

PCI-CAMPOS
Advisory Oversight
Committee

OCTOBER 4th, 2012

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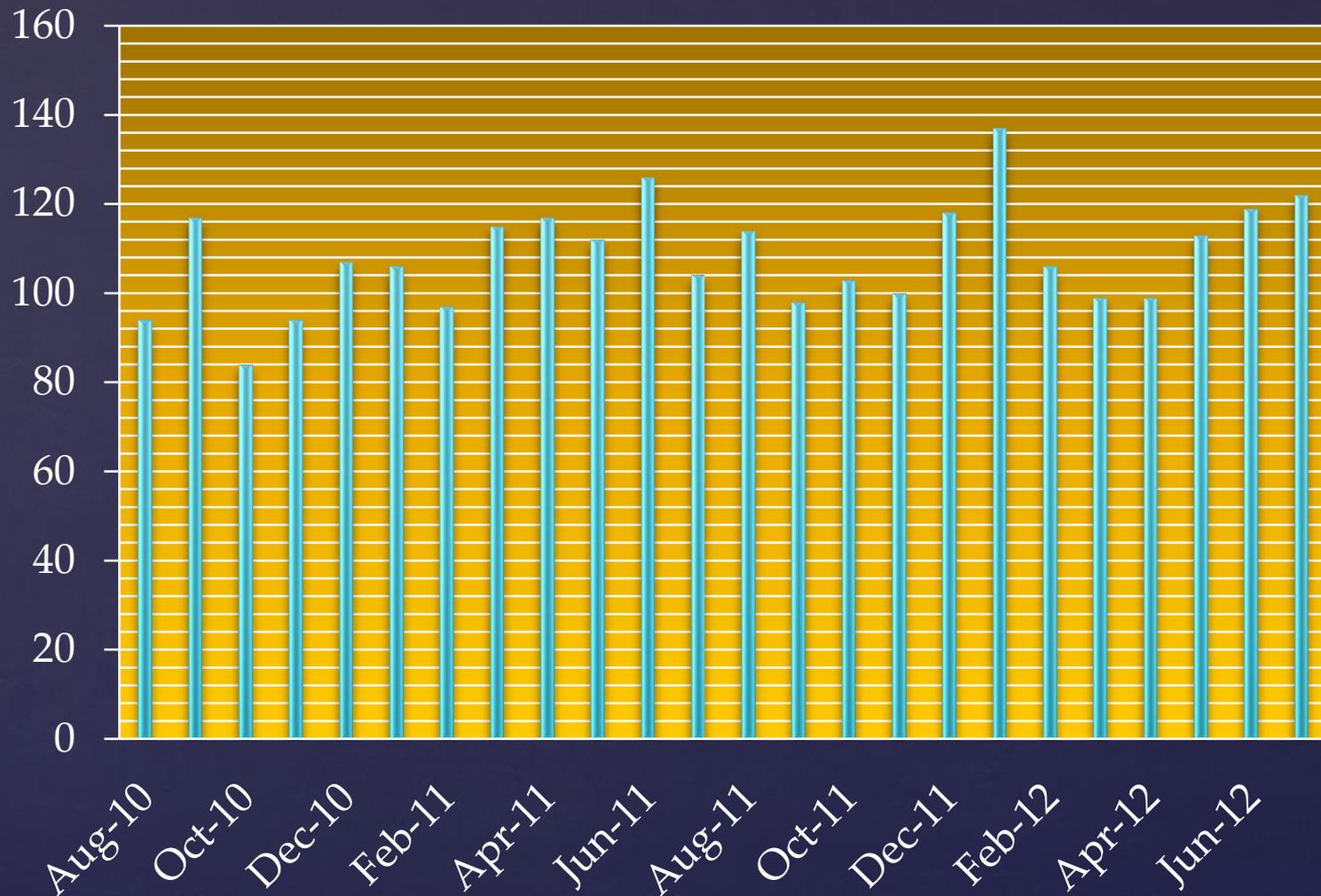
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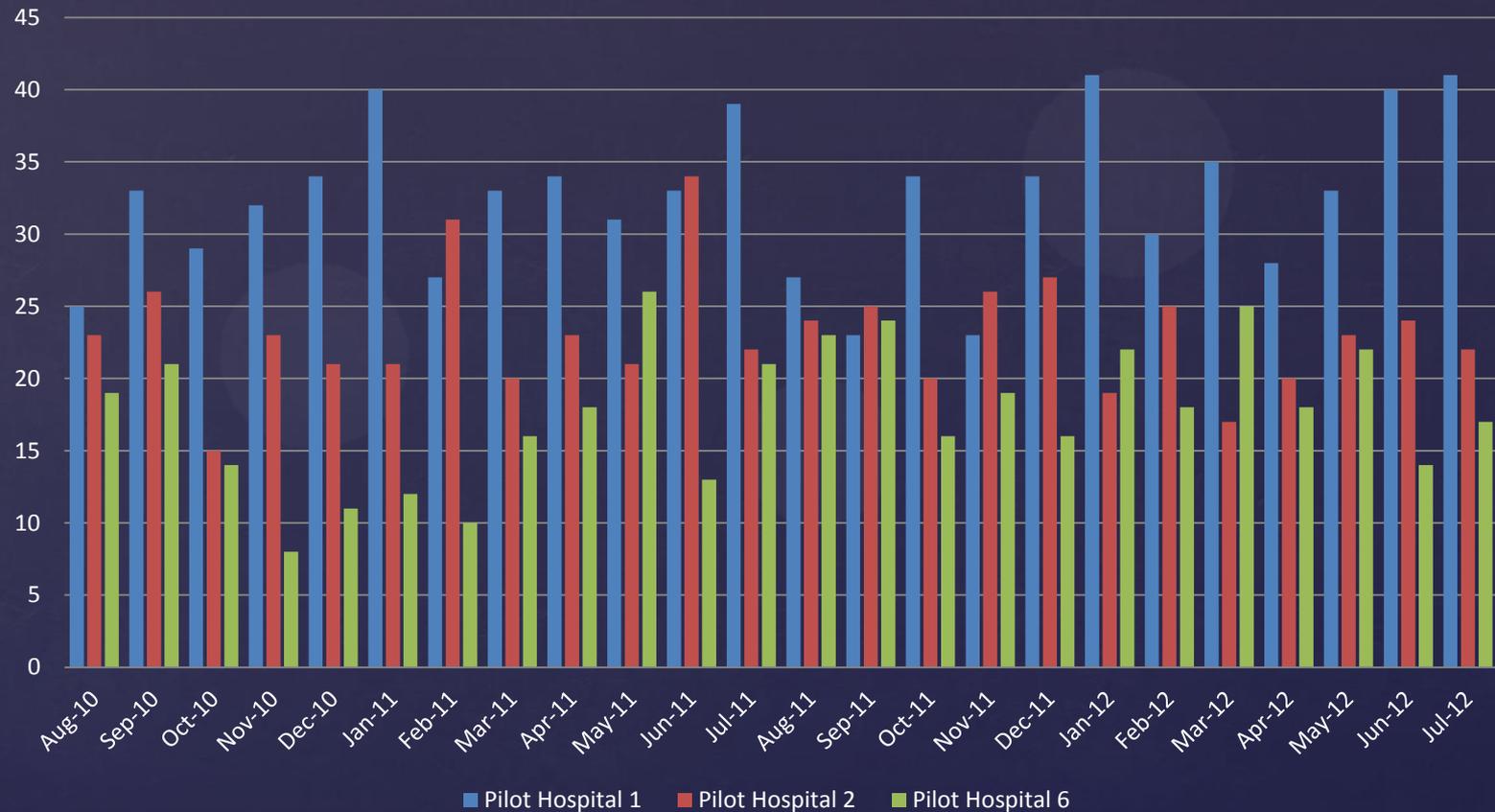
Enrollment Update

PCI CAMPOS	08/01/2010 – 07/31/2011	08/01/2011 – 07/31/2012
STEMI	435	398
NSTEMI	323	362
Unstable Angina	269	332
Stable Angina	199	175
No Sxs, no angina	46	52
Sx unlikely to be isch.	1	9
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Total	1273 patients	1328 patients

