

**Precision Medicine –
a victim of its own success,
or on it's way to solving all health care's ills?**

Dr Christof Kölsch

Basel Life Science Week 2015

Precision Medicine – a recipe to solve one of health care’s most pressing issues?



AGENDA

GLOBAL ▾

REGIONAL ▾

INDUSTRY ▾



Global Health & Healthcare

Science and Technology

How precision medicine will make healthcare cheaper

By Arnaud Bernaert

Sep 10 2015

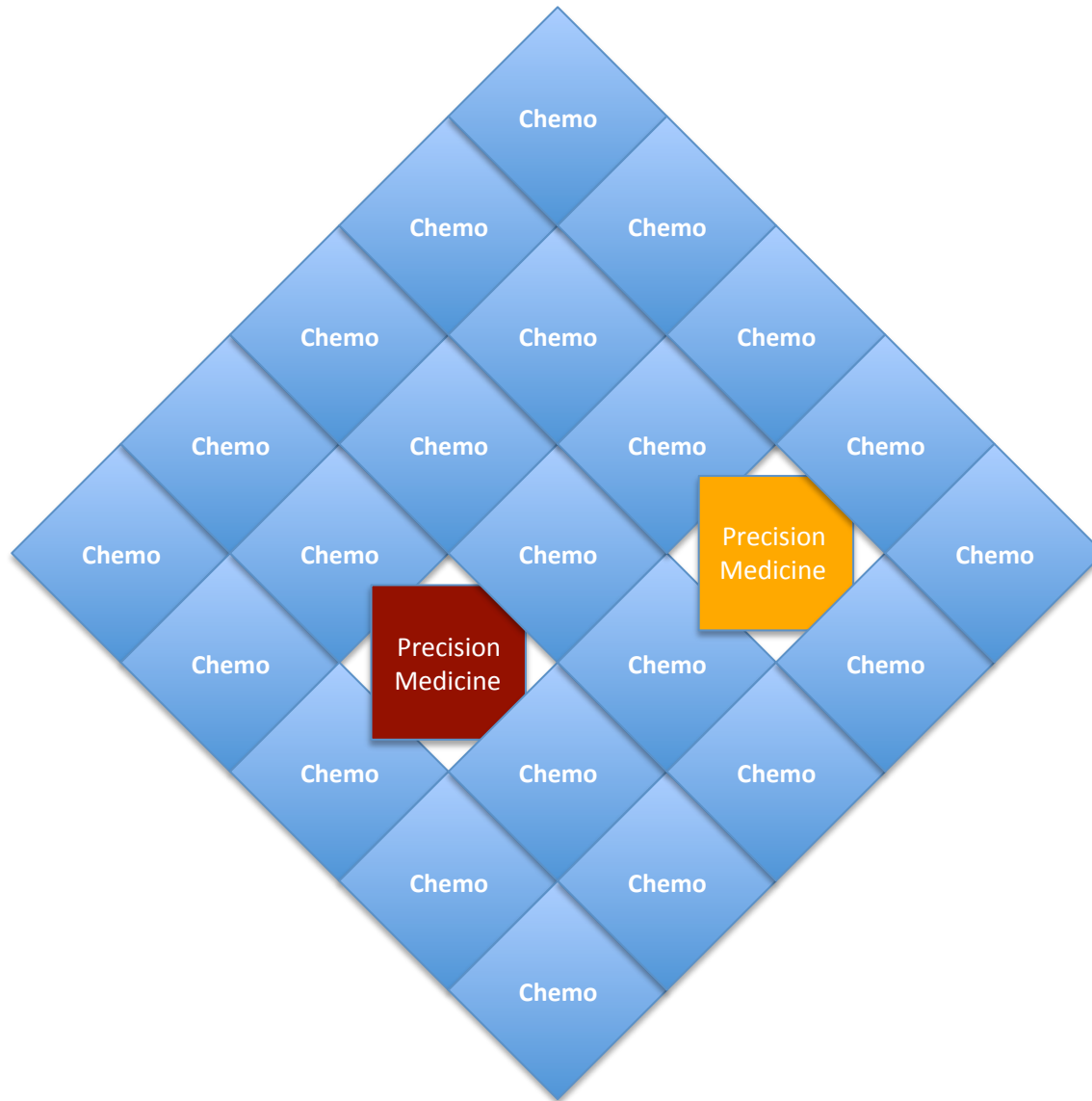
Comments

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Precision Medicine, ca 2005: ...



