



PROTOCOL<sup>2</sup> Colon Insufflator  
(Cat. No. 6400)

## PROTOCOL<sup>2</sup>™ Insufflation System

- Automated insufflation helps improve productivity by freeing up practitioner
- Regulated pressure avoids spikes - and minimizes patient discomfort that can occur with hand insufflation
- Over-pressure alarms and safety shutdown features help assure patient safety
- Pressure can be adjusted for different patient requirements or during a procedure
- No special utilities required: PROTOCOL<sup>2</sup> uses standard medical grade (USP) D or E size carbon dioxide cylinders and connects to standard hospital electrical receptacle
- PROTOCOL<sup>2</sup> displays instantaneous gas pressure, records the total volume delivered during the procedure, and alerts the operator when the CO<sub>2</sub> cylinder is low
- Accessory cart features storage for CO<sub>2</sub> cylinders and holder for administration set

CE 0086

Cat No.	Description
6400	PROTOCOL <sup>2</sup> Colon Insufflator for Virtual Colonoscopy
6405	PROTOCOL <sup>2</sup> Accessory Cart



PROTOCOL<sup>2</sup> Administration Set  
for single-use insufflation with  
latex-free Flexi-Cuff® Retention Tip  
(Cat. No. 6450)

## PROTOCOL<sup>2</sup> Administration Set

- Simple connection and removal from PROTOCOL<sup>2</sup> Insufflator
- In-line fluid trap captures colon effluent and removes it from the "path" of the carbon dioxide for proper insufflation
- Hydrophobic filter helps protect the PROTOCOL<sup>2</sup> Insufflator from cross-contamination

CE 0086

Cat No.	Description
6450	PROTOCOL <sup>2</sup> Administration Set for single-use insufflation with latex-free Flexi-Cuff® Retention Tip
6460	PROTOCOL <sup>2</sup> Administration Set for single-use insufflation with Junior Flexi Tip



PROTOCOL<sup>2</sup> Administration Set  
with with Junior Flexi Tip  
(Cat. No. 6460)

### References:

- (1) Levin B, Brooks D, Smith RA, Stone A. Emerging technologies in screening for colorectal cancer: CT colonography, immunochemical fecal occult blood tests, and stool screening using molecular markers. CA A Cancer Journal for Clinicians 2003; 53:44-55.
- (2) Yee J. Comparison of colonic distention using electronic CO<sub>2</sub> insufflation and manual atmospheric insufflation on CT colonography. Paper presented at RSNA Scientific Assembly and Annual Meeting 2002.
- (3) Grant DS, Bartram CI. A preliminary study of the possible benefits of using carbon dioxide insufflation during double-contrast barium enema. The British Journal of Radiology 1986; 59:190-191.
- (4) Stevenson GW, Wilson JA. Minimizing post-colonoscopy abdominal pain by using CO<sub>2</sub> insufflation: A prospective, randomized, double blind, controlled trial evaluating a new commercially available CO<sub>2</sub> delivery system. Gastrointestinal Endoscopy 2002; 56:190-194.

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## AUTOMATED CARBON DIOXIDE INSUFFLATION SYSTEM FOR VIRTUAL COLONOSCOPY

## An essential component for successful Virtual Colonoscopy

**Virtual Colonoscopy, or CT Colonography, is becoming increasingly accepted** as a screening method for colorectal cancer. In many settings, it is the technique of choice for complete examination of the colon after a failed or incomplete colonoscopy.<sup>1</sup>

