

Supplementary materials

Table S1. Baseline characteristic of patients with chronic hepatitis B in care, 2010-2018

Variables	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of CHB patients	15,810	33,926	47,570	58,122	65,947	74,352	80,565	87,833	94,495
Age, mean±SD	48·91±14·28	45·97±14·27	44·18±14·11	42·96±13·87	42·52±13·68	41·88±13·42	41·53±13·33	41·29±13·20	40·95±12·99
Age, %									
<30	1272 (8·05)	3807 (11·22)	6620 (13·92)	9232 (15·89)	10788 (16·36)	12818 (17·24)	14362 (17·83)	15693 (17·87)	17033 (18·03)
30-39	2996 (18·95)	8326 (24·54)	12870 (27·05)	16618 (28·59)	19409 (29·43)	22572 (30·36)	25042 (31·08)	27950 (31·82)	30791 (32·58)
40-49	3314 (20·96)	7314 (21·56)	10190 (21·42)	12353 (21·25)	14177 (21·50)	16189 (21·77)	17355 (21·54)	19183 (21·84)	20802 (22·01)
50-59	4455 (28·18)	8080 (23·82)	10300 (21·65)	11730 (20·18)	12748 (19·33)	13680 (18·40)	14303 (17·75)	14935 (17·00)	15718 (16·63)
≥60	3773 (23·86)	6399 (18·86)	7590 (15·95)	8189 (14·09)	8825 (13·38)	9093 (12·23)	9503 (11·79)	10072 (11·47)	10151 (10·74)
Male, %	10526 (66·58)	21707 (63·98)	30016 (63·10)	36470 (62·75)	41395 (62·77)	46333 (62·32)	49908 (61·95)	54668 (62·24)	58975 (62·41)
Disease stage, %									
Non-cirrhosis	9239 (58·44)	22674 (66·83)	33003 (69·38)	40896 (70·36)	46445 (70·43)	52787 (71·00)	57360 (71·20)	62754 (71·45)	68130 (72·10)
Cirrhosis	4395 (27·80)	8249 (24·31)	10912 (22·94)	13040 (22·43)	14912 (22·61)	16719 (22·48)	18071 (22·43)	20280 (23·09)	20578 (21·78)
Hepatocellular carcinoma	2176 (13·76)	3003 (8·85)	3655 (7·68)	4186 (7·20)	4590 (6·96)	4846 (6·52)	5134 (6·37)	4799 (5·46)	5787 (6·12)
Dual infection,%									
Hepatitis C virus	346 (2·19)	615 (1·81)	842 (1·77)	938 (1·61)	1006 (1·53)	1131 (1·52)	1068 (1·33)	984 (1·12)	1013 (1·07)
Hepatitis D virus	87 (0·55)	226 (0·67)	341 (0·72)	399 (0·69)	469 (0·71)	500 (0·67)	483 (0·60)	503 (0·57)	492 (0·52)
Human immunodeficiency virus	6 (0·04)	10 (0·03)	30 (0·06)	37 (0·06)	45 (0·07)	68 (0·09)	58 (0·07)	96 (0·11)	86 (0·09)
Co-liver disease,%									
Alcoholic liver disease	1073 (6·79)	1661 (4·90)	2054 (4·32)	2348 (4·04)	2531 (3·84)	2683 (3·61)	2789 (3·46)	2946 (3·35)	2996 (3·17)
Nonalcoholic fatty liver disease	1810 (11·45)	4257 (12·55)	6071 (12·76)	7176 (12·35)	8066 (12·23)	8928 (12·01)	9463 (11·75)	10062 (11·46)	10326 (10·93)
Primary biliary cholangitis	1558 (9·85)	2885 (8·50)	3810 (8·01)	4656 (8·01)	5326 (8·08)	5860 (7·88)	6392 (7·93)	6913 (7·87)	7156 (7·57)

Drug-induced liver injury	905 (5·72)	1906 (5·62)	2731 (5·74)	3355 (5·77)	3959 (6·00)	4469 (6·01)	4868(6·04)	5003 (5·70)	4976 (5·27)
Co-morbidities, %									
Hypertension	3623 (22·91)	7198 (21·22)	9523 (20·02)	10913 (18·78)	11831 (17·94)	12406 (16·69)	12972 (16·10)	13480 (15·35)	13304 (14·08)
Diabetes	2452 (15·51)	4677 (13·79)	6169 (12·97)	7025 (12·09)	7631 (11·57)	8154 (10·97)	8451 (10·49)	8846 (10·07)	8667 (9·17)
Hyperlipidemia	1578 (9·98)	3605 (10·63)	5128 (10·78)	6042 (10·40)	6785 (10·29)	7409 (9·96)	7852 (9·75)	8399 (9·56)	8452 (8·94)
Cardiovascular disease	1419 (8·97)	2762 (8·14)	3833 (8·06)	4343 (7·47)	4580 (6·94)	4869 (6·55)	4995 (6·20)	5053 (5·75)	4749 (5·03)
Chronic kidney disease	1332 (8·42)	2442 (7·20)	3147 (6·62)	3510 (6·04)	3686 (5·59)	3796 (5·11)	3826 (4·75)	3929 (4·47)	3601 (3·81)
Cerebral stroke	665 (4·21)	1335 (3·94)	1816 (3·82)	2063 (3·55)	2062 (3·13)	2138 (2·88)	2173 (2·70)	2272 (2·59)	2177 (2·30)

