

# Conocimiento y Liderazgo Transformador

A Herranz, M Manges, JL Poveda  
Hospital Universitario Gregorio Marañón Madrid



# Claves de liderazgo Transformador

- ▶ Entiende y desarrolla el líder que llevas dentro
- ▶ Empieza por liderarte a ti mismo
- ▶ No es lo mismo Liderar que Gestionar
- ▶ Empieza ya el viaje al liderazgo 5 Estrellas

# El viaje al liderazgo 5 estrellas: Habilidades



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*Clinical Meeting & Exhibition*

Strategies for Personal and  
Professional Success

# Escalera Farmacéutica

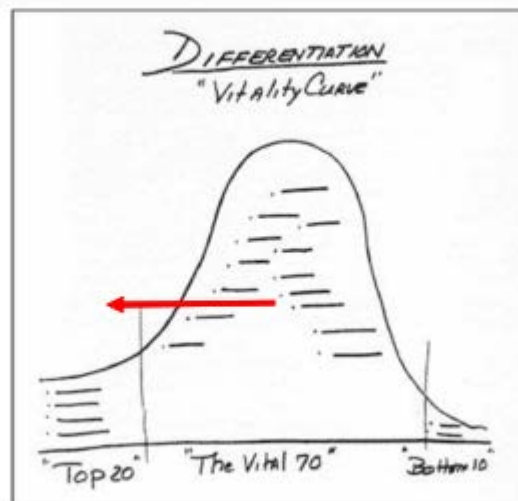
	NIVEL 0	SPECIALIST I	SPECIALIST II
FORMACIÓN Y EXPERIENCIA			
ACTIVIDAD PROFESIONAL			
PROTOCOLIZACIÓN E INFORMACIÓN			
ACADEMIA Y FORMACIÓN			
LIDERAZGO			

Mojdeh S. Heavner, Pharm.D., BCPS, BCCCP

Eric M. Tichy, Pharm.D., BCPS, FCCP, FAST

December 5, 2016

YaleNewHavenHealth  
Yale New Haven Hospital



Adapted from Jacki Straight From the Gut, 2001

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“By failing to prepare, you are preparing to fail.”  
–Benjamin Franklin

- Life happens!
- People run late or can't complete assignments.
- Have a workable solution.

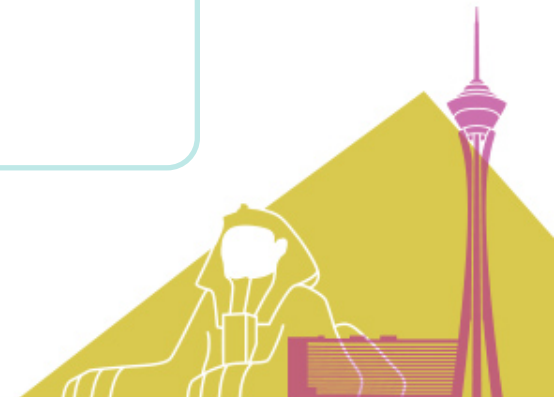
# Sesiones que no debes perderte

- ▶ Steping it up: implementation of a Pharmacist Career Ladder Program
- ▶ Feed back landscape; to your employees
- ▶ Strategies for personal and profesional developent
- ▶ Interprofesional Education: preparing students for teambased care
- ▶ Balancing Pharmacy Benchmarking, Productivity and the work of clinical activities

**Post**  
**MIDYEAR2016**  
Share and Grow

# Comunicación transformadora

Dr. José Luis Poveda Andrés  
Hospital Universitari i Politècnic La Fe







Sin comunicación  
no puede haber liderazgo

# 3C para mejorar la COMUNICACIÓN

Comprender  
Compartir  
Comprometer

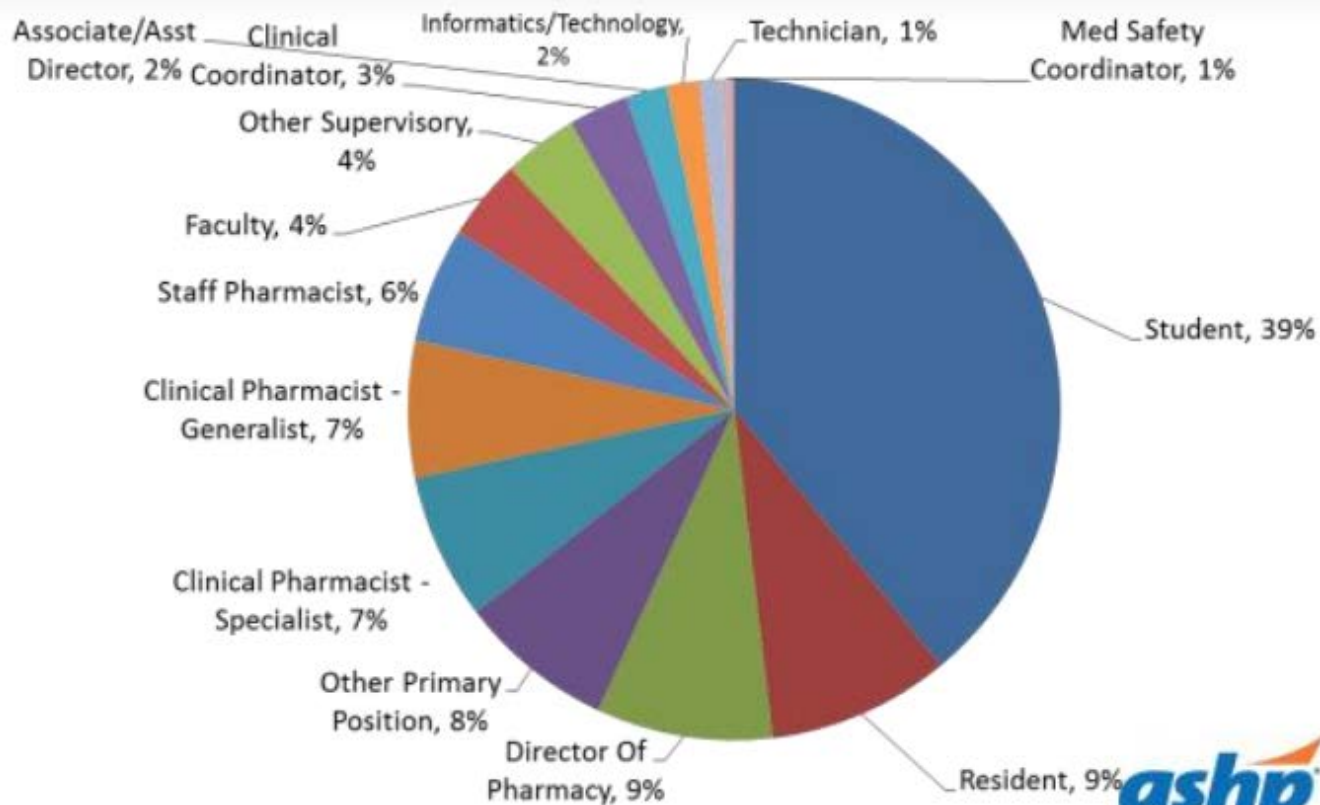


# COMUNICACIÓN

1. PACIENTES
2. SOCIEDADES CIENTÍFICAS
3. ORGANIZACIONES GUBERNAMENTALES



## Who are ASHP Members?



Source: 2015 ASHP Member Demographics Census

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## Results from the 2016 ASHP National Survey: The Current State of Pharmacy Practice in Hospitals

Craig A. Pedersen, Ph.D., FAPhA

Philip J. Schneider, M.S., FASHP, FFIP, FASPEN

Douglas J. Scheckelhoff, M.S., FASHP

## 2016 Survey Response

	Surveyed	Respondents	Response Rate
	n	n	%
Staffed beds			
<50	200	63	31.5
50-99	200	55	27.5
100-199	199	61	30.7
200-299	200	50	25.0
300-399	200	61	30.5
400-599	200	67	33.5
≥600	116	35	30.2
All hospitals – 2016	1315	392	29.8





# ***Pharmacy Forecast 2017:*** **Trends That Will Shape Your Future**

**ASHP Research and Education Foundation**

William A. Zellmer  
Moderator

# Objectives

- Identify 5 or more **components of the external environment** that will have major impact on practice over the next 5 years.
- Translate the **strategic advice of national authorities** to the needs of your practice setting.
- Identify 3 or more ways to apply knowledge of key trends toward **improving patient care**.



