

# VALUE OF DIAGNOSTIC INFORMATION (VODI)

*Assessing the value of novel diagnostics*

*Methods and challenges: an academic perspective*

**Dr. H. (Erik) Koffijberg**

*Associate Professor - HTA  
Dept of Health Technology & Services Research  
TechMed Centre  
University of Twente, the Netherlands*

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## Introduction

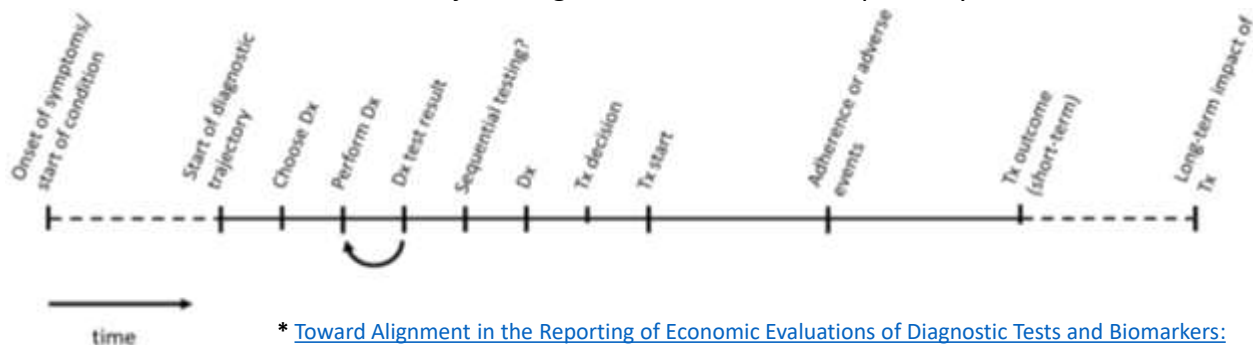
- **Discussed so far**
  - The different dimensions of the VODI framework
  - The multidimensional value offered by diagnostic information
- **Focus on methods needed to support this framework**
- **Consideration of**
  1. Aspects that may be captured in a health economic framework
  2. Aspects that fall outside a health economic framework

## Aspects in a health economic framework

- Often aspects are not included in health economic analyses or models because
  - Evidence is lacking
  - Inclusion of all aspects increases model complexity
  - Researchers may not be aware of all relevant aspects
- Exclusion may be on purpose and may be justified
  - But restricts the scope of the value assessment

## Aspects in a health economic framework

- Recent checklist: many aspects **can** be captured in a HE framework\*
  - Based on scoping review and consensus process
  - Set of 44 items in 6 major categories across the entire pathway



\* [Toward Alignment in the Reporting of Economic Evaluations of Diagnostic Tests and Biomarkers: The AGREEDT Checklist](#). Kip MMA et al. Med Decis Making. 2018 Oct;38(7):778-788.

## Aspects in a health economic framework

- **Examples of items included in (almost) all evaluations (n=63)**
  - Costs of the diagnostic test(s) (*n=62*)
  - Test performance (sensitivity/specificity/NPV/PPV) (*n=62*)
  - Impact of the test on selecting the patient management strategy (*n=56*)
- **Examples of items included in only a few evaluations (n=63)**
  - Choice for test based on implicit (shared) decision-making (*n=13*)
  - Choice cut-off value of test (*n=5*)
  - Impact of incidental findings (*n=2*)
  - Patient's adherence to treatment (*n=14*)

## Aspects outside a health economic framework

- **Many examples of aspects not included in health economic framework**
  - Value of knowing, planning value
  - Tax revenues from more healthy and working citizens
  - Burden of disease on families and relatives
- **Wider evaluation scope necessary**
  - Link to existing methods to deal with multi-dimensional outcomes

# Aspects outside a health economic framework

- **Social Cost-Benefit Analysis**
  - Includes non-health impact of policies, includes inter-sectorial effects
  - Data intense analysis, hard to express all consequences in monetary terms
- **Multi-Criteria Decision Analysis**
  - Can capture any number of outcome dimensions/criteria
  - Requires criteria weights for aggregation
- **Distributional CEA (concept)**
  - Introduces dual objectives into the health economic evaluation
  - Describes the the value judgments necessary to perform trade-offs
  - Requires a underlying/pre-defined utility function

