Updates in Screening of Colorectal Cancer

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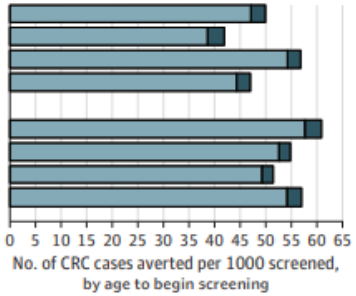
RBWH

- Colorectal cancer is a major cause of morbidity and mortality in Australia
  - Second most common cancer diagnosed in both men and women – 17004 cases for 2018
  - Second most cancer deaths – 4129 in 2018
- Incidence of Colorectal cancer in persons younger than 50 years
  - 10.5% of new cases
  - 15% increase from 2000-2002 to 2014-2016 in adults aged 40 to 49yo

Benefits of early detection and treatment

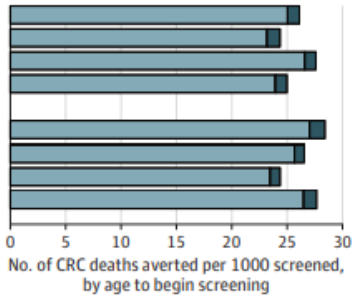
B Benefit: Estimated No. of CRC cases averted per 1000 individuals screened[a]

Screening modality and frequency	Mean CRC cases averted if start screening[b] At age 50 y	At age 45 y	Additional CRC cases averted if start screening at age 45 y
Stool tests			
FIT every year	47	50	3
HSgFOBT every year[c,d]	39	42	3
sDNA-FIT every year	54	57	3
sDNA-FIT every 3 y[d]	44	47	3
Direct visualization tests			
COL every 10 y	58	61	3
CT colonography every 5 y	53	55	2
Flexible SIG every 5 y	49	51	2
Flexible SIG every 10 y plus FIT every year	54	57	3



C Benefit: Estimated No. of CRC deaths averted per 1000 individuals screened[a]

Screening modality and frequency	Mean CRC deaths averted if start screening[b] At age 50 y	At age 45 y	Additional CRC deaths averted if start screening at age 45 y
Stool tests			
FIT every year	25	26	1
HSgFOBT every year[c,d]	23	24	1
sDNA-FIT every year	27	28	1
sDNA-FIT every 3 y[d]	24	25	1
Direct visualization tests			
COL every 10 y	27	28	1
CT colonography every 5 y	26	26	0.9
Flexible SIG every 5 y	23	24	0.9
Flexible SIG every 10 y plus FIT every year	26	28	1



CRC indicates colorectal cancer; CT, computed tomography; FIT, fecal immunochemical test (with positivity cutoff of 20 µg of hemoglobin per gram of feces); HSgFOBT, high-sensitivity guaiac fecal occult blood test; sDNA-FIT, stool DNA tests with FIT (multitarget stool DNA test); SIG, sigmoidoscopy; COL, colonoscopy.

[a] Outcomes are expressed per 1000 40-year-olds who start screening at age 45 or at age 50.

[b] Mean estimate across the 3 Cancer Intervention and Surveillance Modeling Network colorectal cancer models. See modeling report[12,13] for additional details and model-specific estimates.

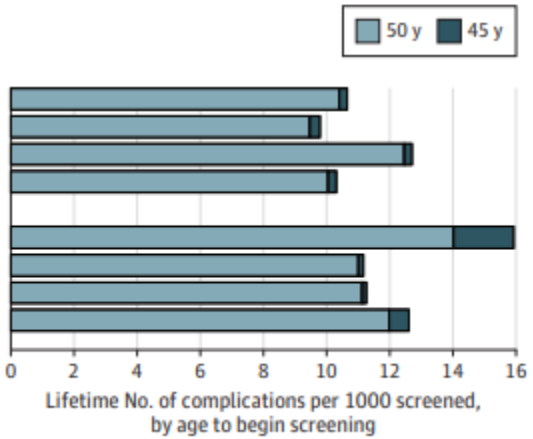
[c] Because of imprecision in sensitivity and specificity, there is considerable uncertainty in model predictions for HSgFOBT strategies. See modeling report[12] for more information.