## Example of a Survey Item: Pharmacy Work Force

*How likely is it that the following will occur, by the year 2021, in the geographic region where you work?*

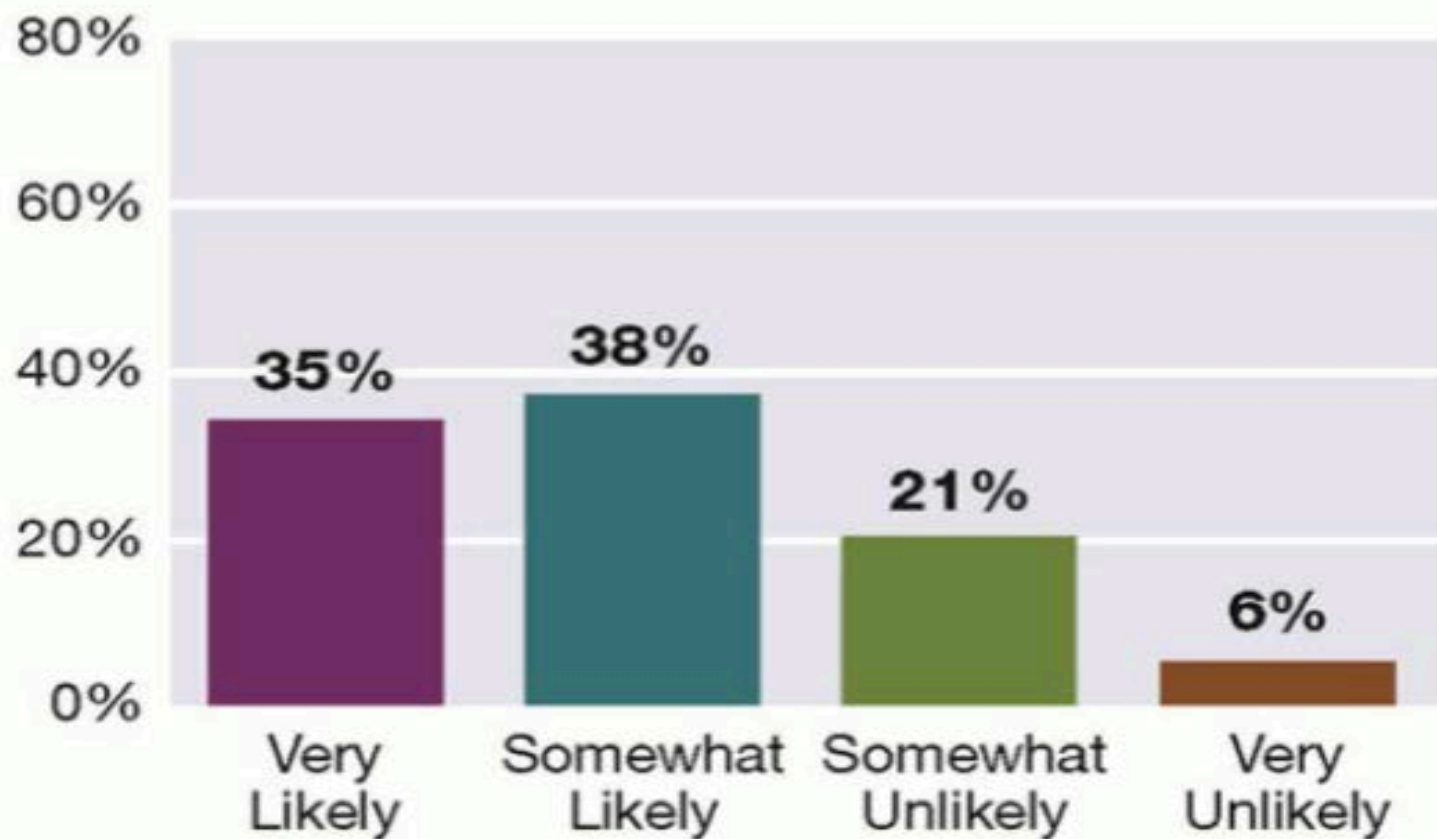
Some pharmacists in at least 75% of health systems will have **prescribing authority** (formally approved by the system) for **both inpatients and discharged patients**.

- ☐ Very likely or somewhat likely?
- ☐ Very unlikely or somewhat unlikely?



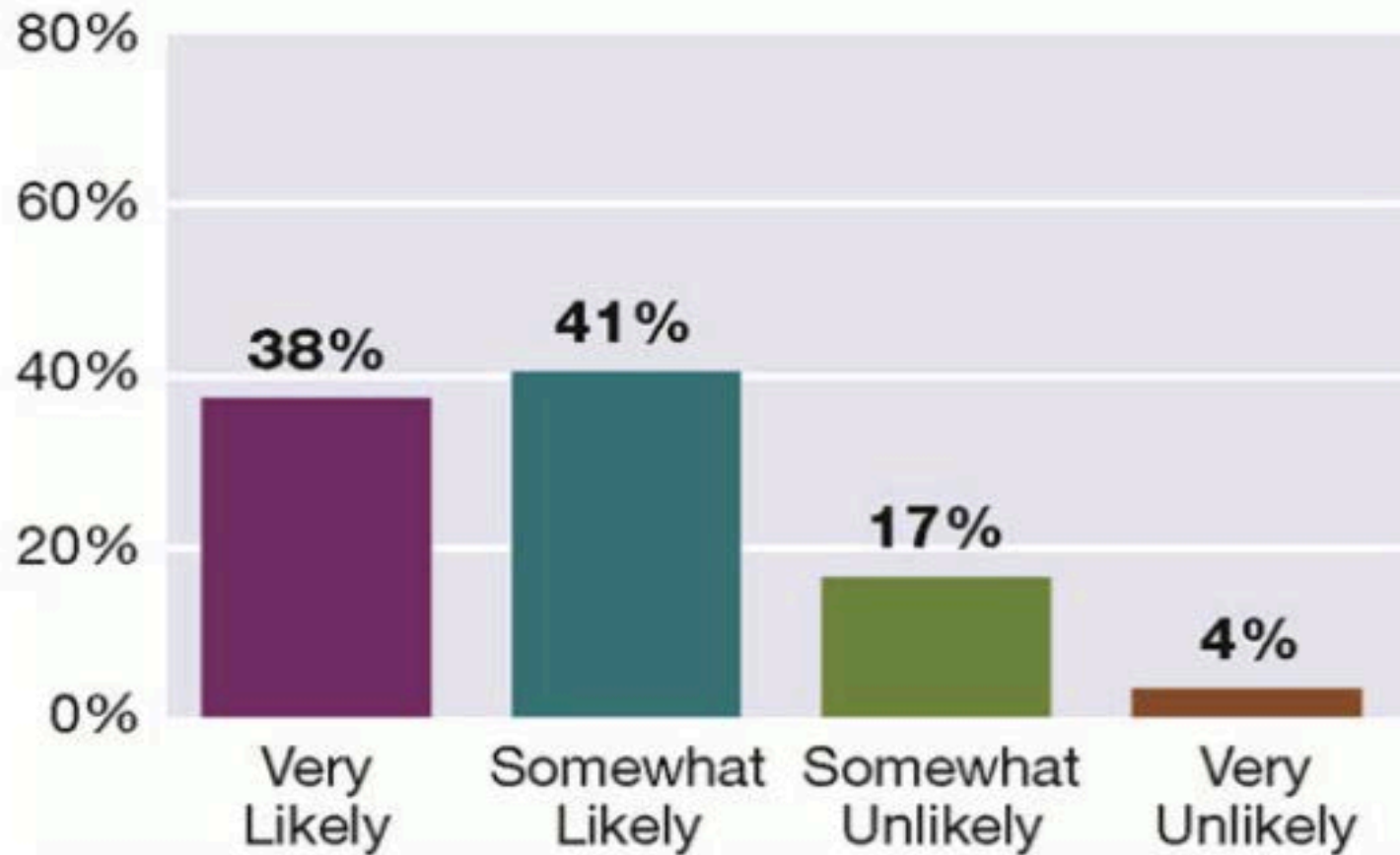


Some pharmacists in at least 75% of health systems will have prescribing authority (formally approved by the system) for both inpatients and discharged patients.



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At least 10% of health systems will be the victim of a major cyberattack or unauthorized information-system access that seriously compromises patient safety.



