pathologist**

*Prepared by Mike Halliwell on behalf of the IFCC Task Force on the Impact of Laboratory Medicine on Patient Management and Outcomes. For more information Clin Chem, 61, 589-599 (2015).*