



Commonly used medications and risk of colorectal cancer recurrence

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Conflicts of interest: None

Comorbidity: a challenge for colorectal cancer survivors

- **Comorbidity prevalence is high in CRC survivors:**

Chronic heart failure: 19%

Chronic obstructive pulmonary disease: 21%

Diabetes: 18%

Gross et al. J Am Geriatr Soc. 2006;54(12):1898-904

- **Half have 2+ comorbidities** [Unpublished data]

- **Medication use is common** [Unpublished data]

Antidepressants: 25%

Antihypertensive medications: 59%

Diabetes medications: 17%

Cholesterol-lowering medications: 32%

Common medications: an opportunity to reduce CRC recurrence risk



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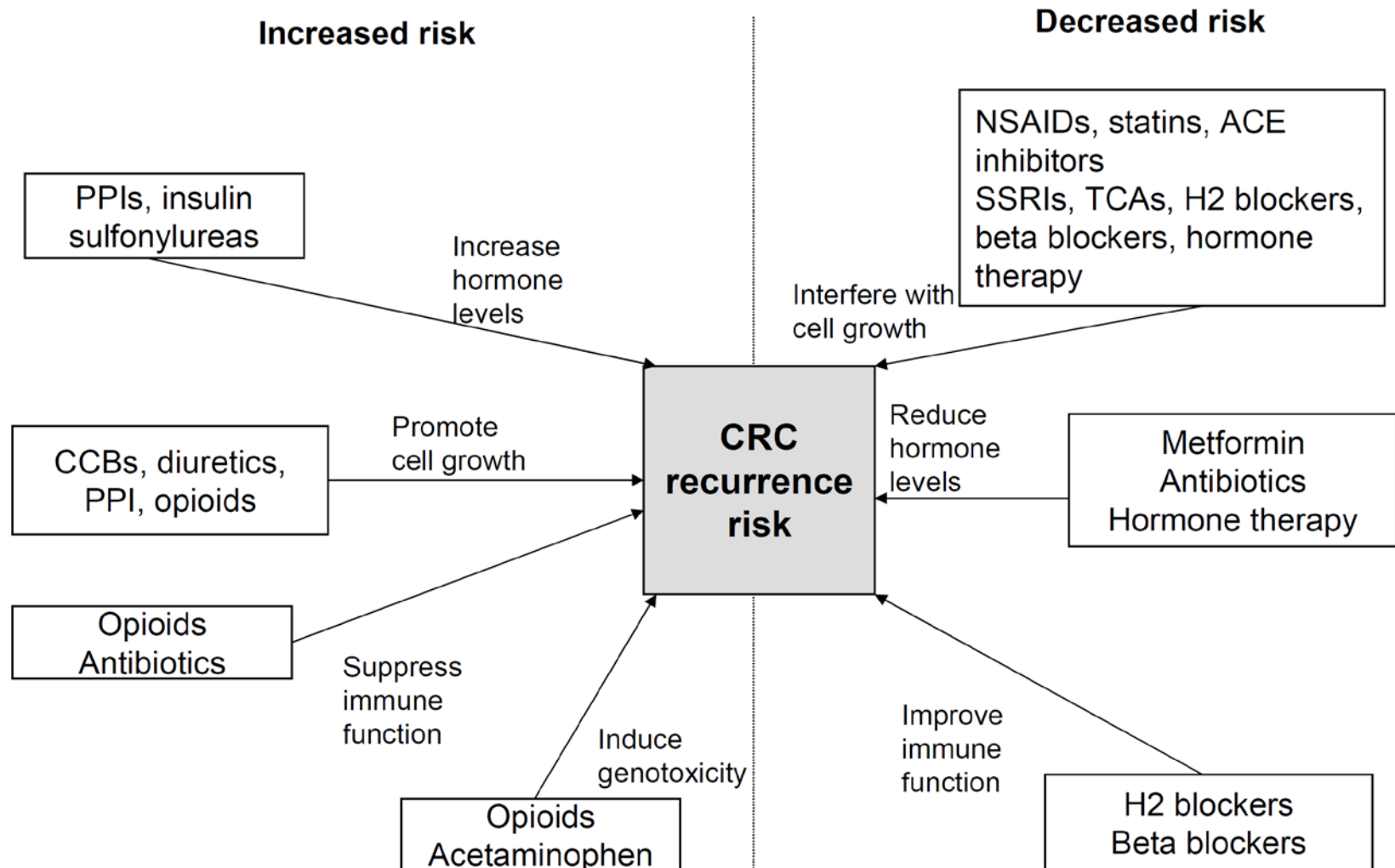


Figure 1. Hypothesized mechanisms relating medication use to CRC recurrence risk

- 1. Determine if any commonly used medications are associated with increased risk of colorectal cancer recurrence**
- 2. Determine if any commonly used medications are associated with reduced risk of colorectal cancer recurrence**

Hypotheses

Condition	Increase risk?	Decrease risk?
Diabetes	Insulin Sulfonylureas	Metformin
GERD	PPIs	H2 blockers
Hypertension	Calcium channel blockers Diuretics	Beta blockers ACE inhibitors
Infection	Antibiotics	
Pain	Opioids Acetaminophen	Aspirin/NSAIDs
Depression		SSRIs TCAs
High cholesterol		Statins
Menopausal symptoms		Hormone therapy

