7th Italian Barometer Diabetes Forum - *"The diabetes epidemic and its impact on Europe and Italy"*

Monteporzio Catone (Rome), July 10-11, 2014

Algorithms and standards of care in diabetes

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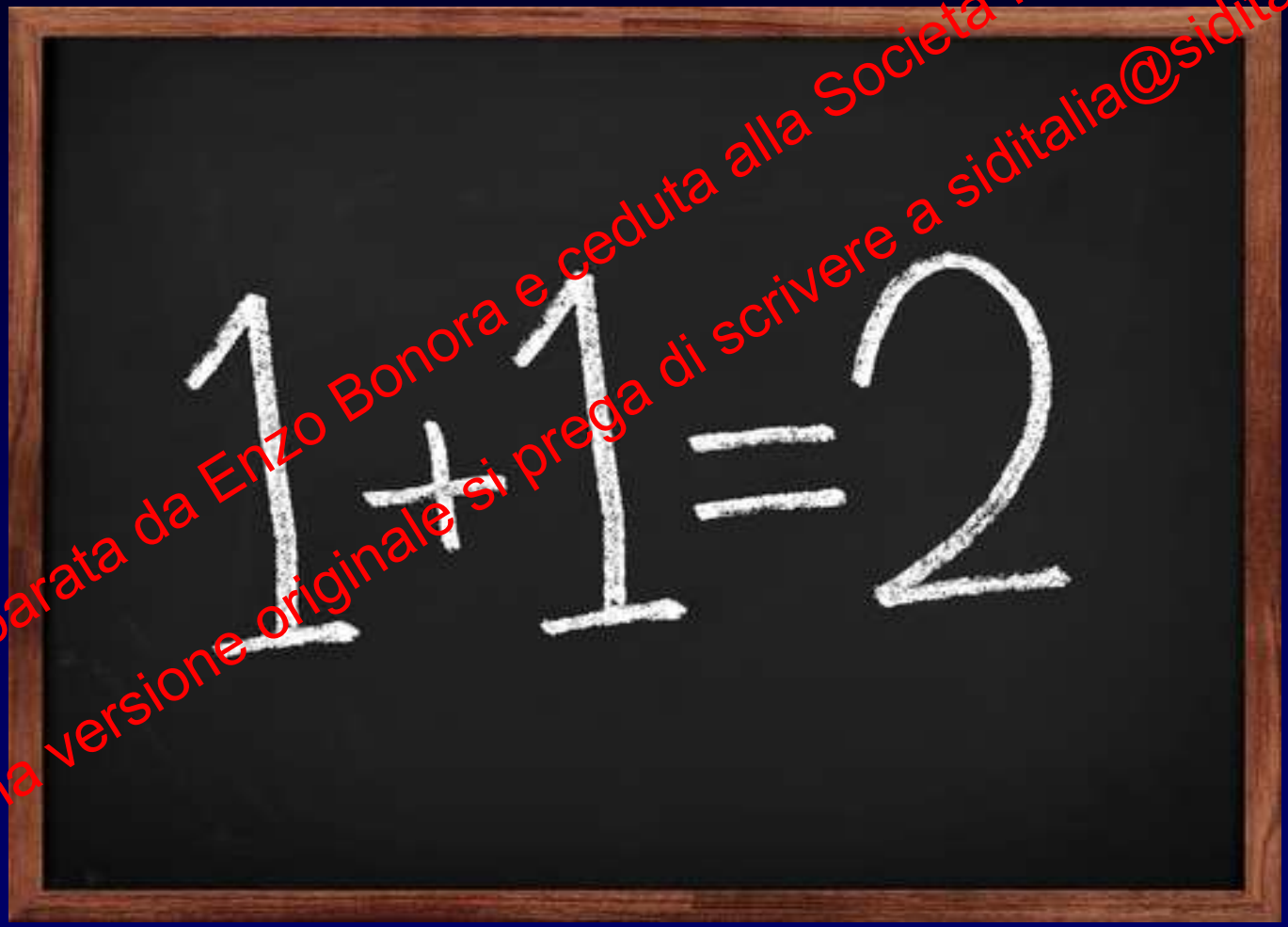
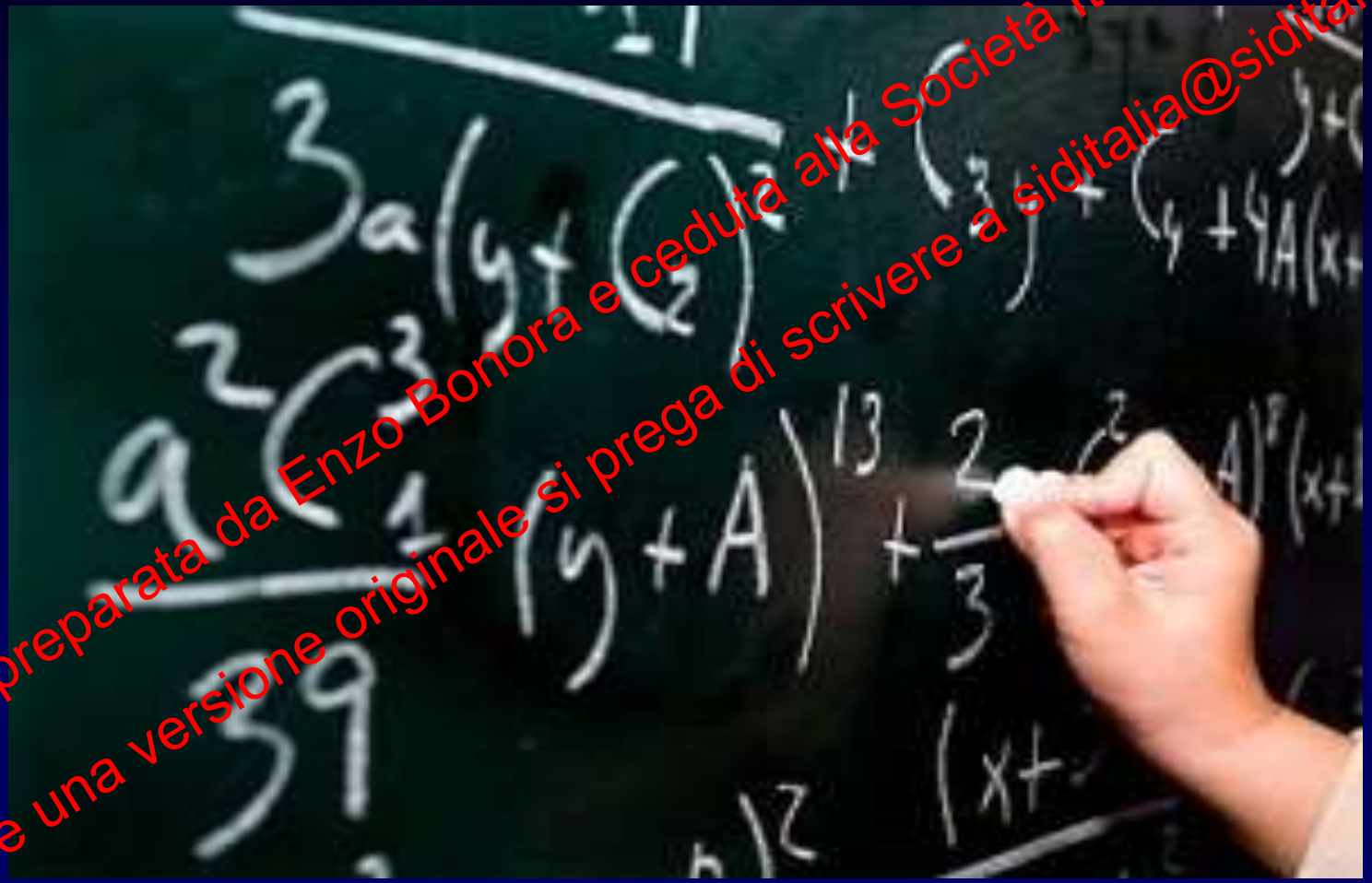
Rappresentazione matematica della cura della polmonite



