

Trends in Urine and Oral Fluid Positive Rates for Opiates

R. H. Barry Sample, Ph.D.
Barbara J. Rowland, M.P.A.
Employer Solutions
Quest Diagnostics Incorporated
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Specimen Demographics

- Source
 - Routine random, oral-fluid (N~5.5MM) and urine (non-regulated) specimens (N~37MM) submitted for drugs of abuse testing
 - Workplace
 - Rehab/CJ excluded
 - POCT Confirms excluded
 - Excludes high positivity
 - Specimens tested January 2005 – June 2011
 - Laboratory positive data (prior to MRO review)
- Testing Reason (Urine / Oral-Fluid)
 - Pre-Employment – 73% / 80%
 - Random – 13% / 9%
 - Post-Accident – 6% / 6%

Oral Fluid Opiate Drug Tests

- The immunoassays for opiates in oral fluid utilize morphine as the target compound
- Some exhibit significant cross-reactivity with 6-AM and the semi-synthetic opiate, hydrocodone.
- 50% of our oral fluid tests for opiates include confirmatory testing for semi-synthetic opiates
- This workplace data clearly demonstrates that hydrocodone is the most commonly detected opiate.

Oral-Fluid Opiates Detail (as a percentage of all tests for "Opiates"¹)

	2005	2006	2007	2008	2009	2010	Jan - Jun 2011
Overall	0.71%	0.72%	0.67%	0.76%	0.86%	0.90%	0.90%
Codeine	0.09%	0.08%	0.09%	0.09%	0.10%	0.08%	0.08%
Morphine	0.03%	0.04%	0.05%	0.06%	0.07%	0.06%	0.06%
Hydrocodone	0.60%	0.60%	0.54%	0.61%	0.69%	0.75%	0.75%
6-MAM	0.01%	0.02%	0.03%	0.04%	0.05%	0.04%	0.04%
Codeine & Morphine	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
Morphine & 6-MAM	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	0.03%

¹Approximately 50% of tests include hydrocodone and hydromorphone
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Urine Drug Tests for “Expanded Opiates”

- Very similar results have been observed in our workplace drug testing data for prescription (“expanded”) opiates in urine specimens (~3.2MM specimens between January 2005 and June 2011)
- Also of significant concern are the urine results for opiates categorized by testing reason
 - Post accident testing compared to pre-employment indicates an up to four-fold higher incidence of positive tests for some semi-synthetic opiates

“Expanded” Opiates Positivity (Urine Drug Tests) (General U.S. Workforce, N~500K/Yr)

	2005	2006	2007	2008	2009	2010	Jan- Jun 2011
Codeine	0.22%	0.20%	0.19%	0.20%	0.21%	0.17%	0.20%
Morphine	0.45%	0.37%	0.43%	0.43%	0.48%	0.42%	0.42%
Hydrocodone	0.88%	0.97%	1.2%	1.1%	1.3%	1.3%	1.3%
Hydromorphone	0.47%	0.54%	0.74%	0.73%	0.82%	0.71%	0.70%

“Expanded” Opiate positivity by Testing Reason (Urine Drug Tests)

