Using Electronic Networks of Care…..
……..Across the Continuum of HIV Care

a Special Project of National Significance
Grantee's presentations

2007 to 2011

Who are you?

Workshop Description

Panelist shall demonstrate

How electronic networks of care (ENC) systems have …

- leveraged patient data and technology to simplify, clarify, and automate communications across different HIV care models to improve efficiencies in the engagement and coordination of clinical care

Special Projects of National Significance – IT Networks of Care

Demonstration Project (2007 – 2011)

Goal:

To develop and evaluate electronic health information exchanges that links providers, public health agencies, and/or patients.

SPNS Electronic Networks of Care Initiative

- Salient Questions behind the initiative:
  - What is each Health Information Exchange doing?
  - When are they effective?
  - Where are they effective?
  - With whom are they having an effect?
  - How exactly are they having an effect?
  - Are they cost effective?

SPNS Initiative

- Six demonstration sites:
  - Bronx-Lebanon Hospital Center, New York, NY
  - City of Paterson, NJ, Ryan White Grants Division
  - Duke University, Durham, NC
  - Louisiana State University Health Sciences Center, New Orleans, LA
  - New York-Presbyterian Hospital, New York, NY
  - St. Mary Medical Center Foundation, Long Beach, CA

SPNS Initiative

- Cross-site evaluation center
  - Center for AIDS Prevention Studies, University of California, San Francisco (PI: J. Myers)

- HRSA-SPNS
  - A. Cajina, F. Malitz, R. Mills, M. Tinsley

Electronic Networks of Care: Utilization, Coordination and Quality of Care at Baseline

Starley Shade, MPH, PhD

University of California San Francisco

- Initiative is entering its 4th and final year

- Each site has implemented a bi-directional electronic health information exchange

- Evaluation includes

Quantitative surveys with patients

Quantitative surveys and qualitative interviews with users of the systems (e.g., providers)

- Extraction of de-identified data from the system

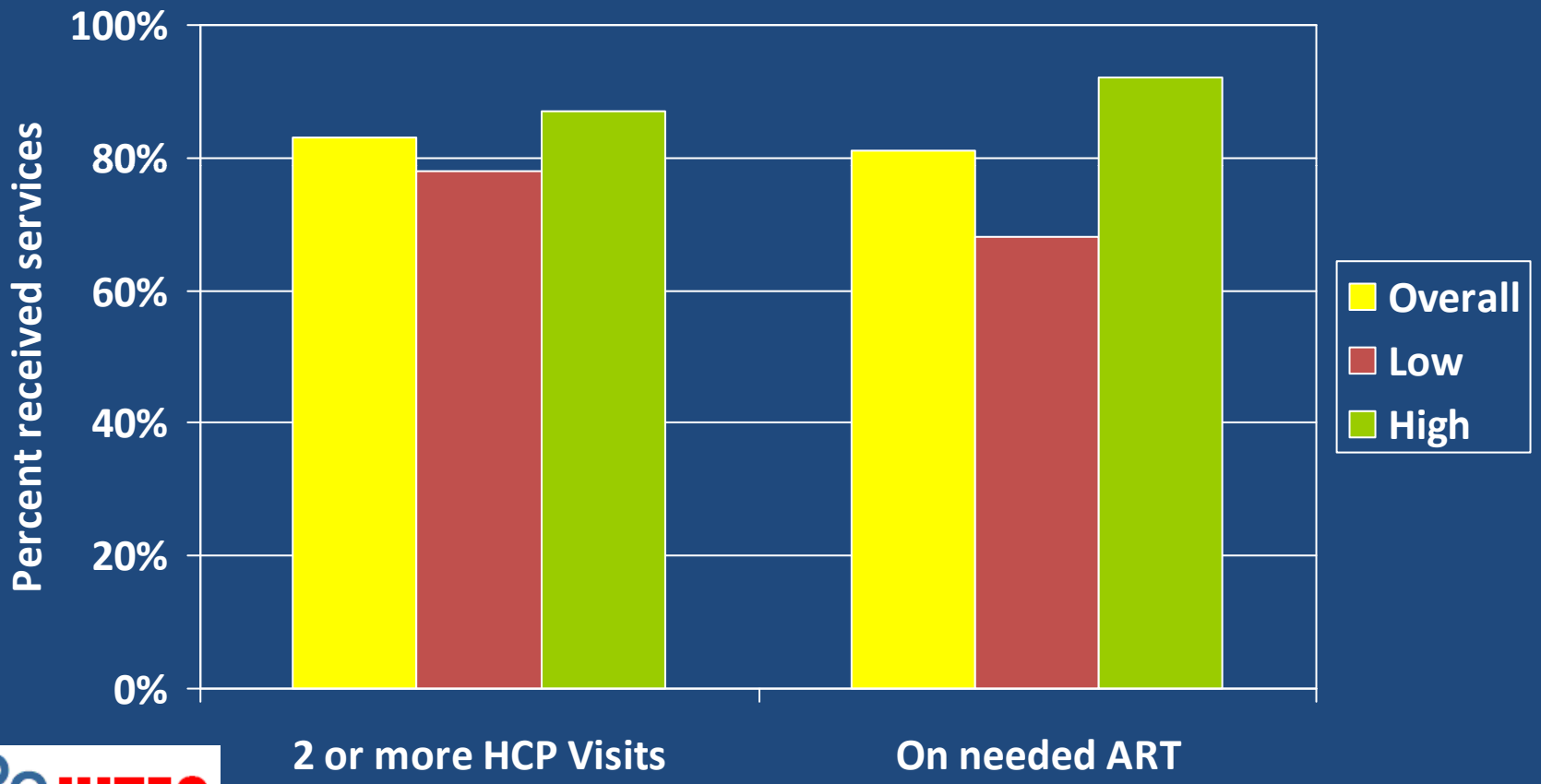
Methods

- Used baseline patient survey data to describe:
  - Healthcare utilization
  - Coordination of care
  - Perceive quality of care
- Used baseline data extract from electronic systems to identify:
  - Data sharing
  - Referral Tracking

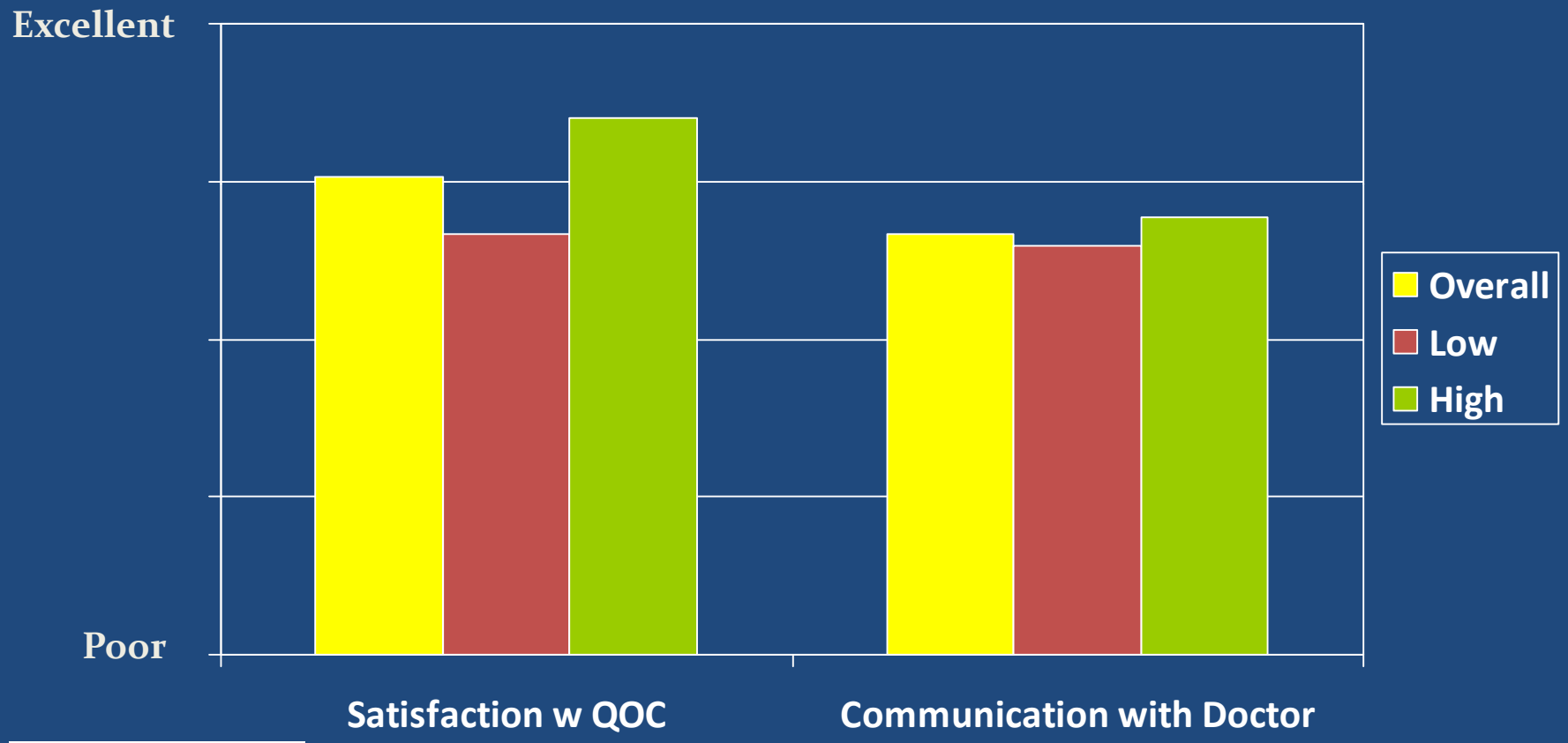
Site Participation

Name of site	N
City of Paterson	116
Duke University	104
LSU Health Services Center	100
NY Presbyterian Hospital	98
St. Mary Medical Center	100

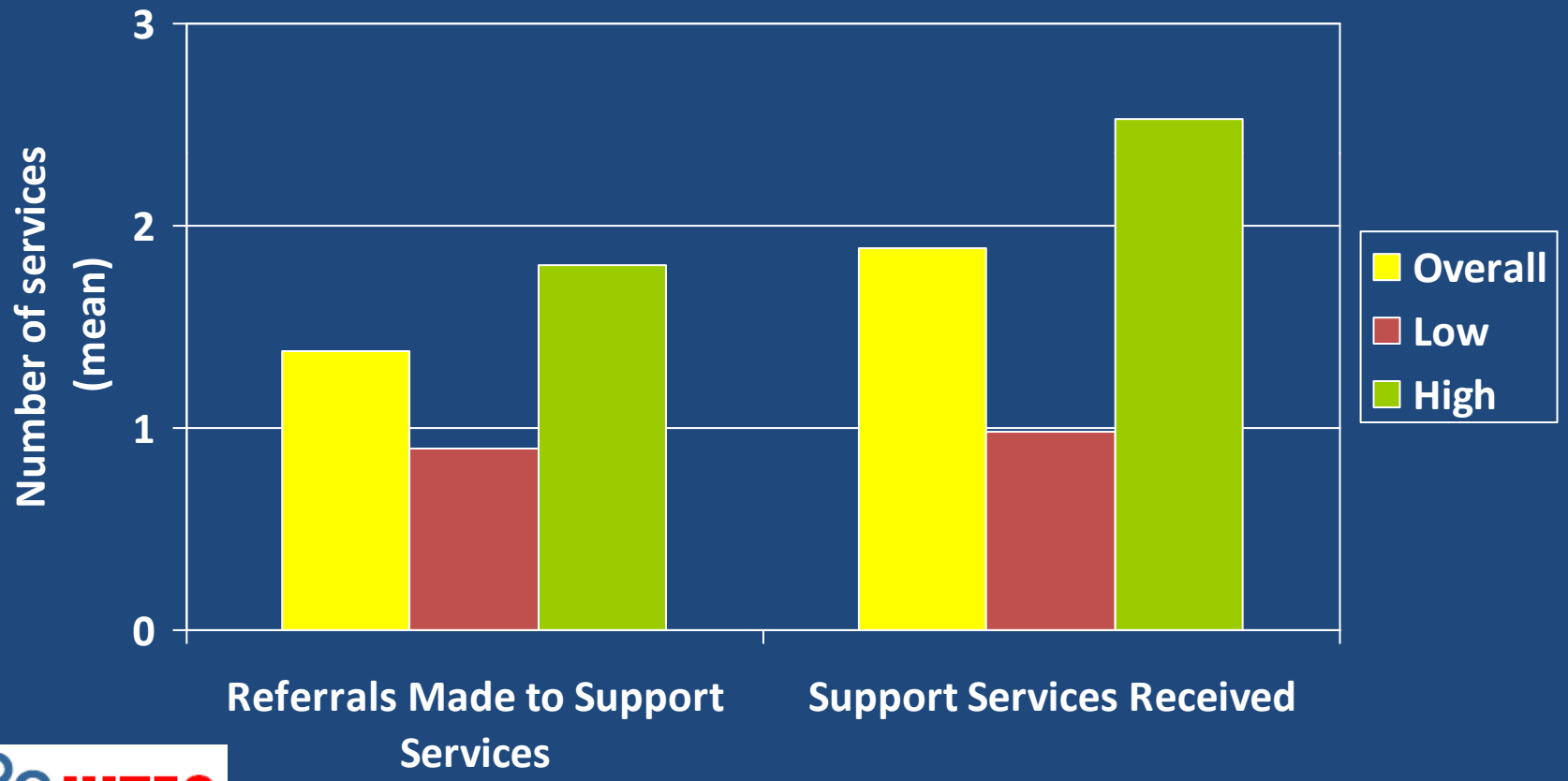
Utilization of Care



Quality of Care (QOC)



Coordination of Care



Electronic coordination of care

- Data Sharing
  - Data from primary care was shared with support service providers in two of the six systems.

- Referral Tracking
  - Initiation and completion of referrals to support services was tracked in only one of the six systems.

Discussion

- Prior to this initiative, patients reported:
  - Appropriate utilization of primary care
  - Initiation and receipt of referrals to support services
  - Satisfaction with care.

- However, few of these systems allowed for sharing of information between:
  - Primary and support service providers, or
  - Tracking of the initiation and receipt of referral.

- These and other identified gaps provide the targets for the present initiative.

LSU – La Phie

Bronx-Lebanon Hospital

Using technology to establish a reminder system to improve patient outcomes

Duke – Wake Forest

REGIONAL HEALTH INFORMATION INTEGRATION PROJECT (RHIIP)

Aimee Wilkin, MD MPH
Wake Forest University Health Sciences

Lynne Messer, PhD MPH
Duke University

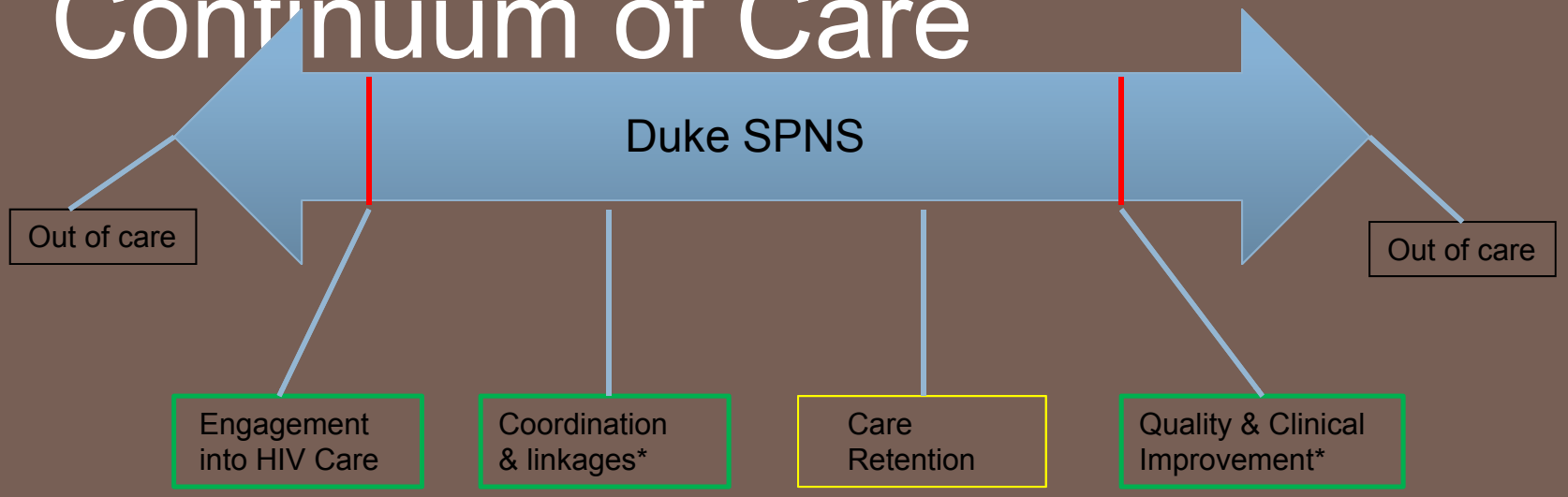
U.S. Department of Health and Human Services
HRSA
Health Resources and Services Administration

WAKE FOREST UNIVERSITY
HEALTH SCIENCES

Center for Health Policy & Inequalities Research
AT DUKE UNIVERSITY

DUKE GLOBAL HEALTH INSTITUTE

Continuum of Care



- Engagement into care
- Coordination and linkages
- Care Retention
- Clinical Improvement/Quality Improvement

REGIONAL HEALTH INFORMATION INTEGRATION PROJECT (RHIIP)

- RHIO- Regional Health Information Organization
  - stakeholders that partner to share health information in order to facilitate improvements in healthcare quality, safety and efficiency.

