System Perspectives & Health Economics

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DISCLOSURES

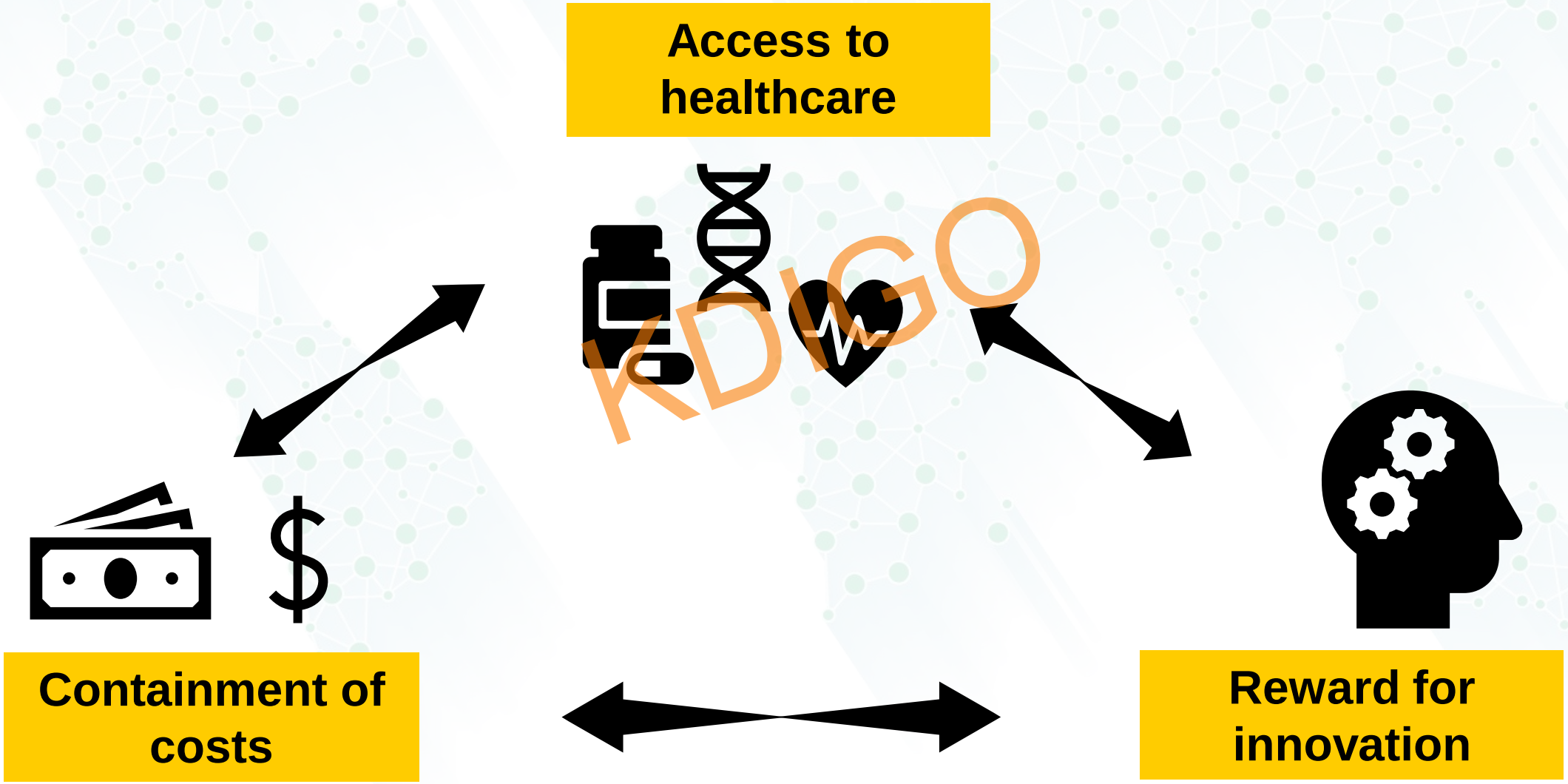
None

Overview

- Context of healthcare
- Payment models
- Health economics in decision making: the basics
- Decision making and role of economic evaluations in different jurisdictions
- Equity concerns and mitigating strategies
- Future of CKD screening and monitoring

Context of healthcare:

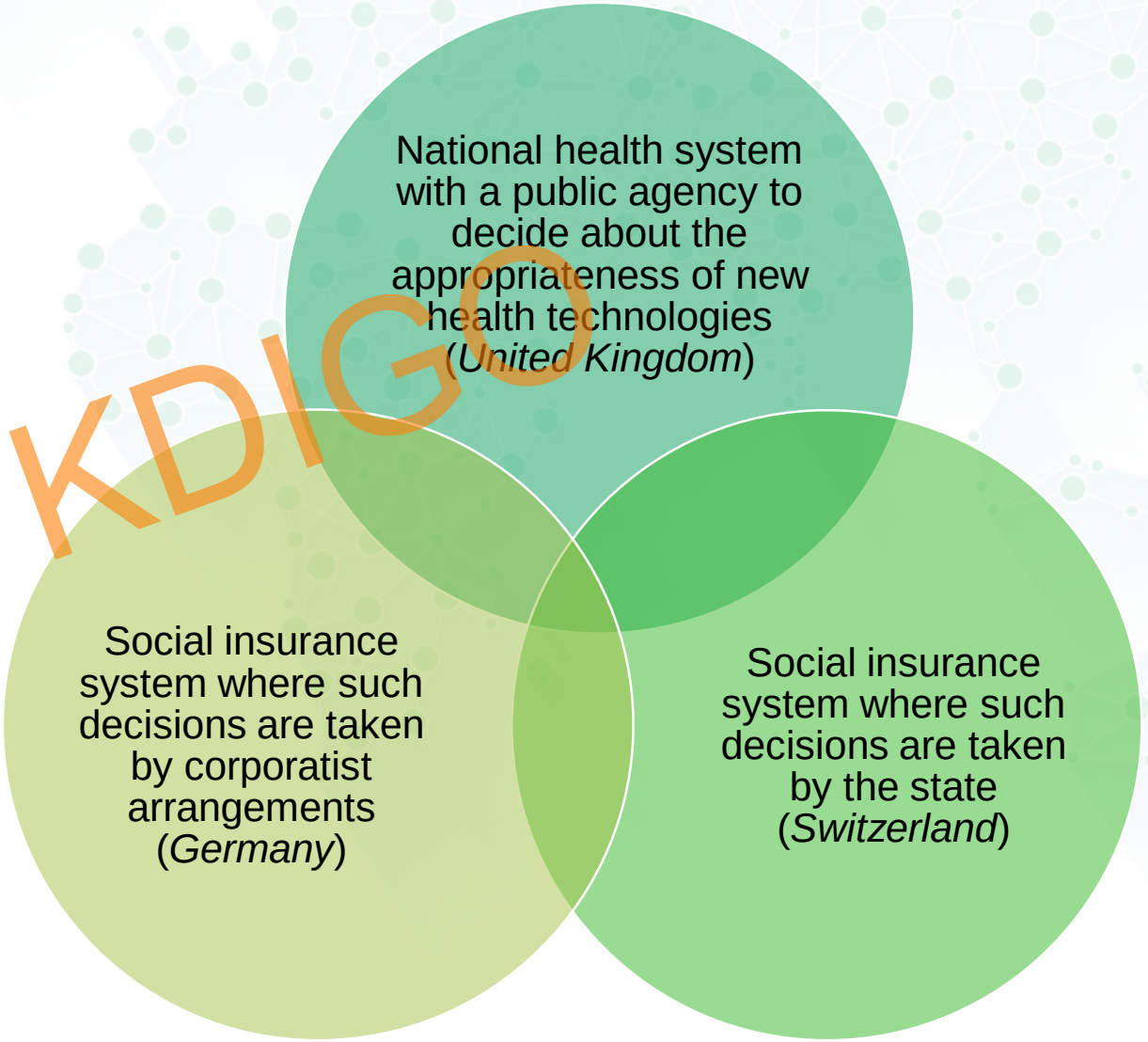
Striving for balance in healthcare



Key challenges for healthcare

- expense and affordability
- rising costs, driven by both volume (ageing population) and expensive technologies
- goals
  - safety, quality and efficiency
  - patient-centred healthcare
  - value-based healthcare

Classification of Healthcare Financing Schemes



Payment models:

United States

- HMO: capitation model as a fixed fee basis
- PPO: discounted fee for service (FFS)
- Medicare and Medicaid: fee for service

Australia

- Medicare Benefit Scheme: retrospective payment system fee for service
- pay-for-performance (P4P): Practice Incentives Program (PIP)

United Kingdom (England)

- The National Health Service (NHS): capitation payment system
- P4P fees: within Quality and Outcomes Framework

Advantages	Fee for services	Capitation	Pay for Performance
	▪ lessens provider financial risk ▪ supports patient choice and competition, quality and equity of care	▪ contains costs ▪ minimises provider use of unnecessary management and treatment services	▪ incentivises quality and compliance with policy, standards, clinical care processes and best practice
Disadvantages			
	▪ least effective in containing costs ▪ incentivises overprovision of services	▪ lacks transparency and accountability ▪ potential for low productivity and quality of care	▪ does not incentivise health outcomes

Value Based Healthcare

Diabetes quality improvement support

Bonus to networks of general practitioners

Bundled payment for hip, knee and spine surgery

Diabetes bundled payments

- performance bonuses to reward providers
- bundled payments, FFS, compensation conditional on health outcomes of patients, example Switzerland
- population-based payments, example Sweden

Paying for Value e in Health care
BCG 2019

Defining concepts and benefits

„Customers don‘t buy a drill, but rather a hole in the wall.“

„Payors don‘t buy a technology, but rather patient benefit“

Theodore Levitt

What incentives can support early detection and improved management of CKD?