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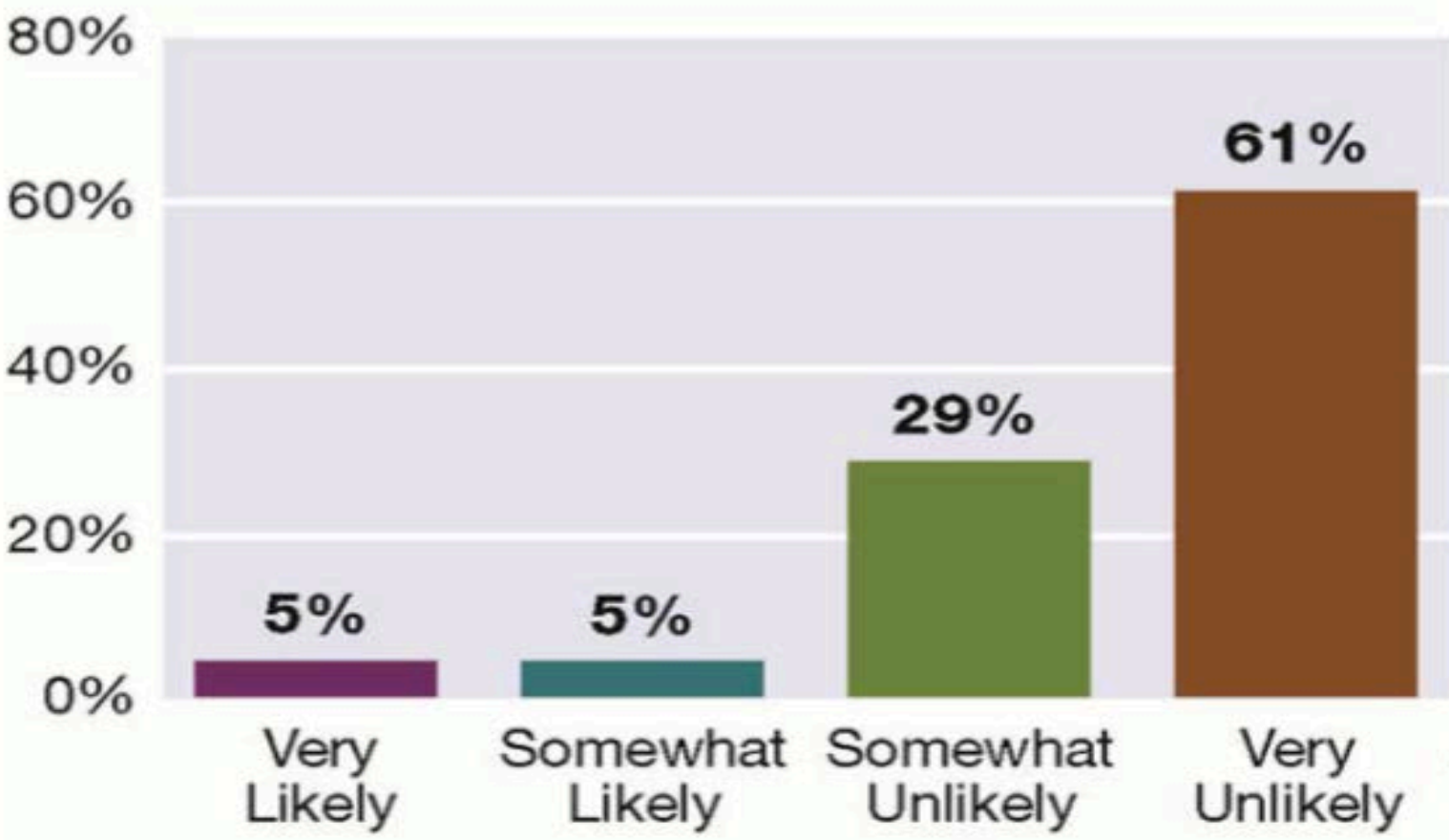
# Presidential Election

*How likely is it that the following will occur, by the year 2021, in the geographic region where you work?*

The new President will propose to Congress an extensive revision or replacement of the **Patient Protection and Affordable Care Act** (Obamacare).

- ☐ Very likely or somewhat likely?
- ☐ Very unlikely or somewhat unlikely?

The new President will propose to Congress an extensive revision or replacement of the Patient Protection and Affordable Care Act (Obamacare).



# PAI

## Pharmacy Advancement Initiative



*Transforming how pharmacists in acute and ambulatory settings care for patients*

The Practice Advancement Initiative (PAI) is a **profession-led** initiative that is **empowering pharmacists** to take responsibility for **patient outcomes** in acute and ambulatory care settings.

Care Team Integration

Leveraging Pharmacy  
Technicians

Pharmacist  
Credentialing & Training

Technology

Leadership in  
Medication Use

# Objetivo 1

## El farmacéutico parte del equipo desde la Formación

### Accreditation Council for Pharmacy Education (ACPE) 2016 Standards

#### ▪ Interprofessional team dynamics

- “...articulating the values and ethics that underpin interprofessional practice, engaging in effective interprofessional communication, including conflict resolution and documentation skills, and honoring interprofessional roles and responsibilities.”



ACPE. “Standards 2016” <https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf>



## Objetivo 2

### Revalorizar el rol de técnico de Farmacia



#### **Preventing Harm: Technicians Catch Near-Misses**

Karen V. Youmbi, PharmD, BCPS  
Pharmacy Regulatory Surveillance Manager  
Cedars-Sinai Medical Center  
Los Angeles, CA

## Objetivo 3

### Acreditación del Farmacéutico & Formación



## Propelling Resident Research Projects into the Center Ring!

Tadd Hellwig, PharmD, BCPS  
Stephen F. Eckel, PharmD, MHA, BCPS  
Mallory L. Accursi, PharmD, BCACP  
Daniel M. Witt, PharmD, FCCP, BCPS



## Objetivo 4

### Automatización y tecnología



# Objetivo 5

## Liderazgo en el uso de medicamentos

### Practice and Policy

- › Policy Positions & Guidelines
- › Standardize 4 Safety
- › Resource Centers
  - Ambulatory Care Resource Center
  - Anticoagulation
  - Clinical Guidelines Resource Center
  - Credentialing and Privileging Resource Center
  - Drug Shortages
  - Drug Supply Chain Security Act Resource Center
  - Emergency Care
  - Emerging Sciences
  - Inpatient Care Practitioners
  - Investigational Drug Services
  - Leadership
  - Medications and Suicidality

### Women in Pharmacy Leadership



# Practice Advancement Initiative Progress

## Documentation and Training



Pharmacist documents in patient medical record



Development of patient care plan



BPS-certified pharmacists



Collaborative practice agreements used



Pharmacist medication review before first dose



PTCB-certified technicians

## Roles of Technicians

Provide IT support

44%



Provide support for quality improvement

21%



Techs checking techs

18%



Distribution tasks

69%



Initiation of medication reconciliation

11%



## Leadership Roles



IT strategic plan developed to improve safety and quality



Leadership has direct communications to hospital administration



Organizational program for improvement of medication-use safety



## Help After a Tragic Medication Error: The Implementation of a Second Victim Program

Natasha Nicol, PharmD, FASHP  
Jenna Merandi, PharmD, MS, CPPS  
Kara Krzan, PharmD, MS  
James Hoffman, PharmD, MS, FASHP

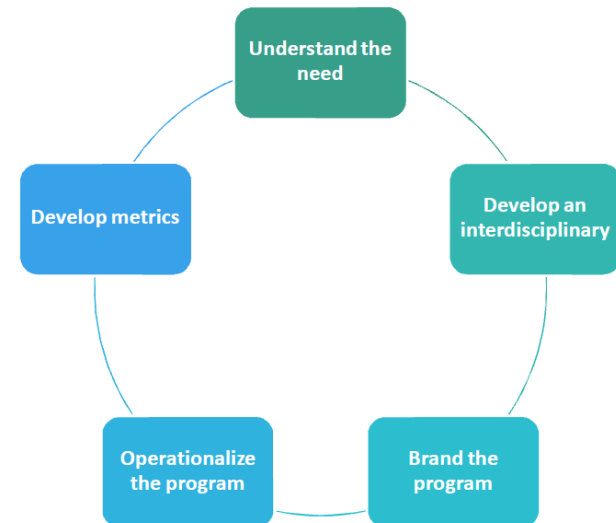
## Statistics

- Suicidal ideation associated with a medical error
  - 501 (6.3%) of 7,905 surgeons
  - *Twice the rate of general population*
- Significant impact on personal life
  - 368 (28%) of 1,294 physicians involved in an adverse drug event (ADE)
  - 17% impacted personal life
- Need for emotional support after patient's death
  - 100% of 74 pediatricians

Shanafelt TD, et al. Arch Surg. 2011.  
Ashland OG, Forde R. Qual Saf Health Care. 2005.  
Khaneja S, Milrod B. Arch Pediatr Adolesc Med. 1998.