[d] Compared with other options for stool-based screening, these strategies do not provide an efficient balance of the benefits (life-years gained) vs harms and burden (ie, lifetime number of colonoscopies) of screening. See modeling report[12,13] for more information.

Figure 3. Harms and Burden of Colorectal Cancer Screening

A Harms: Estimated lifetime number of complications (gastrointestinal and cardiovascular) of CRC screening and follow-up procedures per 1000 individuals screened[a]

Screening modality and frequency	Mean estimate of complications if start screening[b]		Additional complications if start screening at age 45 y
	At age 50 y	At age 45 y	
Stool tests			
FIT every year	10	11	0.2
HSgFOBT every year[c,d]	9	10	0.3
sDNA-FIT every year	12	13	0.2
sDNA-FIT every 3 y[d]	10	10	0.3
Direct visualization tests			
COL every 10 y	14	16	2
CT colonography every 5 y	11	11	0.2
Flexible SIG every 5 y	11	11	0.1
Flexible SIG every 10 y plus FIT every year	12	13	0.6



Revised Australian national guidelines for colorectal cancer screening: family history

Mark A Jenkins[1], Driss Ait Ouakrim[1], Alex Boussioutas[2], John L Hopper[1], Hooi C Ee[3], Jon D Emery[1], Finlay A Macrae[2], Albert Chetcuti[4], Laura Wuellner[5], D James B St John[6]

1 Risk of colorectal cancer based on family history: examples of estimates from cohort studies published since 2005

Family history of colorectal cancer	Colorectal cancer risk relative to the average population risk	Increase or decrease in risk for colorectal cancer	References
No family history	0.83	17% decrease	21
One or more first degree relative diagnosed at any age	1.4–2.1	40–110% increase	18,20,21
One first degree relative diagnosed before age 50 years	3.3	230% increase	21
One first degree relative diagnosed between ages 50 and 60 years	2.2–2.5	120–150% increase	20,21
Two first degree relatives	3.0	200% increase	21
No first degree relative, at least one second degree relative	1.1–1.5	10–50% increase	21

- Screening strategies for people with a family history of colorectal cancer - Cancer Guidelines Wiki
- http://wiki.cancer.org.au/australia/Guidelines:Colorectal_cancer/Screening_based_on_family_history

