

Alternative Solutions

**Emerging Medical Protocols +
New Technologies =
A New Formula for Future LTC**





- **Background and context:**
John O'Leary, President
O'Leary Marketing Associates LLC
- **Pre-claim interventions-A case study:**
Loretta Jacobs, FSA, MAAA
Senior Vice President, Health Product Management
CNO Financial Group
- **Data Driven Technology in Long-Term Care:**
Nick Padula, Vice President
Home Healthcare Monitoring, North America
Philips Lifeline

Data On Challenges Faced By Carriers

LOOKING AT THE PRESENT:

- Claims and reserves uncertainty
- Extensive price hikes means limited new sales potential
- Raises serious questions about the existing model
- Insured block:
 - 7.2 million policies
 - Approaching \$2 trillion value if all used...
 - More likely estimate is \$800 billion (Cohen, State of the Industry NAIC)
 - Little contact with insureds prior to claims

Data On Emerging LTC Needs For Seniors

LOOKING TO THE FUTURE:

- 7 in 10 people over 65 will need care
- 5 in 10 will need care that would trigger LTC benefits
- Average cost of care for those using it is about \$260 K
- For women, over \$300 K
- Ratio of people of caregiving age about 7:1 in 2010
- Same ratio projected to be only 3:1 in 2050

From Purchase to Claim



An approach to managing future LTC care and claim liabilities

Encourage/incent appropriate preventive measures- claim minimization and mitigation

Condition monitoring and management–claim mitigation–stay at home

Purchase

No or few symptoms

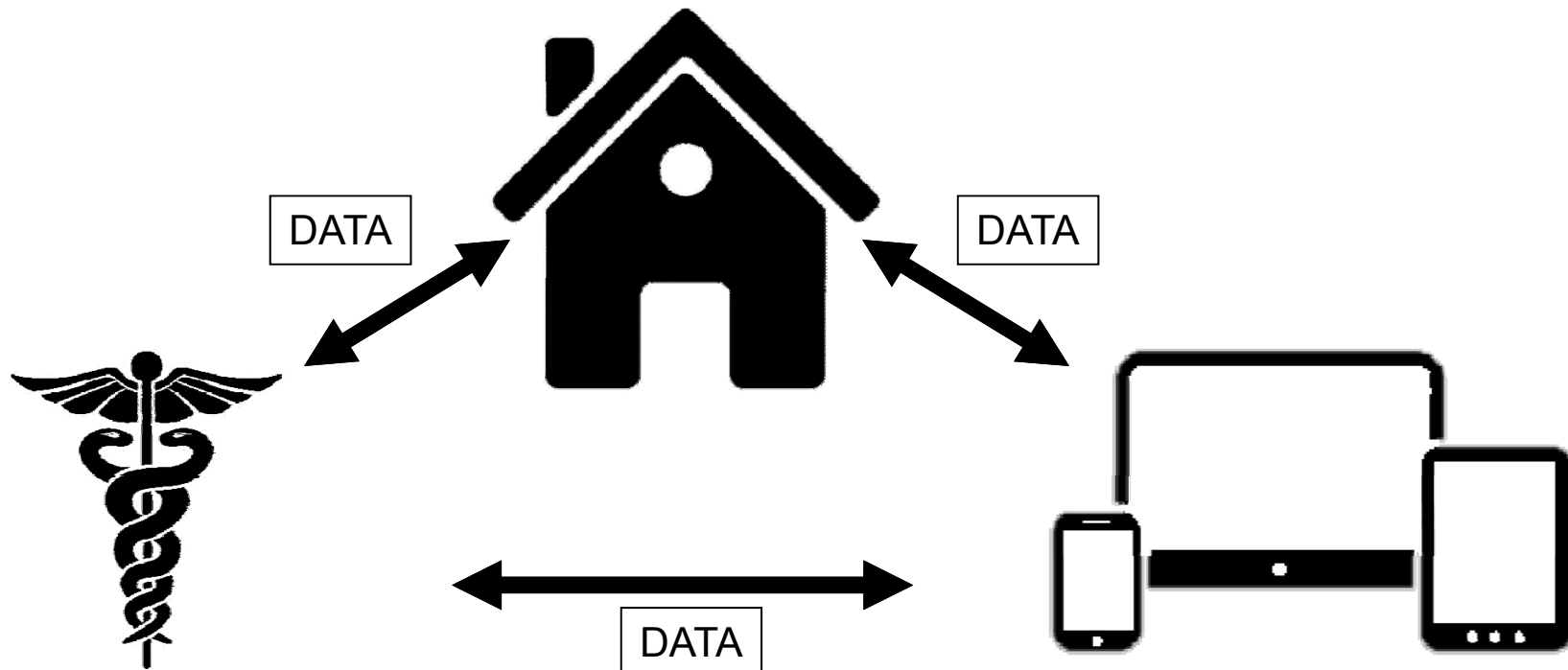
Pre-Claim

Beginning symptoms
– early interventions

Claim

Hits benefit triggers: 2 ADLS
or cognitive impairment

An Emerging Care Paradigm



Emerging evidenced-based health behavioral protocols

Emerging technologies that can support home based care

Stay at Home Savings



Care Site	Avg Daily Claim \$s	Avg Daily Claim \$s	Stay at home	Monthly	Months to Payback
	HHC	NH	Daily Difference	Savings at home	\$1,000 Investment
\$100 avail DMB	\$85	\$97	\$12	\$365	2.7
\$150 avail DMB	\$114	\$137	\$23	\$700	1.4
\$200 avail DMB	\$131	\$165	\$34	\$1,034	1.0
\$250 avail DMB	\$151	\$212	\$61	\$1,855	0.5
\$300 avail DMB	\$158	\$242	\$84	\$2,555	0.4

- Keeping claimants safely home as long as reasonably possible appears to:
 - Save significant claim dollars
 - Justify modest investments
 - Have the potential to be a win/win for carriers and claimants
 - Be a testable proposition

“Cost of Formal Long Term Care Study” Peggy Hauser, PricewaterhouseCoopers
 Janet Perrie, PricewaterhouseCoopers October 24, 2016

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Senior Vice President, Health Product Management
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17th Annual Intercompany Long Term Care Insurance Conference



Who needs long term care?

- Elderly with chronic conditions such as Alzheimer's disease or severe cardiovascular disease
 - From Alzheimer's Association "2012 Alzheimer's Disease Facts and Figures", 2012:
 - 13% of the aged 65+ have Alzheimer's
 - 45% of the aged 85+ have Alzheimer's
 - >5.4 million in 2012 have Alzheimer's
 - » 10% are under age 75; 46% are age 85+
- Children born with disabling conditions, such as mental retardation or cerebral palsy
- Working age adults with inherited or acquired disabling conditions such as paralysis or mental illness

LTC Background – How Did We Get Here?



