CROSSOVER FGID
CROSSOVER FGID
Impact?

Most common diagnoses in gastroenterology

E.g. IBS:

• Prevalence ~15 % USA and europe (2 – 87 %)
  Suares Am J Gastroenterology 2011
  Higgins Am J Gastroenterology 2004

• Economic impact!
  Direct medical costs 230 million dollar/year (USA) +
  additional indirect costs (off work,…)
  Doshi 2014
  Gurkirpal 2007
80th → Absence of organic disease → psychiatric disease → disorder of motility – nothing organic, psychiatric, functional

→ today 2016 Rome IV:
Diseases of the brain-gut axis

- Rome III 2006 → IV 2016 → consensus based → evidence based
- Still based on symptoms rather than physiological criteria
<table>
<thead>
<tr>
<th>Table 2: Functional Gastrointestinal Disorders: Disorders of Gut-Brain Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Esophageal Disorders</strong></td>
</tr>
<tr>
<td>A1. Functional chest pain</td>
</tr>
<tr>
<td>A2. Functional heartburn</td>
</tr>
<tr>
<td>A3. Reflux hypersensitivity</td>
</tr>
<tr>
<td>A4. Globus</td>
</tr>
<tr>
<td>A5. Functional dysphagia</td>
</tr>
<tr>
<td><strong>B. Gastroesophageal Disorders</strong></td>
</tr>
<tr>
<td>B1. Functional dyspepsia</td>
</tr>
<tr>
<td>B1a. Postprandial distress syndrome (PDS)</td>
</tr>
<tr>
<td>B1b. Epigastric pain syndrome (EPS)</td>
</tr>
<tr>
<td>B2. Belching disorders</td>
</tr>
<tr>
<td>B2a. Excessive supragastric belching</td>
</tr>
<tr>
<td>B2b. Excessive gastric belching</td>
</tr>
<tr>
<td><strong>C. Bowel Disorders</strong></td>
</tr>
<tr>
<td>C1. Irritable bowel syndrome (IBS)</td>
</tr>
<tr>
<td>C1a. IBS with predominant constipation (IBS-C)</td>
</tr>
<tr>
<td>C1b. IBS with predominant diarrhea (IBS-D)</td>
</tr>
<tr>
<td>C1c. IBS with mixed bowel habits (IBS-M)</td>
</tr>
<tr>
<td>C1d. IBS unclassified (IBS-U)</td>
</tr>
<tr>
<td>C2. Functional constipation</td>
</tr>
<tr>
<td>C3. Functional diarrhea</td>
</tr>
<tr>
<td>C4. Functional abdominal bloating/diastasis</td>
</tr>
<tr>
<td>C5. Unspecified functional bowel disorder</td>
</tr>
<tr>
<td>C6. Opioid-induced constipation</td>
</tr>
<tr>
<td><strong>D. Centrally Mediated Disorders of Gastrointestinal Pain</strong></td>
</tr>
<tr>
<td>D1. Centrally mediated abdominal pain syndrome (CAPS)</td>
</tr>
<tr>
<td>D2. Narcotic bowel syndrome (NBS)/Opioid-induced GI hyperglycemia</td>
</tr>
<tr>
<td><strong>E. Gallbladder and Sphincter of Oddi (SO) Disorders</strong></td>
</tr>
<tr>
<td>E1. Biliary pain</td>
</tr>
<tr>
<td>E1a. Functional gallbladder disorder</td>
</tr>
<tr>
<td>E1b. Functional biliary system SO disorder</td>
</tr>
<tr>
<td>E2. Functional pancreatic SO disorder</td>
</tr>
<tr>
<td><strong>F. Anorectal Disorders</strong></td>
</tr>
<tr>
<td>F1. Fecal incontinence</td>
</tr>
<tr>
<td>F1a. Functional anorectal pain</td>
</tr>
<tr>
<td>F1b. Levator ani syndrome</td>
</tr>
<tr>
<td>F1c. Unspecified functional anorectal pain</td>
</tr>
<tr>
<td>F2. Proctalgia fuga</td>
</tr>
<tr>
<td><strong>G. Childhood Functional GI Disorders: Neonate/Toddler</strong></td>
</tr>
<tr>
<td>G1. Infant regurgitation</td>
</tr>
<tr>
<td>G2. Ruminant syndrome</td>
</tr>
<tr>
<td>G3. Cyclic vomiting syndrome (CVS)</td>
</tr>
<tr>
<td>G4. Infant colic</td>
</tr>
<tr>
<td>G5. Functional diarrhea</td>
</tr>
<tr>
<td>G6. Infant dyschezia</td>
</tr>
<tr>
<td>G7. Functional constipation</td>
</tr>
<tr>
<td><strong>H. Childhood Functional GI Disorders: Child/Adolescent</strong></td>
</tr>
<tr>
<td>H1. Functional nausea and vomiting disorders</td>
</tr>
<tr>
<td>H1a. Cyclic vomiting syndrome (CVS)</td>
</tr>
<tr>
<td>H1b. Functional nausea and functional vomiting</td>
</tr>
<tr>
<td>H1b1. Functional nausea</td>
</tr>
<tr>
<td>H1b2. Functional vomiting</td>
</tr>
<tr>
<td>H1c. Ruminant syndrome way</td>
</tr>
<tr>
<td>H2. Functional abdominal pain disorders</td>
</tr>
<tr>
<td>H2a. Functional dyspepsia</td>
</tr>
<tr>
<td>H2a1. Postprandial distress syndrome</td>
</tr>
<tr>
<td>H2a1. Epigastric pain syndrome</td>
</tr>
<tr>
<td>H2a2. Irritable bowel syndrome (IBS)</td>
</tr>
<tr>
<td>H2b. Abdominal migraines</td>
</tr>
<tr>
<td>H2c. Abdominal pain – NOS</td>
</tr>
<tr>
<td>H3. Functional defecation disorders</td>
</tr>
<tr>
<td>H3a. Functional constipation</td>
</tr>
<tr>
<td>H3b. Nonintensive fecal incontinence</td>
</tr>
</tbody>
</table>
ROME IV Definition FGID
Functional GI disorders are disorders of gut–brain interaction. It is a group of disorders classified by GI symptoms related to any combination of the following:

- motility disturbance
- visceral hypersensitivity
- altered mucosal and immune function
- altered gut microbiota
- altered central nervous system (CNS) processing

→ Diseases of the brain-gut axis
FGID Pathophysiology - Biopsychosocial

Biopsychosocial Conceptual Model

Early Life
- Genetics
- Culture
- Environment
  - Trauma
  - Infection
  - Parental behaviors

Psychosocial Factors
- Life stress
- Personality traits
- Psychologic state
- Coping/cognitions
- Social support

Physiology
- Motility
- Sensation
- Immune dysfunction/inflammation
- Altered microflora
- Food/diet

Brain
CNS

Gut
ENS

FGID Presentation
- Symptoms
- Severity
- Behaviors

Outcome
- Health Care Use
- Daily function
- Quality of life
- Health Care Costs

Drossman et al.
Seriousness of stomach ache

Low Level of maternal reinforcement
Middle
High

Levy et al
• Illness anxiety

• Symptom-specific anxiety

• Hypervigilance/attentional bias

• Catastrophizing

Van Oudenhove et al
Brain-gut-axis: neurohumoral communication system

Afferent
- Health care seeking
- Symptom reporting
- Visceral perception
- Vagal (parasympathetic)
- Spinal (orthosympathetic)
- Afferent nerves
- Mechanoreceptors
- Mechanical GI stimulation

Efferent
- Affective cognitive circuits
- Homeostatic-afferent network
- Emotional motor system
- CRF
- GI immune & barrier function
- GI motor (dys)function
- HPA-axis ANS

Brain modulatory pathways

Behavior coping
- (Health-related) cognitions
- Personality
- (GI-specific) anxiety
- Attention vigilance
- Stressful life events
- Arousal

Naliboff and Rhudy
FGID Pathophysiology - Neurogastroenterology

- Understanding of the enteric nervous system, sensory physiology underlying pain, and stress signaling pathways

- Neuroimmunne signaling and intestinal barrier function, given the recent evidence implicating the microbiome, diet, and mucosal immune activation in FGIDs.
The intestinal mucosal barrier

first line of defense against commensals and pathogens:
mucus (secreted by goblet cells), IgA)
antimicrobial proteins (AMP), intestinal epithelial cells

Peterson and Artis
Psychological stress induces changes in the gut

Motility, secretion, and barrier function via the brain–eosinophil–mast cell Axis - Animal studies - stress indirectly activates mast cells via eosinophils – release corticotropin-releasing hormone, inducing mast cell activation - can effect afferent nerve fibers, barrier function, and blood vessels. Moreover, direct interaction between the brain and the enteric nervous system (ENS)

Boeckxstaens et al
FGID Pathophysiology – intestinal microenvironment
FGID Pathophysiology – intestinal microenvironment

