Rotterdam, 16.09.2019

Are all QALYs equal?
Past, present and future of equity weighting

Equity considerations in Norway: past, present, future

More specifically:
- The current use of absolute shortfall
- Own research

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A preamble

All QALYs *cannot* be equal…

… because they are measured differently

- Descriptive systems
- Valuation methods
- Statistical modelling
- Whose preferences

But, if all QALYs ***were*** measured identically, should they still be weighted equally?

… independent of

- Differences in personal characteristics of the recipient group?
  - Causes of ill health
  - Consequences of improved health
- Where they happen to be in their life?
  - Young or old?
  - Past and future health

Which other characteristics?

PERGAMON

Social Science & Medicine 57 (2003) 1163–1172

SOCIAL SCIENCE & MEDICINE

www.elsevier.com/locate/socscimed

The moral relevance of personal characteristics in setting health care priorities

Jan Abel Olsen[a,c,*], Jeff Richardson[b], Paul Dolan[c,e], Paul Menzel[d]

- Causes
  - Social deprivation (avoidable)
  - Unhealthy behaviour (responsibility)
- Consequences
  - Others health & wellbeing (dependents)
  - Others wealth (breadwinner, tax-payer)

Which other 'streams of health'?

ELSEVIER

Journal of Health Economics 20 (2001) 823–834

JOURNAL OF HEALTH ECONOMICS

www.elsevier.com/locate/econbase

Equity in health: the importance of different health streams

Paul Dolan[a,c,*], Jan Abel Olsen[b,c]

- Prospective health?
- Prospective health gains?
- Total health?
- Total health gains?

"Equality of what?"

What is the (health) equalisandum?

- Future health
- Future health losses
- Total health
- Total health losses
- Proportion of expected future health lost?

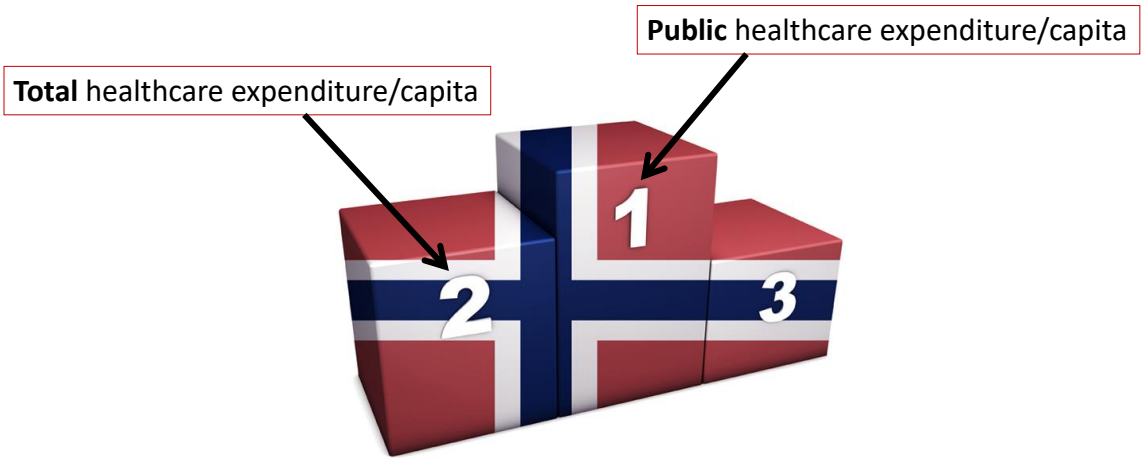
What I'm up to

- Context: Norway and our healthcare system
- The Norwegian priority setting debate
  - The past
  - The present
    - The discourse on *Lifetime* health losses *vs Future* health losses
- Science illustrated
  - A diagrammatic exposition of 5 alternative equity criteria
- The ***un***official Norwegian equity weights
- Conclusion, my views on a better future
  - Focus on measuring what matters, i.e. QALY gains
  - Make equity weights simple and transparent
    - Based on the 'fair innings' principle

A small & rich country

- 5.3 million people, sparsely populated
- Generous welfare state
- Oil fund € 200,000/capita

