Evidence on cost-effectiveness of the SCU-B vs usual care

Consensus Conference of RECAGE Project (GA No: 779237)
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Disclosure

- Grants:
  - Public: H2020 (EU), ZonMw (NL), Alzheimer Nederland (NL)
  - Public/private collaboration: IMI2 (EU)
- Consulting fees: Lilly, institute for Medical Technology Assessment (Erasmus), Biogen, Eisai
- Leadership: IPECAD (open-source model), ISPOR SIG OSM

Contributors

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RECAGE consortium

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Overview

- Introduction to health-economics

- Statements

- Methods

- Discussion

Choose 2 balls of ice

Worry make wrong decision
Miss out more tasty flavor
Loose opportunity to fund more effective alterantive

Statements

- **4.1.** The cost-effectiveness conclusions for SCU-B reported by four studies are mainly limited due to a relatively short time horizon, a non-randomized design and/or a likely interference with COVID-19, leading to contradicting results.

- **4.2.** The uncertainty around the long-term SCU-B cost-effectiveness evidence argues for future research allowing (quasi) randomization or stepped wedge designs without being judged unethical for withholding a solidly proven long-term cost-effective intervention.

- **4.3.** Due to the uncertainty around the long-term SCU-B cost-effectiveness evidence, any widespread reimbursed implementation is recommended to be of stepwise nature and preferably in combination with a concomitant evaluation using routine or real-world data (also known as coverage with evidence development).

- **4.4.** Due to the confirmation of short-term cost-effectiveness by the reviewed studies, existing reimbursement of already implemented SCU-B is recommended to maintain.

Methods

- Research question: What is the cost-effectiveness of SCU-B for persons with dementia and BPSD?

- 2 sources:
  - Systematic review
  - RECAGE health-economic evaluation

- Items reviewed: 3 publications

- Quality assessed using CHEC criteria

Results

	Anderson 2014	Tanajewski 2015	Tay 2018
Introduction	• Australia 1980's: CADE unit for BPSD. • Over time "CADE • units lost direction, mostly providing long-term care for people who were easy to manage." • Convert CADE to T-BASIS (i.e., successful BPSD services). • Evaluate clinical and cost-effectiveness	• Low quality care for persons with cognitive impairment. • In UK Elderly Acute care Medical and mental health unit (MMHU) costs and cost-effectiveness.	• Care for Acute Mentally Infirm Elders (CAMIE) with patient-centered approach in Singapore • cost-effectiveness of CAMIE compared with conventional geriatric care as control
Method	Compare (re-)admissions between 5 T-BASES centers (n=~15 each) and other mental health beds within the same health catchment area. Costs of T-BASIS	Patients for hospital medical admissions were randomized for MMHU or usual care. 600 participants 3 month follow-up, measure costs and QALY. MI missing data.	170 CAMIE. 60 Control (patients satisfied CAMIE admission criteria but denied because lack of bed availability)

