Big or Small?

Drug Development Post-Health Reform

.: Michael McCaughan
.: Centric Ultra Orphan Conference
.: Sept. 28, 2010

Agenda

- Health Care Reform and Biopharma
  - A Three Act Play: MMA, FDAAA, PPACA
  - Health Care Reform Helps Biopharma—But Doesn't Solve Its Problems
- Big Or Small
  - Complexity of Health Care System
  - The Shotgun or The Dart
- Business Model Evolution
  - Big Pharma Begets Big Biotech
  - …And Now Big Orphan?

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Part I:
Health Care Reform and Biopharma

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Or…

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How I Learned to Stop Worrying….

…And Love Health Care Reform

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Political Climate Change

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Medicare
Modernization Act
Dec. 8, 2003

FDA Amendments
Act
September 27, 2007

Health Care
Reform

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Act 1: Medicare Part D

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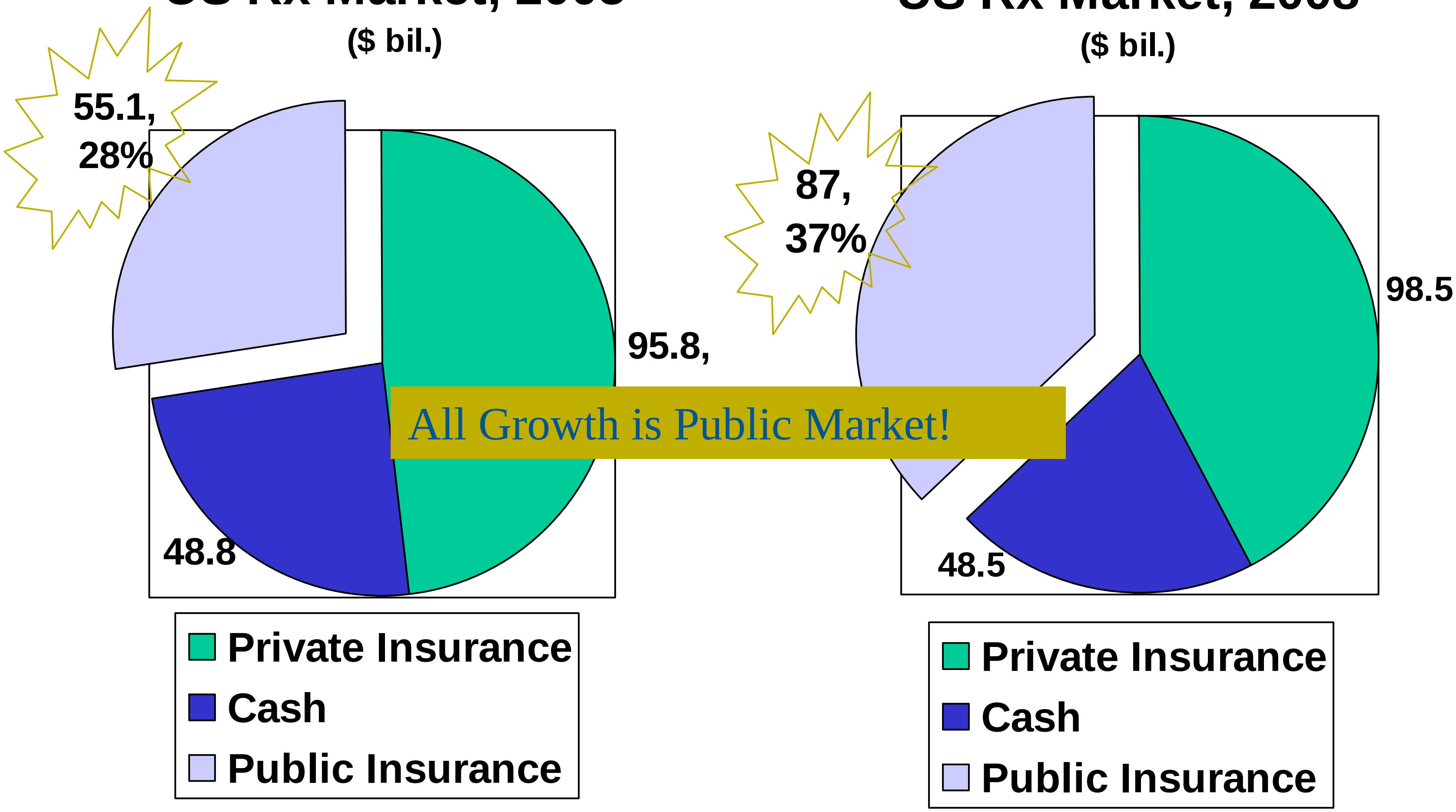
US Rx Market, 2005 | US Rx Market, 2008

($ bil.)



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Key Trends From MMA

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- Federal Government Becomes Largest Payor
  - Market Remains Fragmented, Heavy Private Sector Influence
    - Nothing Is “Replaced” (Still Part A and B)
  - Self-Consciously a Model for Health Care Reform
    - The Health Insurance Exchange
- Expanded Coverage Equals Expanded Volume…And Greater Generic Penetration
  - Donut Hole Pinches
- Leaves High Priced “Biotech” Products Untouched
  - Catastrophic Coverage Generous
  - Part B Payment Still Incents Use

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Act II: A New Drug Approval Model

