Disclosures

I have nothing financially to disclose
No COVID-19
Outline

Outpatient Antibiotics for Diverticulitis

Obesity Management

Chlorthalidone in CKD

Heart Failure with Preserved EF

Pneumonia Vaccines
Diverticulitis

Ivanna Peanut is a 56 yo F w/ HTN presenting to your office with abdominal pain

Pain started 2-3 days ago, is in LLQ, described as crampy and accompanied with bloody diarrhea. Vitals are normal, WBC is 10k.

You get a CT scan which shows L sided colonic diverticulosis with swelling of the colonic wall and pericolic fat (mNEFF score of 0).

You are able to control her pain in the office with Ibuprofen and Tylenol.
What next?

She asks about the inclusion of antibiotics, what would you choose?

A. Amoxicillin-Clavulonic acid
B. Combination therapy of Metronidazole and Ciprofloxacin
C. No antibiotic therapy
D. Hospitalization for inpatient surgical consultation and IV antibiotics
Efficacy and Safety of Nonantibiotic Outpatient Treatment in Mild Acute Diverticulitis (DINAMO-study)

A Multicentre, Randomised, Open-label, Noninferiority Trial

Laura Mora-López, PhD,* Neus Ruiz-Edo, MD,* Oscar Estrada-Ferrer, MD,† Maria Luisa Piñana-Campón, MD,‡ Meritxell Labró-Ciurans, PhD,§ Jordi Escuder-Perez, MD,¶ Ricard Sales-Mallafré, MD,|| Pere Rebasà-Cladera, PhD,* Salvador Navarro-Soto, PhD,* and Xavier Serra-Aracil, PhD*‡, for the DINAMO-study Group
DINAMO-study

**Question:** In select patients with mild, uncomplicated diverticulitis, is treatment without antibiotics non-inferior to treatment with antibiotics?

**Design:** Randomized Controlled non-inferiority trial

**Population:** 480 patients aged 18-80 without significant comorbidity. Had to have mNeff score of 0 and couldn't have more than 1 SIRS criteria (or CRP >15)

**Primary Outcome:** Hospital Admission
Results

<table>
<thead>
<tr>
<th>Event</th>
<th>Antibiotics (242)</th>
<th>No Antibiotics (238)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalization</td>
<td>14 (5.8%)</td>
<td>8 (3.3%)</td>
</tr>
<tr>
<td>ED Revisits</td>
<td>21 (8.8%)</td>
<td>19 (7.8%)</td>
</tr>
</tbody>
</table>

- Pain Control Better in non-antibiotic group
- Only 8/238 patient in Non-ATB group were started on antibiotics

Discussion

ED setting with very healthy patients

Given NSAIDs and Acetaminophen and were observed in the ED until pain control was achieved

Adds on to evidence from the AVO and DIABLO trials that for select patients with acute uncomplicated diverticulitis can be treated without antibiotics
Diagnosis and Management of Acute Left-Sided Colonic Diverticulitis: A Clinical Guideline From the American College of Physicians

Amir Qaseem, MD, PhD, MHA; Itziar Etxeandia-Ikobaltzeta, PharmD, PhD; Jennifer S. Lin, MD, MCR; Nick Fitterman, MD; Tatyana Shamiyian, MD, MS; and Timothy J. Wilt, MD, MPH; for the Clinical Guidelines Committee of the American College of Physicians*
ACP Recommends

“Recommendation 3: ACP suggests that clinicians initially manage select patients with acute uncomplicated left-sided colonic diverticulitis without antibiotics (conditional recommendation; low-certainty evidence).”

Qaseem et al, Annals of internal medicine, 2022
Who to consider

Uncomplicated, *left sided* diverticulitis

Select patients defined as…

- Immunocompetent
- Left Sided
- No SIRS
- Not frail and can follow up
FDA NEWS RELEASE

FDA updates warnings for fluoroquinolone antibiotics

Limits use for acute bacterial sinusitis, acute bacterial exacerbation of chronic bronchitis and uncomplicated urinary tract infections

Annals of Internal Medicine

Comparative Effectiveness and Harms of Antibiotics for Outpatient Diverticulitis

Two Nationwide Cohort Studies

Charles E. Gaber, MPH*; Alan C. Kinlaw, PhD, MSPH*; Jessie K. Edwards, PhD, MSPH; Jennifer L. Lund, PhD, MSPH; Til Stürmer, MD, PhD; Sharon Peacock Hinton, MPA; Virginia Pate, MS; Luther A. Bartelt, MD; Robert S. Sandler, MD, MPH; and Anne F. Peery, MD, MSCR

Take Home Points

Consider avoiding the use of antibiotics in patients with low risk diverticulitis

If using antibiotics, consider avoiding the use of fluoroquinolones
Obesity Management

William Whopper is a 45 yo M presenting to your clinic for evaluation of obesity.