Very few Precision Medicines marketed ...

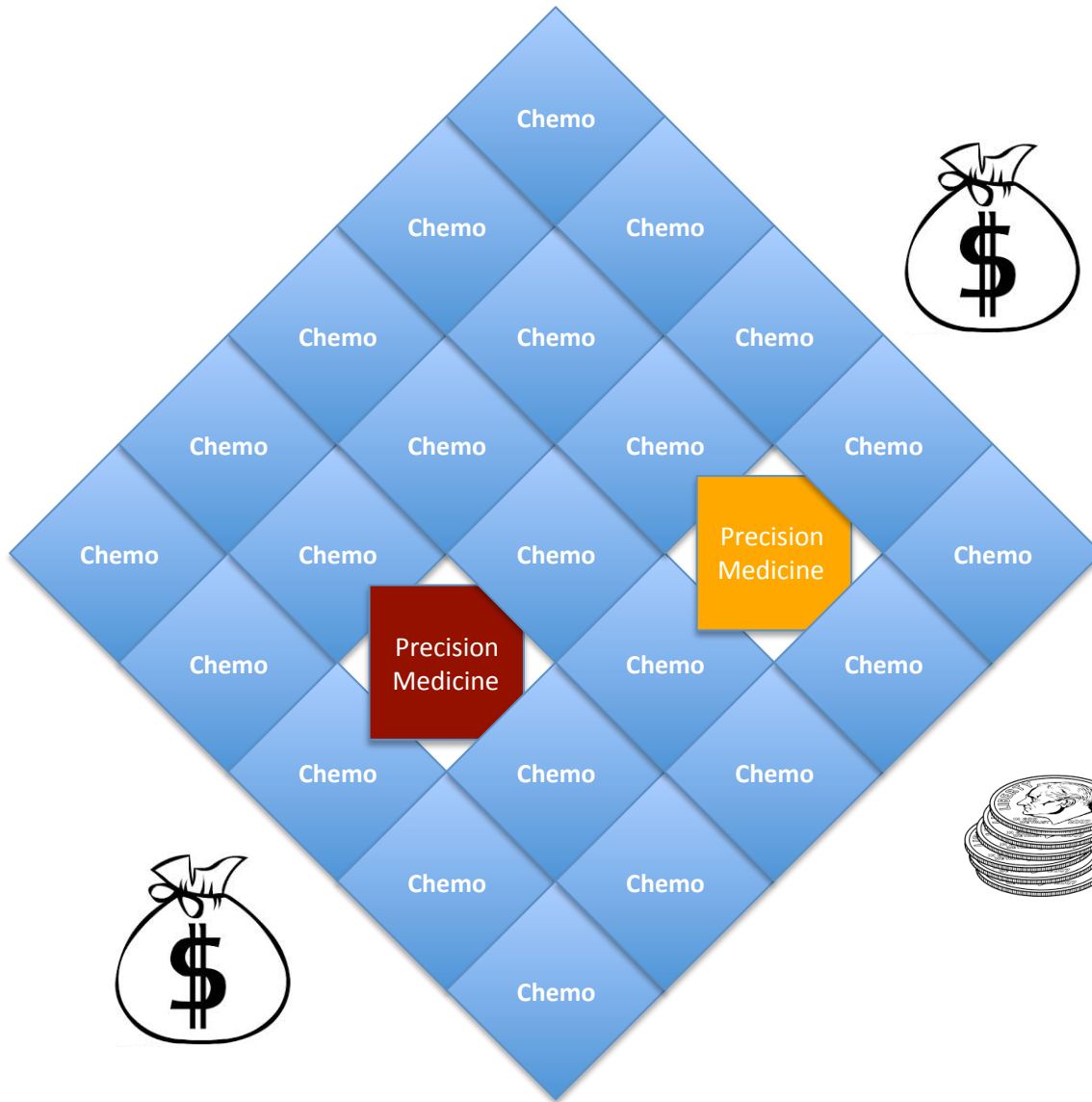
... serving very limited patient segments

... in selected indications only
...

