Scoop on the poop: Diarrhea in the Elderly

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2011-2012

Learning objectives

1. Compare presentation of an elderly patient acutely ill with diarrhea versus not acutely ill
2. Contrast infection control policies needed to remove *C. difficile* from environment with those for other common organisms of concern (ex. MDRO like VRE or MRSA)
3. Diagnose and categorize clinical management of *C. difficile* infection in elderly

Overview

- Diarrhea
  - Elderly, LTC
  - Acute
    - *C. difficile* infection
  - Chronic (online case)
- Constipation
  - Online module
- Urinary Incontinence
  - Online module

Cases

Case: Ms. T

- 89 yo with PMH a. fib, HTN, DM presents with c/o diarrhea in clinic
- What questions do you have for her?

- What do you want to know about her PE?

- How would you manage this patient?

Ms. T: Discussion

- With mild diarrhea, normal vital signs
  - Likely a viral gastroenteritis
  - No h/o ABX, abd pain, wt loss or other red flags that would suggest need for more work-up.

- Resolution: continued to improve over next 24-36 hours, back to baseline in few days.

Case: Mr. M

- 84 yo male, PMH CRI, HTN, OSA presents in clinic for acute visit due to 2 days of diarrhea and abd pain.
- Patient and wife state that he was feeling well, until 2days ago he developed peri-umbilical pain that was worse with movement, diarrhea, bloating, and flatulence.
- These symptoms improved slightly yesterday, however, returned more severe today.
- No known sick contacts, no atypical diet. No BRBPR, no melena
- Patient c/o dizzy with standing, but no falls. Poor po , but no relation of pain with food.
- Patient's wife notes remote PMH gastric ulcers (>30 years)

Mr. M

- BP 102/58, HR 99, Temp 37.3°C, RR 20, O2 94%
- Gen: Moderate distress, slightly confused
- HEENT: OP clear, moist, no exudate. Bil conj injt. No icterus
- Neck: Normal range of motion. Neck supple.
- CV: Tachycardic, Regular rhythm
- ABD: Soft, distended. No shifting dullness, pulsatile liver, fluid wave, abdominal bruit, ascites, nor mass. Bowel sounds decreased. No organomegaly. Tenderness RLQ. No rigidity, rebound, guarding, CVAT nor Murphy's sign.
- Skin: Warm, diaphoretic.

Mr. M:
How would you manage this patient?

- Dehydrated
  - exam, tachycardic, low BP, dizzy, diaphoretic
  - For that alone required higher level of care

  → **ED**
- Other flags on his presentation:
  - wax & wane of diarrhea, acutely changing
  - Pronounced tenderness on exam
  - **Fever**

Mr. M: Resolution

- Sent to ED: TTP RLQ, UA +RBC, CMP: TB 1.5, otw nl; WBC 19.5 (89%PMNs).
- CT A/P- abnormalities, not fully characterized RUQ
- U/S revealed Markedly thickened gallbladder wall with multiple gallstones and small pericholecystic fluid. Despite absent sonographic Murphy sign, c/w acute cholecystitis
- Went to OR, lap → open cholecystectomy. Recovered well in hospital, dc'd 3 days later

Why are elderly patients at higher risk of complications?

- Physiologic changes & decreased thirst perception
  - Elderly higher risk for dehydration
- More likely to suffer c/o volume depletion
  - Electrolyte disturbances, delirium, orthostasis → fall or fractures
  - prolonged infectious course (immunosenescence, Hypochlorhydria)
  - malnutrition (from poor appetite or comorbidity)
- Intestinal motility disorders
- Other chronic medical diseases

Historic diarrheal burden

- Diarrheal diseases top 5 US causes of death 1900s
  - 21st C: Chronic diseases > acute infections
- BUT, diarrheal diseases remain significant cause of mortality AND morbidity in elderly
  - 51% of diarrheal deaths ≥74yo

[1, 2]

Diarrhea: definition

- Varies by patient
  - Mostly: increased frequency, liquidity
- Research definition
  - increased stool weight, in excess of 200 g/d, and >=3 BM qd
- Clinical definition for diarrhea
  - ≥3 loose or watery

Compare with individual baseline

- Fecal incontinence presents frequently with loose stools
  - **NOT diarrhea, distinct work-up & management**
    - Can be a sign of other medical conditions

DIARRHEA: Duration

- Duration guide diagnosis and treatment

- Acute diarrhea
  - ≤ 2 weeks
- Chronic
  - ≥ 4 weeks
  - Case in online module of this workshop

[4,5]

Infectious acute diarrhea

- Viral, most common (13.6% discharges)
  - Sporadic/outbreaks, self-limiting, 24-48+ hours
- Bacterial
  - Bacterial less common (8.7%), but most common if severe
  - *C difficile*: most common LTC, hospital, mortality risk
  - Foodborne outbreaks (‘75 -87), NH 2% cases, **20% deaths**
  - Shigella, Salmonella, Campylobacter jejuni
  - E. coli O157:H7 less common, most common if bloody
- Parasite
  - Cryptosporidium
  - Chronically ill elderly 36% Crypto, ~50% also *C. difficile*

[2, 110, 114, 118]

