

L'USO DELLA RISORSA ALBUMINA LA PROSPETTIVA DEL CLINICO

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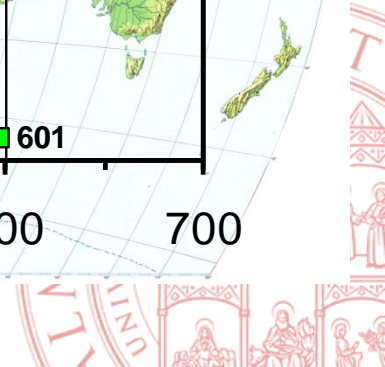
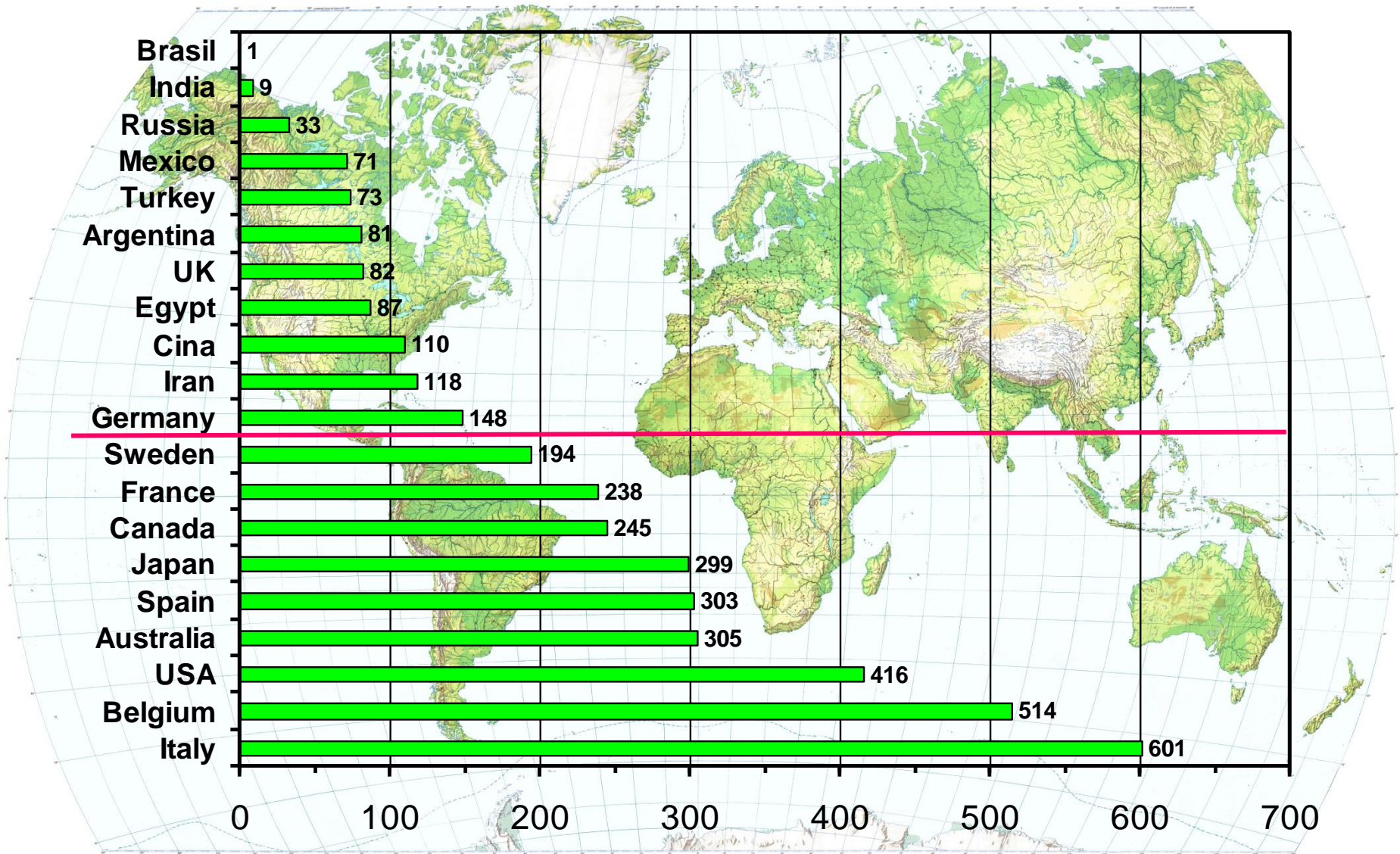
DISCLOSURES

- CLS Behring GmbH consultant
speaker
- PPTA Europe speaker
- Baxter Healthcare SA consultant
speaker
- Gilead Sciences speaker



