



Tecnológico de Monterrey
Escuela de Medicina



RETOS GLOBALES DE LA

INVESTIGACIÓN EN SALUD

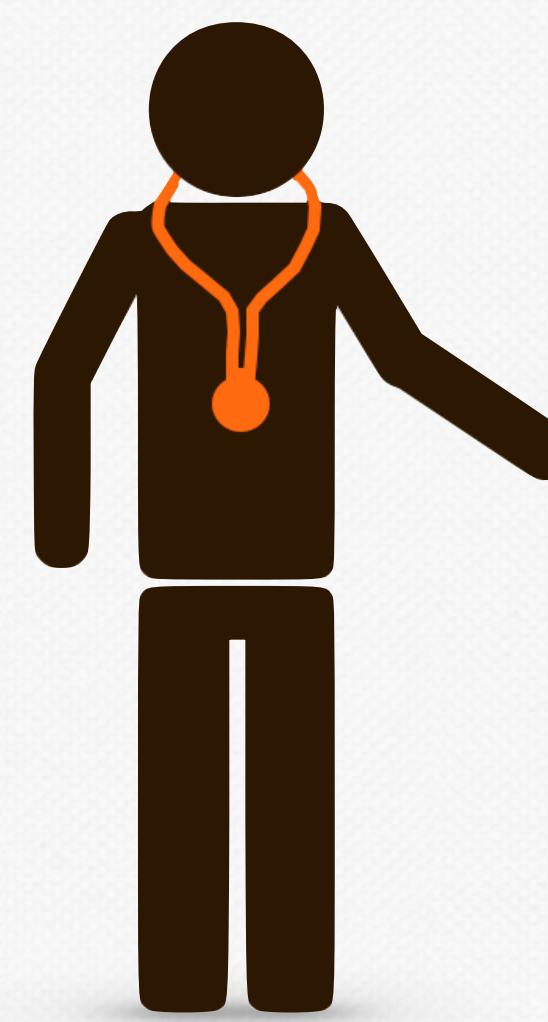
Carlos A. Cuello, MD, PhD (c)

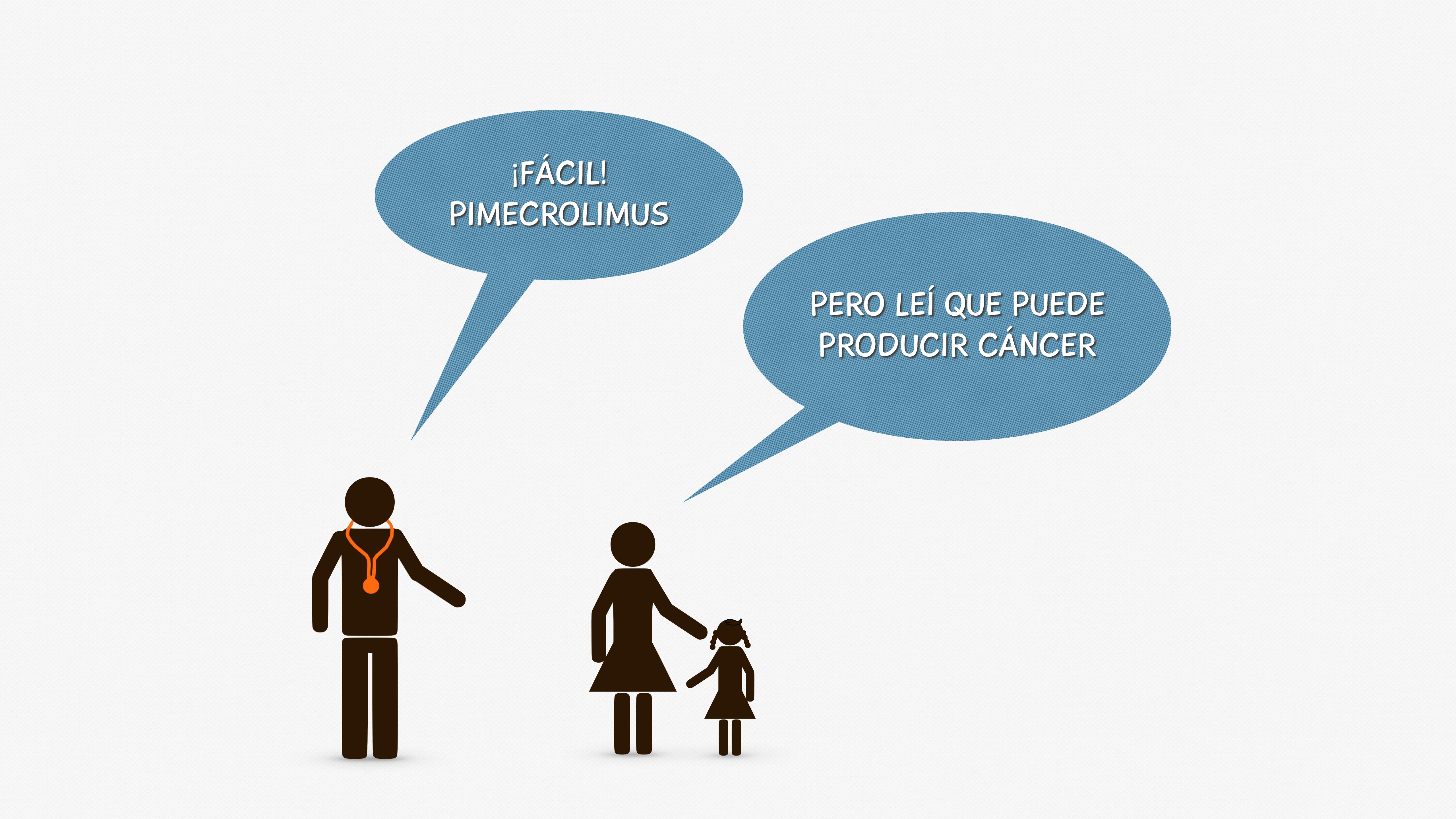
Monterrey NL
Julio 2016

DECLARACIÓN DE CONFLICTOS DE INTERÉS

- Ningúnliga con industria farmacéutica
- He recibido o recibo apoyo económico de:
 - ▶ La organización mundial de la alergia
 - ▶ la universidad de McMaster
 - ▶ Cochrane
 - ▶ CONACYT

