The IMS Institute is now the IQVIA[™] INSTITUTE for Human Data Science

2018 and Beyond: Outlook and Turning Points

Barclays Healthcare Payors, Providers & Supply Chain Summit Tuesday Sep 25th, 2018

Michael Kleinrock, Research Director

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IQVIA Institute for Human Data Science

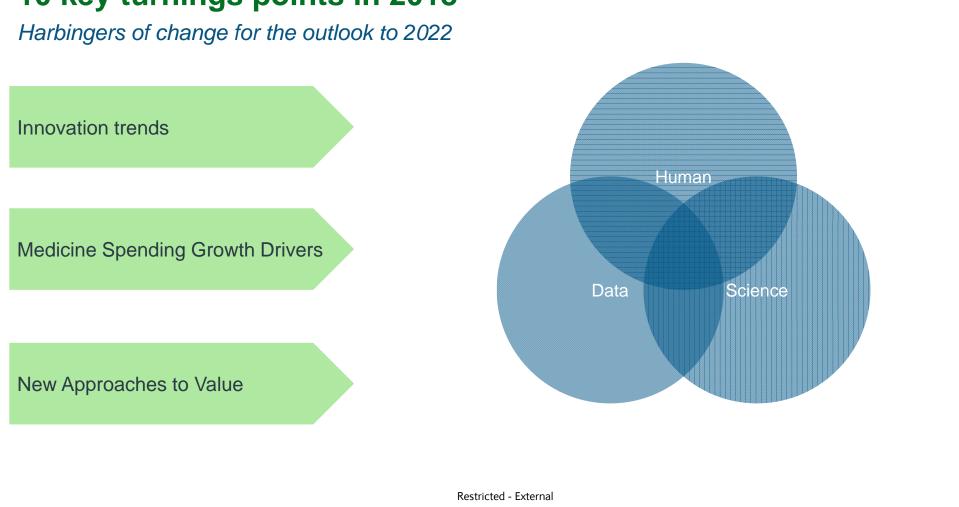
The IQVIA Institute for Human Data Science contributes to the advancement of

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expertise applied to granular non-identified patient-level data.

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Harbingers of change for the outlook to 2022



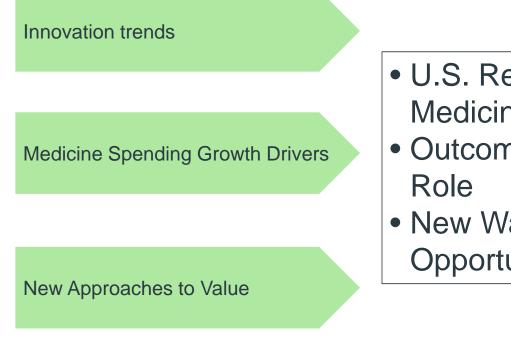
- Real-World Data Use in Clinical Practice Guided by FDA
- Next Generation Biotherapeutics move toward mainstream
- Apps Make Their Way into Treatment guidelines
- Telehealth Usage Surges

Harbingers of change for the outlook to 2022



- Branded Medicine Spending in Developed Markets Falls
- Specialty Medicines Drive All Spending Growth in Developed Markets
- Slower Growth in China and Other Pharmerging Markets

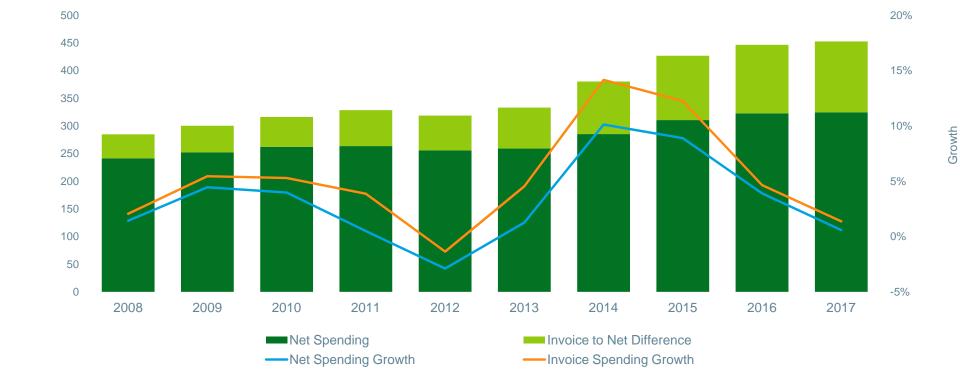
Harbingers of change for the outlook to 2022