Rappresentazione matematica della cura del diabete



Strong Commitment in Medical Care

Primum non nocere (do not harm)

(Hippocrates; IV-V century B.C.)

Standard italiani per la cura del diabete mellito 2014

Figura 2. Flow-chart per la terapia del diabete mellito di tipo 2.

Iniziare con solo intervento su stile di vita (se non grave scompenso metabolico [ref. 1])

↓

Aggiungere gradualmente metformina, fino alla dose di almeno 2 g/die

↓

Add on a metformina	Ipoglic.	Peso	Effetti indesid.	CVD	Fattori rischio CV	Scomp. cardiaco	Effetti GI	Costo
Gliptina	1A	1B	Rari	1A	1B	2B (2)	1A	Elevato
A.R. GLP-1	1A	1A	Non indicato in IRC	3B	1A	2B	1C	Elevato
Sulfonilurea o repaglinide	1D	1D	Non indicato in IRC (3)	3C (2)	1B	1B	1A	Basso
Pioglitazione	1A	1C	Fratture	1A	1A	1E	1A	Medio
Acarbosio	1D	1D	Rari	2B	2B	3C	1C	Basso
Gliflozina	1A	1A	Infezioni GU	3C	2B	2B	1A	???
Insulina basale	1D	1A	Rari	1B	1A	1B	1A	Medio

In presenza di un fallimento della terapia iniziale volta a modificare lo stile di vita, prescrivere metformina, che