- Our HIV-specific RHIO
  - Formed from existing regional consortium, CBO's and large HIV clinic in an eight county regimen of mid-west NC
    - Mix of rural and urban areas, large geographic area

Tools for RHIO

- CAREWare network
  - (Free!) software developed for managing & monitoring HIV clinical and supportive care. http://hab.hrsa.gov/careware
  - Required by NC State AIDS Care Unit for reporting

RHIIP– SPNS project goals

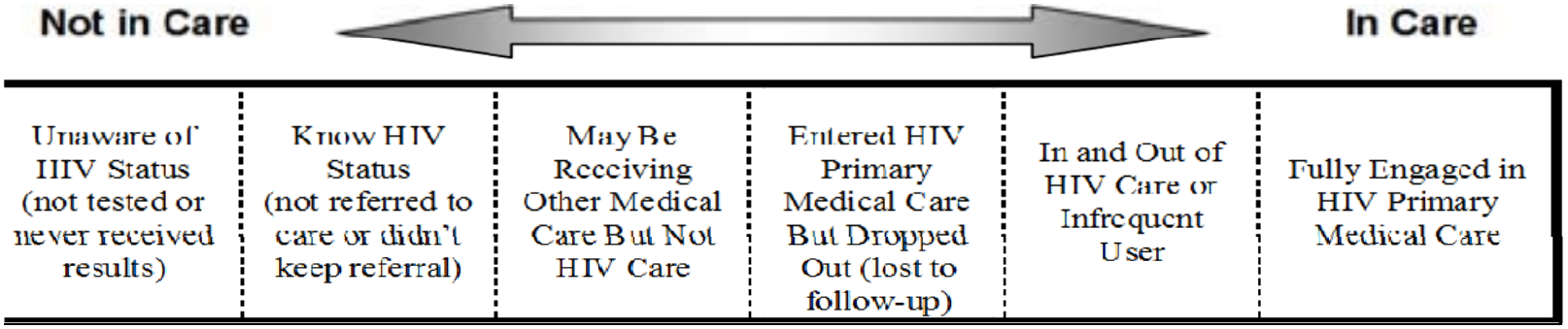
- Develop a CAREWare RHIO
- Implement CAREWare network of care
- Evaluate CAREWare network of care
- Assess and enhance organizational readiness for adopting IT
- Maintain and improve the CAREWare network
- Conduct quality assurance activities
- Disseminate findings

REGIONAL HEALTH INFORMATION INTEGRATION PROJECT

- RHIIP
  - Originally comprised of 5 organizations near Winston-Salem, NC
  - An IT network was laid on top of the existing provider network to enhance and facilitate cross-organizational care
  - Using CAREWare and a regional server, the RHIO supports administrative and clinical functioning through the sharing of electronic health information among partner agencies
  - RHIO works to implement this shared network with the ultimate goal of improving patient health outcomes and satisfaction

Goals of data sharing

- Improve quality of medical care
  - All providers can reinforce patient's medical knowledge, adherence to medications and appointments
  - Case managers and medical clinic providers can find necessary information about services/status easily
  - Opportunity to aggressively re-engage patients in care if appointments are missed

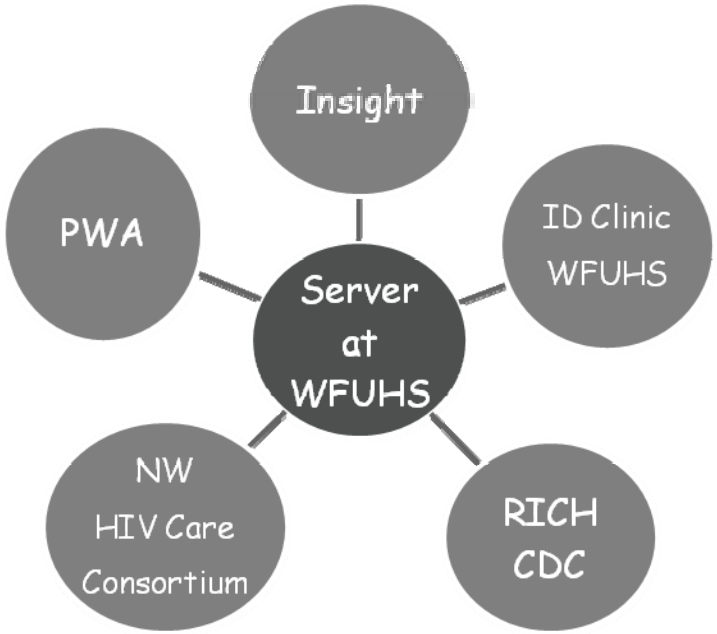


Goals of data sharing

- Improve efficiency of medical care
  - Less time in obtaining information from each other
  - Less repetition for client accessing care at different locations
- Improve efficiency of billing and reporting
  - Helps with reporting
  - CQI reports
  - Monthly billing of Ryan White services

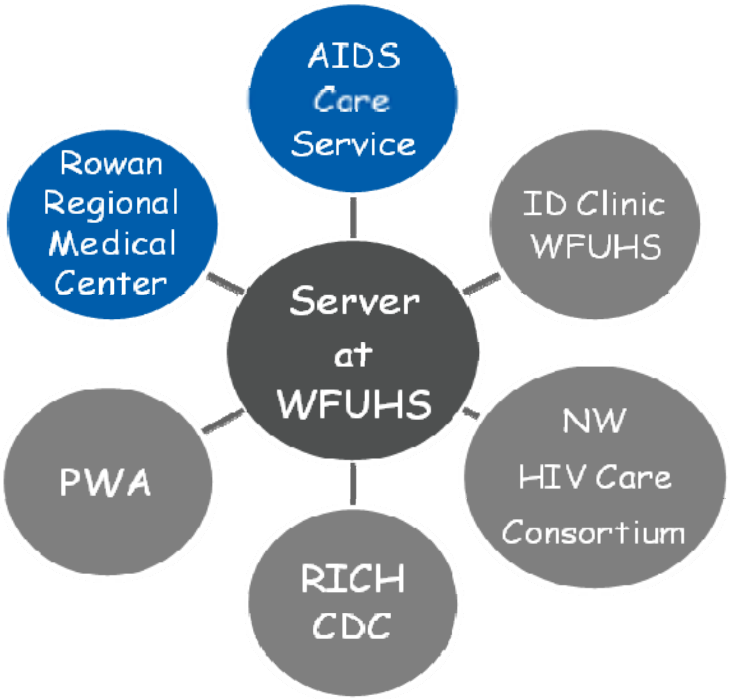
RHIIP– Early Structure

- CHIC = Carolina HIV Information Cooperative
- As of January 2008, CHIC had 5 members
- Active data exchange: November 2008
- 25 users; 561 clients; 181 actively exchanging



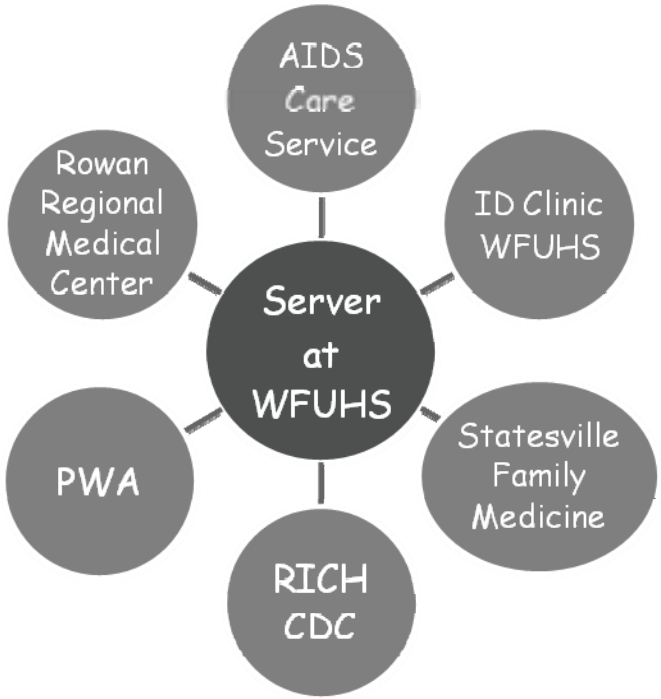
RHIIP– Updated Structure

- As of September 2009, the CHIC RHIO includes six organizations (lost 1, gained 2)
- 30 individual users, working with 1077 clients
- 338 clients involved in some active exchange



RHIIP – Structure as of April 2010

- CHIC RHIO includes six organizations
- 37 individual users, working with 3231 clients (up from 1077 clients in November)
- 492 clients involved in some active exchange (up from 338 in Nov)



Implementation issues

- Security issues
  - Citrix portal with server at WFUHS
  - Business associate/data sharing agreements
  - Consent forms for data sharing
- Data sharing
  - Standards for how to enter/change information
  - What information to share?
- Training
  - Monthly meetings
  - One-on-one user training
  - Statewide training

RHIO Activities

- Providers have begun using referral functions, which allow one provider to refer a client to another provider (e.g., from the clinic to a case management agency or from case management agency to food pantry)

- Providers also beginning to experiment with producing a wide variety of reports to help improve efficiency and client care

Statewide Reorganization of HIV Care

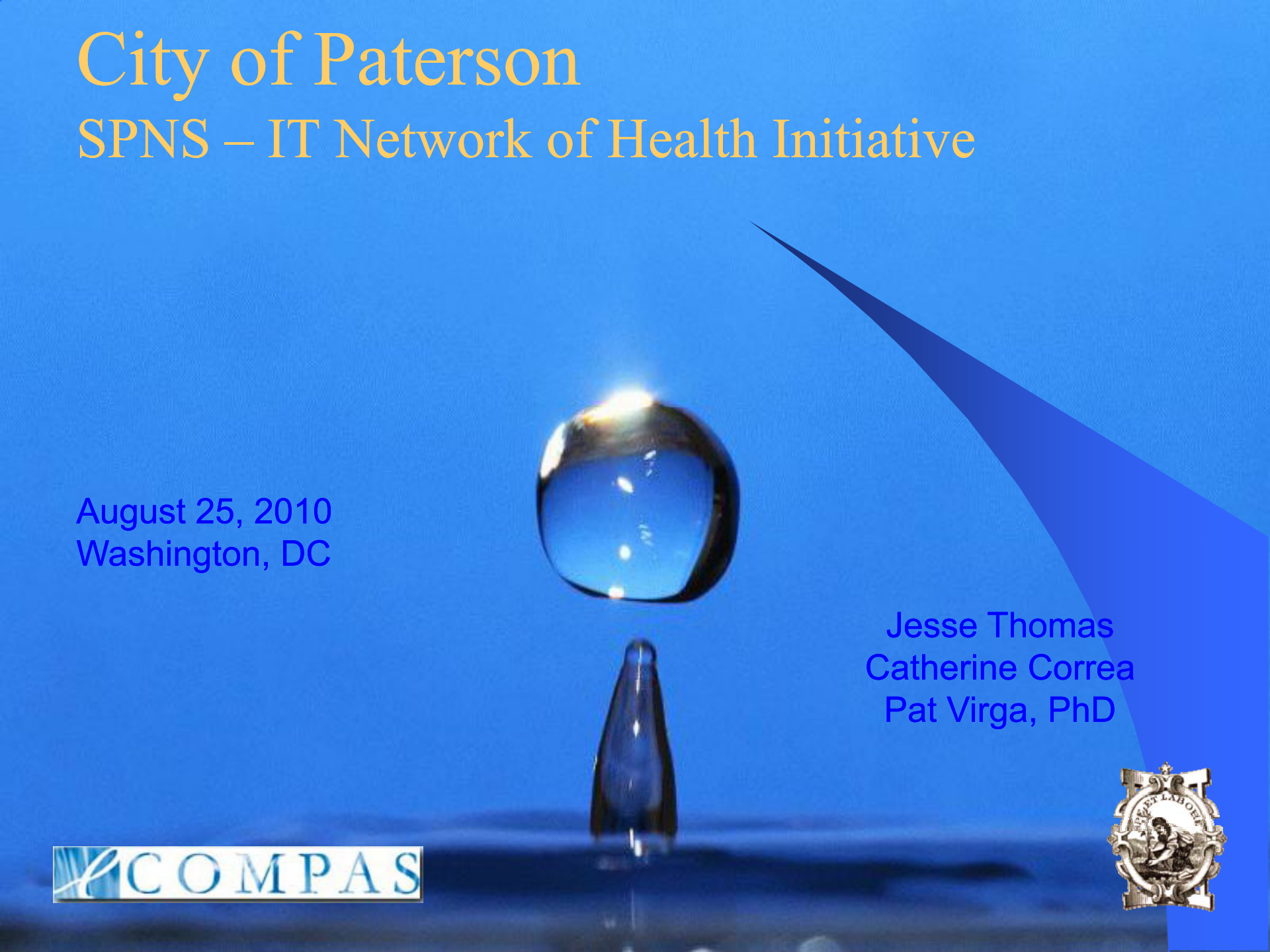
- Statewide Consortia model reorganization
  - Development of networks of care
  - Provision of full continuum of services from diagnosis to hospice
  - Network to support variety of reporting, administrative, clinical functions
  - Potential overlay of care network above IT network for replication across state

RHIIP – Sustainability

- Required part of our network
- Now viewed as one model for information sharing by state
- Hired a full-time program analyst (not on SPNS budget) to coordinate network data collection, RHIO, reporting (admin, CQI, etc)
  - Improve efficiency of data collection
  - Uploading historical WFUHS into CAREWare
  - Almost completely paperless clinic now
  - Increasing functionality to meet RHIO's desires

City of Paterson

SPNS – IT Network of Health Initiative



August 25, 2010
Washington, DC

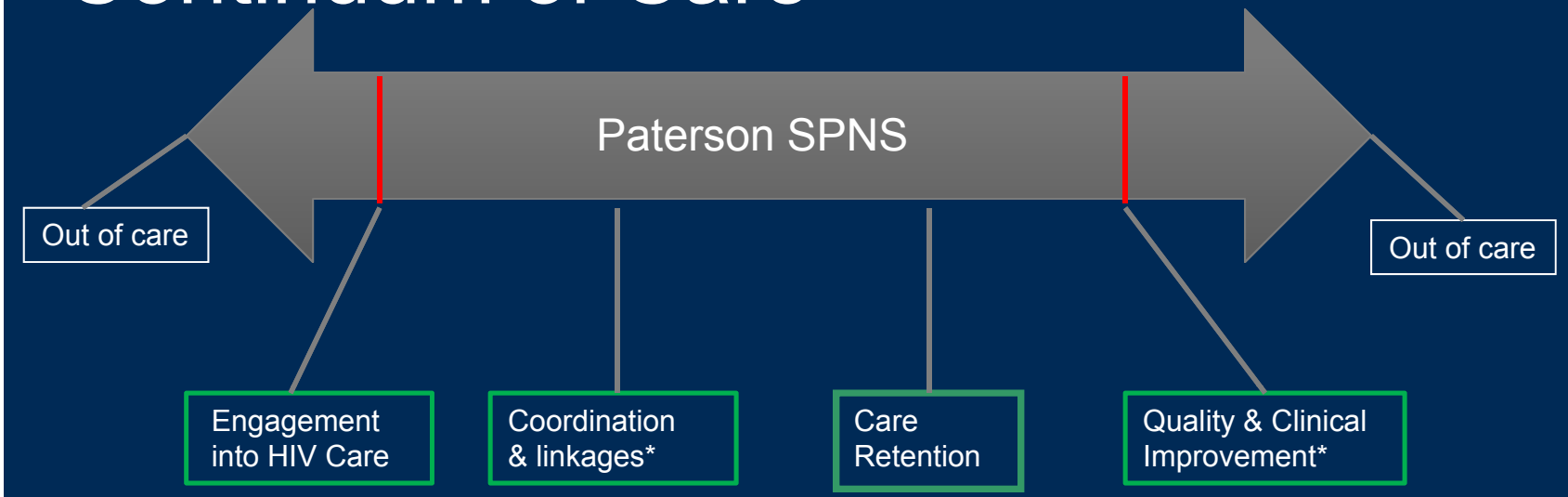
Jesse Thomas
Catherine Correa
Pat Virga, PhD

COMPAS

Where Are We From?