He weighs in during the clinic visit at 260lbs with a BMI of 36 and WHtR is 0.56. His weight has been steady for the past 20 years. He has concomitant Hypertension and Hyperlipidemia. His most recent A1c was 6.1%.

He has tried various diet and exercise programs throughout the years, but hasn’t found success.
Obesity Management

He is interested in what his medical weight loss options are and wants to know your opinion as to what he should try next. What would you suggest?

A. Semaglutide SQ titrated to 2.4mg weekly
B. Metabolic Weight Loss Surgery
C. Liraglutide SQ titrated to 3mg daily
D. Intensive Diet and Exercise
Once-Weekly Semaglutide in Adults with Overweight or Obesity

John P.H. Wilding, D.M., Rachel L. Batterham, M.B., B.S., Ph.D., Salvatore Calanna, Ph.D., Melanie Davies, M.D., Luc F. Van Gaal, M.D., Ph.D., Ildiko Lingvay, M.D., M.P.H., M.S.C.S., Barbara M. McGowan, M.D., Ph.D., Julio Rosenstock, M.D., Marie T.D. Tran, M.D., Ph.D., Thomas A. Wadden, Ph.D., Sean Wharton, M.D., Pharm.D., Koutaro Yokote, M.D., Ph.D., Niels Zeuthen, M.Sc., and Robert F. Kushner, M.D., for the STEP 1 Study Group*
**STEP-1**

**Question:** In patients with obesity without diabetes, does once weekly semaglutide result in clinically meaningful weight loss compared with placebo?

**Design:** Multi-center, double-blind randomized placebo-controlled trial; ITT analysis

**Population:** Adults age 18-80, BMI >30 or >27 w/ 1 weight related comorbidity, no diabetes

**Primary Endpoints:** % of change in body weight and of participants who lost at least 5% of body weight
STEP-1

Avg age: 46
  • 73% female, 74% white

Avg BMI: 38

Comorbidities: Prediabetes 45%, HLD 38%, HTN in 36%

Randomized in 2:1 fashion, uptitrating to dose of 2.4mcg/week
  • Intensive lifestyle intervention and counseling q 4 weeks
## Results

<table>
<thead>
<tr>
<th>% Weight loss @ 68 weeks</th>
<th>Semaglutide 2.4 mg weekly</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>86.4%</td>
<td>31.5%</td>
</tr>
<tr>
<td>10%</td>
<td>69.1%</td>
<td>12.0%</td>
</tr>
<tr>
<td>15%</td>
<td>50.5%</td>
<td>4.9%</td>
</tr>
<tr>
<td>&gt;20%</td>
<td>32.0%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Wilding et al, NEJM. 2021, p. 994
More Results

Reduction in SBP

Improved QOL on 2 different scales

Adverse events: Nausea, vomiting and diarrhea
  • Most participants did not stop

Gallbladder disease most common serious event in trial group (2.6%)
But what about surgery?

Association of metabolic-bariatric surgery with long-term survival in adults with and without diabetes: a one-stage meta-analysis of matched cohort and prospective controlled studies with 174,772 participants


Bariatric Surgery Meta-Analysis

**Question:** In adults with obesity with and without diabetes, does bariatric surgery improve survival?

**Review Methods:** Searched for RCT, Pros CT and Matched Cohort studies comparing surgery with nonsurgical mgmt of obesity.