Pre-Employment

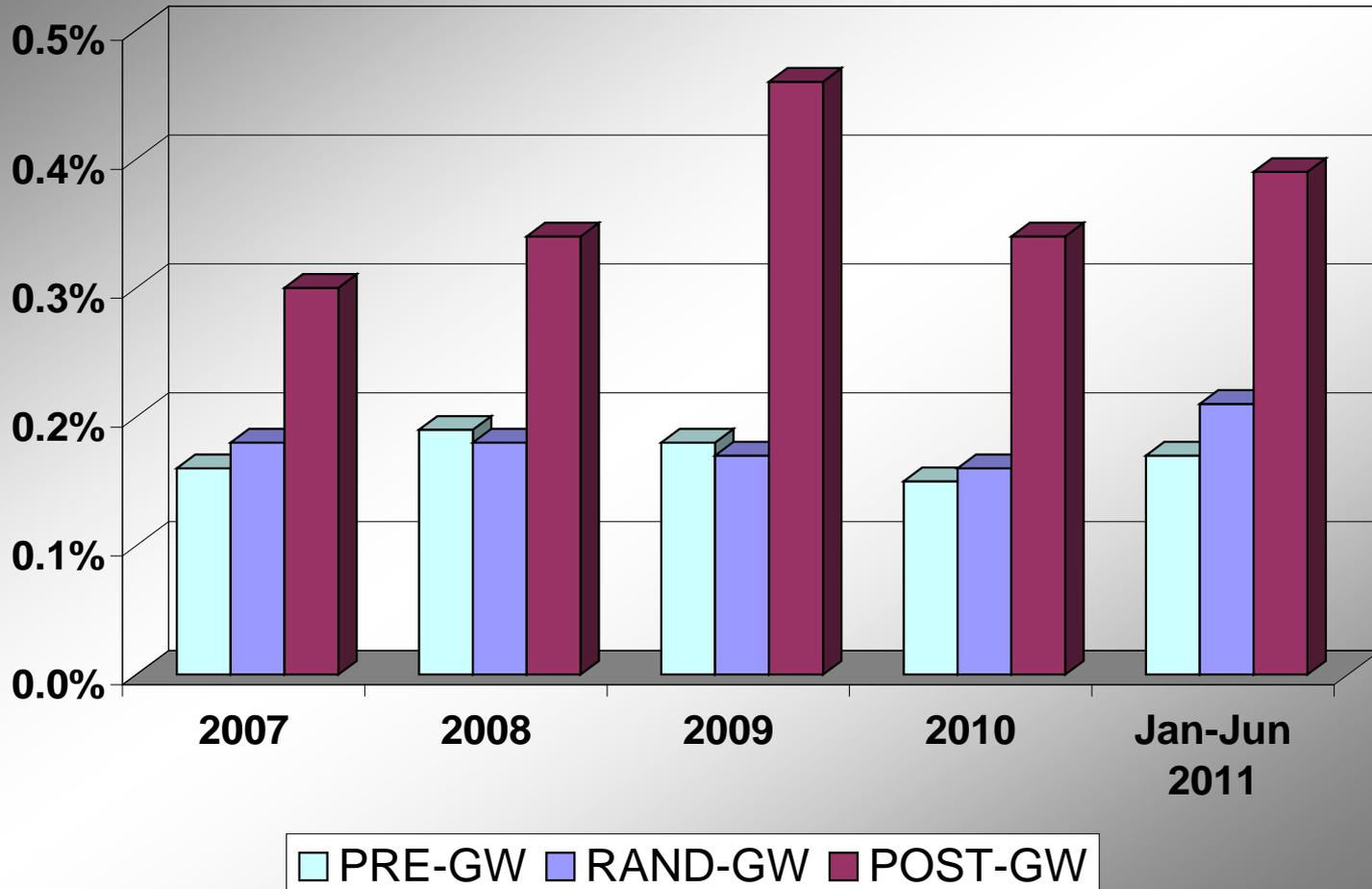
	2005	2006	2007	2008	2009	2010	Jan-Jun 2011
Codeine	0.22%	0.18%	0.16%	0.19%	0.18%	0.15%	0.17%
Morphine	0.33%	0.30%	0.29%	0.31%	0.32%	0.28%	0.27%
Hydrocodone	0.69%	0.70%	0.79%	0.78%	0.78%	0.81%	0.85%
Hydromorphone	0.37%	0.38%	0.48%	0.50%	0.47%	0.45%	0.47%

Post-Accident

	2005	2006	2007	2008	2009	2010	Jan-Jun 2011
Codeine	0.36%	0.31%	0.30%	0.34%	0.46%	0.34%	0.39%
Morphine	1.0%	0.9%	1.0%	1.2%	1.2%	1.1%	1.1%
Hydrocodone	2.3%	2.1%	2.9%	3.2%	3.7%	3.6%	3.7%
Hydromorphone	1.2%	1.2%	1.8%	2.2%	2.3%	1.9%	2.2%

