

Supplementary Table 1. Associations of relative temporal changes in serum PGI, PGII, the PGI/II ratio, anti-*H. pylori* IgG, and gastrin-17 levels with progression of gastric precancerous lesions controlling for age and sex, Zhuanghe Gastric Diseases Screening Program, China.

Relative change ^a	Progression (n)	No progression (n)	OR ^b	95% CI		P for trend
Serum PGI						
Decreased ≥ 50%	97	402	1.00	N/A		
Decreased 20 - 50%	148	637	0.96	0.72	1.29	
Within 20%	195	678	1.19	0.90	1.58	< 0.01
Increased 20 - 50%	101	303	1.48	1.07	2.03	
Increased ≥ 50%	123	323	1.62	1.19	2.22	
Serum PGII						
Decreased ≥ 50%	114	589	1.00	N/A		
Decreased 20 - 50%	135	442	1.51	1.16	1.97	
Within 20%	147	503	1.50	1.14	1.96	< 0.01
Increased 20 - 50%	64	242	1.35	0.97	1.88	
Increased ≥ 50%	200	561	1.81	1.40	2.34	
Serum PGI/II ratio						
Increased ≥ 50%	171	698	1.00	N/A		
Increased 20 - 50%	76	254	1.19	0.89	1.61	
Within 20%	148	503	1.19	0.94	1.51	0.05
Decreased 20 - 50%	111	454	0.98	0.76	1.28	
Decreased ≥ 50%	152	409	1.43	1.11	1.85	
Serum gastrin-17						
Decreased ≥ 100%	86	319	1.00	N/A		
Decreased 20 to 100%	106	378	0.95	0.69	1.33	
Within 20%	150	697	0.83	0.61	1.13	0.02
Increased 20 - 500%	162	501	1.15	0.85	1.55	
Increased ≥ 500%	112	309	1.33	0.96	1.84	
Serum anti-<i>H. pylori</i> IgG						
Decreased ≥ 50%	114	577	1.00	N/A		
Decreased 20 - 50%	83	367	1.21	0.90	1.62	
Within 20%	140	453	1.55	1.17	2.05	< 0.01
Increased 20 - 50%	63	197	1.61	1.13	2.29	
Increased ≥ 50%	206	528	1.96	1.50	2.55	

^a Defined as: (follow-up – baseline)/baseline x 100%

^b Estimated using generalized estimating equations (GEE) for correlated binary outcomes

Abbreviations: *H. pylori*: *Helicobacter pylori*; PG: pepsinogen

Supplementary Table 2. Associations of relative temporal changes in serum PGI, PGII, the PGI/II ratio, anti-*H. pylori* IgG, and gastrin-17 levels with progression of gastric precancerous lesions using a four-category score system for histopathological diagnosis, Zhuanghe Gastric Diseases Screening Program, China.

Relative change ^a	Progression (n)	No progression (n)	OR ^b	95% CI		P for trend
Serum PGI						
Decreased ≥ 50%	70	429	1.00	N/A		
Decreased 20 - 50%	103	682	0.98	0.70	1.38	
Within 20%	127	746	1.10	0.79	1.54	
Increased 20 - 50%	67	337	1.30	0.90	1.89	< 0.01
Increased ≥ 50%	92	354	1.71	1.20	2.43	
Serum PGII						
Decreased ≥ 50%	83	620	1.00	N/A		
Decreased 20 - 50%	92	485	1.37	1.00	1.87	
Within 20%	98	552	1.33	0.97	1.83	
Increased 20 - 50%	38	268	1.03	0.69	1.54	0.00
Increased ≥ 50%	147	614	1.73	1.28	2.35	
Serum PGI/II ratio						
Increased ≥ 50%	120	749	1.00	N/A		
Increased 20 - 50%	55	275	1.28	0.92	1.79	
Within 20%	98	553	1.16	0.87	1.54	
Decreased 20 - 50%	70	495	0.90	0.66	1.24	0.13
Decreased ≥ 50%	114	447	1.45	1.08	1.95	
Serum gastrin-17						
Decreased ≥ 100%	55	350	1.00	N/A		
Decreased 20 to 100%	73	411	1.06	0.71	1.58	
Within 20%	108	739	1.03	0.71	1.49	
Increased 20 - 500%	107	556	1.23	0.86	1.75	< 0.01
Increased ≥ 500%	84	337	1.59	1.09	2.33	
Serum anti-<i>H. pylori</i> IgG						
Decreased ≥ 50%	82	613	1.00	N/A		
Decreased 20 - 50%	52	398	1.14	0.82	1.60	
Within 20%	101	492	1.64	1.19	2.26	
Increased 20 - 50%	44	216	1.63	1.09	2.43	< 0.01
Increased ≥ 50%	138	592	1.78	1.30	2.43	

