

MID-ATLANTIC PERMANENTE Research Institute

#### Continuity of Care: Tracking Patients Across Health Plans and Clinical Settings

#### Basic Information and Some Examples of Applications

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May 9, 2016

#### **Disclosures**

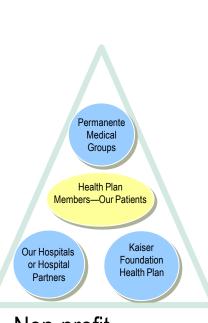
- I am an employee of Kaiser Permanente
  - All opinions expressed are my own
  - But I do think we (KP) do a pretty darn good job at this!
- I will not be discussing any medications during my talk
  - Except to say that most are too expensive and pharma needs to lower their prices!
- I am not a health informaticist!

## **Setting the Stage**

- 1. Describe Kaiser Permanente
  - a) Nationally
  - b) Kaiser Permanente Mid-Atlantic States (where most of my examples come from)
- 2. Our data systems
  - a) The "front end"—what our health care system professionals and patients see
  - b) The "back end"—and how we can make it all fit together data-wise
- 3. How the data systems mesh together
  - a) Within KP
  - <sup>3</sup> b) With multiple systems

# **Kaiser Permanente (KP)**

- Our Mission: To provide high-quality, affordable health care services and to improve the health of our members and the communities we serve
- Integrated delivery system (hospitals, clinicians, pharmacies, lab, x-ray, etc.) and financing
- Operates like a mini-"national health system"
  - Single funding stream with global budget
  - Accountable for total health of a population



- Non-profit
- Prepaid
- Integrated
- Caring for our communities

KP defines the integrated model of health care financing and delivery through its unique partnership among hospitals, health plan, and medical group: *contractual* and *exclusive* 



Kaiser Permanente is one of the nation's largest notfor-profit health plans, serving over 10 million members in eight states and the District of Columbia

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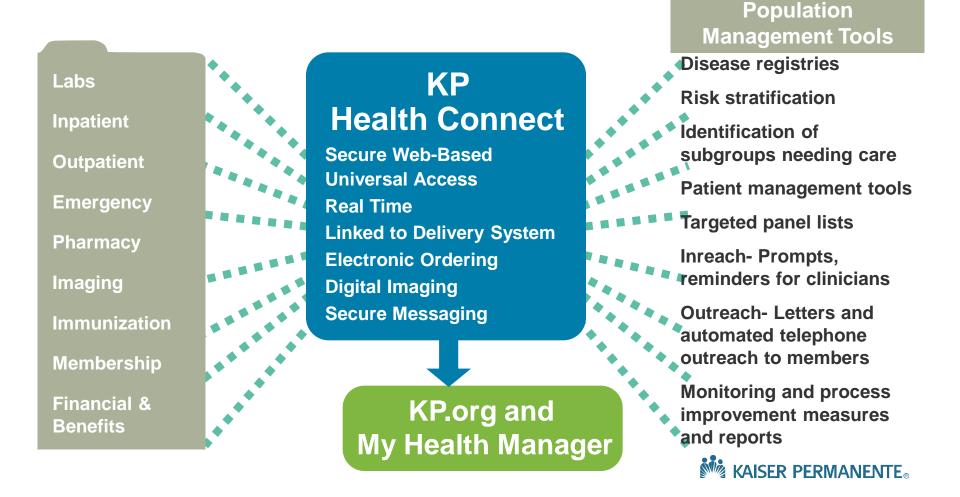
## Fast Facts: KP Mid-Atlantic



- Cover much of Maryland, Washington, DC, and Northern Virginia
- >670,000 members
- Over 1,300 Mid-Atlantic Permanente Medical Group physicians
- About 6,000 employees
- 30+ medical facilities
  - Hub and spoke → 5 hubs
- Core hospitals at which KPMAS physicians directly care for members
- 24 hours / 7 days / 365 days care available
- Fully supported by Comprehensive electronic health record (EHR)
   KAISER PERMANENTE.

### The KP Model—Technology Driven

**Kaiser Permanente model:** Highly coordinated care through state-of-the-art technology and the area's largest multi-specialty physician group practice



## First Key Concept—The Medical Record Number

- All is based on the patient's Medical Record Number (MRN)
  - Uniquely derived number for each patient
  - Is NOT related to any patient attribute intentionally (i.e., SSN, date of birth, gender, etc.)
  - BUT is considered as group A PHI (same as name, SSN)
  - Requires patients to know this number too!
- However, MRN is not coordinated across KP regions
  - Thus, patients can have multiple MRN
  - MAJOR LIMITATION (especially for linking patients across regions)

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- Further, without SSN, cannot get most death data
- Or easily link outside of KP
- NOTE: Other systems use SSN, DOB, etc.
  - $^{7}$  However, potential disclosure and HIPAA rules

#### KP HealthConnect Our EHR—The "front end"

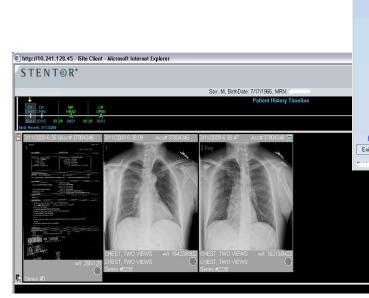
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Scar CIPS

- From any computer with an internet connection, our physicians can view x-rays (or any other radiology image) with the member moments after the film is taken.
- Epic<sup>®</sup>-based

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#### kp.org—our patient website—also "front end"

 From any computer with an internet connection, Kaiser Permanente members can:

- Email their Permanente doctor's office
- Including their doctor
- Schedule appointments
- Fill prescriptions
- View lab test results
- Print immunization records
- View own medical record
- Get their list of medications

 Nationwide, millions of Kaiser
 Permanente members are using this convenient, time-saving technology.

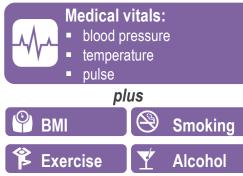


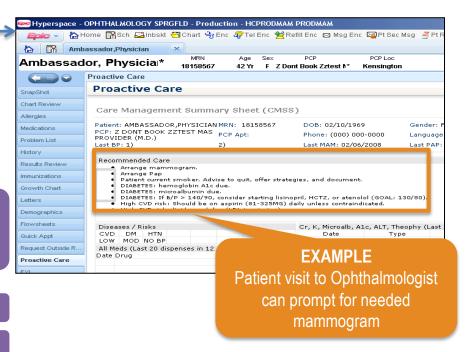


#### Population Health Built-in: The Front End

#### Automatic prompts at *every visit in every department*

- Care Gap Identification
  - Immediate electronic action / order placement / booking to address
  - Systematized workflows / Smart Sets
- Document the Right Info





#### We'll Get Back to this...



#### **Population Health Built-in: The Back End**

All members with a chronic condition are automatically "enrolled" in disease management programs.

Population health tools allow us to identify members in need of outreach. The program is owned by the member's primary care team, not a 3<sup>rd</sup> party.

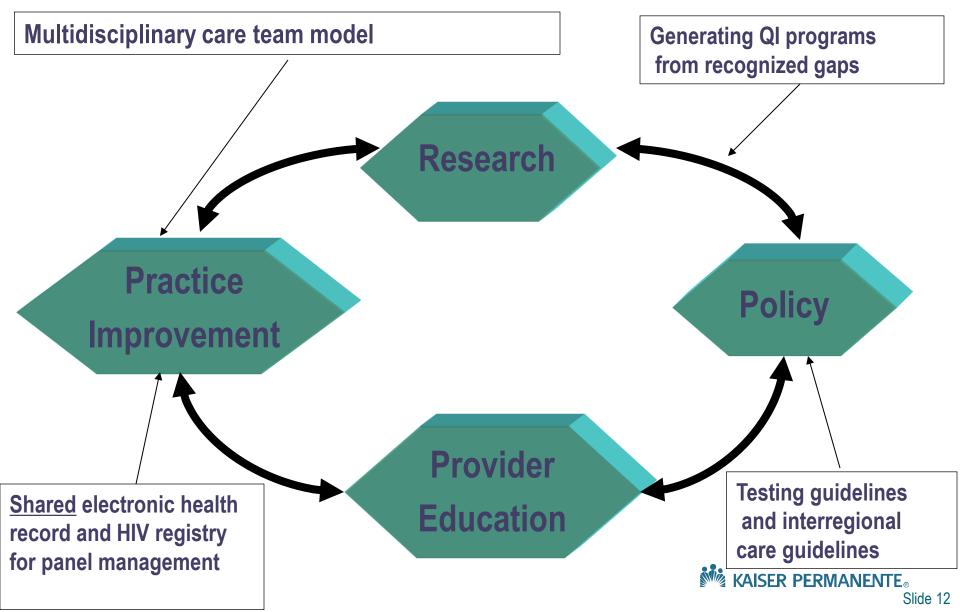
#### Disease registries

- Not opt in or out
- Algorithms
- Physician definition
- Enriched with clinical data, not simply claims
- Search/Query on demand
  - Each PCP has access
  - Drive outreach calls, letters, email
- Robust Health Ed tools
  - Classes, Coaches, etc.
  - Complete Care Journal