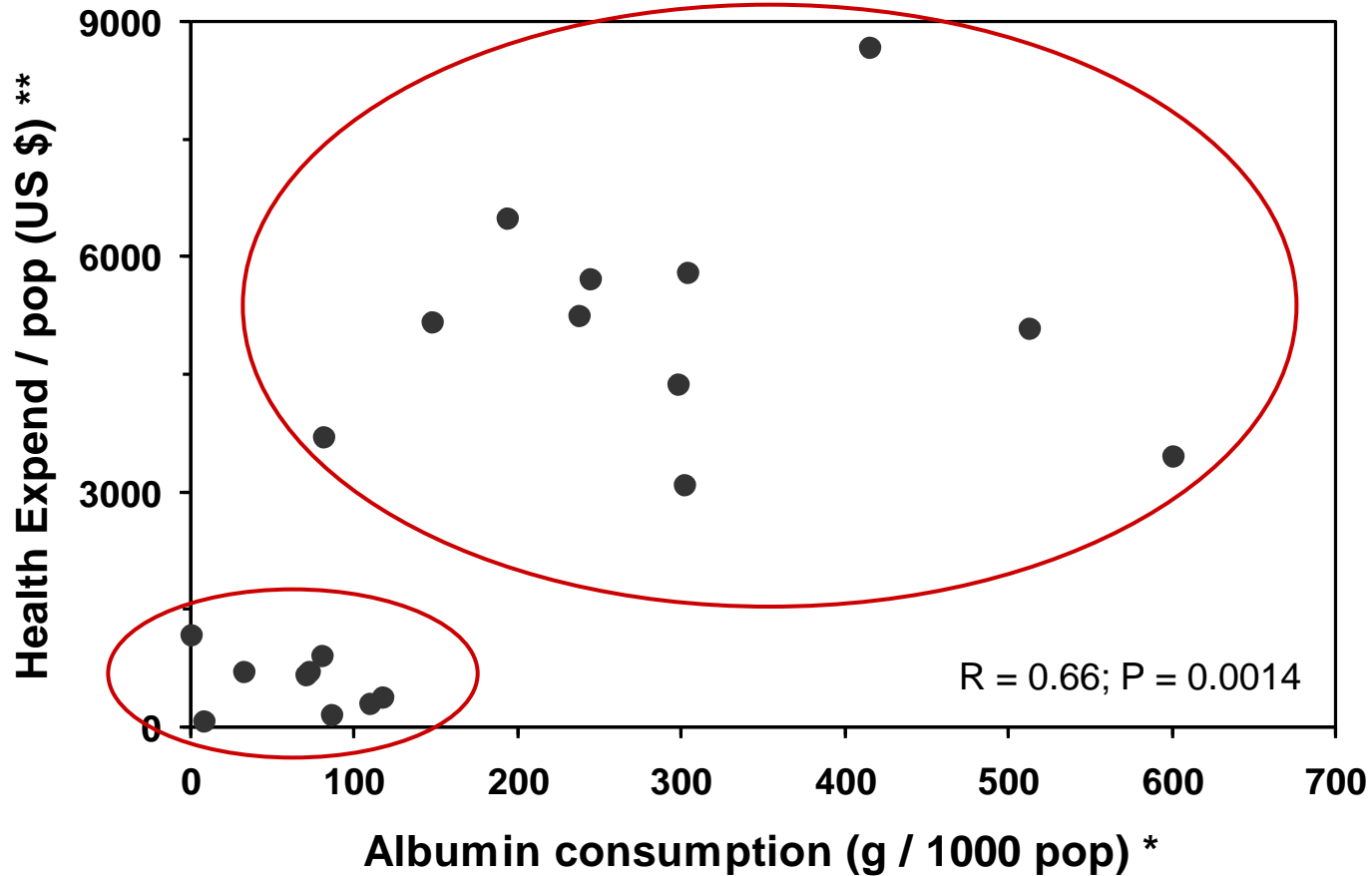
ALBUMIN CONSUMPTION WORLDWIDE

YEAR 2012



ALBUMIN CONSUMPTION WORLDWIDE

RELATIONSHIP WITH HEALTH EXPENDITURE



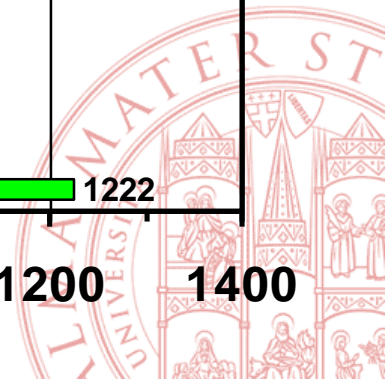
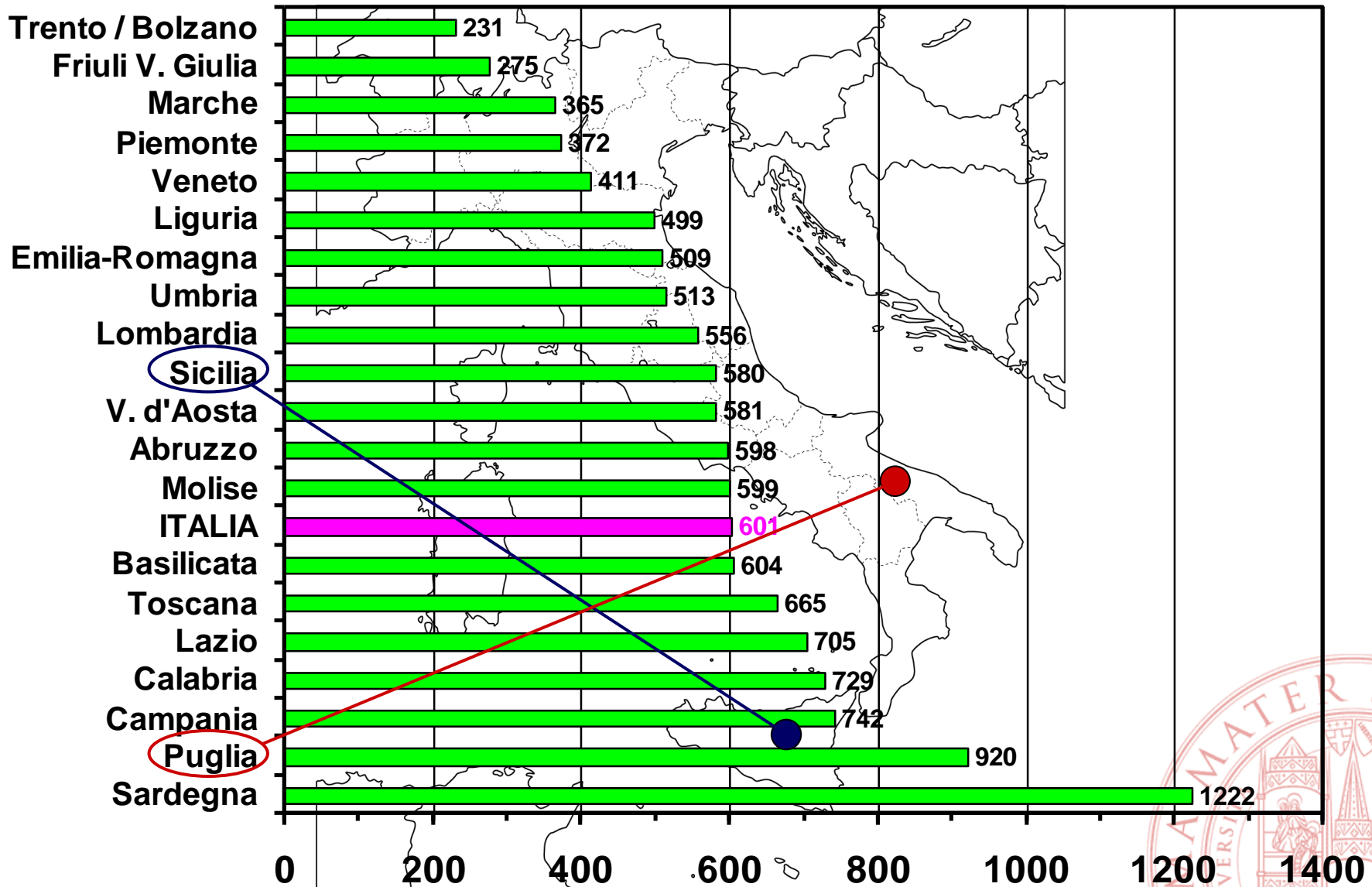
* ISTISAN Report 12-53

