CHAPTER 4 - THE DIGESTIVE SYSTEM

1 INTRODUCTION

Abdominal disorders can be acute or chronic and vary greatly in severity. In most cases applicants with any acute presentation or exacerbation of a chronic condition will be assessed as temporarily unfit until satisfactorily recovered. The most commonly reported cause of in-flight air crew incapacitation is acute gastrointestinal upset, however, even symptoms which are rather less severe can distract or may disable a pilot at critical stages in flight. Even [if] conditions appear to be in remission, it is essential to remember the volumetric changes of intra-abdominal gases due to altitude and that these may **[**result in**]** further symptoms. Because of such risks it is often necessary to confirm recovery or healing by additional [assessment] of an apparently asymptomatic and recovered individual.

2 OESOPHAGUS

The oesophagus is the first part of the alimentary tract**[**. Any expanding gases associated with decreased ambient pressure at**]** altitude can equalise through the mouth and are unlikely to cause discomfort. **[**However, any obstruction**]** or discomfort associated with food transit**[ ]**, will require a temporarily unfit assessment until fully investigated. Associated conditions are:

a Peptic oesophagitis/Oesophageal hiatus hernia with reflux oesophagitis are both associated with gastric or acid irritation of the oesophageal tissue, which usually present as pain. Symptoms and/or treatment require a temporarily unfit assessment until satisfactorily recovered. Minor prophylactic treatment may be considered.

b Oesophageal stricture may result from long term inflammation and cause regurgitation. It is disqualifying unless successfully treated.

c Oesophageal varices are associated with advanced cirrhosis of the liver [and risk of upper gastrointestinal haemorrhage] and are disqualifying.

d Sliding hiatus hernia requires individual evaluation but if particularly mobile will require surgical treatment before any fit assessment can be made.

3 STOMACH

As the second stage of the alimentary canal, the stomach has sphincters above and below. This makes it subject to barometric pressure change, particularly if motility is affected by inflammatory reaction. **[**Several pathomechanisms**]** can lead to inflammation and/or ulceration of the gastric mucosa. Gastric discomfort which persists despite occasional treatment with simple antacids, requires investigation.

Any gastritis or definite ulceration requiring treatment, **[**requires**]** a temporarily unfit assessment until recovery has been demonstrated. **[**Confirmation**]** of healing must be shown and only minimal dosage of prophylactic treatment **[**is**]** acceptable **[**for a fit assessment by the AMS**]**. If surgical treatment of a bleeding or perforated ulcer is required, the individual must be asymptomatic three months later with demonstrated healing before **[**fit assessment**]**. Recurrent peptic ulceration may require detailed evaluation before **[**a fit assessment**]** can be considered. Any malignancy demonstrated will be assessed according to the notes regarding oncology and malignant conditions. Post-surgical conditions such as ‘dumping syndrome’ will be disqualifying until satisfactorily controlled.

4 DUODENUM

The third stage of the alimentary canal with entry of the bile duct and pancreatic duct can also be subject to inflammation and/or ulceration. Peptic duodenal disorders are treated in a similar fashion to the gastric **[**ulcer**]** outlined above. All demonstrated disease must be shown to have healed before returning to flying. All medication must be minimal and approved by the AMS before returning to flying.

Recent research has associated the organism Helicobacter pylori with peptic ulceration. In such cases specific treatment may clear the condition for an extended period.

For any abdominal surgery see JAR FCL **[ ]**3 Appendix 3 para 3 before considering **[**fit assessment**]**.

2, 3 and 4 – these assessments apply to Class 1 and Class 2

5 SMALL INTESTINE

This is the longest part of the intestine and is again subject to barometric pressure changes. However, the intrinsic elasticity of the normal small bowel allows any expanded gas to pass without symptoms:

a Gastro-intestinal upsets. Acute gastro-intestinal upsets may be infective or reactive to certain foods and may pass with minor symptomatic treatment. Flying should not be undertaken until the **[**applicant**]** has recovered.

b Crohn's disease. [Due to the unpredictable nature of Crohn's disease acute and chronic phases are] of concern**[ ]**. **[**Applicants**]** with a confirmed history of Crohn's disease are unfit. **[**A fit assessment may be considered by the AMS provided that the disease is in established remission and stabilised, there are no signs of complication (adhesion/obstruction) and that systemic steroids are not required for control**]**. Close follow-up **[ ]**and supervision by the AMS **[**will be required**]**.

c Coeliac disease (non-tropical sprue), tropical sprue and galactose intolerance. Dietary intolerance conditions, such as listed above, should be assessed individually by the AMS. Although such individuals may be well controlled by dietary means any initial applicants should be considered against the difficulty of maintaining such control, given the **[**irregular**]** lifestyle of air crew.

