Clinical Decision Support for Population Health

Scott Weingarten

Health Care 2014

- Affordability crisis
- "80% to 90% of costs are from clinical decisions
- Studies Show Overtreatment
  - "subjecting patients to care that, according to sound science and the patients' own preferences, cannot possibly help them"
  - $248 billion per year
  - 10% of health care expense

- NEJM 2013;369:2551-7
- Berwick DM, et al. JAMA 2012;307:1513-6

Reducing Costs and Improving Quality

75% of decision support interventions succeed when the information is provided to clinicians automatically, whereas none succeed when clinicians are required to seek out the advice

Predictors of Success	Adjusted OR
Automatic provision of decision support as part of workflow	**112**
Provision of decision support at the time and location of decision making	15
Provision of recommendation rather than just an assessment	7
Computer-based generation of decision support	6

Source: Kawamoto K, Houlihan CA, Balas EA, Lobach DF. Improving clinical practice using clinical decision support systems: a systematic review of trials to identify features critical to success. BMJ. 2005 Apr 2;330(7494):765. PMID: 15767266

What Next?

- Which is better
  - An error of omission or of commission?
  - A swing and a strike or a called strike?

What Will Enable Us to Succeed?

- Population health CDS
- Increase alert “go live” rate 50-fold
- “Big bang” with alerts
- Alerts to significantly and safely reduce PMPM
- Alerts to improve quality

Choosing Wisely®

An initiative of the ABIM Foundation

310 alerts covering

180 Choosing Wisely Recommendations

> 58% of Choosing Wisely recommendations through June 2014

content for inpatient and ambulatory settings

Patient Education

- Consumer Reports Choosing Wisely information made available to all physicians to hand to patients
- "My patients demand to have an ….."

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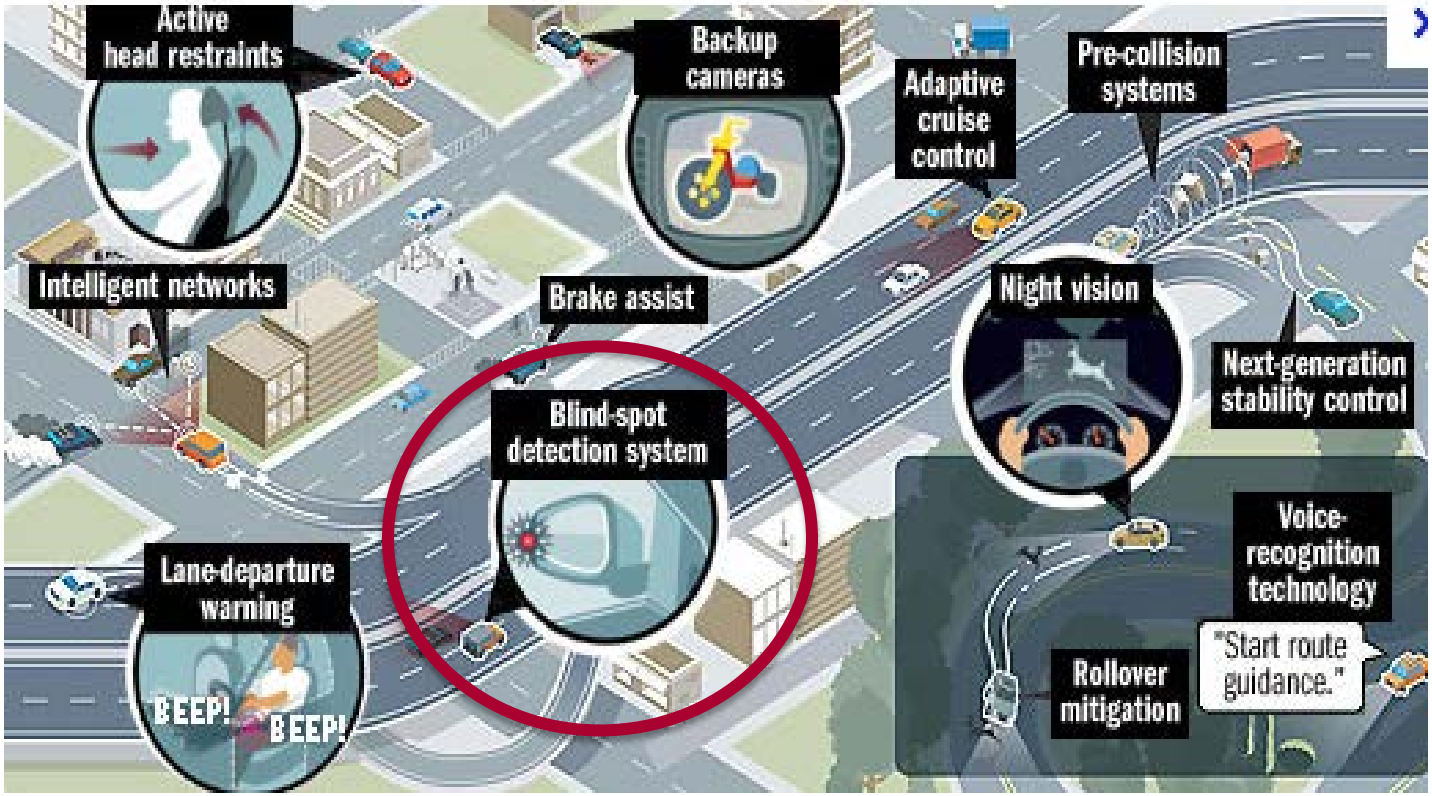
Accident Avoidance Systems



