Web appendix: Supplementary material

Web appendix 1. Details of Interventions
Medication Advice
Advice was one of:
1) Paracetamol. Participants were advised to use paracetamol as their only antipyretic medication.
2) Ibuprofen. Participants were advised to use ibuprofen as their only antipyretic medication.
or 3) Combined paracetamol and ibuprofen. Participants were advised to use paracetamol and ibuprofen.

Dosing Advice
Advice was either:
1) Regular dosing. Advice to take the medication(s) four times per day (irrespective of whether symptoms or fever have returned)
or 2) As required dosing. Advice to take medication(s) as required by symptoms up to a maximum of four doses per day

Steam Advice
Advice was either:
1) Steam. Subjects were asked to inhale steam for 5 minutes, three times per day.
Adults were instructed to place a towel over their head over a bowl of recently boiled water. Children were instructed to sit in a steamy room (made steamy by running a hot shower, or boiling a kettle in the room). Participants received written and verbal instructions at the beginning of the study
or 2) No Steam. Subjects were asked not to use steam inhalation

Delayed or No Prescription.
Advice was either:
1) Patient led. The patient was given antibiotics and asked to wait to use them
2) Post-dating. The patient was given antibiotics, but post dated.
3) Collection. Instructions to wait but can request antibiotics from front desk[13]
4) Recontact/phone. Patient was asked to contact/phone the surgery to leave message for doctor/nurse re request antibiotics, and able to come to reception
5) No offer of prescription but a clinical review for worsening symptoms

For each type of respiratory infection the advice was tailored to the natural history of the disease[7]

- **Ear infections:** a further 3 days
- **Sore throat:** a further 5 days
- **Cold symptoms:** a further 5 days
- **Acute rhinosinutitis: a further 10-12 days**
- **Acute cough/ acute bronchitis :** a further 10 days

We advised Penicillin V (for sore throat), Amoxycllin (for otitis media, rhinosinusitis, acute cold, flu-like illness and chest infections) using dosaging according to BNF guidelines for age.

Rationale for steam instructions

A Cochrane review of heated humidified air for the common cold identified 6 trials. All used a "Rhinotherm" or similar device to deliver the steam [19]. The most common duration of steam inhalation was 20 minutes. The review concluded that there was a difference in effectiveness with "the duration of warm vapour inhalation, with a longer period (30 minutes) being associated with no benefit and increased resistance of the nasal passage"

In the community the rhinotherm is little used and usual guidance is to use a bowel of water and a towel. For example, the NHS direct website recommends "a towel is placed over the head over a bowl of very hot water". In this context 20 minutes of treatment would not be feasible as the water would not remain hot enough. We decided on advising 5 minutes of treatment three times per day as this was practical and would approximate the total of 20 minutes used in some of the previous trials.

There have been some reports of burns following steam inhalation (for example Murphy et al[20]) . Major injury is probably rare and have occurred exclusively in children using boiling water after poor instruction. Authors of these reports have therefore recommended advising parents to "sit in the bathroom with a hot shower running" and this advice is also given in textbooks and the NHS Direct website. There were no significant reported problems with this advice and hence this is the advice we used for young children.

Web appendix 2. Effectiveness of Antibiotic strategies including immediate antibiotics

