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Faecal incontinence: the role of nursing

Christine Norton PhD, MA, RN

Associate Dean (Research) & Professor of
Gastrointestinal Nursing,

King's College London,

Nurse Consultant, St Mark's Hospital



Terminology

- Faecal incontinence – stool
- Anal incontinence – stool or flatus
- No accepted definitions
- ICI: “faecal/fecal incontinence is the involuntary loss of stool that is a social or hygienic problem”
(Norton, Madoff et al, 2005)
- 2-7% adults, depending on definition
- High (up to 60%) co-existence of UI

Systematic reviews on the management of FI



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- **ICI** (*Norton, Madoff et al 2005*)
- **NICE**: Guidelines on management of FI (*Norton et al June 2007*)
- **Cochrane reviews**:
 - Drugs (*Cheetham & Norton 2002*)
 - Biofeedback & exercises (*Norton & Cody 2006*)
 - Neurogenic bowel (*Coggrave & Norton 2006*)
 - Electrical stimulation (*Hosker & Norton 2007*)
 - Surgery



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“Man has evolved to be the greatest of all the species. And the organ that has ensured this is the hand. Yet, were I to put in your hand a mixture containing matter solid, liquid and gaseous and then ask you to selectively release the gas, you could not. And yet, the lowly anus can do so, with ease, and I might add, several times a day...”

Admiral Rollins (~1900)



Continence is complex



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- Anal sphincters (structural integrity, residual function if damaged)
 - Internal - passive; External - control of urge
- Pelvic floor and mucosal seal
- Sensory function
- Stool consistency and diet
- Gut motility
- Emotional factors
- Lifestyle and toilet access



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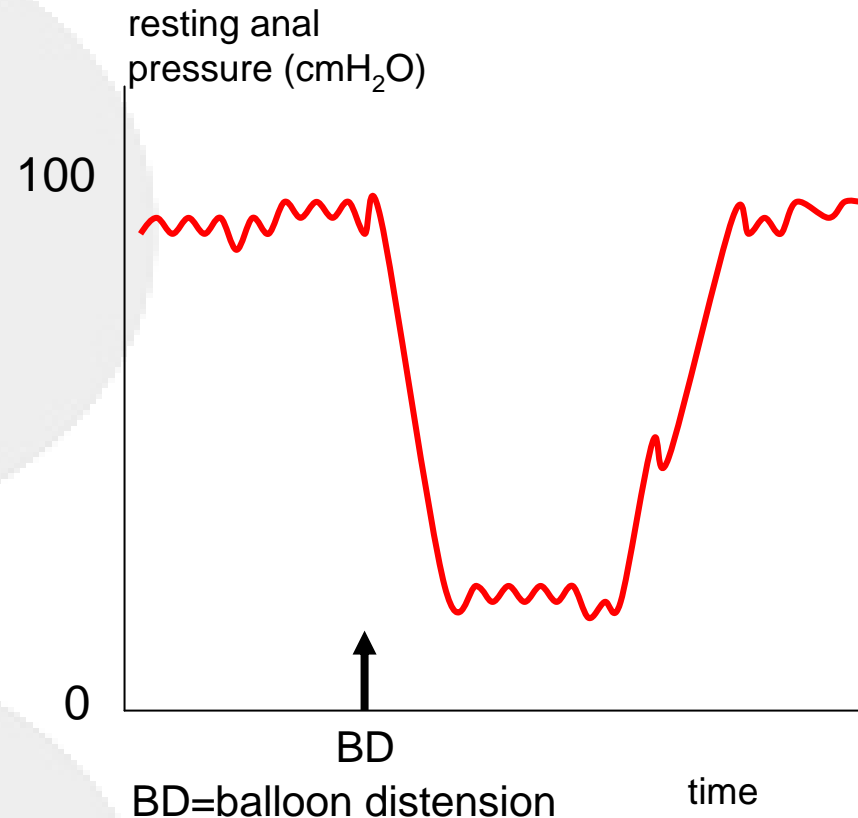
Anal sphincter and rectal pressures

- Resting anal pressure = internal anal sphincter activity
 - 60-110 cm water
- Contraction pressure = external anal sphincter activity
 - 70-250cm water
- Anal canal length ~ 2.5 to 5cm
 - longer and more complete in men
- Resting rectal pressure = 5-20 cm water
- Resting distension is not usually accompanied by any major changes in pressure (compliance): spinally mediated



Internal anal sphincter (IAS)

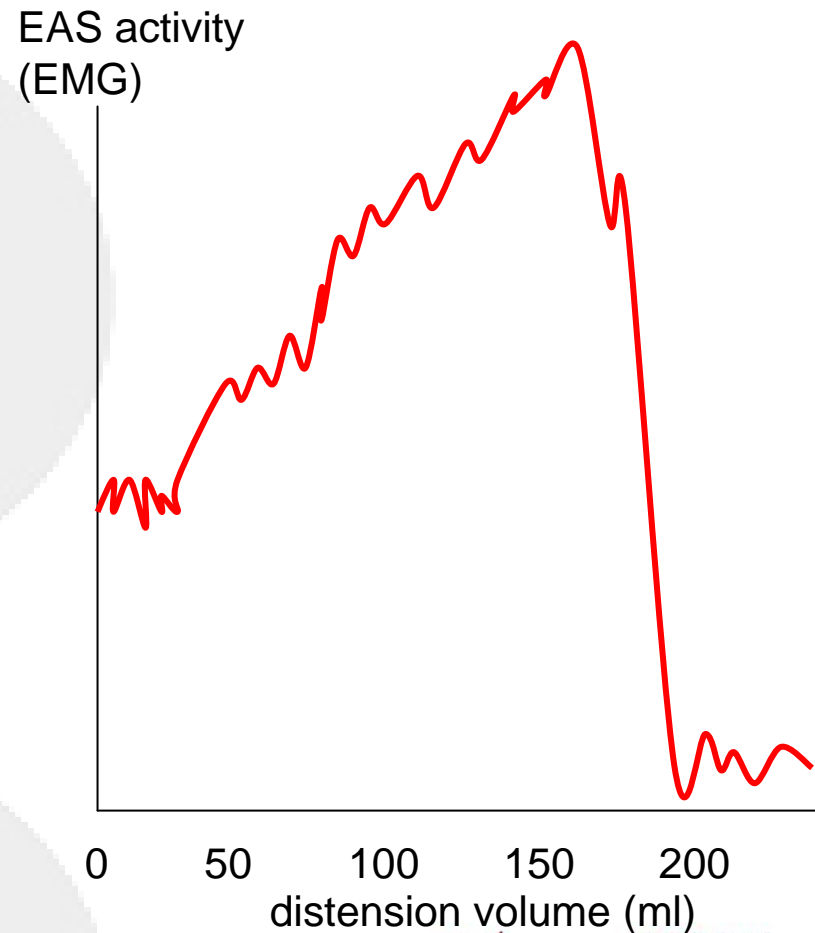
- Condensation of colonic smooth muscle
- ~3mm thick, 3cm long
- Continuous electrical activity (falls during sleep) - greatest in lower IAS
- Reduced activity with rectal distension (recto-anal inhibitory reflex)





External anal sphincter (EAS)

- Striated muscle, innervated by pudendal nerve
- Fatigable
- Rectal distension results in
 - increased activity initially
 - eventually activity diminishes and stops completely (a spinal reflex)