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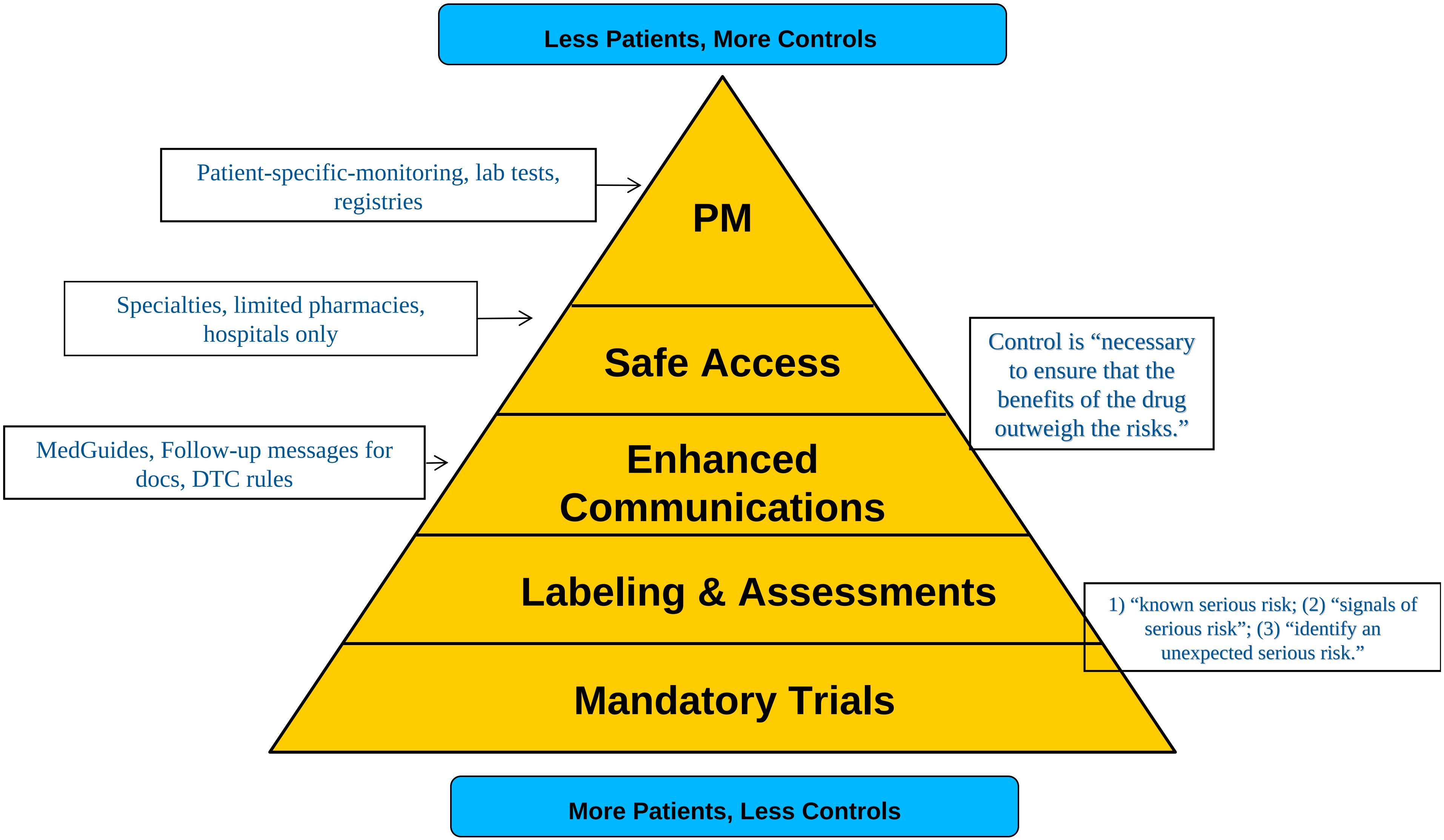

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The REMS Ramp

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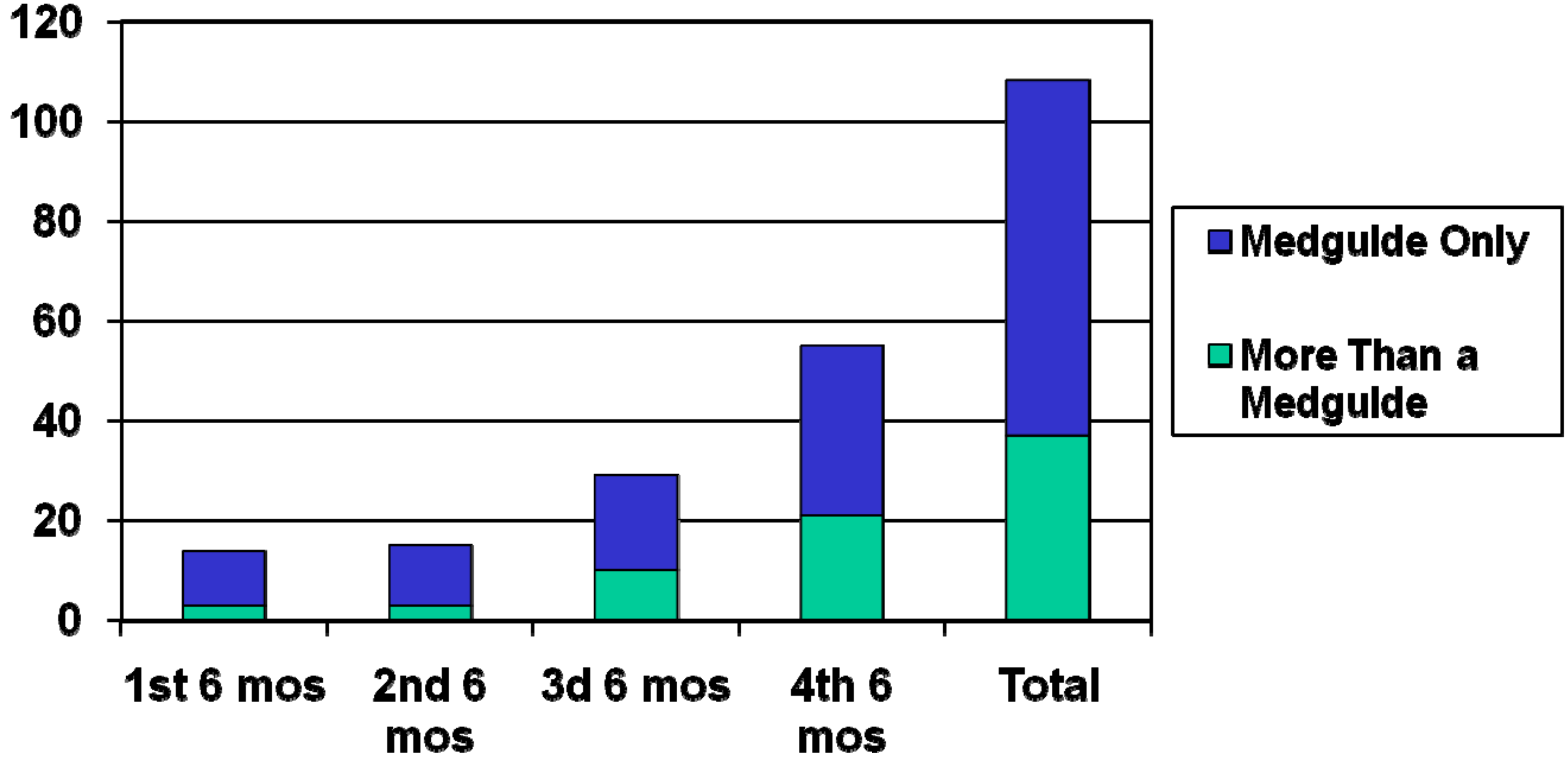

Source: FDA, Prevision Policy

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REMS Reconsidered?