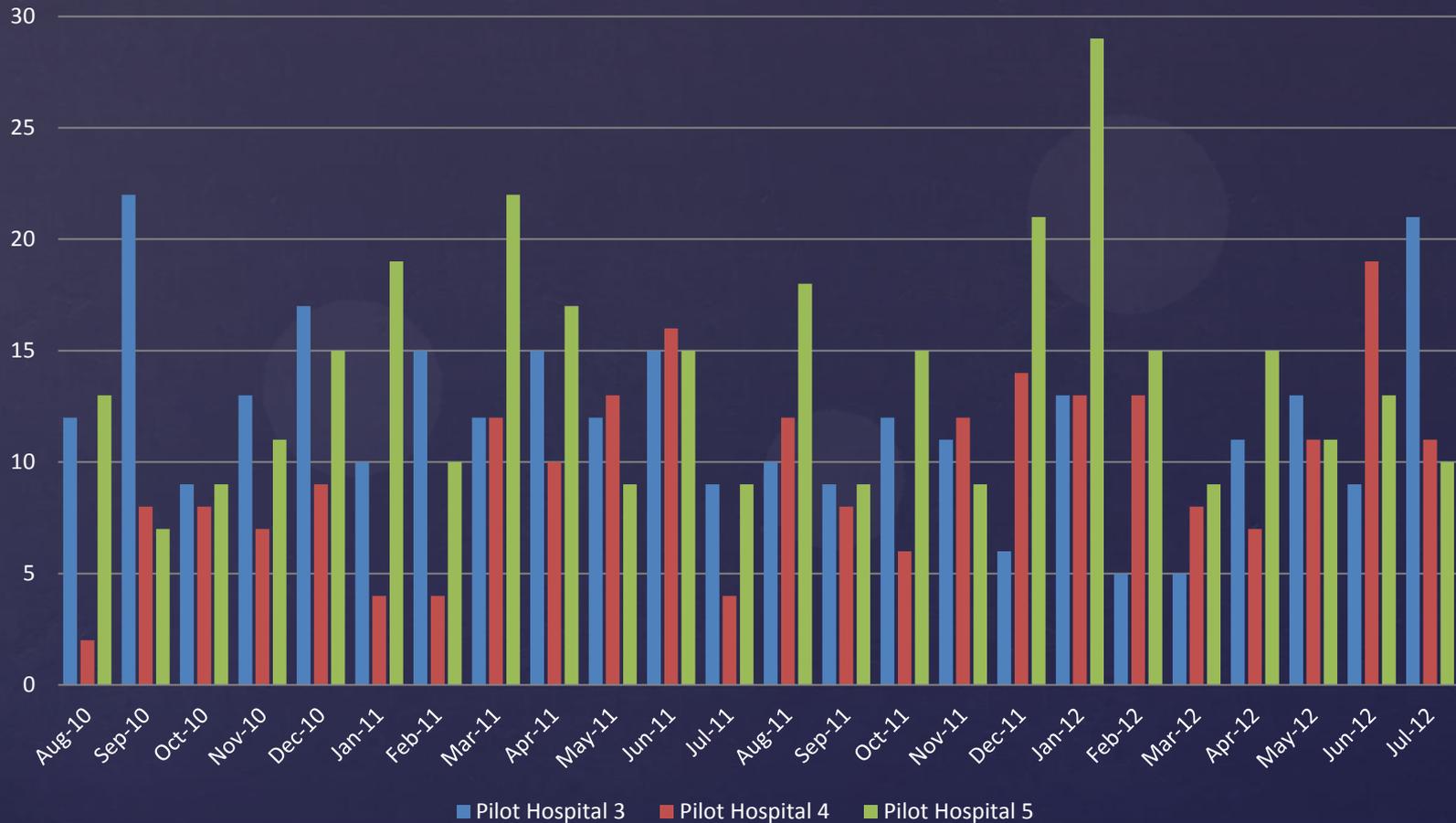
Total Enrollment Per Month



Total Enrollment Per Month: Individual hospital sites



Total Enrollment Per Month: Individual hospital sites



Enrollment Update: Primary PCIs

	Total PCIs 08/01/2010- 07/31/2011	Primary PCIs 08/01/2010- 07/31/2011	Total PCIs 08/01/2011- 07/31/2012	Primary PCIs 08/01/2011- 07/31/2012
Pilot- Hospital 1	390	73	389	56
Pilot- Hospital 2	280	108	272	86
Pilot Hospital 3	161	69	125	62
Pilot- Hospital 4	97	22	134	27
Pilot Hospital 5	156	49	174	53
Pilot- Hospital 6	189	114	234	114

Enrollment Update

Hospital 1 :	08/01/2010- 07/31/2011	08/01/2011- 07/31/2012
STEMI	73	56
NSTEMI	106	95
Unstable Angina	91	118
Stable Angina	97	92
No Sxs, No Angina	23	25
Sxs unlikely to be ischemic	0	3
<hr/>		
Total procedures	390	389

Enrollment Update

Hospital 2 :	08/01/2010- 07/31/2011	08/01/2011- 07/31/2012
STEMI	108	86
NSTEMI	61	100
Unstable Angina	72	70
Stable Angina	28	11
No Sxs, No Angina	11	5
Sxs unlikely to be ischemic	0	0
<hr/>		
Total procedures	280	272

Enrollment Update

Hospital 3 :	08/01/2010- 07/31/2011	08/01/2011- 07/31/2012
STEMI	69	62
NSTEMI	40	23
Unstable Angina	37	26
Stable Angina	12	10
No Sxs, No Angina	3	4
Sxs unlikely to be ischemic	0	0
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Total procedures	161	125

Enrollment Update

Hospital 4 :	08/01/2010- 07/31/2011	08/01/2011- 07/31/2012
STEMI	22	27
NSTEMI	32	49
Unstable Angina	19	33
Stable Angina	19	10
No Sxs, No Angina	4	9
Sxs unlikely to be ischemic	1	6
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Total procedures	97	134

Enrollment Update

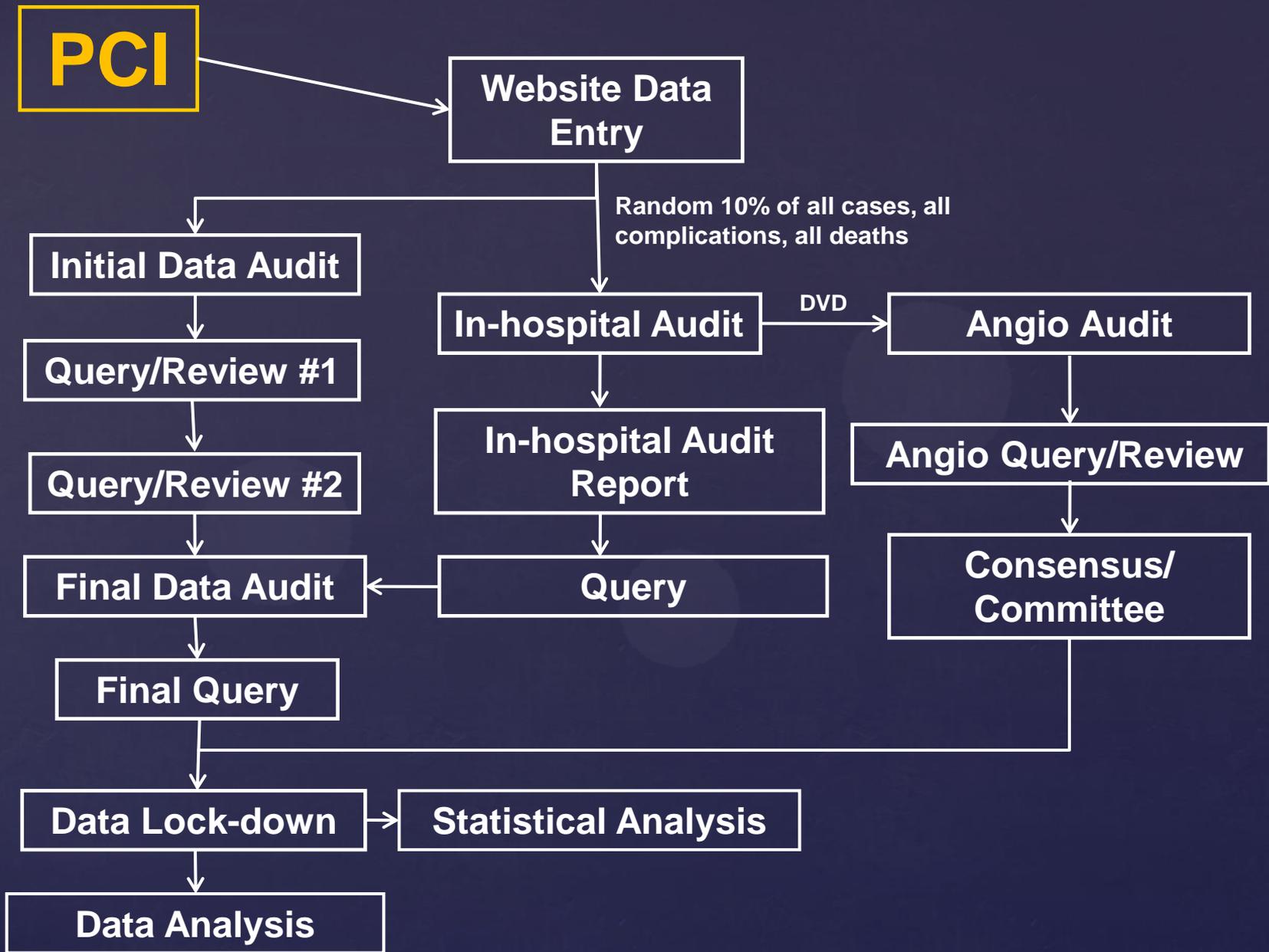
Hospital 5 :	08/01/2010- 07/31/2011	08/01/2011- 07/31/2012
STEMI	49	53
NSTEMI	47	45
Unstable Angina	25	51
Stable Angina	30	16
No Sxs, No Angina	5	9
Sxs unlikely to be ischemic	0	0
<hr/>		
Total procedures	156	174