## Initiate Program



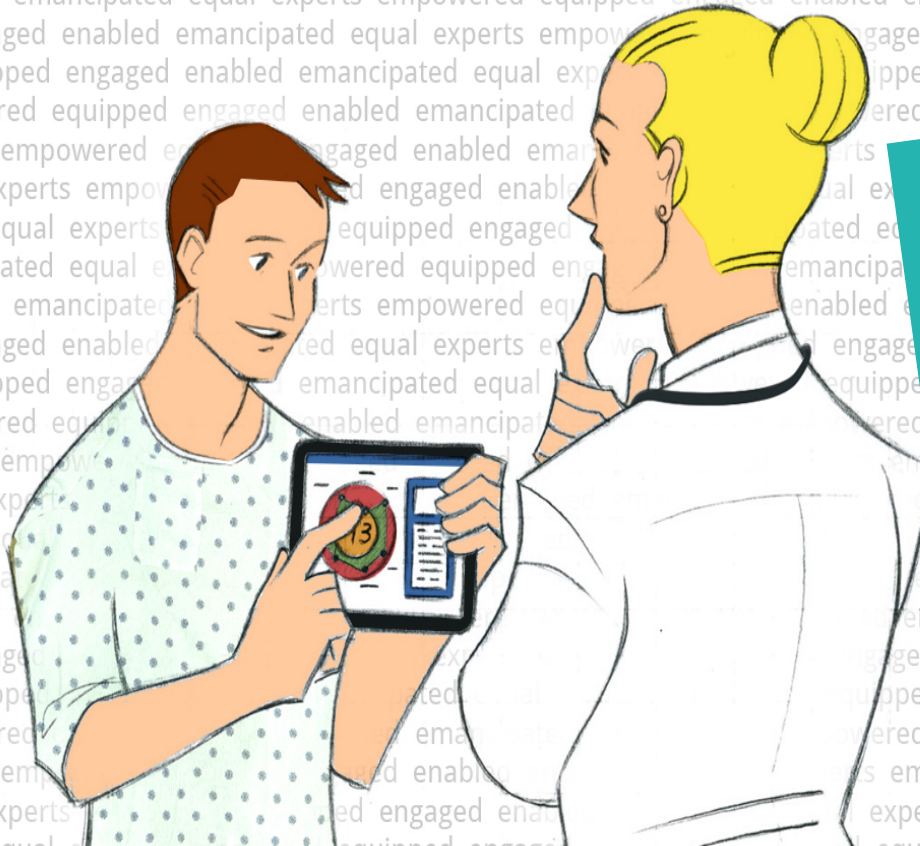


# COMUNICACIÓN PACIENTES



# Rise of the ePatient Movement

empowered • equipped • engaged • enabled • emancipated • equal • experts



Patients becoming more  
involved in their health  
through **technology**



## Welcome to the E-Patient Movement: Patients Becoming More Involved in Their Health Through Technology

Las Vegas, Florida | December 8, 2016

Timothy Dy Aungst, PharmD

Kelly Grindrod, PharmD

## Objectives

- Describe the role of online patient activities and the generation of e-patients.
- Identify the importance of patient portals and social groups on pharmacists' practice and patient engagement.
- List quality resources and tools to assist e-patients in becoming self-directed.





Dave deBronkart:

# Dave deBronkart: Les presento a e-Patient Dave

TEDxMaastricht · 16:31 · Filmed Apr 2011

26 subtitle languages

View interactive transcript



Add to list



Favorite



Download



Rate

Share this idea



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Link



Email



Embed

510,711 Total views

Cuando Dave deBronkart supo que tenía una forma rara de cáncer terminal, se dirigió por internet a un grupo de pacientes como el, y encontró un tratamiento que ni sus médicos conocían. Esto le salvó la vida. Ahora invita a todos los pacientes a que se comuniquen entre ellos y a que se apropien de sus datos clínicos para así mejorar la atención médica de cada e-Patient, uno por uno,



## What is an E-Patient?

"E-Patients represent the new breed of informed health consumers, using the Internet to gather information about a medical condition of particular interest to them. The term encompasses both those who seek online guidance for their own ailments and the friends and family members who go online on their behalf. E-Patients report two effects of their online health research – 'better health information and services, and different (but not always better) relationships with their doctors.'"

-Tom Ferguson, MD



Equipped

Enabled

Empowered

Engaged

Source: Hoch D, Ferguson T (2005) What I've Learned from E-Patients. PLoS Med 2(8): e205



## Why Now?

A convergence of several factors, namely, technology.



Widespread  
wireless  
connection



Access to online  
Resources and  
Social Groups



Online  
Patient  
Portals



Digital Health  
Devices



Genomic Testing  
& Personalized  
Medicine



## Digital Health Devices

Sample technological tools

### Smart Phone Apps

- Disease oriented care
- Informational & educational
- Monitoring (e.g. mental health and mindfulness)

### Digital health devices

- Health and fitness trackers
- Self-monitoring devices (e.g. blood pressure, blood glucose)

### Social support systems

- Online communities

Elenko et al. J Nature Biotechnology. 2015;33:456-461.  
Kvedar et al. Nature Biotechnology. 2016;34:239-246.

Please see online supplementary materials for more devices and categories.



# FARMACÉUTICO aliado perfecto





### Sample Digital Health Tools

<b>Cardiology</b>	Withings Wireless Blood Pressure Monitor ( <a href="http://www.withings.com/us/en/products/blood-pressure-monitor">http://www.withings.com/us/en/products/blood-pressure-monitor</a> )
	Omron Wireless Upper Arm Blood Pressure Monitor ( <a href="https://omronhealthcare.com/products/10-series-wireless-upper-arm-blood-pressure-monitor-bp786n/">https://omronhealthcare.com/products/10-series-wireless-upper-arm-blood-pressure-monitor-bp786n/</a> )
	Tickr Heart Rate Monitor ( <a href="http://www.wahoofitness.com/devices/wahoo-tickr-heart-rate-strap-1">http://www.wahoofitness.com/devices/wahoo-tickr-heart-rate-strap-1</a> )
	Kardia Heart Monitor ( <a href="https://omronhealthcare.com/kardia-mobile-ecg-heart-monitor/">https://omronhealthcare.com/kardia-mobile-ecg-heart-monitor/</a> )
<b>Physiological Data (e.g. temperature, weight)</b>	Withings Body Scale ( <a href="http://www.withings.com/us/en/products/body">http://www.withings.com/us/en/products/body</a> )
	Fitbit Aria ( <a href="https://www.fitbit.com/aria">https://www.fitbit.com/aria</a> )
	iHealth Core Wireless Body Composition Scale ( <a href="https://ihealthlabs.com/wireless-scales/ihealth-core/">https://ihealthlabs.com/wireless-scales/ihealth-core/</a> )
	Kinsa Wireless Thermometer ( <a href="https://www.kinsahealth.com/">https://www.kinsahealth.com/</a> )
	Vicks SMartTemp Wireless Thermometer ( <a href="https://www.vickshumidifiers.com/shop/thermometers/vicks-smarttemp-thermometer">https://www.vickshumidifiers.com/shop/thermometers/vicks-smarttemp-thermometer</a> )
	Withings Thermo ( <a href="http://www.withings.com/us/en/products/thermo">http://www.withings.com/us/en/products/thermo</a> )
<b>Sleep Tracker</b>	Beddit ( <a href="http://www.beddit.com/">http://www.beddit.com/</a> )
<b>Diabetes Management</b>	Withings Aura ( <a href="http://www.withings.com/us/en/products/aura">http://www.withings.com/us/en/products/aura</a> )
	iHealth Align ( <a href="https://ihealthlabs.com/glucometer/ihealth-align/">https://ihealthlabs.com/glucometer/ihealth-align/</a> )
	Sanofi iBGStar ( <a href="http://www.mystarsanofi.com/web/products/glucometers/ibgstar">http://www.mystarsanofi.com/web/products/glucometers/ibgstar</a> )
	OneTouch Verio Sync Meter ( <a href="http://www.onetouch.com/veriosync">http://www.onetouch.com/veriosync</a> )

### Online Resources and Websites

<b>Patient Online Communities</b>	Patients Like Me ( <a href="https://www.patientslikeme.com/">https://www.patientslikeme.com/</a> )
	General Listing ( <a href="http://www.epatientdave.com/communities/">http://www.epatientdave.com/communities/</a> )
	Inspire ( <a href="https://www.inspire.com/">https://www.inspire.com/</a> )
	Cure Together ( <a href="http://curetogether.com/">http://curetogether.com/</a> )
<b>Online Medical Information</b>	Webcina ( <a href="https://www.webicina.com/">https://www.webicina.com/</a> )
	MedlinePlus ( <a href="https://medlineplus.gov/">https://medlineplus.gov/</a> )

## Key Takeaways

### ■ Key Takeaway #1

- The E-Patient Movement is a rising force in patient care whereby patients are leveraging technology and internet resources to help manage their own care.

### ■ Key Takeaway #2

- Pharmacists are in a prime position to help patients identify and utilize digital resources to be empowered and engaged in their personal health.

### ■ Key Takeaway #3

- Please see supplementary resources on tools and online services to recommend.





# INTERsections

## “Let’s Talk” Initiative Builds Patient Awareness of Pharmacists’ Role

Jan 23, 2014 0 Comments

*“This is my third hospitalization in the last two years, and I’ve never seen a pharmacist. It’s very hard to believe that pharmacists are taking part in patient care. I know they do, but they’re always in the background.”*

THIS RESPONSE TO A SURVEY about patient expectations of hospital pharmacy services was no surprise to Philip K. King, Pharm.D.

King first noticed this common perception among patients as a pharmacy student while on a five-month rotation at the Cleveland Clinic.

“Patients were always surprised to see a pharmacist in their room,” said King, who is now a first-year resident at the 319-bed University of Toledo Medical Center (UTMC), Toledo, Ohio.