- Various luminal factors and their interactions with each other and the host in functional gastrointestinal disorders
  - Food
    - IBS more often do claim intolerances to food
    - Nutrient challenge Tests did prove that
      - Le Neve et al, Pohl et al
  - Gut microbiota («microbiome-gut-brain-axis»)
  - Possible link to FGIDs by disturbances in epithelial barrier integrity, abnormal enteroendocrine signaling, and immune activation

Barbara et al
Enteroendocrine system

- Chemical, mechanical, and neural stimuli
- β-adrenergic, cholinergic, muscarinic and nicotinic, 5-HT$_3$ receptors increase release
- Presynaptic nerve ending
- SERT proteins
- 5-HT reuptake
- Increased 5-HT IBS-D
- Sensation
- Secretion
- Contraction
- Decreased 5-HT IBS-C

α2 adrenergic, histamine H3, GABA and 5-HT$_4$ receptors reduce release

5-HT$_4$ receptor
ACh
5-HT$_3$ receptor

Barbara et al

- Host-pathogen interactions
- Develops in ~10% of subjects
- After *Salmonella*, *Shigella*, *Campylobacter*
- Disrupt intestinal ecosystem
- Accounts for 6–17% of all IBS

### Adverse life events

<table>
<thead>
<tr>
<th>Event</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverse life events</td>
<td>2.0</td>
</tr>
<tr>
<td>Depression</td>
<td>3.2</td>
</tr>
<tr>
<td>Hypochondriasis</td>
<td>2.0</td>
</tr>
<tr>
<td>Age &gt;60</td>
<td>0.4</td>
</tr>
<tr>
<td>Female</td>
<td>3.0</td>
</tr>
<tr>
<td>Smoking</td>
<td>4.8</td>
</tr>
</tbody>
</table>

### Lymphocytosis

- RR 3.2

### EC hyperplasia

- RR 3.8

### Elongating toxin

- RR 12.8

### Duration of initial illness

- RR 11.5
Esophageal Disorders

A. Esophageal Disorders
A1. Functional chest pain
A2. Functional heartburn
A3. Reflux hypersensitivity
A4. Globus
A5. Functional dysphagia
Dagnostic criteria functional chest pain
Dagnostic criteria functional chest pain

For the past 3 months with symptom onset at least 6 months, frequency of at least once a week.

All of the following:

1. Retrosternal chest pain or discomfort; cardiac causes should be ruled out.

2. Absence of associated esophageal symptoms, such as heartburn and dysphagia.

3. Absence of evidence that gastroesophageal reflux or eosinophilic esophagitis are the cause of the symptom.

Diagnostic criteria for functional heartburn.
Diagnostic criteria for functional heartburn.

For the past 3 months, symptom onset at least 6 months, frequency of at least twice a week.
Must include all of the following:
1. Burning retrosternal discomfort or pain.
2. No symptom relief despite optimal antisecretory therapy.
3. Absence of evidence that gastroesophageal reflux (abnormal acid exposure and symptom reflux association) or EoE is the cause of symptoms.
Diagnostic criteria for reflux hypersensitivity.
Diagnostic criteria for reflux hypersensitivity.

For the past 3 months, symptom onset at least 6 months before diagnosis, frequency of at least twice a week. Must include all of the following.

1. Retrosternal symptoms including heartburn and chest pain.
2. Normal endoscopy and absence of evidence that EoE is the cause for symptoms.
3. Absence of major esophageal motor disorders (achalasia/EGJ outflow obstruction, diffuse esophageal spasm, jackhammer esophagus, absent peristalsis).
4. Evidence of triggering of symptoms by reflux events despite normal acid exposure on pH or pH–impedance monitoring (response to antisecretory therapy does not exclude the diagnosis).
Functional heartburn

Heartburn
Normal endoscopy and biopsies

Unproven GERD

Proven GERD

On PPI
pH Impedanz

Off PPI
pH monitoring ± impedance

Normal acid exposure
Negative symptom reflux association

Normal acid exposure
Positive symptom reflux association

Abnormal acid exposure
Positive or negative symptom reflux association

New differentiation with pH Impedanz for symptom-association
**Functional heartburn**

- **Heartburn**
  - Normal endoscopy and biopsies
    - Unproven GERD
      - Off PPI
        - pH monitoring ± impedance
          - Normal acid exposure
            - Negative symptom reflux association → Functional heartburn
          - Normal acid exposure
            - Positive symptom reflux association
          - Abnormal acid exposure
            - Positive or negative symptom reflux association
            → Reflux hypersensitivity
            → NERD
    - Proven GERD
      - On PPI
        - pH impedance

New differentiation with pH Impedanz for symptom-association
Diagnostic criteria for globus
Diagnostic criteria for globus

For the past 3 months, symptom at least 6, frequency least once a week. Must include all of the following.