Enrollment Update

Hospital 6 :	08/01/2010- 07/31/2011	08/01/2011- 07/31/2012
STEMI	114	114
NSTEMI	37	50
Unstable Angina	25	34
Stable Angina	13	36
No Sxs, No Angina	0	0
Sxs unlikely to be ischemic	0	0
<hr/>		
Total procedures	189	234

Website Update

- Velos Server Upgrade: (08/10/2012)
 - Log in – log out issue: must click “log out” button not the “x” .
- Data complete and lock-down for all patients
 - 08/01/2010-12/31/2011 (09/13/2012)
- UCD network outage:
 - 09/26/2012 8:15-11:30am



Initial Off-site Data Audit

- Completeness check
- Internal consistency (arrival date/procedure date, CHF, troponin/MI, PCI-status, CABG/graft, CTO/STEMI, appropriate meds)
- NCDR definitions compliance

On-site Audits (In-Hospital) (08/01/2010-07/31/2012)

➤ Hospital 1:	144	procedures audited
➤ Hospital 2:	127	procedures audited
➤ Hospital 3:	51	procedures audited
➤ Hospital 4:	44	procedures audited
➤ Hospital 5:	66	procedures audited
➤ Hospital 6:	130	procedures audited
Total:	562	procedures audited

Angiographic Audit: Diagnostic

- IABP or other mechanical ventricular support
- Diagnostic cath (and/or left heart cath) done
- Diagnostic cath status (elective, urgent, emergent, salvage)
- Coronary anatomy: % stenosis in ≥ 2 mm vessels and grafts
 - LM
 - Prox. LAD
 - Mid/Distal LAD, diag. branches
 - CIRC, OMs, LPDA, LPL branches
 - RCA, RPDA, RPL, AM branches
 - Ramus

Angiographic Audit: PCI

- Segment number of PCI coronary artery
- Culprit Lesion,
- Stenosis immediately prior to RX
 - If 100%: CTO
 - If 40-70%: IVUS
 - If 40-70%: FFR
 - If Yes: Ratio
- Pre-procedure TIMI Flow
- Prev. treated lesion
- Lesion in graft
- Lesion complexity
- Lesion length
- Thrombus present

Lesion Complexity

Non-High/Non-C Lesion	<p>Non-high/non-C lesions are considered Type A or B lesions. They can be characterized as follows:</p> <p>Low Risk or Type A lesions: Discrete (<10 mm length) Concentric Readily accessible Non-angulated segment <45 degrees Smooth contour Little or no calcification Less than totally occlusive Not ostial in location No major branch involvement Absence of thrombus</p> <p>Medium Risk (Type B1) lesions: Tubular (10-20 mm length) Eccentric Moderate tortuosity of proximal segment Moderately angulated segment, 45-90 degrees Irregular contour Moderate to heavy calcification Ostial in location Bifurcation lesions requiring double guidewires Some thrombus present Total occlusion <3 months old</p> <p>Medium Risk (Type B2 lesions): Two or more "B" characteristics.</p>
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High/C Lesion	<p>Descriptions of a High Lesion Risk (C Lesion): Diffuse (length > 2cm) Excessive tortuosity of proximal segment Extremely angulated segments > 90 degrees Total occlusions > 3 months old and/or bridging collaterals Inability to protect major side branches Degenerated vein grafts with friable lesions</p>
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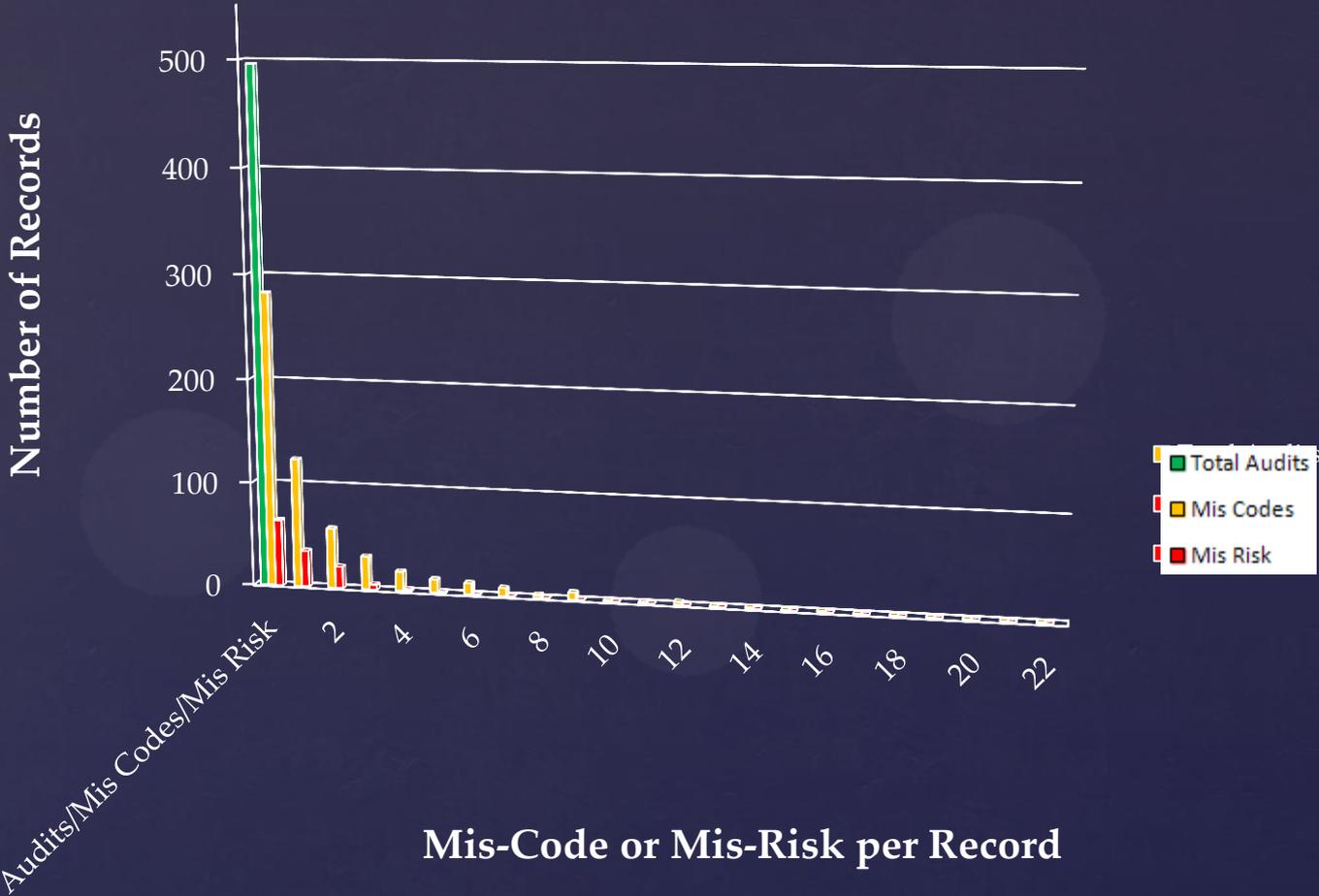
Angiographic Audit: PCI

- Bifurcation lesion
- Guidewire across lesion
- Stenosis post-procedure
- Post-procedure TIMI flow
- Device deployed
- Intracoronary devices used
- PCI complication: Significant dissection or perforation
- LVEF (if documented)