The world cup in healthcare expenditures

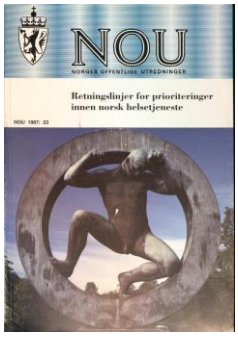


The Norwegian Health Service

- Funding sources
  - 85% tax-based
  - 15% private (patient payments + minor PHI)
- Specialist care
  - National/federal level
  - Mainly public hospitals
- Primary care
  - Municipality level
  - Mainly private independent GPs
- Political challenges
  - Integration between care levels
  - *Priority setting*

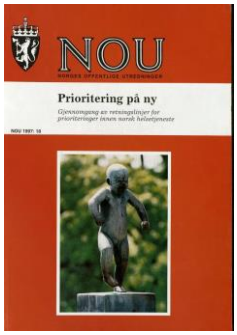
The past
(before 2014)

Government appointed committees Suggested criteria:



1987: Severity

1997: Severity,
effectiveness,
cost-effectiveness



The 1997 criteria

- Severity
  - Vaguely described term including everything
    - Prognosis
    - Burden of disease
- Effectiveness
  - 'Documented effect'
  - Health gains; increased lifetime & improved health state
    - No suggestion as to how it should be measured
- Cost-effectiveness
  - 'Costs should be acceptable in relation to outcome'
    - No mentioning of a C/E threshold

No attempts at equity weighting

The present
(2014 – 2019)

'The Norheim-committee'

7 men + 7 women
7 MDs + 7 non-MDs

OFN	Professor of medical ethics (Chairman)	MD
RF	Professor of medical ethics	MD
AK	Professor of health law	Law
HAM	Professor of health economics	Econ
JAO	Professor of health economics	Econ
TG	Patient organisation representatives (mental health)	Nurse
BA	Patient organisation representatives (diabetes)	Teacher
SK	Hospital CEO/Professor	MD
ØM	Deputy Director, The Norwegian Directorate of Health	MD
AM	Medical specialist (paediatrician)	MD
BA	General practitioner	MD
MK	Immigrant representative	MD
SIS	Previous MP (Conservative party)	Midwife
GKJ	Previous MP (Labour party)	Law

Suggested objective and value basis for the Norwegian health service:

'More healthy life years for all, distributed fairly'

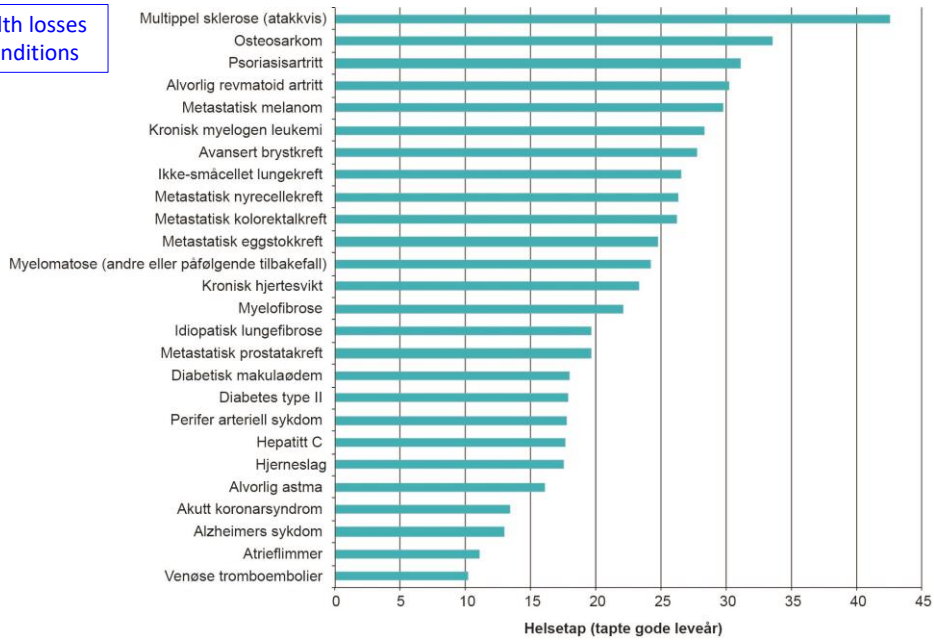
The 3 recommended criteria

1) Health gains
   - The larger the health gains, the higher priority

2) Resources
   - The less resource use, the higher priority

3) Health losses
   - The larger ***lifetime health losses***, the higher priority

Lifetime health losses of various conditions



http://www.nice.org.uk/Media/Default/About/what-we-do/NICE-guidance/NICE-technology-appraisals/Illustrative-TA-list-and-QALY-shortfall.pdf