Tracking and reporting health outcome metrics, suggests ICHOM

Adjusting for differences in risk in heterogenous patient populations

Sharing savings to ensure financial sustainability

Encourage a continuous improvement culture

Extending the scope of payment to full cycle of care

Investing in data and advanced analytics

Building a working environment of trust

Paying for value in health care BCG 2019

Drawz et al. 2015 CJASN

Health Economics in Decision Making: the basics

Role of Efficiency in Healthcare

Role of Efficiency in Healthcare

allocative efficiency

efficient distribution of available resources

considers opportunity costs

technical efficiency

efficient management of a single condition

considers cost-effectiveness

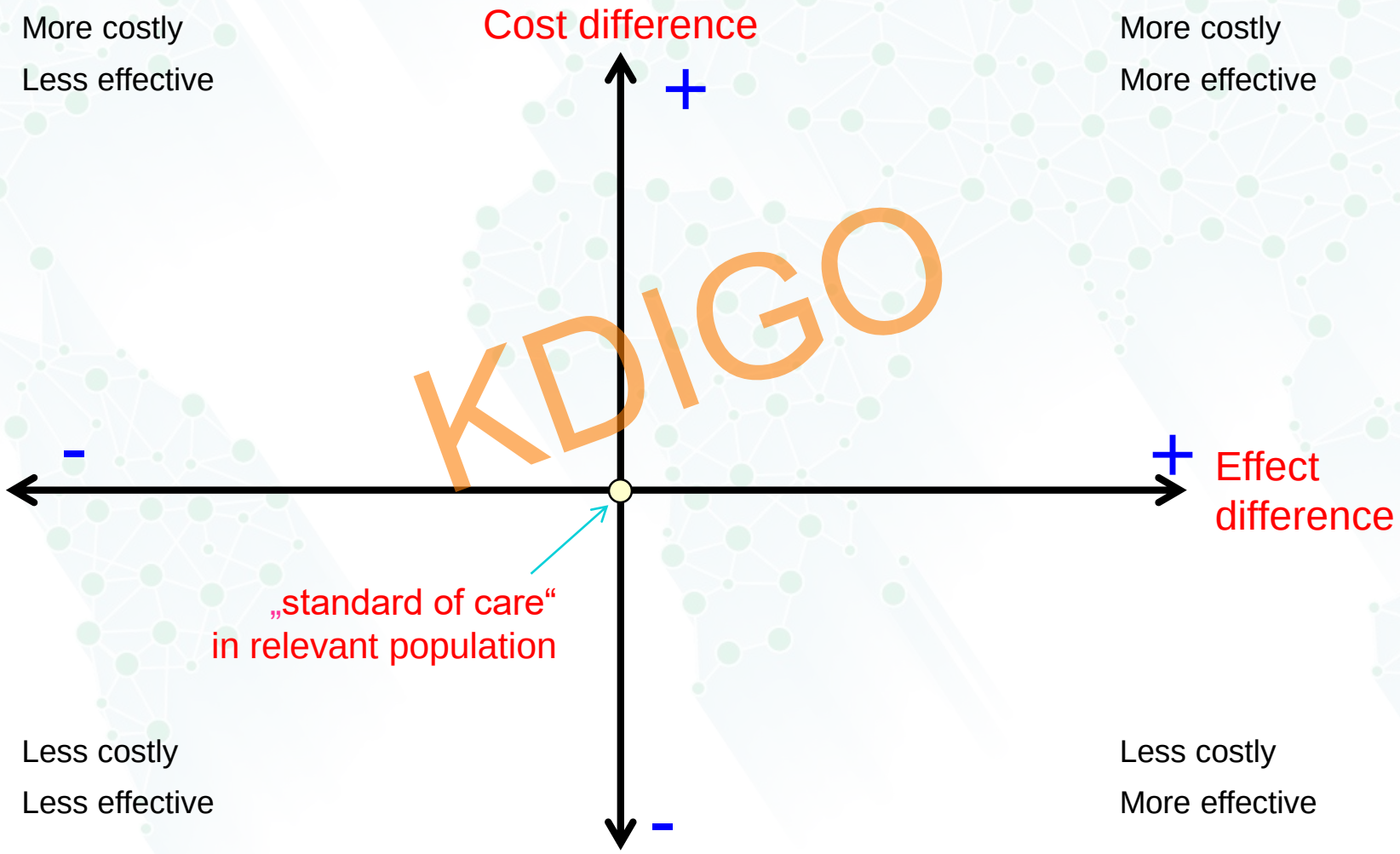
Role of Economic Evaluations

- cost benefit analysis
  - net costs
- cost-effectiveness analysis
  - net costs/ net change in years of life
- cost-utility analysis
  - net costs/ net change in quality adjusted life years (QALYs)

Please be aware

- cost-effective ≠ efficient
- cost-effective ≠ cost-saving
- cost-effective ≠ affordable
- **Cost perspective**
  - single entity (hospital, health insurer)
  - health system (public) – both state and commonwealth
  - societal – includes also patient and indirect costs
  - discounting

Framework of health economic evaluations



Initial elements that we need for CEA

- what is the current standard of care?
- what exactly is the new intervention, organised screening program for CKD?
- which screening modality?
- defined elements of the program?
- age when screened?
- patients with family history, and risk factors
- epidemiology of asymptomatic CKD

