International Society
of Certified Employee Benefit Specialists

Gene-based Testing and Treatment

Applying Genetics and Pharmacogenomics.
Is Your Plan Ready for Precision Medicine?

International Society
of Certified Employee Benefit Specialists

About the Capital Chapter of ISCEBS

- One of over 40 ISCEBS Chapters
- Offer live, in-person educational programs and social networking events in the Washington, DC area
- NEW webinar-enabled educational format will allow us to co-host with multiple local chapters and guests
- Check us out at: https://www.capital-chapter-iscebs.org/

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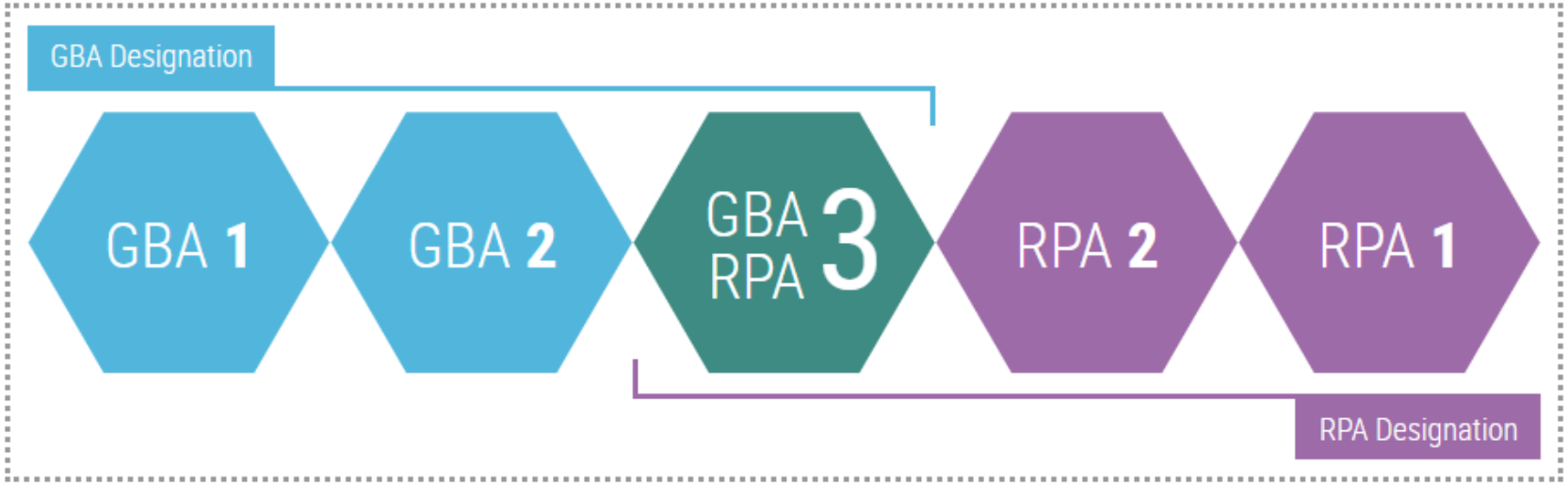
About ISCEBS

- Education-focused, non-political, nonprofit organization
  - Find out more at www.iscebs.org
- CEBS denotes the Society's professional certification
  - Find out more at www.cebs.org



Five courses.
Five exams.
Four letters that make a statement.

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Housekeeping

- Questions during the session
  - On-Site attendees submit questions to the moderator
  - Webinar attendees submit through the Zoom platform (Q&A)
  - On-Site facilitator will triage webinar and on-site questions
  - Will answer as many as possible at the end of the program
- Today's webinar is being recorded
  - Recording and slide deck will be available on our website
  - Attendees will receive an email notification once posted
  - www.capital-chapter-iscebs.org
    under Events / Past Meeting Presentations

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Dave Ratcliffe | Buck

Health & Productivity Practice Leader

BUCK

- Buck
  - Consulting, administration and technology services firm
  - Global, integrated HRA and Benefits
- Background
  - Over 25 years of employee benefits experience
  - Nationally recognized speaker

Gene-based Testing and Treatment: Applying Genetics and Pharmacogenomics - Is Your Plan Ready for Precision Medicine?

Capital Chapter

International Society of Certified Employee Benefit Specialists

June 20, 2019

BUCK

Employer-sponsored healthcare has evolved through two stages over the past 10 years searching for new, different and innovative strategies to combat escalating costs and employee disengagement.

We are beginning to see the third stage emerge with the employee at the center of the market with more personalized solutions.

Precision medicine, genomics, rapid technology advances, health concierge platforms, onsite care and telemedicine will enable the individual to more easily interact with the market and achieve better outcomes.

Employer-Sponsored Healthcare Evolution

Consumerism and Population Health to Personalized Engagement and Precision Medicine

STAGE 1 (PRE-2013)

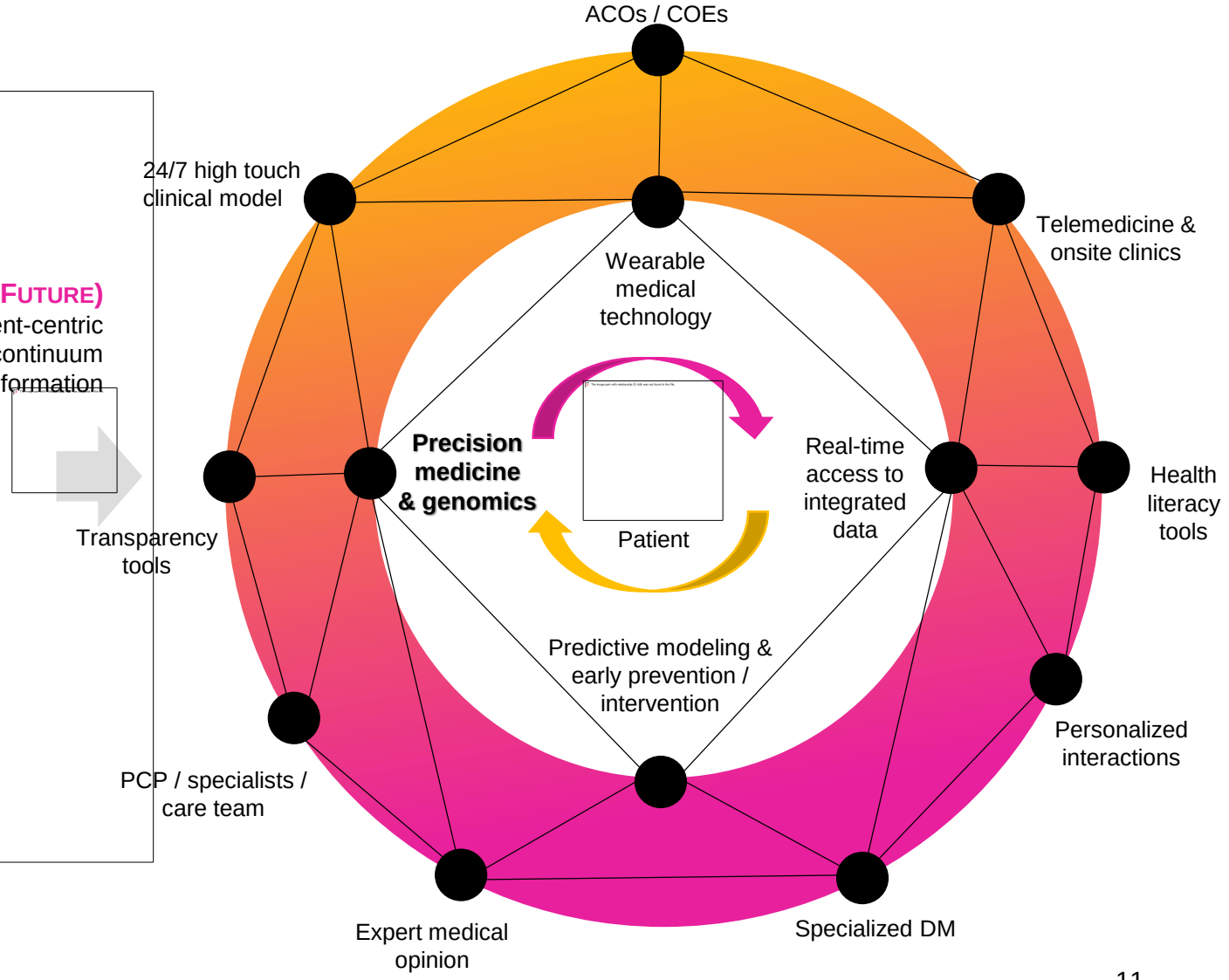
- Employer-directed
- Lack of technology
- Fragmented marketplace
- Disengaged participant
- Escalating costs
- One-size fits all

STAGE 2 (2013 – PRESENT)

- Consumerism-focused
- Shifted focus to quality via ACOs
- Technology advances
- Disengaged and confused consumer
- Escalating costs
- Siloed technology and care

STAGE 3 (2020 - FUTURE)

Patient-centric
Integrated care continuum
Transformation



Precision Medicine and Pharmacogenomics – What Is It?

Precision medicine – an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person; allow doctors/researchers to predict more accurately which treatment/prevention strategies for a particular disease will work in which groups of people vs. one-size-fits-all approach

Pharmacogenomics – study of how genes affect a person's response to drugs combining pharmacology (the science of drugs) and genomics (the study of genes and their functions) to develop effective, safe medications and doses that will be tailored to a person's genetic makeup

-Per NIH, U.S. National Library of Medicine

Pharmacogenomics (PGx) – Why is it important?

PGx 101:

100k+

Deaths due to adverse drug reactions

2.3M

Adverse drug reactions per year

Drugs do not metabolize the same for all.

The right drug for the right person at the right time saves money and time, and helps people feel better sooner.

4M Americans

take **5+** prescriptions

160+ Medications

have FDA biomarker guidance

Results

PGx tested individuals experienced:

- 40% fewer ER visits
- 58% fewer hospitalizations
- $1,948 lower overall 6-month cost vs. control group

-Crews KR, Hicks JK, Pui C-H, et al. Pharmacogenomics and individualized medicine: Translating science into practice. Clin Pharmacol Ther. 012;92(4):467- 475.
-Kalow W, Tang BK, Endrenyi L. Hypothesis: comparisons of inter- and intra-individual variations can substitute for twin studies in drug research.
-FDA & CDC
-Official Journal of ADAA, Roy H. Perlis MD, MSc, Rajesh Mehta Rph, MS, Alison M. Edwards, MStat, Arun Tiwari MBA, Guido W. Imbens PhD
https://onlinelibrary.wiley.com/doi/abs/10.1002/da.22742

Employer Strategies to Control Cost and Improve Health for 2020 and Beyond – Why Consider PGx?

