Université catholique de Louvain UCL

Evaluation of the effectiveness of complex healthcare interventions: the example of case management

ICIC17 Conférence

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What is the Belgium context?

Frail old persons ↑ + shortage of nursing home places

↓

Need of alternatives to support these persons at home

↓

Call for projects: bottom-up, innovative and heterogeneous

↓

Need to evaluate the effectiveness and the cost of interventions
Recommended interventions should be integrated in
the Belgium healthcare system

What is the design of evaluation?

For

Complex interventions

↓

What is the content of intervention as planned?
How was it implemented?
What are the barriers impeding the implementation?

↓

Qualitative analysis

For

Populations with specific needs

↓

For who is the intervention?

Evaluation on

Multiple criteria

↓

Is the intervention effective?
At which cost?
For what consequences on the costs of utilization of long-term care services?

Quantitative analysis + Qualitative analysis

↓

Association between intervention and outcome → explanation of the causal link

→ Mixed-methods

What are the intervention of Protocol 3?

1. Projects of case management:

"A collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual's and family's comprehensive health needs through communication and available resources to promote quality, cost-effective outcome. " (CMSA- Case Management Society of 2011)

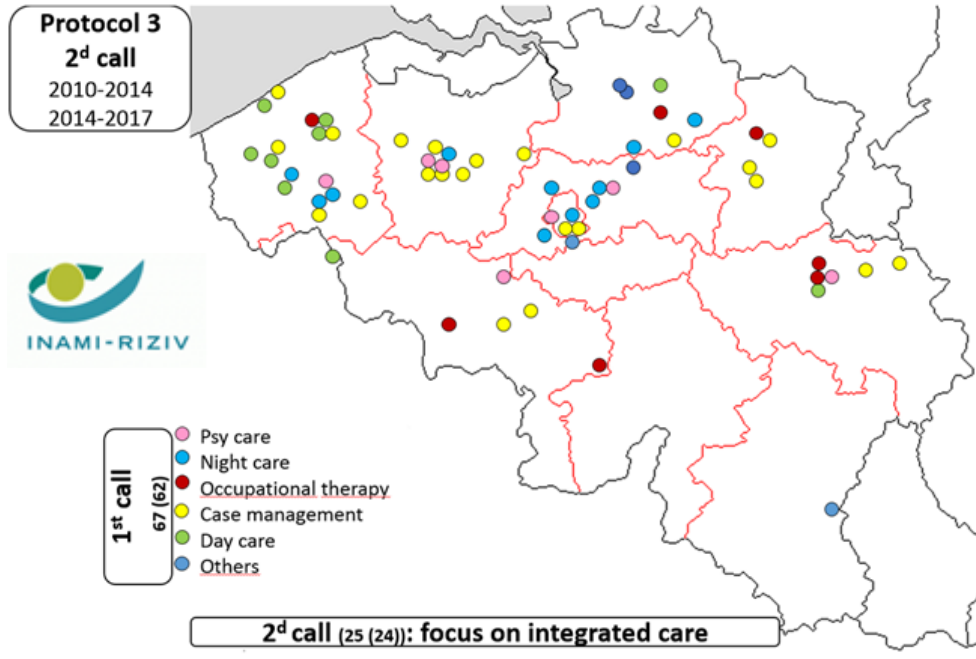
Describe by 3 modalities:

- Nature of the feedback provided to the FOPs' GPs as an interprofessional collaboration criteria
- Intensity of the intervention, measured by the number of home visits
- Presence of a "real" psychological intervention – or absence of it.

2. Others projects:

full fledged projects or included in the toolbox of the case management

- *Psychological support*
- *Occupational therapy*
- *…*



Which quantitative outcomes?

1. **Main initial objective: ↓ of the risk of institutionalization**

- Delay of institutionalization not necessarily desirable
- Need of long period of follow-up
- direct impact of intervention is not obvious
- Other possible outcomes?

2. **Need to have a wider vision of the consequences**

- Clinical Outcomes

Functional limitations, depressive status, quality of life, burden of the informal caregivers

- Utilization of services

Nursing care, short term institutionalization, day care center, emergency, GP out-of-hours, hospitalization, definitive institutionalization

- Costs
- (Mortality)

→ Consequences on:

- The individual level
- The healthcare system

What are the beneficiaries?