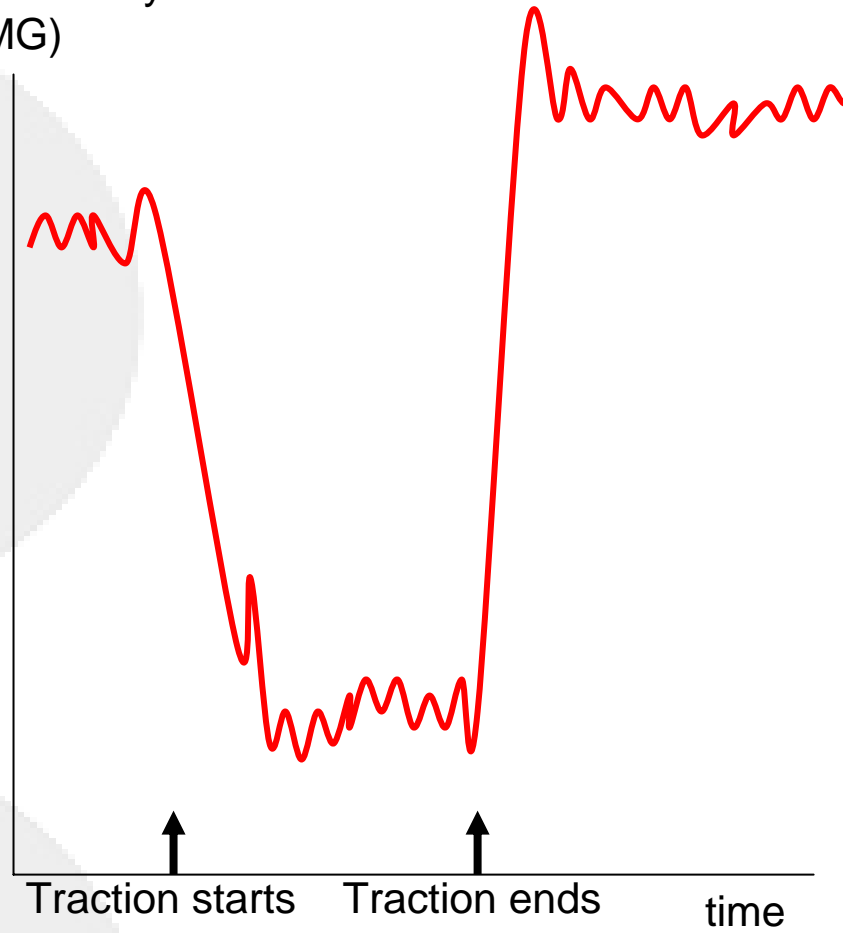




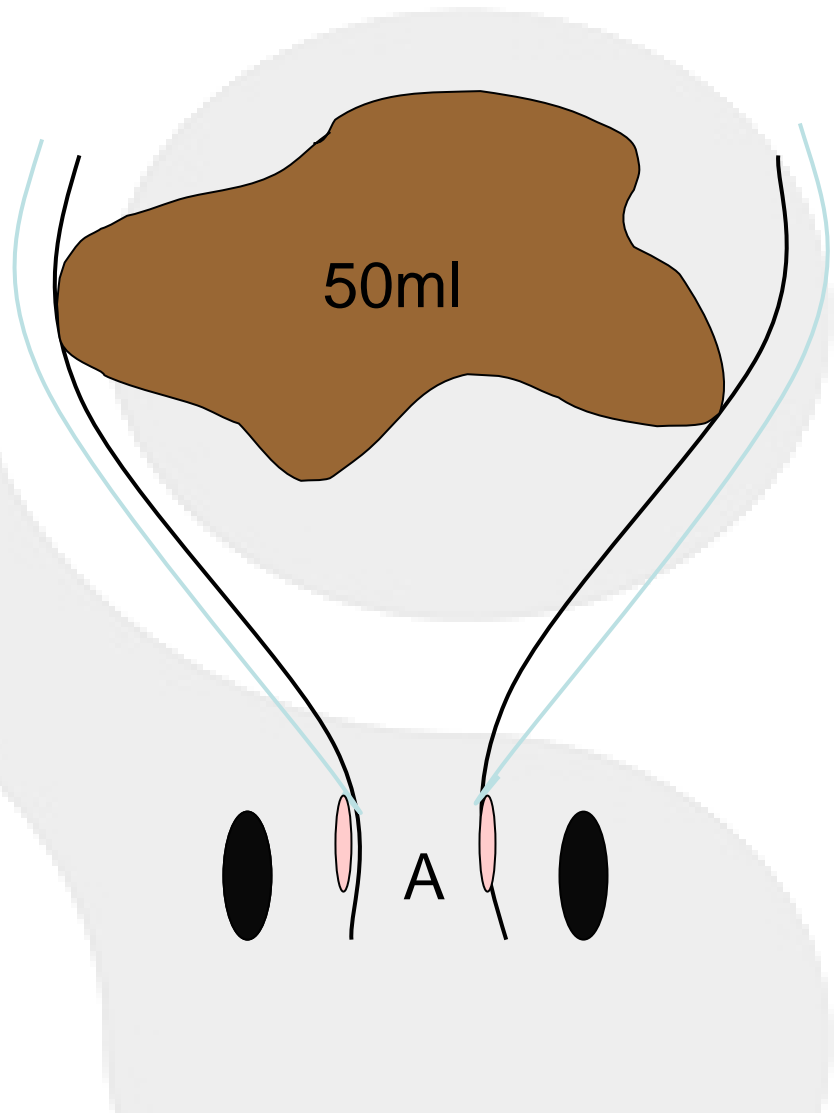
External anal sphincter (EAS)

- Pulling on the sphincter results in reduced activity
 - upon release of traction increased activity = closing reflex (a cortical reflex)
- Puborectalis acts in concert with the EAS

EAS activity
(EMG)



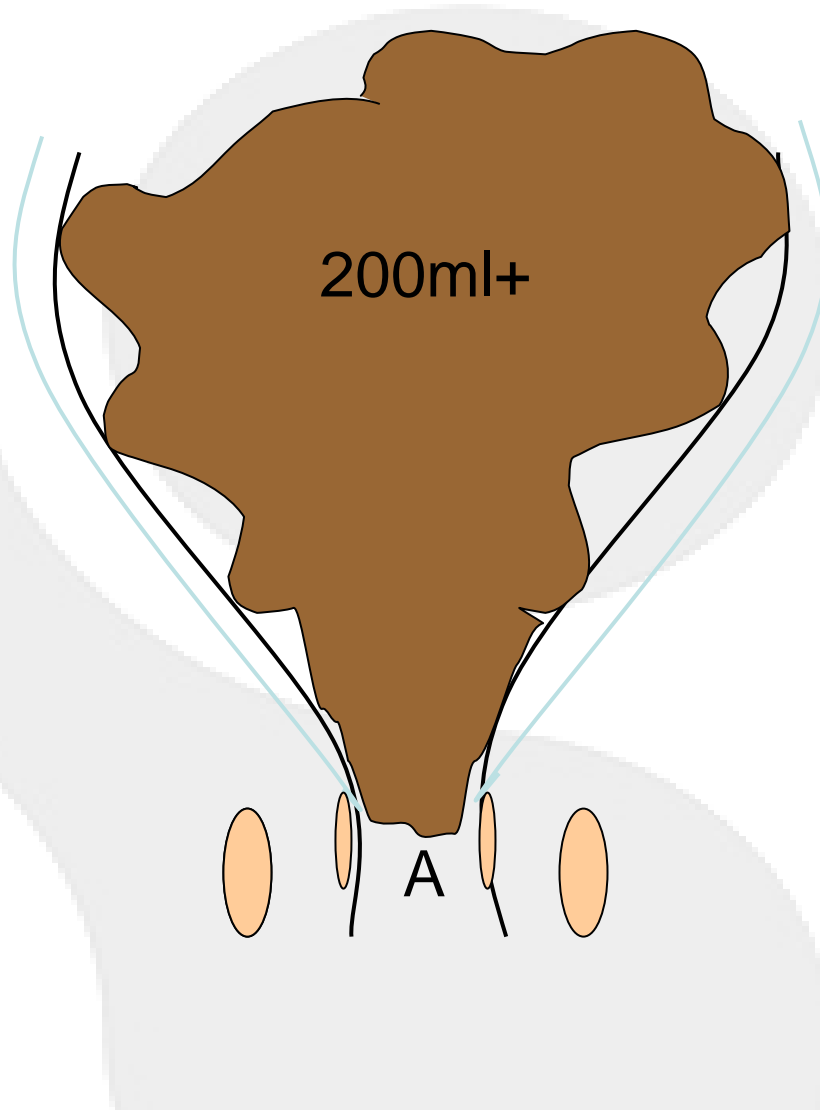
Initial distension



Increasing distension



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Anorectal sensation and sphincter function at rest



