ACADEMIA LATINOAMERICANA
DE MEDICINA DEL ADULTO MAYOR
ALMA

Organización Panamericana de la Salud
Oficina Regional de la Organización Mundial de la Salud

La persona mayor con multimorbilidad que requiere cirugía:

Bases para la toma de decisiones

XVI Curso Asociación Latinoamericana Medicina Adulto Mayor
La Habana-Cuba
Octubre 2017

Consideraciones

- 4 millones de cirugías son realizadas anualmente en EE. UU en mayores de 65 años
- 70% procedimientos quirúrgicos ambulatorios
- Cirugías más comunes: Remplazo rodilla y cadera, colectomía y cirugías de corazón

Arch Surg. 2010;145(12): 1201-1208

TABLE 4. Proportion of Work Within Surgical Specialty by Age Group

Specialty	<15 y	15–44 y	45–64 y	65+ y	Total
Cardiothoracic*	0%	0.3%	29.4%	70.3%	100%
General surgery†‡	2.6%	12.3%	25.5%	59.6%	100%
Neurosurgery	2.8%	12.9%	39.1%	45.2%	100%
Ophthalmology	0.6%	0.7%	10.8%	88.0%	100%
Orthopedic surgery	0.6%	16.1%	31.8%	51.4%	100%
Otolaryngology	39.6%	22.1%	29.9%	8.4%	100%
Urology	4.0%	6.3%	24.9%	64.8%	100%

Ann Surg2003 Aug; 238(2): 170–177

Consideraciones

- Multimorbilidad es la coexistencia de dos o más condiciones médicas crónicas en un individuo

- En los países desarrollados, una cuarta parte de los adultos se pueden definir como multimorbidos

- Más de la mitad de los adultos mayores estadounidenses tienen tres o más enfermedades crónicas.

Lancet 2012;380:37–43.

BMJ Open

Prevalence of multimorbidity and its association with outcomes in older emergency general surgical patients: an observational study

Jonathan Hewitt,[1] Caroline McCormack,[2] Hui Sian Tay,[2] Matthew Greig,[2] Jennifer Law,[3] Adam Tay,[4] Nurwasimah Hj Asnan,[4] Ben Carter,[1] Phyo Kyaw Myint,[2,5] Lyndsay Pearce,[3] Susan J Moug,[4] Kathryn McCarthy,[6] Michael J Stechman[7]

BMJ Open 2016;6:e010126. doi:10.1136/bmjopen-2015-010126

Diabetes Mellitus	Angina Pectoris
Stroke	Chronic Obstructive Pulmonary Disease
Hypertension	Heart Failure
Myocardial Infarction	Depression
Peripheral Vascular Disease	Osteoporosis
Malignant Tumour	Leukaemia
Renal Disease	Lymphoma
Liver Disease	Metastatic Cancer
Dementia	Autoimmune Disease

Figure 1 Conditions used to define multimorbidity.

