We are in a new era of medicine where breakthrough science is transforming care with innovative treatment approaches...

**Then**
- Medicines made of chemical compounds
- Medicines treat broad diseases
- Radiation and chemotherapy to treat cancer

**Now**
- Medicines made from living cells
- Medicines targeted to specific patient based on genetic makeup
- Immunotherapy that harnesses body’s own immune system to fight disease
- CAR T-cell therapy
- CRISPR
Treating people with one or more chronic condition consumes 90 cents of every dollar spent on health care.

...and enabling us to more effectively treat chronic disease, the biggest cost driver.

Prevalence and Spending by Number of Chronic Conditions (2014)

Health Care Spending by Number of Chronic Conditions (2014)

Note: Total health care spending defined as the amount spent on all outpatient and inpatient health care services across all payers, including out-of-pocket payments.

Source: RAND Corporation
Multiple sources confirm 2016 spending growth was between 3% and 5%.

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2%</td>
<td>3.8%</td>
<td></td>
</tr>
<tr>
<td>5%</td>
<td>3.2%</td>
<td></td>
</tr>
<tr>
<td>9%</td>
<td>1.3%</td>
<td></td>
</tr>
<tr>
<td>8.5%</td>
<td>4.8%</td>
<td></td>
</tr>
</tbody>
</table>
In fact, after discounts and rebates, brand medicine prices grew just 3.5% in 2016.

Source: IMS Institute for Healthcare Informatics, National Sales Perspectives, March 2016.
Spending on retail and physician-administered medicines continues to represent just 14% of spending...

U.S. Health Care Spending, 2015

- Admin Costs: 8%
- Home Health & Nursing Home Care: 12%
- Prescription Medicines: 14%
- Physician & Clinical Services: 18%
- Dental Services: 13%
- Other**: 4%
- Hospital Care: 31%

Source: PhRMA analysis of CMS National Health Expenditures data, Altarum Institute study and Berkley Research Group study.

**Supply chain entities - stakeholders involved in bringing medicines from manufacturer to patient, including wholesalers, pharmacies, PBMs and healthcare provider locations.
…and a small share of total Medicaid spending…

Note: Prescription drug data is net of rebates and includes both retail and non-retail drugs. Data used were predominantly derived from CMS 64 reports. Pre-rebate expenditures were tabulated using FY2015 CMS State Drug Utilization data files and CMS brand/generic indicators for each NDC.

Source: CMS National Health Expenditure Data and Altarum Institute.
...and is projected to grow in line with health care spending through next decade.
At the same time, growth in other health care services will be 5 times total medicine spending growth through next decade.

Source: PhRMA analysis of Altarum Institute, “A Ten Year Projection of the Prescription Drug Share of National Health Expenditures Including Non-Retail,” August 2015.
Insurers and PBMs have a lot of leverage to hold down medicine costs.

Negotiating power is increasingly concentrated among fewer pharmacy benefit managers (PBMs).

Top 3 Market Share:
- OptumRx/Catamaran*: 30%
- CVS Health (Caremark): 24%
- Express Scripts: 24%
- All Other: 22%

Insurers determine:

**FORMULARY**
if a medicine is covered

**TIER PLACEMENT**
patient cost sharing

**ACCESSIBILITY**
utilization management through prior authorization or fail first

**PROVIDER INCENTIVES**
preferred treatment guidelines and pathways

Note: OptumRx and Catamaran merged in 2015. Their 2014 shares are shown combined.
Source: Drug Channels Institute.
In fact, more than 1/3 of the list price is rebated back to payers, the government and other stakeholders in the supply chain.

**Brand companies retain just 63% of list price spending on medicines**

- **62.6%** Brand Companies
- **18.5%** Market Access Rebates and Discounts
- **12%** Statutory Rebates and Fees
- **6.9%** Supply Chain Entities

**Rebates, discounts and fees keep increasing**

- **2013**: $67.0B
- **2014**: $84.6B
- **2015**: $106.4B

Source: Berkeley Research Group.
Nearly 90% of all medicines dispensed in the United States are generics.

Source: IMS Health.

$1.68 trillion
10-year savings (2005-2014)
Generics cost a fraction of the price of the initial brand medicine.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIOVAN VCT® Hypertension (2010)</td>
<td>85%</td>
</tr>
<tr>
<td>$87</td>
<td></td>
</tr>
<tr>
<td>$13</td>
<td></td>
</tr>
<tr>
<td>LIPITOR® Cholesterol (2010)</td>
<td>95%</td>
</tr>
<tr>
<td>$85</td>
<td></td>
</tr>
<tr>
<td>$4</td>
<td></td>
</tr>
<tr>
<td>PLAVIX® Blood Thinner (2011)</td>
<td>97%</td>
</tr>
<tr>
<td>$166</td>
<td></td>
</tr>
<tr>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>SEROQUEL® Schizophrenia (2010)</td>
<td>97%</td>
</tr>
<tr>
<td>$87</td>
<td></td>
</tr>
<tr>
<td>$3</td>
<td></td>
</tr>
<tr>
<td>ZYPREXA® Schizophrenia &amp; Bipolar Disorder (2010)</td>
<td>98%</td>
</tr>
<tr>
<td>$393</td>
<td></td>
</tr>
<tr>
<td>$8</td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures represent the average annual price for 30 pills of the most commonly dispensed form and strength. "Then" price represents the average price in the year prior to generic entry. "Now" price represents the average price in CY 2014.

Source: IMS analysis for PhRMA, May 2015.
$103 billion of U.S. brand sales are projected to face generic competition.

