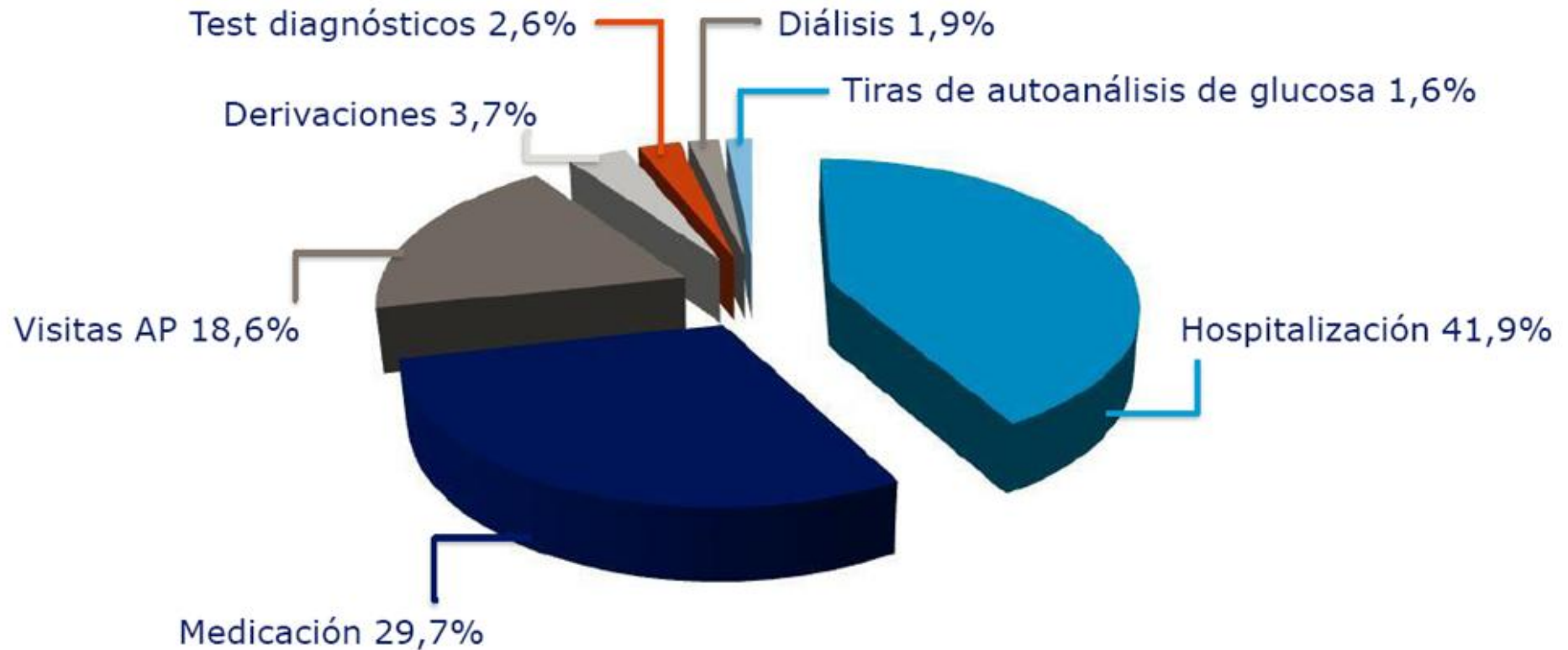




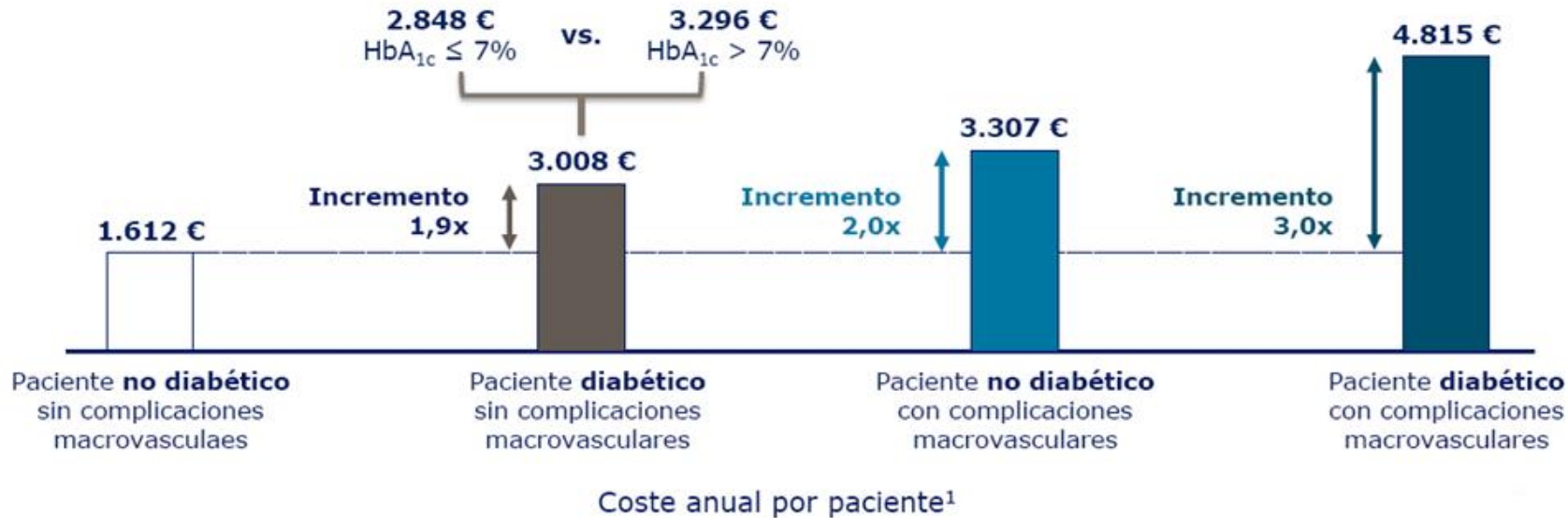
¿Cómo responder a la llamada de la gerencia? Tratamiento individualizado vs el más barato

Aranjuez, 20 de mayo de 2017

Estamos hablando del 30%...



Las complicaciones de la diabetes incrementan el coste



1. Mata-Cases et al. Eur J Health Econ 2015 DOI: 10.1007/s10198-015-0742-5 (eCostesDM Study)

¿Cómo responder a la llamada de la gerencia?
Tratamiento individualizado vs el más barato

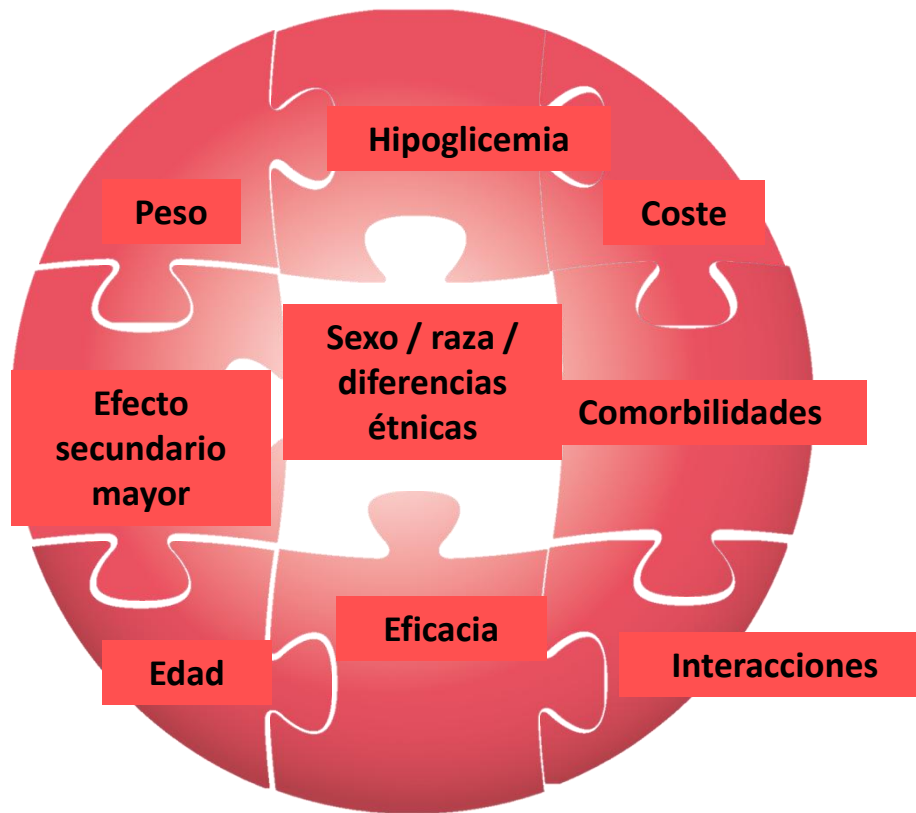
1. ¿Son todos los pacientes con diabetes tipo 2 iguales?
2. ¿Estamos hablando de azúcar o enfermedad compleja cardiovascular y metabólica?
3. ¿Hay que individualizar el tratamiento de la DM2?
4. ¿Qué nos dicen las guías? ¿Individualizamos o cogemos el más barato?
5. ¿Estamos mejorando en el control glucémico con los nuevos fármacos?
6. ¿Estamos mejorando en complicaciones?

¿Cómo responder a la llamada de la gerencia?
Tratamiento individualizado vs el más barato

¿Son todos los pacientes con diabetes tipo 2 iguales?



Las características específicas del paciente deben orientar la elección del tratamiento



¿Cómo responder a la llamada de la gerencia?
Tratamiento individualizado vs el más barato

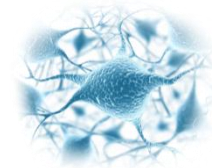
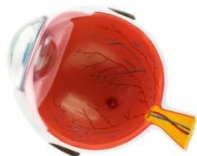
¿Estamos hablando de azúcar o enfermedad compleja cardiovascular y metabólica?