- Double digit specialty Rx spend
- Point of sale Rx rebates
- Medical trend 2-3x inflation
- Deteriorating population health
- 5% highest risk drive most cost
- Depression/anxiety impact to medical spend, productivity
- Cost shift to employers via Medicaid expansion, low Medicare reimbursement

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Dr. Shanna Ndong | Cigna
Medical Director

- Background
  - Board certified in Medical Genetics, Internal Medicine & Pediatrics
  - Residency at the University of Illinois
  - Fellowship in medical genetics at Mount Sinai Medical Center
  - Clinical geneticist at NorthShore University Medical Center
  - Clinician educator at the Pritzker School of Medicine at the University of Chicago

Cigna

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of Certified Employee Benefit Specialists

Joe Spinelli| MedTek21
Chief Commercial Officer

MEDTEK21™

- MetTek21
  - Platform proactively identifies risks and remediates medication issues
  - Through targeted and cost-effective utilization of pharmacogenomics
- Background
  - Graduate of Babson College
  - Previously over a decade as an investor and advisor in venture capital and private equity industries

PRECISION MEDICINE

Gene-Based Testing & Treatment

June 20, 2019

Shanna Ndong, MD

Together, all the way.®

Cigna®

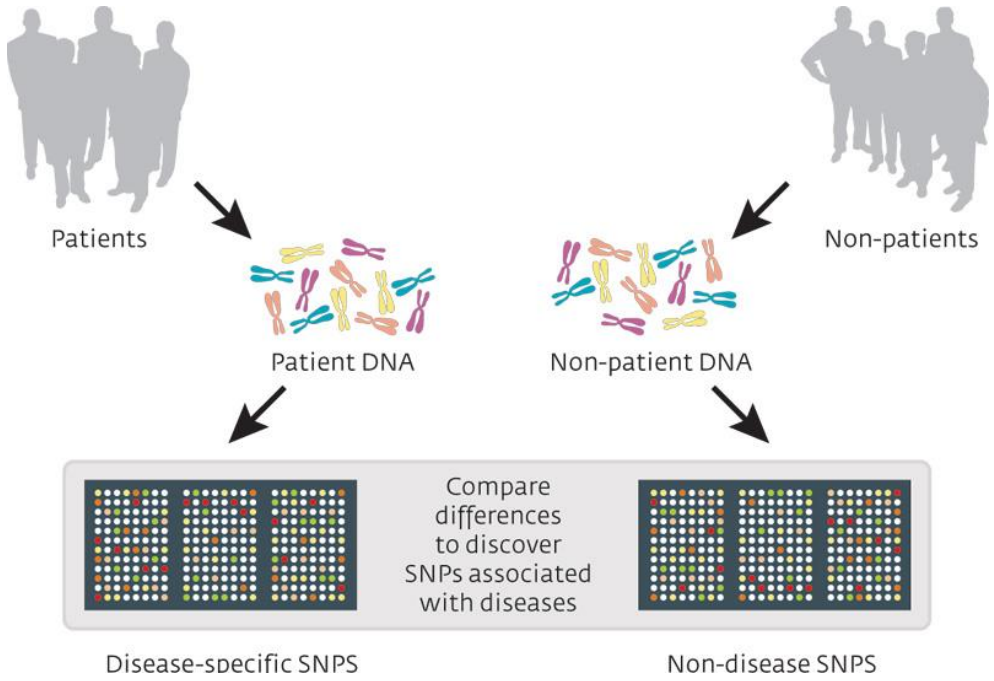
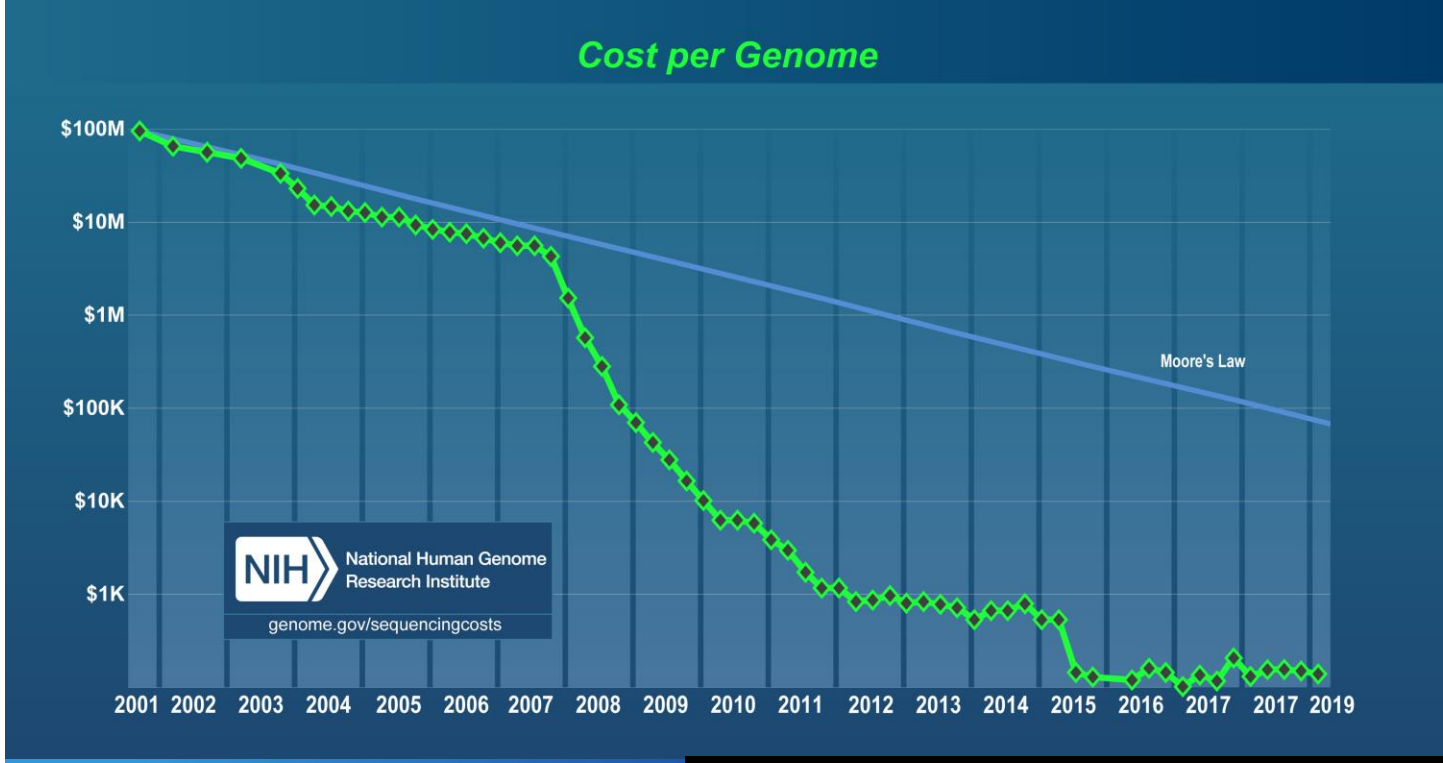


Image credit: Pasieka Science Photo Library



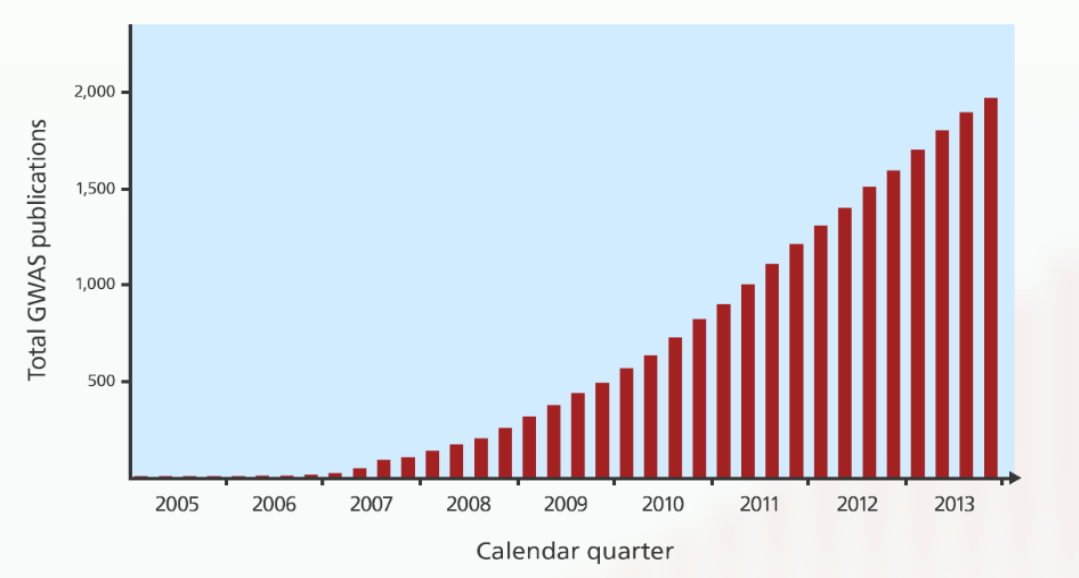


Image credit: Genome Research Limited

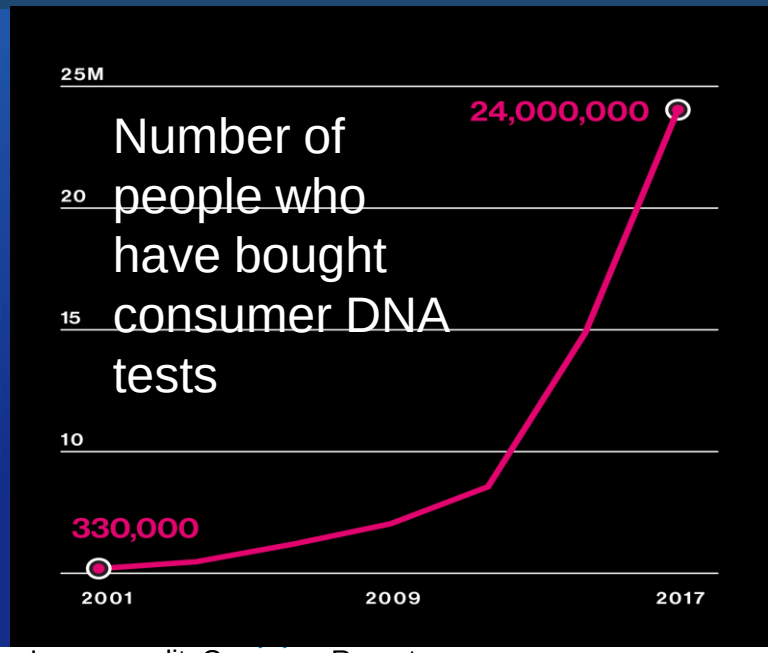
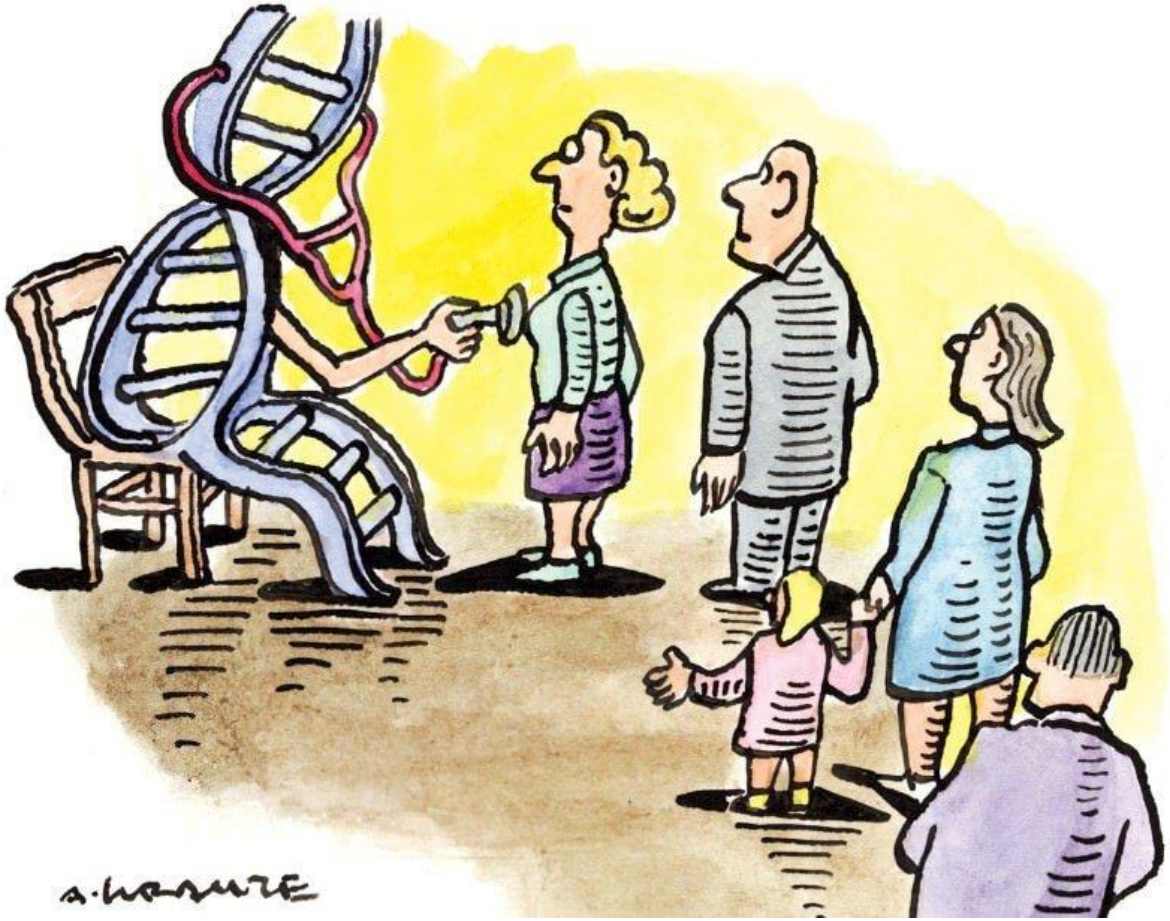


