Preparación del colon: un Imprescindible indicador de calidad

William Otero R MD, FAGA, FACP
Profesor Titular de Medicina
Universidad Nacional de Colombia
Hospital Universitario Nacional de Colombia

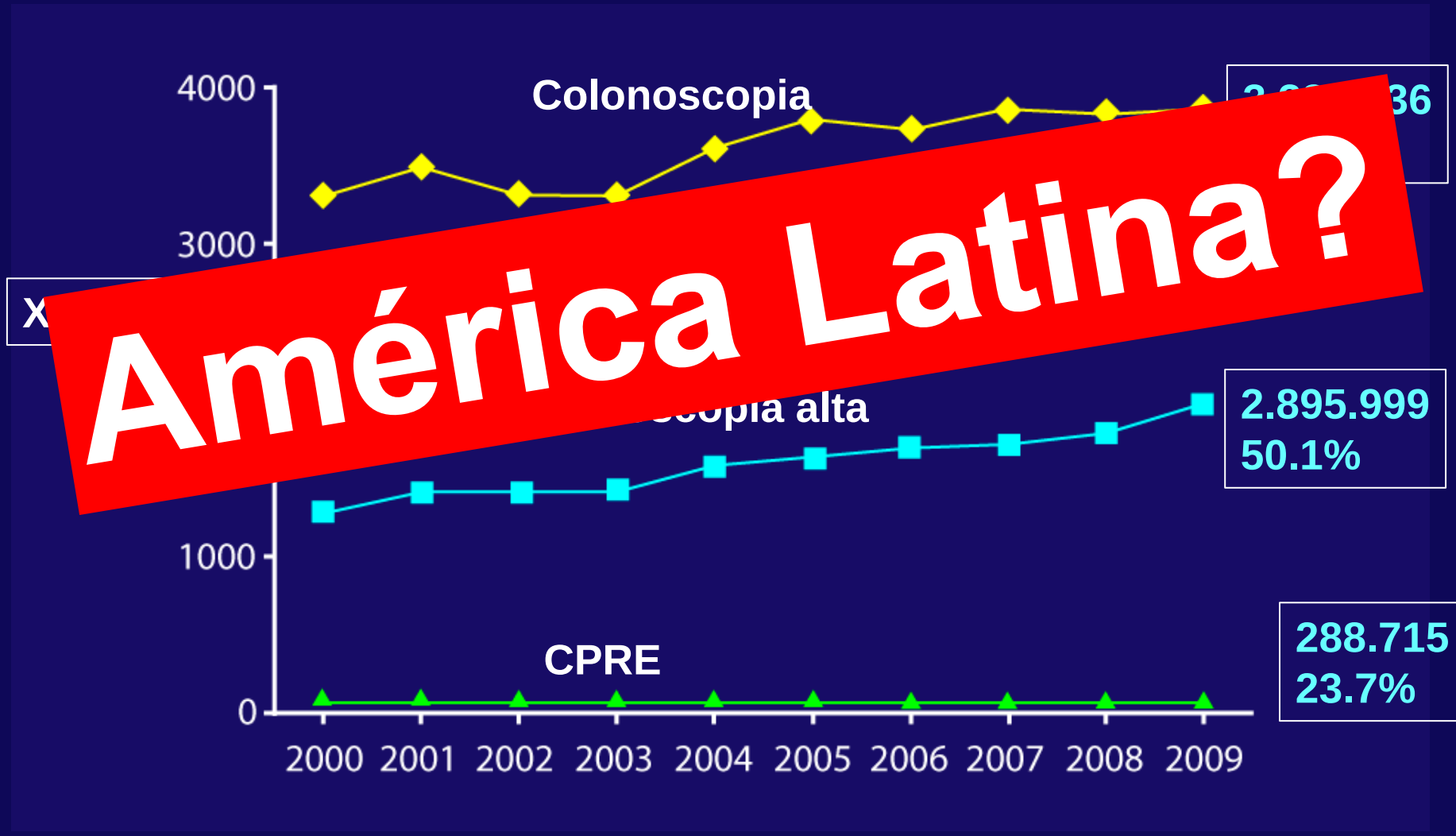
Colonoscopia

"Gold standard"
Para visualizar
La mucosa del colon

Método de
tamización ("screening")
Más utilizado (90% USA)

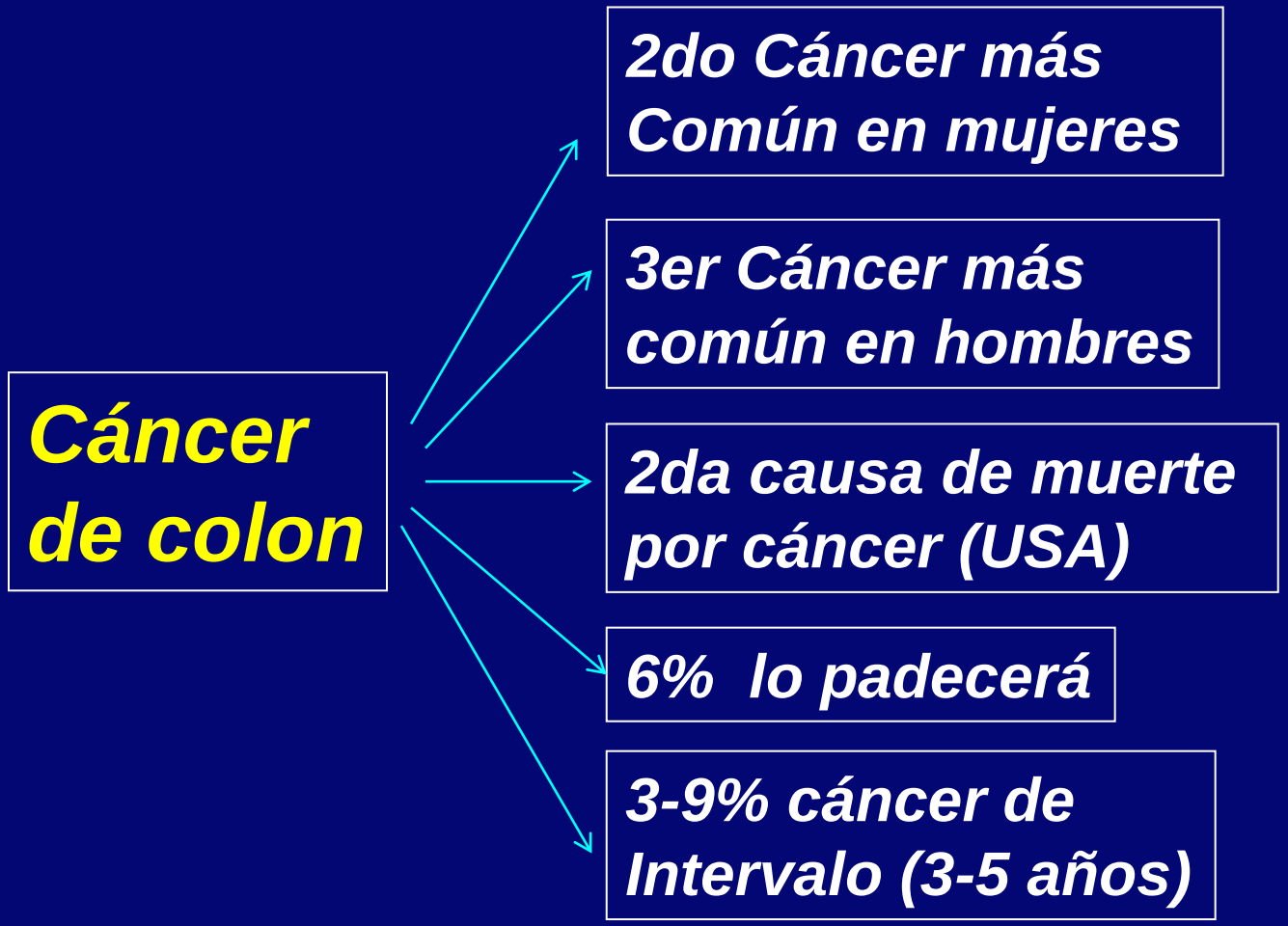
Brenner H, Gastroenterology 2014;146:709-17
Clark BT, Am J Gastroenterol 2014;109:1714-23

Colonoscopia examen más frecuente en USA

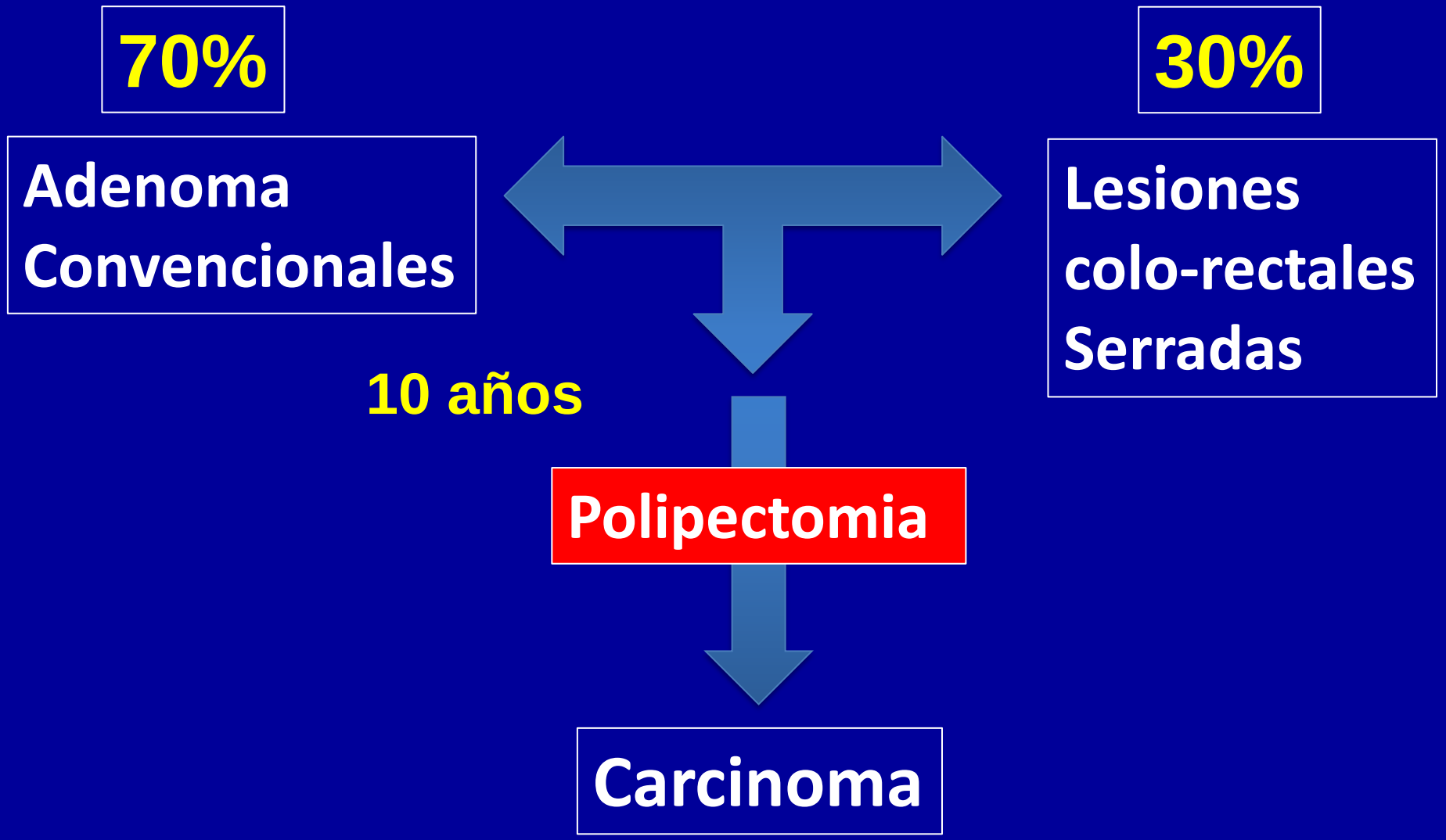


América Latina?

Perry AF, Gastroenterology 2012;143:1179 –1187



Sabatino SA, MMWR Morb Mortal Wkly Rep 2015;64:464-8
Siegel RI, Cancer Statistics 2016. CA Cancer J Clin 2016;66:7-30
Asdler J, Am J Gastroenterol 2015;110:1657-64



Winawer SJ, NEJM 1993;329:1977-81
Citarda F, Gut 2001;48:812-5
Rex DK, Am J Gastroenterol 2012;107:1315-29

Colonoscopia
"screening"

Eficacia

Casos y controles
Cohorte

80% colon Distal ← **Incidencia Mortalidad** → **40-60% colon Proximal**

Rex DK, "Colorectal screening Cancer", GIE 2017;86:19-33

Colonoscopia: Eficacia en colon derecho ?

Biología Del tumor

Factores Técnicos

Inestabilidad Micro satélite >Crecimiento

Calidad de Colonoscopia

Kaminski MF, N Engl J Med 2010;362:1795-1803
Rex DK, Gastrointest Endosc 2015;81:31-53

Calidad en colonoscopia

Prevención del cáncer de colon

Cánceres de Intervalo

Parámetros Más viables

Indicadores de calidad en colonoscopia

1. *Indicación correcta*
2. *Consentimiento informado*
3. *Tasas de intubación cecal y documentación*
4. *Tasa de detección de adenomas*
5. *Tiempo de retirada en examen normal*
6. *Documentación calidad preparación*
7. *Incidencia de perforación*
8. *Incidencia sangrado pos polipectomía*
9. *Control de sangrado sin cirugía*
10. *Repetición oportuna colonoscopia según histología*
11. *Intervalos de vigilancia CU/EC*
12. *Intervalos de vigilancia pos cáncer/pólipos*

ASGE/AGA 2015

Otros indicadores de calidad

Tacto rectal: Siempre
Tatuaje: pòlipos >20 mm (No recto o ciego)
Diarrea crónica: Biopsias de mucosa normal
Perforación: 0.07%
Estudio histològico de pòlipos: 90%

Rees CJ, Gut 2016, Online Sept 29

Indicadores fuertes/prioritarios

Tasa de intubación cecal
Detección de adenomas
Tiempo de retirada
Seguimiento de Guías de vigilancia
Calidad de preparación de colon

Anderson JC, Clin Transl Gastroenterol 2015;6:e77

90% ➡ **95%**

Rees CJ, et al. Gut 2016;65:1923–1929
Kaminski MF, ueg Journal 2017;5:309-34

How to Improve Your Adenoma Detection Rate During Colonoscopy

Neil Gupta

Step 1: Are My Patients Achieving a High-quality Bowel Preparation?

The better the quality of the patient's bowel preparation, the more adenomas you will detect.[3,4] One of the first steps you should do to improve your ADR is to check the bowel preparation quality of your patients. Having high-quality bowel preparation is the foundation for improving your ADR and the subsequent interventions will have limiting impact unless you can obtain high-quality bowel preparation.

If you do not already do so, start using a validated bowel preparation quality rating scale during colonoscopy and document bowel preparation quality for every procedure. Most endoscopy reporting software systems already incorporate this option in their systems. There are several validated bowel preparation scales such as the Aronchick scale, Boston Bowel Prep Scale, the Harefield Cleansing Scale, the Chicago Bowel Preparation Scale, and the Ottawa Bowel Prep Scale.[5] When choosing a scale for use in practice, choose one that has been validated and is easy for you to use in your daily practice. During initial implementation, posters/printed pictures of the scale and examples of its different scores posted in the procedure room can be helpful.

Gastroenterology 2016;151:1054–1057

Strategies to Increase Adenoma Detection Rates

Eelco C. Brand, MD[1,2]
Michael B. Wallace, MD, MPH[1,*]

Curr Treat Options Gastro 2017;15:184–212

Procedural factors

Bowel preparation

Quality of bowel preparation

High-quality bowel preparation is essential for the detection of lesions in the colorectum. A systematic review showed in a meta-analysis of nine studies no difference in ADR between intermediate and high quality of bowel preparation, while there was an increase in ADR if high quality was compared to poor quality (odds ratio (OR) for the detection of ≥1 adenoma per patient: 1.41, 95%-confidence interval (CI) 1.21–1.64) as was the case when intermediate quality was compared to poor quality (OR 1.39, 95%-CI 1.08–1.79) [9•]. These results imply a need for repeat colonoscopy in patients with poor bowel preparation as well as methods to optimize bowel preparation. Nevertheless, this meta-analysis was hampered by the lack of uniformity of bowel preparation quality assessment between the studies. Several scales for bowel preparation have been proposed with the Boston Bowel Preparation Scale (BBPS) as the most validated [10]. The quality is assessed for three parts of the colon, i.e., right (from cecum until ascending colon), transverse (from hepatic flexure until splenic flexure), and left (from descending colon until rectum) colon, and each segment is given a score from 0 to 3, with higher scores indicating a better preparation [11].

PubMed ▾ bowel preparation colonoscopy

Create RSS Create alert Advanced

Format: Summary ▾ Sort by: Best Match ▾ Per page: 20 ▾ Send

Abril 5, 2018

Your default sort order has been changed to **Best Match**. To switch back to **Most Recent**, click here.