DERMATITIS ATÓPICA





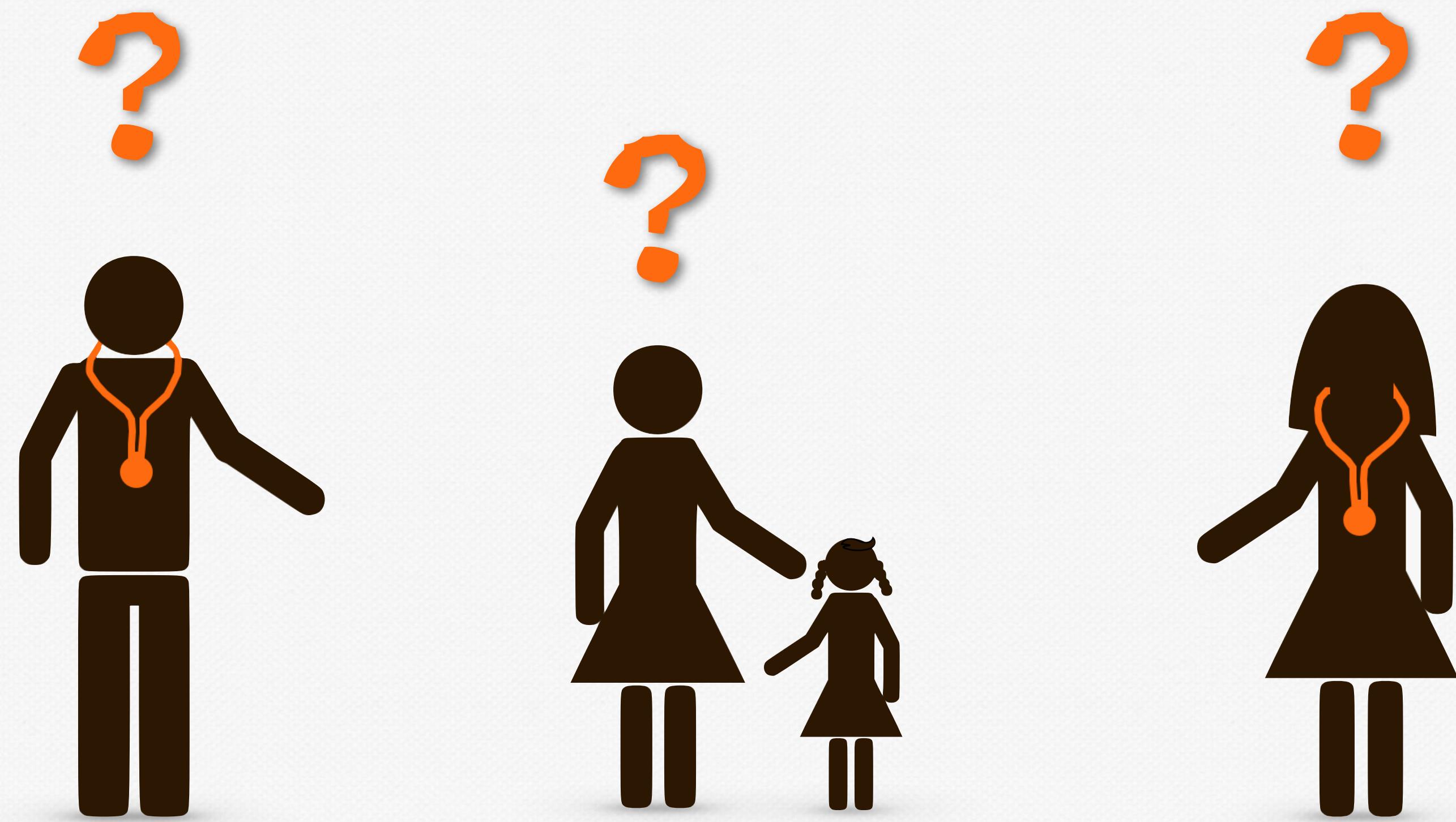
¡FÁCIL!
PIMECROLIMUS

PERO LEÍ QUE PUEDE
PRODUCIR CÁNCER



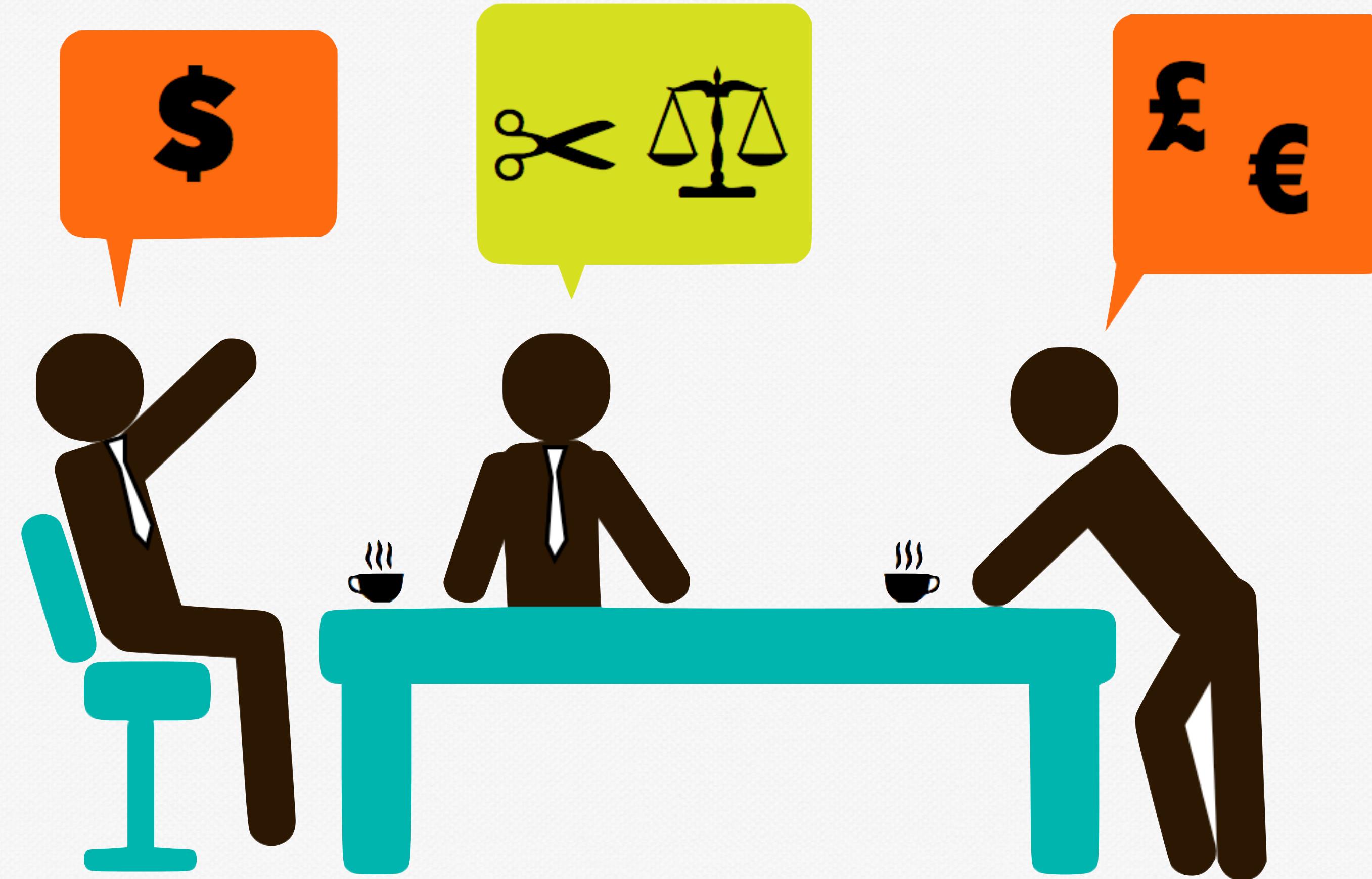
PIMECROLIMUS ES
MEJOR QUE LOS
CORTICOIDES TÓPICOS

MEJOR NOS QUEDAMOS
CON LOS CORTICOIDES
TÓPICOS

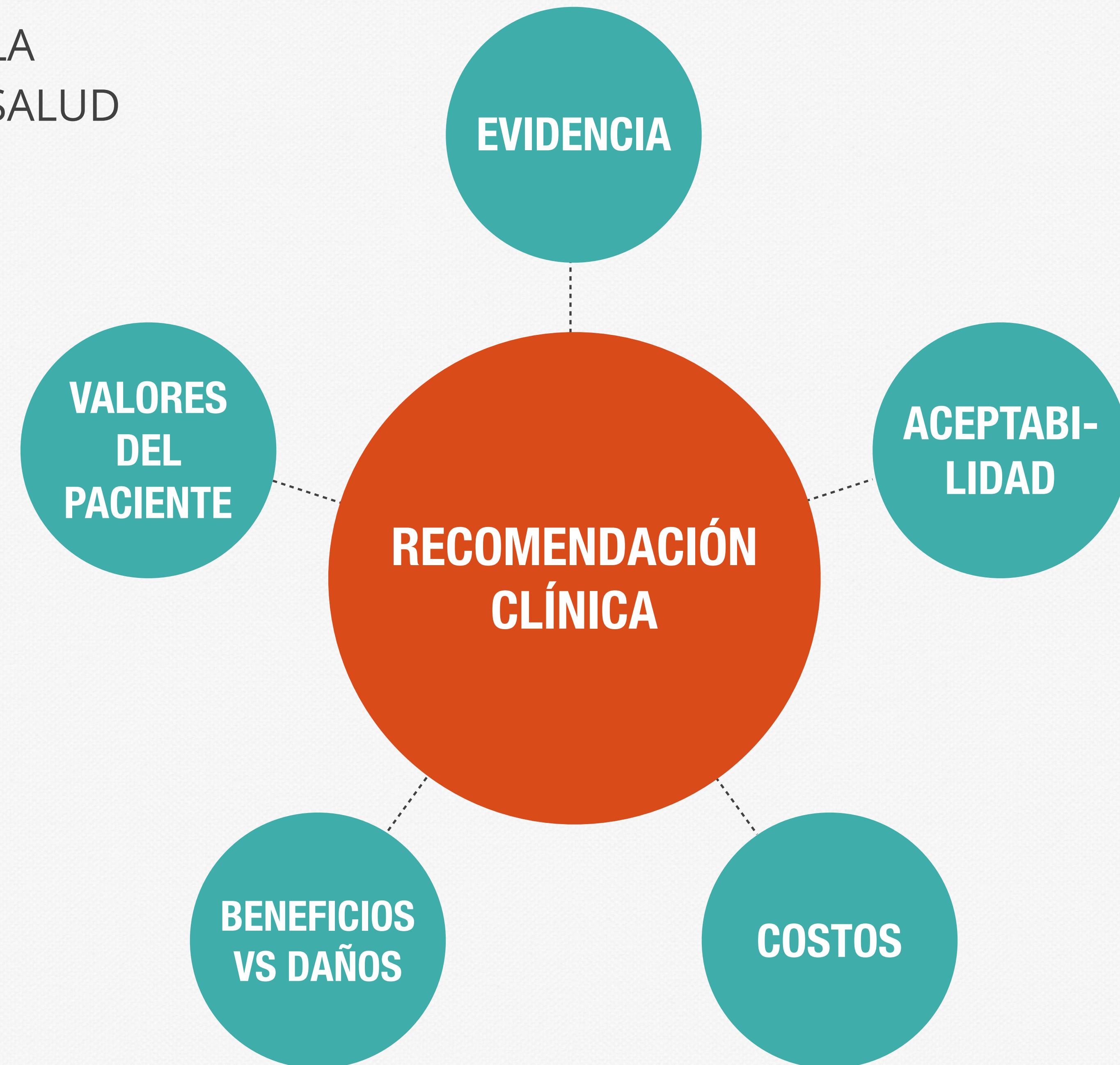


Mientras tanto, en el ministerio de salud

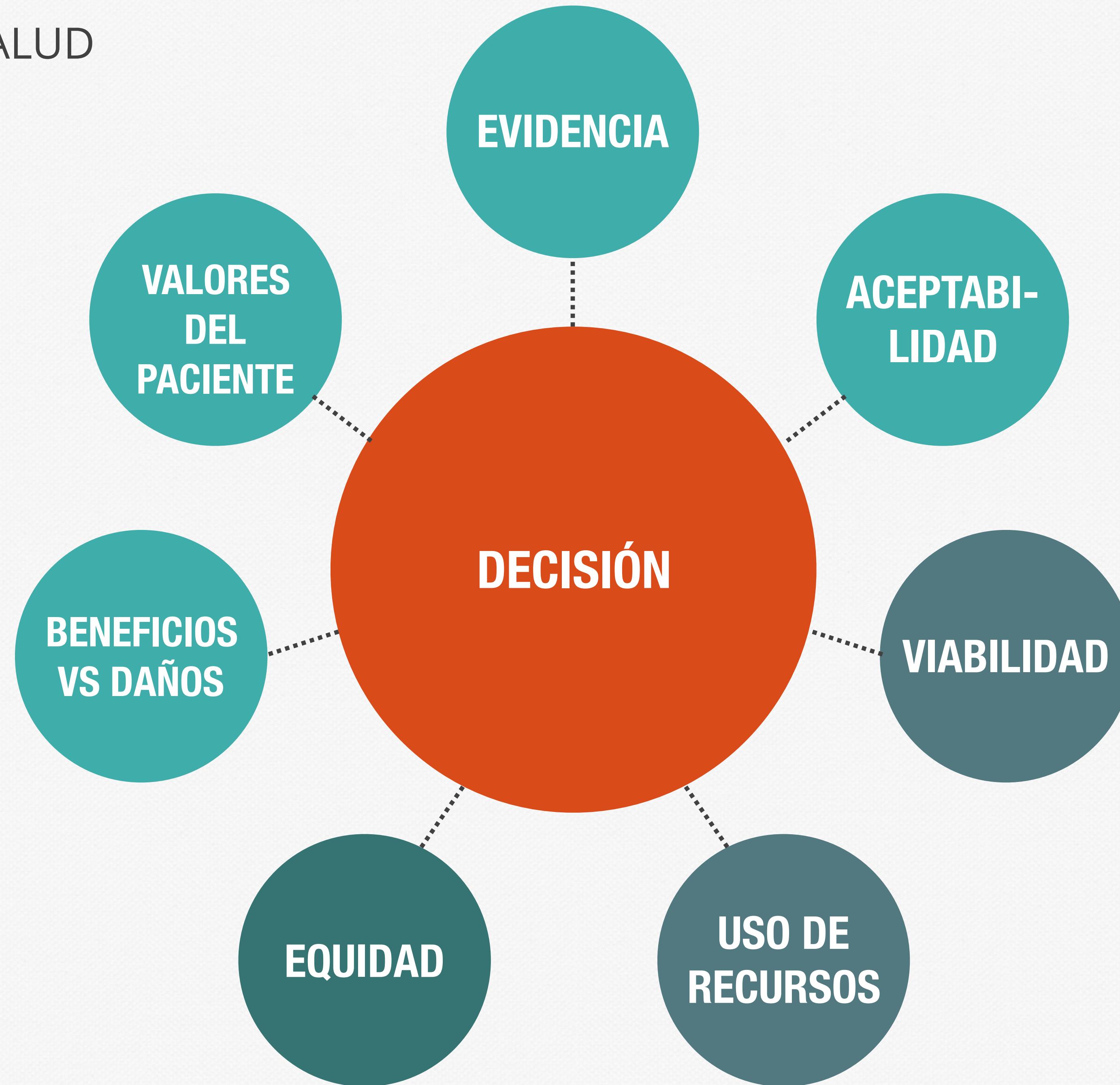
PIMECROLIMUS O CORTICOSTEROIDES?



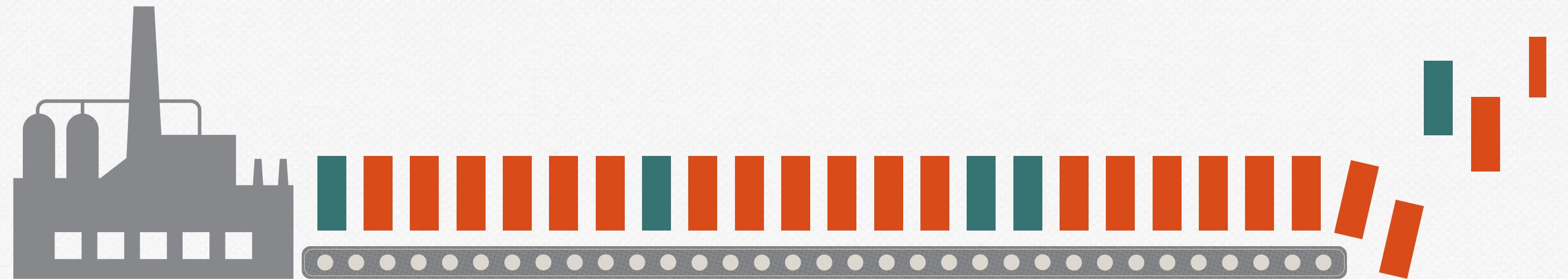
OBJETIVO FINAL DE LA
INVESTIGACIÓN EN SALUD
ES...



EN GUÍAS PARA SALUD PÚBLICA



RESEARCH
GENERATION



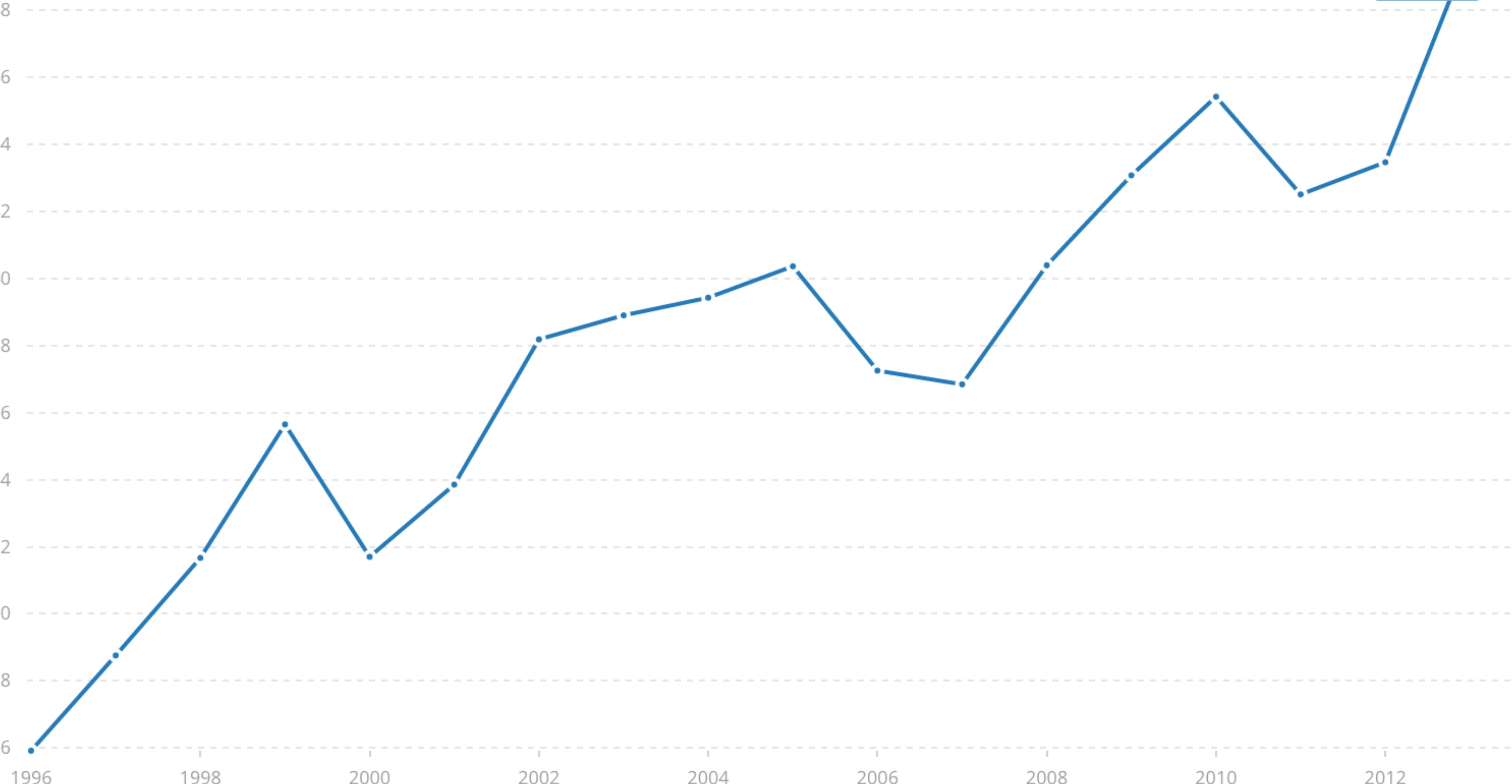
¿A DÓNDE VA A PARAR LA
INVESTIGACIÓN BIOMÉDICA QUE
TODOS LOS DÍAS VEMOS?

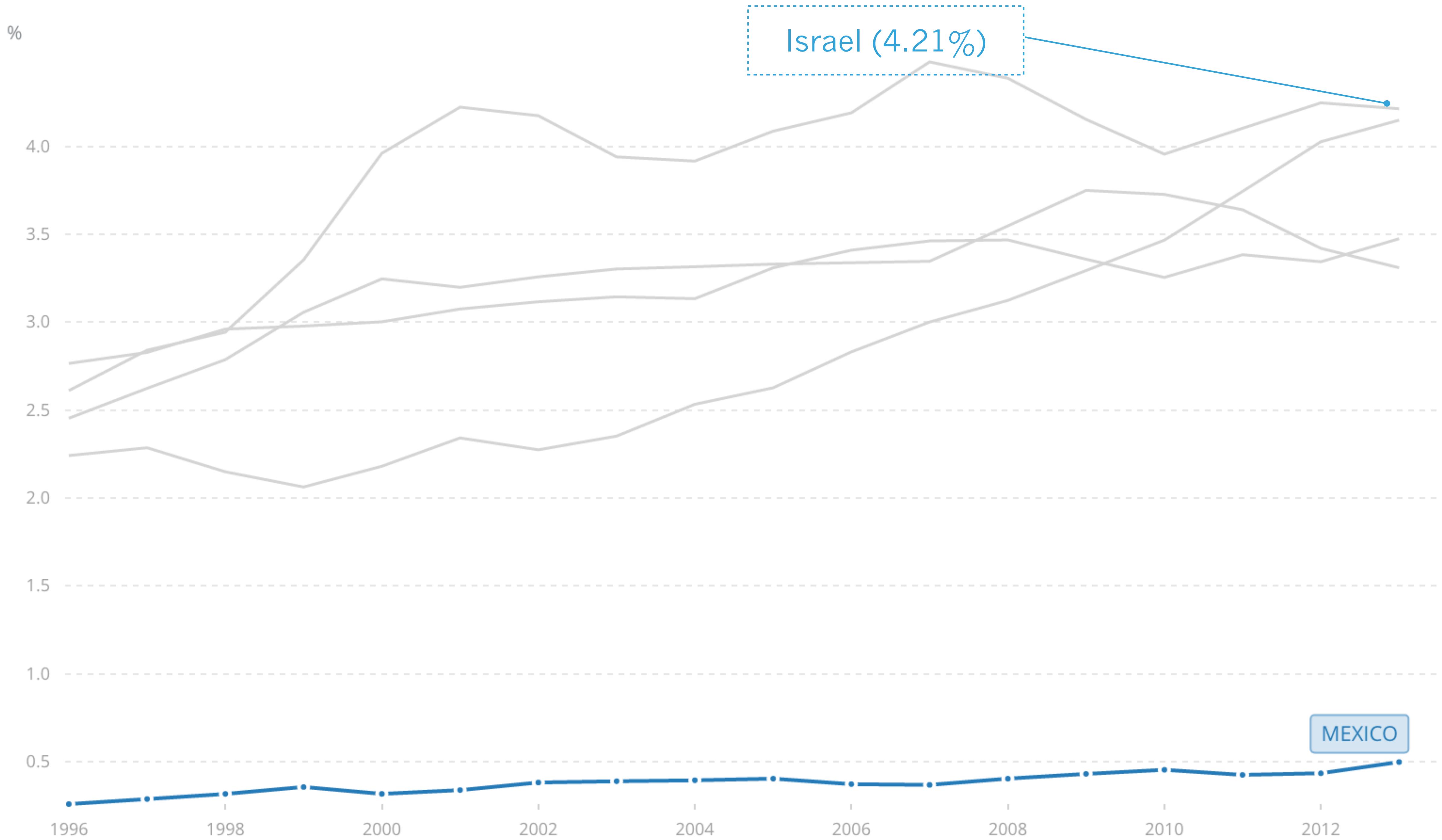
RETOS DE LA CIENCIA

% del PIB usado para investigación y desarrollo

0.5% del PIB

MEXICO





REPORTE

- En México sólo 23 universidades públicas y privadas producen el 85% de la investigación nacional, y con 60 mil artículos científicos acumulados entre el año 2005 y el 2009, nuestro país ocupa la tercera posición en Iberoamérica, por debajo de Brasil, quien triplicó sus aportaciones y de España, que cuadruplicó su presencia en la innovación mundial

REPORTO

Cuadro Resumen

Indicadores sobre actividades científicas y tecnológicas, 2009 a 2011

Indicador	Unidad de medida	Valores			Variación anual
		2009	2010	2011	
Patentes solicitadas en México	Número	14 281	14 576	14 055	2.1 -3.6
Patentes concedidas en México	Número	9 629	9 399	11 485	-2.4 22.2
Acervo de recursos humanos en ciencia y tecnología ^{a b}	Miles de personas	9 816.9	10 118.8	10 370.2	3.1 2.5
Población que está ocupada en actividades de ciencia y tecnología ^b	Miles de personas	5 736.9	5 893.8	6 169.8	2.7 4.7
Proporción de la población económicamente activa ocupada que labora en actividades de ciencia y tecnología ^b	Porcentaje	13.1	13.3	13.4	1.5 0.8
Egresados de licenciatura	Personas	333 378	344 651	371 451	3.4 7.8
Graduados de programas de doctorado	Personas	2 724	2 673	2 826	-1.9 5.7
Miembros del sistema nacional de investigadores	Personas	15 565	16 600	17 639	6.6 6.3
Apoyos a becarios del Consejo Nacional de Ciencia y Tecnología (CONACYT) en el país y el extranjero	Becas vigentes (Personas)	30 634	37 396	40 596	22.1 8.6
Gasto federal en ciencia y tecnología	Millones de pesos	45 973.6	54 436.4	58 810	18.4 8.0
Establecimientos certificados con ISO 9001:2000 y 14001	Número	1 847	2 497	2 906	35.2 16.4
Saldo de la balanza de pagos tecnológica	Millones de dólares	-1 728.2	-568.6	-676.2	-67.1 18.9
Exportaciones mexicanas de bienes de alta tecnología	Millones de dólares	41 965.9	52 122.9	55 734.1	24.2 6.9
Importaciones mexicanas de bienes de alta tecnología	Millones de dólares	82 807.2	63 977.6	68 780.4	-23.9 9.2

Producción científica y tecnológica

Factor de impacto de los artículos publicados por país, en análisis quinquenal, 1990 a 2013

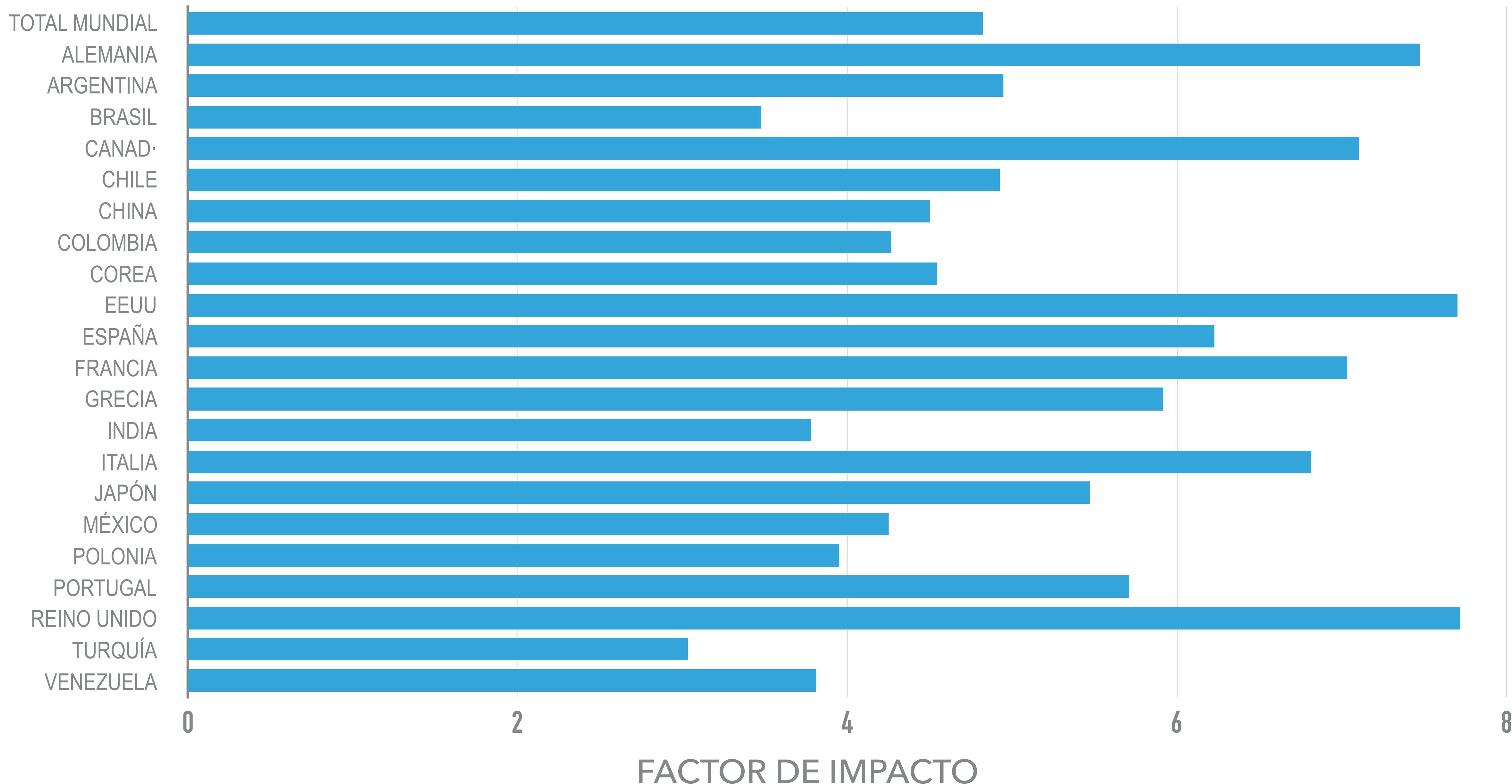
[| Definiciones |](#) [Siglas y ligas a fuentes](#)

