Mechanical Bowel Preparation

Changes in Our Surgical Practice

UK Department of Surgery Grand Rounds

J. S. Hourigan, MD

April 2010
449 Patients Undergoing Low Anterior Resection....

---

**TABLE 1. Risk Factors for Anastomotic Leakage in 449 Patients With Elective Lower Colorectal Surgery**

<table>
<thead>
<tr>
<th>Risk Factor for Leakage</th>
<th>n/n (%)</th>
<th>P (Univariate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBP</td>
<td></td>
<td>0.803</td>
</tr>
<tr>
<td>+</td>
<td>18/236 (7.6)</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>14/213 (6.6)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>0.007</td>
</tr>
<tr>
<td>Female</td>
<td>7/209 (3.3)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>25/240 (10.4)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>0.583</td>
</tr>
<tr>
<td>&lt;60 yr</td>
<td>7/124 (5.6)</td>
<td></td>
</tr>
<tr>
<td>≥60 yr</td>
<td>25/325 (7.7)</td>
<td></td>
</tr>
<tr>
<td>ASA</td>
<td></td>
<td>0.005</td>
</tr>
<tr>
<td>I</td>
<td>5/133 (3.8)</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>18/264 (6.8)</td>
<td></td>
</tr>
<tr>
<td>III/IV</td>
<td>9/52 (17.3)</td>
<td></td>
</tr>
</tbody>
</table>

MBP Has No Influence on Anastomotic Failure
Objectives....

Briefly Review the Recent History of Mechanical Bowel Preparation
Review the Literature Regarding Mechanical Bowel Preparation
Discuss MBP’s Influence on Anastomotic Leak and Septic Complications
Propose an Evidence-Based Change in Our Surgical Practice
dogma: a point of view or tenet put forth as authoritative without adequate grounds

Which Way To Go?
Doesn’t It Make “Sense” To Us?......

Decrease Volume of Intraluminal Content and Fecal Load
Decrease the Bacterial Counts
Avoid Major Spillage

Improve Healing of Anastomosis
Decrease Infectious Complications
Improve Patient Outcomes
1970s: Practice of Routine MBP
Dietary Restriction, Enemas, and Large Volume Saline Irrigation via NGT

1971: Nichols and Condon Describe Favorable Clinical Experience with Bowl Prep

1972: Hughes Presents Early Challenge to Dogma of MBP

1980: Development of PEG-based Solutions Tolerated Better

1990s: Trauma Literature Accumulates Regarding No MBP

1994: One of First RCT Showing No Benefit with MBP

1994-2000s: Several Other Trials Follow

2009: Cochrane Review Shows No Benefit of MBP

1971: Nichols and Condon Describe Favorable Clinical Experience with Bowl Prep
“Preoperative Preparation of the Colon” (1971)

...Clinical Experience “Demonstrated Decreased M&M with Mechanical Removal of Gross Feces”

Assumption Was Made That The Benefit Would Come From Significantly Lowering Nonselective Bacterial Counts

“Controversy Today Concerns Only the Addition of Antibiotics To Preoperative Mechanical Preparation”...

1970s: Practice of Routine MBP
Dietary Restriction, Enemas, and Large Volume Saline Irrigation via NGT

1971: Nichols and Condon Described Favorable Clinical Experience with Bowel Prep

1972: Hughes Presents Early Challenge to Dogma of MBP

1980: Development of PEG-based Solutions Tolerated Better

1990s: Trauma Literature Accumulates Regarding No MBP

1994-2000s: Several Other Trials Follow

1994: One of First RCT Showing No Benefit with MBP

2009: Cochrane Review Shows No Benefit of MBP

1971: Nichols and Condon Described Favorable Clinical Experience with Bowel Prep

1970s: Practice of Routine MBP
Dietary Restriction, Enemas, and Large Volume Saline Irrigation via NGT
“Asepsis in Large Bowel Surgery” (1972)