- U.S. Real Net Per Capita Spending on Medicines Steadies
- Outcomes-Based Contracts Find Limited Role
- New Wave of Biosimilar Market Opportunities Emerges

Medicine Growth in the United States Slowed to 0.6% in 2017 on a Net Basis

Total Spending on Medicines and Growth US\$Bn



Source: IQVIA, National Sales Perspectives, IQVIA Institute, Dec 2017

Restricted - External

Spending US\$Bn



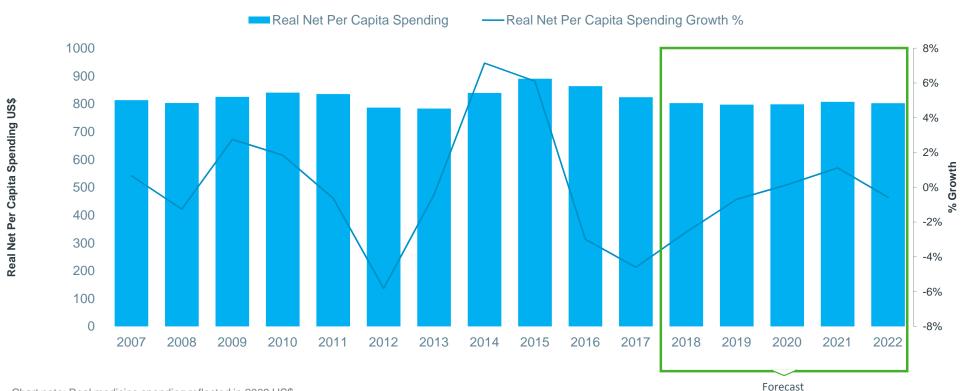
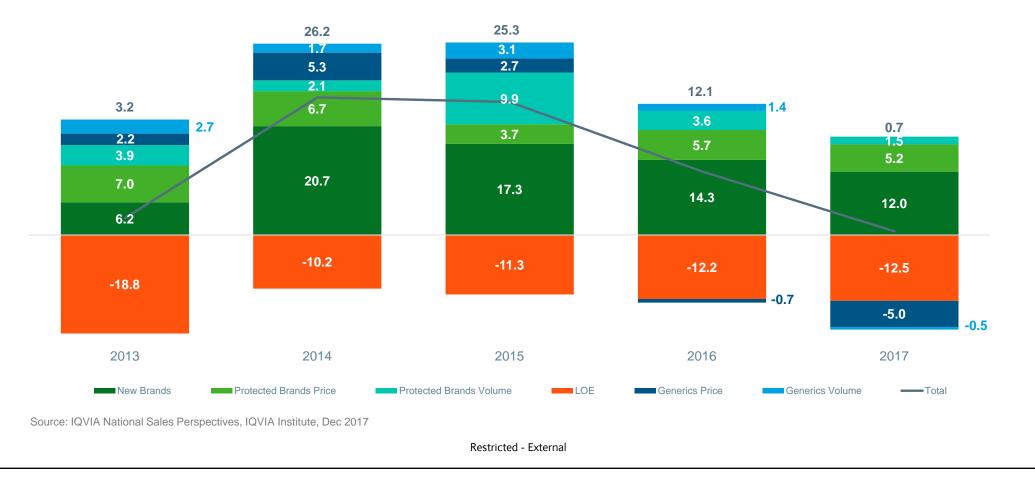