	No	Recontact	Post-date	Collection	Patient-led		Immediate	LR chi2(p)
Mean symptom severity days 2 to4								
Crude mean (SD)	1.62 (0.88)	1.60 (0.91)	1.82 (0.94)	1.68 (0.88)	1.75 (0.88)		1.76 (0.92)	
*Adjusted Mean difference (N=743)		-0.01 (-0.25 to 0.23; p=0.917)	0.14 (-0.09 to 0.38; p=0.238)	-0.02 (-0.27 to 0.22; p=0.848)	0.08 (-0.17 to 0.33; p=0.530)		-0.04 (-0.23 to 0.16; p=0.717)	4.05 (0.543)
symptoms rated moderately bad								
Median duration (IQR)	3 (2, 6.5)	4 (3,7)	4(3,7)	4(3,7)	4(3,7)		4(3,7)	
*Adjusted Hazard ratio (N=727)		0.92 (0.67 to 1.27, p= 0.615)	0.86 (0.63 to 1.17 P=0.328)	0.88 (0.64 to 1.23; P=0.459)	0.71 (0.50 to 0.99; P=0.045)		0.93 (0.71 to 1.24; P=0.636)	4.94 (0.424)
Temperature								
Crude mean (SD)	36.6 (0.53)	36.5 (0.46)	36.5 (0.52)	36.7 (0.70)	36.6 (0.66)		36.6. (0.60)	
*Adjusted mean difference (N=439)		-0.11 (-0.33 to0.10; P=0.307)	-0.10 (-0.29 to 0.10; P=0.335)	0.16 (-0.05 to 0.37; P=0.124)	-0.04 (-0.24 to 0.17; P=0.733)		-0.02 (-0.18 to 0.14; P=0.831)	7.66 (0.176)
Antibiotic use								
Crude n (%)	26/99 (26%)	34/92 (37%)	37/101(37%)	28/85 (33%)	35/89 (39%)		270/278 (97%)	
*Adjusted risk ratio (N=736)		1.45 (0.95 to 2.04; P=0.083)	1.40 (0.92 to 1.97; P=0.113)	1.27 (0.79 to 1.86; P=0.291)	1.52 (1.00 to 2.10; P=0.05)		3.70 (3.57 to 3.76; P<0.001)	326 (<0.001)
Reconsultation								
Reconsultation within 1 month	19/122 (16%)	19/107 (18%)	11/114 (10%)	15/105 (14%)	15/106 (14%)		45/326 (14%)	
*Adjusted risk ratio (N=863)		1.06 (0.57 to 1.83; P=0.842	0.60 (0.28 to 1.23; p=0.169)	0.84 (0.42 to 1.56; P=0.599)	0.91 (0.46 to 1.64; P=0.751		0.84 (0.47 to 1.43; P=0.537)	2.97 0.705
Reconsultation after 1 month	39/122 (32%)	42/107 (39%)	45/114 (39%)	33/105 (31%)	39/106 (36%)		136/326 (42%)	
*Adjusted risk ratio (N=864)		1.20 (0.80 to 1.65; P=0.362)	1.27 (0.86 to 1.72; P=0.209)	0.90 (0.56 to 1.34; P=0.637)	1.20 (0.81 to 1.65; P=0.349)		1.38 (1.01 to 1.78; P=0.047)	7.87 0.164
Belief that antibiotics are moderately or more effective	37/52 (71%)	28/38 (74%)	35/48 (73%)	31/43 (72%)	29/44 (66%)		168/180 (93%)	
*Adjusted risk ratio (N=404)		1.04 (0.73 to 1.24; P=0.767)	1.01 (0.72 to 1.21; P=0.941)	1.02 (0.72 to 1.22; P=0.889)	0.90 (0.60 to 1.14; P=0.480)		1.32 (1.21 to 1.37 P<0.001)	36.4 <0.001
Very satisfied with the consultation	49/62 (79%)	17/23 (74%)	24/30 (80%)	21/24 (88%)	24/27 (89%)		107/115 (93%)	
*Adjusted risk ratio (N=279)		0.95 (0.63 to 1.15; P=0.722)	0.99 (0.68 to 1.16 P=0.926)	1.10 (0.80 to 1.22; P=0.394)	1.12 (0.84 to 1.22; P=0.310		1.17 (1.05 to 1.23; P=0.013)	9.97 0.076

*Models all controlled for baseline symptom severity, analgesic strategy, dosing, steam, and smoking. Duration and reconsultation within one month additionally controlled for diagnosis. Symptom duration controlled for prior duration Follow-up after 1 month controlled for prior infections, gender,age under16 diagnosis and follow-up time.

Web appendix 3. Side effects and complications.