- Mechanical Cleaning “Loads” the Bowel and Is Unnecessary
- Antibiotics Have Restricted Part in Large-Bowel Surgery

...This Has Been Considered the “Challenge” to Nichols’ Views

1970s: Practice of Routine MBP
Dietary Restriction, Enemas, and Large Volume Saline Irrigation via NGT

1971: Nichols and Condon Described Favorable Clinical Experience with Bowel Prep

1972: Hughes Presents Early Challenge to Dogma of MBP

1980: Development of PEG-based Solutions Tolerated Better

1990s: Trauma Literature Accumulates Regarding No MBP

1994: One of First RCT Showing No Benefit with MBP

1994-2000s: Several Other Trials Follow

2009: Cochrane Review Shows No Benefit of MBP

1971: Nichols and Condon Described Favorable Clinical Experience with Bowel Prep

1970s: Practice of Routine MBP
Dietary Restriction, Enemas, and Large Volume Saline Irrigation via NGT
Nichols v. Hughes
There is Considerable Discordance Between What We **Do** and What We **Know**....

Is It Possible That We Know Something More Than What the “Literature” Can Tell Us?
First......What Are We Doing?

A Collection of Surveys....
352 Board-Certified Colon and Rectal Surgeons Surveyed

... 100% Routinely Used Mechanical Bowel Preparation

PEG Solution Used Most Commonly (58%)

...100% Routinely Used Mechanical Bowel Preparation

PEG Solution Used Most Commonly (70%)


- 515 ASCRS Members With on Average 14 Years Experience Each

....Survey Results Indicated

- 99% Routinely Used Mechanical Bowel Preparation
- 98% Routinely Used Intravenous Antibiotics
- 75% Routinely Used Oral Antibiotics

“Cathartic Bowel Preparation: A Thing of the Past?”
James McCormick, DO

Most ASCRS Attendees Polled Admitted to Using MBP
And...ACPGBI Guidelines for Management of Colorectal Cancer

Bowel Preparation Should Not Be Used Routinely Before Colorectal Cancer Resection
In Follow-Up.....A Survey of Its Members Indicated the Following:

<table>
<thead>
<tr>
<th>Procedure</th>
<th>% Patients Receiving Full Bowel Prep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Colectomy</td>
<td>10%</td>
</tr>
<tr>
<td>Left Colectomy</td>
<td>40%</td>
</tr>
<tr>
<td>Low Anterior Resection</td>
<td>22%</td>
</tr>
<tr>
<td>APR</td>
<td>72%</td>
</tr>
</tbody>
</table>

"Mechanical Bowel Preparation and Antibiotic Prophylaxis in Colorectal Surgery: Use By and Opinions of Spanish Surgeons" (2009)

- 131 Spanish Colon and Rectal Surgeons Surveyed

Survey Results Indicated

87% Routinely Use Mechanical Bowel Preparation
(60% for Right Colon...90% for Left Colon...99% for Rectum)
Recognizes That No Clear Evidence Exists That MBP Reduces Infectious Complications, Anastomotic Leak, or Mortality

Data Lacks Statistical Power to Exclude Type II Error
However, Bowel Preparation Is Justified Based On.....

- Ease of Handling Bowel
- Safety of Bowel Preparation
- Low Cost
Second......What Do We Know?

The Literature....
Let’s First Assume MBP Is Actually a “Good Thing”....

If MBP Is So Critical to Operative “Success”, Why Do We Rarely Talk About the Adequacy of Bowel Preparation?

Do We Routinely Cancel or Postpone Elective Cases if A Patient Does Not Finish MBP?
“Inadequate Bowel Preparation and Spillage” (2005)

- MBP Causes Significantly Higher Incidence of Liquid Contents
- Spillage with Bowel Prep (17%) v. NO Bowel Prep (12%)

| Liquid (31%) | SemiSolid (10%) | Solid (3%) |

MBP “Loads” the Bowel (Hughes)
Tendency Toward More Infectious Complications

Anastomotic Leak (6.2% v. 3.8%)
Wound Infection (12.5% v. 6.7%)

Let’s Then Assume MBP is Not Such A “Good Thing”

Does the Literature Support Not Using MBP Routinely in Elective Colorectal Surgery?