**Included Analyses:** 16 matched cohort studies and 1 nonrandomized controlled trial. 65 785 participants had metabolic–bariatric surgery, and 108 987 had usual care.
<table>
<thead>
<tr>
<th>Participant Group (n)</th>
<th>Metabolic-bariatric Surgery</th>
<th>Usual Care</th>
<th>10 years</th>
<th>20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>All (174,772)</td>
<td>3.5</td>
<td>8.9</td>
<td>0.51</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>(at median of 69 mos.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Type 2 Diabetes (55,043)</td>
<td>6.4</td>
<td>17.2</td>
<td>0.41</td>
<td>9</td>
</tr>
<tr>
<td>Without Type 2 Diabetes (8996)</td>
<td>6.6</td>
<td>11.4</td>
<td>0.7</td>
<td>30</td>
</tr>
</tbody>
</table>

Kahan & Williams, Annals of internal medicine. 2021, 174(9), JC101.
Discussion

No uniform comparator; No trial used an aggressive weight loss management

Only 1% of eligible participants are treated with surgery
Take Home Points

Weight loss significant with both semaglutide and bariatric surgery

Cost and approval still an issue for both

Consider metabolic bariatric surgery, particularly for high risk patients
To BP or not to BP?

Christopher Kenneth Delgado IV is a 66 yo M with chronic kidney disease, HTN and DM who presents to your clinic for a blood pressure follow up visit

He is currently taking:
- Amlodipine 10mg daily,
- Losartan 100mg daily
- Atenolol 100mg daily.

The average of 3 BP checks in the office is 145/87. His GFR on his most recent lab check is 20 and random urine albumin-to-creatinine ratio is 125
What to do?

He is interested in adding a medication for his blood pressure and asks what he should add next?

a. Chlorthalidone 12.5mg daily
b. Torsemide 10mg daily
c. Milrinone 5mg daily
d. Clonidine 0.1mg TID
KDIGO Guideline Update (2021)

Should we even treat?

Chapter 3: Blood pressure management in patients with CKD, with or without diabetes, not receiving dialysis

- **Recommendation 3.1.1** We suggest that adults with high BP and CKD be treated with a target systolic blood pressure (SBP) of <120 mm Hg, when tolerated, using standardized office BP measurement (2B).
Chlorthalidone for Hypertension in Advanced Chronic Kidney Disease

Rajiv Agarwal, M.D., Arjun D. Sinha, M.D., Andrew E. Cramer, B.S., Mary Balmes-Fenwick, M.S., Jazmyn H. Dickinson, B.S., Fangqian Ouyang, M.S., and Wanzhu Tu, Ph.D.
Question: In patients with stage 4 CKD and uncontrolled BP (>130/80), does the addition of chlorthalidone effectively lower BP and is it safe?

Design: Double blind randomized placebo controlled trial

Population: 160 patients with CKD4 and on standardized BP regimen
Figure 5: Trial design and study procedures

Baseline 1 week → Placebo run-in 2 weeks →

- CTD 50mg → 4 weeks
- CTD 25mg → 4 weeks
- CTD 12.5mg → 4 weeks
- 4w x 3 = 12 weeks
- Increase dose q4w if home BP ≥135 systolic or ≥85 diastolic
- Placebo
- 2x Placebo
- 4x Placebo

160 patients with CKD (eGFR 15-30 mL/min/1.73m²)
Treated, uncontrolled HTN (confirmed by 24h-ABPM).
Lisinopril/Losartan
OR
Atenolol
± Other drugs
No Thiazides

Stratified by prior loop diuretic use

Home BP measured twice daily x1 week prior to each clinic visit

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Time</th>
<th>Week 0</th>
<th>Week 4</th>
<th>Week 8</th>
<th>Week 12</th>
<th>Week 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>24h ambulatory BP + 24 h urine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home BP (BID x 1w), Clinic BP</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Markers of target organ damage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Markers of volume</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Agarwal et al, New England Journal of Medicine. 2021, Supplementary Appendix, p. 3
Adjusted Change in 24-Hour Ambulatory Systolic Blood Pressure from Baseline to 12 Weeks

Mean difference, -10.5 mm Hg; 95% CI, -14.6 to -6.4; P<0.001

- Placebo
- Chlorthalidone

Figure S5: Estimated treatment effect by pre-specified subgroups.