Acute diarrhea

- Gastroenteritis of unknown etiology
  - No w/u, self-limited
- Noninfectious causes
  - **Meds** S/E, antibiotics, laxatives, or antacids
  - Antibiotic-induced diarrhea very common hosp
  - **Tube feeding** (39% floor pts, 63% ICU pts)
    - composition of the enteral formula change colonic microflora less SCFA (normally absorbed, enhancing H2O & electrolyte absorption)
      - liquid meds in TF pts containing sugar alcohols
      - RX: fiber to decrease frequency, increase consistency
  - Less common: *Carcinoid, ischemia, thyrotoxicosis, DM*

[2, 123, 125-31]

Case: Ms. B

- 77 yo PMH HTN, DM2, OA presents for PCP visit after recent discharge for left hip repair
- States generally feeling well, no pain in hip. Patient has no complaints
- Daughter, however, stops you in the hall to note that “mom has been more confused and sleepy over past few days.”
- What else do you want to know?

Ms. B

- Ms. B had routine scheduled L THA done 10 days ago, recovered well post-op, and was discharged home to continue with PT recovery.
- Daughter has been staying with her and notes that the first few days she was great, but over the past week, more irritable, dosing off during the day, intermittently confused.

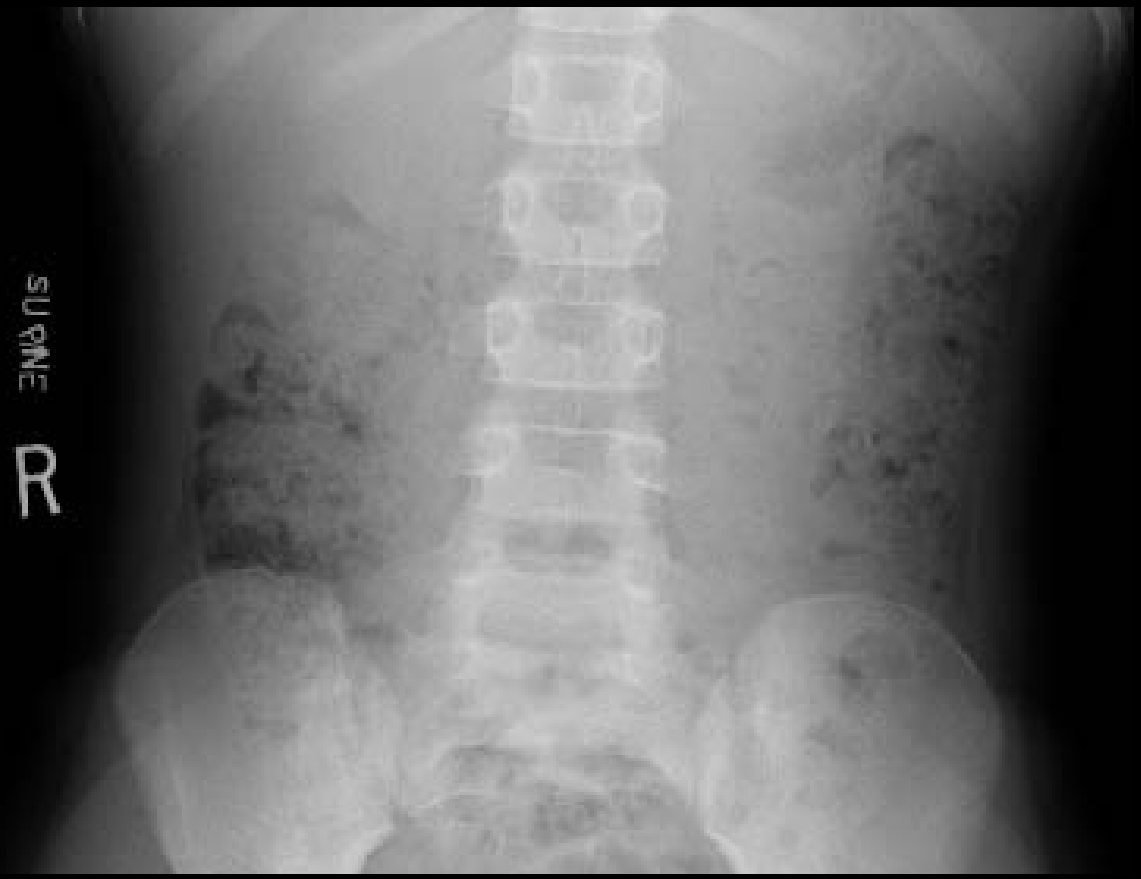
- Meds: HCTZ 25 mg qd, Vicodin 5/325 2 tabs q6 prn pain, Colace

Ms. B

- PE: 118/62, 85, 12, 98%
- Gen: Alert, fully conversant
- HEENT: dry mucous mb
- CV: RRR, no M/R/G
- Lungs: CTA B
- Abd: Distended, nl BS, no T/G/R
- Ext: no edema, 2+ pulses
- Neuro: A&O to person, place only. MMSE: 26/30, but difficult to get her to focus on it

What's wrong with Ms. B?