BMJ Open 2016;6:e010126. doi:10.1136/bmjopen-2015-010126

Table 1 Prevalence of multimorbidity, with age and sex

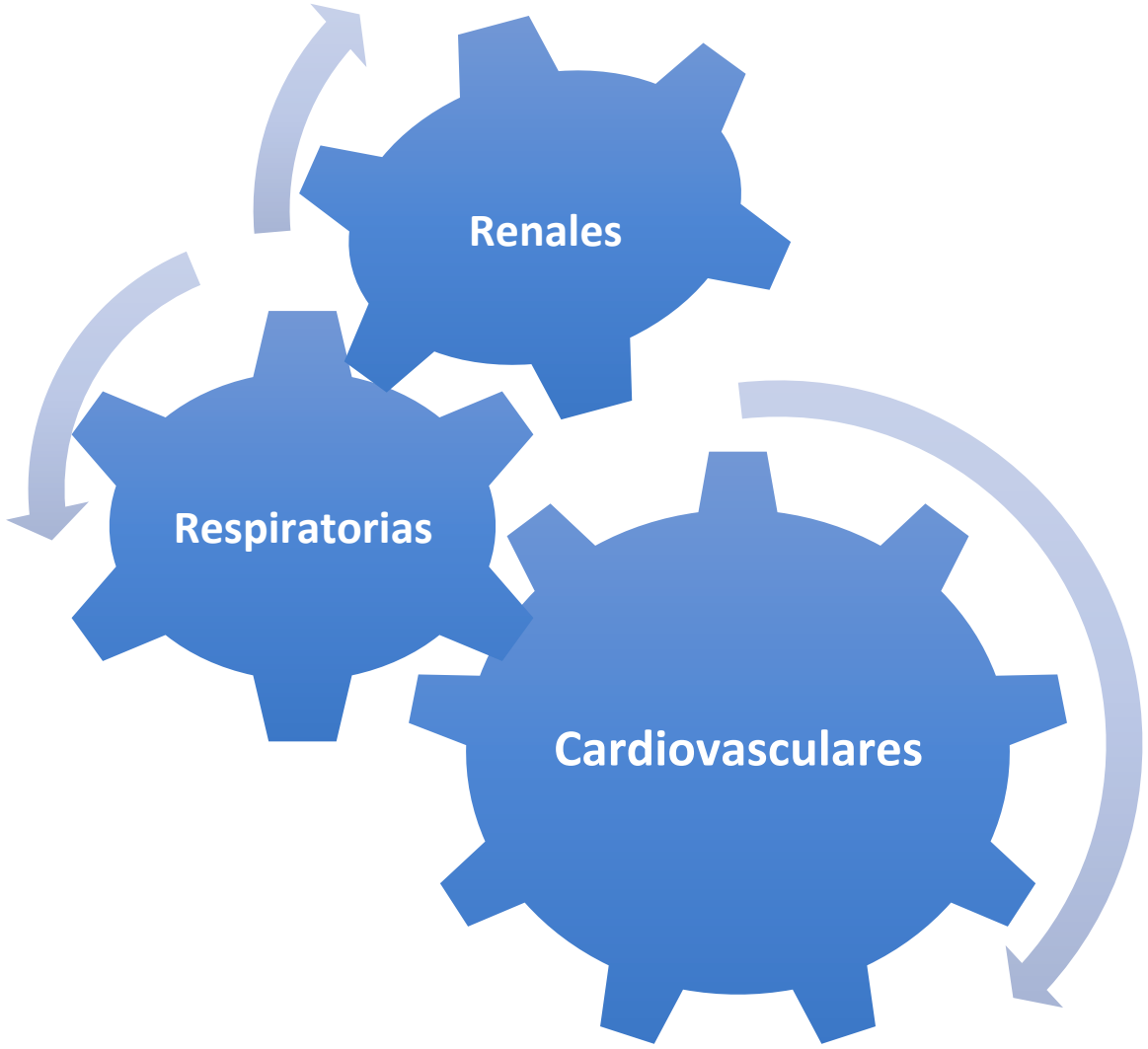
	Overall	Multimorbidity		p Value
		Yes	No	
Number (%)	411 (100)	304 (74.0)	107 (26.0)	
Age, years (IQR)	77 (70–84)	78 (72–85)	72 (65–89)	<0.0001
Aged 65–74 years (%)	169 (41.1)	106 (62.7)	63 (37.3)	<0.0001
75–84 years	150 (36.5)	121 (80.7)	29 (19.3)	
Over 85 years	92 (22.4)	77 (83.7)	15 (16.3)	
Women (%)	212 (51.6)	53 (25.0)	159 (75.0)	0.62
Men (%)	199 (48.4)	54 (27.1)	145 (72.9)	

Table 2 Characterisation of the multimorbid and non-multimorbid populations

	Overall	Multimorbidity		p Value
		Yes (%)	No	
Number (%)	411	304 (74.0)	107 (26.0)	
Haemoglobin (≤129 g/L)	183 (44.5)	146 (79.8)	37 (20.2	0.02
Albumin, (≤35 g/L)	171 (41.6)	137 (80.1)	34 (19.9)	0.02
Polypharmacy (yes %)	279 (67.9)	240 (86.0)	39 (14.0)	<0.0001
Frailty (Canadian Study of Health and Ageing scale)				
Very fit	73 (17.9)	32 (43.8)	41 (56.2)	<0.0001
Well	52 (12.8)	28 (53.8)	24 (46.2)	Test for trend
Well, with comorbidity	89 (21.8)	72 (80.9)	17 (19.1)	
Apparently vulnerable	81 (19.8)	65 (80.2)	16 (19.8)	
Mildly frail	56 (13.7)	49 (87.5)	7 (12.5)	
Moderately frail	41 (10.1)	39 (95.1)	2 (14.9)	
Severely frail	16 (3.9)	16 (100)	0	
Operation (yes %)	79 (19.2)	55 (69.6)	24 (30.4)	0.33
Minor or intermediate surgery	24 (34.3)	7 (29.2)	17 (70.8)	0.03
Major or more severe surgery	46 (65.7)	41 (91.3)	4 (8.7)	
Missing	9			
Length of hospital stay (days, 95% CI)	9.3 (8.1 to 10.5)	9.1 (7.5 to 10.4)	9.8 (7.2 to 12.5)	0.29
Readmission to hospital (yes %)	82 (19.9)	64 (78.0)	18 (22.0)	0.35
Death within 30 days (yes %)	20 (4.9)	14 (70.0)	6 (30.0)	0.68
Death within 90 days (yes %)	36 (8.8)	28 (77.8)	8 (22.2)	0.60