The US population is rapidly aging, increasing the need for viable LTC funding:

Population Projection Statistics			
<u>Population in millions</u>	<u>2010</u>	<u>2030</u>	<u>2050</u>
Age 65 to 84	34.5	63.3	69.5
<u>Age 85+</u>	<u>5.8</u>	<u>8.7</u>	<u>19.0</u>
Age 65+	40.2	72.0	88.5
From: US Census Bureau " <i>Current Population Reports</i> ", May 2010			

Can We Change The LTC Claims Trajectory?



Possible Elements of Claims Improvement Strategy

- Early intervention for those at elevated risk, such as diabetics or people with high BP
- Promote (or earlier identify) claimant recoveries
- Reduce LTC claims waste, fraud and abuse
- Better coordinate utilization of entire health care system (Medicare and LTC)

Early Intervention – What To Do?



- Identify people at elevated risk
 - Predictive Modeling
 - Claims experience in other lines of business
- Devise strategies to mitigate risk
 - Focus on changes that are expected to improve outcomes (chronic disease management, diet, exercise, smoking cessation, health screenings to raise awareness)
- Encourage insureds to utilize mitigation strategies – e.g. address blocked carotid artery

Our Experience with Life Line Screenings



- LTC policyholders have received discounted Life Line offers since 2005; other lines have offered since 2010.
- Screenings are completely voluntary and paid for by customers.
- Over 3% of inforce LTC policyholders have been screened at least once.
- We do not know their screening *results*.
- Studied LTC (and Med Supp) claims experience for screened vs. not screened.



Summary of Experience Study Results

- LTC claims incidence rates for screened population were approximately **half** of the rates for the non-screened.
- LTC claim lengths for screened group were **18% longer** than for non-screened.
 - Screened population had higher preponderance of dementia claims and lower preponderance of cancer and vascular claims.
 - For a given diagnosis, claims for screened population were longer than claims for non-screened.
- Overall claim costs (claims incidence times claim length) were approximately **1/3 lower** for the screened group than the non-screened.
- Med Supp claims experience for the screened population was approximately **15% better** than for non-screened.

Our Experience with Life Line Screenings



LTC and STC policies with known marital status:							Inforce Totals		
<u>Screened?</u>	<u>Marital Group</u>	<u>Claim Count</u>	<u>Exposure</u>	<u>Incidence Rate</u>	<u>Avg Days on Claim</u>	<u>Claim Cost</u>	<u>Avg Iss Age</u>	<u>Avg Duration</u>	<u>Avg Attained Age</u>
N	Yes	7,275	468,590	1.55%	634.84	\$ 9.86	65.4	9.9	75.3
Y	Yes	184	23,248	0.79%	740.61	\$ 5.86	64.2	11.0	75.2
Y/N Ratios:		2.5%	5.0%	51%	117%	59%			
Y - N:							(1.2)	1.1	(0.1)
Expected Ratio (8% claim cost growth/year):				99%					
							Inforce Totals		
<u>Screened?</u>	<u>Marital Group</u>	<u>Claim Count</u>	<u>Exposure</u>	<u>Incidence Rate</u>	<u>Avg Days on Claim</u>	<u>Claim Cost</u>	<u>Avg Iss Age</u>	<u>Avg Duration</u>	<u>Avg Attained Age</u>
N	No	18,041	574,865	3.14%	398.49	\$ 12.51	68.5	8.0	76.5
Y	No	364	21,510	1.69%	571.91	\$ 9.68	66.6	9.8	76.4
Y/N Ratios:		2.0%	3.7%	54%	144%	77%			
Y - N:							(1.9)	1.8	(0.1)
Expected Ratio (8% claim cost growth/year):				99%					
							Inforce Totals		
<u>Screened?</u>	<u>Marital Group</u>	<u>Claim Count</u>	<u>Exposure</u>	<u>Incidence Rate</u>	<u>Avg Days on Claim</u>	<u>Claim Cost</u>	<u>Avg Iss Age</u>	<u>Avg Duration</u>	<u>Avg Attained Age</u>
N	All known	25,316	1,043,456	2.43%	465.05	\$ 11.28	67.2	8.8	76.0
Y	All known	548	44,758	1.22%	629.70	\$ 7.71	65.4	10.4	75.8
Y/N Ratios:		2.2%	4.3%	50%	135%	68%			
Y - N:							(1.8)	1.6	(0.2)
Expected Ratio (8% claim cost growth/year):				98%					

Our Experience with Life Line Screenings



LTC policies by underwriting risk class; STC policies separate:							Inforce Totals		
Screened?	LTC Underwriting Risk Class	Claim Count	Exposure	Incidence Rate	Avg Days on Claim	Claim Cost	Avg Iss Age	Avg Duration	Avg Attained Age
N	Preferred	1,023	100,200	1.02%	687.11	\$ 7.02	62.2	9.5	71.7
Y	Preferred	43	7,327	0.59%	832.22	\$ 4.88	62.9	10.4	73.3
Y/N Ratios:		4.2%	7.3%	57%	121%	70%			
Y - N:							0.7	0.9	1.6
Expected Ratio (8% claim cost growth/year):				113%					
LTC Underwriting Risk Class							Inforce Totals		
Screened?	LTC Underwriting Risk Class	Claim Count	Exposure	Incidence Rate	Avg Days on Claim	Claim Cost	Avg Iss Age	Avg Duration	Avg Attained Age
N	Standard	19,512	716,367	2.72%	552.99	\$ 15.06	67.4	10.8	78.2
Y	Standard	432	31,640	1.37%	709.61	\$ 9.69	65.5	11.2	76.7
Y/N Ratios:		2.2%	4.4%	50%	128%	64%			
Y - N:							(1.9)	0.4	(1.5)
Expected Ratio (8% claim cost growth/year):				88%					
LTC Underwriting Risk Class							Inforce Totals		
Screened?	LTC Underwriting Risk Class	Claim Count	Exposure	Incidence Rate	Avg Days on Claim	Claim Cost	Avg Iss Age	Avg Duration	Avg Attained Age
N	Substandard	429	36,035	1.19%	473.87	\$ 5.64	68.0	4.2	72.2
Y	Substandard	5	1,218	0.41%	404.58	\$ 1.66	66.6	6.4	73.0
Y/N Ratios:		1.2%	3.4%	34%	85%	29%			
Y - N:							(1.4)	2.2	0.8
Expected Ratio (8% claim cost growth/year):				106%					
STC ONLY GROUP							Inforce Totals		
Screened?	STC ONLY GROUP	Claim Count	Exposure	Incidence Rate	Avg Days on Claim	Claim Cost	Avg Iss Age	Avg Duration	Avg Attained Age
N	All	4,551	194,630	2.34%	119.63	\$ 2.80	68.3	3.9	72.2
Y	All	70	4,584	1.53%	113.37	\$ 1.73	67.9	6.1	74.0
Y/N Ratios:		1.5%	2.4%	65%	95%	62%			
Y - N:							(0.4)	2.2	1.8
Expected Ratio (8% claim cost growth/year):				114%					