Design: Population-based cohort study

Setting: Group Health and Kaiser Permanente Colorado

Population: First primary colon cancer cases, 1995-2014

Exposure: Commonly used medications

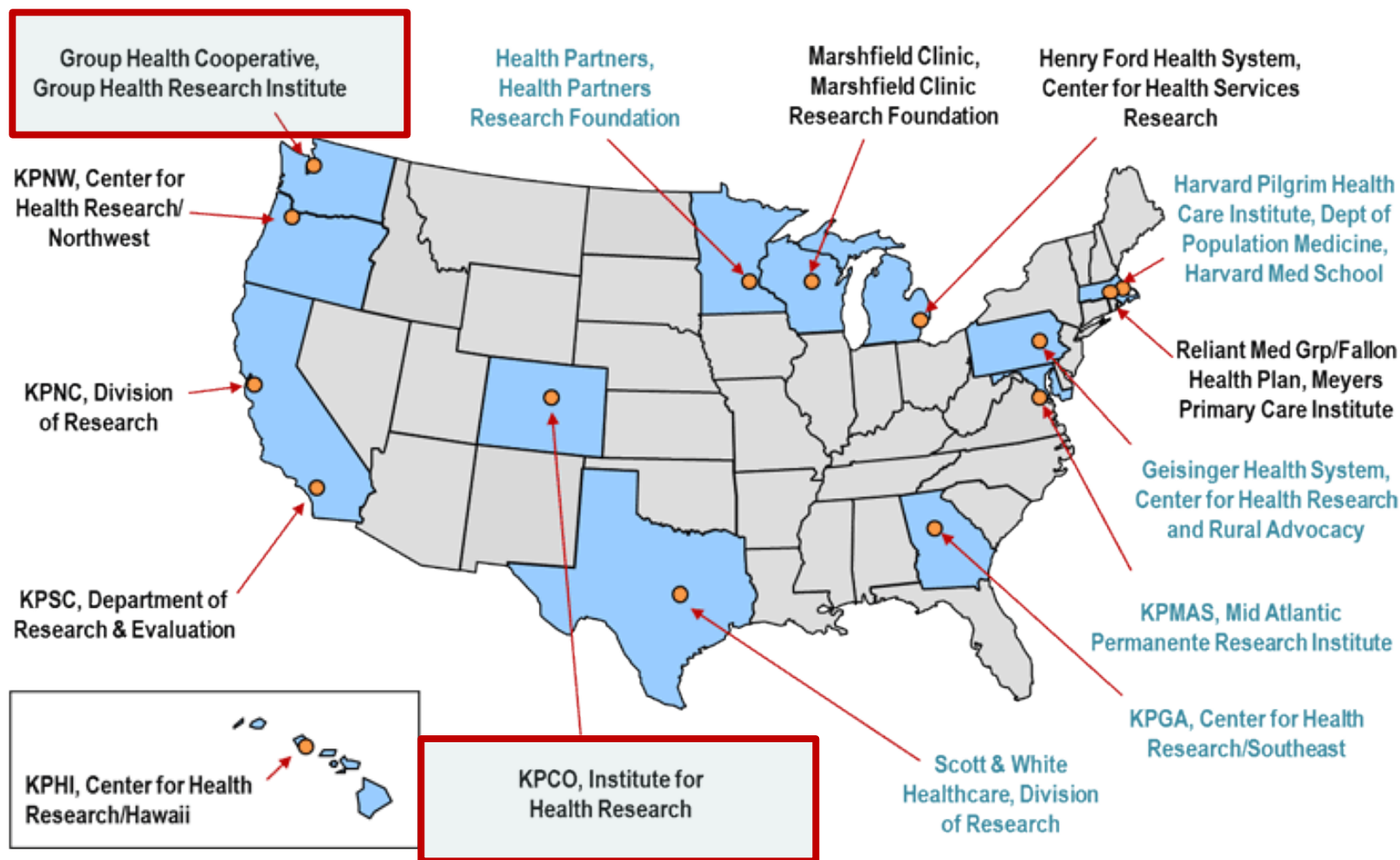
Outcomes: Recurrence; disease-free survival; all-cause mortality

Data sources: Virtual Data Warehouse automated data, chart review

Setting: the Cancer Research Network



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CRN4 is comprised of 9 healthcare systems across the nation and also includes 6 affiliate sites.



