UNITED ARAB EMIRATES
MINISTRY OF HEALTH & PREVENTION

THE NATIONAL GUIDELINE FOR

COLORECTAL CANCER SCREENING AND DIAGNOSIS

3RD EDITION 2023

NATIONAL COLORECTAL CANCER SCREENING TASK FORCE

Dr. Huda Obaid Al Abdouli - Head of Task Force
Coordinator of National Cancer Screening Program
Ministry of Health and Prevention

Dr. Buthaina Bin Belaila - Member
Head of Non-communicable Disease
Ministry of Health and Prevention

Prof. Humaid Obaid Al Shamsi - Member
Director of the Burjeel Cancer Institute
President of the Emirates Oncology Society

Dr. Sara Al Bastaki - Member
Consultant Colorectal Surgeon Founder and President of Emirates Society of Colon & Rectal Surgery, Sheikh Khalifa Medical City

Dr. Lamia Safieldin - Member
Comprehensive Screening Specialist,
Department of Health Abu Dhabi

Dr. Maryam Al Khatry - Member
Consultant Gastroenterology - Member
Obaidullah Hospital - Emirates Health Services - EHS
President of the Emirates Gastroenterology Society

Dr. Sameer Al Awadhi - Member
Consultant Gastroenterology - Member
Dubai Health Authority - DHA

Dr. Thomas Cherukara - Member
Consultant Gastroenterology - Member
Kuwait Hospital - Emirates Health Services - EHS

Dr. Taha Kadir - Member
Consultant Colorectal Surgeon
Private Sector

Dr. Makki Fayadh - Member
Consultant Gastroenterology
Private Sector

Dr. Salim Awadh - Member
Consultant Gastroenterology
Private Sector

TABLE OF CONTENTS

THE NATIONAL GUIDELINE FOR COLORECTAL CANCER SCREENING AND DIAGNOSIS:

1. PURPOSE

1.1. To stipulate the service requirements to deliver the National Colorectal Cancer (CRC) Screening Program in the United Arab Emirates.

1.2. To set out the minimum Clinical Care Standards and frequency for CRC screening as per international evidence-based guidelines.

1.3. To set out the case mix, eligibility criteria, and data reporting requirements for Colorectal Cancer Screening.

1.4. To ensure the population receives quality and safe care and timely referral for diagnosis and/or treatment where appropriate.

2. SCOPE

2.1. This guideline applies to all healthcare providers (facilities and professionals) in the United Arab Emirates, providing CRC screening services; including mobile units.

3. DEFINITIONS

3.1. **Colorectal Cancer Screening:** Means looking for polyps or cancer in the colon and rectum in people who have no symptoms of the disease. CRC screening includes the following services:
3.1.1. Colorectal Cancer Screening services
3.1.2. Colorectal Cancer assessment and follow up

3.2. **Colonoscopy:** Colonoscopy is the endoscopic examination of the large bowel and the distal part of the small bowel with a Charge Coupled Device (CCD) a camera or a fiber optic camera on a flexible tube passed through the anus. It can provide a visual sight to detect adenomatous polyps and cancer diagnosis (e.g. ulceration and polyps). It also grants the opportunity for biopsy or removal of suspected Colorectal Cancer lesions.

3.3. **Fecal Immunochemical Test (FIT):** Is a test that investigates by using antibodies to detect blood in the stool sample for signs of cancer.

3.4. **Case Mix:** Includes **males and females aged 40-75 years** determined eligible for Colorectal Cancer Screening services, in accordance with the criteria detailed in this guideline. For people ages 76 through 85 the decision to be screened should be based on a person's preferences, and healthcare professional judgment considering life expectancy, overall health, **and** prior screening history.

4. DUTIES FOR HEALTHCARE PROVIDERS

All licensed healthcare providers, facilities, and professionals engaged in providing CRC screening services **must:**

4.1. Provide clinical services and patient care in accordance with this guideline and in accordance with laws and regulations, policies, and standards of the United Arab Emirates; including developing effective recording systems, maintaining confidentiality, privacy, and security of patient information.

4.2. Comply with the federal requirements, laws, and policies for patient education and consent. The licensed provider must provide appropriate patient education and information regarding the screening test and must ensure that appropriate patient consent is obtained and documented on the patient's medical record.

4.3. Comply with federal requirements; laws, policies, and standards on managing and maintaining patient medical records, including developing effective recording systems, maintaining confidentiality, privacy, and security of patient information.

4.4. Comply with federal requirements; laws, policies, and standards for Information Technology (IT) and data management, electronic patient records and disease management systems, sharing of screening and diagnostic test, and where applicable pathology results.

4.5. Comply with MOHAP requests to inspect and audit records and cooperate with authorized auditors as required.

4.6. Collect and submit data on screening visits and outcomes, as per Appendix 1, to the National Cancer Screening Registry at MOHAP.