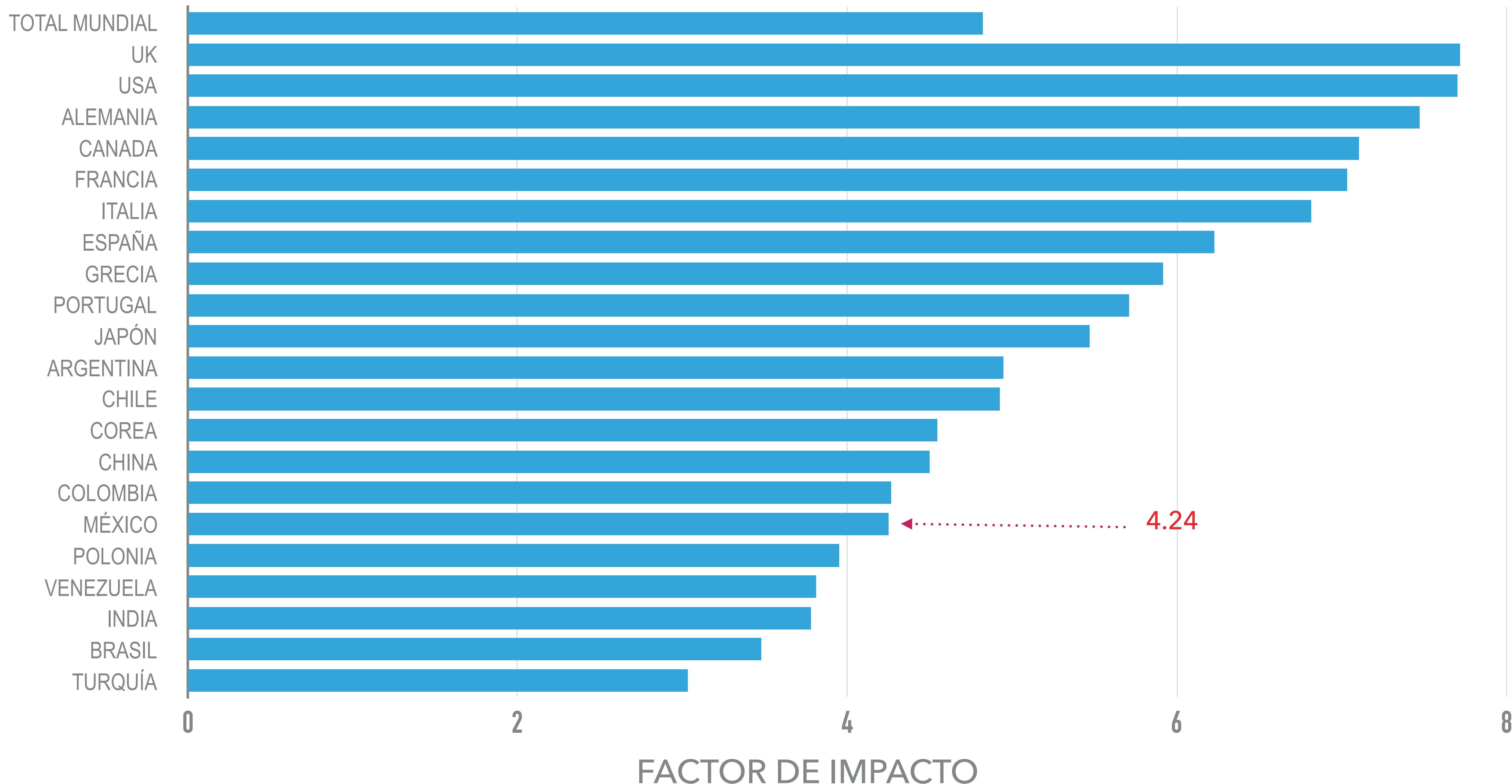
País	90-94	91-95	92-96	93-97	94-98	95-99	96-00	97-01	98-02	99-03	00-04	01-05	02-06	03-07	04-08	05-09	06-10	07-11	08-12	09-13
Total mundial	3.55	3.46	3.64	3.76	3.84	3.94	3.99	4.12	4.21	4.36	4.42	4.61	4.72	4.82	ND	ND	ND	ND	ND	ND
Alemania	3.62	3.76	4.03	4.08	4.19	4.33	4.48	4.69	4.75	4.98	5.42	5.62	5.85	6.09	6.39	6.67	6.85	7.12	7.36	7.47
Argentina	1.79	1.88	2.03	2.11	2.28	2.37	2.47	2.68	2.63	2.79	3.08	3.23	3.40	3.61	3.80	4.01	4.23	4.44	4.75	4.95
Brasil	1.60	1.74	1.92	2.02	2.09	2.16	2.16	2.26	2.25	2.37	2.63	2.74	2.91	2.96	3.02	3.11	3.14	3.26	3.39	3.48
Canadá	3.57	3.77	4.08	4.16	4.35	4.55	4.73	4.92	4.93	5.06	5.28	5.32	5.52	5.78	6.03	6.27	6.49	6.72	6.97	7.11
Chile	1.92	2.15	2.34	2.35	2.48	2.79	2.82	3.03	3.27	3.31	3.78	4.01	4.25	4.44	4.41	4.45	4.58	4.58	4.67	4.93
China	ND	ND	ND	1.46	1.51	1.59	1.69	1.83	1.66	1.77	2.26	2.46	2.67	2.93	3.19	3.46	3.70	4.00	4.28	4.50
Colombia	2.10	2.26	2.66	2.83	3.22	3.44	2.95	2.80	2.72	2.64	2.89	2.97	3.13	3.25	3.28	3.36	3.36	3.40	3.83	4.27
Corea	1.43	1.49	1.57	1.70	1.78	1.88	2.01	2.19	2.30	2.51	2.85	2.99	3.19	3.42	3.61	3.76	3.87	4.09	4.31	4.55
Estados Unidos de América	5.15	5.31	5.58	5.41	5.54	5.69	5.78	5.95	5.90	6.09	6.39	6.54	6.74	6.93	7.11	7.23	7.34	7.47	7.62	7.70
España	2.40	2.57	2.85	2.97	3.10	3.24	3.44	3.66	3.69	3.89	4.16	4.30	4.55	4.82	5.10	5.32	5.52	5.74	5.98	6.23
Francia	3.56	3.70	3.92	3.90	4.02	4.15	4.28	4.47	4.48	4.62	4.99	5.13	5.30	5.54	5.78	6.06	6.27	6.57	6.81	7.03
Grecia	1.86	1.91	2.12	2.15	2.30	2.48	2.55	2.64	2.71	2.84	3.21	3.35	3.59	3.86	4.20	4.57	4.87	5.17	5.59	5.92
India	ND	ND	ND	1.24	1.34	1.40	1.50	1.60	1.66	1.79	2.07	2.25	2.47	2.65	2.81	2.98	3.14	3.33	3.56	3.78
Italia	3.11	3.30	3.55	3.64	3.85	4.02	4.18	4.39	4.40	4.51	4.88	5.03	5.28	5.48	5.78	6.03	6.18	6.44	6.68	6.82
Japón	3.09	3.18	3.30	3.22	3.30	3.39	3.49	3.68	3.71	3.86	4.25	4.37	4.51	4.72	4.91	5.02	5.15	5.28	5.40	5.47
México	1.74	1.76	1.95	1.96	2.07	2.19	2.22	2.35	2.40	2.51	2.79	2.88	3.05	3.21	3.43	3.58	3.77	3.92	4.14	4.25
Polonia	1.78	1.88	1.98	2.07	2.21	2.29	2.32	2.43	2.47	2.60	2.90	3.08	3.23	3.41	3.49	3.56	3.60	3.66	3.75	3.95
Portugal	2.16	2.27	2.44	2.47	2.61	2.70	2.78	3.01	3.08	3.24	3.56	3.73	3.86	4.22	4.56	4.85	5.16	5.35	5.58	5.71
Reino Unido	4.19	4.25	4.49	4.48	4.59	4.73	4.81	5.06	5.11	5.34	5.72	5.89	6.15	6.33	6.62	6.89	7.12	7.39	7.61	7.71
Turquía	0.00	1.04	1.17	1.19	1.25	1.31	1.39	1.46	1.48	1.56	1.73	1.85	2.05	2.24	2.43	2.57	2.70	2.85	2.94	3.03
Venezuela	0.77	2.20	2.19	2.38	2.16	2.11	2.05	2.14	2.08	2.15	2.38	2.65	2.90	3.18	3.07	3.03	2.97	3.22	3.58	3.81

ND No disponible.

Fuente: Para 1990-2003: CONACYT. *Informe General del Estado de la Ciencia y la Tecnología*. México. 2004-2008.

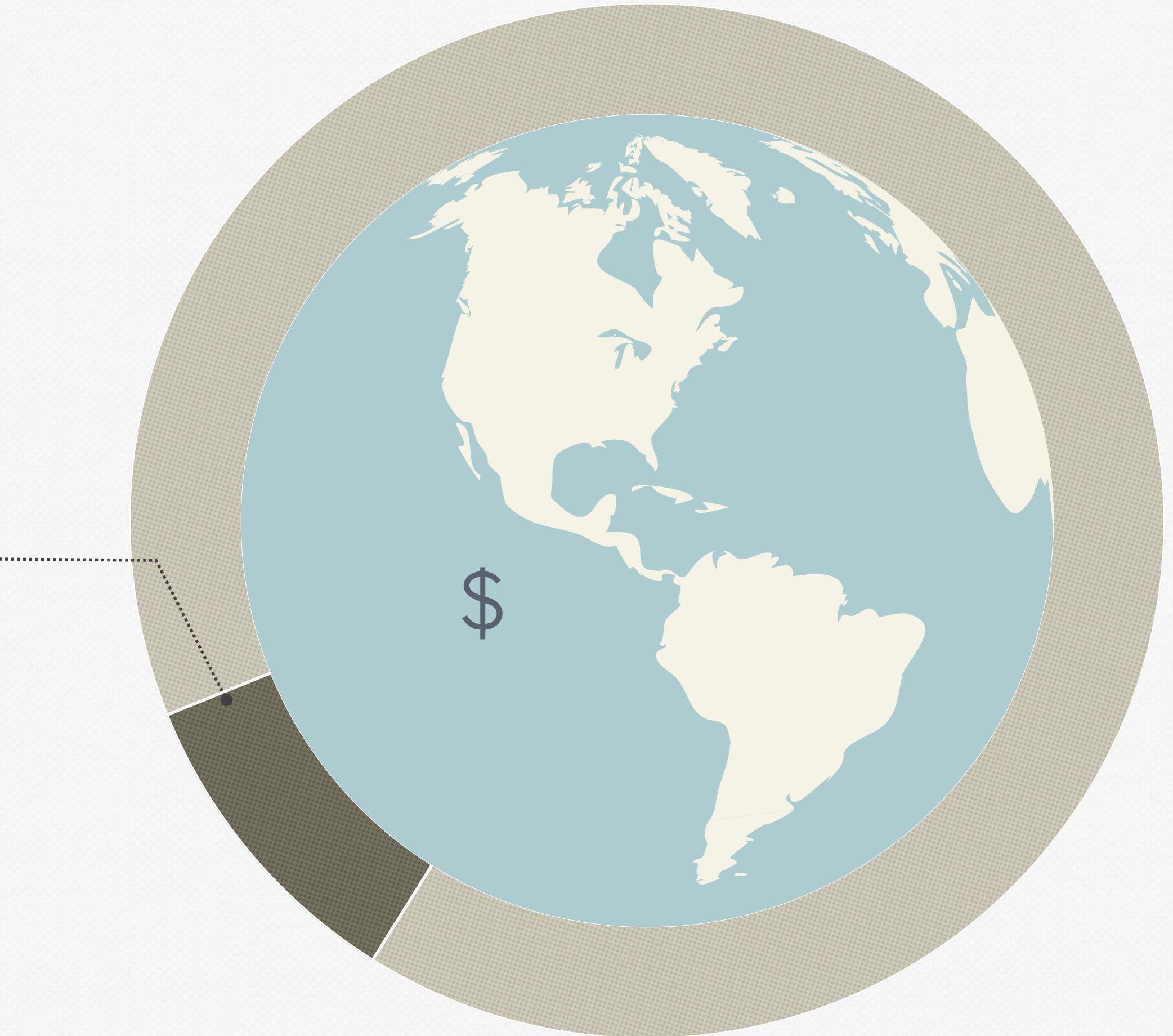
Para 2004-2013: CONACYT. *Informe General del Estado de la Ciencia y la Tecnología*. México. 2013.



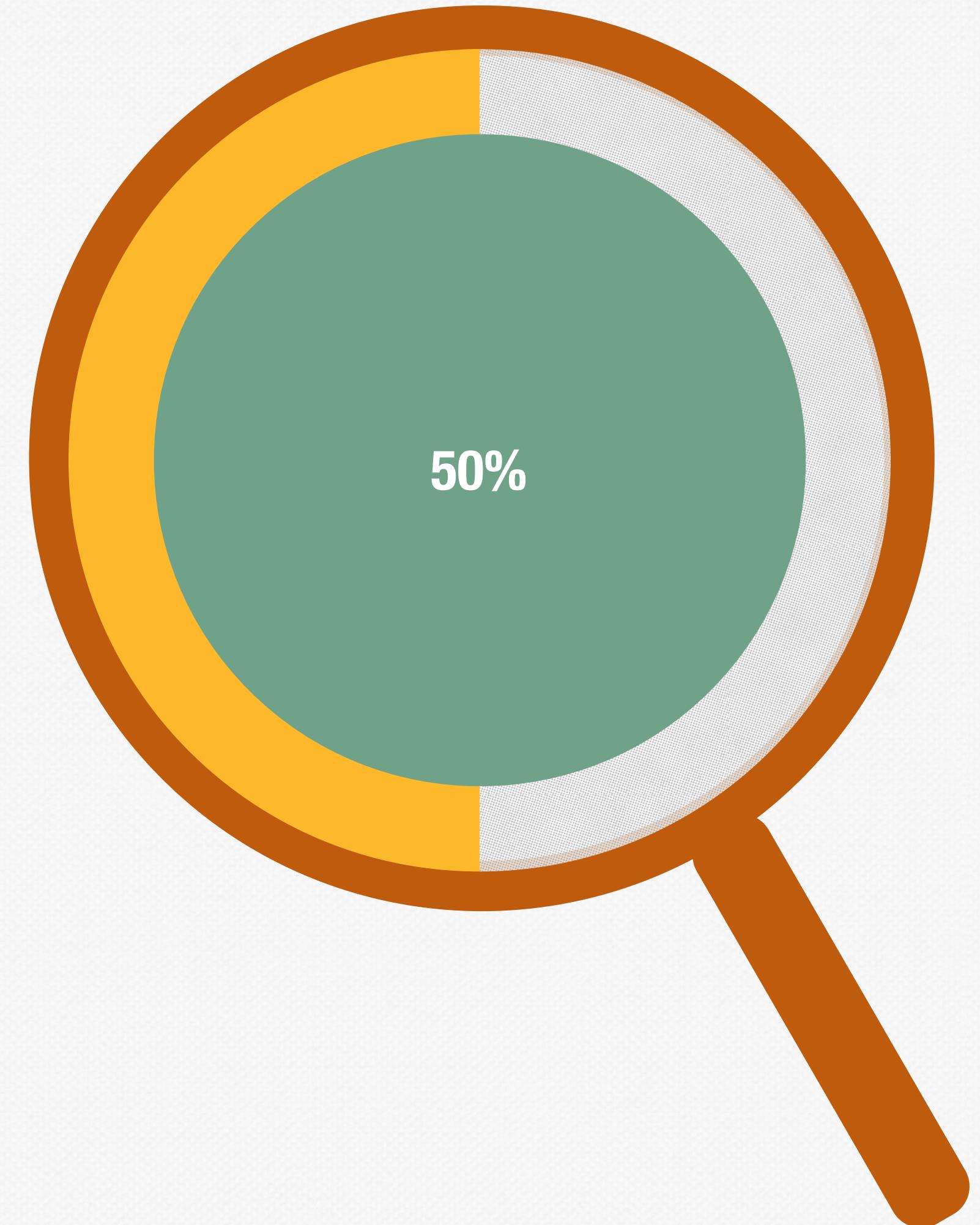


RESEARCH WASTE

- Cada año se gastan \$100 billones de dólares en investigación biomédica
- Solo el 10% se usa para probar si los tratamientos funcionan



- Solo la mitad de los investigadores usan revisiones sistemáticas para describir y evaluar su tópico de investigación

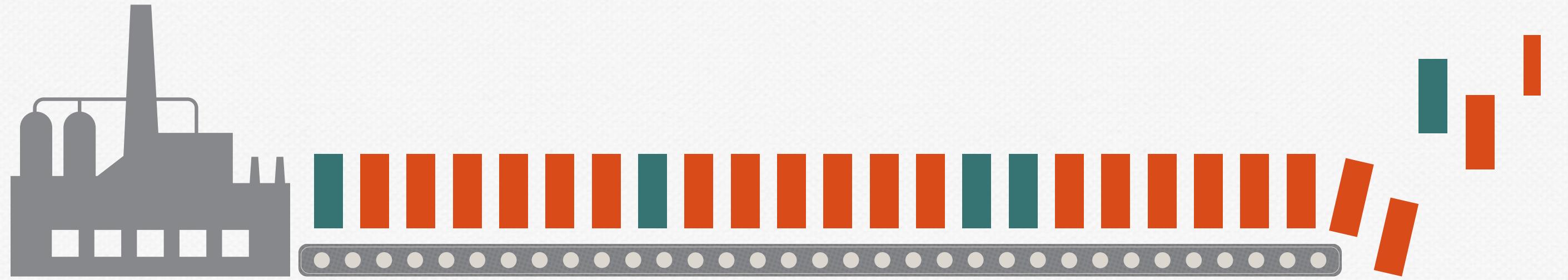


Chalmers I, Glasziou P. Lancet 2009;374:86-9
Cooper NJ, et al Clin Trials 2005;2:260-4.