	GENERAL CONDITION INPUTS		Data from the Technology Appraisal			QALY loss	
NICE technology appraisal	Disease code (ICD)	International classification of diseases (ICD)	Average age	Total QALYs for population not treated with new intervention (undiscounted)	QALYs expected without the disease	Proportional	Absolute
Column A	B	C	E	F	G (=Column E & Expected QALYs worksheet)	H (=Column I / Column G)	I (=Column G - Column F)
Advanced breast cancer (TA 34)	C50	Malignant neoplasm of breast	59	0.57	21.2	97%	21
Metastatic melanoma (TA268)	C43	Malignant melanoma of skin	56	0.90	23.6	96%	23
Non small cell lung cancer (TA 192)	C34	Malignant neoplasm of bronchus and lung	60	1.00	20.5	95%	20
Metastatic renal cell carcinoma (TA 178)	C64	Malignant neoplasm of kidney, except renal pelvis	60	1.24	20.5	94%	19
Metastatic colorectal cancer (TA212)	C18	Malignant neoplasm of colon	60	1.31	20.5	94%	19
Metastatic prostate cancer (TA259)	C61	[prostate cancer]	69	0.89	14.0	94%	13
Myelofibrosis (TA289)	C94	Other leukaemias of specified cell type	65	1.49	16.7	91%	15
Multiple myeloma 2nd subsequent relapse (TA 171)	C90	Multiple myeloma and malignant plasma cell neoplasms	62	1.72	18.9	91%	17
Relapsing remitting multiple sclerosis (TA 254)	G35	Multiple sclerosis	37	3.99	40.7	90%	37
Chronic myeloid leukemia (TA 241)	C92	Myeloid leukaemia	56	2.45	23.6	90%	21
Metastatic ovarian cancer (TA264)	C56	[malignant neoplasm of ovary]	59	3.49	21.2	84%	18
Alzheimer's disease (TA 217)	G30	Alzheimer's disease	77	1.58	8.7	82%	7
Severe rheumatoid arthritis (TA225)	M06	Other rheumatoid arthritis	50	5.36	28.6	81%	23
Idiopathic pulmonary fibrosis (TA282)	J84	Other interstitial pulmonary diseases	66	3.13	16.0	80%	13
Chronic heart failure (TA 267)	I50	Heart failure	60	4.16	20.5	80%	16
Psoriatic arthritis (TA220)	M06	Other rheumatoid arthritis	47	7.01	31.1	77%	24
Stroke (TA 264)	I63	Cerebral infarction	68	3.71	14.6	75%	11
Periferal arterial disease (TA223)	I73	Other peripheral vascular diseases	66	5.09	16.0	68%	11
Diabetic macular oedema (TA301)	H35	Other retinal disorders	63	7.16	18.2	61%	11
Acute coronary syndromes (TA236)	I20	Angina pectoris	70	6.28	13.3	53%	7
Diabetes type II (TA288)	E11	Non-insulin-dependent diabetes mellitus	58	11.28	22.0	49%	11
Osteosarcoma (TA 235)	C40	Malignant neoplasm of bone and articular cartilage of limbs	14	33.11	64.2	48%	31
Atrial fibrillation (TA275)	I48	Atrial fibrillation and flutter	74	5.70	10.6	46%	5
Hepatitis C (TA252)	B17	Other acute viral hepatitis	44	22.92	33.9	32%	11
Severe asthma (TA 278)	J45	Asthma	43	25.31	34.8	27%	10
VTE (treatment / sec prev) (TA261)	I82	Other venous embolism and thrombosis	56	20.56	23.6	13%	3
Average displaced treatment in NHS	*displ*					*9%*	*2.1*

→ Heated debate on the 'ageist' implications

- Health gains
  - The older you are, the lower your potential gain
- Health losses
  - The older you are, the lower your potential loss

New expert group – The *Magnussen*-group

- Mandate
  - Consider alternative measures for 'disease severity'
- Conclusion
  - Absolute shortfall = *future* health loss

