Precision Medicine Will Change Everything In Healthcare

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Every practicing physician knows that every single day we see patients that just don't fit into neatly stratified categories.

It is the quintessential component of real medical practice.

It gets us back to our roots of making sure the patient in front of use is getting the best care possible

A lot of the frustration physicians have experienced over the past twenty years is based upon our instinctual understanding that much of contemporary medical practice disrupts our ability to do this.

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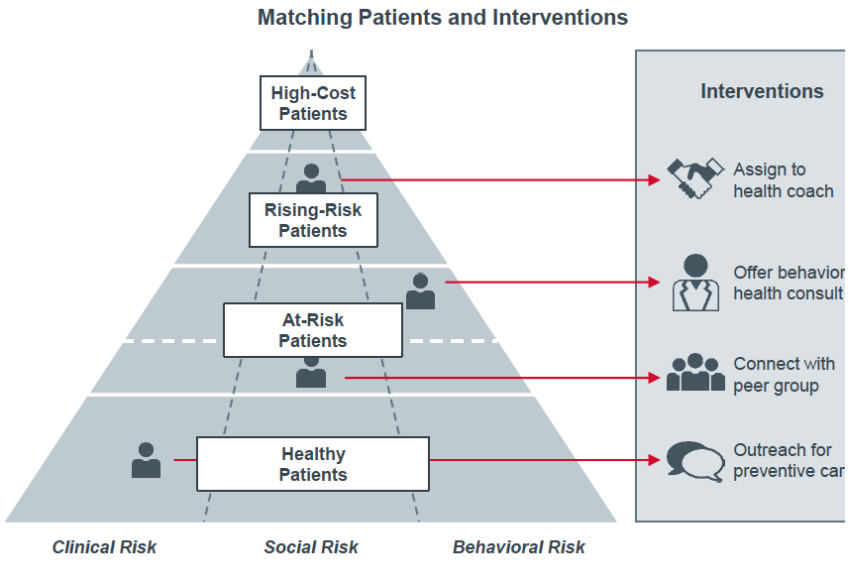
But our understanding of what we have recently been calling the Triple Aim has evolved over time.

Whole-person care integrates behavioral, clinical and social risk into models of care that provide superior value.



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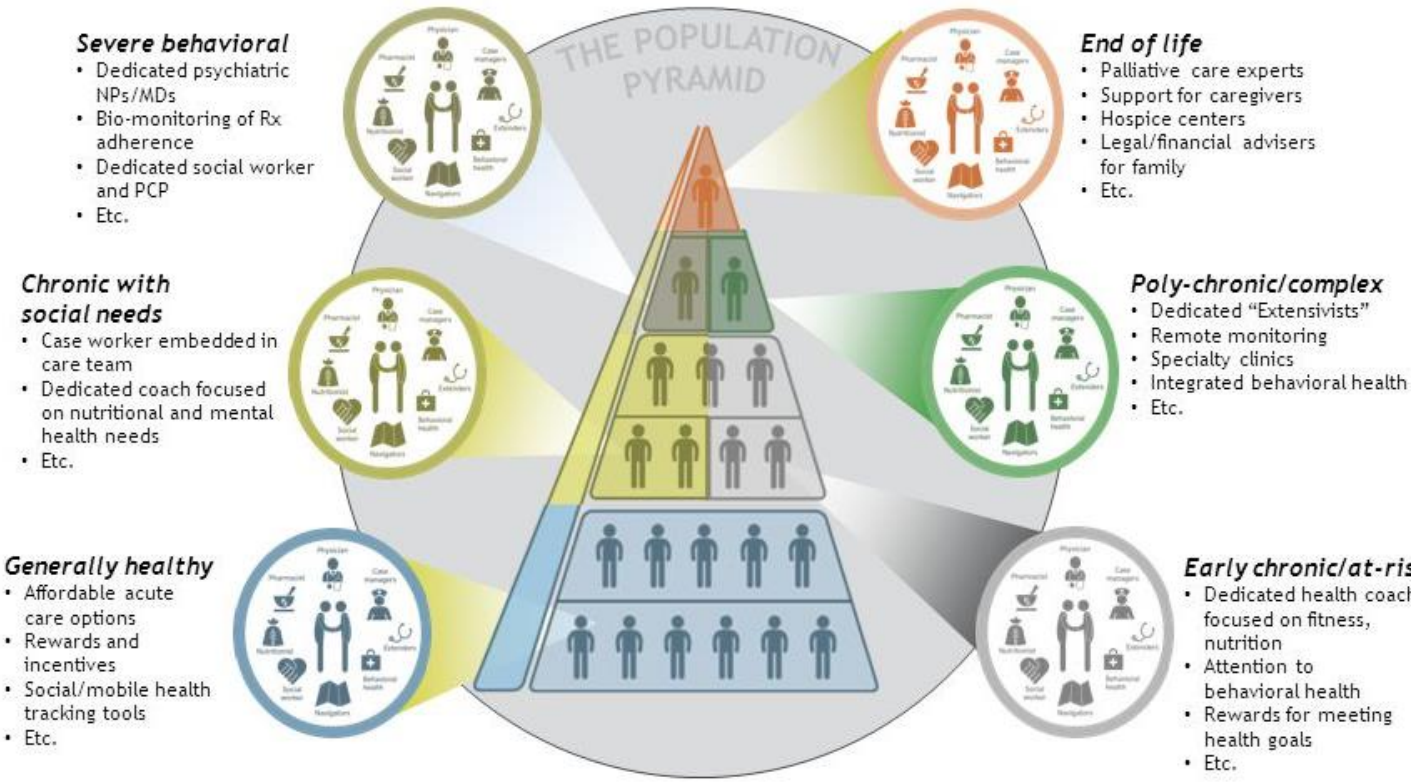
The focus of the fast few years on population health has been about risk stratifying patients and developing models of care integrated with value-based payment models.