Image credit: Company Reports

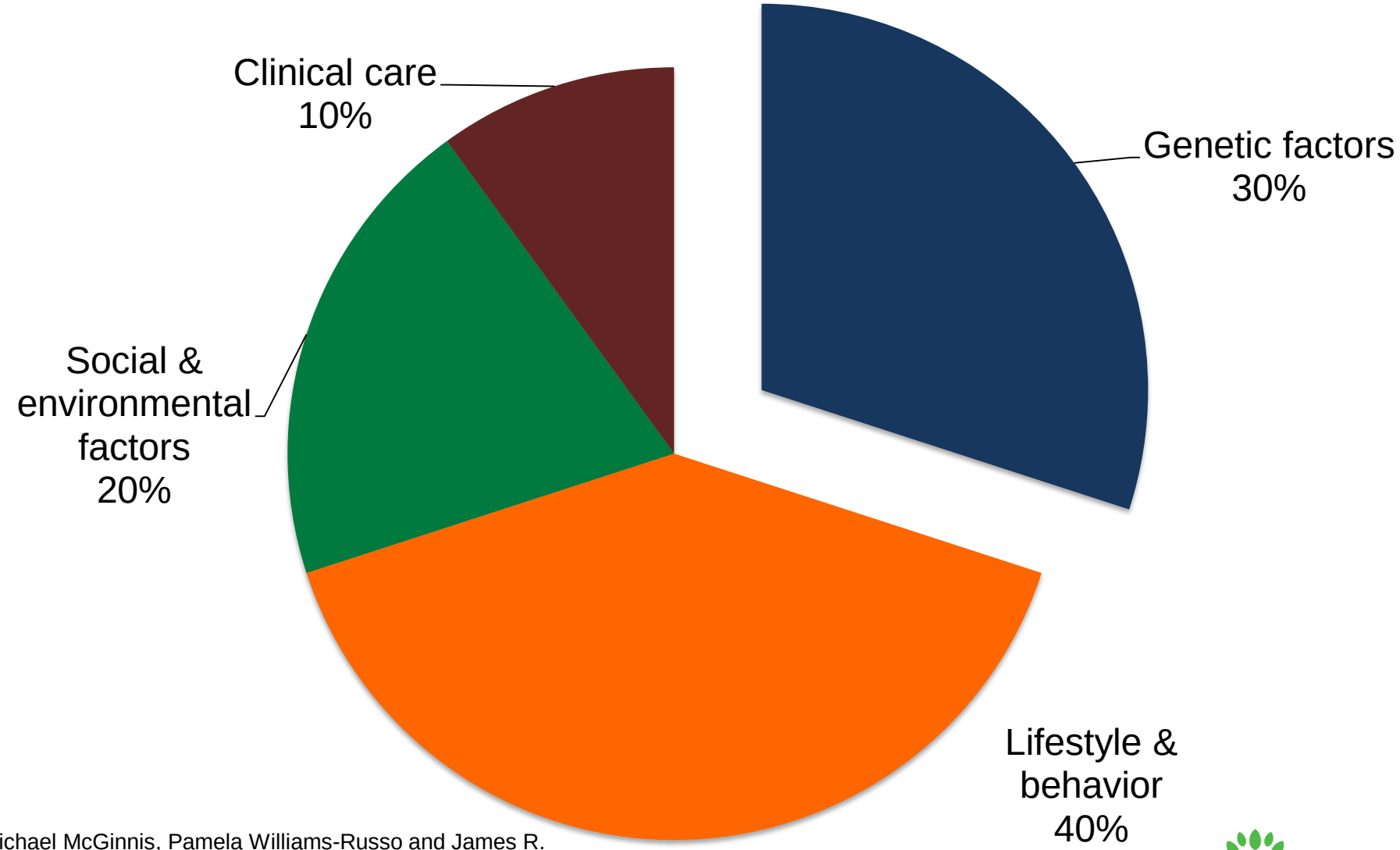
Objectives

- Define precision medicine
- Introduce precision medicine applications
- Review advantages and disadvantages
- Discuss barriers to implementation



Genetics in the News

Causes of Premature Death



Source: J. Michael McGinnis, Pamela Williams-Russo and James R. Knickman. The Case For More Active Policy Attention To Health Promotion. Health Affairs 21, no.2 (2002): 78-93.

Precision Medicine

- Precision medicine is customization of preventative or treatment measures based on genetic (molecular and cellular) and lifestyle factors.

- Goals
  - Increase effectiveness
  - Improve outcomes

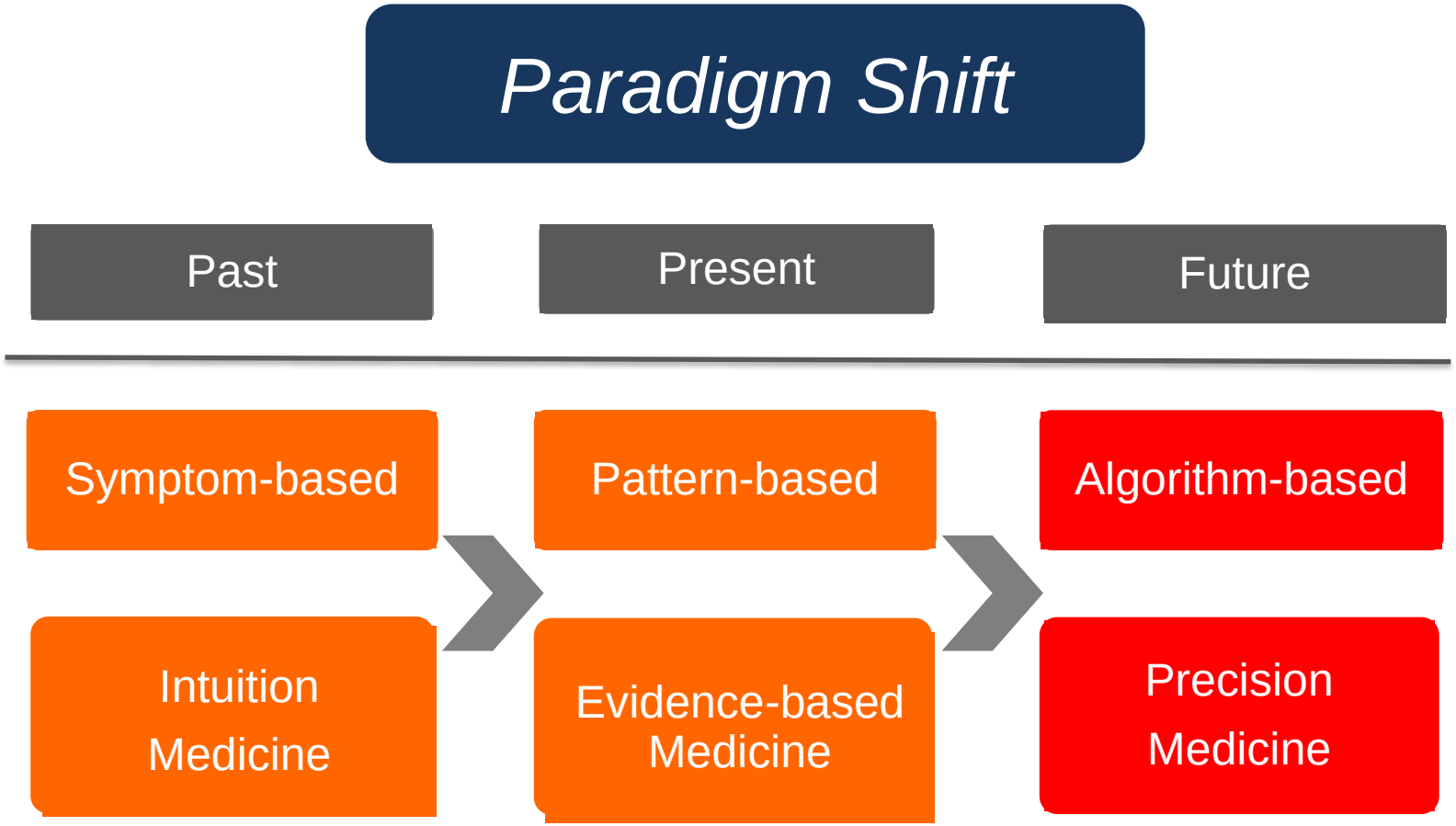


Image adapted from: Dr. Thomas Wilckens

Traditional Versus Precision Medicine Approaches

	Traditional Approach			*Precision Medicine Approach*		
Population of Individuals						
Classify by Risk						
Surveillance for Preclinical Disease						
Signs or Symptoms						
Treat with						
Strategy	**"One Size Fits All" Leads to Overall Mixed Results**			**Focus Existing**	**Repurpose FDA Approval**	**Invent New**
Outcome	**Benefit**	**No Effect**	**Adverse**	**Benefit**	**Benefit**	**Benefit**

The American Journal of Pathology 2016 186, 500-506DOI: (10.1016/j.ajpath.2015.12.001)

Precision Medicine

Specialties of Interest

- Cancer
- Psychiatry
- Cardiovascular
- Pain
- Neurology

Applications

- Pharmacogenomics
- Personalized cancer treatments
- Regenerative medicine
- Proteomics, Metabolomics
- Nutrigenomics

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Precision Medicine

Advantages:

- Prevention and prediction of disease
- Intervention prior to development of signs/symptoms
- Higher probability of success with treatment
- Reduced side effects
- Reduced healthcare costs

Disadvantages

- Interpretation or results
- Privacy concerns
- Too much emphasis on genes, non-modifiable factors
- Increased healthcare costs

Payer perspective: what will be the impact of pharmacogenomics on total healthcare costs?