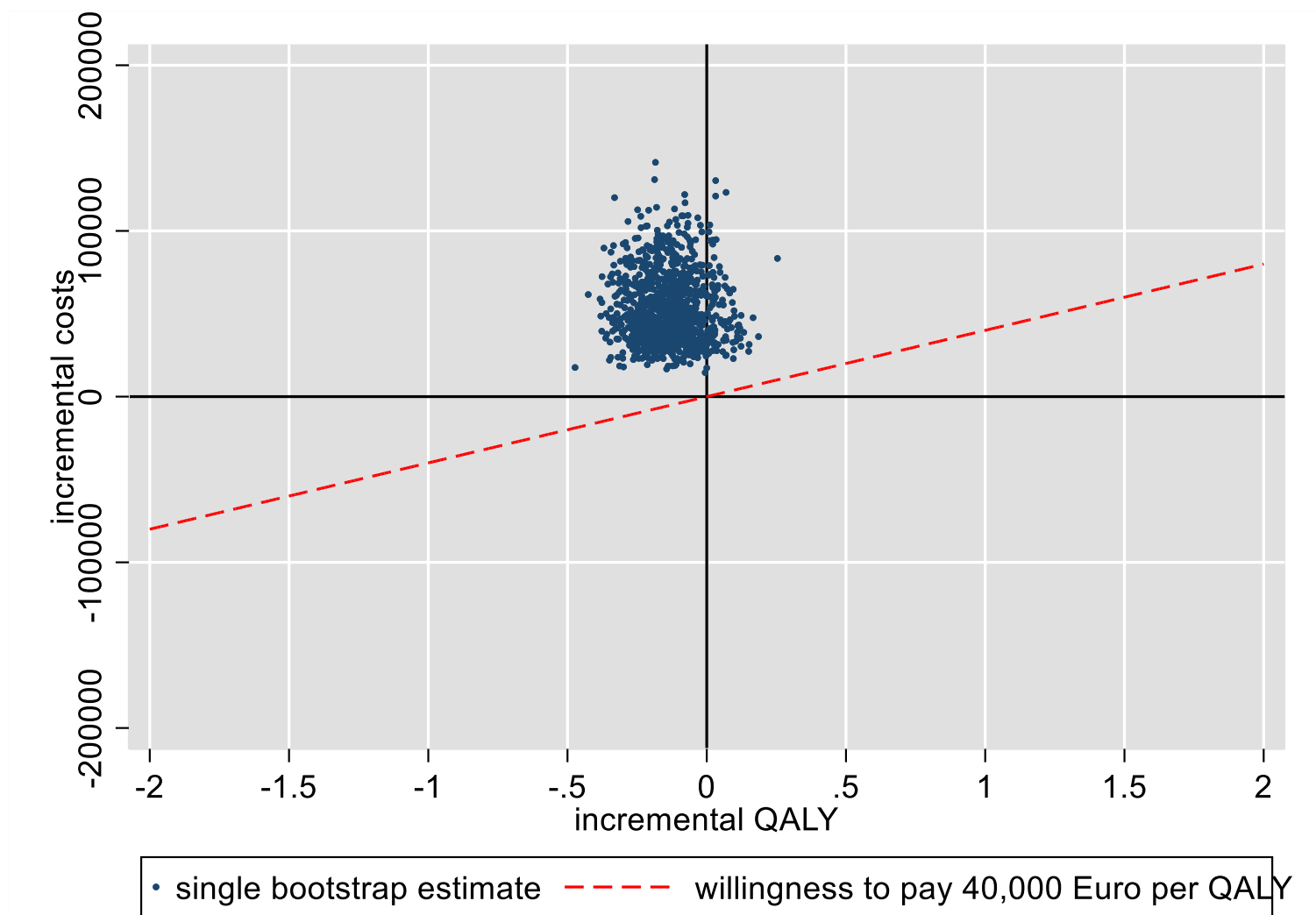|	Anderson 2014	Tanajewski 2015	Tay 2018
Result	1-year difference in mean cost per person between 5 intervention centres and their matched control centres varied from AU $63,173 lower to AU $-39,567 higher and indicated an overall saving of AU$2,526,880 as compared to the control centres.	probability of 94% of being cost-effective from a 3-month combined health and social care perspective, resulting in a dominant incremental cost-effectiveness ratio (ICER).	higher quality of life of 0.18 according to the EQ-5D-3L index of patients of the intervention group compared to usual care, and was assumed to hold for 3 months leading to 0.045 QALYs gained. With total additional costs for the intervention of US$ 10.40, the ICER was US$ 23,111 per QALY gained.
Limitations	This study was mainly limited in terms of not being randomized, having a relatively short time horizon (1 year), only reflecting admission costs and not reflecting patients' quality of life. Overall, only a few items of the quality checklist were adhered to, implying low confidence in the estimates of this study as a cost-effectiveness analysis.	relatively short time horizon (3 months) and not including informal care. Overall, most items of the quality checklist were adhered to, implying high confidence in the estimates of this study as a cost-effectiveness analysis. Limited generalizability as target population broader than BPSD in dementia.	not being randomized (but controlled for using bed availability), having a relatively short time horizon (3 months), only include intervention costs and no healthcare costs, and uncertainty limitedly addressed. Overall, a moderate number of items of the quality checklist were adhered to (11 out of 19 items with 3 unreported items), implying moderate confidence in the estimates of this study as a cost-effectiveness analysis.