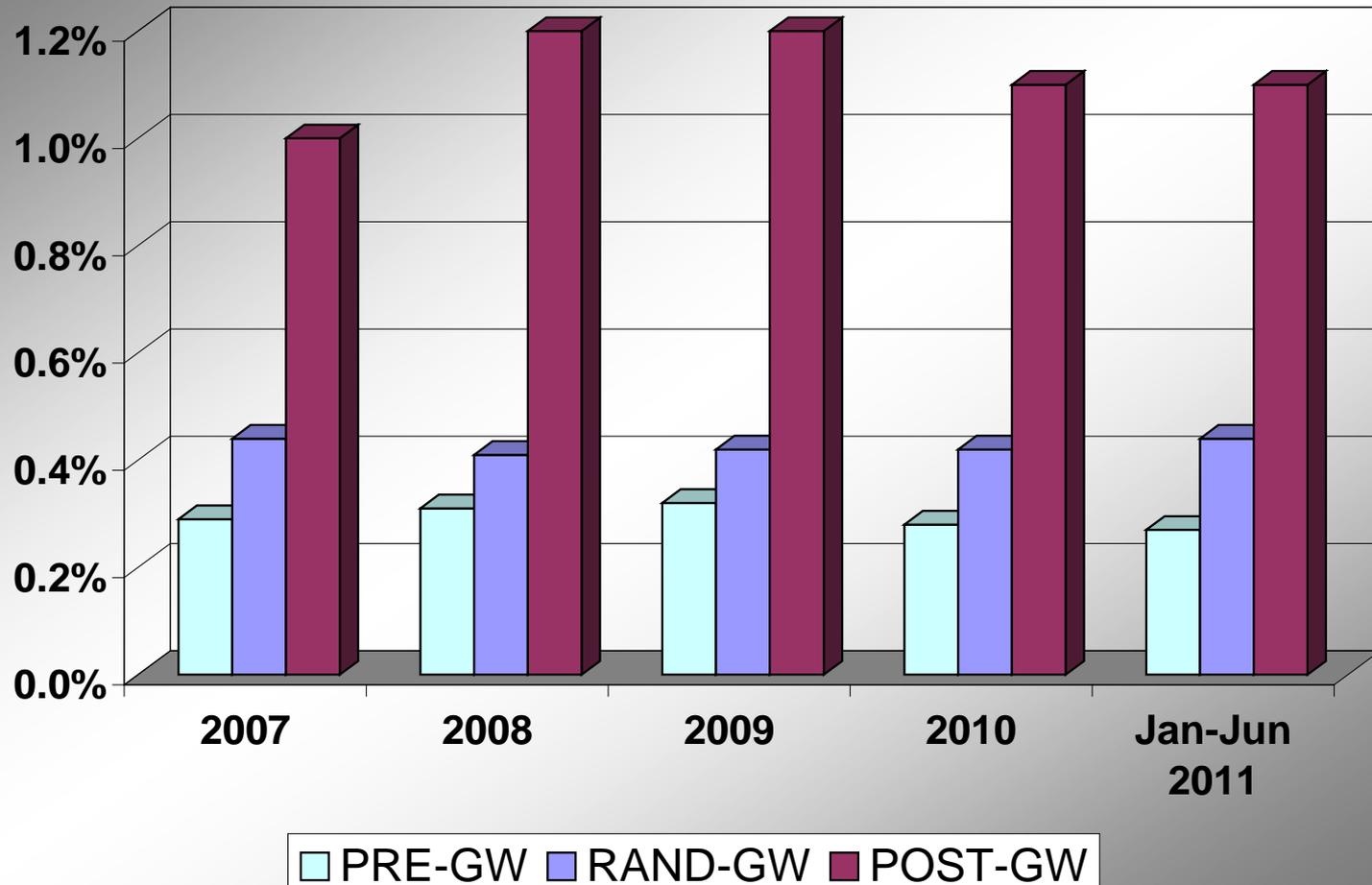
Codeine Positives by Testing Reason (Urine Drug Tests)

Positivity Rates for Codeine by Testing Reason– Urine Drug Tests
(For General U.S. Workforce, as a percentage of all test for “Expanded Opiates”)