Search results

Items: 1 to 20 of 1884

<< First < Prev Page 1 of 95 Next > Last

8 16:165-81

r Treat Options Gastro
OI 10.1007/s11938-018-0165-3
Colon (JC Anderson, Section Editor)

Update on Bowel Preparation for Colonoscopy

Cristina C. Rutherford, MD
Audrey H. Calderwood, MD, MS*

AGA SECTION

Gastroenterology 2014;147:903–924

Optimizing Adequacy of Bowel Cleansing for Colonoscopy: Recommendations From the US Multi-Society Task Force on Colorectal Cancer

David A. Johnson,[1] Alan N. Barkun,[2] Larry B. Cohen,[3] Jason A. Dominitz,[4] Tonya Kaltenbach,[5] Myriam Martel,[2] Douglas J. Robertson,[6,7] C. Richard Boland,[8] Frances M. Giardello,[9] David A. Lieberman,[10] Theodore R. Levin,[11] and Douglas K. Rex[12]

Communication from the Standards of Practice Committee

GUIDELINE

AMERICAN SOCIETY FOR ASGE GASTROINTESTINAL ENDOSCOPY

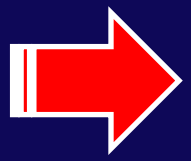
Bowel preparation before colonoscopy

Gastrointest Endosc 2015;81:881-93

Bowel preparation for colonoscopy: European Society of Gastrointestinal Endoscopy (ESGE) Guideline

Hassan C, Endoscopy 2013;45:142-50

Colon mal Preparado



"Catástrofe"

Impacta negativamente los principales Indicadores de calidad

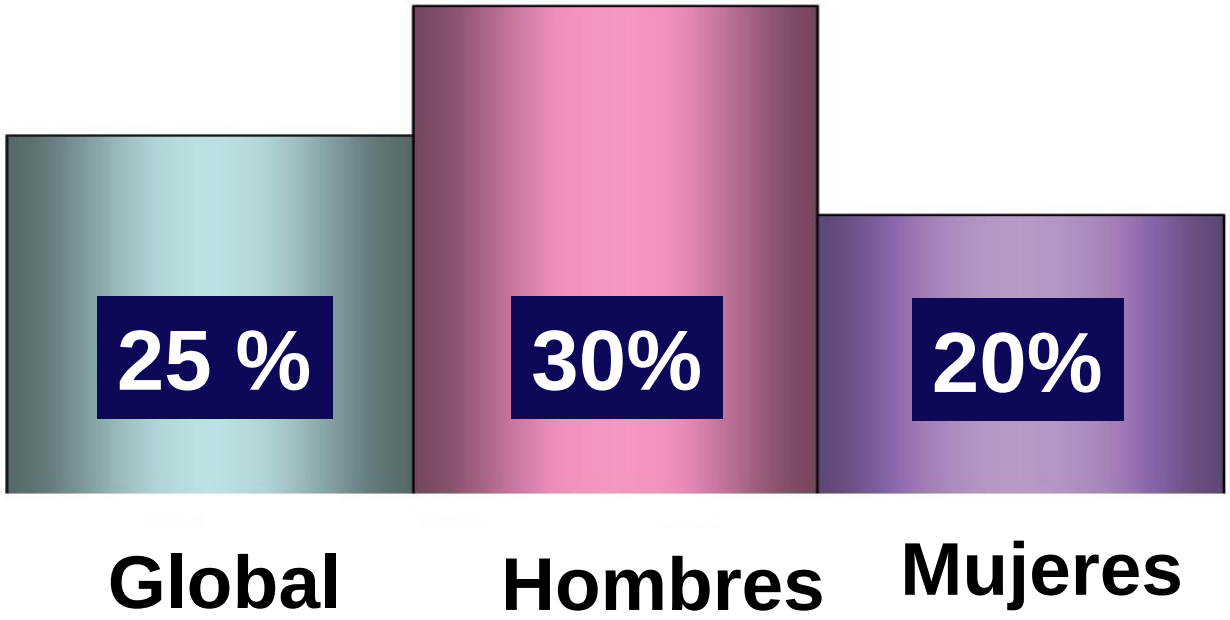
- **< Tasa intubación cecal**
- **>Más cáncer de intervalo**
- **>Tiempo de retirada**
- **> Colonoscopias**
- **Más costos**
- **< Tasa de detección de adenomas, ADR**

ASGE 2016, AGA 2014, ESGE 2017

Tasa de detección de adenomas (ADR)

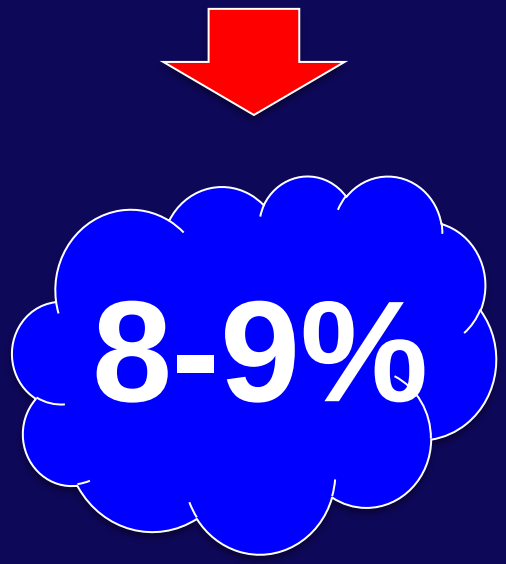
Tasa de detección de adenomas

% pacientes > 50 años
Con adenomas identificados y documentados



ASGE 2015

Tasa de detección de pòlipos serrados sèsiles



Pohl H, Gastroenterology 2013;144:74-80
Rex DK, Gastroenterology 1997;112:17-23

The Boston bowel preparation scale: a valid and reliable instrument for colonoscopy-oriented research

Edwin J. Lai, MD, Audrey H. Calderwood, MD, Gheorghe Doros, PhD, Oren K. Fix, MD, MSc, Brian C. Jacobson, MD, MPH, FASGE

Boston, Massachusetts, USA

Gastrointest Endosc 2009;69:620-5

nature publishing group CLINICAL AND SYSTEMATIC REVIEWS 197

CME

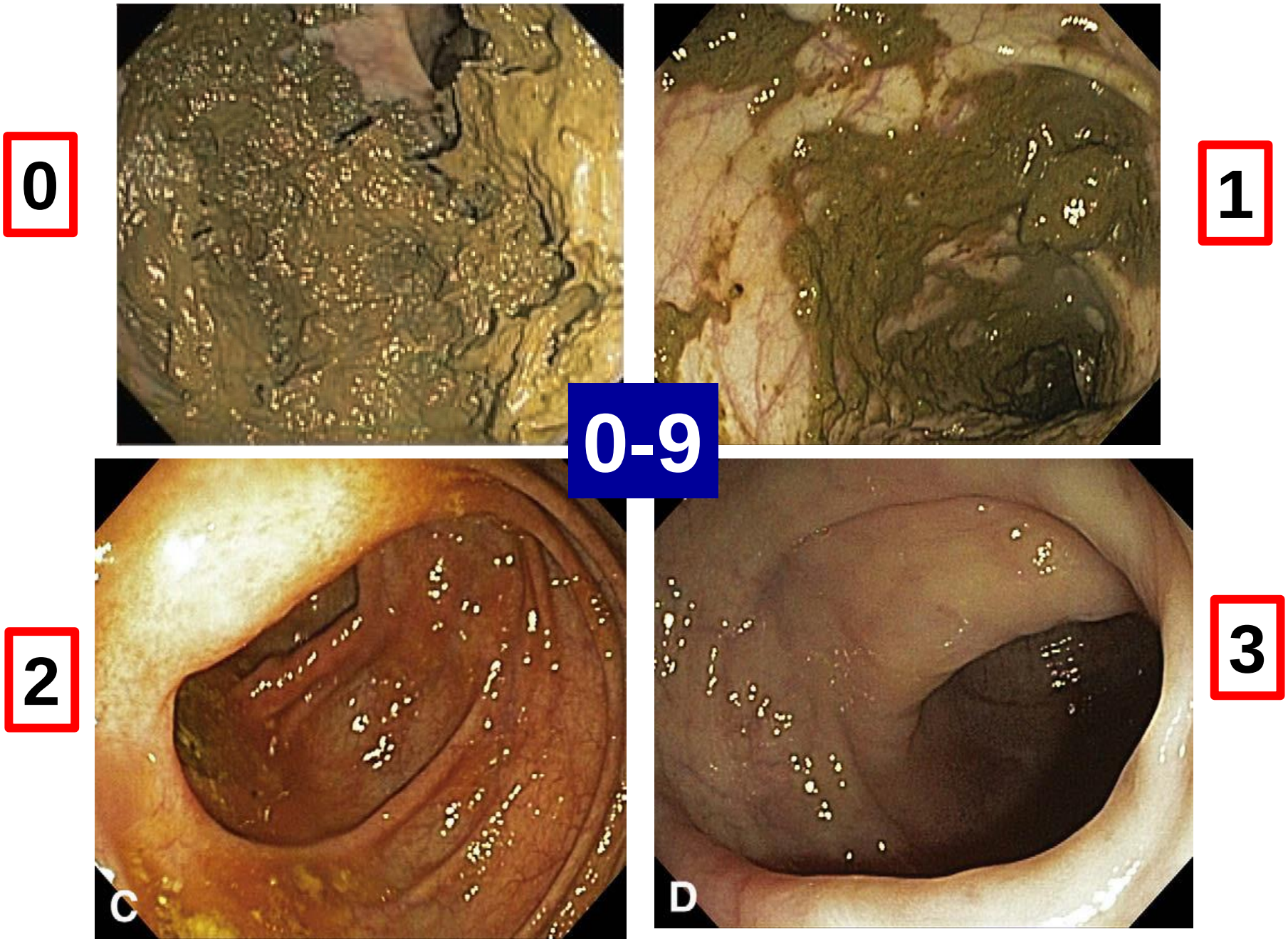
Validated Scales for Colon Cleansing: A Systematic Review

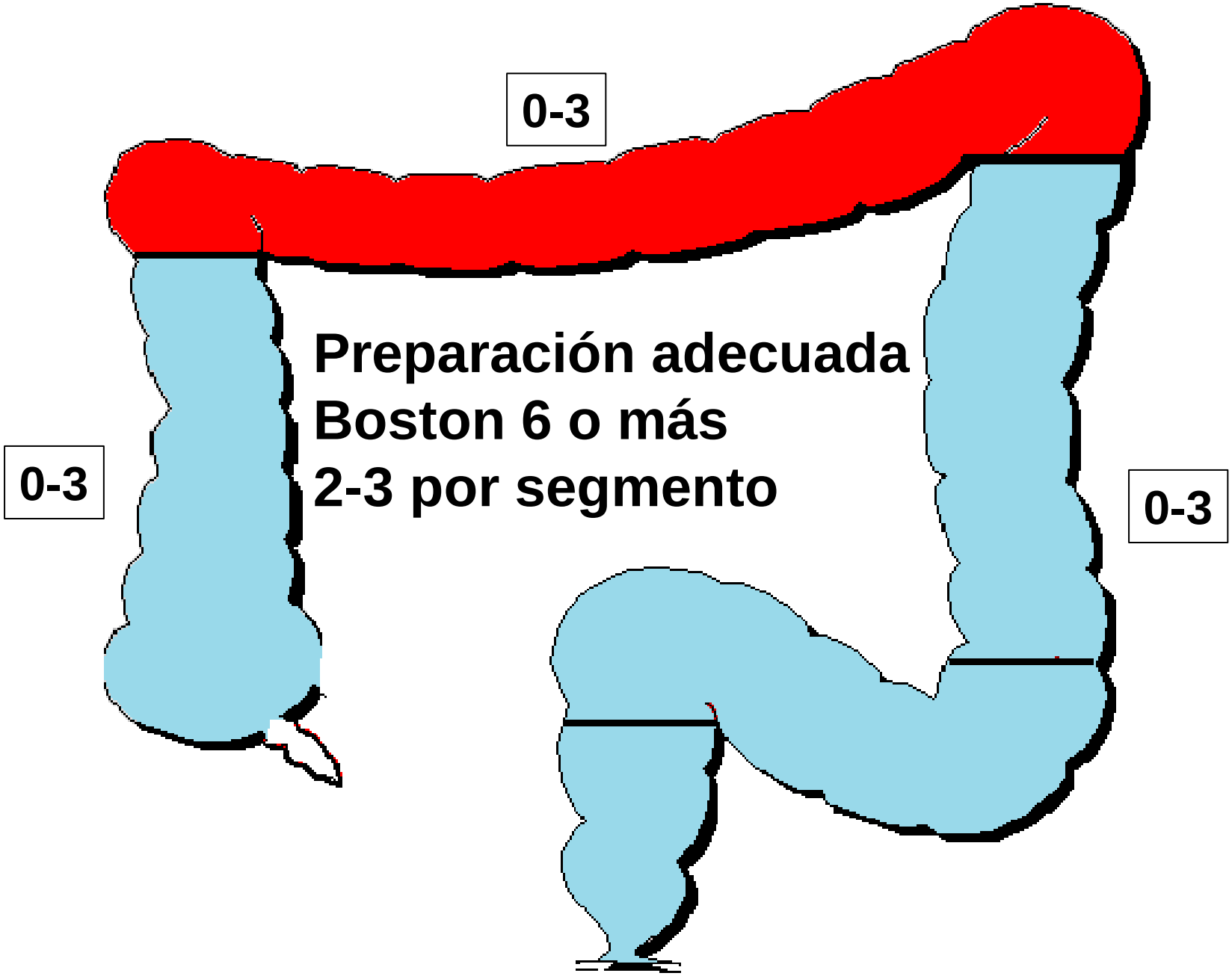
REVIEW

Robin Parmar, MD[1], Myriam Martel, BSc[1], Alaa Rostom, MD, MSc[2] and Alan N. Barkun, MD, MSc[1,3]

To conclude, all the published scales displayed limitations. The BBPS is the most thoroughly validated scale and should be used in a clinical setting. Between-scale comparisons for repeat colonoscopy time interval, ease, and pertinence of use for auditing are needed.

***Am J Gastroenterol* 2016; 111:197–204;**


0
1
0-9
2
3
C
D



Calderwood AH, Gastrointest Endosc 2014;80:269-76

CLINICAL AND SYSTEMATIC REVIEWS

nature publishing

see related editorial on page 1725

CME

What Level of Bowel Prep Quality Requires Early Repeat Colonoscopy: Systematic Review and Meta-Analysis of the Impact of Preparation Quality on Adenoma Detection Rate

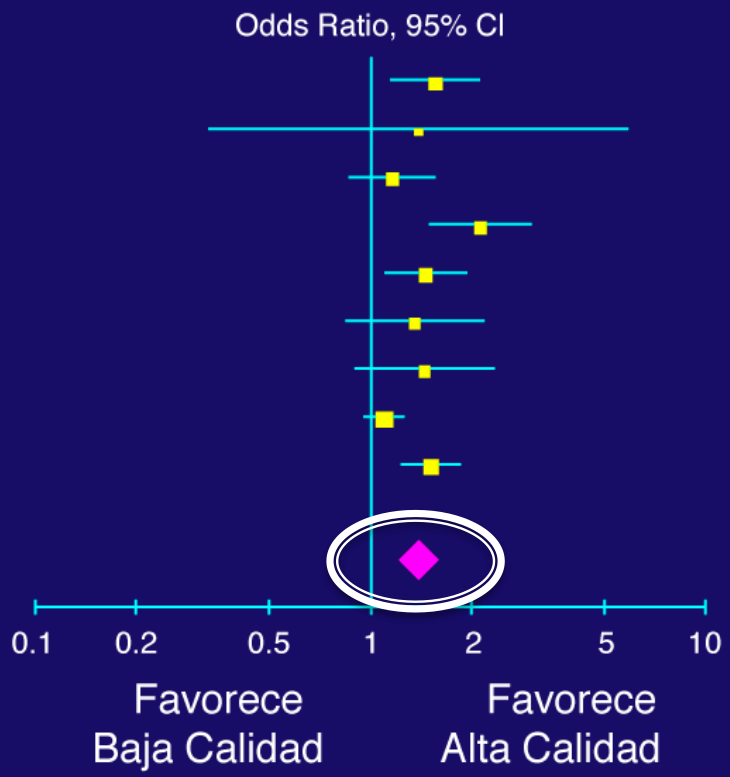
Brian T. Clark, MD[1], Tarun Rustagi, MD[1] and Loren Laine, MD[1,2]

Am J Gastroenterol 2014; 109:1714–1723

Study or Subgroup	Weight	Odds Ratio, 95% CI
Adler *et al*, 2013	12.0%	1.56 (1.15, 2.13)
Aslanian *et al*, 2013	1.1%	1.39 (0.33, 5.86)
Chiu *et al*, 2011	12.5%	1.16 (0.86, 1.57)
de Jonge *et al*, 2012	10.4%	2.13 (1.49, 3.03)
Froehlich *et al*, 2005	13.3%	1.46 (1.11, 1.93)
Jover *et al*, 2013	7.3%	1.35 (0.84, 2.16)
Perez et al, 2011	7.2%	1.45 (0.90, 2.34)
Radaelli *et al*, 2008	19.6%	1.10 (0.96, 1.26)
Sherer *et al*, 2012	16.6%	1.52 (1.24, 1.86)
Total (95% CI)	100.0%	1.41 [1.21, 1.64]

Heterogeneity: $\tau^2 = 0.03$; $\chi^2 = 18.11$, df = 8 ($P = 0.02$); $I^2 = 56\%$

Test for overall effect: $Z = 4.35$ ($P < 0.0001$)