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Kaiser Pushing Back

(Translation: Sponsors ARE Regaining Control)

Doctors Pushing Back

(Translation: Liability Shifting)

Pharmacies Pushing Back

(Translation: Specialty Channel Working)

Generics Pushing Back

(Translation: Longer Tail Possible)

Consumers Pushing Back

(Translation: REMS Do Help Drugs Get Approved)

Patients Pushing Back

(Translation: Process Improvements Needed)

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Key Trends From FDAAA

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A New Regulatory Model

- Highly Effective Agents for “Manageable” Patient Populations Have an Easier Path
- In Other Words, Small Is Easier

Transition is Uneven and Unpredictable

- Advisory Committees Now a 50-50 Proposition

REMS Are Here To Stay

- 20 Years From Now Will Be Routine

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Act III: Now What?

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Paying Up-Front…

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Lilly : $350-$400 mil.
BMS: $350-$400 mil.
Abbott: $230 mil.
Merck: $170 mil.

$14.3 Bil. PAIN

Lilly : $600-$700 mil.
Merck: $300-$350 mil.

18 mil. lives

$58.2 Bil. In payments from 2014-2019

2010
Medicaid
Rebates

2011
Industry/Club
Fees
Donut Discounts

2014
New Lives

High Visibility for short-term pain is good PR and IR:

- Bad Politics To Stand Out Immediately As Big Winners
- A Great Way To Re-base Expectations For Post Patent-Cliff Period

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…To Build A Better Market

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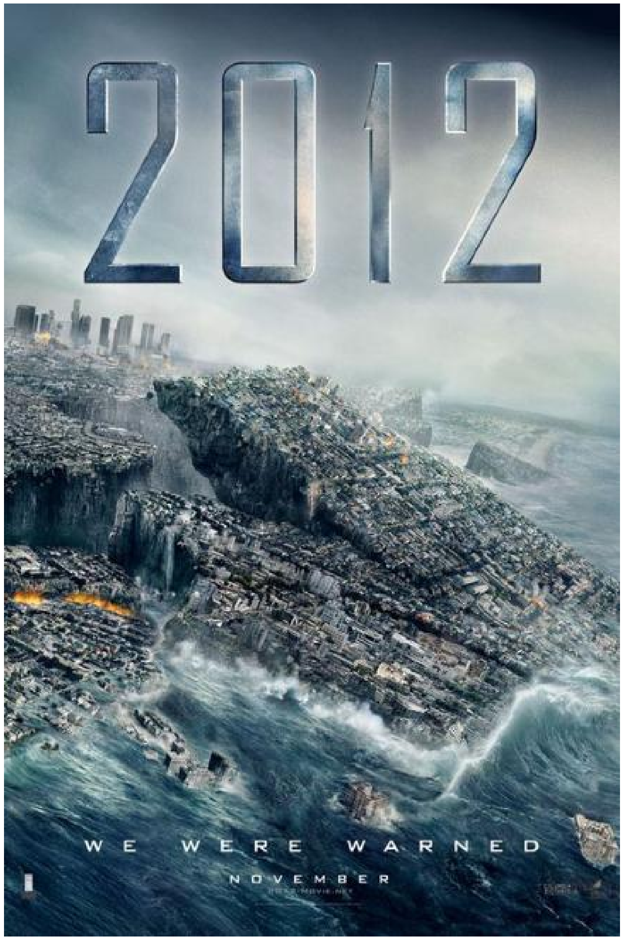

- Patent Cliff Looming: *The* Issue for Big Pharma Today
- A New World In 2014
  - Part D "Filled In"
  - Regulatory Model Clearer
  - FOB Implementation Clearer
  - New Insurance Market/Regs Kick In
  - Launch Prices Still Pharma's to Control

The US Becomes The World's Largest Emerging Market for Pharmaceuticals!

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Shifting The Cliff

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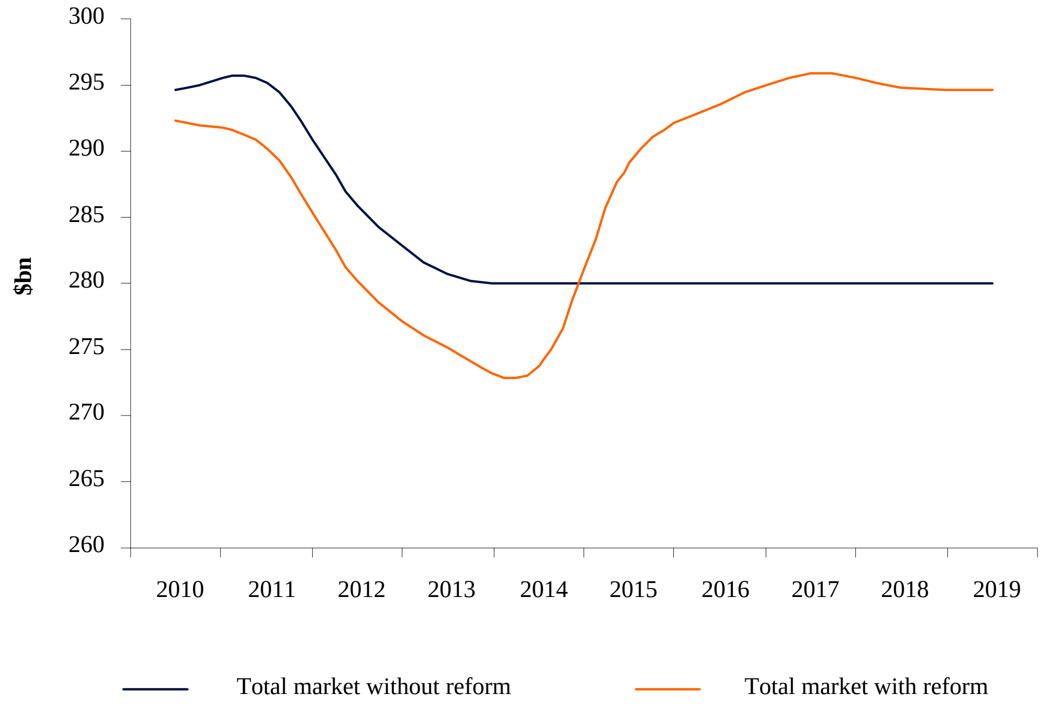

Source: Business Insights, August 2010 report,
"The Impact of Health Care Reform on Pharma."

