

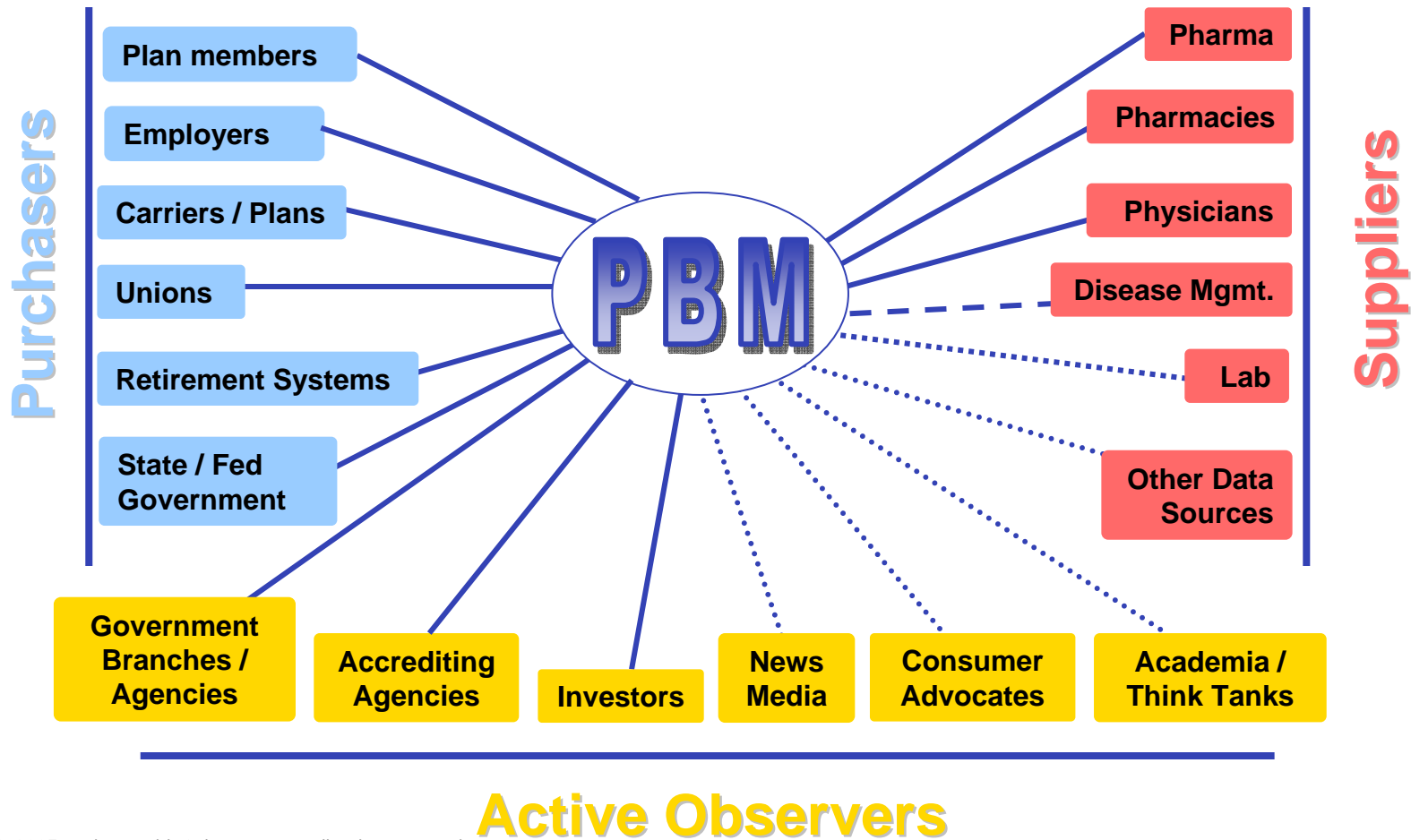


Personalized Medicine in Pharmacy Benefits

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October 11, 2007

PBM Relationships



What Does Personalized Medicine **Potentially** Bring to Rx Benefit Management?

In a word...

PRECISION

To...

