



UC | Chile



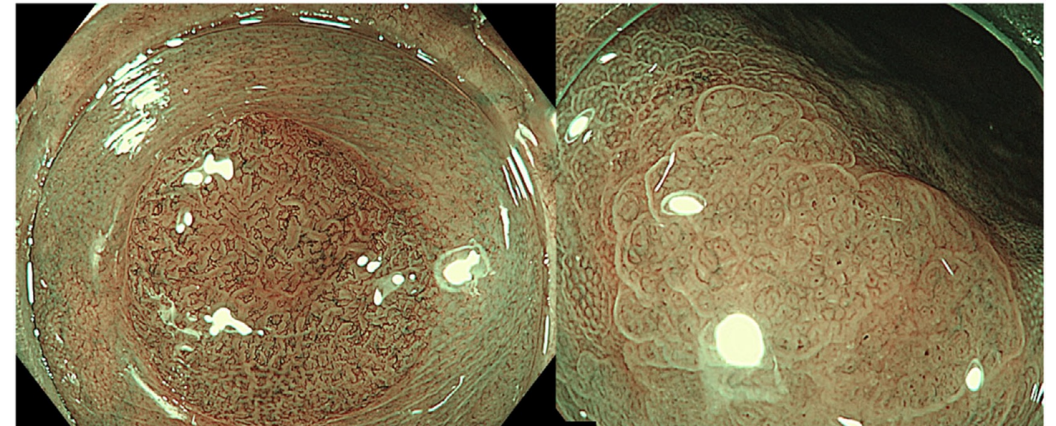
# CURSO DE AVANCES EN GASTROENTEROLOGÍA

## PERSPECTIVAS FUTURAS EN GASTROENTEROLOGÍA

17 - 19 Julio 2024 - Hotel InterContinental, Stgo.

SChGE

## ¿Cómo mejorar la tasa de detección de adenomas y lesiones serradas durante una colonoscopia?



NICE tipo 2 → Adenoma

WASP (+) → Serrado

### Dr. Alberto Espino

Profesor Clínico Asociado Dpto Gastroenterología  
Pontificia Universidad Católica de Chile  
Director Fellow Endoscopia Avanzada UC  
Jefe Procedimientos Digestivos Hospital Clínico UC-CHRISTUS  
Director Comité Esófago de Barrett SIED



[aoespino@uc.cl](mailto:aoespino@uc.cl)

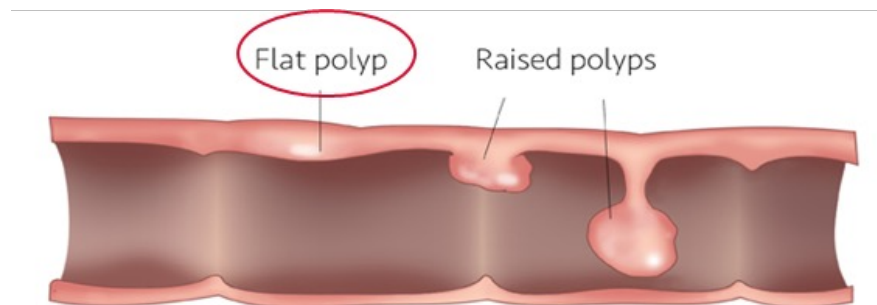


Red de Salud  
UC • CHRISTUS



uc.cl

- ✓ **Introducción: ¿Por qué optimizar el ADR?**
- ✓ Paso 1: Preparación de colon de paciente
- ✓ Paso 2: Tiempo de inspección
- ✓ Paso 3: Puedo mejorar mi técnica colonoscópica
- ✓ Paso 4: Conocer bien la tecnología que me puede ayudar
- ✓ Paso 5: Monitorear y retroalimentar indicadores de calidad
- ✓ Mensajes finales



# Introducción: ¿Por qué optimizar el ADR?

## El indicador más importante de la colonoscopia

- **ADR** → % de pacientes  $\geq 50$  años sometidos a una 1era colonoscopia de tamizaje con al menos 1 adenoma detectado
  - Estándar Mínimo 30% hombres / 20% mujeres / **25% general**
  - Endoscopistas < 20% ADR: Riesgo 10 veces mayor de desarrollar cáncer
  - Riesgo: “One and done” approach
- **APC** → Número de adenoma por colonoscopia

*Rex DK, Schoenfeld PS, Cohen J, et al. Gastrointest Endosc. 2015;81(1):31-53.*

*Rex DK. JAMA. 2022;327(21):2088-2089*

*Ishtiaq R, Zulfiqar L, Gangwani MK, Aziz M. Transl Gastroenterol Hepatol. 2023;8:24.*





43 publicaciones / 15000 colonoscopias

**AMR 26% (IC 23-30%)**

9% adenomas avanzados

27% serrados

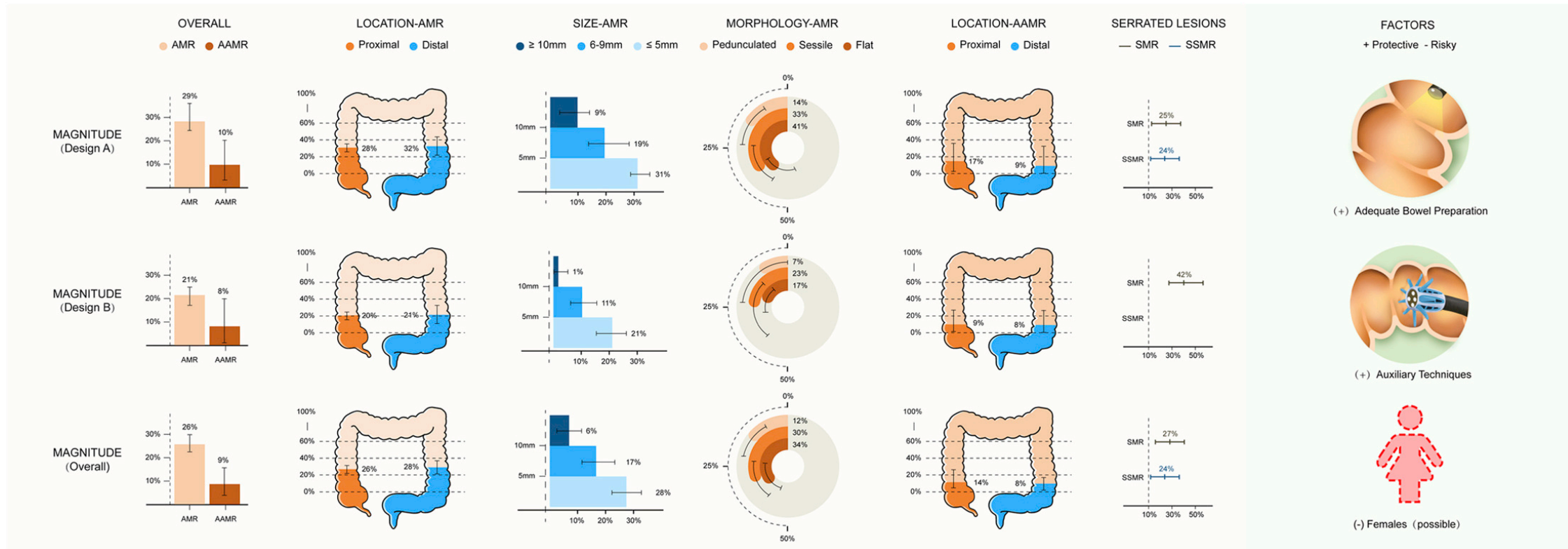
Adenomas planos 34%

Pac de alto riesgo 33%

# Magnitude, Risk Factors, and Factors Associated With Adenoma Miss Rate of Tandem Colonoscopy: A Systematic Review and Meta-analysis



Shengbing Zhao,<sup>1,4,5,\*</sup> Shuling Wang,<sup>1,\*</sup> Peng Pan,<sup>1,\*</sup> Tian Xia,<sup>1,4,\*</sup> Xin Chang,<sup>1</sup> Xia Yang,<sup>1,3</sup> Liliangzi Guo,<sup>2</sup> Qianqian Meng,<sup>1,4,6</sup> Fan Yang,<sup>1</sup> Wei Qian,<sup>1</sup> Zhichao Xu,<sup>1</sup> Yuanqiong Wang,<sup>1</sup> Zhijie Wang,<sup>1</sup> Lun Gu,<sup>1</sup> Rundong Wang,<sup>1</sup> Fangzhou Jia,<sup>1</sup> Jun Yao,<sup>2</sup> Zhaoshen Li,<sup>1,4,5,6</sup> and Yu Bai<sup>1,4,5</sup>



|                        |     |      |      |      |
|------------------------|-----|------|------|------|
| INDEPENDENT PREDICTORS | ADR | APPC | APIC | APPC |
|------------------------|-----|------|------|------|

JAMA | Original Investigation

# Association of Physician Adenoma Detection Rates With Postcolonoscopy Colorectal Cancer

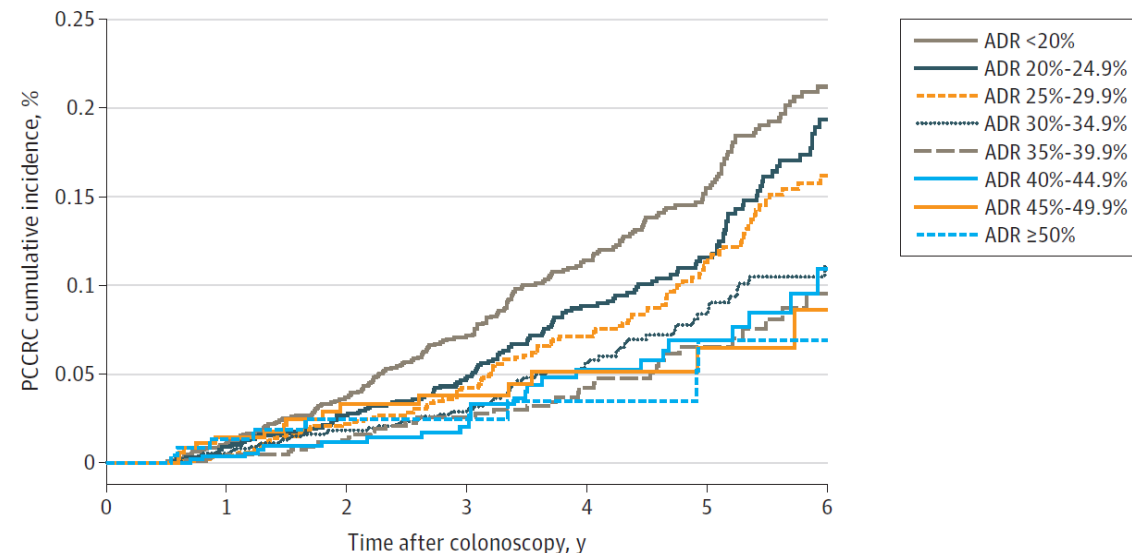
Joanne E. Schottinger, MD; Christopher D. Jensen, PhD; Nirupa R. Ghai, PhD; Jessica Chubak, PhD; Jeffrey K. Lee, MD; Aruna Kamineni, PhD; Ethan A. Halm, MD; CLETTE Sugg-Skinner, PhD; Natalia Udaltsova, PhD; Wei K. Zhao, MPH; Rebecca A. Ziebell, BS; Richard Contreras, MS; Eric J. Kim, MS; Bruce H. Fireman, MA; Charles P. Quesenberry, PhD; Douglas A. Corley, MD

**JAMA. 2022;327(21):2114-2122.**

**Findings** In a retrospective cohort study of 735 396 patients with 852 624 colonoscopies without detection of cancer, higher physician adenoma detection rates were significantly associated with a lower risk of postcolonoscopy colorectal cancer (hazard ratio, 0.97 per 1% absolute adenoma detection rate increase) across a broad range of adenoma detection rate values.

**Meaning** The inverse associations between adenoma detection rates and postcolonoscopy colorectal cancers extend to higher adenoma detection rate values than commonly reported; these findings, with other factors, can inform targets for colonoscopy quality.

Figure 1. Postcolonoscopy Colorectal Cancer Cumulative Incidence Stratified by Physician Adenoma Detection Rate Group



**Colonoscopistas**



**ADR**

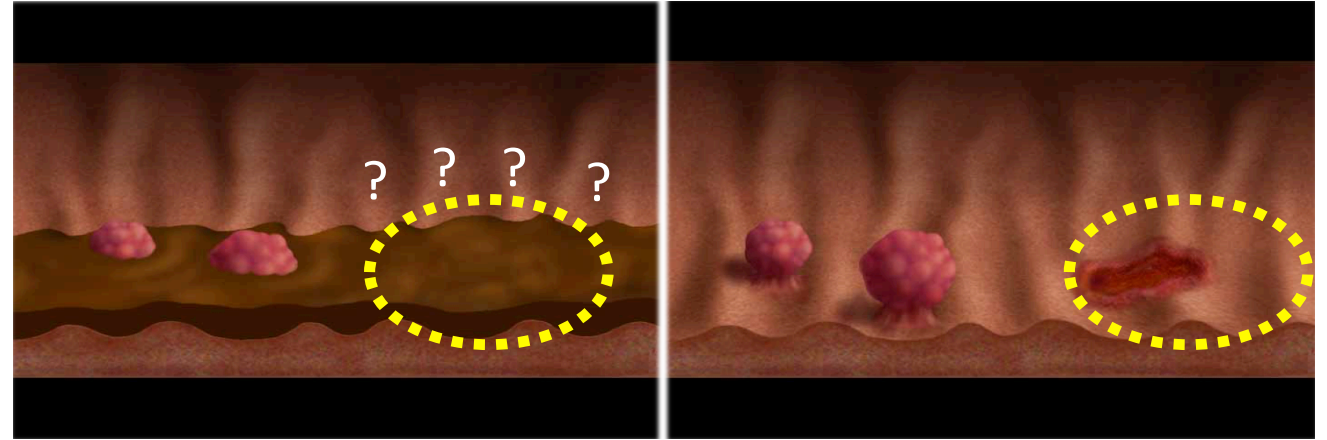
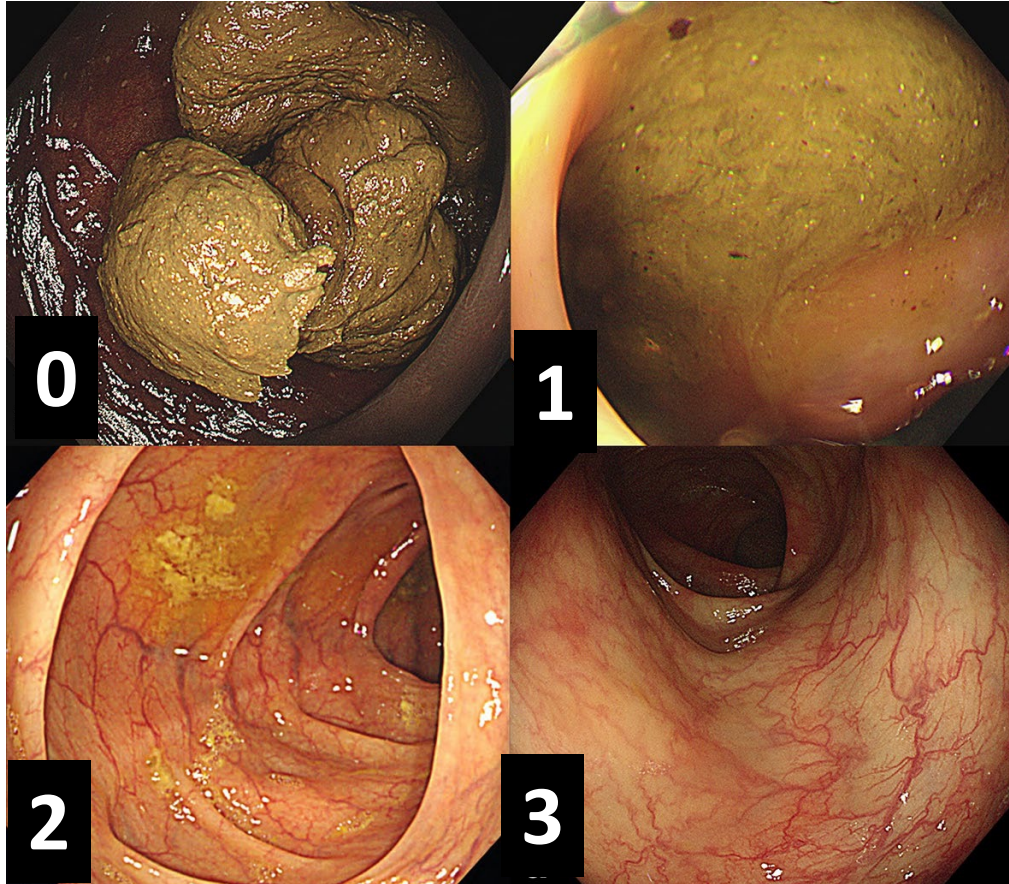