“Many were shocked to learn that pharmacists were involved in patient care. They just didn’t understand that idea,” he said.

“I don’t want them to be surprised. I want them to know we are an important and accessible presence who can have a major impact on their care.”



Philip King’s efforts resulted in an increase in patient awareness about pharmacists’ role on the health care team.



Se llevó a cabo una campaña para dar visibilidad al farmacéutico en hospitales y ambulatorios

LET'S TALK MEDICATIONS  
diseñada por ASHP

# Resultados de la campaña liderada por el Dr. King ...

Dos cohortes

- 1) pacientes expuestos a la campaña
- 2) grupo control: pacientes ingresados durante el mes previo a la campaña

Ambos grupos completaron una encuesta de 12 preguntas

147 pacientes control → sólo siete (4.8 %) contactaron con farmacéutico para obtener ayuda

140 pacientes expuestos a la campaña → 63 (46%) solicitaron información a un farmacéutico

57% de los encuestados del grupo de control "estuvo de acuerdo" o "firmemente de acuerdo" con la frase "**Los farmacéuticos están disponibles para mí en el hospital**" en comparación con el 92% de los pacientes que habían estado expuestos a la campaña



# COMUNICACIÓN SOCIEDADES CIENTÍFICAS





## Contemporary Considerations: Update on the ASHP Standardize 4 Safety Project

Deborah A Pasko, Pharm.D, MHA

### Objectives

- Describe how standardization can be used as an error prevention tool
- State the importance of the Standardize 4 Safety project
- Present the most current versions of the standard concentrations for IV adult continuous, pediatric continuous infusions and oral compounded liquids
- State how to support the project and start implementation of the standard concentrations
- Describe the potential role of vendors and pharmaceutical companies in the project



# Partners



## Overview

Standardize 4 Safety is the first national, interprofessional effort to standardize medication concentrations in order to reduce errors and improve transitions of care.

These national standards will cover:

- > Concentrations and dosing units for intravenous continuous medications for adult patients.
- > Concentrations for compounded oral liquid medications.
- > Concentrations and dosing units for intravenous continuous medications for pediatric patients.
- > Doses for oral liquid medications.
- > Concentrations for intravenous intermittent medications.
- > Concentrations for PCA and epidural medications.



# COMUNICACIÓN ORGANIZACIONES GUBERNAMENTALES





## ASHP's Role with the New Congress and Administration

By [Paul Abramowitz](#) posted 11-16-2016 12:43

4

[Recommend](#)

As another election season comes to a close and we look ahead to the new administration and the 115th Congress in 2017, ASHP is again positioning itself as a credible resource to policymakers on issues impacting the profession of pharmacy and public health. While elections create change among those in government, ASHP's public policy priorities remain the same: advancing provider status legislation, protecting the 340B program, and working with both sides of the aisle and with the administration to address the growing problem of skyrocketing drug prices and their impact on our patients and the healthcare system.

Over the last few years ASHP has increased its presence in Washington by spearheading legislative efforts aimed at curbing drug shortages and ensuring safer compounding practices. These are issues that impact all Americans regardless of political affiliation, and ASHP input was instrumental in developing policy solutions.

The new landscape on Capitol Hill and at the White House is an opportunity for ASHP to forge new partnerships, educate new stakeholders, and highlight ASHP's expertise in public health issues. Healthcare legislation will once again be back on the agenda, and issues related to Medicare and Medicaid are likely to be in play. As we look ahead to advancing provider status, 2017 may provide legislative vehicles that could include pharmacists as providers in the Medicare program.

ASHP remains committed to working with the new administration and the new Congress to address our public policy goals. Currently we are planning outreach efforts to the Trump transition team and will begin educating the freshman congressional class on how ASHP members improve the health and wellness of their patients by ensuring safe and effective medication use and advancing healthcare. Although change in Washington is inevitable, ASHP stands firm on its commitment to its members and the public at large.

We look forward to continuing to engage you and represent your professional interests in 2017 and beyond. Thanks so much for being a member of ASHP, and for everything you do for your patients.

Sincerely,

Paul

# Proyecto de Ley

Reintroducido en el Senado con Fuerte Apoyo Bipartidista



Home Communities ▾ Network ▾ Engage ▾ Learn ▾ Browse ▾ Events ▾ Help ▾

search



## Provider Status Bill Reintroduced in Senate with Strong Bipartisan Support

By [Paul Abramowitz](#) posted 21 days ago

0 Recommend

It is with great pleasure that I can announce that on Thursday evening, Senators Charles Grassley (R-Iowa), Robert Casey (D-Pa.), and Sherrod Brown (D-Ohio), along with 24 other original co-sponsors, reintroduced the [Pharmacy and Medically Underserved Areas Enhancement Act \(S. 109\)](#). This legislation is the same as last year's provider status bill, with the exception of the new bill number, S. 109. This is significant not only because of the quick timing of the reintroduction, but also because of the high number of Senators who have signed on as original co-sponsors. [The Patient Access to Pharmacists' Care Coalition](#) (PAPCC), in which ASHP serves on the steering committee, set a goal late last year of introducing the new bill in 2017 with 20 co-sponsors. We are pleased to see that this goal was not only met but exceeded.

On the House side we expect reintroduction soon. Our lead sponsor to the House bill, Rep. Brett Guthrie (R-Ky.), has been leading the charge and will reintroduce the bill with the same bill number as last Congress, H.R. 592. Again, the language will be same as last year. We expect the House bill to be reintroduced with approximately 90 co-sponsors.

We are greatly encouraged to see the momentum from last session carry over to the new 115th Congress, and we remain steadfast in our commitment to passing this important legislation. As a lead member of the PAPCC, ASHP will be working diligently to help facilitate passage of the legislation, most likely as part of a larger Medicare package later this year. In fact, early discussions between the PAPCC and key congressional staff are already occurring, as we seek to position the legislation to be a part of a larger Medicare bill.

I will continue to update you on the progress on provider status as new developments arise. Thank you so much for being a member of ASHP. It's because of you that we are the premier organization in pharmacy.

Sincerely,

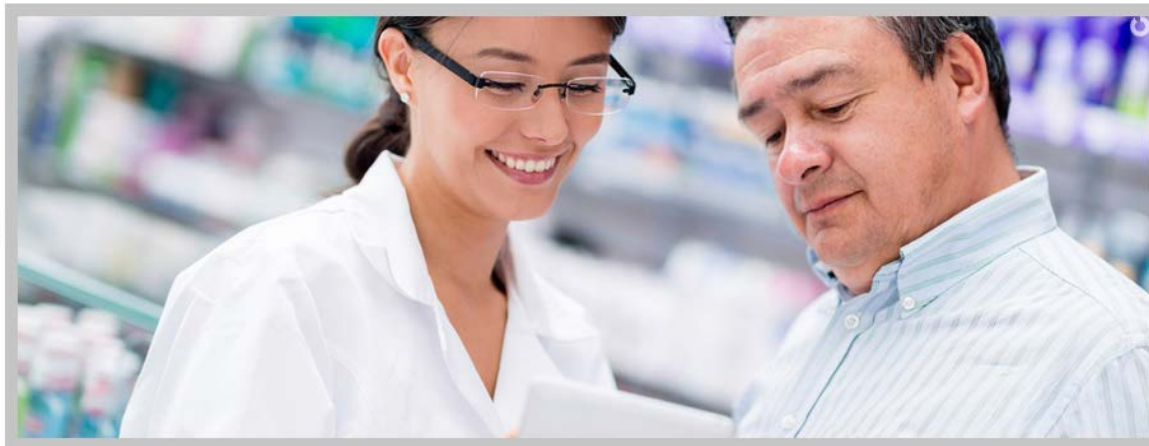
Paul

Dr. Abramowitz shares his point of view on current trends in pharmacy practice and important ASHP initiatives.



- > [Provider Status Bill Reintroduced in Senate with Strong Bipartisan Support](#)
- > [The New Joseph A. Oddis Global Headquarters](#)
- > [ASHP's Role with the New Congress and Administration](#)
- > [Advancing Pharmacists' Prescribing](#)
- > [ASHP Named a Top Workplace by Washington Post](#)

More Blogs



## Patient Access to Pharmacists' Care Coalition

### Expanding Patient Access to Pharmacists' Services

#### About Us

The Patient Access to Pharmacists' Care Coalition (PAPCC) is a multi-stakeholder and interdisciplinary initiative. Membership is comprised of organizations representing patients, pharmacists, and pharmacies, as well as other interested stakeholders.

#### Our Mission

The mission of the Patient Access to Pharmacists' Care Coalition (PAPCC) is to develop and help enact a federal policy proposal that would enable Medicare beneficiary access to, and payment for, Medicare Part B services by state-licensed pharmacists in medically underserved communities. Our primary goal is to improve medically underserved seniors' access to pharmacists' services consistent with state scope of practice laws and regulations.