Increased healthcare costs

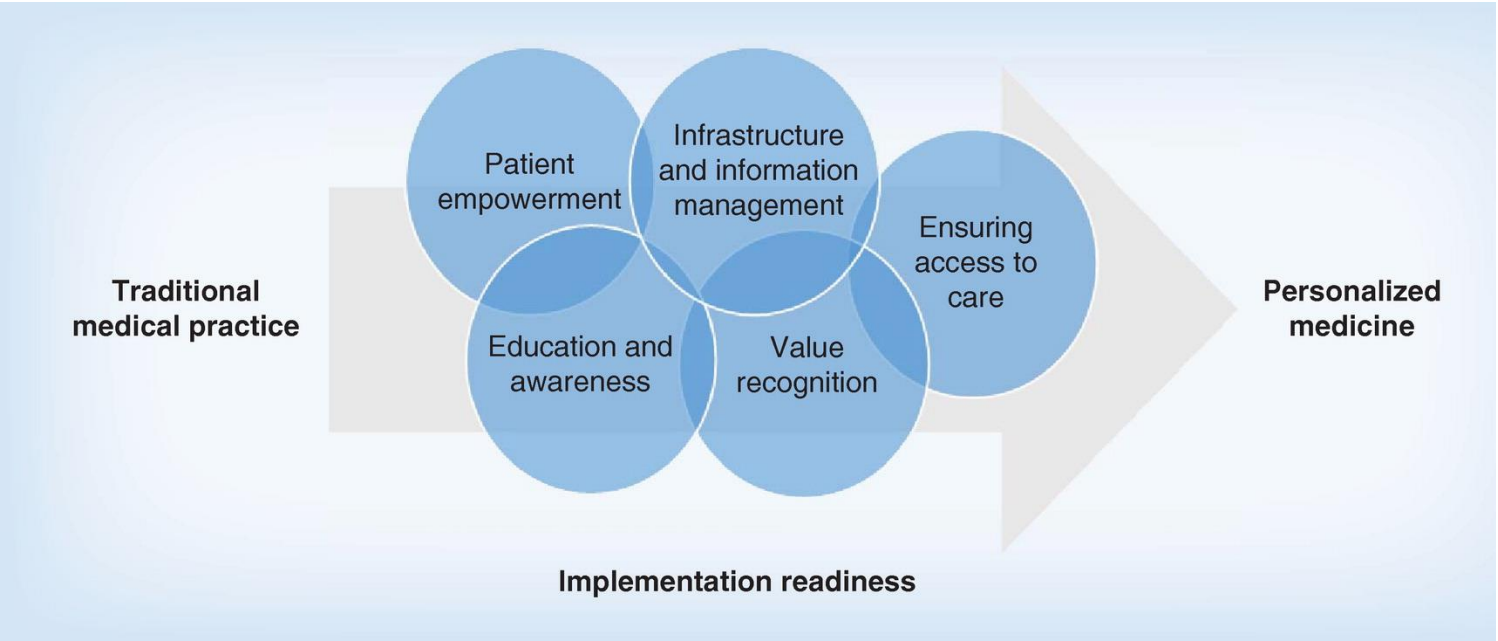
- Higher drug prices
- Expanded patient populations for drugs
- Enforcement of privacy safeguards
- Extended patent protection
- Diagnostic tests required

Decreased healthcare costs

- Avoid use of expensive drugs in non-responders
- Save patients avoidable adverse effects
- Improve compliance
- Improved health outcomes
- System cost offsets

Personalized Medicine: Current and Future Perspectives Patricia Deverka, MD, MBe Duke University, Institute for Genome Sciences and Policy Rick J. Carlson, JD University of Washington

Barriers to Widespread Implementation



U.S. FOOD & DRUG ADMINISTRATION

Home / Medical Devices / Medical Device Safety / Safety Communications / The FDA Warns Against the Use of Many Genetic Tests with Unapproved Claims to Predict Patient Response to Specific Medications: FDA Safety Communication

The FDA Warns Against the Use of Many Genetic Tests with Unapproved Claims to Predict Patient Response to Specific Medications: FDA Safety Communication

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Safety Communications

2019 Safety Communications

2018 Safety Communications

2017 Safety

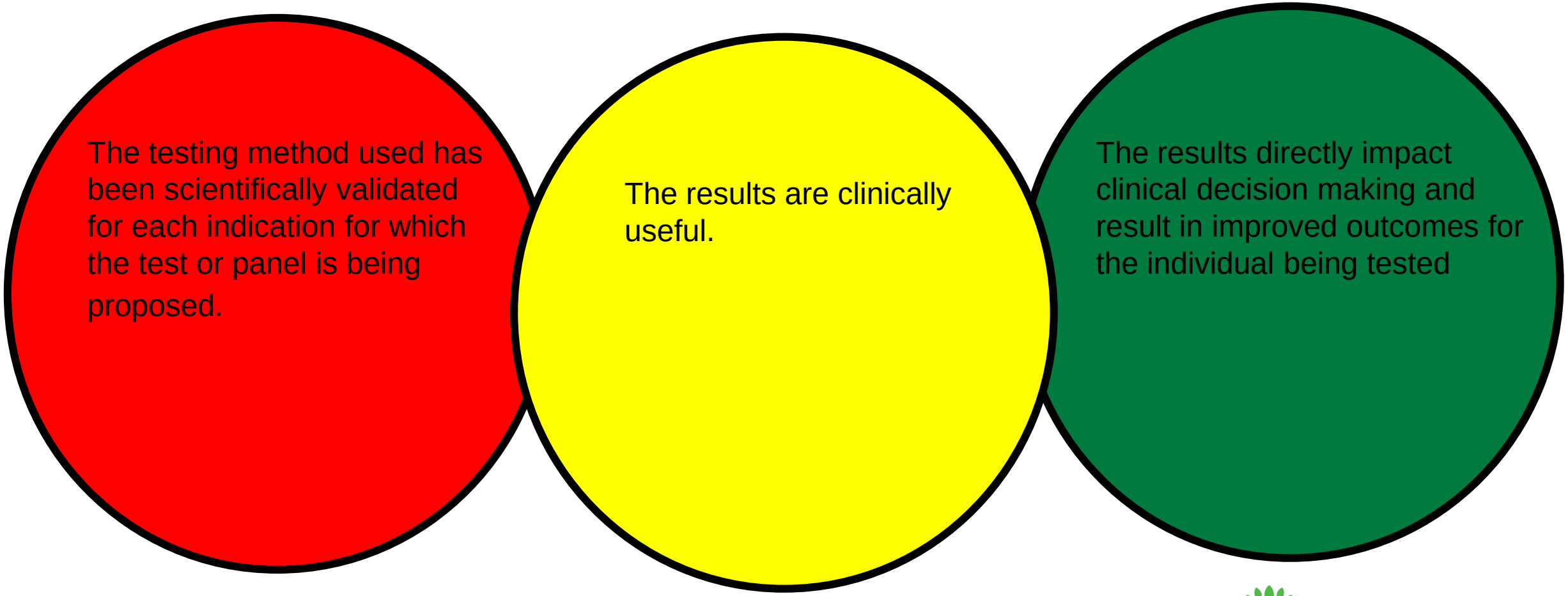
April 4, 2019 UPDATE: Following issuance of the safety communication, the FDA has taken additional actions. Please see the FDA Actions section for more information.

The FDA will continue to monitor this issue and will keep the public informed if significant new information becomes available.

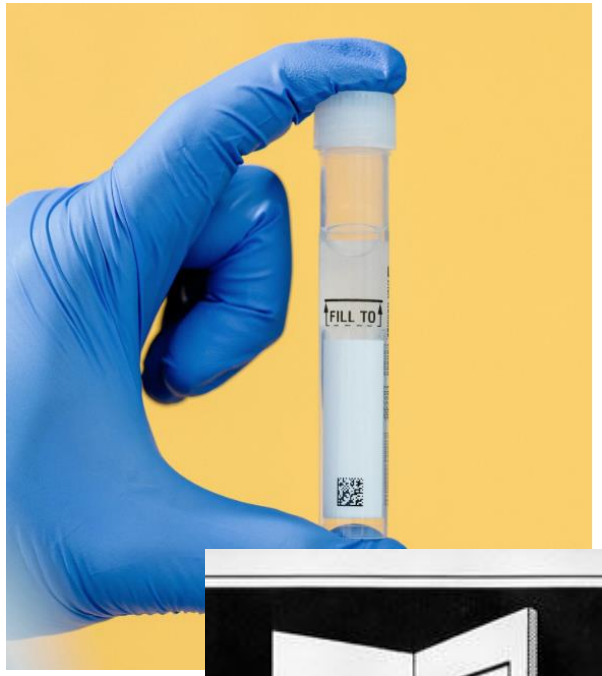
Date Issued

October 31, 2018

General Approach to Genetic Testing Coverage



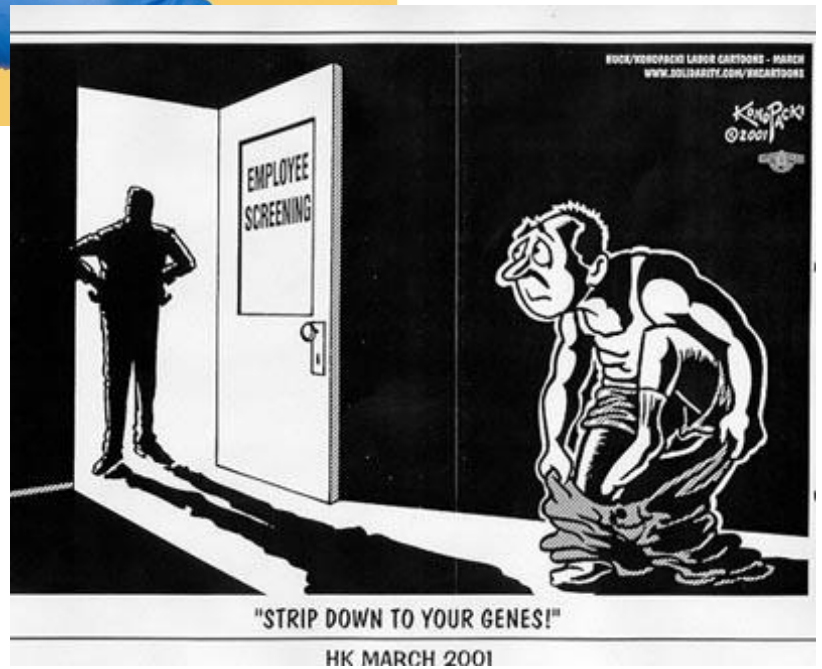
How have payers/employers utilized precision medicine?




The New York Times

Employees Jump at Genetic Testing. Is That a Good Thing?

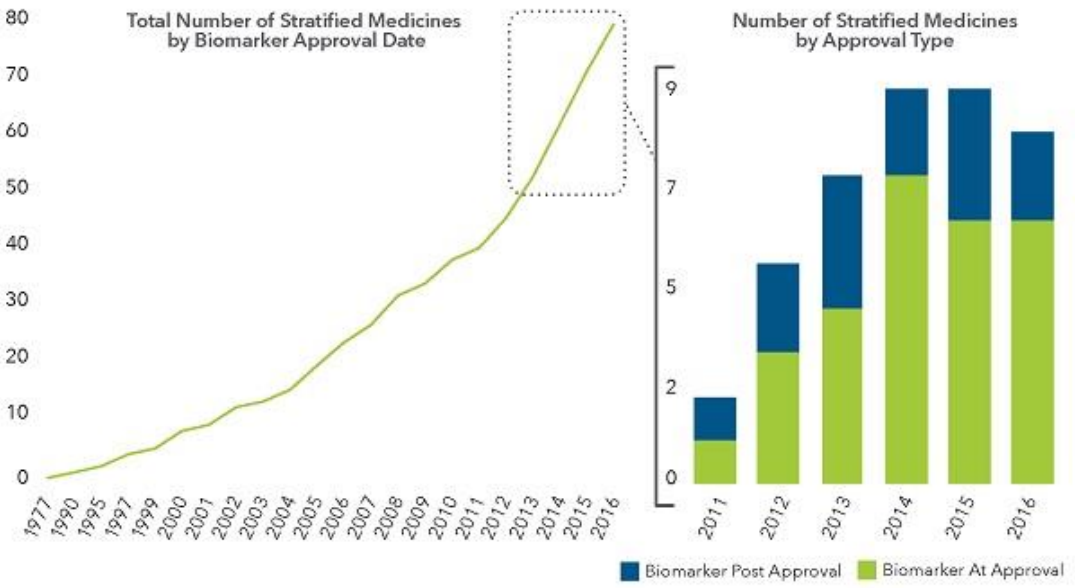
Genetic disease risk screening is becoming a popular employee benefit. But the tests may not be all that beneficial for the general population, experts say.



- Corporate Wellness Programs
  - Genomic testing to identify those at risk for chronic illnesses
  - Mobile apps
  - Digital apps
- Genetic testing for hereditary cancer and high cholesterol as a free employee benefit

Future Outlook for Precision Medicine

- Precision medicine is an emerging approach that looks at the root causes of illness, rather than addressing symptoms alone.
- Genetic discovery and innovation has outpaced our ability to empower and educate the public.
- Technology is key to ensuring access for all as well as housing and protecting the massive amount of genomic data that will be generated.
- New and innovative member engagement initiatives are needed as the healthcare landscape changes.