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What Pharma Gets…

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- Newly Insured=New Customers
- End of the Donut Hole
- Better Insurance For High-Priced Products

No Controls on Launch Prices

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...And One More Thing

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Follow-On Biologics:
The IP Law For The 21st Century

- 12+ Years of Data Exclusivity for FOBs
- Innovator-friendly process
- FOBs pathway is loaded to favor companies willing to take on expensive development processes

Innovator Friendly Deal Impossible Except In Context of Reform…

Markets of Multiple Brands – think ARBs

A Free Ride on the Bac

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Key Implications

- Specialty Products Preferred
  - Same Story As MMA: Competition in Small Molecules, Price Flexibility in "Biotech"
  - Special IP For Biotech
- Orphans Even More Preferred
  - Exempt From Market Share Fee
  - Special Treatment in CER

….But Pharma Still Has to Go Over the Cliff

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Market Share Logic

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More to Come?

- **Health Reform Buys Time For Big Pharma**
- **Market Share Fee Key to Thinking**
- **Broader Product Lines Encouraged**
  - **Diversity Within Rx Helps**

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Part II: Big or Small?
The Evolving Biopharma Business Model

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The Drug Development Challenge

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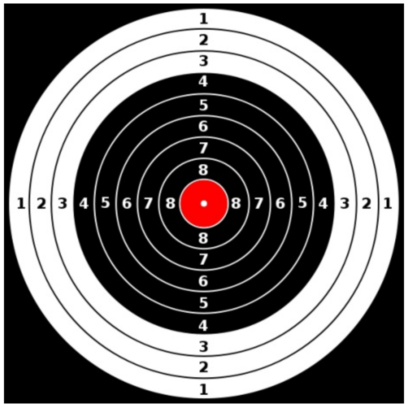
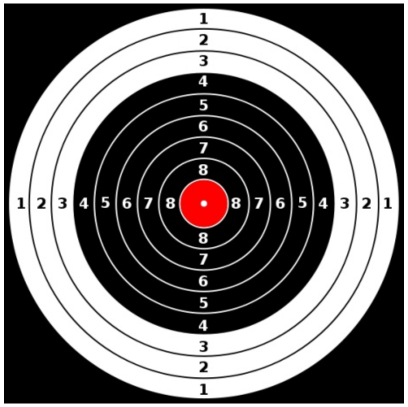
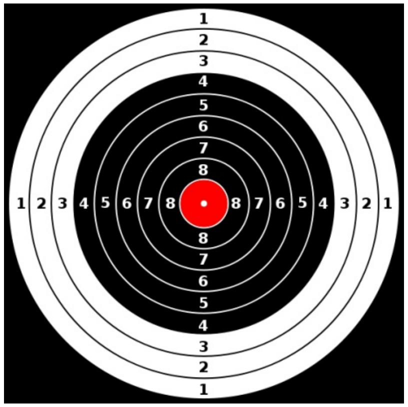
Safety
(1938)



Efficacy
(1962)



Reimbursability
(c. 2000)



CER
(c. 2010)

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One Solution

A Shotgun Might Work…

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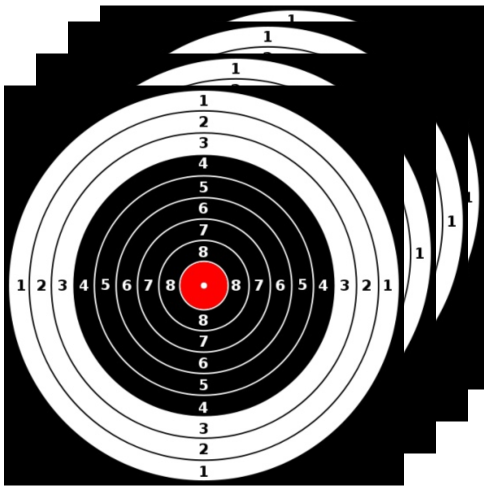
Another Solution



But So Will a Dart…

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Two Views of Pharmacogenomics

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"Instead of empirically prescribing a pill and hoping it works, patients will receive treatments designed specifically for them. We will use the new tools of molecular medicine to develop new individualized interventions and in the very process of molecularly monitored delivery to patients our understanding of the biology of disease in individual humans will be elucidated. In this way, delivery will become, in itself, a platform of discovery."

--Andrew Von Eschenbach

"If we are going to find a therapy that will treat a disease that many people will have, our preference is to find a way of doing that that in fact doesn't require stratification, that in fact picks a target that is intrinsically less sensitive to genetic variation than another target. So it's using all the same data to try to essentially come up with a drug that in fact the physician can have some confidence will work in 80 percent of the people."