	uo	_	Patient Name		der		Gap Score	L	Medicaid	Medicare Flag		Breast Cancer Screening Coming Due	Breast Cancer Override Flag	Breast Cancer Override Date	Cervical Cancer Screening Overdue	Cervical Cancer Screening Coming Due	Cervical Cancer Override Flag	Cervical Cancer Override Date	Colorectal Screening Due	Colorectal Cancer Override Flag	Colorectal Cancer Override Date	Pneumovax Due	Diabetes			
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# KP HIV Overall Program Strategy: *...as a learning organization*

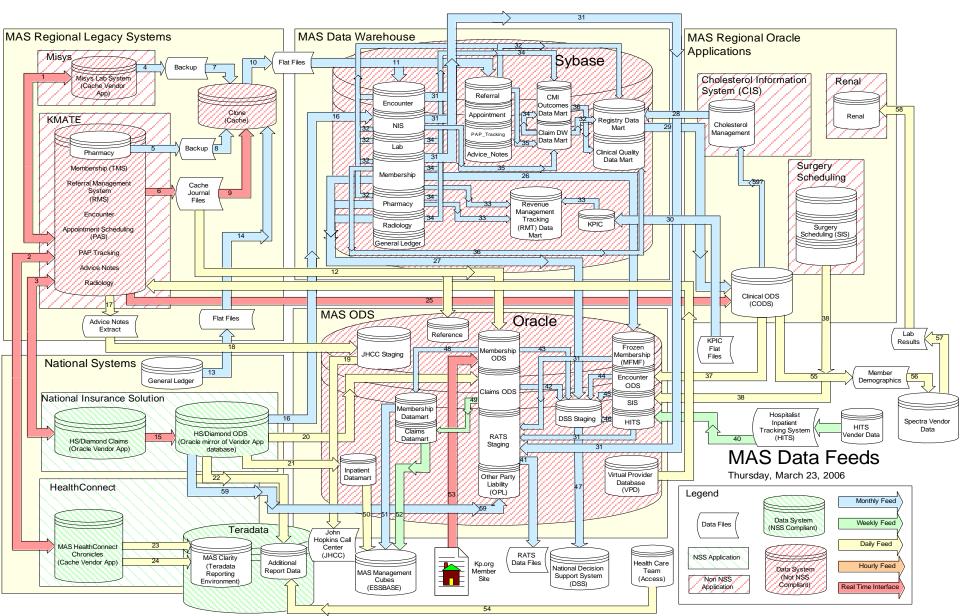


## So, Data Coordination is Key

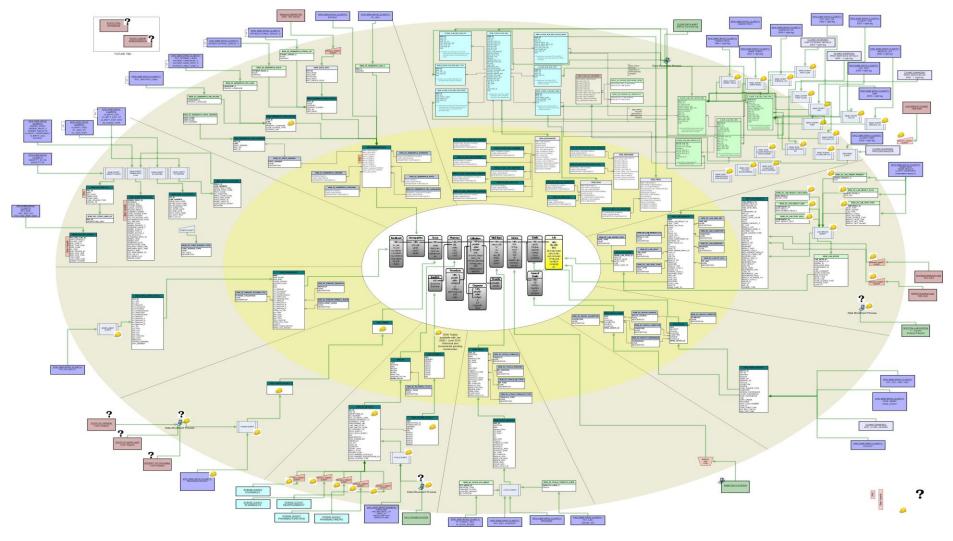
- Demonstrate "garbage in, garbage out.
- Data Management is Complex
- No such thing as a simple data request.
- Data is time consuming, and requires expertise.

- Administrators don't get this...

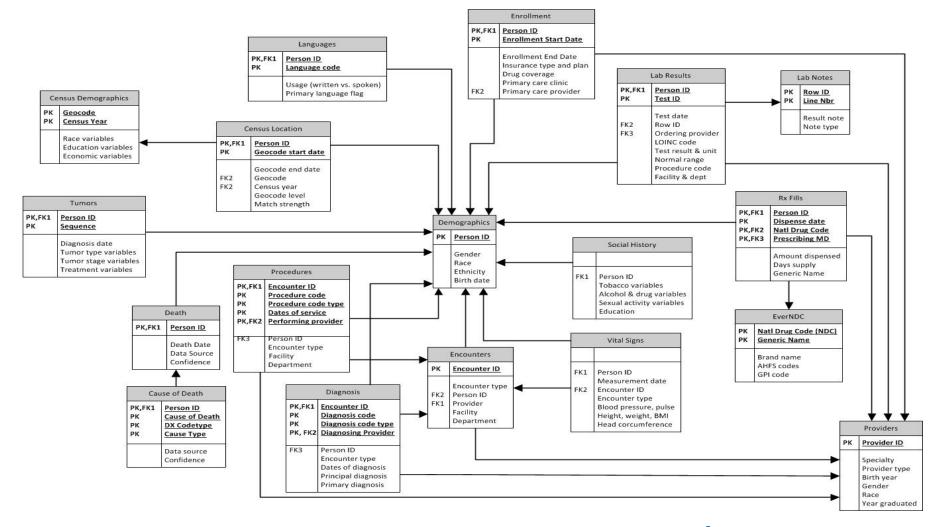
#### Why Even Simple Data Requests are Complex But all is coordinated via the MRN



