

## Intermountain Healthcare Clinical Programs and Development Teams

### Clinical Program

Development Team

Care Process Model (CPM) or equivalent<sup>1</sup>

Date started	Routinely reviewed metrics (simplified) <sup>2</sup>	Routinely reviewed metrics (detailed)	Metric Type					External reviews <sup>2</sup>			
			Total	Clinical <sup>3</sup>			Cost	Satisfaction	CMS Joint Commission/	Board Goal - 2007	Board Goal - 2008
				Process monitoring	Process compliance	Compliance Rate (actual) <sup>4</sup>					
<b>Behavioral Health</b>											
	(link to Primary Care - Mental Health Integration)	Patient Perceptions of Quality Survey score - "Therapeutic Alliance" subset						X		X	
	Bipolar Disorder CPM	Usage rate of Mood Disorder Questionnaire (MDQ)	p of [mental health hospital admission and hospital-affiliated clinical patients >= age 18] with a reviewed Mood Disorders Questionnaire in their patient chart	X		X	n/a			X	
Note: this Clinical Program relies on working teams as necessary (usually focused around a Board goal) rather than standing Development Teams Note: this Clinical Program oversees psychiatric specialty services and is also involved in mental health issues in other settings											
<b>Cardiovascular</b>											
		Patient perception of quality scores (n=10)	p of [all cardiovascular patients] who favorably rate the hospital on HCAHPS metrics: Communication, Received help, Pain controlled, Medications explained, Cleanliness, Quiet, Home recovery information, Recommend hospital, Hospital Rating					X			
	Cardiology and Cardiology Manager Development Teams Jan. 1998 (formerly the IHD Development Team)	Adult Smoking Cessation Advice/Counseling (IHD patients) Aspirin administered at discharge (IHD patients) Bilateral cardiac catheterization utilization Catheterization laboratory volumes HMG/LL agent administered at discharge (IHD patients) Invasive cardiac procedure volumes Ischemic Syndrome readmission rates PCI readmission rates PCI revascularization rates PTCA post-procedure inpatient mortality	p of [IHD patients w/ a history of smoking cigarettes] who are given smoking cessation advice or counseling during hospital stay p of [IHD patients who aspirin contraindications] who are prescribed aspirin at hospital discharge p of [cardiac catheterization procedures] that are performed bilaterally Number of catheterization laboratory patients, encounters, and procedures (by procedure type) p of [IHD patients w/ HMS/LL agent contraindications] who are prescribed HMS/LL agent at hospital discharge Number of invasive cardiac procedures (by procedure type) p of [ischemic syndrome patients] who are readmitted at 1, 6, 12 & 24 mo. intervals p of [PCI patients] who are readmitted at 1, 6, 12 & 24 mo. intervals p of [PCI patients] who undergo revascularization at 1, 6, 12 & 24 mo. intervals p of [patients undergoing PTCA] who expire during the hospital stay	X		X	91%				
	Acute Coronary Syndrome (ACS) AMI	AMI Composite (n=7) Adult Smoking Cessation Advice/Counseling ACE/ARBs administered at discharge for LVSD Aspirin administered on arrival Aspirin administered at discharge Beta Blocker administered on arrival Beta Blocker administered at discharge PCI (≤ 90m of arrival) Thrombolytic Agent (≤ 30m of arrival) Inpatient Mortality (rate; ratio of observed / expected)	p of [AMI patients] who satisfy a composite of 7 of the CMS quality/pay-for-performance measures p of [AMI patients w/ a history of smoking cigarettes] who are given smoking cessation advice or counseling during hospital stay p of [AMI patients w/ LVSD and w/ ACE/ARB contraindications] who are prescribed ACE/ARB at hospital discharge p of [AMI patients who aspirin contraindications] who received aspirin w/in 24h before or after hospital arrival p of [AMI patients who aspirin contraindications] who are prescribed aspirin at hospital discharge p of [AMI patients who beta blocker contraindications] who are given a beta blocker w/in 24h of hospital arrival p of [AMI patients w/ beta blocker contraindications] who are prescribed a beta blocker at hospital discharge p of [AMI patients w/ ST segment elevation or left bundle branch block] who receive PCI w/in 90 mins of hospital arrival; average time also tracked p of [AMI patients receiving primary thrombolytic therapy during hospital stay] with thrombolysis administered w/in 30min of hospital arrival p of [AMI patients] who expired during hospital stay; ratio of the observed p to the expected p	X		X	93%			X	X
	CV Executives Development Team (link to Marketing Function) Jan. 2007	Patient perception of quality scores (n=10)	p of [all AMI patients] who favorably rate the hospital on HCAHPS metrics					X			
	Cardiovascular Surgery Development Team (link to Surgical Services for prophylactic antibiotics metrics) Jan. 1998	Beta blocker for AFIB (preoperative) Blood utilization Complications rates for valve procedures Inpatient mortality for valve procedures (rate; ratio of observed / expected) Patient perception of quality scores (n=10) Pediatric heart surgery inpatient mortality Readmission reasons	p of [eligible heart surgery patients] who receive a pre-operation beta blocker for AFIB Number of red blood cell units used; distinguish intra-post-operative and isolated CABG from isolated valve procedures p of [valve procedures w/ or w/o CABG] that have any of the following complications: deep sternal wound infection, prolonged ventilation, re-operation, renal failure, permanent stroke, LOS > 14 days; analysis of actual and predicted rates p of [valve procedure patients] who expire during hospital stay; ratio of the observed p to the expected p, detail w/ or w/o CABG p of [all CV surgery patients] who favorably rate the hospital on HCAHPS metrics p of [pediatric patients undergoing heart surgery] who expire during hospital stay Reasons for readmission for all major thoracic procedures	X	X	X	84%				