4.7. Comply with federal laws, policies, and standards on cancer case reporting and report all confirmed screening-detected cancers to the National Cancer Registry at MOHAP.

5. ENFORCEMENT AND SANCTIONS

5.1. Healthcare providers, payers, and third party administrators must comply with the terms and requirements of this guideline. MOHAP, may impose sanctions in relation to any breach of requirements under this guideline.

6. PAYMENT FOR SCREENING AND FOLLOW UP OF COLORECTAL CANCER

6.1. Eligibility for reimbursement under the health insurance scheme must be in accordance, with local insurance laws for each Emirate.

7. STANDARD 1. CLINICAL SERVICE SPECIFICATIONS

7.1. All licensed healthcare screening facilities scheme providing Colorectal Cancer Screening services must:

7.1.1. Follow best practice for Colorectal Cancer Screening as per **Appendix 1.**

7.1.2. Adhere to the clinical performance indicators and timelines in accordance with **Appendix 2.**

7.1.3. Coordinate referral of individuals with positive screening for further assessment or treatment with diagnostic and oncology centers and develop an agreed protocol and clear process for referrals.

7.1.4. Maintain records for screening tests, outcomes, and clinical performance indicators.

7.1.5. Assign a Colorectal Cancer facility program coordinator who will be accountable to:

7.1.5.1. Reports and submits screening visits and outcome data, specified in section 4.

7.1.5.2. Establish internal audit policies and procedures and conduct regular audits, monitoring, and evaluation to demonstrate compliance with this guideline and other associated regulatory policies and standards.

7.1.6. Endoscopy unit providing Colorectal Cancer Screening, must meet the criteria for a competent unit infrastructure, equipment, and personnel, as per **Appendix 3.**

7.1.7. Have an approved protocol for referral of individuals with screen detected abnormalities for further assessment or treatment.

7.2. **All licensed laboratories providing** diagnostic histopathology and genetic testing services must:

7.2.1. Have in place the systems, policies, and operating procedures in accordance with the requirements of relevant policies and laboratory standards.

7.2.2. Use specimen identification and labeling in accordance with relevant policies and standards and industry best practices.

7.2.3. Establish internal audit policies and procedures and conduct regular audits, monitoring and evaluation to demonstrate compliance with this guideline and other associated regulatory policies and standards.

7.2.4. Laboratory should be accredited by an internationally credible accrediting body such as CAP, ISO 15189 (2007), JCI /Lab for Colorectal Cancer.

7.2.5. MOHAP may, at its discretion, conduct third-party independent quality assurance testing of laboratories providing Colorectal Cancer Screening test service. Where it does so, providers must comply with the direction and cooperate with the appointed party.

7.2.6. Labs performing FIT test must:

7.2.6.1. Follow the manufacturer's instructions for use of the FIT testing kit.

7.2.6.2. Use an explicit definition for cut-off levels for hemoglobin concentration.

7.2.6.3. Make provision to record the information concerning the actual amount of hemoglobin, both for tests classified as negative and for those classified as positive.

7.2.6.4. Labs performing genetic testing, must have organized and specialist cyto/histopathological support services who can demonstrate compliance with related policies and laboratory standards.

7.3. **All licensed healthcare professionals** participating in Colorectal Cancer Screening must conduct CRC risk assessment. Detailed history, must be evaluated and completed, each time an individual visits for screening. The purpose of this is to identify individuals' risk status, as per risk categories specified in Appendix 4, and referral to appropriate screening tests.

7.3.1. Obtain informed patient consent prior to screening. Where consent is granted or refused, the treating physician must document and retain signed consent forms on individuals' medical records.

7.3.2. Inform all individuals of the procedures and expected timeframe to be screened and to receive results.

7.3.3. Ensure that the outcome of screening for Colorectal Cancer is reviewed by a multi-disciplinary team including; gastroenterologist, colorectal surgeon, gastrointestinal oncologist, pathologist, radiologist, physician, and a nurse.

7.3.4. Follow up and timely referral of individuals with abnormal results to treatment.

8. STANDARD 2. SCREENING TESTS AND FREQUENCY

8.1. Screening tests for individuals at average risk of colorectal cancer, as specified in **Appendix 4,** are:

8.1.1. Colonoscopy, every 10 years; or

8.1.2. Fecal Immunochemical Test (FIT) every year.

8.1.3. Eligible population must be offered colonoscopy screening as per **Appendix 1**, in case of refusal, the patient should be offered a FIT.

9. STANDARD 3. RECRUITMENT FOR SCREENING

Population eligible for Colorectal Cancer Screening may be recruited by the healthcare facilities, through the following:

9.1. Recruitment for screening

9.1.1. All CRC screening facilities must establish an invitation system to ensure identification, successful participation, and retaining of eligible population.