Successful Population Health Management Must Be Highly-Tailored to Particular Segments of the Population



Specialized care models will be supported by new population-specific ecosystems

But the qualitative methods we have been using have been based upon 20th-century scientific approaches.

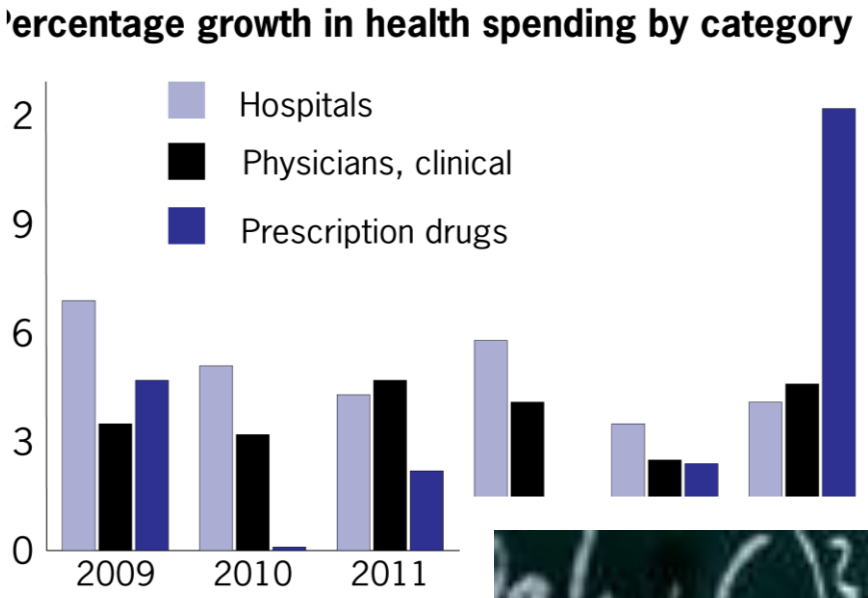
Likewise, the assumptions underlying health care payment systems have been modeled on 20th-century methodology.

