Figure 2. Meta-analysis comparing the efficacy (intention-to-treat) of the concomitant and sequential therapy (**with a similar duration**) for *H. pylori* eradication9.

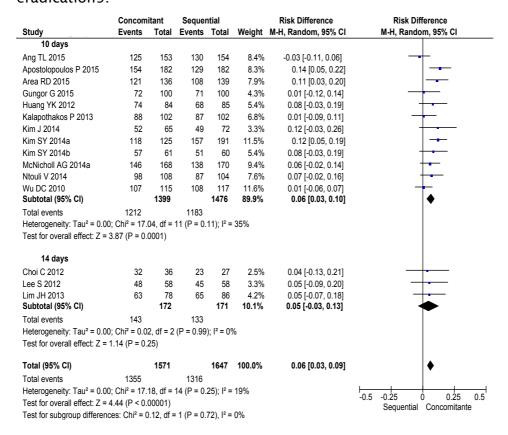


Figure 3. Efficacy (intention-to-treat) of a triple treatment with a PPI, amoxicillin and levofloxacin, after a first-line treatment failure with a PPI, amoxicillin and clarithromycin.

Study	Eradication rate	SE	Weight	Eradication rate IV, random, 95% CI	Eradicat IV, randor	tion rate n, 95% Cl
Chuah et al. 2012	0.78125	0.05167483	5.5%	0.78 [0.68, 0.88]		
Ermis et al. 2011	0.37837838	0.07973066	4.0%	0.38 [0.22, 0.53]		
Festa et al. 2002	0.73333333	0.08073734	3.9%	0.73 [0.58, 0.89]		
Finizio et al. 2005	0.82291667	0.0389611	6.2%	0.82 [0.75, 0.90]		~
Franceschi et al. 2011	0.79666667	0.0232371	6.9%	0.80 [0.75, 0.84]		~
Gisbert et al. 2007	0.68	0.06596969	4.7%	0.68 [0.55, 0.81]		-
Gisbert et al. 2008	0.77333333	0.02417222	6.9%	0.77 [0.73, 0.82]		~
Gisbert et al. 2012	0.738	0.01390525	7.3%	0.74 [0.71, 0.77]		•
Hu et al. 2011	0.7555556	0.06406444	4.8%	0.76 [0.63, 0.88]		
Kuo et al. 2009	0.69879518	0.05035781	5.5%	0.70 [0.60, 0.80]		 -
Lee et al. 2006	0.91428571	0.02731951	6.8%	0.91 [0.86, 0.97]		-
Liou et al. 2010	0.76923077	0.08262864	3.9%	0.77 [0.61, 0.93]		
Matsumoto et al. 2005	5 0.7	0.083666	3.8%	0.70 [0.54, 0.86]		
Nista et al. 2002	0.83333333	0.08784105	3.6%	0.83 [0.66, 1.01]		
Nista et al. 2003	0.94285714	0.02774309	6.8%	0.94 [0.89, 1.00]		~
Nista et al. 2004	0.86666667	0.06206329	4.9%	0.87 [0.75, 0.99]		
Perri et al. 2003	0.63333333	0.0622123	4.9%	0.63 [0.51, 0.76]		
Watanabe et al. 2003	0.6969697	0.08000056	4.0%	0.70 [0.54, 0.85]		
Zullo et al. 2010	0.76744186	0.04555534	5.8%	0.77 [0.68, 0.86]		-
Total (95% CI)			100.0%	0.76 [0.72, 0.81]		•
Heterogeneity: Tau ² =	0.01 ; $Chi^2 = 110.0$	9, df = 18 (P <	0.00001)	; I ² = 84% +		++
Test for overall effect:			,	-1	-0.5	0.5 1

Figure 4. Efficacy (intention-to-treat) of the bismuth-containing quadruple therapy with a PPI, bismuth, tetracycline and metronidazole, after a first-line treatment failure with a PPI, amoxicillin and clarithromycin.