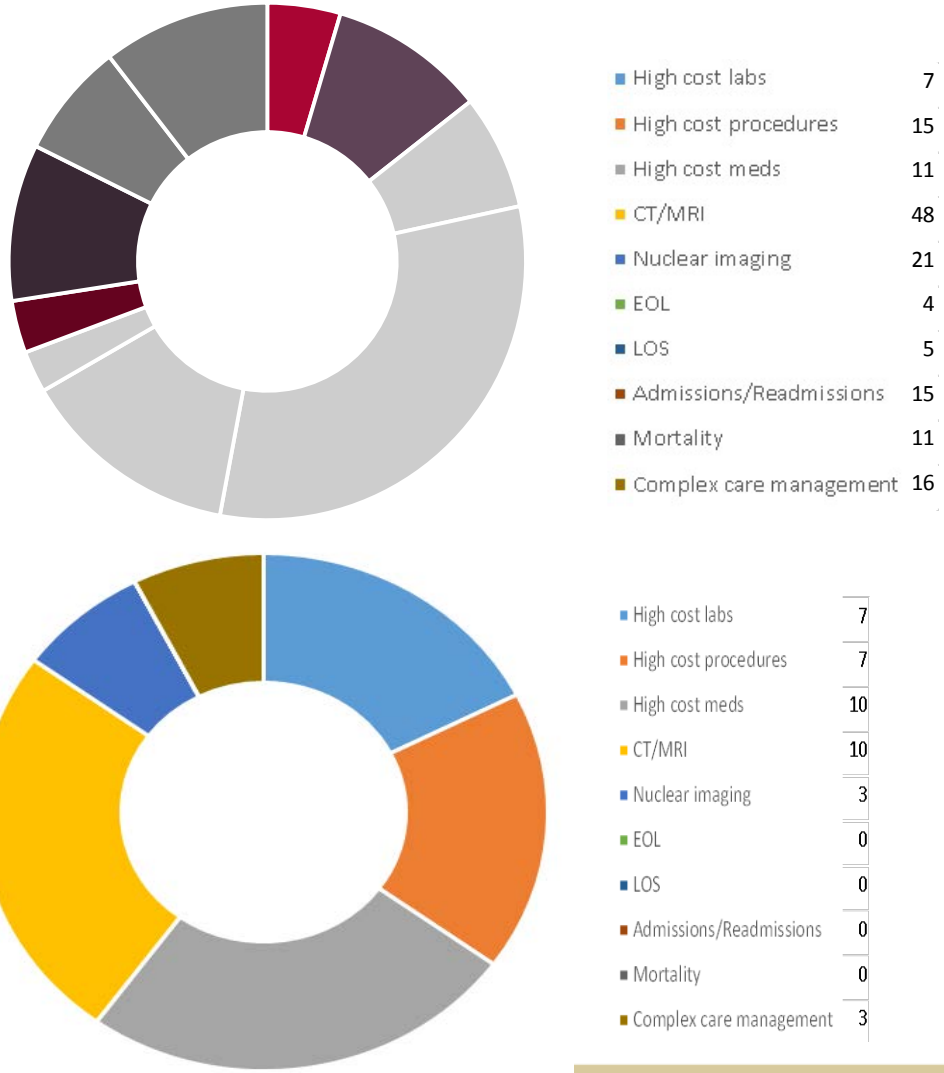
Lowered accident claims

- Mercedes 16%
- Acura 15%

alert
fatigue?