Importancia relativa del control de cada factor de riesgo según complicaciones en la DM2

	Retinop	Nefrop	Coronaria	Cerebral	Periférica	Neuropatía
Genética	++	++	++	++	++	+
Etnia	+/-	+/-	+/-	+/-	+/-	+/-
Tiempo evolución	++	++	+	+	+	++
Glucemia	++	++	+/-	+/-	+/-	++
Presión arterial	++	++	++	++	+	-
Lípidos	+	+	++	++	++	-
Tabaco	+	+	++	++	++	+
Obesidad	+	+	+	+	+	+

++ Intensa
 + Moderada
 +/- Dudosa
 - Negativa



¿Cómo responder a la llamada de la gerencia?
Tratamiento individualizado vs el más barato

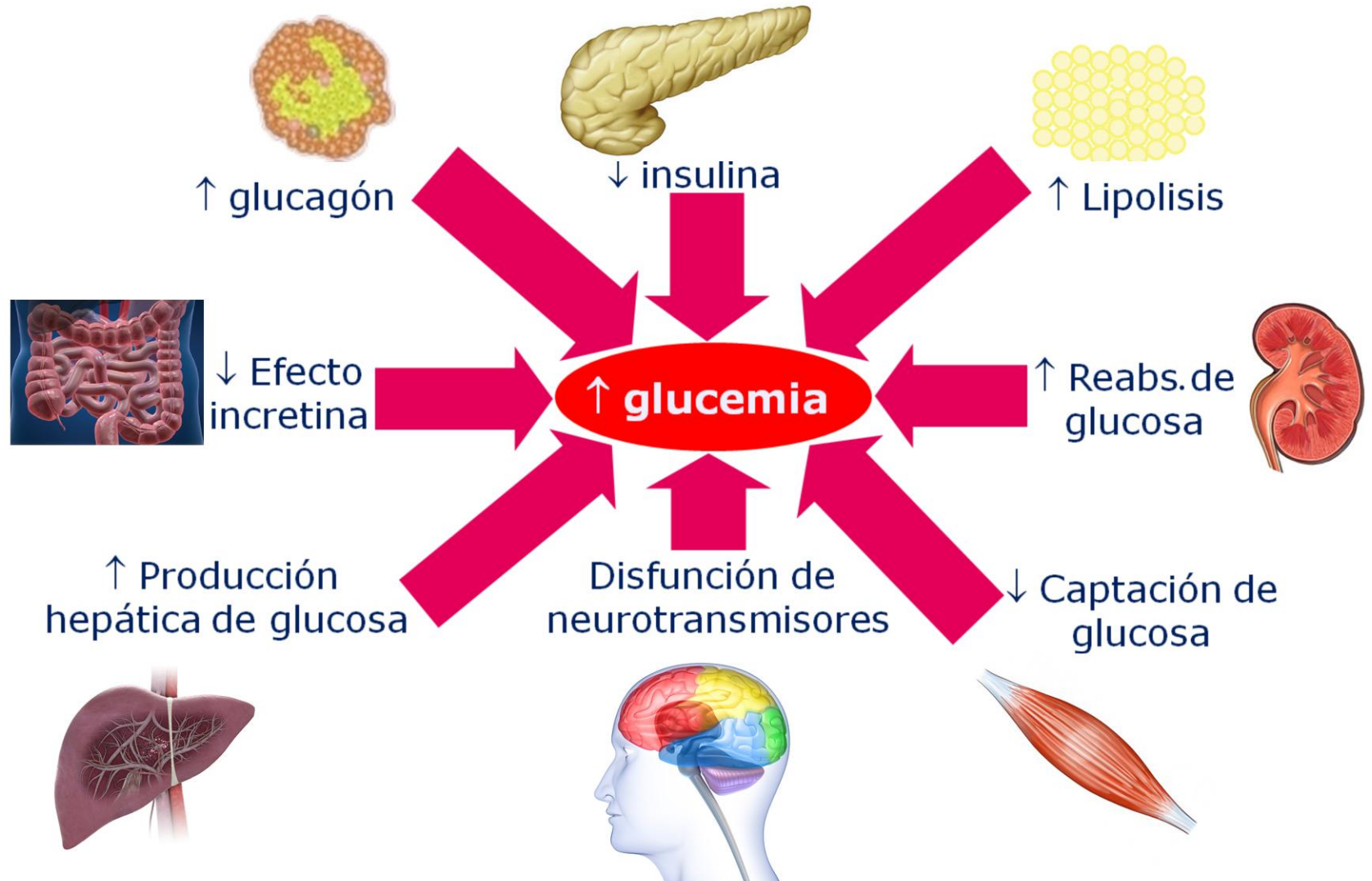
¿Hay que individualizar el tratamiento de la DM2?

Personalización del tratamiento

¿por qué una visión fisiopatológica?

- 1.- Enfermedad crónica cuya fisiopatología se modifica a lo largo del tiempo.
- 2.- Diferentes estadios evolutivos de la enfermedad
- 3.- Evidencias insuficientes e incapaces de adaptarse a esta variabilidad
- 4.- Resultados contradictorios

Fisiopatología de la Diabetes Tipo 2: “El octeto ominoso”

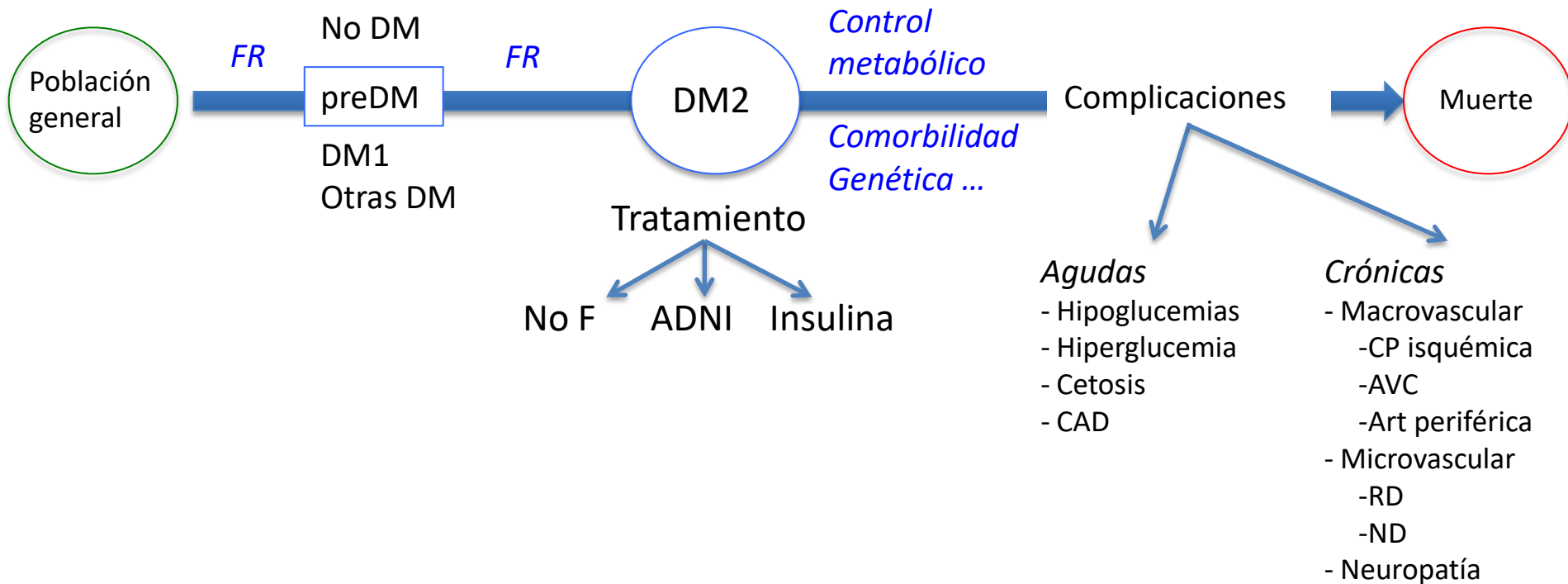




Ralph De Fronzo. **EASD 2015.**

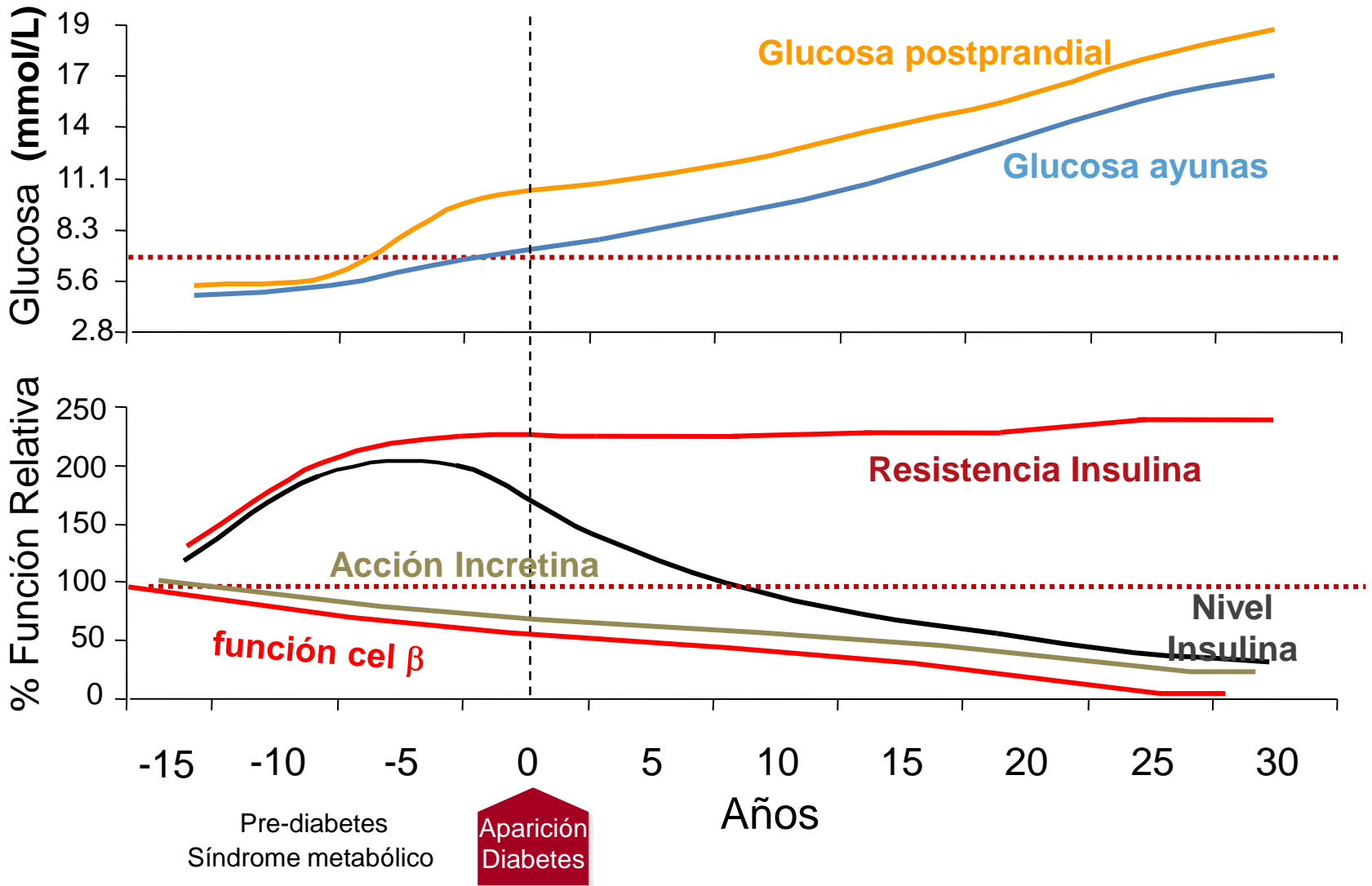
- (1) Will require multiple drugs in *combination* to correct multiple pathophysiologic defects**
- (2) Should be based upon *known pathogenic abnormalities*, and **NOT** simply on the reduction in HbA1c**
- (3) Must be started *early* in the natural history of T2DM, if progressive beta cell failure is to be prevented**