<table>
<thead>
<tr>
<th>subgroup</th>
<th>n</th>
<th>Systolic BP Baseline</th>
<th>Change from baseline to 12 weeks in 24h systolic BP (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>160</td>
<td>141.4</td>
<td>-11.1 (-15.2, -6.9)</td>
</tr>
<tr>
<td>Loop diuretic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>64</td>
<td>141.4</td>
<td>-6.3 (-12.9, 0.3)</td>
</tr>
<tr>
<td>Yes</td>
<td>96</td>
<td>141.4</td>
<td>-14.3 (-19.7, -8.9)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;65</td>
<td>80</td>
<td>142.1</td>
<td>-10.6 (-16.6, -4.7)</td>
</tr>
<tr>
<td>&gt;65</td>
<td>80</td>
<td>140.6</td>
<td>-10.9 (-16.7, -5.1)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>36</td>
<td>144</td>
<td>-13.6 (-22.5, -4.7)</td>
</tr>
<tr>
<td>male</td>
<td>124</td>
<td>140.6</td>
<td>-11.0 (-15.6, -6.3)</td>
</tr>
<tr>
<td>Urine albumin/urine creatinine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;300 mg/g</td>
<td>52</td>
<td>138.3</td>
<td>-7.3 (-14.5, -0.1)</td>
</tr>
<tr>
<td>&gt;300 mg/g</td>
<td>107</td>
<td>142.9</td>
<td>-12.3 (-17.3, -7.3)</td>
</tr>
<tr>
<td>24h urinary Na</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;median (121.5 mmol/24h)</td>
<td>63</td>
<td>141.4</td>
<td>-13.1 (-19.7, -6.5)</td>
</tr>
<tr>
<td>≥median</td>
<td>93</td>
<td>141.1</td>
<td>-8.4 (-13.6, -3.2)</td>
</tr>
<tr>
<td>Total body volume</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;median (90.9 L)</td>
<td>78</td>
<td>141.9</td>
<td>-13.8 (-19.9, -7.8)</td>
</tr>
<tr>
<td>≥ median</td>
<td>78</td>
<td>140.5</td>
<td>-8.7 (-15.0, -2.5)</td>
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<tr>
<td>NT proBNP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;median (750.5 pg/mL)</td>
<td>80</td>
<td>139.9</td>
<td>-7.8 (-13.5, -2.0)</td>
</tr>
<tr>
<td>≥ median</td>
<td>80</td>
<td>142.9</td>
<td>-14.2 (-20.1, -8.3)</td>
</tr>
<tr>
<td>Plasma renin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;median (2498.2 pg/mL)</td>
<td>80</td>
<td>143</td>
<td>-16.8 (-22.8, -10.8)</td>
</tr>
<tr>
<td>≥ median</td>
<td>80</td>
<td>139.8</td>
<td>-6.4 (-12.4, -0.4)</td>
</tr>
<tr>
<td>Plasma aldosterone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;median (318.1 pg/mL)</td>
<td>80</td>
<td>141.5</td>
<td>-5.2 (-10.7, 0.4)</td>
</tr>
<tr>
<td>≥ median</td>
<td>80</td>
<td>141.2</td>
<td>-17.8 (-23.6, -12.0)</td>
</tr>
<tr>
<td>AEs</td>
<td>Chlorthalidone (N=81)</td>
<td>Placebo (N=79)</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>74 (91%)</td>
<td>68 (86%)</td>
<td></td>
</tr>
<tr>
<td>Hypokalemia</td>
<td>8 (10%)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Hypomagnesemia</td>
<td>19 (23%)</td>
<td>13 (16%)</td>
<td></td>
</tr>
<tr>
<td>Hyperglycemia</td>
<td>13 (16%)</td>
<td>4 (5%)</td>
<td></td>
</tr>
<tr>
<td>Hyperuricemia</td>
<td>16 (20%)</td>
<td>7 (9%)</td>
<td></td>
</tr>
<tr>
<td>Dizziness</td>
<td>20 (25%)</td>
<td>13 (16%)</td>
<td></td>
</tr>
<tr>
<td>Orthostatic Hypotension</td>
<td>8 (10%)</td>
<td>5 (6%)</td>
<td></td>
</tr>
<tr>
<td>AKI</td>
<td>33 (41%)</td>
<td>10 (13%)</td>
<td></td>
</tr>
<tr>
<td>Serious Events</td>
<td>8 (10%)</td>
<td>11 (14%)</td>
<td></td>
</tr>
</tbody>
</table>

Take Home

Chlorthalidone works and appears safe in advanced CKD

Largest benefit seen at low doses (-9mmHg reduction at 12.5mg daily)

Adverse events higher in chlorthalidone group, but unclear how severe this were

Careful with combination of loop diuretics
Can we preserve this heart?