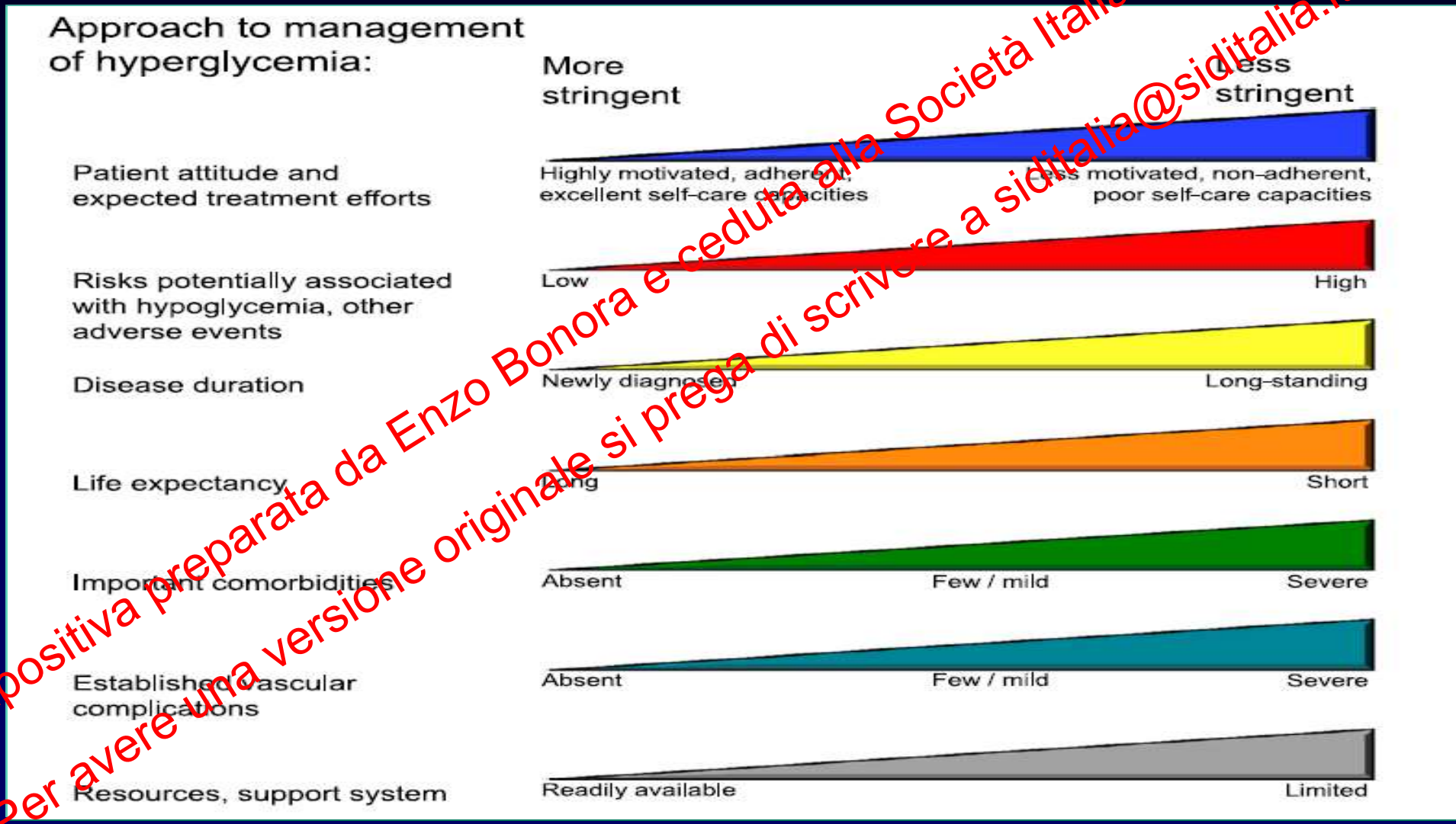
To be remembered

Hyperglycemia is a feature of diabetes. It is generated by the disease. It may kill. Slowly.

Hypoglycemia is not a feature of diabetes. It is generated by doctors. It may kill. Quickly.

Management of Hyperglycemia in T2DM: A patient Centered Approach - ADA/EASD Position Statement

Inzucchi et al – *Diabetes Care* 2012; 35: 1364-1379



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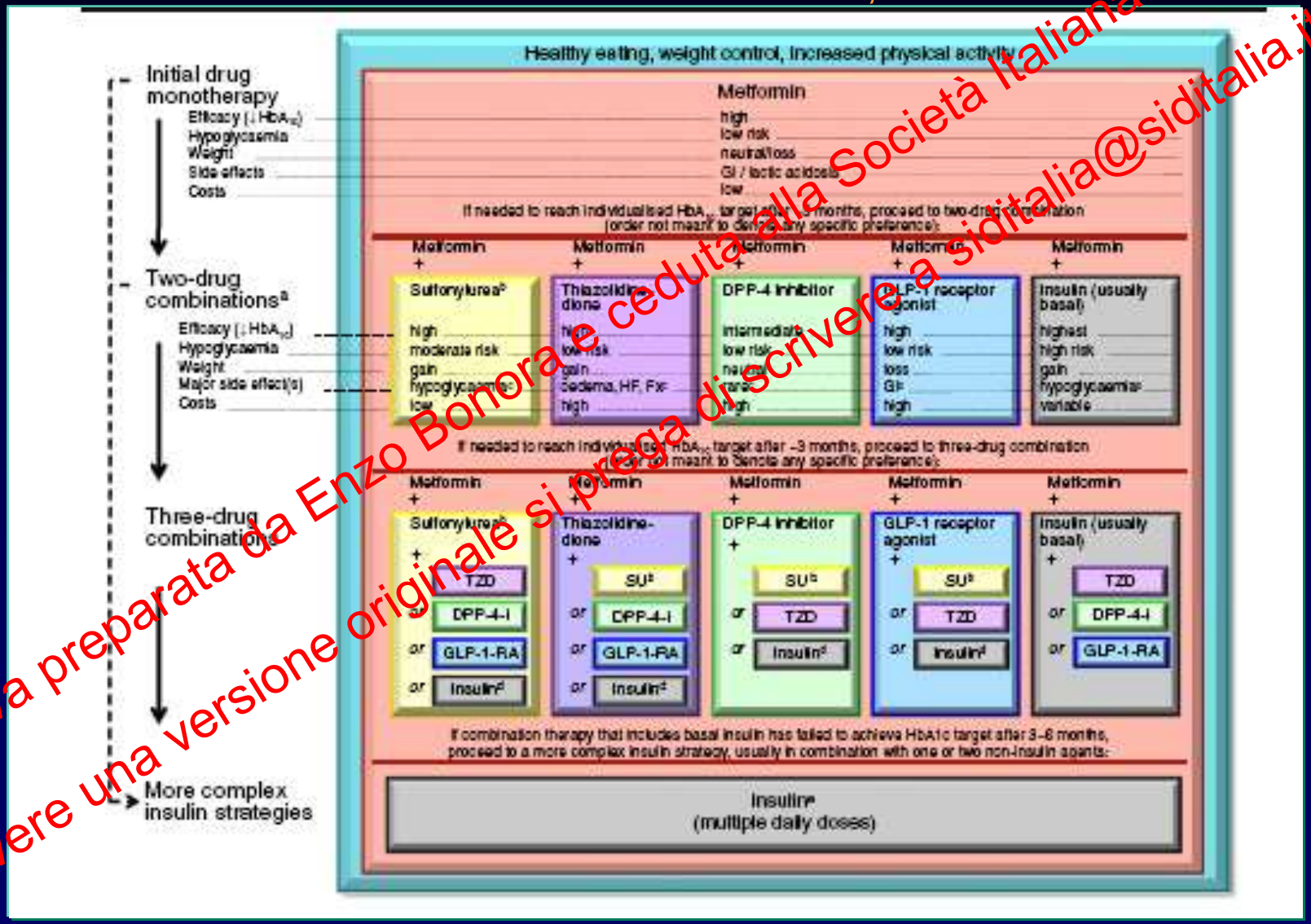