1. Persistent or intermittent, nonpainful, sensation of a lump or foreign body in the throat with no structural lesion identified on physical examination, laryngoscopy, or endoscopy.
   a. Occurrence of the sensation between meals.
   b. Absence of dysphagia or odynophagia.
   c. Absence of a gastric inlet patch in the proximal esophagus.

2. Absence of evidence that gastroesophageal reflux or EoE is the cause of the symptom.

Absence of major esophageal motor disorders.
Diagnostic criteria for functional dysphagia.
Diagnostic criteria for functional dysphagia.

For the past 3 months, at least 6 months, frequency of at least once a week. Must include all of the following.

1. Sense of solid and/or liquid foods sticking, lodging, or passing abnormally through the esophagus.
2. Absence of evidence that esophageal mucosal or structural abnormality is the cause of the symptom.
3. Absence of evidence that gastroesophageal reflux or EoE is the cause of the symptom.
Gastroenterology

Gastroduodenal Disorders

B1. Functional dyspepsia
- B1a. Postprandial distress syndrome (PDS)
- B1b. Epigastric pain syndrome (EPS)

B2. Belching disorders
- B2a. Excessive supragastric belching
- B2b. Excessive gastric belching
Gastroenterology

Gastroduodenal Disorders

B3. Nausea and vomiting disorders
- B3a. Chronic nausea vomiting syndrome (CNVS)
- B3b. Cyclic vomiting syndrome (CVS)
- B3c. Cannabinoid hyperemesis syndrome (CHS)

B4. Rumination syndrome
Functional Dyspepsia Diagnostic criteria
Functional Dyspepsia Diagnostic criteria

1. One or more of the following:
   a. Bothersome postprandial fullness
   b. Bothersome early satiation
   c. Bothersome epigastric pain
   d. Bothersome epigastric burning

AND

2. No evidence of structural disease (including at upper endoscopy) that is likely to explain the symptoms
Diagnostic criteria B1a. Postprandial Distress Syndrome
Diagnostic criteria B1a. Postprandial Distress Syndrome

• Must include one or both of the following at least 3 days per week:

1. Bothersome postprandial fullness (ie, severe enough to impact on usual activities)

2. Bothersome early satiation (ie, severe enough to prevent finishing a regular-size meal)

• No evidence of organic, systemic, or metabolic disease that is likely to explain the symptoms on routine investigations (including at upper endoscopy)
Diagnostic criteria B1b. Epigastric Pain Syndrome
Diagnostic criteria B1b. Epigastric Pain Syndrome

Must include at least 1 of the following symptoms at least 1 day a week:

1. Bothersome epigastric pain (ie, severe enough to impact on usual activities)
   AND/OR
2. Bothersome epigastric burning (ie, severe enough to impact on usual activities)

No evidence of organic, systemic, or metabolic disease that is likely to explain the symptoms on routine investigations (including at upper endoscopy).
Also nausea belching bloating may be present

Test meal 60 g white bread, egg, 300 ml water consumed within 10 min
(250 kcal: 14 g protein, 26 g carbohydrate, 10 g fat)
DD secondary Dyspepsia

- Helicobacter pylori
- Motility... Gastroparesis
- (Biliary diseases)
- Peptic ulcer disease
- Neoplasia
- Many more
Symptoms suggestive of gastroduodenal involvement
Postprandial fullness, early satiation, epigastric pain, epigastric burning, nausea, vomiting, excessive belching, rumination

History and physical exam

Uninvestigated nausea, vomiting, belching, rumination (see related chapters)

Alarm features?

Uninvestigated dyspepsia

Consider empirical therapy

Symptoms resolved?

Treatment as needed

UGI endoscopy w/wo biopsies

Consider Hp, test and treat

Abnormality identified?

Eradication therapy

Functional dyspepsia (FD)

Secondary dyspepsia

Abnormality identified?

Other diagnostic tests as indicated

Yes

No

No
Symptoms suggestive of gastroduodenal involvement
Postprandial fullness, early satiation, epigastric pain, epigastric burning, nausea, vomiting, excessive belching, rumination

History and physical exam

Alarm features? No Yes

Uninvestigated nausea, vomiting, belching, rumination (see related chapters)

Uninvestigated dyspepsia

Consider empirical therapy

Symptoms resolved?