#### Development of KPMAS Data Warehouse: Example in Effort; Each Region Has Own "Data Warehouse"

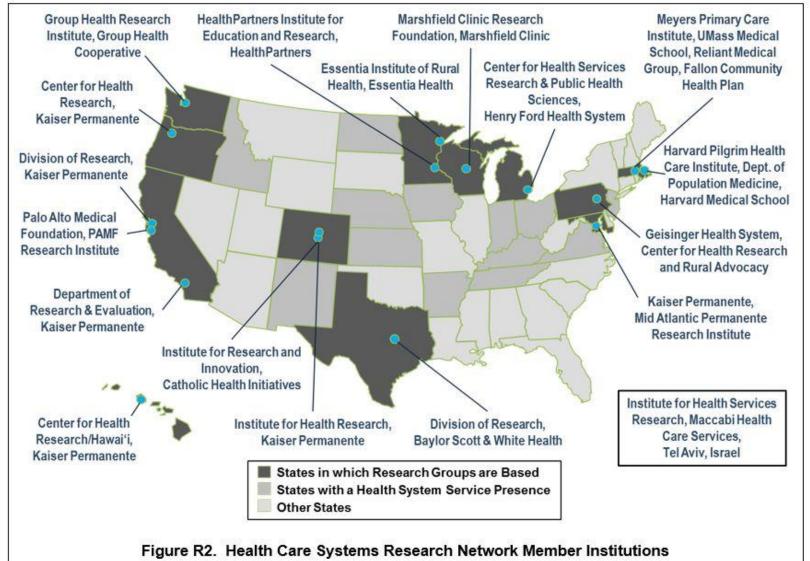


#### HCSRN Virtual Data Warehouse The Analyst's Toolkit—But again, the MRN is key!



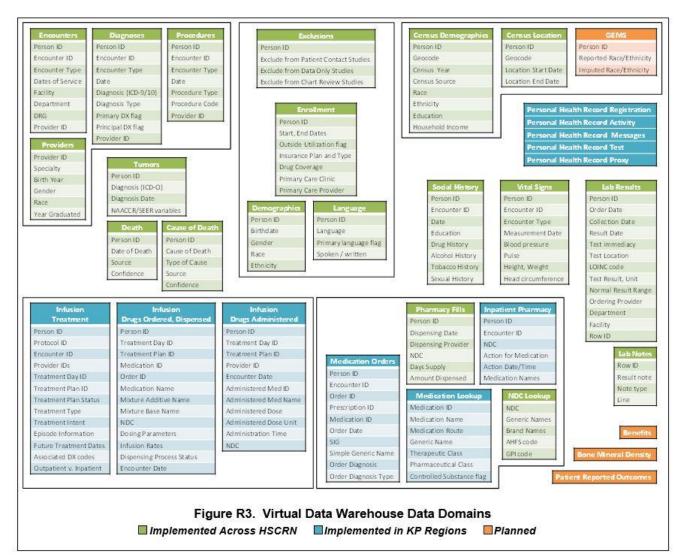


### But We Can Also Coordinate this Across Systems--HCSRN



The Virtual Data Warehouse Used by all members of KP and HCSRN

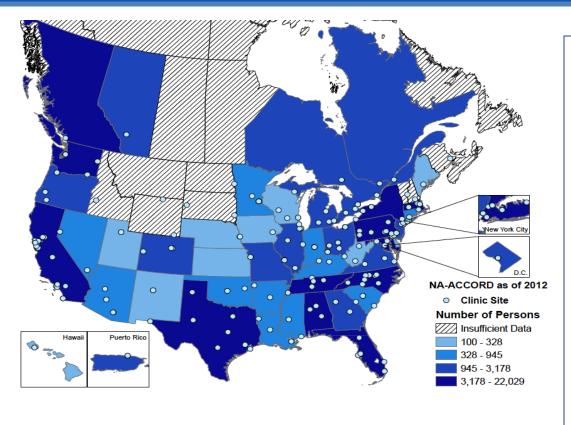
## How we do such research



Note that there are other models, including PCORnet Common Data Model Similar principles for NA-ACCORD



#### **NA-ACCORD** Collaboration



Slides courtesy of Richard Moore, JHM

- 130,000 HIV-infected persons in the cohort; >1 million person-years of follow-up time; reflects the North American epidemic demographically
- Productive collaboration:
  - Over 60 national and international presentations
  - Over 40 papers
     published
  - 10 other federal grants using this resource

25 Collaborating Cohorts in Canada and US (>200 sties) Participants from: 47 US states and D.C., 1 US territory, and 5 Canadian Provinces

#### NA-ACCORD Data Elements

- Demographic
- Clinical
  - Clinical diagnoses
  - Laboratory
  - Medications
  - Procedures (some)
  - Hospitalization and Ambulatory visits
  - Health Insurance
- Cause of death
- Data transmitted from each participating cohort to a central data core, data transmitted in a standardized fashion, combined with data from other cohorts for analyses

#### www.naaccord.org @NAACCORD

# Some Examples of How We Use This—Back End and Front End



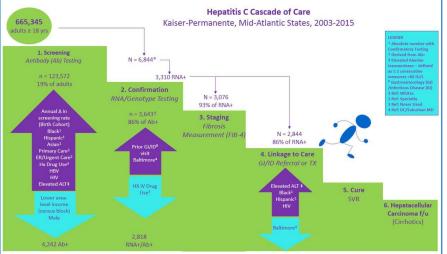
#### **Mid-Atlantic Permanente Research Institute**

 Our mission is to advance medical knowledge and improve the quality of care and health of our patients and communities we serve by conducting innovative scientific and clinical research.

#### ORIGINAL RESEARCH & CONTRIBUTIONS

Expanding Access to Care and Improving Quality in the Mid-Atlantic States Safety-Net Clinics: Kaiser Permanente's Community Ambassador Program

Jarred Lane K Maeda, PhD, MPH; Jacquelina J Bradley, MSN, CRNP; Sarah R Eissler, MSN, CPNP; Marcia LoBrano, MD, MPH; Mindy R Rubin; Maritha Gay; Michael A Horberg, MD, MAS, FACP, FIDSA; Bernadette C Loftus, MD http://dx.doi.org/10.7812/TPP/14-109



Rodriguez CV, Rubenslein K, Hu H, Linus B, Horberg M. Increasing Hepatitis C Virus (HCV) Screening and Linkage to Care in a Large Integrated Health System 2015 American Association of Liver Diseases 66th Annual Meeting, San Francisco, CA, Nov 2015



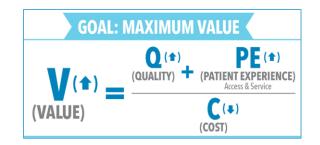
AIDS PATIENT CARE and STDs Volume 29, Number 11, 2015 @ Mary Ann Liebert, Inc. DOI: 10.1089/apc.2015.0139 CLINICAL AND EPIDEMIOLOGIC RESEARCH

The HIV Care Cascade Measured Over Time and by Age, Sex, and Race in a Large National Integrated Care System

Michael Alan Horberg, MD, MAS,<sup>1-3</sup> Leo Bartemeier Hurley, MPH,<sup>3,4</sup> Daniel Benjamin Klein, MD,<sup>3,5</sup> William James Towner, MD,<sup>3,6</sup> Peter Kadleck, MD,<sup>1,3</sup> Diana Antoniskis, MD,<sup>3,7</sup> Miguel Mogyoros, MD,<sup>3,8</sup> Philip Sigmund Brachman, MD,<sup>3,9</sup> Carol Louise Remmers, PhD,<sup>10</sup> Rebecca Claire Gambatese, MPH,<sup>10</sup> Jackie Blank, MBA,<sup>2,3</sup> Courtney Georgiana Ellis, BS,<sup>3,4</sup> and Michael Jonah Silverberg, PhD, MPH<sup>3,4</sup>

## How does MAPRI contribute to the Value Equation?

- 1. Study quality measurement and quality improvement
  - Examples include HIV and HCV
- 2. Provide access to clinical trials
  - Internalizing care
  - Gaining access to the latest in medical care
  - Improve the care for these patients
- 3. Study new programs in care
  - Studying the ongoing implementation of HCV screening and early treatment pathway
  - Studied our new "Exchange" patients
  - Sickle cell transitions program
    - Improving Transitions from Pediatrics to Adult Heme-Onc
- 4. Registry Development with Intentional Clinical Applications
- 5. Monitoring Drug Safety
  - "Sentinel" work with FDA
  - Raltegravir Study (with TPMG and SCPMG)



# How We're Working with KPMAS Daily

#### Registry Work:

- Use of Tableau enhanced HIV physician reports is helping to shape data driven care
- Development of Clinical Disease Registries are being used by operations for targeting patients for case management
- Working with Population Care
   Management to develop enhanced
   Diabetes registry--in progress
- Development of CKD, COPD, HCV, HBV,
   Sickle Cell Registries—all with clinical component and provider reports
  - Including HCV reports for clinical pharmacy