# Aspects outside a health economic framework

- **Social Cost-Benefit Analysis**

National, domain specific, guidelines and reference prices  
(Example: de Wit et al, RIVM Report 2016-0065, 2016)

- **Multi-Criteria Decision Analysis**

ISPOR MCDA Good Practice Guidelines  
"Advance" Value Framework for Medicines (Angelis & Kanavos, SSM, 2017)

- **Distributional CEA**

Tutorial and illustration on trade-off between objectives  
(Asaria et al. Health Econ. 2015 & Med Decis Making, 2016)

## Collecting evidence

- **Practical feasibility**
  - Budget and time for evaluating new diagnostic tests is limited
  - Not all aspects / dimensions are likely equally relevant to every new test
  - Aspect studied determines the optimal study design
  - Some aspects may be hard to measure and quantify accurately
- Prioritization of aspects to study and quantify is needed
  - Based on contribution of aspects to the overall value of the test



## Collecting evidence

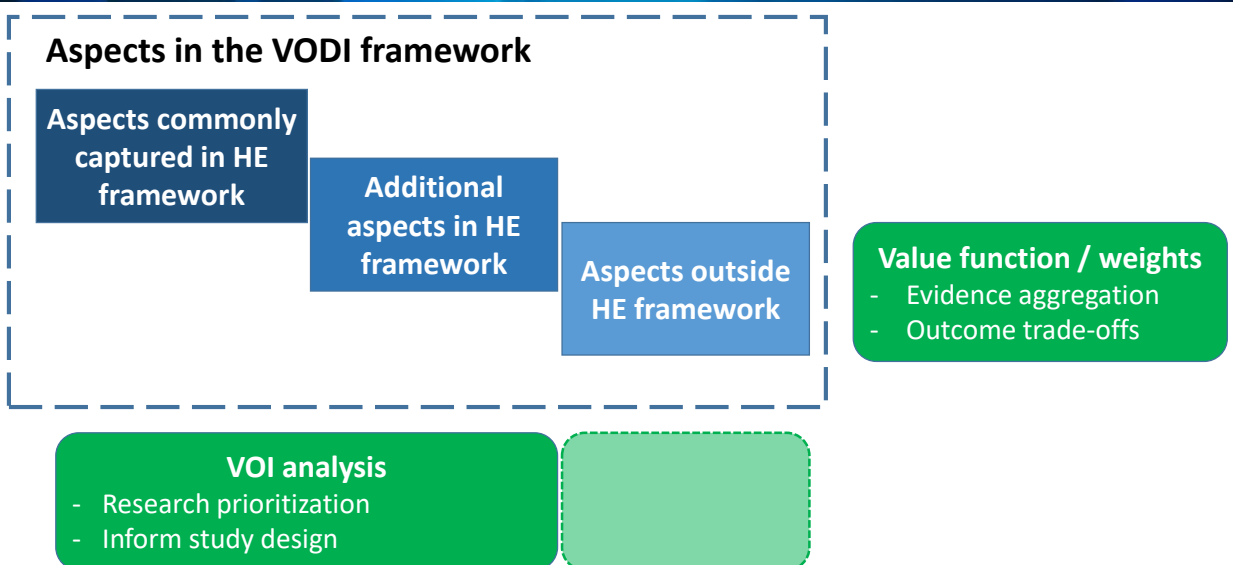
- **Feasible with Value of Information Analysis\***
  - **Also outside a health economic context for outcomes other than cost/QALY**
    - McKenna C. et al. J Clin Epidemiol. 2016. & Claxton et al. BMJ. 2015
  - **Also for complex model based analyses when using approximations**
    - Jalal et al. Med Decis Making. 2018, Heath et al. Med Decis Making. 2017, Strong et al. Value Health. 2015.
  - **Requires some technical expertise**

\* Two ISPOR Value of Information Taskforce Reports are forthcoming (early 2019)  
Report 1 describes the relevance and application of VOI analysis, report 2 the technical aspects of VOI analysis.

