

## Supplemental Online Content

Writing Group for the CODA Collaborative. Self-selection vs randomized assignment of treatment for appendicitis. *JAMA Surg*. Published online May 25, 2022.  
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**eFigure.** Study Recruitment Diagram

**eTable 1.** Additional Baseline Participant Characteristics—Observational vs Randomized Clinical Trial Cohort

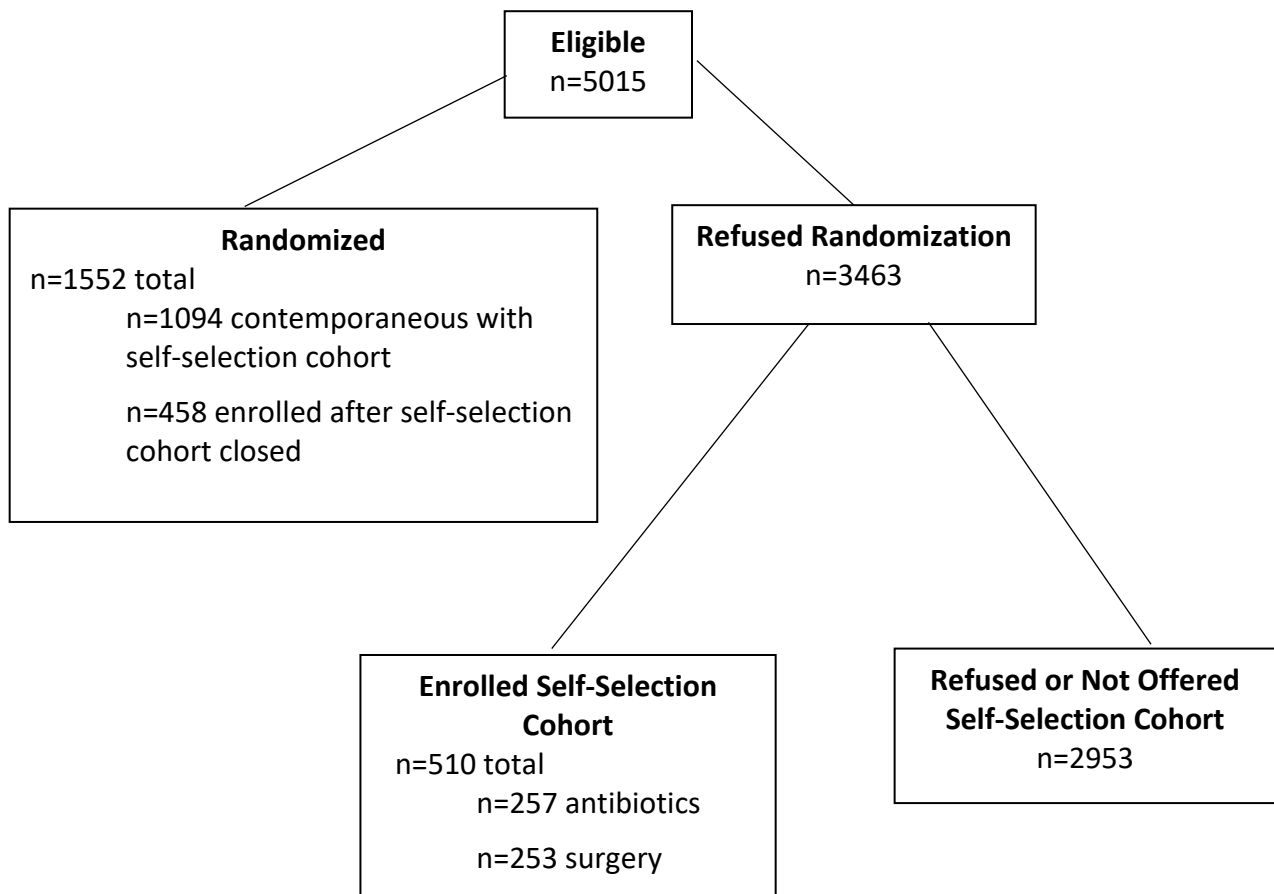
**eTable 2.** Baseline Randomized Clinical Trial Participant Characteristics by Arm

**eAppendix 1.** Analysis Comparing Odds of Appendectomy Between the Observational Cohort And Contemporaneous RCT Cohort

**eAppendix 2.** The CODA Trial Sites and Site Leads

This supplemental material has been provided by the authors to give readers additional information about their work.