	CABG	Complication rates for isolated CABG Functional status at follow-up Inpatient mortality (rate; ratio of observed / expected) Procedure volumes Readmission rates Variable cost per case	p of [isolated CABG procedures] that have any of the following complications: deep sternal wound infection, prolonged ventilation, re-operation, renal failure, permanent stroke, LOS > 14 days; analysis of actual and predicted rates Functional status score at 3 and 12 months post-surgery p of [CABG patients] who expired during hospital stay; ratio of the observed p to the expected p Number of CABG procedures p of [CABG patients] who are readmitted at 1, 6, 12 & 24 mo. intervals Average variable cost for coronary bypass procedures	X		X					
	Evaluation	Average glucose levels Glucose post-operation <= 200mg/dl Hypoglycemia rates	Exhalation time (hrs) Average serum glucose level per case pre-intra-post-surgery p of [cardiovascular surgery patients] with 6am post-operation serum glucose <=200mg/dl p of [cardiovascular surgery patients] with hypoglycemia (serum glucose <=40mg/dl) pre-/intra-/post-surgery	X	X	X	95%			X	X
	Heart Failure Development Team (link to Primary Care) Management of Heart Failure CPM Jan. 2001	Heart Failure (HF) Composite (n=314) ACE/ARBs administered for LVSD at discharge Adult Smoking Cessation Advice/Counseling Instructions provided at discharge LVF assessment Functional status at follow-up Inpatient mortality Patient volumes Readmission rates Patient perception of quality scores (n=10)	p of [HF patients] who satisfy a composite of 3 (2008) or 4 (2007) of the CMS quality/pay-for-performance measures p of [HF patients w/ LVSD and w/ ACE/ARB contraindications] who are prescribed ACE/ARB at hospital discharge p of [HF patients w/ a history of smoking cigarettes] who are given smoking cessation advice or counseling during hospital stay p of [HF patients discharged home] for whom educational materials are given to the patient or caregiver p of [HF patients] with documentation that left ventricular function was assessed before, during, or after hospital stay Functional status score at 3 and 12 months p of [inpatients with a discharge diagnosis of heart failure] who expire during hospital stay Number of HF patients, encounters, and procedures (by practitioner specialty and procedure type) p of [HF patients] who are readmitted at 1, 6, 12 & 24 mo. intervals p of [all HF patients] who favorably rate the hospital on HCAHPS metrics	X		X	93%			X	X
	Hypertension Development Team (link to Primary Care) Hypertension Evaluation and Treatment CPM Aug. 2002										
	Cardiovascular Reimbursement Team (link to Accounts Receivable) planned Q4 2008										
	Supply Development Team (link to Supply Chain Organization) Jan. 2008	Volume of items Cost per item Savings to date	Volume of items purchased, with particular attention on stents, pacemakers and implantable cardioverter devices, heart valves Purchase cost per item, with particular attention on stents, pacemakers and implantable cardioverter devices, heart valves Estimated savings based on difference between current purchase price and pricing from the prior 12 month period	X	X						
	Vascular Development Team planned 2009	Aspirin administered at discharge HMG/LL agent administered at discharge Smoking Cessation Advice/Counseling Post-procedure inpatient mortality for carotid endarterectomy	p of [vascular diagnosis patients w/ aspirin contraindications] who are prescribed aspirin at hospital discharge p of [vascular diagnosis patients w/ HMS/LL agent contraindications] who are prescribed HMS/LL agent at hospital discharge p of [vascular diagnosis patients w/ a history of smoking cigarettes] who are given smoking cessation advice or counseling during hospital stay p of [patients undergoing carotid endarterectomy] who expire during hospital stay	X		X	79%				
				X		X	72%				
				X		X	86%				
				X				X			
	CV Surgery - Cardiovascular Surgeons Cardiology Development Team - Cardiologists Cardiology Manager Development Team - Cardiologists, Catheterization lab managers Heart Failure - Cardiologists Hypertension - Internists, Cardiologists Vascular - Cardiovascular surgeons, Vascular surgeons, Cardiologists, Interventional radiologists Stroke - Cardiologists, Neurologists, Internists, Hospitalists Supply - Cardiovascular surgeons, Vascular surgeons, Cardiologists, Radiologists; some of its work formerly done as part of CV Surgery Development Team and Cardiology Manager Development Team (catheterization lab); focus is on devices, not medications										
** The work of the Cardiac Medications Development Team (started June 1999) was moved into other Development Teams around 2000											

Date started	Routinely reviewed metrics (simplified) <sup>2</sup>	Routinely reviewed metrics (detailed)	Metric Type					External reviews				
			Total	Process monitoring	Clinical <sup>1</sup>		Outcomes	Cost	Satisfaction	CMS Joint Commission/	Board Goal - 2007	Board Goal - 2008