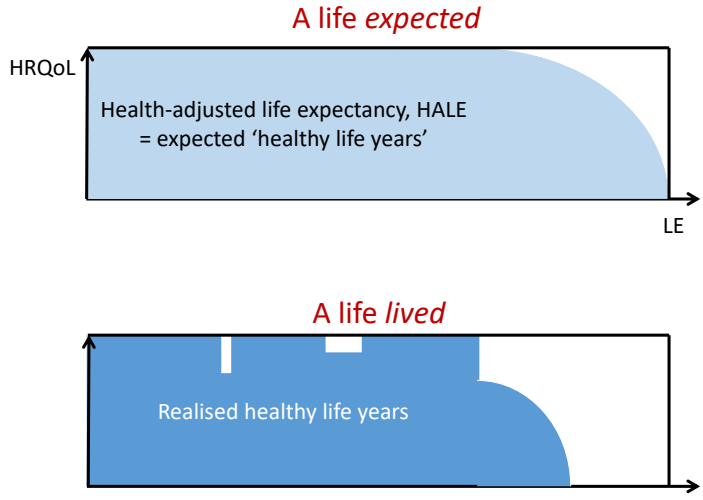
The White Paper

- Health gains
- Resources
- *Future* health loss

Equality of what?
– in health

'Science illustrated'

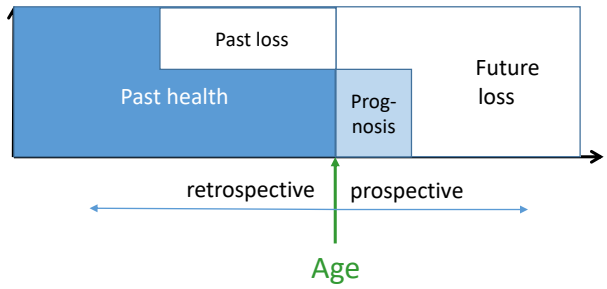
An *expected life* is 'disturbed' by disease events over the course of a *life lived*

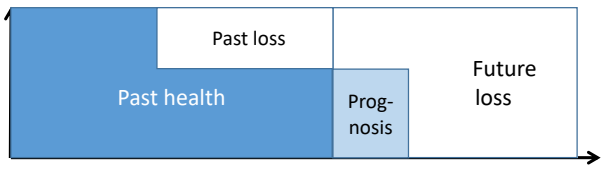


All patients can be described by their unique combination of:

- How many *healthy life years* have they had
- How much *ill health* have they had
- *Prognosis* of their condition
- Expected *future health loss*

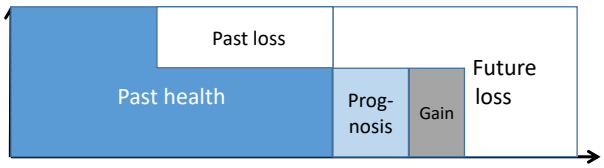
HALE = Past health + Past health loss + Prognosis + Future health loss





Equality of what?

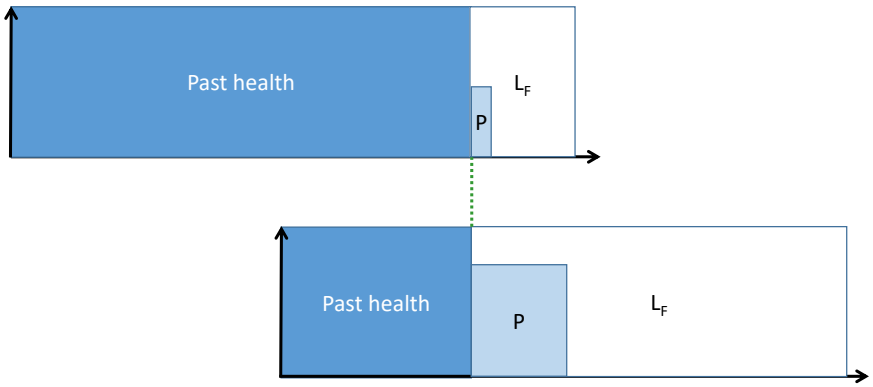
1) Prognosis ('end-of-life' criterion)
2) Future health loss (absolute shortfall)
3) Lifetime health losses (disease burden)
4) Lifetime health ('fair innings')
5) Relative shortfall



Should the value of a given QALY *gain* depend on the size(s) of the other box(es)?

If Yes, which box(es)?