- 5 Groups of dependency based on BelRAI scales (Resident Assessment Instrument Home care version)
  - Low limitations
  - IADL + initial cognitive problems
  - Mainly functional
  - Functional & cognitive
  - Functional, cognitive & behavioral
- Compared to control group with similar dependency profile
- At least 6 months of follow-up for the selected patients
- Both the dependency profiles & the utilization of reimbursed healthcare are available for intervention and control group

Which results with specific data collection?

Functional and cognitive: clinical outcome							
	IADL	ADL	Fall	DRS	Quality of life	Burden Cohab	Burden non-cohab
F0	↓15% IADL <37; ↓5/48	-	-	-	↓10% QV >37; ↑2/66	↑20% Zarit>21; 6/48	-
F1P0I0	↓25% IADL <38; ↓3/48	-		↓25% DRS=0; ↓1/48	↑15% QV <25; ↓2/66	↓20% Zarit>15; 4/48	-
F1P1I0	↓20% IADL <38; ↓2/48	↓35% ↓2/6		-	-	↓20% Zarit ≈18; 4/48	-
F1P0I1	↓25% IADL <38; ↓6/48	↓prop above cut-off; ↓25% ADL <3; ↓1/6		↓30% DRS=0; ↓1/48	↑30% QV<25; ↓2,5/66	↓45% Zarit>15; 3/48	↑25% Zarit>17; ↑10/48
F1P1I1	↓20% IADL <38; ↓ 5/48	↓20% ADL <3; ↓1/6	↓prop	-	↑10% QV<24; ↓5/66	-	

Changes observed

Proper case management (F1)?

- Association with a improvement of DRS, burden of cohabitant ICG, quality of life ( )
- Improvement of functional limitations ↑ with F1 and I1 ( )

Proper psychological support (P1)?

- No improvement of DRS, burden of ICG cohabitant, quality of life : F1P1I0 ( )

→Unexpected results : need of qualitative explanation

Intensity (I1)?

- Improvement of functional limitations ↑ with F1 and I1 ( )

→ Associated with the services established by the CM (physio, OT,…) : need of qualitative data

Which results with specific data collection?

Functional and cognitive: utilization of services								
	Nursing	STI	Daycare	Emergency	GP	Hospi	Institutionalization	Death
F0	↓ UN 34-21%	-	↑		-	↑freq & prop	↑	-
F1P0I0	↓ UN 26-19%	-	↑	-	↑prop	↑prop	↑	-
F1P1I0	↓ UN 47-16,5%	-		-	↑freq	trend ↑prop	-	-
F1P0I1	↓ UN 35-16%	-	↑freq	↑freq & prop	↑prop	↑freq & prop	-	↑
F1P1I1	↓ UN 27-17%	-		↓freq	-	↑freq & prop	↑	↑

UN: unmet needs; prop: proportion; freq: frequency; ↑ or ↓ intervention group versus control group

Consistent results : F1P1I1

- Decrease of unmet needs of nursing care ( )
- Decrease of frequency of emergency visits among the users ( )
- Increase of institutionalization (explained by the dependency profile of this population) ( )

→Good results in spite of a higher risk of death (so a potential higher frailty) ( )

Inconsistent results:

- Bad results of F1P0I1 explained by a higher risk of death? ( )

→Unexpected results : need of qualitative explanation

→Link between CM and hospital (umbrella organization)