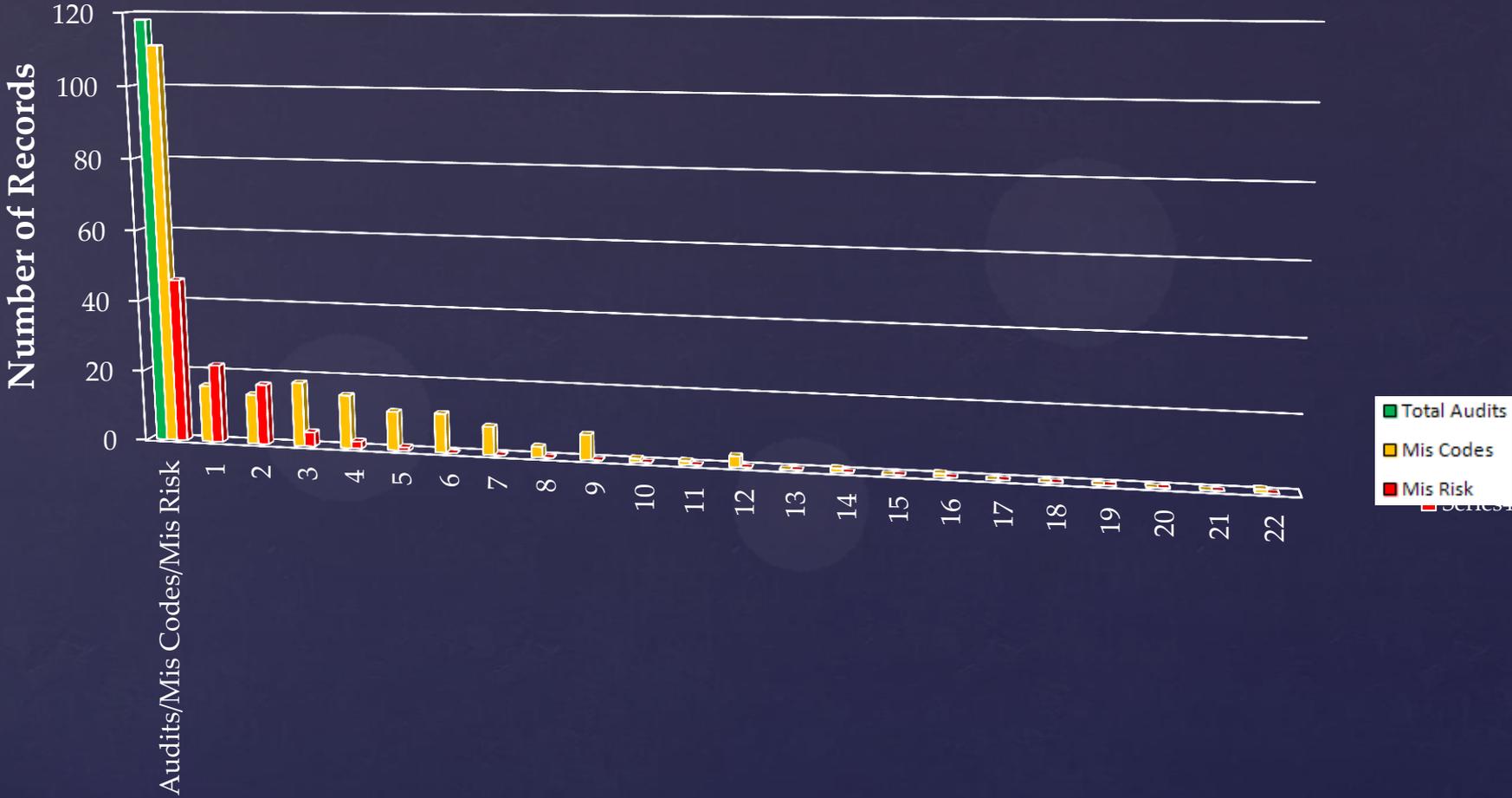
Off-site versus On-site monitoring

- Objective: To compare **Off-site** versus **On-site** monitoring of PCI CAMPOS registry data.
- Methods: 500/1800 PCI procedures were reviewed by both **Off-site** (registry field review) and **On-site** (hospital, imaging, and intervention angio recording) audits. The registry contained 240 PCI fields (NCDR: PCI/Cath v4.4+).
- The audit affected changes in data fields were recorded as **mis-codes**. The audit changes that altered the multivariate risk adjustment model were recorded as **mis-risks**.

Total Audits

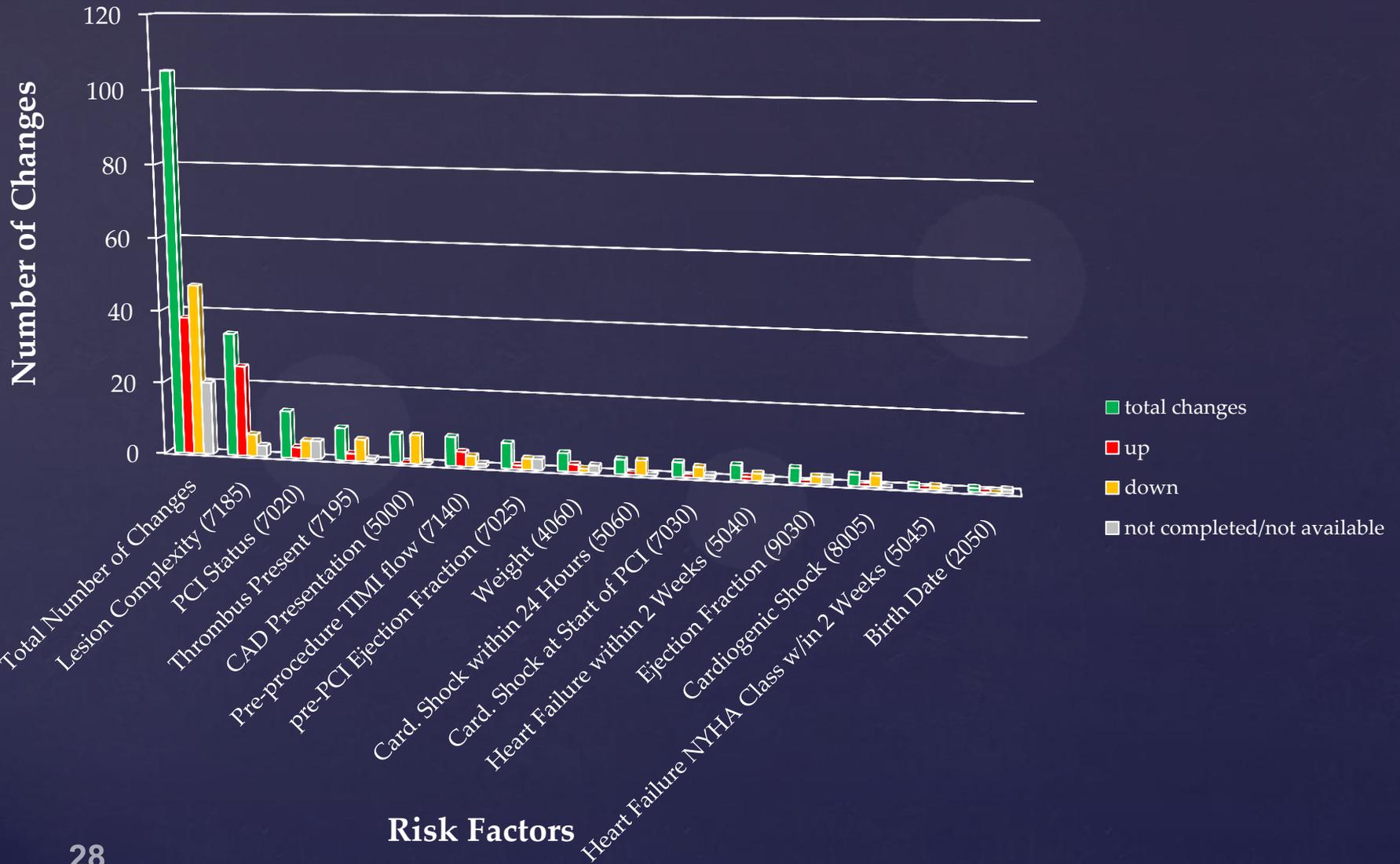


On-Site Audits



Mis-Code or Mis-Risk per Record

Total Audits – Mis-Risks



On-site Audits - Mis-Risk



Audit: Mis-code and Mis-risk

		Off-Site Rate	On-Site Rate
PCI	Mis-codes/pt	0.7	4.5
PCI	Mis-risk/pt	0.05	0.7

Off-site versus On-site monitoring Conclusions:

- On-site Monitoring detects more PCI **mis-codes(OR 6.4)** and **mis-risks(OR 14)** compared to Off-site Monitoring of Registry Data for PCI.
- The up versus down rates for PCI Mis-codes and Mis-risks are similar.
- On-site auditing of data entry, medical records, and imaging improves coding and the accuracy of risk adjusted outcomes for these cardiac interventions.

Protocol Violations/Issues

- 3 cases in which angio films were unavailable due to pilot hospital technical/workflow issues.
 - Pilot sites notified and corrective action underway.
- 1 case in which an unapproved interventionalist performed an “urgent” PCI.
 - Pilot site notified and corrective action underway.
- 1 case in which a non-IRB approved patient was enrolled in the study.
 - Pilot site and CDPH notified.