1) Prognosis *vs* 2) Future health loss



VALUE IN HEALTH ▮ (2013) ▮▮▮–▮▮▮

Available online at www.sciencedirect.com

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journal homepage: www.elsevier.com/locate/jval

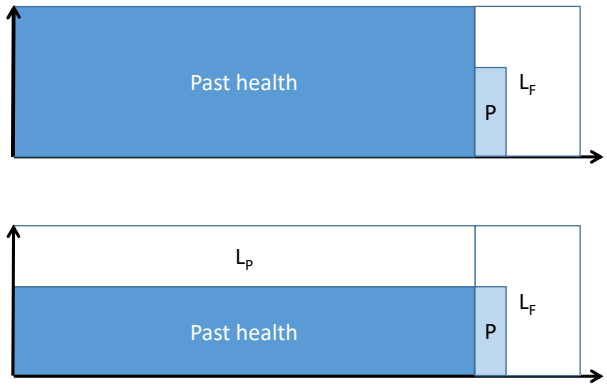
Priority Preferences: "*End of* Life" Does Not Matter, But **Total** Life Does

*Jan Abel Olsen, PhD**

Department of Community Medicine, University of Tromsø, Tromsø, Norway

2) *Future* health loss *vs* 3) *Lifetime* health losses

Are we concerned about any differences in past ill health, $\mathbf{L_P}$?

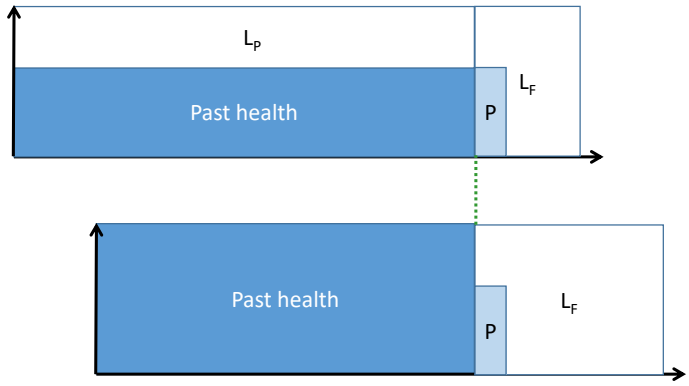


Should past health losses be included?

- Yes
  - 'fair innings': everyone is entitled to some normal span of health (Williams, 1997 in HE)
  - '… it is primarily whole lives, rather than parts of lives, that are of equal worth' (Ottersen, 2013 in JME)
  - Less 'ageism'
- No
  - Programme evaluations are outcome-focused
  - Large individual variations within each patient group
  - 'We cannot change the past'

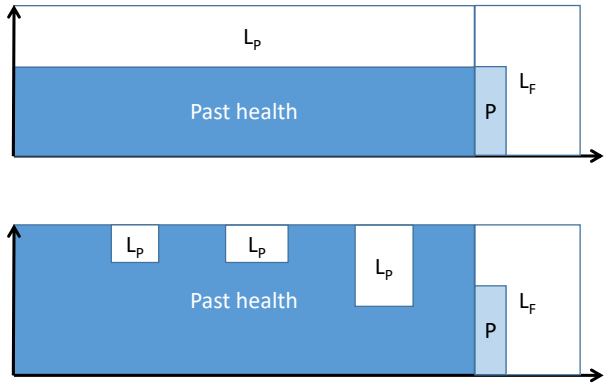
3) Lifetime health losses is *less 'ageist'*

The lifetime health loss for the older person can be higher than for the younger



Past health loss: Does c*ontext* matter?

Adapted to the chronic disease *vs*
several periods of unrelated temporary ill health?



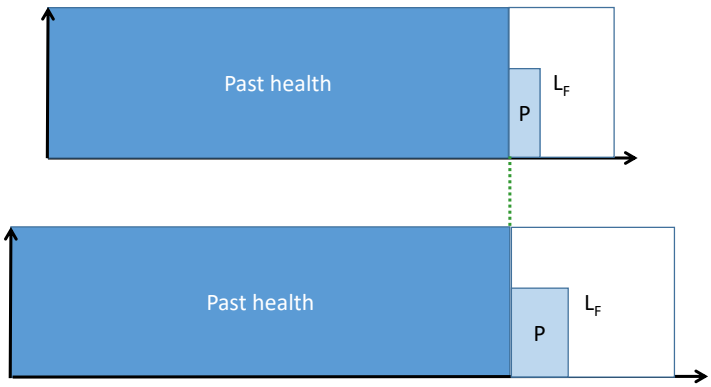
3) Lifetime health *losses* vs 4) Lifetime *health*

- 'Fair innings': Reduce inequalities in lifetime health
- Health losses differ, since life expectancies differ by
  - Gender
  - Social class
  - Actual age
    - Your life expectancy (past life + expected remaining life) increases every day you survive!

