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Lunch & Learn

PCC Lunch and Learn

Tuesday, December 7, 2021 | 12:00 PM - 1:00 PM ET

Lunch and Learn Co-chairs and Presenters

Irene Dankwa-Mullan, MD, MPH
Deputy Chief Health Officer,
IBM Watson Health

Jack Westfall, MD, MPH
Director,
Robert Graham Center

Mark Ebell, MD
University of Georgia School of Public Health

Frank Moriarty, PhD
Royal College of Surgeons in Ireland

Karen Swietek, PhD
NORC

Medical Homes & Quality of Care for Multiple Chronic Conditions

Karen E. Swietek, PhD MPH
December 7, 2021

Medical homes can improve management of chronic conditions

- In 2018, more than one quarter of adults in the U.S. had at least two chronic conditions
- Multiple chronic conditions are associated with worse health outcomes, higher health care costs, and increased risk of death
- Team-based care, enhanced care coordination, and disease management in the patient-centered medical home (PCMH) model can improve overall quality of care
- Complex patients with multiple chronic conditions may be especially likely to benefit from the PCMH

We studied the effect of the PCMH on quality of care for patients with multiple chronic conditions

- **Population:** Medicaid enrollees in North Carolina (2008-2010) with 2+ chronic conditions
- **Setting:** Community Care of North Carolina (CCNC)
- **Claims-based outcomes:** A1C testing, attention for nephropathy, eye examinations, and liver function tests, lipid profiles, angiotensin-converting enzyme inhibitor (ACE) or angiotensin receptor blocker (ARB), short-acting β-agonist (SABA) overuse, psychotherapy, assertive community treatment (ACT)
- **Methods:** Linear probability models with person- and year-level fixed effects

The PCMH model is an effective way to improve chronic illness care

- Quality-of-care metrics generally improved among patients enrolled in a PCMH for both mental and physical health conditions
- Patients with physical conditions were more likely to receive A1C testing, attention for nephropathy, eye examinations, liver function tests, lipid profiles, and ACE/ARB
- Patients with behavioral health conditions were more likely to receive psychotherapy and ACT
- SABA overuse among those with asthma was an exception to the trend of improved quality metrics

Further research can tell us more about who benefits from the PCMH and how

- Duration of PCMH enrollment affects outcomes
- Barriers to accessing the PCMH may limit benefits
- Equity is an important consideration; different populations may not benefit equally from the PCMH model

Thank you

Study team: *Karen E. Swietek PhD MPH, Marisa Elena Domino PhD, Christopher Beadles MD PhD, Alan R. Ellis PhD MSW, Joel F. Farley PhD, Lexie R. Grove PhD MSPH, Carlos Jackson PhD, C. Annette DuBard MD MPH*

A comparison of contemporary versus older studies of aspirin for primary prevention

Frank Moriarty PhD, MPSI [a]
Mark H. Ebell MD, MS[b]

a. School of Pharmacy and Biomolecular Sciences, Royal College of Su ıd
b. College of Public Health, University of Georgia, Athens, USA

Background

- 2015 USPSTF guidance based on pre-2000 studies: use low dose aspirin for primary prevention in patients 50-59 (B) or 60-69 (C) with ≥ 10% 10-year CV event risk.
- Draft 2021 USPSTF guidance incorporating newer studies: shared decision-making for 40-59 with ≥ 10% 10-year CV event risk (C); D if 60+ years
- European Society of Cardiology (2016): ““Antiplatelet therapy is not recommended in individuals free from CVD, due to the increased risk of major bleeding.”
- Before 2000 hyperlipidemia, hypertension, and diabetes were less well treated, and there was little or no population-based screening for colorectal cancer.
- 4 recent large RCTs give us an opportunity to compare old studies with new data collected in the current context.

