Economic Burden of IBD

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Management of IBD – State of the Art

April 22, 2017

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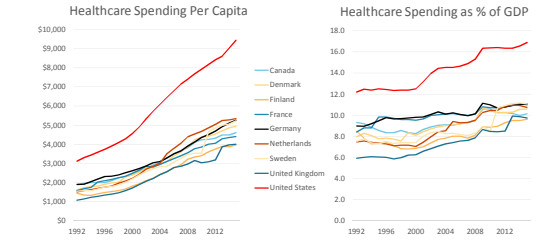
We have a problem…



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OECD Health Statistics 2016

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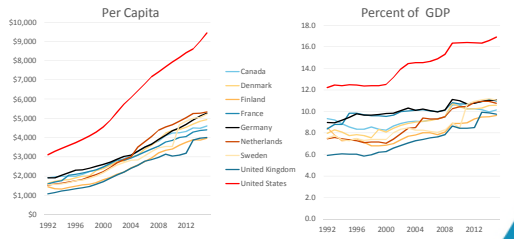
Global Healthcare Spending



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OECD Health Statistics 2016

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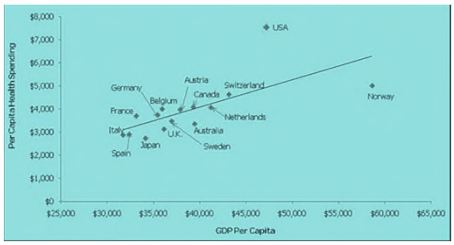
Global Healthcare Spending vs GDP



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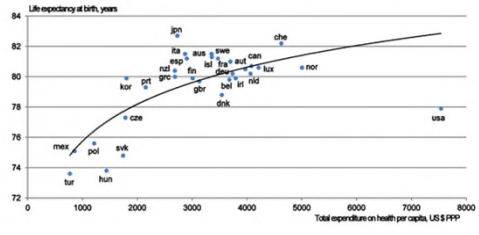
Value in Healthcare



OECD 2010, "Health care systems: Getting more value for money"

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Costs related to IBD

- Direct Costs
  - Inpatient
  - Surgery
  - Outpatient visits
  - Pharmaceuticals
- Indirect Costs
  - Missed work and school
  - Caregiver time
- Decreased productivity

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Cost of Crohn's Disease

- Medical Expenditure Panel Survey (MEPS)
  - Higher medical costs ($13,446 vs $6029)
  - More likely to miss work or school
  - More lost earnings ($1249 vs $644)
  - Increased incremental cost of $8023
- Estimated $3.48 billion in total national costs
- CD is more costly per patient per year than diabetes, coronary artery disease, stroke, or COPD

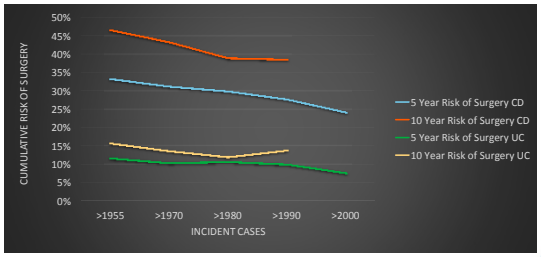
Data from 1996-2012, adjusted to 2014 $
Ganz. Inflamm Bowel Dis 2016;22:1032–1041
Stone. Dig Dis Sci 2012;57:3042–3044

Cost of Inflammatory Bowel Disease

- Direct Costs (1999-2005)
  - Crohn's Disease: $8,265 to $18,963
  - Ulcerative Colitis: $5,066 to $15,020
- Indirect Costs (1999)
  - $5,228 per patient
  - $3.6 billion
- Total annual financial burden
  - $14.6 billion to $31.6 billion

The Facts About Inflammatory Bowel Diseases
CCFA Website, 2017

Declining Risk of Surgery



Frolkis. Gastroenterology 2013;145:996–1006

Cost Shift: the COIN Study

- Pre-Biologic Era
  - Hospitalization and surgery account for over half of IBD healthcare costs
  - Productivity losses account for half of total cost in Europe
- Biologic Era
  - Healthcare costs for CD 3x more than UC
  - Hospitalization and surgery account for ~20% and ~1% of healthcare costs
  - Productivity losses account for 16% of CD total costs
  - Productivity losses account for 39% of UC total costs
  - Biologics account for 64% of CD and 31% of UC healthcare costs

