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Identifying potentially cost-effective chronic care management programs

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Chronic care programs (CCPs)

- CCPs aim to improve processes and outcomes of care whilst making a more efficient use of scarce healthcare resources.
- Transforming care for patients with chronic illness from acute and reactionary to proactive, planned, and population-based
 - more effective team care and planned interactions;
 - intensified self-management support;
 - integrated decision support; and
 - wider plus better use of patient registries and other supportive information communication technology.
- Plethora of CCPs implemented worldwide
 - including Chronic Care Model, disease management programs, etc...
 - important conceptual differences; messy nomenclature.

Evaluations of C/E of CCPs so far

- “to date support for population-based disease management is more an **article of faith** than a reasoned conclusion grounded on well-reasoned facts”. Mattke et al. Am J Manag Care 2007.
- “published literature does **not provide clear evidence** that mechanisms to improve care for patients with complex conditions have **a favourable business case**”. Luck et al. J Gen Intern Med 2007.
- “no impact on hospitalization in 13 of 15 care coordination programs; **no program generated cost-savings**”. Peikes et al. JAMA 2009.
- “limited success in achieving Medicare cost savings or reducing acute care utilization; MHSOs substantially **overestimate the success of their intervention in reducing hospitalizations**”. Cromwell et al. Health Care Financ Rev 2009.
- “**multiple CCM elements** associated with better quality of care”. Coleman et al. Health Affairs 2009.

Systematic review - search

- systematic search of Medline and Cochrane databases
- multi-component CCPs for adults with heart failure, diabetes or chronic obstructive pulmonary disease (COPD)
- systematic reviews, RCTs, CCTs, CBAs and ITTs, evaluating process, intermediate a/o endresults of care
 - Specific attention to program components, (sub)populations included, care setting and economic outcomes
- 132 original articles and 35 reviews included
 - Heart failure: 14 reviews & 51 original papers
 - Diabetes: 14 reviews & 62 original papers
 - COPD: 7 reviews & 19 original papers
- $\approx 90\%$ of reviews descriptive; $\approx 60\%$ of original studies RCTs

Preliminary findings - 1

Steuten, Lemmens, Vrijhoef et al. Papers in progress

- The majority of programs include the components self-management and delivery system redesign.
- Circa 40% additionally encompass decision support
- Circa 25% also include clinical information systems

Preliminary findings - 2

<i>Overview of results</i>	Process	Intermediate	End results (health / costs)
Heart failure	+	+	= / =
Diabetes	+	+	= / =
COPD	=	=	= / =

- Process:**
- no. of scheduled outpatient and home visits (+ HF, DM; = COPD)
 - prescription patterns i.e. % on target medication (+ HF, DM; = COPD)
 - amount of patient self-management education provided (+)

- Intermediate:**
- disease – specific knowledge (+)
 - medication compliance (+ HF, DM; = COPD)
 - self-management behavior / technical skills (+ HF, DM; = COPD)