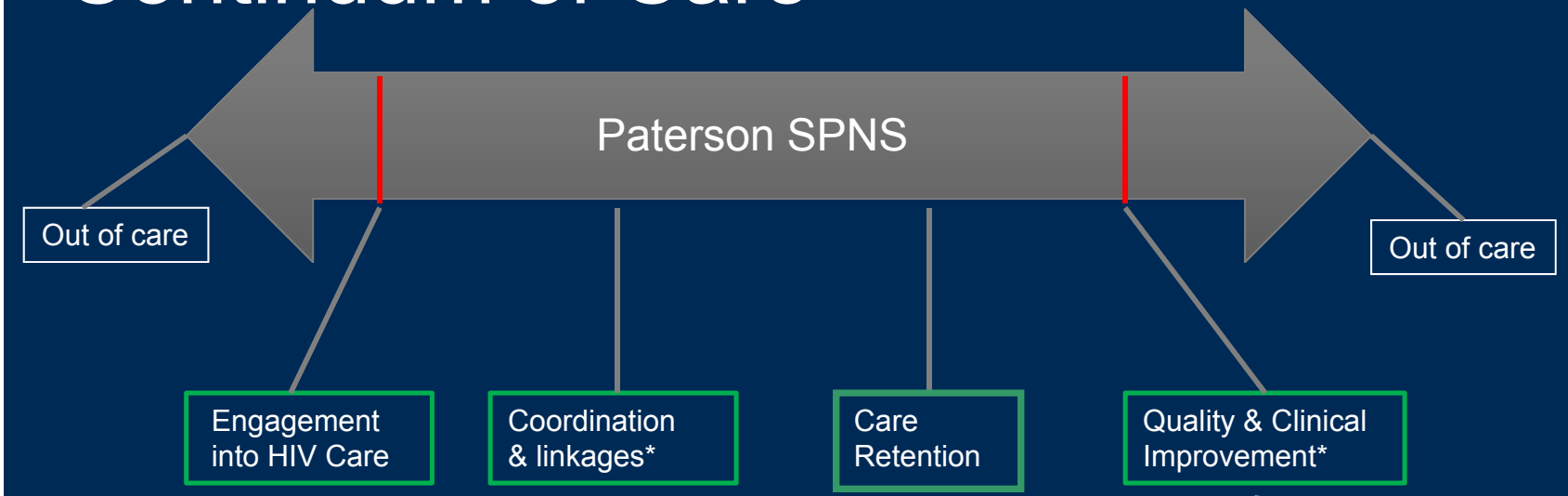

N
Image © 2008 DigitalGlobe
Image © 2008 TerraMetrics
Image NASA
Google
36°07'59.12" N 109°08'54.10" W
Eye alt 9869.90 km

Continuum of Care



- Out of-Care
- Engagement into care
- Coordination and linkages
- Care Retention
- Clinical Improvement/Quality Improvement

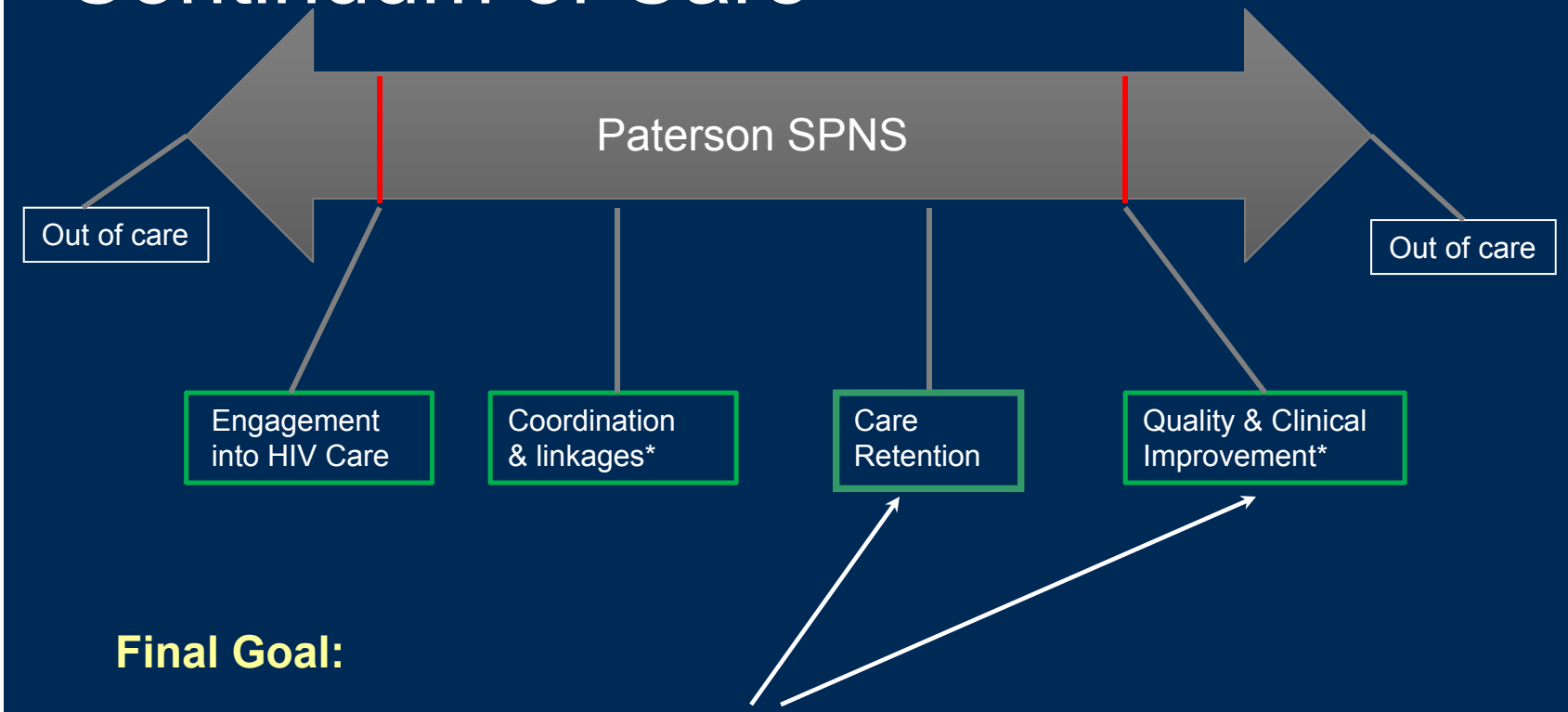
Continuum of Care



Goals

- **Strengthen the management and exchange of patient health information.**
- **To reduce lag time between diagnosis and entry to care and to enhance retention in care through use of the e2 system.**

Continuum of Care



Final Goal:

To promote provider self-monitoring via the e2 system in order to improve patient outcomes as measured by quality of care and patient satisfaction.

Background

Story of failure to success…

Methods

Monthly engagement with Key Stakeholders.

On-site clinical support.

Systems enhancements.


Fully Web-Based
User-Friendly
Visual
Manages full continuum of care
Process over Product

System Implementation Updates

- Retention Module
- Updated Online Resource Guide
- Goals and Benchmarks Tracking Ver 1
- Progress on Medical Data Exchange Restructuring
- Alerts and Reminders Module
- Quality Journaling (PI) Module
- HIV Testing Module Implementation

System Implementation Updates

- Access granted to HIV testing sites
- Clinical module:
  - TB/TST Report Refinement
  - Comprehensive Metabolic Panel
  - Syphilis Screening Project Improvement Report
- Consent tracking (Client Documents Module)
- In Care Alert (Last Medical Visit)
- NJ Cross-Part Collaborative Report

Federal Electronic Reporting (RSR):

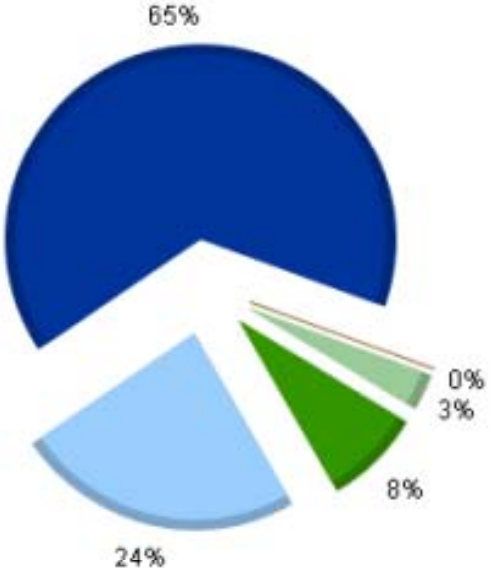
The Challenge and the Opportunity

eCOMPAS (e2)
Visual / Clickabkle RSR

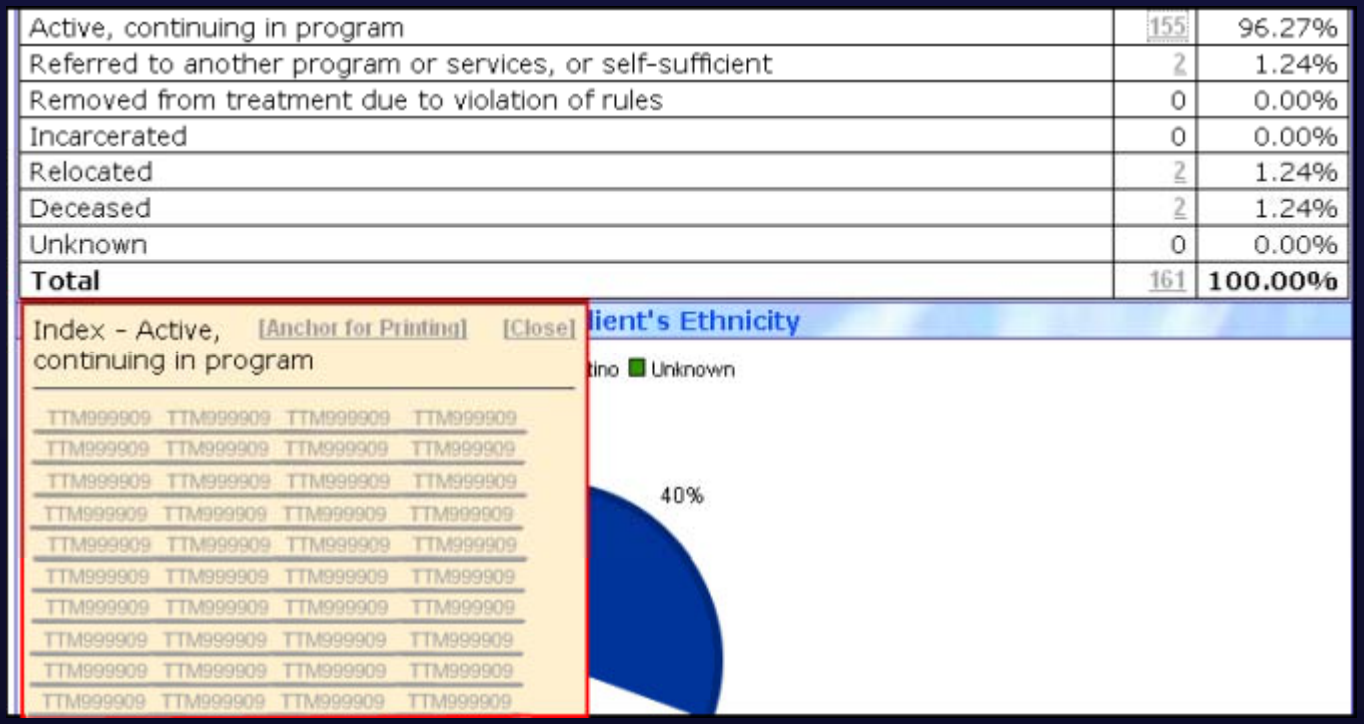
Leveraging SPNS Grants

RSR Aggregate Data

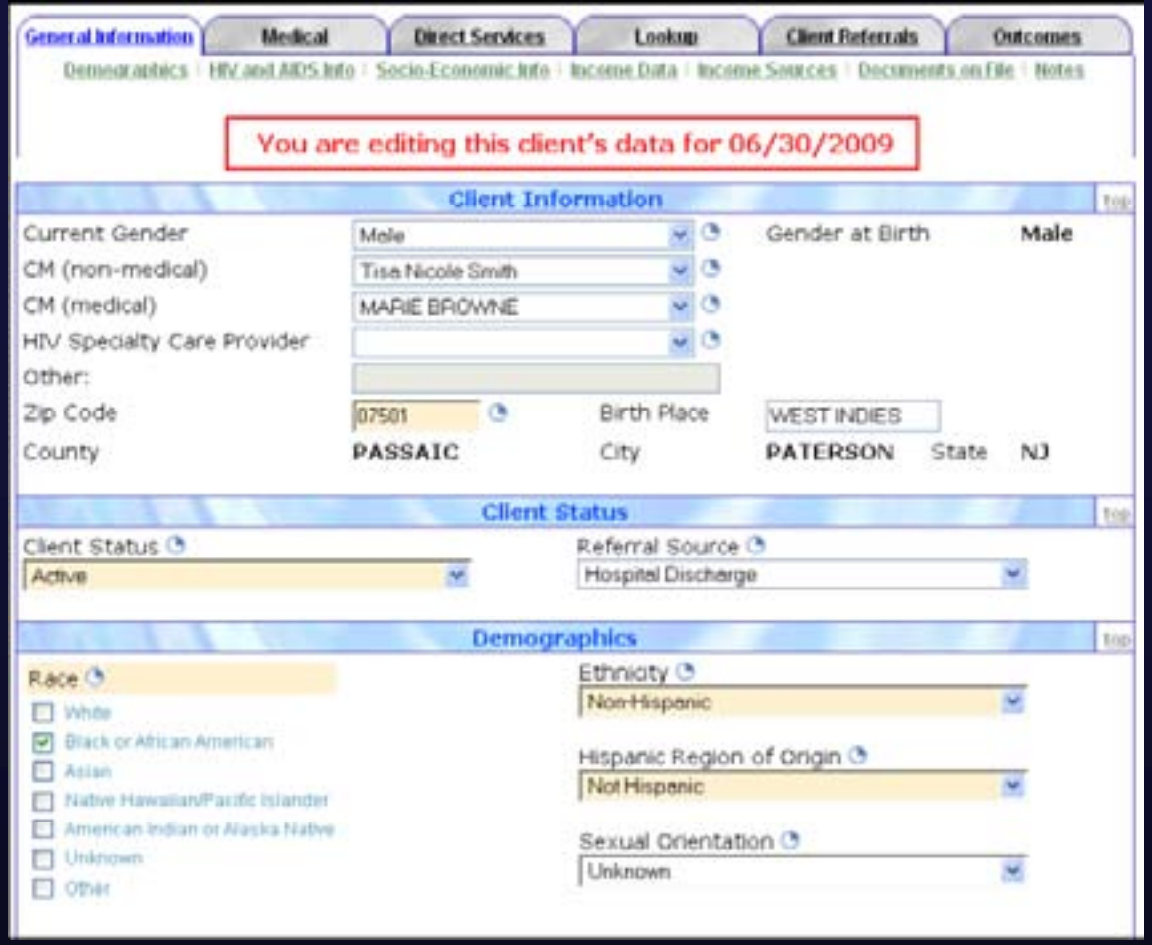
- Preview of Client Level Data before submission to HRSA