**Riesgo cáncer postcolonoscopia**

- ✓ Introducción: ¿Por qué optimizar la tasa de ADR?
- ✓ **Paso 1: Preparación de colon de paciente**
- ✓ Paso 2: Tiempo de inspección
- ✓ Paso 3: Puedo mejorar mi técnica colonoscópica
- ✓ Paso 4: Conocer bien la tecnología que me puede ayudar
- ✓ Mensajes finales

# Paso 1: Preparación de colon de paciente

## El factor más importante de todos



**Estándar Mínimo ESGE (2019) > 90%**

- 0= Inadecuada
- 1= Pobre
- 2= Buena
- 3= Excelente

**Escala de Boston  
(0-9)**

**Colon izquierdo; Colon transverso; Colon derecho**

[www.uc.cl](http://www.uc.cl)

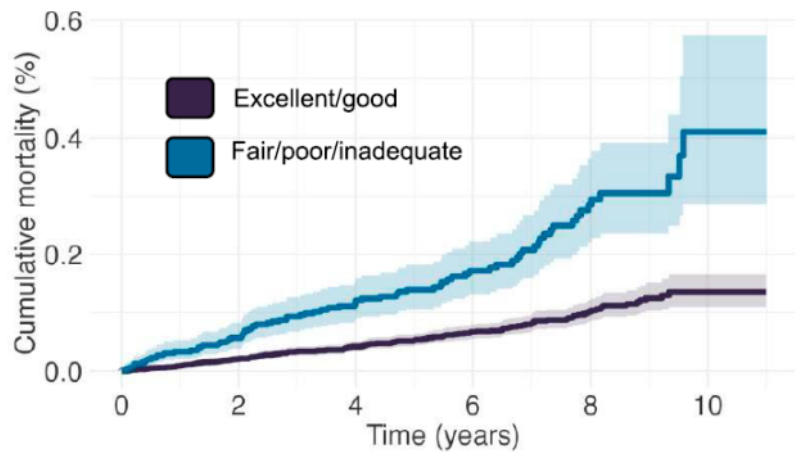
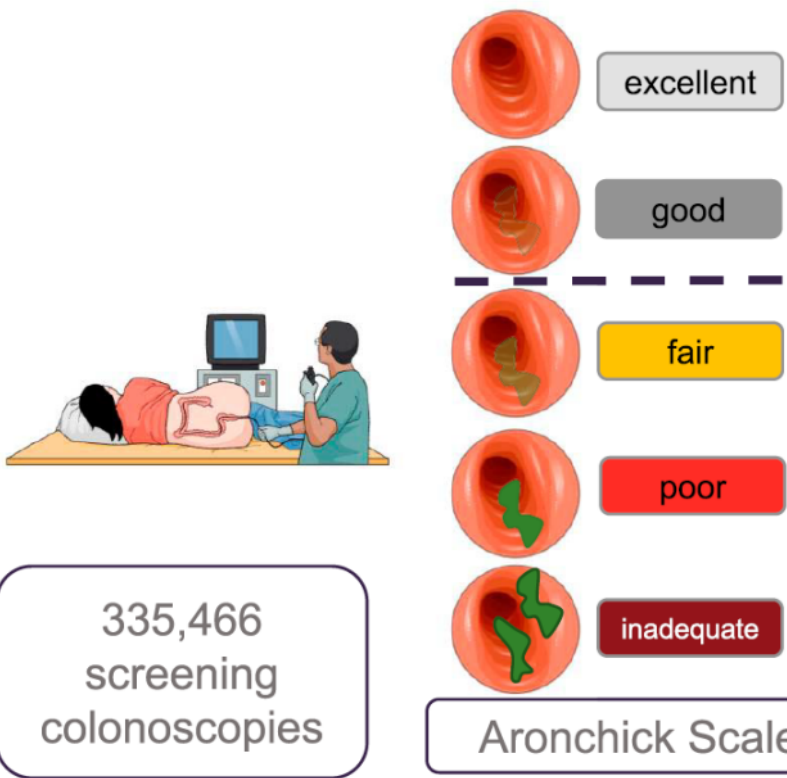
# Impact of Bowel Preparation Quality on Colonoscopy Findings and Colorectal Cancer Deaths in a Nation-Wide Colorectal Cancer Screening Program

Junio 2024



Jasmin Zessner-Spitzenberg, MD<sup>1,2</sup>, Elisabeth Waldmann, MD, PhD<sup>1,2</sup>, Lisa-Maria Rockenbauer, BSc<sup>1</sup>, Andreas Klinger, BSc<sup>1,2,3</sup>, Entcho Klenske, MD<sup>1,2</sup>, Daniela Penz, MD<sup>4</sup>, Alexandra Demshik, BSc<sup>1</sup>, Barbara Majcher, MD<sup>1</sup>, Michael Trauner, MD<sup>1</sup> and Monika Ferlitsch, MD<sup>1,2</sup>

## Bowel preparation and death from postcolonoscopy CRC







OPEN

## Boston bowel preparation scale score 6 has more missed lesions compared with 7–9

Jung Kim<sup>1</sup>, Ji Min Choi<sup>1</sup>, Jooyoung Lee<sup>1</sup>, Yoo Min Han<sup>1</sup>, Eun Hyo Jin<sup>1</sup>, Joo Hyun Lim<sup>1</sup>, Jung Ho Bae<sup>1,2✉</sup> & Ji Yeon Seo<sup>1,2✉</sup>

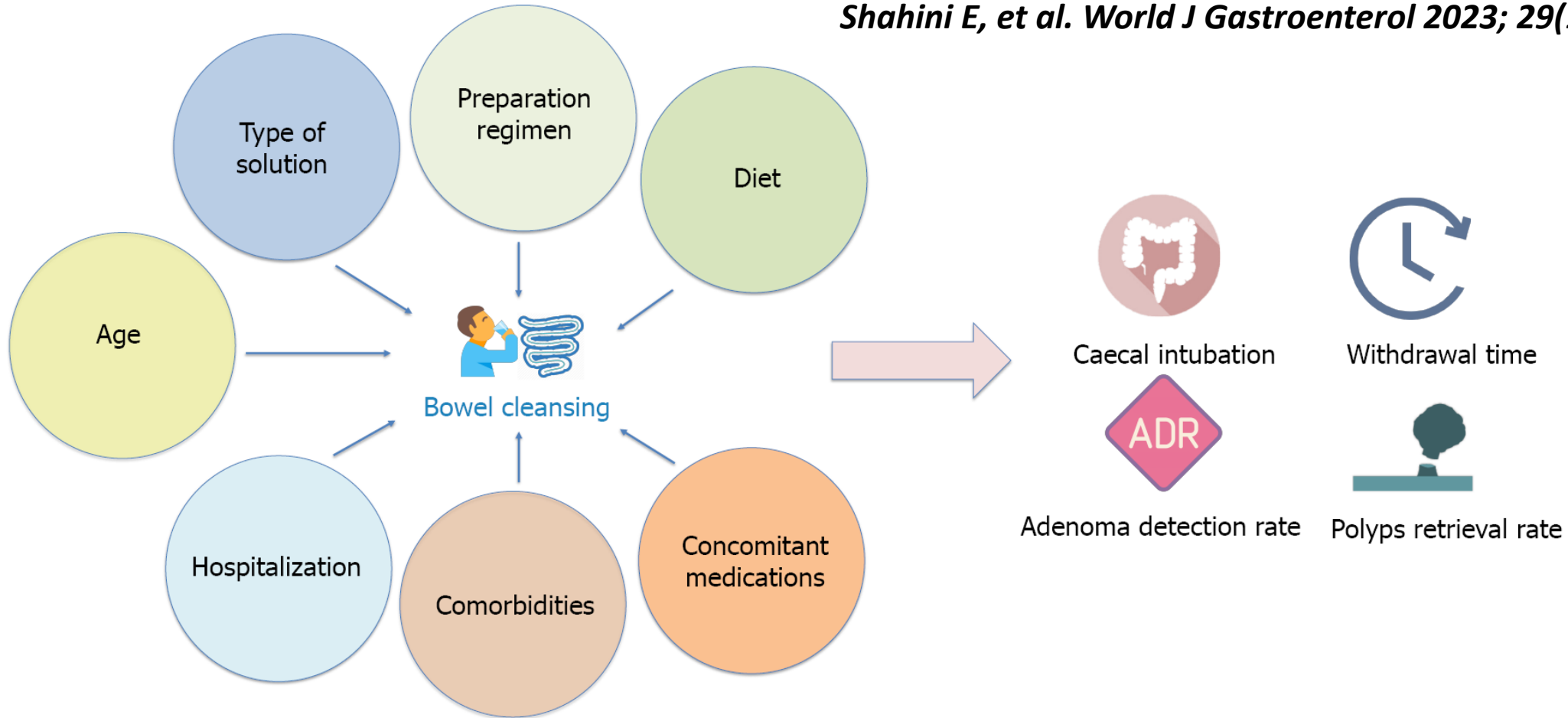
Adequate bowel preparation is an important factor in high-quality colonoscopy. It is generally accepted that a Boston Bowel Preparation Scale (BBPS) score  $\geq 6$  is adequate, but some reports suggest  $\geq 7$ . Subjects who underwent colonoscopy at least twice within 3 years from August 2015 to December 2019 were included. Polyp detection rates (PDRs), adenoma detection rates (ADRs), and number of polyps including adenomas were compared stratified by baseline colonoscopy (C1) BBPS score. Among 2352 subjects, 529 had BBPS 6 (group 1) and 1823 had BBPS 7–9 (group 2) at C1. There was no significant difference in PDR or ADR at C1 and follow-up colonoscopy (C2) between the two groups. However, the numbers of polyps (1.84 vs. 1.56,  $P = 0.001$ ) and adenomas (1.02 vs. 0.88,  $P = 0.034$ ) at C2 were significantly higher in group 1 than group 2, respectively. Segmental BBPS score 2 in group 1 compared to group 2, especially, showed higher PDR ( $P = 0.001$ ) and ADR ( $P = 0.007$ ) at C2. BBPS 6 is associated with a higher number of polyps and adenomas in short-term follow-up colonoscopy than BBPS 7–9. To reduce the risk of missed polyps, a thorough examination is necessary for BBPS 6.



# Paso 1: Preparación de colon de paciente

## Factores que la afectan

*Shahini E, et al. World J Gastroenterol 2023; 29(11): 1685-1707*



**DOI:** 10.3748/wjg.v29.i11.1685 **Copyright** ©The Author(s) 2023.

# Paso 1: Preparación de colon de paciente

## Dificultades en pacientes mayores

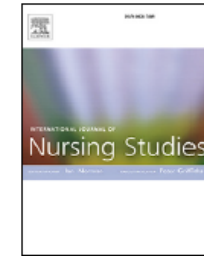
International Journal of Nursing Studies 149 (2024) 104631



Contents lists available at ScienceDirect

International Journal of Nursing Studies

journal homepage: [www.elsevier.com/locate/ns](http://www.elsevier.com/locate/ns)



### Predictors of inadequate bowel preparation in older patients undergoing colonoscopy: A systematic review and meta-analysis



Yuanyuan Zhang<sup>a</sup>, Lining Wang<sup>b</sup>, Wenbi Wu<sup>c</sup>, Shi Zhang<sup>a</sup>, Min Zhang<sup>a</sup>, Wenjing She<sup>d</sup>, Qianqian Cheng<sup>a</sup>, Nana Chen<sup>a</sup>, Pengxia Fan<sup>a</sup>, Yuxin Du<sup>a</sup>, Haiyan Song<sup>e</sup>, Xianyu Hu<sup>f</sup>, Jiajie Zhang<sup>e</sup>, Caiyan Ding<sup>g,\*</sup>

<sup>a</sup> School of Medical and Health Engineering, Changzhou University, Changzhou 213000, Jiangsu, China

<sup>b</sup> Department of Nursing, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Selangor 43400, Malaysia

<sup>c</sup> School of Nursing, Dalian Medical University, Dalian 116044, Liaoning, China

<sup>d</sup> Department of Nursing, The Second Affiliated Hospital of Nanjing Medical University, Nanjing 210000, Jiangsu, China

<sup>e</sup> Department of Nursing, The Affiliated Hospital of Xuzhou Medical University, Xuzhou 221000, Jiangsu, China

<sup>f</sup> Department of Cardiology, The First People's Hospital of Kunshan, Suzhou 215300, Jiangsu, China

<sup>g</sup> Nursing Teaching and Research Department, The Affiliated Changzhou Second People's Hospital of Nanjing Medical University, Changzhou 213000, Jiangsu, China



[www.uc.cl](http://www.uc.cl)

# Paso 1: Preparación de colon de paciente

## Factores independientes de preparación inadecuada

### A B S T R A C T

*Background:* Factors that predict the quality of bowel preparation in older adults are unclear, and current guidelines do not provide specific recommendations.