- Delirious
  - Decrease attention, acute change in cognition with wax/ wane pattern
- DDX: broad; so more H&P
- PCP noted distended abdomen, asked re: BM. Neither patient nor daughter recalled her last normal BM, did note some loose stool, small volume over past few days, as well as some UI.
- Rectal exam: stool impaction
- AXR: next slide



Ms. B AXR

Fecal Impaction

Ms. B

- Decreased colonic motility from post-op narcotics, perhaps contributed to by diuretic
  - Colace: softens stool, but does not contribute to decreased motility

- Resolution: dis-impacted in clinic, started on Senna, increased dietary fiber and held HCTZ. Returned to normal BM in 2 days and delirium cleared over the next 2 weeks.

Acute diarrhea, non-infectious
Impaction

- Overflow
  - Life-threatening if not treated appropriately and timely.
  - Antidiarrheal agents may exacerbate
- Retros've of institutionalized elderly
  - Fecal impaction most common cause of diarrhea (55%)
  - Laxative-induced 20%; GI infections 5%

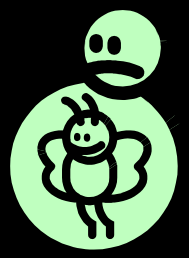
- Absent/ hypoactive bowel sounds , abd distension, +/- AMS, in the setting of diarrhea or urinary incontinence → look for fecal impaction

- Dx: Rectal examination, plain AXR
- Rx: disimpaction
  - Close observation, exam (may have hypoactive delirium)
  - AVOID antidiarrheals

[121, 122]

IMPACT AND BURDEN OF DIARRHEA IN LTCF

Long-term care facility (LTCF) residents have the highest incidence of diarrheal illness among adults living in the developed world.



Trinh, C., & Prabhakar, K. (2007). Diarrheal diseases in the elderly. *Clinics in Geriatric Medicine, 23*(4), 833-856

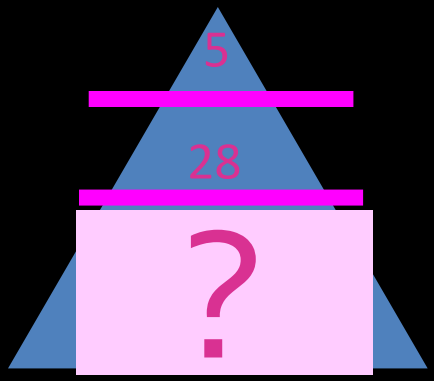
Diarrhea & elderly

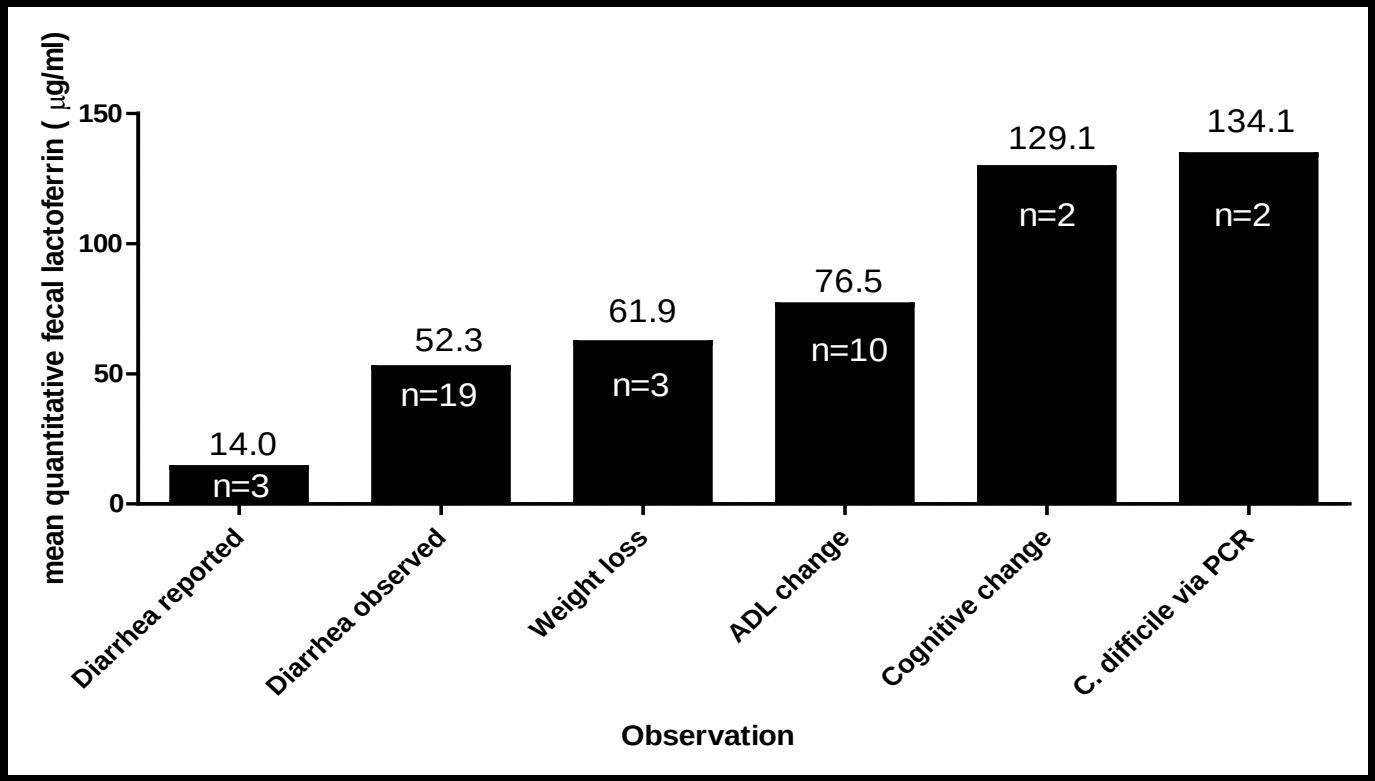
- Diarrhea in the elderly warrants
  - close monitoring
  - timely fluid repletion
  - prevention of possible complications
    - to minimize delirium, malnutrition, function loss, death.