Chart note: Real medicine spending reflected in 2009 US\$

Source: IQVIA, Market Prognosis Sep 2017; IQVIA Institute; US Census Bureau; US Bureau of Economic Analysis (BEA), Dec 2017

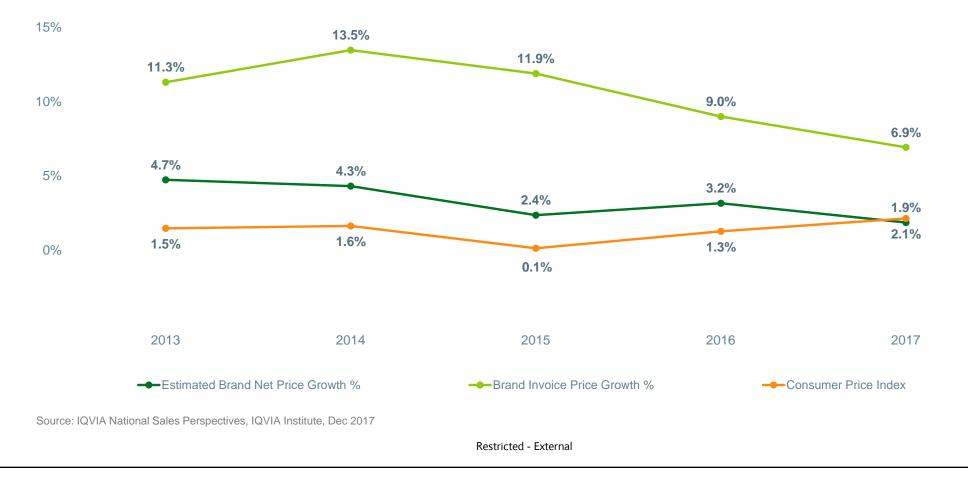
Growth Fell to \$0.7 Billion as New and Protected Brands Grew \$4.9 Billion Less than in 2016, and Generics Declined by \$5.5 Billion

Net Spending Growth by Product Type US\$Bn

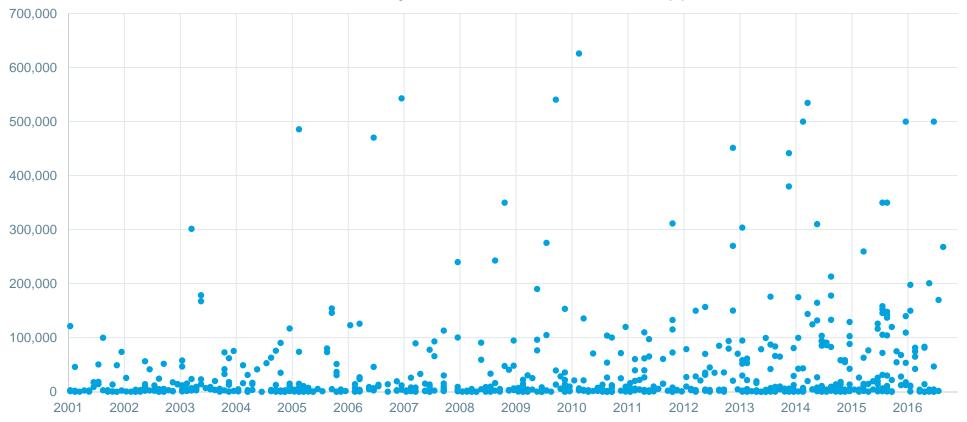


Protected Brand Net Prices Increased by 1.9% on Average in 2017, Continuing Below Invoice Price Growth and Now Lower Than Inflation