--Merck Biz Dev Exec at BIO

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The US Health Care System

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A Simplified View

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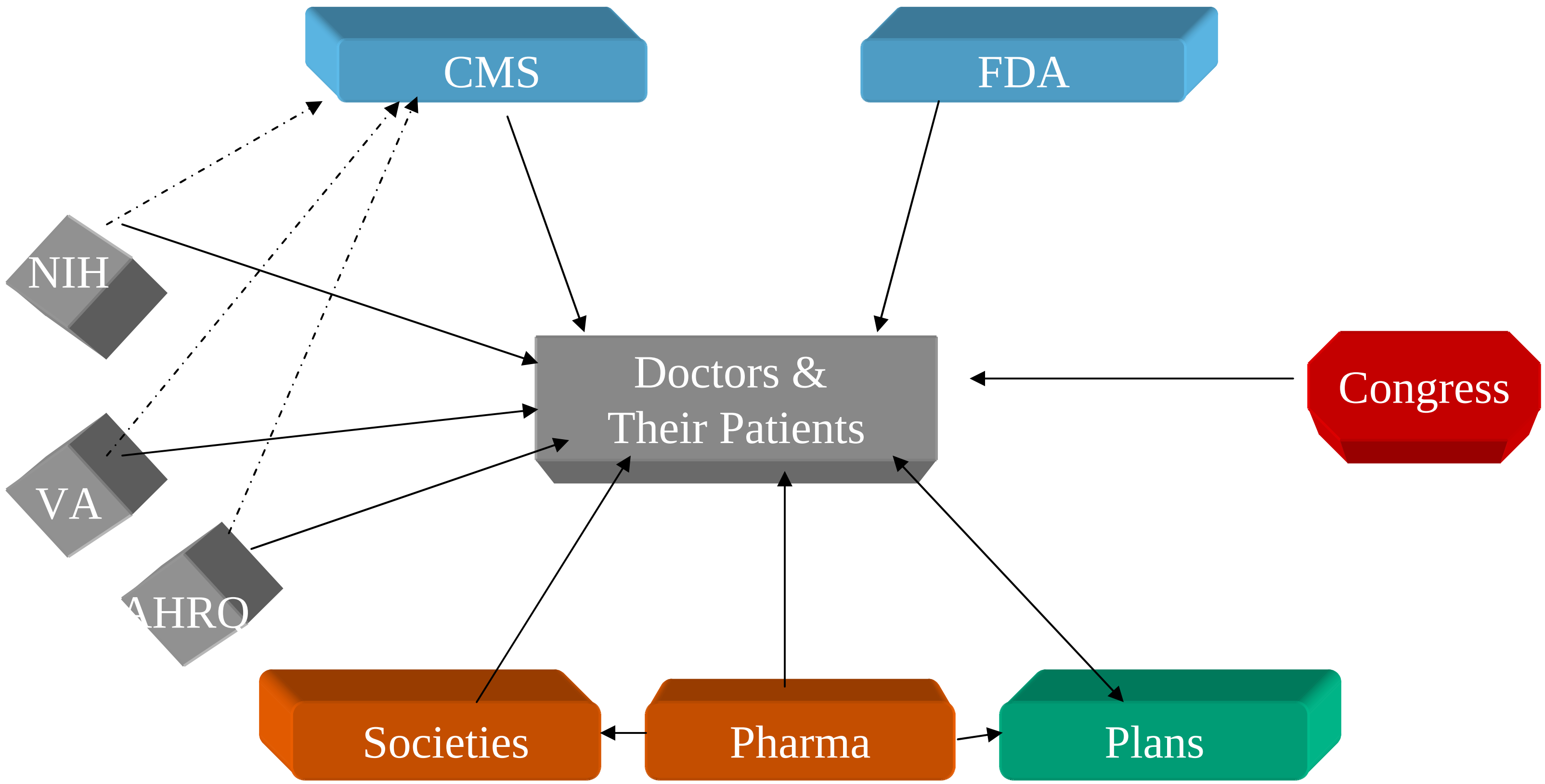

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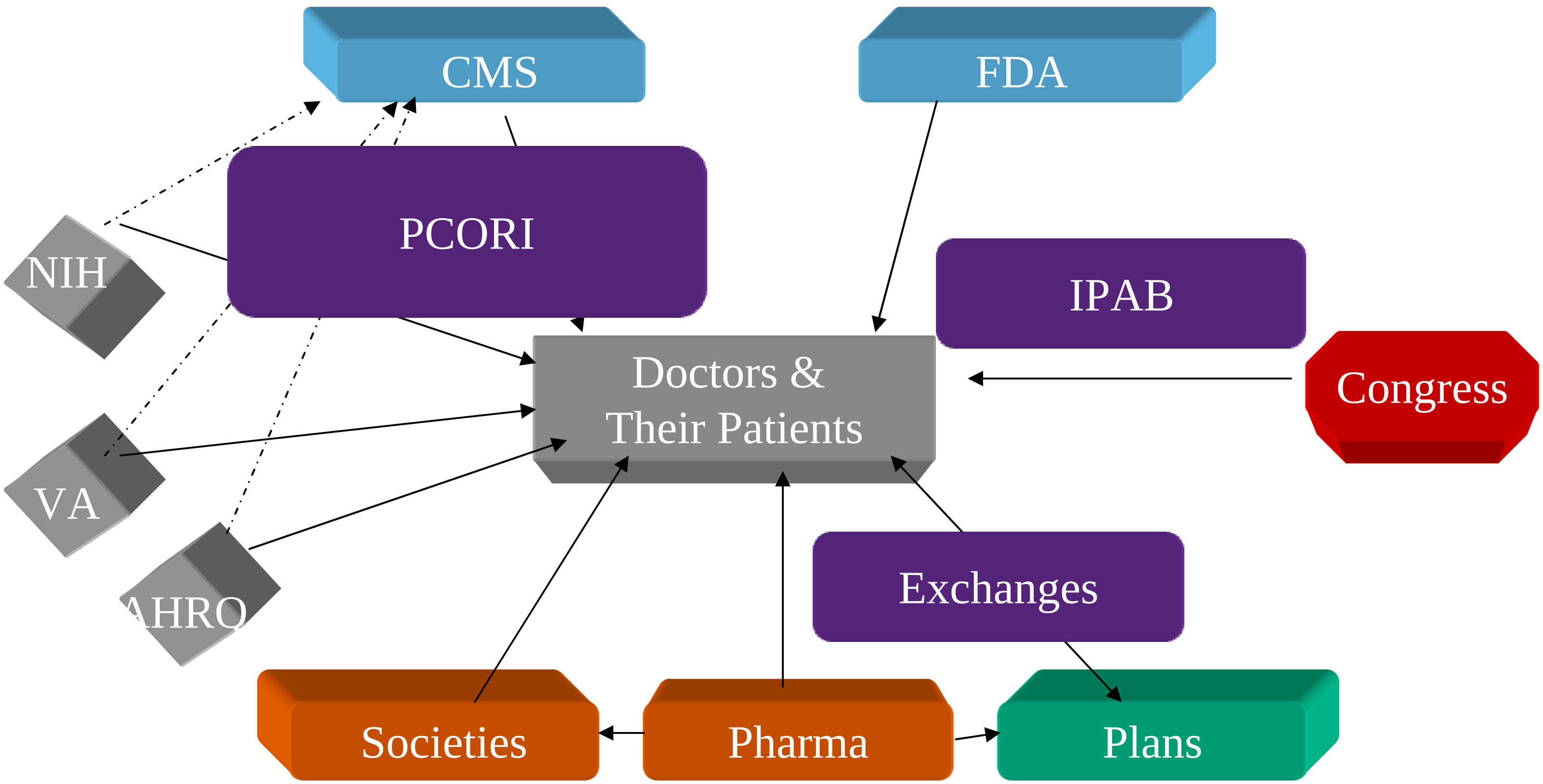
Coming Soon…