6 LARGE INTESTINE (COLON)

The primary function of this region of intestine is fluid and mineral absorption. In aviation, chronic discomfort may be caused by expansion of gases causing colic and may **[**result in**]** diarrhoea, haemorrhage or even perforation **[**if associated with an underlying pathology like diverticulitis**]**.

Conditions which give rise to chronic **[ ]**symptoms **[**of the colon**]** are disqualifying. Individual cases should be assessed by the AMS to ensure full recovery before **[**a fit assessment**]** can be considered. **[ ]**Conditions of note are:

a Irritable bowel syndrome. This may be incompatible with **[**a fit assessment**]**. Individuals with symptoms controlled by diet or acceptable medication may be **[**assessed as fit**]**.

b Diverticular disease. This may be a single episode of diverticulitis, chronic inflammation, or associated with haemorrhage. Each case should be considered individually by the AMS. **[**Applicants with single**]** episodes or isolated areas which have been treated surgically may

be **[**assessed as fit**]** if the applicant is fully recovered and taking only acceptable medication.

c Ulcerative colitis. This inflammatory condition of unknown aetiology can be acute or chronic with multiple symptomatology that could incapacitate a pilot.

Any history or clinical diagnosis of ulcerative colitis **[**results in an unfit assessment. A fit assessment may be considered by the AMS provided that the disease is in established remission and stabilised and that systemic steroids are not required for control**]** A single acute episode if satisfactorily recovered for more than a year without symptoms or medication may be **[**assessed as**]** fit.

[At revalidation / renewal a fit assessment**]** may be considered after three months without symptoms and with minimal use of **[ ]**medication**[**, systemic steroids are not acceptable**]**.

Applicants who have had surgical resection should be assessed individually at least three months following surgery and be subject to regular follow-up.

6 a, 6 b and 6 c – these assessments apply to Class 1 and Class 2 – particular consideration must be given to Class 1 initial applicants

d Crohn's disease of the colon. See Crohn's disease of the small intestine.

e All infective diseases. Applicants with any infective disease of the colon require a temporarily unfit assessment while being treated and must be free of all disease processes and symptoms before **[**a fit assessment**]**.

6 d, 6 e – these assessments apply to Class 1 and Class 2

7 ANUS AND RECTUM

The terminal part of the alimentary tract retains the faecal mass. Aviation problems relating to this part of the bowel are caused by pain or haemorrhage and as follows:

a Haemorrhoids. Haemorrhoids may be acutely uncomfortable and can cause bleeding. Any acute haemorrhoidal inflammation requires a temporarily unfit assessment until it is asymptomatic. If surgery is required, a temporarily unfit assessment will be necessary to ascertain full recovery.

b Anal fissure or perianal abscess. These conditions require a temporarily unfit assessment while inflamed or undergoing treatment.

7 a, 7 b – these assessments apply to Class 1 and Class 2

8 PANCREAS

The pancreas' function in producing digestive enzymes may give rise to aeromedical concern if inflamed or obstructed:

a Pancreatitis. Pancreatitis caused by obstruction may be resolved surgically and so could be considered for **[**a fit assessment by the AMS**]**, **[**provided that**]** the damage was minimal and the individual is asymptomatic after an acceptable recovery period.

b Recurrent or chronic pancreatitis. Recurrent pancreatitis, which is idiopathic, drug or alcohol induced, is disqualifying due to its unpredictable and incapacitating nature.

c Pancreatic abscess or pseudo cyst. Conditions such as pancreatic abscess or pancreatic pseudo cyst may be considered individually **[**for fit assessment**]** if a satisfactory recovery is noted.