Protected Brand Invoice and Net Price Growth %



More of Recent U.S. Brand Launches Costs Above \$100,000 per Year



Average annual costs of US brand launches by year

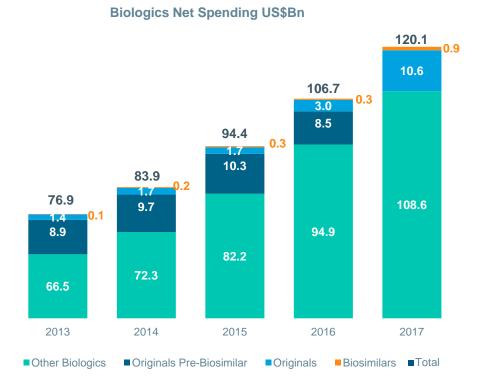
High Costs Correlate with Lower Volumes with Very Few Exceptions

700,000 650.000 600,000 550,000 500,000 450,000 0 400,000 350,000 300,000 250,000 200,000 200,000 Imbruvica 150,000 100,000 Copaxone Harvoni Tecfidera 50,000 Humira 0 200,000 300,000 250,000 0 50,000 100,000 150,000 **Estimated Patients**

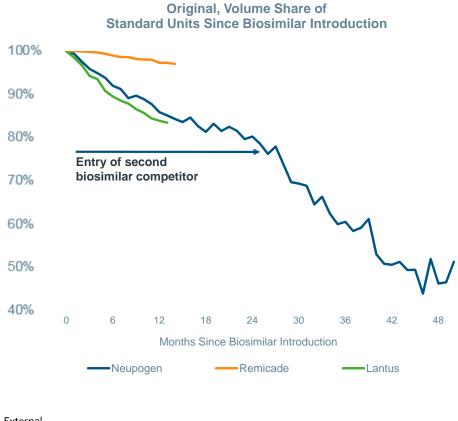
Average annual costs and patient estimates

Biologics Growth Continues, and Biosimilars Now Compete for Market Share Among Medicines with \$11.5 Billion in Spending

Impact of Biosimilars



Source: IQVIA National Sales Perspectives, IQVIA Institute, Dec 2017



There are important variations by the type of reimbursement

Biosimilars in the U.S. have been either buy & bill or traditional pharmacy, specialty still to come

74k

(38

%)

63k

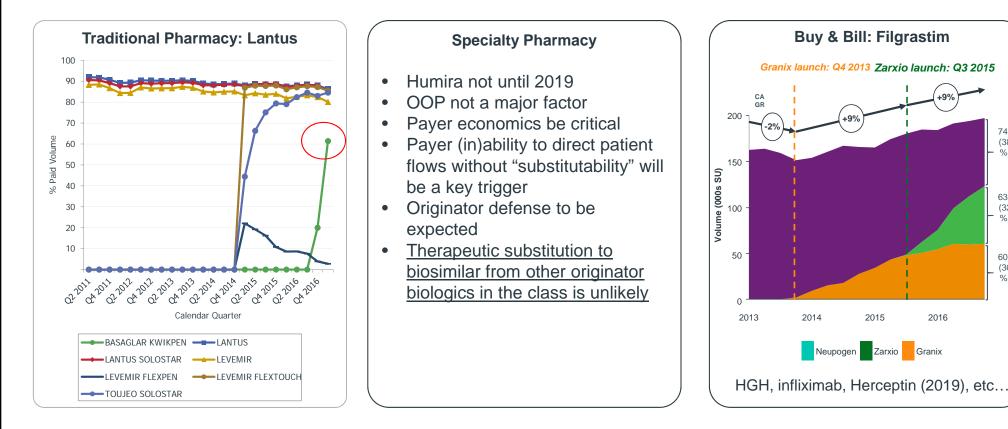
(32

%)

60k

(30

%)