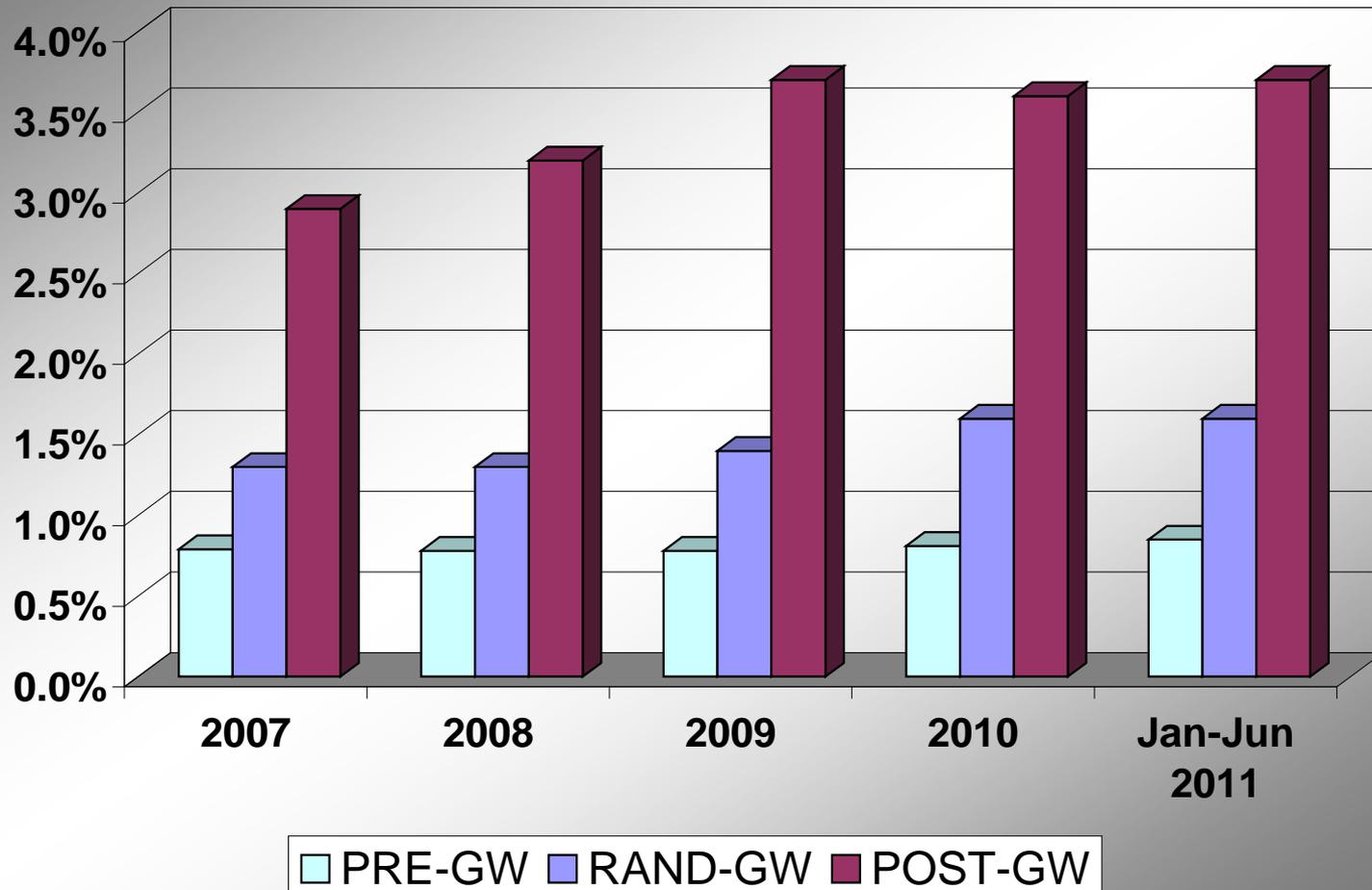
Morphine Positives by Testing Reason (Urine Drug Tests)

Positivity Rates for Morphine by Testing Reason– Urine Drug Tests
(For General U.S. Workforce, as a percentage of all test for “Expanded Opiates”)