< 6

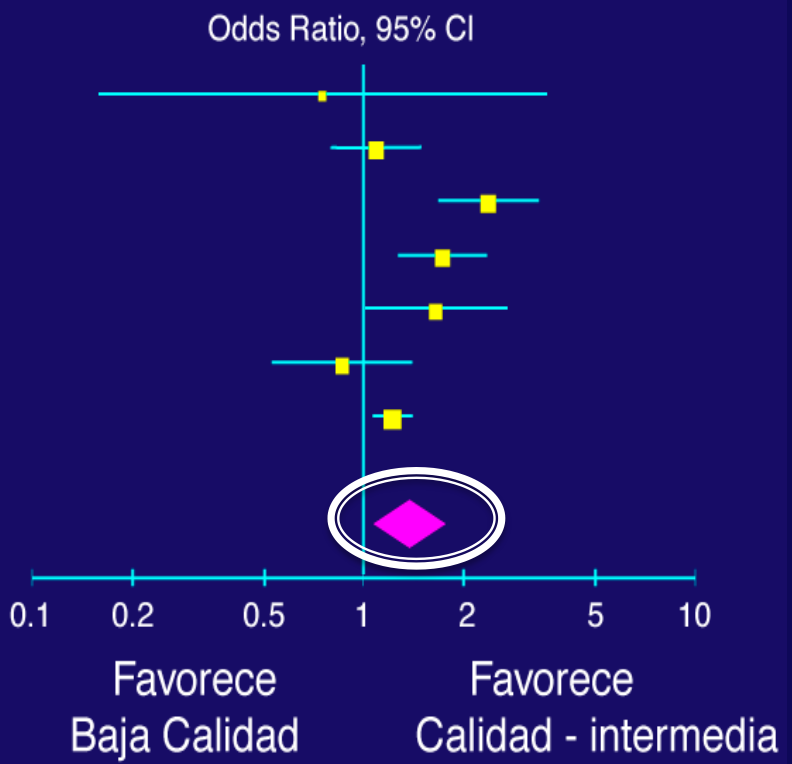
Clarck BT, Am J Gastroenterol 2014; 109:1714–1723

Alta:8-9, Intermedia 6-7 Baja <6

Study or Subgroup	Weight	Odds Ratio, 95% CI
Aslanian *et al*, 2013	2.3%	0.75 (0.16, 3.56)
Chiu *et al*, 2011	17.1%	1.09 (0.80, 1.49)
de Jonge *et al*, 2012	16.3%	2.38 (1.69, 3.35)
Froehlich *et al*, 2005	17.4%	1.73 (1.27, 2.35)
Jover *et al*, 2013	12.4%	1.65 (1.01, 2.69)
Perez *et al*, 2011	12.6%	0.86 (0.53, 1.39)
Radaelli *et al*, 2008	21.9%	1.22 (1.07, 1.40)
Total (95% CI)	100.0%	1.39 (1.08, 1.79)

Heterogeneity: $\tau^2 = 0.07$; $\chi^2 = 21.48$, df = 6 ($P = 0.002$); $I^2 = 72\%$

Test for overall effect: $Z = 2.58$ ($P = 0.010$)

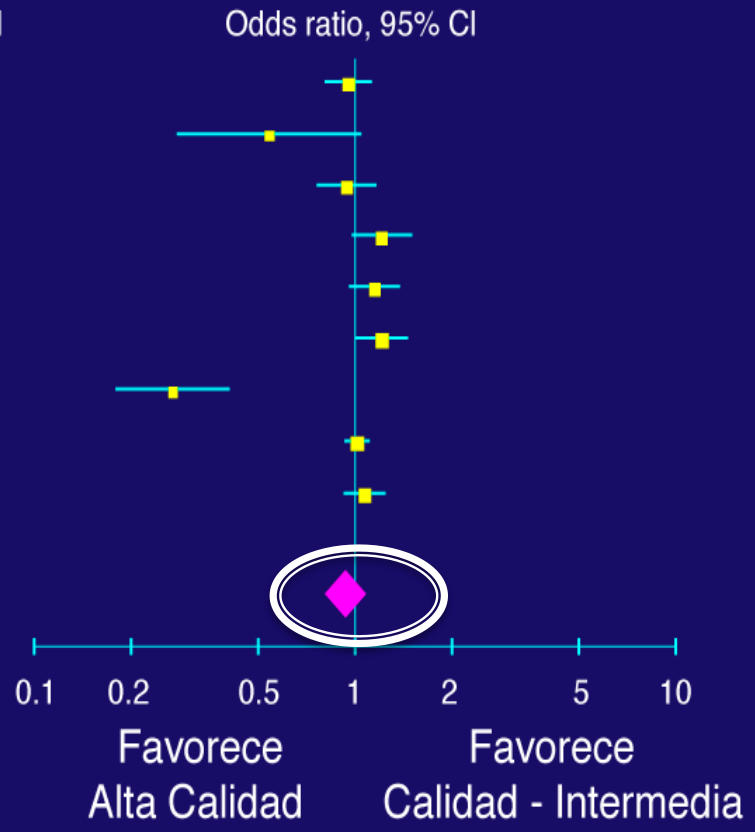


Clarck BT, Am J Gastroenterol 2014; 109:1714–1723

	Weight	Odds ratio, 95% CI
Adler *et al*, 2013	12.7%	0.95 (0.80, 1.12)
Aslanian *et al*, 2013	4.3%	0.54 (0.28, 1.04)
Chiu *et al*, 2011	11.7%	0.94 (0.76, 1.16)
de Jonge *et al*, 2012	11.8%	1.21 (0.98, 1.49)
Froehlich *et al*, 2005	12.5%	1.15 (0.96, 1.37)
Jover *et al*, 2013	12.4%	1.21 (1.01, 1.45)
Perez *et al*, 2011	7.5%	0.27 (0.18, 0.41)
Radaelli *et al*, 2008	14.1%	1.02 (0.93, 1.11)
Sherer *et al*, 2012	13.1%	1.07 (0.93, 1.24)
Total (95% CI)	100.0%	0.94 (0.80, 1.10)

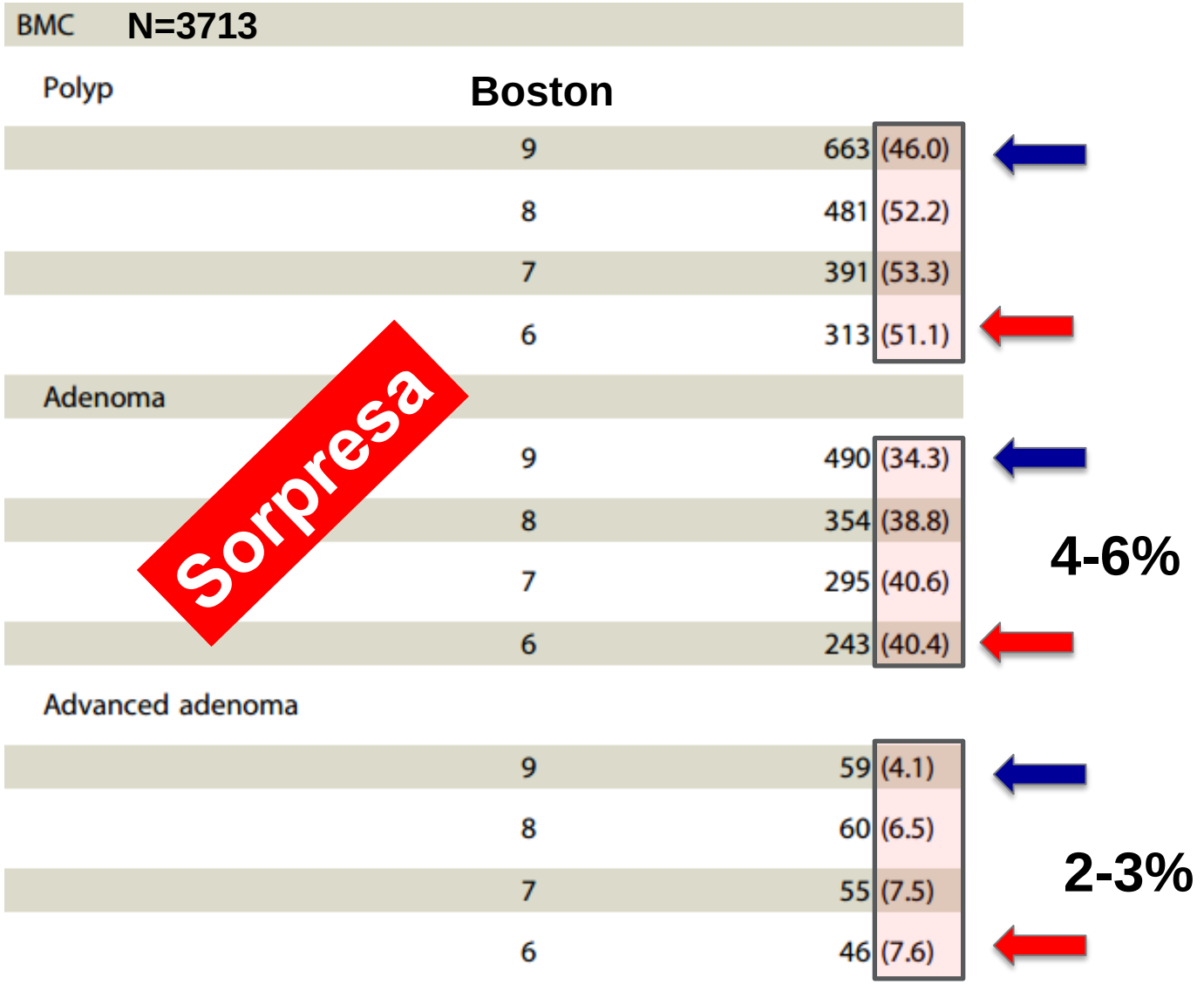
Heterogeneity: $\tau^2 = 0.05$; $\chi^2 = 53.08$, df = 8 ($P < 0.00001$); $I^2 = 85\%$

Test for overall effect: $Z = 0.78$ ($P = 0.44$)



Clark BT, Am J Gastroenterol 2014; 109:1714–1723

Tasa de detección según calidad de la preparación



Calderwood AH, Gastrointest Endosc 2015;81:691-9

Tasa de detección según calidad de la preparación

CORI N=5532

	Boston	
Polyp		
	9	943 (39.7)
	8	424 (44.7)
	7	433 (47.9)
	6	664 (50.9)
Polyp >9 mm		
	9	131 (5.5)
	8	48 (5.1)
	7	44 (4.9)
	6	117 (9.0)

Sorpresa

Calderwood AH, Gastrointest Endosc 2015;81:691-9

Porqué la paradoja

Mucha confianza
Inadecuada inspección
Mayor contraste con la materia fecal , etc

Concentrase y mirar bien

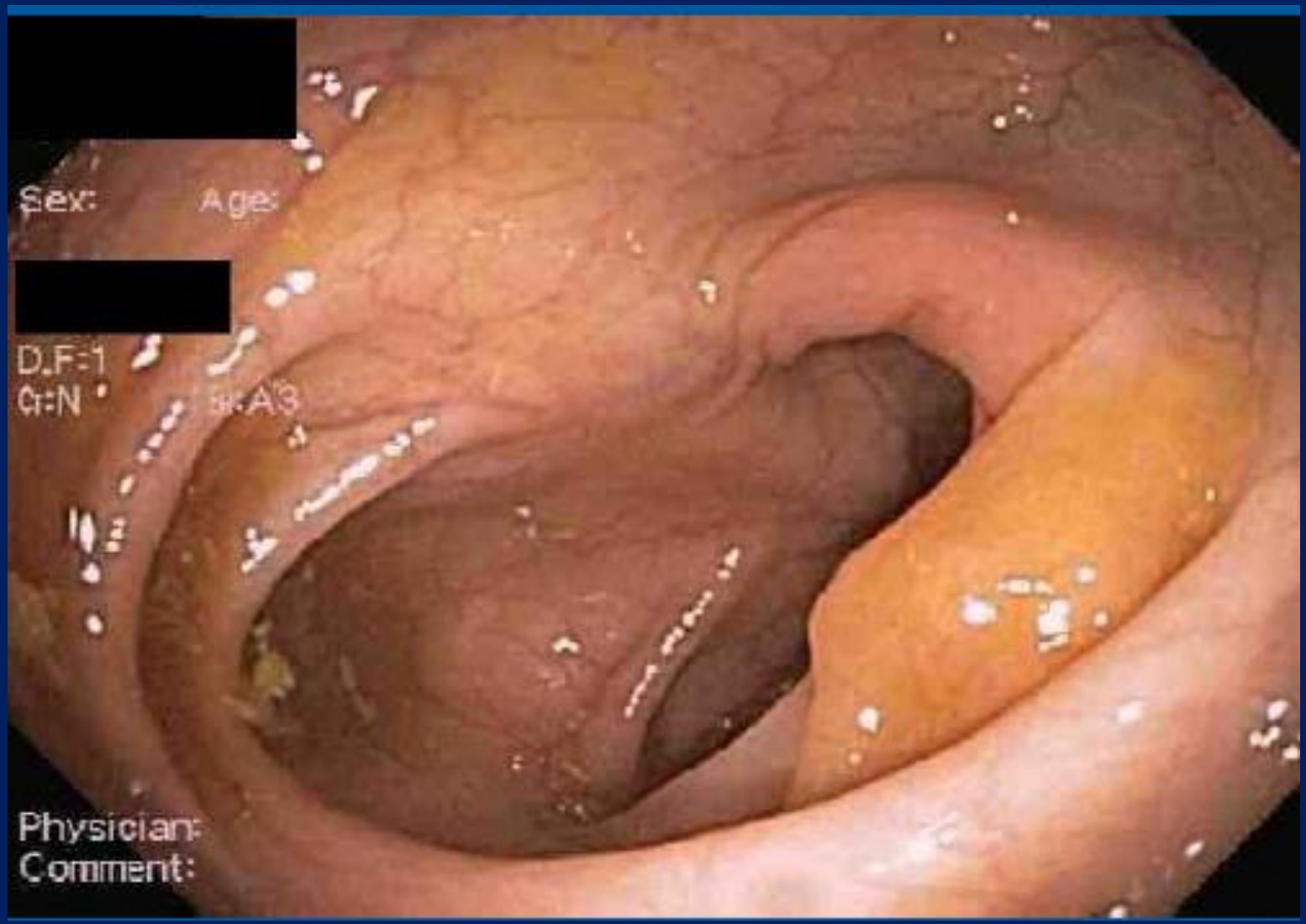


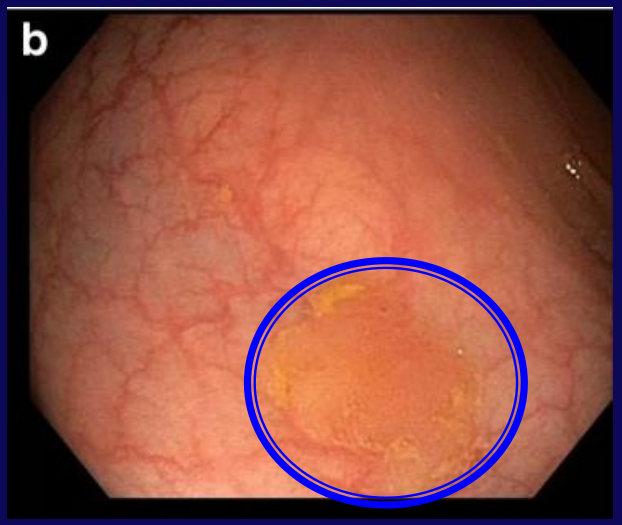

Preparación del colon y detección de pólipos

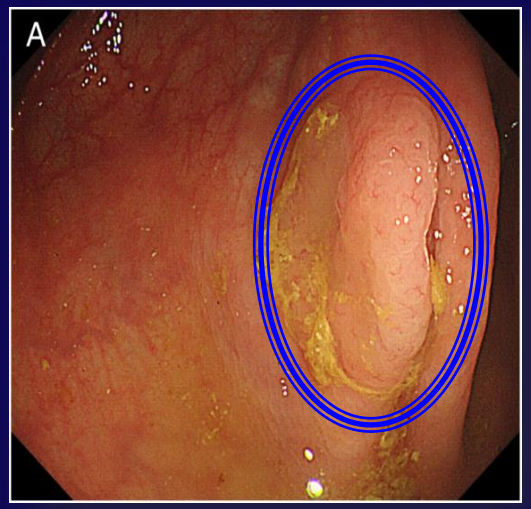
“Bueno es mejor que excelente”

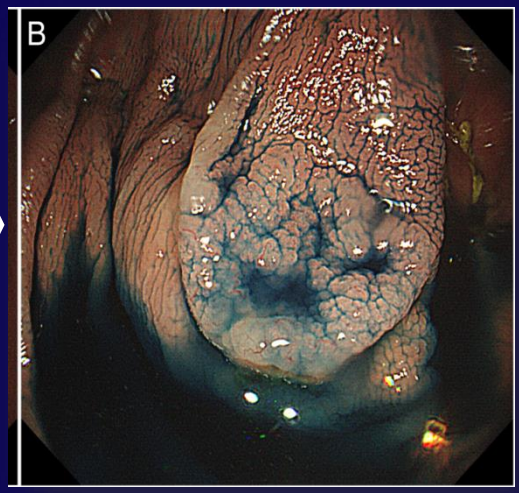
Pòlipos serrados
Es otra historia

Experticia
Excelente preparación


[redacted]
Sex:
Age:
[redacted]
D_F:1
Cr:N
St:A3
Physician:
Comment:



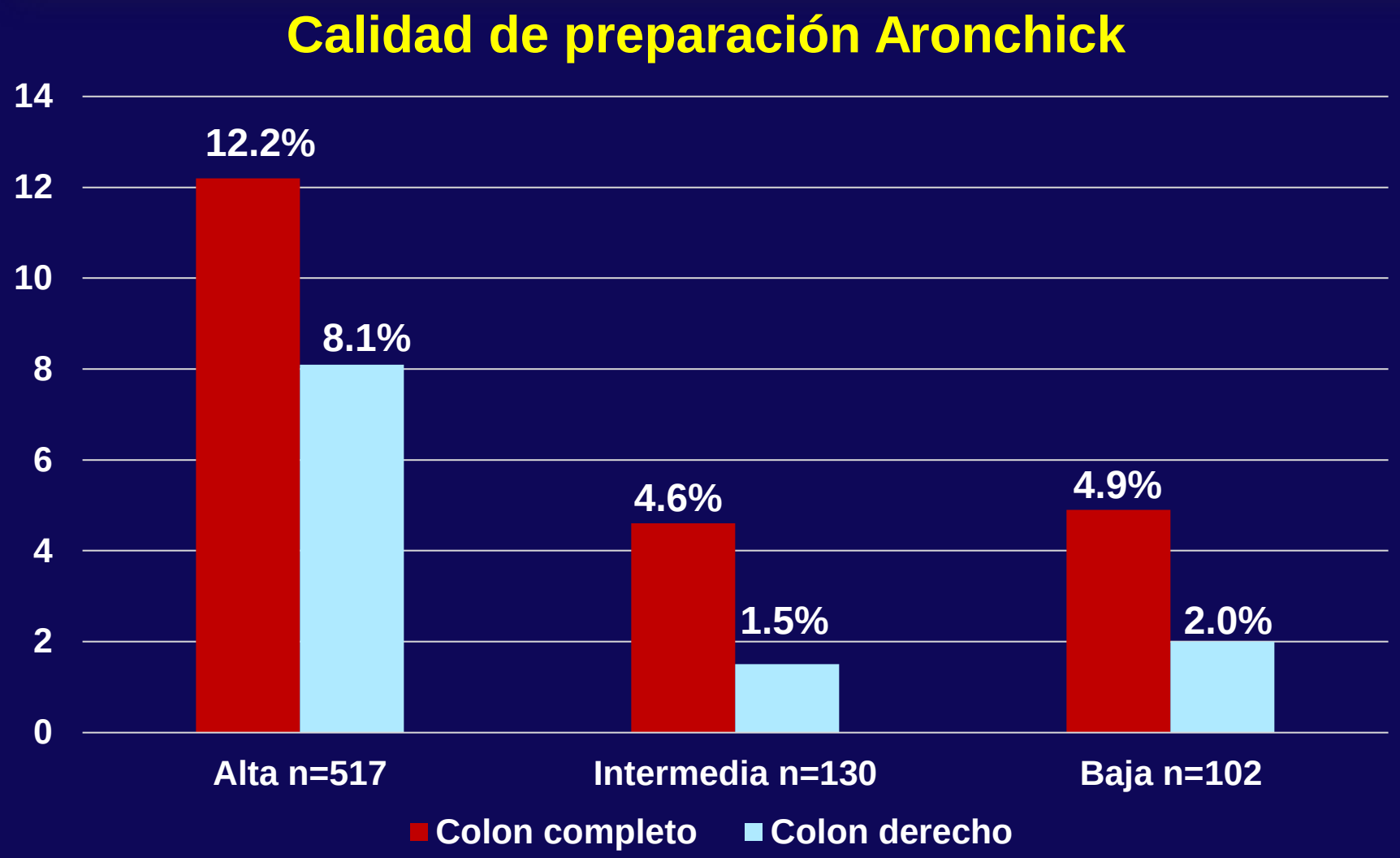




30% Cánceres del colon
30% Cancer de lintervalo

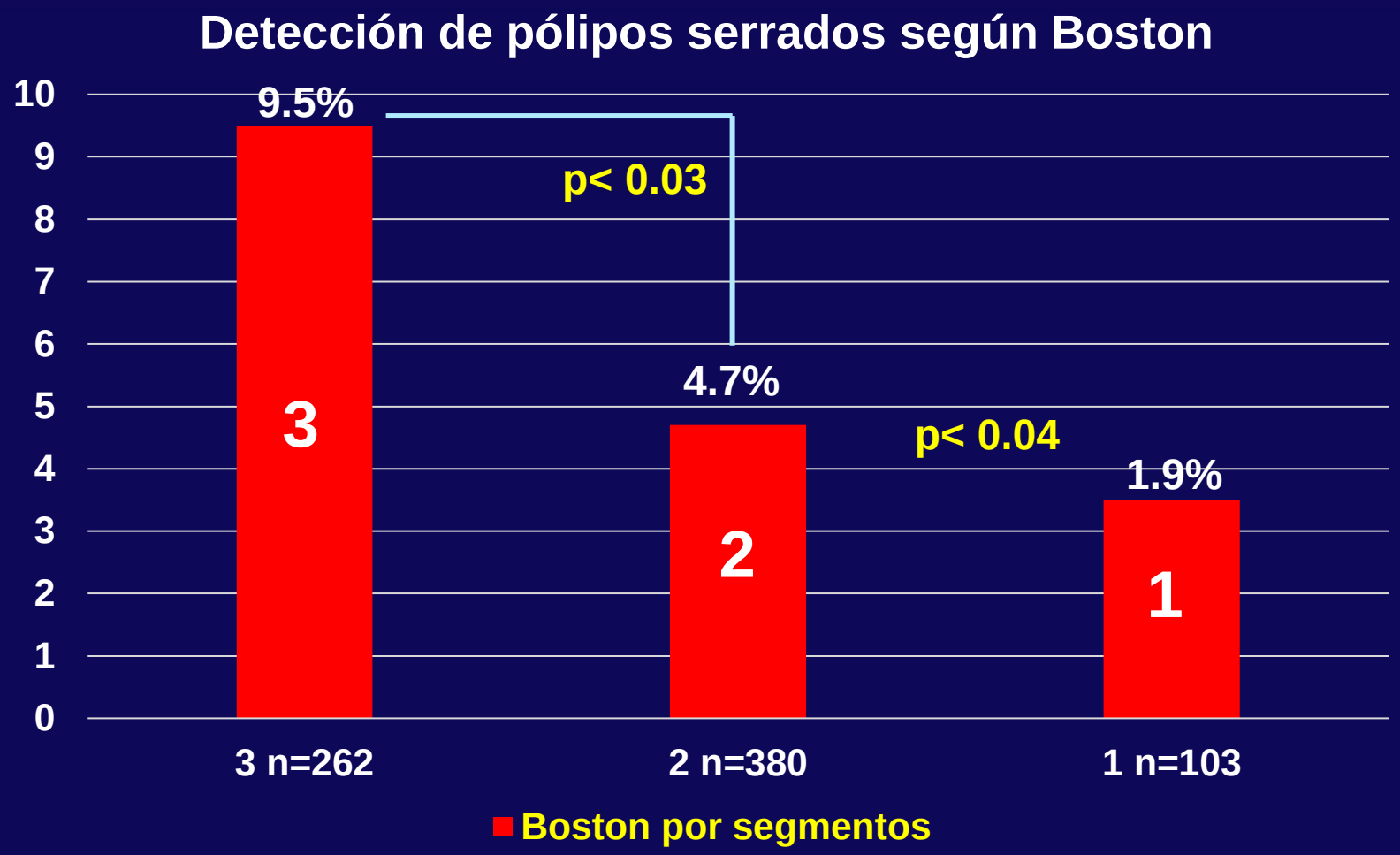
East JE, et al. Gut 2017;66:1181–96
Thorlacius H, Scand J Gastroenterol 2017 ;52:654-66

High-Quality Bowel Preparation Is Required for Detection of Sessile Serrated Polyps



Clark BT, Laine L, Clin Gastroenterol Hepatol 2016;14:1155–62

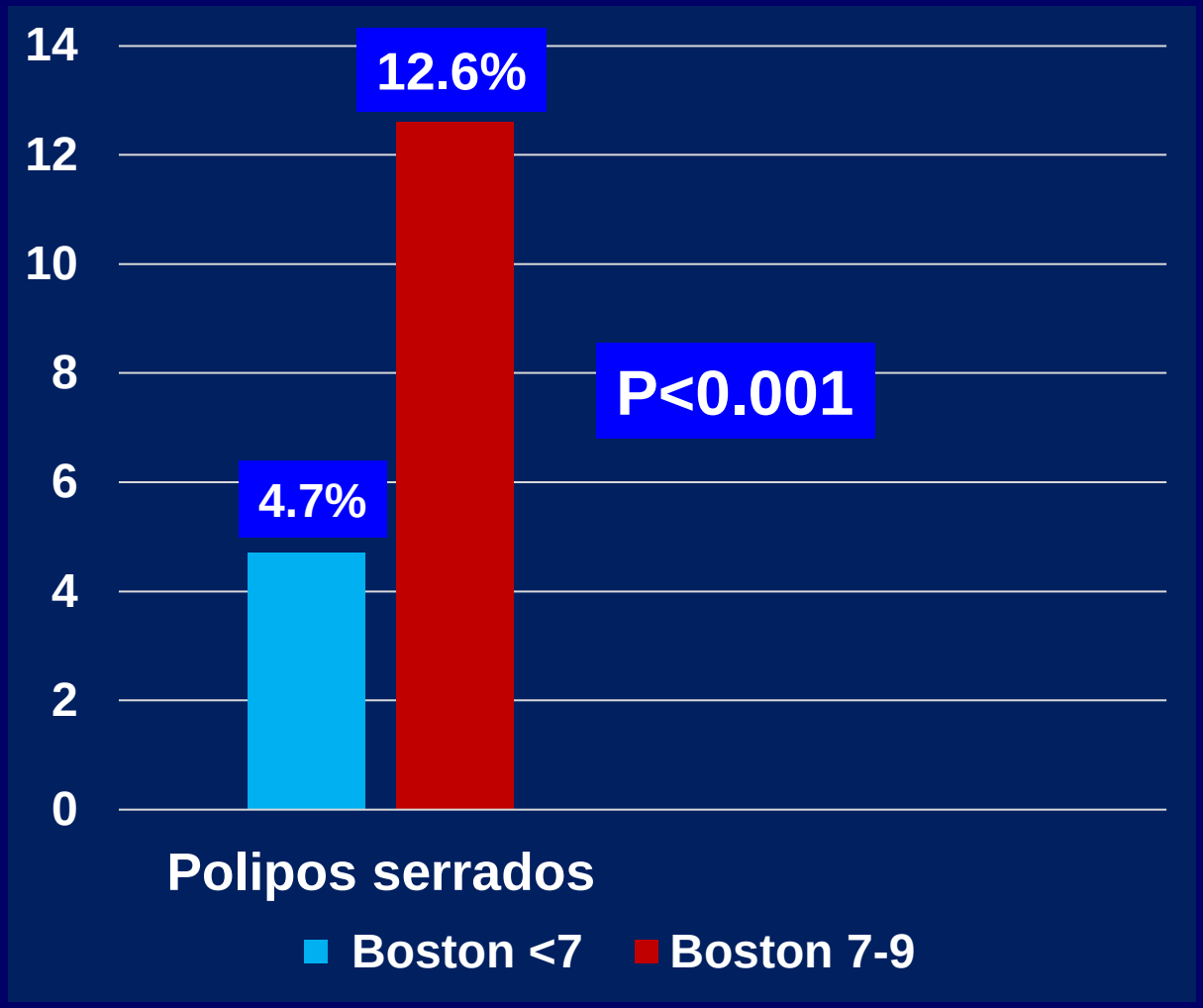
High-Quality Bowel Preparation Is Required for Detection of Sessile Serrated Polyps



Clark BT, Laine L, Clin Gastroenterol Hepatol 2016;14:1155–62

High-Quality Bowel Preparation Is Required for Detection of Sessile Serrated Polyps

Boston total



Clark BT, Clin Gastroenterol Hepatol 2016;14:1155–62

Hospital Universitario Nacional, Programa: calidad en colonoscopia

Profesor Martín Gómez

Preparación del colon

Mal preparados
20-40%

Tasa de error: 35-42%

Rex D. Clin Gastroenterol Hepatol 2014;12:458-62
Lebwohl B, Gastrointest Endos 2011;73:1207-14
Frohlich F, Gastrointest Endosc 2005;61:378-84

Predictores de mala preparación

Médicos

- Estreñimiento
- Diabetes mellitus
- Obesidad
- Cirugía de colon
- Mala preparación previa
- Medicamentos
  - Opioides
  - Tricíclicos

Otros factores

- Seguro médico
- Nivel educativo
- Poca motivación
- No entender la importancia

Sim JS, Clin Endosc 2016:49:346-9
Cohn LB. Gastrointest Endosc Clin N Am 2015; 25:183-97

Journal of Digestive Diseases 2017; **18;** 84–91 doi: 10.1111/1751-2980

Review article

Enhanced education for bowel preparation before colonoscopy: A state-of-the-art review

Zhu LIU, Ming Ming ZHANG, Yue Yue LI, Li Xiang LI & Yan Qing LI

Enhanced instructions improve the quality of bowel preparation for colonoscopy: a meta-analysis of randomized controlled trials

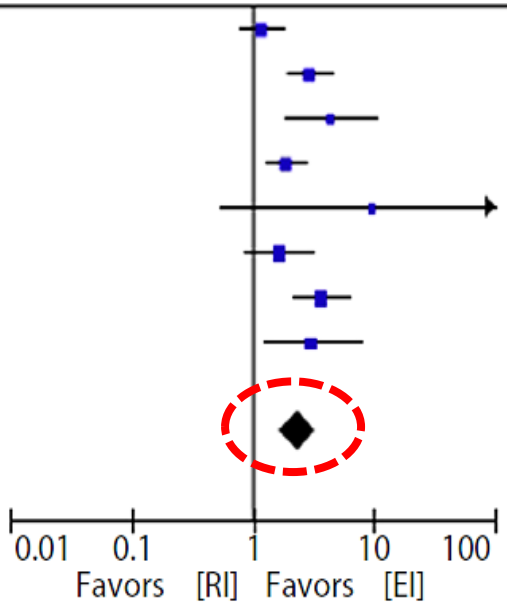
Xiaoyang Guo, MD,[1,*] Zhiping Yang, MD,[1,*] Lina Zhao, MD,[2,*] Felix Leung, MD,[3,4] Hui Luo, MD,[1] Xiaoyu Kang, MD,[1] Xin Li, MD,[5] Hui Jia, MD,[1] Shengye Yang, MD,[1] Qin Tao, MD,[1] Yanglin Pan, MD,[1] Xuegang Guo, MD[1]

Calidad de la preparación

Study or Subgroup	EI Events	EI Total	RI Events	RI Total	Weight	Odds Ratio M–H, Random, 95% CI
Calderwood, 2011	432	477	438	492	17.2%	1.18 [0.78, 1.80]
Kang, 2015	318	353	266	352	17.0%	2.94 [1.92, 4.49]
Lee, 2015	243	251	118	135	9.6%	4.38 [1.84, 10.43]
Liu, 2014	249	305	211	300	17.9%	1.88 [1.28, 2.75]
Lorenzo, 2015	108	108	146	152	1.4%	9.63 [0.54, 172.74]
Modi, 2009	58	84	46	80	13.0%	1.65 [0.87, 3.13]
Spiegel, 2011	100	132	62	134	15.1%	3.63 [2.15, 6.12]
Tae, 2012	95	102	80	98	8.9%	3.05 [1.21, 7.68]
Total (95% CI)		**1812**		**1743**	**100.0%**	**2.35 [1.65, 3.35]**
Total events	1603		1367			

Heterogeneity: $Tau^2 = 0.14$; $Chi^2 = 19.10$, df = 7 (P = .008); $I^2 = 63\%$

Test for overall effect: Z = 4.75 (P < .00001)



Gastrointest Endosc 2017;85:90-7

Enhanced instructions improve the quality of bowel preparation for colonoscopy: a meta-analysis of randomized controlled trials

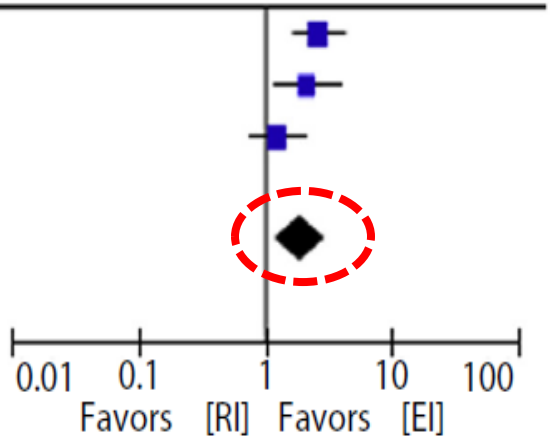
Xiaoyang Guo, MD,[1,*] Zhiping Yang, MD,[1,*] Lina Zhao, MD,[2,*] Felix Leung, MD,[3,4] Hui Luo, MD,[1] Xiaoyu Kang, MD,[1] Xin Li, MD,[5] Hui Jia, MD,[1] Shengye Yang, MD,[1] Qin Tao, MD,[1] Yanglin Pan, MD,[1] Xuegang Guo, MD[1]

Evitar Repetir la preparación

Study or Subgroup	EI Events	EI Total	RI Events	RI Total	Weight	Odds Ratio M-H, Random, 95% CI
Kang, 2015	324	353	285	352	36.7%	2.63 [1.65, 4.18]
Lee, 2015	229	253	112	137	29.2%	2.13 [1.16, 3.90]
Liu, 2014	245	276	236	273	34.1%	1.24 [0.74, 2.06]
Total (95% CI)		**882**		**762**	**100.0%**	**1.91 [1.20, 3.04]**
Total events	798		633			

Heterogeneity: $Tau^2 = 0.10$; $Chi^2 = 4.70$, df = 2 (P = .10); $I^2 = 57\%$

Test for overall effect: Z = 2.74 (P = .006)



Gastrointest Endosc 2017;85:90-7

Preparación ideal

No existe!

