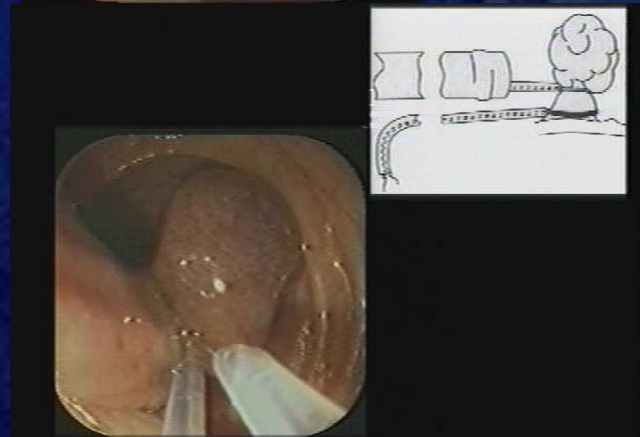
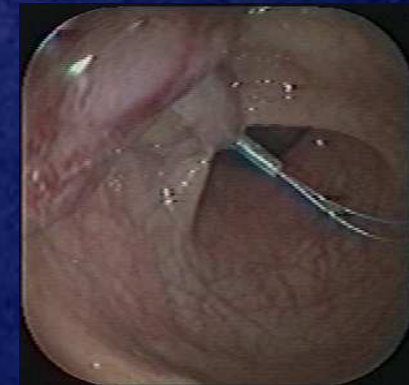
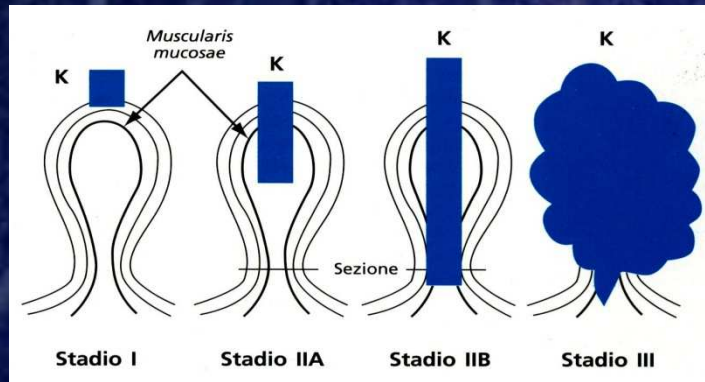


The prognosis of gastrointestinal malignancies is strictly dependent on early detection of premalignant and malignant lesions

Early cancers in adenomatous lesions can be removed endoscopically (e.g. polypectomy, EMR)

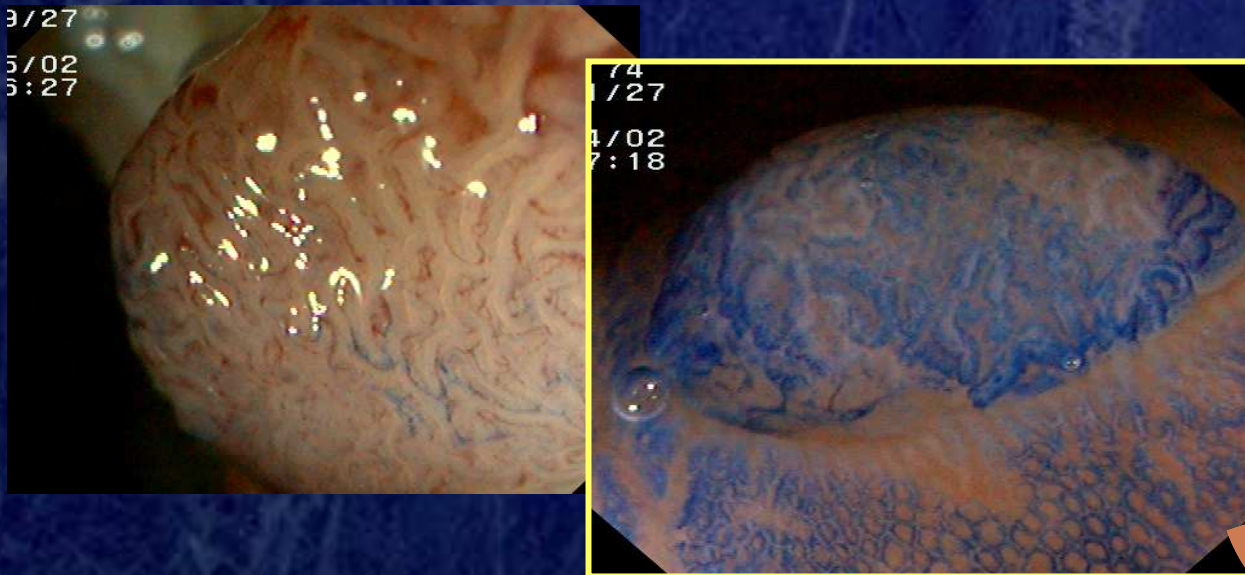
Hence, the goal of every routine endoscopy is detection, and if possible resection, of early cancer and premalignant lesions.



