





















## **CTC** Indications

- Incomplete colonoscopy (unable to reach the cecum (10%) or unable to pass an area of stenosis)
- Evaluation of patients who have contraindications to colonoscopy (on anticoagulant therapy, severe COPD or other lung diseases etc.)
- Patients refusing optical colonoscopy

obstruction, and weight loss

- To better evaluate the colon proximal to obstructing neoplasms detected by conventional colonoscopy
   Assessment of strictures
- Elderly patients, especially those who are frail or ill, will tolerate CT colonography
- better than conventional colonoscopy

  Screening or surveillance for colorectal carcinoma (\*)
- Diagnostic examination in symptomatic patients, including but not limited to, those with abdominal pain, diarrhea, constipation, GI bleeding, anemia, intestinal





## CTC advantages vs. Regular Colonoscopy

- Lower risk of bowel perforation (~1 in 10000 CTC vs. 3-10 in 10000 for reg C)
- Almost no risk of serious bleeding (while 15 in 10000 for reg C).
- Takes less time and costs less
- Patient can return to regular activity and diet right away, no need for sedation
- Can identify flat lesions
- Can visualize colon beyond the obstruction or narrowing
- Will always visualize the whole colon regardless of length
- Can detect important extracolonic findings (ex: AAA, renal CA or stones, pancreatic CA, Liver lesions, Adrenal lesion, Lesions in the visualized lung bases, bone lesions). Extracolonic findings detected in 1.3% to 11.4% of exams; <3% required medical or surgical treatment

## CTC disadvantages vs. Regular Colonoscopy

- Unable to do biopsy or remove polyps when found
- Exposure to ionizing radiation; risk of lifetime cancer at age 60 is 0.05%, at 70 is 0.03% and at 50 is 0.03% (however, the benefit of an accurate diagnosis far outweighs the risk involved with CT scanning)

## Why Screen the Colon?

- Colorectal cancer was the fourth most commonly diagnosed cancer in Canada in 2022 (excluding non-melanoma skin cancers)
- It is the second leading cause of death from cancer in men and the third leading cause of death from cancer in women
- It is estimated that about 1 in 16 Canadian men will develop colorectal cancer during their lifetime and 1 in 34 will die from it
- It is estimated that about 1 in 19 Canadian women will develop colorectal cancer during their lifetime and 1 in 40 will die from it



Scree	ening Tests Comp	ared	
Test	Sensitivity (for detection of cancer)	Specificity	
Optical Colonoscopy	95	99.8	
CT colonography	93	97	
Flexible Sigmoidoscopy	82	92	
FIT	75	90	
Fecal DNA	92-94	90	
FOBT	50	78	
Barium Enema	45-85	96	
11			





















Why CT Colonography?					
Gut 200	09; 58 (2): 241-8				
- Comp	arison of CT colonography, col	onoscopy, sigmoidoscopy and fa	ecal occult		
Diood		iced adenoma in an average risk	population		
- 307 av	erage risk subjects had same	day OC, CTC, FIT and FOBT ev	aluation		
11	Test	Sensitivity for detection of			
		advanced neoplastic lesion			
	Colonoscopy	100%			
	CTC	96.7%			
	Flexible Sigmoidoscopy	83.3%			
	FIT	32%			
	FOBT	20%			
	and the second second		SPATTY C		

Why CT Colonography?						
<ul> <li>Detecti</li> </ul>	on of polyps	> 10 mm: 90%	sensitivity,	86% specific	ity	
<ul> <li>Detecti</li> </ul>	on of polyps 6	-9 mm: 78% se	ensitivity, 8	8% specificity	1	
able 4.1 CTC trials for	r polyn detection per patie	ent analyzie	45-14	-		
Authors/Institution	Patient Number	Sensitivity (%)		Specificity (%)		
		≥6 mm	≥10 mm	≥6 mm	≥10 mm	
Early CTC Trials						
Fenlon et al.	100	94	96	92	96	
Yee et al.	300	93*	100	NA	NA	
Pre-DoD Large-Scale T	rials					
Cotton et al.	615	39	55	91	96	
Rockey et al.	614	51	59	89	96	
Johnson et al.	703	65°	64	86	95	
DoD Trial and Beyond						
Pickhardt et al.	1,233	89 <sup>h</sup>	94 <sup>b</sup>	80 <sup>6</sup>	965	
ACDIN II	2,600	78'	90"	88'	86"	
ACKINI	0.015	0.0	100*	826	0.65	









Barium enema versus CT colonography <ul> <li>Prospective blinded comparison of DCBE and colonoscopy</li> </ul>			Colon Imaging in Radiology Departments in 2008: Goodbye to the Routine Double Contrast Barium Enema Giles Stevenson, BM, BCh, FRCP, FRCR, FRCPC			
•	862 paired examinations (DC	BE followed by scope)		Compared tomography colorography (CTC), or virtual colonoscopy, is the branchild of Dr David Vinng, "who developed the technique in 1993 and Castroinestenia Radiodigatis in 1994. Adv 13 years of development, the technology has caught up with the concept, and it is now a robust tool for clinical examination of the color. The article by Dr Margaset Traver-Hill and colleagues <sup>2</sup> in this issue of the <i>Journal</i> summarizes the current billies of CTC, and discussion is not in a screening for	Professor Emeritus, Department of Radiogy, McMater University, Harniton, OK: Computed Tomography Colonography Project, Vancouver Address for comepondence Dr. O Savenan, Vaccia, BC V87 31,7; gle6@jtwarc.da Racetvace February 15, 2008	
` -	Size of Polyp Found on Colonoscopy	22% (25-20%)		colorectal carcinoma and adenoma in a Canadian context. It is clear from the litera- ture that the sensitivity of CTC for detection of cancer is as good as, or slightly better than, optical colonoscopy (OC) <sup>3-6</sup> Barium enema auality is slipning <sup>7</sup>	Accepted February 15, 2008 Can Assoc Radiol J 2008;89(4):174–182	
	6-10 mm	53% (40-66%)		except perhaps where technologists have been trained and are supported by radiol- ogists, mainly in the United Kingdom, <sup>8</sup> and only a few reports from specialist gas-	Key Words: computed tomography colonography; virtual colonoscopy; barium enema; colorectal cancer	
	>10 mm	48% (24-67%)		trointestmal (GI) radiology centres <sup>305</sup> have in the past reported cancer detection rates competitive with OC or CTC. In general, the double contrast barium enema (DCBE) has to be combined with flexible sigmoid/occonv to have the same sensi-	screening; colonic aderomas	
CTC: Detection of polyps 6-9 mm: 78% sensitivity, 88% specificity Detection of polyps >10 mm: 90% sensitivity, 86% specificity				bitly as cohomocyp for cancer (96.7%). <sup>11</sup> Howev, in according, cancer is not the prime target, as the mortally reduced non-mon article detaction of a few cancers by screening is trivial, compared with that achieved by removal of large numbers of advanced admonsa. The United States National Polyp Study reported a sensitivity for admona detec- tion of 48% using DCBE. <sup>10</sup> Hough this conclusion was based on just 25 polyps.		









































