More than Health: the Role and Value of Meta-Health Effects in Health Care Decisions

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Certification of Original Authorship

I certify that the work in this thesis has not been submitted previously for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signed: _____

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Abstract

One of the most visible functions of government is to make decisions about funding health care treatments. This thesis investigates the role and value of meta-health effects in such decisions. Meta-health effects are effects other than health that result from the consumption of health care, and have value in their own right regardless of health status.

The research in this thesis is facilitated via four inter-related case studies. The first examines the available information on decisions made by the Pharmaceutical Benefits Advisory Committee (PBAC) in Australia for evidence of the use of meta-health effects in drug reimbursement decisions. This is supplemented in that same case study by a systematic review of the methods used to value meta-health effects for use in economic evaluations.

Three empirical case studies are subsequently presented which focus on the role of meta-health effects in individuals' decisions regarding health care as a means of informing what might be considered in public decision making. All three case studies use survey-based methods: a general community survey on experiences and attitudes on general practitioner use, and two discrete choice experiment (DCE) surveys (one on ongoing therapy for rheumatoid arthritis, the other for the management of breast cancer recurrence risk). Together these three case studies explore how differences in the decision-making context, and methods of elicitation (such as attitudes or preferences) influence the role and value of meta-health effects. Within the DCEs those values are explored using willingness to pay, investigating how they are affected by framing.

The results show that meta-health effects do influence choice. The review of PBAC decisions and the systematic review show that gains in convenience (e.g. gains in mode of administration) are investigated most often, but that differences in study methods

influence the values derived. An important finding of the results of the empirical case studies is that meta-health effects do influence individual choices and the extent of that influence declines the greater the health implications of that decision. Similarly, they find that the amount and type of information presented influences the values derived in studies eliciting values for meta-health effects. This is not only a contribution to the literature, but highlights the importance to government decision makers of understanding how values for meta-health effects have been derived; careful attention needs to be paid to the manner in which such values have been derived lest they misrepresent the resulting value to society.

Abbreviations List

Abbreviation	Description
ABCR	Intramuscular interferon beta-1a, subcutaneous interferon beta-1a, interferon beta-1b and glatiramer acetate
ADHD	Attention deficit hyperactivity disorder
AE	Adverse event
AIC	Akaike information criterion
AIDS	Acquired immune deficiency syndrome
AIHW	Australian Institute of Health and Welfare
AMD	Age related macular degeneration
ART	Assisted reproductive technology
ASC	Alternative specific constant
ATSI	Aboriginal & Torres Strait Islander
AUD	Australian dollar
BC	Breast cancer
BCNA	Breast Cancer Network Australia
BD	Twice daily
bDMARD	Biological disease modifying anti-rheumatic drug
BIC	Bayesian information criterion
BRCA	Breast cancer
BSA	Body surface area
BSC	Best supportive care
BWS	Best-worst scaling
CA	Conjoint analysis
CBA	Cost-benefit analysis
CBC	Contra-lateral breast cancer
CEA	Cost-effectiveness analysis
CF	Cystic fibrosis
CHERE	Centre for Health Economics Research and Evaluation
CI	Confidence interval
CKD	Chronic kidney disease
CMV	Cytomegalovirus
COPD	Chronic obstructive pulmonary disease
CPM	Contralateral prophylactic mastectomy
CRC	Colorectal cancer
CUA	Cost-utility analysis
CV	Contingent valuation
CVD	Cardio-vascular disease
DCE	Discrete choice experiment
d.f.	Degrees of freedom
EDSS	Expanded disability status scale
EGFR	Epidermal growth factor receptor
EQ-5D	European Quality of Life (EUROQoL) 5 Dimensions
5-FU	5-fluorouracil
FDC	Fixed dose combination
FF	Fluticasone

Abbreviation	Description
FRF	French francs
FS	Fibroscan
Ft	Fortnightly
GBP	Great Britain pounds
GCSF	Growth colony stimulating factor
GMNL	Generalised multinomial logit regression
Govt	Government
GP	General practitioner
HAART	Highly active antiretroviral therapy
HbA1C	Glycosylated haemaglobin
HCV	Hepatitis C virus
HITAP	Health Intervention and Technology Assessment Program
HIV	Human immunodeficiency virus
HPV	Human papillomavirus
HREC	Human Research Ethics Committee
ICER	Incremental cost-effectiveness ratio
ICS	Inhaled cortico-steroid
ICU	Intensive care unit
IIA	Independence of irrelevant alternatives
iid	Independent and identically distributed
Inc	Income
IUD	Intra-uterine device
IV	Intravenous
IVF	In-vitro fertilisation
Kras	Kirsten rat sarcoma
LABA	Long-acting beta agonist
LB	Liver biopsy
LLH	Log-likelihood
LR	Likelihood ratio
MAUI	Multi-attribute utility instrument
MBS	Medicare Benefits Schedule
MDS	Myelodysplastic syndrome
MESH	Medical subject headings
MHE	Meta-health effects
MM	Multiple myeloma
MNL	Multinomial logit
MNP	Multinomial probit
MOGA	Medical Oncology Group of Australia
MRI	Magnetic resonance imaging
MRS	Marginal rate of substitution
MS	Multiple sclerosis
mth	Month(ly)
mWTP	Marginal willingness to pay
n.a.	Not applicable
NHMRC	National Health & Medical Research Council
NPR	Nepalese rupees
NSCLC	Non-small cell lung cancer

Abbreviation	Description
OLS	Ordinary least squares
OMEP	Orthogonal main effects plan
ONJ	Osteonecrosis of the jaw
OOP	Out-of-pocket
PA	Pseudomonas aeruginosa
PBAC	Pharmaceutical Benefits Advisory Committee
PBS	Pharmaceutical Benefits Scheme
PC	Primary care
PhD	Doctor of Philosophy
PSA	Prostate specific antigen
PSD	Public summary document
QALY	Quality adjusted life year
QoL	Quality of life
RA	Rheumatoid arthritis
rnk	Rank
SAL	Salbuterol
s.d.	Standard deviation
s.e.	Standard error
SF-36	Short Form 36
SF-6D	Short Form 6 Dimensions
SG	Standard gamble
SRE	Skeletal related event
t.i.d	Three times daily
T2DM	Type 2 diabetes mellitus
TM	Therapeutic mastectomy
TTO	Time-trade-off
UK	United Kingdom
Unk	Unknown
USA	United States of America
USD	United States dollar
VAS	Visual analogue scale
VI	Vilanterol
VIF	Variance inflation factor
Wgt	Weight
Wk	Week(ly)
WTP	Willingness to pay
Yrs	Years