Methods: overview

- 1. Identify source population**
- 2. Define cohort**
- 3. Extract automated data**
- 4. Abstract medical records**
- 5. Conduct analyses**

Inclusion and exclusion criteria

	Include	Exclude
Cancer type	First primary colon cancer 1995-2014 Stage I-III A Adenocarcinoma	Previous CRC Rectal cancer Stage IIIB and higher colon cancer Non-adenocarcinoma
Treatment	Complete surgical resection	No/incomplete resection No adjuvant treatment for positive margins
Patient characteristics	Age 50+ years at diagnosis	FAP, HNPCC, prior colectomy
Health plan enrollment	1+ years before diagnosis	

Demographic characteristics of incident colon cancer cases, 1995-2013

Characteristic	Percent (N=6167)
Gender: Male	48%
Ethnicity: Hispanic	4%
Race	
White	83%
Black	4%
Asian	3%
Multiple races	10%
Age at diagnosis (years)	
18-44	3%
45-54	11%
55-64	19%
65-74	28%
75+	39%

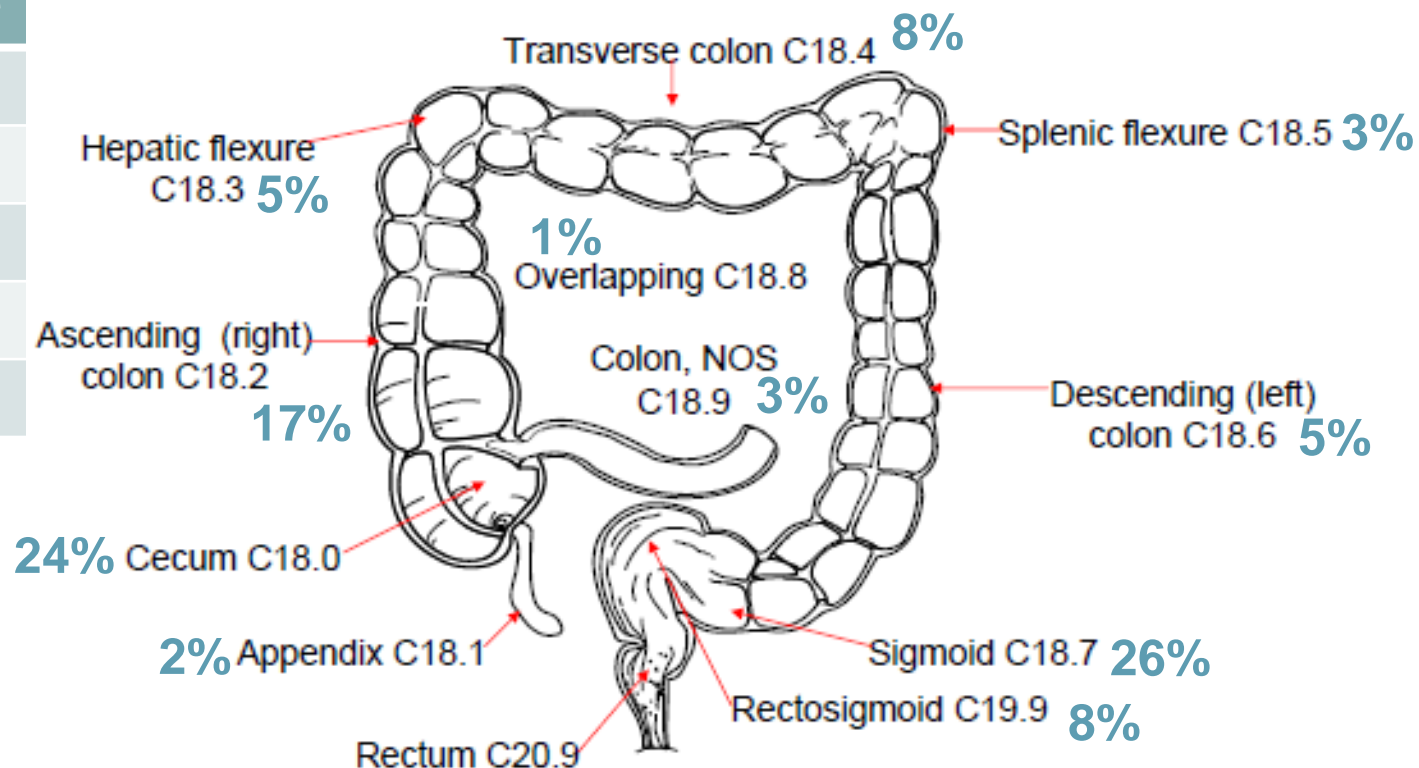
Distribution of incident colon cancer cases, 1995-2013



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SEER Summary Stage

In situ	3%
Local	38%
Regional	38%
Distant	19%
Unknown	3%



Graphic from CS Steering Committee Training Materials

<http://www.cdc.gov/cancer/npcr/pdf/abstracting/colon.pdf>

Planned data collection

	Automated data	Chart abstraction
Exposure	Prescription Rx	OTC medications
Outcome	Mortality	Recurrence
Patient characteristics	Demographics Comorbidities Healthcare utilization BMI, smoking >2005	BMI, smoking <2005
Cancer characteristics	Tumor registry variables (e.g., stage, histology, grade, positive lymph nodes)	Satellite tumor deposits Vascular invasion Perineural invasion
Cancer treatment	Surgical procedures, chemotherapy regimens, receipt of radiation	Surgical margins Residual disease CT results
Surveillance for recurrence	Procedures (CEA testing, colonoscopy, CT)	

Defining the cohort, implementing exclusions

Finalizing data sources

Drafting chart abstraction instrument