Treatment as needed

UGI endoscopy w/wo biopsies

Consider Hp, test and treat

Eradication therapy

Functional dyspepsia (FD)

Secondary dyspepsia

Abnormality identified?

No Yes

Other diagnostic tests as indicated

Abnormality identified?
Symptoms suggestive of gastroduodenal involvement

Postprandial fullness, early satiation, epigastric pain, epigastric burning, nausea, vomiting, excessive belching, rumination

History and physical exam

Alarm features?

Uninvestigated nausea, vomiting, belching, rumination (see related chapters)

UGI endoscopy w/wo biopsies

Other diagnostic tests as indicated

Abnormality identified?

Abnormality identified?

Secondary dyspepsia

Uninvestigated dyspepsia

Consider Hp, test and treat

Eradication therapy

Functional dyspepsia (FD)

Symptoms resolved?

Consider empirical therapy

Symptoms resolved?

Treatment as needed

Antisecret. gain 15 %

Prokinetic NNT 6

NNT 14
B2. Diagnostic Criteria for Belching Disorders
B2. Diagnostic Criteria for Belching Disorders

Must include all of the following:

• Bothersome (ie, severe enough to impact on usual activities) belching from the esophagus or stomach more than 3 days a week

B2a: Excessive supragastric belching (from esophagus)
B2b: Excessive gastric belching (from stomach).

Supportive remarks

• Supragastric belching is supported by observing frequent, repetitive belching
• Gastric belching has no established clinical correlate
• Objective intraluminal impedance measurement can be used to distinguish supragastric from gastric belching.
B3. Diagnostic Criteria B3a: Chronic Nausea and Vomiting Syndrome (CNVS)
B3. Diagnostic Criteria B3a: Chronic Nausea and Vomiting Syndrome (CNVS)

Must include all of the following:

1. Bothersome (ie, severe enough to impact on usual activities) nausea, occurring at least 1 day per week and/or 1 or more vomiting episodes per week
2. Self-induced vomiting, eating disorders, regurgitation, or rumination are excluded
3. No evidence of organic, systemic, or metabolic diseases that is likely to explain the symptoms on routine investigations (including at upper endoscopy).
B3. Diagnostic Criteria for B3b: Cyclic Vomiting Syndrome (CVS)
B3. Diagnostic Criteria for B3b: Cyclic Vomiting Syndrome (CVS)

Must include all of the following:

- Stereotypical episodes of vomiting regarding onset (acute) and duration (less than 1 week)

  1. At least e discrete episodes in the prior year and 2 episodes in the past 6 months, occurring at least 1 week apart

  2. Absence of vomiting between episodes, but other milder symptoms can be present between cycles

Supportive remarks:

- History or family history of migraine headaches
B3. Diagnostic Criteriaa B3c: Cannabinoid Hyperemesis Syndrome (CHS)
B3. Diagnostic Criteriaa B3c: Cannabinoid Hyperemesis Syndrome (CHS)

Must include all of the following:

1. Stereotypical episodic vomiting resembling cyclic vomiting syndrome (CVS) in terms of onset, duration, and frequency
2. Presentation after prolonged excessive cannabis use
3. Relief of vomiting episodes by sustained cessation of cannabis use

Supportive remarks:

• May be associated with pathologic bathing behavior (prolonged hot baths or showers).
DD Nausea and vomiting

–Gastroparesis
–Intestinal pseudoobstruction
–Metabolic
–Central nervous system disease, intracranial tumors
–Inner ear diseases
–Medications
–Rumination (effortless regurgitation)
–Bulemia nervosa
–Acute intermittent porphyria
–Several others...
B4. Diagnostic Criteria for Rumination Syndrome
B4. Diagnostic Criteria for Rumination Syndrome

Must include all of the following:

1. Persistent or recurrent regurgitation of recently ingested food into the mouth with subsequent spitting or remastication and swallowing

2. Regurgitation is not preceded by retching.

Supportive remarks:

- Effortless regurgitation events are usually not preceded by nausea
- Regurgitant contains recognizable food that might have a pleasant taste
- The process tends to cease when the regurgitated material becomes acidic.
Functional Bowel Disorders

C1. Irritable bowel syndrome (IBS)
• IBS with predominant constipation (IBS-C)
• IBS with predominant diarrhea (IBS-D)
• IBS with mixed bowel habits (IBS-M)
• IBS unclassified (IBS-U)