** The World Bank - 2010



ALBUMIN CONSUMPTION IN ITALY

YEAR 2011



INAPPROPRIATE USE OF ALBUMIN

22 public hospital in Spain (3 non consecutive days – 5 mo period)

Use of albumin deemed inappropriate in 76% of cases

Main reasons for inappropriate use:

nutritional intervention

hypoalbuminemia

cardiac surgery

abdominal surgery

nephrotic syndrome

\$ 140,891 expenditure (77% of total) for inappropriate use



RESTRAINTS FOR ALBUMIN USE

- **Lack of solid scientific evidence**
- Availability of cheaper alternatives
- High cost
- Limited availability
- Fear of transmission of viral infection



USE OF ALBUMIN IN LIVER DISEASE

INDICATIONS EMERGING FROM EBM

- Prevention of **post-paracentesis circulatory dysfunction** (> 4-5 L of tapped ascites)

- Prevention of **hepatic encephalopathy** induced by **spontaneous bacterial peritonitis**

8 g / L of tapped ascites
1 g / Kg bw at diagnosis
20-40 g / day thereafter

- **Hepatorenal syndrome** (with **vasopressin** [terlipressin] + **octreotide**; noradrenalin])



USE OF ALBUMIN IN HRS

THE ITALIAN EXPERIENCE

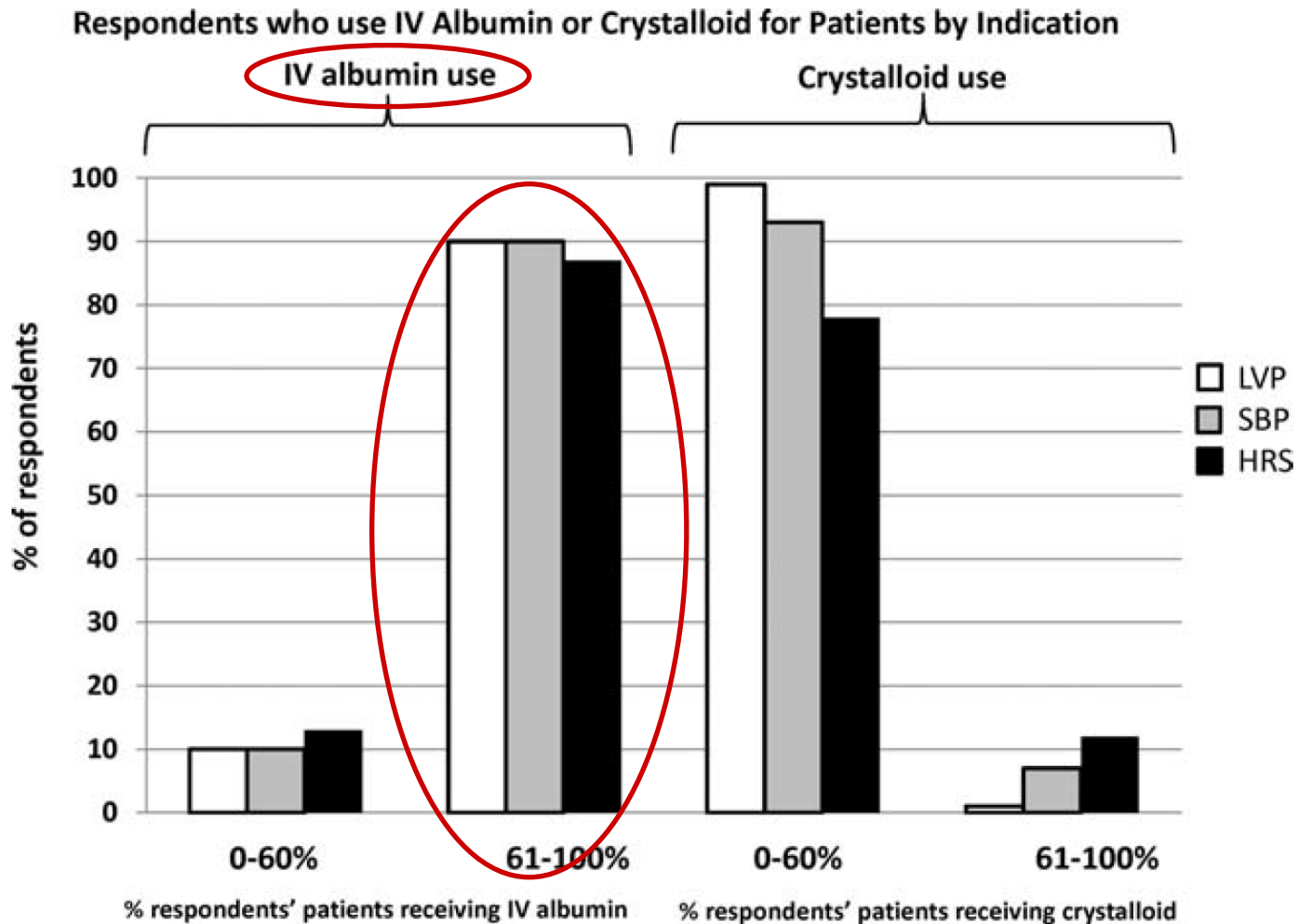
HRS 1: 76 patients
HRS 2: 40 patients

- Albumin + vasoconstrictors in HRS 1: 84%
- Albumin + vasoconstrictors in HRS 2: 72%
- Mean daily albumin dose: 27 ± 2 g
- Complete response: 30%
- Partial response: 20%



ALBUMIN USE IN PATIENTS WITH CIRRHOSIS

AASLD MEMBERS SURVEY



ALBUMIN USE ACCORDING TO GUIDELINES

THE CANONIC STUDY¹

	Patients (N = 1343) N (%)	Patients receiving albumin N (%)
Included with follow-up*	699 (52)	425 (61)
Infection (SBP 26%)	398 (57)	152 (38)
Paracentesis	291 (42)	225 (77)
HRS	179 (26)	75 (42)

*There were patients with more than one complication associated to albumin administration.



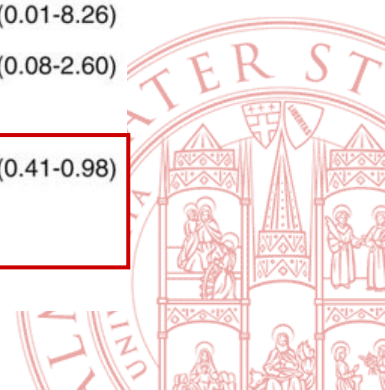
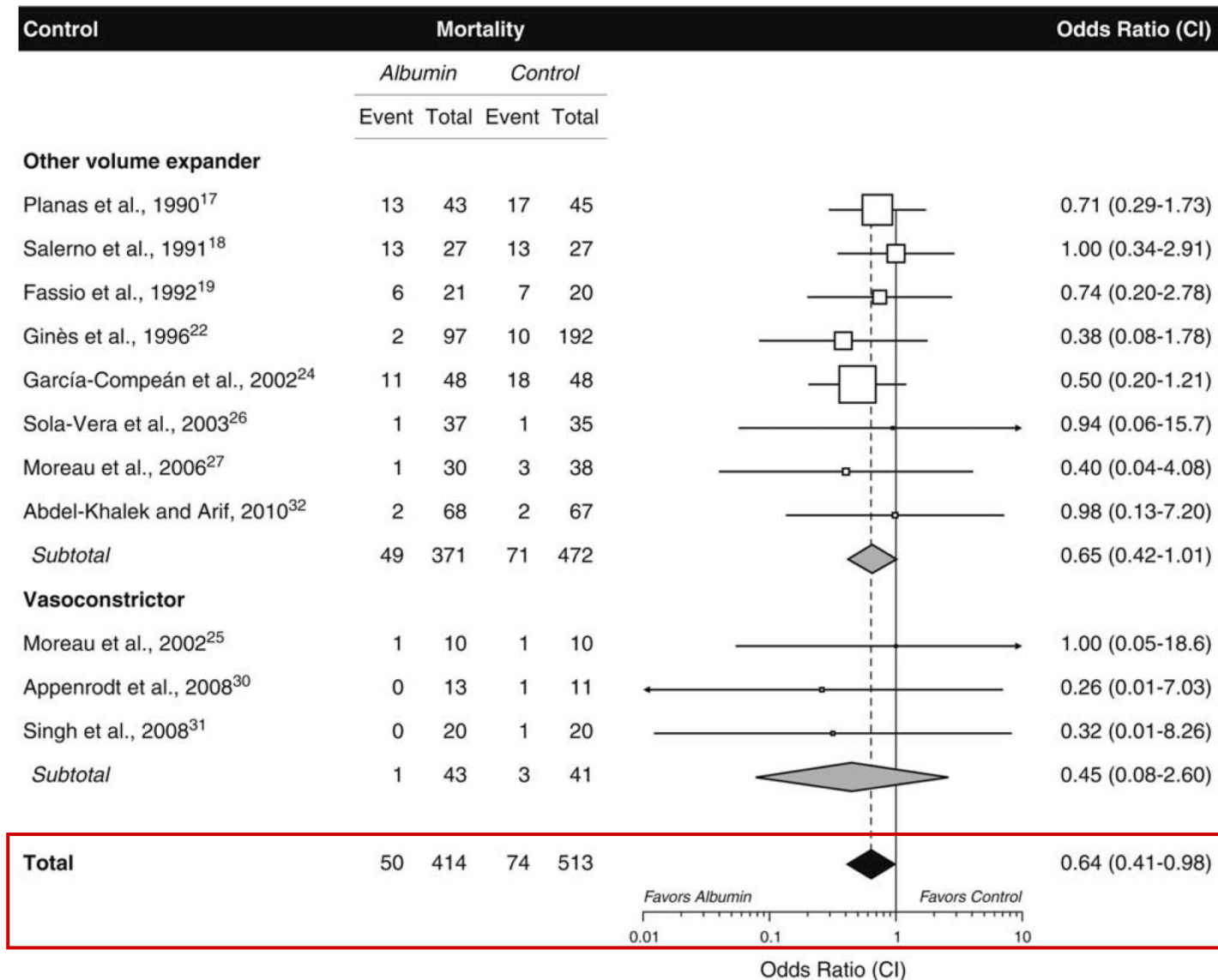
RESTRAINTS FOR ALBUMIN USE