*Objective:* This meta-analysis aimed to identify risk factors for inadequate bowel preparation in older patients.

*Methods:* PubMed, Embase, Web of Science, China National Knowledge Infrastructure (CNKI), Wanfang, and VIP

**OR**

Constipación 3.56

Falta de ejercicio durante prep 3.13

Cirugía abdominal 2.72

No adherencia a dieta 2.51

Incompleta ingesta laxante 2.43

undergoing colonoscopy.

*Conclusions:* Three comorbid factors and three behavioral factors were significantly associated with inadequate bowel preparation in older adults. This meta-analysis provides valuable information for developing predictive models of poor bowel preparation.



# Paso 1: Preparación de colon de paciente

## El factor tolerancia / preferencia de volumen

### Efficacy of different bowel preparation regimen volumes for colorectal cancer screening and compliance with ESGE performance measures

Received: 16 Decem

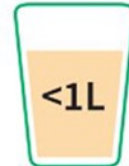
DOI: 10.1002/ueg2.1

15 Dutch endoscopy centres

2016-2020

39042 CRC screening colonoscopies

#### 3 bowel preparation regimens



High volume: 4-litre PEG

Low volume: 2-litre PEG with ascorbic acid

Ultra-low volume: <1-litre oral sulphate solution or sodium picosulfate with magnesium citrate or PEG with sodium sulphate and ascorbic acid

@AmsterdamUMC  
@lkazia  
@radboudumc  
@petersiersema

UNITED EUROPEAN GASTROENTEROLOGY  
**ueg journal**

Theunissen F et al. United European Gastroenterology J. 2021  
Visual abstract created by Susan Tyler

- All regimens meet the minimum ESGE performance standards
- Ultra-low volume regimens can be further improved if combined with bisacodyl
- The choice of bowel preparation regimen should be based on volume-tolerance and patient preference

ORIGINAL ARTICLE

Efficacy of different bowel preparation regimens for colorectal cancer screening: a multicentre, randomised controlled trial

Felix Theunissen, Rob J. T. Oude Nijhuis, the Trans. J. 2021

Completeness of procedure

Identification of pathology

Adenoma detection rate (90%)

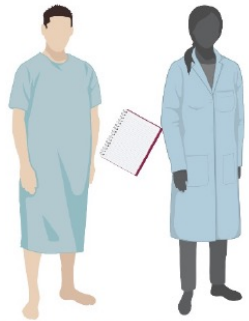
Adenoma detection rate (≥ 25%)

Withdrawal time

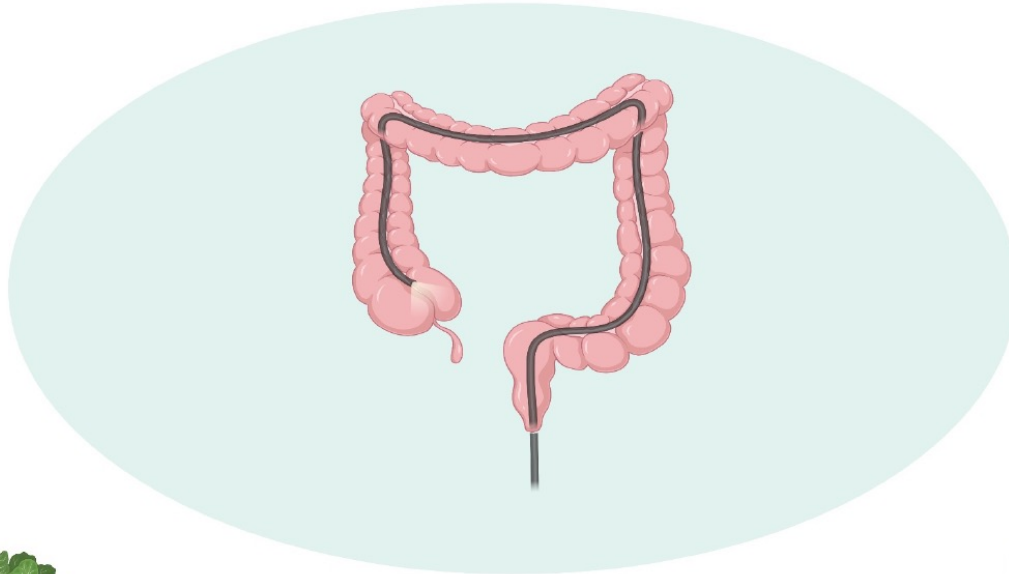
Polyp detection rate

# Paso 1: Preparación de colon de paciente

## En Resumen: Tips para optimizar la preparación



Patient education



Assistance of the elderly by health professionals

Tailored approach for fragile patients



Low fiber diet for at least 1 d



Day 1

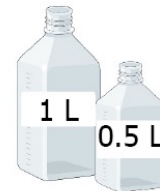
Day 2

Split preparation regimen



5 h

Colonoscopy within 5 h after the end of preparation





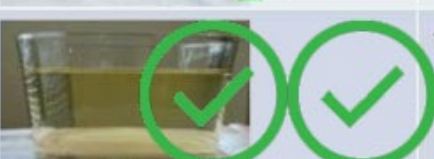


Low-volume/very-low volume PEG solutions



# Paso 1: Preparación de colon de paciente

## Preparación adecuada = "Orina clara"

| Stool Color   | Description                | Readiness    |
|---|----------------------------|--------------|
|    | Dark, thick, particles     | NOT READY    |
|    | Brown, thick, particles    | NOT READY    |
|    | Dark orange, semi-clear    | NOT READY    |
|  | Light orange, mostly clear | ALMOST READY |
|  | Yellow, light, clear       | READY        |

✓ Uso de adecuados instructivos o videos

✓ Enfermera Responsable de Preparación

# El “Futuro” → IA para preparación de colon

npj | digital medicine

www.nature.com/npjdigitalmed

ARTICLE OPEN

## Improving bowel preparation for colonoscopy with a smartphone application driven by artificial intelligence

Yan Zhu<sup>1,2,9</sup>, Dan-Feng Zhang<sup>1,2,9</sup>, Hui-Li Wu<sup>3,9</sup>, Pei-Yao Fu<sup>1,2,9</sup>, Li Feng<sup>4,9</sup>, Kun Zhuang<sup>5,9</sup>, Zi-Han Geng<sup>1,2</sup>, Kun-Kun Li<sup>3</sup>, Xiao-Hong Zhang<sup>4</sup>, Bo-Qun Zhu<sup>1,2</sup>, Wen-Zheng Qin<sup>1,2</sup>, Sheng-Li Lin<sup>1,2</sup>, Zhen Zhang<sup>1,2</sup>, Tian-Yin Chen<sup>1,2</sup>, Yuan Huang<sup>1,2</sup>, Xiao-Yue Xu<sup>1,2</sup>, Jing-Zheng Liu<sup>1,2</sup>, Shuo Wang<sup>6,7</sup>, Wei Zhang<sup>8</sup>, Quan-Lin Li<sup>1,2</sup> and Ping-Hong Zhou<sup>1,2</sup>

Check for updates

npj Digital Medicine (2023) 6:41 ;  
<https://doi.org/10.1038/s41746-023-00786-y>

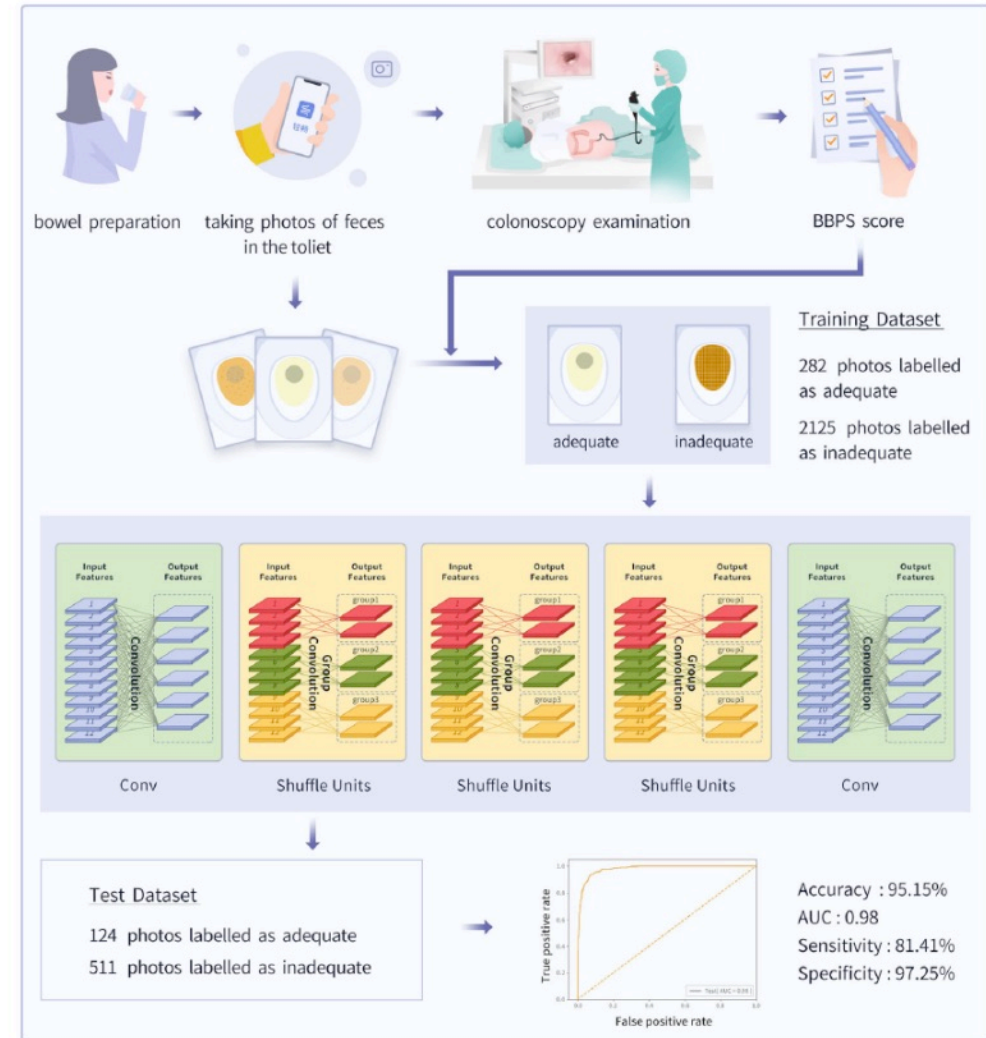


Fig. 3 Entire process of creating the artificial intelligence-based bowel preparation prediction system. AUC area under the receiver operating characteristics curve, Conv convolution.



- ✓ Introducción: ¿Por qué optimizar la tasa de ADR?
- ✓ Paso 1: Preparación de colon de paciente
- ✓ **Paso 2: Tiempo de inspección**
- ✓ Paso 3: Puedo mejorar mi técnica colonoscópica
- ✓ Paso 4: Conocer bien la tecnología que me puede ayudar
- ✓ Paso 5: Monitorear y retroalimentar indicadores de calidad
- ✓ Mensajes finales

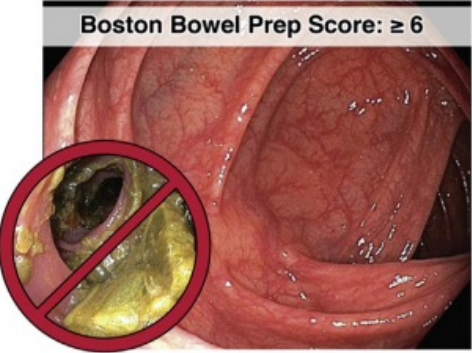
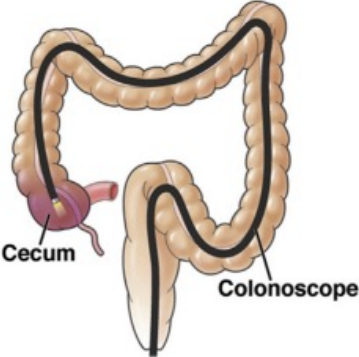

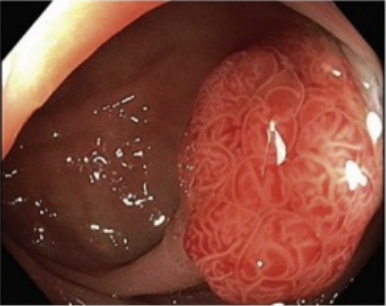


# Paso 2: Tiempo de inspección

## CLINICAL PRACTICE UPDATE: EXPERT REVIEW

### AGA Clinical Practice Update on Strategies to Improve Quality of Screening and Surveillance Colonoscopy: Expert Review

Rajesh N. Keswani,<sup>1</sup> Seth D. Crockett,<sup>2</sup> and Audrey H. Calderwood<sup>3</sup>



| A Measure, track, and provide feedback   |  |   |
|--|--|---|
| <p><b>Bowel prep adequacy rate</b><br/>Goal: <math>\geq 90\%</math>, aspirational <math>\geq 95\%</math></p> <p>Boston Bowel Prep Score: <math>\geq 6</math></p>  | <p><b>Cecal intubation rate</b><br/>Goal: <math>\geq 90\%</math>, aspirational <math>\geq 95\%</math></p>  <p>Cecum<br/>Colonoscope</p> | <p><b>Withdrawal time</b><br/>Goal: <math>\geq 6</math> min, aspirational <math>\geq 9</math> min</p>  |
| <p><b>Adenoma detection rate</b><br/>Goal: <math>\geq 30\%</math>, aspirational <math>\geq 35\%</math></p>   | <p><b>Serrated lesion detection rate</b><br/>Goal: <math>\geq 7\%</math>, aspirational <math>\geq 10\%</math></p>                      | <p><b>Adverse events</b><br/>Measure unit-level colonoscopy adverse events</p>                       |