					Process compliance	Compliance Rate (actual) <sup>1</sup>						
<b>Intensive Medicine</b>												
Critical Care Development Team	Mar. 2003	ICU patient count	Number of Intensive Care Unit admissions	X	X							
		ICU patient length of stay (in ICU, total hospital)	For ICU patients, average length of stay in ICU and in the hospital (incl. ICU time)	X	X							
		Variable and total ICU cost per ICU stay	Average variable cost per ICU stay; average total cost per ICU stay				X					
		Variable cost per hospital stay for ICU patients	For ICU patients, average variable cost per hospital stay				X					
		Glucose control	p of ICU patients w/ blood glucose levels falling in four separate ranges	X	X							
	Blood Glucose Control	Central Line Sepsis	Central line infection rates per line day	Number of central line infection cases per 1,000 line days	X			X				
			Rapid Response Teams (RRTs)	Number of RRT calls (patient count)	X	X						
			Proportion of RRT calls transferred to a critical care unit or higher level of care	p of (RRT calls) transferred to a critical care unit or higher level of care	X	X						
			Average time RN away from ICU	Average length of time RN away from ICU	X	X						
			RRT call reason	Count of various types of RRT call reasons	X	X						
Sepsis	Compliance with complete sepsis bundle	p of [opportunities] in which entire bundle of 11 items administered; sub-bundles calculated for ER, ICU, Resuscitation, Maintenance, Board Goal	X	X		45.0%						
		p of [opportunities] in which subset of 7 bundle items administered	X	X		59.0%						
		p of [opportunities] in which serum lactate and glucose control administered	X	X		91.0%			X			
		p of [opportunities] in which the following was administered: serum lactate, blood cultures, broad-spectrum antibiotics, initial fluid resuscitation, vasopressors, CVP and ScvO2, inotropes and/or PRBC's, glucose control, steroids, drotrecogin alpha eligibility, lung protective strategy	X	X		each >80%						
		p of [sepsis patients transferred from ER to ICU] who expire during their stay	X			X						
Ventilator Management	Ventilator Associated Pneumonia rates per ventilator day	Average number of ventilator days per ICU patient	Average number of ventilator days per ICU patient	X	X							
		Ventilator Bundle compliance	p of [ventilator days] for which there was compliance on all 5 bundle measurements	X	X		94.2%			X		
		Compliance with individual elements (n=5) of ventilator bundle	p of [ventilator days] for which there was compliance with the following: head of bed >30 degrees, DVT prophylaxis, peptic ulcer prophylaxis, sedation vacation, oral care	X	X		each >96%					
		ICU ventilated patient length of stay (in ICU, total hospital)	For ventilated ICU patients, average length of stay in ICU and in the hospital (incl. ICU time)	X	X							
		Emergency Care Development Team	Nov. 2004	Average ED door to doctor time	Average ED door to doctor time (all ED visits)	X	X					
AMI (link to Cardiovascular)	Nov. 2004	ED door to doctor time <= 30 minutes	p of (ED visits) in which door to doctor time <= 30 minutes	X	X	X	63%					
		Average ED door to Qualified Medical Personnel time	Average ED door to Qualified Medical Personnel time (all ED visits)	X	X							
		ED door to Qualified Medical Personnel time <= 30 minutes	p of (ED visits) in which door to QMP time <= 30 minutes	X			X	68%				
		CMS/Joint Commission Composite Score for AMI patient	p of [AMI patients admitted through the ER] who satisfy a composite of 4 of the CMS quality-pay-for-performance measures	X	X		X	96%		X	X	
		Aspirin within 24 hours of diagnosis	p of [AMI patients admitted through the ER] who receive aspirin within 24 hours of AMI diagnosis	X	X		X	98%		X		
	Nov. 2004	AMI (link to Cardiovascular)	Beta blocker within 24 hours of diagnosis	p of [AMI patients admitted through the ER] who receive a beta blocker within 24 hours of AMI diagnosis	X	X		X	98%		X	
			Thrombolytic Agent (≤ 30m of arrival) - not transferred out	p of [AMI patients who do not receive a PCI and are not transferred out] who are administered a thrombolytic within 30 minutes of hospital arrival	X	X		n/a			X	
			Thrombolytic Agent (≤ 30m of arrival) - transferred out	p of [AMI patients in smaller intermountain hospitals transferred to another facility] who are administered a thrombolytic within 30 minutes of hospital arrival	X	X		X	52%			
			PCI (≤ 90m of arrival)	p of [AMI patients admitted through the ER] who are administered PCI within 90 minutes of hospital arrival	X	X		X	85%		X	
			Emergency Management of Febrile Infants CPM	Proportion of infants who received urinalysis	p of [febrile infants (1-60 days old) encountered through the Emergency Department only] who have a urine analysis collected	X		X	73.1%			
Pneumonia	Nov. 2004	CMS/Joint Commission Composite Score for pneumonia	p of [pneumonia patients admitted through the ER] who satisfy a composite of 4 of the CMS quality-pay-for-performance measures	X	X		95.5%		X	X		
		Oxygenation assessment	p of [pneumonia patients admitted through the ER] who receive an oxygenation assessment	X	X		X	100%		X		
		Blood cultures performed	p of [pneumonia patients admitted through the ER] who receive a blood culture before the first antibiotic is received in the hospital; p of [ICU pneumonia patients admitted through the ER] who receive a blood culture within 24h prior/after hospital arrival	X	X		X	96%		X		