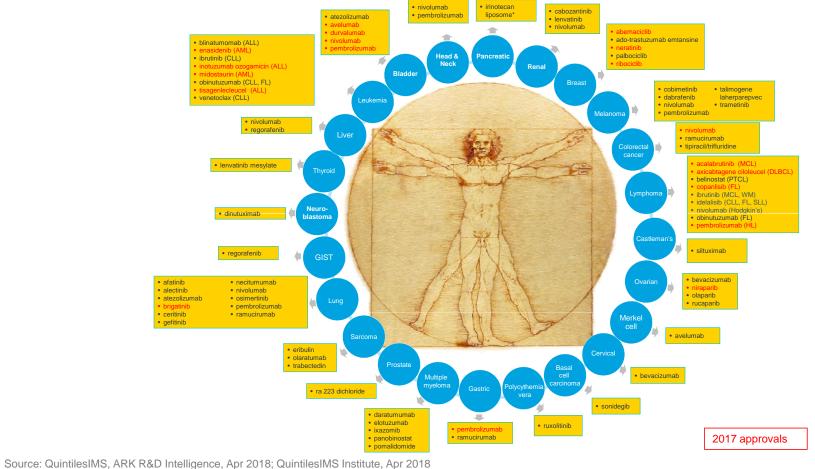
Significant Advances in Technology and Use of Information Will Impact Treatment Over the Next Decade

Key Elements of Expected Technological Advances Impacting Treatment

6				
Pharmaceuticals	MedTech	Artificial Intelligence	Real-World Data	Consumer Health
Immuno-Oncology	Surgical Robotics	Clinical Diagnostics	Growing Use of RWE for Regulatory	Apps for Wellness and Condition Management
Personalized / Stratified Therapies (Cell/Gene Therapy)	3D Printed Implants Implanted Drug Delivery Devices	Drug Discovery	Expanded Use of Cancer Registries and Open Data Across Countries	Telemedicine / Virtual Physician Visits
Other New Small Molecule Mechanisms of Action	Imaging	Treatment Selection	Across Countines	Connected Biometric Sensors

Source: IQVIA Real World and Analytics Solutions, Mar 2018

New Active Substance Launches in Oncology 2013–2017 by Indication



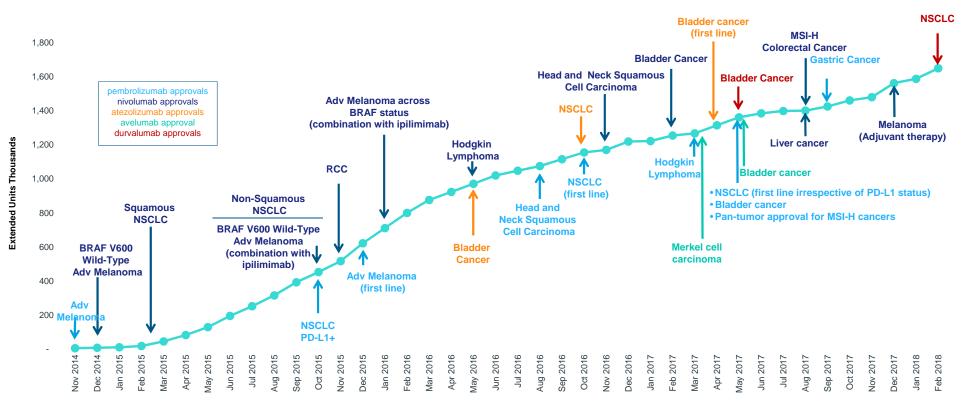
The Growing Complexity and Rapid Evolution of Treatment Protocols has Prompted the Development of Reference Apps

Oncology New Active Substances, Approved Product/Indications, and Medical Guideline Apps