Category 1 — Those near average risk

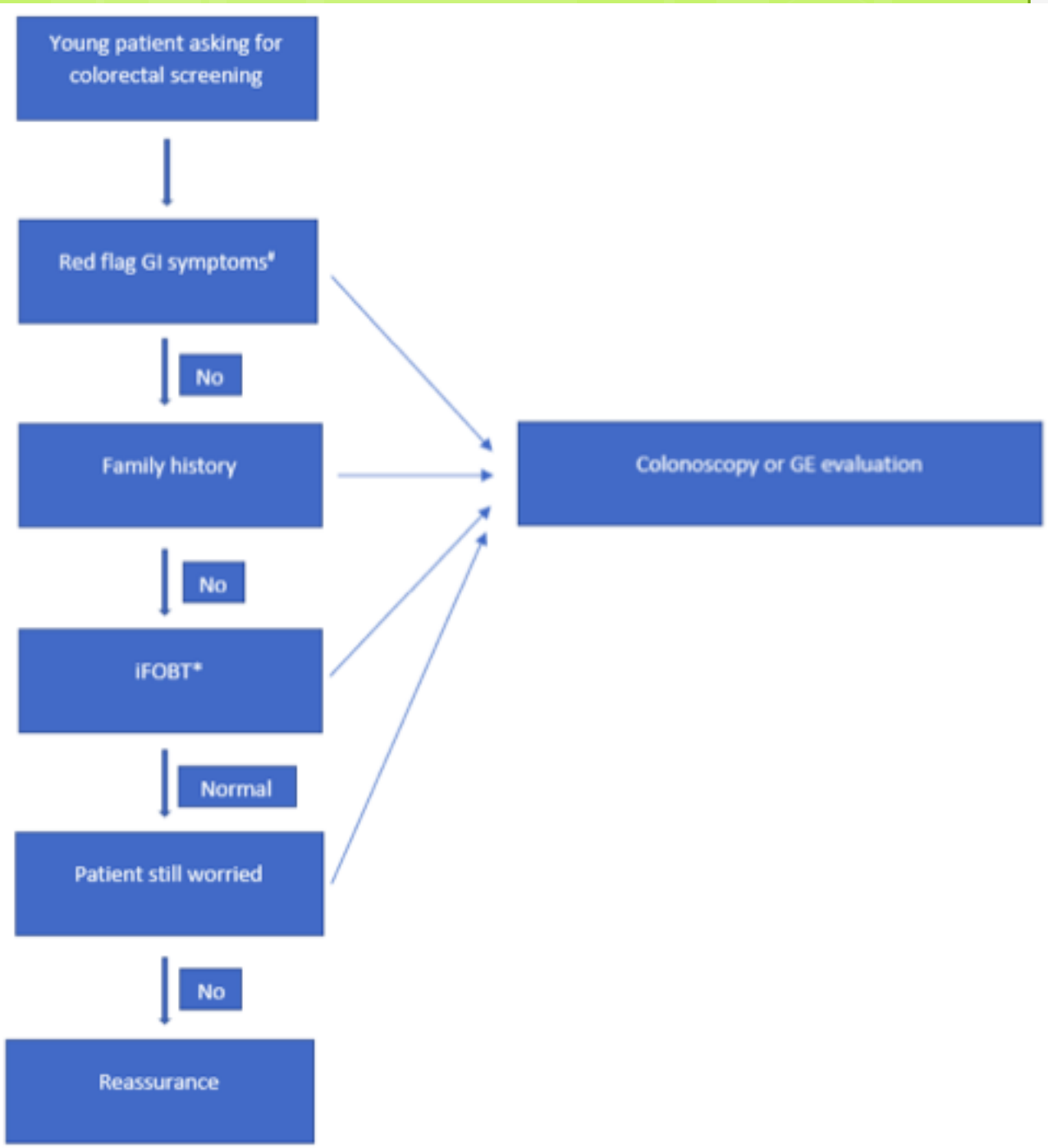
Category	Family history	Screening recommendation
1	No first- or second-degree relative with colorectal cancer One first-degree relative with colorectal cancer diagnosed at 55 years or older One first-degree and one second-degree with colorectal cancer diagnosed at 55 years or older	iFOBT every 2 years from age 50 to age 74

Category 2 — Those at moderately increased risk

Category	Family history	Screening recommendation
2	One first-degree relative with colorectal cancer diagnosed under 55 years Two first-degree relatives with colorectal cancer diagnosed at any age One first-degree relative and at least two second-degree relative with colorectal cancer diagnosed at any age	iFOBT every 2 years from age 40 to age 49. Colonoscopy every five years from age 50 to age 74.

Category 3 — those at potentially high risk

Category	Family history	Screening recommendation
3	At least three first-degree or second-degree relatives with colorectal cancer, with at least one diagnosed under 55 years At least three first-degree relatives with colorectal cancer diagnosed at any age	iFOBT every 2 years from age 35 to age 44. Colonoscopy every five years from age 45 to age 74.