	Index	
	Count	%
Equal to or below the Federal poverty level	102	64.97%
101-200% of the Federal poverty level	37	23.57%
201-300% of the Federal poverty level	13	8.28%
More than 300% of the Federal poverty level	5	3.18%
Unknown	0	0.00%
Total	157	**100.00%**

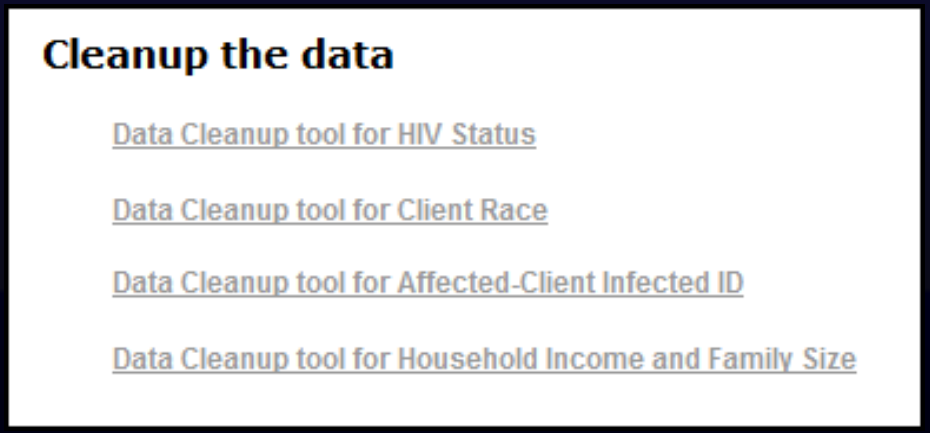


- eCOMPAS provides drilldown capability
- Click on any number to see the client records that comprise that aggregate number.



- …which allows you to go to any client's record, and update their data accordingly.
- Changes are reflected immediately in the RSR, for the correct reporting time period.
- This is the **eCOMPAS Time Machine** feature, and allows you to correct past data historically, without creating problems in current data.

- eCOMPAS also offers Data Cleanup Tools, which will check for inconsistent or invalid data, alert you to them, and allow you to correct them.



Clients who received services in the selected reporting period from this agency

Instructions: For each client, review the Family Income and the Family Size fields. If they are correct, click on the "Correct" button. If they are incorrect, enter the correct values and click the "Correct" button.

Your mission is to make sure all records have been corrected or verified such that all records say "Verified" and are yellow (not red or white).

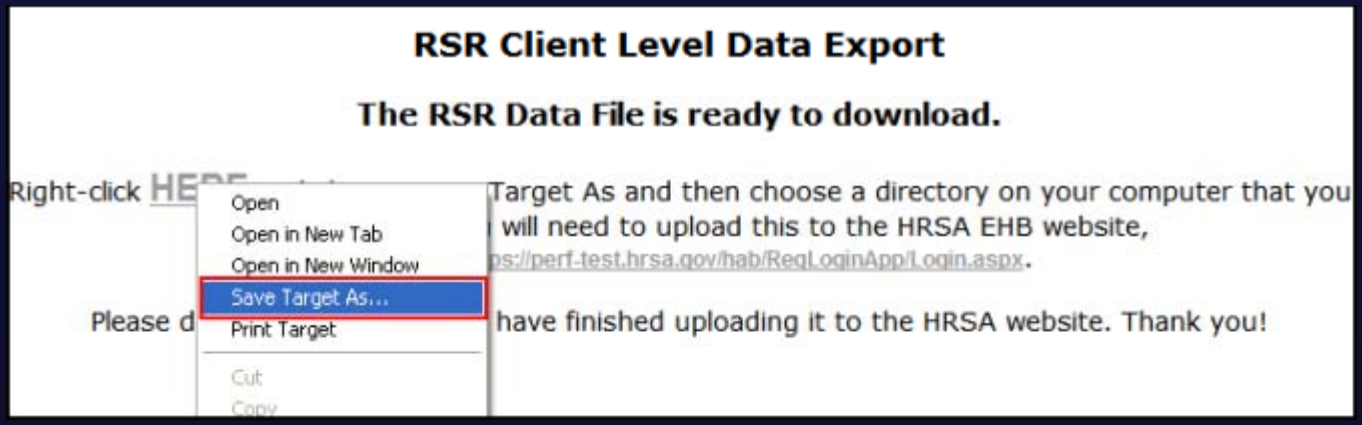
Please note that the system will update the information only for the client for which the "Correct" button was clicked.

Records in red are those in which one of the following issues exist:

- **Family Size is zero** - incorrect, since family size always includes the individual, and thus has to be at least one
- **Yearly Individual Income greater than Yearly Family Income** - incorrect, since family income should include the individual's income
- **For family size of 1, Yearly Individual Income not equal to Yearly Family Income**

ClientID	Yearly Individual Income	Yearly Family Income	Family size	Verified
ZZF123412	$0.00	$0.00	0	Correct
ZZF435512	$0.00	$0.00	0	Correct
Total clients: 2, to be reviewed: 2				

- You can even update multiple clients at the same time.



- And uploading the data to the HRSA EHB is real-time and easy.

eCOMPAS RSR

→The RSR process was transformed from a mandated challenge into a user-friendly, data quality improvement opportunity

and still serves today as a quality improvement tool used by Case Managers.

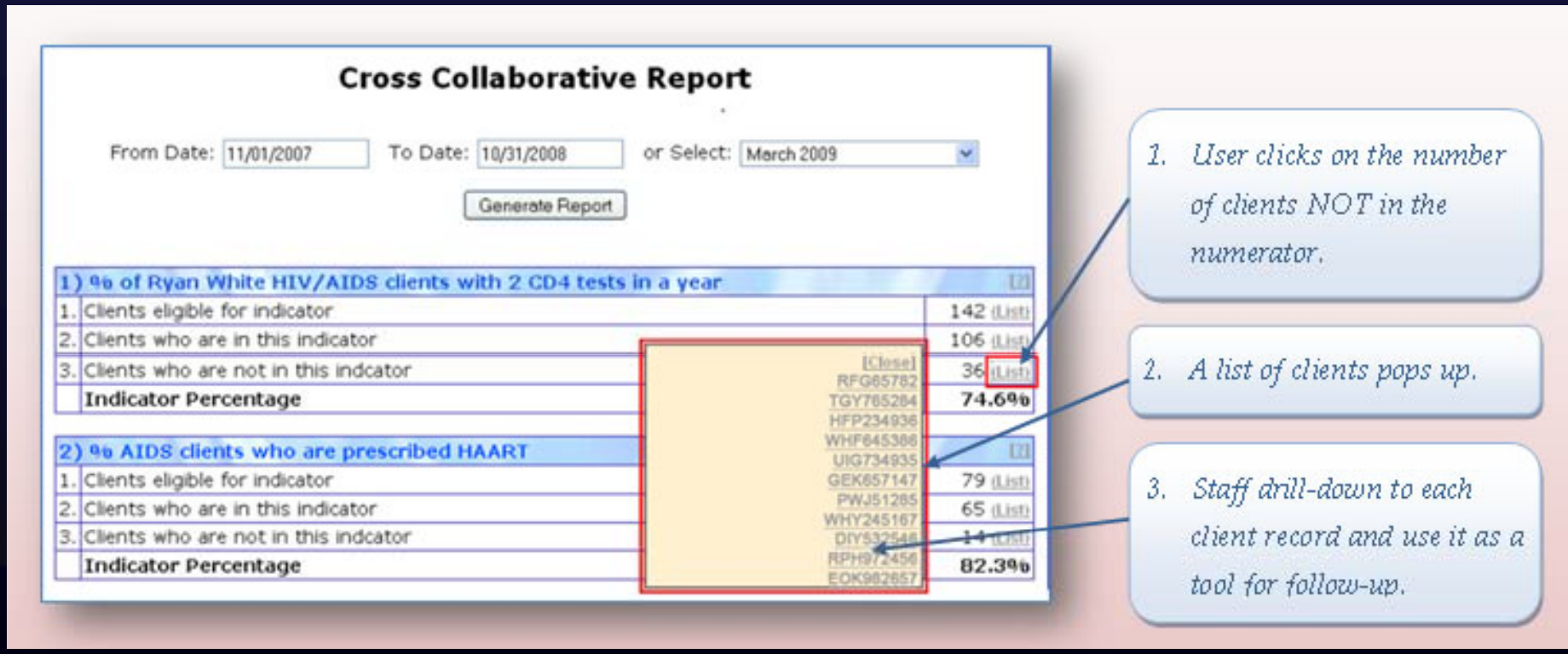
Quality Improvement and Provider Self-Monitoring

Interactive Cross-Part Collaborative Module

Key Performance Indicators

→CD4 tests
→On needed HAART
→Medical Visits
→Prophylaxis
→Syphilis Screening

eCOMPAS Supporting Improvement



Benchmark Data Feature Added

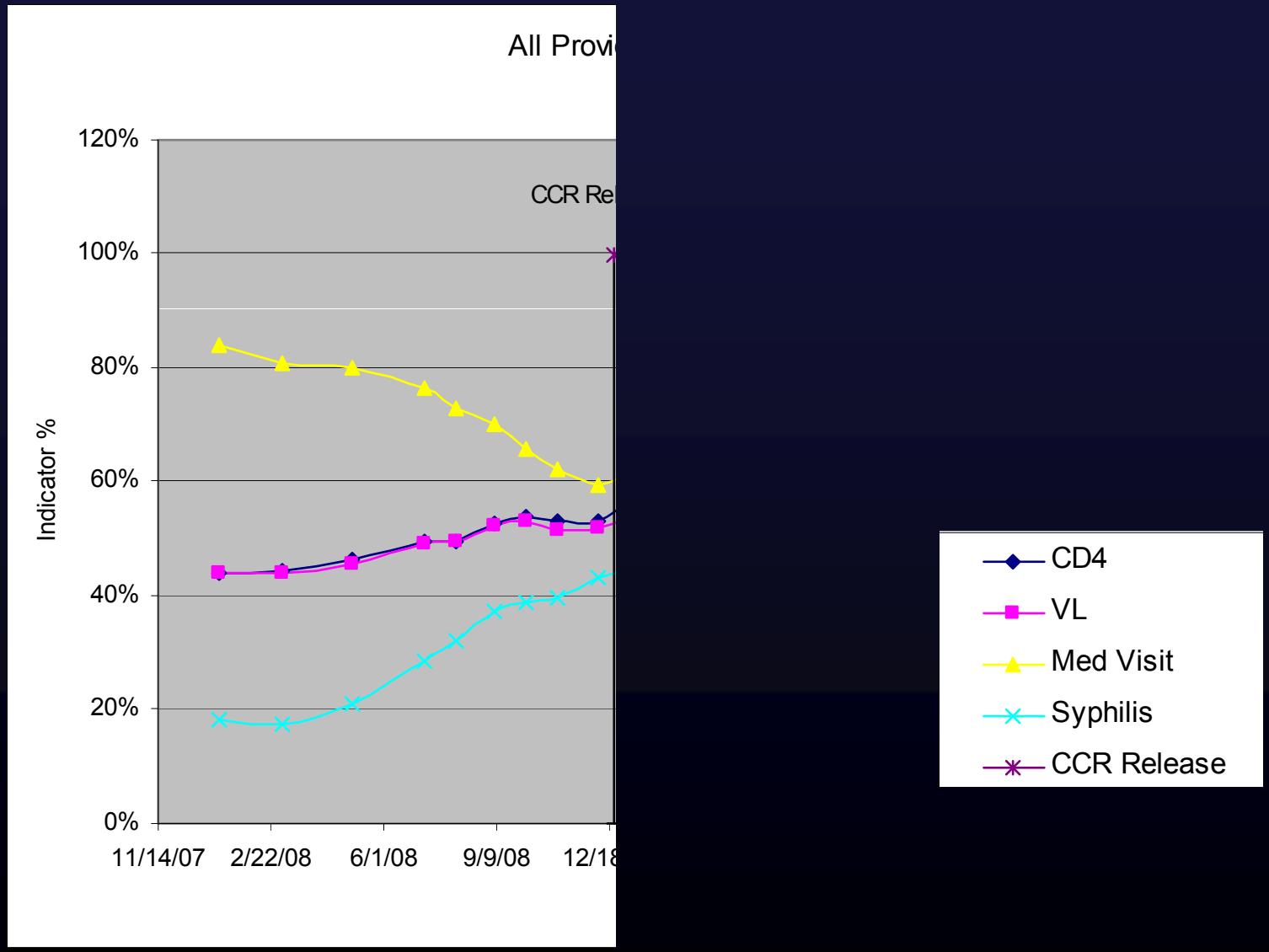
Cross Collaborative Report

From Date: 11/01/2007 To Date: 10/31/2008 or Select: April 2009

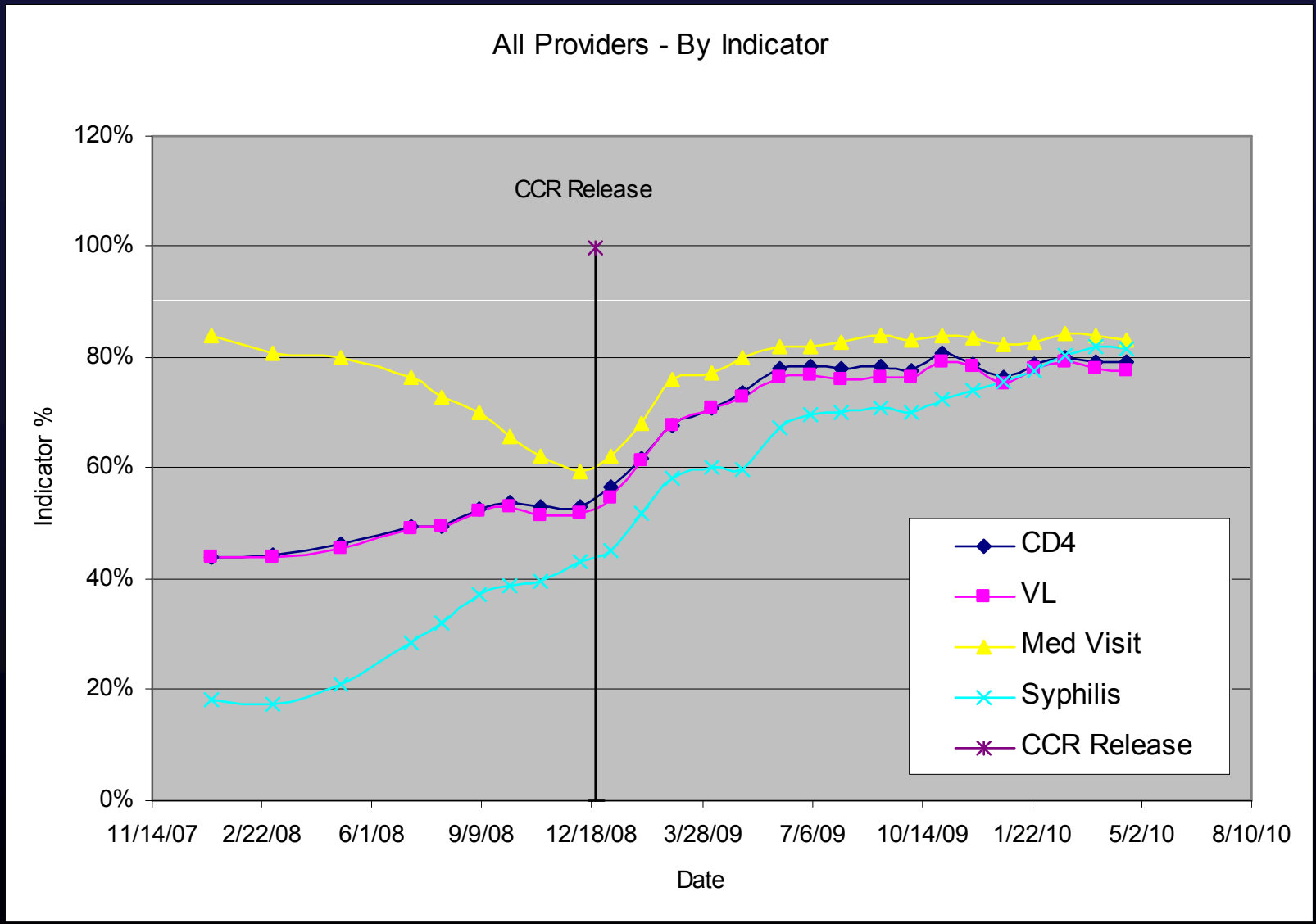
Generate Report

1) % of Ryan White HIV/AIDS clients with 2 CD4 tests in a year		[?]
1.	Clients eligible for indicator	88 (List)
2.	Clients who are in this indicator	64 (List)
3.	Clients who are not in this indcator	24 (List)
	Indicator Percentage	**72.7%**
	State of New Jersey Average Indicator Percentage	**75.4%**