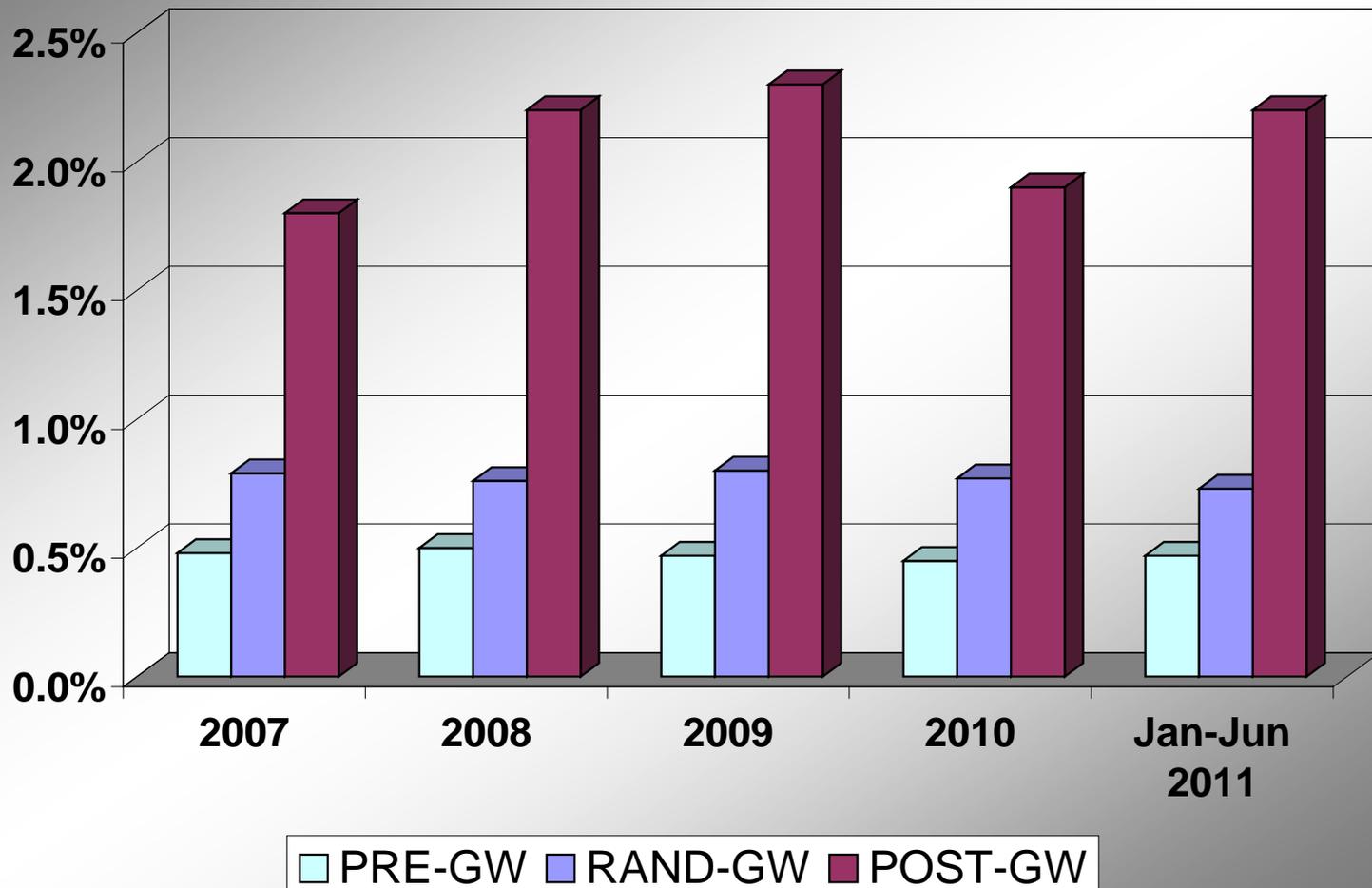
Hydrocodone Positives by Testing Reason (Urine Drug Tests)

Positivity Rates for Hydrocodone by Testing Reason– Urine Drug Tests
(For General U.S. Workforce, as a percentage of all test for “Expanded Opiates”)



Hydromorphone Positives by Testing Reason (Urine Drug Tests)