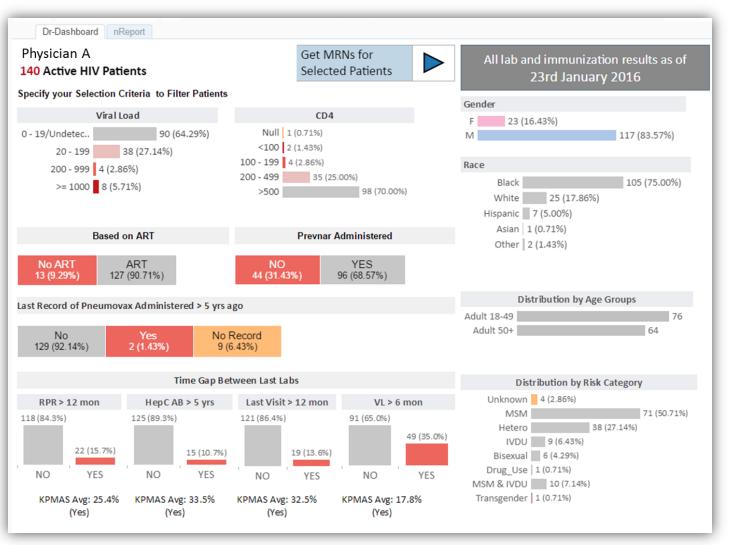
- Disease Registries within MAPRI
  - HIV
  - HCV
  - HBV
  - CKD and ESRD
  - COPD
  - CHF
  - Congenital Heart Disease
  - Rheumatoid Arthritis
  - Sickle Cell
  - Tumor
- In Development
  - Asthma
  - Diabetes
  - Cirrhosis

# How We're Working with KPMAS Daily (2)

- Data Driven Visual Analytics
  - Development of basic query tools and analytics for physician leaders
  - Introduce novel Visual Analytics for population insights

	es Population (	Overview (dat	ta: 2014-Present)						Gen	<u>ider</u>
									Female	19,363 (49.31%)
<u># Patie</u>	ents	Servic	e Areas			Diabetes T	<u>ype</u>		Male	19,905 (50.69%)
39,2	hX	ALT (12.8) CSM	1%) (54.85%	%)	Type-: 906 (2.3				Ra	<u>ce</u>
	NC	OVA	(32.34%)						Black	20,173 (51.37%)
	Patients' Zip-Cod	les (circle size ~ #	# patients)			Patients' Hom	<u>e Center</u>		White 10,4 Asian 3,841 (9.7	62 (26.64%) 8%)
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	£ • •	. 2.07.2			George's County	CAMP SPRINGS	3,32		Age G	roups
$\rightarrow$		1			County	MARLOW HEIGHTS	1,402		18-35 764 (1.95%)	
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my .			8	4		SILVER SPRING	1,237			10,510 (40.1070)
	a second s					SHADY GROVE	548		On In	sulin
					Fairfax	SPRINGFIELD	2,641			
•					County	RESTON	1,423		No	Yes
		a ces				FAIR OAKS	1,217		28,114 (71.60%)	11,154 (28.40%)
Mr. CI		D.C.O. 4		e de la compañía de la		BURKE	546			
ne	and the second			<u> </u>		TYSONS CORNER ME.			Visited End	ocrinologist
•	· Co de		2001		District of Columbia	CAPITOL HILL MEDICA		80		
	and the second					NORTHWEST DC MOB	938		No	Yes
ntributors 🍣				1	Baltimore County	WHITE MARSH WOODLAWN	1,170 1,012		34,476 (87.80%)	4,792 (12.20%)
		1	//							
						TOWSON	615	-	Patient Educa	tional Efforts
						TOWSON	¢15	*	Patient Educa Nurse	tional Efforts 22,568
Last A1- T	Fost Values	Nos -f A	16 Tasts				=	*		
	<u>Fest Values</u>	Nos. of A				TOWSON A1c Test Trend	<u>d</u>	Ŧ	Nurse	22,568 6,634 6,351
Null	1,337	Null	1,337		Good	A1c Test Tren	=	₹ 3.96%)	Nurse Nurse + Nurse Prac. Null Nurse + Dietitian	22,568 6,634 <b>6,351</b> 2,336
Null < 7	1,337 16,739	Null 1	1,337 4,924	No Ch	ange 2,3	<u>A1c Test Trend</u> 146 (5.97%)	25,117 (6	<b>▼</b> 3.96%)	Nurse Nurse + Nurse Prac. Null Nurse + Dietitian CDE's	22,568 6,634 <b>6,351</b> 2,336 859
Null < 7 7 - 7.9	1,337 16,739 9,342	Null 1 2	1,337 4,924 10,642	No Ch V	ange 2,3 Vorse	A1c Test Trend 346 (5.97%) 9,802 (24.969	25,117 (6	<b>▼</b> 3.96%)	Nurse Nurse + Nurse Prac. Null Nurse + Dietitian CDE's Dietitian	22,568 6,634 <b>6,351</b> 2,336 859 500
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Null < 7 7 - 7.9 8 - 8.9 9 - 9.9	1,337 16,739 9,342 4,894 2,734	Null 1 2 3 4	1,337 4,924 10,642 10,552 6,181	No Ch V	ange 2,3 Vorse	A1c Test Trend (46 (5.97%) 9,802 (24.96%)	25,117 (6	<b>▼</b> 3.96%)	Nurse Nurse + Nurse Prac. Null Nurse + Dietitian CDE's Dietitian Dietitian + Nurse Pra	22,568 6,634 6,351 2,336 859 500 ac 20
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Null < 7 7 - 7.9 8 - 8.9 9 - 9.9	1,337 16,739 9,342 4,894 2,734	Null 1 2 3 4 5 6	1,337 4,924 10,642 10,552 6,181 3,113 1,426	No Ch V	ange 2,3 Vorse roved 666 (1 Null 1,33	A1c Test Trend (46 (5.97%) 9,802 (24.96%)	25,117 (6 6)		Nurse Nurse + Nurse Prac. Null Nurse + Dietitian CDE's Dietitian Dietitian + Nurse Pra	22,568 6,634 6,351 2,336 859 500 ac 20
Null < 7 7 - 7.9 8 - 8.9 9 - 9.9	1,337 16,739 9,342 4,894 2,734	Null 1 2 3 4 5 6 7	1,337 4,924 10,642 10,552 6,181 3,113 1,426 594	No Ch V	ange 2,3 Vorse roved 666 (1 Null 1,33	A1c Test Trend 146 (5.97%) 9,802 (24.96%) 1.70%) 7 (3.40%)	25,117 (6 6) <b>ale)</b>	<b>▼</b> 3.96%)	Nurse Nurse + Nurse Prac. Null Nurse + Dietitian CDE's Dietitian Dietitian + Nurse Pra Patient	22,568 6,634 6,351 2,336 859 500 ac 20
Null < 7 7 - 7.9 8 - 8.9 9 - 9.9	1,337 16,739 9,342 4,894 2,734	Null 1 2 3 4 5 6 7 8	1,337 4,924 10,642 10,552 6,181 3,113 1,426 594 242	No Ch V Impr	ange 2,3 Vorse oved 666 (1 Null 1,33	A1c Test Trend 46 (5.97%) 9,802 (24.96% 1.70%) 7 (3.40%) repression (PHQ-9 sca	25,117 (6 6) ale)	<b>▼</b> 3.96%)	Nurse Nurse + Nurse Prac. Null Nurse + Dietitian CDE's Dietitian Dietitian + Nurse Prace Patient 01010030	22,568 6,634 6,351 2,336 859 500 ac 20
Null < 7 7 - 7.9 8 - 8.9 9 - 9.9	1,337 16,739 9,342 4,894 2,734	Null 1 2 3 4 5 6 7	1,337 4,924 10,642 10,552 6,181 3,113 1,426 594	No Ch V Impr	aange 2,3 Vorse 666 (1 Null 1,33 <u>D</u> < 5	A1c Test Trend 146 (5.97%) 9,802 (24.96%) 1.70%) 7 (3.40%) 12000 (PHQ-9 sca 752	25,117 (6 6) ale)	3.96%)	Nurse Nurse + Nurse Prac. Null Nurse + Dietitian CDE's Dietitian Dietitian + Nurse Pra Patient 01010030	22,568 6,634 6,351 2,336 859 500 ac 20