9.1.2. Targeted invitation may be established via an electronic or manual invitation system.

9.2. Opportunistic

9.2.1. Physician consultation for related or unrelated reason.

9.2.2. Engagement in a health promotion campaign.

10. STANDARD 4. SCREENING WITH COLONOSCOPY

10.1. Pre-colonoscopy assessment

10.1.1. Pre-colonoscopy documentation must include:

10.1.1.1. Patient demographics.

10.1.1.2. Anticoagulant and antiplatelet use.

10.1.1.3. History of diabetes mellitus and use of insulin.

10.1.1.4. Presence of implantable defibrillators or pacemakers.

10.1.1.5. Previous gastrointestinal procedures; including surgeries.

10.1.2. Assessment of patient risk: Physical status of the patient must be documented in accordance with the American Society of Anesthesiology (ASA), **Appendix 5.**

10.1.3. ASA class 3 or higher are at higher risk for cardiopulmonary events and appropriate measures must be taken in this respect.

10.1.4. Colonic cleansing: Type of bowel preparation must be documented including documentation of careful preparation in accordance with international standards and guidelines. Written instructions to be given to the patient concerning colonic cleansing and need to be mentioned in the report.

10.1.5. Inadequate bowel preparations must not exceed 10% of examinations.

10.2. Colonoscopy procedure

10.2.1. Facility-specific policies and procedures must be in place for the following:

10.2.1.1. Colonoscopy decontamination including infection control.

10.2.1.2. Sedation of patient, considering the patient's status and preferences and recording of all sedation methods and outcomes; consider involving anesthesia service in patients with significant comorbidities such as patients with ASA 3, 4, and 5 **(Appendix 5)**.

10.2.1.3. Patient support and comfort, including positioning during the colonoscopy.

10.2.2. To achieve high-quality colonoscopy examination, complete intubation of the colon and careful inspection of the mucosa during withdrawal is necessary.

10.2.2.1. If a complete colonoscopy is not achieved, imaging for documentation of incomplete intubation may be necessary and reasons must be clearly documented.

10.2.2.2. Auditable photo documentation of colonoscopy completion must be available including a panoramic image of the appendiceal orifice, ileocecal valve, and cecum with a video clip with a respective image.

10.2.2.3. Documentation of completion of rectal retroflexion (retroflexion of the endoscope during colonoscopy to increase diagnostic yield) must be recorded.

10.2.2.4. Withdrawal times of the colonoscopy from cecum to anus must be documented and must be not less than 6 minutes (when no biopsies or polypectomies are performed). The times to be documented include when:

10.2.2.4.1. Endoscope is inserted into the rectum.

10.2.2.4.2. Withdrawal from cecum was started.

10.2.2.4.3. Endoscope is withdrawn completely.

10.2.2.5. A record of the actual model and instrument number used must be maintained by the unit staff to track procedure volume, problems, and infection transmission and instrument repairs.

10.2.2.6. Any adverse clinical events (fall in blood pressure, unplanned reversal of sedation medications, oxygen desaturation, etc.) that occur during colonoscopy as well all serious events (perforation, bleeding requiring blood transfusion, and/or surgery) must be documented with hard copies attached to the colonoscopy report and reported in accordance with standards for adverse events management and reporting.

10.3. Post-colonoscopy procedures

10.3.1. Patients must be contacted 24 hours post-procedure or on the next working day to monitor any complications; this contact must be documented.

10.3.2. Before colonoscopy each patient must receive instructions about management of any potential adverse events following discharge and must be informed that complications may occur within one-four weeks post-procedure.

10.3.3. A contact number must be provided to the patient for this purpose and documented in the patient records.

10.3.4. Post-procedure complications must be tracked over a 30-day interval after a colonoscopy.

10.3.5. Discharge instruction form should be given to patient instructing him to call endoscopy unit or the gastroenterology physician on call or to come to ER in case there is any abdominal pain or any complication or concerns after the procedure. Patients should sign this form acknowledging that he understood the post-colonoscopy and the pre-discharge instructions.

10.4. Colonoscopy findings & reporting

10.4.1. Avoid using vague terms to describe polyps in the report.

10.4.2. An estimation of the size and dimension of all polyps must be documented, terms such as "large" or "small" must not be used.

10.4.3. Tattoos preferably be placed for all lesions > 10 mm and those with concerning appearance for cancer to mark the location of colon lesions for repeat colonoscopy or surgery.

10.4.4. Lesions that are too large be safely removed must be biopsied and a tattoo injection performed in the vicinity of the lesion and not into the lesion.

10.4.5. Specimen identification and labelling must be in accordance with relevant clinical laboratory standards and industry best practices.

10.4.6. Procedures and protocols for adequate specimen collection, handling, labeling, and reporting must be in accordance with relevant clinical laboratory standards and must be communicated to clinical staff and other clients who are involved in the procedures for processing of colorectal specimens.