Evolución de los pacientes con DM2



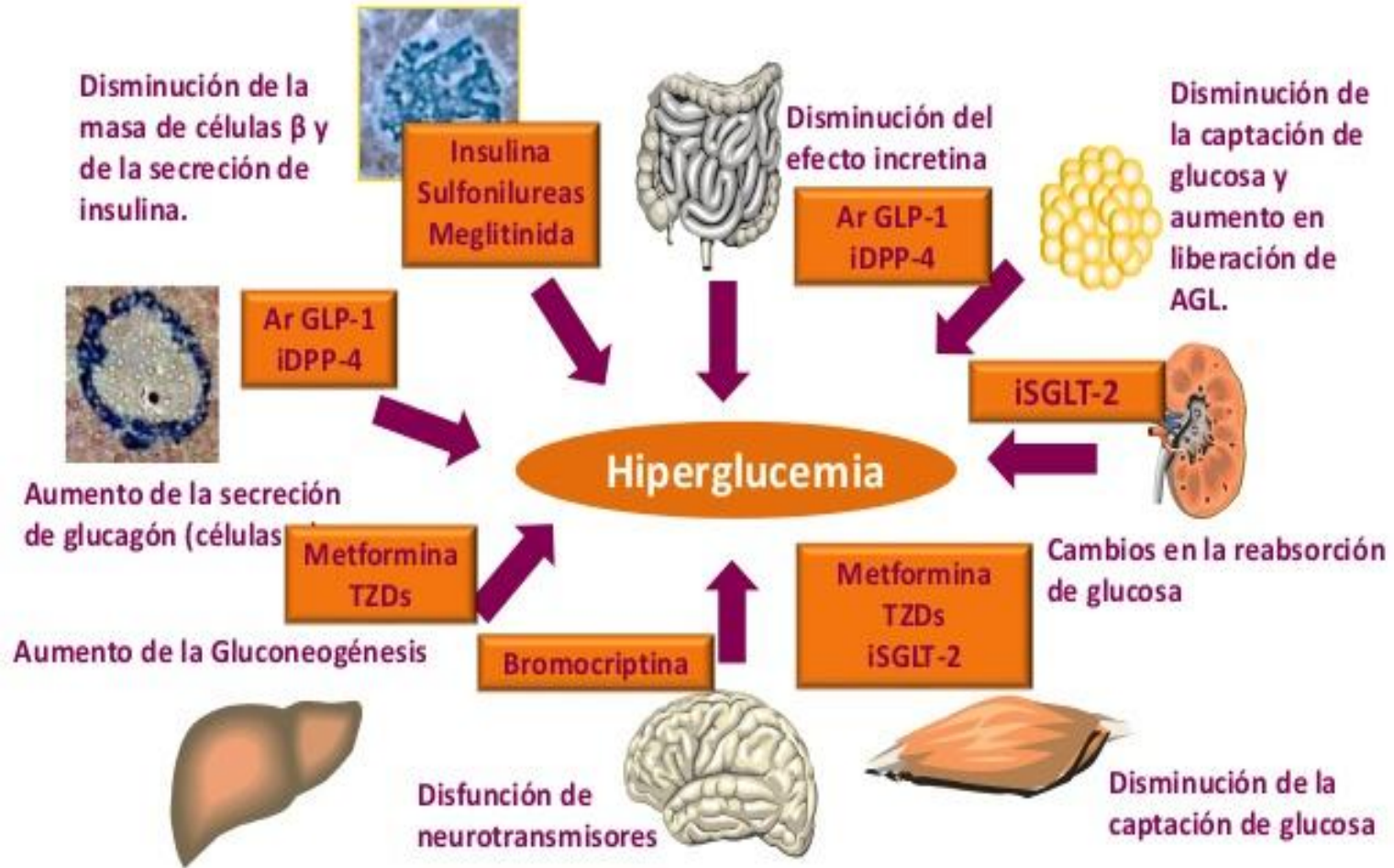
Nuestro reto: la mejor intervención en cada momento

Historia Natural de la DMT2



LA DIABETES ES UNA ENFERMEDAD
PROGRESIVA Y PARA CONSEGUIR O
MANTENER UN CONTROL GLUCÉMICO
ADECUADO ES NECESARIO ADAPTARSE A
ESA SITUACIÓN

Fisiopatología de DM Tipo 2

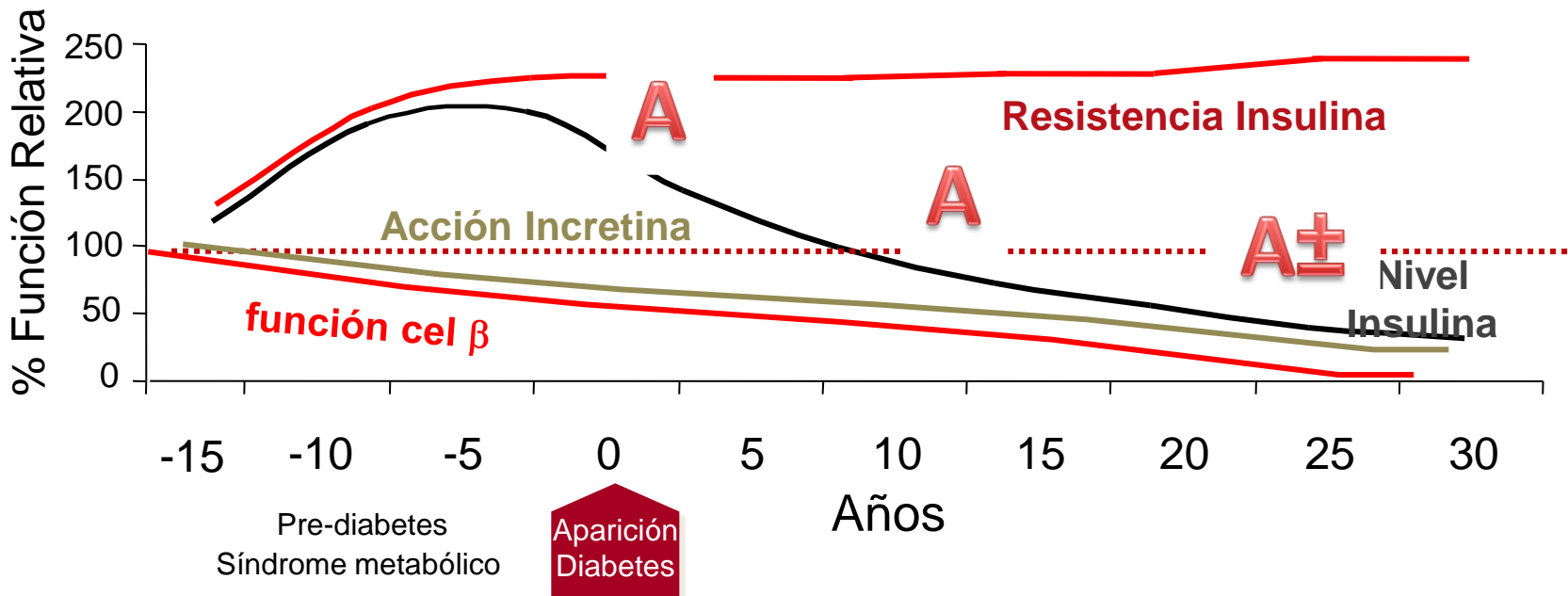


Adaptado de DeFranzo RA. *Diabetes Care* 2009; 58: 773-795

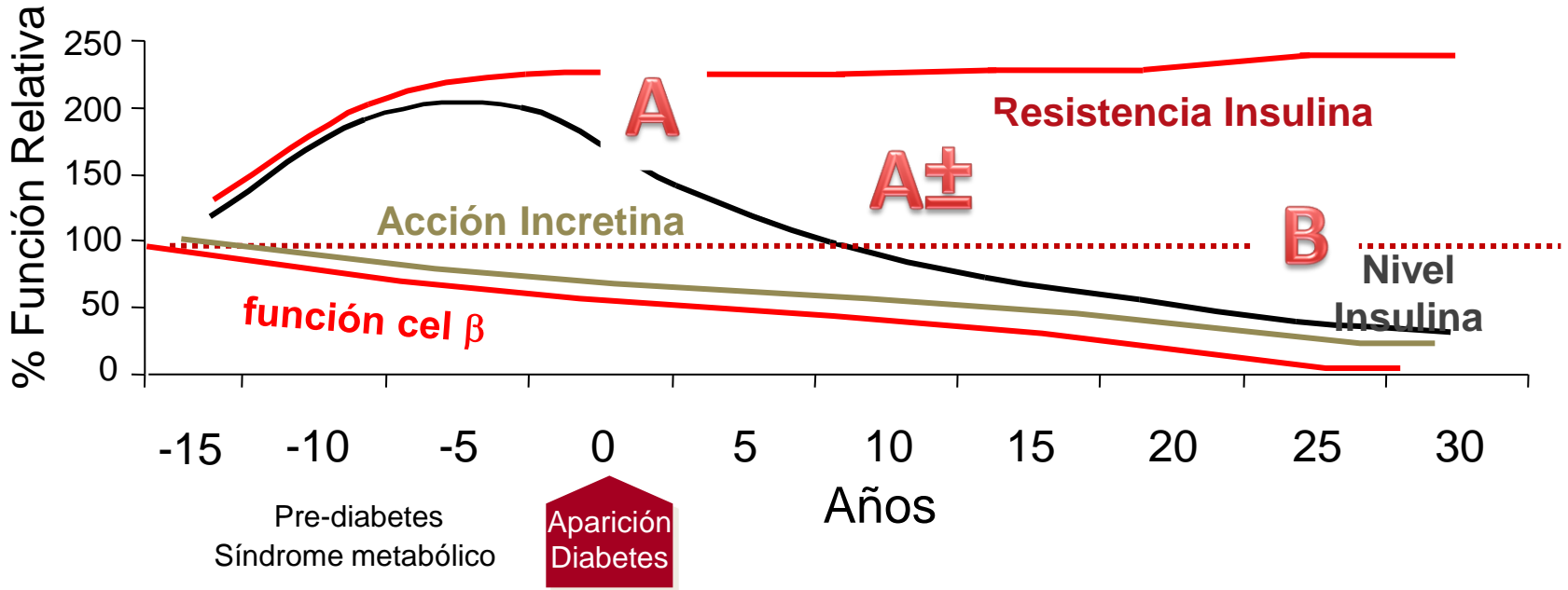
Características de los fármacos hipoglucemiantes

Clase	Reducción A1C	Hipo-glucemia	Peso	Efecto en Cardiovascular Outcome Trial	Otras consideraciones terapéuticas	Coste
Biguanidas	↓↓	Raro	Neutral a ↓	UKPDS 34 ↓ mortalidad por cualquier causa y IAM	Efectos GI (diarrea, flatulencia) ↓ Vit B12, acidosis láctica (raro)	\$
Inh. α-glucosidasa	↓	Raro	Neutral a ↓		Mejora de GPP , efectos GI (diarrea, flatulencia)	\$
Agentes incretínicos: inh. DPP-4 agonista GLP-1	↓↓ ↓↓ a ↓↓↓	Raro Raro	Neutral a ↓ ↓↓	Neutral (Alo, Saxa, Sita, Lixi) Superioridad (Lira)	Control con saxagliptina en IC Efectos GI Pancreatitis (?), conductos biliares y de la vesícula biliar (aGPL1)	\$\$\$ \$\$\$\$
Insulina	↓↓↓	Sí	↑↑	Neutral (Glar)	No techo de dosis, regímenes flexibles	\$\$-\$\$\$
Secretagogos insulina: Glinidas Sulfonilureas	↓↓ ↓↓	Sí Sí	↑ ↑		Menos hipoglucemias en el contexto de la omisión de comidas, pero requiere una dosis de 3-4 al día . GPP Gliclazida y glimepirida asociados con menos hipoglucemia vs glibenclamida	\$\$ \$
Inh. SGLT2	↓↓ a ↓↓↓	Raro	↓↓	Superioridad (Empa con ECV clínica)	Infecciones genitales, ITU, hipotensión, Cambios c-LDL, precaución con disfunción renal y diuréticos de asa, dapagliflozina que no debe utilizarse en cáncer de vejiga, raro una cetoacidosis diabética (no hiperglucemia)	\$\$\$
Glitazonas	↓↓	Raro	↑↑	Neutral <i>Pio (objetivo secundario)</i>	ICC, edema, fracturas, cáncer vejiga, controversia CV (rosiglitazona), requiere 6-12 semanas para alcanzar el efecto máximo	\$\$