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- Every 10 minutes rectal distension leads to relaxation of upper IAS
- Rectal contents are exposed to anal mucosa (~10secs); incontinence does not occur due to recruitment of EAS activity
- Higher slow wave activity in lower IAS pushes contents back into rectum
- All usually occurs at sub-conscious level



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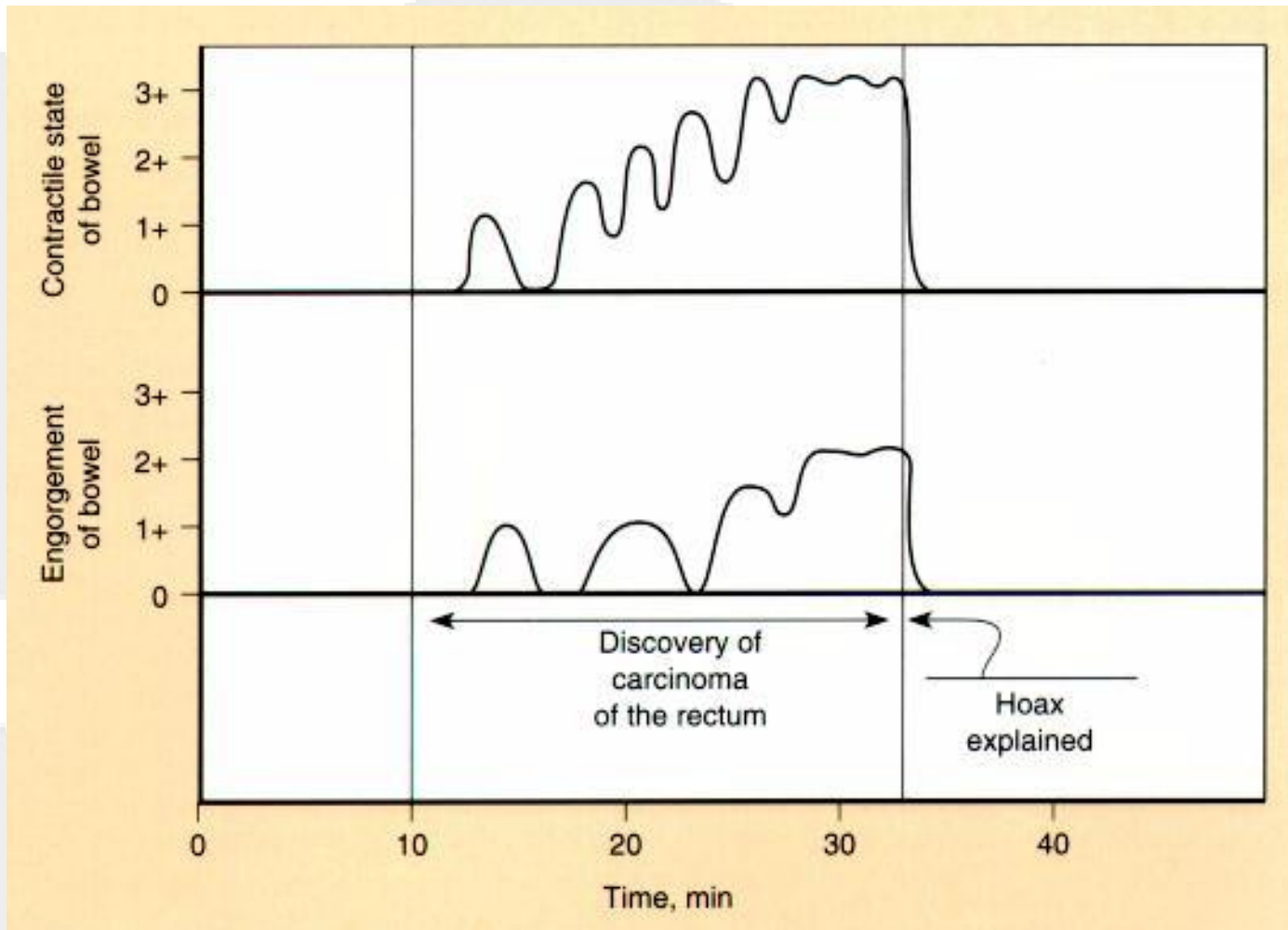
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Influences on Colonic Contraction

Emotion (Almay 1951)



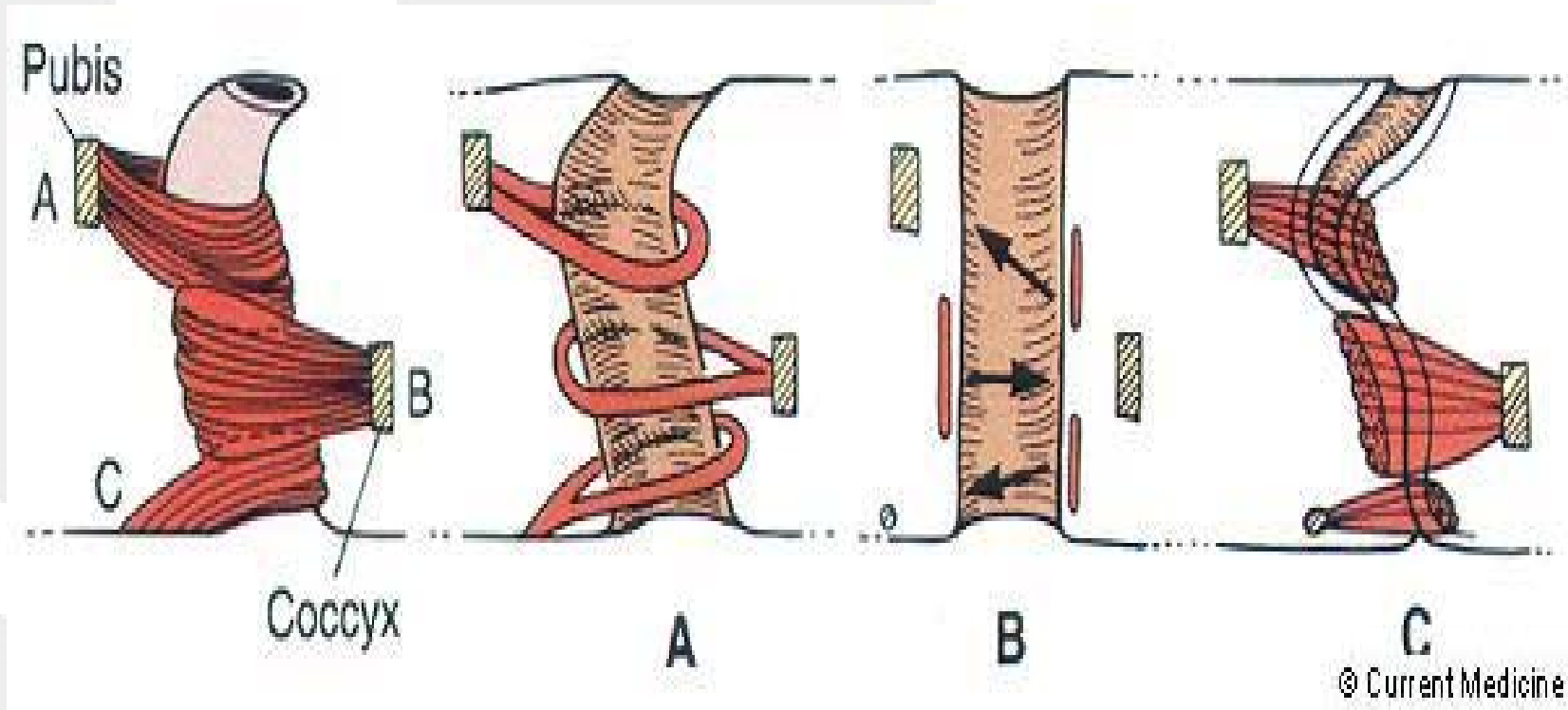
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Anal Canal Angulation