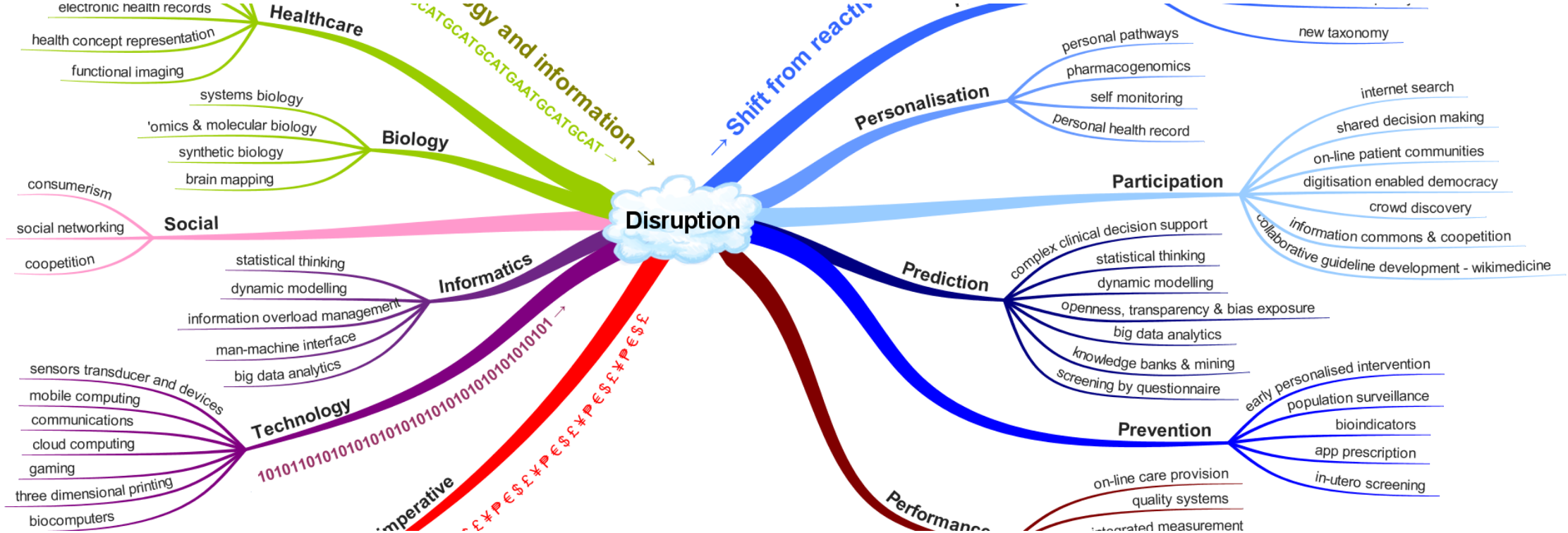
01

Actuarial risk projections are based upon population averages

02

Trend in spending sets insurance prices.





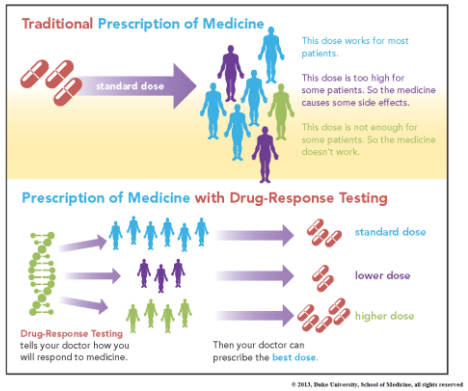
The capabilities inherent in 21st century technology will substantially disrupt the health care ecosystems built on these older analytic methods.

Precision medicine holds enormous promise in transforming health care.

Precision medicine enables better DIAGNOSTICS:

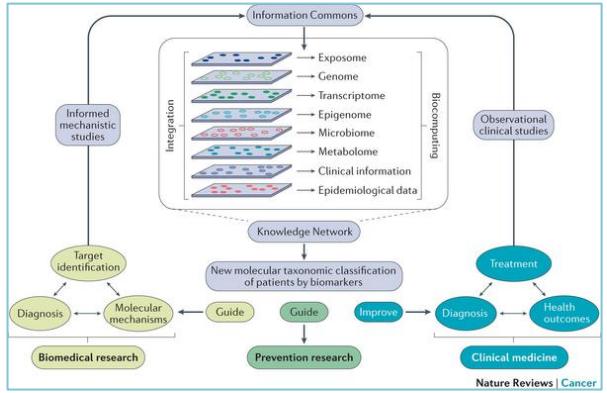
- ✓ **Diagnostic odysseys will diminish as idiopathic conditions will be mapped to specific genetic variances.**
- ✓ **GWAS will improve the understanding of complex disease risk factors.**
- ✓ **More precise diagnostics can eliminate unnecessary testing and enhance patient safety.**

Precision medicine improves THERAPEUTICS:



- ✓ **Greatly improved adherence for patients with schizophrenia with companion diagnostic tests screening for side effects.**
- ✓ **Pharmacogenomics more accurately predicts therapeutic response in patients with major depression and bipolar dx**
- ✓ **Targeted cancer drugs are improving long-term survival in metastatic disease.**

Precision medicine creates better approaches to PREVENTION.



- ✓ **Convergence of biology and information will shift traditional health system approaches from reactive to proactive healthcare.**
- ✓ **Early personalized interventions can integrate with population surveillance to enable robust complex clinical decision support.**
- ✓ **Predictive modeling with open, dynamic knowledge banks can create a democratized health information commons.**