# Interactive HIV Physician Centric Actionable Dashboard

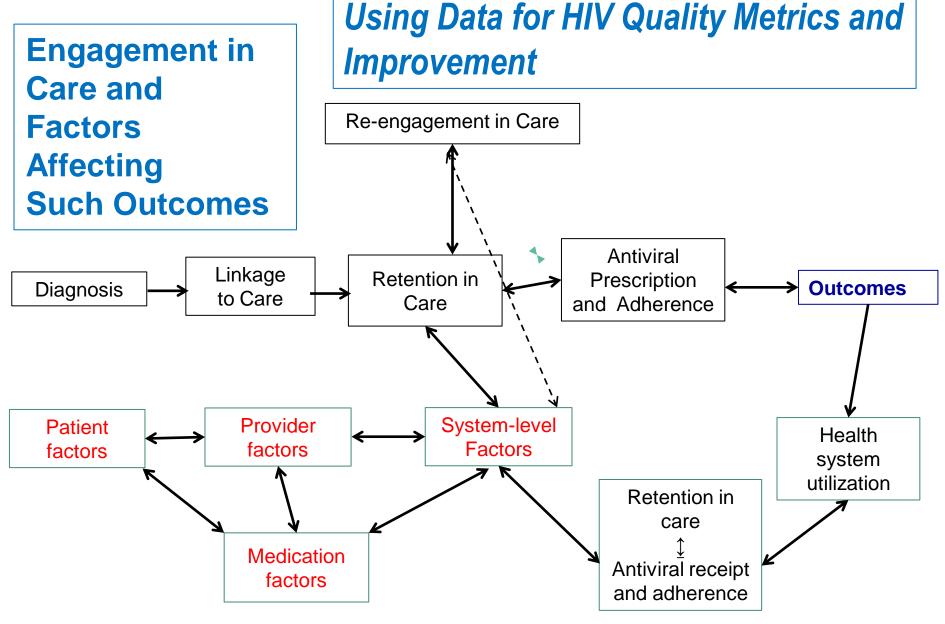


- To improve physician performance
  - Quickly identify and close care gap

Mane K, Blank J, Horberg M. (2016) Visual approaches to bring population data insights at your fingertips. 22nd Annual HCSRN Conference, Atlanta, GA. April 2016.

26





Adapted from Mugavero, 2011

Kaiser Permanente®

	Unadj	usted Analysi	S	Adju	isted Analysis'	
		Reference g	roup: ≥2 i	n-person visits	annually	
	Odds Ratio	95% CI	p-Value	Odds Ratio	95% CI	p-Value
1 In-Person only	0.48	(0.31, 0.75)	< 0.01	0.48	(0.30, 0.74)	<0.01
1 In-Person + Telephone only	0.47	(0.28, 0.78)	< 0.01	0.46	(0.28, 0.78)	< 0.01
1 In-Person + E-mail only	0.88	(0.59, 1.30)	0.51	0.81	(0.54, 1.21)	0.29
1 In-Person + Telephone + E-mail	1.16	(0.69, 1.95)	0.57	1.06	(0.63, 1.80)	0.82
1958 patients included in this analysis, wi	th exclusions due to	missing lab va	alues in 20	14		
Regression adjusted for sex, age, race/	ethnicity, HIV risk be	havior				

1 in-person visit only per year is insufficient to achieve viral suppression at rates similar to 2 or greater in-person visits annually (OR=0.48, p<0.01), even if supplemented by a telephone visit (OR=0.46, p<0.01).</li>

However, 1 in person plus e-mail alone (OR=.81, p=0.29) or e-mail plus telephone (OR=1.06, p=.82) was associated with similar HIV viral suppression as 2 in-person visits.

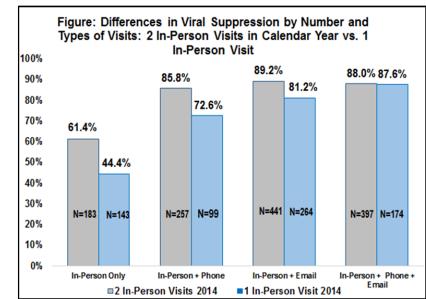
	Unadj	usted Analys	is	Ad	justed Analysi	S
		Reference gr	oup: 2 in-p	person visits or	nly annually	
	Odds Ratio	95% CI	p-Value	Odds Ratio	95% CI	p-Value
2 In-Person + Telephone only	1.33	(0.78, 2.27)	0.30	1.28	(0.75, 2.21)	0.37
2 In-Person + E-mail only	1.82	(1.10, 3.00)	0.02	1.57	(0.94, 2.63)	0.09
2 In-Person + Telephone + E-mail	1.53	(0.93, 2.53)	0.09	1.35	(0.80, 2.25)	0.26

Among the subset of patients with at least 2 in person visits, supplementing with telephone and/or email was associated with a greater odds of viral suppression compared with 2 in person visits only, although results did not reach statistical significance.

# How often do patients need to be seen?

#### Resetting the standard definition of retention in care

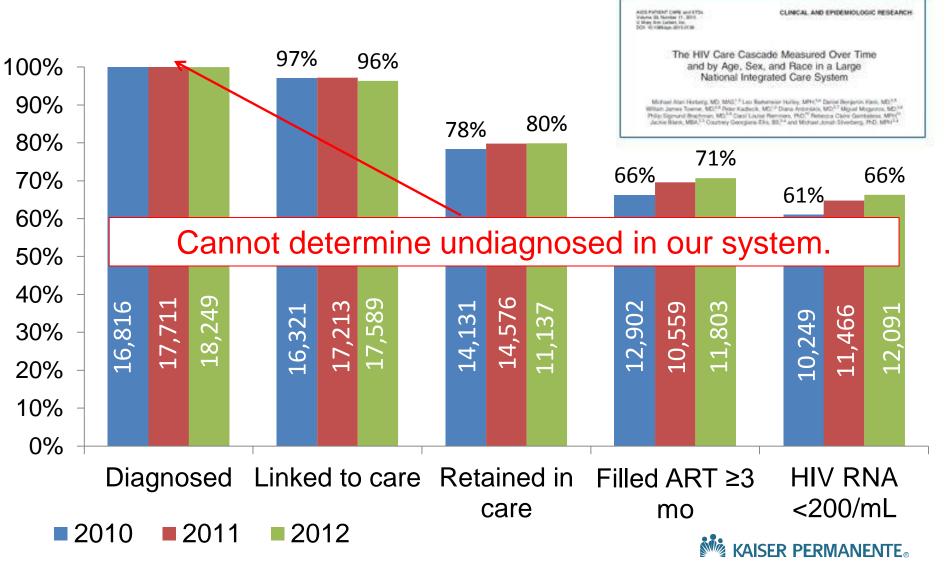
Horberg, Blank, Rubenstein, Kadlecik, et. al., "Differences in HIV Viral Suppression by Frequency and Type of Healthcare Visits," *CROI 2016*, Boston, MA, February, 2016