Our Experience with Life Line Screenings



Diagnosis Categories	Non-Life Line		Life Line		Life Line vs. Non-Life Line	
	Claim Count	% of all Claims	Claim Count	% of all Claims	% of all Claims	Unexplained Increase in Claim Days %
Alzheimer's/Mental	7,796	27.6%	174	30.4%	10%	22%
Arthritis	2,738	9.7%	60	10.5%	8%	-9%
Cancer	1,718	6.1%	25	4.4%	-28%	98%
Circulatory/Hypertension/Stroke	4,528	16.0%	79	13.8%	-14%	17%
Ill-Defined and Miscellaneous Conditions	1,874	6.6%	33	5.8%	-13%	16%
Injury	3,361	11.9%	65	11.4%	-5%	21%
Nervous System and Sense Organs	1,807	6.4%	46	8.0%	26%	16%
Respiratory	1,341	4.8%	26	4.5%	-4%	14%
<u>All Other</u>	<u>3,067</u>	<u>10.9%</u>	<u>64</u>	<u>11.2%</u>	<u>3%</u>	<u>4%</u>
Total	28,230	100.0%	572	100.0%	0%	18%

Our Experience with Life Line Screenings



- Medicare Supplement claims experience also favorable for those who were screened

<u>Sub Block</u>	<u># Screened</u>	<u>Loss Ratio for Screened Group</u>	<u>Overall Loss Ratio (all business)</u>	<u>Screened / Overall Loss Ratio</u>
1	3,811	55.0%	63.8%	86%
2	1,699	55.8%	71.3%	78%
3	233	79.5%	85.7%	93%
4	83	68.6%	81.7%	84%
Total	5,826	56.4%	66.8%	84%

Our Conclusions After Studying Results



- Both LTC and Med Supp claims experience for screened population is materially better than for non-screened.
- Voluntary screened population may be a good proxy for people who would voluntarily engage in wellness programs.
- Screening offers may be a good starting point for overall wellness initiatives.

Alternative Solutions

Data Driven Technology in Long-Term Care

Nick Padula
Philips Technology

Tuesday March 28, 2017



17th Annual Intercompany Long Term Care Insurance Conference



- Healthcare Market and implications to long-term care
- Wearables: Falls, chronic conditions and long-term care
- Disruptive Tech... Today
- A medical savings story... Partners Health case study

Healthcare Market



US seniors are **12%** of the population, but **33%** of hospital stays, and **44%** of hospitalization costs



96% of seniors 65+ agree they'd really like to continue living on their own for as long as possible



1 in 3 seniors will fall each year



Falls account for over **60%** of all nonfatal-injury emergency department visits in the 65-and-older population



Each year, **25%** of Medicare patients will move from moderate risk to higher risk

42% of U.S. adults 65 or older take **five** or more medications



20% of seniors aged 70-74 use a smartphone



Approximately **92%** of older adults have at least one chronic disease



Elderly Hospital Patients



“Arriving Sick and Leaving Disabled”



Janet Prochazka is treated at San Francisco General. KAISER HEALTH NEWS



About one third of patients over 70 years old and more than half of patients over 85 leave the hospital more disabled than when they arrived, [research](#) shows



“They come into the hospital with one thing, but they leave with another,” says Krumholz, whose study of Medicare patients appears in today’s Journal of American Medical Association. “Maybe what is going on is that people, through the hospitalization, are acquiring a new condition, something that makes them susceptible to a whole range of problems.”

Among readmitted patients, 90% of those initially diagnosed with a heart attack came back with a different problem.

Source: Anna Gorman, August 10, 2016 – Kaiser Health News

Technology Integrates Consumers and Providers, Delivering Care to the Patient



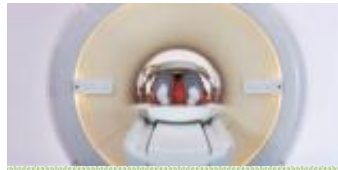
Domestic Appliances



Health & Wellness



Personal Health Solutions



Diagnostic Imaging



Digital Pathology



Image Guided Therapy



Sleep & Respiratory Care



Personal Care



Clinical Informatics



Aging Well and Senior Living Solutions



Connected Care & Monitoring Solutions



Wearables: Falls, chronic conditions and long-term care

Philips Lifeline - Today



Leader in medical alert technology

- Industry founder
- Over 7.5 million subscribers since 1974
- 3 call centers
- Average 9 million calls per year
- Manufactured in the U.S.A.



Lifeline Mission: Integrating technology and care delivery to reduce healthcare disparities and improve the quality of life.

Senior Friendly Wearables



Most advanced and most effective wearables in the industry

Our AutoAlert help button is designed to call for help **automatically** when it detects a fall.