Compassionate Use Criteria

- Coma on presentation
- Use of ventricular assist device prior to PCI
- CPR at start of procedure
- Entered for procedures that were performed as of 07/01/2011

Compassionate Use

File Edit View Favorites Tools Help

Patient Form

Current Page: Patient Form

velos

Patient Search Study Patients Report Central

Homepage Demographics Patient Profile Protocols Reports Appendix

Personalize Account Manage Patients Report Central Ad-Hoc Queries Help Logout

Pat.ID: 654321 Age: 90 years Gender: Pat.Name: test formtwo Org: PCI-Training

Did the patient meet compassionate use criteria? Yes No

Was the patient in a coma (Glasgow <7) on presentation? Yes No

Was cardiopulmonary bypass (CPB), extracorporeal membrane oxygenation (ECMO), or percutaneous ventricular assist device (PVAD) begun before PCI? Yes No

Was patient receiving CPR at the start of PCI? Yes No

Current User: Melanie Aryana

System Timezone: (GMT-08:00) Pacific Time (US and Canada) Tijuana

Form Status* Work In Progress e-Signature * Submit

Form Version Number: 5

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Compassionate Use Criteria

07/01/2011-07/31/2012

	Total entered	CU section Completed	Pt met CU criteria	Coma	CPB/ECMO/PVAD	CPR
Site 1	428	423	1	1	0	1
Site 2	294	294	5	5	1	2
Site 3	134	133	2	1	0	0
Site 4	138	138	0	0	0	0
Site 5	183	172	5	5	0	1
Site 6	255	253	3	3	0	0
	1432	1413	16	15	1	4

Compassionate use

	Massachusetts*		PCI-CAMPOS**	
	Total	CU	Total	CU
Procedure success	94.2%	79.2%	89.7%	59.1%
Mortality	4.5%	69.8%	5.44%	56.25%

*Resnic et al., J Am Coll Cardiol 2011; 57(8), 904-11 (STEMI or shock)

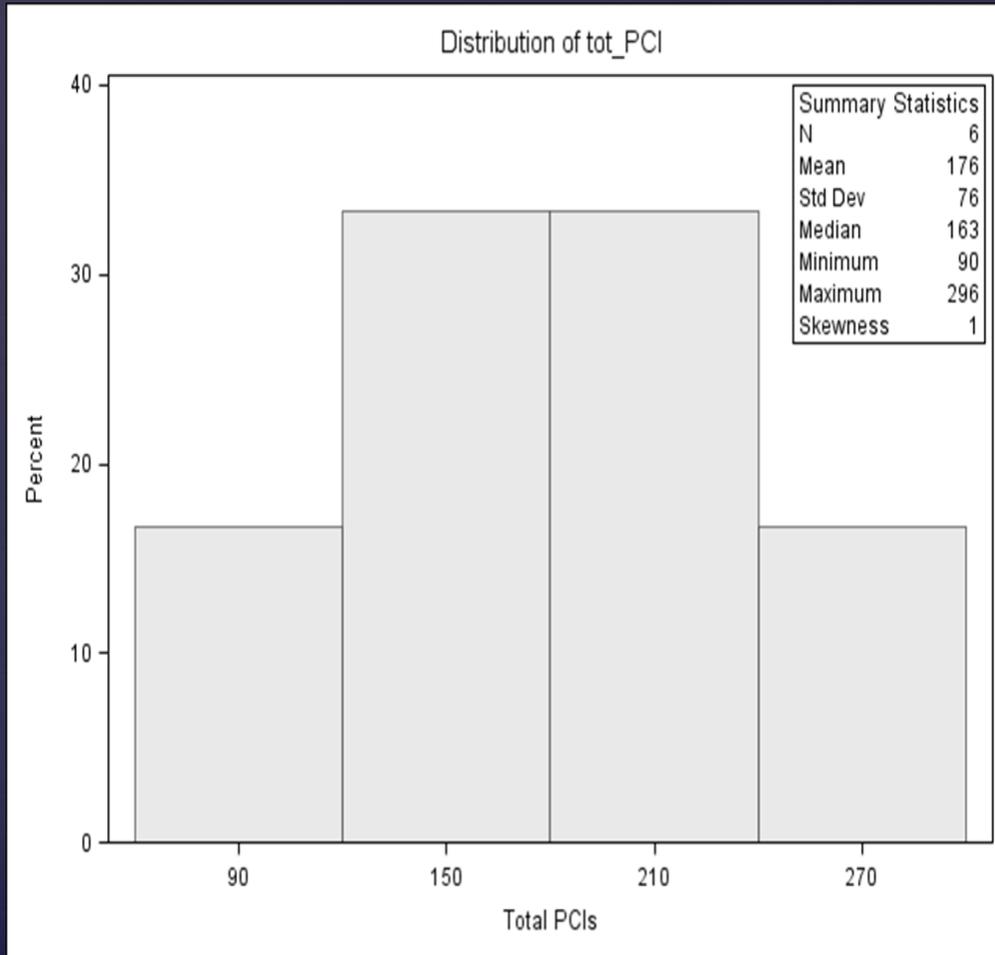
**PCI CAMPOS (Total= STEMI, CU= Coma, LV assist, CPR)

PCI CAMPOS: Basic Statistics

- **Total submission: 2,727 (08/01/2010-09/19/2012)**
 - **Complete Data: 2,702**
 - **2010 (08/01/2010 - 12/31/2010): 496**
 - **2011 (01/01/2011–12/31/2011): 1,309**
 - **2012 (01/01/2012-09/19/2012): 897**
 - **In-hospital mortality: N=58 (2.15%)**
 - **2010: 10 (2.02%)**
 - **2011: 30 (2.29%)**
 - **2012 : 18 (2.01%)**
 - **Hospital observed mortality range: (0.42 – 3.92%)**
 - **2010: 0 – 8.22%**
 - **2011: 0.79 – 4.65%**
 - **2012: 0 – 2.91%**

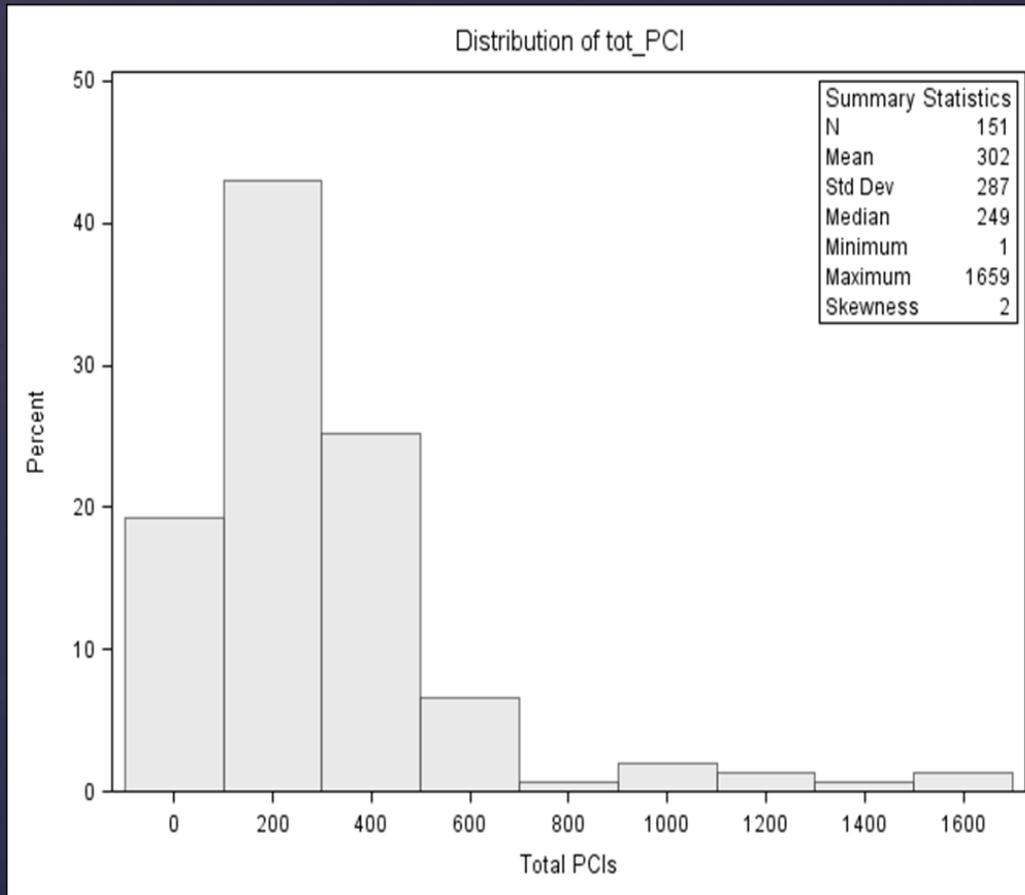
PCI CAMPOS:

Hospital Distribution of PCI Volume, 01/01/2011 – 12/31/2011



Quantiles (Definition 5)	
Quantile	Estimate
100% Max	296
99%	296
95%	296
90%	296
75% Q3	221
50% Median	163
25% Q1	125
10%	90
5%	90
1%	90
0% Min	90

Patient Discharge Data (PDD Non-Pilot): Hospital PCI Volume, 01/01/2011-12/31/2011



Quantiles (Definition 5)	
Quantile	Estimate
100% Max	1659
99%	1506
95%	974
90%	566
75% Q3	383
50% Median	249
25% Q1	131
10%	19
5%	2
1%	1
0% Min	1

Patient Case-mix

PDD Non-Pilot vs. PCI CAMPOS

Hospitals	STEMI/Non-STEMI Ratio, Mean (95% CI)*	Unstable Angina/Stable Angina Ratio, Mean (95% CI)*
PDD: Non-Pilot (N=151) (01/01/2011 – 12/31/2011)	1.52 (0.92 – 2.12)	3.99 (3.08– 4.90)
PDD: Pilot (N=6) (01/01 /2011– 12/31/2011)	1.65 (0 – 4.67)	3.09 (0 – 7.63)
P-value	0.934	0.700
PCI-CAMPOS (N=6) (01/01/2011– 12/31/2011)	1.47 (0 – 4.49)	2.15 (0 – 6.70)
P-value	0.973	0.435

NCDR Definition of CAD Presentation :

Seq. #: **5000** Name: CAD Presentation

Coding Instructions: Indicate the patient's coronary artery disease (CAD) presentation. Choose the worst status.