**eFigure. Study Recruitment Diagram**



**eTable 1: Additional Baseline Participant Characteristics—Observational vs Randomized Clinical Trial Cohort\***

	<b>RCT subset<sup>+</sup></b>	<b>All Observational</b>	<b>Observational- antibiotics</b>	<b>Observational- appendectomy</b>
	<b>(n= 1094)</b>	<b>(n= 510)</b>	<b>(n= 257)</b>	<b>(n= 253)</b>
Age, years				
18-29	34% (31%-36%)	44% (40%-49%)	42% (36%-48%)	47% (41%-53%)
30-39	27% (25%-30%)	26% (23%-30%)	26% (21%-32%)	26% (21%-32%)
40-49	19% (17%-22%)	10% (8%-13%)	9% (6%-13%)	11% (8%-16%)
50-59	12% (10%-14%)	10% (7%-12%)	11% (8%-15%)	8% (5%-12%)
60-69	6% (5%-8%)	7% (5%-10%)	9% (6%-13%)	6% (4%-10%)
70-79	2% (1%-3%)	2% (1%-4%)	3% (2%-6%)	1% (0%-3%)
80+	0% (0%-1%)	0% (0%-1%)	0% (0%-2%)	0% (NA, NA)
Gender same as sex identified at birth				
No	1% (0%-2%)	1% (1%-3%)	1% (0%-3%)	2% (1%-5%)
Yes	99% (98%-100%)	99% (97%-99%)	99% (97%-100%)	98% (95%-99%)
Education				
Less than high school	19% (17%-21%)	12% (9%-15%)	13% (9%-17%)	11% (7%-15%)
High school graduate or GED	18% (16%-21%)	17% (14%-20%)	16% (12%-21%)	17% (13%-23%)
Some college, no degree	20% (18%-23%)	21% (18%-25%)	19% (14%-24%)	23% (19%-29%)
Associate degree	7% (5%-8%)	5% (3%-7%)	5% (3%-8%)	5% (3%-8%)
Occupational/tech/vocational program	4% (3%-5%)	4% (2%-6%)	2% (1%-5%)	6% (3%-9%)
Bachelor's degree	20% (18%-23%)	25% (22%-29%)	27% (22%-33%)	24% (19%-30%)
Master's degree	8% (6%-10%)	12% (9%-15%)	14% (11%-19%)	9% (6%-14%)
Professional degree	3% (2%-4%)	3% (2%-5%)	2% (1%-5%)	4% (2%-7%)
Doctoral degree	1% (0%-1%)	2% (1%-3%)	2% (1%-5%)	1% (0%-3%)
Frequency of physical activity required during work shift				

	<b>RCT subset*</b>	<b>All Observational</b>	<b>Observational-antibiotics</b>	<b>Observational-appendectomy</b>
	<b>(n= 1094)</b>	<b>(n= 510)</b>	<b>(n= 257)</b>	<b>(n= 253)</b>
Most or all of the time	37% (34%-40%)	35% (31%-39%)	34% (28%-40%)	36% (30%-42%)
Some or less of the time	42% (39%-45%)	43% (39%-48%)	42% (36%-48%)	44% (38%-50%)
Unemployed	21% (18%-23%)	22% (19%-26%)	24% (19%-30%)	20% (16%-26%)
Perceived same opportunities to be healthy**				
No	4% (3%-5%)	6% (4%-9%)	7% (4%-11%)	5% (3%-9%)
Yes	96% (95%-97%)	94% (91%-96%)	93% (89%-96%)	95% (91%-97%)
Number of adults in the household contributing income				
0	4% (3%-6%)	7% (5%-10%)	8% (5%-12%)	6% (4%-10%)
1	33% (30%-36%)	35% (31%-40%)	37% (31%-44%)	33% (28%-40%)
2	45% (42%-48%)	44% (39%-48%)	41% (35%-48%)	46% (40%-53%)
3 or more	18% (16%-20%)	14% (11%-18%)	14% (10%-19%)	15% (11%-20%)
At least one other adult sharing responsibilities of caring for family members and/or friends				
No	19% (17%-21%)	17% (13%-20%)	18% (13%-23%)	15% (11%-21%)
Yes	44% (41%-47%)	40% (36%-45%)	40% (34%-47%)	40% (34%-46%)
Not applicable	37% (34%-40%)	43% (39%-48%)	42% (36%-48%)	44% (38%-51%)
Frequency needs help to read written material from the doctor or pharmacy				
Never	65% (62%-68%)	66% (62%-70%)	68% (62%-74%)	64% (57%-70%)
Rarely	18% (16%-21%)	17% (14%-21%)	15% (11%-20%)	19% (15%-24%)
Sometimes	11% (9%-13%)	11% (8%-14%)	10% (7%-14%)	11% (8%-16%)
Often	3% (2%-4%)	3% (2%-5%)	2% (1%-5%)	4% (2%-8%)
Always	3% (2%-5%)	3% (2%-5%)	4% (2%-8%)	2% (1%-4%)
Lives alone				
No	88% (85%-89%)	87% (83%-89%)	85% (80%-89%)	88% (83%-91%)