The PAPCC is a multi-stakeholder and interdisciplinary initiative. Membership is comprised of organizations representing patients, pharmacists, and pharmacies, as well as other interested stakeholders.

## Membership





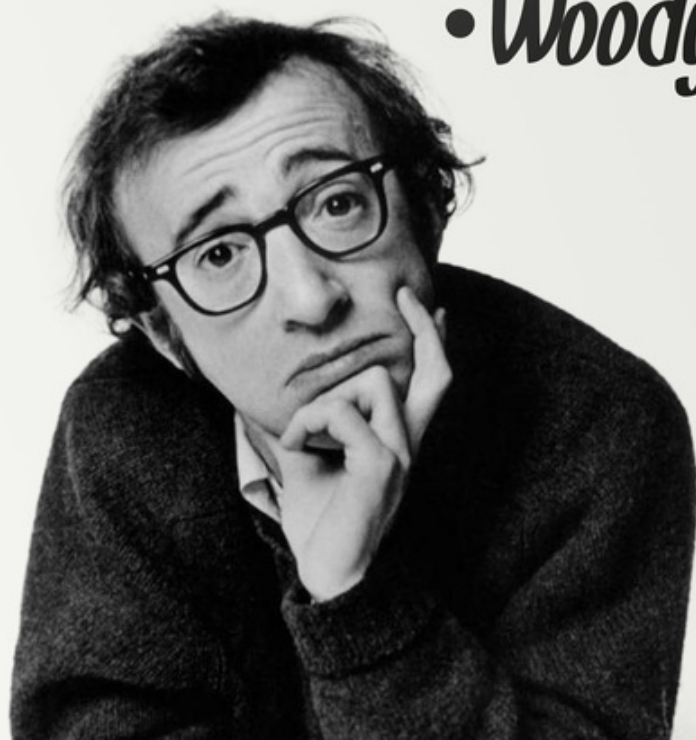
## PAPCC Applauds Senate Introducing S. 109

WASHINGTON D.C., January 13, 2017 – The Patient Access to Pharmacists’ Care Coalition (PAPCC) – a group of more than 35 national and 70 state organizations representing patients, pharmacists, and pharmacies, as well as other interested stakeholders – applauds the introduction of legislation in the U.S. Senate to recognize the role that pharmacists do and can play in addressing patient access-to-care issues in medically underserved communities throughout the nation.

PAPCC commends the leadership of Senators Chuck Grassley (R-IA), Susan Collins (R-ME), Sherrod Brown (D-OH), and Bob Casey (D-PA) for introducing S. 109, the Pharmacy and Medically Underserved Areas Enhancement Act. “S. 109 will enable Medicare patients in medically underserved communities to better access to important health care services that are often inaccessible to many Medicare beneficiaries, including health and wellness tests and chronic disease management. This legislation increases access by enabling pharmacists to provide services they are authorized to provide under state law, and are prepared to provide through their extensive professional education,” said Vince Ventimiglia, Vice Chair of Leavitt Partners and advisor to PAPCC. “We look forward to working with Congress to enact this important legislation into law.”



Las cosas no se dicen  
**SE HACEN**  
porque al *hacerlas*  
**SE DICEN SOLAS**  
• *Woody Allen*

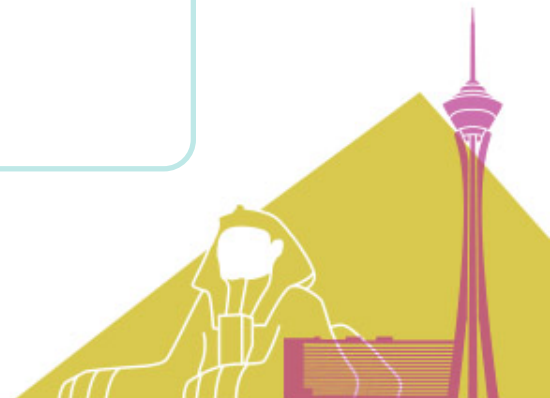


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**MIDYEAR2016**  
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# PHARMACOGENOMICS

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## and BIG DATA



# PRECISION MEDICINE PHARMACOGENOMICS and BIG DATA

## ► ¿Quién presentó sus proyectos en esta área?

Schools of Pharmacy Oregon (Portland) /Florida (Tampa) / Massachusetts (Boston)/  
Maryland (Baltimore)

PharmD, Director PGx Service. Boston Children Hospital.

**Key Speaker:** Russ B Altman, MD, PhD. Stanford University Professor of Bioingenieria  
genetica medicina y Biomedical Data Science

## ► Orientación común

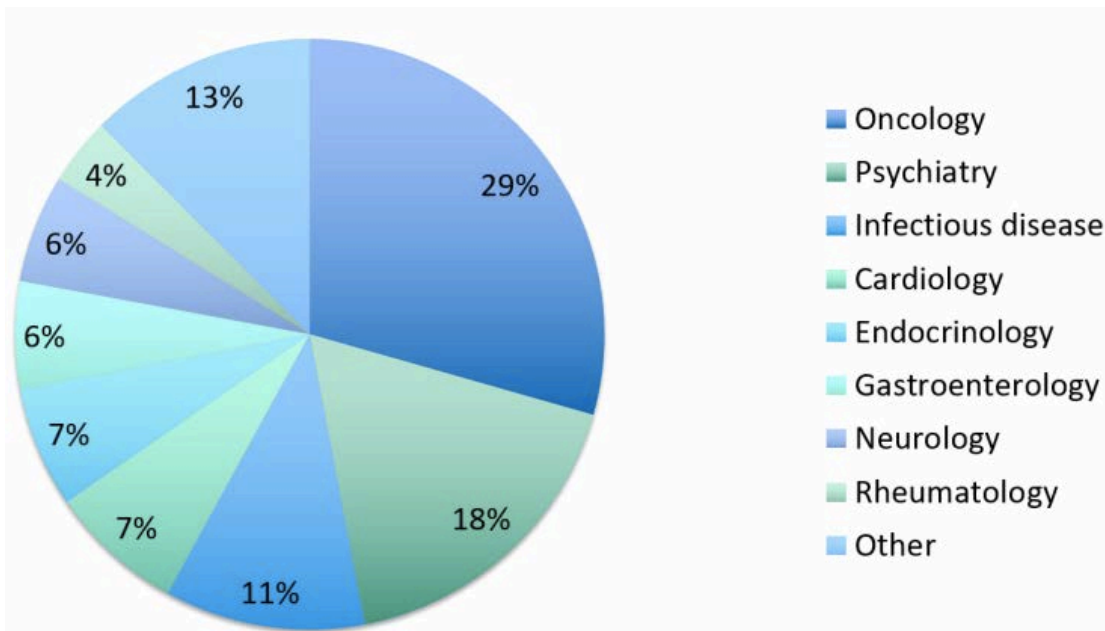
*Clinical decision support to prescribers and pharmacists for prescribing  
needs in the setting of PGx data*

- ▼ *Using big data to predict drug response and OPTIMIZE CARE*



**U.S. FOOD & DRUG  
ADMINISTRATION**

## Table of Pharmacogenomic Biomarkers in Drug Labeling



> 150 fármacos

July 2016

Un ejemplo, **citalopram**

### WARNINGS-CLINICAL WORSENING & SUICIDE RISK

...The maximum dose should be limited to 20 mg/day in patients who are **CYP2C19 poor metabolizers** or those patients who may be taking concomitant cimetidine or another CYP2C19 inhibitor, since higher citalopram exposures would be expected.

# Clinical PGx resources

APhA DrugInfoLine, Pharmacogenomics Corner	<a href="http://www.aphadruginfoline.com/pharmacogenomics-corner">http://www.aphadruginfoline.com/pharmacogenomics-corner</a>
American Society of Health-System Pharmacists	<a href="http://www.ashp.org/menu/PracticePolicy/ResourceCenters/Emerging-Sciences/Pharmacogenomics.aspx">http://www.ashp.org/menu/PracticePolicy/ResourceCenters/Emerging-Sciences/Pharmacogenomics.aspx</a>
Clinical Pharmacogenetics Implementation Consortium Guidelines	<a href="http://www.pharmgkb.org/page/cpic">http://www.pharmgkb.org/page/cpic</a>
Genetics/Genomics Competency Center (G2C2)	<a href="http://g-2-c-2.org/">http://g-2-c-2.org/</a>
Genetics Science Learning Center	<a href="http://learn.genetics.utah.edu/">http://learn.genetics.utah.edu/</a>
National Human Genome Research Institute	<a href="http://www.genome.gov/">http://www.genome.gov/</a>
P450 Drug Interaction Table	<a href="http://medicine.iupui.edu/clinpharm/ddis/main-table/">http://medicine.iupui.edu/clinpharm/ddis/main-table/</a>
Personalized Medicine Coalition	<a href="http://www.personalizedmedicinecoalition.org">http://www.personalizedmedicinecoalition.org</a>
PharmGenEd at UC San Diego	<a href="https://pharmacogenomics.ucsd.edu">https://pharmacogenomics.ucsd.edu</a>
Pharmacogenomics Knowledgebase (PharmGKB)	<a href="http://www.pharmgkb.org/">http://www.pharmgkb.org/</a>
SNPits	<a href="http://personalizedmedicine.ufhealth.org/tag/snpits/">http://personalizedmedicine.ufhealth.org/tag/snpits/</a>
Warfarin Dosing	<a href="http://warfarindosing.org/Source/Home.aspx">http://warfarindosing.org/Source/Home.aspx</a>