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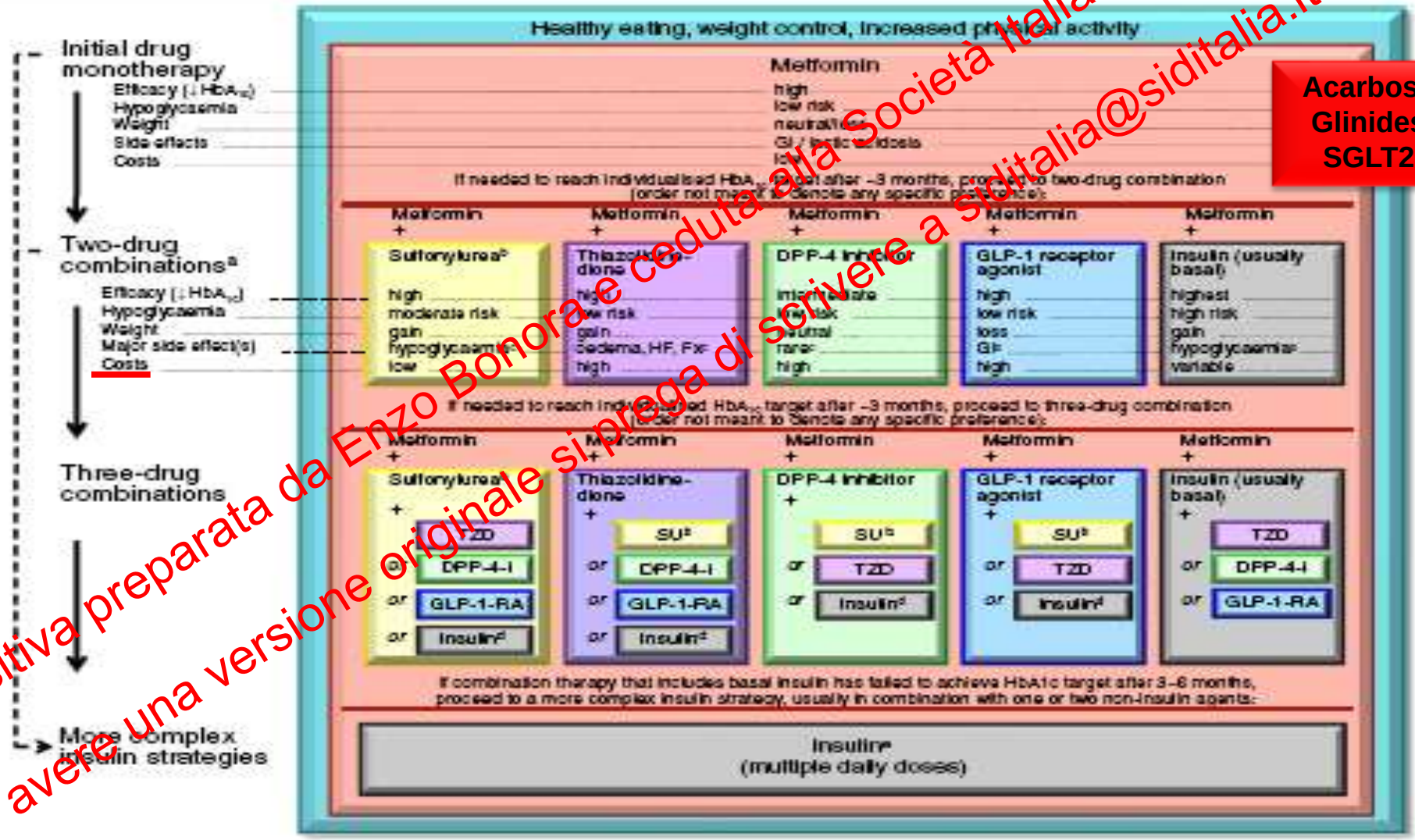


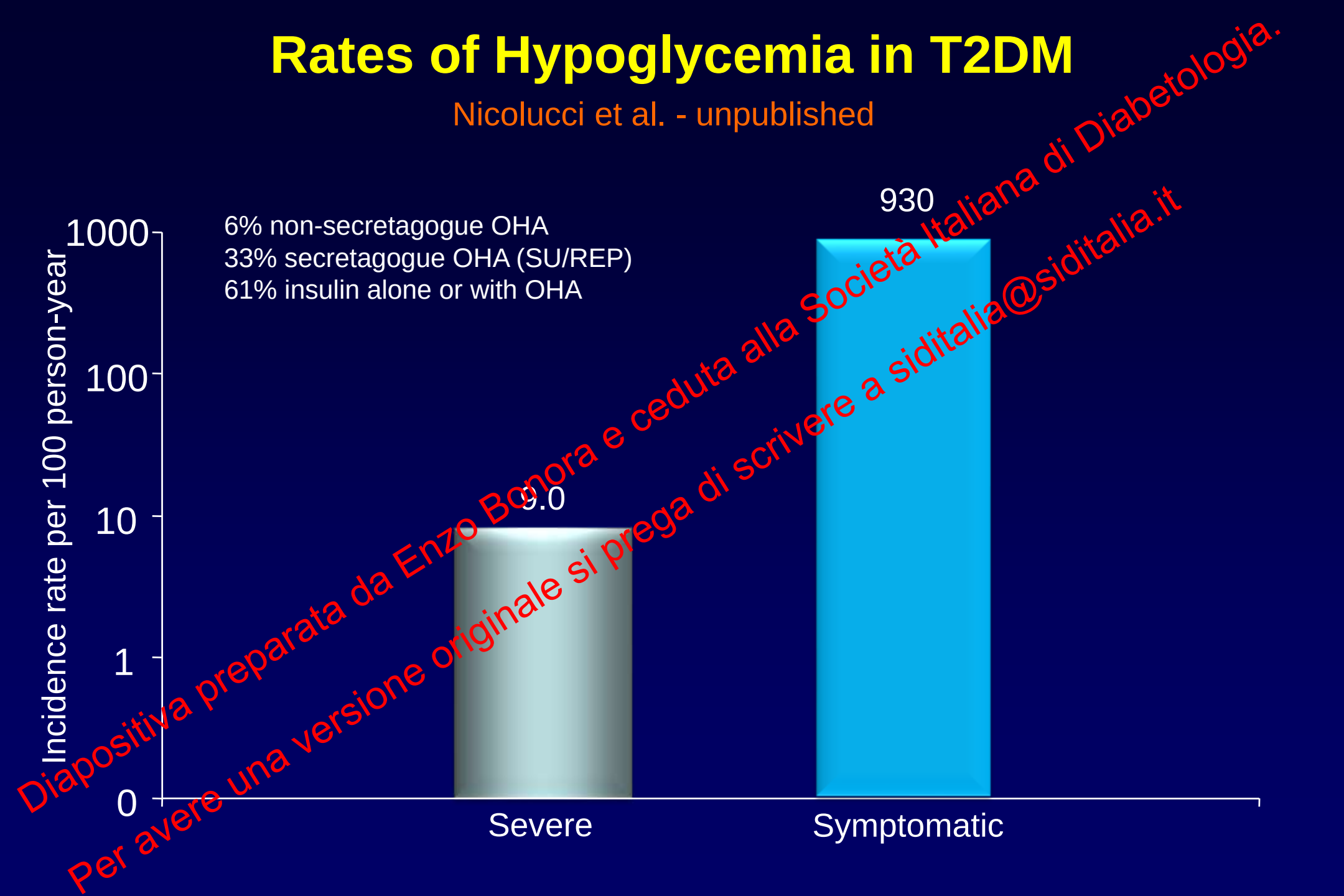
Alphabet in Setting Glycemic Targets in T2DM