The AutoAlert help button **Automatically detects greater than 95% of falls.**

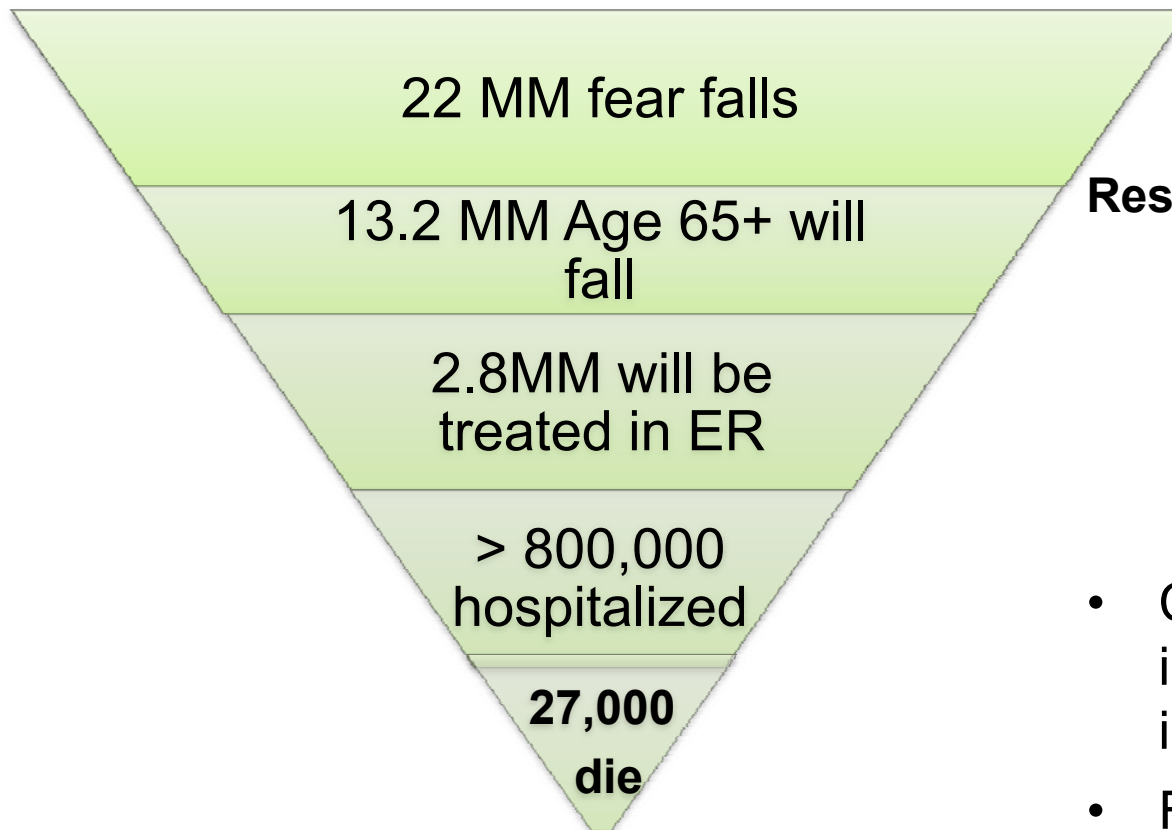
AutoAlert wearables reports twice as many falls as standard Medical Alert devices in comparable populations

The mortality rate from falls has been determined to be 67% when lie times were more than 72 hours, as opposed to 12% when lie times were less than one hour

Of the patients found alive, 62% were hospitalized and approximately half required intensive care. Of the survivors, over 60% are unable to return home



Falls: Common, Costly and Threaten Independence



Response Time to Falls:

- 2 hours if the Senior calls
 - 4.5 hours if a friend calls
 - 9 hours if family member calls
 - 72 hours if a landlord calls
- Complications from delay impact costs and length of stay in care
 - Falling once doubles your chances of falling again

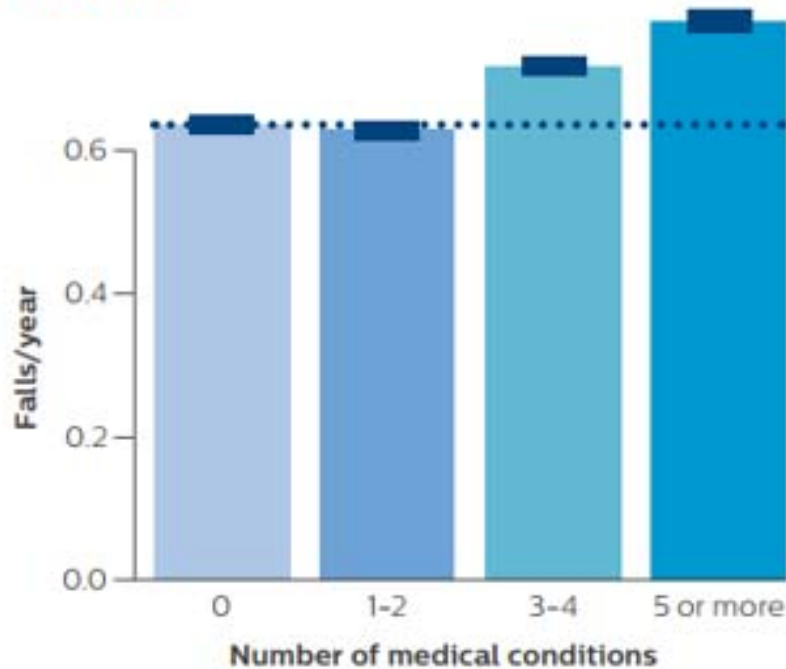
- O'Loughlin J et al. Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly. American journal of epidemiology, 1993, 137:342-54.
- Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. [Web-based Injury Statistics Query and Reporting System \(WISQARS\)](#) [online]. Accessed August 5, 2016.
- HCUPnet. Healthcare Cost and Utilization Project (HCUP). 2012. Agency for Healthcare Research and Quality, Rockville, MD. <http://hcupnet.ahrq.gov>. Accessed 5 August 2016..
- <https://www.ncoa.org/news/resources-for-reporters/get-the-facts/falls-prevention-facts/>

Correlation Between Falls & Chronic Conditions

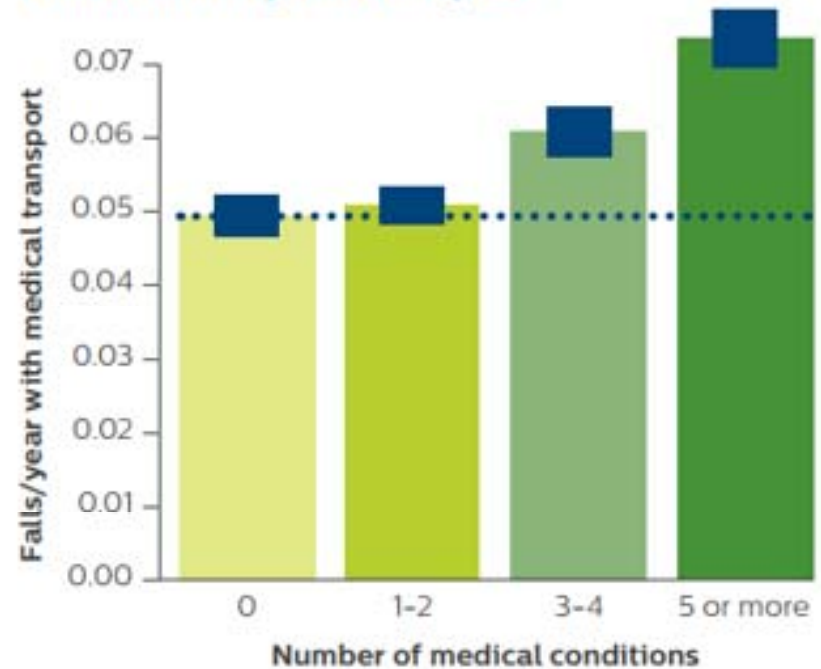


The more Chronic Conditions, the Greater the Number of Falls AND the Greater Proportion leading to hospital transport