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Sensation and sphincter function during defaecation



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- Contents progressively fill rectal ampulla
- Critical level of filling triggers perception
- EAS contracted (sub-conscious) as IAS begins to relax
- Appropriate social context sought (conscious!) and await next giant migrating peristaltic contraction
- IAS remains relaxed, EAS now relaxes
- Should pass soft formed stool with minimal effort
- After evacuation EAS snaps shut
- “Normal” 3 times / day to 3 times / week



General population



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- **Perry et al, Gut 2002:**
- 10,000+ respondents 40 years+
- 6.2% men, 5.7% women some FI
- 1.4% major FI, 50% impacted QoL

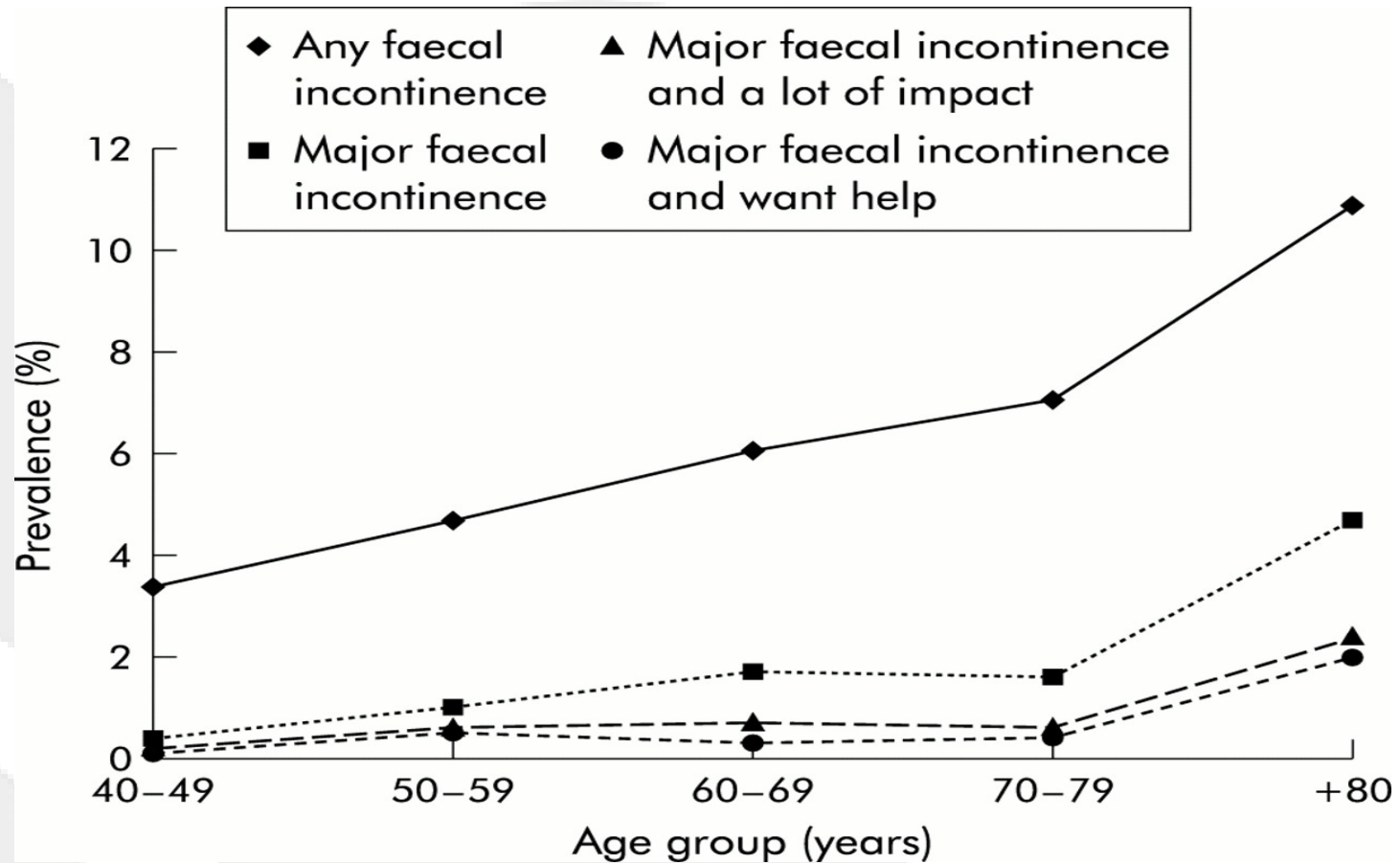
- **Macmillan et al, DRC 2004: review**
- 16 studies
- FI 11-15% of population
- Lack of agreed definitions and instruments



Prevalence (Perry et al 2002)



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Causation of FI



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- Complex interplay of many factors (often coexist): few discrete diagnostic categories, some outdated (eg “neurogenic”, “idiopathic”)
- Anal sphincters (structure and function)
 - Internal (smooth muscle): passive FI
 - External (striated muscle): urge FI
- Rectal capacity, sensation and compliance
- Anal canal: closure, sensation, pathology
- Gut motility and stool consistency: diet, drugs, emotions
- Ability to access an acceptable toilet





QoL & bowel problems

- Life often revolves around toilets
- First concern when go anywhere new
- Horror of queues
- Avoid places and activities in case no toilet available
- “Chained to the toilet”

(Chelvanayagam & Norton 2000)



High risk groups

- active case finding

- Frail older people (Nursing Homes 25-95%)
- Loose stools /Diarrhoea (IBD, IBS, diet, drugs)
- Women after childbirth: 3rd degree tear, large baby, forceps, older, midline episiotomy
- Neuro-disability (SCI 30-60%, MS 50%; stroke 10%)
- Cognitive impairment: depends on severity
- Urinary incontinence
- Pelvic organ or rectal prolapse
- Previous colonic resection, anal surgery, pelvic radiotherapy
- Perianal soreness, itching, pain
- Learning disability



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Outcome measures and FI



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- None fully validated
- No objective “gold standard”
- Lack of patient based outcome measures
- Most have used simplistic “scores”

Cleveland clinic score



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	Never	Rarely <1x mth	Some times <1x week	Usually < 1x day	Always daily
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
Gas	0	1	2	3	4
Pad	0	1	2	3	4
Lifestyle	0	1	2	3	4



Representation of patient comments in existing questionnaires

(Gardener, Norton et al, DCR 2008)