Two Large Meta-Analyses....
“Mechanical Bowel Preparation for Elective Colorectal Surgery”
“Mechanical Bowel Preparation for Elective Colorectal Surgery” (2009)

- Second Update (v.3) with Five Additional New Trials Included
- 14 RCTs with 4776 Participants
- Anastomotic Leakage was Primary Outcome Measure
- Secondary Outcome Measures Included Wound Infection
- Prophylactic Antibiotics Used In Both Treatment Groups
Analysis 1.2. Comparison 1 Mechanical bowel preparation versus no preparation, Outcome 2 Overall anastomotic leakage for colorectal surgery.

Review: Mechanical bowel preparation for elective colorectal surgery

Comparison: 1 Mechanical bowel preparation versus no preparation

Outcome: 2 Overall anastomotic leakage for colorectal surgery

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Preparation n/N</th>
<th>No preparation n/N</th>
<th>Peto Odds Ratio Peto, Fixed 95% CI</th>
<th>Weight</th>
<th>Peto Odds Ratio Peto, Fixed 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brownson 1992</td>
<td>8/67</td>
<td>1/67</td>
<td></td>
<td>4.8 %</td>
<td>5.23 [1.36, 20.14]</td>
</tr>
<tr>
<td>Bucher 2005</td>
<td>5/78</td>
<td>1/75</td>
<td></td>
<td>3.3 %</td>
<td>3.81 [0.75, 19.42]</td>
</tr>
<tr>
<td>Burke 1994</td>
<td>3/82</td>
<td>4/87</td>
<td></td>
<td>3.8 %</td>
<td>0.79 [0.17, 3.58]</td>
</tr>
<tr>
<td>Contant 2007</td>
<td>32/670</td>
<td>37/684</td>
<td>37.2 %</td>
<td>0.88 [0.54, 1.42]</td>
<td></td>
</tr>
<tr>
<td>Fa-Si-Oen 2005</td>
<td>7/125</td>
<td>6/125</td>
<td></td>
<td>7.0 %</td>
<td>1.18 [0.39, 3.58]</td>
</tr>
<tr>
<td>Fillmann 1995</td>
<td>2/30</td>
<td>1/30</td>
<td></td>
<td>1.6 %</td>
<td>1.99 [0.20, 19.94]</td>
</tr>
<tr>
<td>Jung 2007</td>
<td>16/113</td>
<td>17/674</td>
<td>18.3 %</td>
<td>0.89 [0.44, 1.77]</td>
<td></td>
</tr>
<tr>
<td>Miettinen 2000</td>
<td>5/138</td>
<td>3/129</td>
<td></td>
<td>4.4 %</td>
<td>1.56 [0.38, 6.36]</td>
</tr>
<tr>
<td>Pena-Soria 2007</td>
<td>4/48</td>
<td>2/49</td>
<td></td>
<td>3.2 %</td>
<td>2.06 [0.40, 10.69]</td>
</tr>
<tr>
<td>Ram 2005</td>
<td>1/164</td>
<td>2/165</td>
<td></td>
<td>1.7 %</td>
<td>0.51 [0.05, 4.98]</td>
</tr>
<tr>
<td>Santos 1994</td>
<td>7/72</td>
<td>4/77</td>
<td></td>
<td>5.8 %</td>
<td>1.93 [0.57, 6.57]</td>
</tr>
<tr>
<td>Tabusso 2002</td>
<td>5/24</td>
<td>0/23</td>
<td></td>
<td>2.6 %</td>
<td>8.54 [1.36, 53.51]</td>
</tr>
<tr>
<td>Zmora 2003</td>
<td>7/187</td>
<td>4/193</td>
<td></td>
<td>6.1 %</td>
<td>1.81 [0.55, 5.99]</td>
</tr>
</tbody>
</table>

Total (95% CI) 2398 2378

Total events: 102 (Preparation), 82 (No preparation)
Heterogeneity: Chi² = 15.77, df = 12 (P = 0.20); I² = 24%
Test for overall effect: Z = 1.52 (P = 0.13)

Anastomotic Leak 4.2% vs 3.4%
Analysis 1.6. Comparison 1 Mechanical bowel preparation versus no preparation, Outcome 6 Wound Infection.