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The Shotgun Approach

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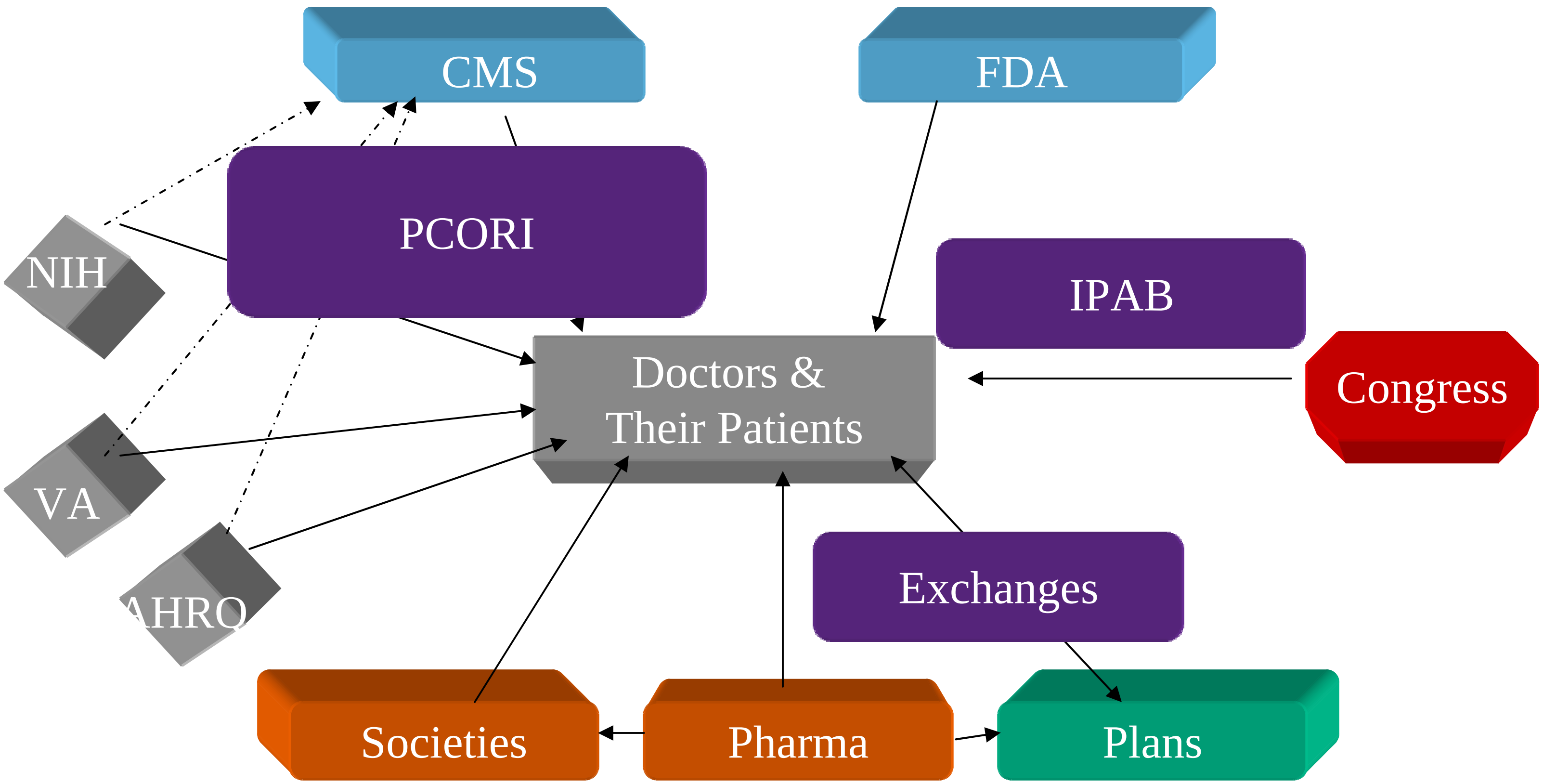