- Despite significant associated complications, diarrhea in the elderly has received little attention in the literature and continues to cause significant morbidity and mortality in frail elderly.

Impact of Diarrhea in LTCF

- Observational study (N=46)
  - 5 (11%) reported diarrhea
  - BUT observed 28 (>60%)
  - 71% inflammatory (n=20, p=0.02)





Subjects with functional decline had higher qLF

- "inflamm-aging"

Archbald, JAMDA, 2010

Why is diarrhea worse in LTCF?

- Transfers continually re-introduces the organism into the environment
- Large numbers of medically frail residents with incontinence and cognitive disorders.
- Close quarters
- Social interactions are encouraged
- Frequent use of antibiotics
- Staff–patient ratios
- Limited infection control resources

Case: Ms. D

- 62 yo p/t ED with CC: abd pain, vomiting
- What questions do you have for her?
- What do you want to know about her history?

Ms. D- History

- PMH- Asthma, GERD, OA, MDD
- Meds- Omeprazole, Flovent, Prozac, Singulair, Lasix, Advair

- D/C 1 day prior after lap appy (POD 6)
- Concern for ruptured appendix, started on Cipro/ Flagyl (2 doses)
- Uncomplicated OR, no rupture

Ms. D- PE

- BP 135/61, HR 98, T 35.9C, RR 18, O2 94% RA
- Gen: A& O, NAD
- CV: RRR
- Resp: CTAB
- ABD: S/ND, tender. Incision with serous drainage

- How would you manage this patient?