C2. Functional constipation

C3. Functional diarrhea

C4. Functional abdominal bloating/distension

C5. Unspecified functional bowel disorder

C6. Opioid-induced constipation
C1. Diagnostic Criteria for Irritable Bowel Syndrome
C1. Diagnostic Criteria for Irritable Bowel Syndrome

Recurrent abdominal pain, on average, at least 1 day per week in the last 3 months, associated with 2 or more of the following criteria:

1. Related to defecation
2. Associated with a change in frequency of stool
3. Associated with a change in form (appearance) of stool
Bowel Disorders NOOOOOOOOO

**FC:** Functional constipation
**FDr:** Functional diarrhea
**IBS-C:** Irritable bowel syndrome with predominant constipation
**IBS-D:** Irritable bowel syndrome with predominant diarrhea
**IBS-M:** Irritable bowel syndrome with predominant irregular bowel habits (mixed D/C)
Diagnostic criteria for IBS subtypes
IBS with predominant constipation
Diagnostic criteria for IBS subtypes
IBS with predominant constipation

• More than onefourth (25%) of bowel movements with Bristol stool form types 1 or 2 and less than one-fourth (25%) of bowel movements with Bristol stool form types 6 or 7.

• Alternative for epidemiology or clinical practice: Patient reports that abnormal bowel movements are usually constipation (like type 1 or 2 in Bristol Stool Form Scale (BSFS)).
Diagnostic criteria for IBS subtypes IBS with predominant diarrhea (IBS-D):
Diagnostic criteria for IBS subtypes IBS with predominant diarrhea (IBS-D):

- More than one-fourth (25%) of bowel movements with Bristol stool form types 6 or 7 and less than one-fourth (25%) of bowel movements with Bristol stool form types 1 or 2.
- Alternative for epidemiology or clinical practice: Patient reports that abnormal bowel movements are usually diarrhea (like type 6 or 7 of BSFS)
Diagnostic criteria for IBS subtypes IBS with mixed bowel habits (IBS-M):
Diagnostic criteria for IBS subtypes IBS with mixed bowel habits (IBS-M):

- More than one-fourth (25%) of bowel movements with Bristol stool form types 1 or 2 and more than one-fourth (25%) of bowel movements with Bristol stool form types 6 or 7.

- Alternative for epidemiology or clinical practice: Patient reports that abnormal bowel movements are usually both constipation and diarrhea (more than one-fourth of all the abnormal bowel movements were constipation and more than one-fourth were diarrhea, using picture of BSFS)
Diagnostic criteria for IBS subtypes IBS unclassified (IBS-U):
Diagnostic criteria for IBS subtypes IBS unclassified (IBS-U):

- Patients who meet diagnostic criteria for IBS but whose bowel habits cannot be accurately categorized into 1 of the 3 groups above should be categorized as having IBS unclassified.
Diagnostic criteria for IBS subtypes

- **Type 1**: Separate hard lumps, like nuts (hard to pass)
- **Type 2**: Sausage-shaped but lumpy
- **Type 3**: Like a sausage but with cracks on the surface
- **Type 4**: Like a sausage or snake, smooth and soft
- **Type 5**: Soft blobs with clear-cut edges
- **Type 6**: Fluffy pieces with ragged edges, a mushy stool
- **Type 7**: Watery, no solid pieces, entirely liquid

25% of BM is the threshold for classification

- **Bristol types 1 and 2**
- **IBS-C**
- **IBS-M**
- **IBS-U**
- **IBS-D**

% BM loose or watery

% BM hard or lumpy
Diagnostic criteria for IBS subtypes

- Predominant bowel habits are based on stool form on days with at least one abnormal bowel movement

- Type 1: Separate hard lumps, like nuts (hard to pass)
- Type 2: Sausage-shaped but lumpy
- Type 3: Like a sausage but with cracks on the surface
- Type 4: Like a sausage or snake, smooth and soft
- Type 5: Soft blobs with clear-cut edges
- Type 6: Fluffy pieces with ragged edges, a mushy stool
- Type 7: Watery, no solid pieces, entirely liquid

25% of BM is the threshold for classification
Diagnostic criteria for IBS subtypes

• Predominant bowel habits are based on stool form on days with at least one abnormal bowel movement

- **Type 1**: Separate hard lumps, like nuts (hard to pass)
- **Type 2**: Sausage-shaped but lumpy
- **Type 3**: Like a sausage but with cracks on the surface
- **Type 4**: Like a sausage or snake, smooth and soft
- **Type 5**: Soft blobs with clear-cut edges
- **Type 6**: Fluffy pieces with ragged edges, a mushy stool
- **Type 7**: Watery, no solid pieces, entirely liquid