10.4.7. Each facility must develop a patient colonoscopy report form, retained on the patient's medical record and made available to auditors. A recommended sample of a standard report is provided.

10.4.8. A standard colonoscopy report must include at least the following information:

10.4.8.1. Patient demographics and history

10.4.8.2. Assessment of patient risk and comorbidity

10.4.8.3. Procedure indications

10.4.8.4. Procedure: Technical description

10.4.8.5. Colonoscopy findings

10.4.8.6. Interventions/unplanned events

10.4.8.7. Assessment

10.4.8.8. Follow-up plan

10.4.8.9. Pathology

11. STANDARD 5. SCREENING WITH FECAL IMMUNOCHEMICAL TEST (FIT)

11.1. FIT test must be offered where the **average risk** patient refuses the screening colonoscopy.

11.2. Patient must be provided with clear and simple instructions regarding collection of sample.

11.3. No drug or dietary restriction is required for FIT and only one stool sample is needed.

11.4. The quality of the sample must be reproducible and representative of the stool, to be of the required volume and be adequately preserved.

11.5. The samples must be analyzed without delay and kept cool to avoid further sample denaturation and a potential increase in false negative results; and the proportion of unacceptable tests received for measurement must not exceed 3% of all kits received; less than 1% is desirable.

12. STANDARD 6. SCREENING OUTCOMES AND REFERRALS

12.1. At the end of the screening, the screening unit must provide the individuals with a written report with a clear instruction on follow-up plan and next steps; including referral for treatment or next screening dates. Also, send feedback to the referring physician at the primary or ambulatory healthcare clinic.

12.2. It is the sole responsibility of the colonoscopist (in case of screening colonoscopy), or the referring physician (in case of FIT) to inform the individuals with their results and next steps.

12.3. The time between completion of a screening test and receipt of results by the participant must be less than 15 working days (acceptable standard > 90% within 15 days).

12.4. Screening with colonoscopy

12.4.1. In case of normal results, negative for polyps, individuals must be re-invited for screening in accordance with the frequencies specified in section 8.

12.4.2. In case of presence of adenoma, colonoscopy must be repeated in accordance with **Appendix 1**.

12.4.3. Adenoma detection rate must be monitored and audited. It is limited to screening colonoscopies; surveillance procedures and repeat endoscopic procedures are excluded.

12.4.4. Individuals with a positive colonoscopy, cancer, must be urgently referred for treatment, within 2 weeks of receiving colonoscopy report.

12.4.5. The time interval between a positive colonoscopy (cancer) and definitive management must be monitored. (Acceptable standard ≥ 95% of cases must be no more than 31 days).

12.4.6. Death within 30 days after Colorectal Cancer Screening, attributed to complications caused by colonoscopy, must be recorded by e-notification.