	<b>RCT subset*</b>	<b>All Observational</b>	<b>Observational-antibiotics</b>	<b>Observational-appendectomy</b>
	<b>(n= 1094)</b>	<b>(n= 510)</b>	<b>(n= 257)</b>	<b>(n= 253)</b>
Yes	12% (11%-15%)	13% (11%-17%)	15% (11%-20%)	12% (9%-17%)
<b>Dependents, by sex</b>				
Men with dependent(s)	40% (37%-43%)	33% (29%-37%)	35% (29%-41%)	30% (25%-36%)
Men without dependent(s)	25% (22%-28%)	24% (20%-28%)	25% (20%-30%)	23% (18%-29%)
Women with dependent(s)	24% (21%-26%)	25% (21%-29%)	23% (19%-29%)	26% (21%-32%)
Women without dependent(s)	12% (10%-14%)	19% (16%-23%)	17% (13%-22%)	21% (17%-27%)
<b>Admission source</b>				
Clinic	19% (16%-21%)	20% (17%-24%)	23% (18%-29%)	17% (13%-23%)
Home	77% (74%-79%)	75% (71%-79%)	71% (65%-76%)	79% (74%-84%)
Other hospital	4% (3%-6%)	4% (3%-7%)	6% (3%-9%)	3% (2%-6%)
<b>Modified Charlson comorbidity index score</b>				
Mean	0.2 (0.2-0.3)	0.2 (0.12-0.3)	0.3 (0.2-0.4)	0.2 (0.1-0.2)
0	79% (77%-81%)	79% (75%-82%)	76% (70%-81%)	83% (77%-87%)
1	18% (16%-20%)	19% (16%-23%)	22% (17%-27%)	16% (12%-21%)
2+	2% (2%-3%)	1% (1%-3%)	1% (0%-3%)	2% (1%-4%)
<b>History of smoking cigarettes</b>				
No	75% (72%-78%)	79% (76%-83%)	81% (75%-85%)	78% (73%-83%)
Yes	25% (22%-28%)	21% (17%-24%)	19% (15%-25%)	22% (17%-27%)
<b>Diabetes</b>				
No	97% (96%-98%)	98% (97%-99%)	98% (96%-99%)	98% (95%-99%)
Yes	3% (2%-4%)	2% (1%-3%)	2% (1%-4%)	2% (1%-5%)
<b>Intensity of average pain in the previous 7 days</b>				
Had no pain	12% (10%-14%)	10% (8%-13%)	12% (8%-16%)	9% (6%-14%)
Mild	22% (19%-24%)	28% (24%-32%)	31% (26%-37%)	24% (19%-30%)
Moderate	36% (33%-39%)	34% (30%-38%)	34% (28%-40%)	33% (28%-39%)

	<b>RCT subset*</b>	<b>All Observational</b>	<b>Observational- antibiotics</b>	<b>Observational- appendectomy</b>
	<b>(n= 1094)</b>	<b>(n= 510)</b>	<b>(n= 257)</b>	<b>(n= 253)</b>
Severe	21% (19%-24%)	21% (17%-25%)	17% (13%-22%)	25% (20%-30%)
Very severe	9% (7%-11%)	7% (5%-10%)	6% (4%-10%)	9% (6%-13%)
Duration of symptoms				
Mean	1.7 (1.5-1.9)	1.7 (1.5-1.9)	1.8 (1.4-2.1)	1.7 (1.4-1.9)
<1 day	24% (22%-27%)	28% (24%-32%)	28% (23%-34%)	27% (22%-33%)
1 – 1.5 days	42% (39%-44%)	41% (37%-45%)	39% (33%-45%)	43% (37%-49%)
2+ days	34% (31%-37%)	32% (28%-36%)	33% (28%-39%)	30% (24%-36%)
Migration of pain				
No	15% (13%-18%)	21% (17%-24%)	22% (17%-28%)	19% (15%-24%)
Yes	85% (82%-87%)	79% (76%-83%)	78% (72%-83%)	81% (76%-85%)
Anorexia				
No	58% (55%-61%)	60% (55%-64%)	61% (55%-67%)	58% (52%-64%)
Yes	42% (39%-45%)	40% (36%-45%)	39% (33%-45%)	42% (36%-48%)
Nausea or vomiting				
No	27% (25%-30%)	25% (21%-29%)	29% (24%-35%)	21% (17%-27%)
Yes	73% (70%-75%)	75% (71%-79%)	71% (65%-76%)	79% (73%-83%)
Tenderness in right lower quadrant				
No	6% (5%-8%)	7% (5%-10%)	9% (6%-14%)	5% (3%-9%)
Yes	94% (92%-95%)	93% (90%-95%)	91% (86%-94%)	95% (91%-97%)
Rebound pain				
No	77% (75%-80%)	80% (76%-83%)	86% (81%-89%)	74% (69%-79%)
Yes	23% (20%-25%)	20% (17%-24%)	14% (11%-19%)	26% (21%-31%)
Fever				
No	75% (73%-78%)	78% (74%-81%)	81% (76%-85%)	74% (69%-79%)
Yes	25% (22%-27%)	22% (19%-26%)	19% (15%-24%)	26% (21%-31%)
Leukocytosis				
No	25% (23%-28%)	22% (19%-26%)	24% (19%-29%)	21% (16%-26%)