- A = AGE (patient)
- B = BMI (patient)
- C = Complications (patient)
- D = Duration of diabetes (patient)
- E = Empowerment (patient)
- F = Frailty (patient)
- G = Glycemic history (patient)
- H = Hypoglycemic risk and burden (patient)
- J = Judgement (clinical; doctor)
- K = Coefficient of success
- I = Intelligence & Inspiration (doctor)
- L = Life expectancy (patient)
- M = Motion (patient and doctor)

More soon….

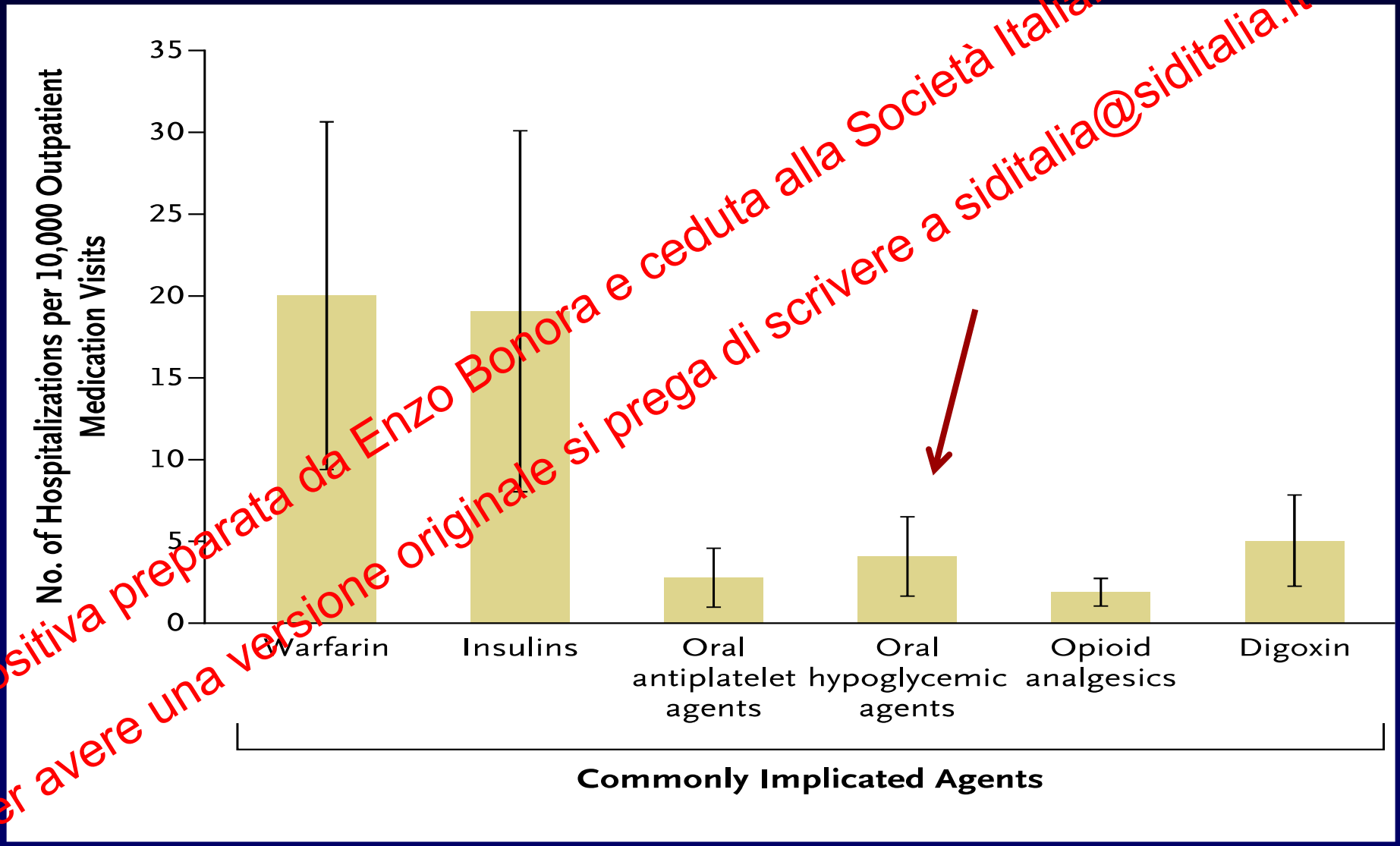
Rates of Hypoglycemia in T2DM

Nicolucci et al. - unpublished



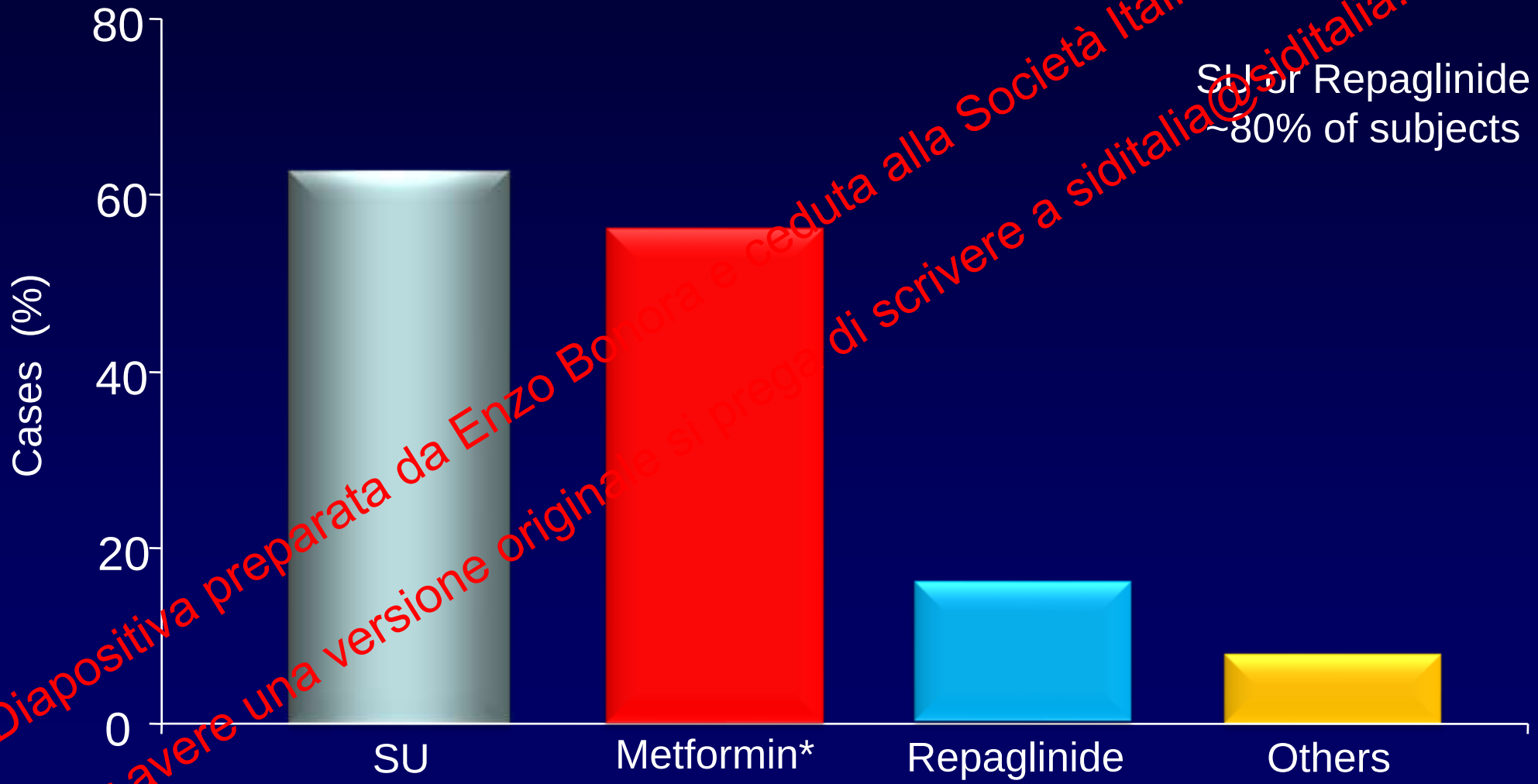
Estimated Rates of Emergency Hospitalizations for Adverse Drug Events in Older U.S. Adults (2007-2009)

Budnitz DS et al. N Eng J Med 2012



Treatment in Non-Insulin Taking Patients Admitted to Emergency Room in 38 Italian Hospitals