Using Big Data to Answer Ongoing Quality Questions of Care

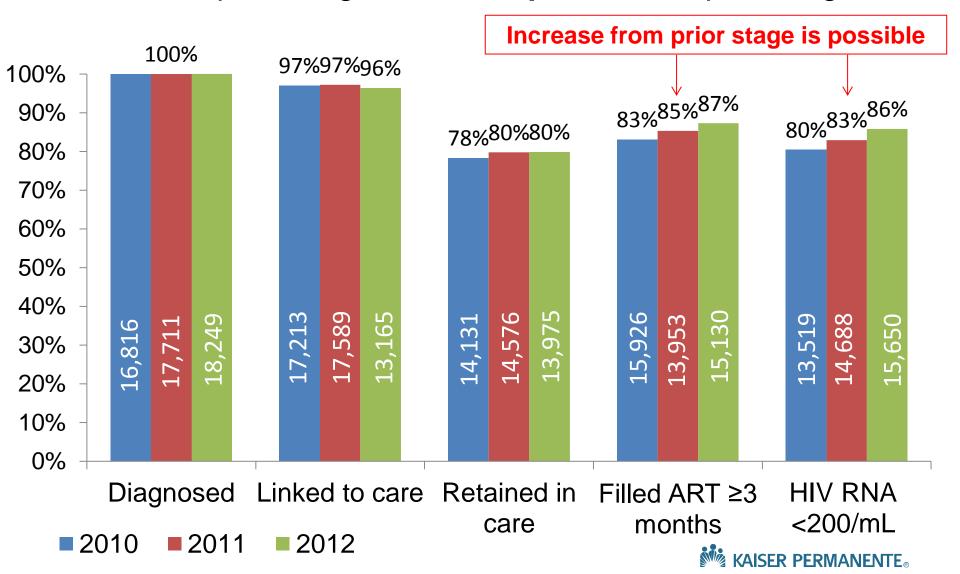
#### **KP HIV Care Cascade 2010-2012**

Subsequent stage is **dependent** on prior stage



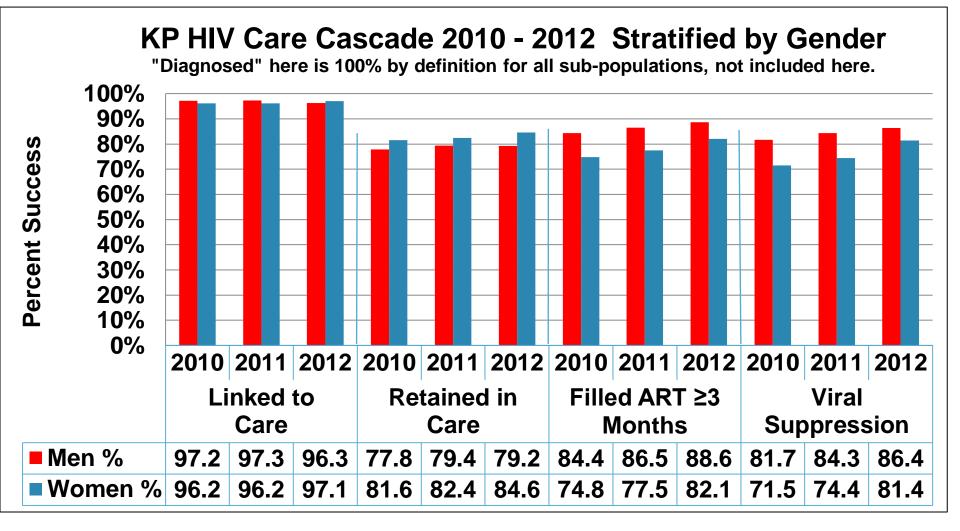
Horberg, et. Al., AIDS, Patient Care, and STDs; 2015

#### But Methodology Matters! Subsequent stage is NOT dependent on prior stage



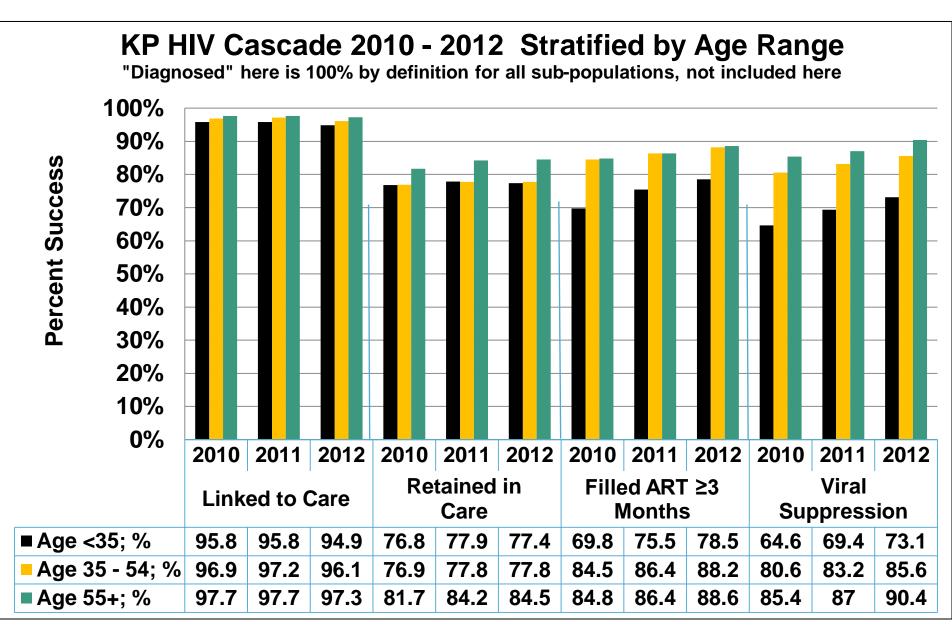
Horberg, et. Al., AIDS, Patient Care, and STDs; 2015

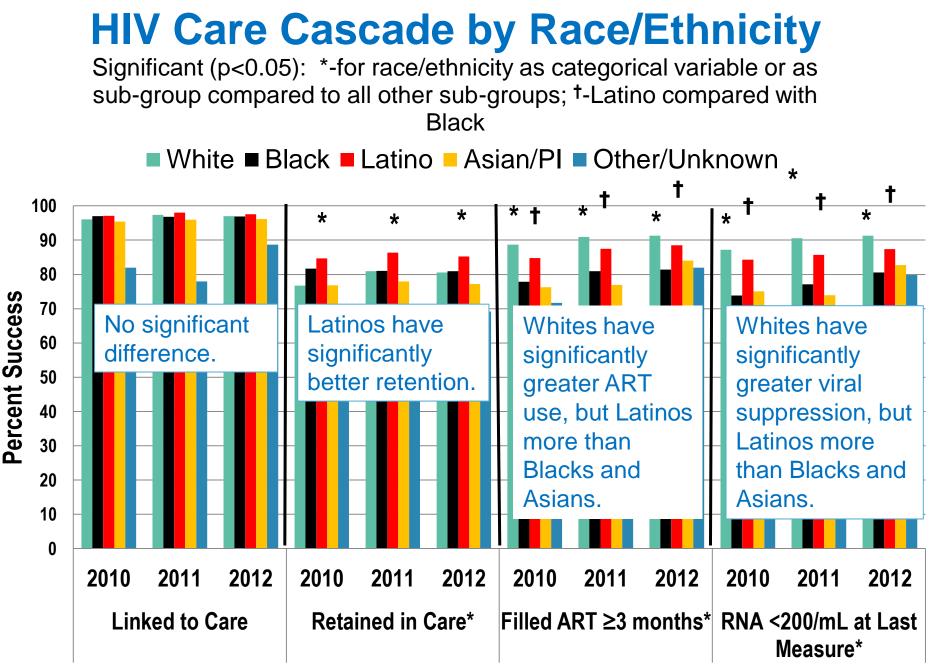
# Can Stratify by Demographics: by Gender



Horberg, et. Al., AIDS, Patient Care, and STDs; 2015

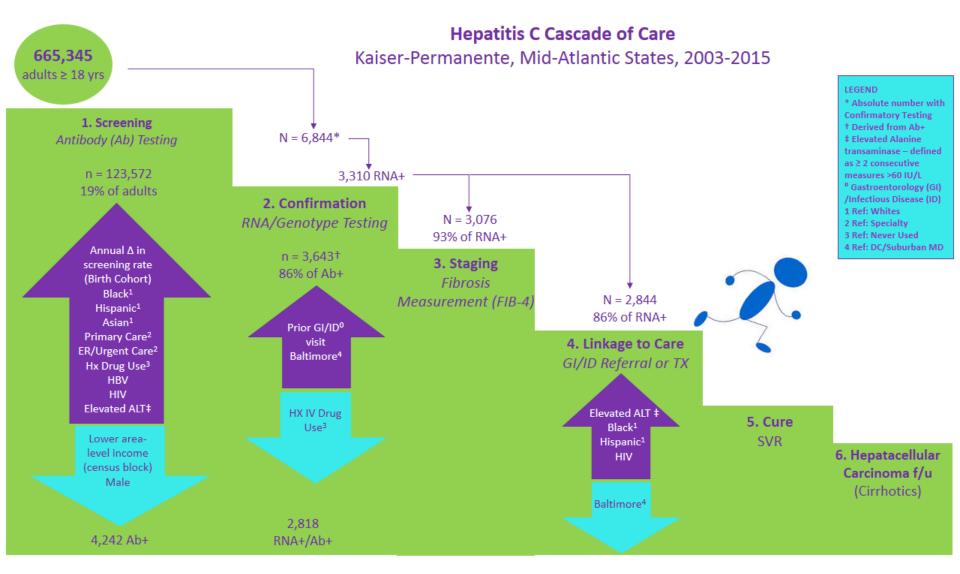
#### Can Stratify by Demographics: by Age