	<b>RCT subset*</b>	<b>All Observational</b>	<b>Observational-antibiotics</b>	<b>Observational-appendectomy</b>
	<b>(n= 1094)</b>	<b>(n= 510)</b>	<b>(n= 257)</b>	<b>(n= 253)</b>
Yes	75% (72%-77%)	78% (74%-81%)	76% (71%-81%)	79% (74%-84%)
Left shift				
No	27% (24%-29%)	22% (19%-26%)	24% (19%-30%)	20% (15%-25%)
Yes	73% (71%-76%)	78% (74%-81%)	76% (70%-81%)	80% (75%-85%)
WBC count (thousand/microL)				
Mean	12.9 (12.7-13.2)	13.3 (12.9-13.7)	13.0 (12.5-13.5)	13.6 (13.1-14.1)
Alvarado Score				
Mean	6.6 (6.5-6.7)	6.6 (6.4-6.7)	6.3 (6.1-6.5)	6.8 (6.6-7.0)
Perforation on imaging				
No/not mentioned	96% (95%-97%)	94% (92%-96%)	94% (90%-96%)	95% (91%-97%)
Yes	1% (1%-2%)	2% (1%-4%)	2% (1%-5%)	3% (1%-5%)
Ambiguous	3% (2%-4%)	3% (2%-5%)	4% (2%-7%)	3% (1%-5%)
Peri-appendiceal fat stranding on CT				
None or not mentioned	25% (23%-28%)	29% (25%-33%)	31% (26%-38%)	27% (22%-33%)
Mild	28% (25%-31%)	29% (26%-34%)	31% (25%-37%)	28% (23%-34%)
Moderate	9% (7%-11%)	7% (5%-10%)	6% (4%-10%)	8% (5%-12%)
Severe (phlegmon)	2% (1%-3%)	1% (0%-2%)	0% (0%-2%)	2% (1%-4%)
Present, not otherwise specified	36% (33%-39%)	33% (29%-38%)	31% (26%-38%)	35% (29%-41%)
CT only (no ultrasound or MRI)				
No	23% (21%-26%)	31% (27%-35%)	28% (23%-34%)	34% (29%-40%)
Yes	77% (74%-79%)	69% (65%-73%)	72% (66%-77%)	66% (60%-71%)
Discharged from the ED				
No, admitted to the hospital	72% (69%-74%)	76% (72%-79%)	56% (50%-62%)	97% (94%-98%)
No, other (e.g., observational unit)	9% (7%-10%)	10% (8%-13%)	16% (12%-21%)	3% (2%-6%)
Yes	20% (17%-22%)	15% (12%-18%)	28% (23%-34%)	0% (NA)

\*31 participants in the RCT subset and 14 participants in the observational cohort (7 antibiotics, 7 surgery) were missing data on whether their gender was the same as their sex identified at birth. 68 participants in the RCT subset and 32 participants in the observational cohort (17 antibiotics, 15 surgery) were missing data on frequency of physical activity required during work shift. 49 participants in the RCT subset and 29 participants in the observational cohort (13 antibiotics, 16 surgery) were missing data on perceived opportunities to be healthy. 102 participants in the RCT subset and 48 participants in the observational cohort (29 antibiotics, 19 surgery) were missing data on number of adults in the household contributing to income. 54 participants in the RCT subset and 26 participants in the observational cohort (12 antibiotics, 14 surgery) were missing data on whether at least one other adult shares responsibilities of caring for family members and/or friends. 48 participants in the RCT subset and 25 participants in the observational cohort (9 antibiotics, 16 surgery) were missing data on needing help to read written material from the doctor or pharmacy. 26 participants in the RCT subset and 13 participants in the observational cohort (7 antibiotics, 6 surgery) were missing data on whether they live alone. 38 participants in the RCT subset and 22 participants in the observational cohort (9 antibiotics, 13 surgery) were missing data on both sex and number of dependents. 95 participants in the RCT subset and 18 participants in the observational cohort (3 antibiotics, 15 surgery) were missing data on admission source. 3 participants in the RCT subset and 3 participants in the observational cohort (2 antibiotics, 1 surgery) were missing the modified Charlson comorbidity index score. 56 participants in the RCT subset and 33 participants in the observational cohort (15 antibiotics, 18 surgery) were missing data on history of smoking cigarettes. 34 participants in the RCT subset and 13 participants in the observational cohort (7 antibiotics, 6 surgery) were missing data on intensity of average pain in the previous 7 days. 1 participant in the RCT subset and 1 participant in the observational cohort (1 surgery) were missing data on duration of symptoms. 32 participants in the RCT subset and 13 participants in the observational cohort (8 antibiotics, 5 surgery) were missing data on migration of pain. 2 participants in the RCT subset and 3 participants in the observational cohort (1 antibiotics, 2 surgery) were missing data on nausea or vomiting. 2 participants in the RCT subset were missing data on rebound pain. 1 participant in the RCT subset was missing data on fever. 4 participants in the RCT subset and 1 participant in the observational cohort (1 surgery) were missing data on leukocytosis. 1 participant in the RCT subset was missing data on left shift. 4 participants in the RCT subset and 1 participant in the observational cohort (1 surgery) were missing data on white blood cell count. 49 participants in the RCT subset and 38 participants in the observational cohort (21 antibiotics, 17 surgery) were missing data on perforation on imaging. 44 participants in the RCT subset and 38 participants in the observational cohort (21 antibiotics, 17 surgery) were missing data on peri-appendiceal fat stranding on imaging. 20 participants in the RCT subset and 11 participants in the observational cohort (11 surgery) were missing data on whether the participant was discharged from the ED to home.