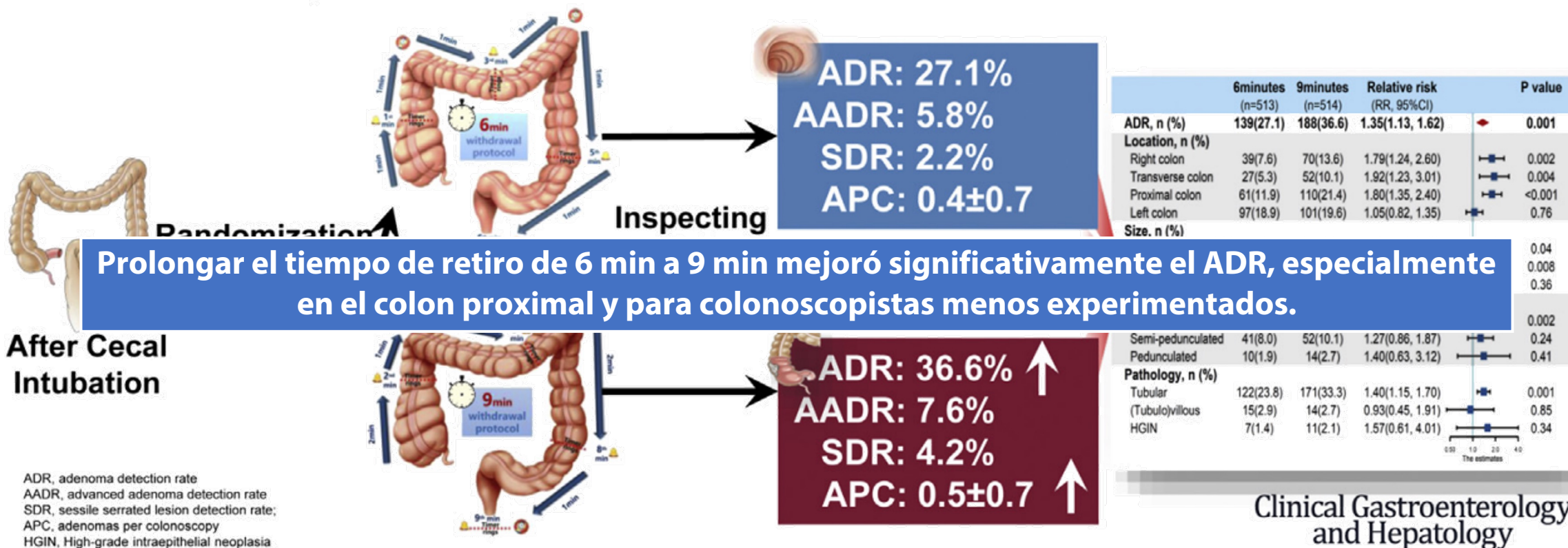
## Impact of 9-Minute Withdrawal Time on the Adenoma Detection Rate: A Multicenter Randomized Controlled Trial



Shengbing Zhao,<sup>\*,a</sup> Xia Yang,<sup>†,a</sup> Shuling Wang,<sup>\*,a</sup> Qianqian Meng,<sup>\*,a</sup> Rundong Wang,<sup>\*,a</sup> Lumin Bo,<sup>\*,a</sup> Xin Chang,<sup>\*</sup> Peng Pan,<sup>\*</sup> Tian Xia,<sup>\*</sup> Fan Yang,<sup>\*</sup> Jun Yao,<sup>§</sup> Jinghua Zheng,<sup>||</sup> Jianqiu Sheng,<sup>||</sup> Xiaojun Zhao,<sup>||</sup> Shan Tang,<sup>||</sup> Yali Wang,<sup>#</sup> Yiping Wang,<sup>#</sup> Aixia Gong,<sup>\*\*,</sup> Weigang Chen,<sup>††</sup> Jianwei Shen,<sup>§§</sup> Xian Zhu,<sup>§§</sup> Shaofeng Wang,<sup>|||</sup> Caiwen Yan,<sup>|||</sup> Youlin Yang,<sup>|||</sup> Yangbei Zhu,<sup>##</sup> Rui-Jun Ma,<sup>\*\*\*</sup> Rong Wang,<sup>\*\*\*</sup> Yingcai Ma,<sup>†††</sup> Zhaoshen Li,<sup>\*</sup> and Yu Bai<sup>\*</sup>

# 9min es el nuevo 6min

## Impact of Withdrawal Time on ADR: 9 min vs. 6 min



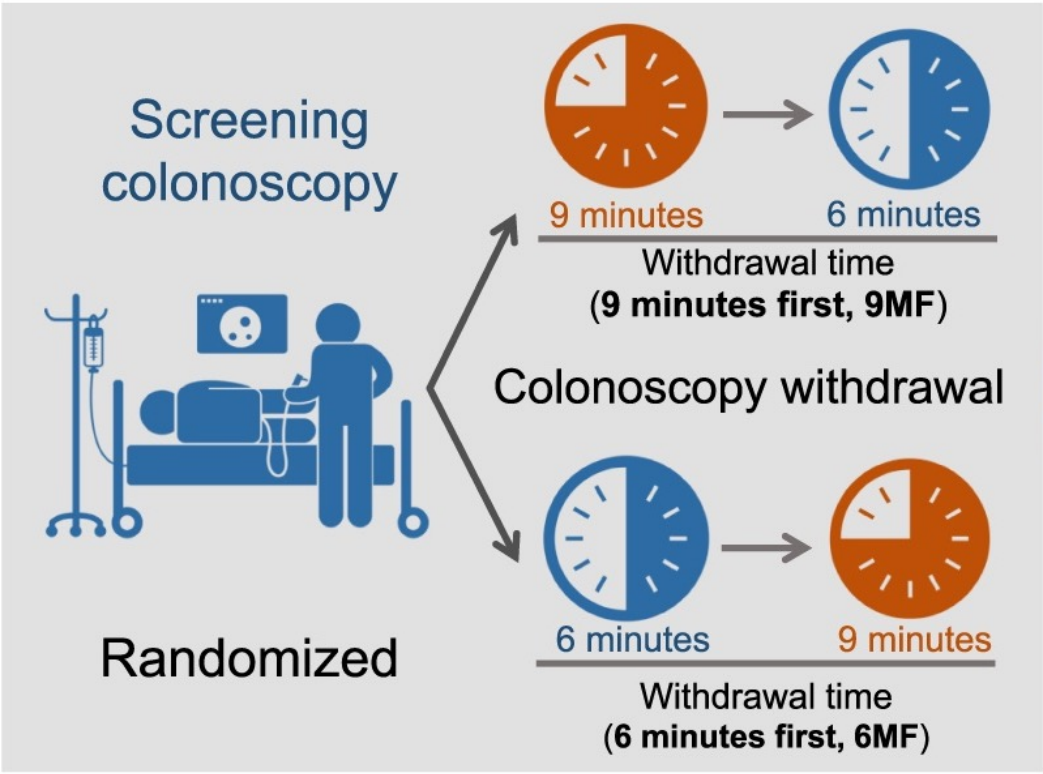
Open

# Reduced Adenoma Miss Rate With 9-Minute vs 6-Minute Withdrawal Times for Screening Colonoscopy: A Multicenter Randomized Tandem Trial

Shengbing Zhao, MD<sup>1,\*</sup>, Yihang Song, MD<sup>1,\*</sup>, Shuling Wang, MD<sup>1,\*</sup>, Rong Wang, MD<sup>2,\*</sup>, Zhijie Feng, MD<sup>3,\*</sup>, Axia Gong, MD<sup>4,\*</sup>, Xia Yang, MD<sup>5,\*</sup>, Peng Pan, MD<sup>1</sup>, Dongmei Yao, MD<sup>3</sup>, Jingwen Zhang, MD<sup>4</sup>, Yaqin Zhu, MD<sup>5</sup>, Tao Li, MD<sup>2</sup>, Junhua Bi, MD<sup>2</sup>, Xu Ren, MD<sup>6</sup>, Xiufen Tang, MD<sup>6</sup>, Qiang Li, MD<sup>6</sup>, Dan Yu, MD<sup>6</sup>, Jinghua Zheng, MD<sup>7</sup>, Bo Song, MD<sup>7</sup>, Ping Wang, MD<sup>7</sup>, Weigang Chen, MD<sup>8</sup>, Guochen Shang, MD<sup>8</sup>, Yanqiu Xu, MD<sup>8</sup>, Ping Xu, MD<sup>9</sup>, Yuexing Lai, MD<sup>9</sup>, Huanhai Xu, MD<sup>10</sup>, Xiaomin Yang, MD<sup>10</sup>, Jianqiu Sheng, MD<sup>11</sup>, Yurong Tao, MD<sup>11</sup>, Xinghua Li, MD<sup>12</sup>, Yangbei Zhu, MD<sup>12</sup>, Xiaofeng Zhang, MD<sup>13</sup>, Hongzhang Shen, MD<sup>13</sup>, Yingcai Ma, MD<sup>14</sup>, Fangyu Wang, MD<sup>15</sup>, Lin Wu, MD<sup>15</sup>, Xianfei Wang, MD<sup>16</sup>, Zhaoshen Li, MD, PhD<sup>1</sup> and Yu Bai, MD, PhD<sup>1</sup>

# ADR 9 min 42.3% vs 6 min 33.5% P = 0.02

## 9-minute withdrawal time reduces adenoma miss rate of screening colonoscopy



| 9 MF versus 6 MF  |
|---|
| Reduced adenoma miss rate<br>14.5% vs. 36.6%, p<0.001                     |
| Reduced advanced adenoma miss rate<br>5.3% vs. 46.9%, p<0.001             |
| Lower rate of shortening surveillance interval<br>7.7% vs. 16.1%, p<0.001 |

**11 centros  
733 pacientes  
asintomáticos**

- ✓ Introducción: ¿Por qué optimizar la tasa de ADR?
- ✓ Paso 1: Preparación de colon de paciente
- ✓ Paso 2: Tiempo de inspección
- ✓ **Paso 3: Puedo mejorar mi técnica colonoscópica**
- ✓ Paso 4: Conocer bien la tecnología que me puede ayudar
- ✓ Paso 5: Monitorear y retroalimentar indicadores de calidad
- ✓ Mensajes finales

"Don't be Careful  
BE COMPETENT"

TOM CRUISE



# Paso 3: Puedo mejorar mi técnica colonoscópica

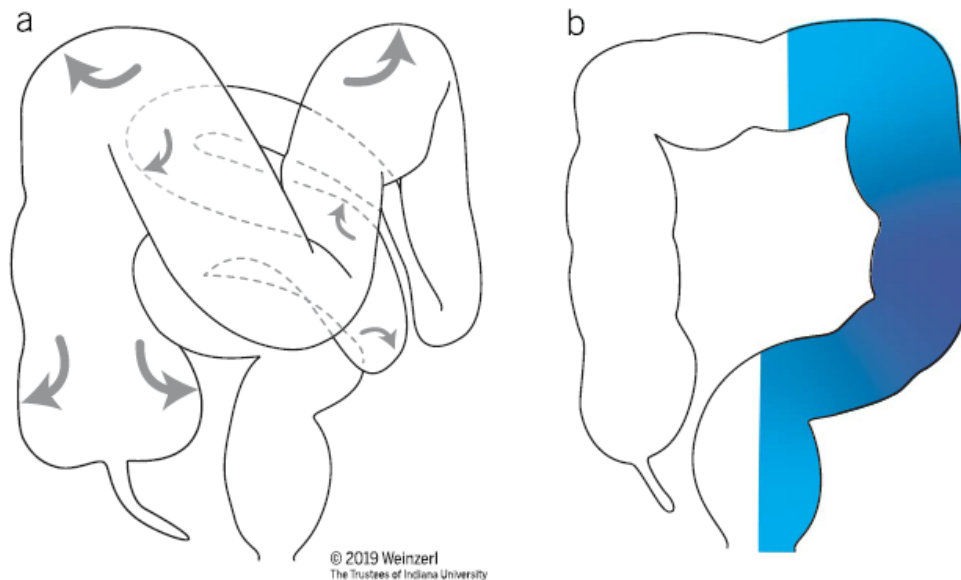
## El agua será un gran aliado

THE RED SECTION

### How I Approach Colonoscopy in Anatomically Difficult Colons

Douglas K. Rex, MD, MACG<sup>1</sup>

*Am J Gastroenterol* 2020;115:151–154. <https://doi.org/10.14309/ajg.000000000000481>; published online December 5, 2019



**Figure 1.** Schematics of the impact of gas vs water filling during insertion in redundant colon. (a) Gas insufflation in the left lateral decubitus position. Gas (arrows) dilates the colon and elongates the colon by moving the sigmoid into the mid abdomen and the transverse colon toward the pelvis. (b) Water filling in the left lateral decubitus position causes the sigmoid to lie down in the left abdomen, and the colon stays shorter and narrower compared with gas insufflation.



**Figure 3.** Bending sections of full length instruments for passing angulated sigmoids. Left: pediatric colonoscope: Olympus PCF-H190 (diameter 11.7 mm). Center: Ultrathin Olympus PCF-PH190L (diameter 9.7 mm). Right: Olympus SIF-180 enteroscope (diameter 9.2 mm).



# Paso 3: Puedo mejorar mi técnica colonoscópica

## Examinar el colon derecho 2 veces aumenta el ADR

Review

Thieme

### Second exam of right colon improves adenoma detection rate: Systematic review and meta-analysis of randomized controlled trials

OPEN ACCESS

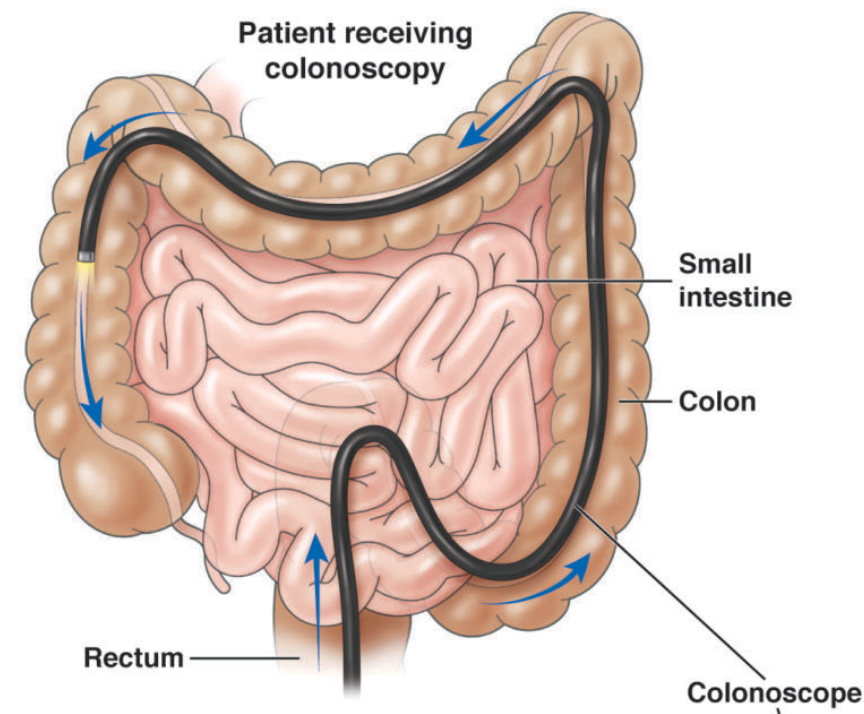


Authors

Faisal Kamal<sup>1</sup>, Muhammad Ali Khan<sup>2</sup>, Wade Lee-Smith<sup>3</sup>, Sachit Sharma<sup>4,5</sup>, Ashu Acharya<sup>4</sup>, Zaid Imam<sup>6</sup>, Umer Farooq<sup>7</sup>, John Hanson<sup>8</sup>, Vian Pulous<sup>8</sup>, Muhammad Aziz<sup>9</sup>, Saurabh Chandan<sup>10</sup>, Abdul Kouanda<sup>1</sup>, Sun-Chuan Dai<sup>1</sup>, Craig A. Munroe<sup>1</sup>, Colin W. Howden<sup>11</sup>

**Results** We included six studies with 3901 patients. Comparing SFV with no SFV, right colon ADR and PDR were significantly higher in the SFV group: ADR (RR [95% CI] 1.39 [1.22,1.58]) and PDR (RR [95% CI] 1.47 [1.30, 1.65]). We found no significant difference in right colon withdrawal time (SMD [95% CI] 1.54 [-0.20,3.28]) or total withdrawal time (SMD [95% CI] 0.37 [-0.39,1.13]) with and without SFV. We found no significant difference in additional ADR between SFV and RF.