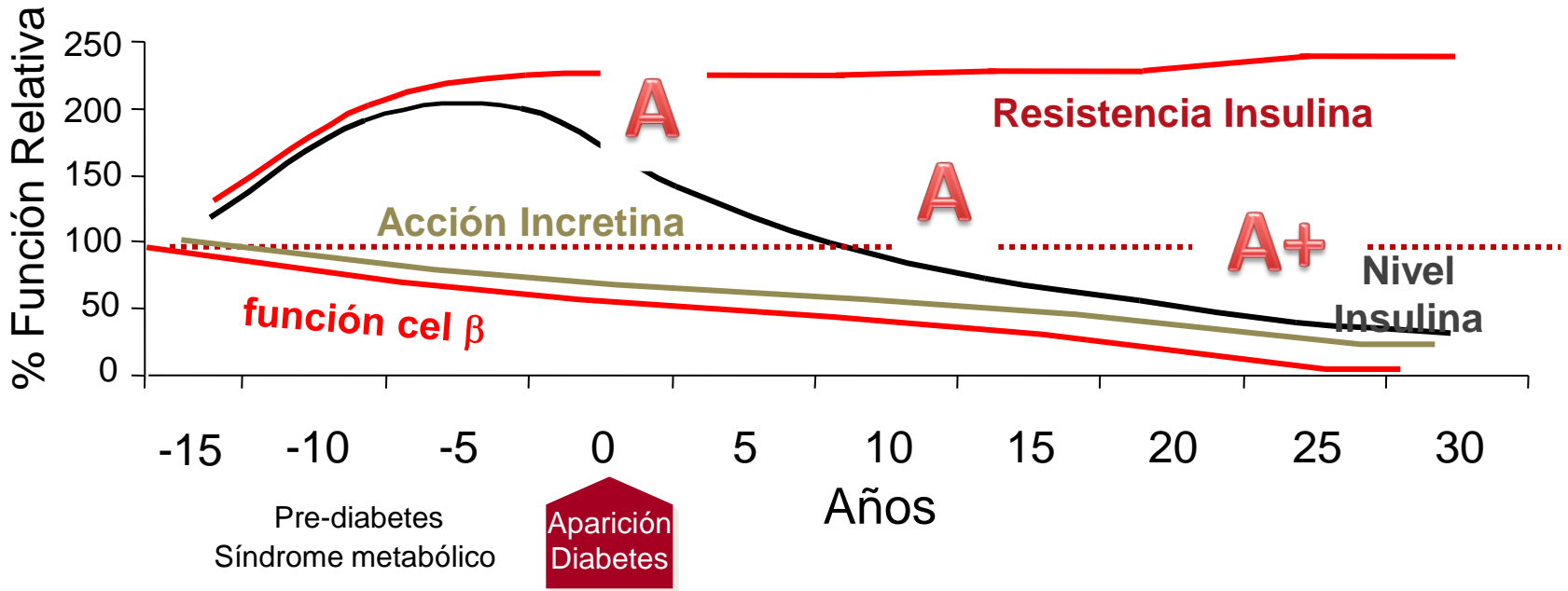
Metformina en la Historia Natural de la DMT2/Seguridad



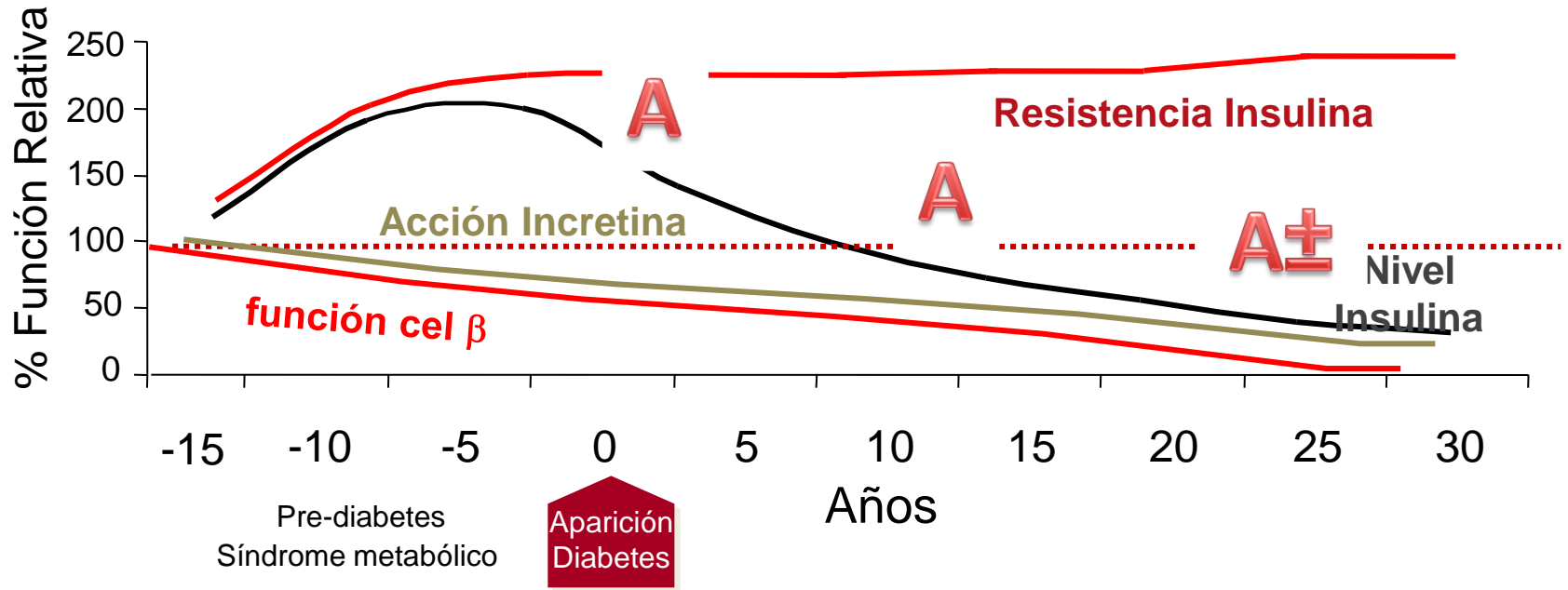
SUs en la Historia Natural de la DMT2/Seguridad



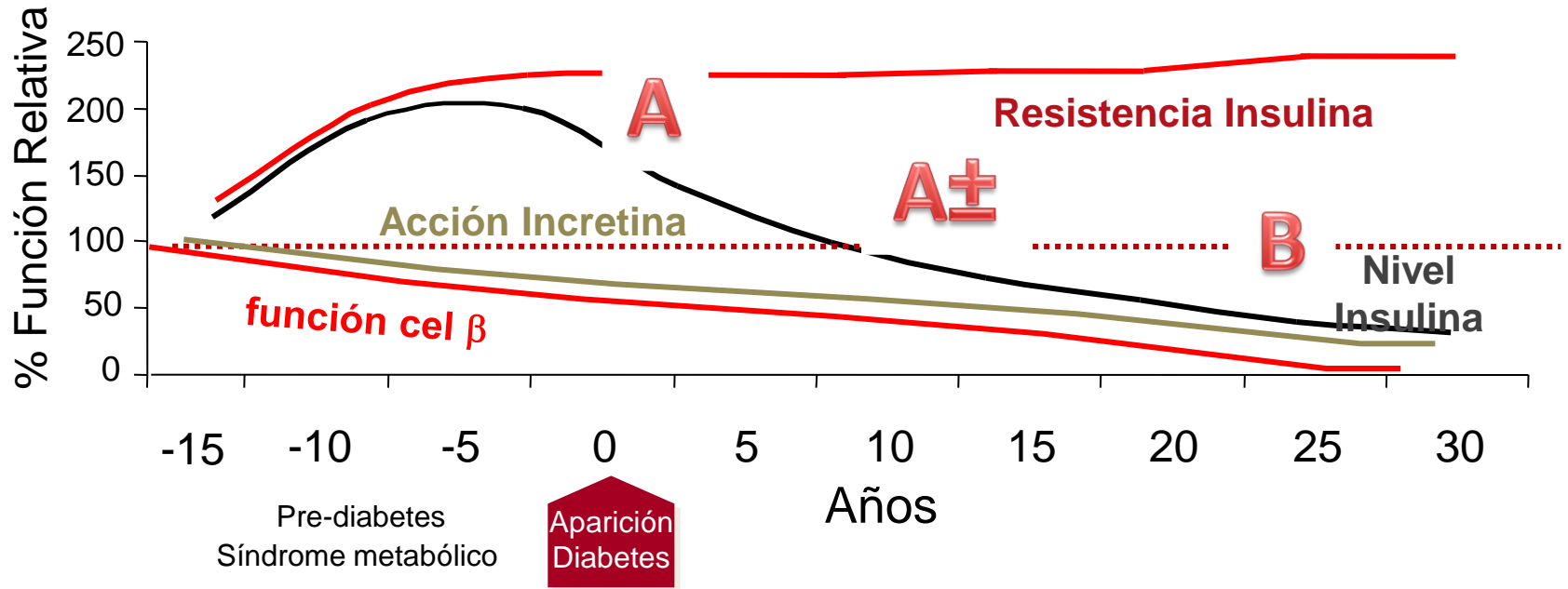
IDPP4 en la Historia Natural de la DMT2/Seguridad