Cross Part Collaborative Outcomes

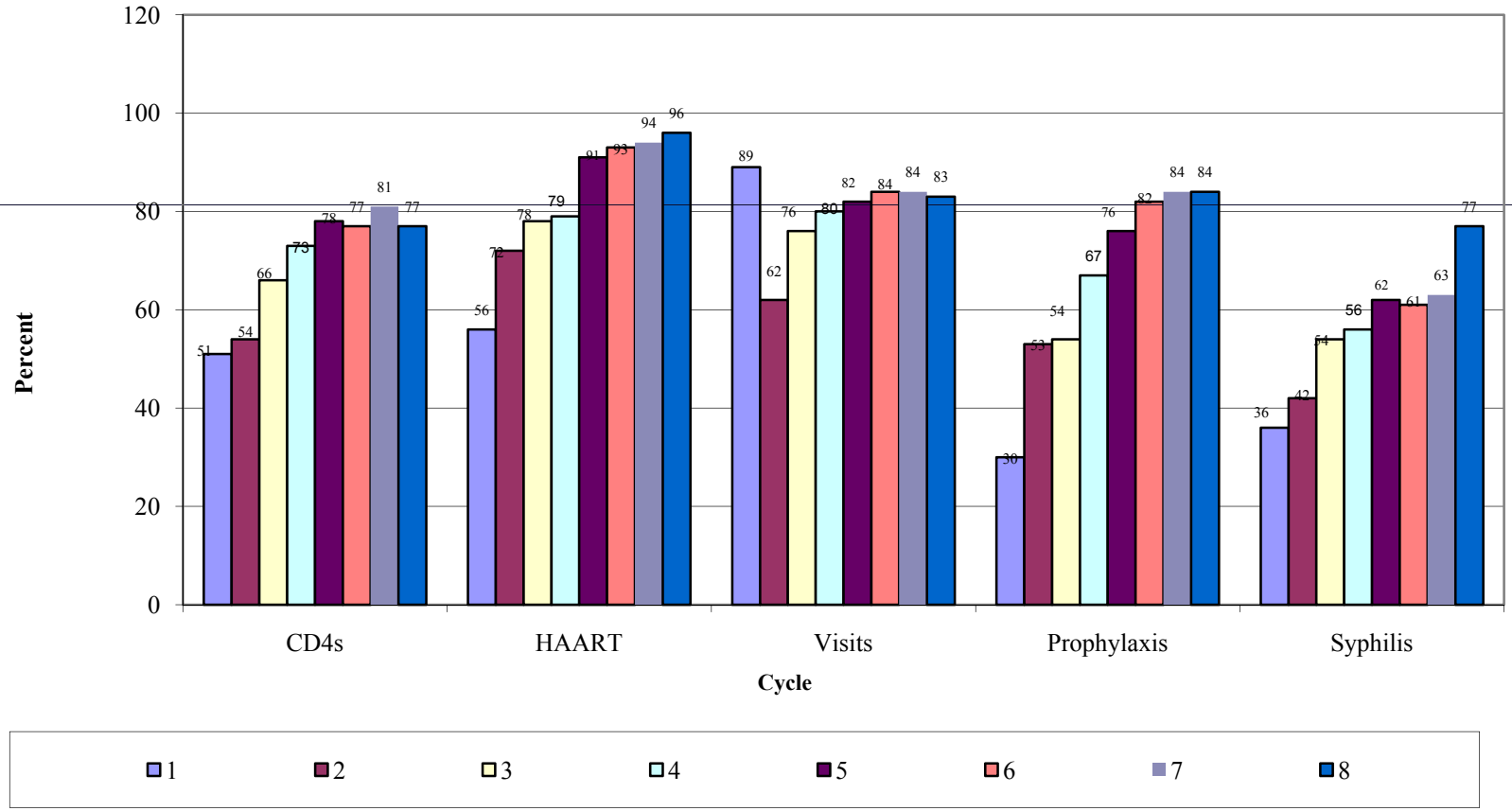


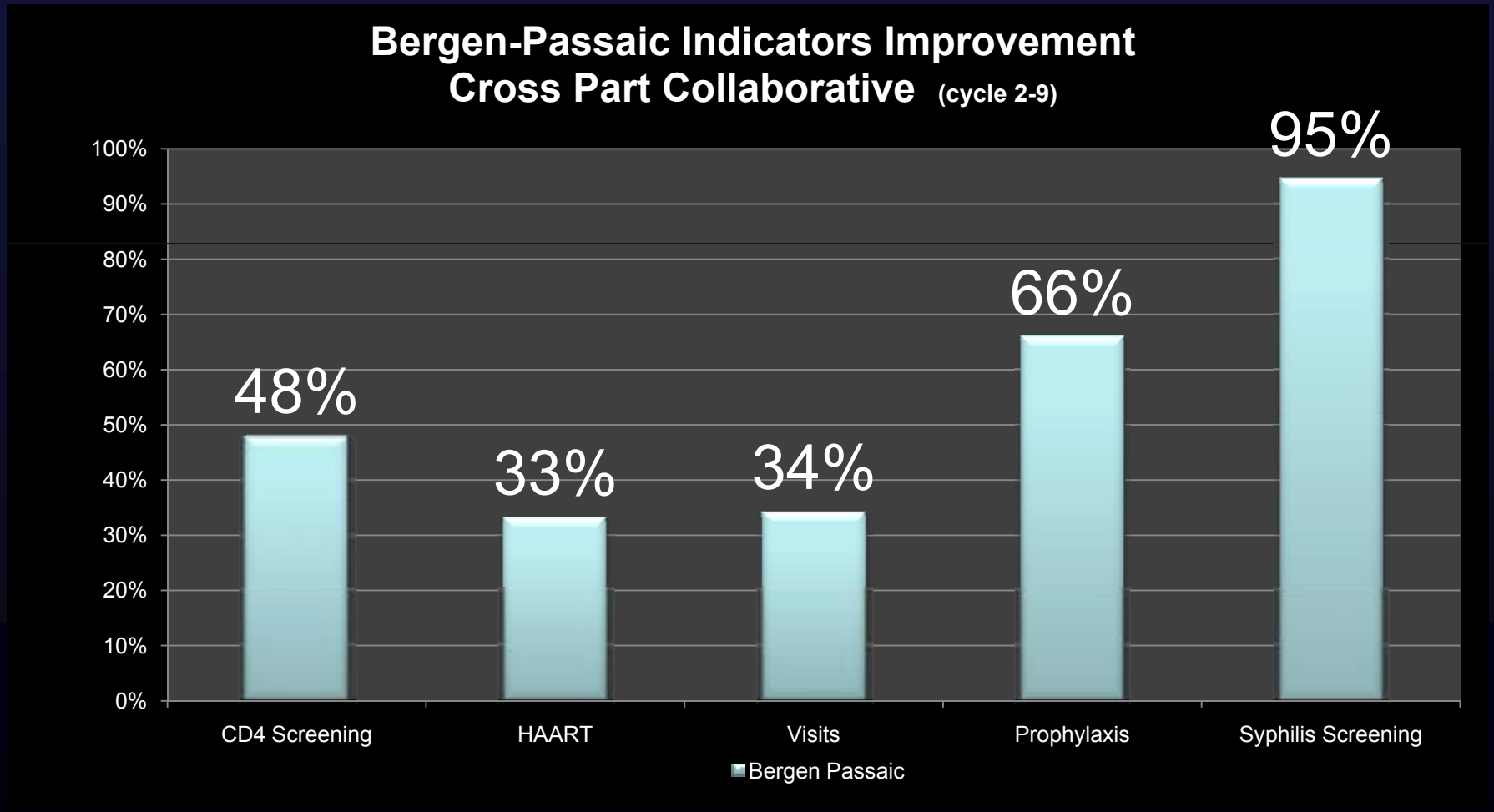
Cross Part Collaborative Outcomes



Cross Part Collaborative Clinical Outcomes @ a Glance

Bergen-Passaic Cycle 1-8 CPC Data




Bergen-Passaic Indicators Improvement
Cross Part Collaborative (cycle 2-9)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
48%
33%
34%
66%
95%
CD4 Screening
HAART
Visits
Prophylaxis
Syphilis Screening
Bergen Passaic

From Interactive to Proactive

eCOMPAS Alerts

Agency Alerts

Search | Bulk/Group | Referrals | Outreach | Useful Links | Tracker | QM (799)

Alerts | Alert Subscriptions | Journaling

Summary of Current Alerts

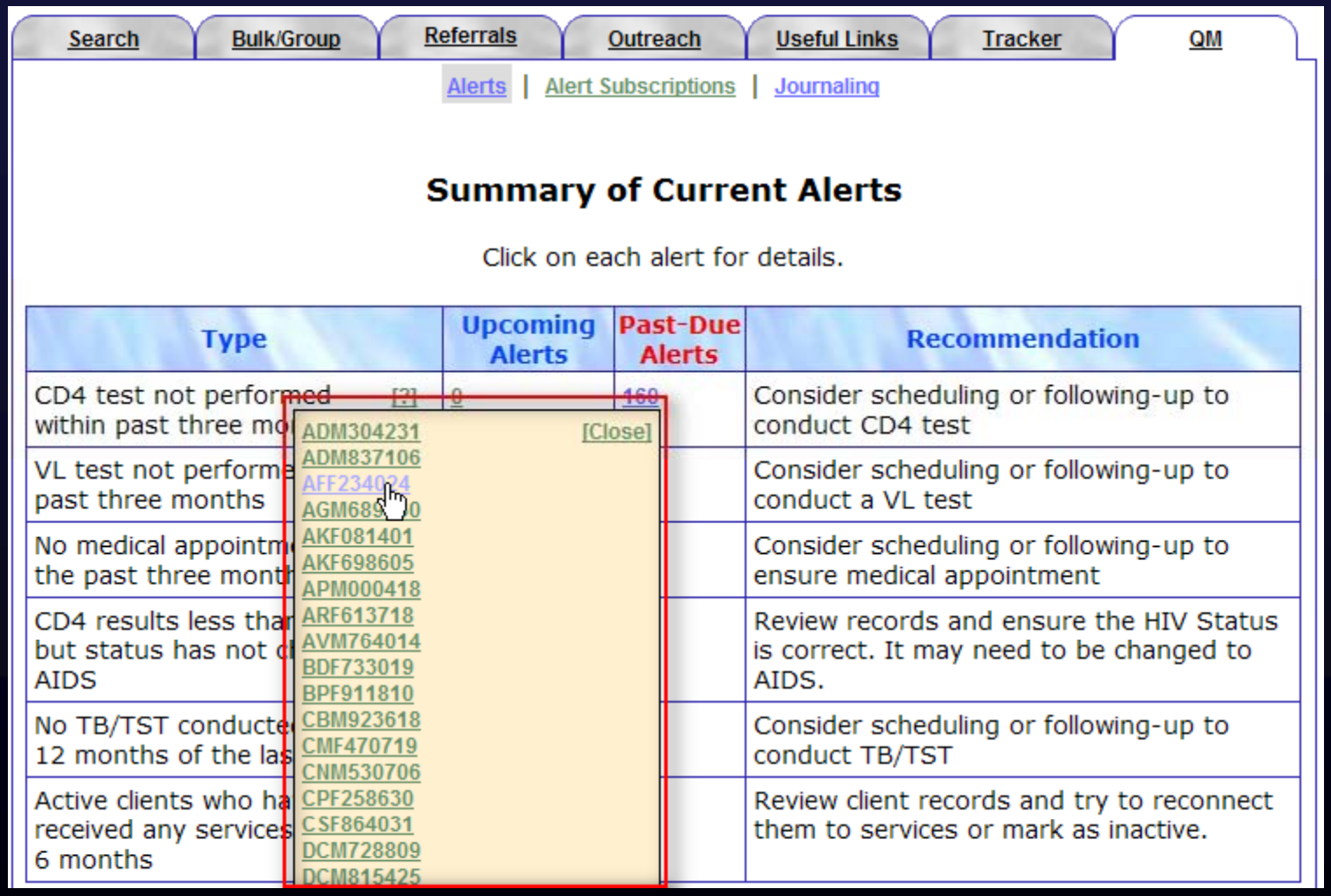
Click on each alert for details.

Type	Upcoming Alerts	Past-Due Alerts	Recommendation
CD4 test not performed within past three months [?]	0	160	Consider scheduling or following-up to conduct CD4 test
VL test not performed within past three months [?]	0	164	Consider scheduling or following-up to conduct a VL test
No medical appointment in the past three months [?]	N/A	168	Consider scheduling or following-up to ensure medical appointment
CD4 results less than 200 but status has not changed to AIDS [?]	N/A	7	Review records and ensure the HIV Status is correct. It may need to be changed to AIDS.
No TB/TST conducted within 12 months of the last TB/TST [?]	N/A	122	Consider scheduling or following-up to conduct TB/TST
Active clients who have not received any services in the past 6 months [?]	N/A	178	Review client records and try to reconnect them to services or mark as inactive.