**Conclusions** SFV of the right colon significantly increases right-sided and overall ADR.



Endosc Int Open 2022; 10: E1391–E1398

[www.uc.cl](http://www.uc.cl)






# Paso 3: Puedo mejorar mi técnica colonoscópica


## Examinar el colon derecho 2 veces aumenta el ADR

Original Article

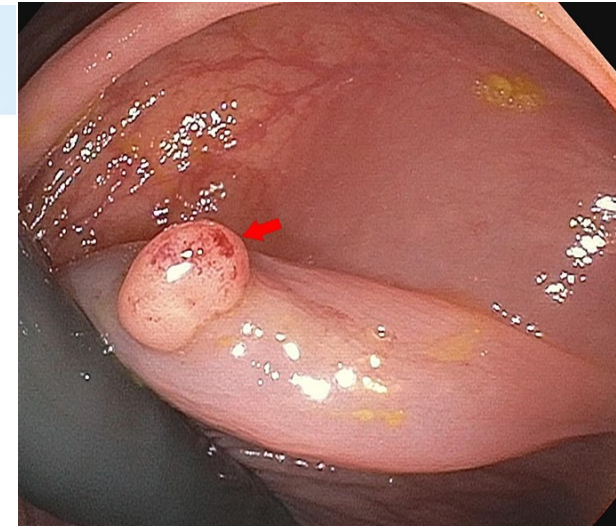
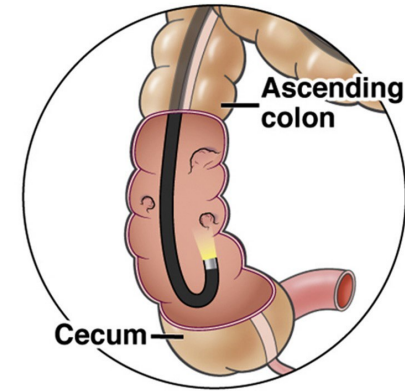
### Proximal retroflexion versus second forward view of the right colon during screening colonoscopy: A multicentre randomized controlled trial

Ma Henar Núñez Rodríguez<sup>1</sup> , Pilar Díez Redondo<sup>1</sup>, Fausto Riu Pons<sup>2,3</sup> , Marta Cimavilla<sup>1</sup>, Luis Hernández<sup>4</sup>, Andrea Loza<sup>4</sup>  and Manuel Pérez-Miranda<sup>1</sup>

UNITED EUROPEAN  
GASTROENTEROLOGY  
**ueg journal**

United European Gastroenterology  
Journal  
2020, Vol. 8(6) 725–735  
© Author(s) 2020  
Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/2050640620924210  
journals.sagepub.com/home/ueg  


Perform 2<sup>nd</sup> look in  
right colon



United European Gastroenterol J. 2020 Jul;8(6):725-735.

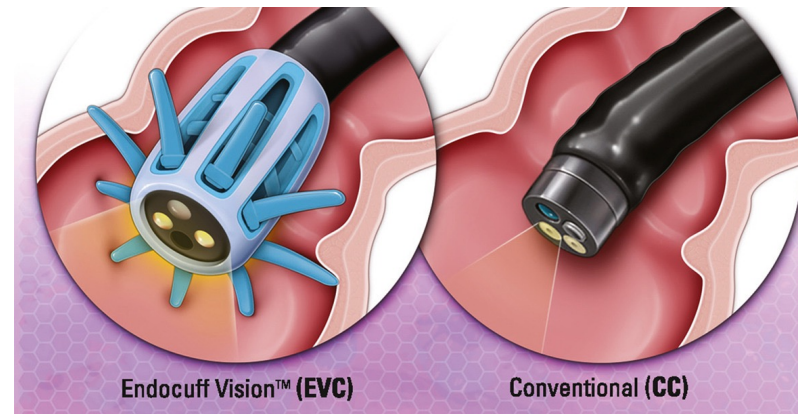
**Results:** A total of 692 patients were included. A second examination of the right colon, with an average additional procedure time of 1.62 min, increased the adenoma detection rate by 11%, regardless of the method used (9% proximal retroflexion vs. 12% second forward view,  $p = 0.21$ ). The adenoma miss rate was 19% (17% proximal retroflexion vs. 20% forward view,  $p = 0.28$ ). The success rate of retroflexion was 83%, without secondary complications. In the 15.6% of patients in whom lesions were detected during the second pass, endoscopic follow-up was modified by reducing the time of the next colonoscopy.

**Conclusions:** A second examination of the right colon, either from retroflexion or second forward view, can increase adenoma detection rate and shorten surveillance intervals in patients undergoing screening colonoscopy. This should be emphasized during colonoscopy training and integrated into diagnostic colonoscopy practice.

**ADR aumenta  
11%**

- ✓ Introducción: ¿Por qué optimizar la tasa de ADR?
- ✓ Paso 1: Preparación de colon de paciente
- ✓ Paso 2: Tiempo de inspección
- ✓ Paso 3: Puedo mejorar mi técnica colonoscópica
- ✓ **Paso 4: Conocer bien la tecnología que me puede ayudar**
- ✓ Paso 5: Monitorear y retroalimentar indicadores de calidad
- ✓ Mensajes finales

## Paso 4: Conocer bien la tecnología: **Uso de dispositivos distales**



**Aumento de ADR 7% aprox**  
**Atención: No habría beneficio significativo en colonoscopistas con altos ADR**  
**Implica un costo adicional**

Rex DK. Gastroenterol Rep (Oxf). 2023;11:goad009  
Facciorusso A et al. Clin Gastroenterol Hepatol 2018;16:1209–19.e9.  
Rex DK, et al. Clin Gastroenterol Hepatol 2020;18:158–62.e1.  
Walls M, et al. Colorectal Dis. 2023;25(4):573-585.  
Desai M, et al. Clin Gastroenterol Hepatol 2022;20:2023–31.e6.

[www.uc.cl](http://www.uc.cl)

# Paso 4: Conocer bien la tecnología: **Uso de cromoendoscopia**

Gastroenterology 2019;157:462-471

## Narrow-Band Imaging for Detection of Neoplasia at Colonoscopy: A Meta-analysis of Data From Individual Patients in Randomized Controlled Trials

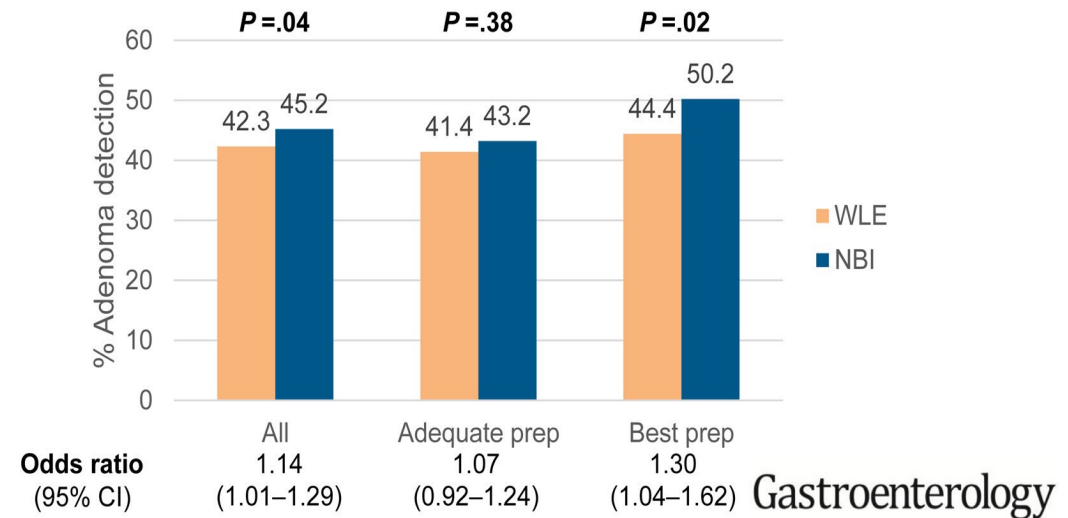
Nathan S. S. Atkinson,<sup>1,2,3,\*</sup> Shara Ket,<sup>1,2,4,5,\*</sup> Paul Bassett,<sup>6</sup> Diego Aponte,<sup>7</sup> Silvia De Aguiar,<sup>8</sup> Neil Gupta,<sup>9</sup> Takahiro Horimatsu,<sup>10</sup> Hiroaki Ikematsu,<sup>11</sup> Takuya Inoue,<sup>12</sup> Tonya Kaltenbach,<sup>13</sup> Wai Keung Leung,<sup>14</sup> Takahisa Matsuda,<sup>15</sup> Silvia Paggi,<sup>16</sup> Franco Radaelli,<sup>16</sup> Amit Rastogi,<sup>9</sup> Douglas K. Rex,<sup>17</sup> Luis C. Sabbagh,<sup>7</sup> Yutaka Saito,<sup>15</sup> Yasushi Sano,<sup>18</sup> Giorgio M. Saracco,<sup>19</sup> Brian P. Saunders,<sup>20</sup> Carlo Senore,<sup>21</sup> Roy Soetikno,<sup>22</sup> Krishna C. Vemulapalli,<sup>17</sup> Vipul Jairath,<sup>22,23</sup> and James E. East<sup>1,2</sup>

11 international centers



4491 individual patient datasets

Individual patient level data meta-analysis for high definition White Light Endoscopy (WLE) vs Narrow Band Imaging (NBI) stratified by bowel preparation

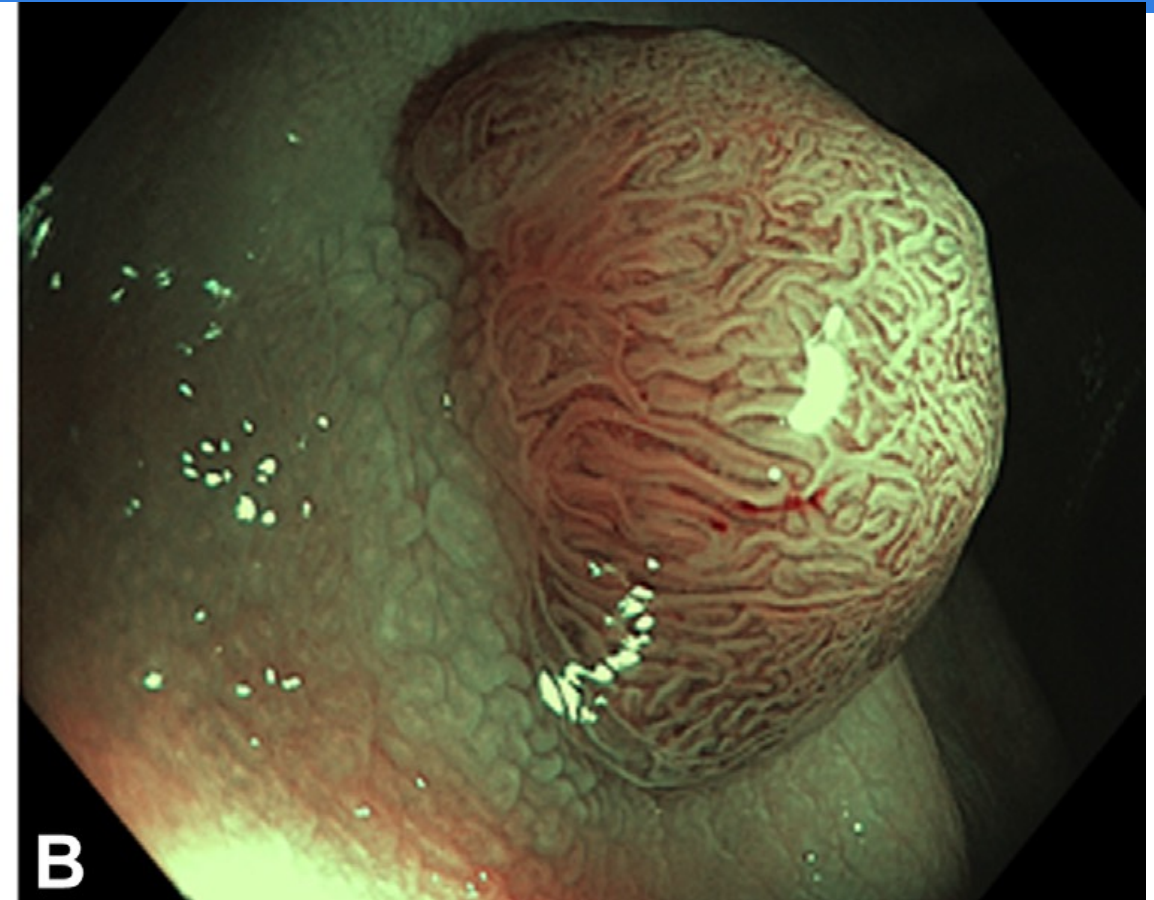
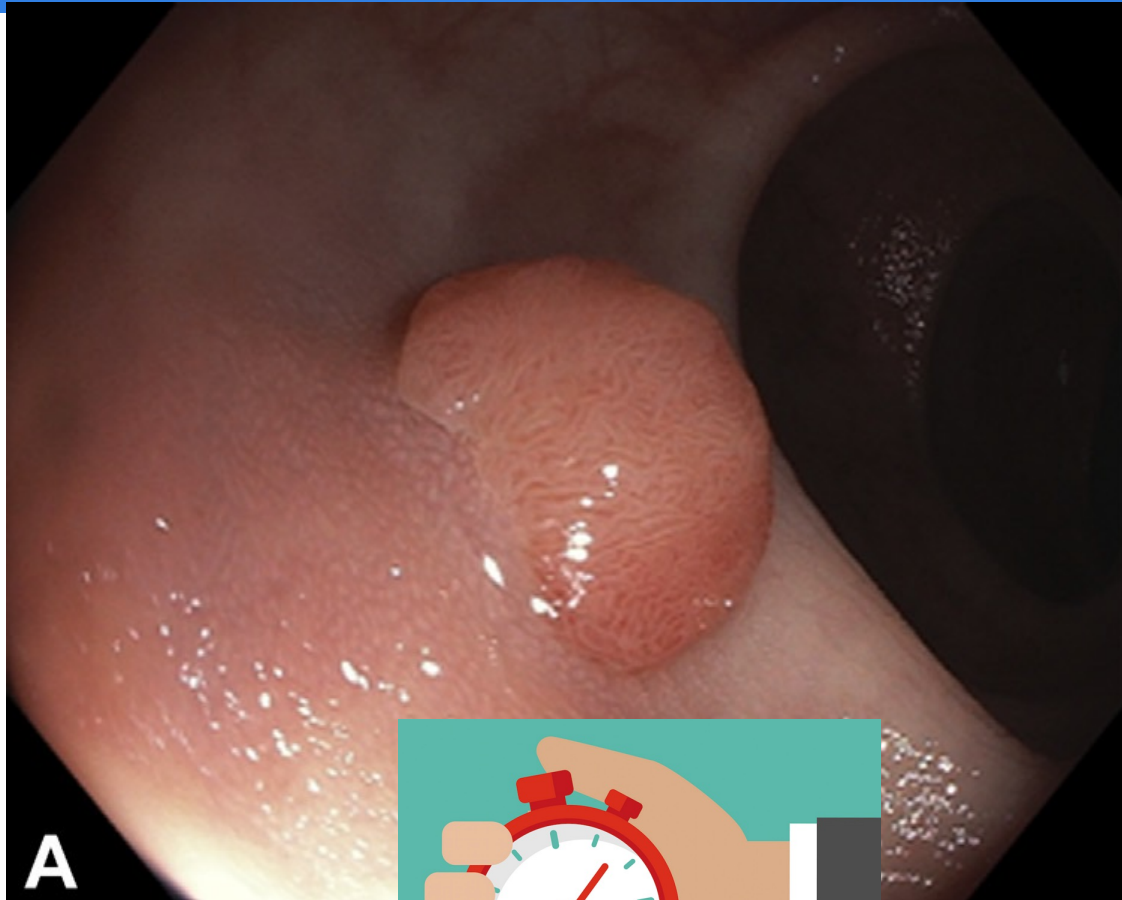