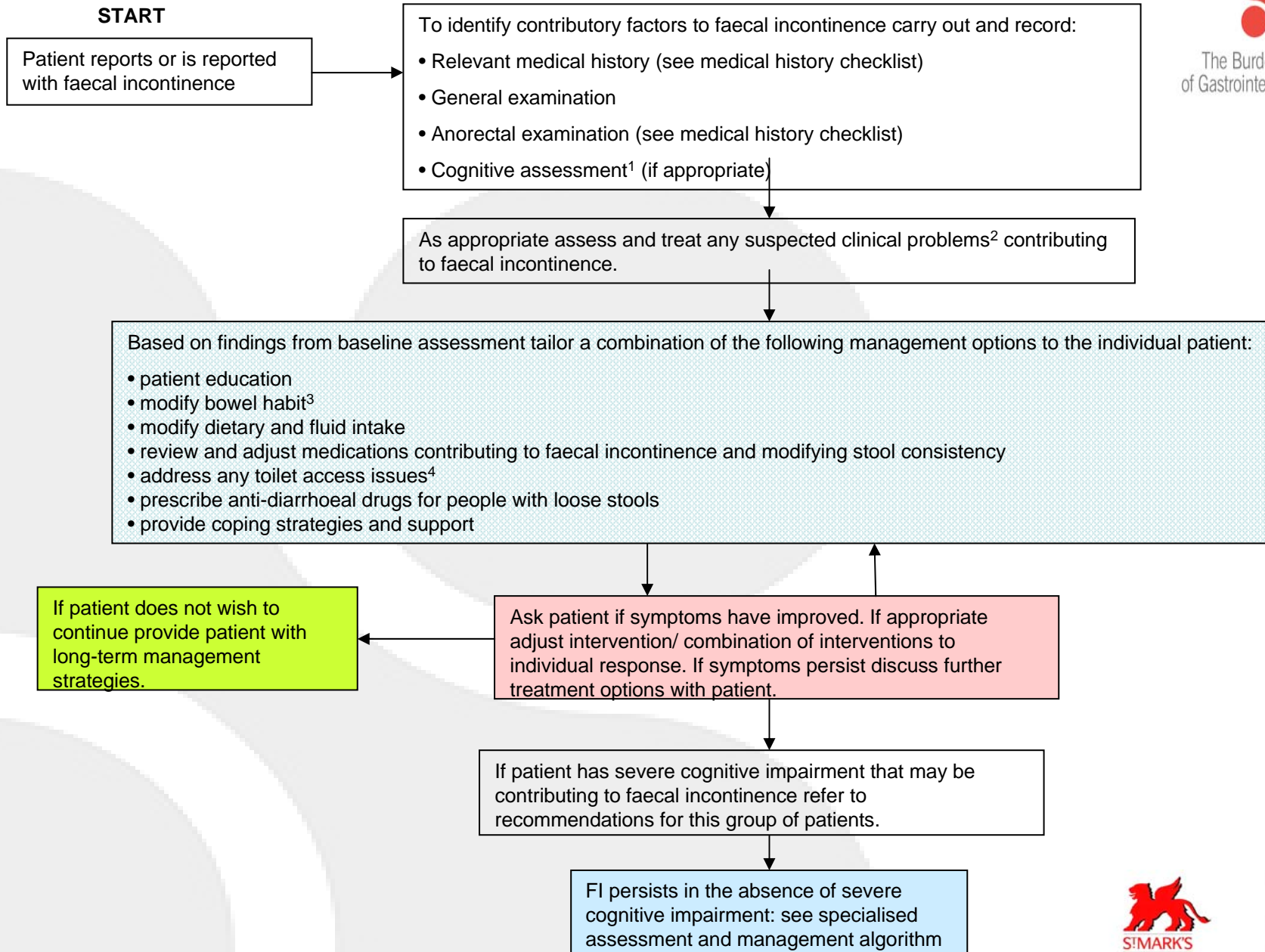
Poorly represented patient comments

Theme	Number of patient comments	Number of questionnaire items
Bowel unpredictability	21	0
Preventive measures	43	1
Fear of incontinence	48	2

Baseline assessment and initial management of patients with faecal incontinence



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NICE recommendations

- People who have faecal incontinence should:
 - receive a focused baseline assessment before any treatment is considered
 - receive all appropriate initial management before any specialised treatment
- Focused baseline assessment to identify contributory factors to FI should include:
 - relevant medical history
 - bowel symptoms (frequency, stool form, urgency, urge or passive incontinence, constipation etc...)
 - general examination
 - anorectal examination
 - cognitive assessment, if appropriate



Physical examination

- Abdomen (masses, bladder)
- Anal inspection (soiling, prolapse, skin, scarring, haemorrhoids, gaping)
- Digital anal
- Digital rectal
- Examine for prolapse on toilet
- Vaginal (rectocele)

Anorectal observation



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- Have a look!
- Anal position relative to buttocks (natal cleft)
- Perineum – length (2-3cm normal); scars; position at rest; descent on straining
- Perianal conditions
- Sacrum – dimples?
- Rectocoele



Digital examination

- Gaping with traction
- Resting tone (IAS)
- Squeeze: EAS & puborectalis
- Bear down:
 - ? Relax
 - ? Paradoxical contraction
 - ? Propulsive effort
- Presence & consistency of stool (masses?)

Examining for rectal prolapse



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- Most NOT evident in lying position as rest
- Ask patient to bear down – most still not evident
- Need to examine after straining on the toilet for 1-2 minutes – lean forward – observe from behind – estimate in centimetres - ? full thickness circumferential, or partial mucosal only?



NICE recommendations

- Address co-existing conditions before progressing to initial management of faecal incontinence:
 - faecal loading
 - treatable causes of diarrhoea
 - warning signs for lower gastrointestinal cancer
 - rectal prolapse or third degree haemorrhoids
 - acute anal sphincter injury
 - acute disc prolapse

Initial management



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- A combination of initial management interventions is likely to be needed: based on the findings from baseline assessment, adjusted to personal response
- Include patient teaching, diet, fluids, toilet access and bowel habit, aiming for ideal stool consistency and satisfactory bowel emptying at a predictable time
- Give support and products as needed



Patient teaching

- One-off session with nurse improves bowel function after stroke
(RCT: Harari, Norton et al 2005)
- Teaching and advising patients as effective as exercises or biofeedback
(RCT 171 patients: Norton et al 2003)
- Can improve the knowledge of carers (dementia patients) *(Clemasha 2004)*



Initial management: diet

- Diet affects stool consistency
- Fibre, caffeine, artificial sweeteners and alcohol each speed transit; lactose intolerance common
- Fibre supplements improved FI vs. placebo in 39 patients (*Bliss 2001*)
- Suggestion from an RCT study (in press) that some respond to high fibre and some to low fibre (*Lauti et al*)
- No other diet RCT



Bowel habit and evacuation techniques

- Bowels often respond well to habits
- Bowel sleeps at night
- Maximum activity am (wake, eat/drink, move)
- Attempt to establish habit
- Good evacuation techniques: feet up, push without straining)

Retraining for chronic constipation - 1



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- Educate the patient about normal bowel activity
- Eat breakfast and take a warm drink
- Capitalise on the gastro-colic response by attempting to use the toilet approximately 20-30 minutes after breakfast
- Sit on toilet with feet raised on a footstool



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Retraining for chronic constipation - 2



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- Use abdominal muscles to expel stool, but do not hold breath and strain
- Review medications and change those likely to cause constipation if possible
- Low dose laxative or glycerin suppositories may help to get a regular bowel habit established



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Drugs: anti-diarrhoeal



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- Evidence for loperamide (Imodium) in diarrhoea-related FI (3 studies)
- **ICI grade A recommendation to use loperamide in patients with FI + loose stool**
- Adjust dose, timing, tablets or liquid, take as needed
- Codeine phosphate also helps, but side-effects



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Other drugs

- **Sphincter modifying:** preliminary weak evidence, none licensed
- **HRT:** one case series hormone replacement therapy, (20 patients), reported benefit (*Donnelly 1997*)
- **Drugs as a cause of FI:** many drugs can cause loose stool or constipation as a side-effect (e.g. antacids, metformin, olestra): no studies on modifying drug regimens

Lifestyle modifications



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- Risk factors for FI: obesity, smoking, immobility, inaccessible toilet facilities
- No studies found



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Specific groups



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- Proactive bowel management for people with:
 - Faecal loading
 - Limited mobility
 - Hospitalised patients
 - Cognitively impaired
 - Neurological conditions
 - Learning disabilities
 - Severe/terminal illness
 - Acquired brain injury
 - Tube feeding



Products: Cochrane, ICI and NICE reviews



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- Pads: no evidence specific to FI
- Plugs: some evidence that they work, but major problems with discomfort
- Skin care: no evidence specific to FI
- Other products: no evidence

Specialist management



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- If simple measures such as changing bowel habit, diet, medications and anti-diarrhoeals don't work: consider more “specialist” options:
 - Pelvic floor muscle training (anal sphincter exercises)
 - Biofeedback (PFMT, sensory training)
 - Anal electrical stimulation
 - Specialised diets
 - Rectal irrigation



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Cochrane review of biofeedback +/- PFMT for FI (Norton & Cody 2006)