COVERAGE POLICIES
UTILIZATION MANAGEMENT PROCESSES
PHARMACY PRACTICE

Warfarin-associated hospitalizations

CYP2C9 + VKORC1

Testing for warfarin metabolism rate may reduce risk for hospitalization associated with hemorrhage or thrombosis.

Testing may reduce the number of dose adjustments required.

- Greater dose adjustments = greater risk for hospitalization

Risk associated with dose adjustment and any hemorrhage/thrombosis hospitalization event¹

Dose adjustment	N	IP event rate
≤ 1	1,214	19.60%
2 or more	319	30.72%
Total	1,533	21.92%

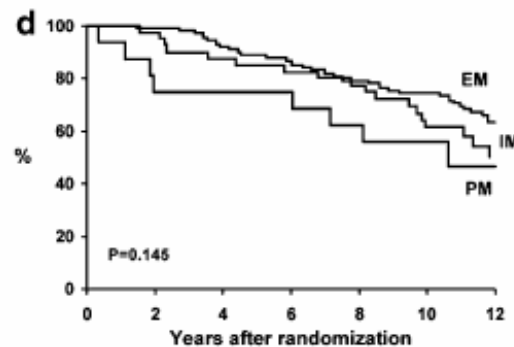
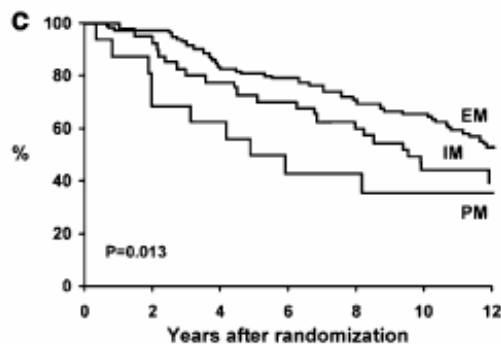
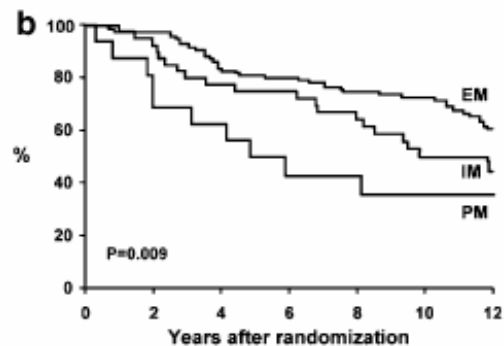
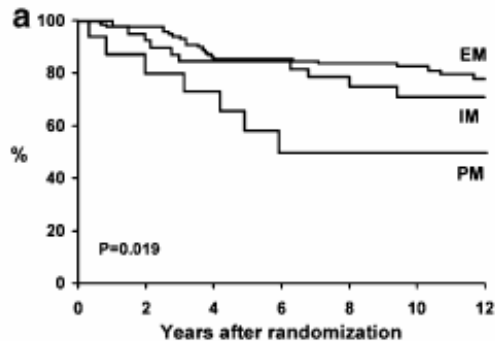
Sources: 1.Medco data. 2.FDA Advisory Committee; fda.gov/cder/genomics. April 26, 2006.

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Prevalence of people taking medications metabolized by the liver enzymes

Liver Enzymes	Examples of Drugs and Drug Categories	Prevalence of Members
CYP2D6	Atomoxetine Tamoxifen PPIs	20.24%
CYP2C9	Warfarin NSAIDs Oral hypoglycemics	19.31%
CYP2C19	Antidepressants Antipsychotics Beta blockers	14.82%
	Total	36.09%

Tamoxifen effectiveness in breast cancer by CYP450 D6 phenotype



a = time to relapse
b = relapse-free survival
c = disease-free survival
d = overall survival

Current Rx Benefit Focus Relevant to Personalized Medicine

Designing and implementing rational benefit coverage policies

Creating and executing benefit management processes that capture cost efficiencies

Contributing to improvements in health care safety and effectiveness

Test Attributes Favoring Rx Benefit Attention

Meaningful to use of drug that is covered by typical Rx benefit

Case for test can be made to patient, physician, and benefit plan on clinical and/or financial grounds

Patients appropriate for tests can be identified through Rx benefit

Testing can be arranged through Rx benefit

Rx benefit manager and/or pharmacy can add value to test results