Big Pharma Tracks/Influences All Stakeholders

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The Dart Approach

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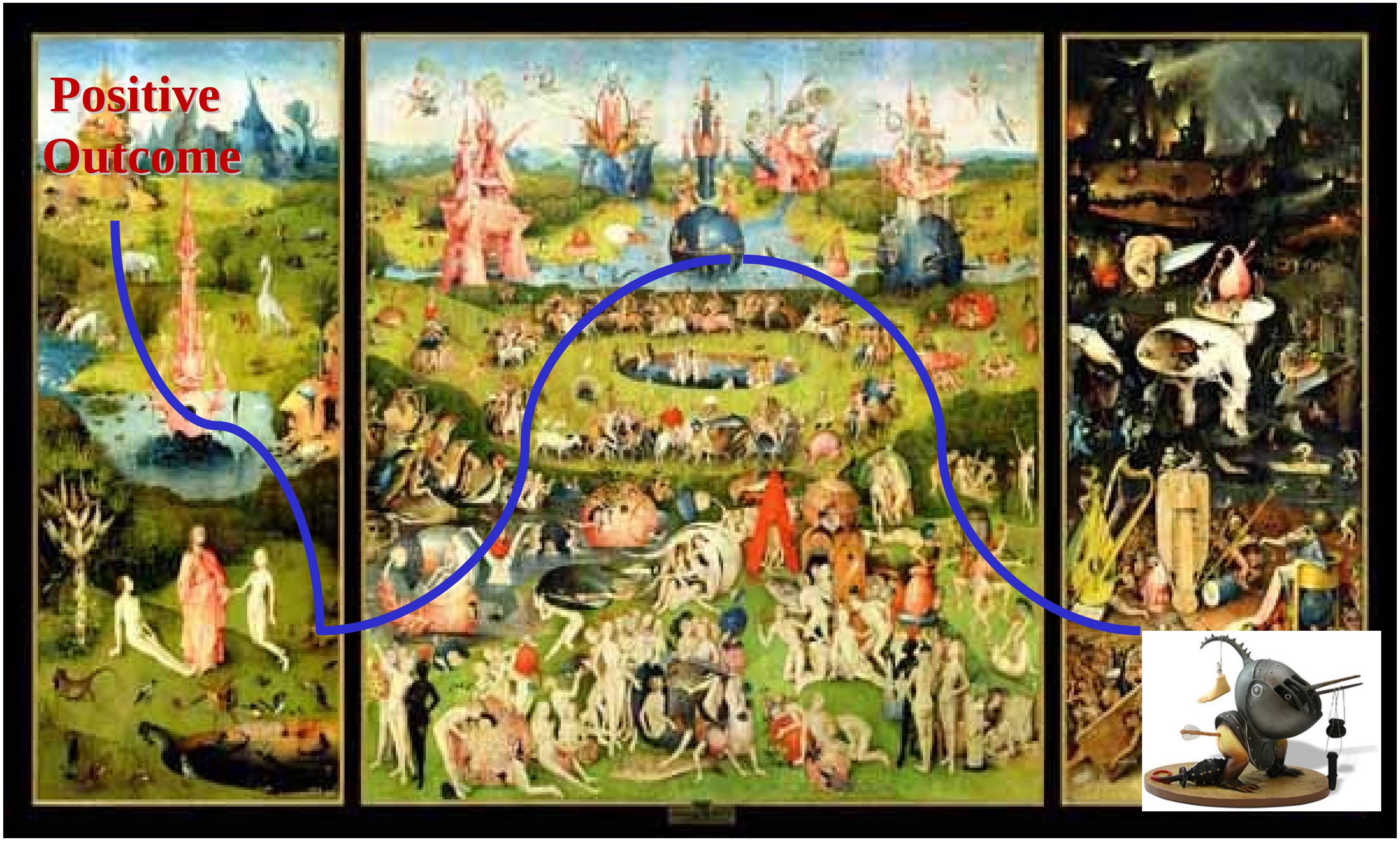
Help One Patient At a Time



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Head-to-Head Trial

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Xenazine: Approved
August 2008

Development Cost:

<$100 MM

Maximum US Market Potential:

$250 MM

Current Quarterly Sales:

$16.3 MM

Effient: Approved
July 2009

Development Cost:

>$1 BB

Maximum US Market Potential:

$6 BB+

Current Quarterly Sales:

$16.3 MM

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Big or Small?
The Evolving Biopharma Business Model

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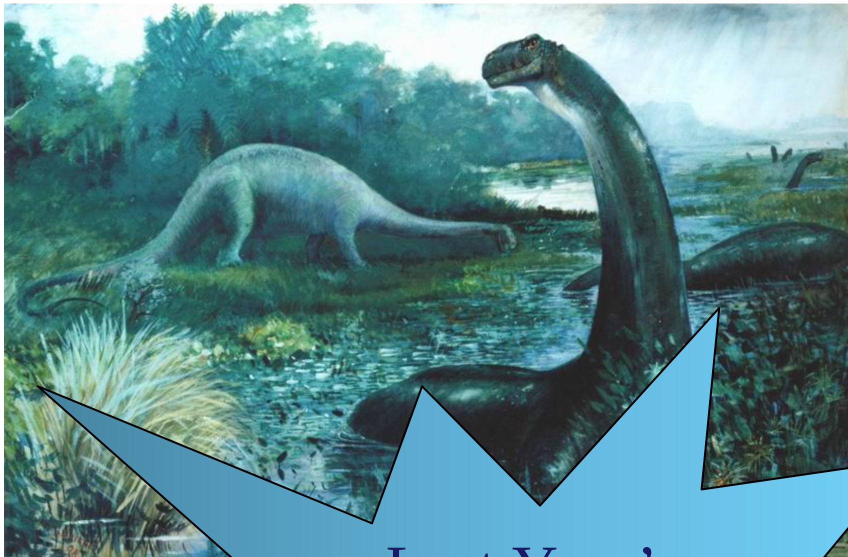

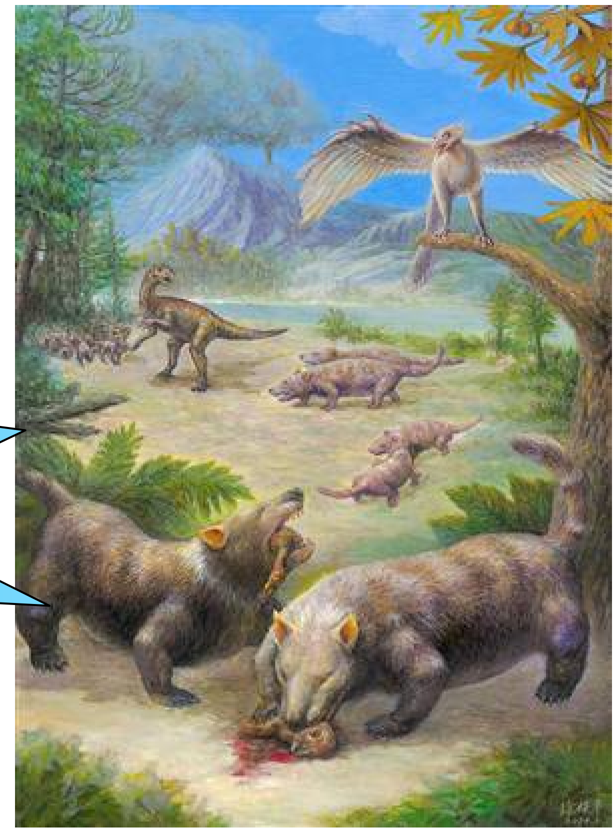

Last Year's Conclusion: Smaller is Better

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The Evolving Biopharma Business Model