BMJ Open 2016;6:e010126. doi:10.1136/bmjopen-2015-010126

Particularidades/Complicaciones quirúrgicas



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Particularidades



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Deterioro Cognitivo y mortalidad post quirúrgica

Source	Procedure	Sample Size	Age, y	Follow-up	Overall Mortality No. (%)	Absolute Risk (%)	Risk Ratio (95% CI)
Cognitive Impairment							
Retrospective cohort							
Bozic et al, 2012[25]	Hip arthoplasty	83 011	≥65	90 d	NR	NR	HR 1.84 (1.10-3.07)
Bozic et al, 2012[26]	Knee arthroplasty	40 919	≥65	90 d	2	11.8	HR 2.04 (1.55-2.69)
Modini et al, 2012[27]	Colectomy	215	≥65	30 d	35 (16)	NR	OR 4.47 (1.73-11.41)
Neumanet al, 2012[28]	Colectomy	25 358	≥80	1 y	22	NR	HR 1.90 (1.64-2.19)
Schaller et al, 2012[29]	Hip fracture	173	≥65	1 y	NR	17 (18)	HR 5.77 (1.55-21.55)
Story,[30] 2010	Multiple types	4158	≥70	30 d	216 (5)	58 (10)	OR 1.4 (1.0-2.0)
Prospective cohort							
Dubljanin-Raspopovoc et al, 2013[31]	Hip fracture	228	≥65	1 y	57 (25)	NR	HR 0.99 (0.88-1.10)
Ho et al, 2005[32]	Cardiac	1543	≥65	6 mo	7.8	NR	OR 1.26 (1.06-1.49)
Kim et al, 2012[33]	Hip fracture	415	≥60	1 y	61 (15)	12 (29)	HR 1.44 (1.18-1.71)

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Deterioro Funcional y mortalidad post quirúrgica

Functional Impairment							
Retrospective cohort							
Belleli et al, 2012[34]	Hip fracture	390	≥65	1 y	NR	NR	HR 3.98 (1.41-11.27)
Finlayson et al, 2012[9]	Colectomy	6822	≥65	1 y	53	56	HR 1.26 (1.14-1.39)
Ganai et al, 2007[35]	Abdominal	89	≥70	In-hospital	20	NR	OR 18.70 (1.60-215.30)
Hamel et al, 2005[36]	Multiple types	26 648	≥80	30 d	2186 (8)	NR	OR 1.30 ($P < .001$)
Kennedy et al, 2011[37]	Colectomy	5914	≥65	30 d	3	NR	OR 1.86 (1.42-3.04)
Kiran et al, 2012[38]	Colectomy	10 750	≥70	30 d	8	NR	OR 2.73 (2.24-3.32)
Nafiu et al, 2011[39]	Vascular	25 337	≥65	30 d	4	NR	OR 3.78 (3.27-4.48)
Turrentine et al, 2006[8]	Multiple types	6953	≥80	30 d	7	NR	OR 3.2 (1.3-8.1)
Prospective cohort							
Dubljanin-Raspopovoc et al, 2013[31]	Hip fracture	228	≥65	1 y	57 (25)	NR	HR 1.02 (0.99-1.04)
Ho et al, 2005[32]	Cardiac	1543	≥65	6 mo	8	NR	OR 1.54 (1.19-2.00)
Kristjansson et al, 2010[40]	Colectomy	182	≥70	30 d	2	NR	HR 9.69 (3.01-31.22)

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Malnutrición y mortalidad post quirúrgica

Malnutrition							
Retrospective cohort							
Ganai et al, 2007[35]	Abdominal	89	≥70	In-hospital	20	NR	OR 59.20 (3.60-982.90)
Hamel et al, 2005[36]	Multiple types	26 648	≥80	30 d	8	NR	OR 1.70 ($P < .001$)
Kennedy et al, 2011[37]	Colectomy	5914	≥65	30 d	3	NR	OR 1.51 (1.09-2.79)
Kiran et al, 2012[38]	Colectomy	10 750	≥70	30 d	8	NR	OR 3.05 (2.35-3.96)
Lidsky et al, 2012[41]	Colectomy	997	≥65	30 d	125 (13)	NR	OR 4.08 (1.90-8.75)
Maurer et al, 2002[42]	Cardiac	1448	≥75	In-hospital	97 (7)	10	OR 1.97 (1.12-3.44)
Morgan et al, 2011[43]	Cystectomy	220	≥75	90 d	28 (13)	NR	HR 2.50 (1.40-4.45)
Nafiu et al, 2011[39]	Vascular	25 337	≥65	30 d	4	NR	OR 2.40 (1.82-3.18)
Neuman et al, 2012[28]	Colectomy	25 358	≥80	1 y	22	NR	HR 0.88 (0.78-1)
Schaller et al, 2012[29]	Hip fracture	173	≥65	1 y	NR	NR	HR 7.25 (1.61-33.74)
Story et al, 2010[30]	Multiple types	4158	≥70	30 d	215 (5)	85 (15)	OR 2.50 (1.80-3.50)
Prospective cohort							
McNicol et al, 2007[44]	Multiple types	1102	≥70	30 d	30 (6)	17	OR 2.23 (1.09-4.57)