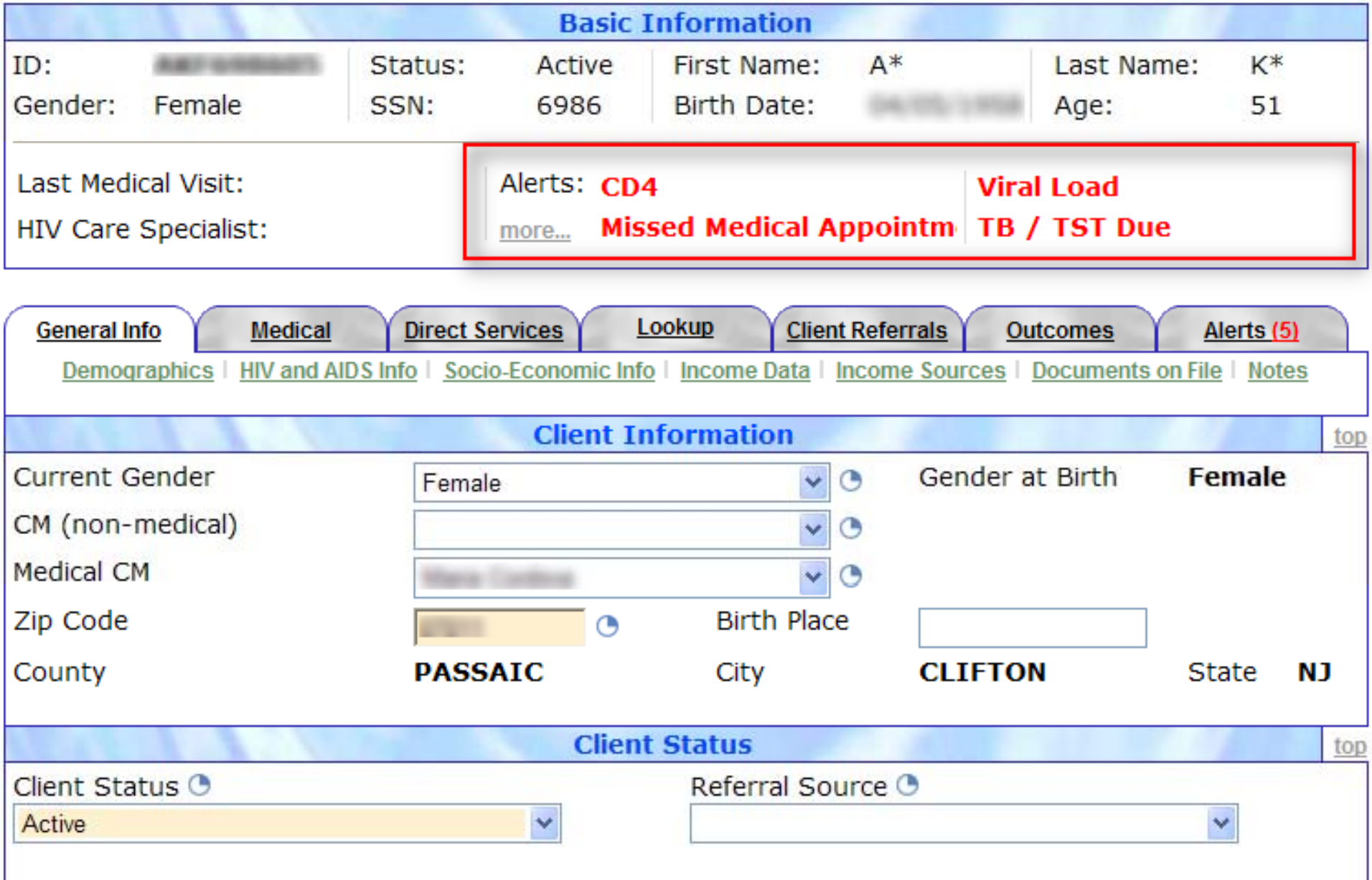
All recommendations assume that you first ensure that the data (e.g., CD4 test date and value) has been entered into eCOMPAS.

If you wish to suggest a new alert click here

Agency Alerts Drilldown



Linked to Exact Screen



Basic Information

ID:	[redacted]	Status:	Active	First Name:	A*	Last Name:	K*
Gender:	Female	SSN:	6986	Birth Date:	[redacted]	Age:	51

Last Medical Visit:

HIV Care Specialist:

Alerts: **CD4** **Viral Load**

more... **Missed Medical Appointm** **TB / TST Due**

General Info | Medical | Direct Services | Lookup | Client Referrals | Outcomes | Alerts (5)

Demographics | HIV and AIDS Info | Socio-Economic Info | Income Data | Income Sources | Documents on File | Notes

Client Information

top

Current Gender	Female			Gender at Birth	**Female**
CM (non-medical)					
Medical CM	[redacted]				
Zip Code	[redacted]	Birth Place			
County	**PASSAIC**	City	**CLIFTON**	State	**NJ**

Client Status

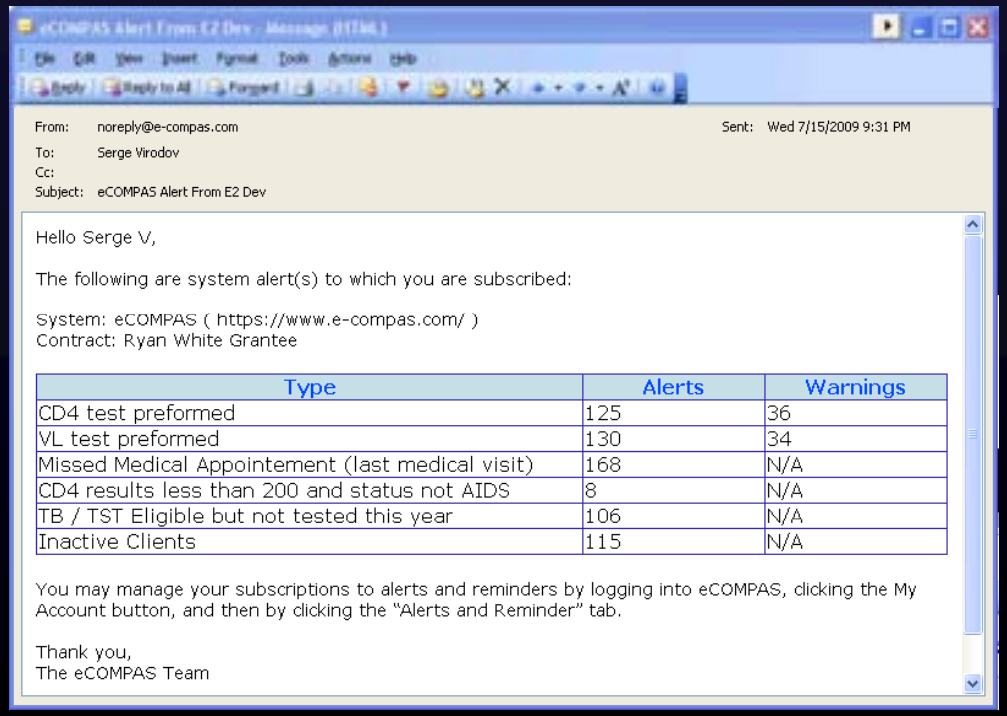
top

Client Status: Active

Referral Source:

Email Alerts

- Proactive, regular, *push* notification
- Clicking sends to secure site
- Same summary as the agency report in eCOMPAS



From: noreply@e-compas.com
Sent: Wed 7/15/2009 9:31 PM
To: Serge Virodov
Cc:
Subject: eCOMPAS Alert From E2 Dev

Hello Serge V,

The following are system alert(s) to which you are subscribed:

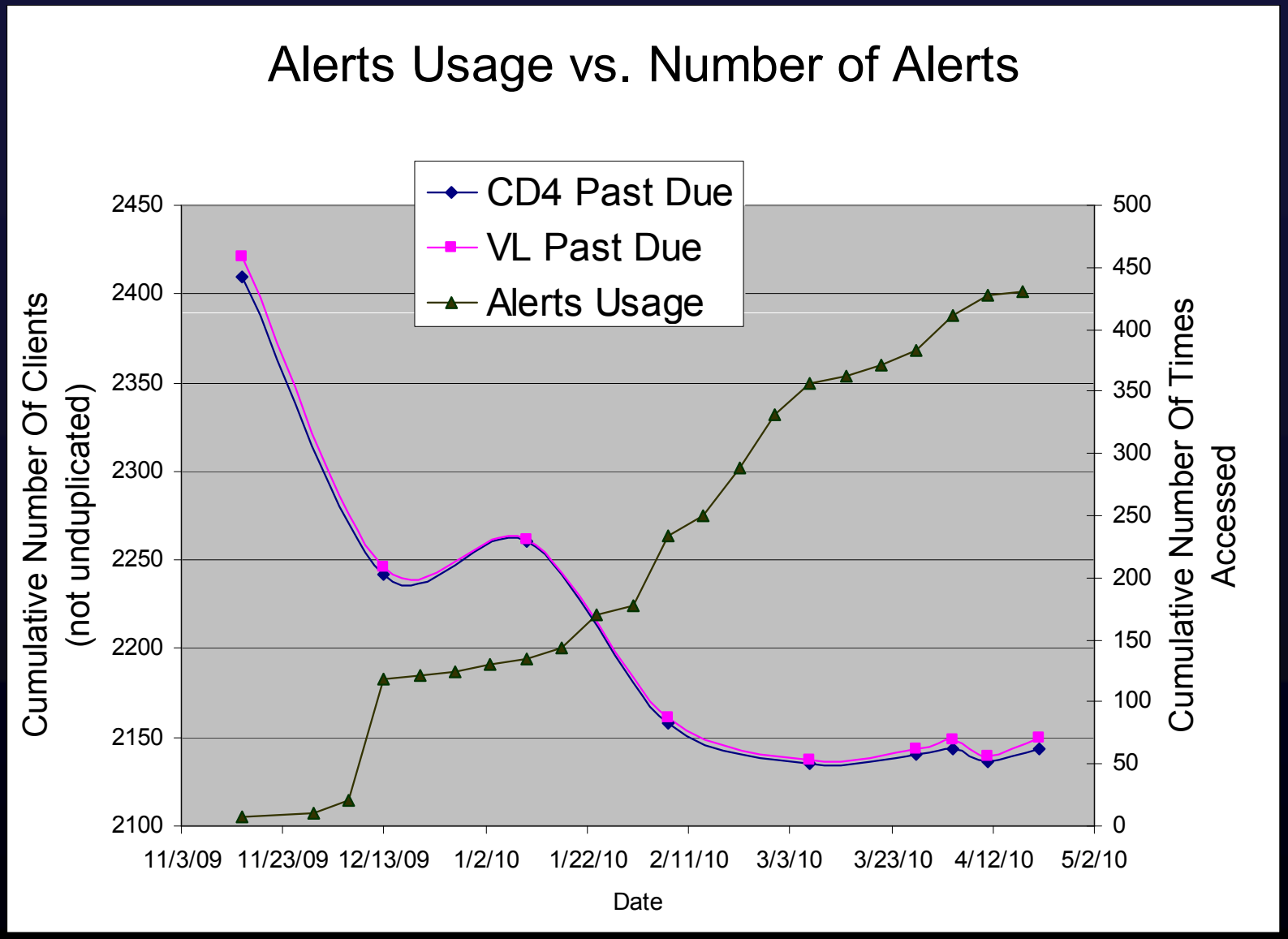
System: eCOMPAS (https://www.e-compas.com/)
Contract: Ryan White Grantee

Type	Alerts	Warnings
CD4 test preformed	125	36
VL test preformed	130	34
Missed Medical Appointement (last medical visit)	168	N/A
CD4 results less than 200 and status not AIDS	8	N/A
TB / TST Eligible but not tested this year	106	N/A
Inactive Clients	115	N/A

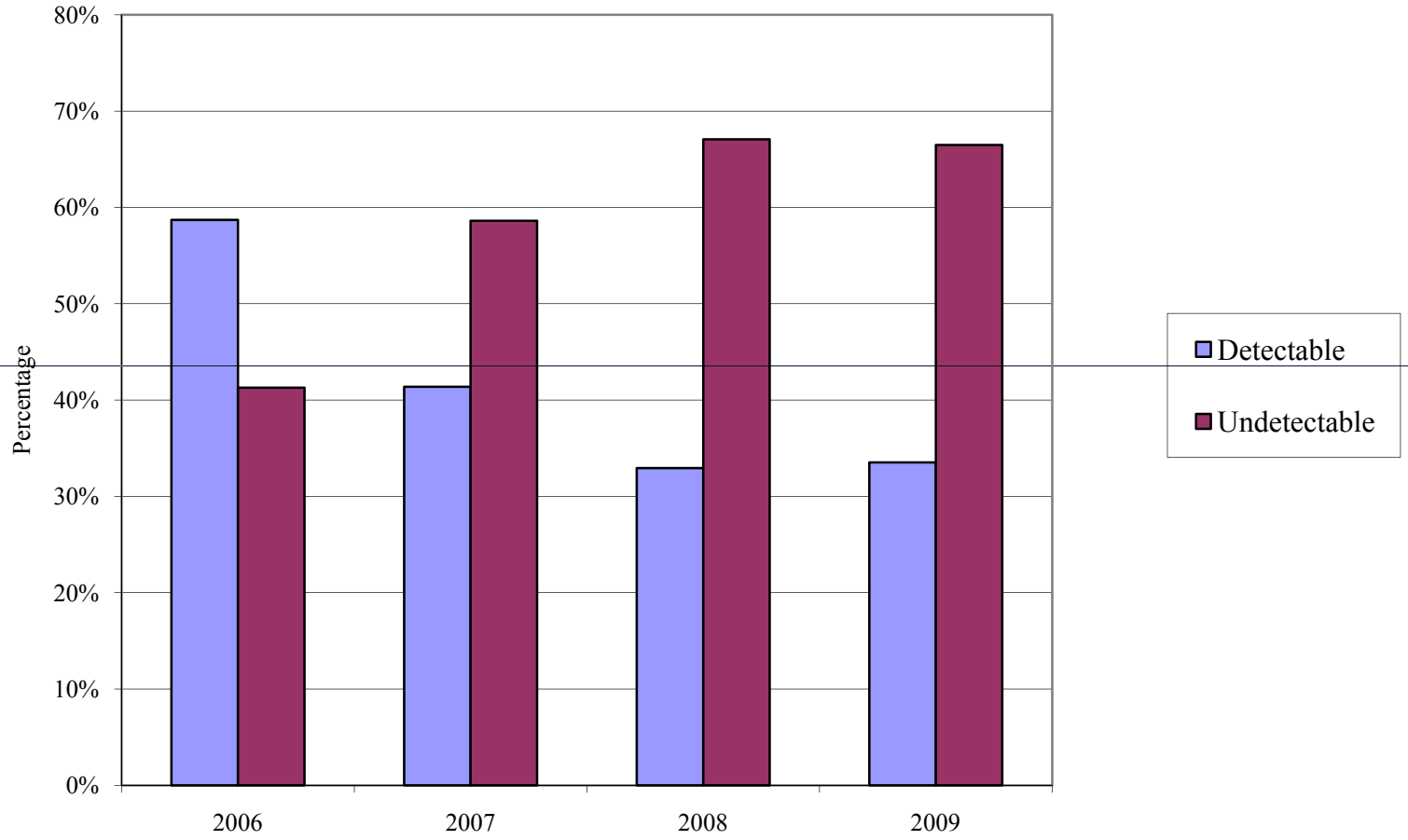
You may manage your subscriptions to alerts and reminders by logging into eCOMPAS, clicking the My Account button, and then by clicking the "Alerts and Reminder" tab.