Source: IQVIA, IQVIA Institute, ARK R&D Insight, IQVIA AppScript, Apr 2018

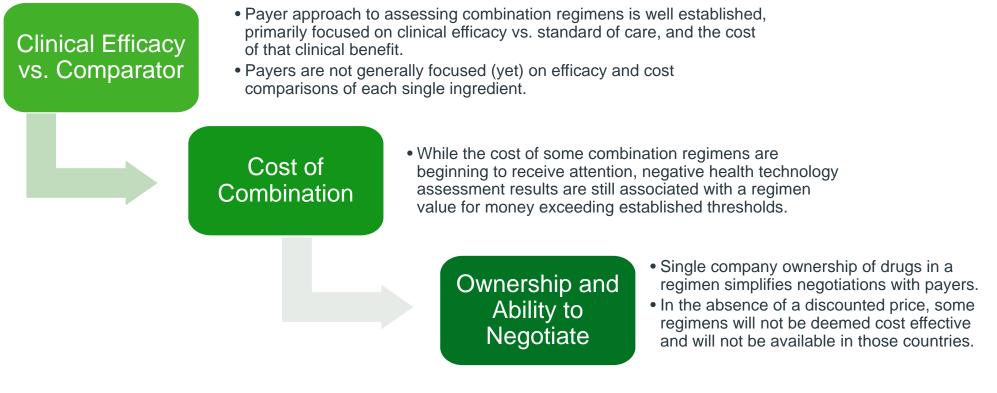




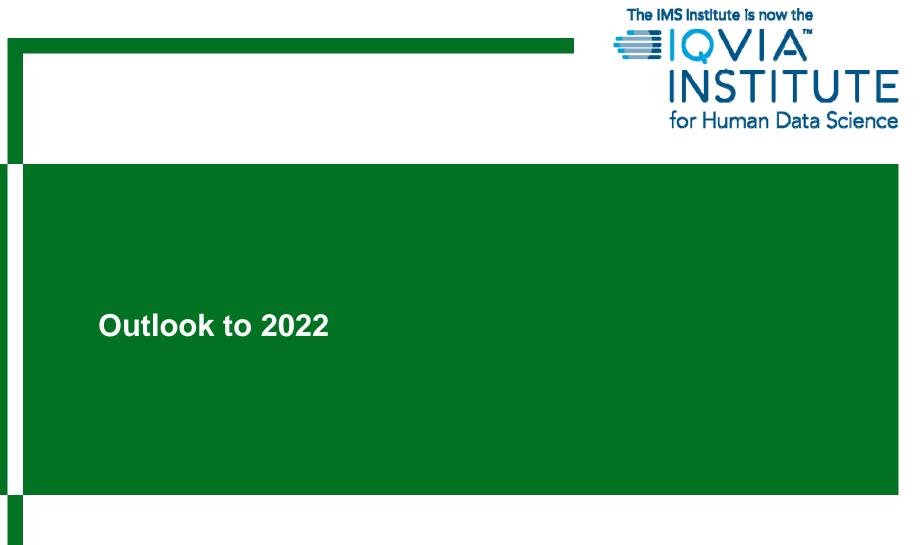
Source: U.S. FDA, IQVIA, National Sales Perspectives, Feb 2018; IQVIA Institute, Apr 2018