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- 11 RCTs, 564 patients, 8 poor quality
- PFMT +/- biofeedback: no difference
(Solomon 2003, Ilnyckyj 2005, Norton 2003)
- BFB +/- electrical stim: 2 studies disagree
(Mahony 2004, Fynes 1999)
- BFB does not improve results of sphincter repair
(Davis 2004)
- No difference between different modes of BFB
(4 studies)
- No additional benefit of exercise or BFB over
conservative advice (Norton 2003)



Results



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- 90 randomised (81 women, 9 men)
- 70 completed (64/81 women, 6/9 men)
- 20 dropped out or lost to follow up
- 43 1Hz (sham ?), 47 35Hz (active ?)
- No differences 35Hz & 1Hz detected on any parameter measured:
 - Frequency of incontinence
 - Other symptoms, diary, Quality of Life
 - Manometry, comfort, satisfaction
- Modest improvement: sensitisation not strength?
- (*Norton et al DCR 2006*)



Electrical stimulation for FI

- Anal BFB + anal stim better than vaginal BFB (*Fynes 1999*)
- No difference anal BFB +/- stim (*Mahony 2004*)
- No difference stimulation at 35Hz or 1Hz (*Norton 2005*)

PFMT, biofeedback, electrical stimulation



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- Most patients seem to improve, whatever is done
- No evidence of additional efficacy at present
- Missed opportunity in urinary studies?



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Rectal irrigation



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- Spinal cord injury: RCT 87 patients, 10 weeks irrigation or conservative management. Irrigation improved FI, constipation and QoL (*Christensen 2006*)
- Case series also suggest benefit in non-neurogenic patients with FI (*Gardiner 2004*)



FI in frail older people

- 50%+ FI in nursing homes
- Clearing the bowel completely probably helps (*Chassagne 2000*)
- Can constipate then evacuate (*Tobin & Brocklehurst 1987*)
- Poor compliance with regimens
- Taking people to the toilet increases bowel frequency (!) (*Ouslander 1996*)

FI and dementia



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- 50%+ people with severe dementia have FI
- NO STUDIES



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Neurological bowel management

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- High prevalence FI in most neurological groups
- **Cochrane review:** only 10 RCTs across the whole of neurological bowel management
- 3 on Cisapride (withdrawn)
- Some suppositories may be quicker than others
- Daily bowel care may be better than alternate days
- One-off nurse led education may help after stroke (*Harari, Norton et al 2004*)
- Irrigation helpful: (*Christensen et al, ICS 2006*)

NICE: specialist investigation



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- What do functional testing and imaging add to the assessment of patients with faecal incontinence?
- Are any investigation techniques better than others?
- Which combinations of tests effectively select patients for specific treatment strategies?





Abdominal transit study

- Patient takes 20 radio-opaque markers on 3 consecutive days
- Attends for plain abdominal X-ray on day 6
- 80% of markers should have been passed
- Can distinguish slow whole gut transit from rectal outlet delay



Imaging and tests

- Tests: little evidence that they change management, none that they change outcomes
- Anal ultrasound: 8 studies: sensitivity and specificity 80% (but some VERY low); needle EMG no advantage
- MRI: 3 studies: good but variable sensitivity and specificity
- Lack of reference “gold standard”
- Lack of evidence that imaging or tests influence long term patient outcomes

Recommendations on specialist assessment

- *Consider:*
 - anorectal physiology studies
 - endoanal ultrasound. If not available, consider MRI, endovaginal ultrasound and perineal ultrasound.
- other tests, possibly including proctography as indicated

Surgery for Faecal Incontinence



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- Is surgery effective and does it last compared with no surgery (conservative treatment)?
- Are any surgical interventions more effective than others?
- Do any interventions, pre or post surgery, affect the outcome of surgery for FI?

Surgical options



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- Direct sphincter repair (end to end or overlapping)
- Pelvic floor plication (anterior, posterior)
- Neosphincter
- Sacral nerve stimulation
- Injectables
- Irrigation conduits
- Stoma



Surgical case series



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- Not enough RCT evidence on commonly performed ops
- Look at case series
- Included: after 1990, 12 months follow up, 10+ consecutive patients
- Proportion of patients cured (complete continence), improved, not improved: both clinician reported and patient reported



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Sphincter repair case series

29 reports: 1511 patients



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	Cured	Improved	Not improved
Patient report	29%	52%	36%
Doctor report	40%	47%	13%



Sphincter repair: case series



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- Variable length of follow up, quality of outcome measures
- Wound complications 20%, other complications 14%
- Largest study: *Bravo 2004*: 191 women, mostly obstetric injuries
 - 3 years 36% solid stool FI
 - 10 years (n=130) 57% solid stool FI
 - 62% patients said better than before op
 - 74% satisfied



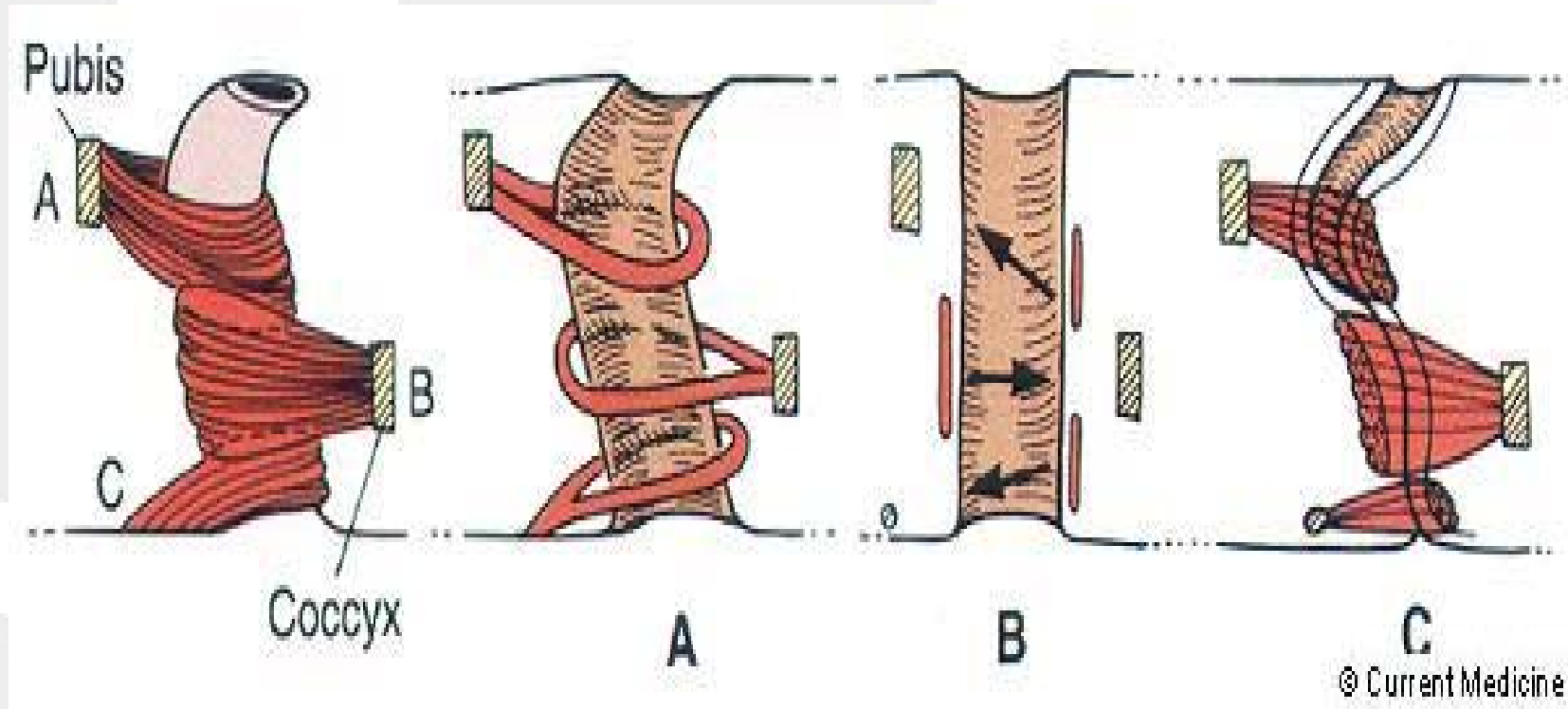
Sphincter repair

- Sphincter repair considered for full length external anal sphincter defect 90° or greater and FI which restricts quality of life
- Patients need a realistic expectation (long term results and possible adverse events)
- Possibly less effective in internal sphincter defects, multiple defects, external sphincter atrophy, loose stools or irritable bowel syndrome