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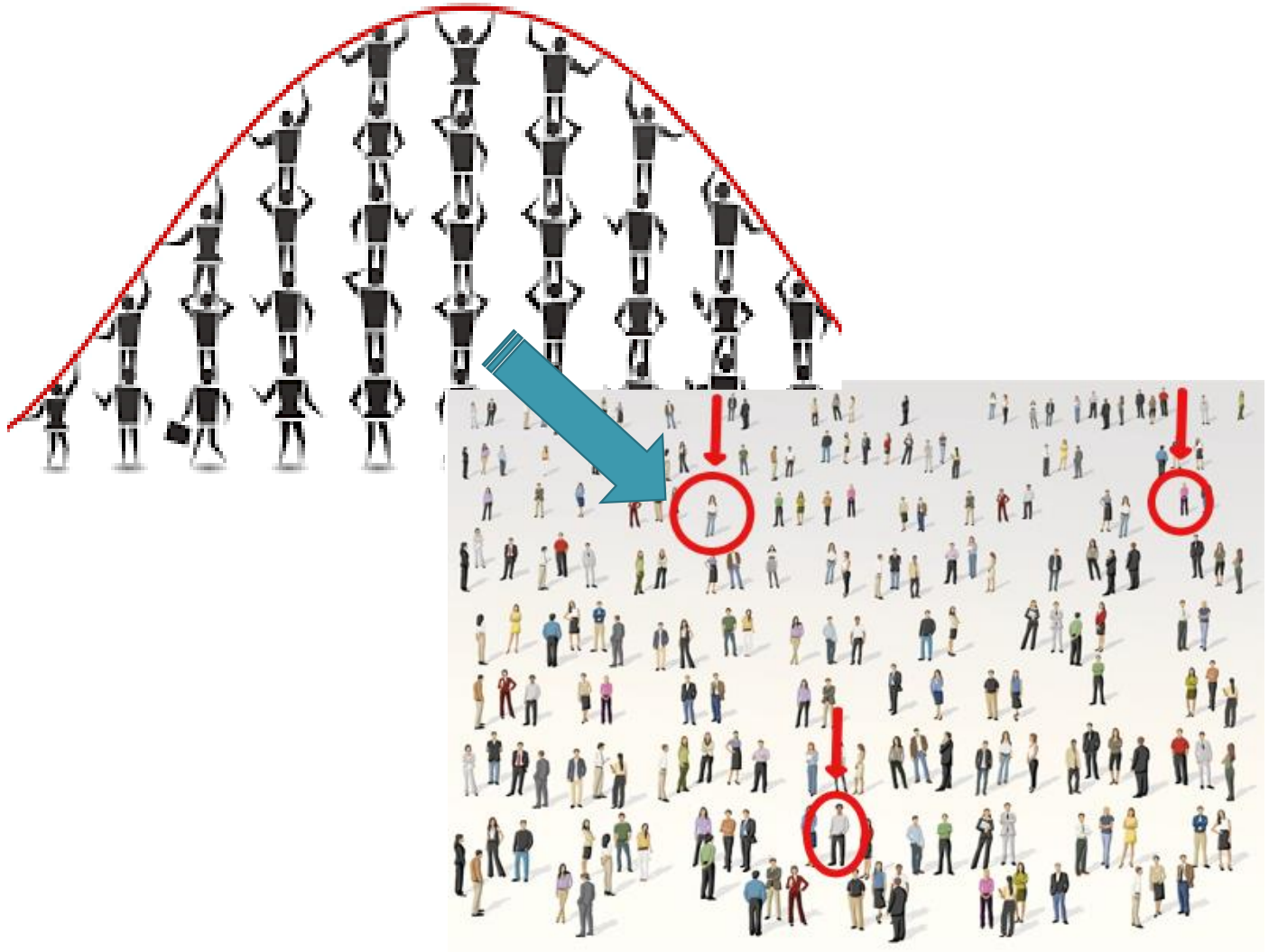
Predictably, the industry's response has been slow to understand the implications of these changes.

With proper design, these new technologies can return medicine to our core mission.



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Our first step in precision medicine ecosystem design is understanding the critical differences in the business models underlying health care delivery models.

	Volume Based	Value Based	Precision Based
Reimbursement	▪ FFS/DRGs ▪ Penalties for readmits, never events	▪ P4P Measures ▪ Shared savings/risk payments	▪ APMs based on outcomes
Organizational Model	▪ Departments	▪ Populations ▪ Conditions ▪ Focused Factories	▪ Care Models ▪ Consumer/patient Engagement
Value Drivers	▪ Volume ▪ Efficiency at the procedure level	▪ Efficiency at the population level ▪ Low variability ▪ Quality process measures	▪ Efficiency at the individual patient level ▪ "n" of one analytic modeling ▪ Quality outcomes measures
Profit Pools	▪ Admissions/Discharges ▪ Ancillaries services ▪ Surgeries/procedures ▪ Visits	▪ Chronic condition management ▪ Population management ▪ Wellness and prevention	▪ Information management ▪ Patient differentiation capabilities
Investments	▪ Capacity ▪ Patient referrals ▪ Revenue-producing assets	▪ Clinical integration ▪ Commercialization ▪ Health IT	▪ Information Integration ▪ Predictive analytics ▪ Whole person focused design