Horberg, et. Al., AIDS, Patient Care, and STDs; 2015

### But Can Also Do for HCV—KPMAS Data



Rodriguez CV, Rubenstein K, Hu H, Linus B, Horberg M. Increasing Hepatitis C Virus (HCV) Screening and Linkage to Care in a Large Integrated Health System.2015 American Association of Liver Diseases 66<sup>th</sup> Annual Meeting, San Francisco, CA, Nov 2015

#### KAISER PERMANENTE®

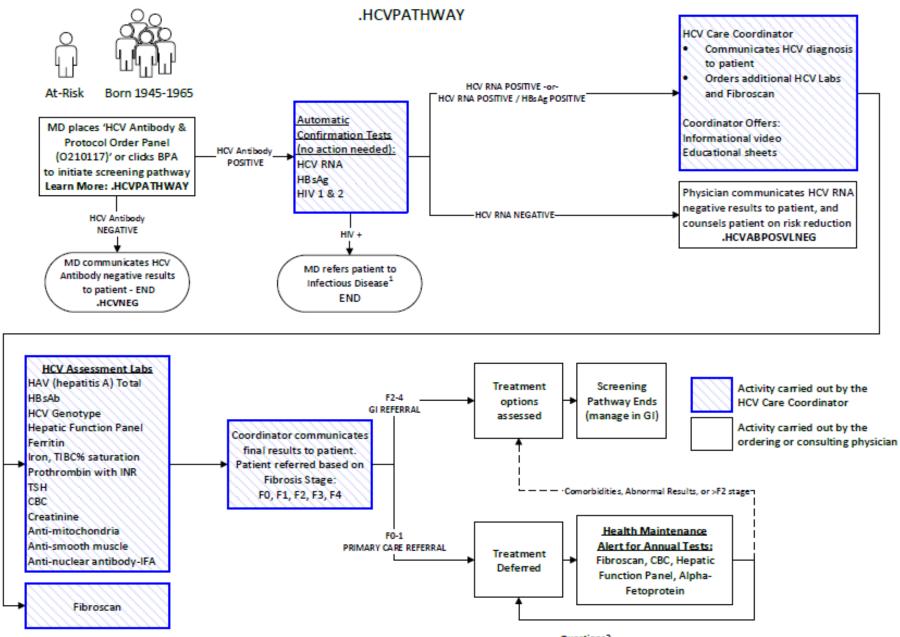
## For Screening: Hepatitis C in KPMAS

- >5,100 active members with HCV in 2015
  - >10,000 in recent past have had HCV (active or former KP members)
- <10% have ever been treated for HCV</p>
  - Fortunately, ~25-30% have cleared the virus (RNA -, don't need treatment)
- 40% have not had recent labs or been evaluated by GI
- We are now diagnosing about 90-100 new cases monthly with increased testing





#### Hepatitis C Cascade of Care in KPMAS



<sup>1</sup>Infectious Disease physician completes HCV workup concurrent with HIV treatment

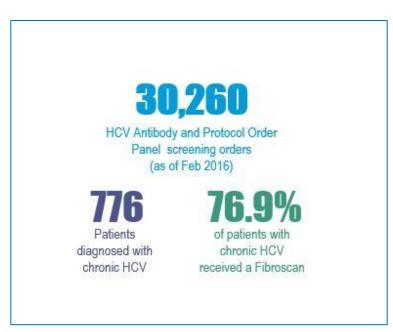
Questions?

Clinical: Dr. Michael Horberg 301-852-9307 (cell) or the GI Chiefs Operational: Cabell Jonas, PhD 202-594-7836 (cell) Hepatitis C Care Coordinator: Linda Steeby 703-674-7684

## **Ordering the Pathway**

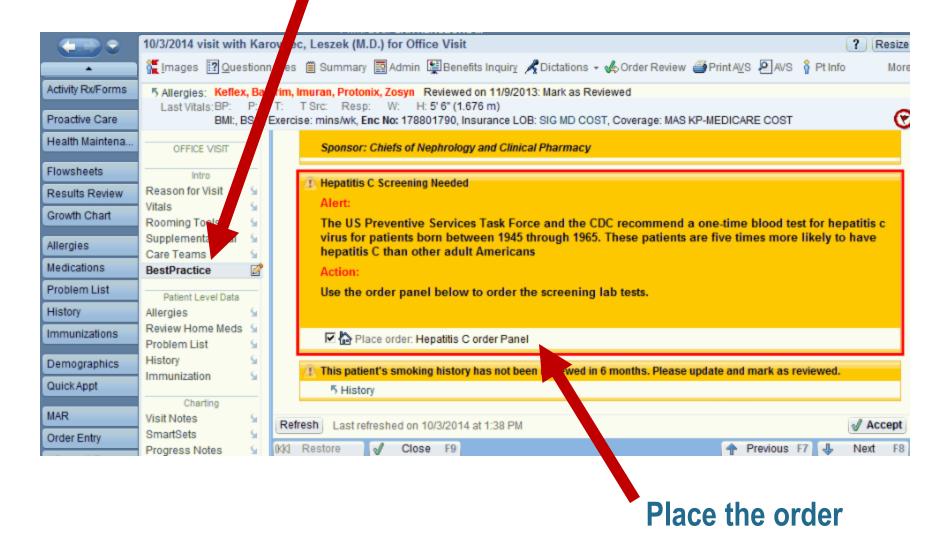
Best Practice Alert for Baby Boomers

- If your patient is a Baby Boomer and is eligible, order the new screening pathway by clicking the BPA and placing the order inside.
- BPA fires in Adult Primary Care, GI, ID, and OBGYN
- Within the STI (sexually transmitted infections) Screening Order Set and Adult Health Assessment The new HCV screening pathway replaces the single HCV Ab test in these two Order Sets



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#### Ordering for Baby Boomers – Preventive Screening: Click Visit Navigator → Best Practice at Left



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# **STI Screening Order Set**

Age: 42 yr. PCP Vadiakonda, Ningas. Age: 42 yr. PCP Vadiakonda, Ningas. Age: 43 yr. PCP Vadiakonda, Ningas. Structure, SILVER SPRIN. Unknown: Not. Structure, PCP Vadiakonda, Ningas. Structure, SILVER SPRIN. Unknown: Not. Structure, PCP Vadiakonda, Ningas. Structure, SILVER SPRIN. Unknown: Not. Structure, PCP Vadiakonda, Ningas. Structure, SILVER SPRIN. Unknown: Not. Structure, PCP Vadiakonda, Ningas. Structure, SILVER SPRIN. St
Inconnect, JdCfix       Age: 42 yr.       PCP: Vadlakonda, Nirupa       Alergies:       Alergies:       Mode:       End Active Drop Inactive       Curr Made:: bit PROPIon 150 mg         SName: Jimmy       Soc: Male       Prim. Loc: SILVER SPRIN       Mini Male       Prim. Cyp: MAS KP       No       IB Msg: Clim: Made:: bit PROPIon 150 mg         SName: Jimmy       Soc: Male       Prim. Loc: SILVER SPRIN       Mini Male       Prim. Cyp: MAS KP       No       IB Msg: Clim: Made:: bit PROPIon 150 mg         SName: Jimmy       Soc: Male       Prim. Loc: SILVER SPRIN       Mini Male       Prim. Cyp: MAS KP       Soc: Male       Prim. Loc: SILVER SPRIN       Soc: Male       Prim. Loc: SILVER SPRIN <td< th=""></td<>
Name: Jimmy     Soc Male     Prim. Loc: SILVER. SPRIN     Unknown: Not     Prim. Loc: SILVER. SPRIN     Unknown: Not     Prim. Loc: SILVER. SPRIN     Unknown: Not     Prim. Loc: SILVER. SPRIN     Jurisdicion. Maryland       2005 10, 200     2012015 visit with Genova, Frank J (M.D.) for Office Visit     Image: Display and Disp
1231/2015 visit with Genova, Frank J (M.D.) for Office Visit         1          1         1         1         1         1         1         1         1         1         1         1         1         1         1<
1       Images
Image: Not on File       Reviewed on 60/2015: Mark as Reviewed         Last Vitals: BP: P: T: TSrc: Resp: W. H:         BMR, BSA; Exercise: mins/wk, Enc No: 210332922, Insurance LOB: HMO - HMO COM*, Coverage: MAS KP-MD ATLANTIC         aForms         OFFICE: VISIT         Intra         Intra         Bintena.         Reason for Visit         Vitals         Doubla Screening Si         Review         Rooming Tools
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BastPractice V BastPractice V 0 of 1
→ LABS
Preferent Lawred Dates Attergies S
List Review Home Meds. S Use the HCV Antibody and Protocol Order Panel for routine Hepatitis C screening. Pathway automatically tests for HCV RNA (viral load) if HCV Ab positive. If Ab and RNA positive, the Hepatitis C coordinator will place additional orders
Problem List S G KND CHLMANDIA DNA PROBE, URINE
ations History Normal Routine
Goals
aphies Immunization Si Print, Routine
pt Charting Normal Routine
Visit Notes S HIV 1/2 ANTIBODY
SmartSets @ Normal, Routine Progress Notes 9 Fugness Notes 9 F
TReque. Hourses Notes a Hepatinis B PANEL (HEPB S A), HEPB S A), H
My Meds & Orders S ETHCV ANTIBODY AND PROTOCOL ORDER PANEL
actives Completion > STD LESS COMMONLY USED LABS 0 of 2
Is Pt. Instructions S VI DIAGNOSIS
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Ims Print AVS S PATIENT INSTRUCTIONS
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# **Adult Health Assessment Order Set**