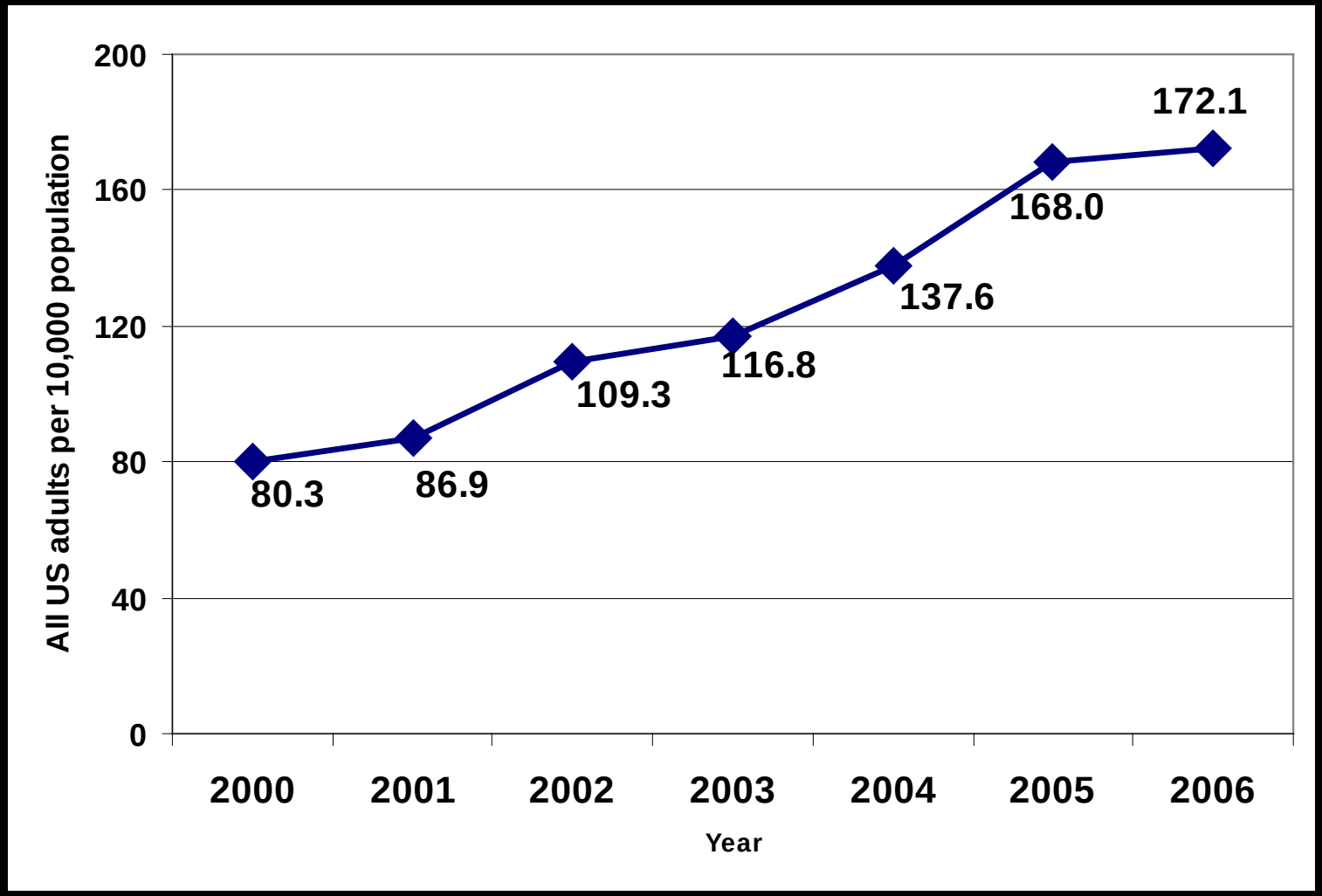
Ms. D- Hospital Course

- HD 1: Admitted back to surgical service for possible SBO/ post-op ileus.
- NPO, NGT to suction. Able to advance to clears by HD 1 and monitored.
- HD 2 developed “multiple episodes of watery diarrhea”
    - How would you proceed?
    - How would you manage this patient?

Ms. D: Resolution

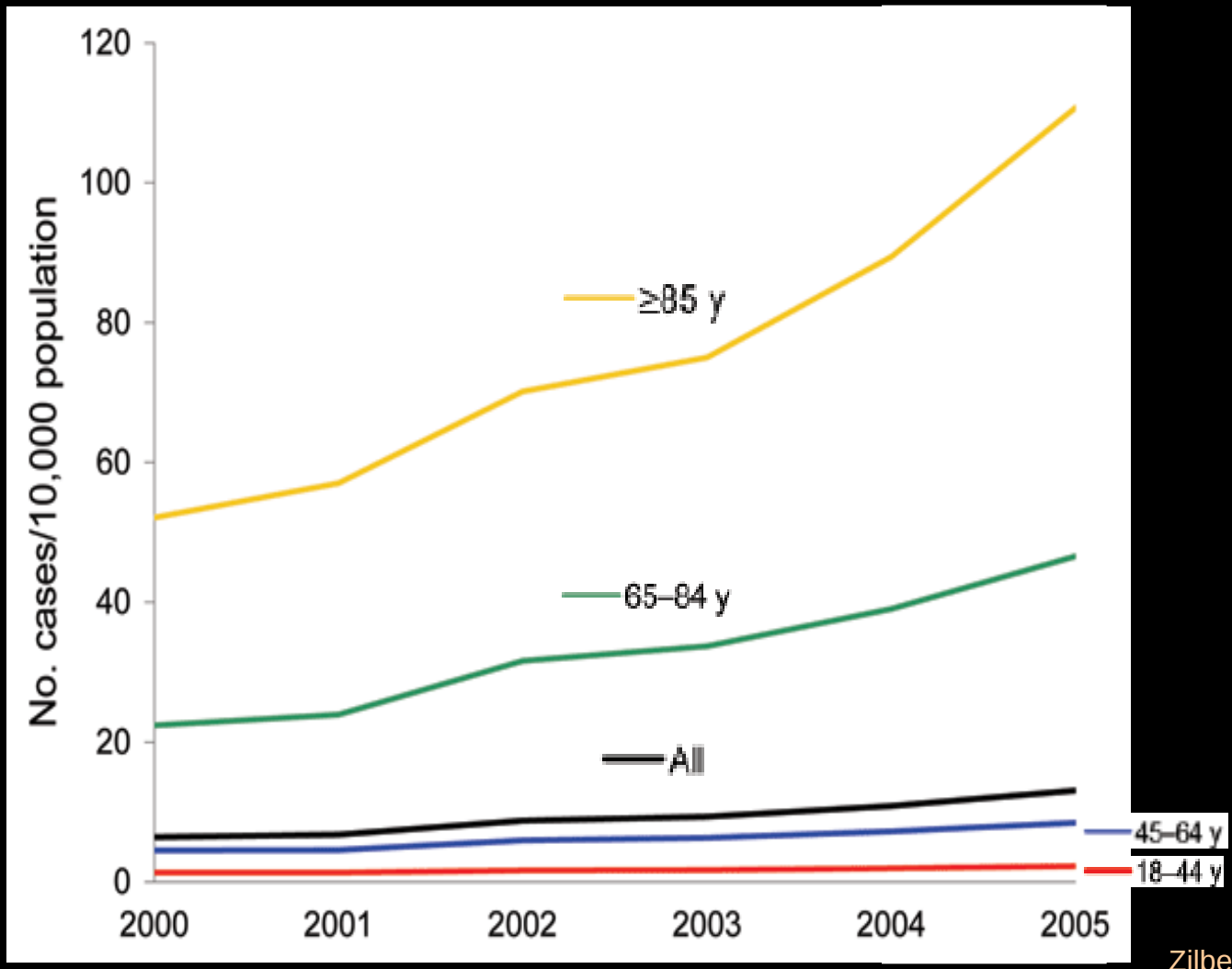
- C. diff positive
  - Isolated
  - po Flagyl 10 days
  - Stopped PPI
- Hospital stay 14 days for ileus, hydration, electrolyte derangement.
- Over next 1 year: she had antibiotics, no recurrent C diff., but intermittent diarrhea