Methods

Older data from published meta-analyses that recruited patients before 2000

- Anti-Thrombotic Trialists collaboration individual patient meta-analysis for 95,000 patients (1978 – 1998)
- Anti-Thrombotic Trialists collaboration aggregate meta-analysis of 6 studies with 25,000 patients (1978 to 2002)

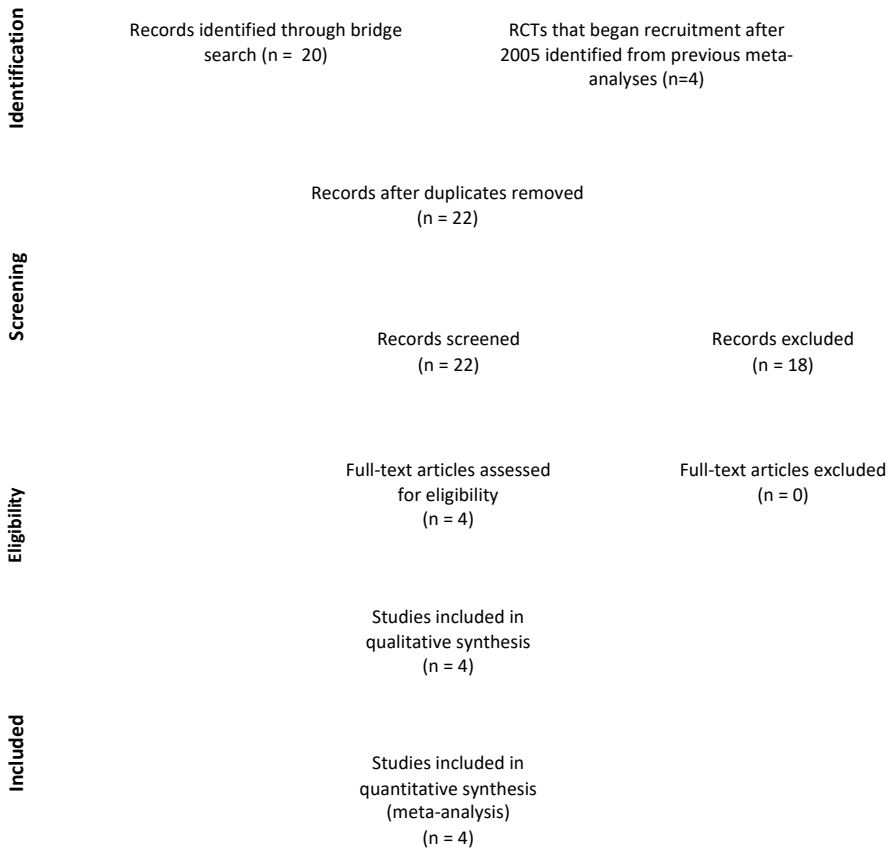
Newer data from 4 studies that recruited patients after 2005

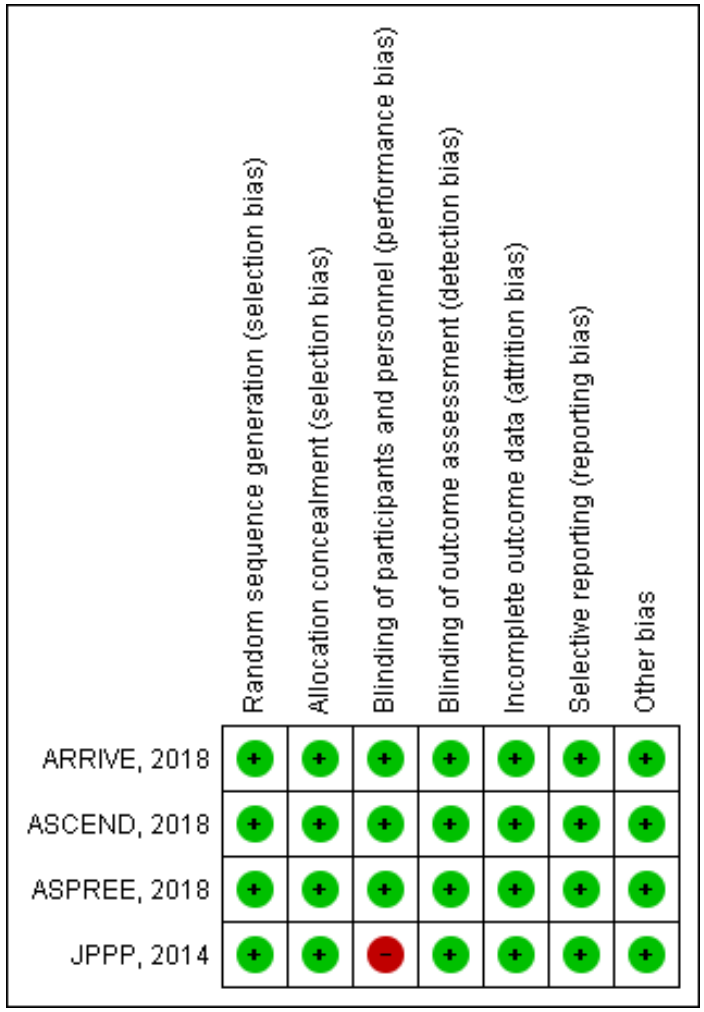
- JPPP, 2014 (Japan, n=14,464; 34% T2DM)
- ASCEND, 2018 (UK, n=14,480; 94% T2DM, 75% statin)
- ARRIVE, 2018 (US & Europe, n=12,546; 0% T2DM, 44% statin)
- ASPREE, 2018 (US & Australia, n=19,114; 11% T2DM, 34% statin)