12.5. Screening with FIT test:

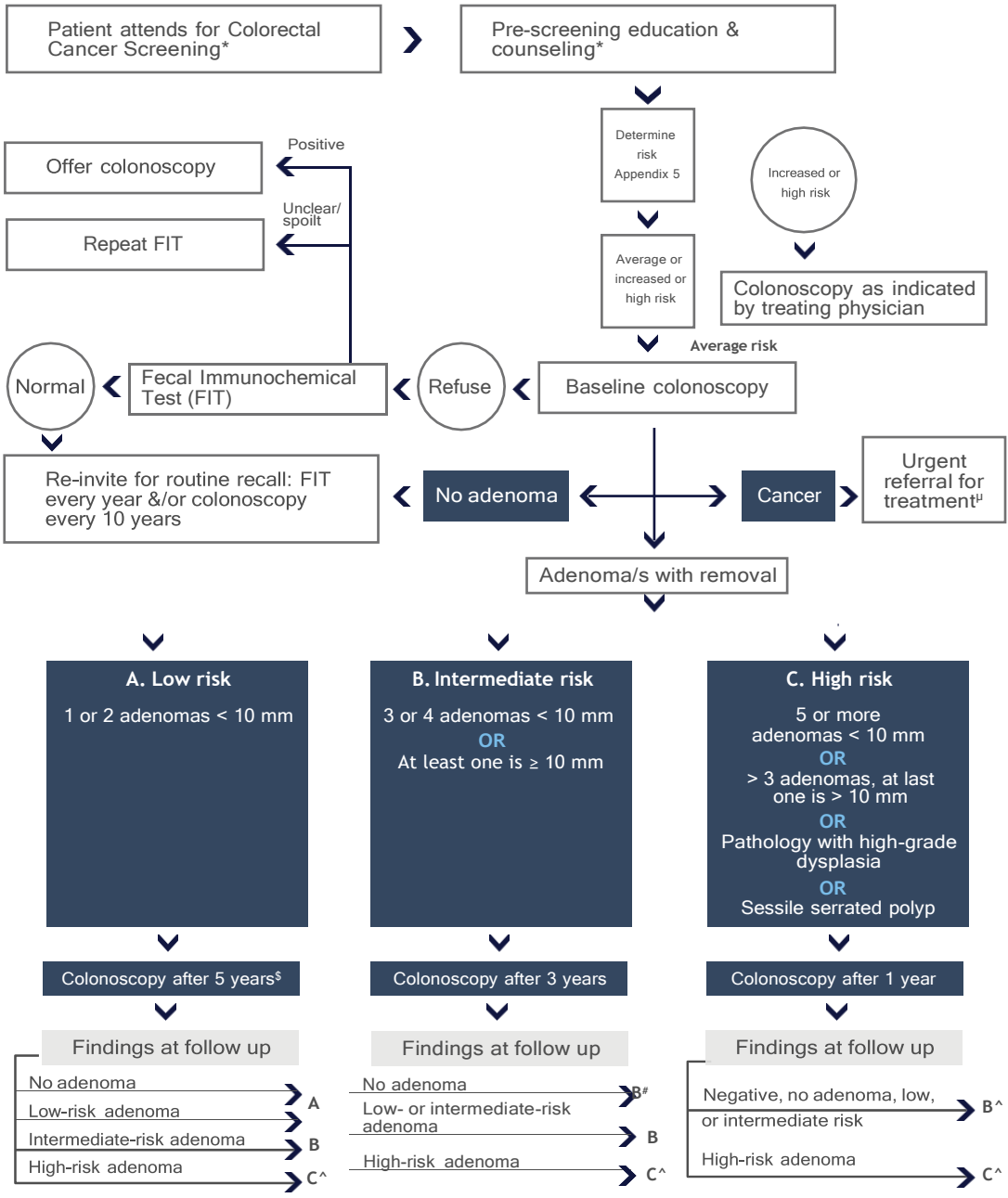
12.5.1. Individuals with a negative test result are re-invited for screening as per frequencies specified in section 8.

12.5.2. Individuals with a positive test result must be urgently referred for follow-up colonoscopy within 15 working days.

12.5.3. The FIT test must be repeated if results are unclear or spoilt in accordance with **Appendix 1**.

APPENDIX 1

COLORECTAL CANCER SCREENING & DIAGNOSIS PATHWAY



Will give you key to write again

*Physician consultation: New patient or existing patient identified during visit for other purpose. [µ]Urgent referral to oncology center within 2 weeks. [$]Consider age, comorbidity, family history accuracy & completeness of examination high-risk adenoma C^. [#]Stop surveillance if there is a further negative result (no adenoma). ^All histopathologically diagnosed cancers should be treated as per colon cancer guidelines.

Reference:

Adapted from the British society of gastroenterology and the association of coloproctology for Great Britain and Ireland (2009). Guidelines for Colorectal Cancer screening and surveillance in moderate and high-risk groups (updates from 2022).

[†]Excellent: No or minimal solid stool and only clear fluid requiring suction.

Adequate: Collections of semi-solid debris that are cleared with washing/suction.

Inadequate: Solid or semi-solid debris that cannot be cleared effectively.

[Ω]Numerator: Number of polyps with histological tissue retrieved for analysis.

Denominator: Number of polyps recorded during lower GI endoscopies.

References:

NHS Cancer Screening Programmes. Quality Assurance Guidelines for Colonoscopy. NHS BCSP Publication No 6. Feb, 2011.

European guidelines for quality assurance in colorectal cancer screening and diagnosis first edition, 2010.

APPENDIX 2
(COLORECTAL CANCER CLINICAL PERFORMANCE INDICATOR)

Indicator	Acceptable level	Desirable level
Screening uptake (participation) rate	> 45%	> 65%
Minimum number of screening colonoscopies undertaken annually by each screening colonoscopist	> 150 per annum	> 250
Inadequate FIT rate (proportion of people screened with one or more FIT returned none of which were adequate)	3%	1%
Maximum time between screening FIT test and receipt of result should be 7 days from sample's dispatch	> 90%	> 95%
Rate of referral to follow-up colonoscopy after positive FIT test (detects cancer)	90%	> 95%
Maximum time between referral after positive screening FIT test and conducting follow-up colonoscopy should be within 31 working days	> 90%	> 95%
Cecal Intubation Rate (CIR). Follow-up and screening colonoscopies to be recorded separately (unadjusted CIR with video recorded and photographic evidence)	> 90%	> 95%
Adenoma Detection Rate (ADR)	≥ 35% of colonoscopies	Auditable outcome
Cancer Detection Rate	≥ 2 per 1,000 screened by FIT ≥ 11 per 100 colonoscopies	
Withdrawal time in negative colonoscopies (withdrawal from cecal pole to anus)	≥ 6 minutes	
Polyp retrieval rate (retrieval of polypectomy specimens for histological analysis per colonoscopist)[Ω]	> 90% per 100 polyps excised	> 95% per 100 polyps excised
Rate of high-grade neoplasia reported by pathologists in a Colonoscopy Screening	5%	
Rate of high-grade neoplasia reported by pathologists in a FIT screening program	10%	
Endoscopic complications of Colonoscopy Screening programs	Bleeding < 1:150 Perforation < 1:1,000	
Post Polypectomy Perforation Rate	1:500	Auditable outcome
Time interval between positive colonoscopy & start of definitive management within 31 days	> 90%	> 95%