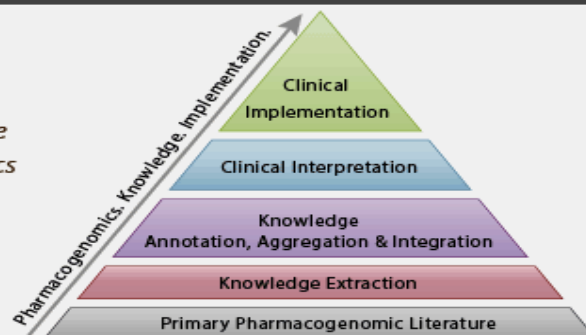
Search PharmGKB:

Search

### What is the PharmGKB?

*Find out how we go from extraction of gene-drug relationships in the literature to implementation of pharmacogenomics in the clinic...*

LEARN MORE



### Latest News

**CPIC Guideline Summary Videos Available on PharmGKB**

**Early Registration for Precision Medicine Conference ends Sunday**

**CPIC Guideline Update: CYP2D6, CYP2C19 and tricyclic antidepressants (TCAs)**

### Clinically-Relevant PGx

- [Selected Pharmacogenomic Associations](#)
- [Clinically relevant PGx summaries](#)
- [PGx drug dosing guidelines](#)
- [Drug labels with PGx info](#)
- [PGx gene haplotypes](#)

### PGx-Based Drug Dosing Guidelines

- [See all CPIC guidelines](#)
- Recent guidelines:
  - TCAs update: [amitriptyline / nortriptyline article](#) and [supplement](#)
  - [CYP2C19/voriconazole article](#) and [supplement](#)
- [Gene-specific informational tables](#)
- [CPIC genes/drugs of interest](#)
- [TPP gene tables](#)

### PGx Research

- **VIP:** Very Important PGx gene summaries
- [PharmGKB pathways](#)
- [Annotated SNPs by gene](#)
- [Drugs with genetic information](#)
- [Cancer PGx](#)

**www.pharmgkb.org.**

# 3 STORIES from Russ B. Altman, MD, PhD

## ► Story 1.

### THE GENETIC INFLUENCES ON DRUG RESPONSE

Utilizaremos la información genética del paciente en el momento de la prescripción

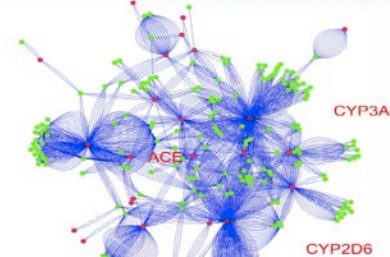
Clinical Annotation for rs12248560 and clopidogrel	
<b>Level of Evidence ? Level 1A</b>	
<b>Type</b> Dosage, Efficacy, Toxicity/ADR	<b>CC</b> Patients with the CC genotype (*1/*1): 1) m decreased, but not absent, risk for bleeding genotype 3) may have an increased risk for CT or TT genotype. Other genetic, including rs4986893, and clinical factors may also influence events.
<b>Genes</b> <u>CYP2C19</u>	<b>CT</b> Patients with the CT (*1/*17) genotype: 1) r increased risk of bleeding with clopidogrel a decreased, but not absent, risk for adverse genotype. Current CPIC guidelines recomm as of yet. Other genetic, including CYP2C1 clinical factors may also influence a patient'
<b>Diseases</b> Acute coronary syndrome, Coronary Artery Disease, Myocardial Infarction	<b>TT</b> Patients with the TT (*17/*17) genotype: 1) increased risk of bleeding with clopidogrel a decreased, but not absent, risk for adverse genotype. Current CPIC guidelines recomm genotype as of yet. Other genetic, including rs4986893, and clinical factors may also influence events.
<b>OMB Race</b> Mixed Population	

## ► Story 2.

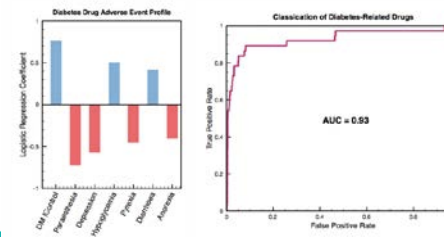
### COMPUTER SCIENCE USING TEXT TO DISCOVER DRUG INTERACTIONS

Pueden predecirse/deducirse nuevas interacciones

Semantic network of 170,598 normalized relations from all PubMed abstracts.



The adverse event signature is able to recall glucose-altering drugs



## ► Story 3.

### POPULATION-BASED AND CLINICAL DATA TO GENERATE HYPOTHESIS

Pueden predecirse/deducirse nuevas interacciones

# ► Story 1.

## THE GENETIC INFLUENCES ON DRUG RESPONSE

### Clinical Annotation for rs12248560 and clopidogrel

Level of Evidence ?  
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Type

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Toxicity/ADR

Genes

[CYP2C19](#)

Diseases

[Acute coronary syndrome](#),  
[Coronary Artery Disease](#),  
[Myocardial Infarction](#)

OMB Race

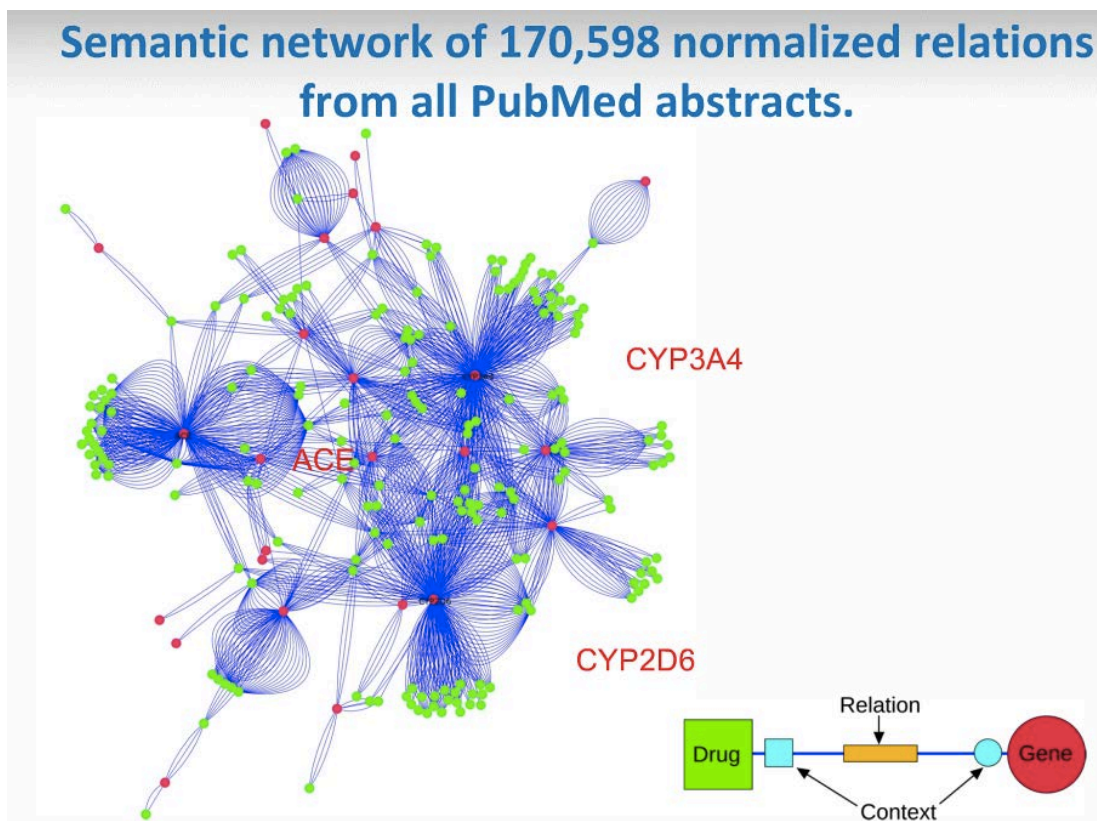
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Utilizaremos la información genética del paciente en el momento de la prescripción