25% of BM is the threshold for classification.
Diagnostic criteria for IBS subtypes

• *For clinical trials, subtyping based on at least 2 weeks of daily diary data is recommended, using the “25% rule.”*

• *IBS subtypes related to bowel habit abnormalities (IBS-C, IBS-D, and IBS-M) can only be confidently established when the patient is evaluated off medications used to treat bowel habit abnormalities.*
C2. Diagnostic Criteria for Functional Constipation
C2. Diagnostic Criteria for Functional Constipation

1. Must include 2 or more of the following:
   a. Straining during more than one-fourth (25%) of defecations
   b. Lumpy or hard stools (BSFS 12) more than one-fourth (25%) of defecations
   c. Sensation of incomplete evacuation more than one-fourth (25%) of defecations
   d. Sensation of anorectal obstruction/blockage more than one-fourth (25%) of defecations
   e. Manual maneuvers to facilitate more than one fourth (25%) of defecations (eg, digital evacuation, support of the pelvic floor)
   f. Fewer than 3 spontaneous bowel movements per week

2. Loose stools are rarely present without the use of laxatives

3. Insufficient criteria for irritable bowel syndrome
IBS-C

ROME IV constipation

What is needed for IBS-C?

FC: Functional constipation
FDr: Functional diarrhea
IBS-C: Irritable bowel syndrome with predominant constipation
IBS-D: Irritable bowel syndrome with predominant diarrhea
IBS-M: Irritable bowel syndrome with predominant irregular bowel habits (mixed D/C)
IBS-C

ROME IV constipation

What is needed for IBS-C?

- Abdominal pain, meteorismus
- Change with/amelioration with defecation
- Possible intermittent diarrhoea (-25%)

→ Relevance?!?
C3. Diagnostic Criteriona for Functional Diarrhea
C3. Diagnostic Criteriona for Functional Diarrhea

• Loose or watery stools, without predominant abdominal pain or bothersome bloating, occurring in >25% of stools.
• Patients meeting criteria for diarrhea-predominant IBS should be excluded
C4. Diagnostic Criteria for Functional Abdominal Bloating/Distension
C4. Diagnostic Criteria for Functional Abdominal Bloating/Distension

Must include both of the following:
1. Recurrent bloating and/or distention occurring, on average, at least 1 day per week; abdominal bloating and/or distention predominates over other symptoms.
2. There are insufficient criteria for a diagnosis of irritable bowel syndrome, functional constipation, functional diarrhea, or postprandial distress syndrome.

• Mild pain related to bloating may be present as well as minor bowel movement abnormalities.
C6. Diagnostic Criteria for Opioid-Induced Constipation
C6. Diagnostic Criteria for Opioid-Induced Constipation

1. New, or worsening, symptoms of constipation when initiating, changing, or increasing opioid therapy that must include 2 or more of the following:
   a. Straining during more than one-fourth (25%) of defecations
   b. Lumpy or hard stools (BSFS 12) more than one-fourth (25%) of defecations
   c. Sensation of incomplete evacuation more than one-fourth (25%) of defecations
   d. Sensation of anorectal obstruction/blockage more than one-fourth (25%) of defecations
   e. Manual maneuvers to facilitate more than one-fourth (25%) of defecations (eg, digital evacuation, support of the pelvic floor)
   f. Fewer than three spontaneous bowel movements per week

2. Loose stools are rarely present without the use of laxatives
Centrally Mediated Disorders of Gastrointestinal Pain
Centrally Mediated Disorders of Gastrointestinal Pain

D1. Centrally mediated abdominal pain syndrome (CAPS)
D2. Narcotic bowel syndrome (NBS)/ Opioid-induced GI hyperalgesia
D1. Diagnostic Criteria for Centrally Mediated Abdominal Pain Syndrom
D1. Diagnostic Criteria for Centrally Mediated Abdominal Pain Syndrome
Must include all of the following:

• Continuous or nearly continuous abdominal pain

• No or only occasional relationship of pain with physiological events (e.g., eating, defecation, or menses)
  – Some degree of gastrointestinal dysfunction may be present.