^a Defined as: (follow-up – baseline)/baseline x 100%

^b Estimated using generalized estimating equations (GEE) for correlated binary outcomes

Abbreviations: *H. pylori*: *Helicobacter pylori*; PG: pepsinogen

Supplementary Table 3. Associations of absolute temporal changes in serum PGI, PGII, the PGI/II ratio, anti-*H. pylori* IgG, and gastrin-17 levels with progression of gastric precancerous lesions, Zhuanghe Gastric Diseases Screening Program, China.

Absolute change ^a	Progression (n)	No progression (n)	OR ^b	95% CI		P for trend
Serum PGI						
Decreased ≥ 50 ng/mL	107	450	1.00	N/A		
Decreased 20 - 50 ng/mL	118	517	0.97	0.71	1.31	
Within 20 ng/mL	255	847	1.24	0.95	1.61	
Increased 20 - 50 ng/mL	115	307	1.69	1.24	2.29	< 0.01
Increased ≥ 50 ng/mL	69	222	1.37	0.97	1.93	
Serum PGII						
Decreased ≥ 7.5 ng/mL	117	598	1.00	N/A		
Decreased 3 - 7.5 ng/mL	117	340	1.69	1.27	2.25	
Within 3 ng/mL	191	688	1.39	1.07	1.81	
Increased 3 - 7.5 ng/mL	91	323	1.49	1.11	2.02	< 0.01
Increased ≥ 7.5 ng/mL	144	388	1.82	1.37	2.41	
Serum PGI/II ratio						
Increased ≥ 5 units	112	475	1.00	N/A		
Increased 2 - 5 units	96	334	1.22	0.91	1.63	
Within 2 units	211	756	1.18	0.92	1.52	
Decreased 2 - 5 units	94	364	1.08	0.80	1.45	0.03
Decreased ≥ 5 units	145	389	1.48	1.11	1.96	
Serum gastrin-17						
Decreased ≥ 2 pmol/L	111	358	1.00	N/A		
Decreased 0.4 - 2 pmol/L	82	329	0.87	0.62	1.21	
Within 0.4 pmol/L	149	734	0.71	0.53	0.95	
Increased 0.4 - 4 pmol/L	136	431	1.05	0.78	1.41	0.02
Increased ≥ 4 pmol/L	138	352	1.28	0.95	1.72	
Serum anti-<i>H. pylori</i> IgG						
Decreased ≥ 20 EIU	113	548	1.00	N/A		
Decreased 8 - 20 EIU	76	340	1.04	0.77	1.42	
Within 8 EIU	176	605	1.35	1.03	1.76	
Increased 8 - 20 EIU	90	254	1.64	1.20	2.25	< 0.01
Increased ≥ 20 EIU	151	375	1.85	1.38	2.47	

^a Defined as: (follow-up – baseline)

^b Estimated using generalized estimating equations (GEE) for correlated binary outcomes

Abbreviations: *H. pylori*: *Helicobacter pylori*; PG: pepsinogen

Supplementary Table 4. Associations of rate of temporal changes in serum PGI, PGII, the PGI/II ratio, anti-*H. pylori* IgG, and gastrin-17 levels with progression of gastric precancerous lesions, Zhuanghe Gastric Diseases Screening Program, China.

Rate of change ^a (per year)	Progression (n)	No progression (n)	OR ^b	95% CI		P for trend
Serum PGI level						
Decreased \geq 20 ng/mL	142	687	1.00	N/A		
Decreased by 5 - 20 ng/mL	137	490	1.12	0.86	1.45	
Within 5 ng/mL	137	446	1.13	0.84	1.50	
Increased by 5 - 20 ng/mL	142	355	1.74	1.34	2.28	< 0.01
Increased by \geq 20 ng/mL	106	365	1.41	1.07	1.86	
Serum PGII level						
Decreased by \geq 5 ng/mL	105	553	1.00	N/A		
Decreased by 1 - 5 ng/mL	148	499	1.33	1.00	1.77	
Within 1 ng/mL	145	463	1.38	1.02	1.86	
Increased by 1 - 5 ng/mL	136	457	1.41	1.06	1.88	< 0.01
Increased by \geq 5 ng/mL	126	365	1.70	1.27	2.28	
Serum PGI/II ratio						
Increased by \geq 2 units	155	634	1.00	N/A		
Increased by 0.5 - 2 units	92	357	0.94	0.72	1.24	
Within 0.5 units	126	401	1.05	0.80	1.38	
Decreased by 0.5 - 2 units	110	391	1.01	0.78	1.32	0.06
Decreased by \geq 2 units	175	535	1.27	0.99	1.62	
Serum gastrin-17 level						
Decreased by \geq 1 pmol/L	111	399	1.00	N/A		
Decreased by 0.01 - 1 pmol/L	102	367	0.90	0.66	1.21	
Within 0.01 pmol/L	108	570	0.69	0.51	0.94	
Increased by 0.01 - 1 pmol/L	102	307	1.01	0.74	1.38	< 0.01
Increased by \geq 1 pmol/L	193	561	1.20	0.92	1.58	
Serum anti-<i>H. pylori</i> IgG level						
Decreased by \geq 10 EIU	122	596	1.00	N/A		
Decreased by 2 - 10 EIU	109	451	1.02	0.77	1.36	
Within 2 EIU	96	314	1.24	0.91	1.68	
Increased by 2 - 10 EIU	121	349	1.41	1.05	1.89	0.03
Increased by \geq 10 EIU	158	412	1.78	1.35	2.34	