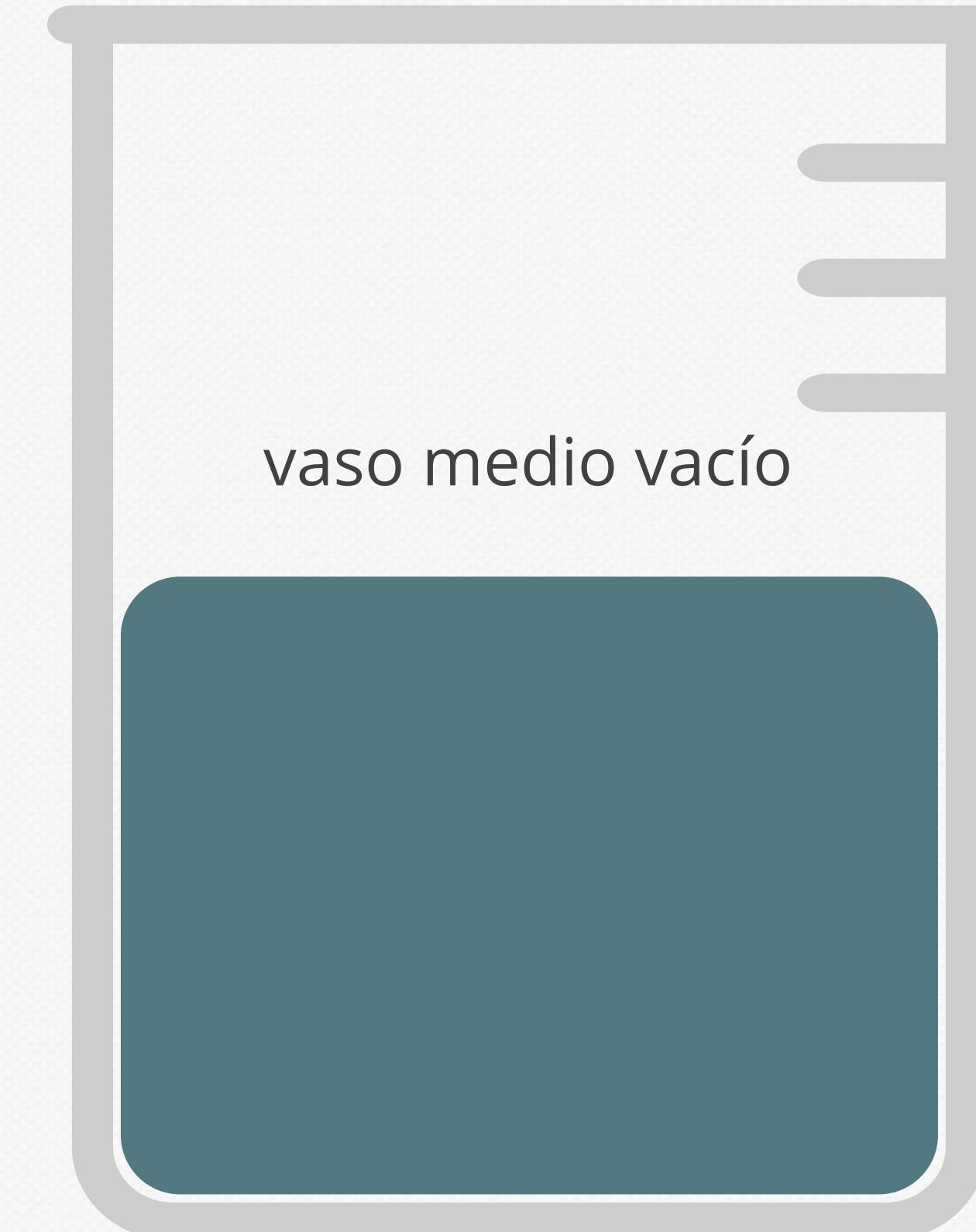
- solo la mitad de los investigadores usan alguna forma de valuación de su investigación (reporte adecuado) antes de publicarla



Chalmers I, Glasziou P. Lancet 2009;374:86-9
Cooper NJ, et al Clin Trials 2005;2:260-4.

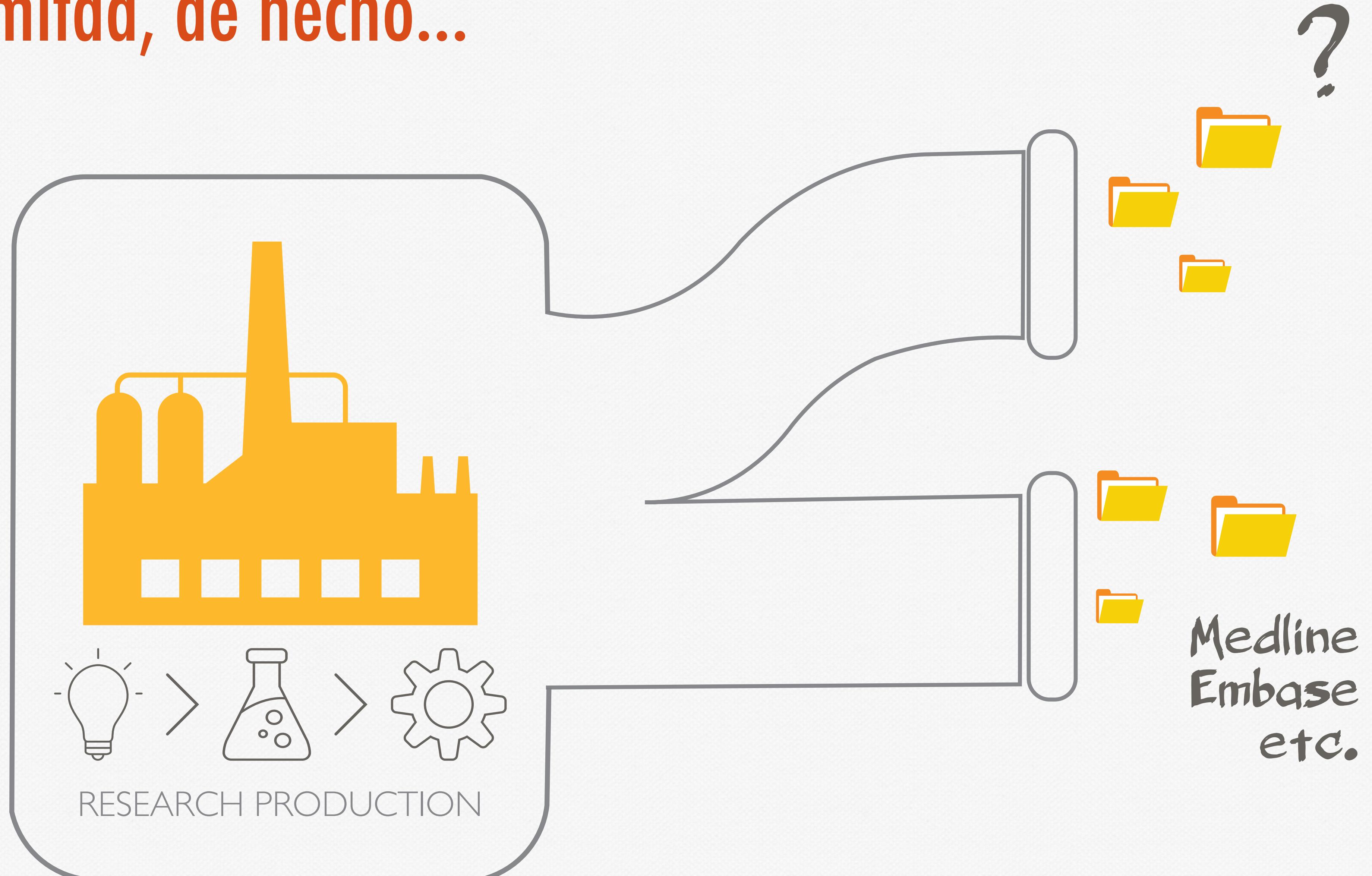


- **¿qué proporción de toda la investigación se registra, reporta o publica...?**



Cressey D. Secrets of trial data revealed.
Nature. 2013 Oct 10;502(7470):154-5

Solo la mitad, de hecho...



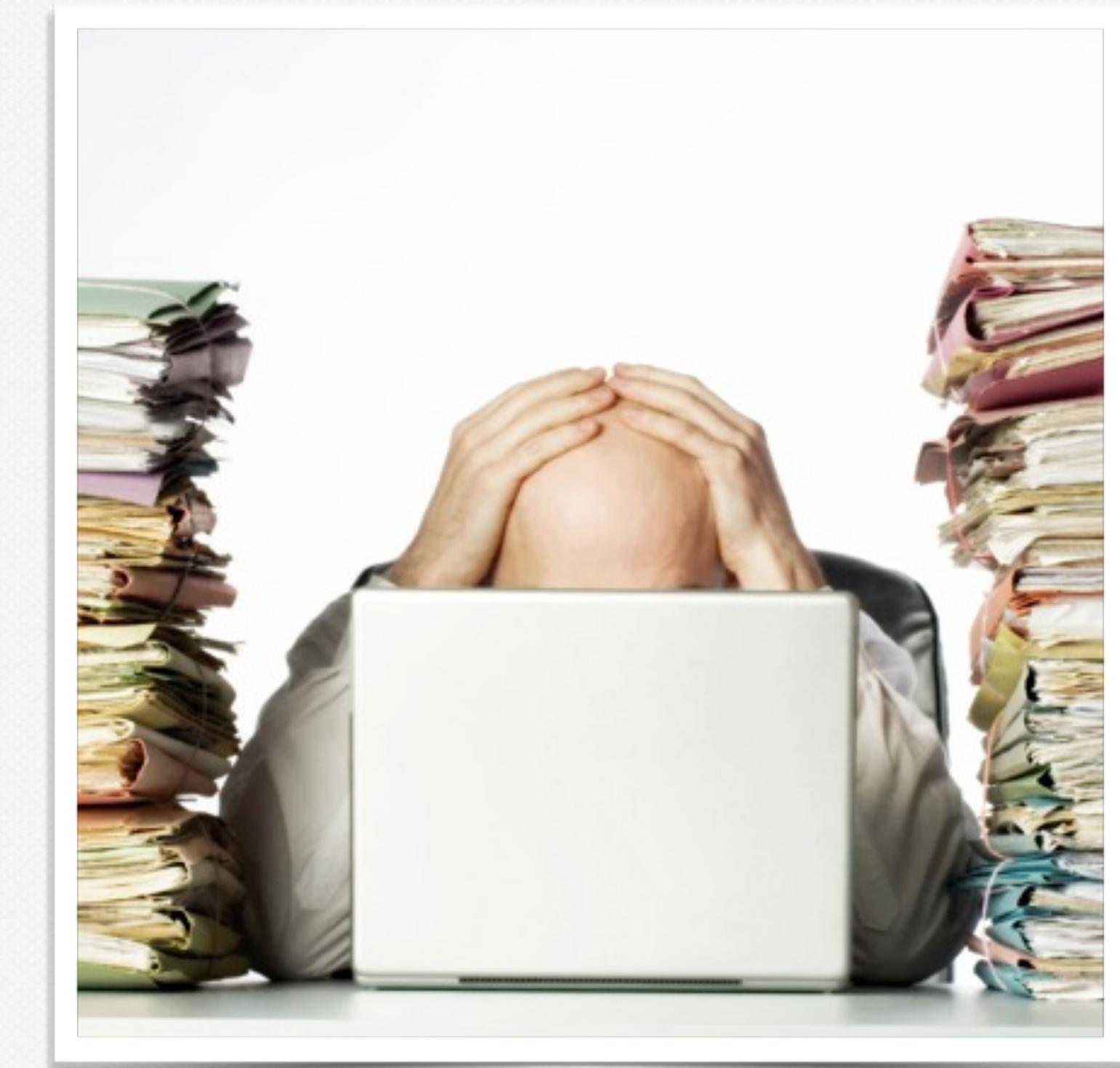
Scherer RW, et al.

Cochrane Database Syst Rev 2007; 2: MR000005.

HAY MUCHA INFORMACIÓN..
Y POCAS SE COMPRUEBA.
¿REALMENTE NECESITAMOS
TANTAS?

HAY SOBRECARGA DE INFORMACIÓN

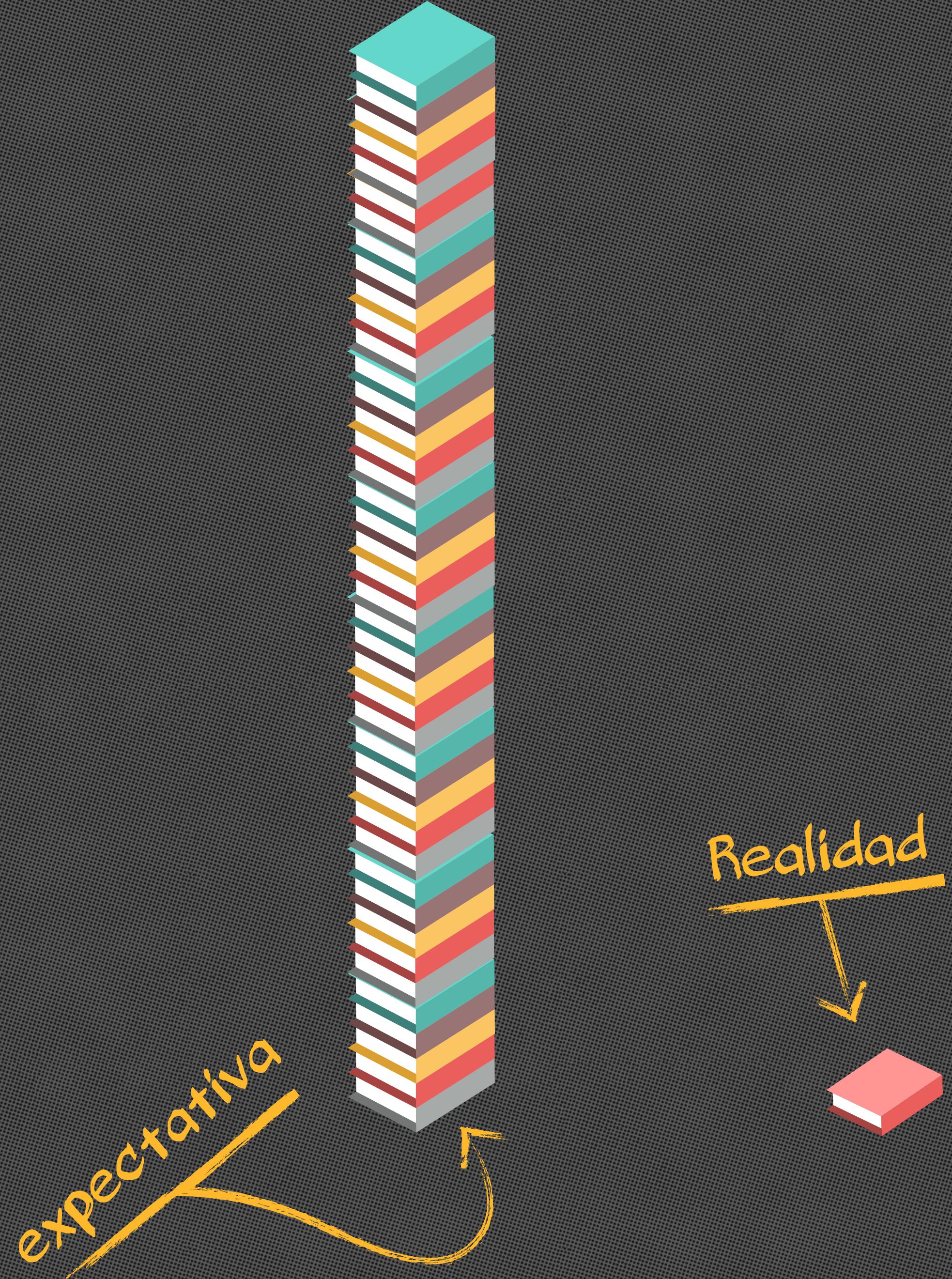
- En Medline, c/semana se agregan:
 - ▶ 14,000 artículos biomédicos nuevos
 - ▶ 300 reportes de ensayos clínicos aleatorios



Para estar actualizado...