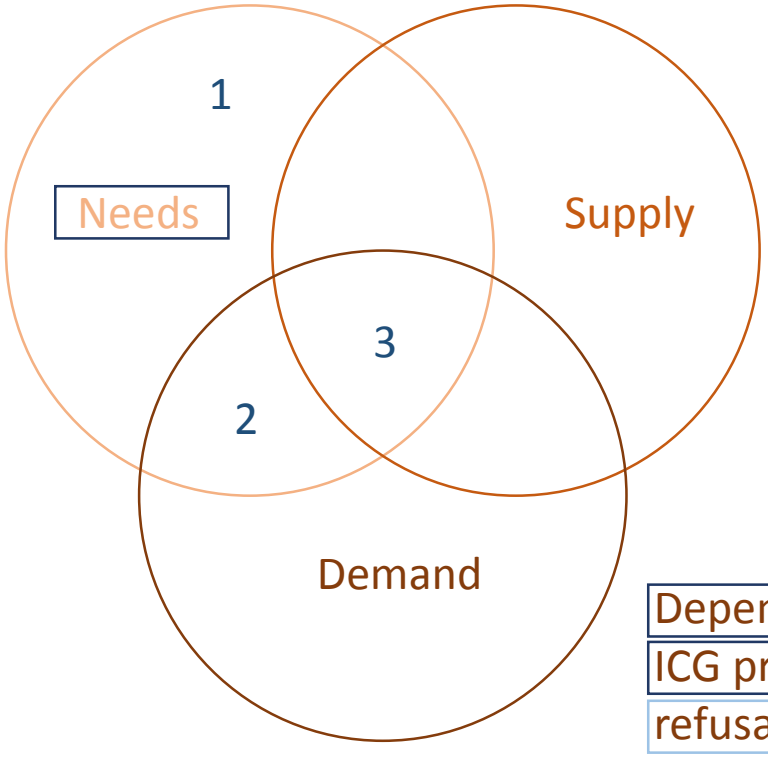
→ Clients with specific diagnostics

Results do not depend exclusively on the dependency profile

1. Needs identified by professional/ICG + low supply + constrained demand
→F1 + I1
→ Institutionalization

2. Needs match demand + disorganized network
→F1 + I1

3. Needs + “real” demand + reliable network
→F1 + I0



Availability +
Functioning of the patient network

Dependency profile +
ICG profile +
refusal of care

→ Mixed-methods: QUANTI + QUALI

Thank you for your attention

	ADL		IADL		Falls	
	Bef	Aft	Bef	Aft	Bef	Aft
func., cogn.						
% cut off C	92.68	93.63	100	100	27.15	33.33
% cut off T	75.61	75.16	99.39	98.14	39.07	25.17
IC95	0.24[0.11/0.45]	0.22[0.08/0.53]	-[-/-]	-[-/-]	1.72[1.02/2.87]	0.4[0.19/0.74]
% NA	0	4.27	0	1.83	7.93	10.37

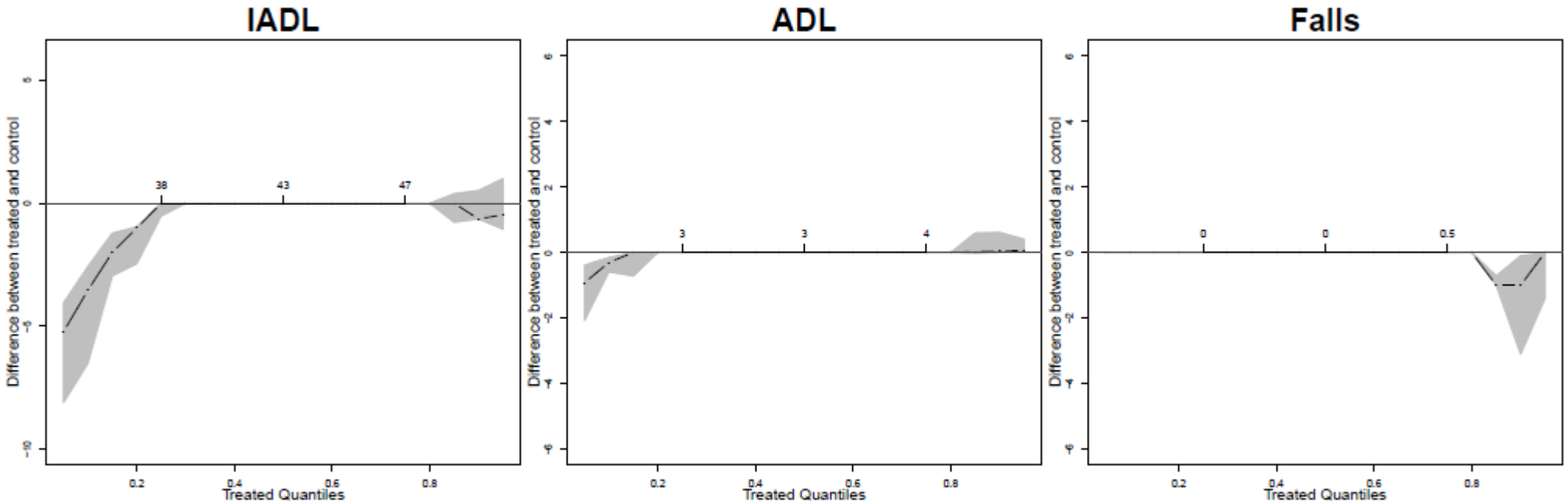


Figure 1.7: Regression quantile of functional clinical outcome (Func., cogn.)