CDI Incidence: Doubled



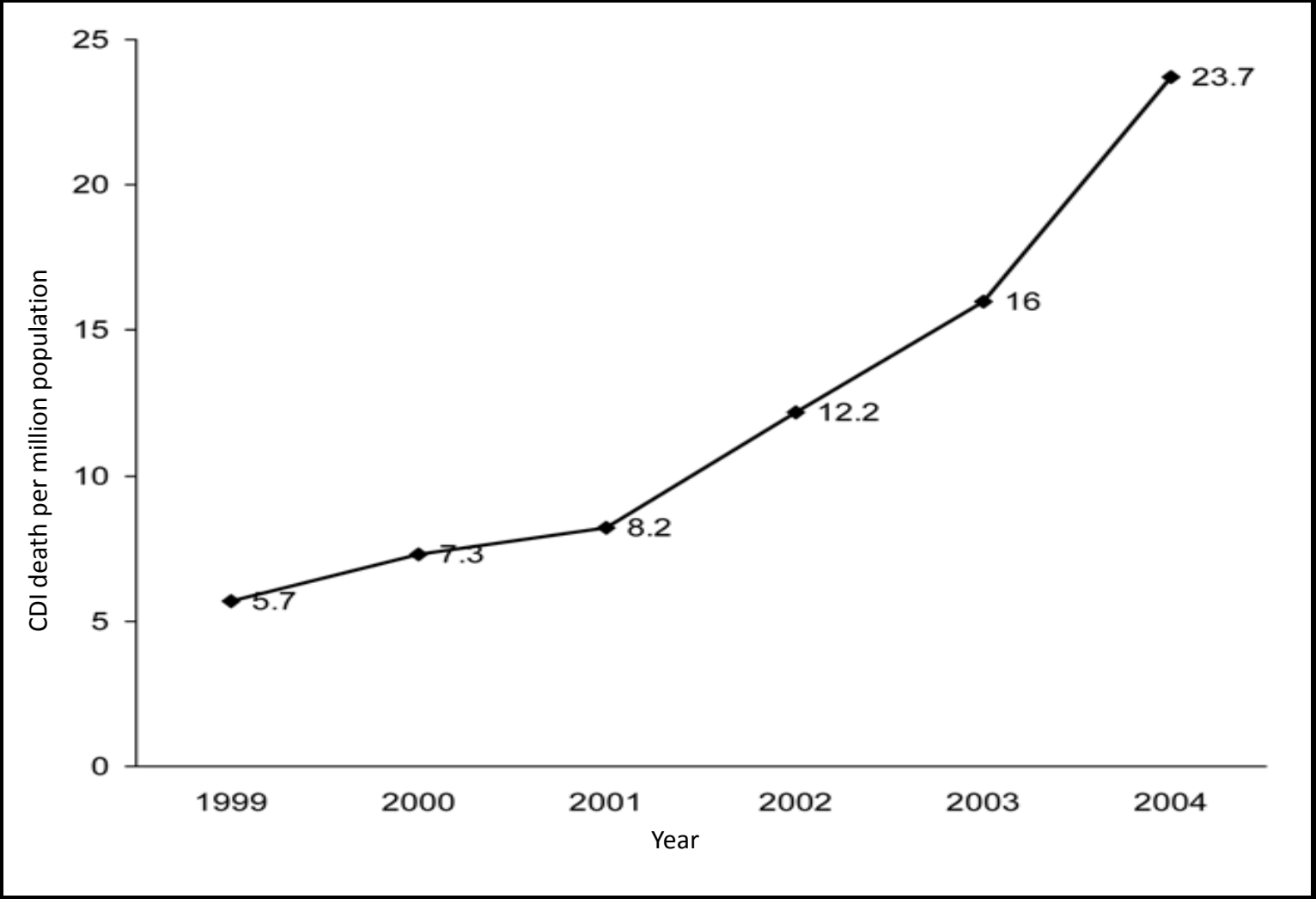
Zilberberg, EID 2008

CDI Incidence higher with age



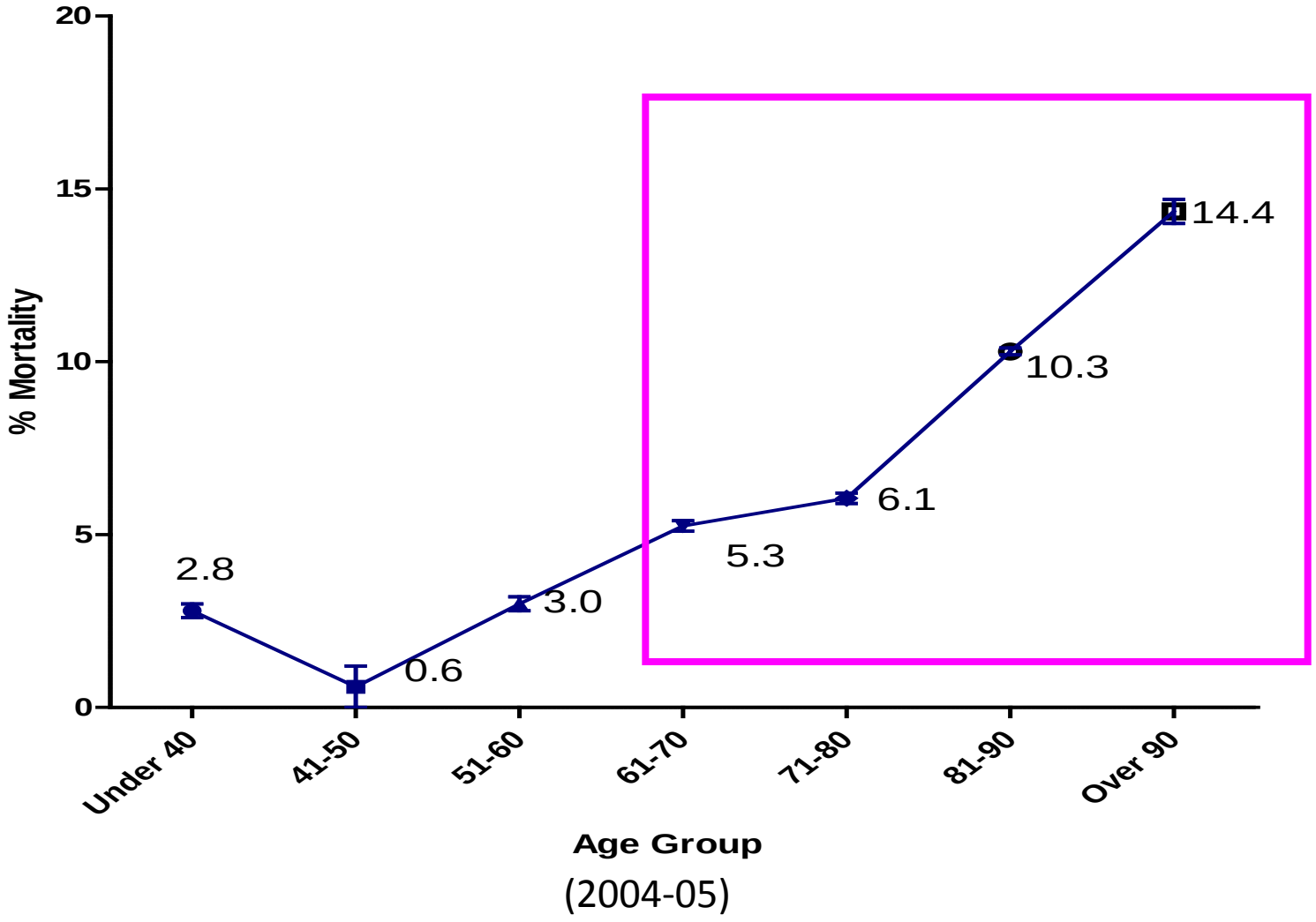
Zilberberg , EID 2008.

CDI mortality increased 4x!



Redelings, EID 2007

CDI mortality highest in elderly



Miller CID, 2009, Loo, NEJM, 2005, Archbald-Pannone, CDR

What's the big deal?

- 5-33% of LTCF residents had *C. difficile* in their stool after antibiotic treatment, although most did not have symptoms of diarrhea

C. difficile infection serves as a
marker of death *in nursing-home patients*
differentiated from the risk of antibiotic treatment alone.

C. difficile transmission

- Person/ Environment-to-person
  - furniture, bedpans, toilets, bathtubs, weighing scales, floors in hospitals, mops, stethoscopes, clothing, and hands.
  - Culture *C. difficile* from various surfaces in about 50% of rooms occupied by CDI patients
  - Roommates of CDI patients more likely to acquire *C difficile* & diarrhea

- *C. difficile* spores are not eradicated with alcohol-based cleaning or sanitizing solutions
  - need 10% bleach cleaning solution
  - hand-washing (**SOAP AND WATER, 20 sec**)

[28, 29, 31]

CDI treatment

- **First line treatment**
  - **Stop/ narrow offending antibiotic**
  - Not always possible
  - Persistent treatment linked to non-resolution
- **2nd line treatment**
  - MTZ, po Vanc, others?
- **Supportive measures**
  - oral and iv rehydration, electrolyte replacement
  - Avoid antiperistaltics

- Isolation & contact precautions
  - HCW **AND** visitors
  - Environmental cleaning

[55, 56, 57]

Summary: diarrhea

- Diarrhea in the elderly population is ***bad***
  - Special attention in treatment and management
- Close follow-up
  - Adequate hydration and electrolyte replacement
- Infection control measures
- *C difficile* colitis causes significant morbidity and mortality in this population

CAREFUL use of antibiotics is important

- An attentive and vigilant nursing staff is critical to the timely diagnosis and treatment of diarrheal diseases to improve quality of life and reduce mortality.