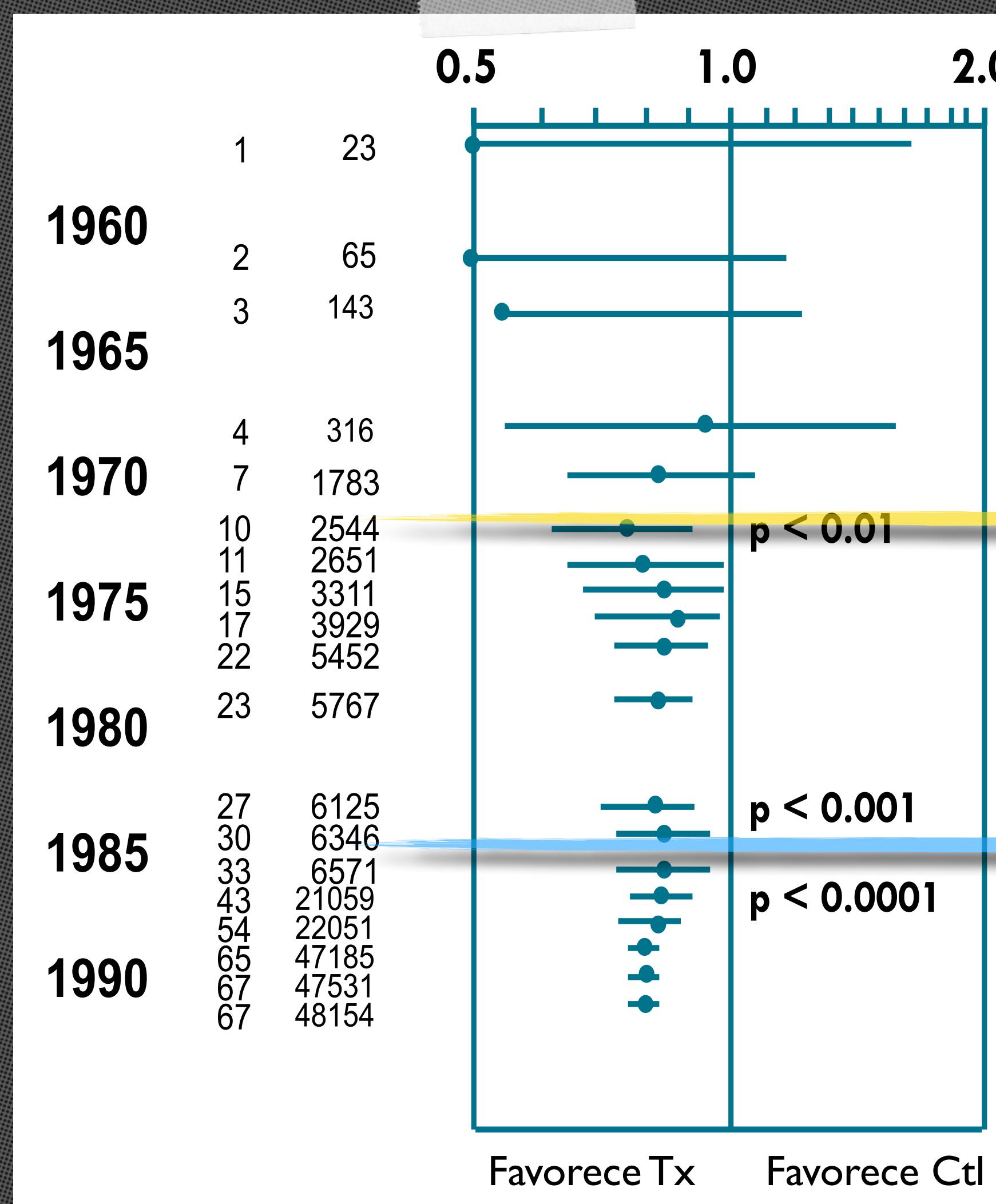
- Especialista promedio tiene que leer 75 ensayos clínicos y 11 revisiones sistemáticas al día
- lee ≤ 1 artículo al día

Tenopir 2004, Bastian 2010



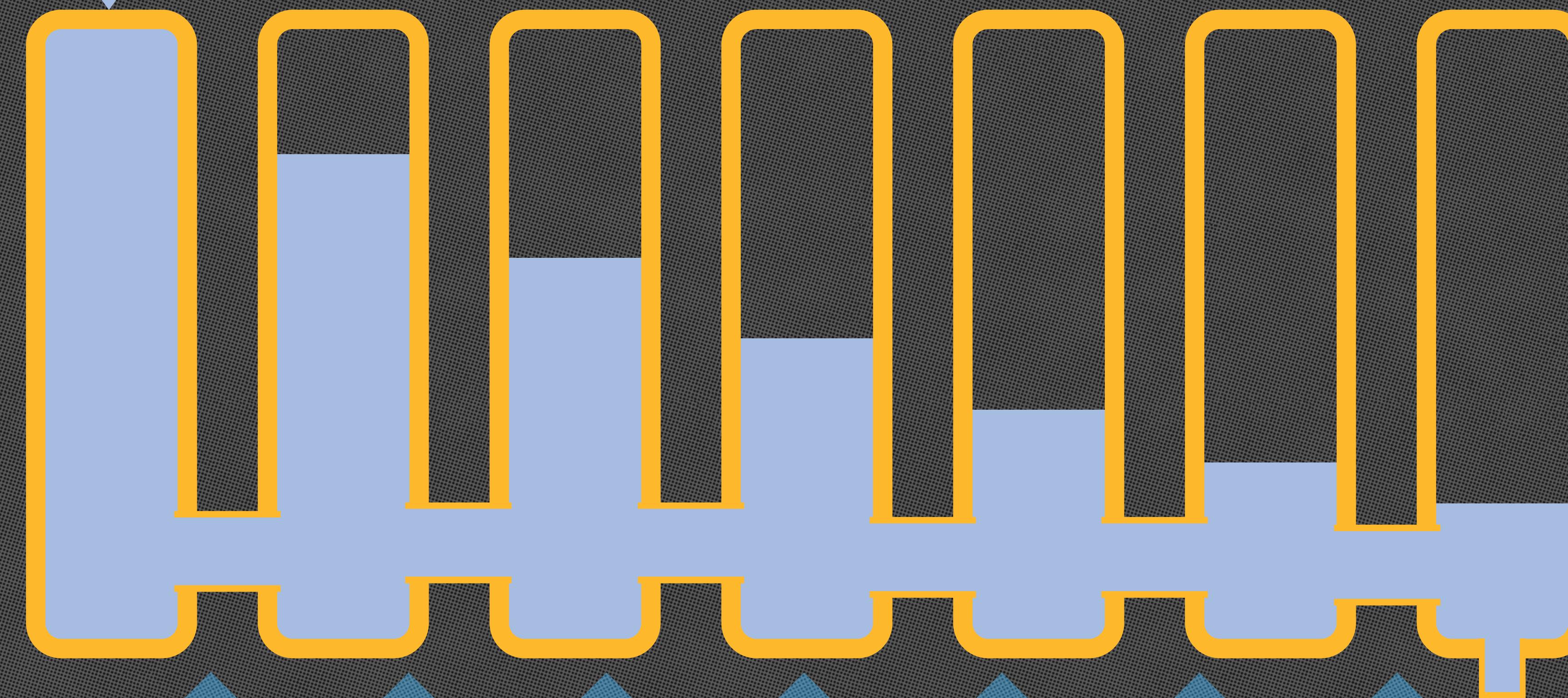
Terapia trombolítica en pacientes con infarto agudo al miocardio para evitar muerte

Libros de texto lo mencionaban como...

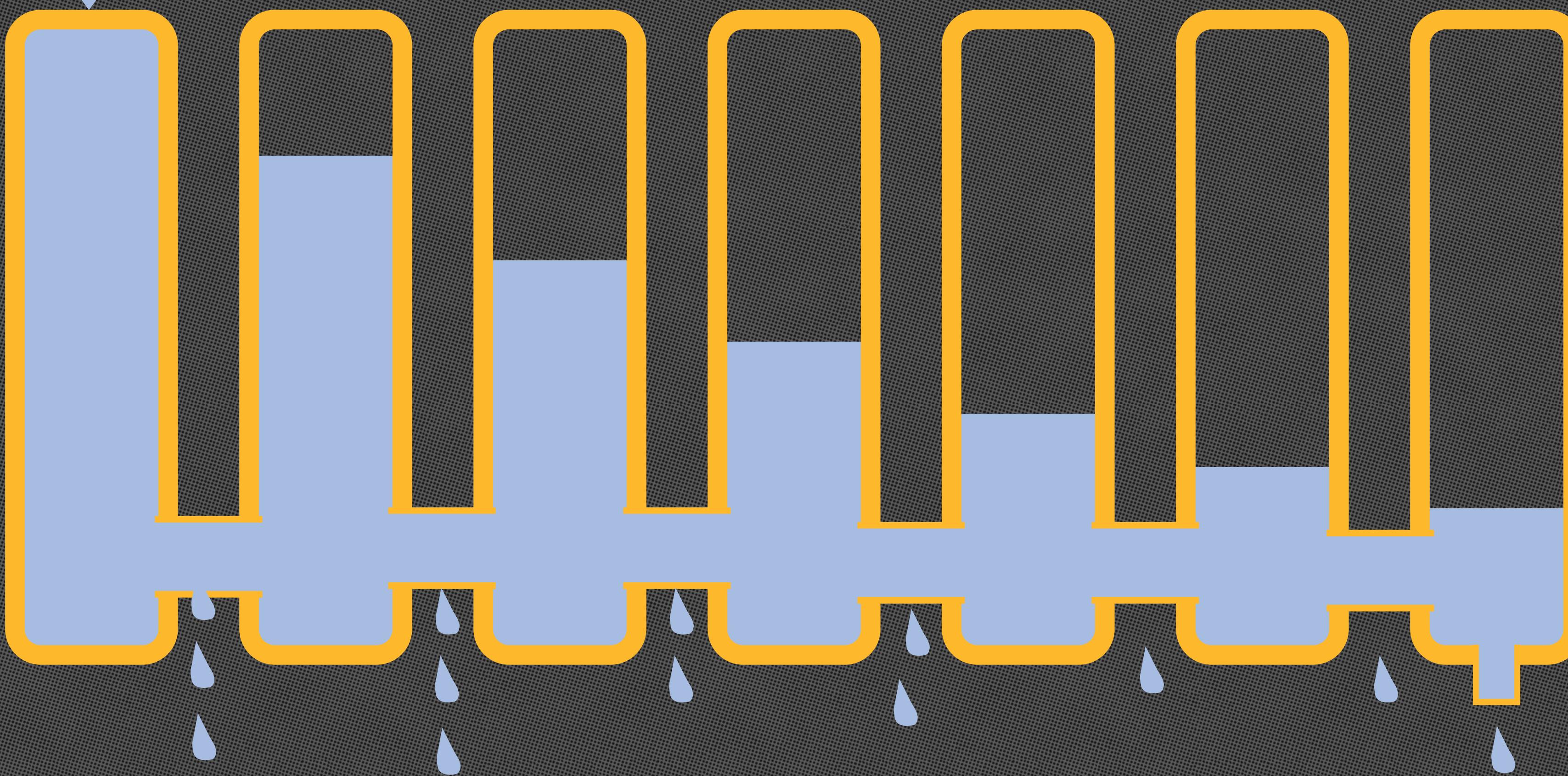


Rutina	Específico	Raro / nada	Experimental	No mencionado
				21
			1	5
			1	10
			1	2
			2	8
				7
				8
				12
			1	4
			8	3
			7	1
5	2		2	6
15	8			
6	1			