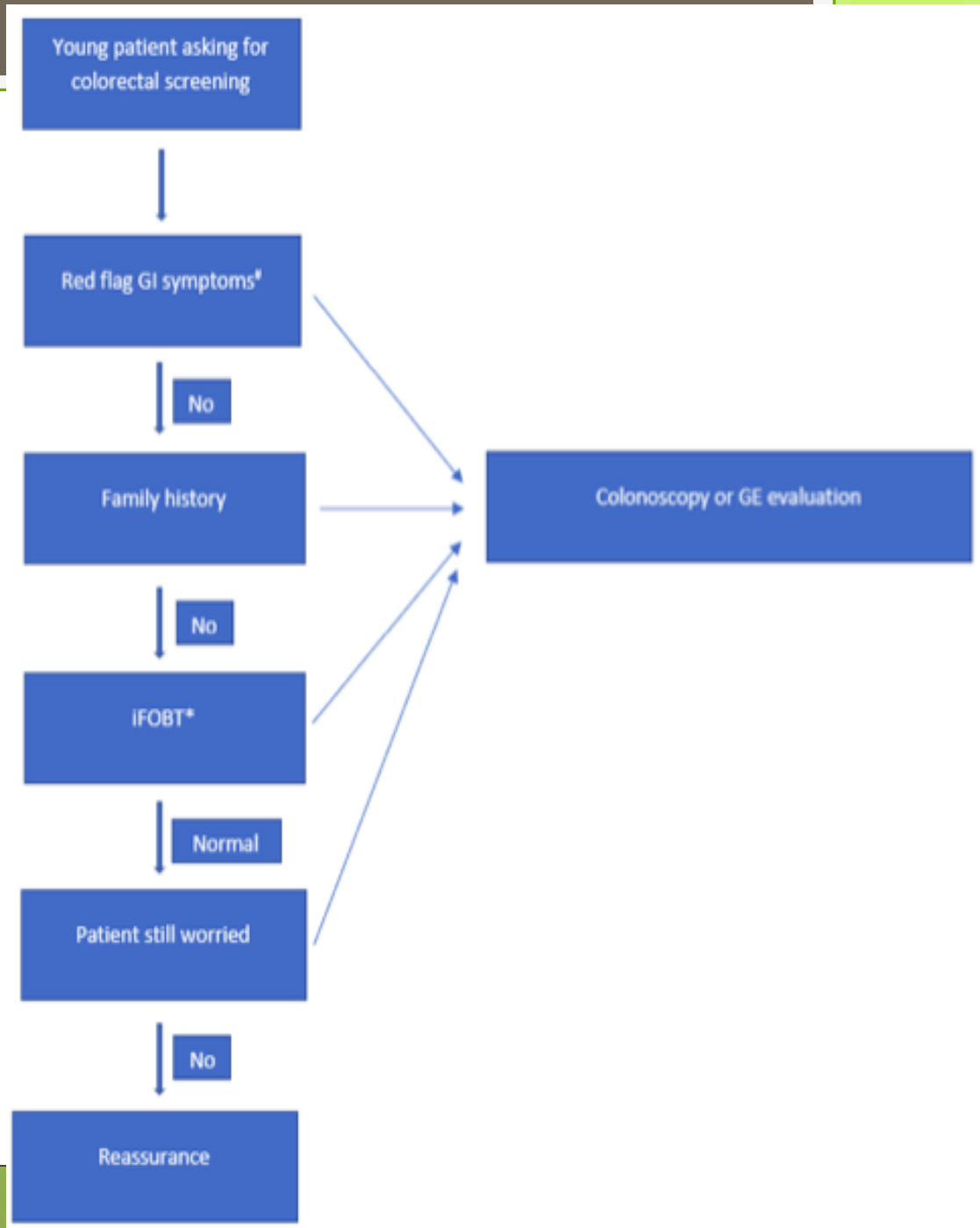
Persistent Abdominal pain, weight loss, nocturnal symptoms, iron deficiency in males, bloody or nocturnal diarrhoea, rectal bleeding, GI mass on clinical examination

*iFOBT – reasonable to repeat every 3 -5 years

Case #1

- 26yo female - accountant
- IBS like symptoms with alternating diarrhoea and constipation
- Family friend was diagnosed with colorectal cancer in their 30s so would like to know more about Colorectal cancer surveillance