A starting new era

There is no doubt that the endoscopic detection of nonpolypoid lesions will increase the yield of colonoscopy

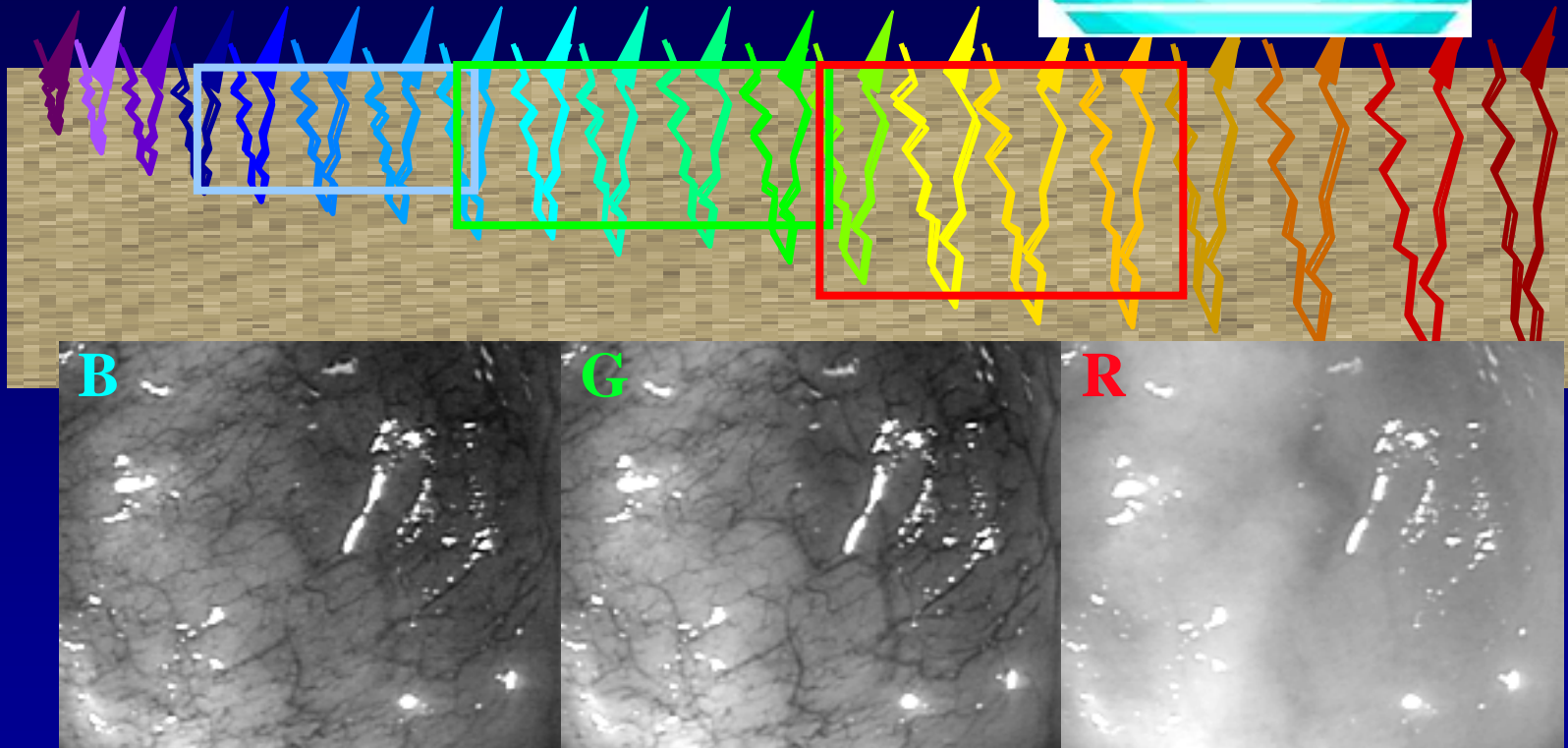
In fact, through the characterization of mucosal surface (PIT PATTERN) it is possible the discrimination between neoplastic e non-neoplastic lesions.