≈ alerts 320 per day

Choosing Wisely to Prepare for Risk



American Geriatric Society

2

Don't use antipsychotics as first choice to treat behavioral and psychological symptoms of dementia.

People with dementia often exhibit aggression, resistance to care and other challenging or disruptive behaviors. In such instances, antipsychotic medicines are often prescribed, but they provide limited benefit and can cause serious harm, including stroke and premature death. Use of these drugs should be limited to cases where non-pharmacologic measures have failed and patients pose an imminent threat to themselves or others. Identifying and addressing causes of behavior change can make drug treatment unnecessary.

4

Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.

Large scale studies consistently show that the risk of motor vehicle accidents, falls and hip fractures leading to hospitalization and death can more than double in older adults taking benzodiazepines and other sedative -hypnotics. Older patients, their caregivers and their providers should recognize these potential harms when considering treatment strategies for insomnia, agitation or delirium. Use of benzodiazepines should be reserved for alcohol withdrawal symptoms/delirium tremens or severe generalized anxiety disorder unresponsive to other therapies.

American Academy of Neurology
American Society of Clinical Pathology

3

Don't use opioid or butalbital treatment for migraine except as a last resort.

Opioid and butalbital treatment for migraine should be avoided because more effective, migraine-specific treatments are available. Frequent use of opioid and butalbital treatment can worsen headaches. Opioids should be reserved for those with medical conditions precluding the use of migraine-specific treatments or for those who fail these treatments.

1

Don't perform population based screening for 25-OH-Vitamin D deficiency.

Vitamin D deficiency is common in many populations, particularly in patients at higher latitudes, during winter months and in those with limited sun exposure. Over the counter Vitamin D supplements and increased summer sun exposure are sufficient for most otherwise healthy patients. Laboratory testing is appropriate in higher risk patients when results will be used to institute more aggressive therapy (e.g., osteoporosis, chronic kidney disease, malabsorption, some infections, obese individuals).

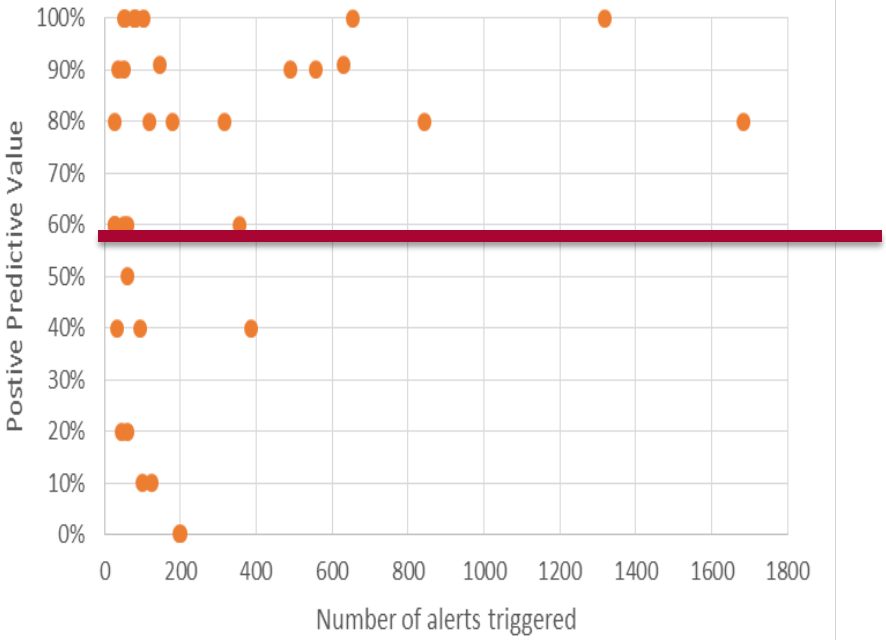
Impact Analysis

	Pre Intervention Jan 1 – Sep 9	Post Intervention Sep 10 – Nov 25		
	mean orders	**mean** orders	% change	p-value
Antipsychotics Patients ≥ 70	203	166	-18.2%	<0.001
Benzo-Sedatives Patients ≥ 65	133	116	-12.5%	<0.001
Butalbital Adults	4.13	3.58	-13.3%	<0.04
Vitamin-D levels	322	286	-13.7%	<0.001