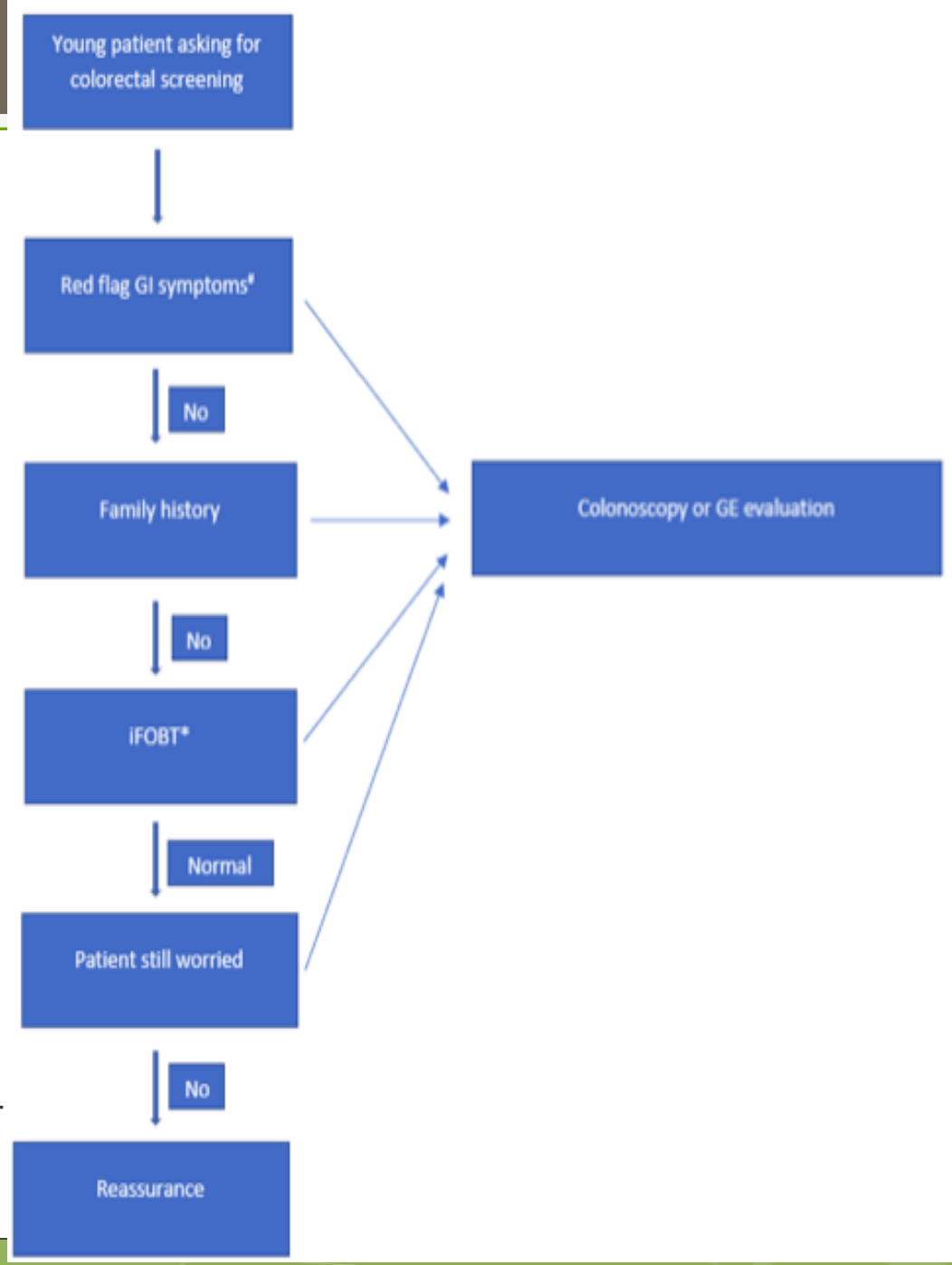
A. Reassure and sent home
B. Sent straight to GE/colonoscopy
C. Check for red flag symptoms
D. Discuss her family history
E. Consider iFOBT



Case #2

- 37yo male, home builder
- PR bleeding – bright red haematochezia. Rectal examination revealed small non-bleeding haemorrhoids
- Impression – most likely haemorrhoidal PR bleeding
- No significant family history