Performed random effects meta-analysis of 4 new studies with 60,000+ patients and compared that with data from older studies.

All of the above studies randomized moderate to high risk older patients without known heart disease to low dose aspirin or placebo.

Figure S1. PRISMA flow diagram of search





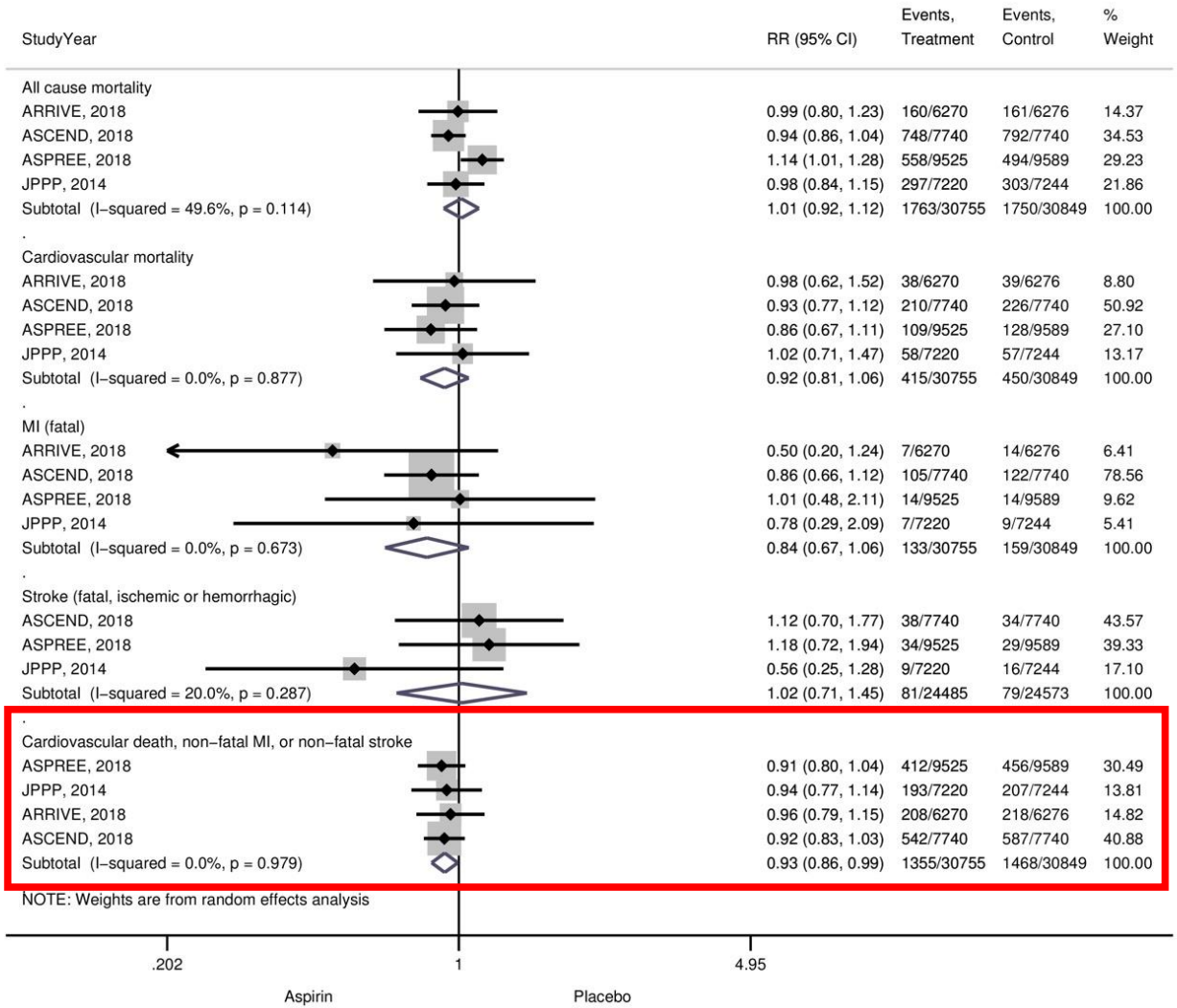
Benefits

No significant benefit in newer studies for:

- All cause mortality
- CV mortality
- Fatal MI
- Fatal stroke

Small but significant benefit for composite:

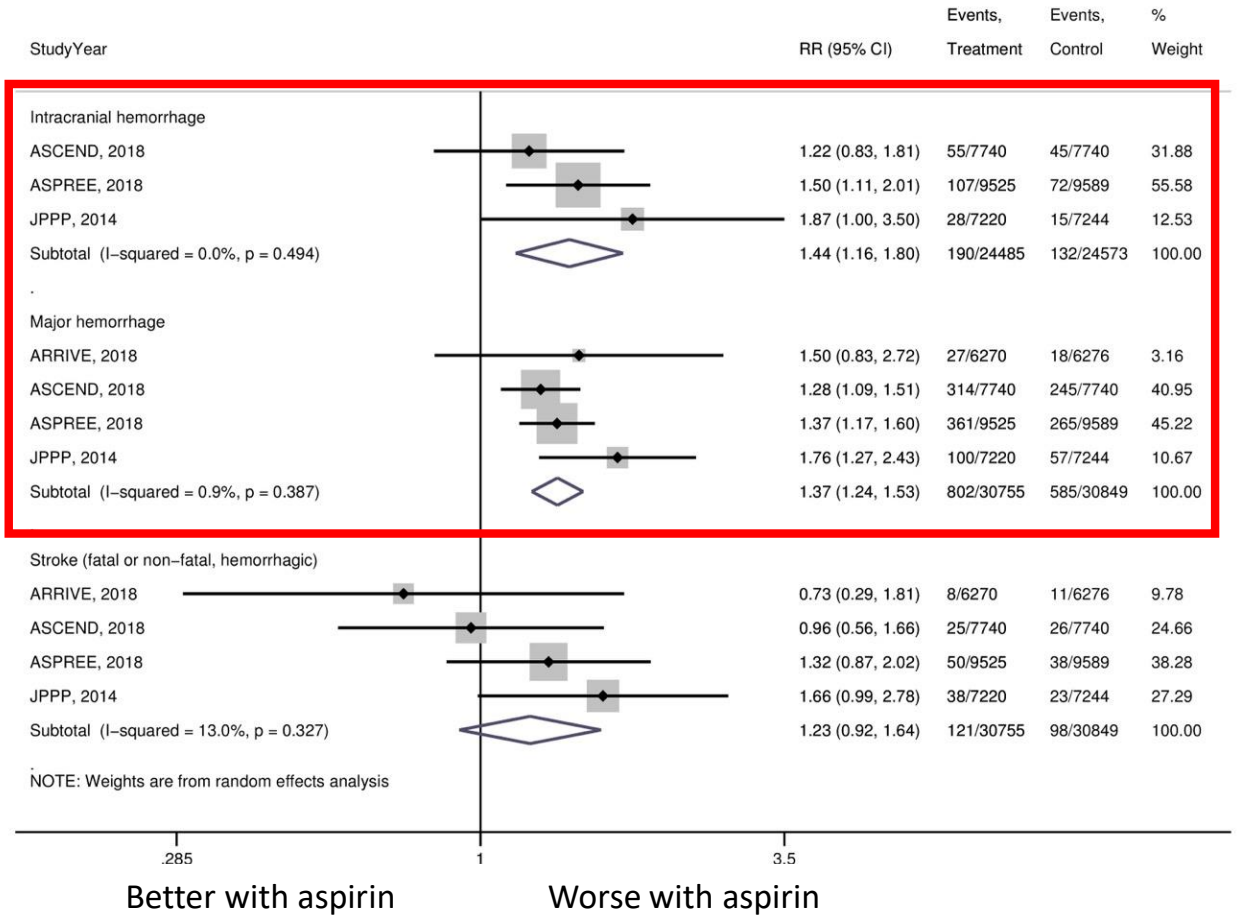
- MACE (CV death, non-fatal MI, or non-fatal stroke)