\*\*This item was worded on the baseline survey as "Do you feel you have the same opportunities to be as healthy as others?"

\*Contemporaneously recruited participants in the RCT



**eTable 2: Baseline Randomized Clinical Trial Participant Characteristics by Arm**

	<b>RCT subset-antibiotics<sup>†</sup></b>	<b>RCT subset-surgery<sup>†</sup></b>
Age, years		
Mean	38.57 (37.45-39.68)	37.87 (36.71-39.04)
18-29	32% (28%-36%)	35% (31%-39%)
30-39	28% (25%-32%)	26% (23%-30%)
40-49	20% (17%-23%)	19% (16%-23%)
50-59	13% (10%-16%)	11% (8%-14%)
60-69	5% (4%-8%)	7% (5%-9%)
70-79	2% (1%-3%)	2% (1%-4%)
80+	0% (0%-1%)	0% (NA, NA)
Sex		
Male	65% (61%-69%)	65% (60%-68%)
Female	35% (31%-39%)	35% (32%-40%)
Race		
White	60% (56%-64%)	58% (54%-62%)
Black	8% (6%-11%)	8% (6%-10%)
American Indian or Alaska Native	2% (1%-3%)	1% (1%-3%)
Asian	5% (4%-7%)	7% (5%-10%)
Native Hawaiian or Pac Islander	1% (0%-2%)	0% (0%-1%)
Other	21% (17%-24%)	22% (19%-26%)
Multiple	4% (3%-6%)	3% (2%-5%)
Hispanic ethnicity		
No	56% (52%-60%)	58% (54%-62%)
Yes	44% (40%-48%)	42% (38%-46%)
Primary language		
English	63% (59%-67%)	65% (61%-69%)
Spanish	32% (28%-36%)	29% (26%-33%)
Other	5% (3%-7%)	5% (4%-7%)
Employment		
Employed	73% (70%-77%)	73% (69%-76%)
Student	6% (4%-9%)	6% (4%-8%)
Retired or other	20% (17%-24%)	22% (18%-25%)
Education		
Less than High School	20% (17%-24%)	18% (15%-21%)
High school graduate or GED	19% (16%-22%)	18% (15%-21%)
Some college, no degree	18% (15%-22%)	23% (19%-26%)
Associate degree	6% (4%-8%)	8% (6%-10%)
Occupational/tech/vocational program	4% (3%-6%)	4% (2%-5%)
Bachelor's Degree	21% (18%-25%)	20% (17%-23%)
Master's Degree	8% (6%-10%)	8% (6%-10%)
Professional degree	3% (2%-5%)	3% (2%-5%)
Doctoral degree	1% (1%-2%)	0% (0%-1%)
Insurance		
Commercial	46% (42%-50%)	45% (41%-49%)
Medicare or Tricare	13% (10%-16%)	13% (11%-16%)
Medicaid or state	16% (14%-20%)	17% (14%-21%)
Other or none	25% (21%-28%)	25% (21%-29%)

Below the federal poverty level or a Medicaid beneficiary		
No	57% (52%-61%)	57% (52%-61%)
Yes	43% (39%-48%)	43% (39%-48%)
Admission source		
Clinic	20% (17%-24%)	17% (14%-21%)
Home	75% (71%-78%)	79% (76%-83%)
Other hospital	5% (4%-8%)	3% (2%-5%)
Modified Charlson comorbidity index score		
Mean	0.25 (0.2-0.29)	0.24 (0.2-0.29)
0	79% (75%-82%)	80% (76%-83%)
1	19% (16%-22%)	17% (14%-21%)
2+	2% (1%-4%)	2% (1%-4%)
Body mass index		
mean	29.02 (28.36-29.68)	28.75 (28.21-29.29)
History of smoking cigarettes		
No	76% (72%-80%)	74% (70%-77%)
Yes	24% (20%-28%)	26% (23%-30%)
Diabetes		
No	97% (96%-98%)	97% (96%-98%)
Yes	3% (2%-4%)	3% (2%-4%)
Gender same as sex assigned at birth		
No	1% (1%-2%)	1% (0%-2%)
Yes	99% (98%-99%)	99% (98%-100%)
Worried about out-of-pocket bills from being admitted		
No	31% (27%-35%)	31% (27%-35%)
Yes	69% (65%-73%)	69% (65%-73%)
Frequency of physical activity required during work shift		
Most of the time	39% (35%-43%)	36% (32%-40%)
Some or less	40% (36%-45%)	44% (39%-48%)
Unemployed	21% (18%-25%)	21% (18%-25%)
Perceived same opportunities to be healthy**		
No	4% (3%-6%)	3% (2%-5%)
Yes	96% (94%-97%)	97% (95%-98%)
Number of adults in the household contributing income		
0	3% (2%-5%)	5% (4%-8%)
1	35% (31%-39%)	31% (27%-36%)
2	44% (40%-48%)	46% (41%-50%)
3 or more	18% (15%-22%)	18% (14%-21%)
Number of dependents		
0	37% (33%-41%)	36% (32%-41%)
1 or more	63% (59%-67%)	64% (59%-68%)
At least one other adult sharing responsibilities of caring for family members and/or friends		
No	20% (17%-24%)	18% (15%-21%)
Yes	43% (38%-47%)	45% (41%-50%)
Not applicable	37% (33%-41%)	37% (33%-41%)