Note(s):

If the patient presents with atypical symptoms of myocardial ischemia (i.e. only shortness of breath, upper abdominal pain, left arm pain, etc.) that is known and documented to be myocardial ischemia, and is considered to be an anginal equivalent, code the selection that fits their presentation. If these symptoms are not thought to be or have not been proven to be the anginal equivalent, code "Symptom unlikely to be ischemic."

If this is a subsequent episode of care (within 7 days), do not code the CAD Presentation from the previous episode of care.

For STEMI and NSTEMI, code the highest value within 1 week of the current procedure.

If this is a repeat visit to the cath lab during the same episode of care, code the CAD presentation based on the patients clinical status prior to the subsequent procedure.

Target Value: The highest value between 7 days prior to arrival and current procedure

2011 Hospital Observed Mortality by MI Type PCI: PDD Non-Pilot vs PCI-CAMPOS :

Hospitals	STEMI MR% (95%CI)*	STEMI <u>Excluded</u> MR% (95%CI)*	Total PCI MR% (95%CI)
PDD: Non-Pilot (01/01/2011 – 12/31/2011)	5.08 (4.43-5.73)	4.08 (2.75-5.41)	3.02 (1.77-4.27)
PDD: Pilot (01/01 /2011– 12/31/2011)	5.24 (1.99-8.51)	2.97 (0-9.64)	2.66 (0-8.92)
P-value	0.922	0.748	0.910
PCI-CAMPOS (01/01 /2011– 12/31/2011)	5.44 (2.19-8.70)	1.50 (0-8.17)	2.55 (0-8.82)
P-value	0.827	0.455	0.884

2011 Hospital Observed Mortality for STEMI Excluded: PDD Non-Pilot vs PCI CAMPOS

Hospitals	Non-STEMI * MR% (95%CI)	No MI* MR% (95%CI)
PDD Non-Pilot (01/01/2011 – 12/31/2011)	1.86 (1.50-2.22)	0
PDD Pilot (01/01/2011 – 12/31/2011)	1.89 (0.08-3.70)	0
P-value	0.972	1.00
PCI-CAMPOS (01/01 /2011– 12/31/2011)	3.69 (1.88-5.50)	0
P-value	0.053	1.00

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*PCI CAMPOS=CAD presentation (#5000)

PDD ICD-9 data: ICD9-STEMI: 410.0-410.6, 410.8; Non-STEMI: 410.7, Unstable angina: 411.1; Stable Angina: 413.0, 413.1 and 413.9.

Risk adjustment: 01/01/2011-12/31/2011

- Composite outcome measure:
 - In-hospital death (**N=30**)
 - Transfer for emergent CABG (**N=4**)
 - Hospital observed composite event rate: **2.60% (0.87-4.65%)**
- Risk factors:
 - Demographics
 - Prior PCI clinical conditions
 - Prior PCI lesion risk
- Multivariable logistic regression model

Risk Factor Prevalence and Composite Event I

Risk factor		Prevalence (%)	Event rate (%)	p-value
Age group	≤70	62.6	1.89	0.011
	>70	37.4	3.46	
Gender	Female	30.4	2.43	0.918
	Male	69.6	2.50	
White	No	18.3	2.42	0.930
	Yes	81.7	2.49	
Body Mass Index	18.5-39.9	92.8	2.51	0.908
	< 18.5	1.6	2.38	
	40.0+	5.7	1.95	

Risk Factor Prevalence and Composite Event II

	Risk factor	Prevalence (%)	Event rate (%)	p-value
PCI status	Elective/Urgent	64.8	0.91	<0.0001
	Emergent/Salvage	35.2	5.36	
STEMI	STEMI	31.8	5.01	<0.0001
	NSTEMI	68.2	1.30	
Glomerular filtration rate (GFR)	Stage 1-2	88.0	2.15	0.0025
	Stage 3,4,5	12.0	4.92	
Cardiogenic shock	No	96.3	1.46	<0.0001
	Yes	3.7	29.29	

Risk Factor Prevalence and Composite Event III

	Risk factor	Prevalence (%)	Event rate (%)	p-value
NYHA	Class I, II, III	95.3	1.83	<0.0001
	Class IV	4.7	15.75	
Heart failure	No	77.4	1.87	0.0001
	Yes	22.6	4.58	
Diabetes	No diabetes	71.1	2.08	0.089
	Noninsulin diabetes	18.6	3.18	
	Insulin diabetes	10.3	3.97	
Prior PCI	No	71.6	2.59	0.575
	Yes	28.4	2.21	

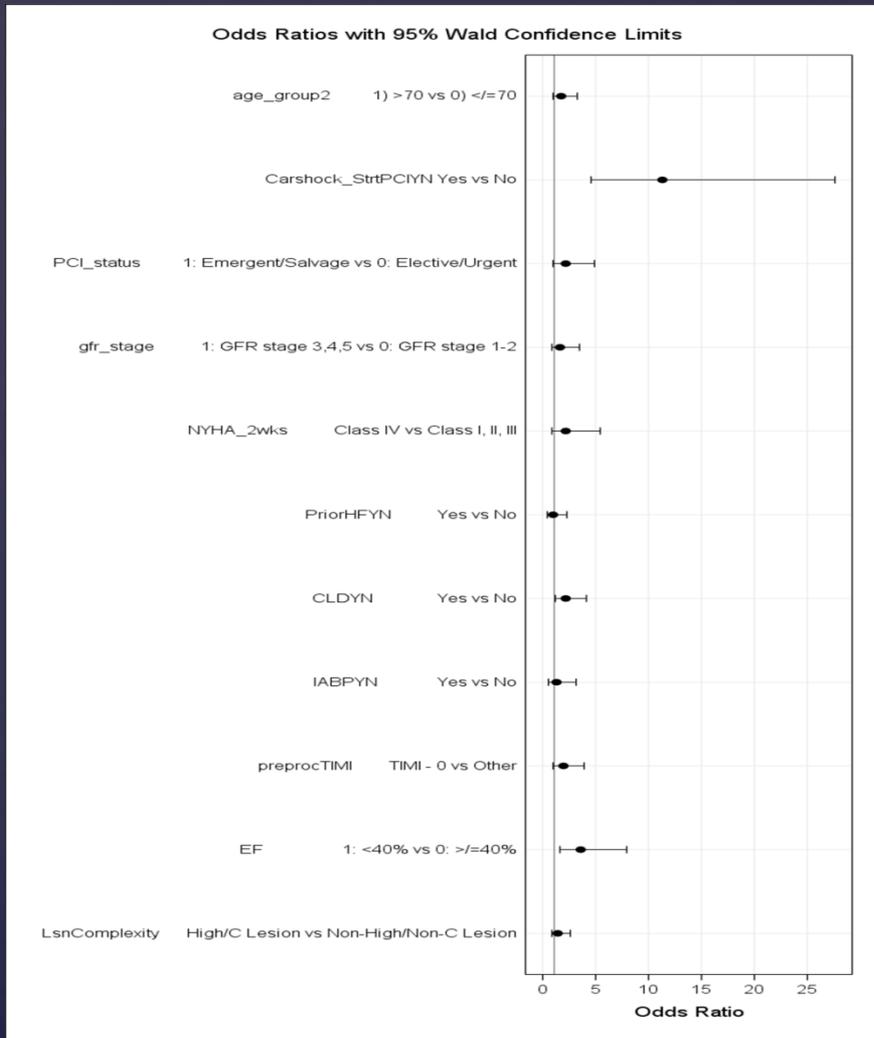
Risk Factor Prevalence and Composite Event IV

Risk factor		Prevalence (%)	Event rate (%)	p-value
Cerebrovascular Disease	No	89.2	2.32	0.134
	Yes	10.8	3.77	
Peripheral Artery Disease	No	89.6	2.39	0.404
	Yes	10.4	3.21	
Chronic Lung Disease	No	86.4	2.01	0.0001
	Yes	13.6	5.43	
Intra-aortic balloon pump	No	96.2	1.50	<0.0001
	Yes	3.8	26.92	