... clearly defined by closely associated biomarkers predictive of response (CDx)

Mainstay of Cancer therapy:
Traditional chemo regimens

Attractive to pharma and payors alike



Precision Medicines substantially more expensive than traditional Chemo, some “*obscenely expensive*” ...

... establishing small but attractive, high margin niche markets for pharma

... while overall budget impact on payors remained marginal ...

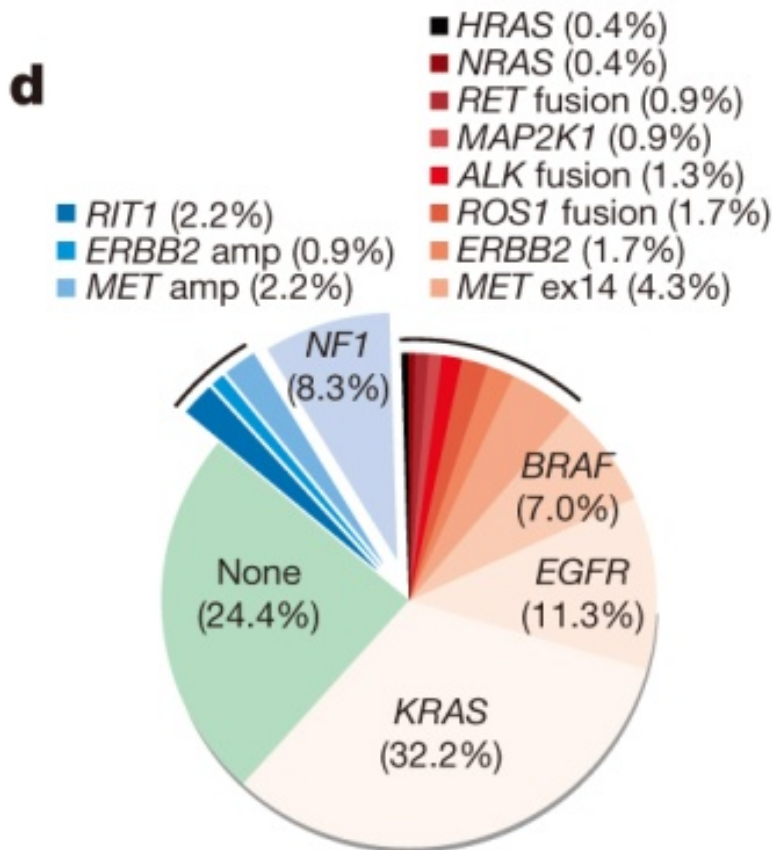


... hence, opportunity to offer therapeutic break-throughs clearly overrode funding concerns

But now, Precision Medicine is moving to mainstream ...