Notes: Divalproex sodium and atazanavir were not included in the analysis; these drugs received regulatory approval in 1983 and 2003, respectively, but date of biomarker approval could not be identified

Sources: https://www.pharmgkb.org/view/drug-labels.do; https://www.accessdata.fda.gov/scripts/cder/daf/;http://www.personalizedmedicinecoalition.org/Resources/Personalized_Medicine_at_FDA; IQVIA Institute for Human Data Science, Apr 2017

Cigna®

Pharmacogenomics: personalized medication risk management in action

Joe Spinelli
Chief Commercial Officer
MEDTEK21™

Impact of “one size fits all” prescribing

many clinicians still “guess” the appropriate medication and dose

this means…

1 in 10

Chronic cases suffer a medication related adverse event

up to

55%

of behavioral health medications are ineffective

$100,000+

per patient wasted in preventable cardiac treatments

Pharmacogenomics (PGX) Improves Care And Saves Lives

Drug

Genes

Dosage

Response

Make more informed treatment decisions

Responds to normal dose

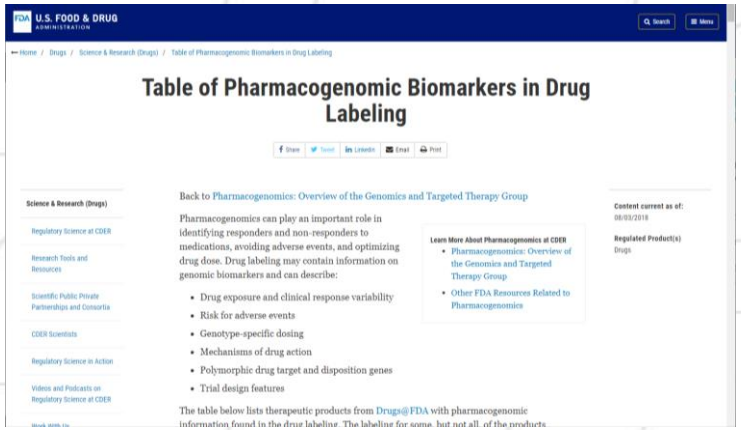
Responds to lower dose

Responds to higher dose

Responds to alternative medication

Drugs with Actionable PGX Evidence

- **Cardiology**
  - Antiplatelets
  - Antiarrhythmics
  - Beta Blockers
  - Angiotensin II Antagonists
- **Pain**
  - Opioids
- **Behavioral Health**
  - SSRI
  - Anti-Psych
  - Antidepressants
  - Anti-ADHD
- **Gastro**
  - Antiemetics
  - PPI
- Neurology
  - Anticonvulsants
- Infectious Disease
  - Anti-HIV Agent
  - Antibiotics
  - Antifungals
- Hematology
  - Hemostatic Agents
- Oncology
  - Thiopurines
  - Kinase/Topoisomerase Inhibitors
  - Anthracyclines
- Rheumatology
  - Antihyperuricemics
- Urologicals
  - Antispasmodics
- Sjogren's Syndrome
  - Cholinergic Agonists
- Gaucher Disease
  - Endocrine Metabolic Agents



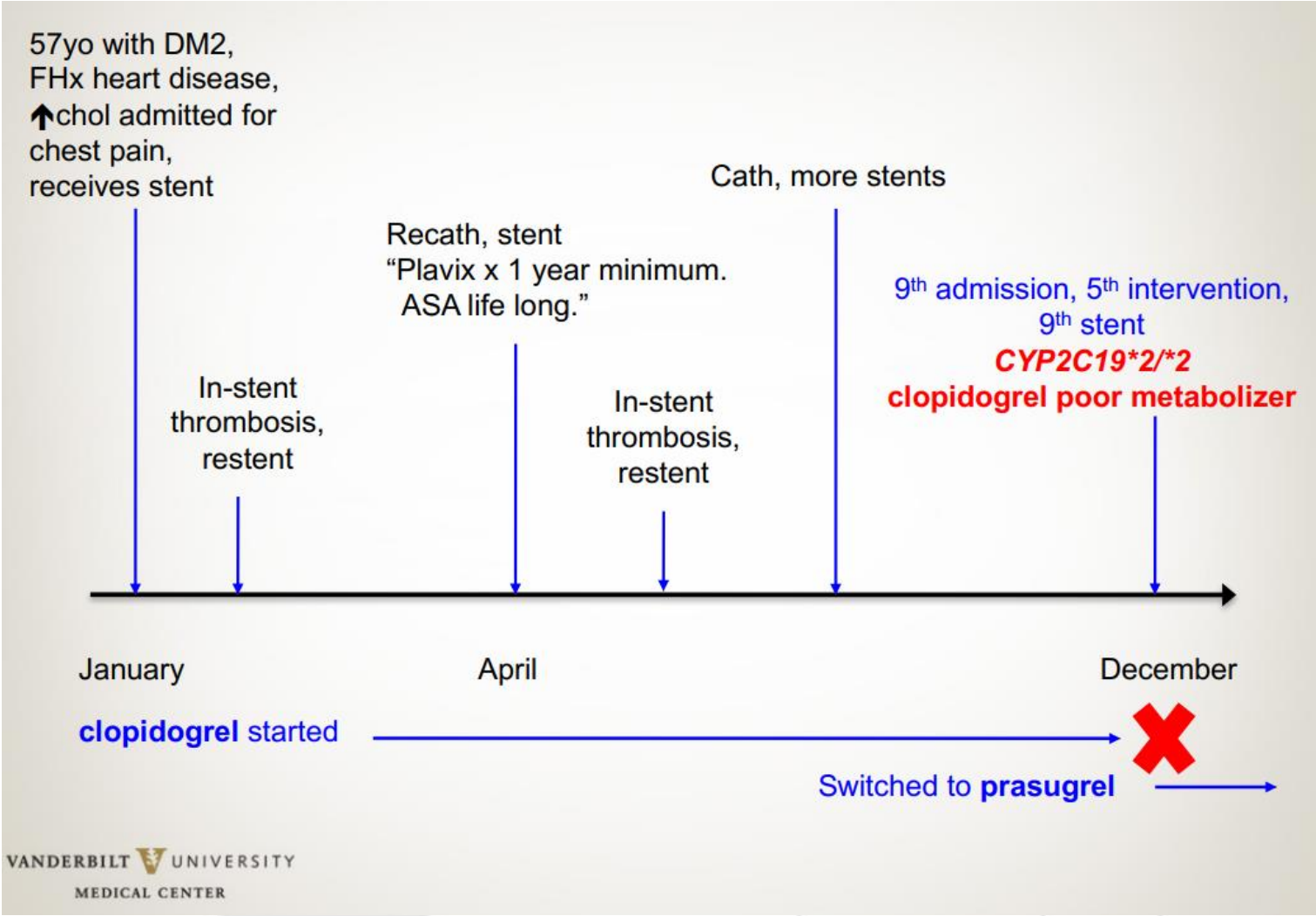
Preventable with personalized medication management

WARNING: DIMINISHED ANTIPLATELET EFFECT IN PATIENTS WITH TWO LOSS-OF-FUNCTION ALLELES OF THE CYP2C19 GENE

See full prescribing information for complete boxed warning.

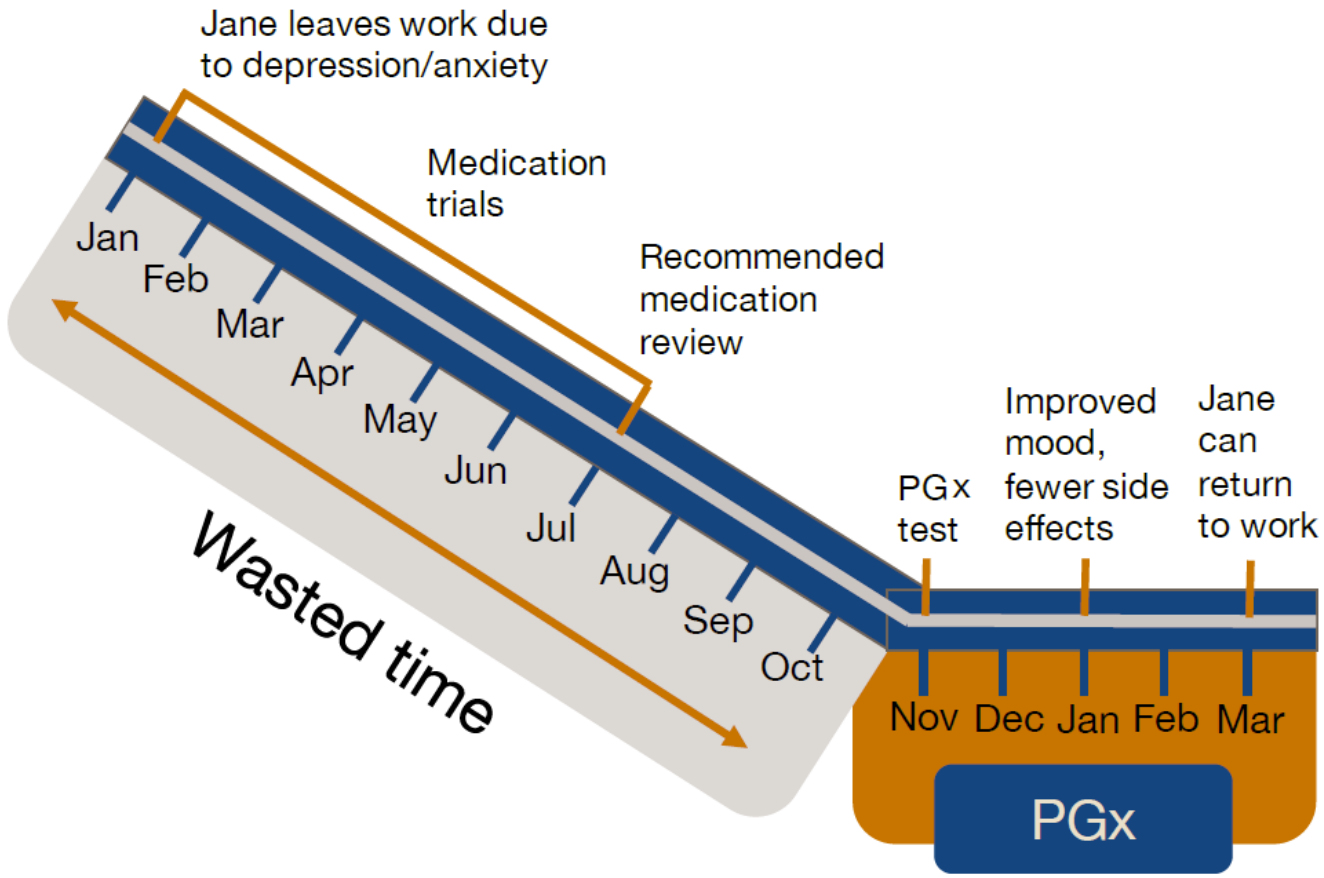
- Effectiveness of Plavix depends on conversion to an active metabolite by the cytochrome P450 (CYP) system, principally CYP2C19. (5.1, 12.3)
- Tests are available to identify patients who are CYP2C19 poor metabolizers. (12.5)
- Consider use of another platelet P2Y12 inhibitor in patients identified as CYP2C19 poor metabolizers. (5.1)

- 57 Y/O receives stent, started on Plavix
- Not receiving therapeutic benefit
- Over the course of 12 months, has 9 admissions, 9 stents put in
- PGX reveals poor metabolizer of Plavix, switched to prasugrel
- **Over $100k of excess treatment costs**