APPENDIX 3

COLORECTAL CANCER SCREENING ENDOSCOPY UNIT INFRASTRUCTURE, EQUIPMENT, AND PERSONNEL

Endoscopy Unit Infrastructure and Equipment Must:

1. Include facilities for adequate pre-colonoscopy assessment, recovery, and be designed to allow efficient patient flow.
2. Match the demand with respect to unit capacity (e.g. equipment and personnel).
3. Provide video-endoscopes with high resolution and image enhancement that facilitate focal application of the dye for the detection and assessment of high-risk colorectal lesions and documentation.
4. Provide adequate supply of accessories suited to the endoscopic interventions undertaken and documentation.
5. Provide properly maintained resuscitation equipment in the endoscopy rooms and recovery areas.
6. Conduct a regular review of all the functioning and cleansing of the colonoscopies. The review should be available at all times in the unit including infection control.
7. Plan capacity that matches demand for screening. Referral to colonoscopy to be within 31 days from a positive FIT test (detects the presence of occult blood in the fecal sample).
8. Referral to colonoscopy to be within 31 days from positive FIT test (detects the presence of occult blood in the fecal sample).

Criteria Colorectal Cancer Screening Core Team to Include:

All members in the Colorectal Cancer Core Team should participate in regular multidisciplinary team meetings to discuss each patient with Colorectal Cancer.

1. At least 2 gastroenterologists: Each conducts a volume of minimum 150 per colonoscopist per year with a cecal completion rate of > 90%.
2. Nurse: Two nurses trained to provide support, assistance, information and advice to every patient. An in-depth understanding of Colorectal Cancer (diagnosis, treatment, prognosis, staging and importance of stage at diagnosis), an in-depth understanding of the colorectal screening process (including screening theory and particularly the potential benefits and harms of screening, and the prime importance of quality assurance) and advanced communication skills.
3. Regular training and evaluation for Colorectal Cancer Screening Core Team according to international guideline.

APPENDIX 4

RISK ASSESSMENT FOR COLORECTAL CANCER

No low risk
Average age risk:

1. **Age ≥ 40**
2. **No history of inflammatory bowel disease**
3. **Negative family history**
4. **No history of adenoma or Colorectal Cancer**

Increased Risk:

1. Personal history of adenoma, sessile serrated polyp (SAP)**, Colorectal Cancer, inflammatory bowel disease.
2. Positive family history of first or second degree relative with Colorectal Cancer (screening recommendations vary depending on family history, begin screening at an age approximately 10 years earlier than the age at which the youngest person in family was diagnosed with colorectal polyps or cancer).

**Increased risk based on personal history of adenoma(s)/sessile serrated polyp(s) found at colonoscopy:

a. Low-risk adenoma: ≤ 2 polyps, < 1 cm, tubular.

b. Advanced or multiple adenomas: High-grade dysplasia, ≥ 1 cm, villous (> 25% villous), between 3-10 polyps (fewer than 10 polyps in the setting of a strong family history or younger age (< 40 years) may sometimes be associated with an inherited polyposis syndrome).

c. More than 10 cumulative adenomas (fewer than 10 polyps in the setting of a strong family history or younger age (< 40 years) may sometimes be associated with an inherited polyposis syndrome).

d. Incomplete or piecemeal polypectomy (ink lesion for later identification) or polypectomy of large cancer.

High Risk:

1. Family history of a hereditary Colorectal Cancer syndrome such as Familial Adenomatous Polyposis (FAP) or lynch syndrome (also known as Hereditary Non-polyposis Colon Cancer or HNPCC).
2. Polyposis syndromes (Classical Familial Adenomatous Polyposis (FAP1-), Attenuated Familial Adenomatous Polyposis (AFAP1-), MYH Associated Polyposis (MAP1-), Peutz-Jeghers Syndrome (PJS1-), Juvenile Polyposis Syndrome (JPS1-), Hyperplastic Polyposis Syndrome (HPP1-).