		Initial antibiotic received	p of [pneumonia patients admitted through the ER] who receive an initial antibiotic within 4 hours of arrival	X	X		X	90%		X		
		Initial antibiotic selection	p of [immunocompetent pneumonia patients admitted through the ER] whose initial antibiotic is appropriately selected	X	X		X	92%		X		
Sepsis	Nov. 2004	Compliance with complete sepsis bundle	p of [opportunities] in which entire bundle of 11 items administered; sub-bundles calculated for ER, ICU, Resuscitation, Maintenance, Board Goal	X	X		45.0%					
		Compliance with ER subset (n=4) of sepsis bundle	p of [opportunities] in which subset of 4 bundle items administered	X	X		76.0%					
		Compliance with Board Goal subset (n=2) of sepsis bundle	p of [opportunities] in which serum lactate and glucose control administered	X	X		X	91.0%				
		Compliance with individual elements (n=11) of sepsis bundle	p of [opportunities] in which the following was administered: serum lactate, blood cultures, broad-spectrum antibiotics, initial fluid resuscitation, vasopressors, CVP and ScvO2, inotropes and/or PRBC's, glucose control, steroids, drotrecogin alpha eligibility, lung protective strategy	X	X		X	each >80%				
		p of [sepsis patients transferred from ER to ICU] who expire during their stay	X			X						
Hospitalist Development Team	Feb. 2006	Inpatient DVT Prevention and Treatment CPM										
Inpatient Pneumonia	Feb. 2006	CMS/Joint Commission Composite Score for pneumonia	p of [pneumonia patients admitted through the ER] who satisfy a composite of 6 of the CMS quality-pay-for-performance measures	X	X		93%		X	X		
		Oxygenation assessment	p of [pneumonia med/surg patients] who receive an oxygenation assessment	X	X		X	100%		X		
		Blood cultures performed	p of [pneumonia med/surg patients] who receive a blood culture before the first antibiotic is received in the hospital; p of [ICU pneumonia med/surg patients] who receive a blood culture within 24h prior/after hospital arrival	X	X		X	100%		X		
		Initial antibiotic received	p of [pneumonia med/surg patients] who receive an initial antibiotic within 4 hours of arrival	X	X		X	88%		X		
		Initial antibiotic selection	p of [immunocompetent, pneumonia med/surg patients] whose initial antibiotic is appropriately selected	X	X		X	93%		X		
	Community-Acquired Pneumonia CPM (link to Primary Care - Lower Respiratory Infection Development Team)	Feb. 2006	Pneumococcal Vaccination	p of [pneumonia med/surg patients] who receive a pneumococcal vaccination	X	X		X	87%		X	
			Adult Smoking Cessation Advice/Counseling	p of [eligible pneumonia med/surg patients] who adult smoking cessation advice/counseling	X	X		X	98%		X	
			Influenza Vaccination	p of [pneumonia med/surg patients] who receive an influenza vaccination	X	X		X	89%		X	
			CPM antibiotic compliance rate	p of [community acquired pneumonia inpatient cases] for which the recommended antibiotic was prescribed	X	X		X	78%			
			Usage rates for specific antibiotics	p of [community acquired pneumonia inpatient cases] for which specific types of antibiotics were prescribed	X	X						
Anticoagulation agent compliance rate	Feb. 2006	Anticoagulation agent compliance rate	p of [community acquired pneumonia inpatient cases] for which the recommended anticoagulation agent was prescribed	X	X		X	66%				
		Length of Stay (days) for community-acquired pneumonia	Average length of stay for community acquired pneumonia inpatient cases	X	X							
		Relative Resource Units for community-acquired pneumonia	Average number of RRU's per community acquired pneumonia inpatient case						X			
		Readmission rates for community-acquired pneumonia	p of [discharged CAP patients] who are readmitted for pneumonia within 30 days of discharge	X					X			
		Note: the Community-Acquired Pneumonia CPM was originally developed by the Primary Care Clinical Program, but the ongoing monitoring of inpatient metrics is managed by the Intensive Medicine Clinical Program										
Hyperbaric Development Team	Jan. 2008											
Stroke Development Team (link to Cardiovascular)	Jan. 2008	Warfarin for AFIB (discharge)	p of [AFIB patients] receiving warfarin at discharge	X	X		78%					
		Number of patients	Number of stroke patients	X	X							
		Stroke acute	Stroke patient count (acute, hyperacute)	X	X							
		Average time from symptom onset to ED arrival	For stroke patients, average time from symptom onset to ED arrival	X	X							
		Average time from ED arrival to MD, imaging, exam completion, treatment	Average times from ED arrival to doctor, imaging, exam completion, treatment; p of [stroke cases] with ED door to doctor time <= 10mins	X	X		X	21%				
Transport Development Team	Sep. 2004											
Trauma Development Team	Apr. 2004	Over-triage: full activation rate	p of [patients discharged from ED to home] for whom full trauma services were activated	X	X		4%					
		Under-triage rates	p of [patients discharged <24h ED to home] who did not go to Surgery/ICU	X	X		15%					
		p of [patients w/ Injury Severity Score >= 15] with no trauma activation; p of [patients w/ ISS >= 25] with no full trauma activation (rate not shown here)	X	X		20%						
Traumatic Brain Injury CPM	Apr. 2004	Transfers out due to resource issues	p of [patients transferred out of facility] due to resource issues	X	X							

\* The single 2008 Board Goal relating to inpatient pneumonia applies to the CNO/CMO Council (not to Intensive Medicine) and across settings (hospitalist and emergency care).