Fácil de tomar
Bien tolerada
Siempre deje el colon limpio
Actùe ràpidamente
Mínimo malestar
Económica
No altere electrolitos
No produzca lesiones histológicas
Barata

Preparaciones NO aprobadas FDA

Iso-osmóticos

PEG
4 litros
2 litros
No dosis divididas

Hiper-osmóticos

Fosfatos (Travad)
Sulfato (Na-Mg-K)
Suprep-Izinova

Combinados

Pico So4 Na
Mg+ ácido cítrico

Fosfato de sodio

Lesión renal, Por fosfatos

Edad >55 años
IECA
Enfermedad Renal
Falla cardíaca
Enfermedad hepática
Intervalo de dosis <12 horas

ASGE . Gastrointest Endosc 2015;81:781-93

Kidney injury after sodium phosphate solution beyond the acute renal failure

Gema Fernández-Juárez[a,*], *Leticia Parejo*[a], *Javier Villacorta*[a], *Ana Tato*[a], *Ramiro Cazar*[a], *Carmen Guerrero*[b], *Isabel Martinez Marin*[a], *Javier Ocaña*[a], *Angel Mendez-Abreu*[a], *Katia López*[a], *Enrique Gruss*[a], *Eduardo Gallego*[a]

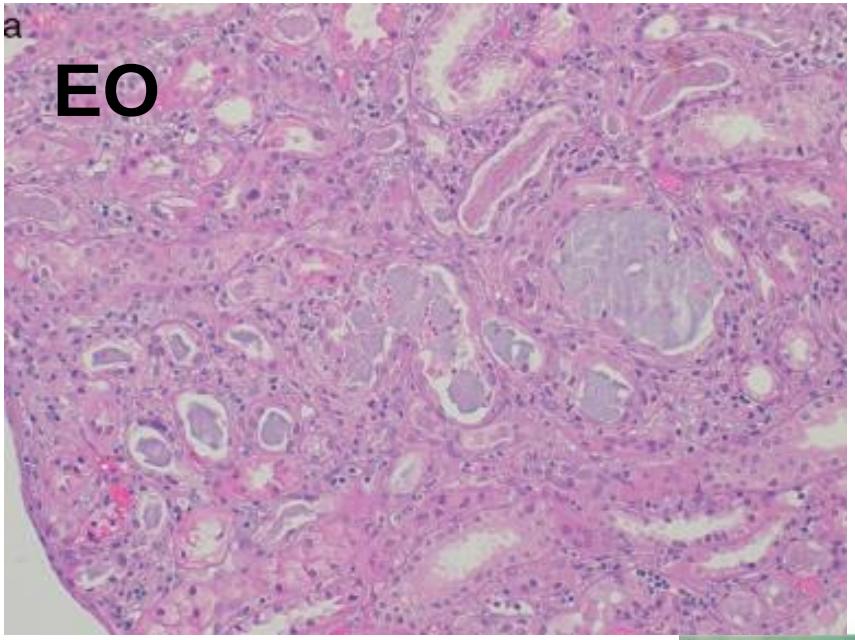
Table 1 – Baseline clinical characteristics of 12 patients with phosphate nephropathy.

	Age (years)	Gender	eGFR (ml/min/1.73 m^2)©	Hypertension	Diabetes mellitus	ACEi-ARB	Diuretics	Renal biopsy	Course
Case 1	61	Man	63.6	No	No	No	No	Yes	Acute
Case 2	85	Female	41.3	Yes	Yes	No	Yes	–	Chronic
Case 3	71	Man	70.7	Yes	Yes	Yes	Yes	Yes	Acute
Case 4	73	Female	73.2	Yes	Yes	Yes	Yes	–	Chronic
Case 5	84	Man	59.6	Yes	No	Yes	Yes	–	Chronic
Case 6	59	Female	137.9	Yes	No	Yes	Yes	–	Chronic
Case 7	70	Female	95.6	Yes	Yes	Yes	Yes	Yes	Chronic
Case 8	72	Man	54.5	Yes	No	Yes	Yes	–	Chronic
Case 9	72	Man	54.5	Yes	No	Yes	Yes	–	Acute
Case 10	73	Female	65.6	Yes	No	Yes	No	Yes	Chronic
Case 11	75	Man	54.0	Yes	No	Yes	No	–	Chronic
Case 12	92	Man	35.2	Yes	No	Yes	No	–	Chronic

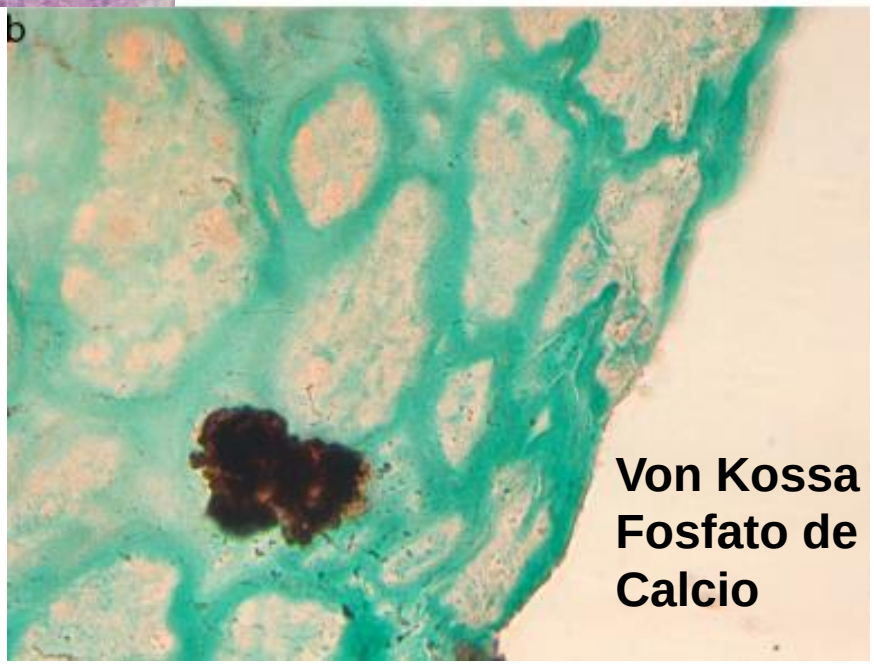
Hemodiàlisis en 1 paciente

Nefrologia 2016;36:243–248

Lesión Renal Fosfato de Sodio

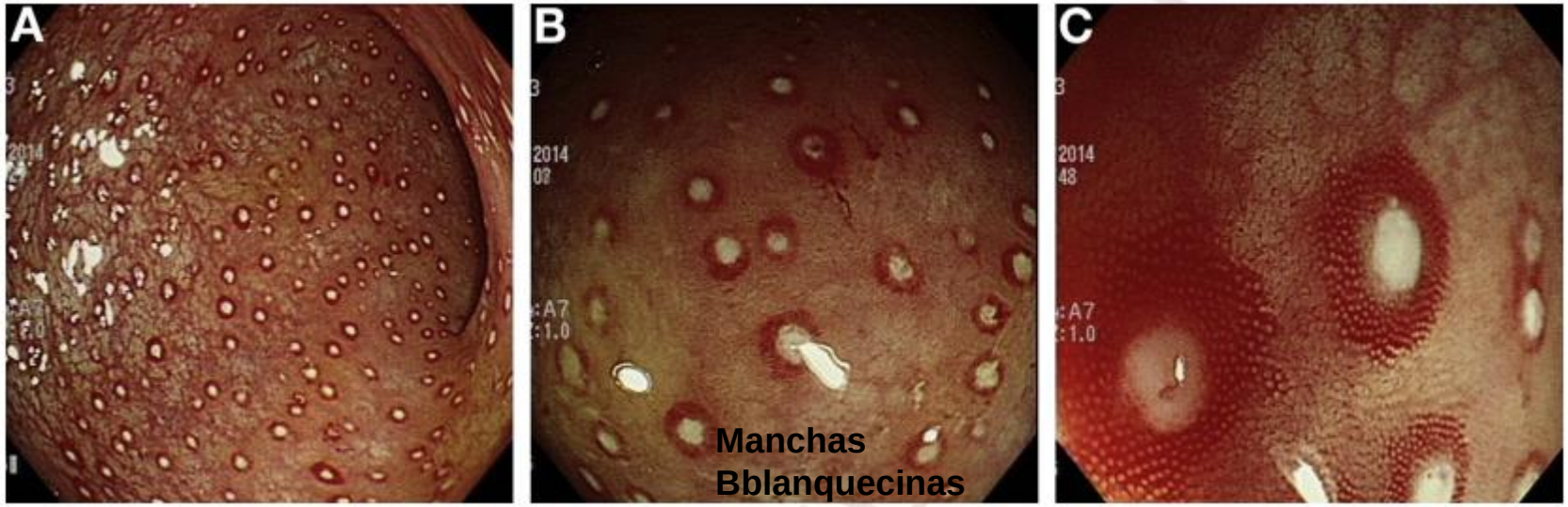


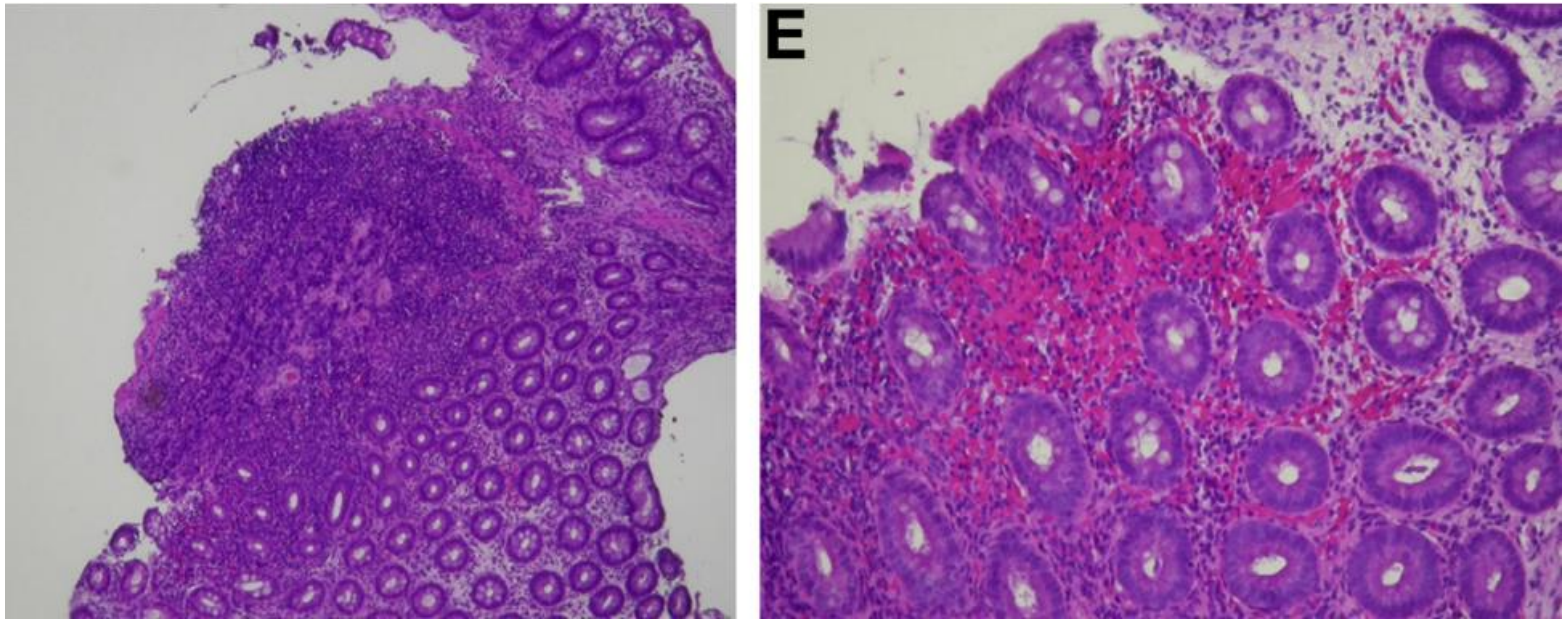
Calcificaciones
Intraluminales
Intracelulares
En túbulos distales



Fernández-Juárez G, Nefrologia 2 0 1 6;36:243–248

Lesiones aftoides en recto por fosfato de sodio

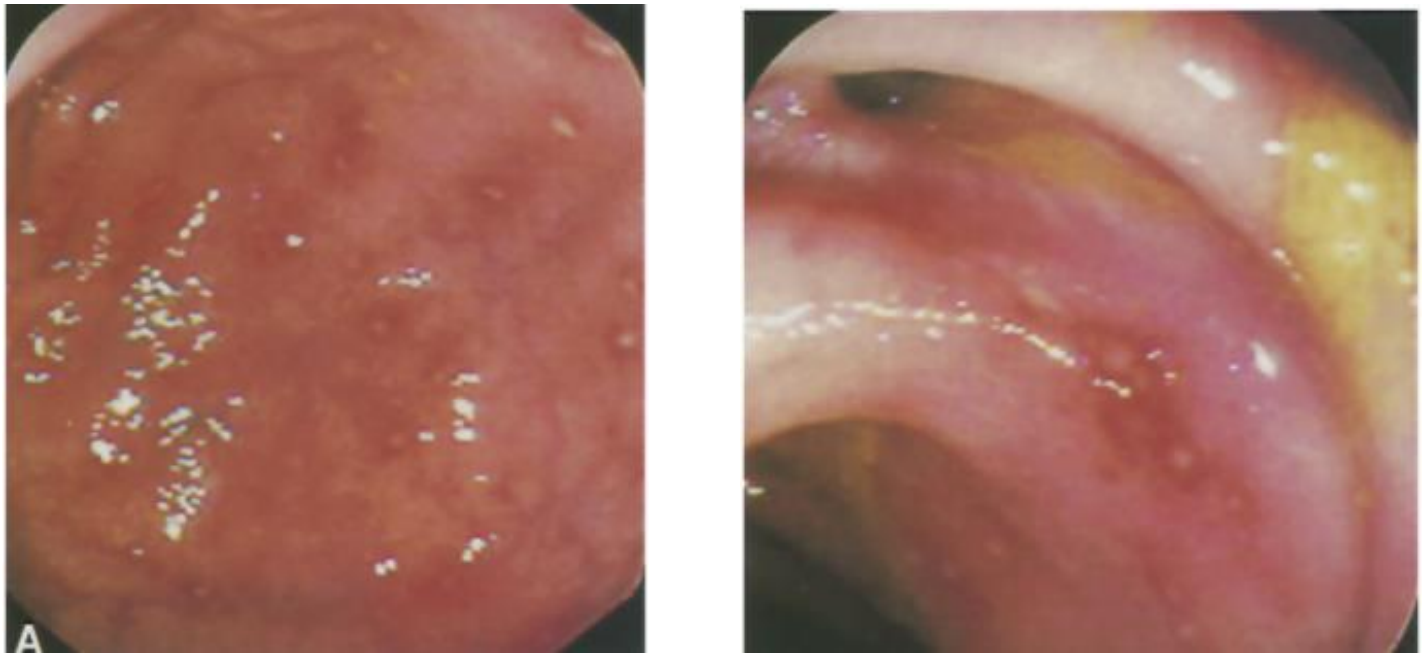




MH, Gastroenterology_2016;151:e15-6

Colonic mucosal abnormalities associated with oral sodium phosphate solution

Felice R. Zwas, MD, Nicholas W. Cirillo, DO, Hashem B. El-Serag, MD, Richard N. Eisen, MD



24% versus 2% (PEG-ELS)

Gastrointest Endosc 1996;43:463-6

Fosfato de sodio: Alteraciones en el colon

3.3%
N:730

Eritema
Edema
Lesiones aftoides
Erosiones
Ulceras

Similares EII

Rejchrt S, Gastrointest Endosc 2004;59:651-4

Preparación
Cotidianidad

4-Liter Split-Dose Polyethylene Glycol Is Superior to Other Bowel Preparations, Based on Systematic Review and Meta-analysis