	No prescription	Recontact	Post-date	Collection	Patient-led	Immediate antibiotics
Diarrhoea	8/62 (13%)	3/43 (7%)	9/60 (15%)	7/45 (16%)	10/48 (21%)	28/176 (16%)
Rash	5/61 (8%)	2/43 (5%)	5/60 (8%)	1/45 (2%)	4/48 (9%)	8/176 (5%)
Vomiting	9/61 (15%)	4/43 (9%)	8/60 (13%)	2/45 (4%)	9/49 (18%)	25/176 (14%)
Abdominal pain	15/60 (25%)	4/42 (10%)	11/60 (18%)	13/45(29%)	15/48 (31%)	62/173 (36%)
Complications	3/122 (2.5%)	4/107 (3.7%)	1/114 (0.9%)	1/105 (1%)	0/106 (0%)	8/326 (2.5%)

Web appendix 4. First order interactions between interventions for symptom severity and antibiotic use

Interaction between Analgesia type and Antibiotic strategies for symptom severity

Interaction	Interaction estimate mean (95% confidence intervals)	P	Overall Likelihood ratio Chi2	p
Recontact*Ibuprofen	0.21 (-0.36 to 0.79)	0.466	7.68	0.465
Recontact*Combination	0.40 (-0.19 to 1.00)	0.186		
Postdate*Ibuprofen	0.42 (-0.15 to 0.99)	0.144		
Postdate*Combination	0.49 (-0.07 to 1.05)	0.087		
Collection*Ibuprofen	0.31(-0.30 to 0.93)	0.316		
Collection*Combination	0.36 (-0.23 to 0.94)	0.230		
Patientled*Ibuprofen	0.11 (-0.47 to 0.70)	0.708		
Patientled*Combination	0.64 (0.04 to 1.23)	0.037		

Interaction between Antibiotic strategies and Dose for symptom severity

Interaction	Interaction estimate mean (95% confidence intervals)	P	Overall Likelihood ratio Chi2	P		
Recontact*Dose	0.15 (-0.33 to 0.63)	0.531	4.10	0.392		
Postdate*Dose	0.27 (-0.20 to 0.73)	0.255				
Collection*Dose	-0.09(-0.57 to 0.39)	0.716				
Patientled*Dose	-0.15 (-0.64 to 0.33)	0.538				

Interaction between antibiotic strategies and Steam for symptom severity

Interaction	Interaction estimate mean (95% confidence intervals)	P	Overall Likelihood ratio Chi2	p		
Recontact*Steam	-0.07 (-0.55 to 0.40)	0.771	5.30	0.258		
Postdate* Steam	0.15 (-0.31 to 0.62)	0.520				
Collection* Steam	0.44 (-0.04 to 0.93)	0.073				
Patientled* Steam	0.22(-0.27 to 0.70)	0.380				

Interaction between Analgesia type and Antibiotic strategies for antibiotic use

Interaction	Interaction estimate Odds ratio (95% confidence intervals)	P	Overall Likelihood ratio Chi2	p
Recontact*Ibuprofen	0.64 (0.14 to 2.90)	0.563	6.60	0.580
Recontact*Combination	0.26 (0.06 to 1.26)	0.096		
Postdate*Ibuprofen	0.52 (0.11 to 2.42)	0.407		
Postdate*Combination	0.64 (0.15 to 2.76)	0.547		
Collection*Ibuprofen	1.24 (0.25 to 6.18)	0.793		
Collection*Combination	0.43 (0.09 to 2.06)	0.291		
Patientled*Ibuprofen	1.41 (0.31 to 6.47)	0.661		
Patientled*Combination	0.83 (0.18 to 3.83)	0.807		

Interaction between Antibiotic strategies and Dose

Interaction	Interaction estimate odds ratio (95% confidence intervals)	P	Overall Likelihood ratio Chi2	p		
Recontact*Dose	0.90 (0.26 to 3.15)	0.871	1.88	0.757		
Postdate*Dose	1.77 (0.52 to 6.02)	0.362				
Collection*Dose	1.32 (0.37 to 4.78)	0.668				
Patientled*Dose	0.89 (0.25 to 3.11)	0.851				

Interaction between antibiotic strategies and Steam

Interaction	Interaction estimate Odds ratio (95% confidence intervals)	P	Overall Likelihood ratio Chi2	p		
Recontact*Steam	1.44 (0.41 to 5.03)	0.571	1.78	0.776		
Postdate* Steam	0.91 (0.27 to 3.14)	0.886				
Collection* Steam	1.86 (0.51 to 6.75)	0.348				
Patientled* Steam	1.00 (0.28 to 3.54)	0.996				