COLORECTAL CANCER SCREENING AND SURVEILLANCE, IN HIGH-RISK DISEASE FAMILY GROUP

High-risk disease groups	Screening procedure	Time of initial screen	Screening procedure and interval
Colorectal Cancer			
	Consultation, CT, LFT's, & Colonoscopy	Colonoscopy within 6 months of resection only if colon evaluation pre-op is incomplete	CT liver scan within 2 years post-op. Colonoscopy 5 yearly until co-morbidity outweighs
Colonic Adenomas			
Low risk	1-2 adenomas, both < 1 cm	Colonoscopy	5 years or no surveillance
Intermediate risk	3-4 adenomas, or at least one adenoma ≥ 1 cm	Colonoscopy	Every 3 years
High risk	≥ 5 adenomas or ≥ 3 with at least one ≥ 1 cm piecemeal polypectomy	Colonoscopy Colonoscopy or flexi-si (depending on polyp location)	Yearly 3 months consider open surgical resection if incomplete healing of polypectomy scar
Ulcerative Colitis and Crohn's Colitis			
Low risk	Extensive colitis with no inflammation or left sided colitis or crohn's colitis of < 50% colon	Pancolonic dye	Every 10 years from onset of symptoms
Intermediate risk	Extensive colitis with mild active disease or post-inflammatory polyps or family history of Colorectal Cancer in a FDR < 50 years Extensive at least moderate colitis or stricture in past 5 years or dysplasia in past 5 years (declining surgery) or PSC or OLT for PSC) or Colorectal Cancer in a FDR < 50 years Ureterosigmoidostomy	With targeted biopsy. If no dye spray then 2-4 random biopsies every 10 cm	After surgery by 10 years
Acromegaly			
Acromegaly		Colonoscopy	At 40 years

COLORECTAL CANCER SCREENING AND SURVEILLANCE IN MODERATE-RISK DISEASE FAMILY GROUPS

Initial Screening 10 Years Earlier Than the Youngest Affected FDM

Family history	Screening procedure	Screening interval
One first-degree relative with CRC or advanced adenoma diagnosed before 60 years of age, or two first-degree relatives diagnosed at any age	Colonoscopy	Start at 40 years of age or 10 years younger than the earliest diagnosis in the patient's family, whichever comes first; colonoscopy should be repeated every five years
One first-degree relative with CRC or advanced adenoma diagnosed at 60 years or older, or two second-degree relatives with CRC	Colonoscopy	Start screening colonoscopy at 40 years of age; colonoscopy should be repeated every 10 years
One second- or third-degree relative with CRC	Colonoscopy	Average-risk screening (e.g., start at 40)
Individuals who have crohn disease with colonic involvement or ulcerative colitis Screening should be repeated every one to three years	Colonoscopy	Colonoscopy screening should begin eight to 10 years after the onset of symptoms
In individuals with hereditary non-polyposis Colorectal Cancer	Colonoscopy	Colonoscopy should begin at 25 years of age and be repeated annually
Individuals with adenomatous polyposis syndromes	Colonoscopy	Colonoscopy between 10 to 20 years of age and be repeated every one to two years
Individuals with Peutz-Jeghers syndrome. If results are, negative, testing should be repeated every three years	Colonoscopy	Esophagogastroduodenoscopy, colonoscopy, and video capsule endoscopy should begin at eight years of age if results are negative, testing should be repeated every three years
Individuals with sessile serrated adenomatous polyposis	Colonoscopy	Colonoscopy should begin as soon as the diagnosis is established and should be repeated annually

- Affected relatives who are first-degree relatives of each other and at least one is a first-degree relative of the patient.
- Combinations of 3 affected relatives in a first-degree kinship include: Parent and aunt/uncle and/or grandparent; or 2 siblings/1 parent; or 2 siblings/1 offspring. Combinations of 2 affected relatives in a first-degree kinship.
- Include a parent and grandparent, or > 2 siblings, or > 2 children, or child + sibling. Where both parents are affected, these count as being within the first-degree kinship.
- Clinical genetics referral recommended.
- Centers may vary depending on capacity and referral agreements. Ideally, all such cases should be flagged systematically for future audit on an Emirate level.

COLORECTAL CANCER SCREENING AND SURVEILLANCE IN HIGH-RISK DISEASE FAMILY GROUPS

Family history categories*	Screening procedure	Age at initial screen	Screening interval and procedure
At-risk HNPCC (fulfils modified Amsterdam criteria, or untested FDR of proven mutation carrier)	MMR gene testing of affected relative Colonoscopy +/- OGD	Colonoscopy from age 25 years OGD from age 40 years or screening 10 years earlier than the youngest affected FDM	Colonoscopy every 18-24 months (OGD every 2 years from age 40 years)
MMR gene carrier	Colonoscopy +/- OGD		
At-risk FAP (member of FAP family with no mutation identified)	APC gene testing of affected relative Colonoscopy	Puberty Flexible approach Important to make allowance for variation in maturity	Annual colonoscopy or until aged 30 years Thereafter 3-5 yearly until 60 years proctocolectomy or colectomy if positive
Fulfils clinical FAP criteria, or proven APC mutation carrier opting for deferred surgery prophylactic surgery normally strongly recommended	Colonoscopy Colonoscopy/ OGD	Usually at diagnosis otherwise puberty Flexible approach important making allowance for variation in maturity	Recommendation for proctocolectomy & pouch/colectomy before age 30 years Cancer risk increases dramatically age > 30 years Twice yearly colonoscopy