Thank you,
The eCOMPAS Team

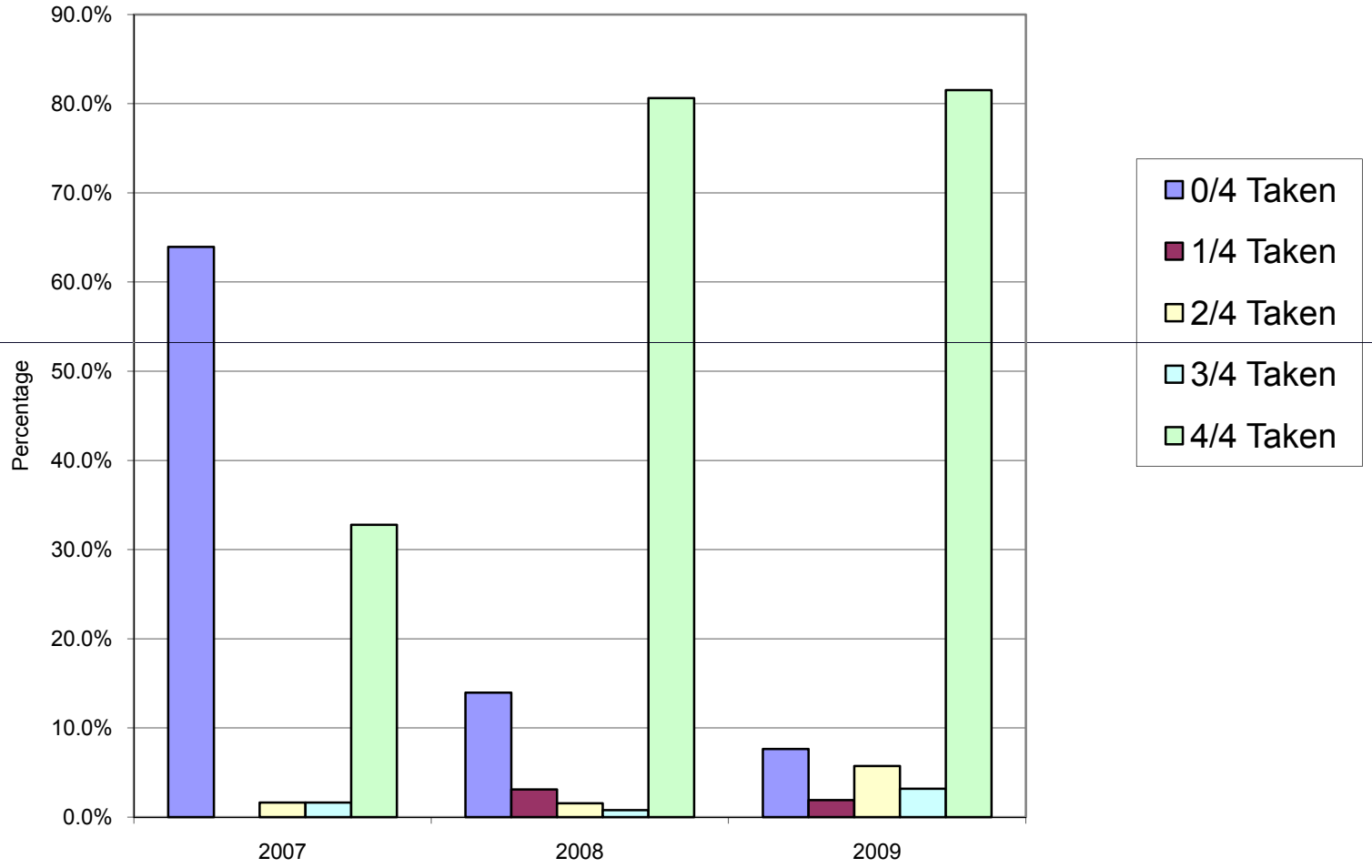
Alerts Module Usage vs. Outcomes



Viral Load


80%
70%
60%
50%
40%
30%
20%
10%
0%
Percentage
2006
2007
2008
2009
Detectable
Undetectable

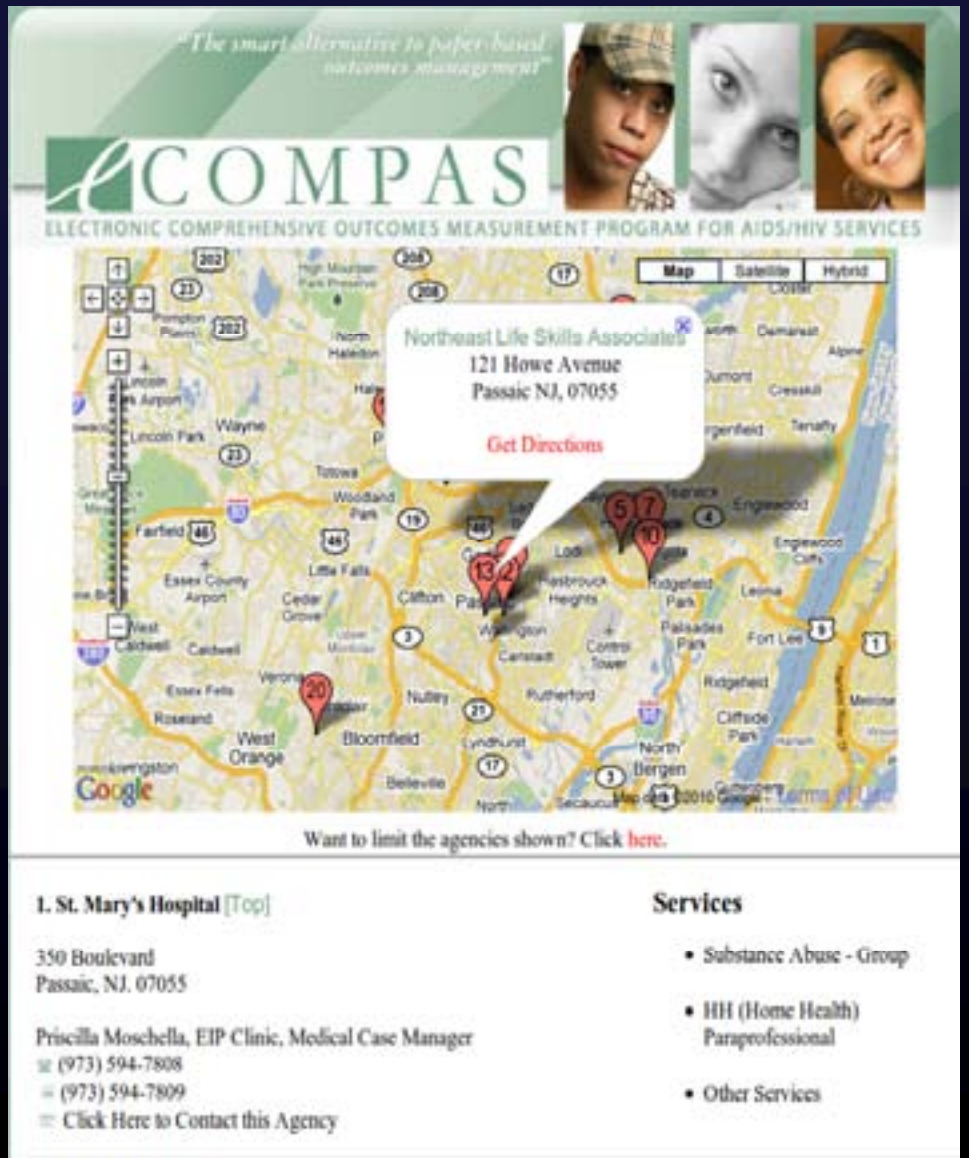
Medication Adherence



Connecting the Community to Network Resources

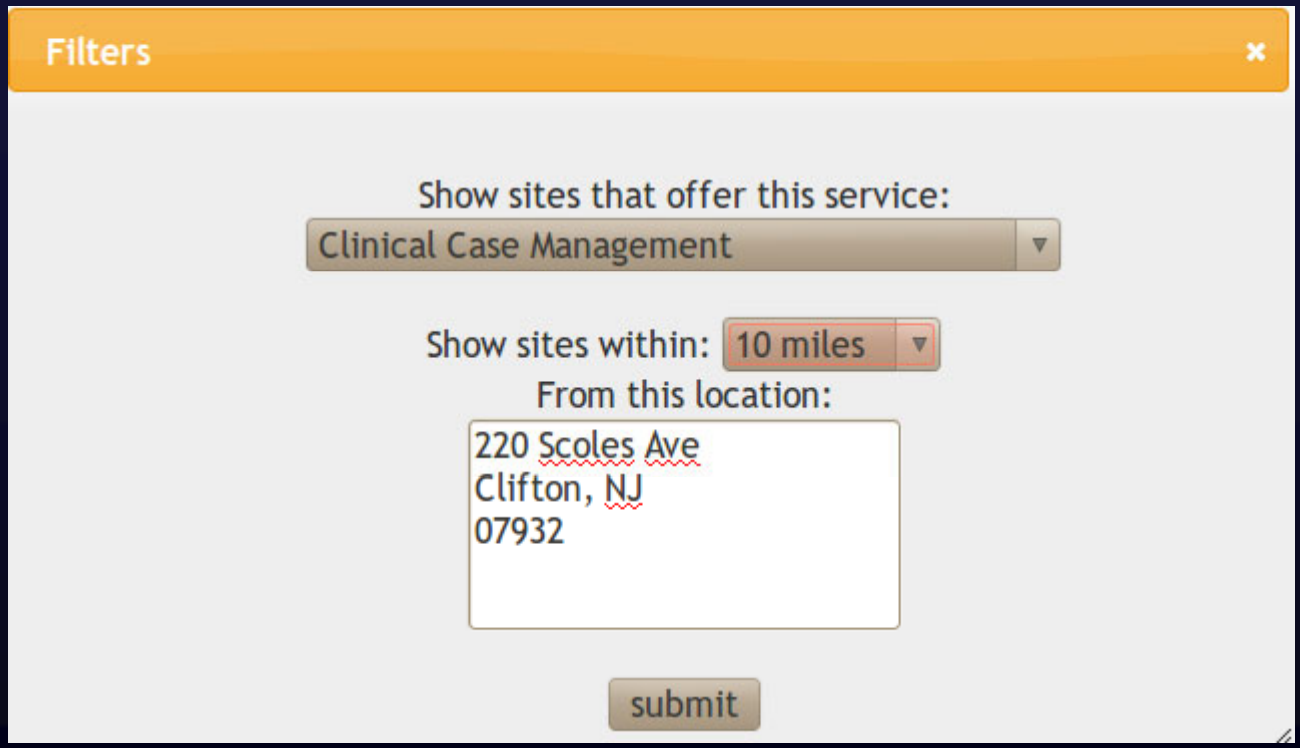
…and Assisting Case Managers with Referrals

Online Community Resource Guide



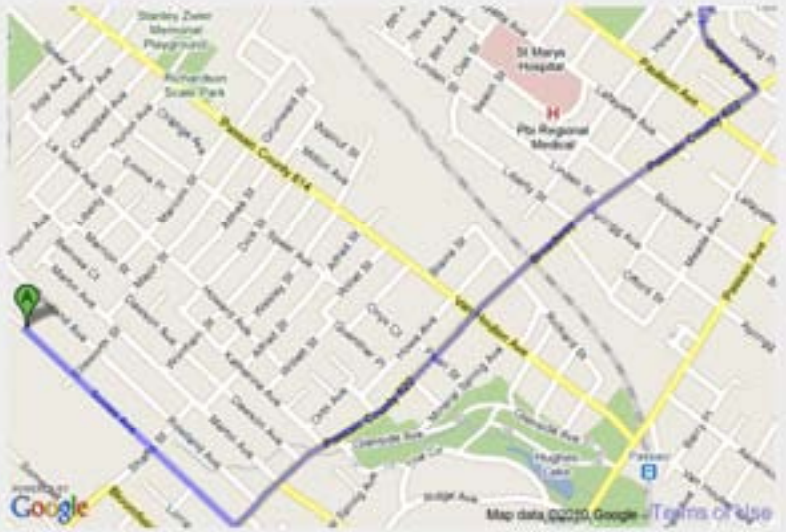
Online Community Resource Guide

Filters


Filters
Show sites that offer this service:
Clinical Case Management
Show sites within:
10 miles
From this location:
220 Scoles Ave
Clifton, NJ
07932
submit

Directions (cont.)

Directions



	220 Scoles Ave, Clifton, NJ 07012	
		1.9 mi (about 6 mins)
1.	Head **southeast** on **Scoles Ave** toward **Ellsworth St**	0.5 mi
2.	Turn **left** at **Bloomfield Ave**	0.1 mi
3.	Continue onto **Broadway/Passaic County 622**	1.1 mi
4.	Turn **left** at **Gregory Ave**	0.1 mi
5.	Slight **right** at **Myrtle Ave**	285 ft
6.	Turn **right** at **Howe Ave** Destination will be on the right	82 ft
	121 Howe Ave, Passaic, NJ 07055	

Agency Editor to Keep Content Updated

Evaluation and Data Collection

Pre-Implementation Interviews Commonalities

- **Satisfaction with e2 as an information tool.**
- **Comfort levels and enthusiasm high, especially among medical clinics.**
- **General acceptance of electronic health information and information exchange**

Monthly Progress Worksheet

Purpose:

- **To obtain feedback and ideas that drive this SPNS process.**
- **To stimulate creative thinking and document success stories and ideas.**
- **To facilitate peer learning**

Monthly Progress Reports

1. **Do you have any success stories or statistics to share?**
2. **What did you do in the past 30 days to use technology, data or data sharing to make a positive impact toward the SPNS goals and objectives?**
3. **What are you planning on doing in the next 30 days to advance the SPNS goals and objectives?**
4. **What challenges or barriers did you experience in the last 30 days that may have impacted the use of technology and data, and were you able to overcome them?**
5. **What creative ideas do you have in how the system or protocols can be modified for a greater impact?**

Two Short Vignettes

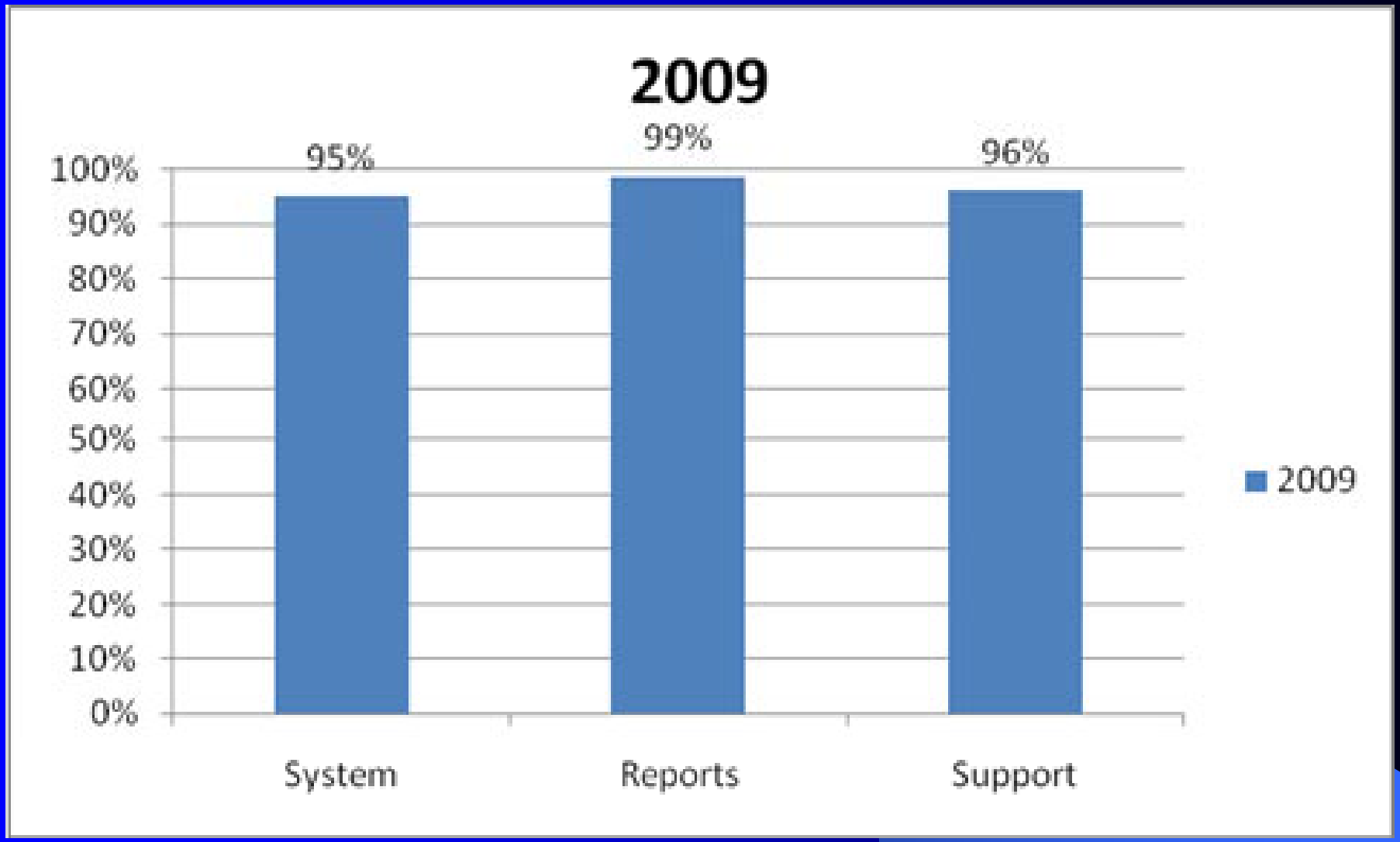
- The Story of Major Staff Turnover
- The Story of Affecting Private Practice

Proactive Courtesy Calls and Evaluation From Tech Support

1. Any problems or barriers with using the system?
2. To what degree is the system saving you time?
3. To what degree is the system reporting effective for you?
4. How is technical assistance and support for you?
5. If not a “10”, what can we do to make it a “10”?

– “The fact that someone calls me to make sure that all is well and to see if I have any ideas is just great.”