Beatrice Stiffheart is a 61 yo F w/ HTN and CKD3 presents to your clinic for follow up. She was recently diagnosed with heart failure 1 month prior after presenting to your clinic with worsening dyspnea on exertion.

Her NT-proBNP is currently 600 pg/mL and an echocardiogram performed 2 weeks prior showed LVH, LA dilation and an EF of 55%. Currently, she is short of breath after walking ~300ft.

On exam, she appears euvolemic and her BP is 128/78.

She is currently taking furosemide 40mg daily and Lisinopril 10mg daily.
Anything you can do?

She asks if there is anything else that she could take that might help her heart:

a. Spironolactone 25mg daily
b. Sacubitril/Valsartan 24/26mg daily
c. Empagliflozin 10mg daily
d. Isosorbide Mononitrate 20mg twice daily
<table>
<thead>
<tr>
<th>RCT</th>
<th>Population</th>
<th>Medication</th>
<th>Primary Outcome</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHARM-Preserved</td>
<td>N = 3023 EF &gt; 40%, NYHA II/III/IV H/o at least one cardiac hospitalization</td>
<td>Candesartan vs Placebo</td>
<td>Composite of CV death or HF hospitalization</td>
<td>Non-significant primary outcome</td>
</tr>
<tr>
<td>(2003)</td>
<td></td>
<td></td>
<td></td>
<td>Significant reduction of HF hospitalizations (Secondary outcome)</td>
</tr>
<tr>
<td>PEP-CHF</td>
<td>N = 850 EF &gt; 40%, clinical dx of HF Recent hospitalization for cardiac cause</td>
<td>Perindopril vs Placebo</td>
<td>Composite of CV death or unplanned HF hospitalization</td>
<td>Non-significant primary outcome</td>
</tr>
<tr>
<td>(2006)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-PRESERVE</td>
<td>N = 4128 EF ≥ 45%, NYHA II/III/IV Hospitalization for HF or arrhythmia of HF</td>
<td>Irbesartan vs Placebo</td>
<td>Composite of death from any cause or HF hospitalization</td>
<td>Non-significant primary outcome</td>
</tr>
<tr>
<td>(2008)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>RELAX</td>
<td>N = 216 EF ≥ 50%, NYHA II/III/IV Clinical HF, elevated N-BNP or filling pressure, and reduced exercise capacity</td>
<td>Sildenafil vs Placebo</td>
<td>Change in peak oxygen consumption</td>
<td>Non-significant primary outcome</td>
</tr>
<tr>
<td>(2013)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOPCAT</td>
<td>N = 3445 EF ≥ 45%, NYHA II/II/III Clinical HF with either HF hospitalization or elevated BNP</td>
<td>Spironolactone vs Placebo</td>
<td>Composite of CV death, aborted cardiac arrest, or HF hospitalization</td>
<td>Non-significant primary outcome</td>
</tr>
<tr>
<td>(2014)</td>
<td></td>
<td></td>
<td></td>
<td>Significant reduction of HF hospitalizations (Secondary outcome)</td>
</tr>
<tr>
<td>NEAT-HfPEF</td>
<td>N = 110 EF ≥ 50%, NYHA II/III Clinical HF, Elevated NT-proBNP/BNP or filling pressures</td>
<td>ISMN vs Placebo</td>
<td>Average daily accelerometer units</td>
<td>Non-significant primary outcome</td>
</tr>
<tr>
<td>(2015)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARAMOUNT</td>
<td>N = 301 EF &gt; 40%, NYHA II/III NT-proBNP &gt; 400</td>
<td>Sotubril-valsartan vs Valsartan</td>
<td>Change from baseline NT-proBNP in patients receiving sotubril-valsartan</td>
<td>Significant decrease in NT-proBNP in patients receiving sotubril-valsartan</td>
</tr>
<tr>
<td>(2018)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARAGON-HF</td>
<td>N = 4922 EF ≥ 45%, NYHA II/III/IV Elevated BNP or HF admission within 1 year</td>
<td>Sotubril-valsartan vs Valsartan</td>
<td>Composite of CV death or HF hospitalization</td>
<td>Non-significant primary outcome</td>
</tr>
</tbody>
</table>
Empagliflozin in Heart Failure with a Preserved Ejection Fraction


**EMPEROR-PRESERVED**

**Question:** In patients with HFpEF, does Empagliflozin improve outcomes in composite of hospitalization and cardiovascular death?