# ► Story 2

## COMPUTER SCIENCE USING TEXT TO DISCOVER DRUG INTERACTIONS



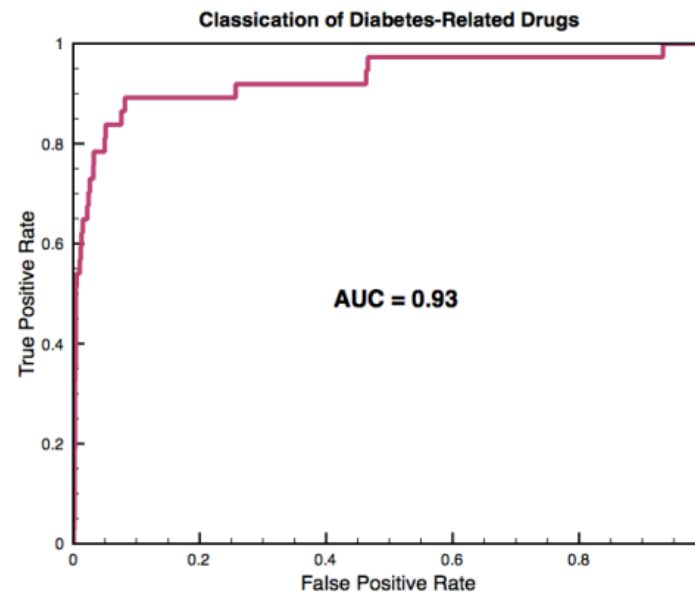
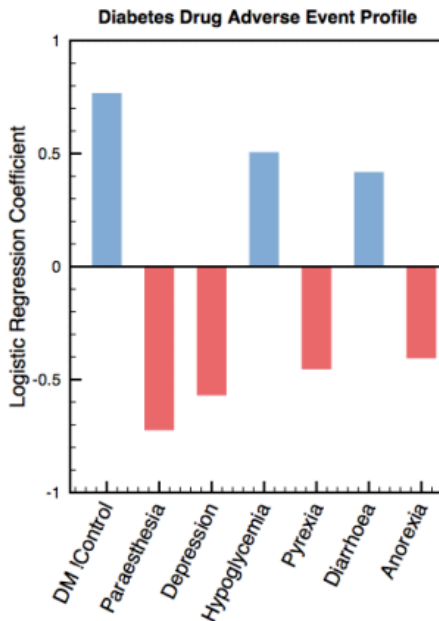
Pueden predecirse/deducirse nuevas interacciones



# ► Story 3

## POPULATION-BASED AND CLINICAL DATA TO GENERATE HYPOTHESIS

The adverse event signature is able to recall  
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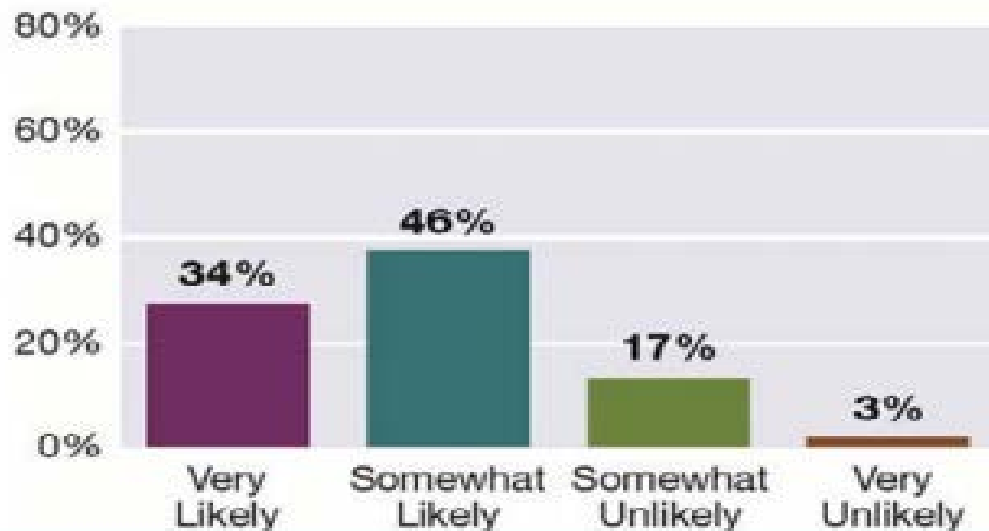


Pueden predecirse/deducirse nuevas interacciones



# Pharmacy Forecast 2017

For at least 10% of patients, clinicians will use a combination of genomic information, lifestyle/environmental history, and information collected from medical devices (e.g., wearable or mobile applications) to individualize treatment plans.



**ashp**  
MIDYEAR 2016  
Clinical Meeting & Exhibition

RE: Evalúa activamente las oportunidades para el FH de incorporar este abordaje de medicina personalizad

# Post **MIDYEAR2016**

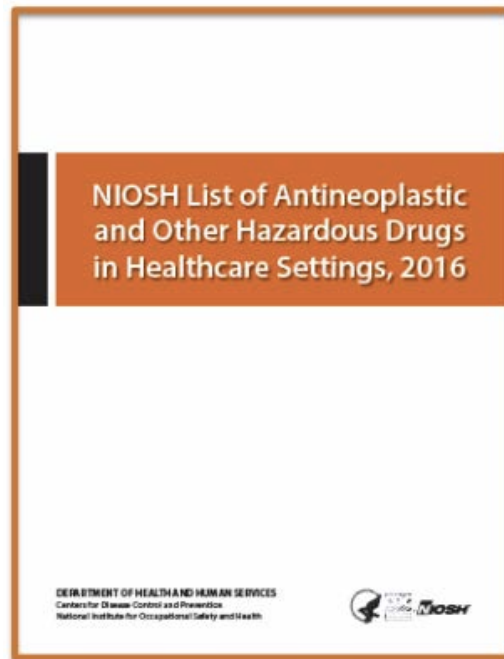
Share and grow

## TOOL KIT

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### USP 800

Strategies for compliance with handling  
Hazardous Drugs



## 2 OPTIONS

Treat all Hazardous Drugs with all containment strategies in <800>

Perform an Assessment of Risk

USP <800> will be federally enforceable on July 1, 2018

Countdown: 571 days

**Patricia C. Kienle, R.Ph., M.P.A., FASHP**

Director, Accreditation and Medication Safety, Cardinal Health, Laflin, Pa.

Perform an Assessment of Risk for those specific dosage forms you plan to exempt

Be sure your facility meets the requirements

Implement safe work practices

# USP 800

- Where are you? – What is compliance awareness?
  - Use one of many tools available to you:
    - CriticalPoint (<http://800gaptool.com>)
    - JCR and BD (<https://hazmedsafety.com>) ●
    - IJPC  
(<http://compoundingtoday.com/Compliance/IJPC%20USP%20800%20GAP%20Analysis.pdf>)





Please check all the tasks that apply to your organization. (Note: Your response determines which self-assessment topics are available for inclusion in your profile.)

- ☐ Receive and unpack hazardous drugs (HDs) from outside shippers
- ☐ Store HDs on premises
- ☐ Compound HDs (such as prepare a final dosage form)
  - ☐ Sterile
  - ☐ Nonsterile
- ☐ Dispense (including repackaging, label or provide a prepared product, transport, or involving handling, but not preparing)
- ☐ Administer
- ☐ Dispose of hazardous waste related to the receipt, storage, administration, or compounding of HDs
- ☐ Spill management related to compounding, administration, and receipt of HDs
- ☐ Deactivate, decontaminate, clean, or disinfect related to HD compounding or administration

Select the number of HD doses prepared or administered per week in your organization

- ☐ I understand and agree to the terms outlined [here](#).

Start Self-Assessment →

Cancel

After completion of the self-assessment tool, you will be provided with a printable report that details areas of non-compliance and provides consultative recommendations for addressing gaps.

# ***Educational sessions recomendadas***

## **Pharmacogenomics and Big Data**

**Fitting into Our Genes: Demystifying  
Pharmacogenomic Tests Using Online  
Databases**

**Reining in the Variants — Approaches to  
Using Pharmacogenomics in Clinical Medicine**

**Spotlight on Science: Precision Medicine —  
Using Big Data to Predict Drug Response and  
Optimize Care**

## **USP 800**

**USP 800: Strategies for Compliance with  
Handling Hazardous Drugs**

# Post **MIDYEAR2016**

Share and grow

## TOOL KIT

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### ISMP

**2016-2017 Targeted Medication safety Best Practices for Hospitals**



# ISMP Best Practices

Best Practice 1# vinCRISTINE in minibag

Best Practice 2# prevent Daily Oral Methotrexate

Best Practice 3# Actual weights on admission/visit

Best Practice 4# Dispense oral liquids in oral syringes

Best Practice 5# Oral dosing devices

Best Practice 6# Eliminate glacial acid acetic from all areas

Best Practice 7# Proper storage Neuromuscular blocking agents

Best Practice 8# Use Smart Pumps

Best Practice 9# Protocol Antidotes/reversal agents

Best Practice 10# Eliminate 1,000 mL Sterile Water

Best Practice 11# Independent quality control on Sterile Compounding