Review: Mechanical bowel preparation for elective colorectal surgery
Comparison: 1 Mechanical bowel preparation versus no preparation
Outcome: 6 Wound infection

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Preparation</th>
<th>No preparation</th>
<th>Peto Odds Ratio</th>
<th>Weight</th>
<th>Peto Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brownson 1992</td>
<td>5/86</td>
<td>7/93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bucher 2005</td>
<td>10/78</td>
<td>3/75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burke 1994</td>
<td>4/82</td>
<td>3/87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contant 2007</td>
<td>90/670</td>
<td>96/684</td>
<td>95.0 [0.70, 1.30]</td>
<td>41.6%</td>
<td>0.95 [0.70, 1.30]</td>
</tr>
<tr>
<td>Fa-Si-Oen 2005</td>
<td>9/125</td>
<td>7/125</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillmann 1995</td>
<td>1/30</td>
<td>2/30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jung 2007</td>
<td>55/713</td>
<td>42/674</td>
<td>126 [0.83, 1.90]</td>
<td>23.4%</td>
<td>1.26 [0.83, 1.90]</td>
</tr>
<tr>
<td>Miettinen 2000</td>
<td>5/138</td>
<td>3/129</td>
<td>1.56 [0.38, 6.36]</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Pena-Soria 2007</td>
<td>6/49</td>
<td>6/49</td>
<td>1.02 [0.31, 3.41]</td>
<td>2.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Ram 2005</td>
<td>16/164</td>
<td>10/165</td>
<td>1.66 [0.75, 3.69]</td>
<td>6.2%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Santos 1994</td>
<td>17/72</td>
<td>9/77</td>
<td>2.28 [0.98, 5.29]</td>
<td>5.6%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Tabusso 2002</td>
<td>2/24</td>
<td>0/23</td>
<td>7.40 [0.45, 12.11]</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Zmora 2003</td>
<td>12/187</td>
<td>11/193</td>
<td>1.13 [0.49, 2.63]</td>
<td>5.6%</td>
<td>5.6%</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>2417</strong></td>
<td><strong>2404</strong></td>
<td><strong>100.0 %</strong></td>
<td></td>
<td><strong>1.19 [0.98, 1.45]</strong></td>
</tr>
</tbody>
</table>

Total events: Preparation 232, No preparation 199
Heterogeneity: Chi² = 10.78, df = 12 (P = 0.55); P = 0.09
Test for overall effect: Z = 1.72 (P = 0.086)
No Statistically Significant Difference Between MBP and No-MBP (2009)

...This Represented a “Change” From 2005

2003 No Difference

2005 Statistically Significant Increase in Anastomotic Leak with MBP

2009 No Difference
The Lack of Proven Benefit for MBP Allowed Authors To Suggest the Abandonment of MBP....

....Except When Needed To Identify Pathology or Perform Intra-Op Colonoscopy
“Updated Systematic Review and Meta-Analysis of Randomized Clinical Trials on the Role of Mechanical Bowel Preparation Before Colorectal Surgery”
Updated Systematic Review and Meta-Analysis of Randomized Clinical Trials on the Role of Mechanical Bowel Preparation Before Colorectal Surgery