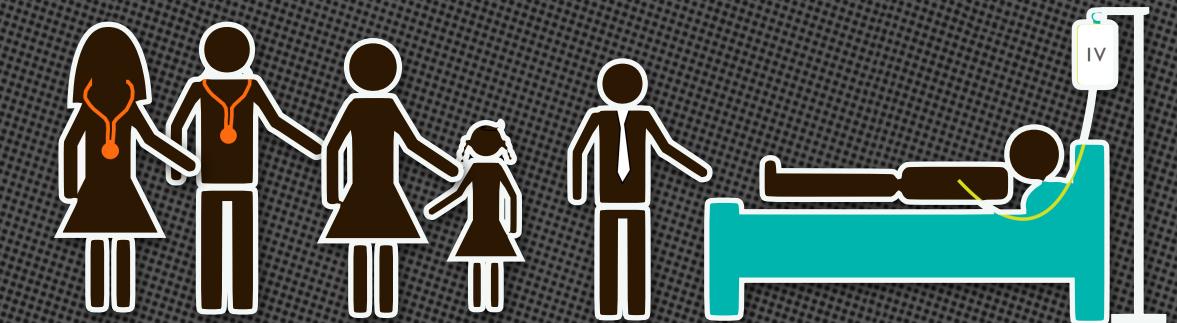
INFORMACIÓN



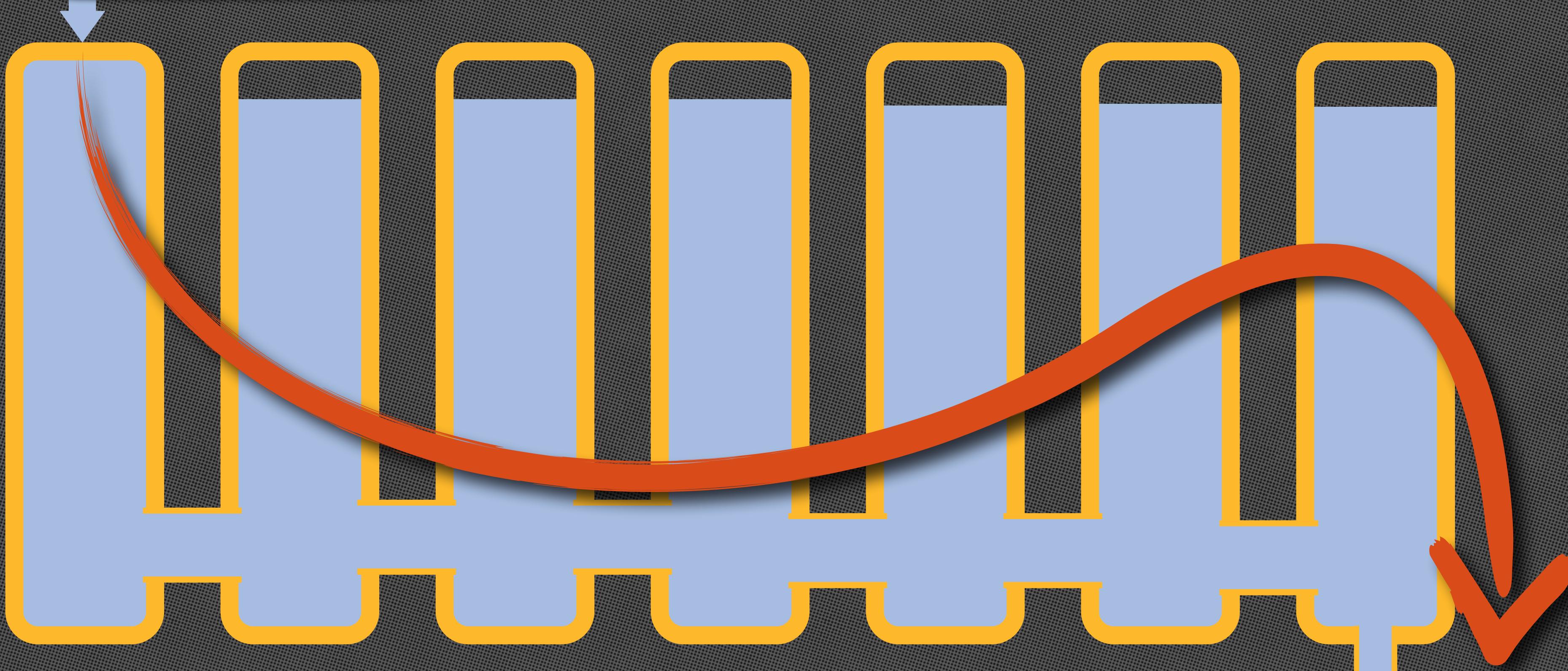
INFORMACIÓN



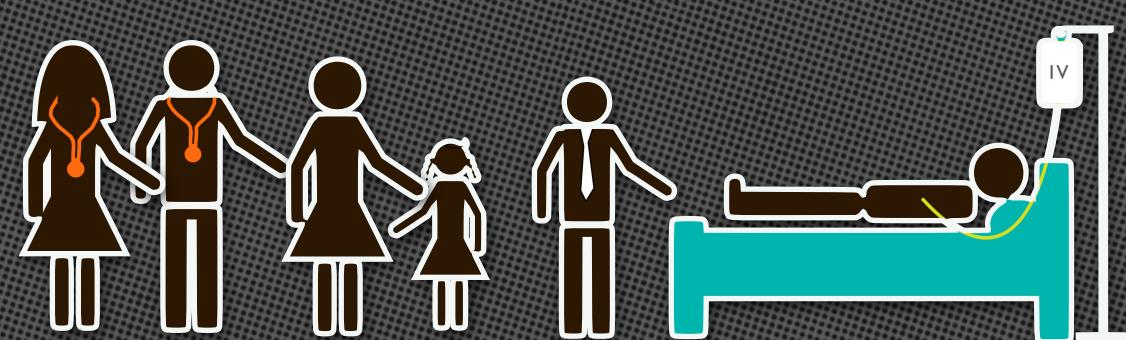
fuga del conocimiento

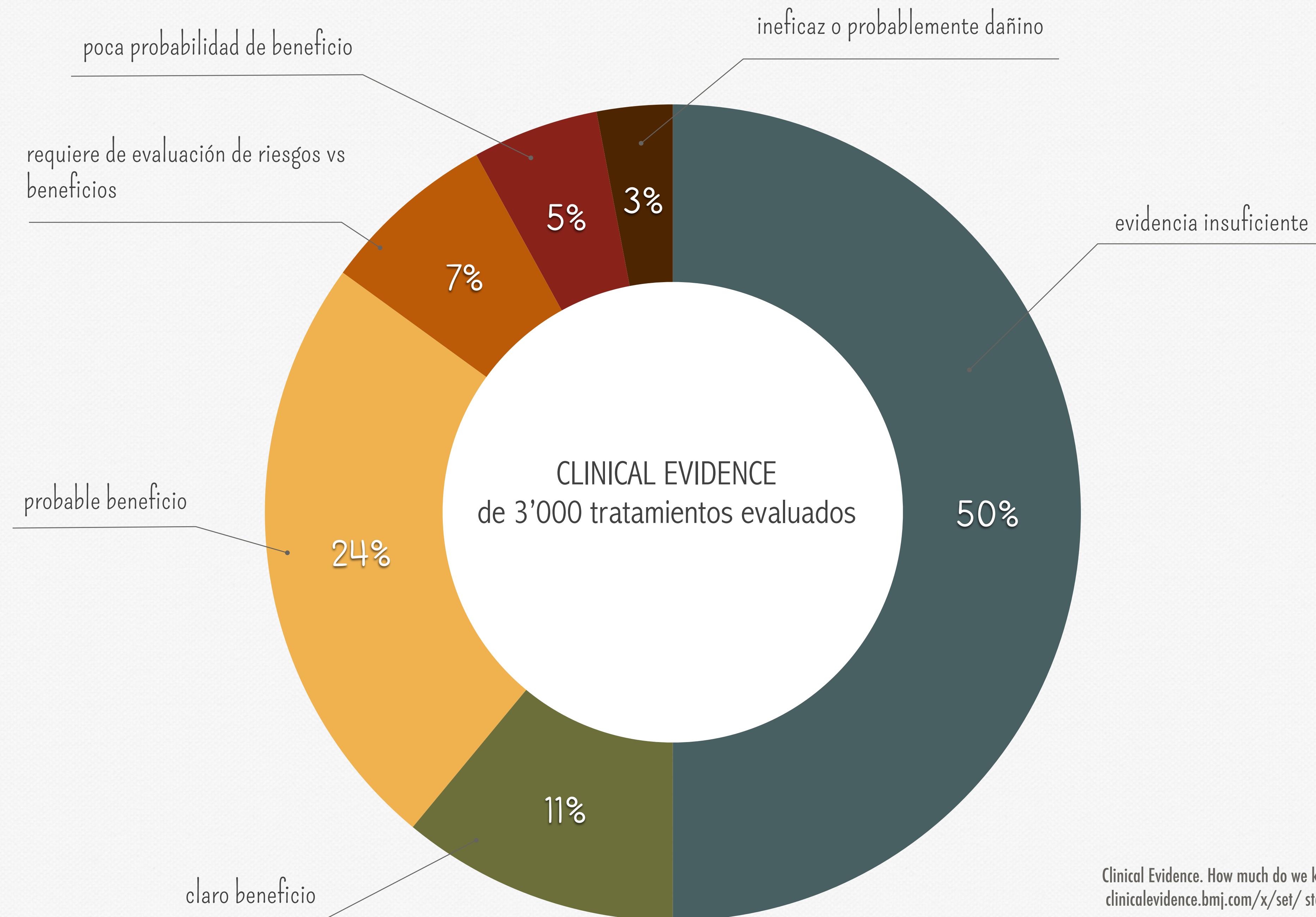


INFORMACIÓN



transferencia del conocimiento





Clinical Evidence. How much do we know? [2013]. Available from: <http://clincalevidence.bmjjournals.org/x-set/static/cms/efficacy-categorisations.html> (accessed 29 Oct 2013).
<https://www.ncims.com/wp-content/uploads/2016/01/HWClinical-Evidence.pdf> [accessed May 11, 2016]

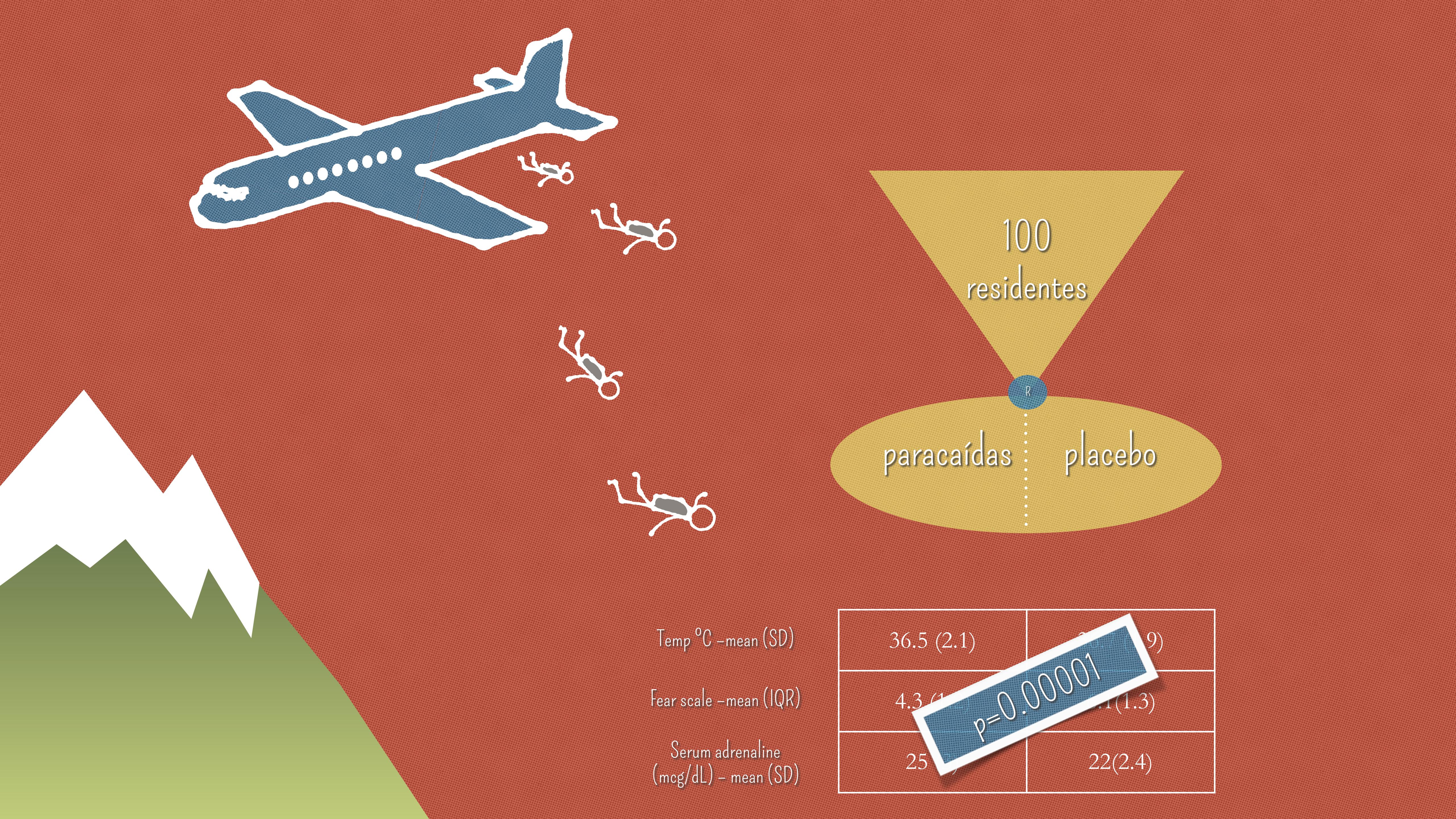
**solo 11% de los tratamientos
tienen clara evidencia de beneficio**

**Desde su concepción,
la investigación tiene
problemas...**

No colocamos prioridades de investigación en base a lo que es importante para nuestros pacientes



Chalmers I, Glasziou P. Lancet 2009;374:86-9
Cooper NJ, et al Clin Trials 2005;2:260-4.

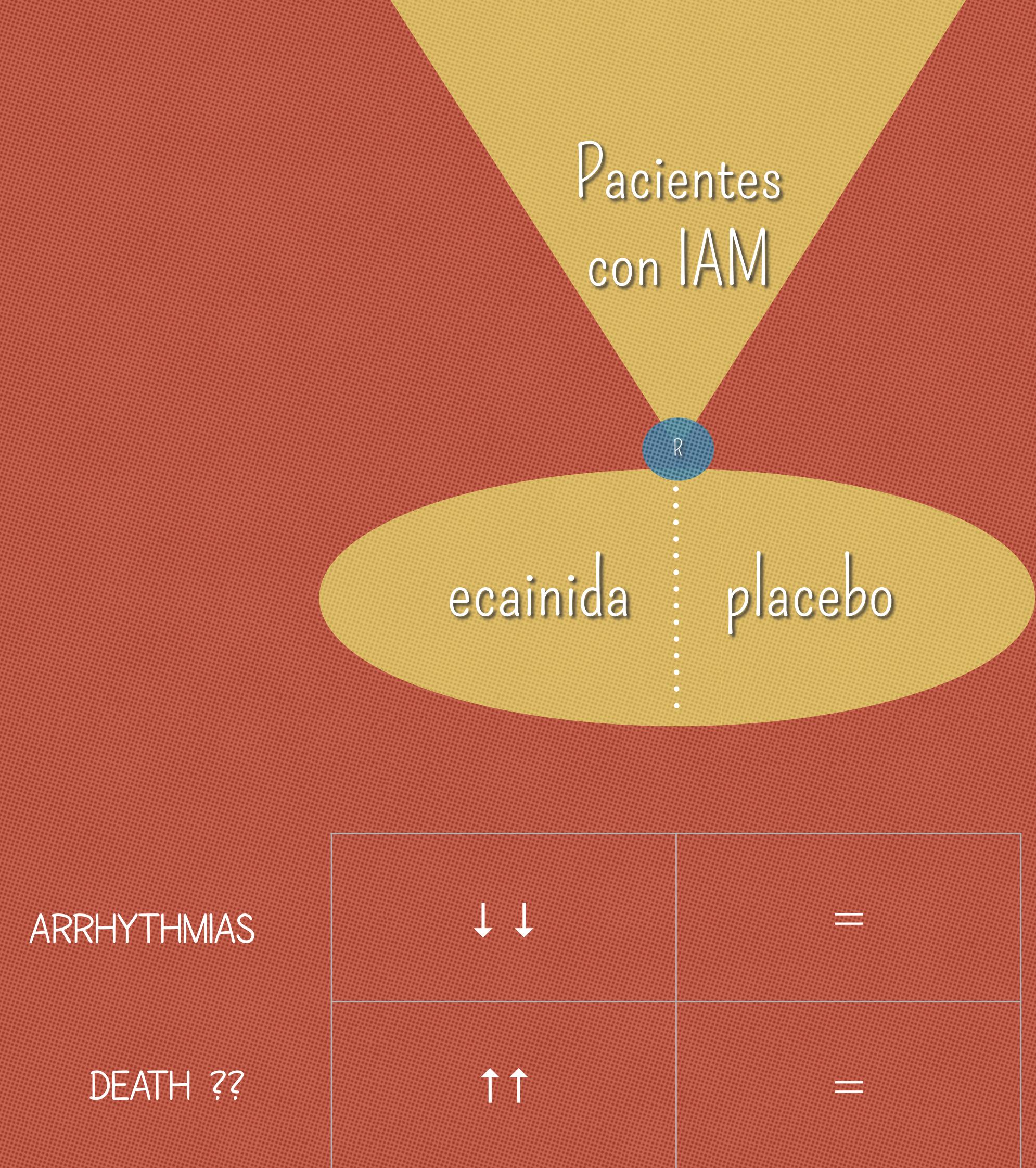


Temp °C -mean (SD)

Fear scale -mean (IQR)

Serum adrenaline (mcg/dL) - mean (SD)

el ejemplo de la ecainida y flecainida



ARRHYTHMIAS

DEATH ??

¿Cuál desenlace es más importante?

pacientes con
asma severo

ÓXIDO
NÍTRICO

PLACEBO

R

O₂ sat

FEV1

Días de estancia IH

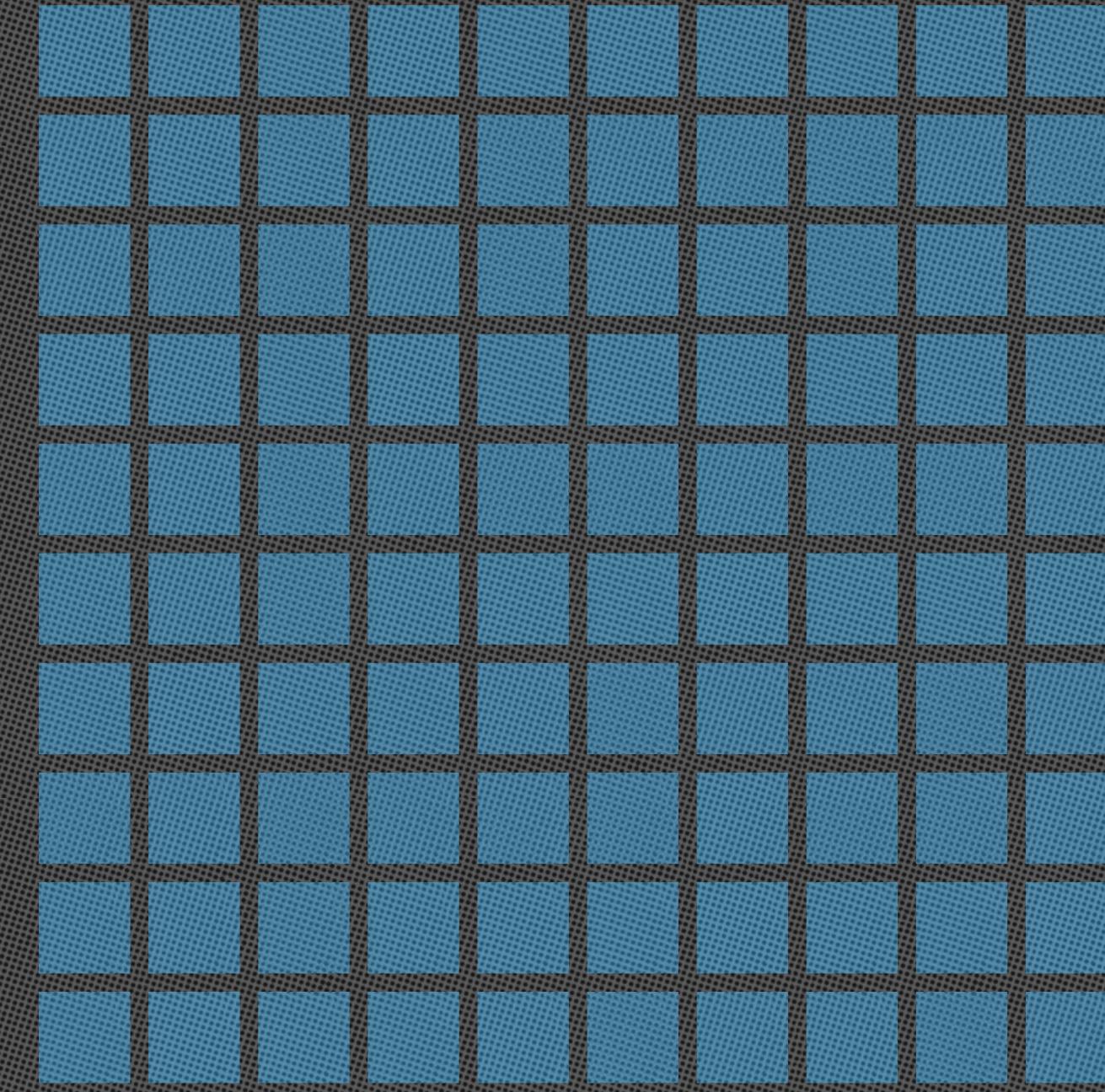
Muerte

**SÓLO PUBLICAMOS
LO POSITIVO**

Sterling's observations (1959 & 1995)



294 ESTUDIOS

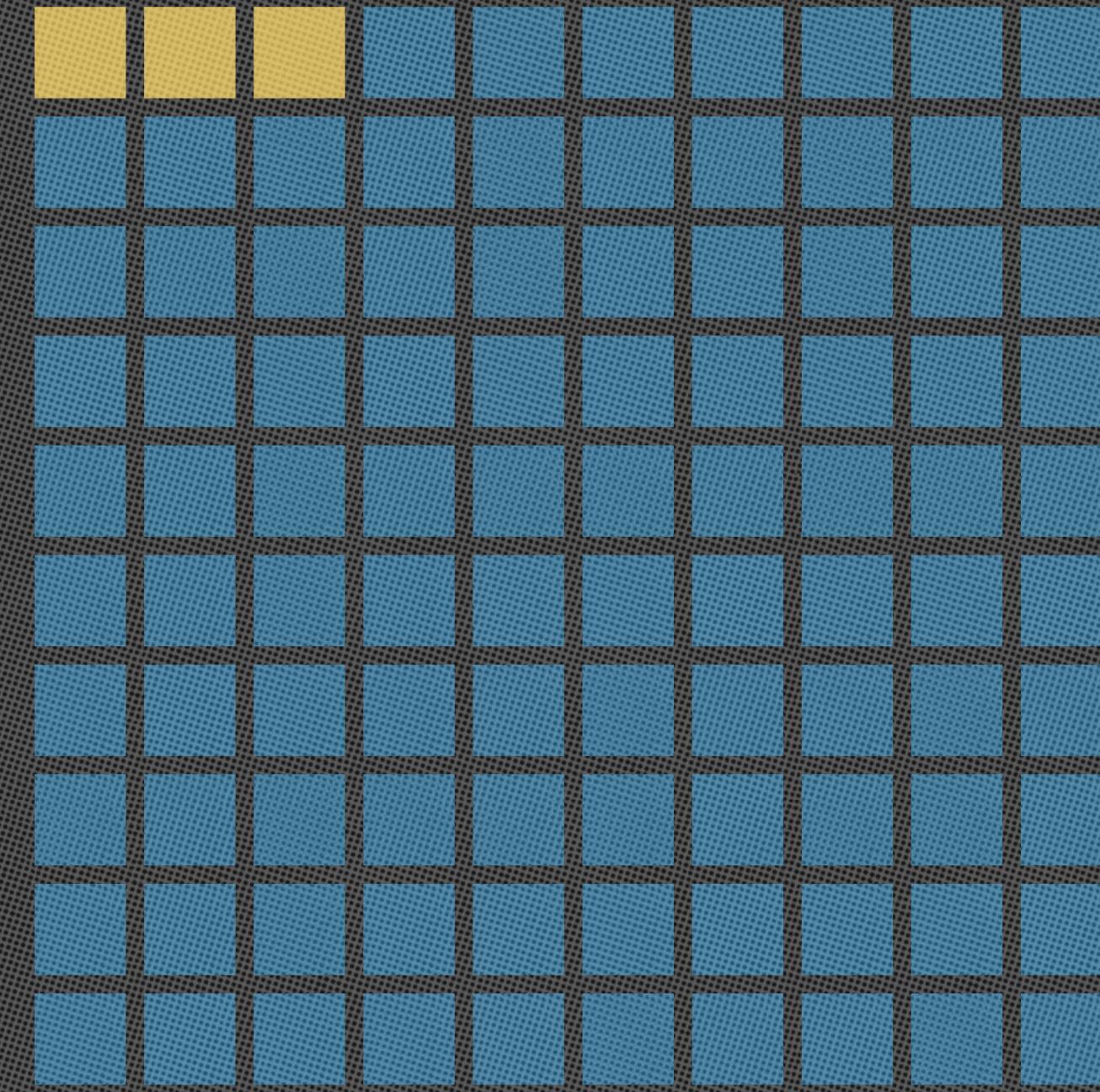


de estos
¿cuántos crees que tienen
resultados NO
significativos?