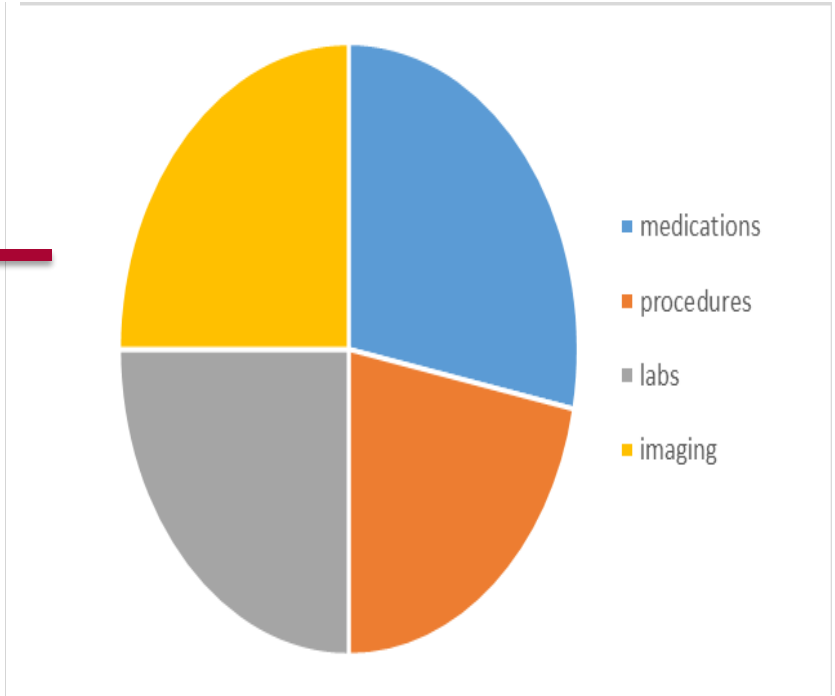
Rates per 10,000 encounters

Avoiding Alert Fatigue?

Relationship of PPV versus number of alerts triggered



Breakdown of alerts with PPV >=60% by type



Deep Dive

- Increased risk of falls (57% for benzos, 97% for Valium)
- Increased risk of MVAs
- Increased risk of hip fractures

4 **Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.**

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Arch Intern Med. 2009;169(21):1952-1960
J Am Geriatr Soc 59:1883–1890, 2011.

Impact of Blind Spot Monitor
Prescriptions of Benzodiazepines to Elderly Patients

Change in number of prescriptions from baseline with active alert*		
	Age >=65 years	Age <65 years
Pilot MD offices	-20.9%	3.6%
Control MD offices	10.6%	3.5%
Difference	-31.5%	+0.01%

*Comparison periods 7/13/13 to 8/6/13 and 8/7/13 to 8/31/13

reduction in benzodiazepine use

projected reductions over **1** year

22
fall related injuries

6
ED visits

3
hospitalizations

2
deaths from falls

potential impact

Woolcott et al. JAGS 2009,
CDC. MMWR Weekly 2008,
Schiller et al., Adv Data No. 392 (CDC) 2007,
Pariente et al, Drugs Aging 2008

60

Fewer antipsychotics prescribed for dementia on hospital discharge

Serious events
6-7

Including*

1
Hospitalization for
EPS, stroke, falls/hip fractures

5
Hospitalizations
for other causes

1-2
Deaths

potential impact in one month

* Hospitalization and subsequent death = 1 event
Adjusted OR=3.19 to 3.81 for typical and atypical antipsychotics vs no antipsychotics, respectively

Sources for projections: Rochon et al. JAMA 2013

Savings from Cancelled Orders Only

Savings projected from cancelled orders alone immediately following an alert are $1.83 million annually

Modified Our Local Conventional Wisdom

- Could increase CDS “go live” rate significantly
- “Big bangs” with 180 new alerts
- Physicians did not customize CDS
  - Choosing Wisely is a great brand
- Migrating to medium stops went fine