All Falls



Falls with hospital transport



From User Activated to Data Driven Interventions



- 2006 Philips acquired Lifeline. Finds falls are under-reported:
 - Unwilling to press help button (report a fall)
 - Unable to report a fall
 - Too confused/forget to report a fall
- 2010 Philips revolutionized the industry with AutoAlert, automatic fall detection with > 95% accuracy:
 - Twice as many falls reported than standard buttons
 - Time matters – response time to falls directly and proportionately affects costs
- 2015 Philips data collection turns into data driven interventions
 - CareSage Predictive Analytics
 - Personal Emergency Response Systems (PERS) with Geo-fencing

Chronic Conditions, as Identified by CMS



Chronic diseases cannot be prevented by vaccines or cured by medication, nor do they just disappear. ***Not Curable but Treatable***



Alzheimer's/Dementia

Depression

Arthritis

Diabetes

Asthma

Heart Failure

Atrial Fibrillation

Hyperlipidemia

Cancer

Hypertension

Chronic Kidney Disease

Ischemic Heart Disease

COPD

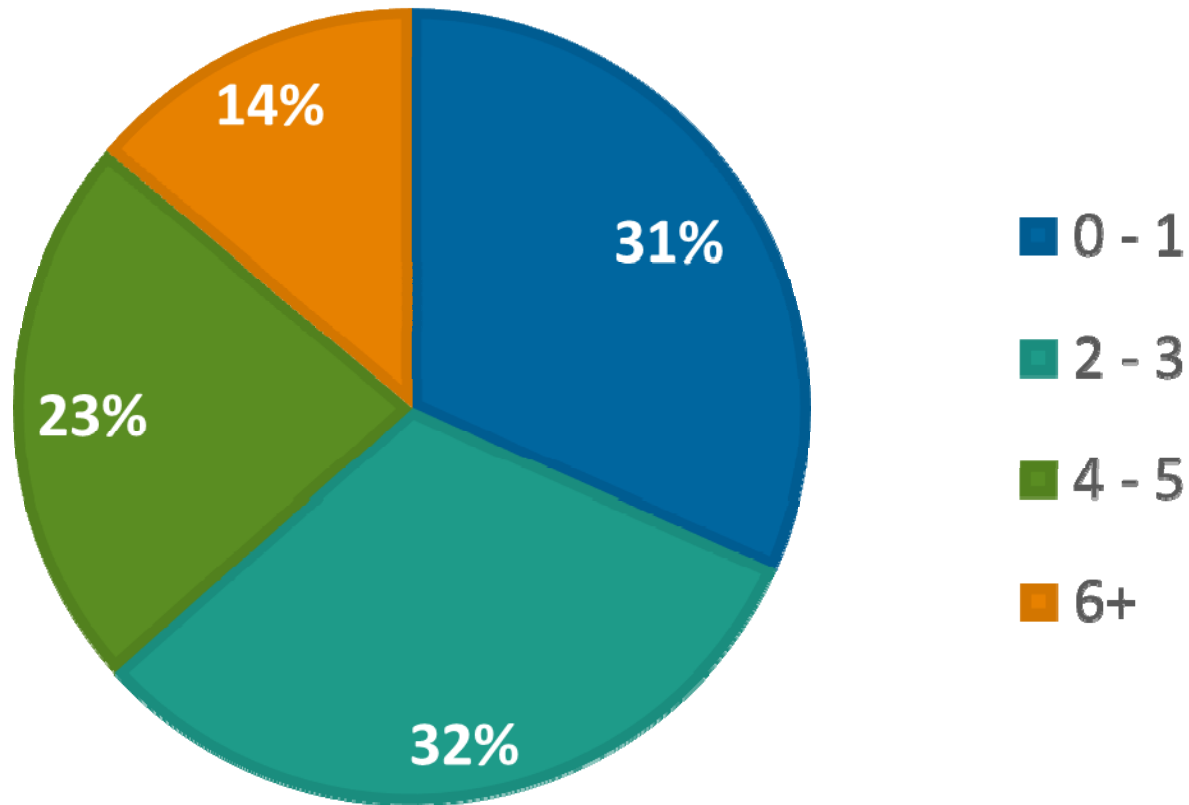
Osteoporosis

Stroke

Multiple Chronic Conditions in Medicare FFS Beneficiaries

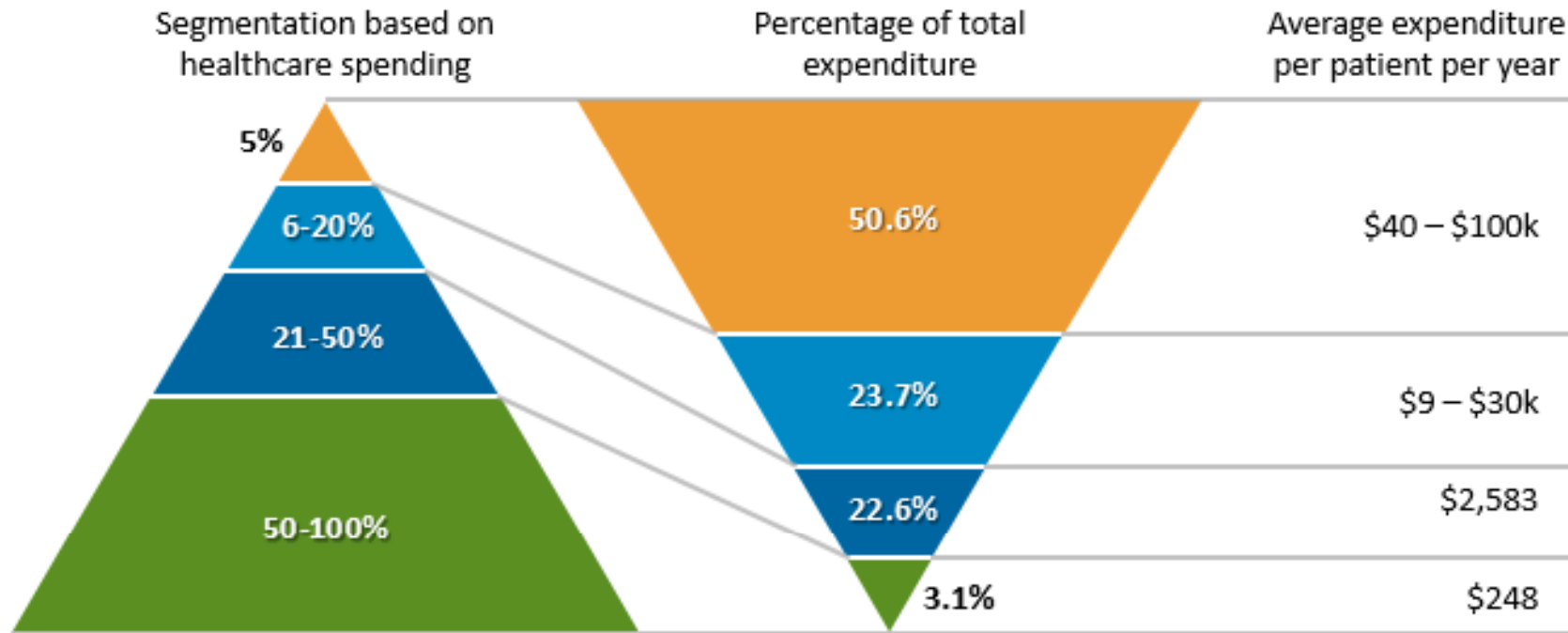