^a Defined as: (follow-up – baseline)/follow-up time interval

^b Estimated using generalized estimating equations (GEE) for correlated binary outcomes

Abbreviations: *H. pylori*: *Helicobacter pylori*; PG: pepsinogen

Supplementary Table 5. Associations of relative temporal changes in serum PGI, PGII, the PGI/II ratio, anti-*H. pylori* IgG, and gastrin-17 levels with progression of gastric precancerous lesions when the follow-up visit was compared with the previous visit, Zhuanghe Gastric Diseases Screening Program, China.

Relative change ^a	Progression (n)	No progression (n)	OR ^b	95% CI		P for trend
Serum PGI						
Decreased ≥ 50%	92	348	1.00	N/A		
Decreased 20 - 50%	149	592	0.92	0.69	1.21	
Within 20%	199	650	1.16	0.89	1.51	
Increased 20 - 50%	105	311	1.27	0.93	1.73	< 0.01
Increased ≥ 50%	163	384	1.56	1.16	2.11	
Serum PGII						
Decreased ≥ 50%	122	556	1.00	N/A		
Decreased 20 - 50%	136	431	1.44	1.10	1.88	
Within 20%	156	499	1.44	1.11	1.86	
Increased 20 - 50%	66	266	1.12	0.81	1.55	< 0.01
Increased ≥ 50%	224	530	1.92	1.49	2.46	
Serum PGI/II ratio						
Increased ≥ 50%	205	737	1.00	N/A		
Increased 20 - 50%	80	246	1.21	0.91	1.62	
Within 20%	141	477	1.09	0.86	1.39	
Decreased 20 - 50%	120	410	1.08	0.84	1.39	0.01
Decreased ≥ 50%	154	381	1.50	1.17	1.92	
Serum gastrin-17						
Decreased ≥ 100%	117	411	1.00	N/A		
Decreased 20 to 100%	92	302	1.09	0.81	1.47	
Within 20%	160	651	0.82	0.64	1.06	
Increased 20 - 500%	174	461	1.31	1.01	1.70	0.08
Increased ≥ 500%	100	291	1.20	0.88	1.61	
Serum anti-<i>H. pylori</i> IgG						
Decreased ≥ 50%	120	503	1.00	N/A		
Decreased 20 - 50%	94	324	1.20	0.90	1.61	
Within 20%	144	443	1.35	1.04	1.74	
Increased 20 - 50%	66	207	1.26	0.91	1.76	< 0.01
Increased ≥ 50%	229	557	1.67	1.30	2.14	

^a Defined as: (follow-up – baseline)/baseline x 100%

^b Estimated using generalized estimating equations (GEE) for correlated binary outcomes

Abbreviations: *H. pylori*: *Helicobacter pylori*; PG: pepsinogen

Supplementary Table 6. Associations of relative temporal changes in serum PGI, PGII, the PGI/II ratio, anti-*H. pylori* IgG, and gastrin-17 levels with progression of gastric precancerous lesions when only second visit and baseline visit were included, Zhuanghe Gastric Diseases Screening Program, China.