Who is this guy?

Austrian postage stamp of Iganz Semmelweis.
Issued on the 100th anniversary of his death (1965)

Hand hygiene- When?

- BEFORE
  - Direct contact with a patient
  - Donning sterile gloves
  - Inserting invasive device
  - Moving from contaminated site to clean site with same patient
- AFTER
  - Touching patient's intact skin
  - Touching body fluids, wounds, non-intact skin
  - Contact with inanimate objects in a patient's vicinity
  - Removing gloves

Indications for hand hygiene by the CDC

Hand washing- How?

1. Wet hands with warm water and apply soap
2. Rub hands to make a lather, scrub all surfaces
3. Rub hands for 20 seconds.
   - "Alphabet song" or "Twinkle Twinkle Little Star"
4. Rinse hands well under running water
5. Dry your hands, paper towel or air dryer
6. Use paper towel to turn off water & exit room.
   - ***Spores can live on environmental surfaces for weeks!***

Avoid dry skin

- Excessive washing, especially hot water
- Worse in low relative humidity (winter)
- Supplementary hand lotion or cream
- Quality of paper towels

Alcohol Gels

- Effective against many respiratory viruses, influenza, MTB, MRSA, VRE, fungi, HIV, HSV, RSV, Hepatitis B&C
- 60-95% alcohol solution are most effective
- Do not use on wet or visibly soiled hands
- Do not use with water

1. Apply product to palm of one hand
2. Rub hands together
3. Rub over all surfaces, hands & fingers
4. Rub hands until dry

Protect yourself.

Protect your patients.

Clean your hands.

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11. GRS, 6th edition
12. Uptodate.

Hand Washing Resources

- There are many free downloadable hand washing resources available from federally funded agencies and initiatives:
  - CDC: Ounce of Prevention Campaign
    - http://www.cdc.gov/ncidod/op/
  - CDC: Clean Hands Campaign
    - http://www.cdc.gov/cleanhands/
  - Fight Bac! –Handwashing –Clean Fact Sheet
    - http://www.fightbac.org/images/pdfs/clean.pdf
  - CDC: Hand Hygiene Saves Lives
    - http://www.cdc.gov/handhygiene/
  - CDC: Hand Hygiene in Natural Disasters
    - http://www.bt.cdc.gov/disasters/handhygiene.asp
  - FSIS: Handwashing decal art
    - http://www.fsis.usda.gov/OA/pubs/hwdecal.htm
- More information on the Flu Shot
    - http://www.cdc.gov/flu

Extra Case for online module

Ms. W.

- Ms. D is 85 yo with history of HTN, HLD, OA who presents to you for routine follow-up.
- Things are going well for her and she has no complaints.
  - Well, when you press her she mentions that she has a tough time sleeping because she has to get up and go to the bathroom in the night
  - You start to discuss urinary symptoms, but she stops you, embarrassed she says “no doc, to poop”
  - What questions?

Ms. W.

- She's had this issue for the past few years.
- Intermittent bouts of diarrhea
  - Watery, no blood
- Can be associated with pain
- Lost about 7-10 pounds in the past year.
- The diarrhea is never severe
- Lasts for a few days and then goes away
- BUT happens every few months.

How would you proceed?

How we proceeded

- Physical exam normal
- Normal rectal exam, fecal occult blood negative
- CBC, CMP normal
- Stool O&P, Giardia negative

- Given history of weight loss and chronic nature of diarrhea
  - Sent for colonoscopy

Chronic diarrhea

A. Celiac disease

B. Inflammatory bowel disease

C. Microscopic colitis

D. Carcinoid

[135-47, 151, 153].

Chronic diarrhea

A. Celiac disease
   - 80% Dx as adults, Dx low/ late in elderly (avg symptoms 11-19 yrs, often “IBS”)
   - diarrhea, weight loss, abd pain, malabsorption
   - α-gliadin/ endomysial Ab: sensitive & specific , but can be seronegative
   - Rx: gluten-free diet

B. Inflammatory bowel disease
   - Bimodal, 2nd small peak 60s-80s (15% cases)
   - Symptoms similar as younger; Same Rx with caution
   - Crohn’s usually confined to colon (often misdiagnosed diverticular),
   - UC more severe, often presents distal disease, increased mortality

C. Microscopic colitis
   - Ex: chronic, recurrent nonbloody watery diarrhea, nocturnal, abdominal pain, and weight loss.
   - May mimic acute infectious diarrhea, but then chronic/ relapsing. Rarely severe
   - Dx: Biopsy; Rx: supportive, loperamide and cholestyramine

D. Carcinoid
   - diarrhea, abd pain, weight loss, ~ intractable n/v; → recurrent obstruction
   - Specific diagnostic tests, post-op histopathologic
   - SSRIs exacerbate diarrhea

[135-47, 151, 153].

Chronic diarrhea

A. Celiac disease
   - 80% Dx as adults, Dx low/ late in elderly (avg symptoms 11-19 yrs, often "IBS")
   - diarrhea, weight loss, abd pain, malabsorption
   - α-gliadin/ endomysial Ab: sensitive & specific , but can be seronegative
   - Rx: gluten-free diet

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