  → Reducing inequalities in health losses will favour long-living groups
- Solution in the Norheim-committee
  - Set a *fixed reference level* for a 'normal' health span, against which health losses are compared

3) Lifetime health *losses* *vs* 4) Lifetime *health*

Reducing inequalities in health *losses*, may increase inequalities in *health*



A complicating matter: The *causes* of inequalities in health

- Outside own control
  - Biological lottery
    - Good *vs* bad genes
  - Social lottery
    - The fortunate *vs* the deprived

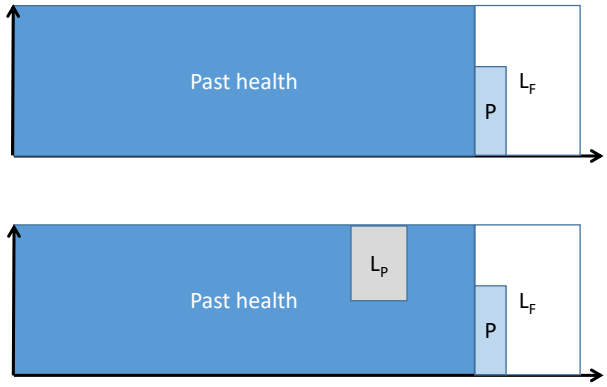
→ Unacceptable inequalities

- Inside own control
  - Equal opportunities, but different health behaviour

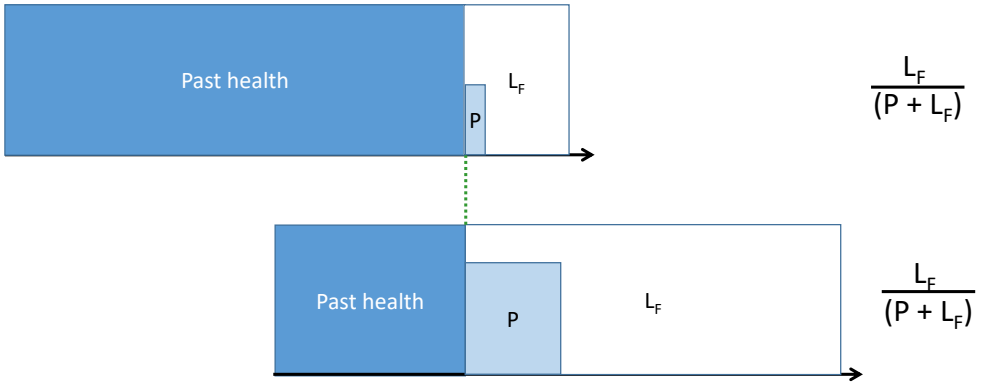
→ Acceptable inequalities

Past health loss: Does its *cause* matter?

Should past ill health caused by risky behaviour give you bonus points?



2) Absolute shortfall *vs* 5) Relative shortfall



From 'Science illustrated' to Norwegian policy

- What is the official 'equalisandum'?
  - Absolute shortfall
- What about its importance in priority setting?
  - No official equity weighting
    - *But some unofficial weights…*

'The Magnussen Stairs'

Group	1	2	3	4	5	6
Absolute shortfall (QALY losses)	< 4	4-7.9	8-11.9	12-15.9	16-19.9	20 +
Equity weights	1	1.4	1.8	2.2	2.6	3
WTP-threshold (NOK 1,000) per QALY	275	385	495	605	715	825

The future (2020 →?)

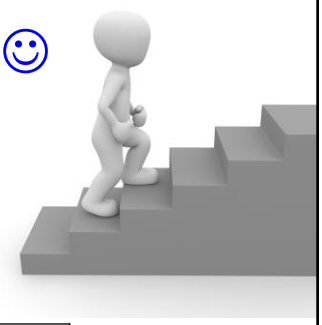
Conclusion (my own position)

1) Concentrate on what matters
   - Measure QALY gains in the best possible ways

2) Lifetime health should be the equalisandum ('fair innings'), but
   - Measuring absolute shortfall is a sensible shortcut

3) The unofficial equity weights make sense, but
   - Make them simpler
   - Reduce the incentive to 'blow up' the absolute shortfall

'The Olsen Stairs' – for a better future☺



Group	1	2	3	4	5
Absolute shortfall (QALY losses)	< 10	10-15	15-20	20-25	25+
Equity weights	1	1.5	2	2.5	3
WTP-threshold (NOK 1,000) per QALY	275	412	550	687	825

Thank you