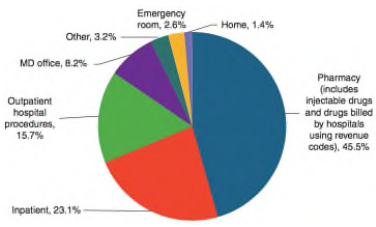
van der Valk ME, et al. Gut 2014;63:72–79

Health Insurance Paid Costs: Crohn's

- $18,637 per member per year (s.d. $32,023)
  - Patient copays and deductables not included
- Pharmacy costs 45.5% of total cost
  - Adalimumab 33%
  - Infliximab 27%
  - Mesalamine 8%
- 28% of patients account for 80% of total costs

Insurance claims 2011-2013
Park. *Am J Gastroenterol* 2016; 111:15–23

Health Insurance Paid Costs: Crohn's



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Park. *Am J Gastroenterol* 2016; 111:15–23

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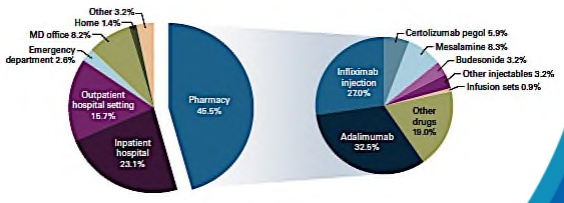

Park. *Am J Gastroenterol* 2016; 111:15–23
Mehta. AAm J Manag Care. 2016;22:S51-S60

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Health Insurance Paid Costs

	High Cost 28%	Low Cost 72%
Mean paid PMPY (sd)	$45,602 ($44,387)	$8,153 ($16,306)
Median paid PMPY	$33,394	$3,618
% with ≥ 1 comorbidity	77	47
% with anti-TNF use	64	12
% with inpatient hospital claims	52	11
Mean paid PMPY for inpatient hospital claims	$12,823 ($36,385)	$818 ($8,056)

Park. *Am J Gastroenterol* 2016; 111:15–23

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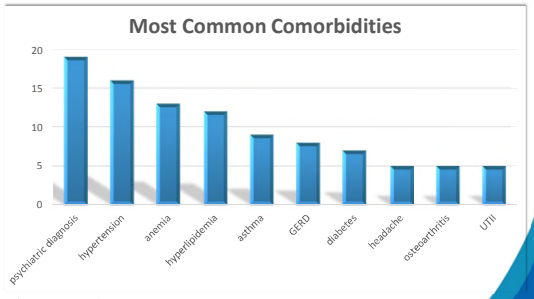
Most Common Comorbidities



Park. *Am J Gastroenterol* 2016; 111:15–23

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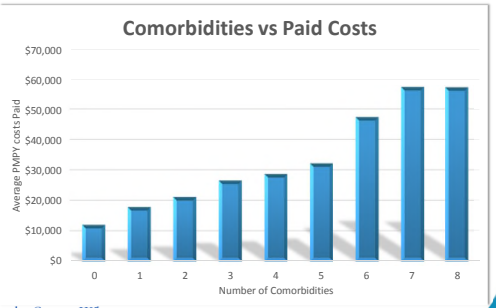
Comorbidities vs Paid Costs



Park. *Am J Gastroenterol* 2016; 111:15–23

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It's going to get worse…

- Prevalence
  - 1.2M to 1.6M patients in US (0.5% of population)
  - Rapidly increasing newly industrialized countries
- Compounding prevalence
  - Chronic disease
  - Young age of onset
  - Low mortality
- Exponential increase in developing countries

Kaplan. *Nat. Rev. Gastroenterol. Hepatol* 2015; (12) 720–727

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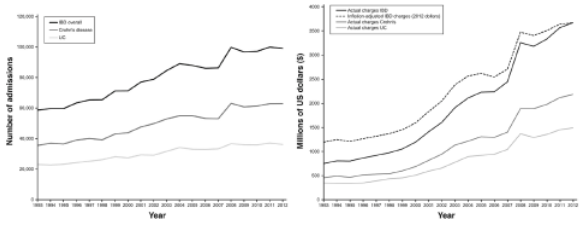