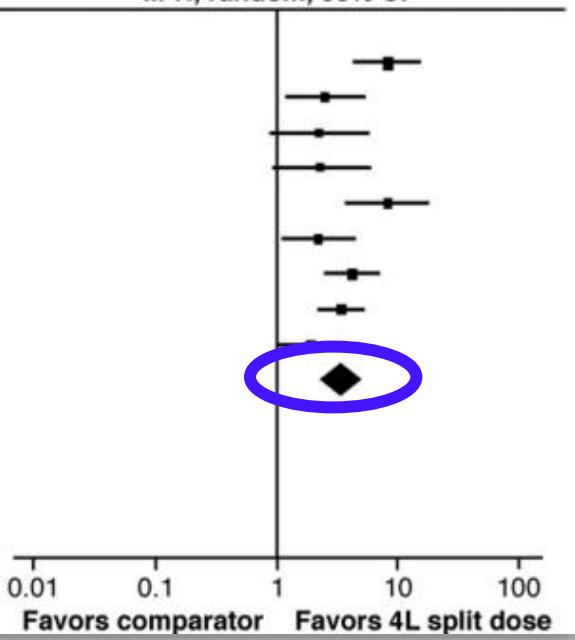
BRINTHA K. ENESTVEDT,* CHRISTINA TOFANI,‡ LOREN A. LAINE,§ ANN TIERNEY,‖ and M. BRIAN FENNERTY¶

Preparación: Excelente-buena

Study or subgroup	Favors 4L split dose Events	Total	Favors comparator Events	Total	Weight	Odds ratio M-H, random, 95% CI
1.1.1 Excellent – good prep						
Abdul-Baki H, et al, 2008	92	107	78	183	11.8%	8.26 [4.44, 15.34]
Aoun E, et al, 2005	52	68	41	73	10.3%	2.54 [1.23, 5.24]
Corporaal S, et al, 2010	151	158	135	149	7.9%	2.24 [0.88, 5.71]
Ell C, et al, 2008	147	155	136	153	8.6%	2.30 [0.96, 5.49]
Ell C, et al, 2003	49	59	42	114	9.7%	8.40 [3.85, 18.31]
Enestvedt B, et al, 2011	85	103	59	87	11.0%	2.24 [1.14, 4.42]
Hjelkrem, et al, 2011	49	101	54	302	13.8%	4.33 [2.65, 7.06]
Marmo R, et al, 2010	160	218	95	215	15.1%	3.48 [2.33, 5.22]
SS Park, et al, 2010	61	80	95	152	11.9%	1.93 [1.05, 3.55]
Subtotal (95% CI)		**1049**		**1428**	**100.0%**	**3.46 [2.45, 4.89]**
Total events	**846**		**735**			

Heterogeneity: $Tau^2 = 0.16$; $Chi^2 = 20.81$, df = 8 ($P = .008$); $I^2 = 62\%$

Test for overall effect: Z = 7.04 ($P < .00001$)



Clin Gastroenterol Hepatol 2012;10:1225–1231

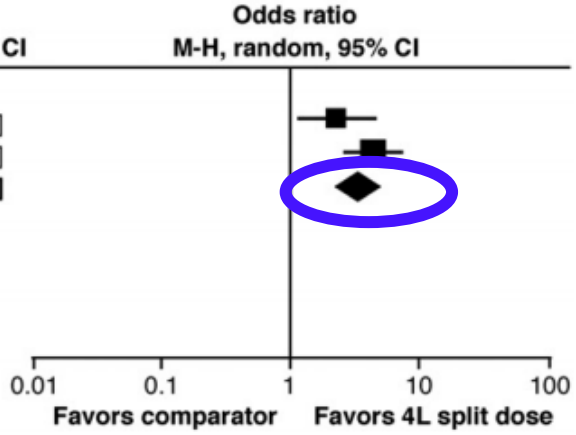
PEG “Split” versus Otras preparaciones, Meta-análisis

Preparación: Excelente-buena

Study or subgroup	Favors 4L split dose Events	Total	Favors comparator Events	Total	Weight	Odds ratio M-H, random, 95% CI
1.1.1 Excellent – good prep						
Enestvedt B, et al, 2011	85	103	59	87	44.4%	2.24 [1.14, 4.42]
Hjelkrem, et al, 2011	49	101	54	302	55.5%	4.33 [2.65, 7.06]
Subtotal (95% CI)		**204**		**389**	**100.0%**	**3.40 [2.28, 5.06]**
Total events	**134**		**113**			

Heterogeneity: Chi² = 2.38, df = 1 (*P* = .12); I² = 58%
Test for overall effect: Z = 6.03 (*P* < .00001)

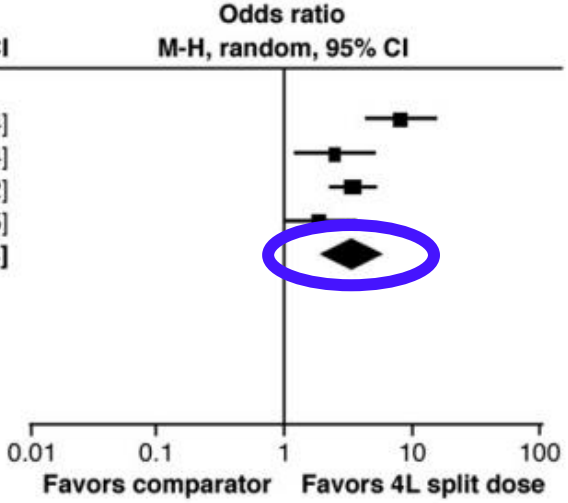
Versus Miralax/Gatorade



Study or subgroup	Favors 4L split dose Events	Total	Favors comparator Events	Total	Weight	Odds ratio M-H, random, 95% CI
1.1.1 Excellent – good prep						
Abdul-Baki H, et al, 2008	92	107	78	183	24.3%	8.26 [4.44, 15.34]
Aoun E, et al, 2005	52	68	41	73	22.0%	2.54 [1.23, 5.24]
Marmo R, et al, 2010	160	218	95	215	29.1%	3.48 [2.33, 5.22]
SS Park, et al, 2010	61	80	95	152	24.5%	1.93 [1.05, 3.55]
Subtotal (95% CI)		**473**		**623**	**100.0%**	**3.47 [1.96, 6.14]**
Total events	**365**		**309**			

Heterogeneity: Tau² = 0.25; Chi² = 11.83, df = 3 (*P* = .008); I² = 75%
Test for overall effect: Z = 4.26 (*P* < .00001)

Versus PEG dosis única



Clin Gastroenterol Hepatol 2012;10:1225–1231

PEG: Estándar

10-20% no la terminan por el gran volumen

ASGE . Gastrointest Endosc 2015;81:781-93

La parte más difícil de la Colonoscopia Es la preparación!!!

Horrible!!!!

McLachlan SA, Patient Educ Couns 2012;86:137-46
Rex D, Nat Rev Gastroenterol Hepatol 2014;11:419-25

+

=

500 ml

+

1000 ml

Repetir en 2 horas
10-12 horas: *"Split"*

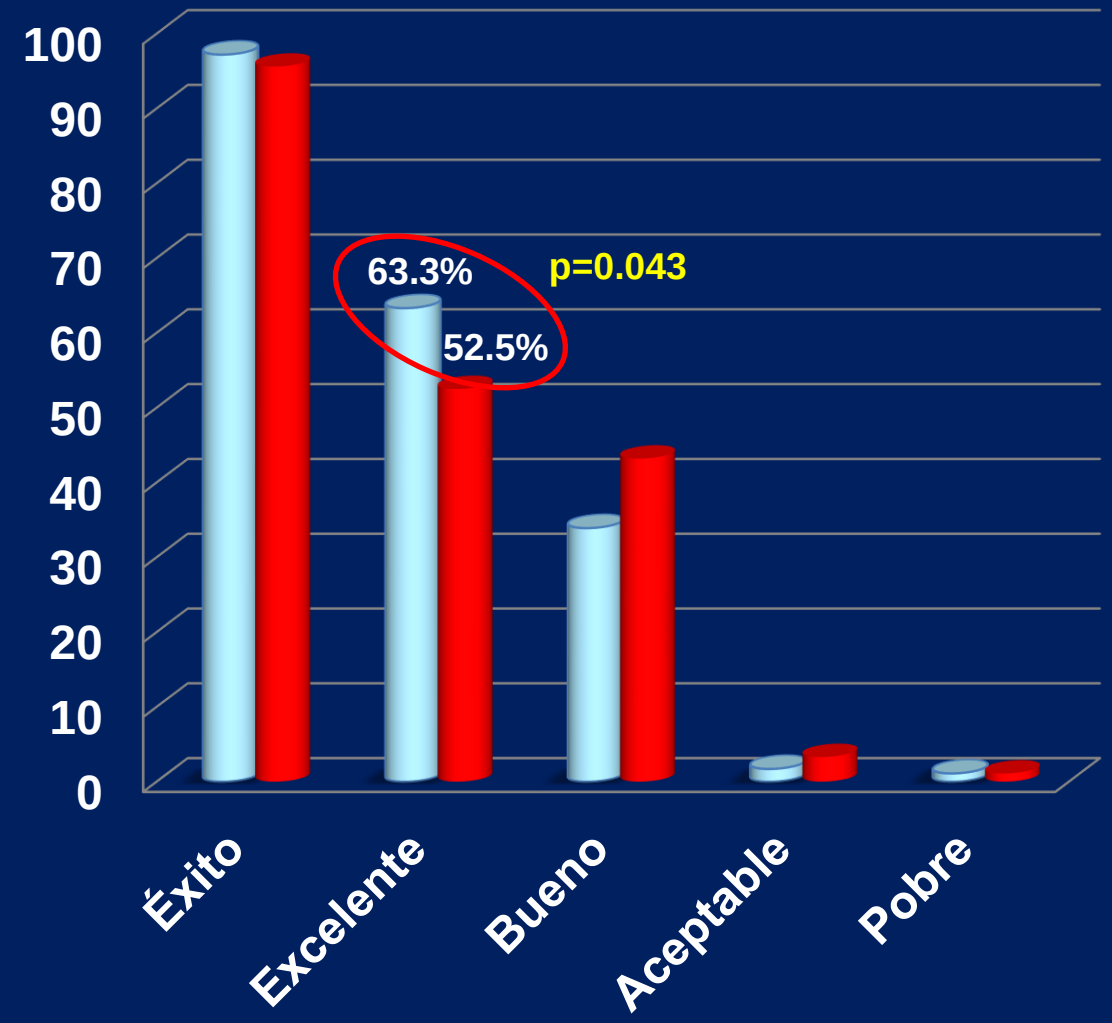
Agua. Te, café
Gaseosas
Jugos de frutas
Sin pulpa, no rojos
Caldos
NO: leche

A Randomized Clinical Study Evaluating the Safety and Efficacy of a New, Reduced-Volume, Oral Sulfate Colon-Cleansing Preparation for Colonoscopy