hconnect,		Age	z 42 yr PCP. Vadlakonda, Nirupa 📜 Allergies 💦 Alert. HM. Prim. Cvg.: MAS KP	EpicCere C
d Name: Jimmy 202531, 🔮		Sac	: Male Prim. Loc.: SILVER SPRIN., Unknown: NoL., PY Die LOB: HMO - HMO C Nº IB Mag: 🛎 Prob. List: Circulatory: CARDIOM SDO: Signature Jurisdiction: Marytand	
			ra, Frank J (M.D.) for Office Visit is 🔋 Summary 📓 Admin 🗐 Benefits Inquiry 💩 Scans - 📌 Dictations - 🚸 Order Review 🥔 PrintAyS 👂 Plinto 🔒 Appts - 💩 Photo Upload 🐚 Wristband Reprint 🚏 Patient Instructions I	👔 Pt Calendar 🗳 Cost Estimate 👔 Assign PI-Onr 🔀 Answer PI-Onr
	ast Vitals: BP: P:	5 T:	vlewed on 60/2015: Mark as Reviewed T Src: Resp: W: H: clise: mins/wk, Enc No: 210332922, Insurance LOB: HMO - HMO COM*, Coverage: M48 KP-MD ATLANTIC	Ø
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Supp	plemental Vital S		GUIDELINES & EVIDENCE BASED SUMMARIES	
	e Teams 🛛 🖇		v PROGRESS NOTES	
Best	tPractice 🛛 🤟		Please review and update Patient Level Data, including allergies, problem list, medications, immunizations, and history section (PMH, PSH, FH, SH)	
18	Patient Level Data		- Progress Notes	
Aller			HA ADULT MALE WITHOUT NORMAL EXAMOEFAULTED est     HA ADULT MALE WITH NORMAL EXAMOEFAULTED est	
PVD III	iew Home Meds 🖕 blem List 🖇		RIGHT CLICK TO ADD FERSIONAL DOCUMENTATION and	
Hist			ORDERS - LABS	
Goal			▷ LABORATORY FOR ADULT HA	0 of 22 sele
hics Imm	nunization S	1	STD & HEPATITIS SCREENING (One time Hepatitis C testing is recommended for all adults born between 1945 and 1965. One time Hepatitis B testing is recommended for all a	
	Charting		Southeast Asia and China, sub-Saharan Africa, Eastern Europe and parts of South America.)	
	t Notes S		Use the HCV Antibody and Protocol Order Panel for routine Hepatitis C screening. Pathway automatically tests for HCV RNA (viral load) if HCV Ab positive. If Ab and RNA backeting Change and the CV Antibody and Protocol Order Panel for routine Hepatitis C screening. Pathway automatically tests for HCV RNA (viral load) if HCV Ab positive. If Ab and RNA	positive, the Hepatitis C Coordinator will place additional orders
Brook	artSets 🦉 gress Notes 🔓	2	including Fibroscan.	
reque	t Diagnoses 🛛 🖌		Normal, Rouline	
/ Med	ls & Orders 🔰 🖌		GC AND CHLAMDIA DNA PROBE Print, Readine	
tives	Completion	-	-YER, NAJURE	
Pt. Ir	nstructions S		Normel, Rouline	
	irge Entry		HIV 1/2 ANTIBODY Normel, Routine	
Del et	}&Follow-up ≦ tAVS ≦		In HEPATITIS B PANEL (HEPB S AL HEP B CORE IGM)	
10	come Letter S		Normal, Routine	
W Clos	se Encounter 👘 🖕		E HCV ANTIBODY AND PROTOCOL ORDER PANEL	
			▶ FUTURE LAB, 6 WKS	0 of 22 sele-
ofCare			▷ FUTURE LAB, 3 MOS	0 of 22 sele-
rs			▷ FUTURE LAB, 6 MOS	0 of 22 sele-
ging			▷ VACCINE TITERS	0 of 4 sele-
			© ORDERS - VACCINES	

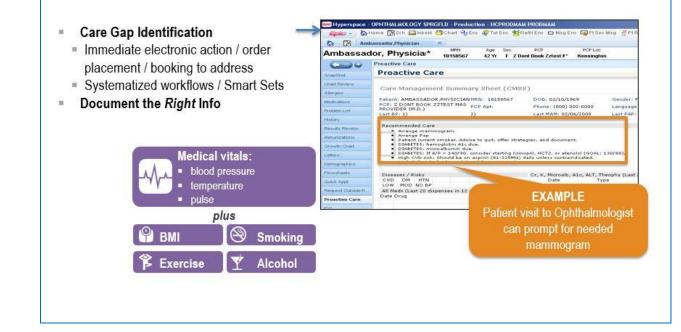


# The Next Frontier?—Putting the Data at the Provider's Fingertips --And Making Them Use It!

#### **Population Health Built-in**

PROACTIVE CARE DRIVEN BY TECHNOLOGY

Automatic prompts at every visit in every department

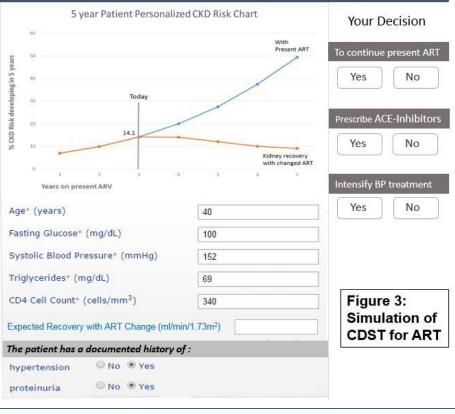


#### What if we did this for HIV?

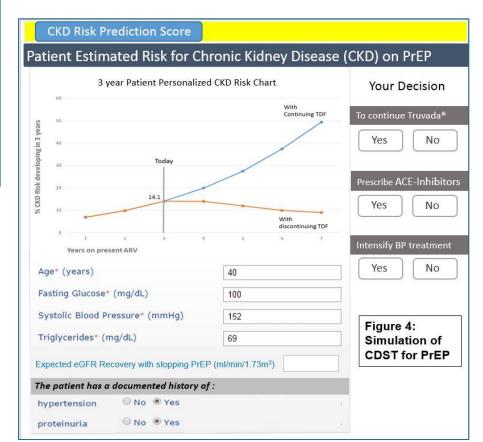


#### CKD Risk Prediction Score

#### Patient Estimated Risk for Chronic Kidney Disease (CKD)



To Improve Kidney Health among Patients Using ART or PrEP



# **Concluding Thoughts**

- Need to think about the back end as well as the front end of the EHR
- The EHR is a powerful tool
  - But need to know how to use it
- Data across systems is not only coming—it's here!
- HIPAA is not a small issue
- It has wide application for HIV and HCV
  - For screening, care improvement, quality measurement
- You need a Health Imformaticist for best results



"Working together, I am confident that we can stop the spread of HIV and ensure that those affected get the care and support they need."

--President Barack Obama

Strive only for the best. Be proud. The great work continues. Thank you