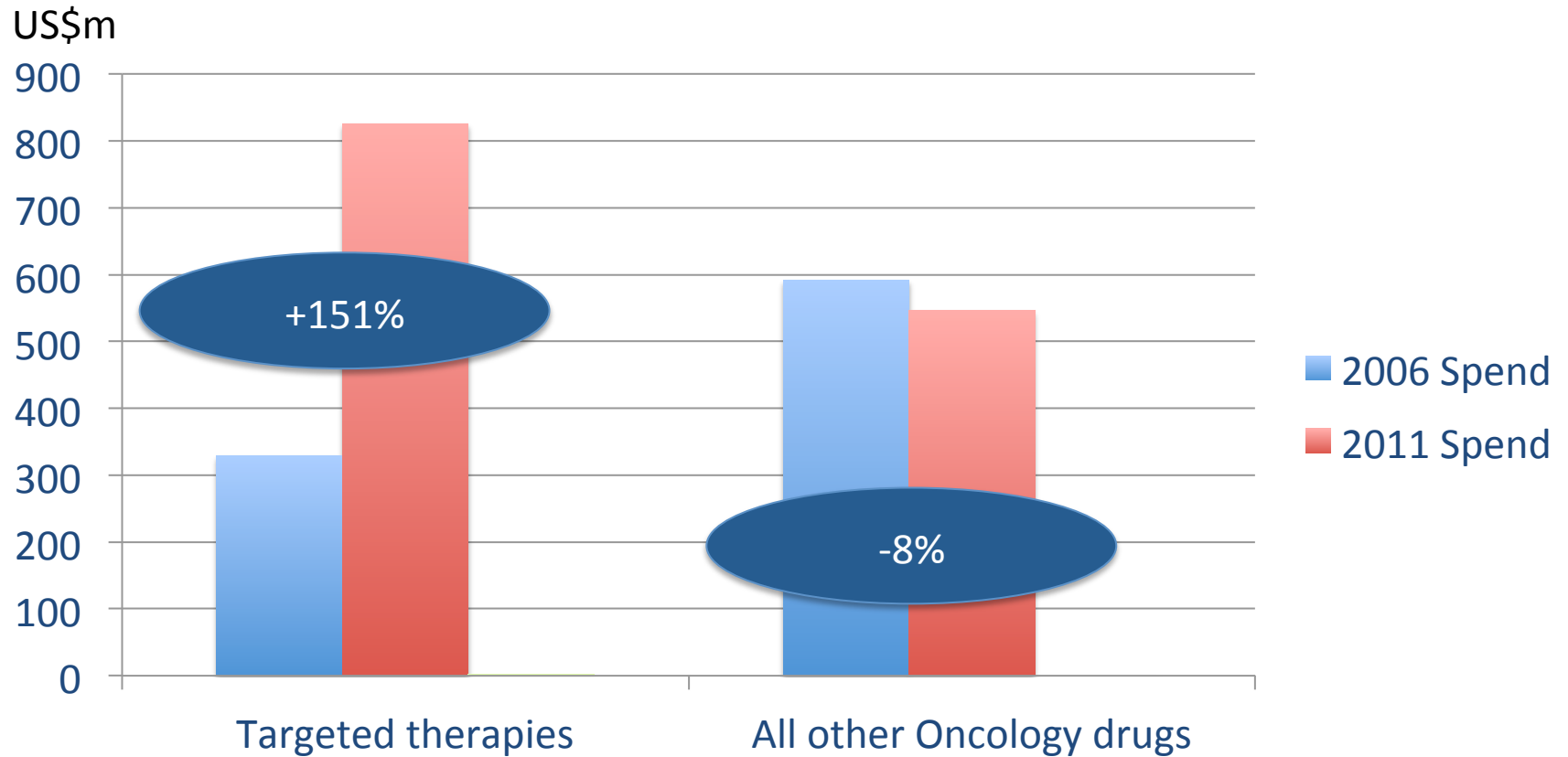
Recent findings leave <25% of Lung Ca patients with “No actionable mutation” ...