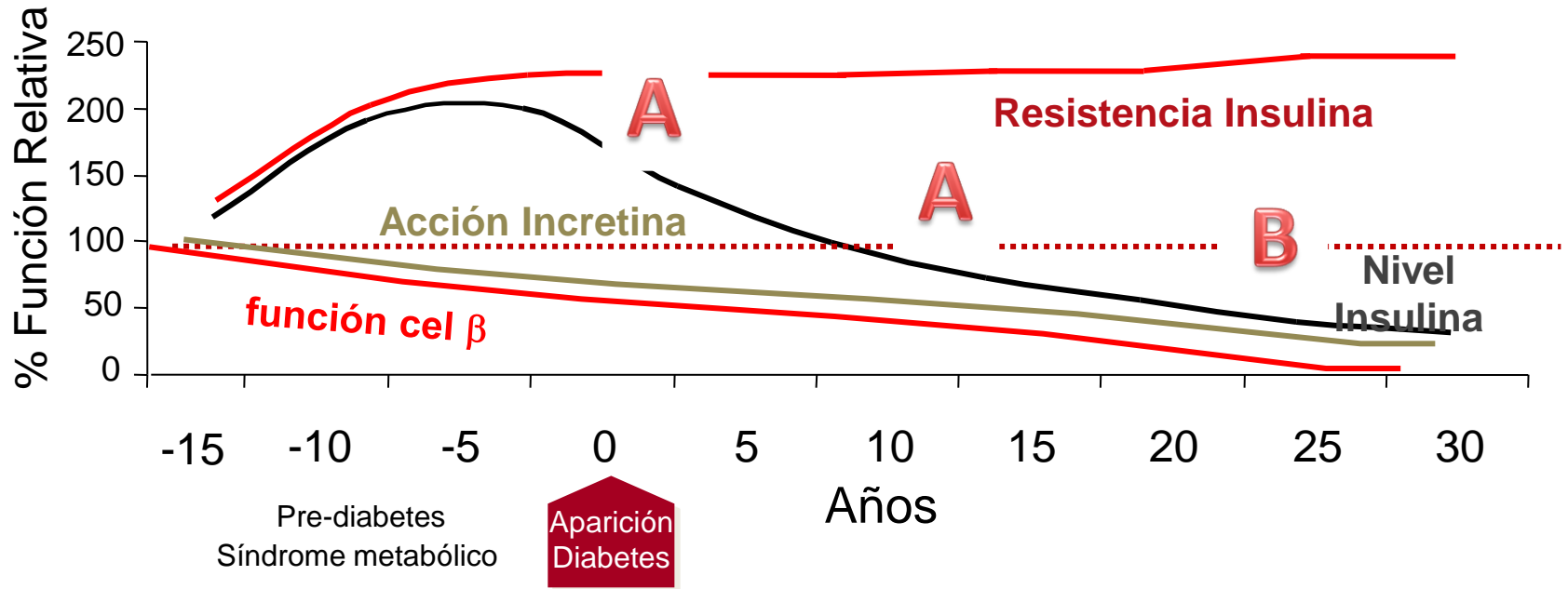
arGLP1 en la Historia Natural de la DMT2/Seguridad



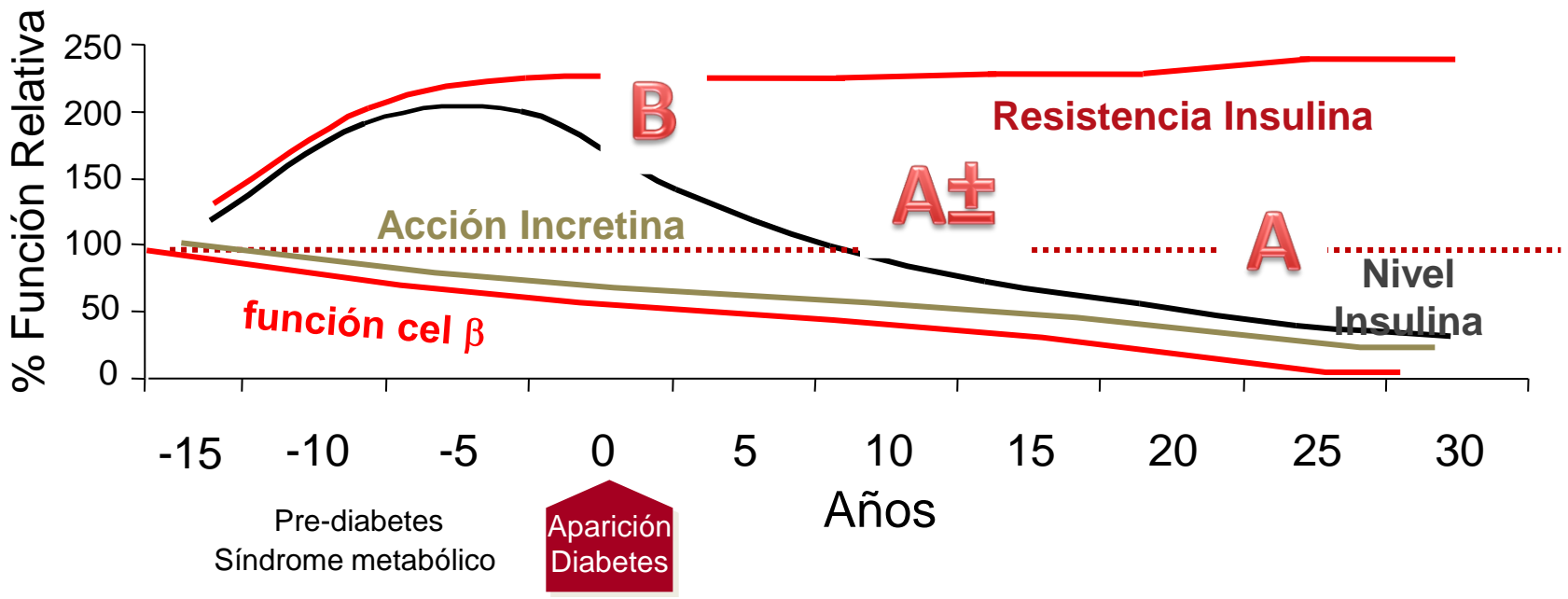
Pioglitazona en la Historia Natural de la DMT2/Seguridad



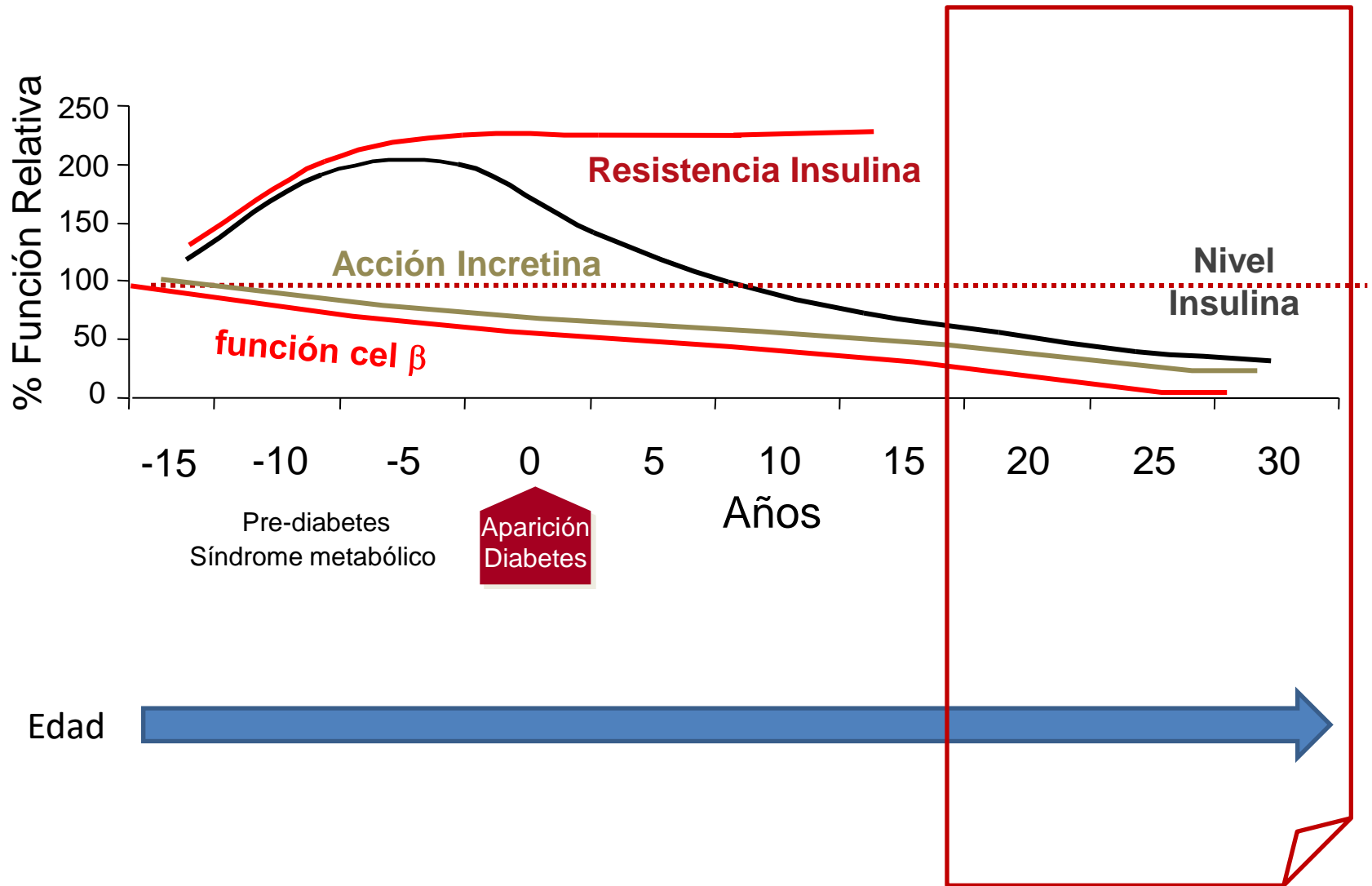
ISGLT2 en la Historia Natural de la DMT2/Seguridad



Insulina basal en la Historia Natural de la DMT2/Seguridad



Historia Natural de la DMT2 que debuta en el anciano

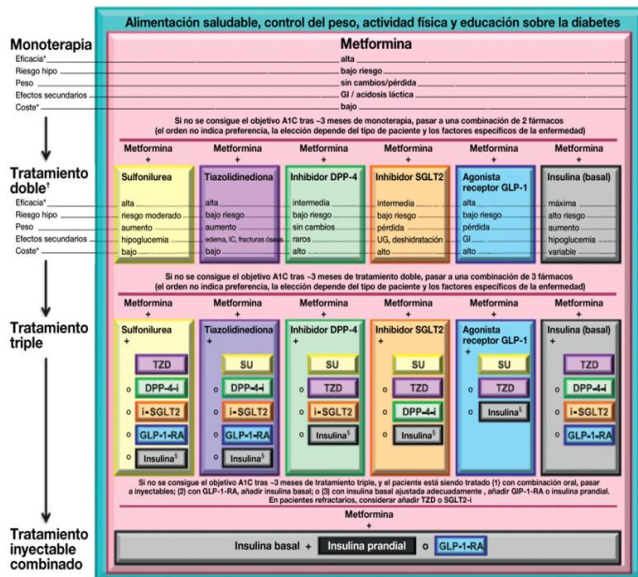


¿Cómo responder a la llamada de la gerencia?
Tratamiento individualizado vs el más barato