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Fragilidad y mortalidad post quirúrgica

Source	Procedure	Sample Size	Age, y	Follow-up	Overall Mortality No. (%)	Absolute Risk (%)	Risk Ratio (95% CI)
Frailty							
Retrospective cohort							
Farhat et al, 2012[45]	Abdominal	35 334	≥60	30 d	NR	NR	OR 11.70 (*P*< .001)
Neuman et al, 2012[28]	Colectomy	25 358	≥80	1 y	22	NR	HR 4.74 (4.33-5.18)
Prospective cohort							
Kristjansson et al, 2012[46]	Colectomy	176	≥70	30 d	3 (1)	NR	HR 3.39 (1.82-6.29)
Sündermann et al, 2011[47]	Cardiac	400	≥75	1 y	12	42	OR 1.10 (1.04-1.16)

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Factores de riesgo y delirium post quirúrgico

Source	Procedure	Sample Size	Age, y	Follow-up	Overall Incidence No. (%)	Risk Factor	Absolute Risk (%)	Risk Ratio (95% CI)
Postoperative Delirium								
Retrospective cohort								
Ganai et al, 2007[35]	Abdominal	89	≥70	In-hospital	60%	Functional dependence	NR	OR 11.7 (2.5-56.1)
Tei et al, 2010[53]	Colectomy	129	≥71	In-hospital	14 (11)	Cognitive impairment	NR	OR 7.79 (1.77-38.31)
Prospective cohort								
Ansaloni et al, 2010[5]	Multiple types	351	≥65	In-hospital	47 (13)	Cognitive impairment	16 (35)	OR 2.6 (1.2-5.8)
Bakker et al, 2012[6]	Cardiac	201	≥70	7 d	63 (31)	Cognitive impairment	NR	OR 2.32 (1.2-4.46)
Chrispal et al, 2010[54]	Hip fracture	81	≥60	In-hospital	17 (21)	Cognitive impairment	4 (24)	OR 16.96 (1.2-239.8)
Dai et al, 2000[55]	Multiple types	701	≥65	In-hospital	36 (5)	Cognitive impairment	NR	RR 4.4 (2.08-9.29)
Freter et al, 2005[56]	Orthopedic	132	≥65	In-hospital	18 (14)	Cognitive impairment	NR	OR 8.26 (2.44-27.99)
Furlaneto et al, 2006[57]	Hip fracture	103	≥65	In-hospital	30 (29)	Cognitive impairment	NR	OR 3.04 (1.24-7.40)
Juliebo et al, 2009[58]	Hip fracture	237	≥65	In-hospital	68 (36)	Cognitive impairment	NR	OR 2.93 (1.4-6.11)
Koebrugge et al, 2009[59]	Abdominal	71	≥65	In-hospital	17 (24)	Cognitive impairment	NR	OR 0.67 (0.43-1.04)
Lee et al, 2011[60]	Hip fracture	425	≥65	In-hospital	35%	Cognitive impairment	76 (54)	OR 3.35 (2.21-5.17)
Leung et al, 2011[61]	Multiple types	63	≥65	3 d	17 (25)	Frailty	57	OR 1.84 (1.07-3.15)
Leung et al, 2005[62]	Multiple types	219	≥65	3 d	46%	Functional dependence	NR	OR 0.89 (0.46-1.74)
Nie et al, 2012[63]	Hip fracture	123	≥60	6 d	16 (13)	Cognitive impairment	NR	OR 3.88 (0.45-33.19
Otomo et al, 2013[7]	Cardiac	153	≥60	7 d	16 (11)	Cognitive impairment	NR	OR 4.54 (1.21-16.51)
Rudolph et al, 2007[64]	Multiple	1161	≥60	7 d	99 (8)	Cognitive impairment	NR	OR 2.2 (1.4-2.7)
Rudolph et al, 2009[65]	Cardiac	231	≥60	In-hospital	63 (52)	Cognitive impairment	NR	OR 0.8 (0.6-1)
Sasajima et al, 2000[66]	Vascular	110	≥60	7 d	32 (29)	Cognitive impairment	10 (56)	OR 3.3 (0.8-13.5)
Sasajima et al, 2012[67]	Vascular	299	≥60	7 d	88 (29)	Cognitive impairment	30 (54)	OR 2.8 (1.4-5.6)

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Factores de riesgo y deterioro funcional post quirúrgico

Retrospective cohort								
Finlayson et al, 2012[9]	Colectomy	6822	≥65	1 y	24%	Functional dependence	60	HR 1.21 (1.11-1.32)
Prospective cohort								
Kim et al, 2012[33]	Hip fracture	465	≥60	2 y	61%	Cognitive impairment	NR	HR 2.64 (1.09-5.84
Kwon et al, 2012[68]	Multiple types	204	≥65	1 y	51 (28)	Functional status	NR	OR 0.66 (0.23-1.89)[a]

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Enfoque orientado en los objetivos

- En los adultos mayores con multimorbilidad que requieren cirugía se recomienda un enfoque orientado en los objetivos de vida y no el enfoque tradicional orientado en la enfermedad

JAMA. 2009;302(24):2686-2694.