Study E	radication rate	SE	Weight	Eradication rate IV, random, 95% CI	Eradicat IV, randor	
Boixeda et al. 2002	0.82142857	0.03236882	3.3%	0.82 [0.76, 0.88]		w
Cheon et al. 2006	0.65517241	0.08826323	1.9%	0.66 [0.48, 0.83]		
Cheon et al. 2006b	0.54545455	0.07506571	2.2%	0.55 [0.40, 0.69]		
Choung et al. 2004	0.83098592	0.04447635	3.0%	0.83 [0.74, 0.92]		-
Chung et al. 2007	0.83908046	0.0393955	3.1%	0.84 [0.76, 0.92]		-
Chung et al. 2009	0.87771203	0.01455003	3.6%	0.88 [0.85, 0.91]		*
Chung et al. 2011	0.83417085	0.02636522	3.4%	0.83 [0.78, 0.89]		-
Chung et al. 2012	0.78378378	0.06767705	2.4%	0.78 [0.65, 0.92]		
Elizalde <i>et al.</i> 1998	0.87096774	0.0602101	2.6%	0.87 [0.75, 0.99]		-
Finizio <i>et al.</i> 2005	0.68	0.06596969	2.4%	0.68 [0.55, 0.81]		
Franceschi <i>et al.</i> 2011	0.7	0.06480741	2.5%	0.70 [0.57, 0.83]		
Georgopoulos <i>et al.</i> 2002		0.05280108	2.8%	0.84 [0.73, 0.94]		~
Gisbert <i>et al.</i> 1999	0.7777778	0.1385799	1.1%	0.78 [0.51, 1.05]		
Gisbert et al. 2008	0.55263158	0.08066009	2.1%	0.55 [0.39, 0.71]		-
Gomollon <i>et al.</i> 1999	0.95238095	0.04647143	2.9%	0.95 [0.86, 1.04]		_
Kang <i>et al.</i> 2006	0.9	0.05477226	2.7%	0.90 [0.79, 1.01]		
Kang <i>et al.</i> 2007	0.71698113	0.0618762	2.5%	0.72 [0.60, 0.84]		¬-
Kim <i>et al.</i> 2003	0.91489362	0.02878077	3.4%	0.91 [0.86, 0.97]		~
Kuo <i>et al.</i> 2009	0.63855422	0.05273287	2.8%	0.64 [0.54, 0.74]		-
Kuo <i>et al.</i> 2010	0.75789474	0.03107633	3.3%	0.76 [0.70, 0.82]		-
Lee <i>et al.</i> 2010	0.73568282	0.02926814	3.4%	0.74 [0.68, 0.79]		~
Magaret <i>et al.</i> 2001	0.75	0.30618622	0.3%	0.75 [0.15, 1.35]		-
Mantzaris <i>et al.</i> 2005	0.73043478	0.0413784	3.1%	0.73 [0.65, 0.81]		
Marko <i>et al.</i> 2005	0.62962963	0.0929349	1.8%	0.63 [0.45, 0.81]		
Michopoulos <i>et al.</i> 2000	0.76315789	0.06896756	2.3%	0.76 [0.63, 0.90]		
Michopoulos <i>et al.</i> 2012	0.75555556	0.06406444	2.5%	0.76 [0.63, 0.88]		
Moon <i>et al.</i> 2012	0.84210526	0.04829805	2.9%	0.84 [0.75, 0.94]		
Nista <i>et al.</i> 2003	0.62857143	0.05775186	2.6%	0.63 [0.52, 0.74]		
Nista <i>et al.</i> 2004	0.71428571	0.07636035	2.2%	0.71 [0.56, 0.86]		·
Ozcay <i>et al.</i> 2004	0.9375	0.06051536	2.6%	0.94 [0.82, 1.06]		-
Park <i>et al.</i> 2004	0.96261682	0.01833889	3.6%	0.96 [0.93, 1.00]		
Peitz <i>et al.</i> 1998	0.5862069	0.01633669	1.8%	0.59 [0.41, 0.77]		_
Perri <i>et al.</i> 2003	0.75384615	0.03778096	3.2%	0.75 [0.68, 0.83]		7-
Rokkas <i>et al.</i> 2009	0.69166667	0.03776096	3.1%	0.69 [0.61, 0.77]		
Sicilia <i>et al.</i> 2009	0.86363636	0.04215664	2.2%	0.86 [0.72, 1.01]		-
Uygun <i>et al.</i> 2008	0.78	0.073163	3.1%	0.78 [0.70, 0.86]		
Wu <i>et al.</i> 2006	0.76595745		2.5%			
Wu <i>et al.</i> 2006 Wu <i>et al.</i> 2011	0.80645161	0.06175908 0.05017508	2.5%	0.77 [0.64, 0.89] 0.81 [0.71, 0.90]		
	0.00045101	0.03017306				•
Total (95% CI)			100.0%	0.78 [0.75, 0.81] —	1 05 (0.5
Heterogeneity: Tau ² = 0.0 Test for overall effect: Z =			0.00001);	$I^2 = 82\%$	-1 -0.5 (0.5 1