CHB: chronic hepatitis B;

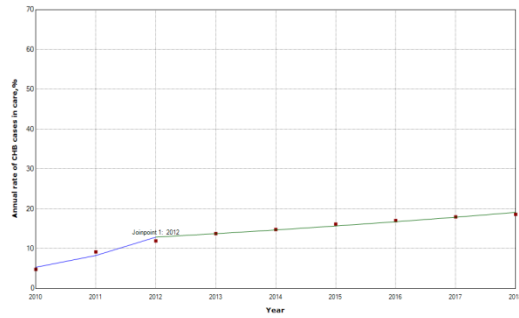
Table S2. Baseline characteristic of patients with chronic hepatitis B on antiviral therapy, 2010-2018

Variables	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of CHB patients	4,886	17,556	26,798	33,584	39,737	45,086	49,798	54,487	58,908
Age, mean±SD	47·12±12·83	45·14±13·16	43·76±13·22	42·69±13·05	42·18±12·95	41·75±12·76	41·41±12·67	41·11±12·55	40·86±12·38
Age, %									
>30	353 (7·22)	1877 (10·69)	3545 (13·23)	5034 (14·99)	6337 (15·95)	7469 (16·57)	8532 (17·13)	9487 (17·41)	10331 (17·54)
30-39	1040 (21·29)	4316 (24·58)	7134 (26·62)	9466 (28·19)	11442 (28·79)	13244 (29·37)	14969 (30·06)	16772 (30·78)	18533 (31·46)
40-49	1179 (24·13)	4291 (24·44)	6432 (24·00)	7935 (23·63)	9448 (23·78)	10797 (23·95)	11828 (23·75)	13044 (23·94)	14139 (24·00)
50-59	1456 (29·80)	4381 (24·95)	6039 (22·53)	7099 (21·14)	7961 (20·03)	8785 (19·48)	9410 (18·90)	9831 (18·04)	10415 (17·68)
≥60	858 (17·56)	2691 (15·33)	3648 (13·61)	4050 (12·06)	4549 (11·45)	4791 (10·63)	5059 (10·16)	5353 (9·82)	5490 (9·32)
Male, %	3508 (71·80)	12063 (68·71)	18173 (67·81)	22778 (67·82)	26806 (67·46)	30338 (67·29)	33484 (67·24)	36699 (67·35)	39783 (67·53)
Disease stage, %									
Non-cirrhosis	2817 (57·65)	11395 (64·91)	17682 (65·98)	22218 (66·16)	26225 (66·00)	29792 (66·08)	32948 (66·16)	36177 (66·40)	39349 (66·80)
Cirrhosis	1431 (29·29)	4757 (27·10)	7012 (26·17)	8773 (26·12)	10429 (26·24)	11923 (26·44)	13152 (26·41)	14821 (27·20)	15237 (25·86)
Hepatocellular carcinoma	638 (13·06)	1404 (8·00)	2104 (7·85)	2593 (7·72)	3083 (7·76)	3371 (7·48)	3698 (7·43)	3489 (6·40)	4322 (7·34)
Dual infection, %									
Hepatitis C virus	116 (2·37)	286 (1·63)	447 (1·67)	468 (1·39)	494 (1·24)	503 (1·12)	446 (0·90)	409 (0·75)	396 (0·67)
Hepatitis D virus	29 (0·59)	160 (0·91)	248 (0·93)	285 (0·85)	317 (0·80)	340 (0·75)	365 (0·73)	410 (0·75)	413 (0·70)
Human immunodeficiency virus	4 (0·08)	8 (0·05)	15 (0·06)	17 (0·05)	16 (0·04)	12 (0·03)	14 (0·03)	29 (0·05)	23 (0·04)
Co-liver disease, %									
Alcoholic liver disease	153 (3·13)	437 (2·49)	692 (2·58)	832 (2·48)	958 (2·41)	1035 (2·30)	1109 (2·23)	1169 (2·15)	1181 (2·00)
Nonalcoholic fatty liver disease	639 (13·08)	2414 (13·75)	3608 (13·46)	4420 (13·16)	5162 (12·99)	5820 (12·91)	6232 (12·51)	6663 (12·23)	6978 (11·85)
Primary biliary cholangitis	515 (10·54)	1532 (8·73)	2171 (8·10)	2711 (8·07)	3203 (8·06)	3554 (7·88)	3960 (7·95)	4336 (7·96)	4515 (7·66)
Drug-induced liver injury	468 (9·58)	1465 (8·34)	2192 (8·18)	2743 (8·17)	3316 (8·34)	3799 (8·43)	4175 (8·38)	4339 (7·96)	4341 (7·37)
Co-morbidities, %									
Hypertension	1347 (27·57)	4314 (24·57)	6101 (22·77)	7093 (21·12)	8054 (20·27)	8654 (19·19)	9187 (18·45)	9494 (17·42)	9524 (16·17)