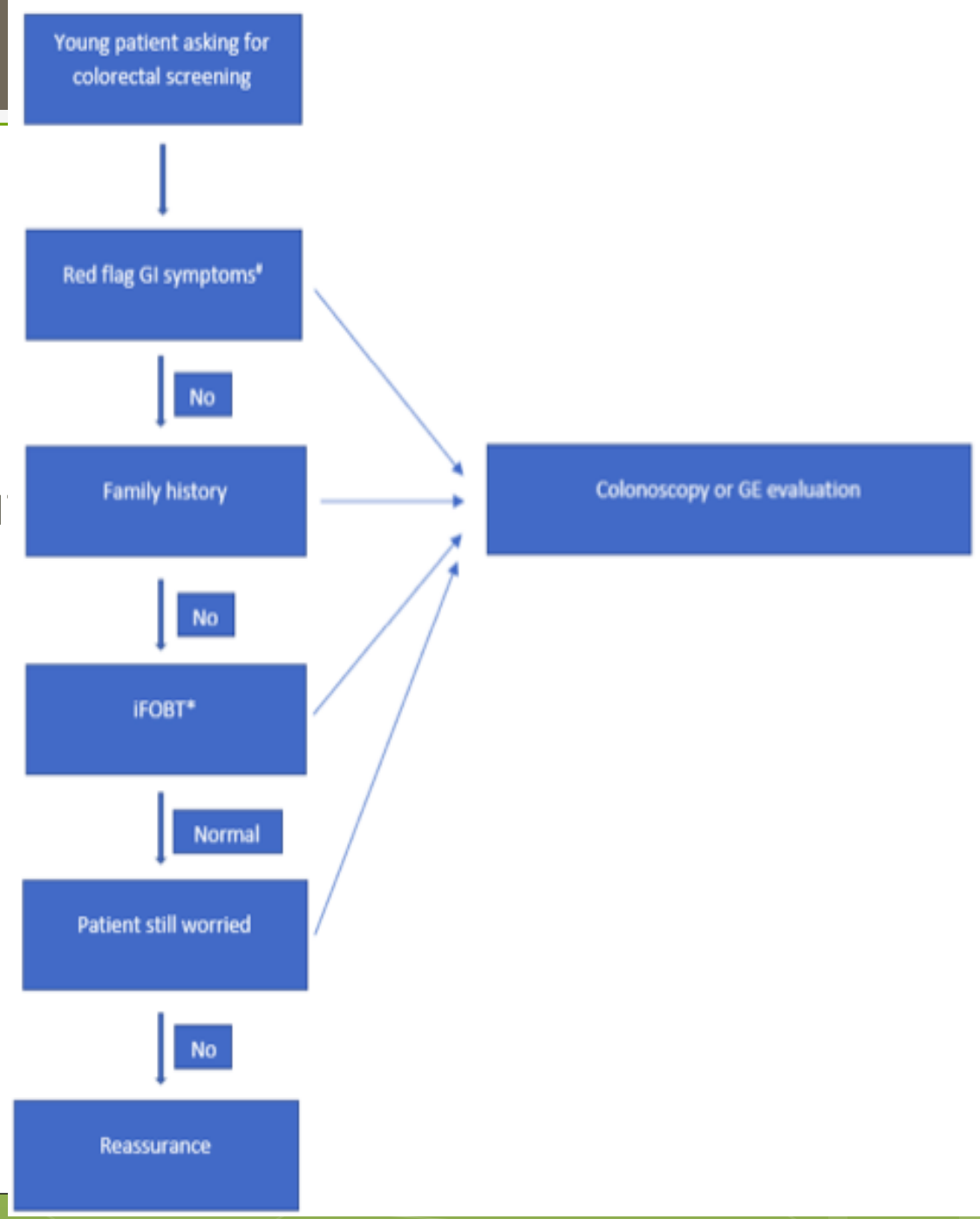
A. Reassure and sent home
B. Sent straight to GE/colonoscopy
C. Consider iFOBT
D. Start on high fibre diet and review 3 mont



Case #3

- Asymptomatic 32yo female
- Want to learn about colorectal cancer screening after learned tha colleague was recently diagnosed with CRC