Preventable with personalized medication management

Jane's Course of Treatment Before and After PGx Intervention

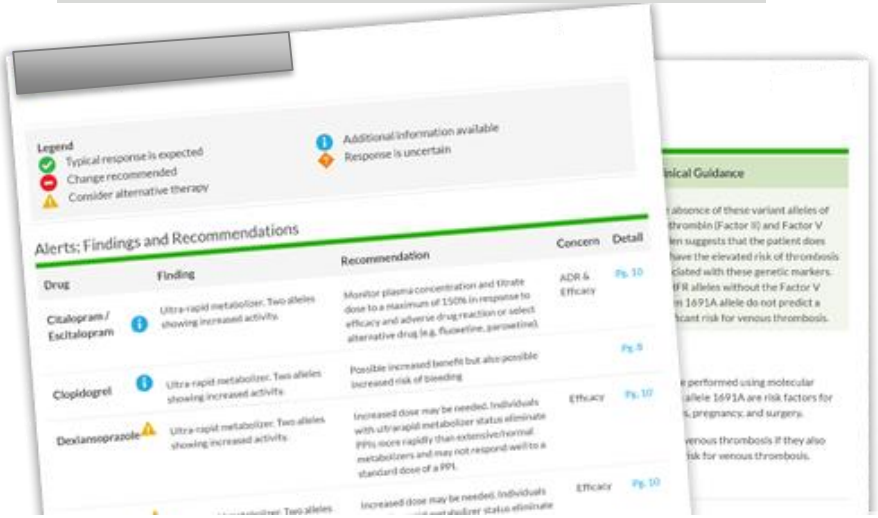


- 27 y/o with anxiety and depression, left work Jan 13, 2015
- 9 mos of ineffective treatment
- PGX test resulted in a return to work in 3.5 months
- Insurer savings of $11,950 in total monthly benefits if PGX test was administered initially

Traditional Diagnostic Challenges

Traditional PGX providers (labs) focused on the one-time test, and put the burden of interpretation on the patient and provider

No member or care provider can continuously reference a 50-60 page static report!



Other problems:

- Who should receive a test?
- Who is at the highest risk of drug-to-gene conflicts?
- How do we collect all the paperwork/authorizations?
- How do I access the report?
- What happens when medications change?
- What happens when new information occurs
- What happens when new medications are released?
- **How do we make this clinically actionable?**

Turning Pharmacogenomics into Action

Transforming pharmacogenomics from a static diagnostic to a real-time medication monitoring service

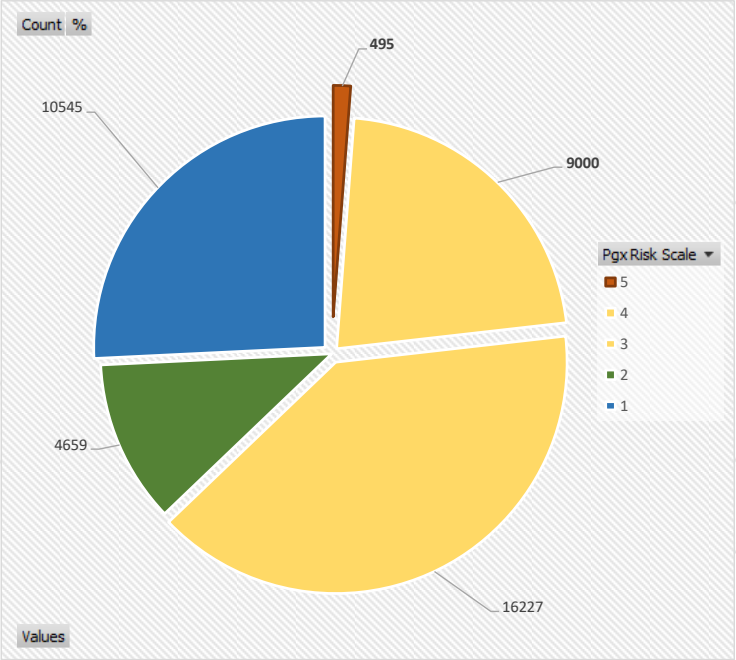
"Who should receive a genetic test?"

"Are the patient's medications right for them?"

"What actions should we take?"

Risk Assessments

- Provides valuable insight as to the state of medication issues within an existing client population for **both current and prospective clients**
- **Simple data requirements**
- Enables design of a go-forward program to remediate and improve the utilizations of medication
- Makes transition to formal PGX program with outcomes tracking easy
- Delivered presentation and commentary with go-forward plan customized by each client



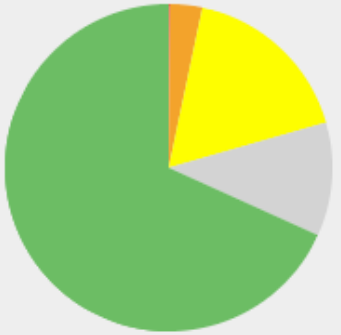
Risk Stratification Sample – Employer Group

- **Company prepared to spend over $10 million on testing with diagnostic provider**
- **Evaluation found subset of population with maximum benefit**
- **Total program design that was ~95% less than previously evaluated strategy**

MedTek21 analyzed the provided drug load for 28,398 individuals

Entered into Proprietary Algorithm

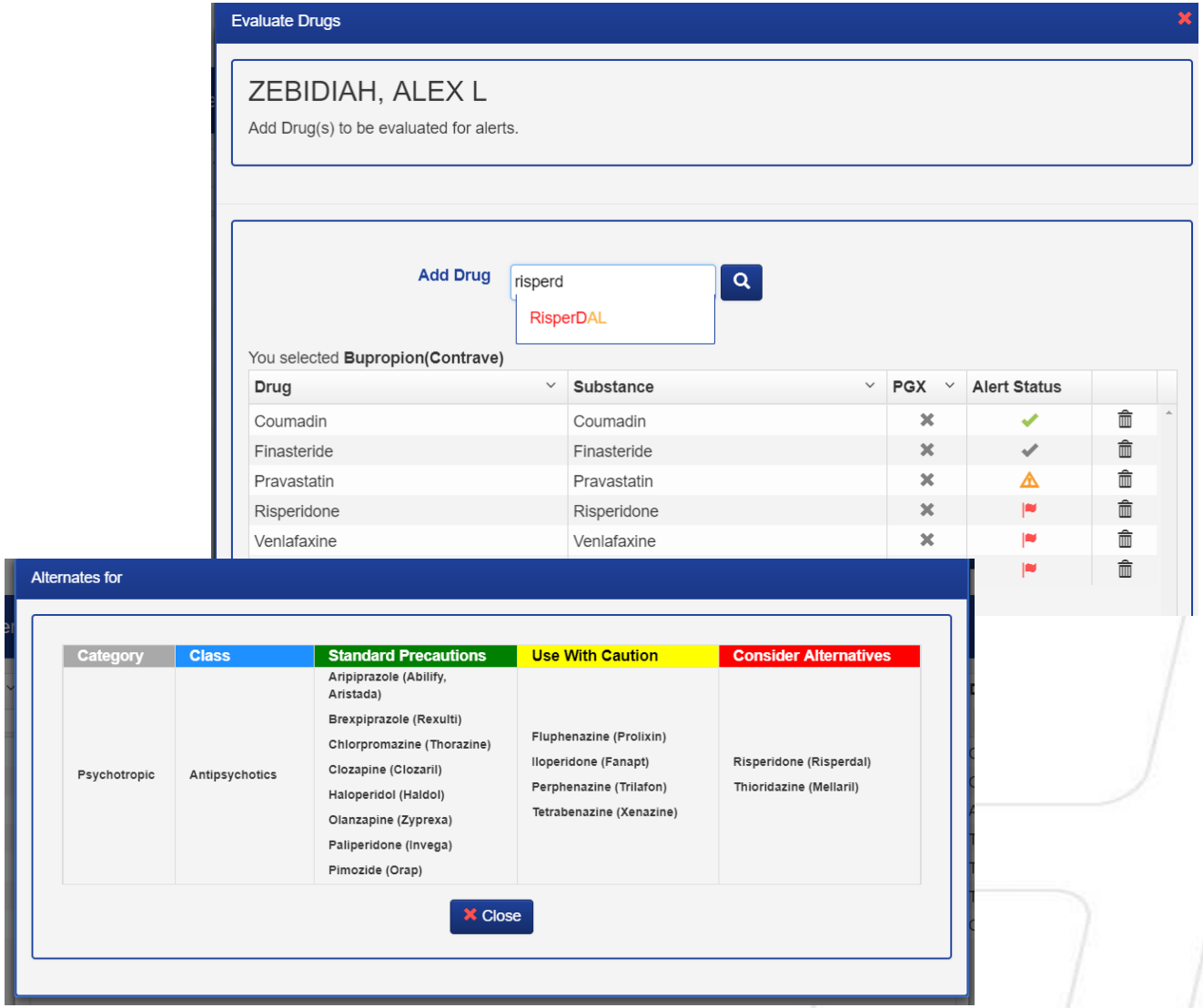
31.6% of total population taking at least one medication that has pharmacogenetic guidance in which a potential gene-drug interaction is possible – 3.2% in elevated risk groups 4-5 (immediate focus):



Required	38	0.1%
Strongly recommended	901	3.1%
Recommended	4894	17.2%
May be beneficial	3187	11.2%
Limited benefit	19378	68.2%

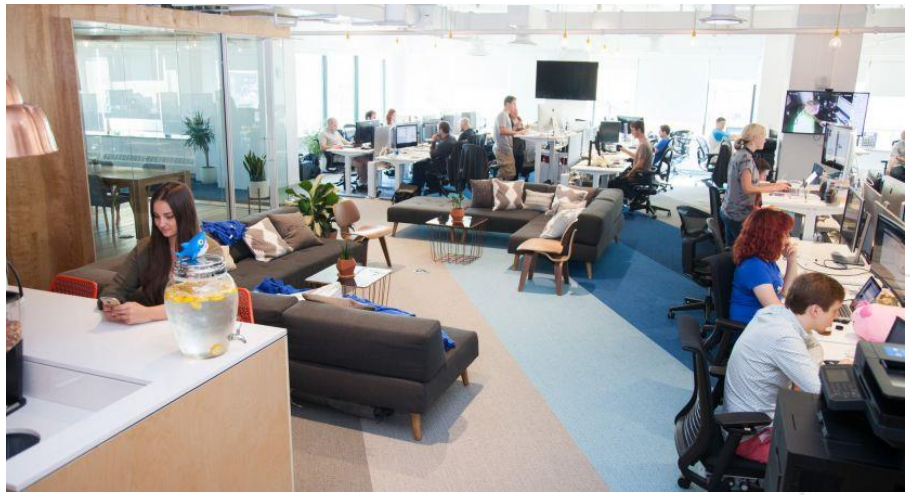
Proactive Alerts

Enables providers to get ahead of potential PGX issues **before** prescribing with proactive lookup and up-to-date personalized prescribing recommendations



Case Study

- **7,500 employee company (healthcare software)**
  - Offered testing to all members prior to working with MedTek21
  - 10% utilization to date (not tied to medications)
  - Results being provided via pdf portal – no way to drive actionable change



- MedTek21 engaged in April 2019 – data connected within one week:
  - **14 Severe Alerts**
  - **78 Moderate Alerts**
  - 310 Normal Alerts

- Alerts being delivered to members and their care team through care managers

Customized Outreach – Patient/by Indication

Target high-risk/high benefit cohorts with coordinated communication plan

All about your
Personalized Prescribing System

Your care team has chosen to use MedTek21 to provide a state-of-the art pharmacogenetic test.

This test that will help better personalize your treatments, **both now and in the future.**

Personalized medicine is one of the fastest growing areas of care improvement, and gives you and your care team the tools to **maximize the effectiveness of your treatments.**

Your genes contain specific information about how your body reacts to certain drugs, both prescription and over-the-counter.