Quality

Checklist item	Anderson 2014	Tanajewski 2015	Tay 2018
1. Is the study population clearly described?	Yes	Yes	Yes
2. Are competing alternatives clearly described?	Yes	Yes	Yes
3. Is a well-defined research question posed in answerable form?	Yes	Yes	Yes
4. Is the economic study design appropriate to the stated objective?	Yes	Yes	Yes
5. Is the chosen time horizon appropriate to include relevant costs and consequences?	No	No	No
6. Is the actual perspective chosen appropriate?	No	No	No
7. Are all important and relevant costs for each alternative identified?	No	Yes	No
8. Are all costs measured appropriately in physical units?	Yes	Yes	No
9. Are costs valued appropriately?	Yes	Yes	Not reported
10. Are all important and relevant outcomes for each alternative identified?	No	Yes	Yes
11. Are all outcomes measured appropriately?	No	Yes	Yes
12. Are outcomes valued appropriately?	No	Yes	Yes
13. Is an incremental analysis of costs and outcomes of alternatives performed?	No	Yes	Yes
14. Are all future costs and outcomes discounted appropriately?	Not reported	Not reported	Not reported
15. Are all important variables, whose values are uncertain, appropriately subjected to sensitivity analysis?	No	Yes	No
16. Do the conclusions follow from the data reported?	Yes	Yes	Yes
17. Does the study discuss the generalizability of the results to other settings and patient/client groups?	Not reported	Yes	Not reported
18. Does the article indicate that there is no potential conflict of interest of study researcher(s) and funder(s)?	Not reported	Yes	Yes
19. Are ethical and distributional issues discussed appropriately?	Yes	Yes	Yes

RECAGE study

- 508 persons (not randomized) with dementia followed over 3 years:
  - 5 centers SCU-B (Italy, Norway, Switzerland and Germany)
  - 6 centers without a SCU-B (Italy, Germany, France and Greece)
- Measurements: EQ5D, ICECAP-O, RUD (proxy-rated)
- Results:
  - SCU-B use intervention=15.6%, control=1.6%
  - COVID-19 death intervention=5.3%, control=0.5%
  - Loss to follow-up:
    - 15%=nursing home
    - 25%=died
    - 15%=loss to follow-up

Result

incremental costs (y-axis): 200000, 100000, 0, -100000, -200000

incremental QALY (x-axis): -2, -1.5, -1, -.5, 0, .5, 1, 1.5, 2

• single bootstrap estimate   – – – willingness to pay 40,000 Euro per QALY

Scenario	ΔQALY	2.5th pct	97.5th pct	Δcost	2.5th pct	97.5th pct
Base case (EQ5D5L based patient QALYs country-specific value set, societal perspective, average unit prices).	-0.13	-0.24	-0.03	25,517	15,621	35,023
1. Valuing health:						
a. ICECAP-O based QALYs	0.01	-0.08	0.12	25,210	15,621	35,035
b. Add informal caregiver QALYs to patient QALYs	-0.21	-0.35	-0.09	21,825	12,147	31,635
c. Single EQ5D value set	-0.12	-0.23	-0.02	24,896	15,508	34,696
2. Perspective:						
a. Payer perspective	-0.13	-0.23	-0.02	21,825	12,147	31,635
3. Unit prices						
a. Country-specific unit prices	-0.14	-0.25	-0.04	54,632	35,613	74,090
4. Mixed model bootstrap:						
a. Mixed model bootstrap including adjustment for age, sex, living situation (alone versus not alone) and education	-0.11	-0.23	-0.01	25,834	16,500	35,995
b. Mixed model bootstrap including random intercept for cluster representing country	-0.13			25,359		
c. Mixed model bootstrap no adjustment for baseline costs	-0.13	-0.23	-0.02	26,390	17,767	36,130
5. COVID19 & randomization:						
a. Exclude participants with COVID19 related death (n=14 in intervention arm and n=1 in control arm)	-0.11	-0.23	0.00	28,006	17,546	36,617
b. Sub-selection of countries participating both in control and in intervention arm	0.02	-0.12	0.14	21,662	9,796	33,069
c. Short-term 12-month cost-effectiveness	0.00	-0.04	0.03	10,006	4,505	15,687

Interpretation

- ITT shows SCU-B RECAGE not cost-effective.
- SCU-B sensitive to:
  - Outcome used (ICECAP)
  - Country differences (randomization and unit costs)
  - COVID19 (short-term outcome less negative)
- Low use of SCU-B due to COVID19?
  - COVID19 might have made SCU-B less effective or left persons unable to provide proper care, which could have negatively affected people's symptoms and quality of life. The SCU-B during COVID19 pandemic is likely not fully representative of the period in the absence of a pandemic.
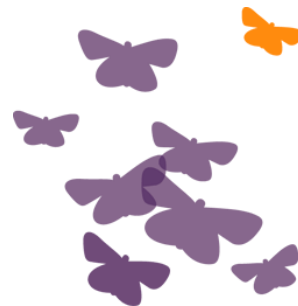
Discussion on statements

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Thank you

- Trial participants

- External advisors (DSMB, ethical advisory, symposium conference experts)

- Patient organization

- Partners in data recruitment

- Researchers and organizers involved

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