Relative change ^a	Progression (n)	No progression (n)	OR	95% CI		P value	P for trend
Serum PGI							
Decreased ≥ 50%	68	283	1.00	N/A		N/A	
Decreased 20 - 50%	95	428	0.91	0.64	1.29	0.60	
Within 20%	120	453	1.09	0.78	1.52	0.63	
Increased 20 - 50%	76	205	1.52	1.04	2.20	0.03	< 0.01
Increased ≥ 50%	84	206	1.66	1.15	2.40	0.01	
Serum PGII							
Decreased ≥ 50%	84	439	1.00	N/A		N/A	
Decreased 20 - 50%	88	310	1.48	1.06	2.06	0.02	
Within 20%	93	334	1.41	1.02	1.97	0.04	
Increased 20 - 50%	48	169	1.51	1.02	2.25	0.04	< 0.01
Increased ≥ 50%	128	320	2.09	1.53	2.86	<.0001	
Serum PGI/II ratio							
Increased ≥ 50%	131	525	1.00	N/A		N/A	
Increased 20 - 50%	51	176	1.16	0.80	1.67	0.44	
Within 20%	90	332	1.09	0.80	1.47	0.59	
Decreased 20 - 50%	75	282	1.07	0.77	1.47	0.69	0.03
Decreased ≥ 50%	92	240	1.55	1.14	2.11	0.01	
Serum gastrin-17							
Decreased ≥ 100%	54	206	1.00	N/A		N/A	
Decreased 20 to 100%	78	297	0.98	0.66	1.45	0.93	
Within 20%	86	392	0.85	0.58	1.24	0.40	
Increased 20 - 500%	122	357	1.32	0.91	1.89	0.14	0.07
Increased ≥ 500%	62	197	1.20	0.79	1.82	0.38	
Serum anti-<i>H. pylori</i> IgG							
Decreased ≥ 50%	76	377	1.00	N/A		N/A	
Decreased 20 - 50%	59	248	1.17	0.81	1.71	0.40	
Within 20%	96	302	1.53	1.09	2.15	0.01	
Increased 20 - 50%	44	140	1.51	0.99	2.30	0.06	< 0.01
Increased ≥ 50%	135	354	1.91	1.39	2.63	<.0001	

^a Defined as: (follow-up – baseline)/baseline x 100%

^b Estimated using generalized estimating equations (GEE) for correlated binary outcomes

Abbreviations: *H. pylori*: *Helicobacter pylori*; PG: pepsinogen

Supplementary Table 7. Associations of relative temporal changes in serum PGI, PGII, the PGI/II ratio, anti-*H. pylori* IgG, and gastrin-17 levels with progression of gastric precancerous lesions when only last visit and baseline visit were included, Zhuanghe Gastric Diseases Screening Program, China.

Relative change ^a	Progression (n)	No progression (n)	OR ^b	95% CI		P for trend
Serum PGI						
Decreased ≥ 50%	56	245	1.00	N/A		
Decreased 20 - 50%	107	441	1.06	0.74	1.51	
Within 20%	142	469	1.32	0.93	1.87	
Increased 20 - 50%	63	192	1.43	0.95	2.15	< 0.01
Increased ≥ 50%	89	229	1.69	1.15	2.47	
Serum PGII						
Decreased ≥ 50%	77	424	1.00	N/A		
Decreased 20 - 50%	93	306	1.66	1.19	2.33	
Within 20%	108	329	1.79	1.29	2.48	
Increased 20 - 50%	41	152	1.49	0.98	2.27	< 0.01
Increased ≥ 50%	136	356	2.10	1.54	2.88	
Serum PGI/II ratio						
Increased ≥ 50%	119	506	1.00	N/A		
Increased 20 - 50%	51	181	1.19	0.82	1.72	
Within 20%	105	340	1.31	0.97	1.76	
Decreased 20 - 50%	76	289	1.11	0.80	1.53	< 0.01
Decreased ≥ 50%	103	247	1.79	1.32	2.43	
Serum gastrin-17						
Decreased ≥ 100%	69	208	1.00	N/A		
Decreased 20 to 100%	84	320	0.78	0.54	1.12	
Within 20%	82	385	0.64	0.45	0.92	
Increased 20 - 500%	117	384	0.92	0.65	1.29	0.27
Increased ≥ 500%	73	193	1.15	0.78	1.68	
Serum anti-<i>H. pylori</i> IgG						
Decreased ≥ 50%	80	375	1.00	N/A		
Decreased 20 - 50%	55	223	1.16	0.79	1.69	
Within 20%	83	306	1.26	0.90	1.78	
Increased 20 - 50%	46	140	1.52	1.01	2.30	< 0.01
Increased ≥ 50%	155	399	1.83	1.35	2.49	

^a Defined as: (follow-up – baseline)/baseline x 100%

^b Estimated using generalized estimating equations (GEE) for correlated binary outcomes

Abbreviations: *H. pylori*: *Helicobacter pylori*; PG: pepsinogen