Capacidad de Decisión

- Comprende la información dada por el médico
- Conoce su condición médica y comprende las consecuencias de sus decisiones
- Claramente indica que tratamiento prefiere

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Objetivos generales de vida

- Vivir el mayor tiempo posible
- Vivir de forma independiente

Ann Intern Med. 2010;153(4):256- 261.

Beneficios potenciales de la cirugía

- Curar la enfermedad
- Prolongar la vida
- Aliviar los síntomas
- Mejorar la Función (Ej. Movilidad después de reemplazo articular)

Monaldi Archives for Chest Disease 2017; 87:849

Riesgos potenciales de la cirugía

- Muerte prematura
- Delirium
- Empeoramiento del estado cognitivo
- Empeoramiento estado funcional
- Pérdida de independencia (institucionalización)

Monaldi Archives for Chest Disease 2017; 87:849

Riesgo operatorio global multidimensional

- Herramientas disponibles para facilitar la evaluación individualizada del riesgo peri operatorio. http://riskcalculator.facs.org

- Valoración geriátrica integral

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ACS NSQIP Surgical Risk Calculator

Procedure 27130 - Arthroplasty, acetabular and proximal femoral prosthetic replacement (total hip arthroplasty), with or without autograft or allograft — Clear

Begin by entering the procedure name or CPT code. One or more procedures will appear below the procedure box. You will need to click on the desired procedure to properly select it. You may also search using two words (or two partial words) by placing a '+' in between, for example: "cholecystectomy + cholangiography"

Reset All Selections

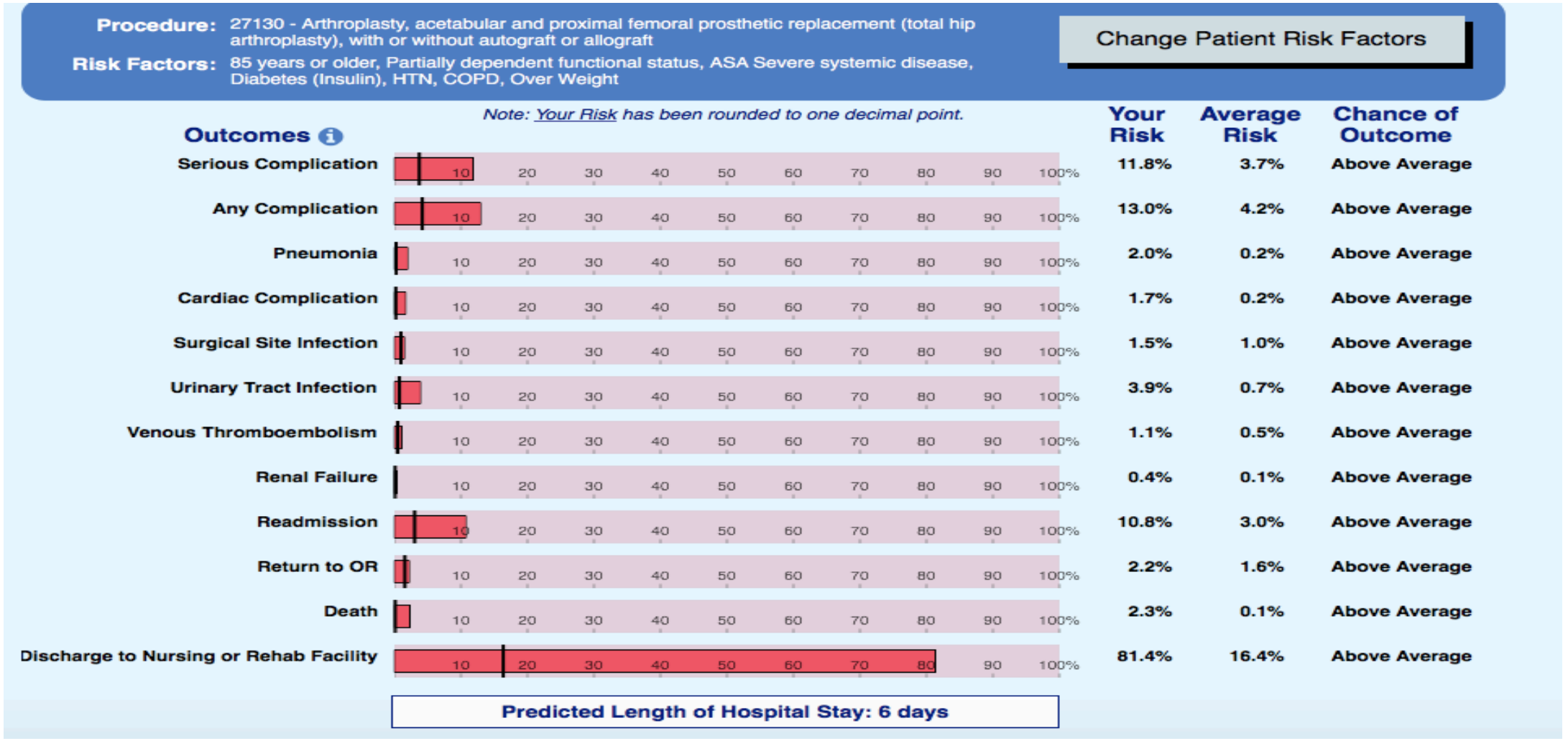
Are there other potential appropriate treatment options? ☐ Other Surgical Options ☐ Other Non-operative options ☑ None