Peery. Gastroenterology 2015;149:1731–1741

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We can do better…

$$\text{Value in Healthcare} = \frac{\text{outcomes patients care about}}{\text{cost of obtaining those outcomes}}$$

We must acknowledge our responsibility for *both* the numerator and denominator

Infliximab (Remicade®)

- Crohn's Disease
- 70 Kg dosed at 5 mg/kg
- Loading weeks 0, 2 and 6
- Maintenance q 8 weeks

$25,600

Adalimumab (Humira®)

- Crohn's Disease
- 160 mg week 0
- 80 mg week 2
- Maintenance: 40 mg q 2 wk

$72,420

Vedolizumab (Entyvio®)

- Crohn's Disease
- 70 Kg dosed at 300 mg
- Loading weeks 0, 2 and 6
- Maintenance q 8 weeks

$43,360

Ustekinumab (Stelara®)

- Crohn's Disease
- 70 Kg
- Loading dose: 390 mg
- Maintenance: 90 mg q 8 wk

$78,730

Colorectal Surgery Fellow

- Desire to learn, maybe help
- ??? Kg
- Loading dose: Food
- Maintenance: 4 meals per day

$76,000

Laparoscopic Ileocolic Resection

- Crohn's Disease
- 70 Kg
- No prior surgery
- Length of Stay: 3 days

$14,000

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Cost Effectiveness of Biologics

Threshold of 35,000 € / QALY

- Effective for:
  - Induction of remission in severe CD (cf. conventional medical treatment)
  - Acute exacerbation of severe UC (cf. medical treatment or surgery)
- Not cost effective for:
  - Treatment of severe CD (cf. surgery)
  - Moderate CD
  - Post surgical resection of CD
  - Moderate UC
- Unclear for:
  - Maintenance treatment of CD
  - Comparison between biologics

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Huoponen. PLOS ONE | December 16, 2015

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The Cost of Suboptimal Therapy

- Suboptimal therapy
  - discontinuation or switch (except for CS)
  - dose escalation, augmentation, inadequate loading (biologics)
  - prolonged CS use (>3 months)
  - surgery or hospitalization
- 80% had ≥ 1 suboptimal treatment marker
- Total costs higher with suboptimal therapy
  - Crohn's $18,736 vs. $10,878
  - UC $12,679 vs. $9,653

US Insurance claims 2006-2010
Rubin. Aliment Pharmacol Ther 2014; 39: 1143–1155

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"The best opportunities to reduce IBD-related costs may be in optimizing evidence-based anti-TNF use, preventing avoidable acute care services, and ensuring care coordination of patients with high resource utilization."

Park. *Am J Gastroenterol* 2016; 111:15–23

"The economic impact of suboptimal therapy among UC and CD patients is substantial."

Rubin. *Aliment Pharmacol Ther* 2014; 39: 1143–1155

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Multidisciplinary Care

- US Healthcare is delivered in silos
- Integrated Practice Units
  - Multidisciplinary team
  - Co-located
  - Shared records
  - Effective communication
  - Increase patient value
  - Prepare for bundled payments
  - Beneficial for complex patients

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Benefits of a Dedicated IBD Service

- IBD Service-Royal Adelaide
  - Specialist GI
  - Nurse Coordinator
  - Joint GI-Surgery Clinic
  - Protocol-driven lab work
  - Single point of contact
- Results
  - Admissions decreased
  - Cost of inpt care decreased

- IBD Center-BUMC
  - Specialist GI
  - Joint GI-CRS Clinics
  - Common EMR
  - Infusion Center
  - Protocol-driven lab work
  - Single point of contact
  - Ostomy care
  - Process and PRO metrics
  - Monthly MDT Conference

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Sack. Journal of Crohn's and Colitis (2012) 6, 302–310

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Measure What We Do

- Process Measures
  - AGA Quality Measures (2011)
  - CCFA Process Measures
  - PQRS
- Outcomes Measures
  - CCFA Outcomes Measures
- Patient Reported Outcomes
  - PROMIS
- ICHOM IBD-Control

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We have a problem…

- IBD poses an economic burden on patients and society
- The prevalence of IBD will increase
- Biologic agents are now the main drivers of cost
- A minority of patients drive the majority of costs
- Suboptimal care is expensive

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And we can do better…

- Acknowledge our stewardship role
- Follow practice guidelines
- Identify the high risk patient
- Practice collaboratively
- Collect outcomes data

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