Other elements that we need for CEA

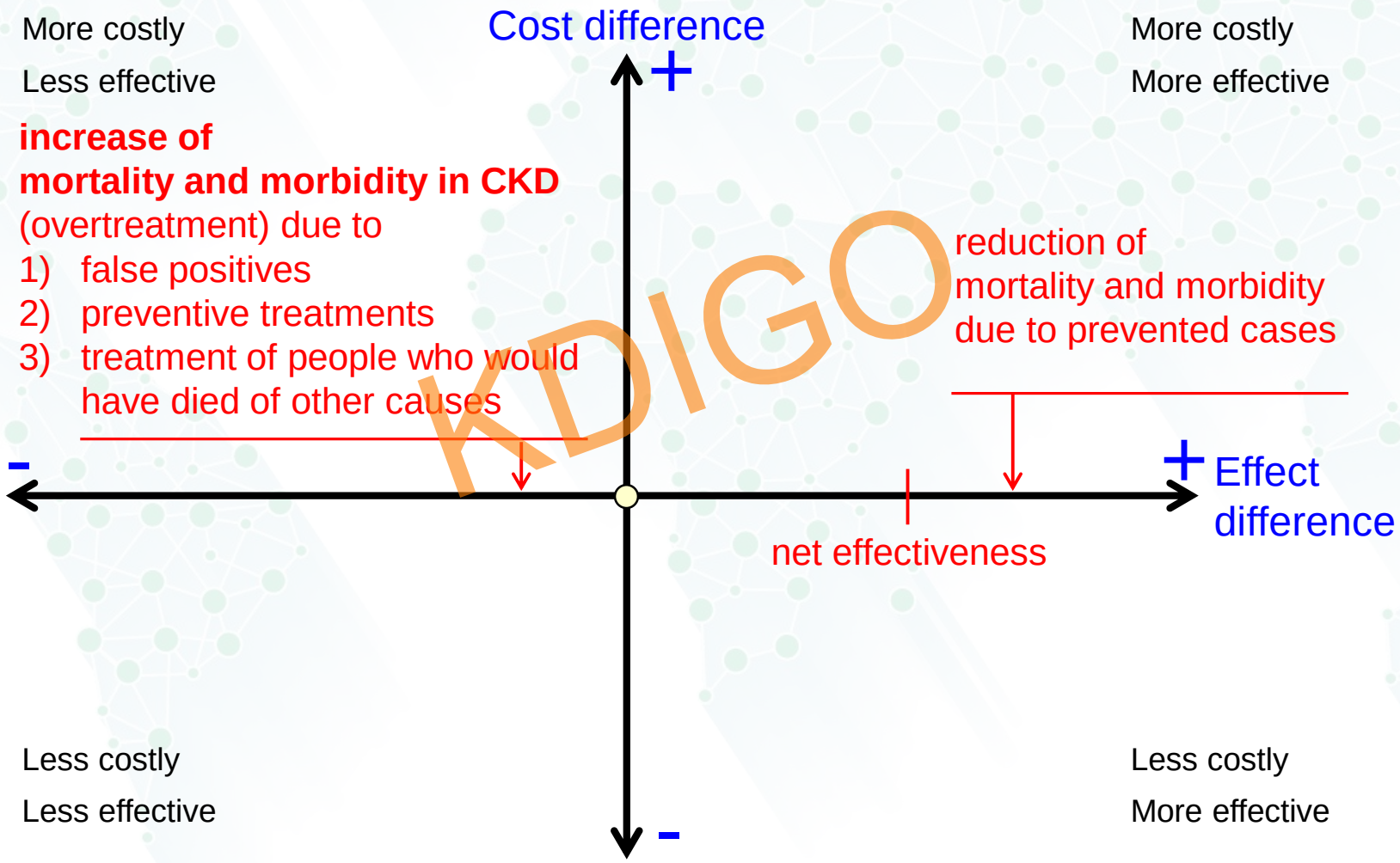
- proportion of people who decide for screening in population
- effectiveness of screening
- analytical validity: accuracy in identification of characteristic

- clinical validity: prediction of clinical outcome
- probability of disease when testing true positive
- what age would the disease appear?

Effectiveness data

- proportion of people who decide for preventive treatments in CKD
- effectiveness of the preventive treatments in CKD
- what exactly are the preventive treatments?
- possible adverse events due to preventive treatments
- emotional and psychological impact treatments
- quality adjusted life years