Frequency needs help to read written material from the doctor or pharmacy		
Never	64% (60%-68%)	66% (62%-70%)
Rarely	18% (15%-21%)	19% (16%-22%)
Sometimes	10% (8%-13%)	12% (9%-15%)
Often	4% (3%-6%)	2% (1%-3%)
Always	4% (3%-6%)	2% (1%-4%)
Lives alone		
No	88% (85%-90%)	87% (84%-90%)
Yes	12% (10%-15%)	13% (10%-16%)
Dependents by sex		
Men with dependent(s)	40% (36%-44%)	39% (35%-44%)
Men without dependent(s)	24% (21%-28%)	25% (22%-29%)
Women with dependent(s)	23% (20%-27%)	24% (21%-28%)
Women without dependent(s)	12% (10%-15%)	11% (9%-14%)
Average pain in the previous 7 days**		
Mean	5.2 (4.95-5.46)	5.33 (5.08-5.58)
Intensity of average pain in the previous 7 days		
Had no pain	12% (10%-15%)	12% (9%-15%)
Mild	24% (20%-27%)	20% (16%-23%)
Moderate	35% (31%-39%)	38% (34%-42%)
Severe	21% (18%-24%)	22% (19%-26%)
Very severe	9% (7%-11%)	9% (7%-12%)
Max pain recorded in the emergency department		
Mean	7.26 (7.07-7.45)	7.2 (7.01-7.4)
Duration of symptoms		
Mean	1.84 (1.49-2.19)	1.57 (1.43-1.7)
<1 day	24% (20%-28%)	25% (22%-29%)
1 – 1.5 days	39% (35%-43%)	44% (40%-48%)
2+ days	37% (33%-41%)	31% (27%-35%)
Alvarado Score		
Mean	6.54 (6.4-6.68)	6.6 (6.45-6.75)
Migration of pain		
No	17% (14%-21%)	13% (11%-16%)
Yes	83% (79%-86%)	87% (84%-89%)
Anorexia		
No	57% (52%-61%)	59% (55%-63%)
Yes	43% (39%-48%)	41% (37%-45%)
Nausea or vomiting		
No	28% (25%-32%)	26% (23%-30%)
Yes	72% (68%-75%)	74% (70%-77%)
Tenderness in RLQ		
No	6% (4%-9%)	6% (4%-8%)
Yes	94% (91%-96%)	94% (92%-96%)
Rebound pain		
No	78% (75%-81%)	77% (73%-80%)
Yes	22% (19%-25%)	23% (20%-27%)
Fever		
No	74% (70%-77%)	77% (73%-80%)
Yes	26% (23%-30%)	23% (20%-27%)
Leukocytosis		

No	25% (22%-29%)	25% (22%-29%)
Yes	75% (71%-78%)	75% (71%-78%)
White blood cell count (thousand/microL)		
Mean	12.77 (12.44-13.11)	13.05 (12.71-13.4)
Left shift		
No	27% (24%-31%)	26% (22%-30%)
Yes	73% (69%-76%)	74% (70%-78%)
Appendiceal diameter on imaging		
Mean	11.42 (11.16-11.68)	11.32 (11.05-11.58)
Appendicolith on imaging		
No	74% (70%-77%)	74% (70%-77%)
Yes	25% (22%-29%)	25% (22%-29%)
Peri-appendiceal fat stranding on CT		
None or not mentioned	24% (21%-28%)	26% (23%-30%)
Mild	30% (26%-34%)	26% (22%-30%)
Moderate	10% (7%-12%)	8% (6%-11%)
Severe (phlegmon)	2% (1%-4%)	2% (1%-3%)
Present, not otherwise specified	34% (30%-38%)	38% (34%-42%)
Abscess on imaging		
No or not mentioned	100% (99%-100%)	100% (99%-100%)
Ambiguous	0% (NA, NA)	0% (NA, NA)
Present	0% (NA, NA)	0% (NA, NA)
Perforation on imaging		
No or not mentioned	96% (94%-97%)	96% (94%-97%)
Ambiguous	2% (1%-4%)	3% (2%-5%)
Present	2% (1%-3%)	1% (0%-2%)
EQ-5D at baseline		
Mean	0.69 (0.67-0.71)	0.69 (0.67-0.71)
CT only (no ultrasound or MRI)		
No	21% (18%-25%)	25% (22%-29%)
Yes	79% (75%-82%)	75% (71%-78%)
Discharged from the emergency department		
No, admitted to the hospital	52% (48%-57%)	92% (89%-94%)
No, other (e.g., observational unit)	14% (11%-17%)	3% (2%-5%)
Yes	34% (30%-38%)	5% (3%-7%)