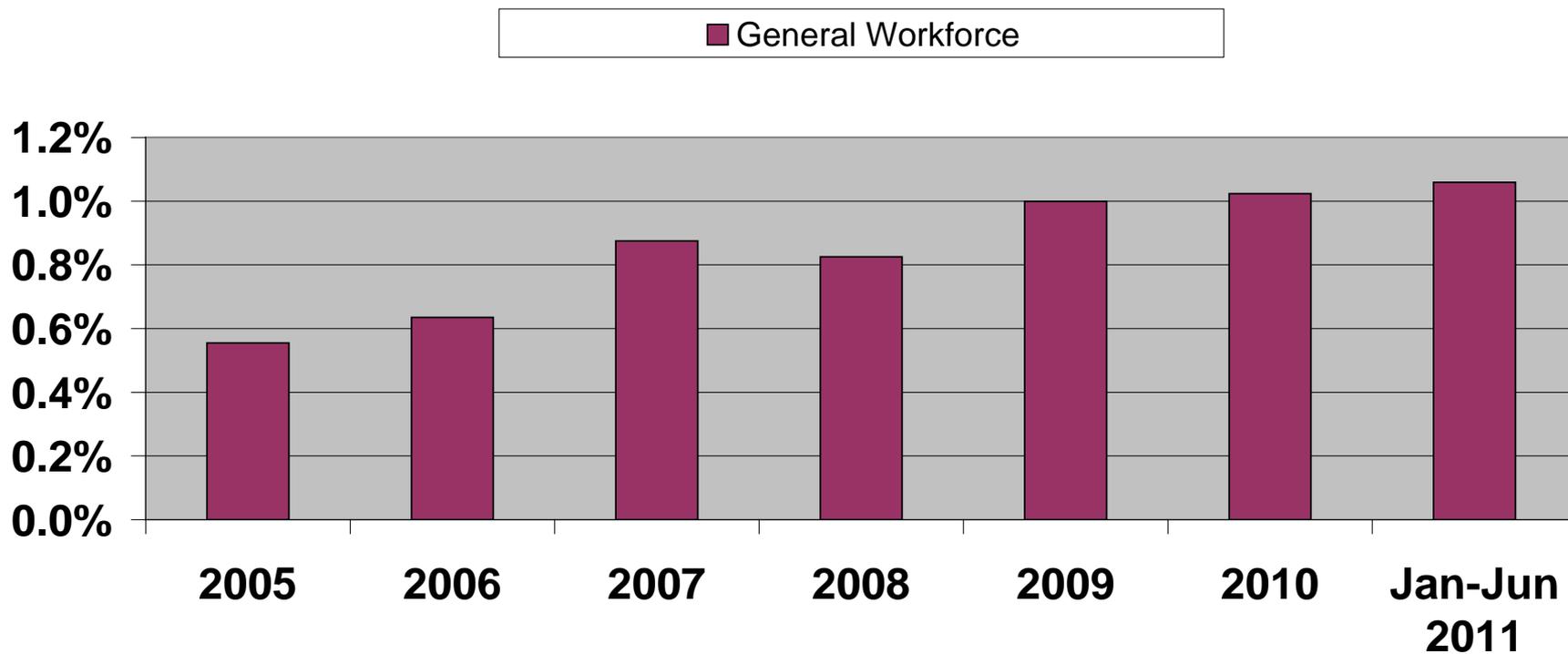
Positivity Rates for Hydromorphone by Testing Reason– Urine Drug Tests
(For General U.S. Workforce, as a percentage of all test for “Expanded Opiates”)