With this information, it is now possible to better answer the question, ***"Will this drug work for me?"***

131 W Miner St
West Chester, PA 19382
484.356.0677
www.medtek21.com

MEDTEK21

MEDTEK21
the leader in personalized medication management

personalized medication management:
optimize your blood thinner medication

Anticoagulants such as Clopidogrel (Plavix) can effectively help prevent strokes, heart attacks in members with a history of cardiovascular issues. Like many medications, certain members may not adequately respond to standard dosing regimens. MedTek21 offers a simple diagnostic that can help your care provider assess if an adjusted dose or alternative medication may help optimize your treatment and prevention program.

The MedTek21 platform proactively identifies members who could benefit from a personalized medication analysis, and alerts both members and their care providers to prescribing guidance that can improve cost and lower care.

MedTek21 and Cardiac Treatments

Up to 40% of a employee population may be at risk of this genomic conflict with their prescribed medications

The effectiveness of Clopidogrel is dependent on how your body's ability to activate it into an active drug metabolite.

Certain individuals may respond differently or not at all to standard dosing of Clopidogrel based on their individual metabolic profile. This profile can be determined using a simple, non-invasive genetic test.

The results of this test will help prescribers optimize dosing and the specific medications to improve a member's overall treatment program.

The MedTek21 Advantage

- Continuous drug-to-gene monitoring software, with ongoing risk stratifications to ensure optimal ROI
- Drug-to-gene alerts prior to medication fill - minimize wasted meds and prevent adverse events
- Secure, compliant workflows designed for insured employee populations
- Personal mobile application provides 24/7 access to individual profile and support

Get Started with MedTek21 Today!
Contact your representative for an initial member risk stratification

484.237.9837
info@medtek21.com

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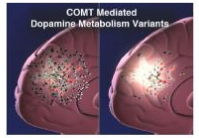
MEDTEK21
the leader in personalized medication management

personalized medication management:
benefits for anti-ADHD treatments

Anti-ADHD treatments are one the fastest growing and most commonly prescribed medications in employer populations. Like many behavioral health medications, certain members may not adequately respond to standard dosing regimens, and can struggle for years switching between different medications and dosing levels. In addition, when combined with other medications, members may also be at risk of hidden side effects that impact efficacy.



The MedTek21 platform proactively identifies members who could benefit from a personalized medication analysis, and alerts both members and their care providers to prescribing guidance that can improve cost and lower care.

MedTek21 and Anti-ADHD

The identification of Catechol-O-Methyltranferase (COMT) metabolism variants can be used to help guide the effective care of patients with ADHD symptoms. COMT is one of numerous pathways analyzed in a pharmacogenomic analysis of common anti-ADHD medications.

Carriers of a COMT variant demonstrate reduced therapeutic response to amphetamine stimulants

Lower COMT can equate to higher dopamine levels, resulting in a flattened receptor response

Up to 40% of your employee population may be at risk of this genomic conflict with their prescribed medications

The MedTek21 Advantage

- Continuous drug-to-gene monitoring software, with ongoing risk stratifications to ensure optimal ROI
- Drug-to-gene alerts prior to medication fill - minimize wasted meds and prevent adverse events
- Secure, compliant workflows designed for insured employee populations
- Personal mobile application provides 24/7 access to individual profile and support

Get Started with MedTek21 Today!
Contact your representative for an initial member risk stratification

484.237.9837
info@medtek21.com

131 W Miner St
West Chester, PA 19382
www.medtek21.com

Provider Engagement Tools and Workflows

All information needed to support initial and ongoing patient encounters

MEDTEK21

Personzlied Medication Alert

June 1, 20xx

Dr. Jon Doe
3311 Office Lane
Chester Springs, PA 00000

Dr Doe:

Our MedTek21 personazlied medication management platform has identified informative information impacting medications for your patient. These alerts are the result of insights from a pharmacogenomic analysis of the patient's current medication profile as reported to our system. This information may be helpful in your evaluation of additional treatment pathways for this patient. A summary report of this alert information has been enclosed, and the full report is available for reference.

Should you wish to learn more or have any questions about this information, please reach out to us in any of the following ways:

By Phone: Genomic review professionals are available at 484-237-9837.

By Email: Please email helpdesk@medtek21.com for priority response.

By Fax: Please send any notes or inquiries to 866-865-2049

Please don't hesitate to reach out with any additional questions or clarifications.

Respectfully,

The MedTek21 Team

info@medtek21.com
www.medtek21.com

Tel: 484.356.0677
Fax: 866.865.2049

131 W Miner Street
West Chester, PA 19382

Provider Letters

MEDTEK21 DEMO

Pharmacogenetic Drug-Gene Interaction

ZEBIDIAH, ALEX L

DOB: 06/30/1955 63 year-old Male
Shiny Oaks Health System
Station: MEM Room: 112-A

Increased Sensitivity to Risperidone (CYP2D6: Intermediate metabolizer)

Drug: Risperidone **Gene:** CYP2D6 **Severity:** High **Evidence Level:** Actionable **First Alerted:** 12/24/2018

Consider an alternative drug, OR prescribe risperidone, be extra alert of adverse events, and adjust dosage in response to clinical response and tolerability. There is insufficient data to allow calculation of dose adjustment.

Alternative Medications

Category	Class	Standard Precautions	Use With Caution	Consider Alternatives
Psychotropic	Other Neurological Agents	Aripiprazole (Abilify®), Aristada®) Asenapine (Saphris®) Brexpiprazole (Rexulti®) Chlorpromazine (Thorazine®) Clozapine (Clozaril®) Haloperidol (Haldol®) Loxapine (Loxitane®, Adasuve®) Lurasidone (Latuda®) Olanzapine (Zyprexa®) Paliperidone (Invega®) Pimozide (Orap®) Quetiapine (Seroquel®) Thiothixene (Navane®) Trifluoperazine (Stelazine®) Ziprasidone (Geodon®)	Fluphenazine (Prolixin®) Iloperidone (Fanapt®) Perphenazine (Trilafon®) Tetrabenazine (Xenazine®)	Risperidone (Risperdal®) Thioridazine (Mellaril®)

CLIA#: ABCDEF12345 Last updated date: 12/24/2018
Translational Software Disclaimer: The information presented on this report is provided as general educational health information. The content is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Only a physician, pharmacist or other healthcare professional should advise a patient on the use of the medications prescribed. The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.

Printed Date: 01/15/19 16:00:59 Page 1 of 1

Single Gene-drug Interaction Report

Genomic Guided Patient Progress Note

MEDTEK21 DEMO

Patient Name: FRANK, OPHELIA D **Facility:** Shiny Oaks Health System
Date of Birth: 11/15/1933 **Provider:** INDIGO SPEAKS
NPI: 1295090025

Service Code: ○99307 (15 min) ○99308 (30 min) ○99309 (45 min) ○99310 (60 min)

Presentation Assessment

Reviewing genetic testing results with a patient and providing education and alternative prescription options for rescrribed drugs that could have possible adverse drug reactions based on a patient's genetic testing.

Safety and Medical Issues

Amitriptyline Evidence Level: Informative

Increased Sensitivity to Amitriptyline (CYP2C19: Ultrarapid metabolizer)

Consider an alternative drug, or consider prescribing amitriptyline at standard dose and monitor the plasma concentrations of amitriptyline and nortriptyline to guide dose adjustments.

Alternatives

Category / Class	Standard Precautions	Use With Caution	Consider Alternatives
Psychotropic Antidepressants	Amoxapine (Amoxapine) Desipramine (Norpramin) Desvenlafaxine (Pristiq) Duloxetine (Cymbalta) Fluoxetine (Prozac, Sarafem) Maprotiline (Ludiomil) Mirtazapine (Remeron) Nefazodone (Serzone) Nortriptyline (Pamelor) Paroxetine (Paxil, Brisdelle) Protriptyline (Vivactil) Venlafaxine (Effexor) Vortioxetine (Trintellix)	Fluvoxamine (Luvox) Sertraline (Zoloft)	Amitriptyline (Elavil) Citalopram (Celexa) Clomipramine (Anafranil) Doxepin (Silenor) Escitalopram (Lexapro) Imipramine (Tofranil) Trimipramine (Surmontil)

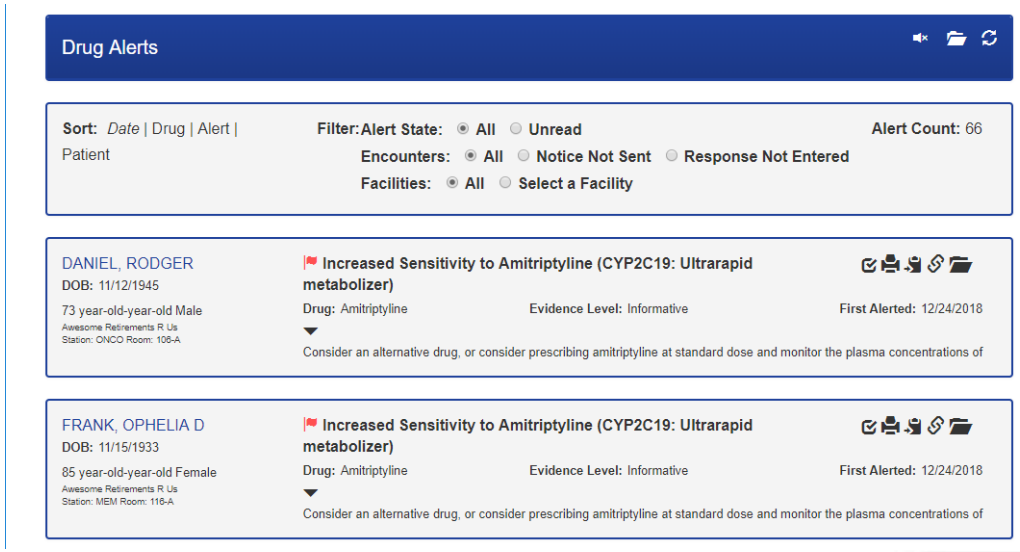
Esomeprazole Evidence Level: Informative

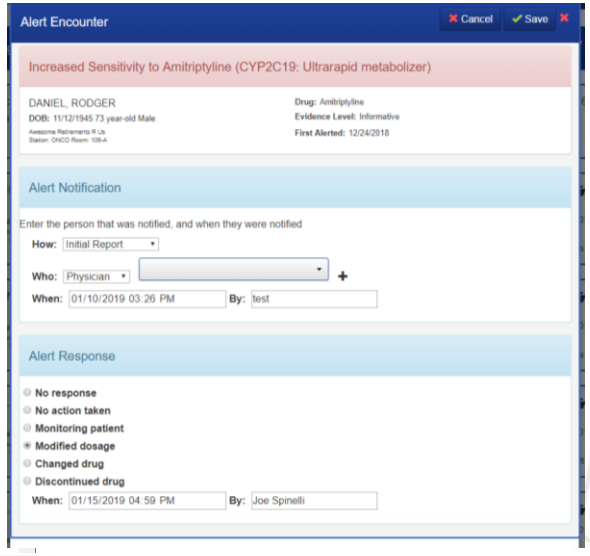
Insufficient Response to Esomeprazole (CYP2C19: Ultrarapid metabolizer)

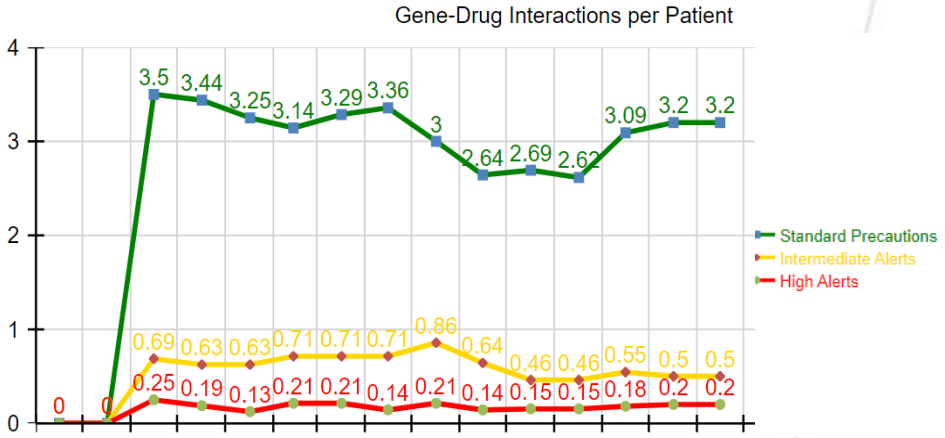
- Helicobacter pylori eradication: increase dose by 50-100% and be alert to insufficient response.
- Other: be extra alert to insufficient response and consider dose increase of 50-100%.