\*5 participants randomized to antibiotics and 7 participants randomized to surgery were missing data on race. 2 participants randomized to antibiotics and 3 participants randomized to surgery were missing data on employment status. 7 participants randomized to antibiotics and 9 participants randomized to surgery were missing data on education. 9 participants randomized to antibiotics and 15 participants randomized to surgery were missing data on insurance. 131 participants randomized to antibiotics and 107 participants randomized to surgery were missing data on being below the federal poverty level or a Medicaid beneficiary. 41 participants randomized to antibiotics and 54 participants randomized to surgery were missing data on admission source. 2 participants randomized to antibiotics and 1 participant randomized to surgery were missing data on modified Charlson comorbidity index score. 128 participants randomized to antibiotics and 42 participants randomized to surgery were missing data on body mass index. 35 participants randomized to antibiotics and 21 participants randomized to surgery were missing data on history of smoking cigarettes. 11 participants randomized to antibiotics and 20 participants randomized to surgery were missing data on gender same as sex assigned at birth. 11 participants randomized to antibiotics and 15 participants randomized to surgery were missing data on being worried about out-of-pocket bills from being admitted. 33 participants randomized to antibiotics and 35 participants randomized to surgery were missing data on frequency of physical activity required during work shift. 25 participants randomized to antibiotics and 24 participants randomized to surgery were missing data on perceived opportunities to be healthy. 43 participants randomized to antibiotics and 59 participants randomized to surgery were missing data on number of adults in the household contributing to income. 15 participants randomized to antibiotics and 23 participants randomized to surgery were missing data on number of dependents. 21 participants randomized to antibiotics and 33 participants randomized to surgery were missing data on whether at least one other adult shares responsibility for caring for family members and/or friends. 19 participants randomized to antibiotics and 29 participants randomized to surgery were missing data on needing help to read written material from the

doctor or pharmacy. 9 participants randomized to antibiotics and 17 participants randomized to surgery were missing data on living status. 15 participants randomized to antibiotics and 23 participants randomized to surgery were missing data on both number of dependents and sex. 17 participants randomized to antibiotics and 18 participants randomized to surgery were missing data on average pain in the previous 7 days. 15 participants randomized to antibiotics and 19 participants randomized to surgery were missing data on intensity of average pain in the previous 7 days. 73 participants randomized to antibiotics and 69 participants randomized to surgery were missing data on max pain score recorded in the emergency department. 1 participant randomized to surgery was missing data on duration of symptoms. 19 participants randomized to antibiotics and 19 participants randomized to surgery were missing data on Alvarado score. 16 participants randomized to antibiotics and 16 participants randomized to surgery were missing data on migration of pain. 1 participant randomized to antibiotics and 1 participant randomized to surgery were missing data on nausea or vomiting. 2 participants randomized to surgery were missing data on rebound pain. 1 participant randomized to surgery was missing data on fever. 2 participants randomized to antibiotics and 2 participants randomized to surgery were missing data on leukocytosis. 1 participant randomized to surgery was missing data on left shift. 2 participants randomized to antibiotics and 2 participants randomized to surgery were missing data on white blood cell count. 67 participants randomized to antibiotics and 73 participants randomized to surgery were missing data on appendiceal diameter on imaging. 18 participants randomized to antibiotics and 26 participants randomized to surgery were missing data on peri-appendiceal fat stranding on imaging. 1 participant randomized to surgery was missing data on abscess on imaging. 19 participants randomized to antibiotics and 30 participants randomized to surgery were missing data on perforation on imaging. 33 participants randomized to antibiotics and 32 participants randomized to surgery were missing data on EQ-5D at baseline. 20 participants randomized to surgery were missing data on whether the participant was discharged from the ED to home.

\*\*This item was worded on the baseline survey as "Do you feel you have the same opportunities to be as healthy as other

\*Contemporaneously recruited participants in the RCT

eAppendix 1: Analysis comparing odds of appendectomy between the observational cohort and contemporaneous RCT cohort

For the analysis comparing odds of appendectomy between the observational cohort and contemporaneous RCT cohort, variables included in the MICE algorithm in addition to appendectomy status at 30 days and 1 year, appendicolith, site, and cohort:

Age (years), Sex, BMI (less than 25, 25 to 35, or more than 35), Duration of symptoms (less than a day or 1+ days), Average pain in the previous seven days, white blood cell count (thousand/microL), Fever, Nausea/vomiting/anorexia, Appendiceal diameter, Perforation/abscess/fat, Periappendiceal fat, Periappendiceal fluid, Height (cm), Weight (kg), Diabetes, Alvarado score, Charlson score, EQ-5D at index, Lives alone, Primary language (English/other or Spanish), Insurance (Commercial, Medicare/Tricare, Medicaid/state, or Other/none), Employment (Employed, Student, or Unemployed/Other), Education (HS/GED or less, or some beyond HS/GED), Number of adults in the household with income, Number of dependents, Sharing responsibilities of dependents, Physical at work (Most or all of the time, some of the time or less, or not employed), Smoking history (yes or no), Combined household income, Global Health questions 1–9 (each with a five-point scale rating, covering general health, quality of life, physical health, mental health, social activities/relationships, and everyday physical activities), Language for trial (Spanish or English), Health literacy help, Worried about bills, Below poverty or Medicaid/state

## **eAppendix 2. The CODA Trial Sites and Site Leads**

### ***CODA Trial***

*Sites and Site Leads:* Bellevue Hospital Center New York University School of Medicine: Patricia Ayoung-Chee, MD, MPH, William Chiang, MD; Beth Israel Deaconess Medical Center: Charles Parsons, MD, Stephen R. Odom, MD, Nathan I. Shapiro, MD, MPH; Boston University Medical Center: Sabrina E. Sanchez, MD, MPH, F. Thurston Drake, MD, MPH; Columbia University Medical Center: Katherine Fischkoff, MD, Aleksandr Tichter, MD; Harbor UCLA Medical Center: Daniel A. DeUgarte, MD, Amy H. Kaji, MD, PhD; Harborview Medical Center: Heather Evans, MD, MS, Joseph Cuschieri, MD, Amber K. Sabbatini, MD, MPH; Henry Ford Health System: Jeffrey Johnson, MD, Joe H. Patton, MD; Madigan Army Medical Center: Vance Sohn, MD, Karen McGrane, MD; Maine Medical Center: Damien W. Carter, MD; The Ohio State University Wexner Medical Center: Steven Steinberg, MD, David Evans, MD; Olive View UCLA Medical Center: Darin Saltzman MD, PhD, David A. Talan, MD, Gregory J. Moran, MD; Providence Regional Medical Center Everett: Careen S. Foster, MD, Brandon Tudor, MD; Rush University Medical Center: Thea P. Price, MD; Swedish Medical Center: Katherine A. Mandell, MD, MPH; Tisch Hospital NYU Langone Medical Center: Patricia Ayoung-Chee, MD, MPH, William Chiang, MD; UCHHealth University of Colorado Hospital: Lisa Ferrigno, MD, MPH, Matthew Salzberg, MD, MBA; University of Iowa Hospitals and Clinics: Dionne A. Skeete, MD, Brett A. Faine, PharmD, MS; Michigan Medicine: Pauline K. Park, MD, Hasan B. Alam, MD; University of Mississippi Medical Center: Matthew E. Kutcher, MD, MS, Alan Jones, MD; McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth): Lillian S. Kao, MD, MS; University of Texas Lyndon B. Johnson General Hospital: Mike K. Liang, MD; University of Washington Medical Center: Giana H. Davidson, MD, MPH, Amber K. Sabbatini, MD, MPH; Vanderbilt University Medical Center: Callie M. Thompson, MD, Wesley H. Self, MD, MPH; Virginia Mason Medical Center: Abigail Wiebusch, MD, Juliana T. Yu, MD; Weill Cornell Medical Center: Robert J. Winchell, MD, Sunday Clark, ScD, MPH.

*Executive Committee:* Bonnie Bizzell, MBA, MEd (Chair, Patient Advisory Board); Bryan Comstock, MS (Operations Director, Data Coordinating Center); Giana Davidson, MD, MPH (Chair, Clinical Coordinating Center); Erin Fannon (Senior Project Manager); David R. Flum, MD, MPH (Co-Principal Investigator); Patrick J. Heagerty, PhD, MS (Director, Data Coordinating Center); Larry G. Kessler, ScD (Chair, Executive Committee); Anusha Krishnadasan, PhD (Project Manager, California); Danielle C. Lavalley, PharmD, PhD (Director, Stakeholder Coordinating Center); Sarah O. Lawrence, MA (Director, Stakeholder Coordinating Center); Sarah E. Monsell, MS (Lead Biostatistician); Kelsey Pullar, MPH (Research Coordinator Lead); David A. Talan, MD (Co-Principal Investigator); Erika Wolff, PhD (Executive Director, SORCE (UOW))

*Patient Advisory Board:* Meredith Weiss, Kimberly Deeney, Heather VanDusen, Elliott Skopin, Mary Guiden, Miriam Hernandez

*National Advisory Board:* Emily E. Anderson, PhD, MPH; Darrell A. Campbell, Jr., MD; Fergal Fleming, MD; David B. Hoyt, MD; J.J. Tepas III, MD (Deceased); Richard W. Whitten, MD; SreyRam Kuy, MD; Daniel S. Lessler, MD, MHA.

*Data Safety and Monitoring Board:* Karla Ballman, PhD; Thomas Diflo, MD; Bruce Wolfe, MD; Arden Morris, MD; Donald Yealy, MD. Patient Advisors: Kathleen O'Connor, EdD; Olga Owens, N-PC