User Satisfaction Results: Proactive Courtesy Calls



User / Stakeholders Responses

- "eCOMPAS is a no-brainer; it gives us structure. The meetings are helpful." – Nurse
- "I like the system. It gives us a uniform structure. I like structure as a supervisor because of new staff. We designed the enhancements continuously. Meetings have been invaluable." – Program Director
- "The system is wonderful. It is my teacher. It tells me my priorities. It's better than looking through charts. It is very helpful to me." – Nurse
- "Done an incredible amount of work to make eCOMPAS. Easy to use. Very useful when I'm on the phone. I can be more responsive. It is useful for case conferencing. I can look up information myself instead of calling and interrupting staff. The reporting is helping us to change and improve the way we do things." – Nursing Supervisor
- "eCOMPAS helps us to prioritize and organize. It helps us to follow-up with the doctor." – Nurse
- "This system is very important to me. It tells me what to do to get them back in care. There is always an announcement of something nice that is new." – Medical Assistant

Some Lessons Learned

1. Users and clinicians can do amazing things with the right tools, the right process, and the right leadership.

2. With its emphasis on evaluation, the HRSA SPNS program is an incredible asset.

3. Eliciting needs from stakeholders regularly and engaging them throughout is time-consuming, but the return on investment is worth it.

4. "Partnership paradigm" is key.

How do we accomplish ambitious goals?

One bite at a time.

Web ACASI

"The smart alternative to paper-based outcomes management"



COMPAS

ELECTRONIC COMPREHENSIVE OUTCOMES MEASUREMENT PROGRAM FOR AIDS/HIV SERVICES

Do you need some practice questions?

- (•) Yes
- ( ) No

Previous Question

Next Question

Repeat the Question

Progress: 25% 50% 75% 100%

3%

Please check the categories that best describe what may have put you at risk for getting HIV: (Check all that apply)

- [ ] I am a male who has sex with men
- [x] I am an injection drug user
- [ ] I have Hemophilia/ coagulation disorder
- [ ] Heterosexual contact
- [ ] Receipt of transfusion of blood, blood components or tissue
- [ ] Other

Don't Know

Previous Question

Next Question

Repeat the Question

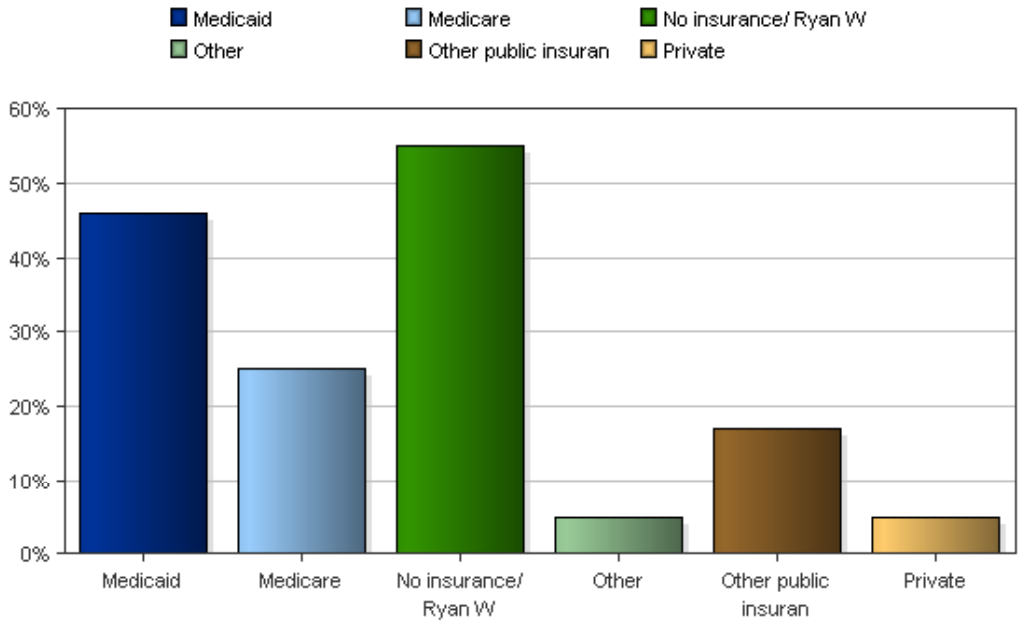
of surveys increased through e2 Web-ACASI

ACASI

PC-Based	Web-Based (eCOMPAS)
• Software installation / updates.	• No software installation or updates or IT staff needed
• Manual backup process.	• Automated nightly central backups.
• Weekly manual data upload.	• Real-time data access.
• No mute capability.	• Mute feature
• Staff must input respondent ID and other answers.	• Less data entry for staff (e.g., automatically generated respondent IDs)
• Manual saving of survey data.	• Automatic saving of data
• Survey protocol and procedures for above items.	• Simplified survey protocol
• Manual analysis of data.	• Visual Analytics applied.

ACASI Visual Analytics

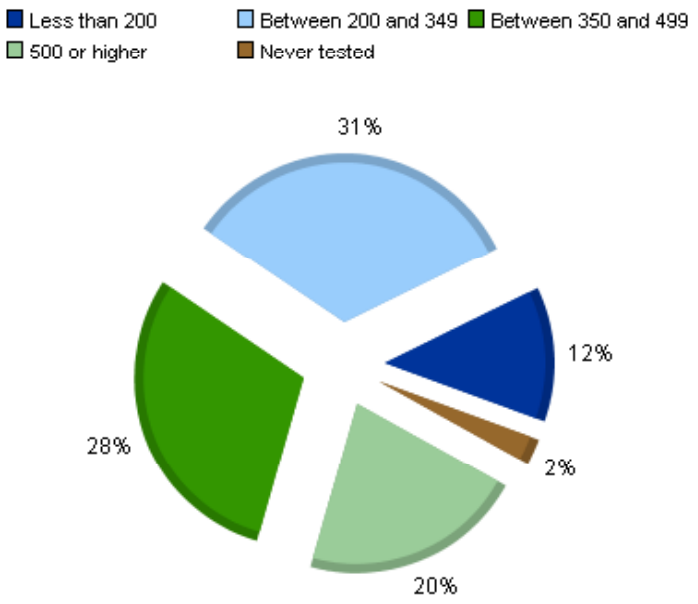
Please check all of your sources of medical insurance during the past six months:



	Index	
	Count	%
Medicaid	30	46.15%
Medicare	16	24.62%
No insurance/ Ryan White (ADAP)	36	55.38%
Other	3	4.62%
Other public insurance	11	16.92%
Private	3	4.62%
Total	62	**95.38%**

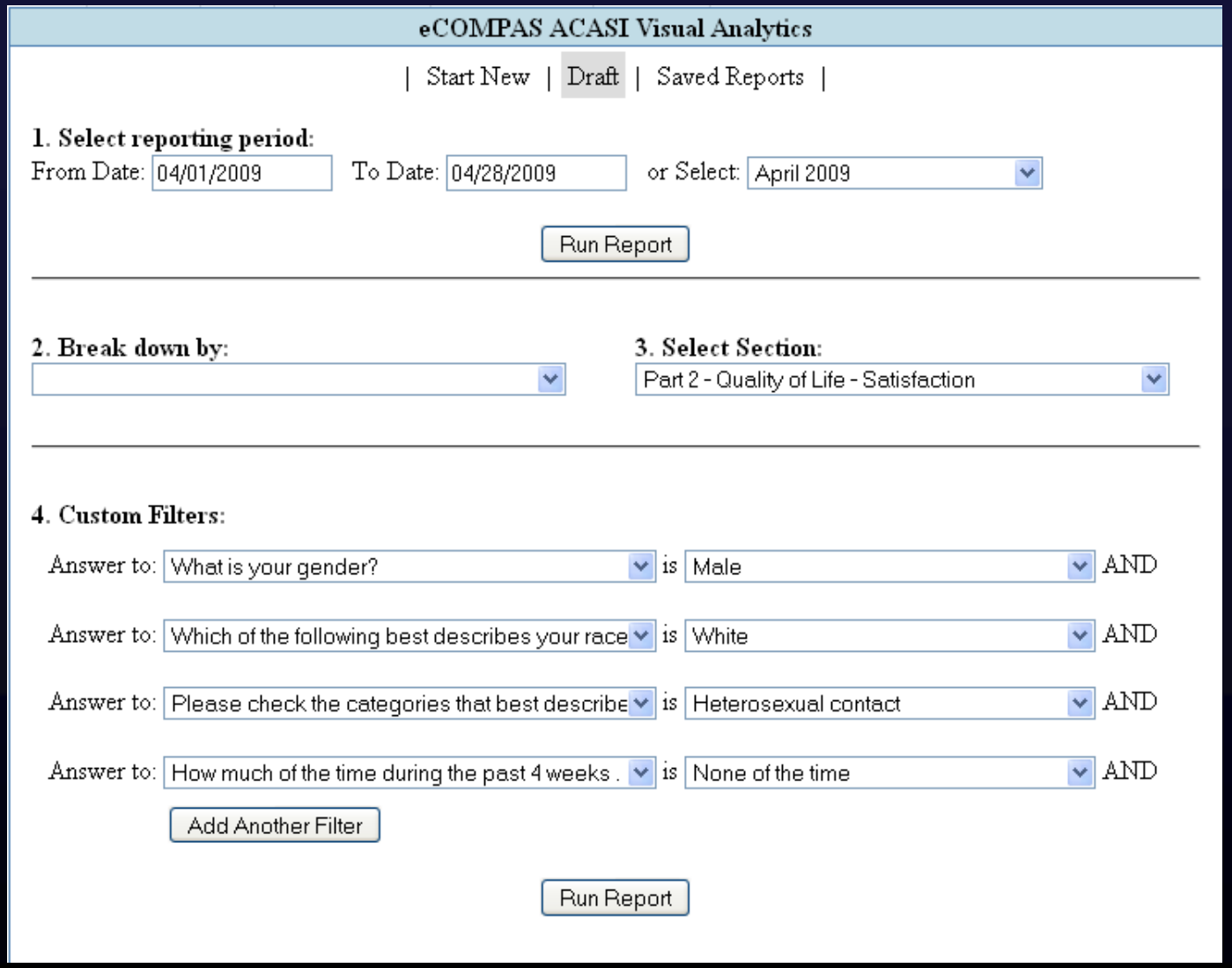
ACASI Reporting

What was the result of your most recent CD4 cell count (cells/ cubic mm)?



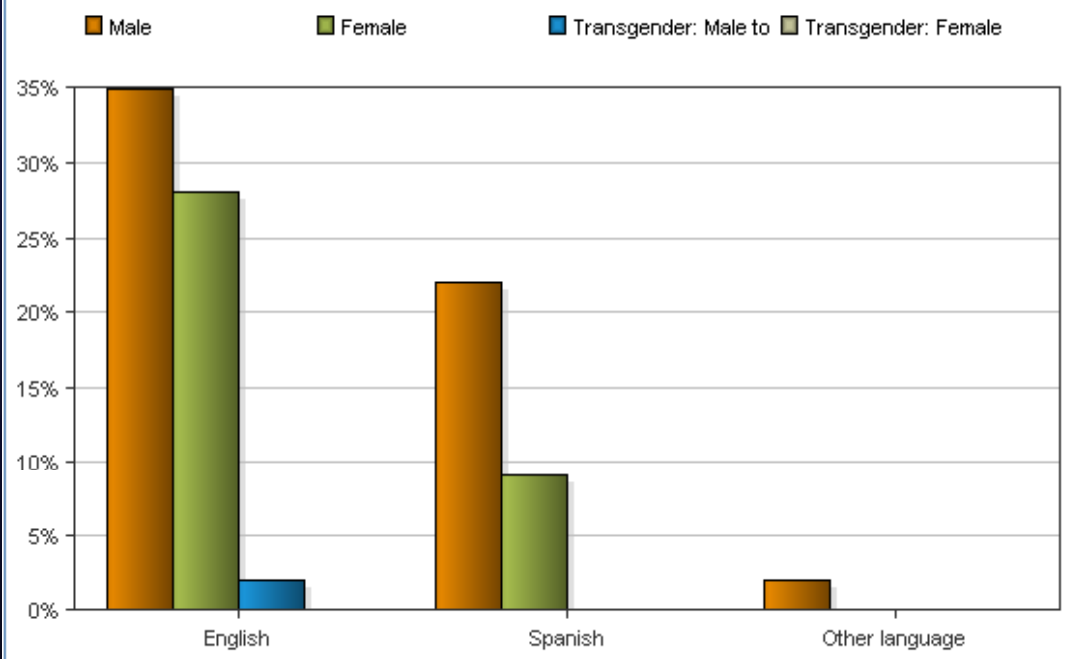
	Index	
	Count	%
Less than 200	8	12.31%
Between 200 and 349	20	30.77%
Between 350 and 499	18	27.69%
500 or higher	13	20.00%
Never tested	1	1.54%
Total	60	**92.31%**

ACASI Filtering and Breakdowns



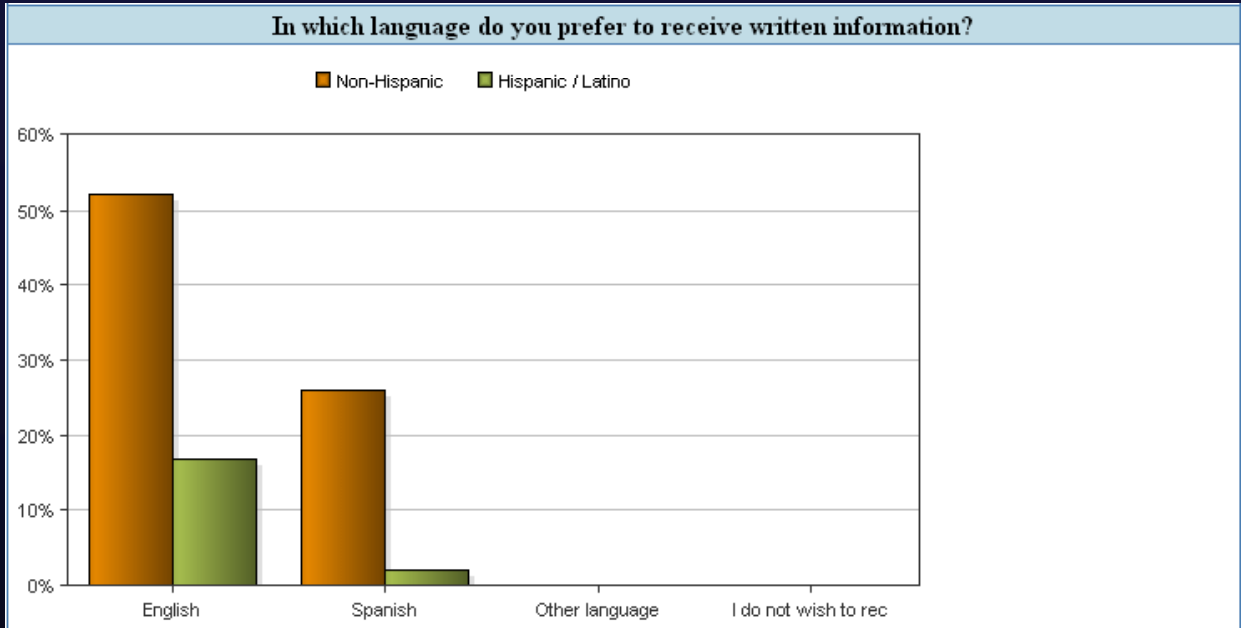
ACASI Report Break Down

In which language do you prefer to speak?



	Male		Female		Transgender: Male to Female		Transgender: Female to Male	
	Count	%	Count	%	Count	%	Count	%
English	23	35.38%	18	27.69%	1	1.54%	0	0.00%
Spanish	14	21.54%	6	9.23%	0	0.00%	0	0.00%
Other language	1	1.54%	0	0.00%	0	0.00%	0	0.00%
Total	38	**58.46%**	24	**36.92%**	1	**1.54%**	**0**	**0.00%**

ACASI Report Break Down with Data Drill Down



	Non-Hispanic		Hispanic / Latino	
	Count	%	Count	%
English	34	52.31%	11	16.92%
Spanish	17	26.15%	1	1.54%
Other language	0	0.00%	0	0.00%
I do not wish to receive written information	0	0.00%	0	0.00%
Total	51	**78.46%**	12	**18.46%**

Non-Hispanic - English [Close]

538 540 542 544 545 546 547 549 550 551 554 555 556 559 563 564 565 567 573 574 575 576 578 579 580 581 585 586 589 590 591 597 600 602