	Date started	Routinely reviewed metrics (simplified) <sup>2</sup>	Routinely reviewed metrics (detailed)	Metric Type					External review				
				Total	Process monitoring	Clinical compliance	Compliance Rate (actual) <sup>1</sup>	Outcomes	Cost	Satisfaction	CMS Joint Commission	Board Goal 2007	Board Goal 2008
<b>Neuromusculoskeletal</b>													
Physical Therapy Development Team	~1999												
Spine Development Team	~1999												
Management of Acute Low Back Pain CPM (link to Primary Care)													
Total Joint Development Team	~1999	(link to Surgical Services for prophylactic antibiotics metrics)											
Note: This clinical program is not active currently													
<b>Oncology</b>													
Breast Cancer Development Team	May 2002												
Axillary Node Dissection for DCIS		Node dissection rate for DCIS	p of [all DCIS patients] who have axillary lymph nodes removed	X		X	42.3%						
Breast Preservation		Proportion of breast cancer cases classified as DCIS	p of [breast cancer cases] classified as DCIS	X	X								
		Early stage breast cancer at diagnosis	p of [breast cancer cases] classified as stage 0 or 1	X	X								
		Percentage of women with early stage breast cancer undergoing breast conserving surgery	p of [women with early stage (0-2b) breast cancer] who undergo breast conserving surgery	X		X	57.1%						
Mammography		Callback rates	p of [screening mammograms] after which patient is called back	X		X	9.6%						
		Cancer detection rates	p of [screening mammograms] that ultimately result in a diagnosis of cancer	X		X	3.8%						
		Time to biopsy <30days	p of [women recommended for biopsy (BIRAD 4-5)] who receive it within 30 days; average number of days between biopsy recommendation and when biopsy performed	X		X	92.9%						
Sentinel Lymph Node Biopsy		Sentinel lymph node biopsy rate in Invasive breast cancer cases	p of [newly diagnosed Invasive breast cancer cases] that undergo a sentinel lymph node biopsy	X		X	83.0%				X		
Colorectal Cancer Development Team	May 2007	Colon cancer patients with ≥ 12 Lymph Nodes removed	p of [Stage 1-3 colon cancer surgery patients] who have at least 12 lymph nodes removed	X		X	90.1%				X		
Gynecological Cancer Development Team	Mar 2007												
Leukemia/Lymphoma Development Team	May 2008												
Pancreatic Cancer Development Team	Apr 2008	Pancreatectomy length of stay	Average length of stay for patients undergoing distal pancreatectomies and whipples	X	X								
		Pancreatectomy variable cost	Average variable cost for patients undergoing distal pancreatectomies and whipples					X					
Prostate Cancer Development Team	Mar 2004	Prostate quality of life questionnaire	Scores for questions relating to bowel function, urinary function, sexual quality of life, overall quality of life; results tracked separately for surgery and radiation patients	X				X					
		Prostatectomy length of stay	Average length of stay for radical prostatectomy patients	X	X								
		Prostatectomy margin status	p of [radical prostatectomy patients] who have positive margins following definitive surgery	X				X					
		Prostatectomy variable cost	Average variable cost for radical prostatectomy surgeries					X					
Note: The Medical Oncology and Radiation Therapy Development Team members were incorporated into the other Development Teams before 2006													
<b>Pediatric Specialties</b>													
Pediatric Infectious Disease Development Team	Oct 2006												
Inpatient Management of Febrile Infants CPM		Proportion of infants who received urinalysis	p of [febrile infants (1-90 days old) admitted to McKay-Dee, Primary Children's, Utah Valley, and Dixie hospitals] who have a urine analysis collected on admission	X		X	97.8%				X		
Pediatric Quality Development Team	Nov 2006												
Note: Clinical program also known as "Intensive Pediatrics"; relates to facility-based pediatric care Note: Primary Children's Medical Center separately tracks a set of bronchitis metrics													
<b>Primary Care</b>													
Asthma Development Team	Jul 1999												
Asthma CPM		Separate reports for Adult and Pediatric patients: Emergency Room rate	p of [SelectHealth asthma program enrollees] with one or more ER visits in the preceding 12 months with a primary diagnosis of asthma (ICD9 codes: 493)	X				X			X		
Pediatric Asthma CPM		Inpatient rate	p of [SelectHealth asthma program enrollees] with one or more inpatient admissions in the preceding 12 months with a primary diagnosis of asthma (ICD9 codes: 493)	X				X			X		
		Controller rate	p of [SelectHealth asthma program enrollees] with at least one prescription filled for inhaled corticosteroids, leukotriene modifiers, or mast cell stabilizers during the preceding 12 months	X		X	90.0%				X		
		High beta agonist use rate	p of [SelectHealth asthma program enrollees] with three or more short acting beta agonist prescriptions filled in the preceding 3 months	X		X	5.5%				X		