Effectiveness of screening

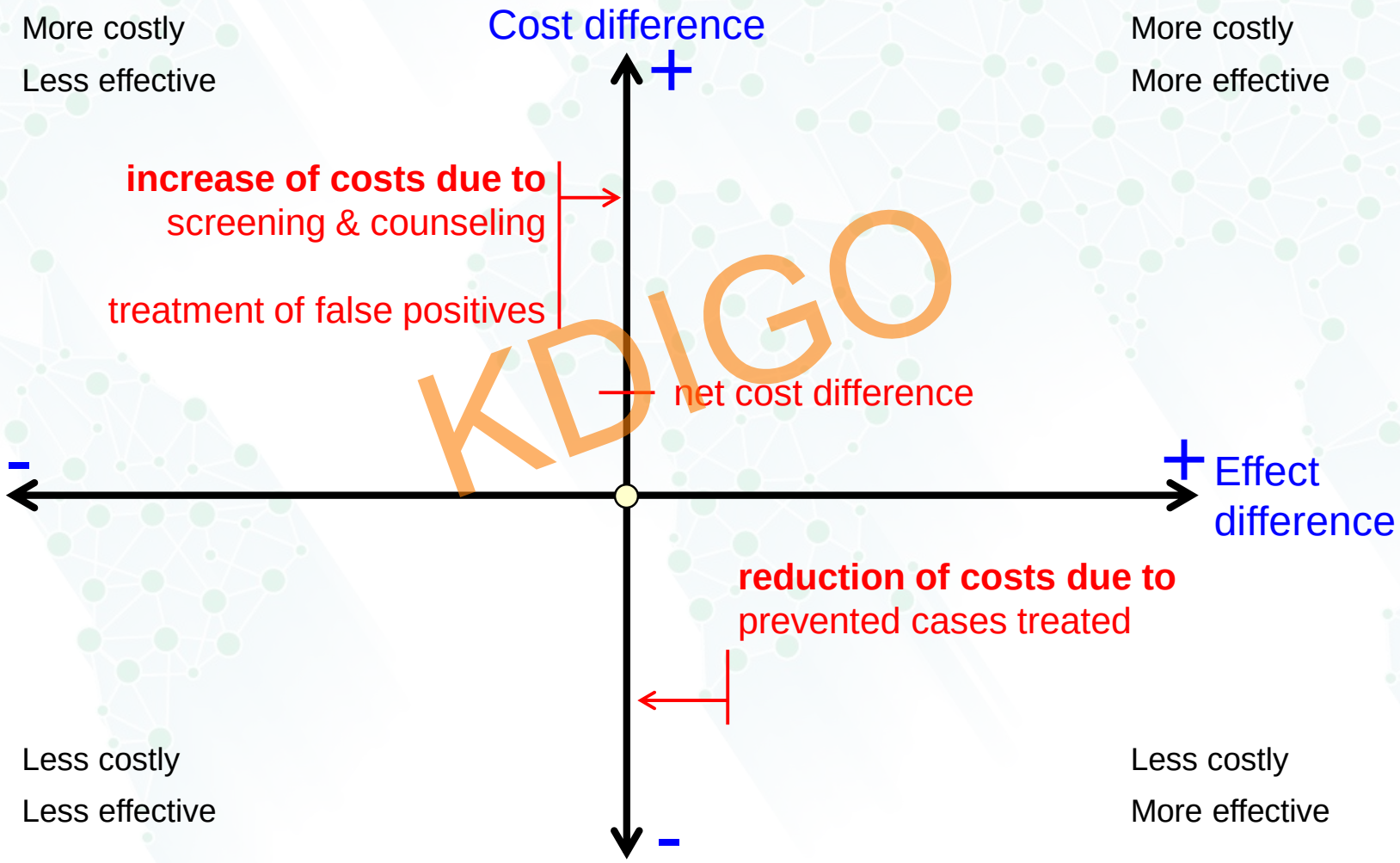


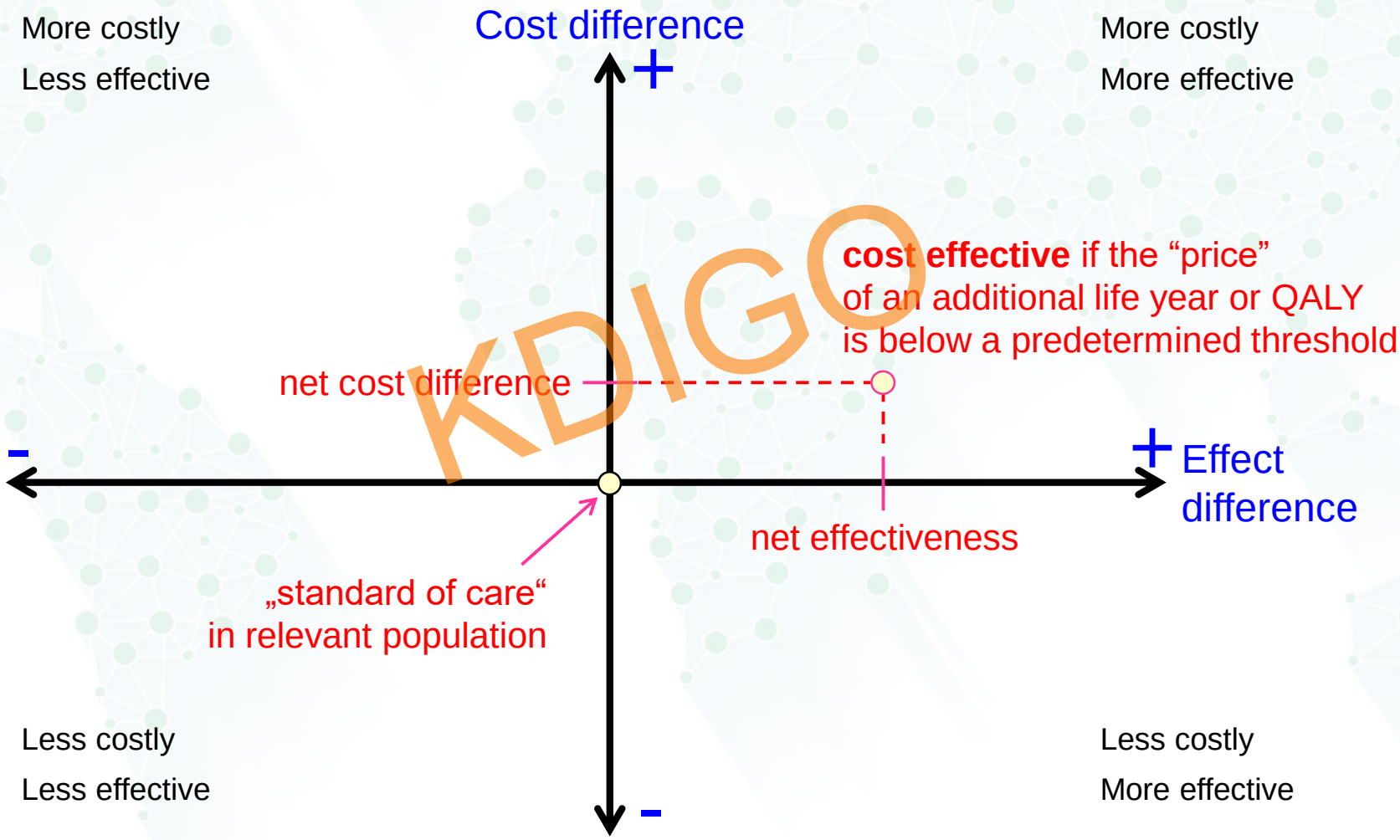
Cost elements, types of costs

- organized screening program
- program administration, tests, counseling
- preventive treatments
- hospitalisation

- who will pay these costs:
  - national health
  - health insurance?
  - out-of-pocket if not covered by health insurance?