... And other therapeutic advances create additional cost drivers



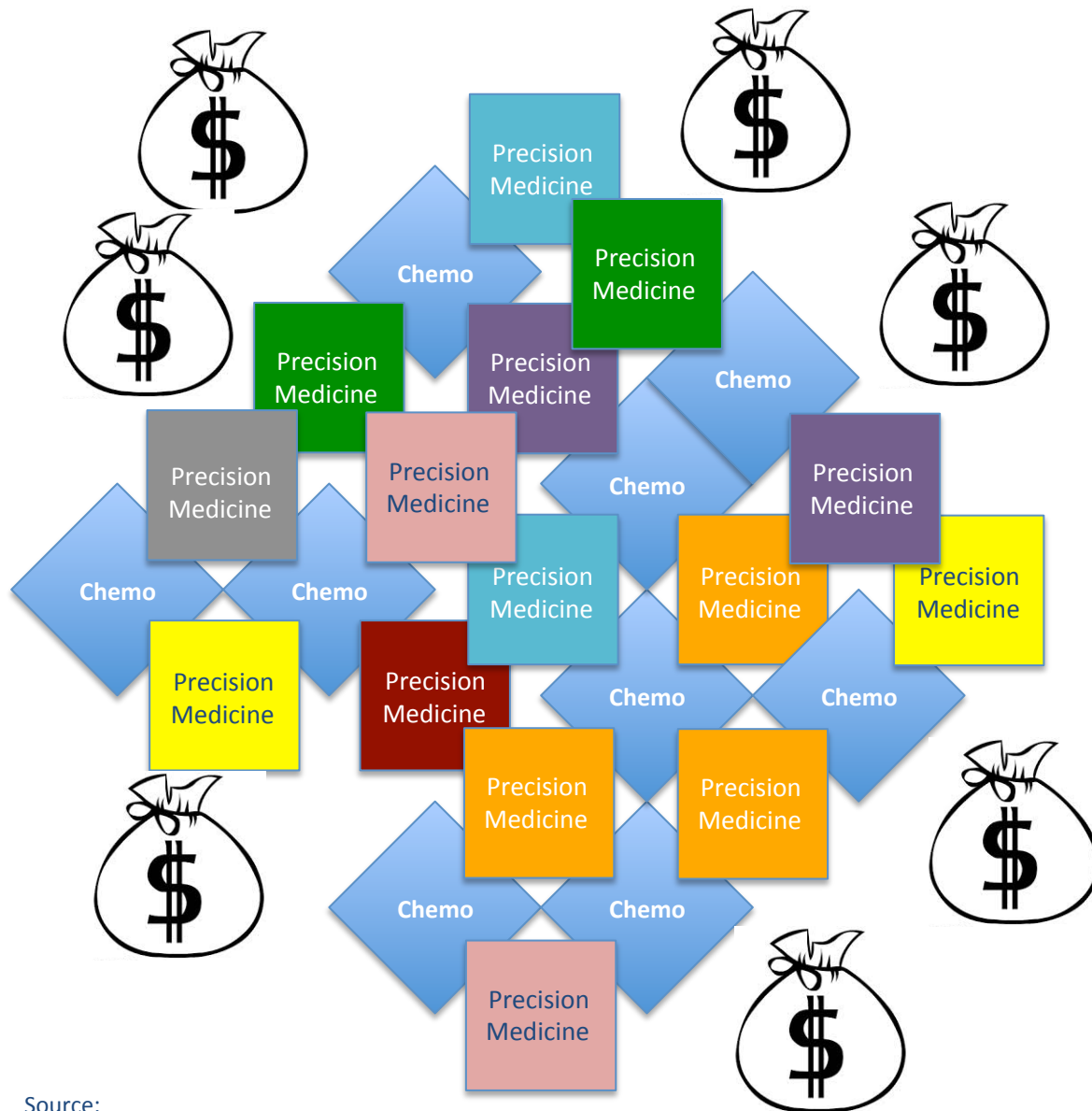
- **Multi-indication** LCM approaches for most Rx assets in development
- Shift towards **combination therapy** with more than one high-priced Precision Medicine
 - eg, multiple “PD-1/PD-L1 plus...” combo regimens in development in I-O
- Longer average survival, **longer treatment duration**
- Shift towards **sequential use of different Precision Medicines** towards a “Cancer as a well managed chronic disease” paradigm
 - eg, imminent launches of T790M 3rd generation TKIs in Lung Ca to treat patients with acquired resistance

... While Cancer Rx costs are already sky-rocketing, driven almost solely by targeted therapies



... and this analysis does not even include injectables!

So, how will we be able to afford Precision Medicine in 2025?



In 2014, targeted therapies already accounted for nearly 50% of total global spending on Oncology drugs and had been growing at 14.6 percent CAGR since 2009 ...