A. Reassure and sent home
B. Sent straight to GE/colonoscopy
C. Check for red flag symptoms
D. Discuss her family history
E. Consider iFOBT



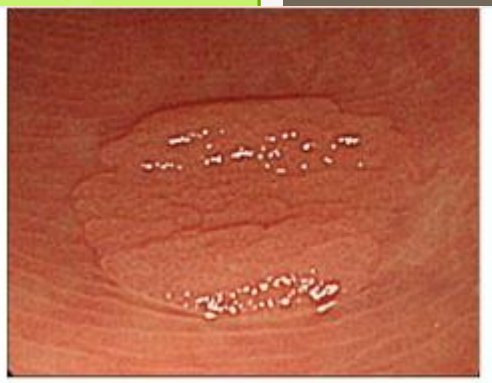
iFOBT

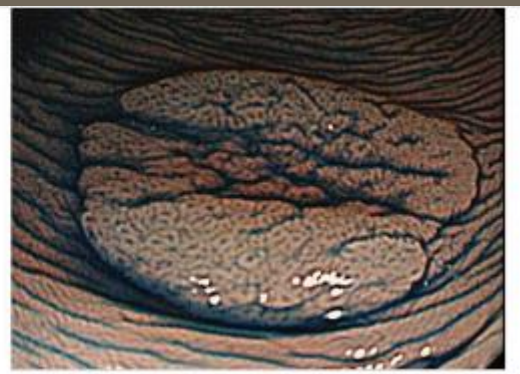
- Using the threshold recommended by the manufacturer (20ug per gram of stool)
  - In 9 studies (N=34352), Sensitivity was 0.74 (95% CI, 0.64-0.83; 9 studies; n=34352), specificity was 0.94 (95% CI, 0.93-0.96; 9 studies; n=34352)
  - For colorectal cancer
    - In 4 studies (n=12424), Sensitivity was 0.93 (95% CI, 0.87-1.0), specificity was 0.84 (95% CI, 0.84-0.86)
  - For advanced adenoma
    - In 4 studies (n=12424), Sensitivity was 0.43 (95% CI, 0.40-0.46), specificity was 0.89 (95% CI, 0.86-0.92)
  - For sessile serrated adenomas
    - Patient with large SSLs were less likely to have positive result from iFOBT than patients with advanced adenoma from a single study

Serrated polyposis syndrome

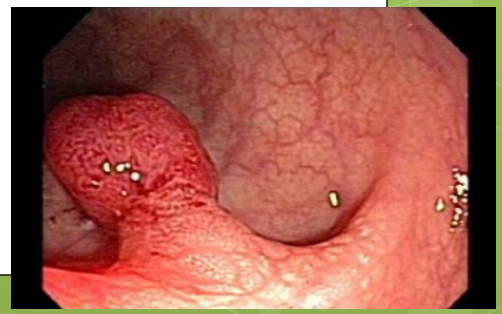
- Two colorectal cancer pathway
  - 85-90% arise from conventional adenoma pathyway
  - 10-15% from serrated pathway
- Genetic mechanism unknown
- Prevalence of Serrated polyps
  - 15.1 to 32.4%
- Prevalence of Serrated polyposis syndrome
  - Ranges 0.014 to 0.66% (the latter in positive iFOBT cohort)

Diagnosis of S





- WHO criteria
  - 5 serrated lesions proximal to the rectum, all being 5mm in size with 2 being 10mm in size
  - >20 serrated lesions throughout the colon, with 5 being proximal to the rectum
- This condition should not be confused with familial adenomatous polyposis
  - SPS only affects the colon with a much more favourable clinical outcome
  - Usually doesn't have an autosomal dominant inheritance pattern
  - Much more common than FAP (1 in 8000 to 1 in 18,000)



Management of SPS

- Yearly to 2 yearly colonoscopy
- All first degree relatives should have a baseline colonoscopy at 40years old or 10 years younger than the index case when he/she was diagnosed
- No need for extra-colonic surveillance

Thank you!