		Pulmonary Function Test rate	p of [SelectHealth asthma program enrollees] with at least on pulmonary function test in the preceding 2 years	X		X	35.7%				X		
Chronic Anticoagulation Development Team	Apr 2001												
Chronic Anticoagulation CPM		Volume of patients receiving test	Count of chronic anticoagulation patients receiving INR tests; delinquent patients are flagged	X	X								
		INR test results in the "therapeutic zone"	p of [chronic anticoagulation patients on coumadin] with INR test result in the "therapeutic zone"; four other "zones" are also tracked	X				X					
		Complication list, by patient	list of the complication type and date for chronic anticoagulation patients	X				X					
		Patient education annually	p of [chronic anticoagulation patients on coumadin] who receive education on a yearly basis	X		X	65%						
Community Health & Prevention Department (significant overlaps with Intermountain Medical Group and SelectHealth)	Jul 1995												
Preventive Care Guidelines and Tools (child, adolescent, adult; general disease screening) (link to Oncology)		Immunizations (child, adolescent, adult, employee, pandemic planning) (link to Intensive Medicine, Women & Newborns)	For Intermountain Medical Group clinics: immunization rates using HEDIS and CoCASA measures  For Intermountain Medical Group clinics: immunization rates using HEDIS and CoCASA measures  cf. Intensive Medicine for pneumonia inpatient vaccinations (pneumonia, influenza)	X		X	n/a						
Nutrition and Activity													
Medical Management of Obesity CPM (Adult)		Behavioral questionnaire for program enrollees	For nutritional program enrollees: behavioral questionnaire	X	X								
		Height and weight of program enrollees	For nutritional program enrollees: height and weight	X				X					
Primary Care Guide to Weight Management for Children and Adolescents CPM		Behavioral questionnaire for program enrollees	For nutritional program enrollees: behavioral questionnaire	X	X								
		Height and weight of program enrollees	For nutritional program enrollees: height and weight	X				X					
Tobacco (link to Cardiovascular, Intensive Medicine)		Program enrollment numbers and specific prescriptions	For SelectHealth smoking cessation program enrollees: enrollment numbers and specific prescriptions	X	X								
		Quit rate among program enrollees	For SelectHealth smoking cessation program enrollees: quit rate	X				X					
		Cost of program	For SelectHealth smoking cessation program enrollees: costs					X					
		cf. Cardiovascular and Intensive Medicine for cardiovascular and pneumonia inpatient smoking cessation advice/counseling metrics											
Diabetes Development Team	Jan 1999												
Outpatient Management of Adult Diabetes CPM		Separate reports for Adult and Pediatric patients: LDL test performed	p of [confirmed diabetes patients] receiving LDL test at least once a year	X		X	74.8%				X		
Management of Pediatric Diabetes Type 1 and Type 2 CPM		LDL test result	p of [LDL test results for confirmed diabetes patients] with values in each of three ranges	X	X						X		
		Triglyceride test result	p of [triglyceride test results for confirmed diabetes patients] with values in each of three ranges	X	X						X		
		HbA1c test performed	p of [confirmed diabetes patients] receiving HbA1c test at least once a year	X		X	89.5%				X		
		HbA1c test result	p of [HbA1c test results for confirmed diabetes patients] with values in each of five ranges	X	X						X		
		Microalbuminuria test performed	p of [confirmed diabetes patients] receiving microalbuminuria test at least once a year	X		X	57.3%				X		
		Eye test performed	p of [SelectHealth confirmed diabetes patients] receiving eye exam at least once every 2 years	X		X	48.9%				X		
		Blood Pressure test performed	p of [confirmed diabetes patients] receiving a blood pressure test in the last 12 months	X		X	91.6%				X		
		Blood Pressure test result	p of [blood pressure test results for confirmed diabetes patients] with values in each of three ranges	X	X						X		
Lower Respiratory Infection Development Team (link to Intensive Medicine for Community-Acquired Pneumonia Issues)	Jan 2000												
Antibiotic Use in Acute Bronchitis CPM													
Mental Health Integration Development Team (link to Behavioral Health, particularly for Bipolar Disorder CPM)	Jan 1999												
Management of Depression CPM		Usage rate of Patient Health Questionnaire (PHQ-9) assessments	p of [patients diagnosed with depression] who have received at least one Patient Health Questionnaire (PHQ-9) assessment	X		X	20%						
		Average PHQ-9 assessment scores	Where PHQ-9 scores available, average score by physician, clinic, and system	X	X								
		Change in individual PHQ-9 scores	Average change in PHQ-9 scores between each patient's last two tests	X				X					
		Medication retention rate of SSRIs at 3mos	p of [adult SelectHealth patients diagnosed with depression and prescribed an SSRI] who have their SSRI Rx refilled at 3 months following the initial Rx; there is no specific guideline on what the rate should be	X	X						X		