... while only about 20-25% of patients receive targeted therapies

Assumption that by 2030 majority of Cancer patients will receive (combinations of) targeted therapies, I-O drugs or other novel high / very high price treatments

Source:

Developments in Cancer Treatments, Market Dynamics, Patient Access and Value: Global Oncology Trend Report 2015, IMS Institute for Healthcare Informatics; Oncology clinical expert consultations

Consequently, payors and providers alike are seriously concerned over Precision Medicine's future cost trajectory



Health | Wed Apr 29, 2015 10:36am EDT

Express Scripts says controlling cancer-drug costs a tough new focus

Pharmacy benefit manager Express Scripts Holding Co, which has announced lower costs of new hepatitis C drugs, on Wednesday said it is focusing on subduing costs of a growing wave of pricey biotech cancer drugs.

"This is going to be a much slower and much bigger effort on hepatitis," Steve Miller, chief medical officer of Express Scripts, said at a conference call. "Cancer is different than any other disease, and it's going to be a much longer-term effort."

Miller said his company, the largest U.S. pharmacy benefit manager, is making moves and new tools to control cancer-drug costs.

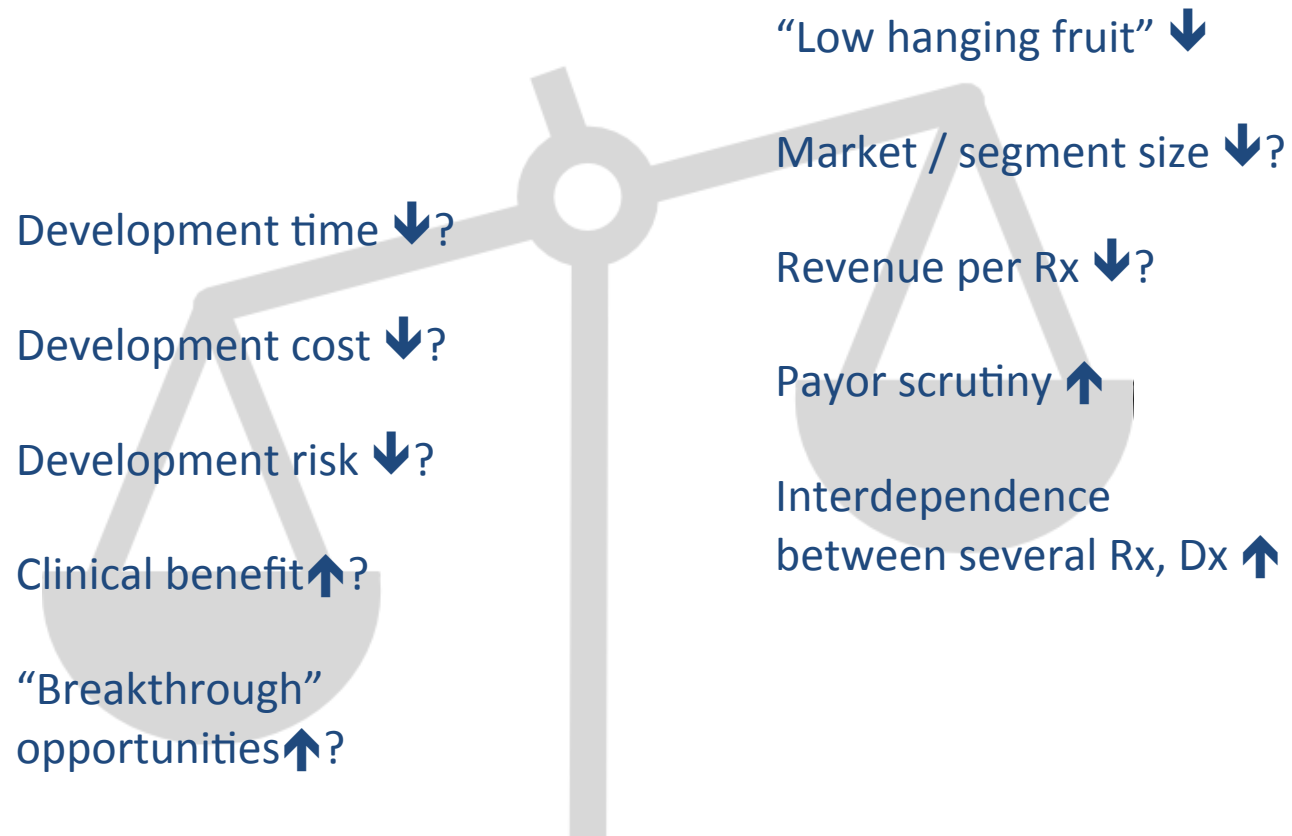
Value in Cancer Care

ASCO Releases Value Framework

ASCO has released a conceptual framework for assessing the value of new cancer therapies based on treatment benefits, toxicities, and costs. The initial version of the **ASCO Value Framework** was published on June 22, 2015 in the *Journal of Clinical Oncology*. An open comment period was held for all stakeholders to provide feedback through August 21, 2015, during which time more than 400 responses were received. Developed by the ASCO Value in Cancer Care Task Force, the framework will ultimately serve as the basis for user-friendly, standardized tools that physicians can use with their patients to discuss the relative value of new cancer therapies as compared with established treatments.