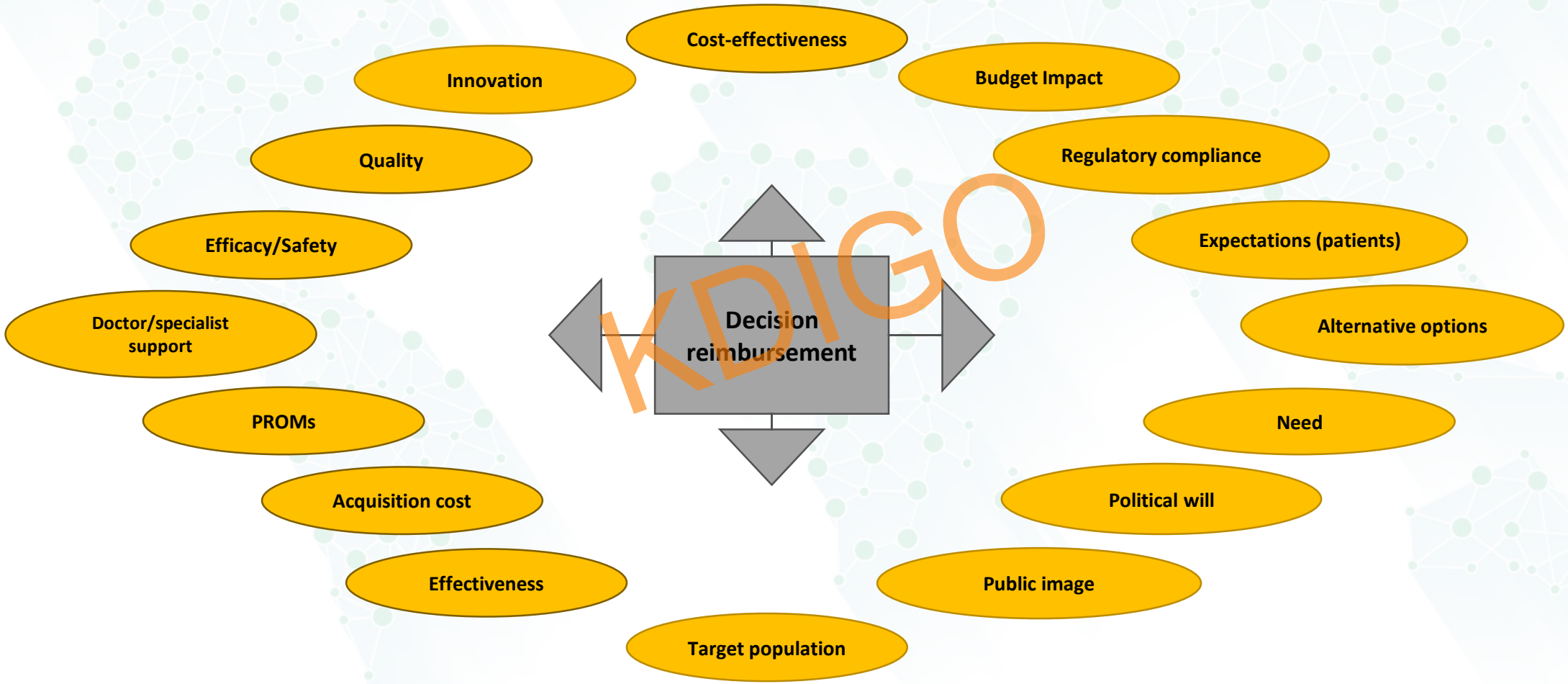
Cost information




More costly
Less effective
Cost difference
+
More costly
More effective
cost effective if the “price”
of an additional life year or QALY
is below a predetermined threshold
net cost difference
-
+
Effect
difference
net effectiveness
„standard of care“
in relevant population
Less costly
Less effective
-
Less costly
More effective

Decision making and the role of economic evaluations in different jurisdictions:

Decision and reimbursement processes



What is covered in guidelines, similarities among jurisdiction/regions

- view point of analysis
- choice of comparator
- importance of good data on clinical effectiveness
- discounting of future costs and benefits
- incremental comparisons
- allowing for uncertainty
- presentation of results

What is the economic value story?

- statistically significant clinical differences are not enough
- are there clinically relevant differences in the occurrence of frequent and costly events?
- what medical resources are saved when your product is used? (add-on or replacement?)
- side-effect profiles?
- strengthen your denominator: quality-of-life

Factors likely to limit generalizability of health economic studies

- demography and epidemiology of disease
- clinical practice patterns
- relative price differences
- incentives to health professionals or institutions
- community valuations of health and healthcare
- different ICER thresholds

Equity concerns and mitigation strategies

Equity considerations

- CEAs concerned with distribution of resources
- CEAs outcomes may violate ethical principles of equity
- equity is important policy objective in almost every healthcare
- equity incorporates the notion of fairness
- equity likely to arise in healthcare:
  - finance and
  - distribution

Equity

- what is actually meant by equity?
- the precise meaning?

WHO	OECD	Commonwealth Fund
Quality: Captured by the average level of health and responsiveness.	**Quality:** Captured by levels of attainment of health outcomes and responsiveness.	**Quality:** Captured by the provision of the right (effective), coordinated, safe, patient-centred and timely care.
Equity: Captured by the distribution of health and responsiveness across the population as well as fairness of financial contributions.	**Equity:** Captured by the distribution of health outcomes, access and financing	**Equity:** Captured by the distribution of health quality, access, and efficiency.
Access: Captured as a determinant of responsiveness.	**Access:** Captured as a component of responsiveness.	**Access:** Captured by the degree of universal participation and affordability of care.