Risk Factor Prevalence and Composite Event V

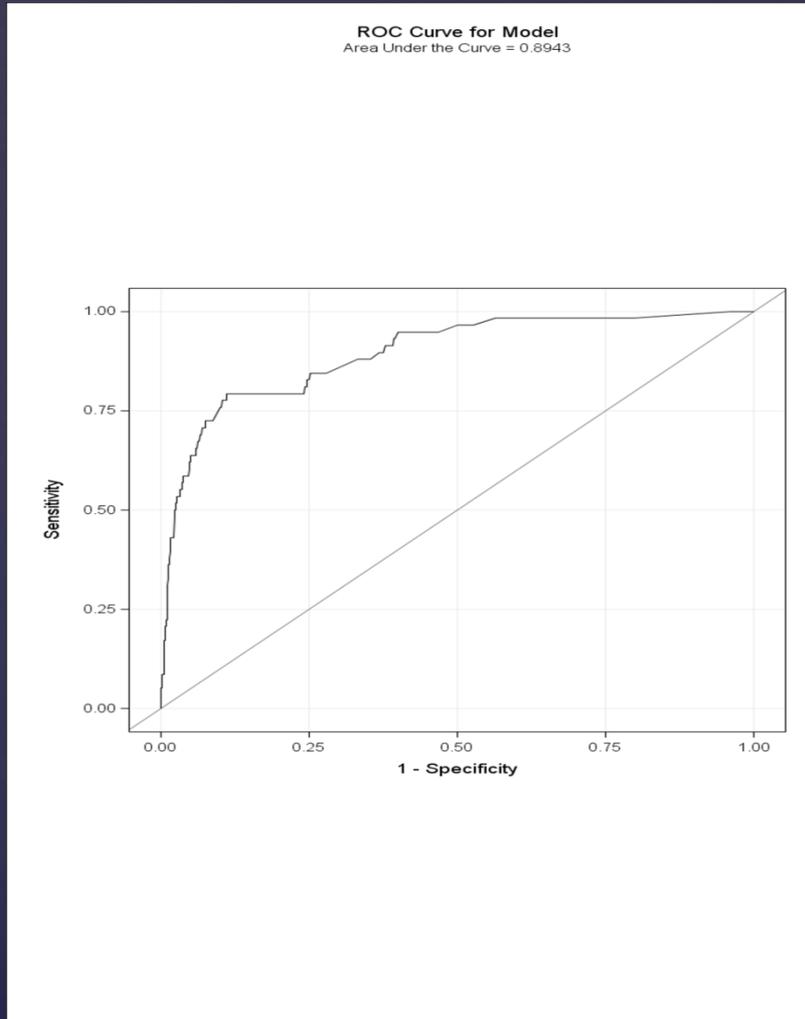
Risk factor		Prevalence (%)	Event rate (%)	p-value
Left main stenosis	≤75%	97.4	2.36	0.011
	>75%	2.6	7.14	
Ejection Fraction	≥40%	94.3	2.04	<0.0001
	<40%	5.7	9.74	
Lesion complexity	High/C Lesion	33.8	3.83	0.0012
	Non-High/Non-C Lesion	66.2	1.79	
Thrombosis	No	69.2	1.50	<0.0001
	Yes	30.8	4.69	
Preproc TIMI	Other	72.2	1.38	<0.0001
	TIMI - 0	27.8	5.32	

PCI-CAMPOS : Multivariable Logistic Regression Model for Composite Event I



- 11 risk factors
- 3 sig. predictors
- Adjusted OR > 2.00:
 - Cardiogenic shock
 - Chronic lung disease
 - EF<40%

PCI-CAMPOS : Multivariable Logistic Regression Model for Composite Event II



- Parsimonious Model:
 - C-statistic: **0.885**
 - Hosmer-Lemeshow test:
p=0.669
- Refined model:
 - C-statistic: **0.894**
 - Hosmer-Lemeshow test:
p=0.551

PCI CAMPOS: Risk-adjusted PCI Composite Event Results by Hospital, 01/01/2011-12/31/2011

Hospital	PCI Cases	Composite Events	Observed Event Rate (%)	Expected Event Rate (%)	Risk-Adjusted Event Rate (% , RAER)	95%CI for RAER	Performance Rating
PCI-CAMPOS	1,309	34	2.60				
#1	378	4	1.06	1.57	1.76	(0.48, 4.50)	No difference
#2	294	6	2.04	2.60	2.04	(0.75, 4.45)	No difference
#3	136	6	4.41	1.88	6.09	(2.24, 13.26)	No difference
#4	115	1	0.87	2.24	1.01	(0.03, 5.63)	No difference
#5	172	8	4.65	2.13	5.67	(2.45, 11.19)	No difference
#6	214	9	4.21	3.57	3.06	(1.40, 5.81)	No difference

PCI CAMPOS: Risk-adjusted STEMI Excluded PCI Composite Event By Hospital, 01/01/2011-12/31/2011

Hospital	PCI Cases	Composite Events	Observed Event Rate (%)	Expected Event Rate (%)	Risk-Adjusted Event Rate (% , RAER)	95%CI for RAER	Performance Rating
PCI-CAMPOS	900	12	1.33				
#1	320	1	0.31	0.81	0.52	(0.01, 2.88)	No difference
#2	193	2	1.04	1.86	0.74	(0.09, 2.68)	No difference
#3	68	4	5.88	0.86	9.10	(2.47, 23.24)	Worse
#4	91	0	0	0.99	0	(0.00, 5.43)	No difference
#5	121	2	1.65	1.60	1.38	(0.17, 4.98)	No difference
#6	107	3	2.8	2.49	1.50	(0.31, 4.38)	No difference

PCI CAMPOS: Risk-adjusted PCI Composite Event by Operator, 01/01/2011-12/31/2011

	<i>Number of Operators</i>	<i>Mean</i>	<i>SD</i>	<i>Median</i>	<i>Minimum</i>	<i>Maximum</i>
Observed Event Rate (%)	45	4.91	15.79	0.00	0.00	100.00
Expected Event Rate (%)	45	2.72	2.14	2.16	0.47	11.70
Risk-Adjusted Event Rate (% RAER)	45	3.47	8.65	0.00	0.00	48.87
Number of PCI Performed	45	29.1	44.1	11.0	1.0	262.0

- With 95%CI, two “Worse” outlier operators (RAERs: 12.05% and 30.84%, respectively) were identified on overall risk-adjusted composite event.

PCI CAMPOS: Risk-adjusted STEMI Excluded PCI Composite Event by Operator, 01/01/2011-12/31/2011

	Number of Operators	Mean	SD	Median	Minimum	Maximum
Observed Event Rate (%)	36	2.02	6.23	0.00	0.00	33.33
Expected Event Rate (%)	36	1.84	3.19	1.05	0.45	19.68
Risk-Adjusted Event Rate (% RAER)	36	1.15	2.97	0.00	0.00	12.05
Number of PCI Performed	36	25.0	35.4	9.5	1.0	182.0

- With 95% CI, one **“Worse”** (RAER: 12.05%) outlier operator was identified on **STEMI excluded** risk-adjusted composite event.

Relationship between Total PCI Volume and Composite Event

Hospital

Operator

Pearson Correlation Coefficients, N = 6		
		PCI Volume
Observed Event Rate (%)	Coefficient	-0.409
	P-Value	0.421
Expected Event Rate (%)	Coefficient	-0.146
	P-Value	0.782
Risk-Adjusted Event Rate (%, RAER)	Coefficient	-0.413
	P-Value	0.416

Pearson Correlation Coefficients, N = 45		
		PCI Volume
Observed Event Rate (%)	Coefficient	-0.099
	P-Value	0.518
Expected Event Rate (%)	Coefficient	-0.136
	P-Value	0.372
Risk-Adjusted Event Rate (%, RAER)	Coefficient	-0.048
	P-Value	0.754

Relationship between STEMI Excluded PCI Volume and Composite Event

Hospital

Operator

Pearson Correlation Coefficients, N = 6		
		PCI Volume
Observed Event Rate (%)	Coefficient	-0.545
	P-Value	0.263
Expected Event Rate (%)	Coefficient	-0.211
	P-Value	0.689
Risk- Adjusted Event Rate (%, RAER)	Coefficient	-0.457
	P-Value	0.362

Pearson Correlation Coefficients, N = 36		
		PCI Volume
Observed Event Rate (%)	Coefficient	-0.080
	P-Value	0.644
Expected Event Rate (%)	Coefficient	-0.110
	P-Value	0.525
Risk- Adjusted Event Rate (%, RAER)	Coefficient	0.038
	P-Value	0.828

Statistical Analysis Summary

- **Case mix** and **Observed Mortality: No significant differences** between PCI-CAMPOS and PDD Non-Pilot
- PCI-CAMPOS Risk-Adjusted Composite Event:
 - **No significant outlier hospital for overall PCI composite event**
 - One **“worse”** outlier hospital for **STEMI excluded PCI composite event**
 - Two **“worse”** outlier operators for overall composite event
 - One **“worse”** outlier operator for **STEMI excluded PCI composite event**
- **No significant relationships** between hospital/operator PCI volume and composite event.