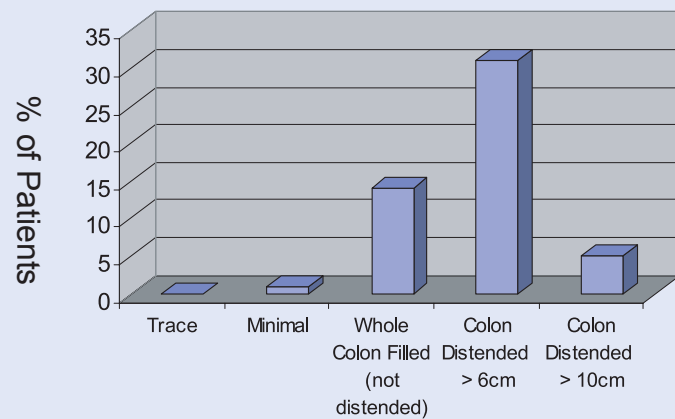
**Adequate insufflation of the colon is critical for successful Virtual Colonoscopy.**<sup>2</sup> In the past, physicians generally distended the colon using room air introduced with a handheld insufflation device.

### Advantages to Automated Insufflation with Carbon Dioxide

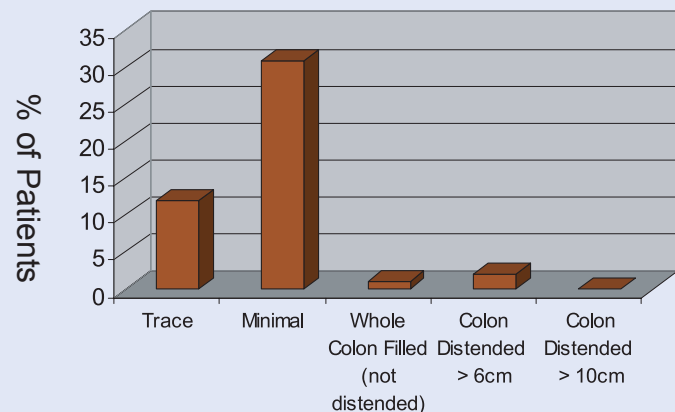
- **Patient Comfort**  
Carbon dioxide is readily absorbed by the bowel, and minimizes the post-procedure cramping and bloating that can be caused by room air insufflation
- **Consistent Insufflation**  
Automated insufflation to a constant pressure takes the guesswork out of determining the endpoint
- **Productivity**  
Automated insufflation may decrease the demands on staff time

## COMFORT & SAFETY

Residual Gas, Post procedure 1 hr (Air)



Residual Gas, Post procedure 1 hr (Air)



- **CO<sub>2</sub> is absorbed from the bowel:**
  - 150 times faster than the nitrogen in air
  - promptly eliminated via the lungs.<sup>3</sup>
- **Patients are not subjected to extended discomfort** from bloating, cramping and the embarrassment associated with eliminating room air.
- **Helps ensure patient safety** through redundant pressure relief valves and automatic flow stop features which protect against over-insufflation.
- **A Choice of tips for rectal administration** allows the practitioner to select the most comfortable tip for the patient.

A recent study on minimizing post-colonoscopy abdominal pain showed that 1 hour after colonoscopy, a majority of patients insufflated with room air had significant residual gas. The study showed that 93% of patients insufflated with carbon dioxide had only trace to minimal residual gas.<sup>4</sup>

## CONSISTENCY



Even in patients with a redundant sigmoid, as shown here, PROTOCO<sub>2</sub>L delivers consistent insufflation throughout the length of the colon.

Courtesy of M. Macari, MD, NYU Medical Center, New York, NY

- **Regulated pressure** gently distends the colon.
- **Constant, adequate insufflation** is maintained for the duration of the study.
- **Improved distention** as compared to room air insufflation, particularly in segments that are more prone to collapse was shown in a recent study.<sup>2</sup>
- **Volume display** allows the monitoring and recording of the volume of CO<sub>2</sub> used, unlike room air insufflation, where it is impossible to judge the amount of air introduced.

## PRODUCTIVITY



Easy to read displays provide constant pressure and volume readings for the operator to monitor.

- **Automated operation** helps reduce staff time during insufflation process.
- **Replaces gas lost** during the procedure automatically.
- **Visual displays** allow quick reference of pressure and volume.
- **Adjustable pressure** up to 25 mmHg allows for user control when desired.
- **Optimal flow rate** of up to 3 L/min is automatically determined.