• Pain limits some aspect of daily functioning
  – Daily function could include impairments in work, intimacy, social/leisure, family life, and caregiving for self or others

• The pain is not feigned

• Pain is not explained by another structural or functional gastrointestinal disorder or other medical condition

• CAPS is typically associated with psychiatric comorbidity, but there is no specific profile that can be used for diagnosis.
Centrally Mediated Disorders of Gastrointestinal Pain

1. Patient with continuous or nearly continuous abdominal pain for 3 months with onset at least 6 months ago:
   - Not associated with known systemic disease
   - With limitation of daily functioning, including work and socializing

2. Alarm features identified on history or physical examination?
   - yes
     - Do appropriate diagnostic workup for alarm features
   - no
     - Is pain associated with bowel movements, eating, or menses?
       - yes
         - Consider IBS, EPS, or other painful FGIDs, structural GI disease, or gynecologic disorders
       - no
         - Suspicion that pain is feigned or represents drug-seeking behavior

3. yes
   - Manage appropriately
   - no
     - Referral to mental health care professional for evaluation

4. yes
   - Pain is feigned or represents drug-seeking behavior
   - no
     - Centrally Mediated Abdominal Pain Syndrome

Sperber AD, Drossman DA. Am J Gastroenterol 2010
D2. Diagnostic Criteria for Narcotic Bowel Syndrome/ Opioid-Induced Gastrointestinal Hyperalgesia
D2. Diagnostic Criteria for Narcotic Bowel Syndrome/ Opioid-Induced Gastrointestinal Hyperalgesia

- Pain must occur most days.
- A patient may have a structural diagnosis (eg, inflammatory bowel disease, chronic pancreatitis), but the character or activity of the disease process is not sufficient to explain the pain.
D2. Diagnostic Criteria for Narcotic Bowel Syndrome/ Opioid-Induced Gastrointestinal Hyperalgesia
D2. Diagnostic Criteria for Narcotic Bowel Syndrome/ Opioid-Induced Gastrointestinal Hyperalgesia

Must include all of the following:

1. Chronic or frequently recurring abdominal pain that is treated with acute high-dose or chronic narcotics

2. The nature and intensity of the pain is not explained by a current or previous GI diagnosis

Two or more of the following:

a. The pain worsens or incompletely resolves with continued or escalating dosages of narcotics

b. There is marked worsening of pain when the narcotic dose wanes and improvement when narcotics are re-instituted (soar and crash)

c. There is a progression of the frequency, duration, and intensity of pain episodes
DD CAPS
DD CAPS

– Inflammatory, neoplastic, obstructive diseases
– Chronic pancreatitis
– Abdominal wall pain
– Urological, gynecological diagnosis

– CAPS (before “functional abdominal pain syndrome”)
Gallbladder and Sphincter of Oddi (SO) Disorders

E1. Biliary pain
   • E1a. Functional gallbladder disorder
   • E1b. Functional biliary SO disorder

E2. Functional pancreatic SO disorder
Gallbladder and Sphincter of Oddi (SO) Disorders

E1. Biliary pain
  • E1a. Functional gallbladder disorder
  • E1b. Functional biliary SO disorder

E2. Functional pancreatic SO disorder

F. Functional anorectal disorders

F1. Fecal incontinence

F2. Functional anorectal pain
  • F2a. Levator ani syndrome
  • F2b. Unspecified functional anorectal pain
  • F2c. Proctalgia fugax

F3. Functional defecation disorders
  • F3a. Dyssynergic defecation
  • F3b. Inadequate defecatory propulsion
Conclusion, what is new in ROME IV
Conclusion, what is new in ROME IV

• Tries to reduce stigmatizing terms as functional, where ever possible

• Motility, hypersensitivity, mucosal immune dysfunction, microbiota of the gut, central processing
  – new “intestinal microenvironment”
  – Biopsychosocial aspects of the disorders

• *Includes exclusion of organic disease as gastroscopy and colonoscopy /after appropriate medical evaluation, the symptoms cannot be attributed to another condition*
Conclusion, what is new in ROME IV

• Elimination of SOD I, III

• New entity substance induced syndroms
  – Opoid induced constipation, opiod induced constipation
  – Cannabis hyperemesis

• IBS subtypes can overlap – so use the symptomatic episodes

• Nature of severity for FGID
  – Servere Symptoms more often refferal praxis patients (20-25% of all FGID) → 10% work disability
  – Mild symptoms mostly reassurance
  – Severe symptoms need a concept and realistic goals

• In future biomarkers?
Conclusion, what is new in ROME IV

• Treatment
  – Rifaximin Re-Treatment
  – Eluxalodin: IBS-D
  – Mind-Body-Therapy, cognitive therapy (therapy of hypervigilance and catastrophizing)
Vielen Dank für Ihre Aufmerksamkeit! noch Fragen?