	Nursing Care N months		Short term institu. N stays		Day care center N days	
	Use	Users	Use	Users	Use	Users
func., cogn.						
% / Med[IQR] C	98.56	6[5-6]	0	-	1.91	81[81-81]
% / Med[IQR] T	77.99	6[3-6]	2.39	1[1-2]	6.22	56[23-85]
OR [IC95]	0.06[0/0.15]		-[-/-]		3.48[0.34/86424458.51]	

Inclusion In the 6 months after

	func., cogn.		**func., cogn.**	
	N.	W. N.	N.	W. N.
No lim ADL or Incont	16.7(0.7)	83.3(3.3)	50(2)	50(2)
Low lim, ADL & Incont	-(0)	-(0)	-(0)	-(0)
ADL lim	56.6(20)	43.4(15.3)	75.5(26.7)	24.5(8.7)
Incont	0(0)	100(3.3)	40(1.3)	60(2)
ADL & Incont lim	76.1(36)	23.9(11.3)	83.1(39.3)	16.9(8)
ADL ? No Incont	46.7(4.7)	53.3(5.3)	66.7(6.7)	33.3(3.3)
tot	61.3(61.3)	38.7(38.7)	76(76)	24(24)

	Emergency N visits		GP out-of hours N visits		Hospilisation N visits	
	Use	Users	Use	Users	Use	Users
func., cogn.						
% / Med[IQR] C	20.57	2[2-2]	12.92	2[2-4]	22.97	1[1-2]
% / Med[IQR] T	29.19	1[1-2]	14.35	1[1-2]	34.45	1[1-1]
OR [IC95]	1.27[0.81/2.08]		0.84[0.43/1.63]		1.79[1.16/2.9]	

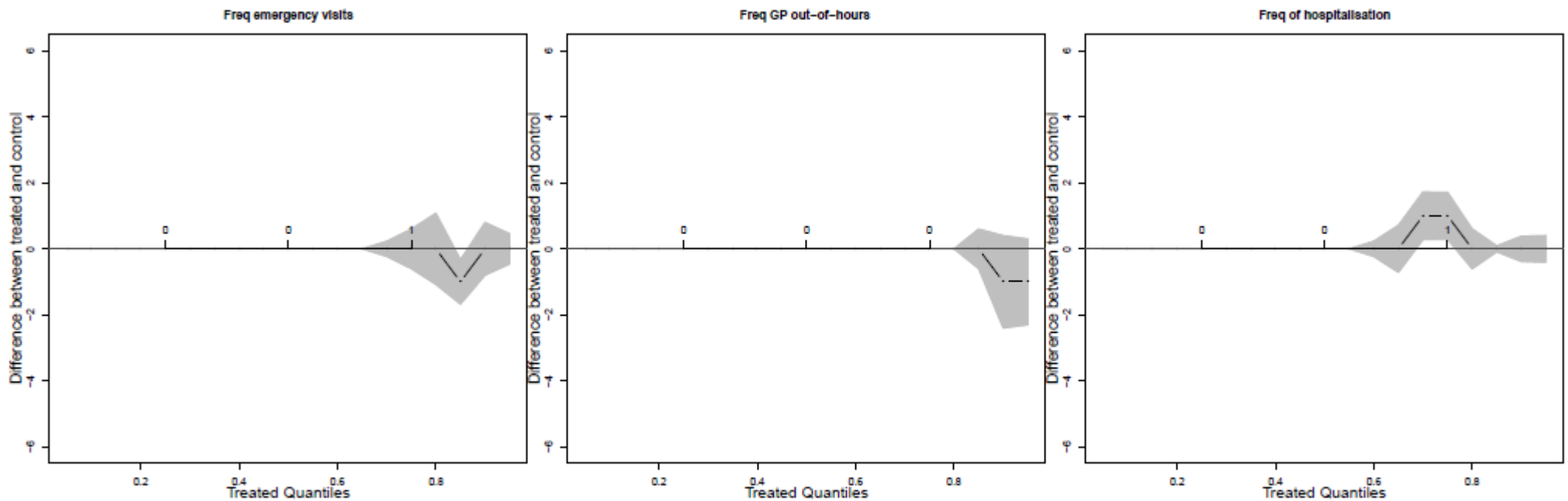


Figure 1.14: Regression quantile of inappropriate use of services (Func., cogn.)