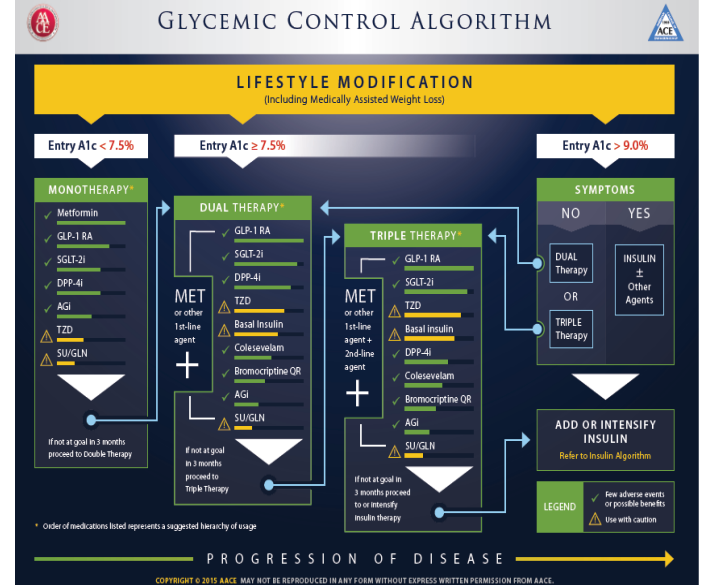
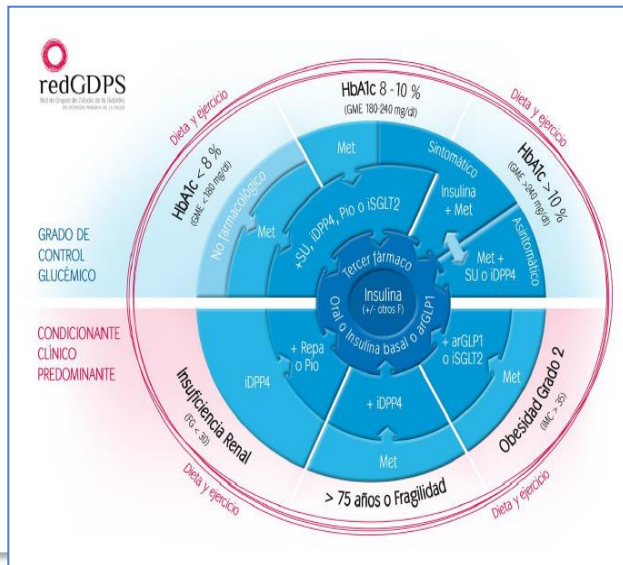
¿Qué nos dicen las guías?

¿Individualizamos o cogemos el más barato?

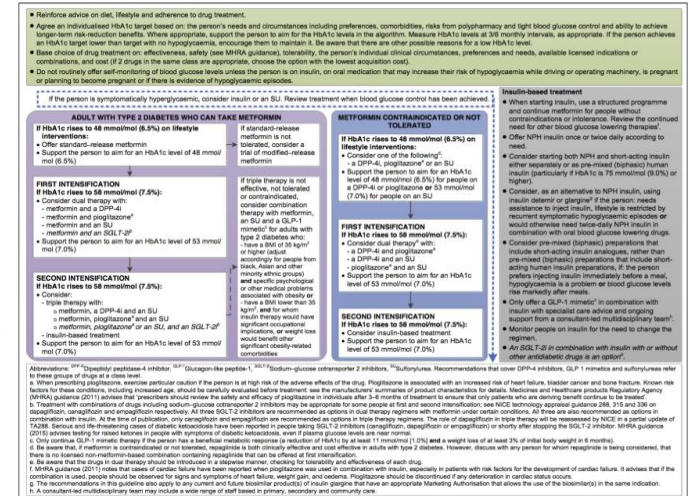
Diferentes algoritmos y GPC



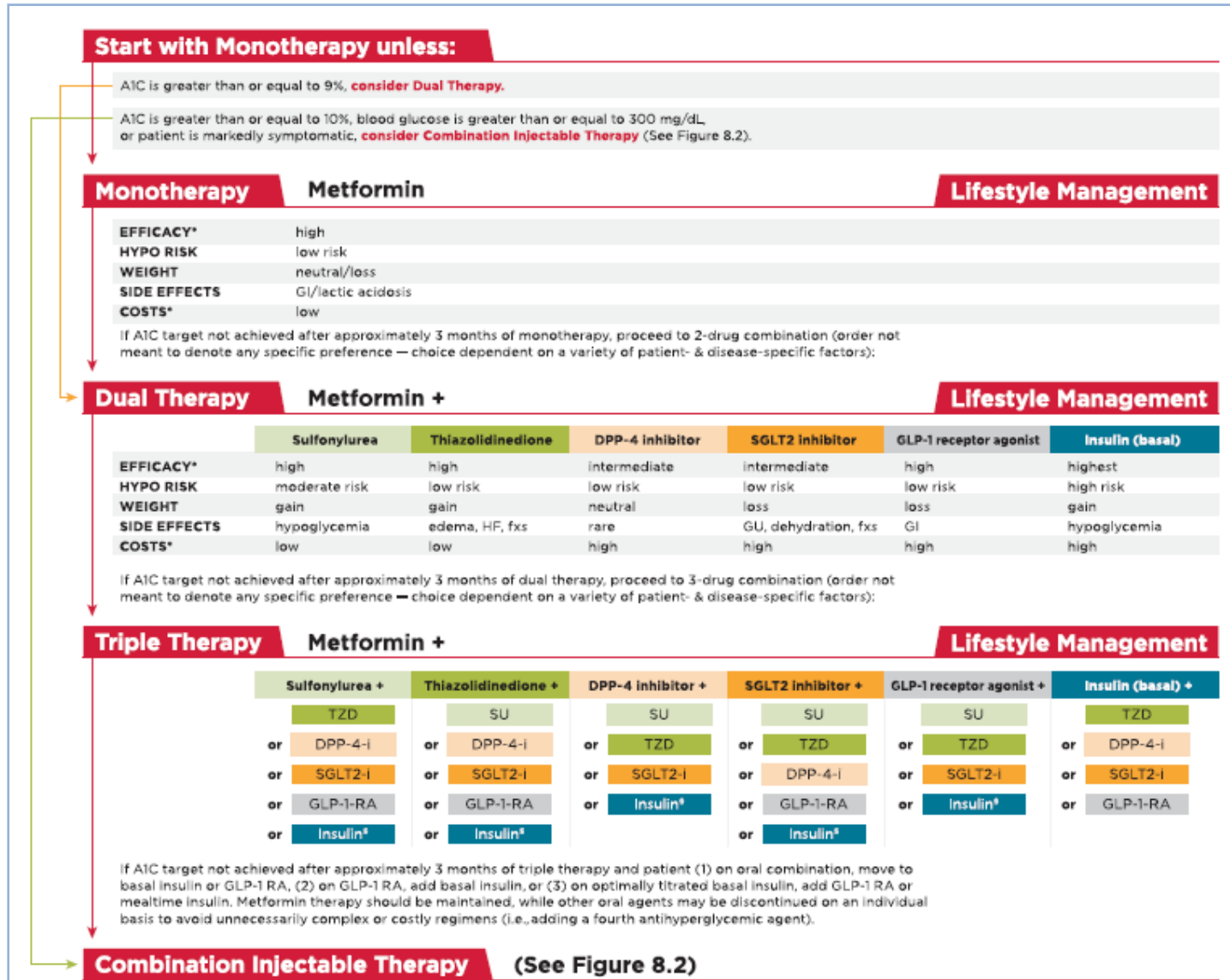
ADA/EASD 2012 Modificado de Inzucchi SE, et al. Diabetes Care. 2015;38:140-9.



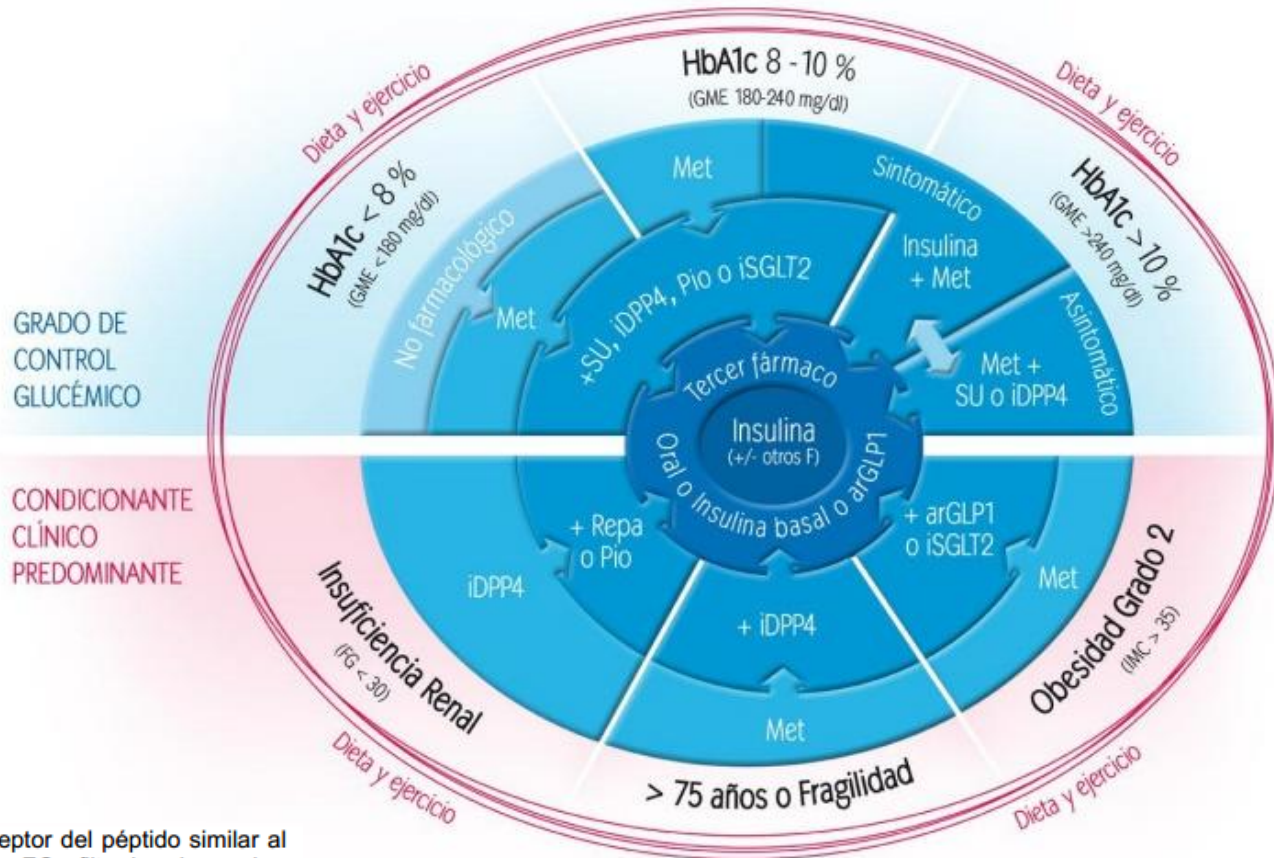
NICE National Institute for Health and Care Excellence Algorithm for blood glucose lowering therapy in adults with type 2 diabetes



Algoritmo de tratamiento en DM2 ADA 2017



El algoritmo RedGDPS incorpora diferentes situaciones clínicas que pueden condicionar la elección de uno u otro fármaco:



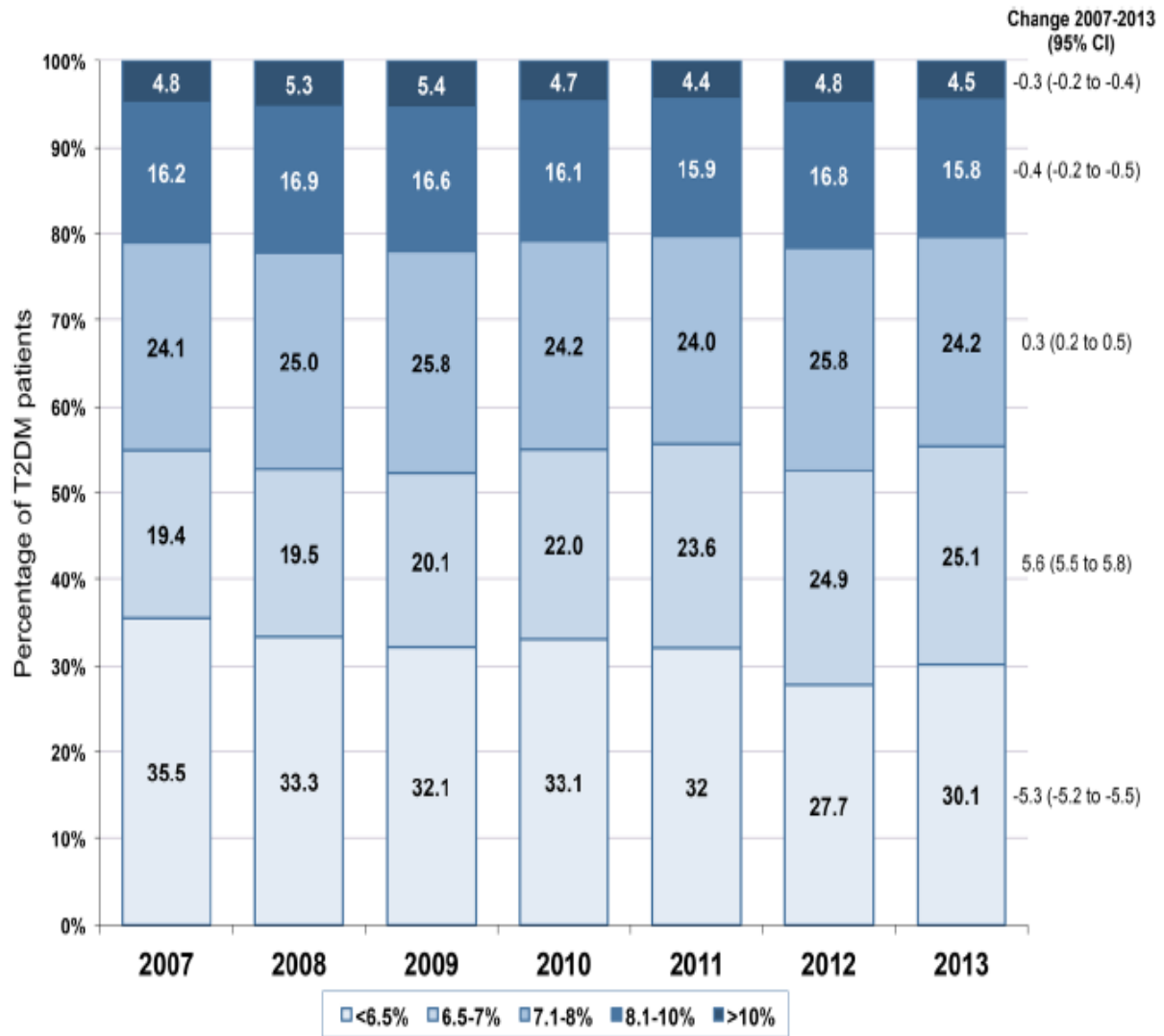
arGLP1: agonistas del receptor del péptido similar al glucagón 1; F: fármacos; FG: filtrado glomerular; GME: glucemia media estimada; iDPP4: inhibidores de la dipeptidil peptidasa 4; IMC: índice de masa corporal; iSGLT2: inhibidores del cotransportador de sodio y glucosa 2; Met: metformina; Pio: pioglitazona; Repa: repaglinida; SU: sulfonilureas.

- Además....
- Algoritmo paciente anciano,
- Insuficiencia renal,
- Diabetes y obesidad,...

¿Cómo responder a la llamada de la gerencia?
Tratamiento individualizado vs el más barato

¿Estamos mejorando en el control glucémico con los
nuevos fármacos?

Grado de control glucémico en AP: Cataluña 2007-2013

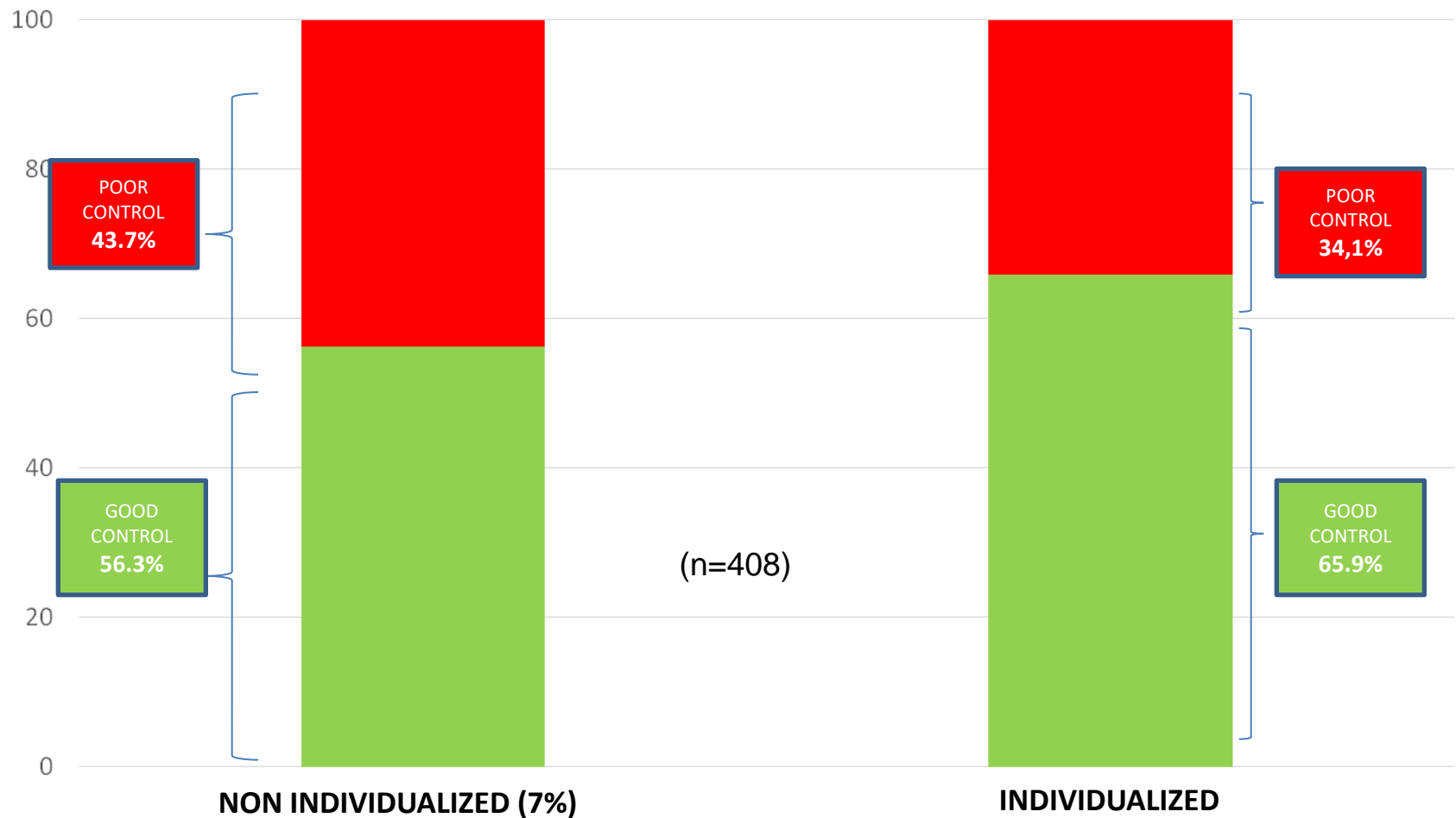


[Mata-Cases M, Franch-Nadal J, Real J, Mauricio D.](#) Glycaemic control and antidiabetic treatment trends in primary care centres in patients with type 2 diabetes mellitus during 2007-2013 in Catalonia: a population-based study.

[BMJ Open.](#) 2016 Oct 5;6(10):e012463. doi: 10.1136/bmjopen-2016-012463.

COMPARING THE PROPORTION OF PATIENTS ON TARGET ACCORDING TO NON INDIVIDUALIZED (7%) vs INDIVIDUALIZED OBJECTIVES: ESTUDIO OBINDIAB

Alvarez-Guisasola F, Cebrian-Cuenca A, Orozco-Beltrán D, Ruiz-Quintero M, Millaruelo-Trillo JM, Cos-Claramunt X. **METABOLIC CONTROL IN TYPE 2 DIABETES IN SPAIN: COMPARING A1C BELOW 7% VERSUS INDIVIDUALIZED GLYCEMIC GOALS IN PATIENTS WITH TYPE 2 DIABETES.** 14th International Primary Care Diabetes Europe Conference. Barcelona 2016.



¿Cómo responder a la llamada de la gerencia?
Tratamiento individualizado vs el más barato

¿Estamos mejorando en complicaciones?

Research: Health Economics

Incidence and care-related costs of severe hypoglycaemia requiring emergency treatment in Andalusia (Spain): the PAUEPAD project*

R. J. Barranco^{1,2}, F. Gomez-Peralta³, C. Abreu³, M. Delgado^{4,5}, R. Palomares⁶, F. Romero¹, C. Morales⁷, M. A. de la Cal¹, J. M. Garcia-Almeida⁸, F. Pasquel⁹ and G. E. Umpierrez⁹

¹Public Company for Health Emergencies of Andalusia (EPES), Sevilla, ²Department Health Sciences, University of Jaen, ³Endocrinology and Nutrition Unit, Segovia General Hospital, Segovia, ⁴Division of Preventive Medicine and Public Health, Department Health Sciences, University of Jaen, Jaen, Spain, ⁵Center for Biomedical Research in Epidemiology and Public Health (CIBERESP), ISCIII, Ministry of Health, Madrid, ⁶Endocrinology and Nutrition Unit, Reina Sofia Hospital, Cordoba, ⁷Endocrinology and Nutrition Unit, Virgen Macarena Hospital, Sevilla, ⁸Endocrinology and Clinical Nutrition Unit, Virgen de la Victoria Hospital, Malaga, Spain and ⁹Department of Medicine, Emory University School of Medicine, Atlanta, GA, USA

Accepted 23 June 2015

Abstract

Aims Hypoglycaemia is a serious medical emergency. The need for emergency medical service care and the costs of hypoglycaemic emergencies are not completely known.

Methods This was a retrospective observational study using Public Company for Health Emergencies (EPES) data for hypoglycaemia in 2012. The EPES provides emergency medical services to the entire population of Andalusia, Spain (8.5 million people). Data on event type, onsite treatments, emergency room visits or hospitalization were collected. Medical costs were estimated using the public rates for healthcare services.