Harms

Similar harms as in older studies:

- Intracranial hemorrhage: RR 1.4 (1.2-1.8)
- Major hemorrhage: RR 1.4 (1.2-1.5)
- Hemorrhagic stroke: RR 1.2 (0.9-1.6)

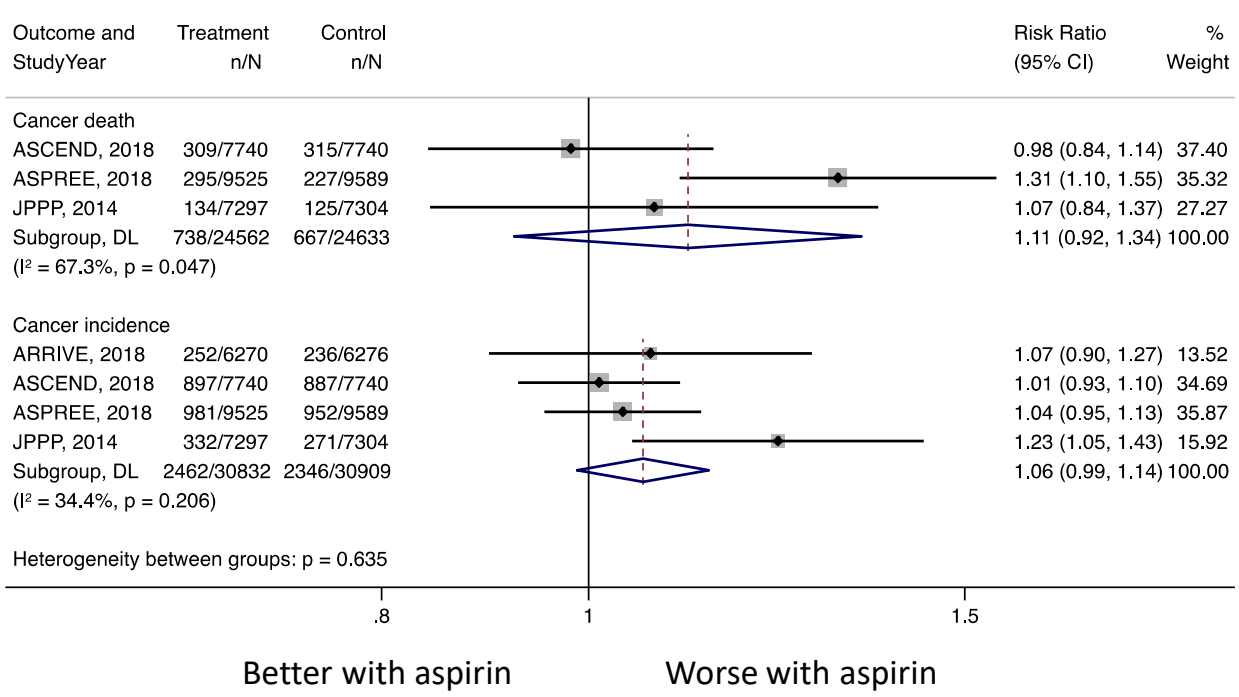


Cancer incidence and mortality in newer studies

For cancer outcomes, trends toward:

- greater incidence: RR 1.11 (0.92-1.34)
- greater mortality: RR 1.06 (0.99 – 1.14)

Remember, older studies showed benefit



Comparison of old and new studies

Outcome	Older Studies[3,5]	Most Recent Studies[13,14,15,16,17,18]
Major Adverse Cardiovascular Events *	**0.89 (0.83, 0.95)**	**0.93 (0.86, 0.99)**
Mortality Outcomes		
All-cause mortality	0.95 (0.89, 1.01)	1.01 (0.92, 1.12)
Cardiovascular mortality	0.97 (0.87, 1.09)	0.92 (0.81, 1.06)
Fatal myocardial infarction	0.95 (0.82, 1.09)	0.84 (0.67, 1.06)
Fatal stroke	1.21 (0.93, 1.59)	1.02 (0.71, 1.45)
Bleeding Outcomes		
Intracranial hemorrhage	NR	**1.44 (1.16, 1.80)**
Major hemorrhage	**1.53 (1.29, 1.81)**	**1.37 (1.24, 1.53)**
Stroke (any hemorrhagic)	1.30 (0.99, 1.72)	1.23 (0.92, 1.64)
Cancer Outcomes		
Cancer death	**0.79 (0.68, 0.92)****	1.11 (0.92, 1.34)
Cancer incidence	NR	1.06 (0.99, 1.14)

Comparison of old and new studies

Outcome	Older Studies[3,5]	Most Recent Studies [13,14,15,16,17,18]
Stroke Outcomes		
Stroke (any)	0.96 (0.86, 1.07)	0.96 (0.86, 1.07)
Stroke (any fatal)	1.21 (0.93, 1.59)	1.02 (0.71, 1.45)
Stroke (any non-fatal)	0.93 (0.83, 1.04)	0.93 (0.82, 1.05)
Stroke (any hemorrhagic)	1.30 (0.99, 1.72)	1.23 (0.92, 1.64)
Stroke (fatal hemorrhagic)	**1.73 (1.11, 2.72)**	1.06 (0.66, 1.70)
Stroke (non-fatal hemorrhagic)	1.09 (0.76, 1.55)	1.39 (0.80, 2.42)
Stroke (any ischemic)	0.86 (0.74, 1.00)	**0.86 (0.75, 0.98)**
Stroke (fatal ischemic)	0.83 (0.48, 1.42)	0.98 (0.56, 1.72)
Stroke (non-fatal ischemic)	0.87 (0.74, 1.01)	0.88 (0.77, 1.00)
Myocardial Infarction Outcomes		
Any myocardial infarction	0.94 (0.88, 1.03)	0.88 (0.77, 1.00)
Fatal myocardial infarction	0.95 (0.82, 1.09)	0.84 (0.67, 1.06)
Non-fatal myocardial infarction	**0.79 (0.71, 0.88)**	0.90 (0.76, 1.06)



Clinical application of the results

					Events / 1000 persons/5 years	
	Rate in controls	Rate in aspirin	ARR or ARI	NNT or NNH	Aspirin	Control
MACE (CV death, MI or stroke)	4.76%	4.43%	ARR = 0.33%	NNT = 303	44	48
Any ischemic stroke	1.81%	1.56%	ARR = 0.25%	NNT = 400	16	18
Intracranial hemorrhage	0.54%	0.78%	ARI = 0.24%	NNH = 417	8	5
Major hemorrhage	1.90%	2.60%	ARI = 0.70%	NNH = 143	26	19

For every 1200 persons taking aspirin for primary prevention for 5 years, there will be: 4 fewer MACEs and 3 fewer ischemic strokes, but 3 more intracranial hemorrhages and 8 more major bleeding events.

Key conclusions

- Harms of aspirin use were consistent between old and new studies
- There is no longer any reduction in cancer incidence or mortality
- Consistent decrease in ischemic stroke, although small
- No longer any reduction in non-fatal MI
- **On balance, aspirin can no longer be recommended for primary prevention of cancer or CV disease**