Economic Burden of IBD

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Management of IBD – State of the Art

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We have a problem…

Healthcare Spending as % of GDP

Healthcare Spending Per Capita

Canada

Denmark

Finland

France

Germany

Netherlands

Sweden

United Kingdom

United States

OECD Health Statistics 2016

Global Healthcare Spending

OECD Health Statistics 2016

Global Healthcare Spending vs GDP

OECD Health Statistics 2016

Value in Healthcare

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

Costs related to IBD

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

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

Declining Risk of Surgery

- 5 Year Risk of Surgery CD
- 10 Year Risk of Surgery CD
- 5 Year Risk of Surgery UC
- 10 Year Risk of Surgery UC

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

Health Insurance Paid Costs: Crohn’s

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

Health Insurance Paid Costs: Crohn’s

- $18,637 per member per year (s.d. $32,023)
Health Insurance Paid Costs

$18,637 per member per year (s.d. $32,023)
Co-pays and deductibles not included

Mean paid PMPY (sd)
High Cost 28%  Low Cost 72%
Mean paid PMPY $45,602  ($44,387)  $8,153  ($16,306)
Median paid PMPY $13,394  $5,618
% with ≥ 1 comorbidity 77  47
% with anti-TNF use 64  12
% with inpatient hospital claims 52  11
Mean paid PMPY for inpatient hospital claims $13,823  ($38,365)  $5618  ($5,056)

Most Common Comorbidities

Number of Comorbidities

Comorbidities vs Paid Costs

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

Peery. Gastroenterology 2015;149:1731–1741
We can do better…

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

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**Infliximab (Remicade®)**
- Crohn’s Disease
- 70 Kg dosed at 5 mg/kg
- Loading weeks 0, 2 and 6
- Maintenance q 8 weeks

$25,600

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**Adalimumab (Humira®)**
- Crohn’s Disease
- 160 mg week 0
- 80 mg week 2
- Maintenance: 40 mg q 2 wk

$72,420

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**Vedolizumab (Entyvio®)**
- Crohn’s Disease
- 70 Kg dosed at 300 mg
- Loading weeks 0, 2 and 6
- Maintenance q 8 weeks

$43,360

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**Ustekinumab (Stelara®)**
- Crohn’s Disease
- 70 Kg
- Loading dose: 390 mg
- Maintenance: 90 mg q 8 wk

$78,730

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**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

Cost Effectiveness of Biologics

- 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

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

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

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

“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.”


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

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

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

And we can do better…

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