14 Randomized Clinical Trials with 4859 Participants


...No-MBP Was Favored for “All SSI” with Statistical Significance

![Study name](Events / Total) | Statistics for each study | Odds ratio and 95% CI | Relative weight
---|---|---|---
Brownson 1992 | 21 / 86 | 2.682 | 1.181 6.089 | 0.118 | 7.33
Burke 1994 | 7 / 82 | 1.067 | 0.357 3.185 | 0.908 | 5.00
Santos 1994 | 24 / 72 | 2.462 | 1.138 5.326 | 0.022 | 7.88
Kale1997 | 8 / 62 | 2.815 | 0.330 24.010 | 0.344 | 1.63
Miettinen 2000 | 13 / 138 | 1.238 | 0.523 2.930 | 0.628 | 6.90
Fillmann 2001 | 3 / 30 | 1.000 | 0.185 5.403 | 1.000 | 2.49
Young-Tabusso 2002 | 3 / 24 | 7.651 | 0.373 156.840 | 0.187 | 0.86
Zmora 2003 | 19 / 187 | 1.171 | 0.569 2.329 | 0.653 | 8.93
Fa-Si-Oen 2005 | 16 / 125 | 1.265 | 0.581 2.753 | 0.554 | 7.80
Ram 2005 | 18 / 164 | 1.527 | 0.732 3.377 | 0.246 | 7.96
Bucher 2005 | 17 / 78 | 3.205 | 1.188 8.646 | 0.021 | 5.73
Pena 2007 | 19 / 48 | 2.263 | 0.933 5.489 | 0.071 | 6.67
Jung 2007 | 82 / 686 | 0.939 | 0.678 1.301 | 0.704 | 14.84
Contant 2007 | 135 / 670 | 1.403 | 1.054 1.869 | 0.020 | 15.99

Test for heterogeneity p = 0.016, I² = 50.4

**FIGURE 5.** Meta-analysis of the 14 included trials for the outcome “all SSI” showing a significant effect in favor of no MBP.


All SSI | 15.7% v. 14.5%
Two Interesting Side Notes With Conflicting Preference for MBP Were Recognized in This MA....

Bucher et al (MBP $n = 78$/No-MBP $n = 75$) for Left Colon (2005)

<table>
<thead>
<tr>
<th></th>
<th>MBP 22%</th>
<th>No-MBP 8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Infectious Complications</td>
<td>MBP 6%</td>
<td>No-MBP 1%</td>
</tr>
<tr>
<td>p = 0.028</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anastomotic Leak</td>
<td>MBP 24%</td>
<td>No-MBP 11%</td>
</tr>
<tr>
<td>p = 0.021</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extra-Abdominal Complications</td>
<td>MBP 15</td>
<td>No-MBP 10</td>
</tr>
<tr>
<td>p = 0.034</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Stay (Days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p = 0.024</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Therefore, Reduced Post-Operative Morbidity with No-MBP

A Statistically Significant Difference Was Demonstrated In Favor of Mechanical Bowel Preparation

Therefore, Reduced Post-Operative Morbidity with MBP
Overall, The Authors Made the Following Conclusions....

- Higher Risk of Anastomotic Leakage is **NOT** Suggested
- Harmful Effect of MBP Was Not Evident (As Suggested by Bucher)
- MBP Does Not Reduce Infectious Morbidity of Colon Surgery...
....And Suggested MBP Should Be **Abandoned** “At Least From the Patients’ Perspective”

- Quality of Life and Patient Preference
- Unwillingness To Have the Same Procedure Again?
- Dehydration and Electrolyte Disturbance
- Bacterial Translocation

Within Both Large Meta-Analyses...

Two “Large Trials” are Important to Note....

Contant et al
And
Jung et al
Anastomotic Leak
MBP (4.8%) v. No-MBP (5.4%)

Abscess with Leak
MBP (0.3%) v. No-MBP (2.5%)

\[ p = 0.001 \]

...Abscesses Not Considered to Be of Major Clinical Importance

The Authors Made the Following Conclusions....