Marchesini et al – EASD 2013

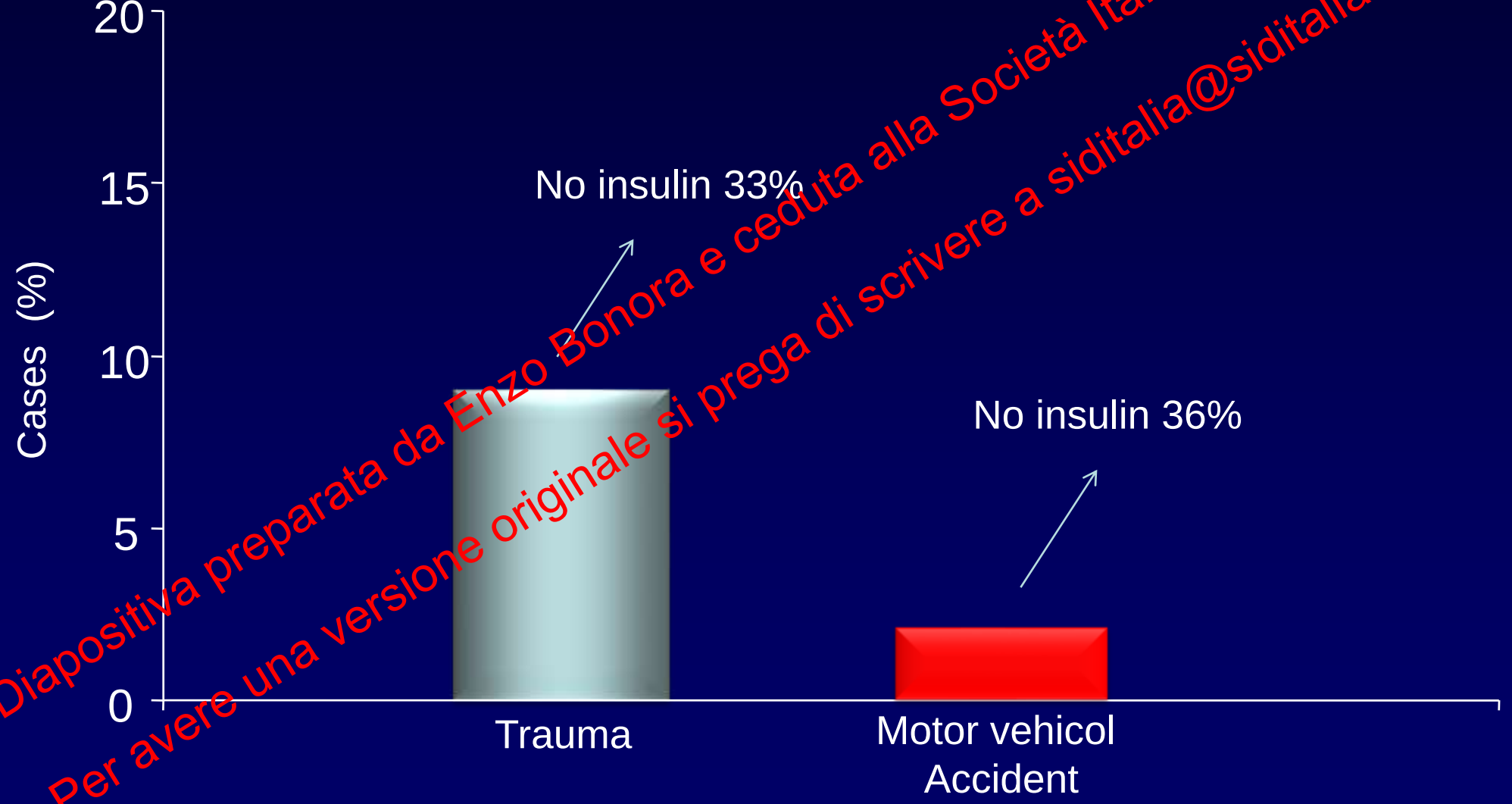


Molecule Used in Sulphonylurea Treated Patients Admitted to Emergency Room in 38 Italian Hospitals

Marchesini et al – EASD 2013

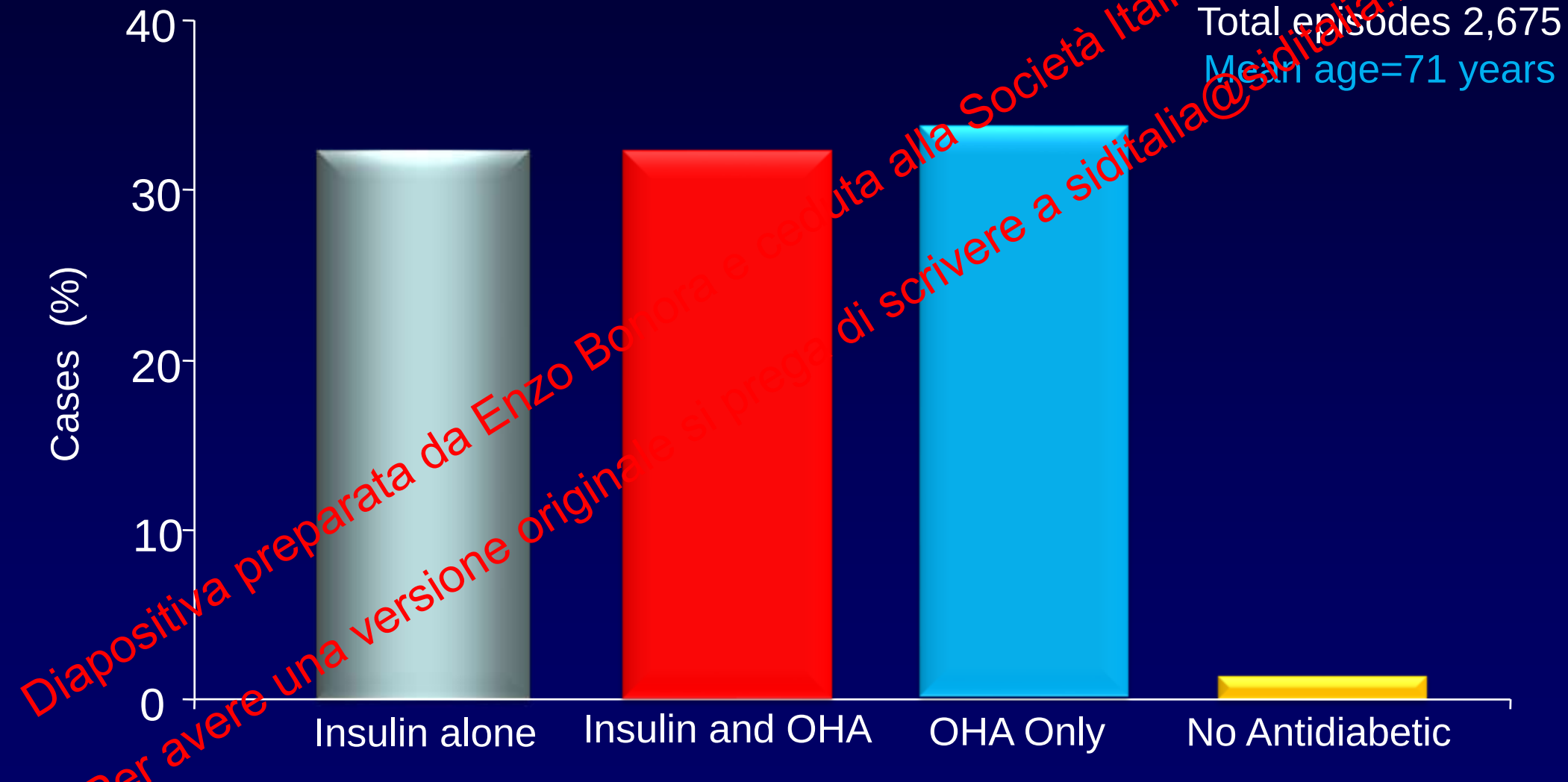
Events Associated with Hypoglycemia in Patients Admitted to Emergency Room in 38 Italian Hospitals