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PREVENTION OF PICD

META-ANALYSIS: MORTALITY



USE OF ALBUMIN IN HEPATOLOGY

ARE THEY CHEAPER ALTERNATIVES ?

- Albumin is superior to any other alternative tool (artificial plasma expanders, crystalloids, vasoconstrictors) in preventing PPCD and paracentesis-induced hyponatremia and mortality

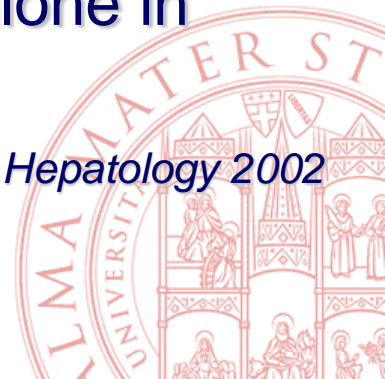
Bernardi et al, Hepatology 2012

- Albumin is superior to hydroxyethyl starch in improving effective volemia in patients with SBP

Fernandez et al, Hepatology 2005

- Terlipressin plus albumin is superior to terlipressin alone in achieving a complete response to treatment in HRS

Ortega et al, Hepatology 2002



RESTRAINTS FOR ALBUMIN USE

- Lack of solid scientific evidences
- Availability of cheaper alternatives
- **High cost**
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FIGHTING THE SCARCITY OF RESOURCES



The NEW ENGLAND JOURNAL *of* MEDICINE

Perspective
MAY 24, 2012

From an Ethics of Rationing to an Ethics of Waste Avoidance

Howard Brody, M.D., Ph.D.