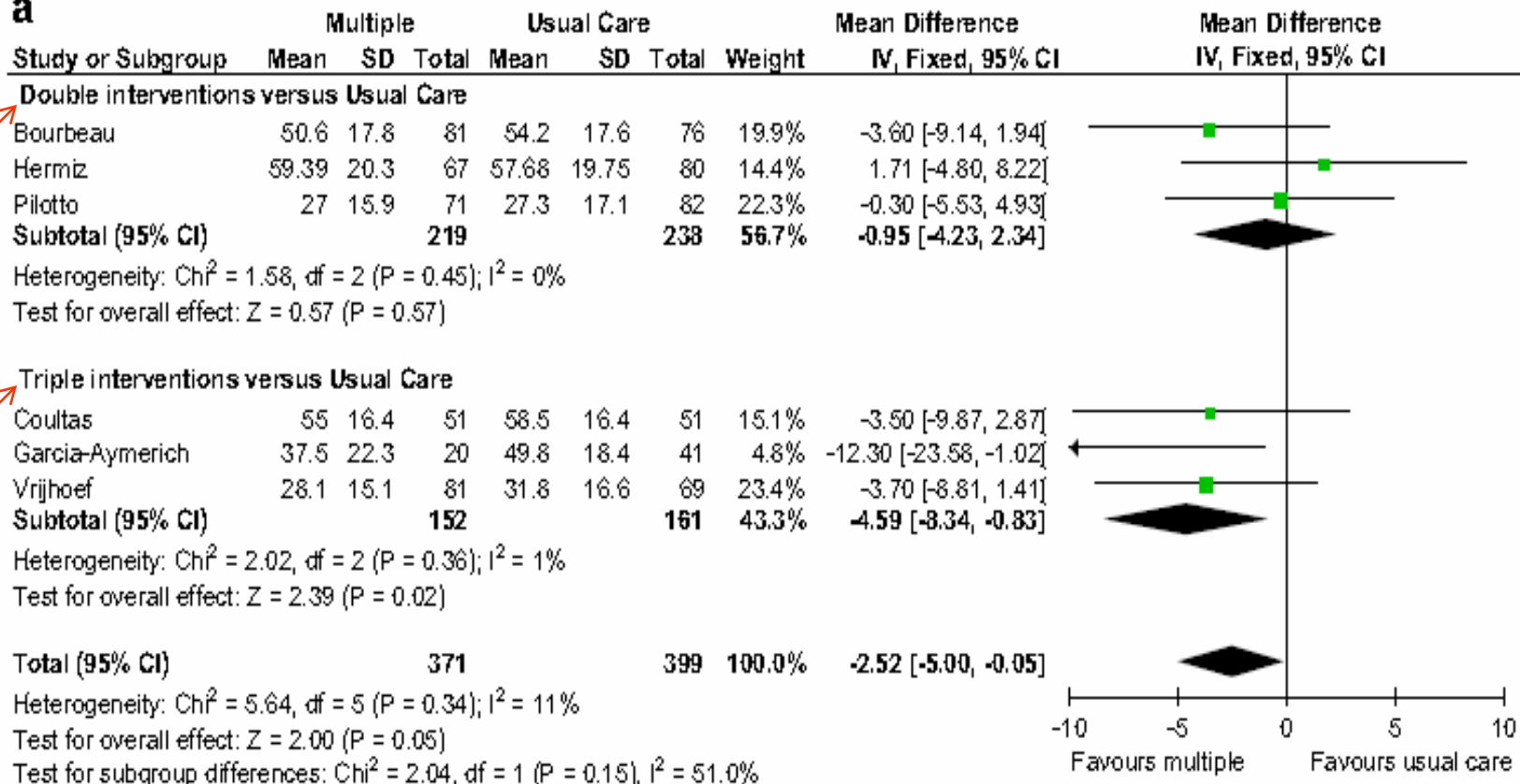
- End-results:**
- mortality (=)
 - hospitalizations (=/-)
 - health-related quality of life (=/+)
 - health care utilization (=/+)