Sterling's observations (1959 & 1995)



294 ESTUDIOS

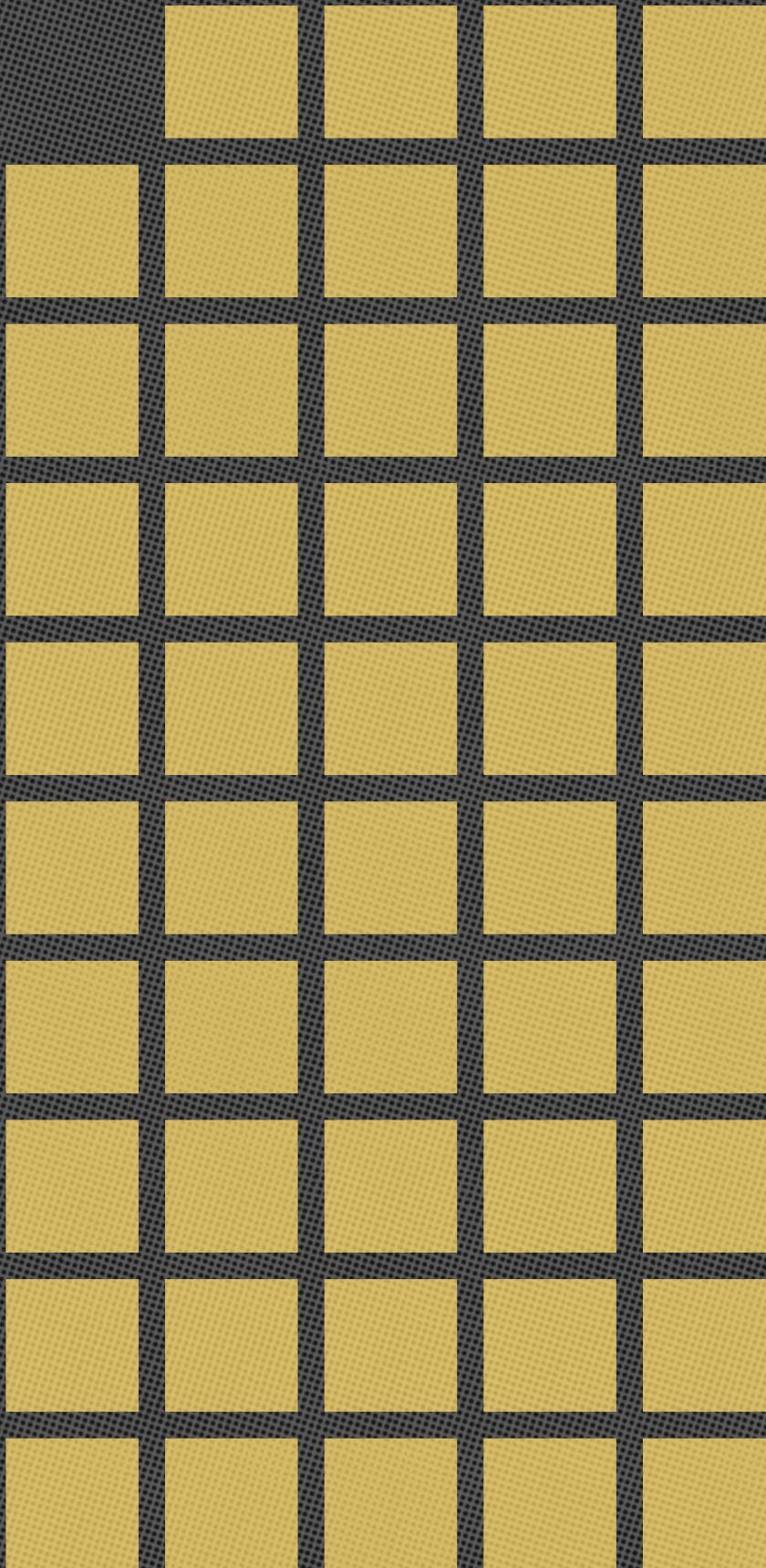


3%

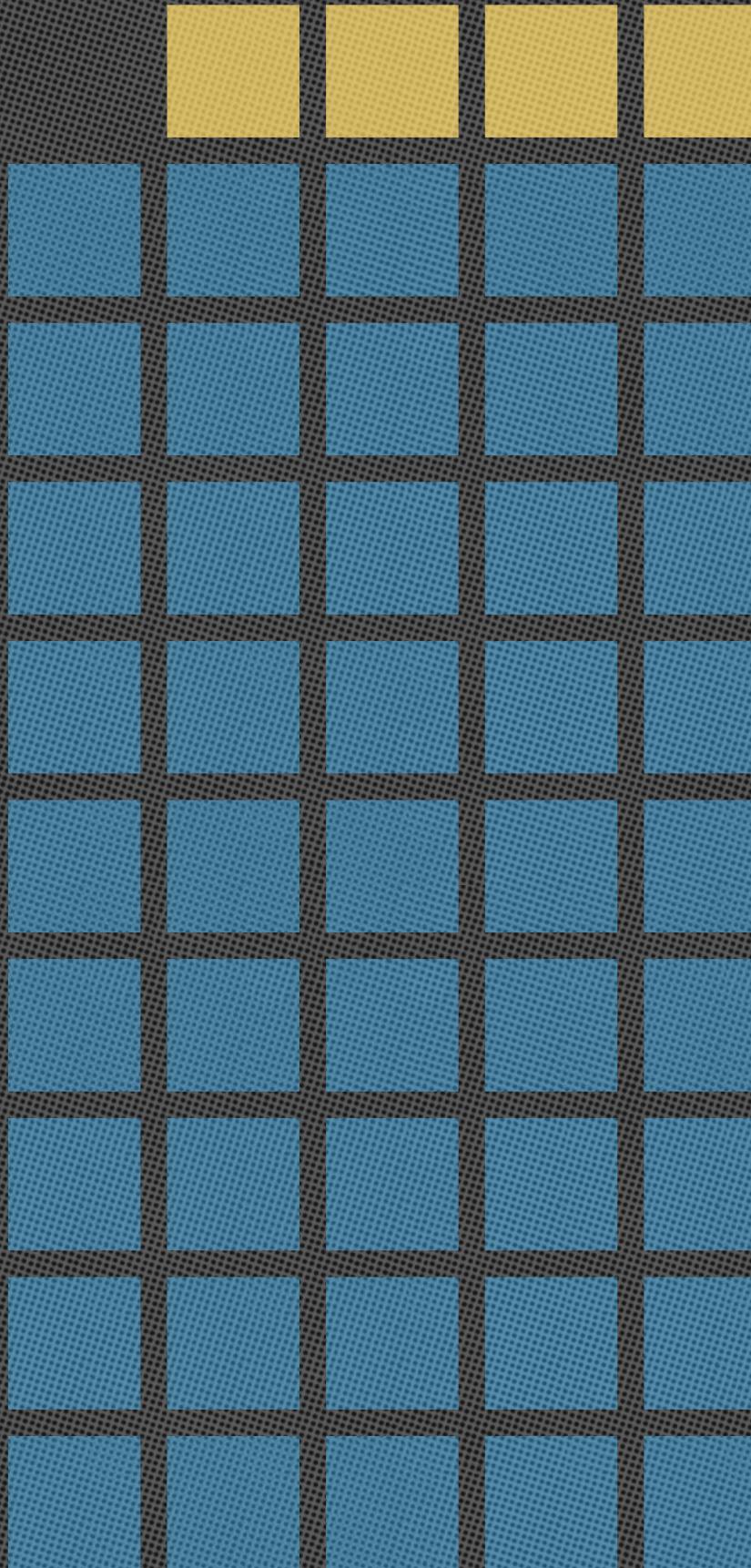
¿todo lo que se publica en
los mejores journals es
cierto/correcto?

Ioannidis observations (2005)

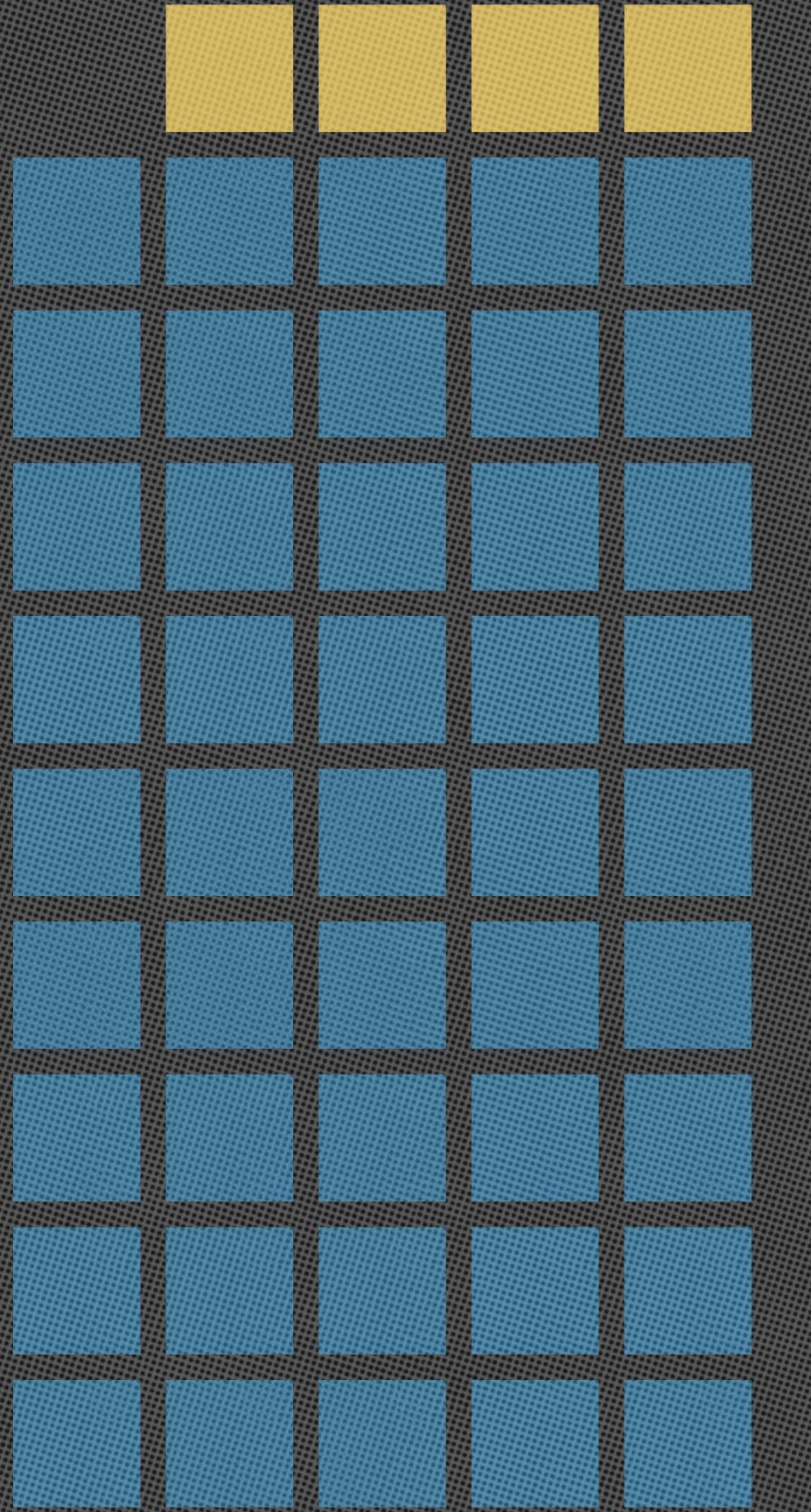
49 estudios en journals con
factor de impacto ≥ 7 (e.g. NEJM,
JAMA, Lancet, etc.)



Ioannidis observations (2005)



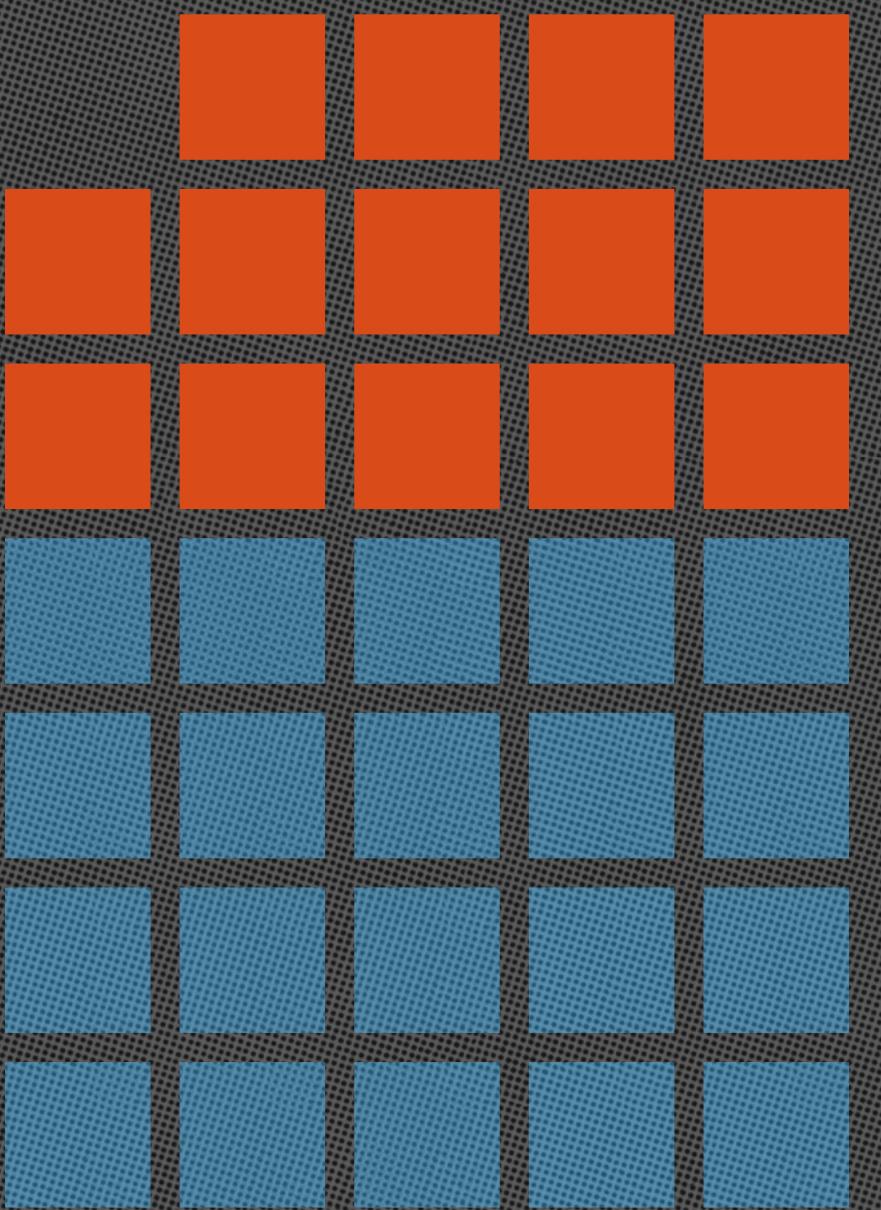
45 con resultados
“positivos”