Oxycodone/Oxymorphone

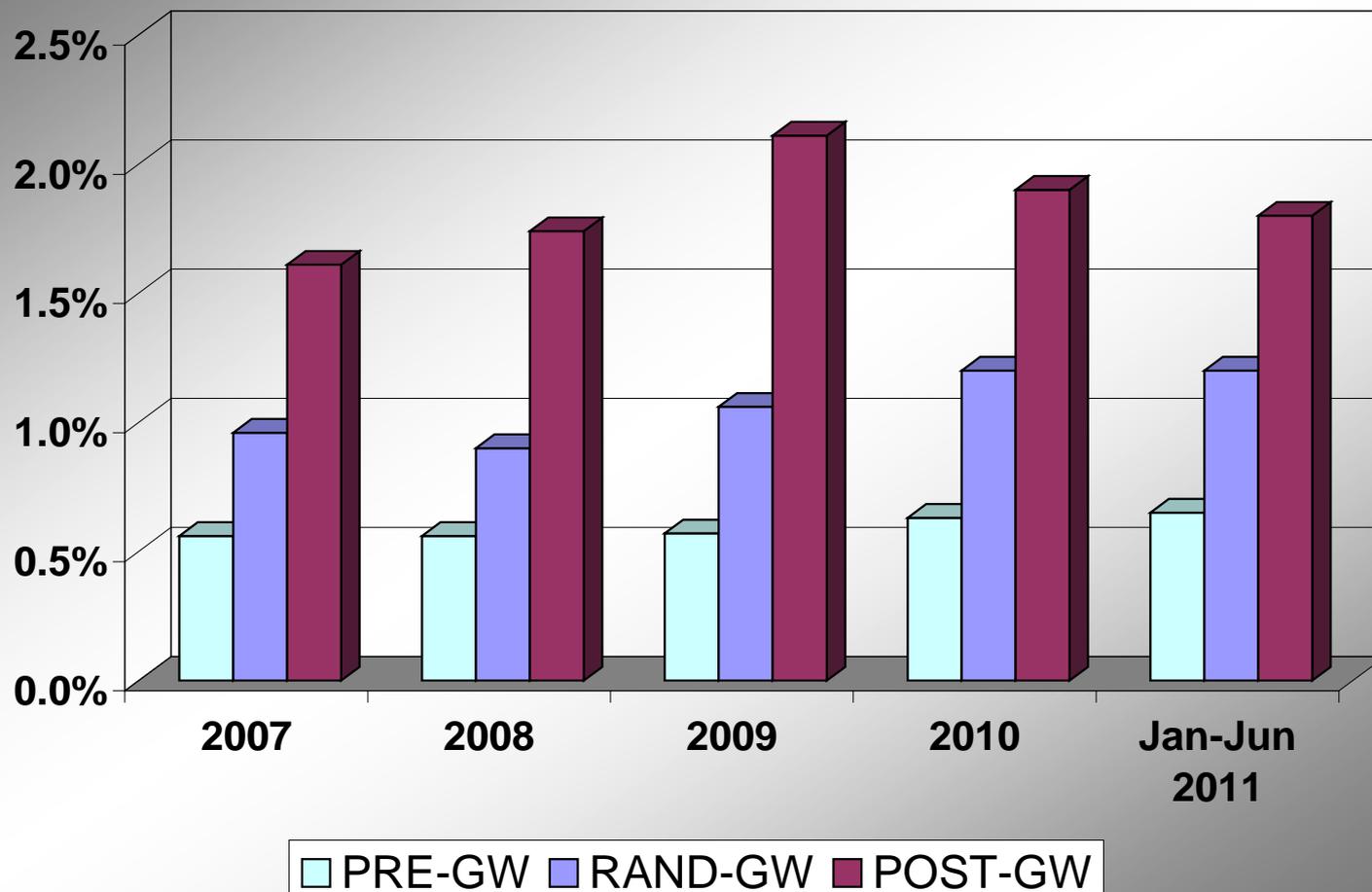
- Based on lower cross reactivity rates with FDA-cleared opiate immunoassay tests, it has been necessary in urine testing to utilize a separate and more specific screening test for oxycodone.

Oxycodone / Metabolite (Urine Drug Tests)



Oxycodone Positives by Testing Reason (Urine Drug Tests)

Positivity Rates for Oxycodones by Testing Reason– Urine Drug Tests
(For General U.S. Workforce, as a percentage of all such tests)



Summary – “Expanded” Opiates

- Prescription opiate drug positivity for certain semi-synthetic opiates increased in the general U.S. workforce between January 2005 and June 2011
 - Morphine positives essentially unchanged in this time period
 - Both hydrocodone and hydromorphone positives increased ~48 percent in the same period
- Hydrocodone and hydromorphone positivity in the first-half of 2011 higher than codeine and morphine, with rates of 1.3 percent and 0.70 percent, as compared to 0.20 percent and 0.42 percent, respectively.
- Oxycodone positivity in the first-half of 2011 was 1.1 percent, between that of hydrocodone and hydromorphone.
- Results from the 2011 data show up to two times more positives for certain prescription opiates in random testing than in pre-employment testing.
- Results from the 2011 data show two to four times more positives for certain prescription opiates in post-accident testing than in pre-employment testing.
 - Post-accident positivity rates for hydrocodone among the general workforce was 3.7 percent in the first-half of 2011 as compared to 0.85 percent in pre-employment tests.
 - Post-accident positivity rates for oxycodone among the general workforce was 1.8 percent in the first-half of 2011 as compared to 0.65 percent in pre-employment tests.

Questions



barry.x.sample@QuestDiagnostics.com