Mitigation concerns within CKD patients

- systematic screening for CKD in at-risk individuals
- identifying non-traditional CKD risk factors
- other non-traditional CKD risk factors:

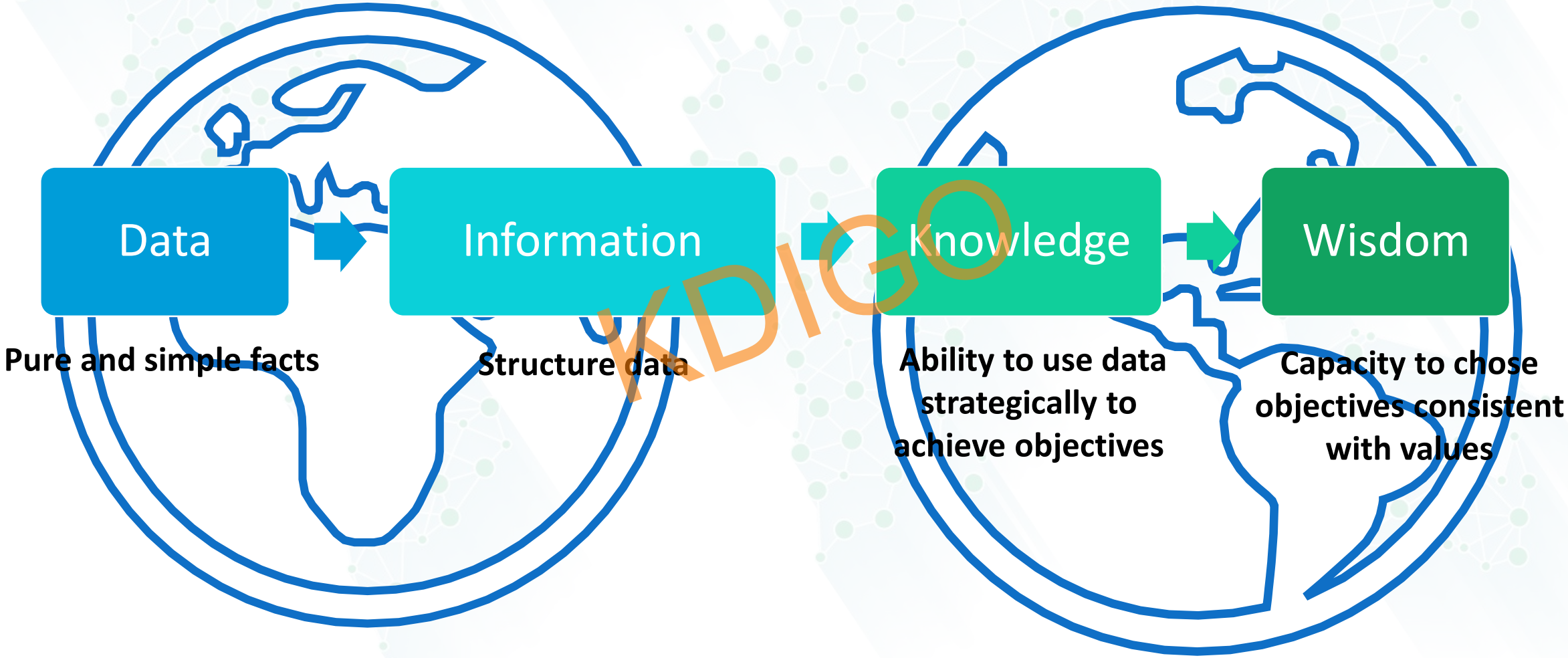
  race-ethnicity, genetics, SES, geography
- high cost of dialysis has created inequitable access, home HD and RRT
- even cost-effective strategies are not distributed equally (NICE)

Barriers
Lack of exposure, visibility, and education regarding home HD
Preconception that home HD is "too difficult and complex"
Lack of patient confidence to perform home HD
Fears of vulnerability and isolation from medical support
Unexpected problems at early stage of home HD
Fear of self-cannulation
Caregiver burden
Increased cost of home HD to patient
Increased travel expenses
Extended training duration
Housing problems (storage and water quality)
Socioeconomic disadvantage

- https://www.nice.org.uk/guidance/ng107/documents/final-scope
- Rachel et al. 2017. ClinicalEconOutRes