Di Palma JA, Am J Gastroenterol 2009,104:2275-84

Sulfato (Na, Mg, K) Versus PG 2L Acido Ascórbico

Dosis divididas (Split): PM-AM



Metacéntrico 21 centros
USA Aleatorizado
N= 379

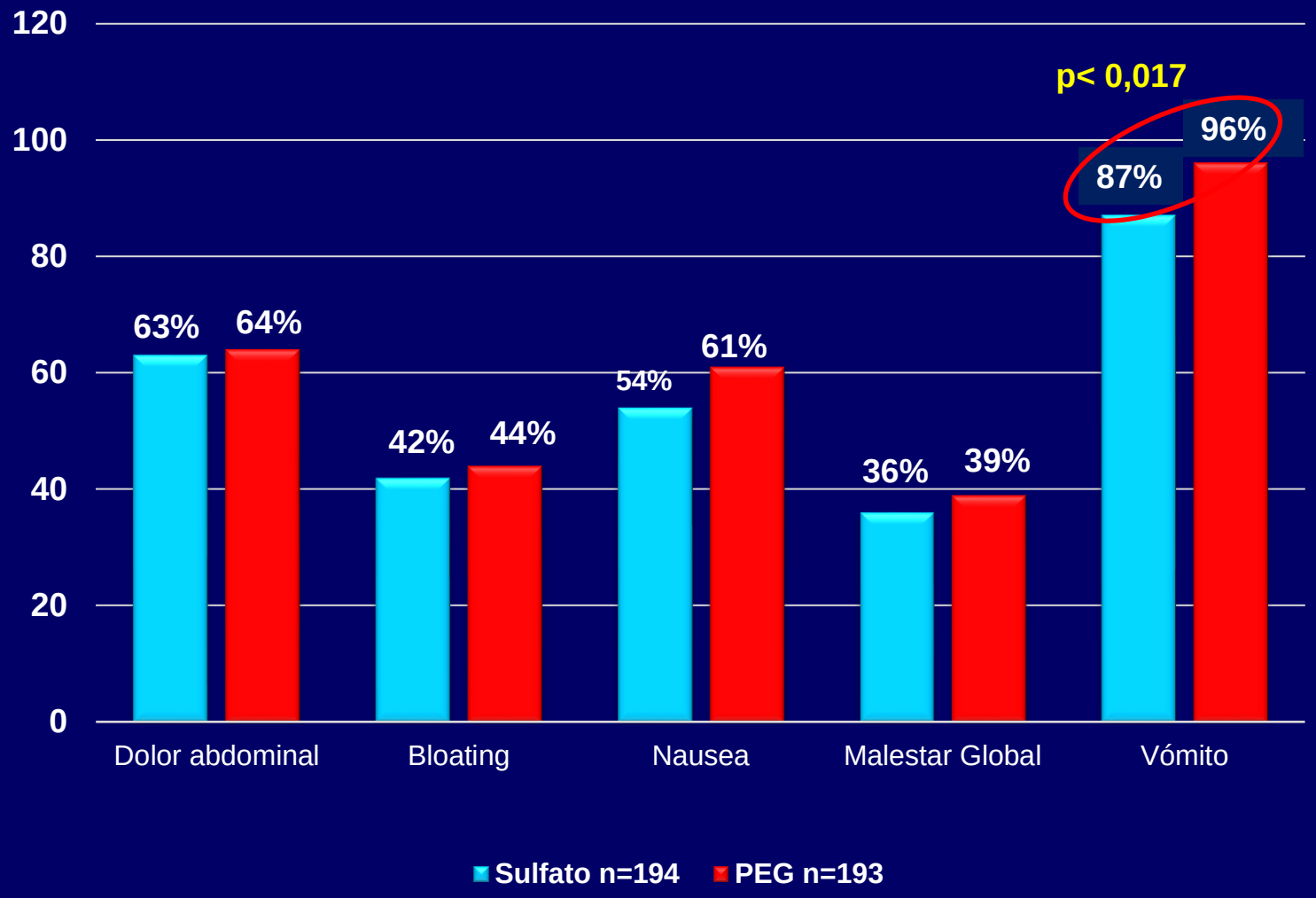
Sulfato oral n=183

PEG 1l AA n=183

Di Palma JA, Am J Gastroenterol 2009;104:2275-84

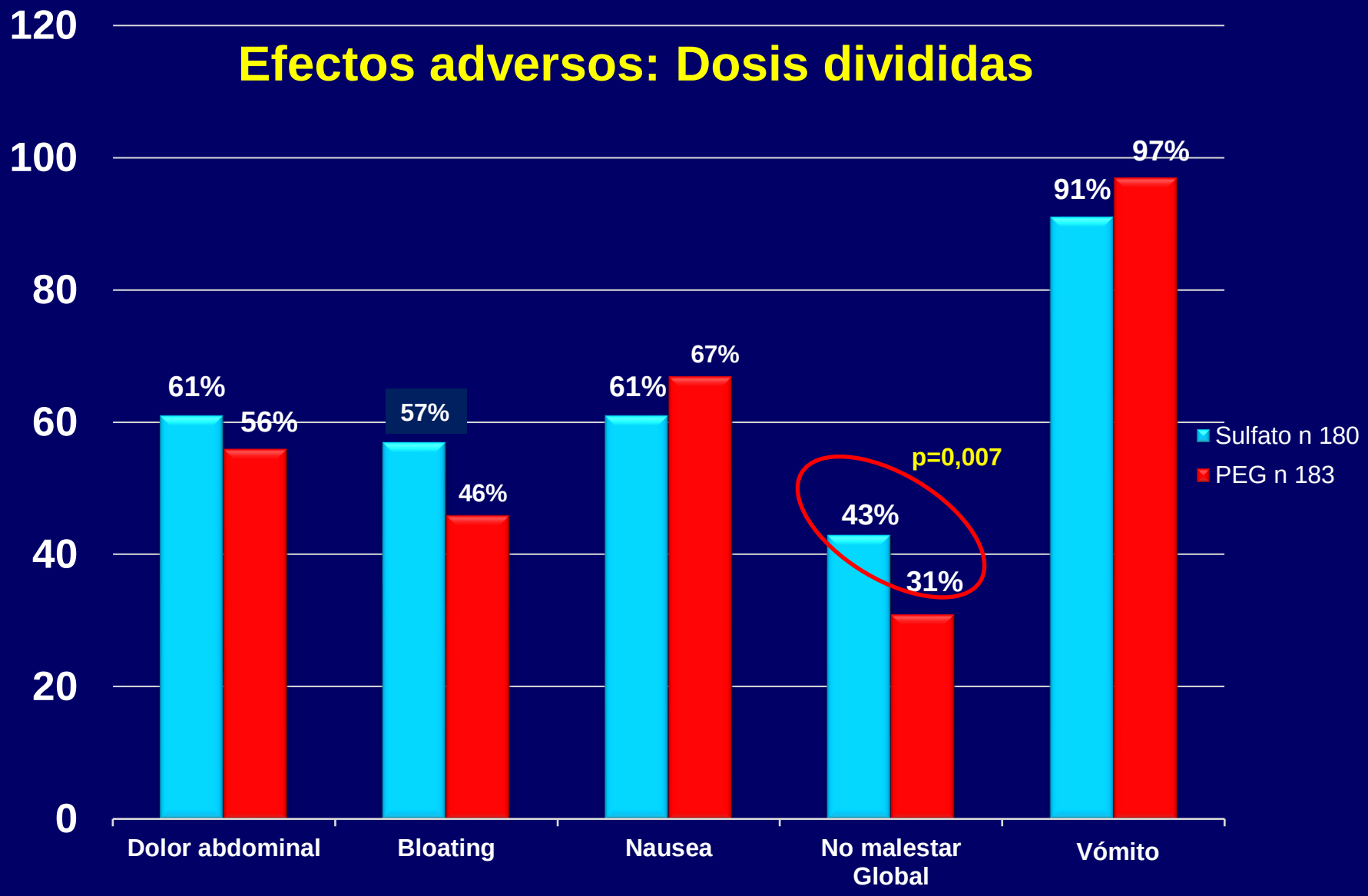
Sulfato (Na, Mg, K) Versus PG 2L AA

Efectos adversos: Dosis única PM antes del examen



Di Palma JA, Am J Gastroenterol 2009;104:2275-84

Sulfato (Na, Mg, K) Versus PG 2L AA



Di Palma JA, Am J Gastroenterol 2009;104:2275-84

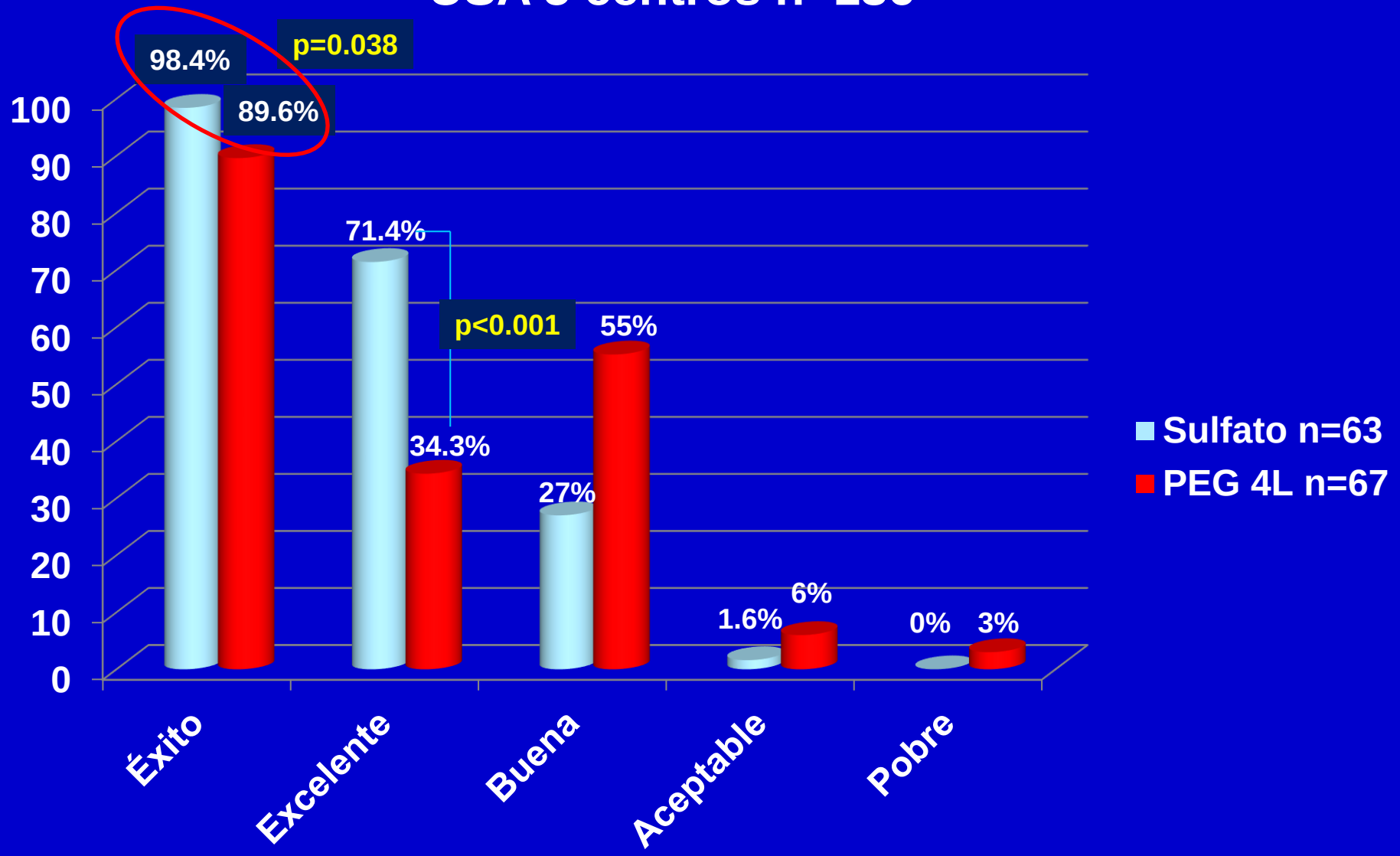
Sulfato Vs PEG dosis unica 4 L

A randomized clinical study comparing reduced-volume oral sulfate solution with standard 4-liter sulfate-free electrolyte lavage solution as preparation for colonoscopy

Douglas K. Rex, MD,* Jack A. Di Palma, MD,* Reynaldo Rodriguez, DO, John McGowan, MPH, Mark Cleveland, PhD

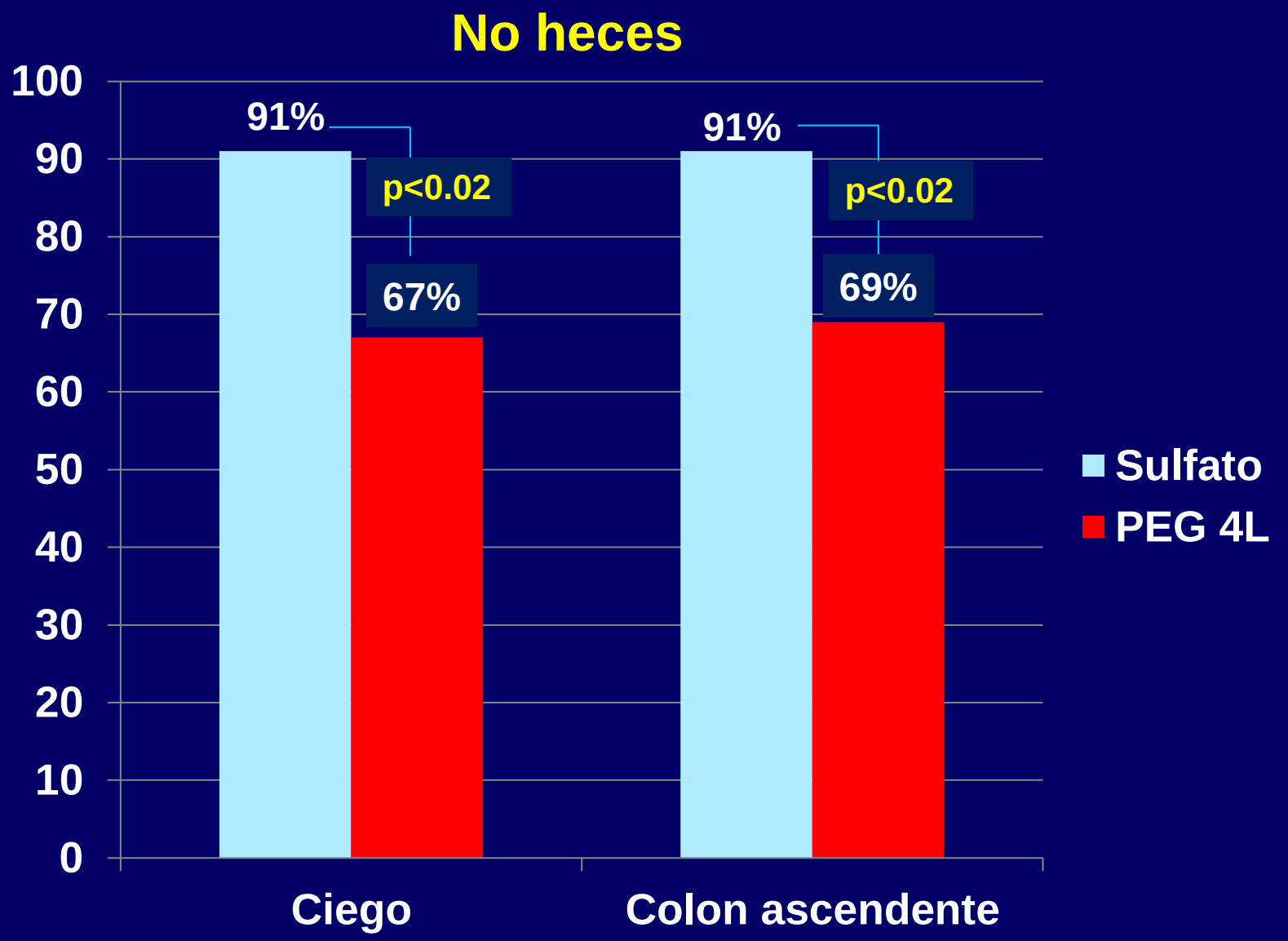
Gastrointest Endosc 2010;72:328-36

Sulfato oral dividido (“*split*) Vs PEG 4L dosis única PM
USA 5 centros n=136



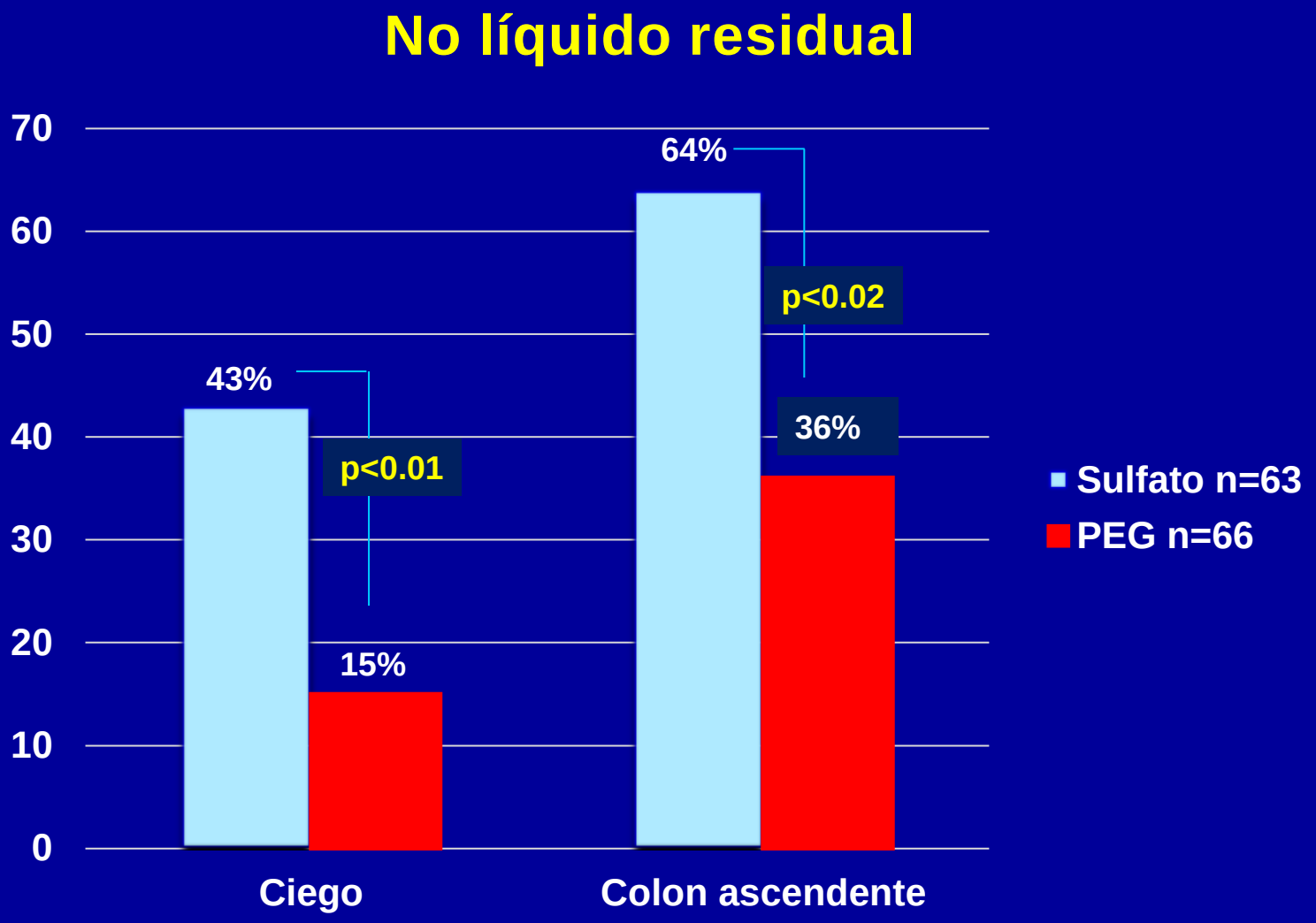
Rex DK, Gastrointest Endosc 2010;72:328-36

Sulfato oral dividido (“*split*) Vs PEG 4L dosis única PM USA 5 centros n=136



Rex DK, Gastrointest Endosc 2010;72:328-36

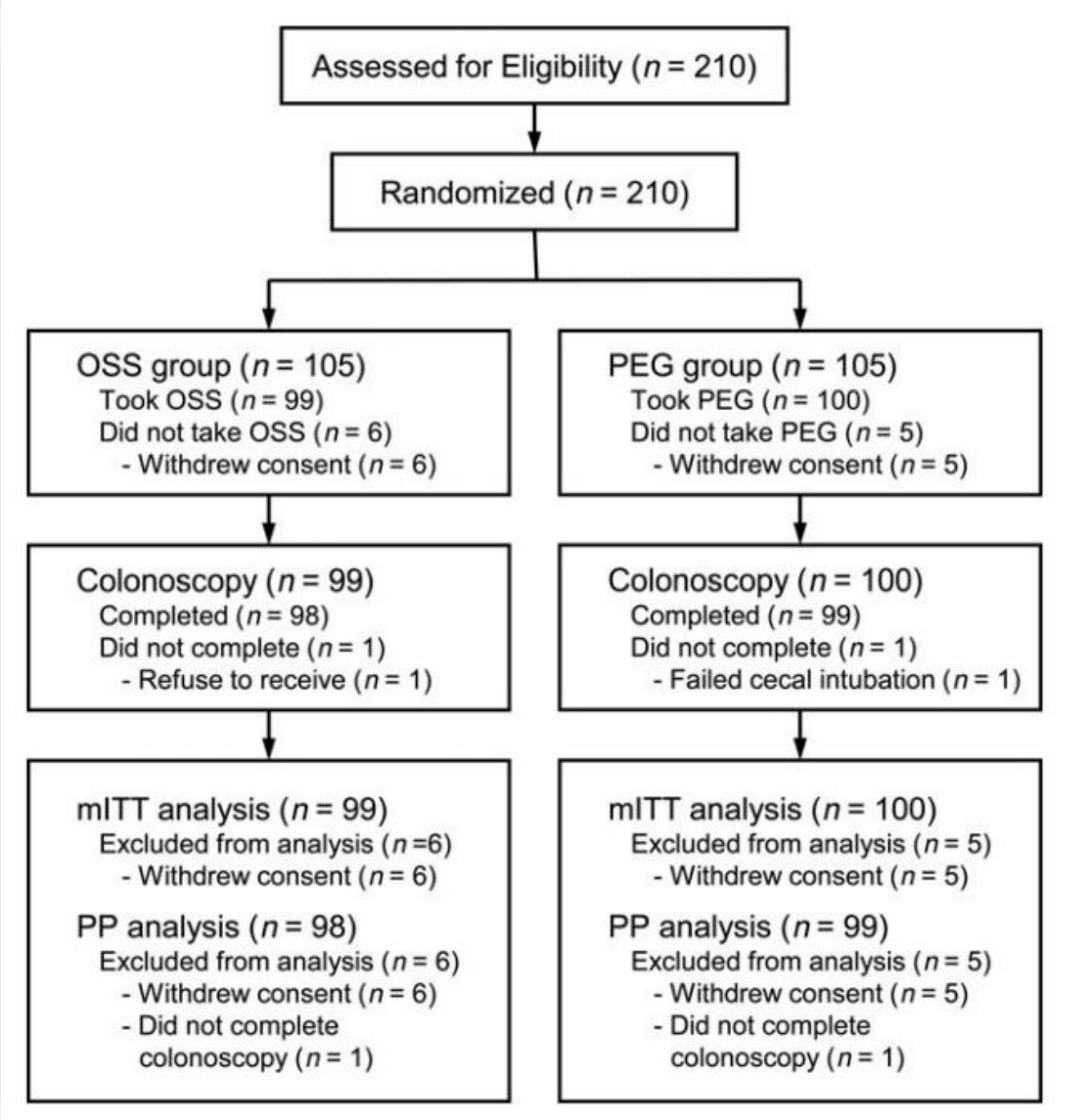
Sulfato oral dividido (“*split*) Vs PEG 4L dosis única PM USA 5 centros n=136