Please enter as much of the following information as you can to receive the best risk estimates.
A rough estimate will still be generated if you cannot provide all of the information below.

Age Group: 85 years or older
Sex: Female
Functional Status: Partially Dependent
Emergency Case: No
ASA Class: Severe systemic disease
Steroid use for chronic condition: No
Ascites within 30 days prior to surgery: No
Systemic Sepsis within 48 hours prior to surgery: None
Ventilator Dependent: No
Disseminated Cancer: No

Diabetes: Insulin
Hypertension requiring medication: Yes
Congestive Heart Failure in 30 days prior to surgery: No
Dyspnea: No
Current Smoker within 1 Year: No
History of Severe COPD: Yes
Dialysis: No
Acute Renal Failure: No
BMI Calculation:
Height: 63 in / 160 cm
Weight: 167 lb / 75 kg

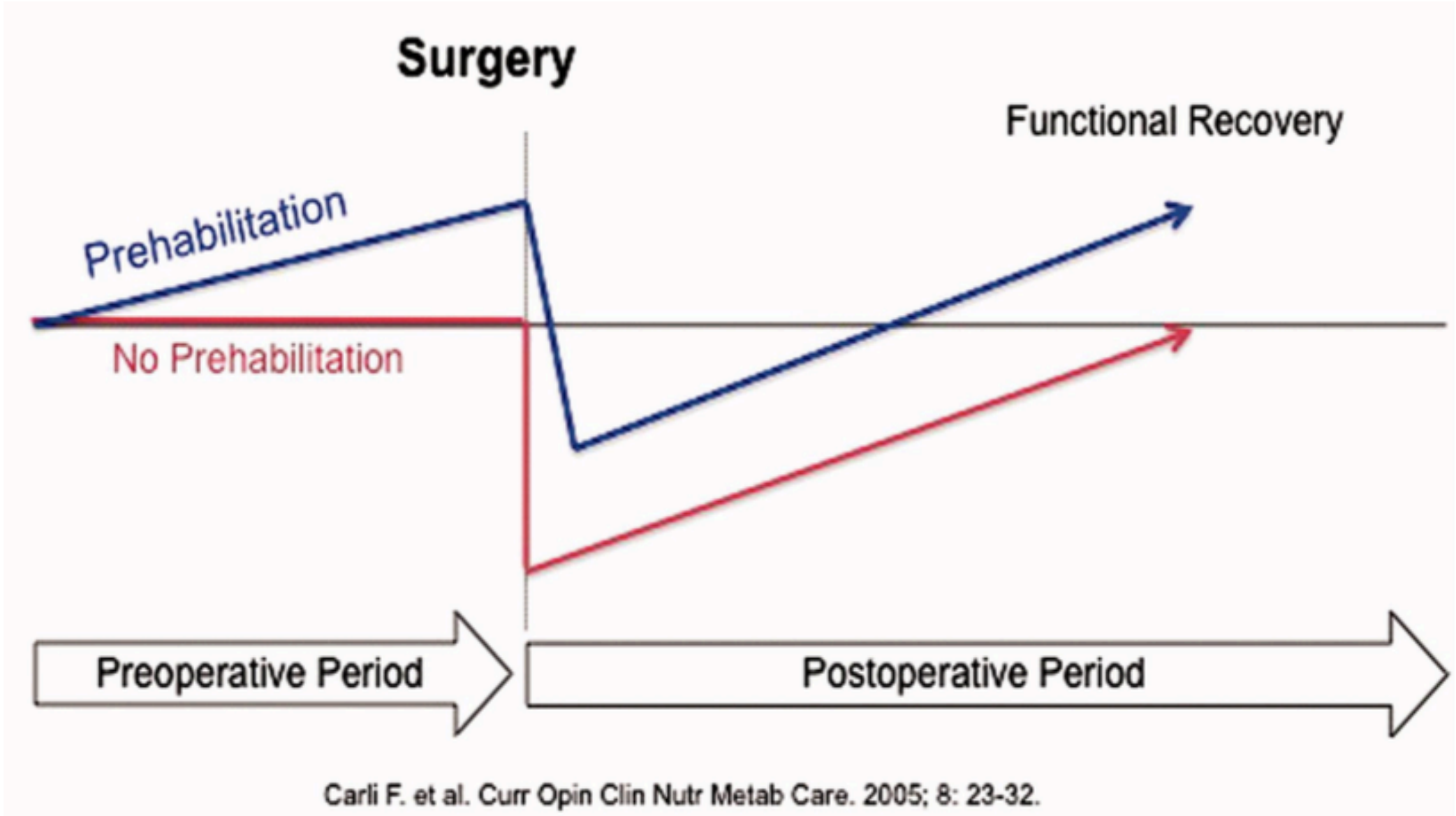
ACS NSQIP Surgical Risk Calculator



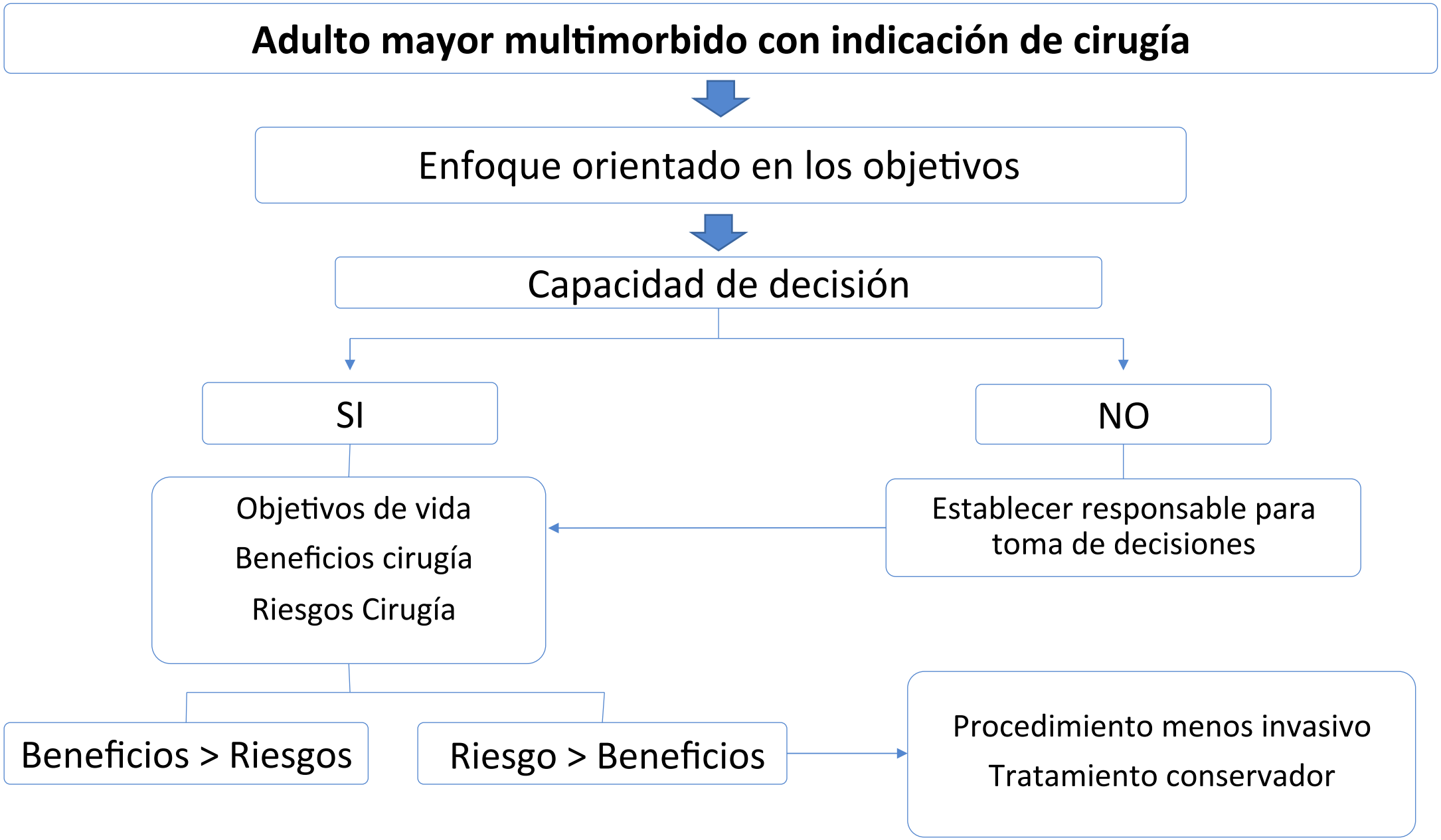
Valoración Geriátrica Integral



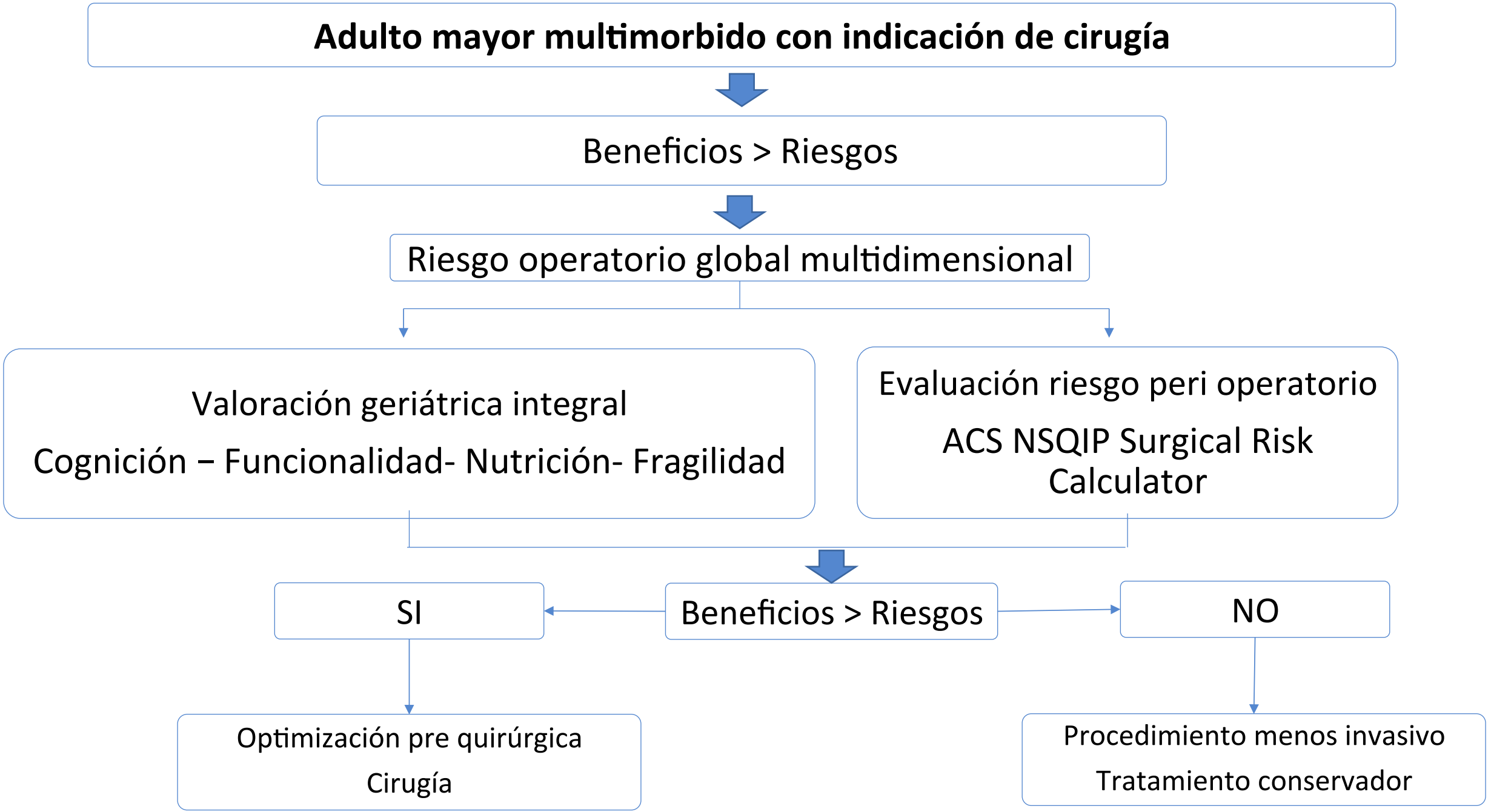
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Carli F. et al. Curr Opin Clin Nutr Metab Care. 2005; 8: 23-32.



Adaptado. JAMA May 28, 2014 Volume 311, Number 20



Adaptado. JAMA May 28, 2014 Volume 311, Number 20

Conclusiones

- Condiciones geriátricas prevalentes están asociadas con resultados quirúrgicos adversos

- En los adultos mayores con multimorbilidad que requieren cirugía se recomienda una evaluación preoperatoria que incluya: enfoque orientado en los objetivos de vida, determinación riesgo operatorio global multidimensional e implementación de estrategias de optimización preoperatoria

- *Muchas Gracias*