VIEWPOINT

Why the Ethics of Parsimonious Medicine Is Not the Ethics of Rationing

Jon C. Tilburt, MD

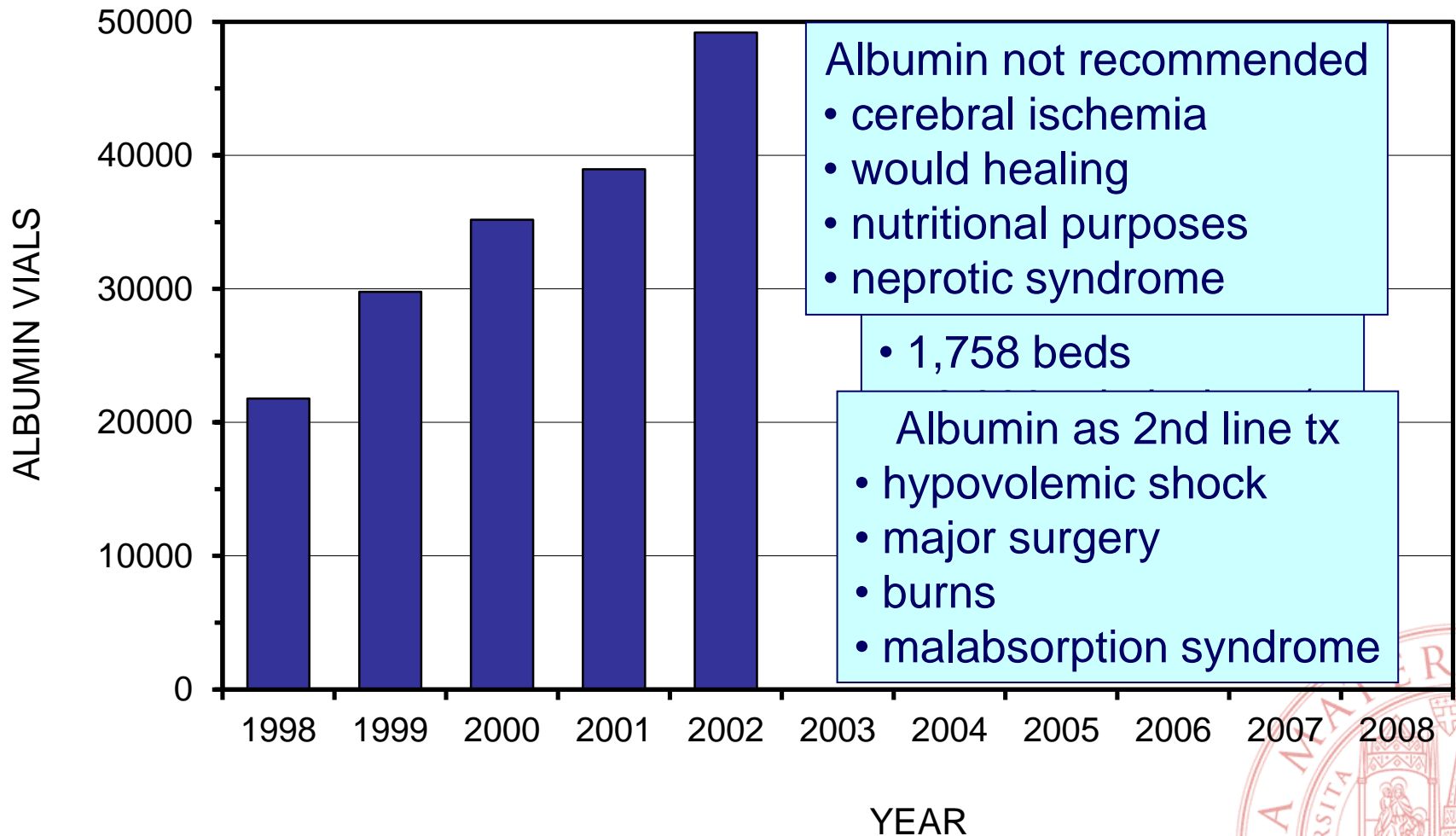
Christine K. Cassel, MD

JAMA 2013; February 27, 2013



FIGHTING THE SCARCITY OF RESOURCES

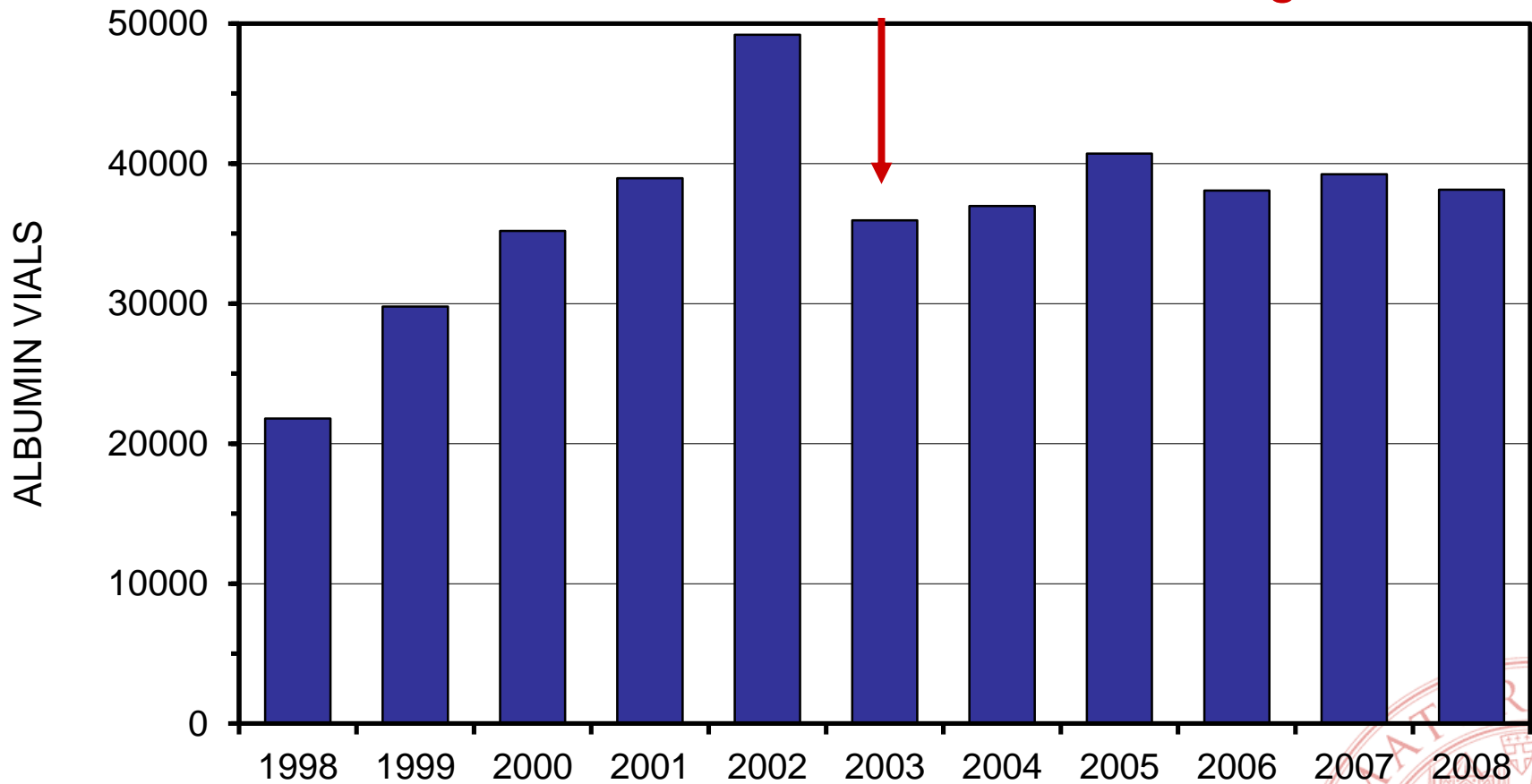
THE ST. ORSOLA-MALPIGHI HOSPITAL EXPERIENCE



FIGHTING THE SCARCITY OF RESOURCES

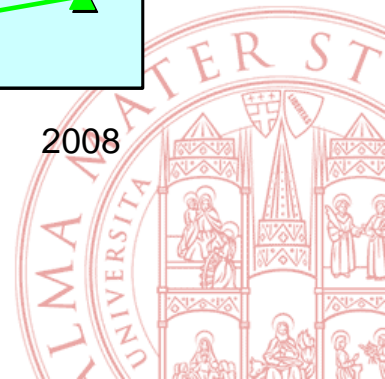
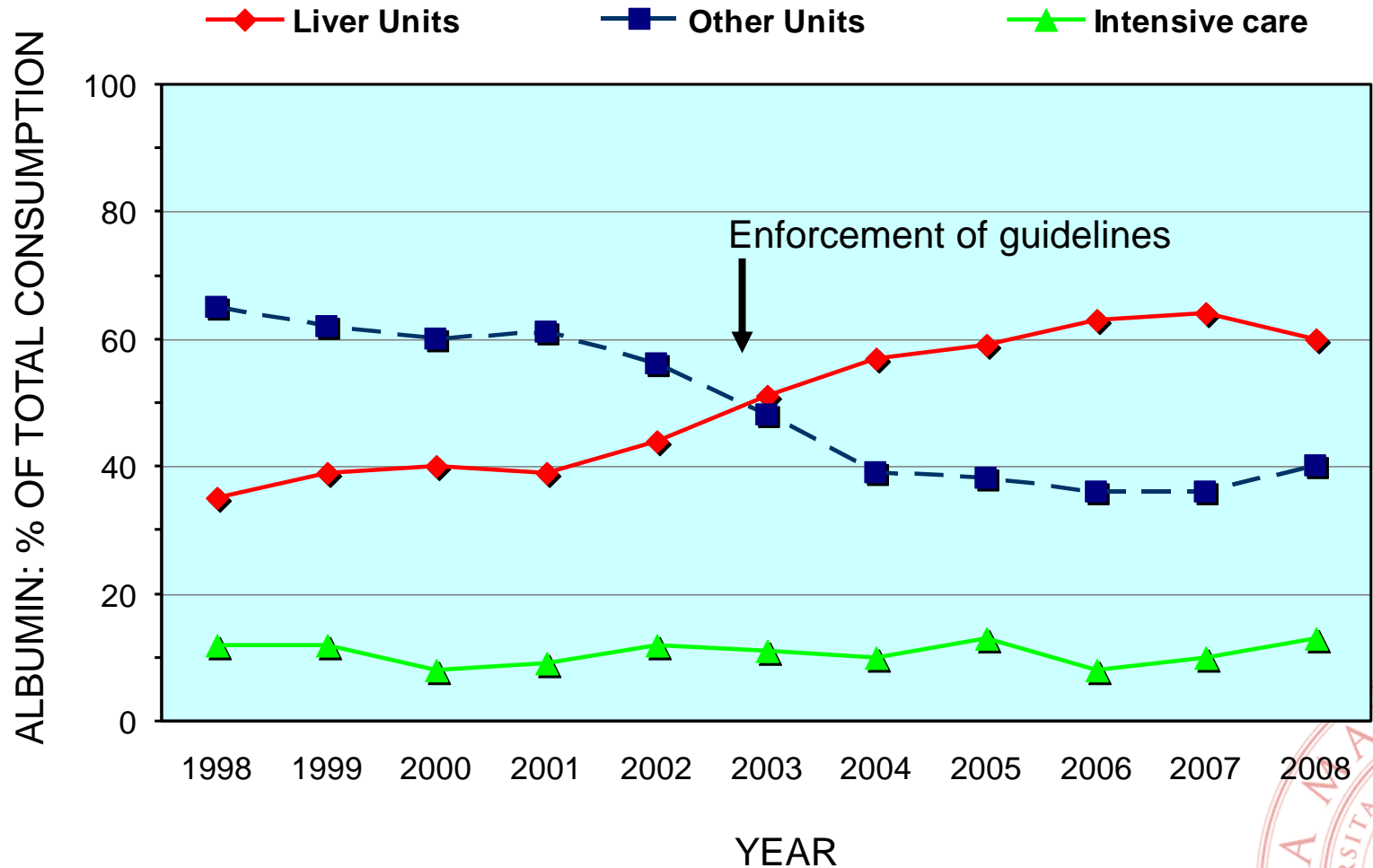
THE ST. ORSOLA-MALPIGHI HOSPITAL EXPERIENCE

Enforcement of guidelines



FIGHTING THE SCARCITY OF RESOURCES

THE ST. ORSOLA-MALPIGHI HOSPITAL EXPERIENCE



FIGHTING THE SCARCITY OF RESOURCES

MAXIMIZING BENEFITS

*“ Choose interventions and care settings **that maximize benefits, minimize harms,** and reduce costs (using comparative effectiveness and cost-effectiveness data)”*



FIGHTING THE SCARCITY OF RESOURCES

MAXIMIZING BENEFITS

- Identify features (clinical, lab, biomarkers) allowing to select patients who would mostly receive benefit from albumin administration
- Identify the lowest effective albumin dosages and treatment durations in different settings
- Assess cheaper alternatives or combined treatments with (at least) equal efficacy through reliable studies
- Promote controlled clinical trials assessing albumin use in new indications



FIGHTING THE SCARCITY OF RESOURCES

APPROPRIATE COST ASSESSMENT

*“ Choose interventions and care settings that maximize benefits, minimize harms, and reduce costs (**using comparative effectiveness and cost-effectiveness data**) ”*