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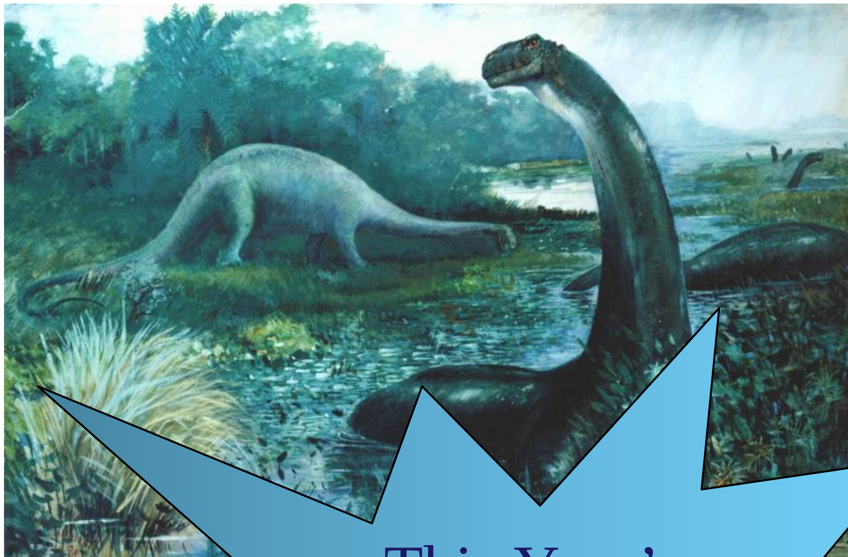
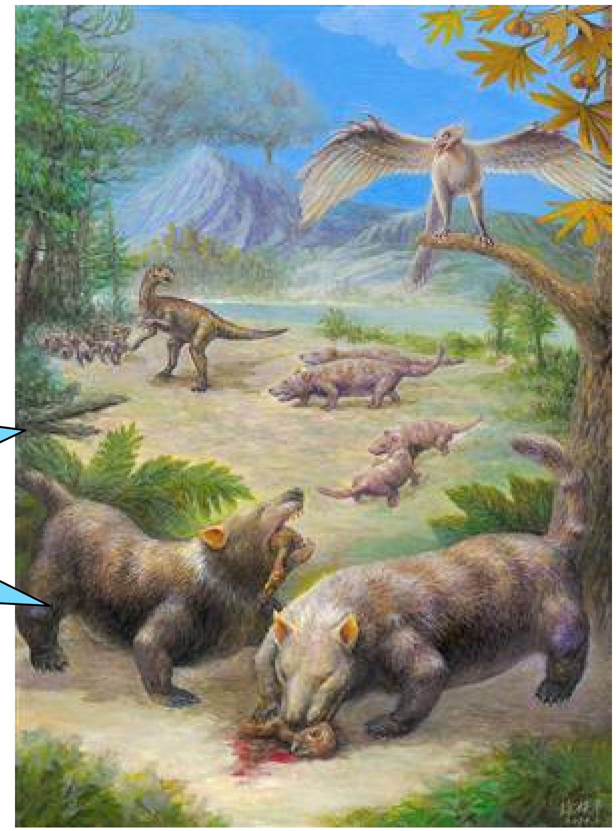


This Year's Addendum: Big Pharma Has Noticed



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Orphan Drug Business Development

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GSK/Prosensa **$25 MM** Up Front for Phase I/II Duchenne Muscular Dystrophy compound and successors (October 2009)

BioMarin/Huzley **$15 MM** to Acquire Company and LEMS Therapy in Europe (October 2009)

Pfizer/Protalix **$60 MM** Up Front For Near-Term Gaucher's Therapy (December 2009)

GSK/JCR Pharma **$30.5 MM** Equity Investment; Products include biosimilars and orphan candidates (December 2009)

BioMarin/LEAD Therapeutics **$18 MM** to acquire firm and compounds for rare cancers (February 2010)

BioMarin/Zystor **$22 MM** to acquire Enzyme Replacement Therapy Company (August 2010)

Pfizer/FoldRx Undisclosed Price; transthyretin amyloid polyneuropathy (ATTR-PN) product pending in Europe (August 2010)

Shire/Acceleron **$45 MM** Up Front for Phase II/III DMD compound and follow-up molecules (September 2010)

And There is More to Come…

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Sanofi/Genzyme, For Example

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Thinking Smaller?

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Genzyme Orphan Products Will Be Standalone Business

"Genzyme has really invented the rare disease model, and I think you have to say that they've been very successful at it. It's certainly not a business that requires economies of scale. And so I'm not so sure that I would really see us adding anything to that. I think what is interesting on that side is obviously in a world of personalized medicine, that that could be of interest in educating us around some other parts of our business."

CEO Chris Viehbacher

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Nothing New

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Why AstraZeneca Wanted Medimmune So Much

"Our products have traditionally been sold almost patient by patient. We know how each patient is going to buy the drug, which distributor is going to get it to them, whether the physician is going to be buying it, whether the patient is going to be buying it. It is just a micro managed selling process, which hasn't historically lent itself to large primary care products."

Ex-Medimmune CEO David Mott
2007

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What is New…

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A Big Pharma Marketing Battle In Gaucher's Disease

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Business Model Evolution

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Big Pharma

Distinguishing Features:

- Small Molecule
- Primary Care Rx
- Simple Marketing Messages

Vital Statistics

- Patient Population c. 10 million
- Price Point c. $1,000

Lifespan

- Born In the 1980s
- Flourished in the 1990s
- RIP?

Lipitor®
atorvastatine

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Business Model Evolution

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Big Biotech

Distinguishing Features:

- Large Molecule
- Specialty Prescribers (but Lots of 'em)
- DTC Still Works

Vital Statistics

- Patient Population c. 1 million
- Price Point c. $10,000

Lifespan

- Born In the 1990s
- Flourishing Now

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Business Model Evolution

Big Orphan

Distinguishing Features:

- Centralized Distribution Model
- Limited Centers of Treatment
- Patient Level Marketing Moderated by Physician/Treatment Center

Vital Statistics

- Patient Population c. 100,000
- Price Point c. $100,000

Lifespan

- Born Now
- Viability Uncertain

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Business Model Evolution

Big Ultra Orphan?

Distinguishing Features:

- Not Seen in Nature

Vital Statistics

- Patient Population c. 10,000
- Price Point c. $1,000,000

Lifespan

- May Such a Thing Never be Born

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Questions?

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