**Design:** Double blind, placebo controlled, intention to treat analysis

**Population:** Randomized 5988 patient w/ Class II-IV HF with EF >40% to receive 10mg of emplagliflozin vs placebo

**Primary Outcome:** Time to first hospitalization of heart failure or cardiovascular death
Who were they?

Had to have evidence of some sort of structural disease (LVH or LA dilation or HF hospitalization w/in 12 months of randomization) and elevated NT-proBNP

- 50% with DM2
- 50% with GFR <60
- 50% w/ atrial fibrillation

1/3 of patients in each group of EF 40-50%, 50-60%, >60%

Median EF was 54%

Predominantly european and white (Black was ~4% of study)
Results

Figure 1. Primary Outcome, a Composite of Cardiovascular Death or Hospitalization for Heart Failure.
The estimated cumulative incidence of the primary outcome in the two groups is shown. The inset shows the same data on an expanded y axis.

## Results

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Empagliflozin (N=2997)</th>
<th>Placebo (N=2991)</th>
<th>Hazard Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Composite Outcome</td>
<td>415 (13.8%)</td>
<td>511 (17.1%)</td>
<td>0.79 (0.69-0.90)</td>
</tr>
<tr>
<td>Hospitalization for heart failure</td>
<td>259 (8.6%)</td>
<td>352 (11.8%)</td>
<td>0.71 (0.60-0.83)</td>
</tr>
<tr>
<td>Cardiovascular death</td>
<td>219 (7.3%)</td>
<td>244 (8.2%)</td>
<td>0.91 (0.76-1.09)</td>
</tr>
<tr>
<td>Death from any cause</td>
<td>422 (14.1%)</td>
<td>427 (14.3%)</td>
<td>1.00 (0.87-1.15)</td>
</tr>
</tbody>
</table>

Take Home

First trial to show reduction in primary end point

Driven largely by reduction in HF exacerbations, and larger benefit in HFmrEF

No improvement in death

Largely white, European population
Industry sponsored

No improvement in composite renal outcomes
Pneumonia – How’d we get here???

1980 – PPSV Recommended for Adults >65 years old

2010 – PCV-13 Recommended for Children

2012 – ACIP recommends PCV13 in series w/ PPSV23 for certain adults

2014 – This recommendation extended to all adults >65 years old

2019 – Recommendation changed to “shared clinical decision-making” for adults >65 w/o high risk conditions

Confused yet???
2022 Update

65 or Older: PCV20 or PCV15 followed by PCV 20 one year later

Under 65 with certain conditions: Same as above**
High Risk Conditions

Alcoholism  Chronic Renal Failure**
Chronic Heart Disease  Cochlear Implants**
Chronic Liver Disease  CSF leak**
Chronic Lung Disease  Asplenia**
Cigarette Smoking  Immunodeficiency**
Diabetes  Malignancy**
HIV  Immunosuppression**
Sickle Cell Disease  Solid Organ Transplant**
FAQ

What if they’ve already had?

**PPSV23 alone** → Consider giving PCV15 or PCV20 one year later

**PCV13** → Complete PPSV23 series

Can give with flu vaccine; Other vaccines not studied
Bringing It Home

Consider avoiding use of antibiotics for acute, uncomplicated diverticulitis.

Semaglutide and metabolic-bariatric surgery are effective for weight loss in obesity.

Chlorthalidone is effective in advanced CKD.

The addition of SGLT2 inhibitors in HFrEF reduces risk of hospitalization, but not death.

PCV20 or PCV15 followed by PCV20.
References


Jain, M., & Dechet, A. (2022). In mild acute diverticulitis, outpatient therapy without antibiotics was noninferior to antibiotics. Annals of internal medicine, 175(2), JC15.


Thank you!