Payors increasingly pushing back on ultra-high price medicines, even if they are indicated for niche populations only

Who will be able to extract the future value of Precision Medicine? – Pharma business model coming under pressure



**Is the end in sight for pharma’s love affair with Precision Medicine?
Or are there novel business models that will ensure investment in this field
remains attractive for life sciences companies?**

Will we see the rise of the mighty diagnostic?

IN VIVO

THE BUSINESS & MEDICINE REPORT

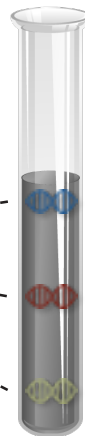
JULY/AUGUST 2014 VOL. 32 / NO. 07

Patient-Centered Oncology Rx: Emerging Paradigm

The Patient



The (One) Test
(multi-target)



Target 1

Target 2

Target 3

The Drug
CRx



- ▶ One patient... evaluated by one (multi-target) test...
- ▶ ... to identify the best drug for each patient
- ▶ Rise of the “companion therapeutic”?

WHEN ILLUMINA BUYS ROCHE:

The Dawning Of The Era Of
Diagnostics Dominance

BY: ROBERT J. EASTON
ALAIN J. GILBERT
OLIVIER LESUEUR
RACHEL LAING
MARK RATNER

Will the real value of Precision Medicine be realized by collecting, analyzing and integrating information?

Duke and Stanford to Assist Google X in Defining Health

Google X announces Baseline Study, an effort to collect data to define health and discover biomarkers

July 25, 2014

THE WALL STREET JOURNAL

Google has announced that they are now enrolling participants in a study that aims to establish a basic understanding of a healthy physiology. The study, led by Dr. Andrew Conrad of Google[x], will begin with a small sample of 175 volunteers. However, Google plans to expand the project to thousands of participants. The study is being conducted with assistance from Stanford University and Duke University.

Integrating information will be at the core of integrating health care, not for cost containment only ...

JAMA The Journal of the
American Medical Association

Commentary | March 2, 2011

The Need for Systems Integration in Health Care

Simon C. Mathews, BA; Peter J. Pronovost, MD, PhD

JAMA. 2011;305(9):934-935. doi:10.1001/jama.2011.237.