Rex DK, Gastrointest Endosc 2010;72:328-36

Sulfato *versus*
PEG 4 litros dosis divididas *(“split”)*
Boston

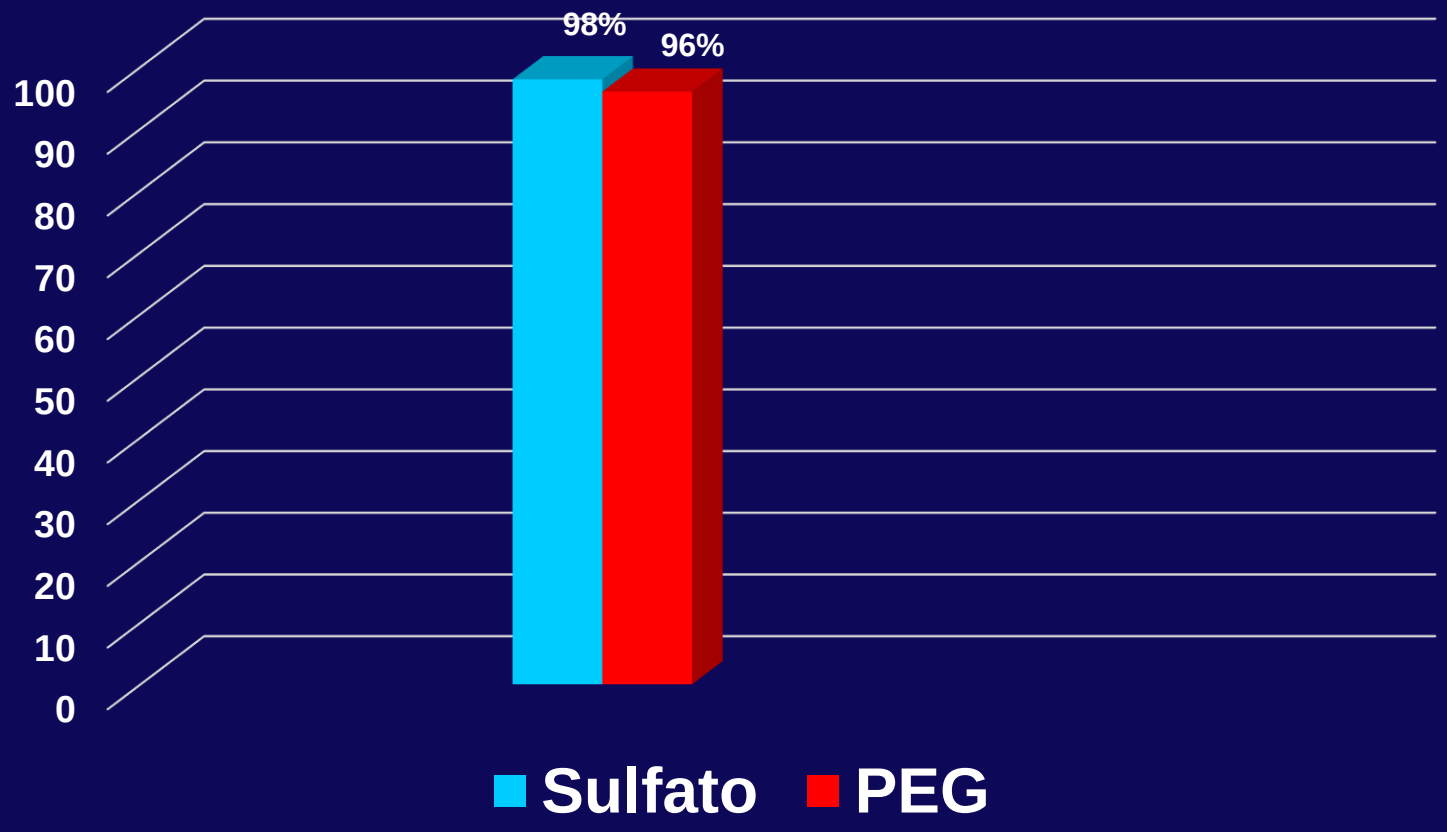
Randomized trial comparing oral sulfate solution with 4-L polyethylene glycol administered in a split dose as preparation for colonoscopy



Yan HJ, J Gastroenterol Hepatol 2017;32: 12-

Randomized trial comparing oral sulfate solution with 4-L polyethylene glycol administered in a split dose as preparation for colonoscopy

Preparación adecuada



Yangg HJ, J Gastroenterol Hepatol 2017;32: 12–18

Randomized trial comparing oral sulfate solution with 4-L polyethylene glycol administered in a split dose as preparation for colonoscopy

Boston por segmentos %

Colon izquierdo	Sulfato	PEG
3	53.5%	50%
2	44.4%	46%
1	1%	2%
0	1%	2%
Colon Transverso		
3	89.9%	84.0%
2	9.1%	15.0
1	0%	0%
0	1%	1%
Colon Derecho		
3	72.7%	66%
2	26.3%	34.0%
1	0%	0%
0	0%	0%

Yan HJ, J Gastroenterol Hepatol 2017;32: 12–18

Sulfato *versus*
PEG 4 litros dosis divididas *(“split”)*

Eficacia similar

Randomized trial comparing oral sulfate solution with 4-L polyethylene glycol administered in a split dose as preparation for colonoscopy

Hyo-Joon Yang,* Soo-Kyung Park,* Jee Hyun Kim,† Jong Pil Im,† Dong Han Yeom,‡ Geom Seog Seo‡ and Dong Il Park*

Mejor tolerancia

	OSS group ($n = 99$) n (%)	PEG group ($n = 100$) n (%)	P value
Acceptance (difficulty in taking study agent)			0.039
1 (None)	54 (54.5)	40 (40.0)	
2 (Some)	39 (39.4)	45 (45.0)	
3 (Much)	6 (6.1)	15 (15.0)	
Compliance (% intake of study agent)			0.038
Optimal (100%)	97 (98.0)	93 (93.0)	
Good (≥75%)	1 (1.0)	7 (7.0)	
Poor (<75%)	1 (1.0)	0 (0.0)	
Satisfaction, mean (SD)	7.2 (1.9)	6.1 (2.5)	<0.001

Yang HJ, J Gastroenterol Hepatol 2017;32: 12–18

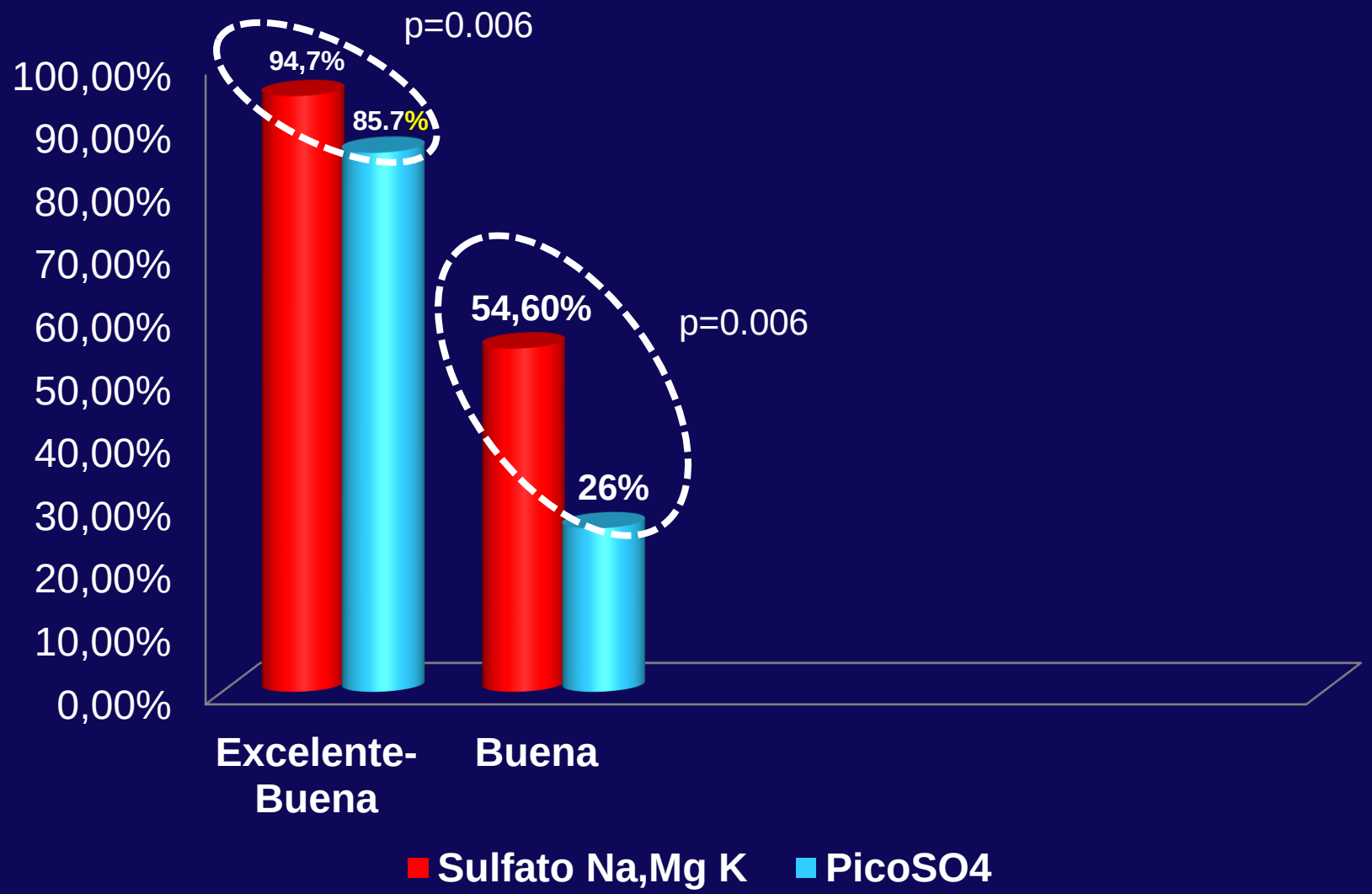
A comparison of oral sulfate solution with sodium picosulfate: magnesium citrate in split doses as bowel preparation for colonoscopy

Douglas K. Rex, MD,[1] Jack A. DiPalma, MD,[2] John McGowan, MPH,[3] Mark vB. Cleveland,

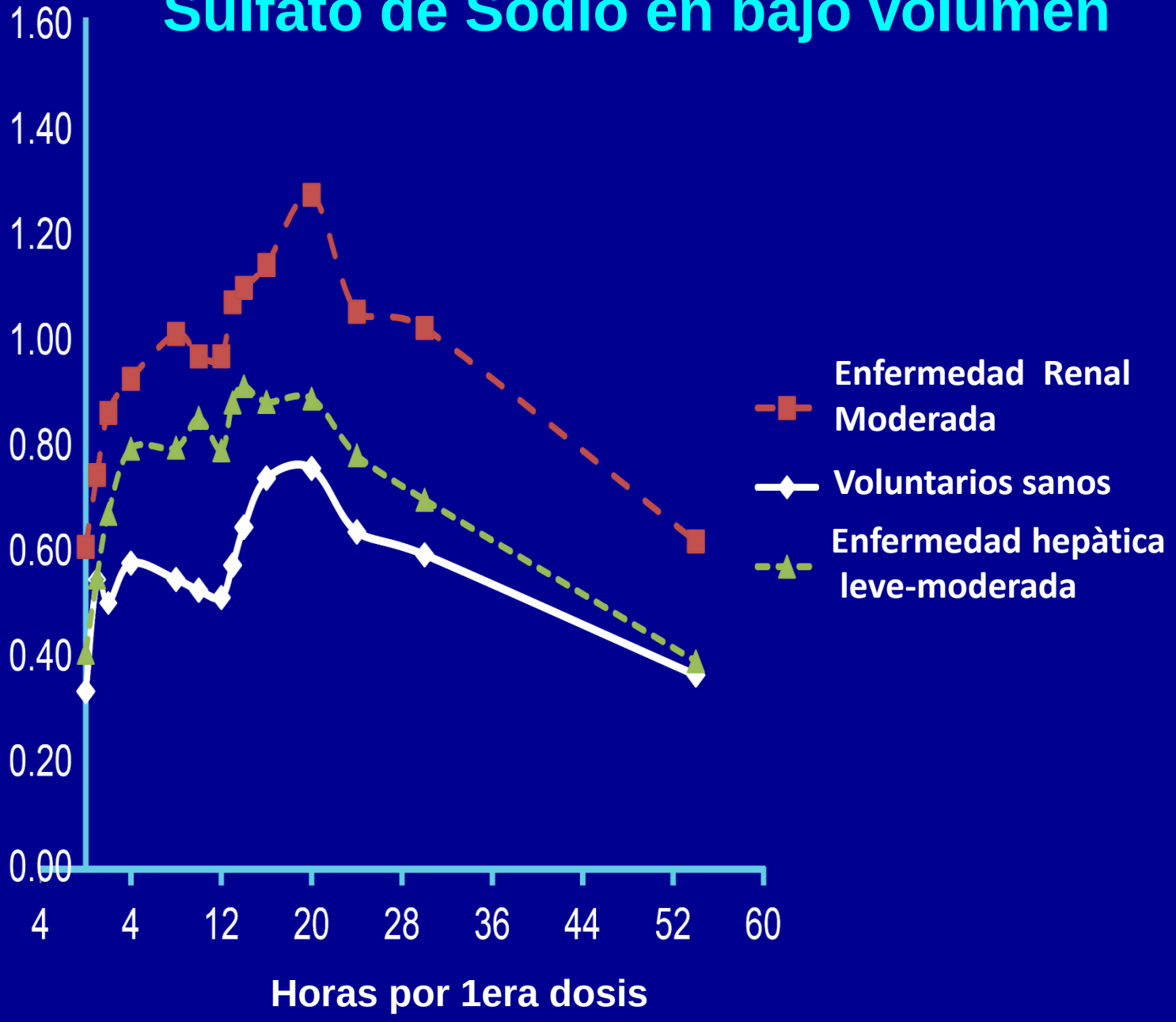
Gastrointest Endosc 2014;80:1113-23

Sulfato oral vs Picosulfato de sodio en dosis divididas

Rex DK, Gastrointest Endosc 2014;80:113-23



Sulfato de Sodio en bajo volumen



PEG con electrolitos

Insuficiencia cardíaca
Insuficiencia renal
Cirrosis con ascitis

Rex D K, Clin Gastroenterol Hepatol 2014;12:458-62

PEG con electrolitos

Embarazadas?

http://www.drugs.com/pregnancy-categories.html

Perspectiva del Gastroenterólogo

Rex D, Nat rev Gastroenterol Hepatol 2014; 11:419-25.

Conceptos básicos 2018

La preparaciòn debe ser flexible
No sólo hacer lo que dice la FDA
Dosis divididas *(“split”):* PM-AM
Examen AM: iniciar dosis 4-6 horas antes
Terminar dos horas antes del examen.

Johnson DA, Am J Gastroenterol 2014;109:1528-45
Seo H, Gastrointest Endosc 2012;76:75:583-90
Hassan C, Endoscopy 2013;45:142-50

Hora de la colonoscopia

1era dosis: Noche anterior al examen
2da dosis: 4-6 horas antes del examen
2-3 AM: sin inconvenientes

AM

Toda la dosis la Noche anterior

↘

Quimo del ID

↘

Se acumula En el colon

↘

Impide ver la Mucosa

Jonhnson DA, Gastroenterology 2014;147:903-24
Saltzman JR, ASGE GIE 2015;4:781-93

Momento de la preparación

Final de la Preparación

Por cada hora de Espera Mala Preparación 10%

Realización Colonoscopia

Siddiqui AA, Gastrointest Endosc 2009;69:700-6

Hora de la colonoscopia

Por la tarde

Preparación por la mañana

Dosis única
No *“split”*

Meta-análisis 2017

Same-day Versus Split-dose Bowel Preparation Before Colonoscopy

A Meta-Analysis

Yuan-Lung Cheng, MD,† Kuang-Wei Huang, MD,‡ Wei-Chih Liao, MD,*† Jiing-Chyuan Luo, MD,†§ Keng-Hsin Lan, MD, PhD,†§‖ Chien-Wei Su, MD, PhD,†§ Yuan-Jen Wang, MD,§¶ and Ming-Chih Hou, MD†§*

J Clin Gastroenterol 2017;00:000–000

Bowel Preparations Administered the Morning of Colonoscopy Provide Similar Efficacy to a Split Dose Regimen

A Meta Analysis

Danny J. Avalos, MD, Fernando J. Castro, MD, AGAF, FACG,† Marc J. Zuckerman, MD, AGAF, FASGE, FACG,* Tara Keihanian, MD, MPH,‡ Andrew C. Berry, MD,§ Benjamin Nutter, MS,‖ and Daniel A. Sussman, MD, MSPH¶*

J Clin Gastroenterol 2017;00:000–000

Pacientes difíciles: Qué hacer ??

El algo muy difícil!

Hacerlo al dia siguiente
PEG 6-8 lt 2 días ?
PEG Split + bisacodilo?

ESGE 2015, ASGE 2014 Taask Force 2014

Mensajes para la casa

Calidad en colonoscopia inicia con el colon limpio
Por cada hora de atraso 10% mal preparados
Los adenomas serrados exigen colon limpio
La tolerabilidad facilita la eficacia
En casos especiales preparaciones seguras
Bajos volúmenes son mejor tolerados
Colonoscopia AM: dosis divididas
Colonoscopias PM: preparación por la mañana


FINANCIAL
OK
QUALITY

La parte más difícil de la Colonoscopia Es la preparación!!!

Muchas gracias!