		Medication retention rate of SSRIs at 6mos	p of [adult SelectHealth patients diagnosed with depression and prescribed an SSRI] who have their SSRI Rx refilled at 6 months following the initial Rx; there is no specific guideline on what the rate should be	X	X						X		
		Total costs (contractual charges) to SelectHealth for depression patients	For SelectHealth patients diagnosed with depression, the total and average medical costs (i.e., contractual charges) to SelectHealth; note that this includes much more than the costs incurred by Intermountain facilities, i.e., it encompasses pharmacy and physician charges as well	X				X					
Management of ADHD in Children and Adolescents CPM													
Otitis Media/Pediatric Respiratory Development Team	Jan 2000												
Acute Pediatric Upper Respiratory CPM		Percentage of acute cases treated with recommended antibiotics	p of [SelectHealth patients under 18 years of age with diagnosis of otitis media and no competing diagnosis] who receive amoxicillin or augmentin (as appropriate)	X		X	92%				X		
Otitis Media CPM													

Date started	Routinely reviewed metrics (simplified) <sup>2</sup>	Routinely reviewed metrics (detailed)	Metric Type					Cost	Satisfaction	External reviews <sup>3</sup>		
			Total	Process monitoring	Clinical <sup>4</sup>		Outcomes			CMS	Board Goal - 2007	Board Goal - 2008
					Process compliance	Compliance Rate (actual) <sup>5</sup>						
<b>Surgical Services</b>												
	Appropriate hair removal	p of [all major surgeries] for which the appropriate hair removal occurred	X		X	96%					X	
	Appropriate venous thromboembolism prophylaxis	p of [surgery patients eligible for venous thromboembolism prophylaxis] who received appropriate prophylaxis within 24h prior to/after surgery	X		X	85%					X	
	Block utilization	p of [scheduled block of time] during which the surgeon was utilizing the operating room; detail by physician and physician group	X	X								
	Case turnover	Time elapsed from (a) Patient Out to Next Patient In or from (b) Close to Next Incision	X	X								
	Case volumes	Case volume by physician	X	X								
	Normothermia post-colectomy surgery	p of [colorectal surgery patients] who achieved immediate postoperative normothermia	X		X	89%					X	
	Operating Room case and procedure volume	Operating Room number of cases, procedures (primary and secondary) and minutes by pay period	X	X								
	Operating Room utilization (minutes, % of available time)	Operating Room number of minutes available, number of minutes used, and utilization percentages	X	X								
	Organ transplant patient mortality	Number of transplant candidates and recipients who expired (by organ type)	X				X					
	Organ transplant volumes	Number of transplants by organ type (pancreas, kidney, liver)	X	X								
	Organ transplant wait list	Number of transplant candidates on wait list; median wait days (by organ type)	X	X								
	Prophylactic antibiotic selection	p of [surgeries] for which an appropriate prophylactic antibiotic was selected - overall, CABG, cardiac, hip arthroplasty, knee arthroplasty, colon surgery, hysterectomy, vascular	X		X	99%					X	
	Prophylactic antibiotic administration within 1h prior to incision	p of [surgeries] for which prophylactic antibiotic received within 1h prior to incision - overall, CABG, cardiac, hip arthroplasty, knee arthroplasty, colon surgery, hysterectomy, vascular	X		X	96%					X	X
	Prophylactic antibiotic discontinuation within 24h following surgery end	p of [surgeries] for which prophylactic antibiotic discontinued within 24h following surgery end time - overall, CABG (48h), cardiac, hip arthroplasty, knee arthroplasty, colon surgery, hysterectomy, vascular	X		X	79%					X	X
	Surgery times	Times for room, surgery, anesthesia, PACU; greater detail available	X	X								
	Tissues wasted (%)	p of [issues in tissue bank] that were discarded unused; details by tissue type	X	X								
General Surgery Development Team Jan. 2007												
Multidisciplinary Care for Colon Surgery CPM												
Pain Services Development Team Sep. 2006												
(link to Neuro-musculoskeletal - Spine Development Team)												
Quality Standards Development Team Feb. 2007												
<b>Women &amp; Newborns</b>												
Gynecology (GYN) Development Team May. 2008												
Dysfunctional Uterine Bleeding												
Maternal-Fetal Medicine (MFM) Development Team Jan. 2002												
NICU Development Team ~1998												
	Percentage of patients intubated	p of [inborn infants admitted to the NICU and discharged home] that are intubated for at least two days. ("inborn" means born in the facility, i.e. excludes transfers)	X	X								
	Average number of ventilation days	Average number of artificial airway days for [inborn infants admitted to the NICU, discharged home, and intubated for at least two days]; ("inborn" means born in the facility, i.e. excludes transfers)	X	X								