La cromoendoscopia ayuda especialmente con excelente preparación de colon

[www.uc.cl](http://www.uc.cl)

# Paso 4: Conocer bien la tecnología que me puede ayudar

## Reconozca las características mucosas y vasculares de los adenomas



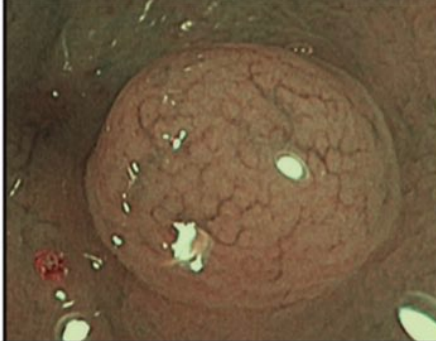
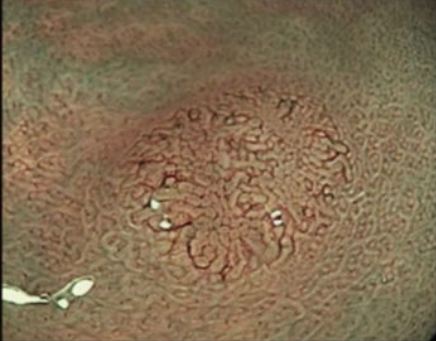
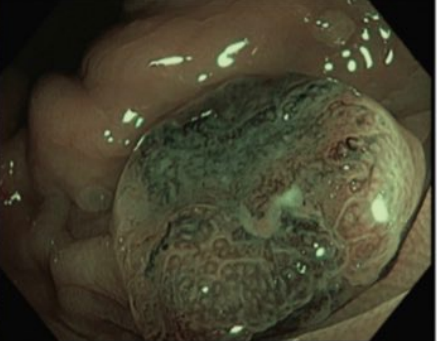
The NBI™ technology is not intended to replace histopathological sampling as a means of diagnosis

[www.uc.cl](http://www.uc.cl)

- Cohen J. Gastrointestinal Endoscopy 2022, Volume 95, Issue 4, 780 - 786

# Paso 4: Conocer bien la tecnología que me puede ayudar

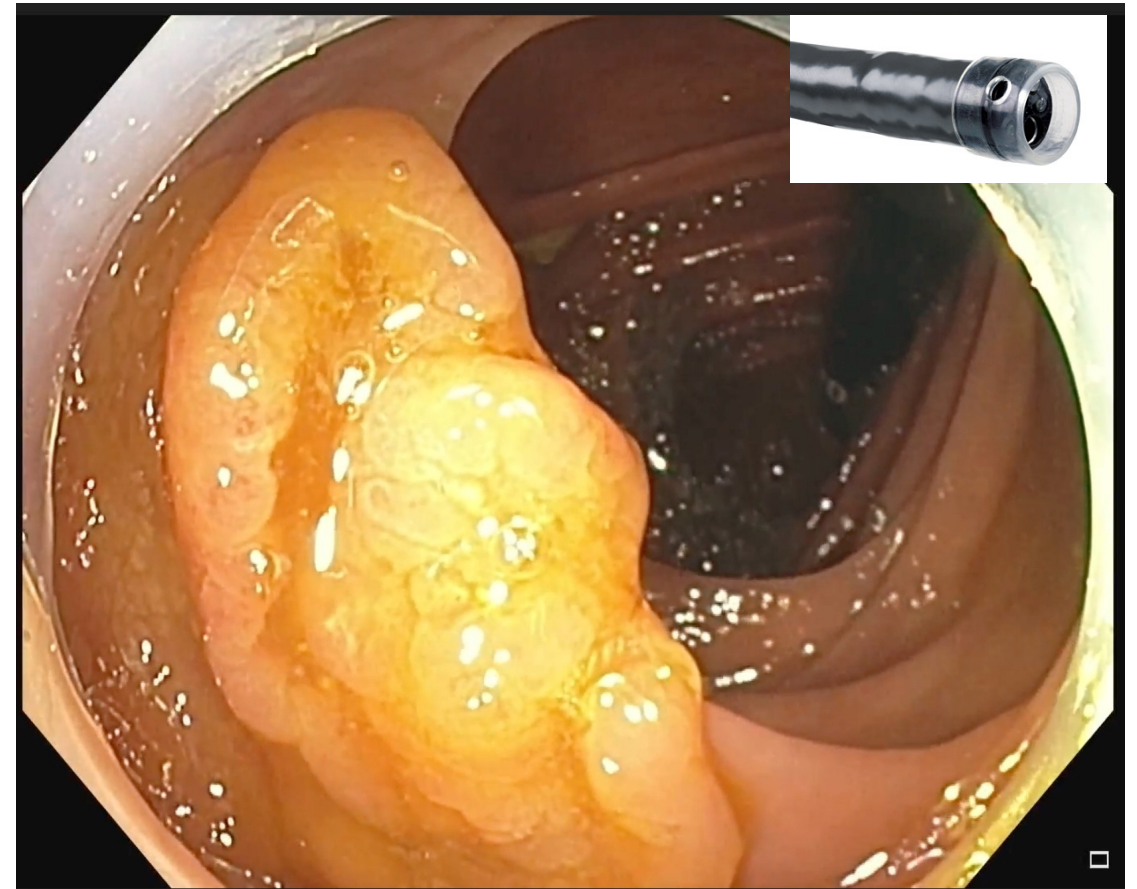
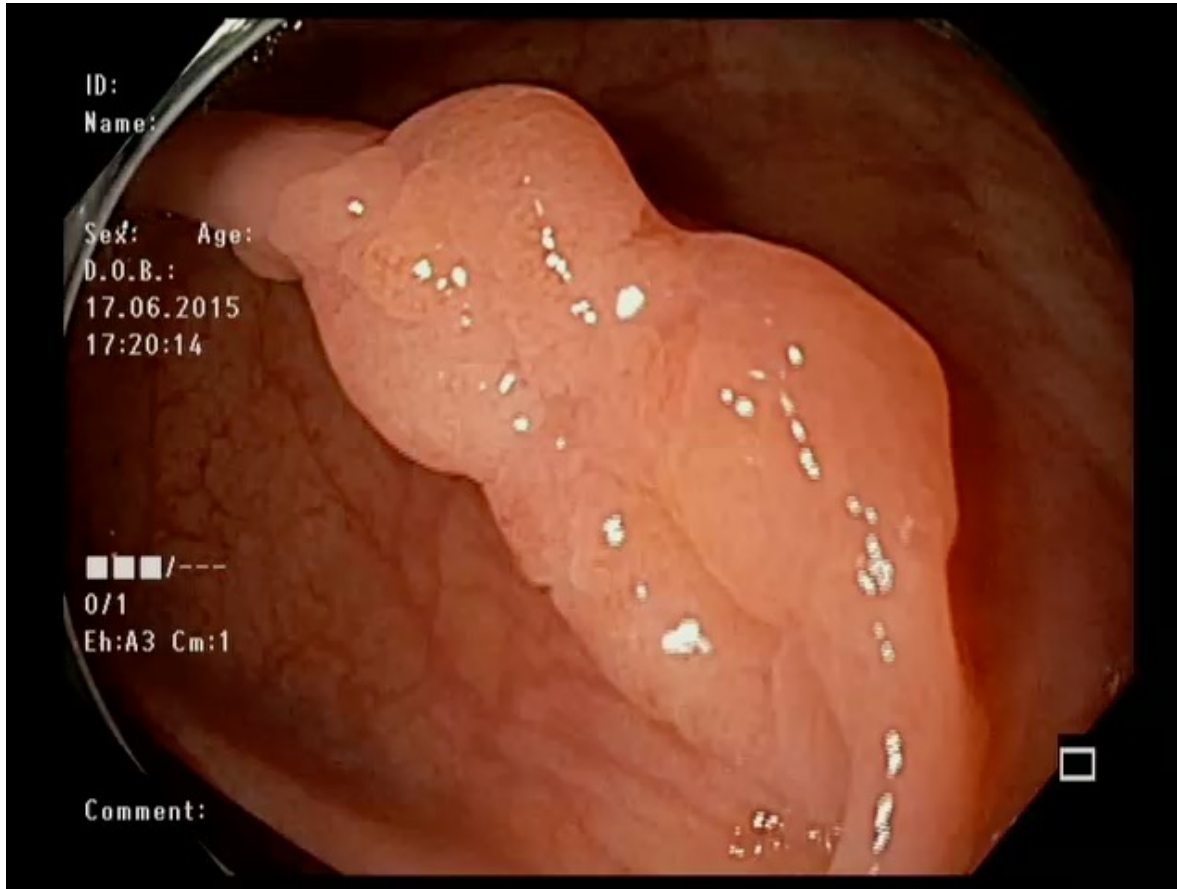
## NICE: NBI International Colorectal Endoscopic

|                       | Type 1  | Type 2   | Type 3   |
|-----------------------|---|--|--|
| Color                 | Same or lighter than background   | Browner relative to background (verify color arises from vessels)                    | Brown to dark brown relative to background; sometimes patchy whiter areas            |
| Vessels               | None, or isolated lacy vessels may be present coursing across the lesion            | Brown vessels surrounding white structures**   | Has area(s) of disrupted or missing vessels  |
| Surface pattern       | Dark or white spots of uniform size, or homogeneous absence of pattern              | Oval, tubular, or branched white structures** surrounded by brown vessels            | Amorphous or absent surface pattern  |
| Most likely pathology | Hyperplastic and sessile serrated lesions***  | Adenoma****  | Deep submucosal invasive cancer  |
|                       |  |  |  |

[www.uc.cl](http://www.uc.cl)

# Paso 4: Conocer bien la tecnología que me puede ayudar

## Uso de CAPs / Retroflexión / NBI + magnificación



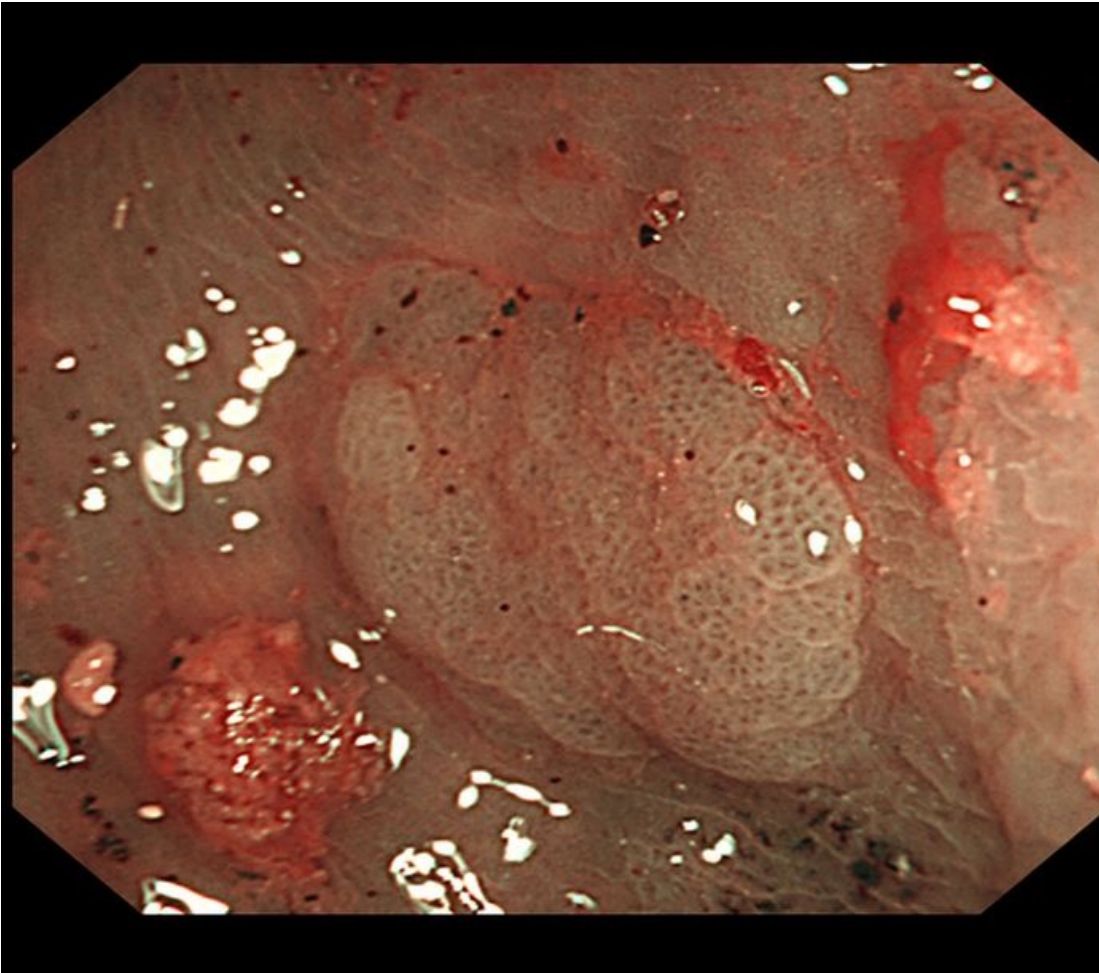
Videos: Dr. Alberto Espino / Hospital Clínico UC-CHRISTUS