Figure 5. Second-line eradication rate with levofloxacin-amoxicillin-PPI after the failure of a non-BQT.

	•	•		Eradication rate	Eradication rate
Study	Eradication rate	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Georgopoulos et al 2013	0.9375	0.08558165	15.4%	0.94 [0.77, 1.11]	-
Gisbert et al 2014	0.73636364	0.04200998	23.2%	0.74 [0.65, 0.82]	-
Manfredi et al 2012	0.70588235	0.11051017	11.8%	0.71 [0.49, 0.92]	
Perna et al 2007	0.5	0.20412415	5.0%	0.50 [0.10, 0.90]	
Pontone et al 2010	0.92857143	0.09734073	13.6%	0.93 [0.74, 1.12]	
Zullo et al 2006	0.85714286	0.05914848	20.0%	0.86 [0.74, 0.97]	-
Zullo et al 2013	0.5555556	0.11712139	11.1%	0.56 [0.33, 0.79]	
Total (95% CI)			100.0%	0.78 [0.68, 0.88]	•
Heterogeneity: Tau² = 0.01	0 0.5 1				
Test for overall effect: Z =	15.54 (P < 0.00001))			

Figure 6. Second-line eradication rate with levofloxacin-amoxicillin-PPI after the failure of the sequential therapy.

				Eradication rate	Eradication rate
Study	Eradication rate	SE	Weight	IV, Random, 95% Cl	IV, Random, 95% CI
Gisbert et al 2014	0.81081081	0.06438832	29.7%	0.81 [0.68, 0.94]	-
Manfredi et al 2012	0.70588235	0.11051017	13.0%	0.71 [0.49, 0.92]	
Perna et al 2007	0.5	0.20412415	4.3%	0.50 [0.10, 0.90]	
Pontone et al 2010	0.92857143	0.09734073	16.1%	0.93 [0.74, 1.12]	
Zullo et al 2006	0.85714286	0.05914848	33.1%	0.86 [0.74, 0.97]	-
Zullo et al 2013	0.6	0.21908902	3.7%	0.60 [0.17, 1.03]	
Total (95% CI)			100.0%	0.81 [0.73, 0.90]	•
Heterogeneity: Tau² = Test for overall effect:	0 0.5 1				

Figure 7. Second-line eradication rate with levofloxacin-amoxicillin-PPI after the failure of the concomitant therapy.

				Eradication rate	Eradication rate
Study	Eradication rate	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Georgopoulos et al 2013	0.9375	0.08558165	38.5%	0.94 [0.77, 1.11]	-
Gisbert et al 2014	0.69863014	0.05370468	46.6%	0.70 [0.59, 0.80]	-
Zullo et al 2013	0.6	0.21908902	14.8%	0.60 [0.17, 1.03]	
Total (95% CI)			100.0%	0.78 [0.58, 0.97]	•
Heterogeneity: $Tau^2 = 0.02$ Test for overall effect: $Z = 1$	0 0.5 1				

Figure 8. Second-line eradication rate with bismuth-tetracycline-metronidazole-PPI after the failure of the sequential therapy.

				Eradication rate	Eradication rate
Study	Eradication rate	SE	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Kim et al 2010	0.71428571	0.12073632	42.7%	0.71 [0.48, 0.95]	_
Liu et al 2015	0.9375	0.08558165	57.3%	0.94 [0.77, 1.11]	-
Total (95% CI)			100.0%	0.84 [0.63, 1.06]	•
Heterogeneity: Tau ² Test for overall effec	0 0.5 1				