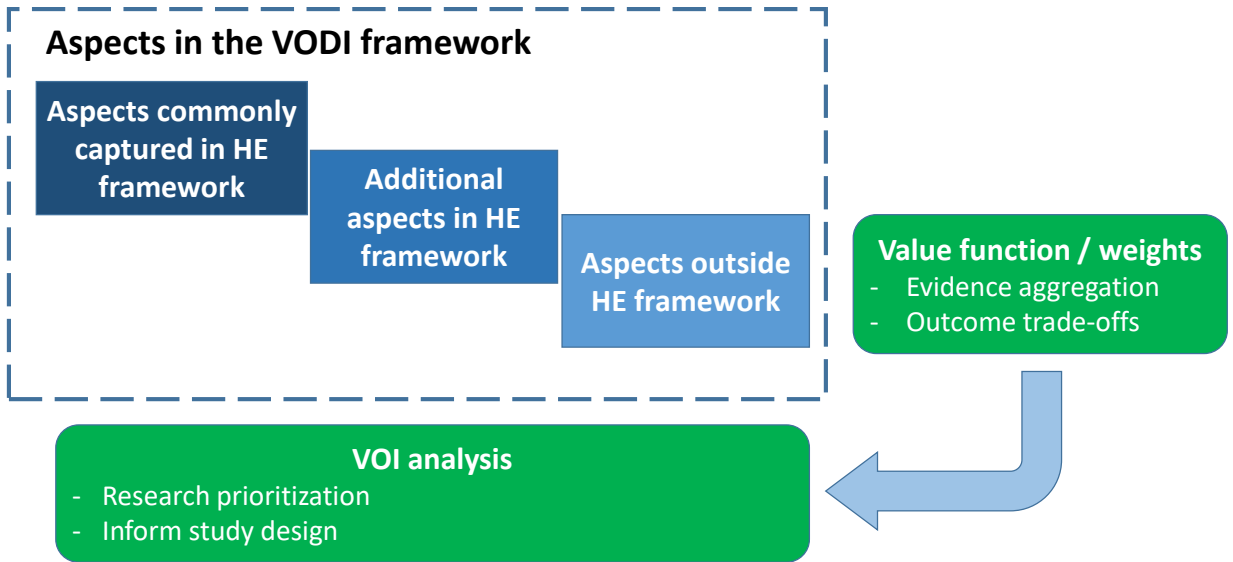
# Evaluating evidence

- **Existing guidance on evidence synthesis, on modelling (if applicable), and on reporting (ISPOR, Cochrane, ...)**
  - Too much to mention....transparency and justification of
    - Included and excluded aspects
    - Metrics used to evaluate aspects
    - Included evidence, and reporting of the quality of evidence
    - The methods used for evidence synthesis and analysis
    - Full description of the model (if applicable) justification of modelling choices and structure
    - ....

# Overview of methods

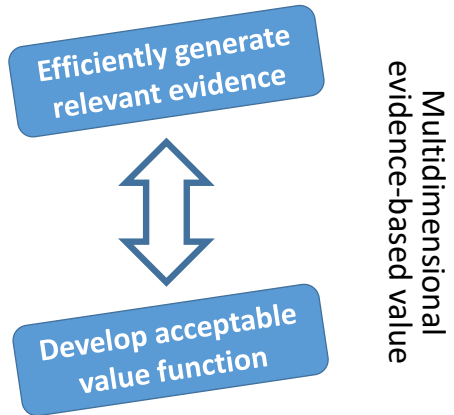


# Overview of methods



# Discussion

- **Challenges for manufacturers**
  - Prioritizing research on test impact
  - Measuring test impact
- **Challenges for decision makers**
  - Formal and transparent incorporation of aspects not in the standard health economic framework into policy making



# Discussion

- **Methods to support VODI framework**
  - Useful but generic
  - Tests may have unique multidimensional impact
- **Room for improvement by tailoring methods**
  - Systematic approaches to measure test aspects
  - Approaches to identify the value of aspects
  - Systematic approaches to optimize test use

**AVAILABLE NOW**



# Questions?

**Erik Koffijberg**

[H.Koffijberg@utwente.nl](mailto:H.Koffijberg@utwente.nl)

*Associate Professor - HTA*

*Dept of Health Technology & Services Research*

*TechMed Centre*

*University of Twente, the Netherlands*

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