The NBI™ technology is not intended to replace histopathological sampling as a means of diagnosis

[www.uc.cl](http://www.uc.cl)

# Paso 4: Conocer bien la tecnología que me puede ayudar

## Aprender a diferenciar lesiones serradas: Criterios WASP



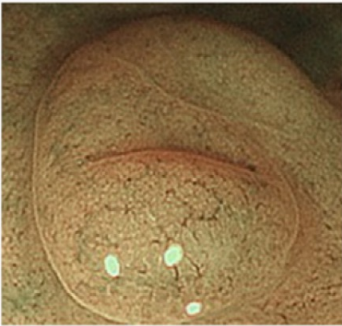
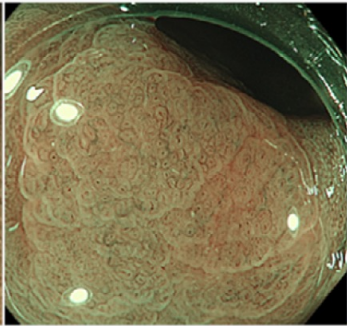
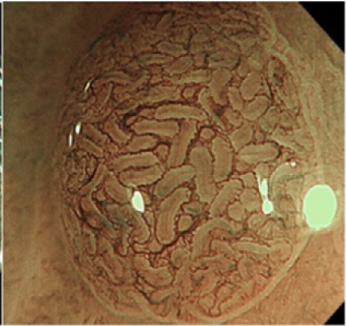
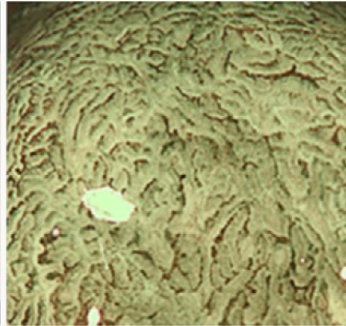
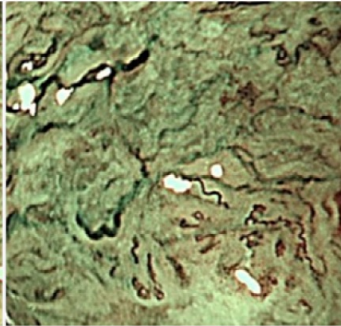
|   |    |
|---|----|
| Brown color?                              | No |
| Brown vessels?                            | No |
| Oval tubular or branched surface pattern? | No |

Type 1 polyp

|                               |     |
|-------------------------------|-----|
| Clouded surface?              | Yes |
| Indistinctive (vague) border? | No  |
| Irregular shape?              | Yes |
| Dark spots inside crypts?     | Yes |

Sessile serrated adenoma/polyp



|                              | HP  | SSL  | Adenoma   | Tis / T1a   | T1b   |
|------------------------------|---|--|---|---|---|
| <b>Endoscopic Images</b>     |  |  |  |  |  |
| <b>Without magnification</b> |   |  |   |   |   |
| <b>BLI</b>                   | <b>BASIC Classification</b>   |  |   |   |   |
| <b>NBI</b>                   | <b>WASP Classification</b>  |  |   |   |   |
| <b>NBI / BLI</b>             | <b>NICE 1*</b>  |  | <b>NICE 2**</b>   |   | <b>NICE 3</b>   |
| <b>With magnification</b>    |   |  |   |   |   |
| <b>NBI / BLI</b>             | <b>JNET 1*</b>  |  | <b>JNET 2A</b>  | <b>JNET 2B</b>  | <b>JNET 3</b>   |

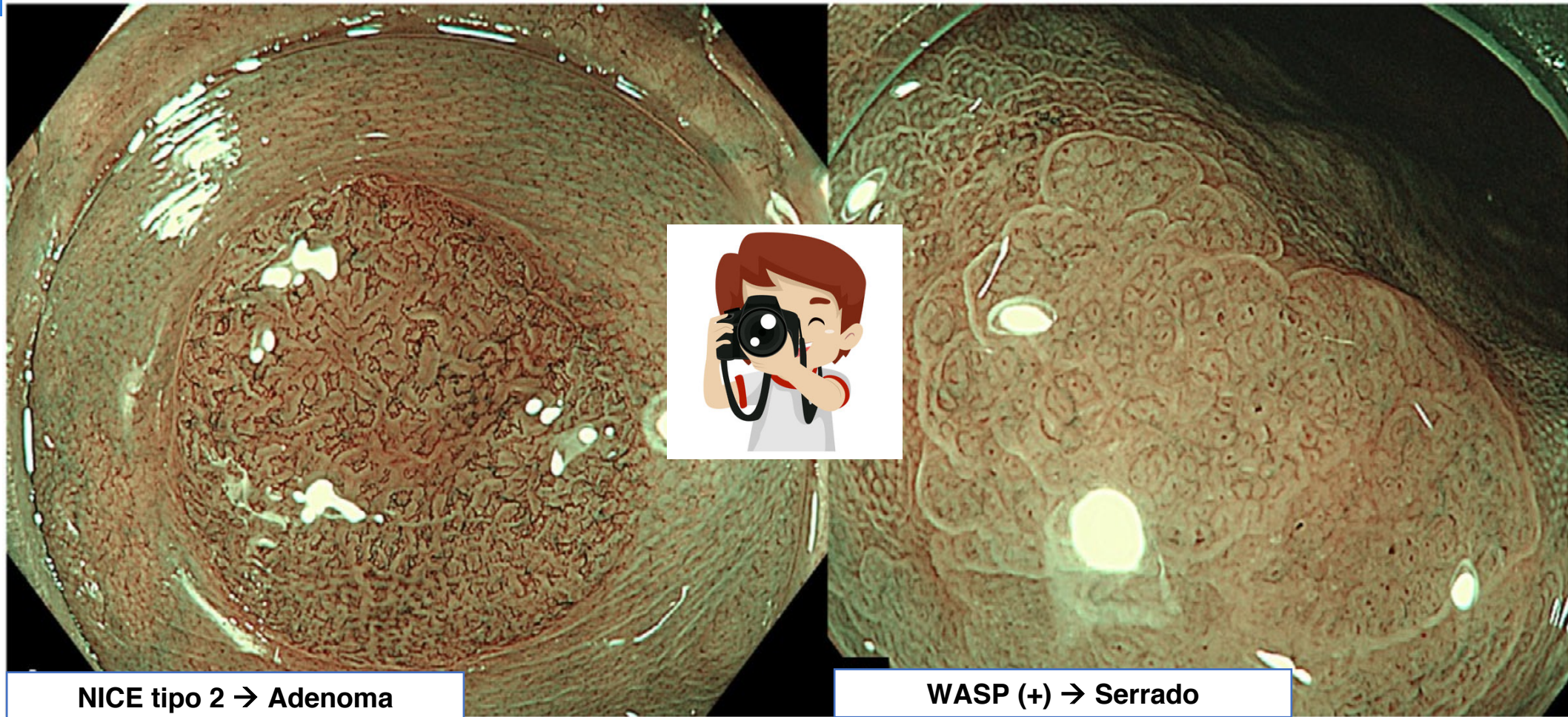
\* NICE type 1 and JNET type 1 include both HPs and SSLs, therefore cannot be used for discrimination of the two.

\*\* NICE type 2 includes both adenoma and Tis / T1a lesions.

BASIC, BLI adenoma serrated international classification; WASP, Workgroup on serrated polyps and Polyposis; NICE, NBI international colorectal endoscopic; JNET, Japan NBI expert Team; HP, hyperplastic polyp; SSL, Sessile serrated lesion; NBI, narrow band imaging; BLI, blue-light imaging

# Paso 4: Conocer bien la tecnología que me puede ayudar

## Desarrollo de nuevas tecnologías → Ej: EVIS X1



- Cohen J. *Gastrointestinal Endoscopy* 2022, Volume 95, Issue 4, 780 – 786
- Teramoto A. et al , *Dig Endosc.* 2023 May;35(4):453-470

# Paso 4: Conocer bien la tecnología que me puede ayudar

## TXI la nueva luz blanca

### Texture and color enhancement imaging versus high definition white-light endoscopy for detection of colorectal neoplasia: a randomized trial

Texture and color enhancement imaging (TXI)  
New imaging modality to increase diagnostic yield of endoscopy by enhancing contrast of subtle tissue differences

#### Multicenter RCT

747 patients

TXI  
Colonoscopy  
(375 pts)

White-light  
colonoscopy  
(372 pts)

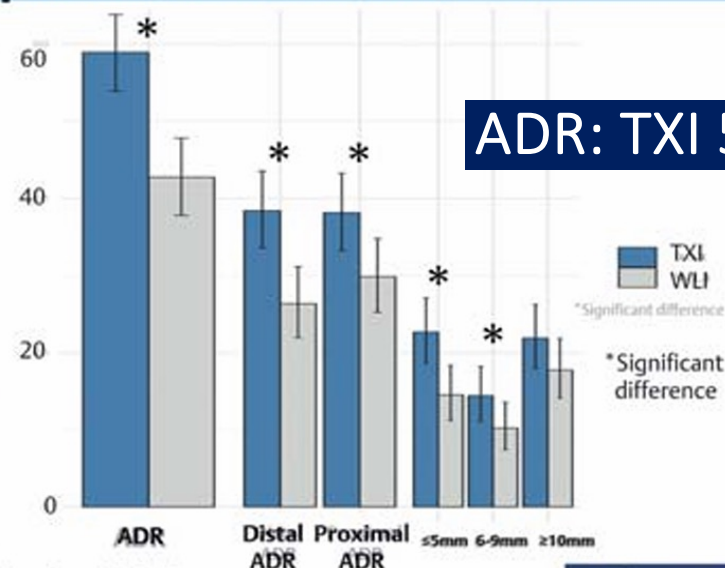
Primary outcome:  
adenoma detection rate (ADR)

TXI increases contrast and brightness

WLI



TXI



ADR: TXI 58.9 vs WLI 42.7%

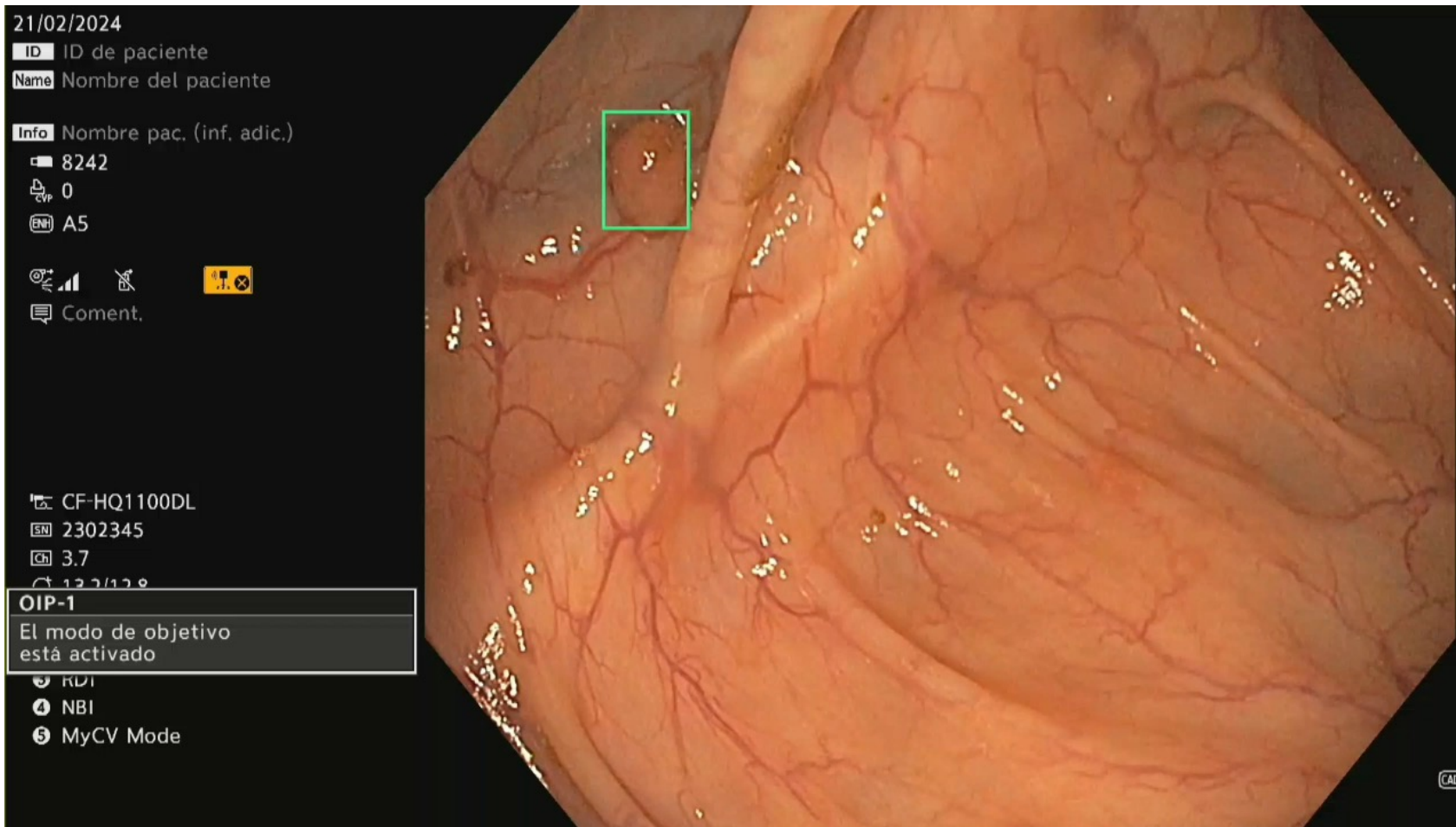
TXI significantly increased ADR by 16% in a randomized trial

Endoscopy

**Conclusions** TXI increased ADR and APC among patients undergoing colonoscopy for various indications. TXI increased detection of polyps <10 mm, both in the proximal and distal colon, and may help to improve colonoscopy quality indicators.