Text Size: **A** **A** **A**

Article **References**

Progress in patient safety and quality has been slow, despite increasing recognition of risk across the health care system. Efforts to reduce harm to patients or to improve quality of care often focus on a single, local intervention or a collection of local interventions, usually seeking to improve a single care process. Although valuable, this approach is incremental, resulting in modest, though needed, improvements. Most quality improvement efforts miss a larger opportunity to improve and redesign the fabric of health care. It appears

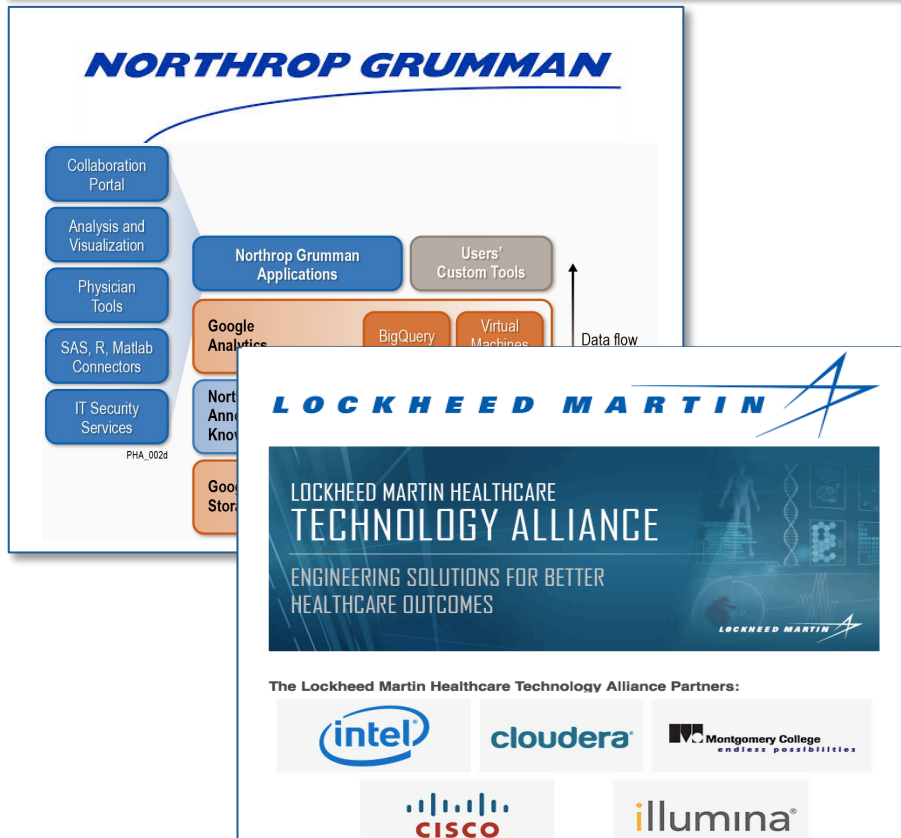
“... It appears that a systems-integration approach that incorporates the fundamental building blocks of health care, from equipment and technology to clinical insight and workflow processes, is needed to take the next major leap in improving quality and safety.

More specifically, a systems integrator in health care, the equivalent of Boeing in aviation, is needed to make significant progress.”

... And new integrator models are emerging to capture the information value of Precision Medicine

Integrators could be large established players, offering “top-down” solutions ...

... Or smaller specialist initiatives following a “bottom-up” approach



Our Approach

KEW Group is revolutionizing cancer care by empowering oncologists to access and apply the most up-to-date and comprehensive genomic insights to design optimal, individualized treatment approaches for patients. Our unique approach involves an integrated, complementary offering of three primary components that are designed to collectively advance the real-world implementation of personalized medicine through practical, action-oriented solutions.

- **CancerPlex®** – the comprehensive genomic test for the accurate, thorough and timely molecular diagnosis of solid tumors
- **TPx Treatment Pathways** – proprietary, evidence-based therapeutic pathways to guide treatment decisions based on all available clinical information and genomic testing for all stages of many major cancers
- **Oncology Network** – the collective expertise and clinical treatment experience of community oncologists and leading experts at major academic centers

Likely that both whole systems and sub-systems integrators will have a role in Precision Medicine integration

Before you go to lunch ...

- Precision Medicine in its current model will no longer be affordable ... soon
- Integration of currently disjointed elements will be required to deliver Precision Medicine's real benefits, clinical as well as economic
- Central element of integration: Information – patient, scientific, clinical, economic, ...
- Novel business models will be required for integrators – old “power players” will lose ground unless they adapt

What will be your role in Precision Medicine integration?