Reimbursement for Doublets in Particular are Triggering New Approaches by Payers

Reimbursement for Doublets

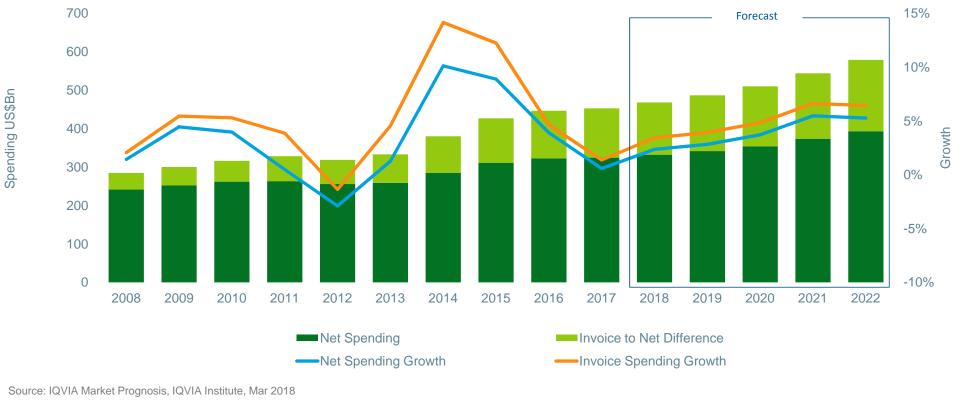


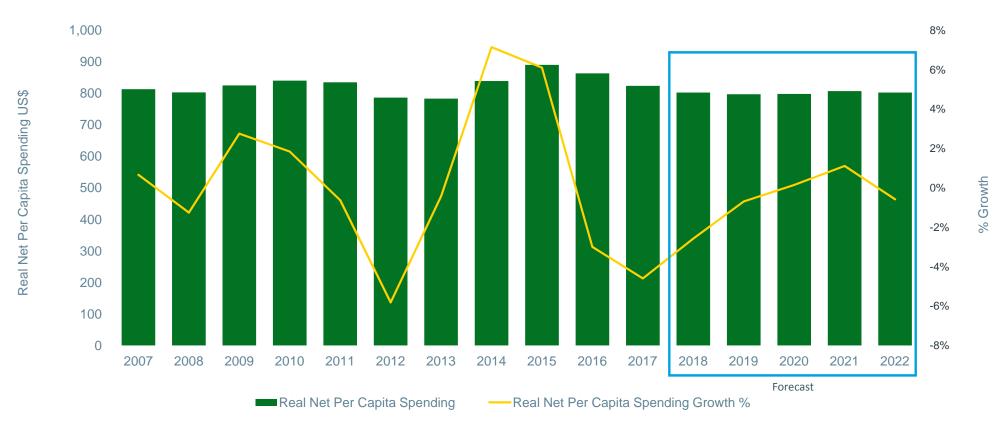
Source: IQVIA Real World and Analytics Solutions, Dec 2017



Net Total Spending Growth will Average 2-5% Over the Next Five Years While Invoice Growth will Average 4-7%

Total Spending on Medicines, Growth and Outlook to 2022, US\$Bn



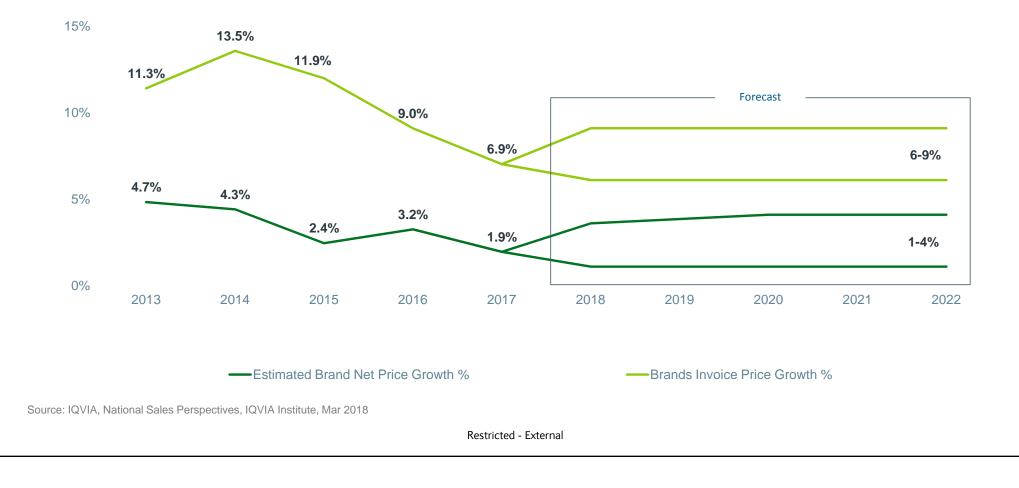


U.S. Real Net Per Capita Drug Spending and Growth

Source: IQVIA Market Prognosis Sep 2017; US Census Bureau; US Bureau of Economic Analysis (BEA), Dec 2017; IQVIA Institute; Feb 2018 Notes: Real medicine spending reflected in 2009 US\$

Net Price Growth for Protected Brands is Forecast to be 1-4% Through 2022

Protected Brand Invoice and Net Price Growth





Thank you