Genomic-Guided Patient Progress Notes

Program Tracking/Reporting Engine



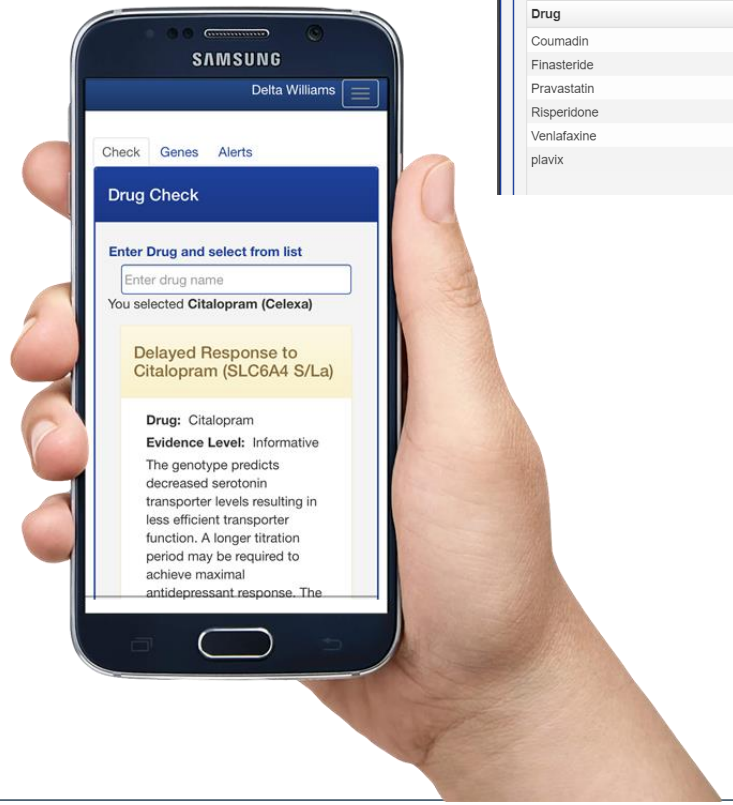


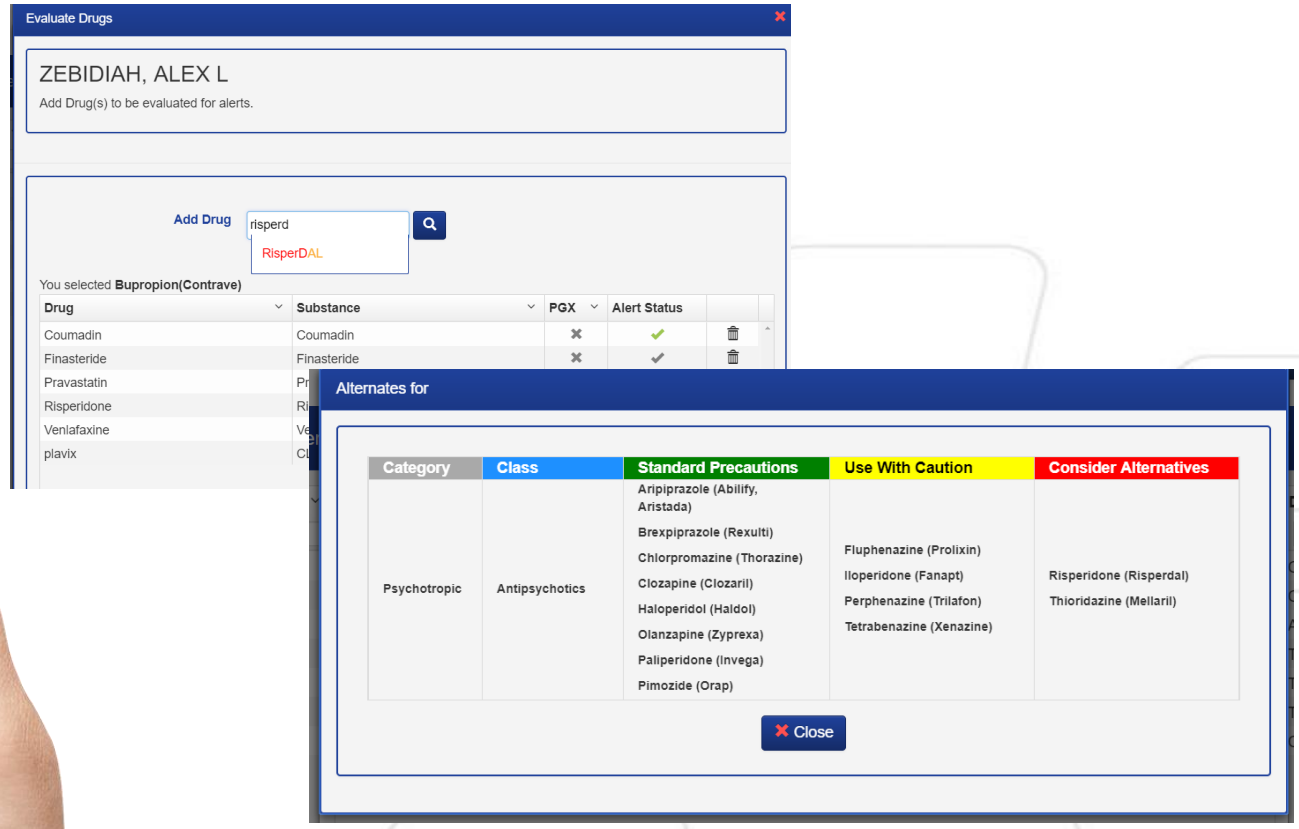


Top Drugs with Red Alerts

Drug	Count
Tramadol	2
Atomoxetine	2
Amitriptyline	2
Venlafaxine	1
Risperidone	1
Metoprolol	1
Irinotecan	1
Escitalopram	1
Clopidogrel	1
Citalopram	1

Patient Empowerment - Mobile App





Proactive drug-to-gene lookup ***before*** prescribing.

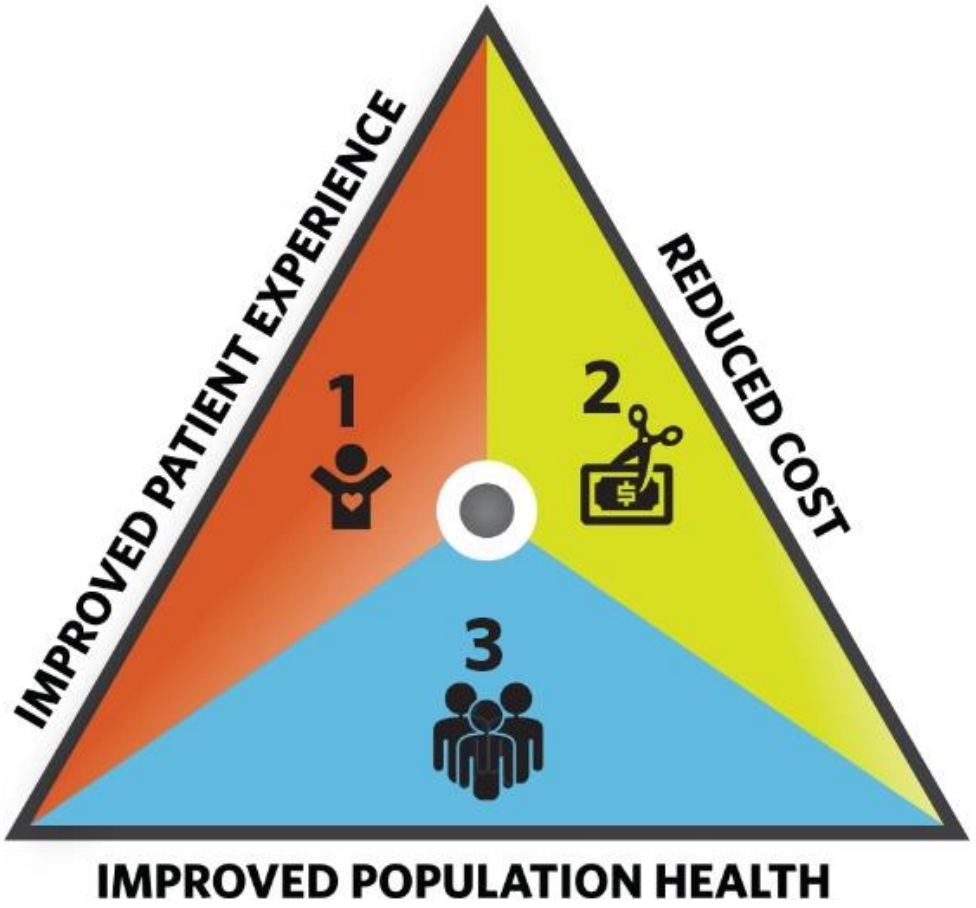
ROI Component Examples

- Prevented Adverse Events
- Lower Medication Costs
- Improved time to stabilize
- Improved therapeutic benefit
- Reduced absenteeism
- Improved productivity

- **For 1,000 members with ACS throughout their life on Plavix[1]**
  - $2,230 average savings over diagnosis (10 year est.) using genotyping ($223/yr)
  - 10 cardiovascular deaths prevented
  - 16 nonfatal MI events prevented
  - 3 nonfatal bleed events prevented
- **For 100 members on Warfarin**
  - 33% reduction in severe hospitalizations (5 hospitalizations prevented)
- **For 250 members with severe mood and anxiety disorders [2]**
  - $4k per member in annual treatment savings, plus up to $1k/year in med savings per member
  - 40% reduction in ER visits
  - 58% reduction in all-cause hospitalizations
  - **+7x ROI for patients on MDD medications**

Sources:
1) Johnson et al, "Financial Analysis of CYP2C19 Genotyping in Patients receiving dual antiplatelet therapy following acute coronary syndrome", *Journal of Managed Care and Specialty Pharmacy,* July 2015.
2) Perlis et al, "Pharmacogenetic testing among patients with mood and anxiety disorders is associated with decreased utilization and cost: A propensity score matched study." *Depression and Anxiety,* May 2018.

Pharmacogenomics and the Triple Aim



- **Improved Population Health**
  - Identify risks prior to testing
  - Identify new risks
  - Identify changed meds/risks
  - Track outcomes
- **Reduced Cost**
  - Shorter time to titrate/stabilize
  - Elimination of ineffective meds
  - Prevention of costly and dangerous ADEs
  - Prevention of side effects
  - Targeted testing operations to maximize ROI
- **Improved Patient Experience**
  - Easy-to-use reporting
  - Full technical and genomic support

Thank You!

Joe Spinelli
@joespinelli
jspinelli@medtek21.com

MEDTEK21

International Society
of Certified Employee Benefit Specialists

Q & A

Dave Ratcliffe
Health & Productivity
Practice Leader
@ Buck

Shanna Ndong, MD
Medical Director
@ Cigna

Joe Spinelli
Chief Commercial Officer
@MedTek21

International Society
of Certified Employee Benefit Specialists

Reminders

- Session has been recorded
- Recording and slides will be on Chapter website within 24 hours
- Email will be sent with the link to our website within 24 hours

www.capital-chapter-iscebs.org
under Events / Past Meeting Presentations.

International Society
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Next Capital Chapter Event

- Networking Happy Hour
- July 25, 2019 (Thursday)
- BRINE at Mosaic in Fairfax, VA
- https://www.capital-chapter-iscebs.org
  - Click on EVENTS CALENDAR

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Thank you!