- No Difference Exists Between MBP and No-MBP
- MBP Does Not Decrease/Prevent Infectious Complications
- Negative Side-Effects Without Evidence of Benefit

...MBP Before Elective Colorectal Surgery Should Be Abandoned

Randomized to MBP (n=686) and No-MBP (n=657)

324 Patients (24%) Overall Had At Least One Complication

No Significant Difference Between Groups in Complication Rates

No Benefit in Anastomotic Healing or Infection Rates with MBP

No Improvement in Overall Post-Op Course or Patient Outcome
Once Again, The Practice of MBP Should Be Abandoned

Table 5 Postoperative complications within 30 days

<table>
<thead>
<tr>
<th></th>
<th>MBP (n = 686)</th>
<th>No MBP (n = 657)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of complications</td>
<td>192</td>
<td>181</td>
<td>0.55</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>35 (5.1)</td>
<td>30 (4.6)</td>
<td></td>
</tr>
<tr>
<td>Acute myocardial infarction</td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Venous thrombosis</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Pulmonary embolism</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>14</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Heart failure</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Other*</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>General infectious</td>
<td>54 (7.9)</td>
<td>45 (6.8)</td>
<td>0.44</td>
</tr>
<tr>
<td>Septicaemia</td>
<td>9</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>10</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>17</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Fever of unknown origin</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Other†</td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Surgical site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wound infection</td>
<td>103 (15.0)</td>
<td>106 (16.1)</td>
<td>0.62</td>
</tr>
<tr>
<td>Postoperative haemorrhage</td>
<td>54</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Deep abscess</td>
<td>3</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Anastomotic dehiscence</td>
<td>13</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Wound disruption</td>
<td>10</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Ileus/bowel paralysis</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other‡</td>
<td>13</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>No. of patients with at least one complication</td>
<td>168 (24.5)</td>
<td>156 (23.7)</td>
<td>0.74</td>
</tr>
</tbody>
</table>

Other “Things” We Know from the Literature
Bretagnol \textit{et al} Produced Similar Results in Their Assessment of No-MBP and Rectal Cancer

- No Difference in Symptomatic Anastomotic Leak (8\% v. 10\%)
- Trend Towards Higher Rate of Infectious Complications with MBP
- Significantly Higher Rate of Extra-Abdominal Inf Complications with MBP
- Significantly Higher Overall Morbidity with MBP


Zmora et al Reviewed 200 Laparoscopic Colectomies

\[ n = 68 \text{ (MBP)} \] and \[ n = 132 \text{ (No-MBP)} \]

- 16 Patients (8%) with Intraoperative Colonoscopy for Localization
- Overall Conversion Rate of 9\% (MBP) an 14\% (No-MBP)

1 Conversion in No-MBP for Localization

No-MBP and Laparoscopy is Feasible and Safe (2006,2005)

Adequate Patient Selection Should Focus On.....

- Small Lesions (< 3cm) Not Properly Marked
- Possibility for Intraoperative Colonoscopy

What About the U.S. Literature?

Two Recent Papers....
Thomas Jefferson University Reported Their Clinical Experience at Southeastern Surgical in 2009....

Review of 153 Patients without MBP

- No Benefit Associated with the Use of MBP
- Elective Colorectal Resections Can Safely Omit MBP

Retrospective Review of 136 Patients +/- MBP

- Overall, SSI Occurred in 23% of Patients
  +MBP 46.7% v. –MBP 19.8%

Thus, Supporting the Safe Omission of MBP

So, Who Should Prep?

- Inadequate Localization or Possibility of Intra-Op Colonoscopy
- Low-Level Rectal Resections or IPAAAs?
- Defunctionalized Anastomoses?

And, Who Not Should Prep?

- Elective Colon Resections
In Conclusion

- There is Sufficient Evidence to Abandon MBP
- Rare Evidence Demonstrates the Benefit of MBP
- MBP Has Been Shown to be Harmful in Few Studies
- No-MBP Will Eventually Become the Standard for CR Surgery
- Parenteral Antibiotics Continue to Have a Defined Role
- Routine Use of Oral Antibiotic Preparation Should be Revisited