MEDICARE BENEFICIARIES (2012 = 52 MILL)



Source CMS 2012Chartbook

Where to Focus for Greatest Impact



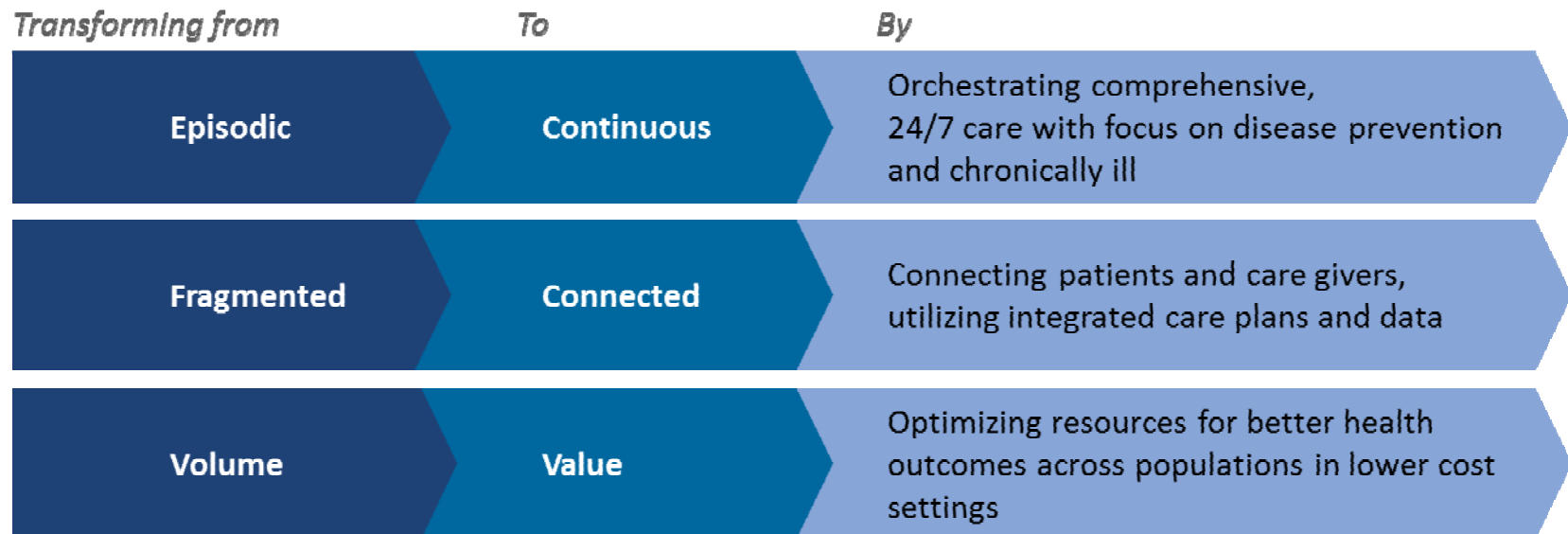
Groups Top %	# of Patients (millions)	Group Expenditure (billions)
5	15	\$607
6 – 20	30	\$284
21 – 50	105	\$271
50 – 100	150	\$37

A Changing Landscape Requires a New Strategy



Economic realities are driving the need for new approaches

- The **changing health needs of populations** require a different approach
- **Digital technologies** open new avenues for member engagement, empowerment and self-management
- Visionary players are exploring new **collaborative, connected care models**



Through information technology-based services and solutions



Keeping Vulnerable Populations Living Independently in Their Homes

- Home Monitoring provides continuous 24/7 oversight to care providers and family, enabling longer residency at home
- New technology enables insight and predictability into falls and health deterioration, alerting and engaging care providers when to intervene
- New geo-fencing technology provides peace of mind to family and care providers, enabling those living with mental health conditions to remain in familiar surroundings longer

Disruptive Technology...