**THE IMPACT OF
TECHNOLOGY**

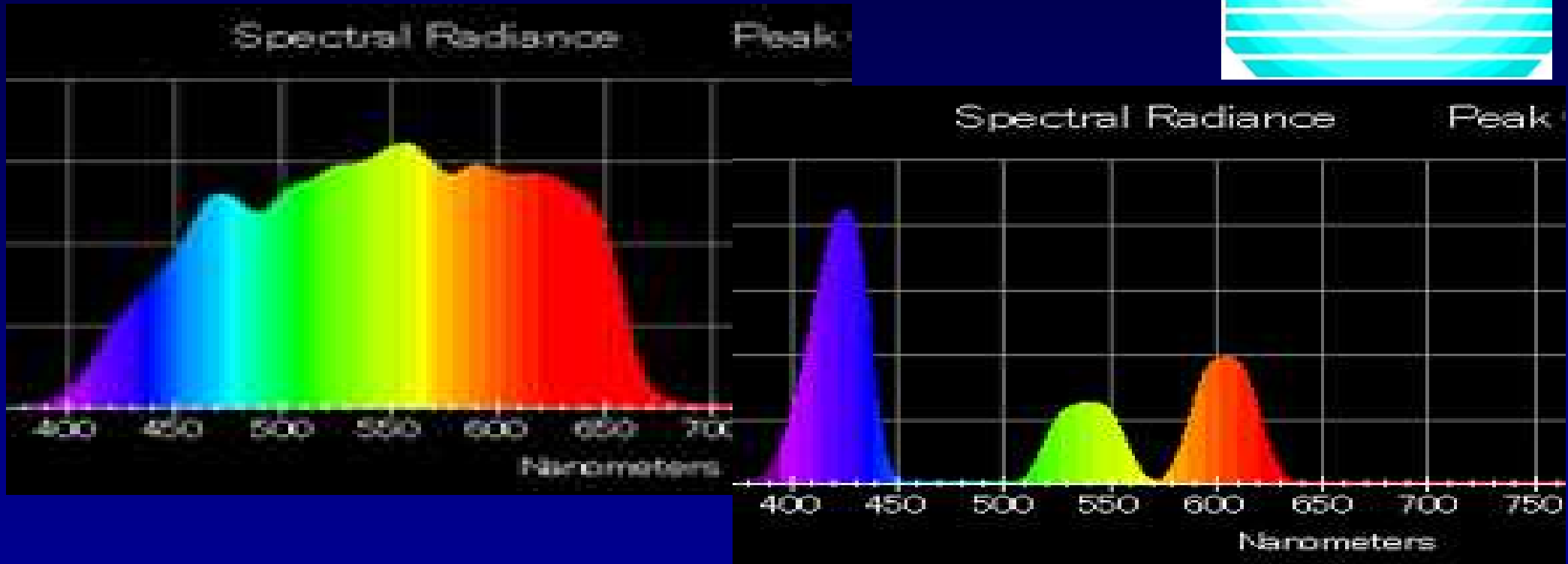
TECHNOLOGY

NBI



The depth of light penetration depends on its wavelength: the longer the wavelength, the deeper the penetration

TECHNOLOGY



NBI SYSTEM IS A UNIQUE SEQUENTIAL ELECTRONIC ENDOSCOPE SYSTEM WITH AN ORDINARY LIGHTING SYSTEM WHICH USES OPTICAL FILTERS FOR RED, GREEN AND BLUE SEQUENTIAL LIGHTING WITH A NARROW BANDWIDTH OF SPECTRAL TRANSMITTANCE

TECHNOLOGY

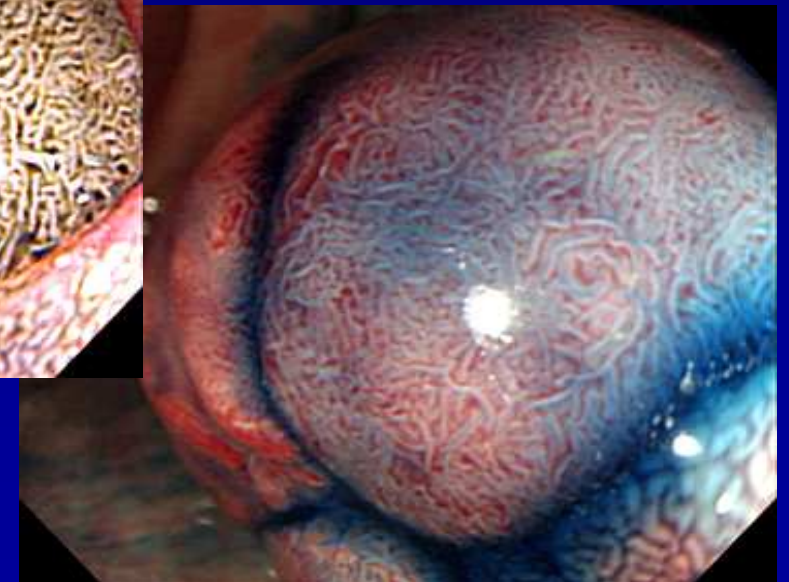


Conventional

NBI



Stain



Colon adenoma

**NARROW-BAND VS WHITE-LIGHT
ENDOSCOPIC IMAGING FOR SCREENING
COLONOSCOPY: A PROSPECTIVE
RANDOMIZED TRIAL**

MAJOR END POINT:

**-ADVANCED ADENOMAS DETECTION
RATE**

-MINOR END POINTS:

-ANALYSIS OF THE TOTAL NUMBER OF ALL POLYPS

-FLAT ADENOMAS

-SMALL ADENOMAS

-HYPERPLASTIC POLYPS

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

- **Randomized controlled trial**
- **Setting: screening of colorectal cancer**
- **Patients: FOBT + only**
- **Ethical committee approval**
- **Written informed consent**

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

- **Start: march 2008**
- **End: february 2011**
- **Sites: Molinette Torino, Novara**
- **Primary end point: detection rate of adenomas/cancer**
- **Secondary end points: overall detection rate, % cecum intubation, colon cleaning, compliance, procedure duration**

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

- **INCLUSION CRITERIA**
- **≥ 18 yrs**
- **Colorectal K screening**
- **FOBT+ pts**
- **Written informed consent**

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

- **EXCLUSION CRITERIA**
- **Previous adenoma/cancer**
- **IBD**
- **Impaired coagulation (plts<80000, INR>1.5)**
- **No written informed consent**
- **Pregnancy**

NARROW-BAND VS WHITE-LIGHT ENDOSCOPIC IMAGING FOR SCREENING COLONOSCOPY: A PROSPECTIVE RANDOMIZED TRIAL

SAMPLE SIZE:

Background: 40% of FOBT+ pts show at least 1 adenoma,
usually advanced adenoma

Testing hypothesis: increase of this rate by 11% through
NBI application

**300 cases in each group to detect such a difference with a
power of 80% and a significance level of 0.05**

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

- **No significant difference between the 2 groups after 275 pts recruited**
- **Premature discontinuation**
- **Interim analysis**

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

Parameter	WL	NBI
Female	45.8%	39.1%
Male	54.2%	60.9%
<i>Age</i>		
60-64	19%	20.3%
65-69	69.7%	72.2%
70+	11.3%	7.5%

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

Parameter	WL	NBI	RR	C.I.(95%)
No sedation	29.6%	38.3%		
Spasmolytic	2.1%	2.3%		
Benzodiazepine	32.4%	25.6%	0.84	0.63-1.13
Benzo + smasmolytic	10.6%	10.5%		
Benzo + opp.	21.8%	18.0%		
Propofol	3.5%	5.3%		

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

Parameter	WL	NBI	RR	C.I.(95%)
Cecal intubation	85.9	88.7%	0.80	0.43-1.50
Colon cleansing	88%	92.5%	0.63	0.30-1.32

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

Parameter	WL	NBI	RR	C.I.(95%)
Hyp. polyps	3.5%	0.8%		
LR adenoma	11.3%	18.8%	1.67	0.93-2.98
HR adenoma	38%	27.8%	0.77	0.56-1.06
Cancer	2.8%	3.8%		
PROXYMAL LESIONS				
LR adenoma	9.9%	18.0%	1.83	0.99-3.39
HR adenoma	15.5%	11.3%	0.68	0.38-1.22
DISTAL LESIONS				
LR adenoma	9.9%	10.5%	1.07	0.53-2.15
HR adenoma	26.1%	19.5%	0.84	0.56-1.28

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

Parameter	WL	NBI	RR	C.I.(95%)
N. polyps				
1	26.1%	23.3%		
2	14.1%	10.5%		
3	8.5%	9.8%		
>3	8.5%	12.8%	1.33	0.82-2.16
TYPE				
Flat	3.9%	6.3%	1.61	0.64-4.05
Sessile	71.1%	70.5%		
Pedunculated	25.0%	23.3%		

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

MULTIVARIATE ANALYSIS

- Adjusted for: cecal intubation, cleansing quality, gender, age, screening site
- **NO DIFFERENCE BETWEEN NBI AND WLC**

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

- 11 RCT comparing NBI vs WLC
- 8 RCT (3673 pts) evaluable
- No difference between NBI and WLC (SD/HD) for detection rate of polyps/adenomas
- N° pts with at least one polyp significantly lower in SD WLC group (RR 0.87 CI 0.78-0.97)
- Conclusion: NBI not significantly better than HD WLC, might be better than SD WLC
- Nagorni A, The Cochrane Library 2012

NBI VS WHITE LIGHT COLONOSCOPY FOR THE DETECTION OF ADENOMAS

CONCLUSIONS

- NBI not useful as “red flag” device
- NBI probably better than SD WLC
- Possible role in distinguishing hyperplastic polyps from adenomas; large RCT urgently needed