Reflections on these preliminary results

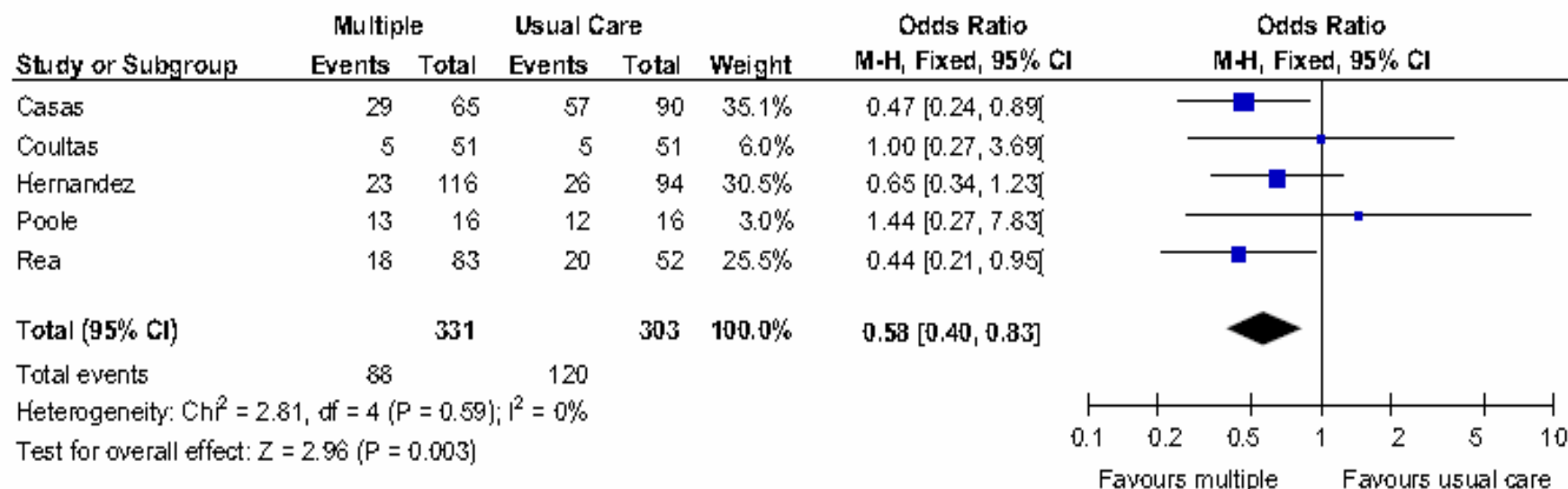
- hospitalizations are relatively rare events for the majority of the population
- close patient monitoring and effective integrated care delivery across community, primary, secondary and tertiary care are crucial to:
 - pick up exacerbation signs more timely
 - respond more pro-actively to achieve the desired cost effectiveness target
- However, majority of programs aimed at secondary care only
 - and therefore after the first hospitalization!

Quality of life – COPD

a



Hospitalizations – COPD



*Data on double interventions showed statistical heterogeneity (I2Z 67.4%) and were therefore excluded from further analyses. Subgroup analyses of triple interventions revealed a significant effect.

Are CCPs potentially cost-effective?

To early to tell...!?

- “It is always too early for a health economic evaluation, until – all of a sudden – it is too late!” (Buxton’s Law)

Too early or not, the answer will always be: It depends...

- economic value conditional upon *who* receives *what* under *what* circumstances

We need to work with the data we have and be very explicit about the impact of “contextual factors”

- example with very few data; cost-effectiveness gap
- example with some more data; health economic model

Identifying potential cost-effectiveness - example

- RR hospital admission : 0.81
- Length of hospital stay: 1.1 days vs. 4.0 days
- One hospital day: NZ\$ 700