2012-2016: $91.2 Billion

2017-2021: $102.8 Billion

Projections exclude biologics, which will face competition from biosimilars entering the market.

Note: Pre-expiry sales of products are calculated for products facing loss of exclusivity (LOE) in each year; the sales in the prior year for each product are aggregated to represent the collective industry exposure to LOE. LOE does not indicate generic market entry. Only small molecule LOEs are included.

At the same time, innovator companies race to be the first to market with a new medicine.

Time Between Approval of First and Second Medicines in a Therapeutic Class Has Declined Dramatically

10.2 years
1970’s

2.3 years
2005-2011

Competing brands generally launch within years

Source: Tufts Center for the Study of Drug Development (CSDD).
The competitive U.S. market provides patients with access to innovative medicines faster.

For example, American patients have access to cancer medicines about two years earlier.

Delay in cancer medicine approval and reimbursement, 2010-2014

When cancer medicines are eventually approved in other countries, they are often not reimbursed.

Availability and reimbursement in 2015 of 49 cancer medicines launched globally between 2010 and 2014.

Note: In the UK and Scotland, only drugs reimbursed through NICE and the SMC were included among “reimbursed” drugs. Any additional medicines reimbursed through the Cancer Drug Fund (CDF) were not included in the reimbursed category, due to the uncertainty of the continuation of this fund.

Source: IMS Institute for Healthcare Informatics, May 2016
Spending on prescription medicines is a small percentage of total health care spending around the world.

Note: Total health care spending includes hospital care, physician and clinical services, home health and nursing home care, government administration and net cost of private health insurance, dental, home health and other professional services as well as durable medical equipment.

Source: OECD Health Statistics Database (accessed February 2016); Altarum Institute, 2015. A ten year projection of the prescription drug share of national health expenditures including non-retail.
Patients in the United States are facing rising out-of-pocket costs and other barriers to care.

The use of four or more cost-sharing tiers is becoming more common on employer plans.

Percentage of plans with deductibles on prescription drugs:
- 2012: 23%
- 2016: 49%

And too often negotiated savings do not make their way to patients.

More than half of commercially insured patients’ out-of-pocket spending for brand medicines is based on the full list price.

Cost sharing for nearly 1 in 5 brand prescriptions is based on list price.

Source: Amundsen Consulting Group study.
Sharing negotiated discounts with patients would increase premiums about 1%.

Certain commercially insured patients could save $145 to more than $800 annually.

### Change in Plan Costs with Shared Rebates

<table>
<thead>
<tr>
<th>PLAN TYPE</th>
<th>Traditional PPO</th>
<th>Copay HDHP*</th>
<th>Coinsurance HDHP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Plan Per Member Per Month Spend</td>
<td>$433.91</td>
<td>$374.41</td>
<td>$372.89</td>
</tr>
<tr>
<td>Change in Plan Costs $</td>
<td>$0.82</td>
<td>$2.62</td>
<td>$3.84</td>
</tr>
<tr>
<td>Change in Plan Costs %</td>
<td>0.2%</td>
<td>0.7%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

NOTE: Plan cost includes medical and pharmacy claims
HDHP = High-deductible health plan
And 20% of revenues are reinvested into R&D

Biopharmaceutical companies use today’s revenues to invest in tomorrow’s treatments and cures.

Industry invests 17% of all domestic research and development funded by U.S. businesses

Invested about $90 Billion in R&D in 2016

Note: The remaining 57% share of business R&D spending is conducted by other industries, including subsectors of the machinery sector, the electrical equipment sector, and the professional, scientific, and technical services sector.

Source: Research!America report and PhRMA analysis of National Science Foundation data.
We need a public policy environment that recognizes and rewards risk taking.

On average, it takes more than 10 years and $2.6B to research and develop a new medicine.

**Between 1998 and 2014**

**Unsuccessful Attempts**
- 123 Alzheimer’s Disease
- 96 Melanoma
- 167 Lung Cancer

**Successful Attempts**
- 4 Alzheimer’s Disease
- 7 Melanoma
- 10 Lung Cancer

Just 12% of drug candidates that enter clinical testing are approved for use by patients.

Source: Tufts Center for the Study of Drug Development (CSDD).
Collectively, these market-based reforms can make medicines more affordable and accessible.

<table>
<thead>
<tr>
<th>MODERNIZE THE DRUG DISCOVERY AND DEVELOPMENT PROCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Modernize the FDA to keep pace with scientific discovery and increase efficiency of generic approvals.</td>
</tr>
<tr>
<td>• Promote and incentivize generic competition.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROMOTE VALUE-DRIVEN HEALTH CARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Remove barriers restricting information companies can share with insurers.</td>
</tr>
<tr>
<td>• Reform regulations discouraging companies from offering discounts tied to outcomes.</td>
</tr>
<tr>
<td>• Modify Medicaid best price requirements.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EMPOWER CONSUMERS AND LOWER OUT-OF-POCKET COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide patients with access to negotiated rebates.</td>
</tr>
<tr>
<td>• Address affordability challenges in the deductible.</td>
</tr>
<tr>
<td>• Make more information on health care out-of-pocket costs and quality available to patients.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADDRESS MARKET DISTORTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Address burdensome regulations that distort programs like the 340B Drug Pricing program.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMPROVE TRADE AGREEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enforce existing trade agreements.</td>
</tr>
<tr>
<td>• Ensure new trade agreements recognize value of innovative medicines.</td>
</tr>
</tbody>
</table>