Patients Transferred for Cardiac Surgery, 01/01/2011-12/31/2011

<i>Hospital</i>	<i>Elective</i>	<i>Urgent</i>	<i>Emergency</i>	<i>Total</i>	<i>Death</i>
#1	0	0	1	1	0
#2	2	0	0	2	0
#3	1	1	1	3	0
#4	0	2	0	2	0
#5	0	3	0	3	1
#6	1	2	2	5	0
<i>Total</i>	4	8	4	16	1

Quality Metrics I

Post-Operative Medicine Use (08/01/2010-12/31/2011)

- **Aspirin** prescribed at discharge:
 - Pilot: 91.0% (80.4-95.1%)
 - *NCDR* 98.4% (96.4-99.4%)
- **Thienopyridine** prescribed at discharge (pts with stents):
 - Pilot 99.8% (99.2-100%)
 - *NCDR* 99.2% (98.1-99.8)
- **Lipid lowering agent** prescribed at discharge (pts with dyslipidemia):
 - Pilot 89.1% (79.6-95.2%)
 - *NCDR* 92.5% (87.7-95.8%)

Quality Metrics II (08/01/10-12/31/11)

Hospital	1	2	3	4	5	6	Total
# of Elective PCI pts. (excl. pts. with ACS)	152	44	14	31	34	34	309
Pts. who had a Stress Test, Imaging Study, or FFR +/indeterminant/total	97	32	12	24	23	31	219
Stand. Exercise Stress Test +/indeterminant/total	40/7/52	2/0/2	0	0	0/2/2	0	56
Stress Echo +/indeterminant/total	0	3/0/3	5/0/5	0/1/1	3/0/3	9/0/9	21
SPECT +/indeterminant/total	42/2/51	24/0/26	7/0/7	21/1/23	15/1/18	14/5/22	147
CMR +/indeterminant/total	0	1/0/1	0	0	0	0	1/0/1
FFR (≤ 0.75 /total)	8/9	0	0	0	0	0	8/9
+stress test/# elective PCI*	77/152 51%	30/44 68%	12/14 86%	19/31 61%	18/34 53%	23/34 68%	179/309 58%

Quality Metrics III (08/01/10-12/31/11)

Hospital	1	2	3	4	5	6	Total	25 th – 75 th	NCDR
Median time to immediate PCI for STEMI patients (minutes)	70	70	70	74	71	66	69	56.6-68.5	62.5
Proportion of STEMI patients receiving immediate PCI within 90 minutes (%)	83.6	85.4	94.2	72.2	69.6	89.2	84.5	86.2-96.2	91.9
Emergency CABG (%)	0.4	0	0.5	0	0	1.7	0.4	0.0-0.4	0.1
Acute kidney injury (%)	1.5	3.4	5.2	6.5	5.6	4.7	4.0	1.5-3.0	2.2

Quality Metrics IV (08/01/10-12/31/11)

Hospital	1	2	3	4	5	6	Total	25 th – 75 th	NCDR
Post procedure stroke (%)	0	0.25	0.48	0	0.44	1.05	0.33	0.0-0.3	0.0
Composite: Death, emergency CABG, stroke	1.3% 7	2.7% 11	3.8% 8	2.7% 4	5.7% 13	5.9% 17	3.3% 60	1.6-3.2	2.4
Median post-proc LOS for PCI with STEMI (days)	1	2	2	1	2	2	2	1.9-2.9	2.7
Median post-proc LOS for PCI with no STEMI (days)	1	1	1	1	1	2	1	NA	NA
Creatinine assessed pre-and post PCI (%)	97.5	99.3	93.0	97.5	98.1	79.4	93.8	75.6-93.3	86.8
Transfusion of whole blood or RBCs (%)	2.3	5.0	1.0	4.0	1.3	5.2	3.2	0.7-2.5	1.6

Quality Metrics V (08/01/10-12/31/11)

Hospital	1	2	3	4	5	6	Total	25 th – 75 th per- cent- tile	NCDR
Intermediate stenosis lesions (40-70%): IVUS (% of patients)	11.0 (12/109)	6.3 (1/16)	0 (0/8)	22.6 (7/31)	0 (0/9)	0 (0/45)	9.2 (20/218)	NA	NA
Intermediate stenosis lesions (40-70%): FFR (% of patients)	14.7 (16/109)	6.3 (1/16)	0.25 (2/8)	9.7 (3/31)	0 (0/9)	0 (0/45)	10.1 (22/218)	NA	NA
Biomarkers assessed post procedure for elect. inpatients (%)	42.0 (102/243)	89.3 (50/56)	96.7 (29/30)	19.6 (10/51)	80 (8/10)	20.6 (13/63)	46.8 (212/453)	12.6-80.1	37.3
Post procedure MI (%)	5.7	6.1	12.9	10.7	17.6	0	6.5	≥90%: 0.9-4.4 <90%: 0.0-1.6	≥90%: 1.6 <90%: 0.5

PCI Success (08/01/10-12/31/11)

Hospital	1	2	3	4	5	6	Total
Number of patients	531	402	209	149	228	287	1806
Number of lesions treated	879	472	258	183	286	379	2457
Guidewire across	869	464	252	176	275	371	2407
Post procedure stenosis <20% (%)	90.7	95.8	84.5	87.4	92.0	82.6	89.7
Post procedure stenosis ≥20% (%)	9.3	4.2	15.5	12.6	8.0	17.4	10.3
Post procedure TIMI 3 (%)	94.7	93.4	92.2	92.3	93.0	90.0	93.1
<20% stenosis <u>AND</u> TIMI 3 (%)	88.2	92.2	82.2	87.4	90.2	78.9	87.1

Transfer Costs

Hospital 1: Transfers for 'emergent' CABG

Transfer 1	\$1,106
Transfer 2	\$1,106
Average cost per transfer	\$1,106

Transfer Costs

Hospital 2: Transfers to 'other acute care hospital' for impella device, AVR, MVR, etc. not for CABG

Transfer 1	\$2,025
Transfer 2	\$478
Transfer 3	\$2,730
Transfer 4	\$2,730
Transfer 5	\$885
Transfer 6	\$1,685
Transfer 7	\$3,720
Average cost per transfer	\$2,036

Transfer Costs

Hospital 3: Transfer to CABG facility (10.9 miles)

Base rate \$599 plus \$20/mile = \$819

Cost per transfer to CABG hospital \$819

Transfer Costs

Hospital 4: Transfers for 'urgent' CABG

Transfer 1 \$255

Transfer 2 \$255

Transfer 3 \$515

Average cost per transfer \$342

Transfer Costs

Hospital 5: Transfers for 'urgent' CABG

Transfer 1	\$600
Transfer 2	\$888
Transfer 3	\$4,936
Transfer 4	\$2,335
Average cost per transfer	\$2,190

Transfer Costs

Hospital 6: Transfers for “emergent” CABG and “other acute care hospital”

Transfer 1	\$897
Transfer 2	\$1,036
Transfer 3	\$897
Transfer 4	\$897
Transfer 5	\$897

Average cost per transfer \$925

Summary I

- Total Enrollment: 2601 (08/01/2010-07/31/2012)
- Hospital Enrollment: 97-390/year (08/01/2010-07/31/2012)
- Success Rate: (08/01/2010-12/31/2011)
 - post-stenosis <20%: 89.7% post -proc. TIMI 3 flow: 93.1%
- 2011 Mortality: PCI CAMPOS- 2.55%
PDD Pilot- 2.66% PDD Non-Pilot- 3.02%

Summary III

- Compassionate Use Mortality: 56.25% (07/01/2011-07/31/2012)
- No Composite Event to Volume Correlation (01/01/2011-12/31/2011)
- PCI-CAMPOS quality metrics: stress testing, emergent CABG, LOS, creatinine, and biomarkers are within NCDR national 25-75th percentile or close (medicines, D2B time, acute kidney injury, stroke, composite, transfusion, post proc. MI). (08/01/2010-12/31/2011)

NCDR California PCI Dataset

ACCF NCDR to create and transmit a de-identified dataset of California hospitals that does not require hospital consents, with select elements suppressed, masked, or calculated .

- UC Davis/NCDR: contract signed 06/2012
- Pilot-Hospitals: CDPH invoices sent 08/2012
- NCDR Sample Data file: uploaded 08/27/2012
approved 09/21/2012
- NCDR CA Data: initial export anticipated 10/19/2012

PCI-CAMPOS Plans

- Continue to support hospital volume
- Review performance variation
- Refer outliers to local CQI
- Review CQI implementation
- Re-consider Public Disclosure
- Obtain California NCDR Database
- Develop Early Publication
- Consider AOC member reviewer status
- Develop PCI CAMPOS transition plan