34 fueron re-evaluados

estos estaban
equivocados

41%



estos
estaban bien

59%

**Una gran parte de la
investigación clínica es
falsa, mal comunicada, o
simplemente errónea**

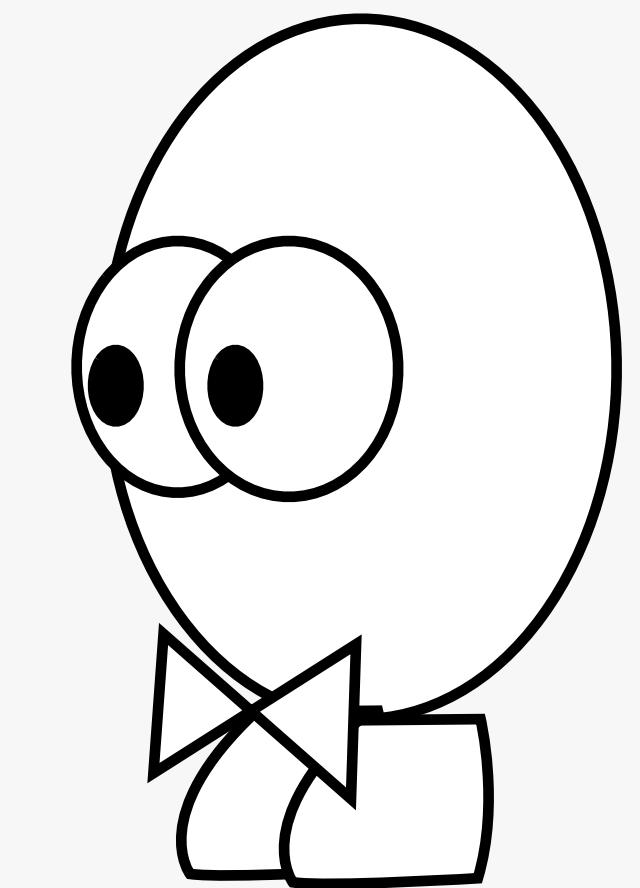
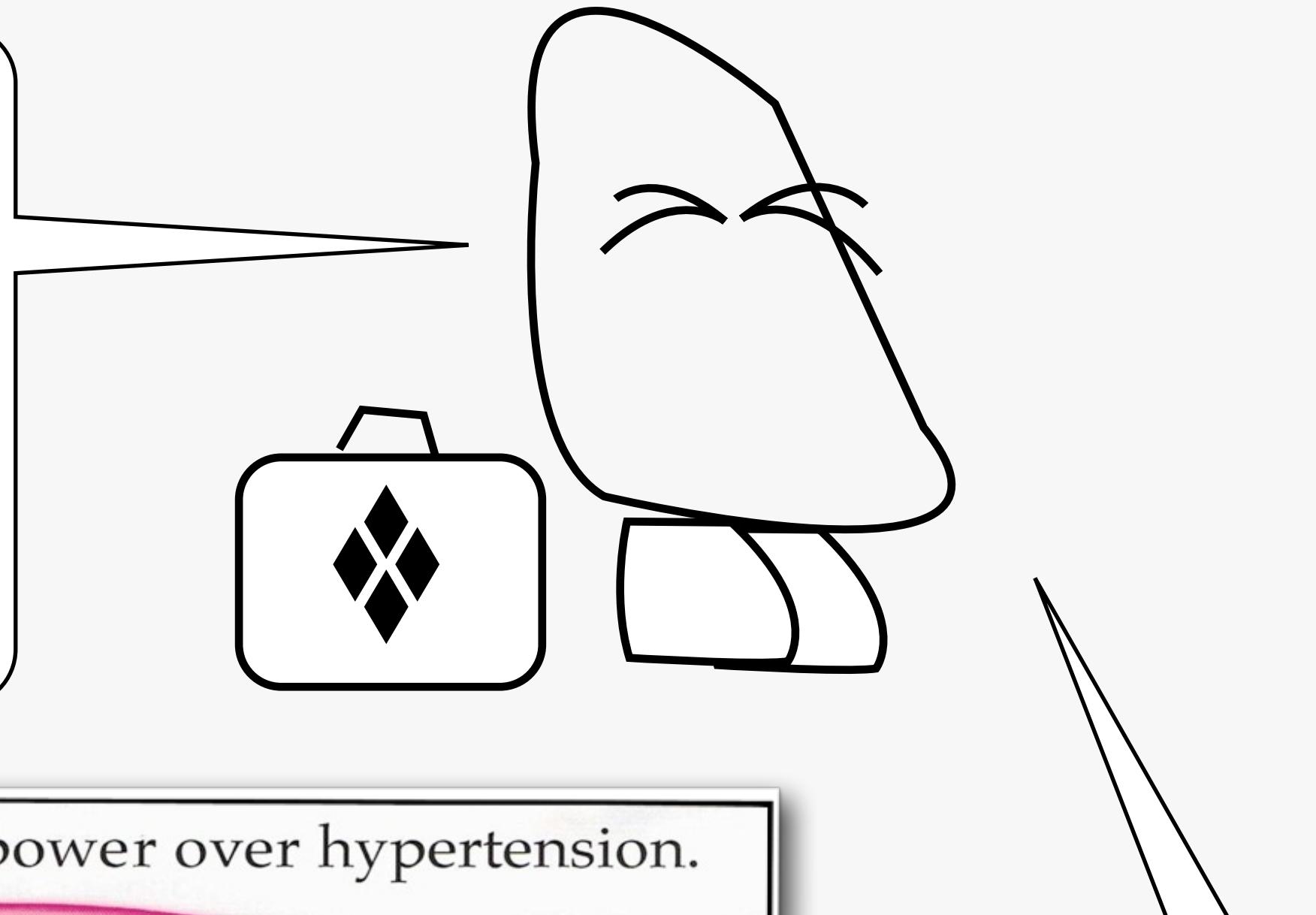


...y además, el fraude científico...

tergiversar información

(por conflictos de interés)

**Para sus pacientes
diabéticos, con
hipertensión y proteinuria**



A lifetime of power over hypertension.

From powerful BP lowering to proven renal protection, Aprovel works for your patients, all their lives.

Power to protect day after day.

**APROVEL™ (irbesartan)
COAPROVEL™ (irbesartan/hydrochlorothiazide)**

Form and composition: APROVEL™ 150 mg, APROVEL™ 300 mg, COAPROVEL™ 300 mg. Boxes of 28 doses containing 150 mg or 300 mg of irbesartan. Therapeutic Indications: Treatment of essential hypertension and treatment of renal disease in patients with hypertension and type 2 diabetes mellitus as part of an antihypertensive drug regimen. Posology and method of administration: Oral and maintenance dose is 150 mg once daily, with or without food. 75 mg starting dose for patients undergoing haemodialysis and in patients over 75 years of age. In patients insufficiently controlled at 150 mg once daily, the dose of Aprovel should be increased by 75 mg. Other oral antihypertensive agents can be added to Aprovel such as hydrochlorothiazide. In antihypertensive type 2 diabetic patients, starting dose should be 150 mg (stated up to 300mg OD as preferred maintenance dose) for treatment of renal disease. No dosage adjustment is necessary in patients with mild to moderate hepatic impairment or with impaired renal function not undergoing haemodialysis. Volume and/or sodium depletion should be corrected prior to the use of Aprovel. Safety data for Aprovel are limited to those obtained in children, teenagers and lactation. Special warnings and special precautions for use: - Hypotension - Volume-depleted patients, Renal artery stenosis - renovascular hypertension, renal impairment and kidney transplantation. Hepatic impairment, aortic and mitral valve stenosis, obstructive hypertension, primary aldosteronism, hypothyroidism, hypoparathyroidism, interactions with other medicinal products and other forms of interaction. Nursing and other antihypertensive drugs may have an additive effect. - Potassium supplements and potassium sparing diuretics may lead to increases in serum potassium. Lithium: not recommended. If coconcurrent use proves necessary, careful monitoring of serum lithium levels is recommended, due to possible increase in serum lithium concentration. Non-steroidal anti-inflammatory drugs: see special warnings and precautions for use. - Use during pregnancy and lactation: Preferably not to be used during first trimester of pregnancy and contraindicated during second and third trimester and lactation. Effects on ability to drive and use machines: it should be taken into account that occasionally dizziness or weariness may occur during treatment of hypertension. Undesirable effects: Generally mild and transient and not related to dose (in the recommended dose range), gender, age, race, or duration of treatment. Adverse events occur with similar frequency in placebo-treated patients across all the trials. The incidence of adverse events is higher than that observed in the Irbesartan group. Post marketing experience: rare cases of hypersensitivity reactions; for very rare side effects see full prescribing information. Overdose: The patient should be closely monitored, and the treatment should be symptomatic and supportive. Irbesartan is not removed by haemodialysis. Pharmacological properties: Irbesartan is a potent, orally active, selective antagonist of the angiotensin II receptor. Marketing authorisation holder: Will vary from country to country. Numbers in the community register of medicinal products: Will vary from country to country. Date of first authorisation / renewal of the authorisation: Will vary from country to country. Date of revision of the text: 09/01/03.

Trade name of the medicinal product: COAPROVEL™ 300/12.5 mg and COAPROVEL™ 300/25 mg tablets. Presentation: Irbesartan 150 mg / hydrochlorothiazide 12.5 mg and Irbesartan 300 mg / hydrochlorothiazide (HCTZ) 12.5 mg. Therapeutic Indications: Treatment of essential hypertension. Posology and method of administration: once daily, with or without food in patients whose blood pressure is not adequately controlled with Irbesartan or HCTZ alone. COAPROVEL™ 150/12.5 mg may be initiated in patients who are not controlled with Irbesartan 150 mg and HCTZ 12.5 mg. COAPROVEL™ 300/25 mg may be initiated with Irbesartan 300 mg or COAPROVEL™ 150/12.5 mg COAPROVEL™ 300/25 mg HCTZ are not recommended. Intravascular volume depletion; volume and/or sodium depletion should be corrected prior to administration of Coaprovél. Elderly: no dosage adjustment. Case of Hepatic impairment: no dosage adjustment. Case of renal impairment: no dosage adjustment. Case of hypotension: no dosage adjustment. Recommended for patients with severe renal or severe hepatic impairment. Children: safety and efficacy of Coaprovél have not been established in children. Contraindications: hypersensitivity to any component of the products or other sulfonamide derived substances. Associated with hydrochlorothiazide. Severe renal impairment. Refractory hypokalaemia, hypercalcaemia. Severe hepatic impairment, biliary cirrhosis and cholestasis. Pregnancy and lactation: see full Prescribing Information. Special warnings and precautions for use: volume depleted patients, renal artery stenosis - renovascular hypertension, renal impairment and kidney transplantation, hypokalaemia, hepatic impairment, aortic and mitral valve stenosis, obstructive hypoprophic cardiomyopathy, primary aldosteronism, metabolic and endocrine effects, electrolyte imbalance, anti-doping test. Interactions with other medicinal products and other forms of interaction: Other antihypertensive medications, potassium sparing diuretics, potassium supplements, lithium, CCBs, ACE inhibitors, NSAIDs, PDE5 inhibitors, alpha-blockers, beta-blockers, renin-angiotensin-aldosterone system antagonists, non-narcotic analgesics, muscle relaxants (suburcans), antigout medication, calcium salts, see full PI for other interactions. Use during pregnancy and lactation: Preferably not to be used during first trimester of pregnancy and contraindicated during second and third trimester and lactation. Effects on ability to drive and use machines: Irbesartan is unlikely to affect this ability. When driving vehicles or operating machinery, it should be taken into account that occasionally dizziness or weariness may occur during treatment of hypertension. Undesirable effects: Adverse events generally mild and transient. The incidence of adverse events was not related to age, gender, race or dose. - In placebo-controlled clinical studies, discontinuations due to any clinical or laboratory adverse event were less frequent for Irbesartan/HCTZ-treated patients than for placebo-treated patients. - Clinical adverse events occurred in at least 1% of patients treated with Irbesartan/HCTZ, including: dizziness, headache, hypertension, tachycardia, nausea, vomiting, edema, constipation, diarrhea, abdominal pain, flatulence, and taste perversion (rarely asymptomatic). Post marketing experience: rare cases of hypersensitivity reactions, for very rare side effects see full prescribing information. Overdose: The patient should be closely monitored, and the treatment should be symptomatic and supportive. Irbesartan is not removed by haemodialysis. COAPROVEL has not been established. Pharmacological properties: Coaprovél is a combination of an selective antagonist of the receptor type 1 of the angiotensin II and a diuretic. HCTZ. The combination has an additive antihypertensive effect. Marketing authorisation holder: Will vary from country to country. Numbers in the community register of medicinal products: Will vary from country to country. Date of first authorisation / renewal of the authorisation: Will vary from country to country. Date of revision of the text: 30/07/03. Further details including all adverse reactions may be obtained on request from SANOFI AVENISYS Middle-East 46, Quai de la Rapée - 75012 Paris - France. Tel: +33 1 55 71 92 16.

sanofi aventis

**El tratamiento con
Irbesartán disminuyó la
muerte, el aumento de
creatinina y el desarrollo de
enfermedad renal en un 23%
comparado con el amlodipino
(p=0.006).**

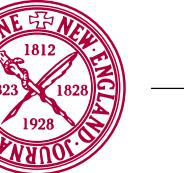
The New England Journal of Medicine

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VOLUME 345

SEPTEMBER 20, 2001

NUMBER 12



RENOPROTECTIVE EFFECT OF THE ANGIOTENSIN-RECEPTOR ANTAGONIST IRBESARTAN IN PATIENTS WITH NEPHROPATHY DUE TO TYPE 2 DIABETES

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ABSTRACT

Background It is unknown whether either the angiotensin-II-receptor blocker irbesartan or the calcium-channel blocker amlodipine slows the progression of nephropathy in patients with type 2 diabetes independently of its capacity to lower the systemic blood pressure.

Methods We randomly assigned 1715 hypertensive patients with nephropathy due to type 2 diabetes to treatment with irbesartan (300 mg daily), amlodipine (10 mg daily), or placebo. The target blood pressure was 135/85 mm Hg or less in all groups. We compared the groups with regard to the time to the primary composite end point of a doubling of the base-line serum creatinine concentration, the development of end-stage renal disease, or death from any cause. We also compared them with regard to the time to a secondary, cardiovascular composite end point.

Results The mean duration of follow-up was 2.6 years. Treatment with irbesartan was associated with a risk of the primary composite end point that was 20 percent lower than that in the placebo group ($P=0.02$) and 23 percent lower than that in the amlodipine group ($P=0.006$). The risk of a doubling of the serum creatinine concentration was 33 percent lower in the irbesartan group than in the placebo group ($P=0.003$) and 37 percent lower in the irbesartan group than in the amlodipine group ($P<0.001$). Treatment with irbesartan was associated with a relative risk of end-stage renal disease that was 23 percent lower than that in both other groups ($P=0.07$ for both comparisons). These differences were not explained by differences in the blood pressures that were achieved. The serum creatinine concentration increased 24 percent more slowly in the irbesartan group than in the placebo group ($P=0.008$) and 21 percent more slowly than in the amlodipine group ($P=0.02$). There were no significant differences in the rates of death from any cause or in the cardiovascular composite end point.

Conclusions The angiotensin-II-receptor blocker irbesartan is effective in protecting against the progression of nephropathy due to type 2 diabetes. This protection is independent of the reduction in blood pressure it causes. (N Engl J Med 2001;345:851-60.)

Irbesartán vs amlodipina

*ECA 3 años en pacientes diabéticos, hipertensos
y con proteinuria*

*El tratamiento con Irbesartán
disminuyó el desenlace compuesto
un 23% comparado con el grupo
amlodipina ($P=0.006$).*

- Muerte x cualquier causa
- Duplicación de niveles de creatinina sérica
- Inicio de ESRD

TABLE 3. RELATIVE RISKS OF OUTCOMES.*

OUTCOME	UNADJUSTED RELATIVE RISK (95% CI)	P VALUE	ADJUSTED RELATIVE RISK (95% CI)†	P VALUE
Primary composite end point				
Irbesartan vs. placebo	0.80 (0.66–0.97)	0.02	0.81 (0.67–0.99)	0.03
Amlodipine vs. placebo	1.04 (0.86–1.25)	0.69	1.07 (0.89–1.29)	0.47
Irbesartan vs. amlodipine	0.77 (0.63–0.93)	0.006	0.76 (0.63–0.92)	0.005
Doubling of serum creatinine concentration				
Irbesartan vs. placebo	0.67 (0.52–0.87)	0.003	0.71 (0.54–0.92)	0.009
Amlodipine vs. placebo	1.06 (0.84–1.35)	0.60	1.15 (0.91–1.46)	0.24
Irbesartan vs. amlodipine	0.63 (0.48–0.81)	<0.001	0.61 (0.48–0.79)	<0.001
End-stage renal disease				
Irbesartan vs. placebo	0.77 (0.57–1.03)	0.07	0.83 (0.62–1.11)	0.19
Amlodipine vs. placebo	1.00 (0.76–1.32)	0.99	1.09 (0.82–1.43)	0.56
Irbesartan vs. amlodipine	0.77 (0.57–1.03)	0.07	0.76 (0.57–1.02)	0.06
Death from any cause				
Irbesartan vs. placebo	0.92 (0.69–1.23)	0.57	0.94 (0.70–1.27)	0.69
Amlodipine vs. placebo	0.88 (0.66–1.19)	0.40	0.90 (0.66–1.21)	0.47
Irbesartan vs. amlodipine	1.04 (0.77–1.40)	0.80	1.05 (0.78–1.42)	0.75
Secondary, cardiovascular composite end point				
Irbesartan vs. placebo	0.91 (0.72–1.14)	0.40	0.91 (0.72–1.14)	0.40
Amlodipine vs. placebo	0.88 (0.69–1.12)	0.29	0.88 (0.69–1.11)	0.27
Irbesartan vs. amlodipine	1.03 (0.81–1.31)	0.79	1.03 (0.81–1.32)	0.78

*CI denotes confidence interval.

†The relative risks were adjusted for the mean arterial blood pressure during follow-up.

¿evidencia no confiable?

Autores

Journals biomédicos

Farmacéuticas

Agencias reguladoras (e.g., FDA, EMA, COFEPRIS, etc.)



¿Entonces?

- **PROFESIONALES DE LA SALUD Y APRENDICES**

- ▶ Empaparse de las bases de la investigación para su aplicación adecuada a la toma de decisiones en salud (o sea, ser un clínico basado en evidencias)
- ▶ Si deciden hacer investigación, usar el apartado siguiente

¿Entonces?

- **INVESTIGADORES BIOMÉDICOS (CLÍNICOS)**

- ▶ Usar buenos métodos, hay herramientas (que vamos a repasar en este taller)
- ▶ Registrar todo ensayo clínico aleatorio propuesto a realizarse
- ▶ Conducción ética de todo estudio
- ▶ Hacer disponible los datos “duros” (resultados) del reporte del ensayo (el CSR, o clinical study report) cuando terminen el estudio

¿Entonces?

- **EDITORES DE JOURNALS**

- ▶ **Exigir buenos métodos de reporte, hay herramientas**
- ▶ **Exigir que se registre todo ensayo clínico aleatorio propuesto a realizarse y que se haga disponible los datos cuando terminen el estudio**
- ▶ **Enfatizar el uso de la declaración de conflictos de interés**

MBE

**tratando de adaptar e integrar
la investigación a la práctica**

P

preguntar

I

indagar

L

lectura crítica

A

aplicar

R

repasar





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