COST-EFFECTIVENESS OF ALBUMIN USE SEVERE SEPSIS & SEPTIC SHOCK

SALINE vs ALBUMIN

Base-case analysis: mortality and differential in lives saved and life years gained

Cub-Réa database	Hospital mortality rate	No. of patients alive at discharge	Differential of number of lives saved if albumin used	Life expectancy (DEALE)	Total no. of computed survival years	Differential of life years gained if albumin used
Without albumin	53.7%	5156	513	9.78	50.426	5017
With albumin	49.1%	5669		9.78	55.443	

- 4,6% according to the SAFE study

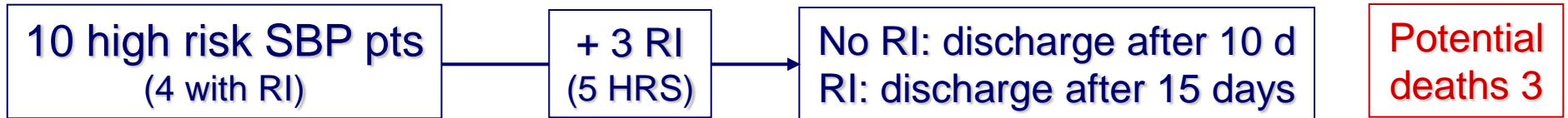
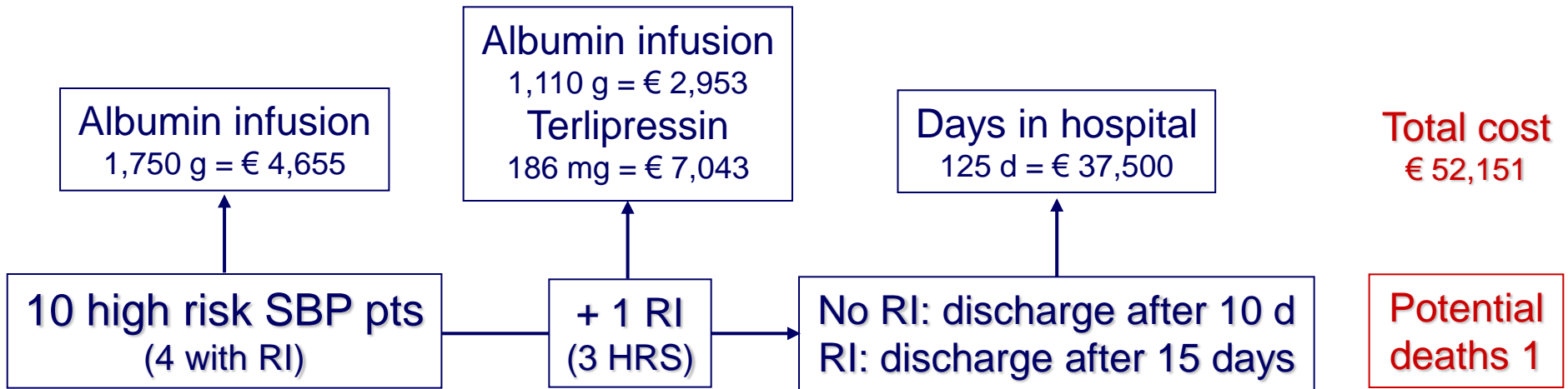
Cost /life saved: € 6,037
Cost /y life saved: € 617

Prevention programs in which the cost per year of gained life is less than twice the per capita GNP (€ 50,000 in France) should be systematically adopted



PREVENTION OF RENAL FAILURE IN SBP

COST ANALYSIS



Albumin infusion
1,850 g = € 4,921
Terlipressin
330 mg = € 12,495

Days in hospital
135 d = € 40,500

Total cost
€ 57,916

assumptions:
1 g Albumin = € 2.66
1 mg Terlipressin = € 37.86
1 hospital day = € 300



ALBUMIN vs POLYGELINE IN CIRRHOSIS

EFFICACY & COST ANALYSIS

Cirrhosis with ascites

30 albumin group

38 polygeline group

Follow-up 6 months

Inclusion criteria

therapeutic paracentesis

renal impairment

severe hyponatremia

RISK FOR DEVELOPING LIVER RELATED COMPLICATIONS*

Polygeline vs Albumin: **HR 1.95**; 95% CI [1.323.37], $P < 0.016$

MEDIAN COST ADJUSTED TO A 30-DAY PERIOD

Polygeline: **€ 4,612** vs Albumin: **€ 1,915**; $P < 0.004$

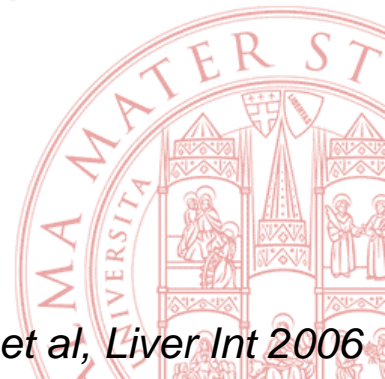
** adjustment for baseline*

history of portal hypertensive bleeding

creatinine clearance

serum albumin

Moreau et al, Liver Int 2006



CONCLUSIONS

- The use of albumin for the current indications given by guidelines is variable and often sub-optimal
- Continuing education is still needed
- In order to avoid and oppose uncritical rationing of albumin use by health Authorities it would be essential:
 - avoid inappropriate use
 - refine indications and dosages
 - perform appropriate cost analysis
 - support new indications or alternative treatments with reliable studies