# Paso 4: Conocer bien la tecnología que me puede ayudar

## Inteligencia Artificial en Colonoscopia



Video: Dr. Alberto Espino



ENDO-AID CADe™

[www.uc.cl](http://www.uc.cl)

- ENDO-AID CADe™, technology is not intended to replace histopathology sampling as a means of diagnosis

# Paso 4: Conocer bien la tecnología que me puede ayudar

## Inteligencia Artificial aumenta ADR

### Usefulness of a novel computer-aided detection system for colorectal neoplasia: A randomized controlled trial

Colonoscopy assisted by ENDO-AID (OIP-1) increases Adenoma detection rate (ADR) preventing the overlooking of colorectal neoplastic lesions

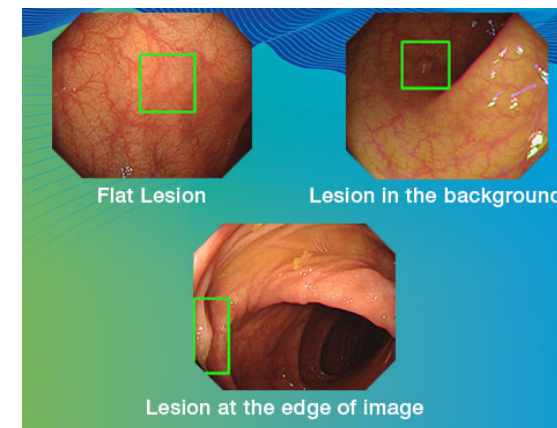
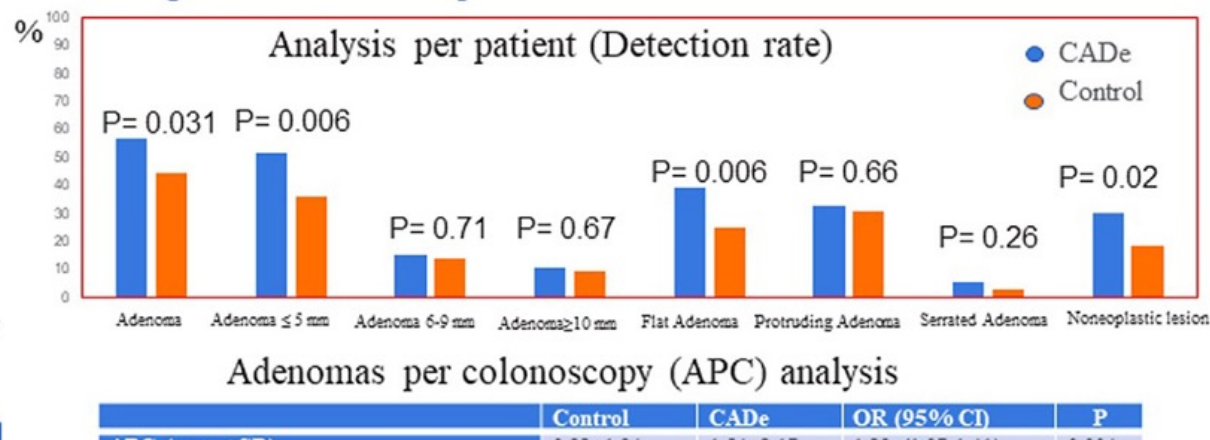
#### Objectives

To assess the benefit of the new CADE device ENDO-AID (OIP-1) in:

- ✓ ADR
- ✓ Number of adenoma per colonoscopy
- ✓ ADR and APC stratifying by size, morphology and location

370 patients randomized to 2 endoscopy rooms

185 185

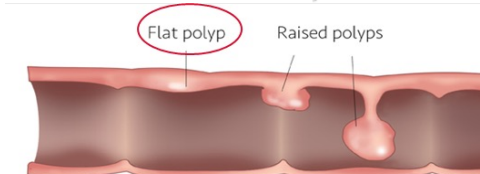


**ADR**  
**55.1% vs 43.8%**

**Conclusions:** Colonoscopy assisted by ENDO-AID (OIP-1) increases ADR and number of adenomas per colonoscopy, suggesting it may aid in the detection of colorectal neoplastic lesions, especially because of its detection of diminutive and flat adenomas. (Clinical trial registration number: NCT04945044.) (Gastrointest Endosc 2023;97:528-36.)



| APC per size (mean±SD) | Control   | CADe      | OR (95% CI)      | P     |
|------------------------|-----------|-----------|------------------|-------|
| ≤5 mm adenomas, n (%)  | 0.62±1.03 | 1.21±1.83 | 1.36 (1.13-1.62) | 0.001 |
| 6-9 mm adenomas, n (%) | 0.18±0.51 | 0.19±0.48 | 1.04 (0.66-1.62) | 0.88  |
| ≥10 mm adenomas, n (%) | 0.11±0.32 | 0.14±0.51 | 1.21 (0.70-2.09) | 0.49  |



## Relative Efficacies of Interventions to Improve the Quality of Screening-related Colonoscopy: A Systematic Review and Network Meta-analysis of Randomized Controlled Trials

Short title: Interventions to Improve Colonoscopy Quality

Rishad Khan MD<sup>1</sup>, Yibing Ruan PhD MPH<sup>2,3</sup>, Yuhong Yuan MD PhD<sup>4,5</sup>, Kareem Khalaf MD<sup>1</sup>, Nasruddin S. Sabrie BSc<sup>1</sup>, Nikko Gimpaya MEd<sup>1</sup>, Michael A. Scaffidi MEd<sup>1,6</sup>, Rishi Bansal BArtsSc<sup>1</sup>, Marcus Vaska MLIS<sup>7</sup>, Darren R. Brenner PhD<sup>2,3,8</sup>, Robert J. Hilsden MD PhD<sup>8,9</sup>, Steven J. Heitman MD MSc<sup>8,9</sup>, Grigorios I. Leontiadis MD PhD<sup>4,5</sup>, Samir C. Grover MD<sup>1,10</sup>, Nauzer Forbes MD MSc<sup>8,9</sup>

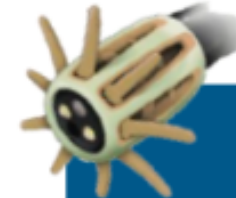
### Categories of efficacious interventions for improving adenoma detection from network meta-analysis including 124 trials/ 100,295 patients



**Intraprocedural techniques**



**Endoscopic technologies**

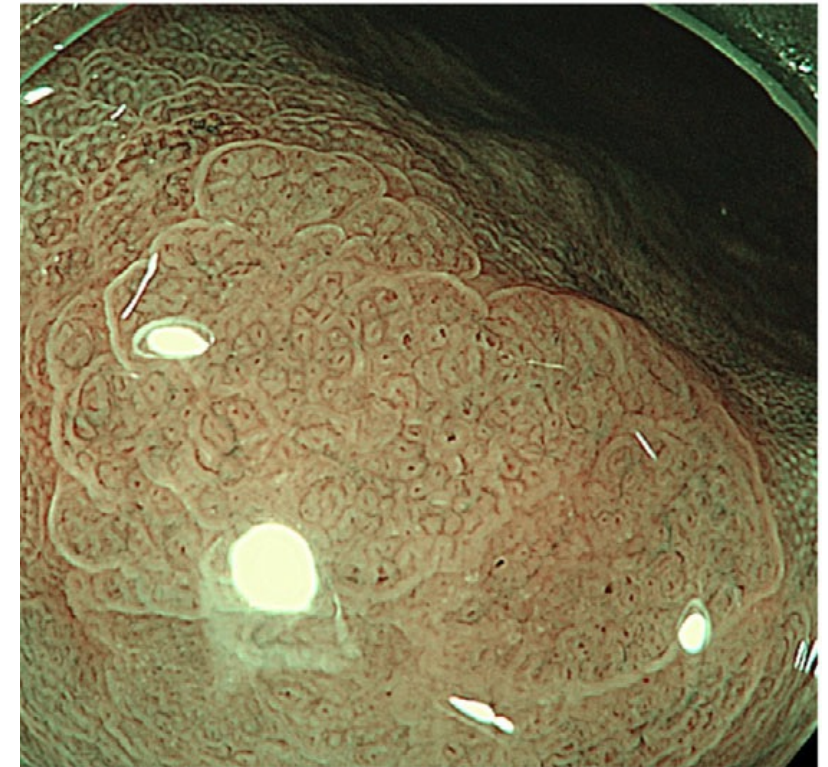


**Distal attachment devices and additive substances**

# Mensaje: El ADR mejora con **intervenciones sencillas**

| Intervención                       | Odds Ratio (OR) |
|------------------------------------|-----------------|
| Tiempo de retirada de 9 minutos    | 1.26            |
| Observación doble                  | 1.15            |
| Water exchange                     | 1.11            |
| iScan                              | 1.33            |
| LCI                                | 1.20            |
| Detección asistida por computadora | 1.11            |
| Endocuff de primera generación     | 1.30            |
| Endocuff Vision                    | 1.10            |
| Adición de azul de metileno oral   | 1.18            |
| <b>NBI (tasa de serrados)</b>      | <b>2.94</b>     |

124 RCT / 100295 pacientes



- ✓ Introducción: ¿Por qué optimizar la tasa de ADR?
- ✓ Paso 1: Preparación de colon de paciente
- ✓ Paso 2: Tiempo de inspección
- ✓ Paso 3: Puedo mejorar mi técnica colonoscópica
- ✓ Paso 4: Conocer bien la tecnología que me puede ayudar
- ✓ **Paso 5: Monitorear y retroalimentar indicadores de calidad**
- ✓ Mensajes finales



# Paso 5: Monitorear y retroalimentar indicadores de calidad

## Aumentan ADR

- ✓ Monitorizar la calidad de colonoscopia y retroalimentar a **colonoscopistas individualmente** se asoció con una **mejor ADR** en un metaanálisis de 12 estudios (RR: 1.21, IC 95%: 1.18-2.23).


*Bishay K, et al. Associations between endoscopist feedback and improvements in colonoscopy quality indicators: a systematic review and meta-analysis. Gastrointest Endosc 2020;92:1040.e9.*



- ✓ Otro metaanálisis de 34 estudios demostró que **la auditoría y la retroalimentación** como intervenciones a nivel de **unidades de endoscopia** realizadas mediante informes de desempeño y tener un observador adicional para la detección de pólipos se asociaron con un **aumento significativo en la ADR**.

*Arora A, et al. Endoscopy Unit Level Interventions to Improve Adenoma Detection Rate: A Systematic Review and Meta-Analysis. Clin Gastroenterol Hepatol. 2023;21(13):3238-3257.*

# Mensajes Finales: **Revisar Intensamente 2 veces el colon derecho**



**La alegría de saber que con medidas sencillas podemos mejorar nuestro ADR/serrados**

**El desafío/ansiedad de implementar, monitorizar y corregir estas medidas**

# En resumen

# ¿Cómo mejorar la tasa de detección de Adenomas / Serrados durante una colonoscopia?

|  |   |   |  |
|--|---|---|--|
| <p><b>Tasa de preparación adecuada</b></p> <p>Meta <math>\geq 90\%</math>, aspiracional <math>\geq 95\%</math></p> <p>Escala de Boston <math>\geq 6</math> puntos<br/>Cada segmento <math>\geq 2</math> puntos: der-transverso-izq</p> | <p><b>Tasa intubación cecal</b></p> <p>Meta <math>\geq 90\%</math>, aspiracional <math>\geq 95\%</math></p> | <p><b>Tiempo mínimo de retiro</b></p> <p>Meta <math>\geq 6</math> min</p>   | <p><b>Doble inspección colon derecho</b></p>   |
| <p><b>Optimizar técnica - Dispositivos</b></p> <p>Endocuff y Cap - Asistida por Agua</p>   | <p><b>Inteligencia artificial</b></p> <p>Detección Asistida CADE</p>  | <p><b>Tasa detección adenomas - ADR</b></p> <p>Meta <math>\geq 30\%</math>, aspiracional <math>\geq 35\%</math></p> <p>Medir y Retroalimentar</p> | <p><b>Tasa detección serrados</b></p> <p>Meta <math>\geq 7\%</math>, aspiracional <math>\geq 10\%</math></p> |

**Gastroenterología Latinoamericana**  
Órgano Oficial de la Sociedad Chilena de Gastroenterología

**Substancial**

**Artículo Original**

- Tasa de preparación adecuada en un hospital regional del sur de Chile
- Resistencia al agua potable en un hospital universitario en Chile

**Artículo de Revisión / Revisión Actualizada**

- Protocolo de preparación para el tránsito del colon como "Fundamentos fisiológicos y revisión de la literatura"
- Comparación del método de preparación con el uso de laxantes y la combinación con solución de sulfato de sodio con el uso de laxantes en la preparación de la parte izquierda y ciego: ensayo clínico controlado, aleatorizado y doble ciego
- Clase de evidencia - diagnóstico y tratamiento: revisión bibliográfica
- Eficacia del uso de dispositivos sobre la regulación del transporte seroso intestinal en la vida

**Gastroenterología y agua**

- El antiguo arte de beber el agua
- Dr. Paula Tabares

**Instrucciones para los autores**

Revista de Gastroenterología Latinoamericana, Vol. 24 (2022), Núm. 1, Páginas 1-100

ISSN 0710-8358

Septiembre 2022 pp 1-96





**CURSO DE AVANCES  
EN GASTROENTEROLOGÍA**  
PERSPECTIVAS FUTURAS EN GASTROENTEROLOGÍA

17 - 19 Julio 2024 - Hotel InterContinental, Stgo. **SChGE**



¡Muchas gracias!  
[aospino@uc.cl](mailto:aospino@uc.cl)



**UC** | Chile



Red de Salud  
**UC** • **CHRISTUS**



**Sociedad  
Chilena de  
Gastroenterología**