Table 2 Costs per SHE

	All SHEs	Nocturnal SHEs (00.00 to 07.59)	SHEs requiring emergency hospital care	SHEs causing loss of consciousness
Total direct costs (€ 1000s)	6093	1527	2992	564
Number of episodes	8683	2287	1784	558
Direct cost per individual (€)	702 ± 565	668 ± 11	1677 ± 304	1012 ± 601
Components of the direct cost (€)*				
Emergency care in place or residence (%)	464 ± 273 (66)	474 ± 252 (71)	524 ± 311 (31)	646 ± 264 (64)
Transfer	30 ± 73 (4)	24 ± 68 (4)	143 ± 98 (9)	38 ± 75 (4)
Emergency hospital care < 24 h	208 ± 408 (30)	170 ± 378 (25)	1010 ± 0.0 (60)	328 ± 473 (32)

*Additional information about the unit costs included in the direct cost components of SHEs is given in the Supporting Information (Table S1).

Results From a total of 1 137 738 emergency calls that requested medical assistance, 8683 had a primary diagnosis of hypoglycaemia (10.34 per 10 000 person-years). The incidence of severe hypoglycaemic episodes requiring emergency treatment in the estimated population with diabetes was 810 episodes per 10 000 person-years. A total of 7479 episodes (86%) required an emergency team to visit the patient's residence. The majority of cases (64%) were addressed in the residence, although 1784 (21%) cases were transferred to hospital. A total of 5564 events (65%) involved patients aged > 65 years. Overall mortality was 0.32% (28 cases). The total annual cost of attending a hypoglycaemic episode was €6 093 507, leading to an estimated mean direct cost per episode of €702 ± 565. Episodes that required hospital treatment accounted for 49% of the total costs.

Conclusions Hypoglycaemia is a common medical emergency that is associated with high emergency medical service utilization, resulting in a significant economic impact on the health system.

Diabet. Med. 32, 1520–1526 (2015)

Se mantiene la mejoría en la tendencia sobre la mortalidad del paciente con diabetes

The NEW ENGLAND JOURNAL *of* MEDICINE

ESTABLISHED IN 1812

APRIL 13, 2017

VOL. 376 NO. 15

Mortality and Cardiovascular Disease in Type 1 and Type 2 Diabetes

Aidin Rawshani, M.D., Araz Rawshani, M.D., Ph.D., Stefan Franzén, Ph.D., Björn Eliasson, M.D., Ph.D., Ann-Marie Svensson, Ph.D., Mervete Miftaraj, M.Sc., Darren K. McGuire, M.D., M.H.Sc., Naveed Sattar, M.D., Ph.D., Annika Rosengren, M.D., Ph.D., and Soffia Gudbjörnsdottir, M.D., Ph.D.

ABSTRACT

BACKGROUND

Long-term trends in excess risk of death and cardiovascular outcomes have not been extensively studied in persons with type 1 diabetes or type 2 diabetes.

METHODS

We included patients registered in the Swedish National Diabetes Register from 1998 through 2012 and followed them through 2014. Trends in deaths and cardio-

From the Department of Molecular and Clinical Medicine, Institute of Medicine, University of Gothenburg (Aidin Rawshani, Araz Rawshani, B.E., A. Rosengren, S.G.), and the Swedish National Diabetes Register, Center of Registers in Region (Aidin Rawshani, Araz Rawshani, S.F., B.E., A.-M.S., M.M., S.G.). Gothenburg, Sweden; the Di-

Trends in Mortality From Diabetes Mellitus in Spain: 1998-2013.

[Article in English, Spanish]

Orozco-Beltrán D¹, Sánchez E², Garrido A², Quesada JA², Carratalá-Munuera MC², Gil-Guillén VF².

⊕ Author information

Abstract

INTRODUCTION AND OBJECTIVES: Diabetes mellitus (DM) is a leading causes of death, mainly due to cardiovascular complications. The aim of this study was to describe DM mortality in Spain from 1998 to 2013 and to compare it between distinct provinces.

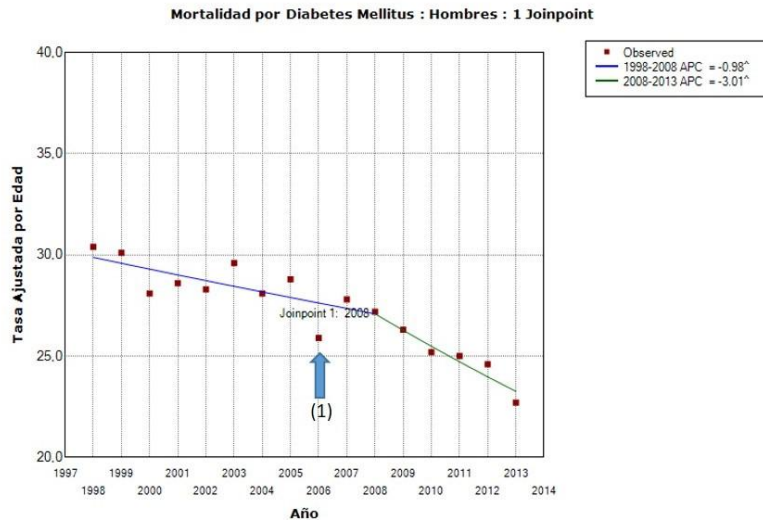
METHODS: Ecological time-trend study. Data sources consisted of the population register and the death rate figures, by cause of death, from Spain's National Statistics Institute. Rates were age-standardized by the direct method. Standardized mortality rates were calculated for each province every 5 years (1998-2013). Time trends in mortality were established by joint point regression models.

RESULTS: The standardized mortality rate for DM fell markedly, by 25.3% in men and by 41.4% in women from 1998 to 2013. At the beginning of the study period, mortality rates were higher in southern than in northern regions, but this difference gradually disappeared in later years. The highest mortality rates were consistently found in the Canary Islands.

CONCLUSIONS: Mortality from DM fell substantially from 1998 to 2013. The marked geographical clustering showing higher mortality in the south and southeastern areas of the country was significantly reduced during the study period, except in the Canary Islands, where mortality remains strikingly high.

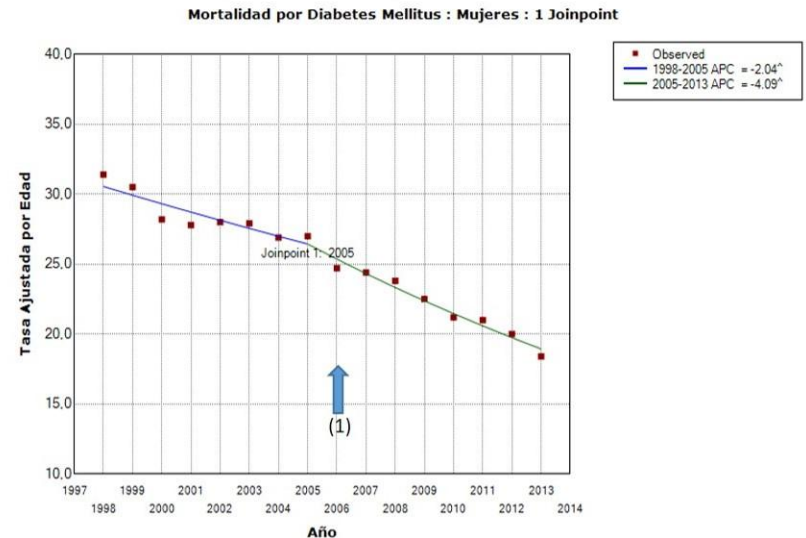
Evolución en España de la Mortalidad por DM2. 1998-2013.

Cohorte	Segmento	Periodo	PCA	inf-IC 95%	sup-IC95%	p-valor
Hombres	1	1998-2008	-0,98	-1,74	-0,20	0,020
	2	2008-2013	-3,01	-5,05	-0,92	0,010



(1) Inicio de la implementación de la Estrategia Nacional de Diabetes.

Cohorte	Segmento	Periodo	PCA	inf-IC 95%	sup-IC95%	p-valor
Mujeres	1	1998-2005	-2,04	-2,99	-1,09	<0,001
	2	2005-2013	-4,09	-4,87	-3,29	<0,001



(1) Inicio de la implementación de la Estrategia Nacional de Diabetes.

estimadas por regresión de Joint point

Reducción de la tasa de mortalidad estandarizada por DM del 25,3% en los varones y el 41,4% en las mujeres

¿Cómo responder a la llamada de la gerencia?
Tratamiento individualizado vs el más barato

1. ¿Son todos los pacientes con diabetes tipo 2 iguales?
2. ¿Estamos hablando de azúcar o enfermedad compleja cardiovascular y metabólica?
3. ¿Hay que individualizar el tratamiento de la DM2?
4. ¿Qué nos dicen las guías? ¿Individualizamos o cogemos el más barato?
5. ¿Estamos mejorando en el control glucémico con los nuevos fármacos?
6. ¿Estamos mejorando en complicaciones?

ORIGINAL RESEARCH

The Cost-Effectiveness of Alogliptin Versus Sulfonylurea as Add-on Therapy to Metformin in Patients with Uncontrolled Type 2 Diabetes Mellitus

Jason Gordon · Phil McEwan · Michael Hurst · Jorge Puelles

Conclusion: The ENDURE trial and the present cost-effectiveness analysis found that the glycemic durability of alogliptin therapy was associated with improved long-term patient outcomes, QALY gains, and ICERs that were cost-effective when evaluated against standard threshold values. Alogliptin therefore represents a cost-effective treatment alternative to SU as add-on therapy to metformin in patients with poorly managed T2DM.

RESEARCH ARTICLE

Cost-Effectiveness of Saxagliptin versus Acarbose as Second-Line Therapy in Type 2 Diabetes in China

Shuyan Gu¹, Yuhang Zeng¹, Demin Yu², Xiaoqian Hu¹, Hengjin Dong^{1*}

Conclusion

SAXA+MET is a cost-effective treatment alternative compared with ACAR+MET for patients with T2DM in China, with a little QALYs gain and lower costs. SAXA is an effective, well-tolerated drug with a low incidence of adverse events and ease of administration; it is anticipated to be an effective second-line therapy for T2DM treatment.



ORIGINAL RESEARCH ARTICLE

Cost Effectiveness of Insulin Degludec Plus Liraglutide (IDegLira) in a Fixed Combination for Uncontrolled Type 2 Diabetes Mellitus in Sweden

Åsa Ericsson¹ · Adam Lundqvist²

Conclusions IDegLira is estimated to be a cost-effective treatment in Sweden compared with commonly used intensification treatments for patients with T2DM uncontrolled with basal insulin.

Estimated Cost-Effectiveness, Cost Benefit, and Risk Reduction Associated with an Endocrinologist-Pharmacist Diabetes Intense Medical Management "Tune-Up" Clinic.

Hirsch JD¹, Bounthavong M², Arimand A², Ha DR³, Cadiz CL³, Zimmerman A³, Ourth H⁴, Morreale AP⁴, Edelman SV⁵, Morello CM¹.

 **Author information**

CONCLUSIONS: The DIMM clinic endocrinologist-pharmacist collaborative practice model, in which the pharmacist spent more time providing personalized care, improved glycemic control at a minimal cost per additional A1c benefit gained and produced greater cost avoidance, appreciable ROI, reduction in long-term complication risk, and lower cost for a greater gain in QALYs. Overall, the DIMM clinic represents an advanced pharmacy practice model with proven clinical and economic benefits from multiple perspectives for patients with T2DM and high medication and comorbidity complexity.



GRACIAS!