9 LIVER

Hepatic conditions may be acute, chronic, infective, toxic or obstructive. Applicants with any acute inflammation for whatever reason, **[**require a**]** temporarily unfit **[**assessment**]** and may be [considered for a fit assessment] when asymptomatic, non-infectious and with normal liver function

a Hepatitis. Hepatitis associated with drug or alcohol abuse will require this condition to be treated before [a fit assessment] can be considered **[**(see Chapter 8 Sexually transmitted diseases and other infections, paragraph 5 andChapter 18, Tropical Medicine, paragraphs 4.2.5 and 4.2.6)**]**.

b Chronic Hepatitis. Chronic hepatitis must be assessed individually but if associated with cirrhosis and reduced liver function, should be disqualifying.

c Gilbert's disease. Gilbert's disease (congenital unconjugated hyperbilirubinaemia) is acceptable for certification as may be minor liver function test abnormalities which are not supported by a clinical history.

d Liver transplant. Liver transplantation is usually a late resort and [therefore] likely to be associated with **[**chronic hepatitis and subsequent**]** secondary conditions such as oesophageal varices. If however, transplant function is normal, immunosuppressive medication minimal and there is no increased risk from secondary conditions, **[**a fit assessment**]** (Class 2) and **[**fit assessement**]** for multi-pilot operations (Class 1 'OML') **[**at revalidation / renewal**]** may be considered by the AMS.

9 – these assessments apply to Class 1 and Class 2

10 GALL BLADDER AND BILIARY TRACT

Biliary secretions are collected in the gall bladder and [once released into the duodenum] assist in the digestion of fat. Aeromedical concerns arise in association with calculus formation which can cause sudden **[ ]**incapacitation **[**due to gall colics**]**:

a Biliary calculi. A single, large, asymptomatic gall stone which has been discovered by chance may be acceptable. However, multiple gall stones, whether symptomatic or asymptomatic, are potential causes of incapacitation and require treatment. Individual cases [may] be considered by the AMS **[**for Class I with multi-pilot (Class 1 'OML') limitation at revalidation / renewal or for Class 2 with safety pilot (Class 2 'OSL') limitation**]**.

Gallstones small enough to enter the bile duct are potentially incapacitating and require specialist assessment. While awaiting assessment or treatment a **[**fit assessment by the AMS with multi-pilot (Class 1 'OML') or safety pilot (Class 2 'OSL')**]** limitation may be appropriate**[ ]**.

b Cholecystectomy. Cholecystectomy, whether performed via intra-abdominal or laparoscopic surgical procedures, requires adequate recovery appropriate to the procedure before **[**a fit assessment after individual review by the AMS**]** can be considered.**[ ]**

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[11 ABDOMINAL SURGERY

After abdominal surgery the effects of expansion of intrainntestinal air (more than two liters) due to the reduced ambient pressure within the pressure cabin have to be taken into consideration. This can have an effect on the gastrointestinal passage, especially with possible postoperative adhesions, and the sutures. Abdominal surgery is disqualifying for a minimum period of three months. However, the AMS may consider an earlier fit assessment in case of complete recovery, asymptomatic applicant and only minimal risk of recurrence or secondary complications (e.g. microinvasive surgery, appendectomy)**]**.

[12] TUMOURS OF THE GASTROINTESTINAL TRACT

[Malignant tumours of the oesophagus, stomach, small intestine, colon and rectum may be**]** disqualifying. An applicant who is considered to be fully recovered may be assessed against the criteria outlined in the malignancy and oncology section of these guidance notes. The primary criteria are whether recurrence at the primary site or via secondary, distal tumours will be incapacitating. All cases should be assessed by the AMS with full reports including histology, from the treating physician. **[**In any case abdominal surgery is disqualifying for a minimum period of three months (see above).**]**

[13] HERNIAE

Herniae require assessment against the possibility of barometric pressure changes and subsequent strangulation giving rise to incapacitating symptoms. Hernial sites are inguinal, femoral, umbilical and incisional. **[**Herniae with a risk of**]** strangulation are disqualifying until repaired. **[**Fit assessment**]** may be considered after full recovery, which would normally be 30-days following surgery.

12 – this assessment applies to Class 1 and Class 2

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