Anal Canal Angulation



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Other surgery: case series



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- Very limited evidence
- SNS 133 patients <4 years: 85% improved: recommend trial if sphincter surgery fails or inappropriate
- If fail, consider dynamic graciloplasty, ABS, ACE (specialist centres in trial only & high complication rate and cost) or stoma
- Injectables do not seem to last



RCT evidence

Peri-operative interventions



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- ***Davis 2004***: n=31 sphincter repairs +/-biofeedback post op: no difference
- ***Nessim 1999***: n=32, sphincter repair +/- bowel confinement (loperamide, codeine, clear fluids): no difference except length of stay
- ***Hasegawa 2000***: n=27, no difference sphincter repair +/- colostomy cover



A stoma for FI?

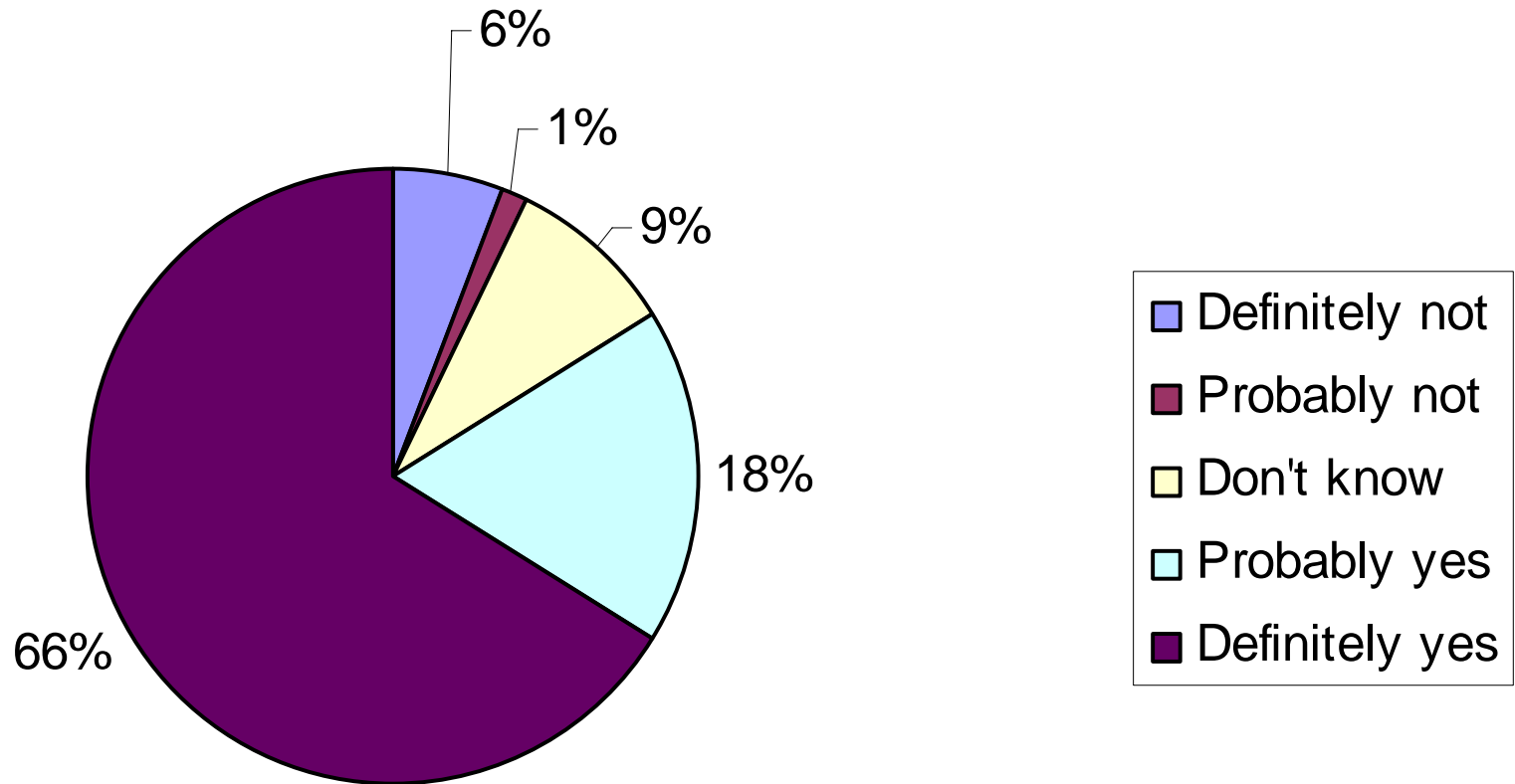


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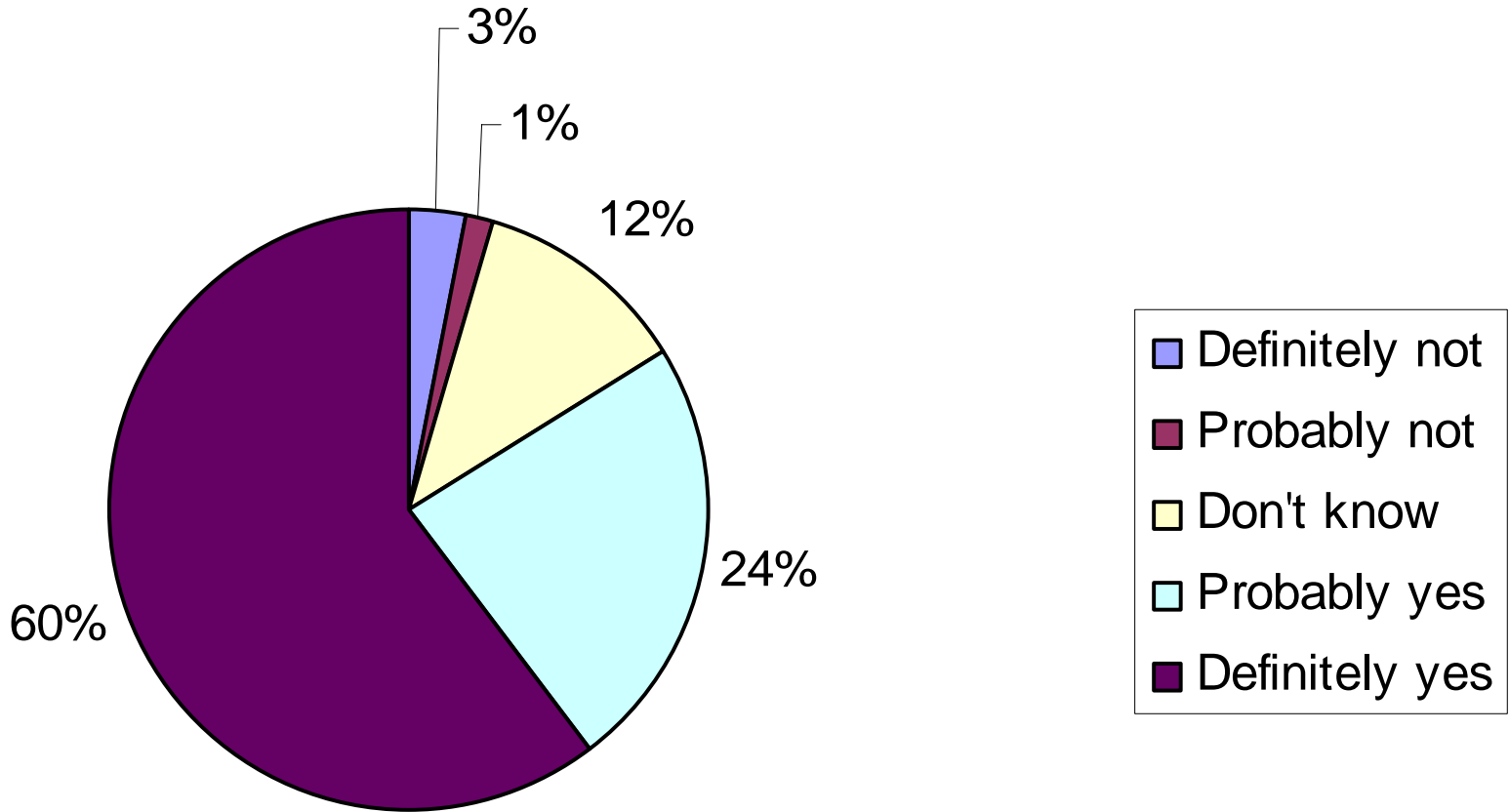
- 69 volunteers: stoma for FI ONLY
- Median age 64 (range 34-88); 11m, 58f
- Median 5 years post op (range 5-287mths)
- 39 had another disability or major illness
- Majority had problems (mucus leak, hernia)
- Surprisingly positive about stoma
- *(Norton Burch & Kamm DCR 2005)*