Marchesini et al – EASD 2013



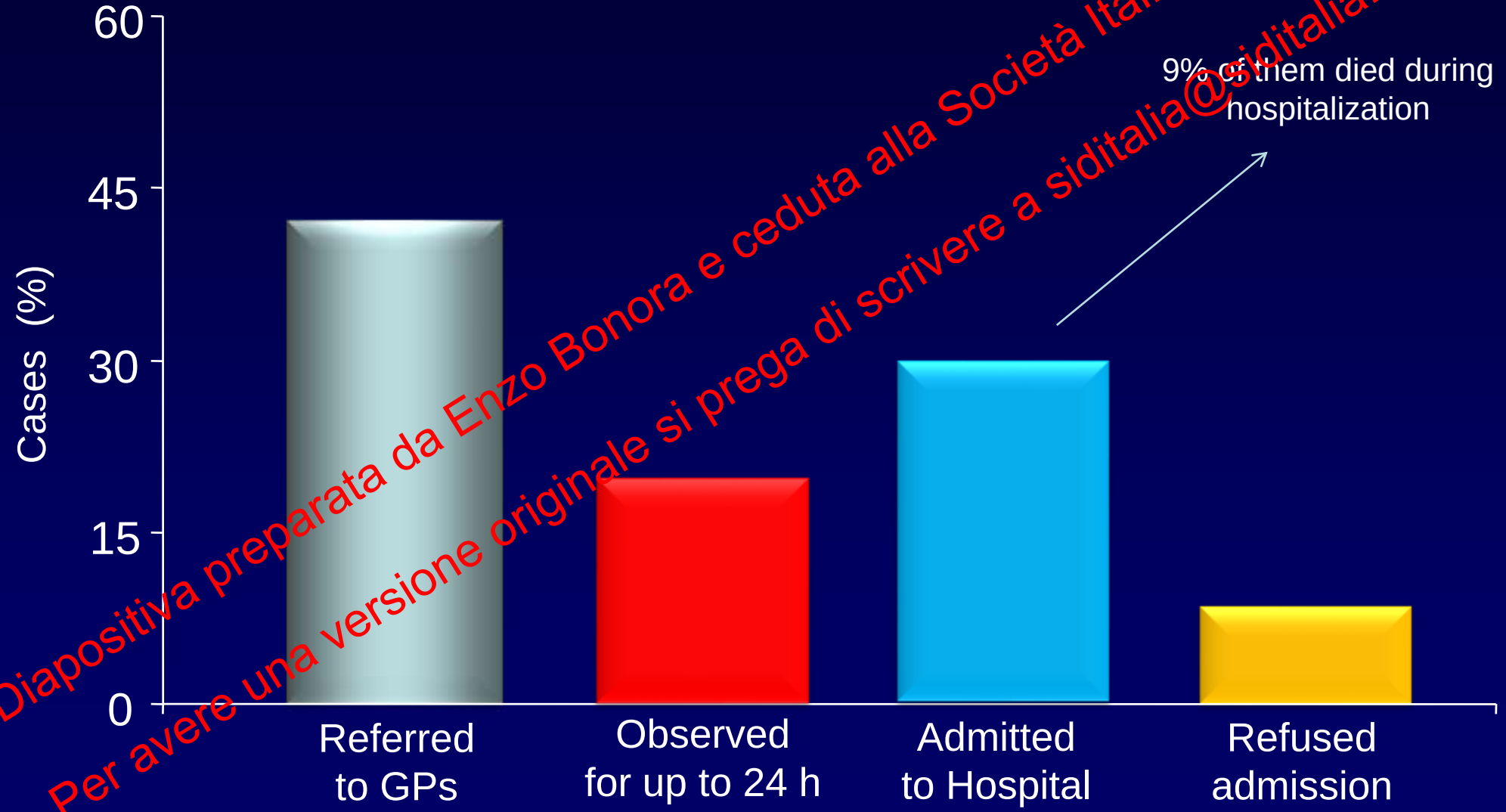
Anti-DiabeticTreatment in Patients Admitted to Emergency Room in 38 Italian Hospitals

Marchesini et al – EASD 2013



Outcome after Admission to Emergency Room for Hypoglycemia in 38 Italian Hospitals

Marchesini et al – EASD 2013



Association of Hypoglycemia and Rapid Hyperglycemia with Cardiac Ischemia in T2DM. A Study based upon Continuous Glucose and ECG Monitoring

(Desouza et al; Diabetes Care 26: 1485, 2003)

	Total episodes	Episodes with cardiac pain	Episodes with ECG abnormalities
Hypoglycemia	54	10	6
Asymptomatic	28	-	2
Symptomatic	26	10	4
Normoglycemia	-	0	0
Hyperglycemia	59	1	0
Glucose increase >100 mg in 1 h	50	9	2

VADT - Predictors of CVD Death

(Duckworth et al – NEJM 2009; 360: 129-139)

Variable	Hazard Ratio	P Value
Prior CVD event	3.116	0.0001
Age (per 10 yr)	2.090	<.0001
HDL (per 10 mg)	0.699	0.0079
Baseline HbA1c (per 1%)	1.213	0.0150
Severe Hypoglycemia	4.042	0.0076

Main Untoward Effects of Anti-Diabetic Agents

	Hypos	GI Disconfort	Weight Gain	Oedema	Bone Fracture	Genito-urinary Infections
Metformin		Yes				
Sulphonylurea	Yes		Yes	(Yes)		
Acarbose		Yes				
Repaglinide	Yes		Yes			
Pioglitazone			Yes	Yes	Yes	
GLP-1 RA		Yes				
DPP-4 inhibitor						
SGLT2 inhibitors						Yes

Main Interactions of Anti-Diabetic Agents

	Warfarin	FANS	Antibiotics Antifungins	Fibrates	Digoxin	Others
Metformin						
Sulphonylurea	Yes	Yes	Yes	Yes		Yes
Acarbose					Yes	Yes
Repaglinide			Yes	Yes		
Pioglitazone						Yes
GLP-1 RA	(Yes)	(Yes)	(Yes)	(Yes)	(Yes)	Yes
DPP-4 inhibitor			(Yes)			(Yes)
SGLT2 inhibitors						

Warning or Contraindications of Anti-Diabetic Agents According to Organ Failure

	Heart Failure	Respiratory Failure	Liver Failure	Kidney Failure
Metformin	Yes	Yes	Yes	Yes
Sulphonylurea			Yes	Yes
Acarbose			Yes	Yes
Repaglinide			Yes	Yes?
Pioglitazone	Yes		Yes	
GLP-1 RA			Yes	Yes
DPP-4 inhibitor	(Yes)		(Yes)	
SGLT-2 inhibitors			Yes	Inefficacy

Main Limitations of Anti-Diabetic Agents

	MET	SU	AGI	REP	PIO	DPP-4	GLP-1 RA	SGLT 2
Loss of efficacy	++	+++		+++				
Need to titrate	++	+++	+++	+++			(+)	
Need of lab exam monitoring	++	+	+	+				(+)
Need of frequent SMBG		+++		+++				
Interactions		+++	+	+++	+		(+)	
Contraindications	++	++	+	++	++			
Warnings	+	+++	+	++	+++			
Side effects	+	++	+++		++			++
Hypoglycemia		+++		++				
Lower efficacy with GFR <60								++