	Central line infection rate for infants <1500g	Number of catheter-associated blood stream infections per 1,000 line days for NICU infants with birthweight <1500g	X				X					X
	Central line infection rate for infants >= 1500g	Number of catheter-associated blood stream infections per 1,000 line days for NICU infants with birthweight >=1500g	X				X					
	Ventilator-associated pneumonia rate in NICU	Number of ventilator-associated pneumonia cases per 1,000 ventilator days	X				X					
	Inpatient neonatal mortality rate	p of [neonatal inpatients] who expired during hospital stay	X				X				X	
Neonatal Bilirubin Testing and Treatment												
	Number of patients with hyperbilirubinemia	Number of [patients born in Intermountain Healthcare facilities] with hyperbilirubinemia	X	X								
Management of Neonatal Hypoglycemia CPM												
Obstetrics (OB) Development Team ~1998												
	Average variable cost per delivery	Maternal and neonatal combined average variable cost for [deliveries w/o complications resulting in normal newborns]						X				
	Rate of primary cesarean sections	p of [all obstetrics patients w/ no previous cesarean section] receiving a cesarean section	X	X								
	Rate of primary cesarean sections in elective induction patients	p of [elective induction patients w/ no previous cesarean section] receiving a cesarean section	X	X								
	Rate of Vaginal Birth After Cesarean (VBAC)	p of [obstetrics patients w/ previous cesarean section] who deliver vaginally	X	X							X	
	Third and Fourth degree laceration rate	p of [vaginal deliveries] that involve third and fourth degree perineal lacerations	X				X				X	
Delivery-Associated Maternal Injuries												
	Management of Elective Labor Induction CPM	Of nulliparous deliveries, percentage that are electively induced with Bishop Score < 10	X		X	3.5%						
	Percentage of elective inductions that occur < 39 weeks	p of [electively induced deliveries] that occur when gestational age < 39 weeks	X		X	2.3%						
Management of Nausea and Vomiting of Pregnancy (NVP) and Hyperemesis Gravidarum CPM												
Shoulder Dystocia CPM												
Well Newborn Development Team Feb. 2006												
	Neonatal Bilirubin Testing and Treatment	Number of patients with hyperbilirubinemia	X	X								

<sup>1</sup> Not all clinical guidelines have yet been formalized into a Care Process Model (CPM). Listed are topics with extensive sets of existing guidelines and/or advanced drafts of CPMs.  
<sup>2</sup> An extensive set of other metrics is produced, but this table only lists those metrics routinely reviewed by the Clinical Programs, e.g. in a Development Team or Guidance Council meeting.  
<sup>3</sup> Definition of the various "Clinical" metric types:  
 \*Clinical processes\* encompasses the volume of cases, tests, and procedures; length of stay, room utilization, test results that do not directly measure the major clinical outcome  
 \*Process monitoring\* refers to metrics for which there is no clinical guideline and therefore no judgement is being made about compliance  
 \*Process compliance\* indicates whether the clinician followed the available clinical guideline; typically a "yes" or "no" could be given  
 \*Clinical outcomes\* encompasses mortality, functional status, readmission rates, complication/infection rates, test results that directly measure the major clinical outcome  
<sup>4</sup> As of Jan 2008 or Q1 2008 or nearest equivalent  
<sup>5</sup> Parties other than the Clinical Programs that receive regular reports on these metrics. National Committee for Quality Assurance (NCQA) measures are shown only for the Primary Care Clinical Program.

**Definitions of Acronyms**

- AFIB, atrial fibrillation
- AMI, acute myocardial infarction
- ACE, angiotensin-converting enzyme
- ARB, angiotensin receptor blocker
- C-section, Cesarean section
- CHF, congestive heart failure
- CMS, Centers for Medicare & Medicaid Services
- CoCASA, Comprehensive Clinic Assessment Software Application
- CV, cardiovascular
- DCAIS, ductal carcinoma in situ
- DVT, deep vein thrombosis
- HCAHPS, Hospital Consumer Assessment of Healthcare Providers and Systems
- HEDIS, Healthcare Effectiveness Data and Information Set
- HMG / LL agent, drugs that inhibit a particular enzyme in order to treat hypercholesterolemia
- ICU, intensive care unit
- INR, international normalized rate, used to express the results of a prothrombin time (PT) blood test
- NCQA, National Committee for Quality Assurance
- NICU, neonatal intensive care unit
- OB, obstetrics
- PCI, percutaneous coronary interventions
- PTCA, percutaneous transluminal coronary angioplasty
- LVP, left ventricular function
- LVSD, left ventricular systolic dysfunction
- RRTs, rapid response teams
- RRUs, relative resource units
- VTE, venous thromboembolism
- SSRIs, selective serotonin reuptake inhibitors