Family history categories*	Screening procedure	Age at initial screen	Screening interval and procedure
FAP post colectomy and IRA	Colonoscopy OGD	After surgery OGD from age 30 years	Colonoscopy every 3 years forward & side-viewing OGD
FAP post proctocolectomy and pouch	DRE and pouch endoscopy Forward & side-viewing OGD	After surgery OGD from age 30 years	Annual exams alternating Flexible/rigid pouch Endoscopy every 3 years forward & side-viewing OGD
MUTYH-associated polyposis (MAP)	Genetic testing Colonoscopy +/- OGD	Colonoscopy from age 25 years OGD from age 30 years	Mutation carriers should be counselled about the available limited evidence; options include prophylactic colectomy and ileorectal anastomosis; or biennial colonoscopy surveillance Every 3-5 years gastroduodenoscopy
FDR with MSI-H Colorectal Cancer and IHC shows loss of MSH2, MSH6, or PMS2 expression	Colonoscopy +/- OGD	Colonoscopy from age 25 years OGD from age 40 years	Colonoscopy every 2 years (with OGD aged > 40 years)
MLH1 loss and MSI specifically excluded (MLH1 loss in elderly patient with right-sided tumor is usually somatic epigenetic event)			
Peutz-Jeghers Syndrome	Genetic testing of affected relative Colonoscopy +/- OGD	Colonoscopy from age 25 years OGD from age 25 years Small bowel MRI/ enteroclysis	2 yearly colonoscopy/ consider colectomy and IRA for colonic cancer Small bowel VCE or MRI/enteroclysis 2-4 yearly OGD 2 yearly
Juvenile polyposis	Genetic testing of affected relative Colonoscopy +/- OGD	Colonoscopy from age 15 years OGD from age 25 years	Every 2 years colonoscopy and OGD Extend interval > 35 years

1. The Amsterdam criteria for identifying HNPCC are three or more relatives with Colorectal Cancer:
    - One patient a first-degree relative of another.
    - Two generations with cancer.
    - One cancer, diagnosed under the age of 45 or other HNPCC-related cancers, e.g. endometrial, ovarian, gastric, upper urothelial, and biliary tree.
2. Clinical genetics referral and family assessment required, if not already in place or if clinical genetics did not initiate referral.
3. FAP, familial adenomatosis polyposis; FDR, first-degree relative (sibling, parent, or child) with colorectal cancer; HNPCC, hereditary non-polyposis colorectal cancer; IHC, immunohistochemistry of tumor material from affected proband; MSI-H, microsatellite instability high (two or more MSI markers show instability); OGD, esophagogastroduodenoscopy endoscopy; VCE, video capsule endoscopy.

APPENDIX 5

AMERICAN SOCIETY OF ANESTHESIOLOGY CLASSIFICATION SYSTEM

Class	Description
1	Patient has no organic, physiologic, biochemical, or psychiatric disturbance (healthy and no comorbidity).
2	Mild-moderate systemic disturbance caused either by the condition to be treated surgically or by other pathophysiologic processes (mild-moderate condition, well controlled with medical management; examples include diabetes, stable coronary artery disease, stable chronic pulmonary disease).
3	Severe, systemic disturbance or disease from whatever cause, even though it may not be possible to define the degree of disability with finality (disease or illness that severely limits normal activity and may require hospitalization or nursing home care; examples include severe stroke, poorly controlled congestive heart failure, or renal failure).
4	Severe systemic disorder that is already life threatening, not always correctable by the operation (examples include coma, acute myocardial infarction, respiratory failure requiring ventilator, support renal failure requiring urgent dialysis, and bacterial sepsis with hemodynamic instability).
5	The moribund patient who has little chance of survival.

References:

1. Updated guidelines on the management of colon cancer were published on February 1, 2022 by the American Society of Colon and Rectal Surgeons (ASCRS).

2. Colorectal cancer screening *Am Fam Physician*. 2022;105(3):327-329.

3. Jennifer S. Lin, MD, MCR, Leslie A. Perdue, MPH, Nora B. Henrikson, PhD, MPH, Sarah I. Bean, MPH, and Paula R. Blasi, MPH. Agency for Healthcare Research and Quality (US); 2021 May.

@MOHAPUAE
www.moh.gov.ae