Today

The Internet of Aging Well Things



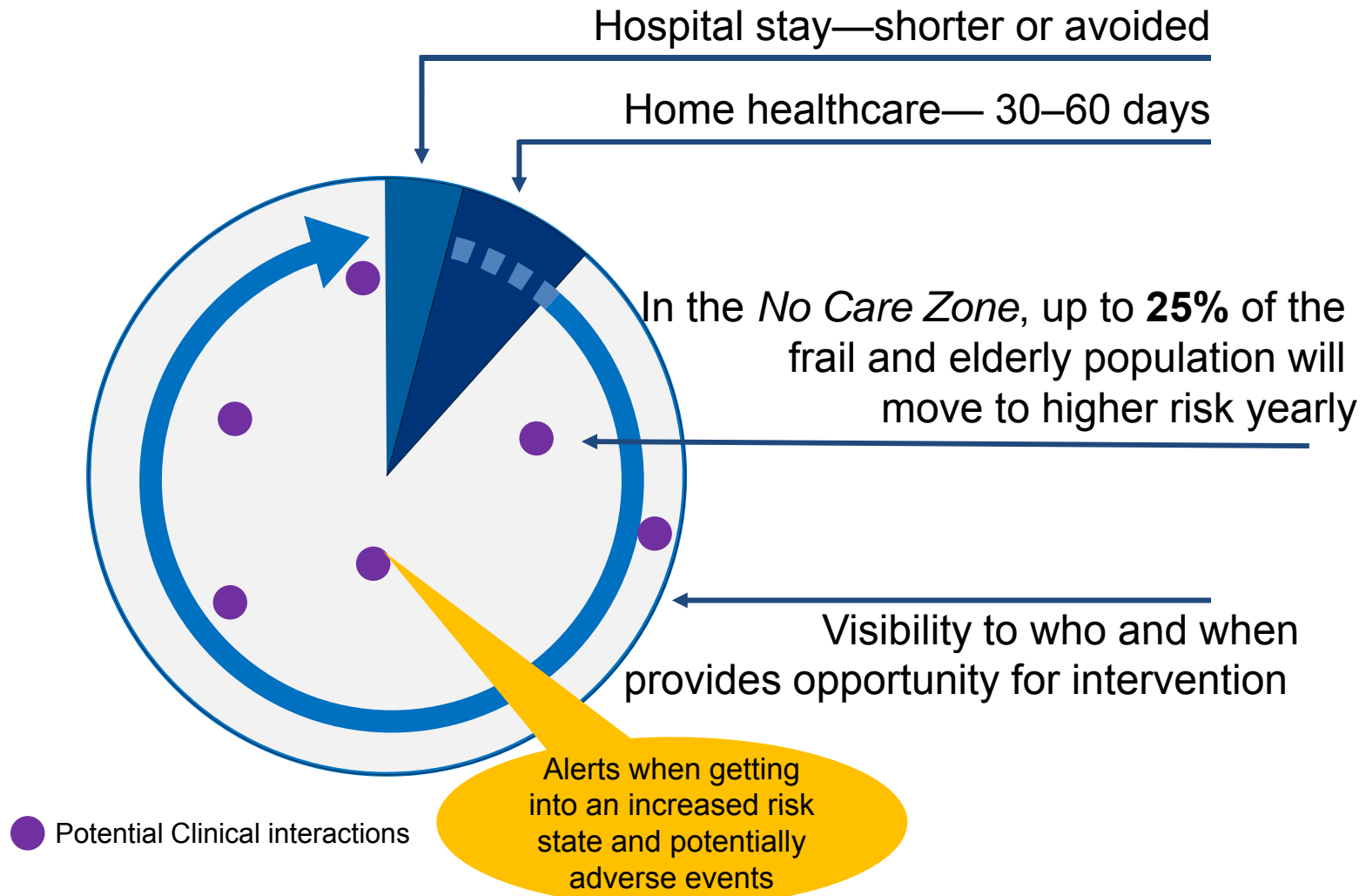
Ecosystems of sensors, data, connected devices, data analytics, data presentation, mobile apps and user interfaces driving healthy customer outcomes



Visibility into the No Care Zone



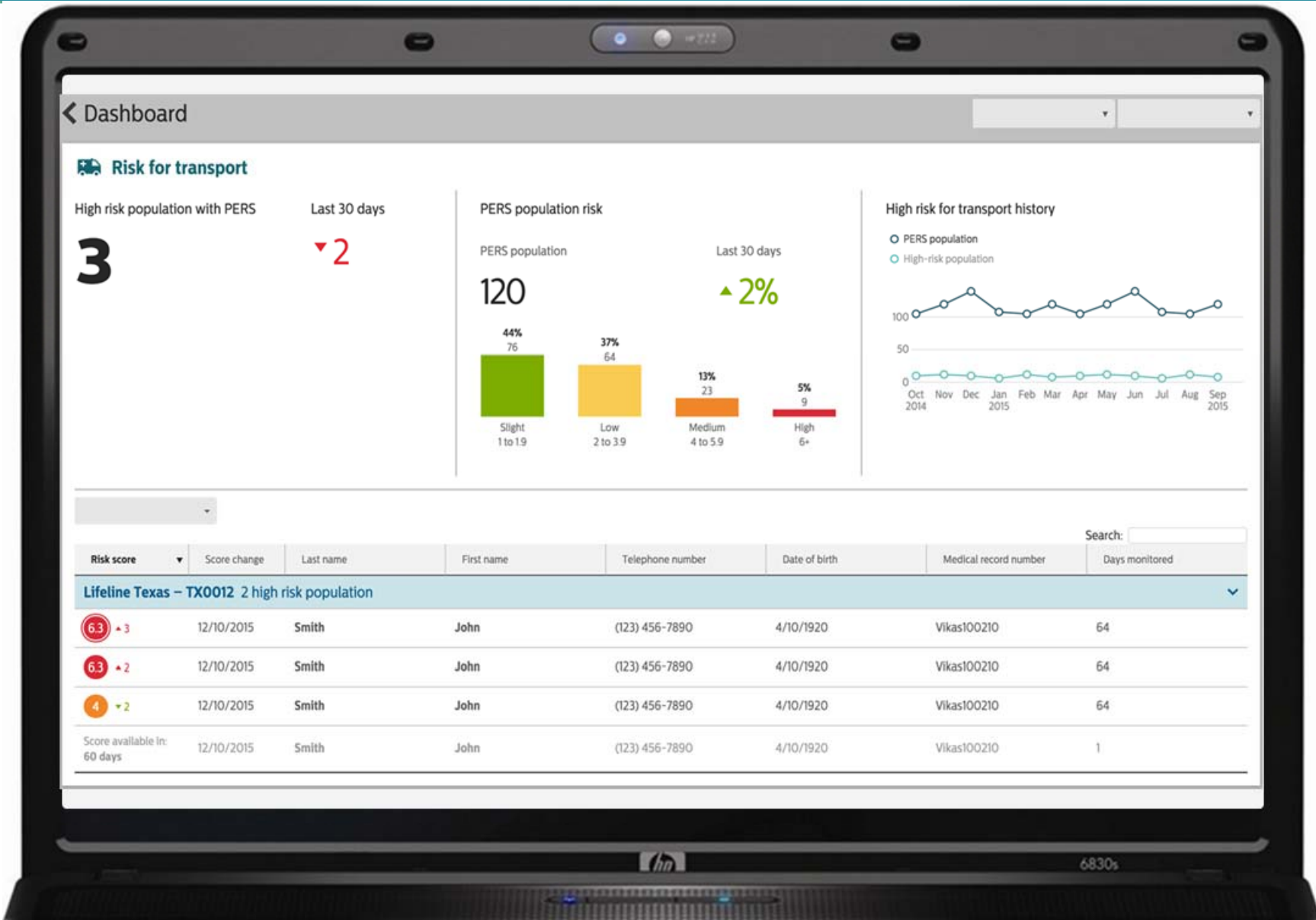
Actively monitor and intervene with your emerging risk members