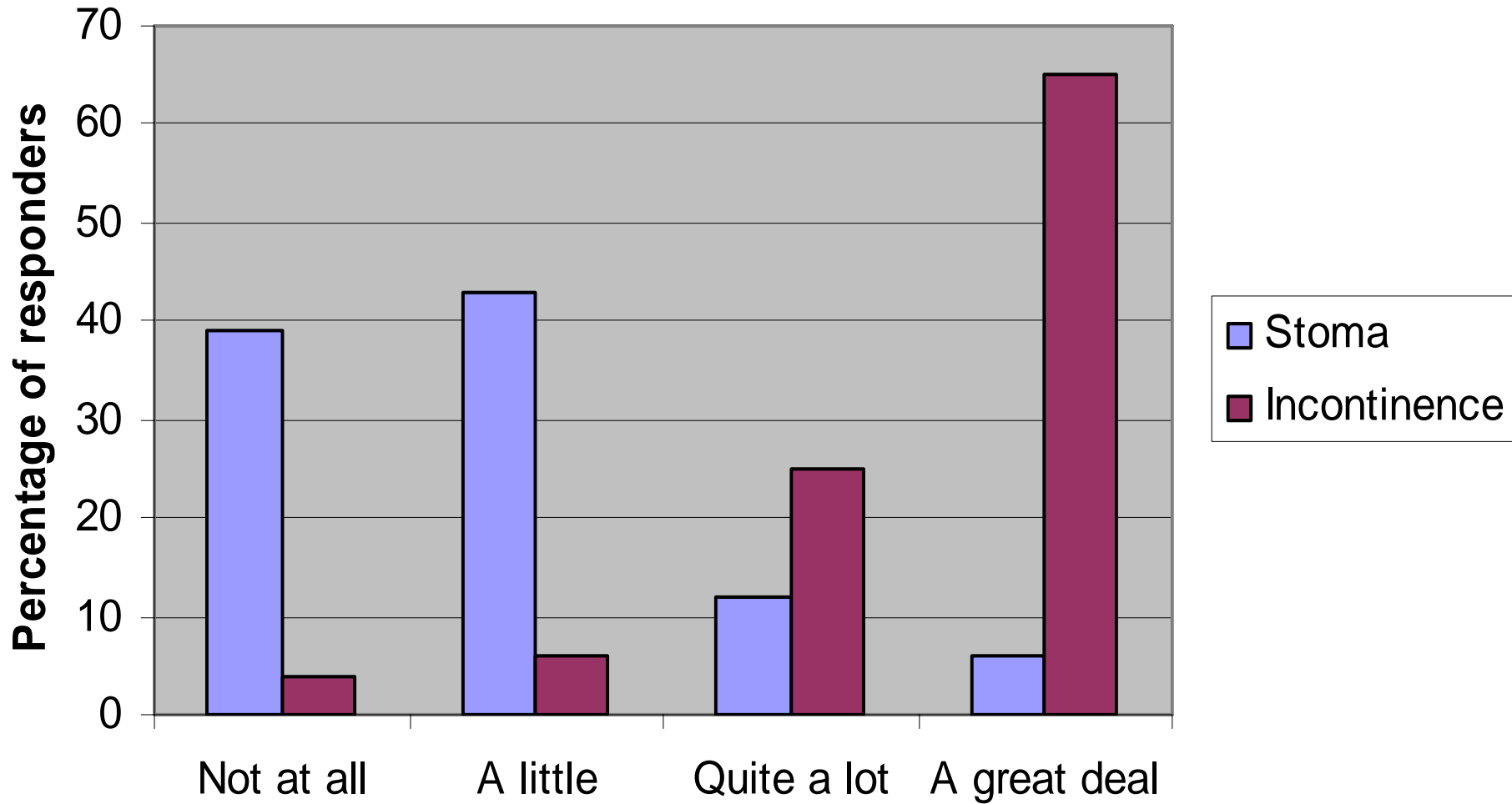
Would you choose to have a stoma again?



Would you recommend a stoma to a friend?



Perceived effect on quality of life



Pruritus Ani



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- Itching, burning and pain
- Common and frustrating
- Most common cause soiling
- Patients often offended by the suggestion
- Demonstrate by wiping with wet cotton wool



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Causes of pruritus ani



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Anorectal conditions

Haemorrhoids
Fissure; Fistula
Prolapse
Proctitis
LEAKAGE (most common)

Dermatological conditions

Psoriasis
Contact dermatitis
Atrophic changes

Infections

Condylomata acuminata
(anal warts)
Candida albicans

Neoplasia

Infestations
Rectal cancer
Villous adenoma
Bowen's Disease



Treating pruritus



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- Explain the cause
- GENTLE wiping and drying
- Wet wiping and careful hygiene
- Avoid soaps, creams and scratching (gloves)
- Washing powder and clothes
- Treat perianal conditions
- Treat faecal incontinence (firmer stool, Imodium, less fibre)
- Cotton wool plug
- Foods: avoid caffeine, alcohol, spice, chocolate, citrus, sorbitol?





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Treatment of flatus incontinence

- No evidence found for any treatment option



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Conclusions



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- Common and incompletely understood condition
- Lack of patient based validated outcome measures
- Lack of strong RCT evidence base for almost everything we do
- BUT: good consensus from most expert clinicians on what works
- Because stool consistency can be changed and bowel habit modified, may be easier to resolve than urinary incontinence



Prevention of FI

Modify known risk factors



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- Obstetric: vaginal delivery, instrumental delivery, 3rd degree tear
 - Management of labour, repair of tears
 - Value of preventive exercises possibly??
- Colorectal surgery: anal operations, low rectal resections, ileo-anal pouch
- Frail older people: opportunities to use toilet and avoid faecal impaction
- Treat diarrhoea
- Weight loss, change medication, stop smoking.....??





The role of nursing

- Prevention (lack of evidence)
- Active case finding in high risk groups
- Primary assessment
- Fast track those who need it
- Conservative interventions
- Refer for investigations & surgical opinion
- Public awareness?

Acknowledgements



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- ***International consultation on incontinence FI group:*** Robert Madoff, Soren Laurberg, John Pemberton, Bill Whitehead, Donna Bliss, et al
- ***National Institute for Clinical Excellence (NICE) FI group:*** James Barrett, David Bartolo, Anton Emmanuel, Louise Thomas et al
- ***Cochrane incontinence group:*** Gordon Hosker, June Cody, Maureen Coggrave, Mark Cheetham et al