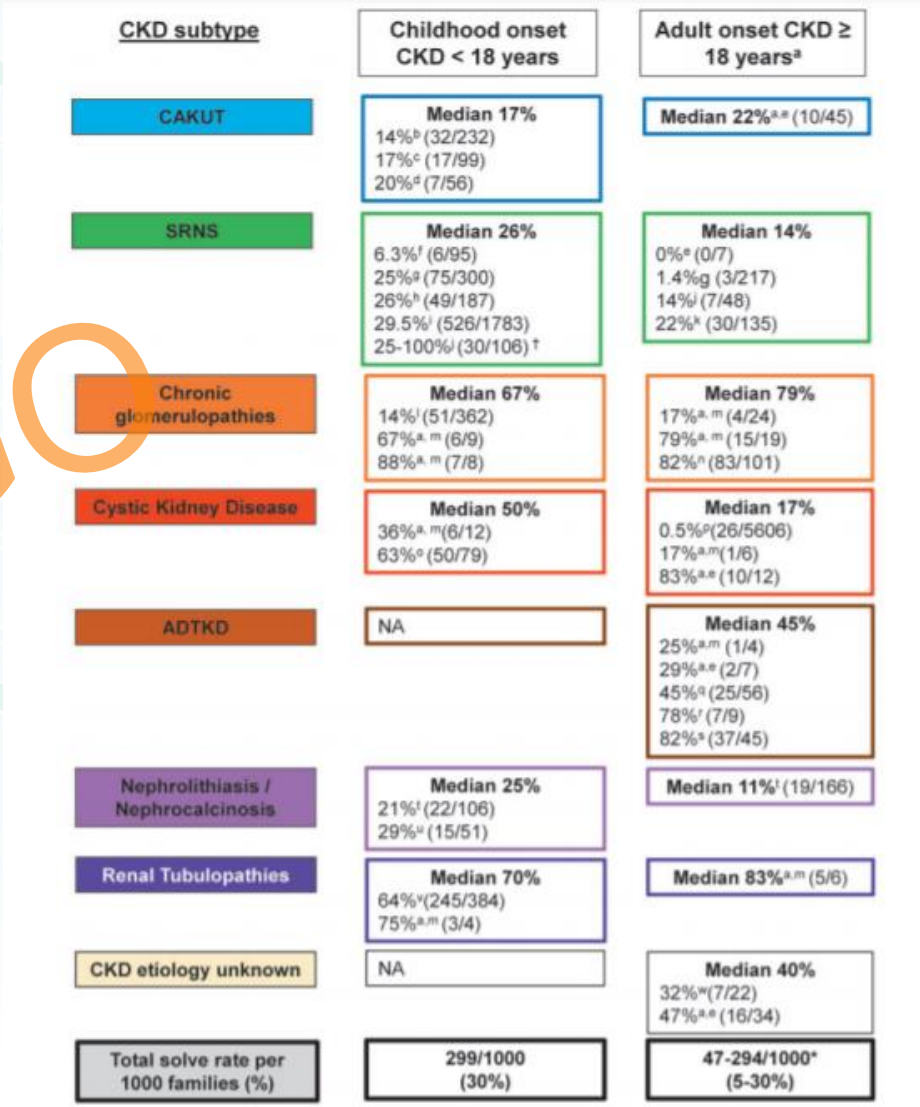
The way forward:

A future toward value-based healthcare



Genetic screening

- genetically inherited CKD is prevalent
- familial nephropathy
- cascade screening of at-risk family members
- Whole exome sequencing provides alternative diagnostic in case of CKDu



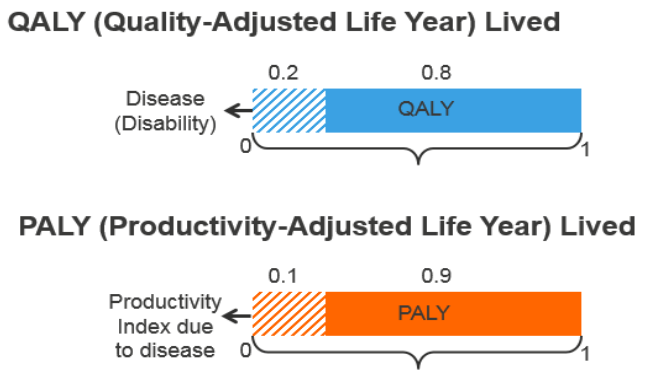
CKD subtype	Childhood onset CKD < 18 years	Adult onset CKD ≥ 18 years[a]
CAKUT	**Median 17%** 14%[b] (32/232) 17%[c] (17/99) 20%[d] (7/56)	**Median 22%**[a,e] (10/45)
SRNS	**Median 26%** 6.3%[f] (6/95) 25%[g] (75/300) 26%[h] (49/187) 29.5%[i] (526/1783) 25-100%[j] (30/106)[†]	**Median 14%** 0%[e] (0/7) 1.4%g (3/217) 14%[j] (7/48) 22%[k] (30/135)
Chronic glomerulopathies	**Median 67%** 14%[l] (51/362) 67%[a,m] (6/9) 88%[a,m] (7/8)	**Median 79%** 17%[a,m] (4/24) 79%[a,m] (15/19) 82%[n] (83/101)
Cystic Kidney Disease	**Median 50%** 36%[a,m] (6/12) 63%[o] (50/79)	**Median 17%** 0.5%[p] (26/5606) 17%[a,m] (1/6) 83%[a,e] (10/12)
ADTKD	NA	**Median 45%** 25%[a,m] (1/4) 29%[a,e] (2/7) 45%[q] (25/56) 78%[r] (7/9) 82%[s] (37/45)
Nephrolithiasis / Nephrocalcinosis	**Median 25%** 21%[t] (22/106) 29%[u] (15/51)	**Median 11%**[t] (19/166)
Renal Tubulopathies	**Median 70%** 64%[v] (245/384) 75%[a,m] (3/4)	**Median 83%**[a,m] (5/6)
CKD etiology unknown	NA	**Median 40%** 32%[w] (7/22) 47%[a,e] (16/34)
Total solve rate per 1000 families (%)	**299/1000 (30%)**	**47-294/1000* (5-30%)**

Connaughton et al 2019

Future of economic evaluations

- "spill over effect" - informal care costs
  - informal care costs traditionally valued using opportunity costs
  - new stated-preference methods

- develop broader outcome measures rather than QALY
  - example of new metric "productivity-adjusted life years (PALY)"
  - measures productivity as an outcome and at a population level



Thank you