Personalized and Early Intervention



Personalized and Early Intervention



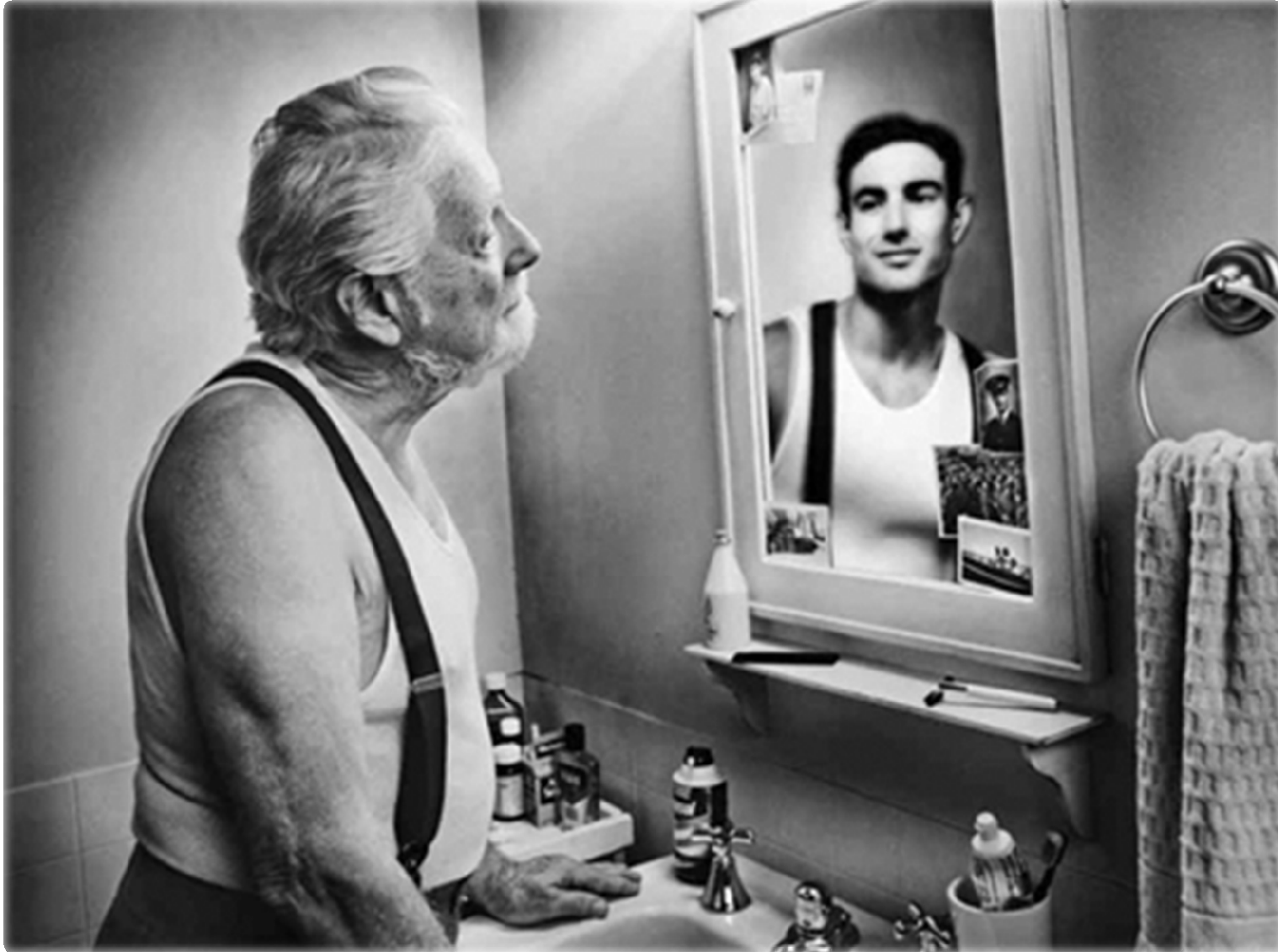
Partners Healthcare Clinical Validation



Demonstrated \$3.1M in Potential Hospital Cost Avoidance in a High-Risk Population*

High risk group	FY 15 – 2318 active Lifeline patients
CareSage predictive model threshold	Top 25% of predicted high risk patients
# of high risk patients	580
# of emergency hospital transports	560
# of emergency admissions to Partners	210
# of emergency admissions to other HCOs	350 (leakage)
Avg. cost per emergency admission	\$14,000
Total admission cost Partners	\$2.9 million
Admission cost due to leakage	\$4.8 million
Total admission cost	\$7.7 million
Intervention cost per patient	\$1,500
Total intervention cost	\$0.9 million
Impact of intervention 40%	224 admission avoided
Avoided admission costs	\$3.1 million
Net savings	\$2.2 million

* Golas, S.B., et. al. (2016, April) *Retrospective Evaluation of Philips Lifeline CareSage Predictive Model on Patients of Partners Healthcare at Home*. Poster session presented at the American Telemedicine Association, Minneapolis, MN.



Contact Information



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APPENDIX



Medication Dispensing Service

This service has a 98.6% dispensing adherence level⁴
Medication adherence is a serious threat to independent living.



GoSafe with AutoAlert is designed for monitoring wandering seniors and those with deficient memories. It includes features like geofencing.



CareSensus enables new remote care services

- No Cameras
- Face to Face Contact
- Data Driven Insights through Cloud Technology

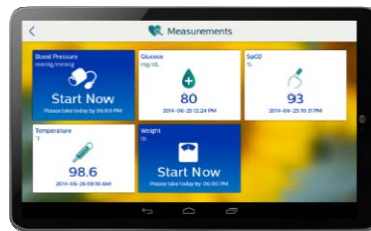
⁴ 98.6% dispensing adherence was derived from the Philips Medication Dispensing Service online database activity and monitored unit activity, having been calculated by number of scheduled doses/number of dispenses

Technological Line-of-Sight and Tethering



Tablet

Embedded software measurement gateway with front and rear facing camera.



Blood Pressure Monitor

Sends real-time communication data of blood pressure measurements immediately upon patient taking the measurement.



Glucose Meter Accessories

Works with select models of Bayer, LifeScan and Abbott glucose meters.



Weight Scale

Low step, a wide, steady platform, a large digital display and voice announcement.



Pulse Oximeter

Measures SpO₂ and provides pulse rate spot-checking monitoring – features algorithms specifically for patients with challenging conditions.



What **Makes** Us Healthy



What We **Spend** On Being Healthy



Source: Bipartisan Policy Center, "F" as in Fat: How Obesity Threatens America's Future (TFAH/RWJF, Aug. 2013)