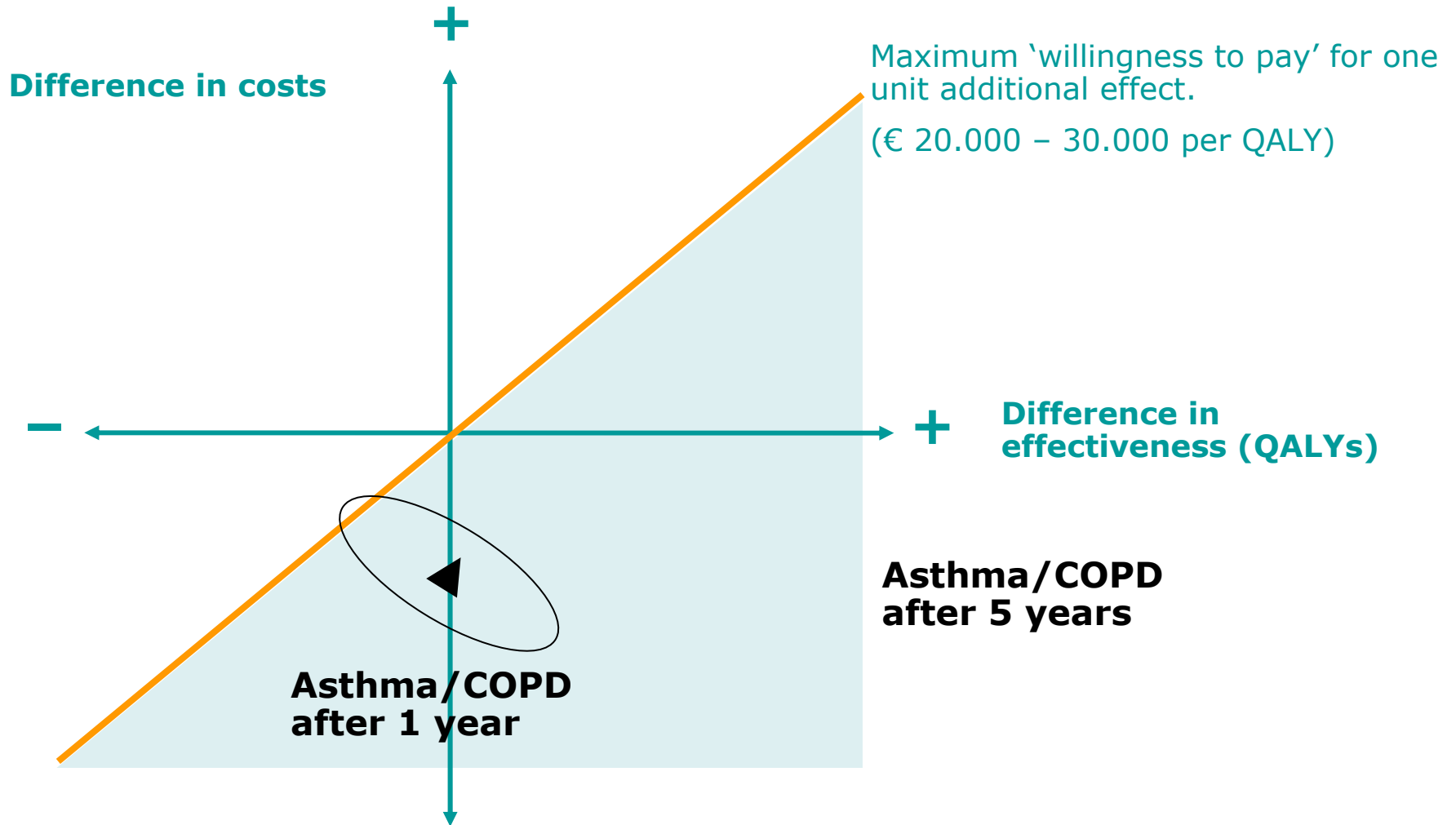
Usual care: $4 * \text{NZ\$ } 700 = \text{NZ\$ } 2800$

COPD program: $0.81 * (1.1 * \text{NZ\$ } 700) = \text{NZ\$ } 623.7$

COPD program C/E if incremental costs of the program lower than:

$\text{NZ\$ } 2800 - \text{NZ\$ } 623.7 = \text{NZ\$ } 2176.3$ per patient per year.

Potentially cost-effective – but when?



Conclusions

- Overall, CCPs generate end-results equivalent to usual care
- Currently limited scope for CCPs to break even or reduce costs
- CCPs with ≥ 3 components more likely to reduce hospitalizations, and therefore have a more promising business-case
- Limited data on cost-effectiveness available
- Estimations of potential cost-effectiveness are possible
- Impact of contextual factors large and understudied
- Question is not *whether* “CCPs” work, but what CCP works for whom under which conditions



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Thanks!

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