Diabetes	858 (17·56)	2757 (15·70)	3841 (14·33)	4500 (13·40)	5139 (12·93)	5484 (12·16)	5780 (11·61)	6003 (11·02)	6011 (10·20)
Hyperlipidemia	585 (11·97)	2157 (12·29)	3147 (11·74)	3827 (11·39)	4414 (11·11)	4843 (10·74)	5223 (10·49)	5547 (10·18)	5714 (9·70)
Cardiovascular disease	458 (9·37)	1496 (8·52)	2177 (8·12)	2568 (7·64)	2860 (7·19)	2977 (6·60)	3103 (6·23)	3133 (5·75)	3035 (5·15)
Chronic kidney disease	472 (9·66)	1423 (8·11)	1890 (7·05)	2151 (6·40)	2359 (5·94)	2439 (5·41)	2462 (4·94)	2480 (4·55)	2447 (4·15)
Cerebral stroke	172 (3·52)	628 (3·58)	929 (3·47)	1070 (3·19)	1162 (2·92)	1220 (2·71)	1255 (2·52)	1305 (2·40)	1299 (2·21)

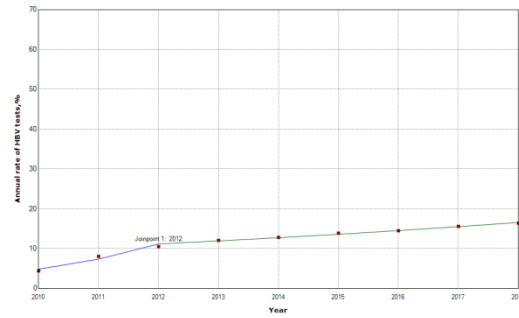
CHB: chronic hepatitis B;

a. Annual rate of CHB patients in care



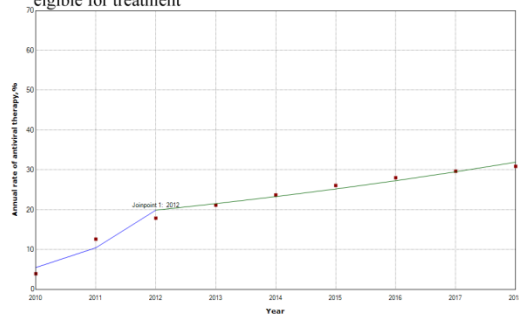
Observed 2010-2012 APC = 95.8% 2012-2018 APC = 6.8%
*Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
 Final Selected Model: 1, Joinpoint.

b. Annual rate of HBV tests



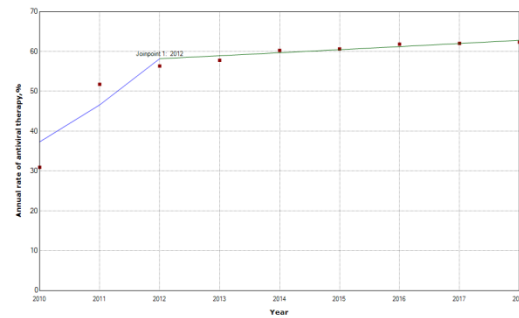
Observed 2010-2012 APC = 52.0% 2012-2018 APC = 6.8%
*Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
 Final Selected Model: 1, Joinpoint.

c. Annual rate of antiviral therapy among estimated CHB patients eligible for treatment



Observed 2010-2012 APC = 90.3% 2012-2018 APC = 8.2%
*Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
 Final Selected Model: 1, Joinpoint.

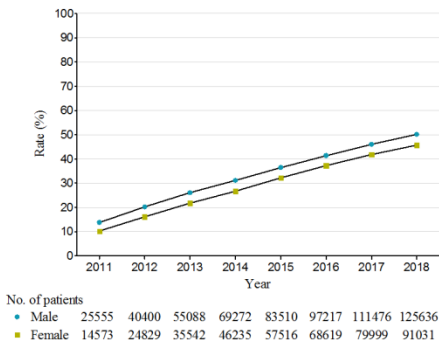
d. Annual rate of antiviral therapy among CHB patients in care



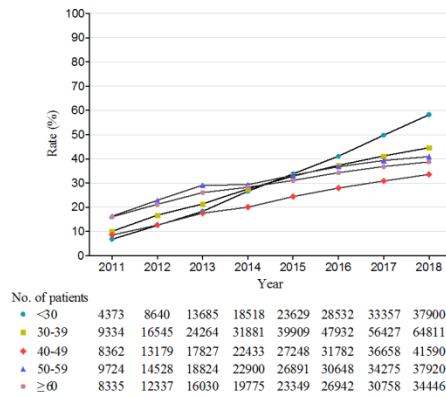
Observed 2010-2012 APC = 24.9% 2012-2018 APC = 1.3%
*Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
 Final Selected Model: 1, Joinpoint.

Figure S1. Annual percentage change in rates of CHB patients in care, receiving HBV tests, and on antiviral therapy. CHB, chronic hepatitis B.

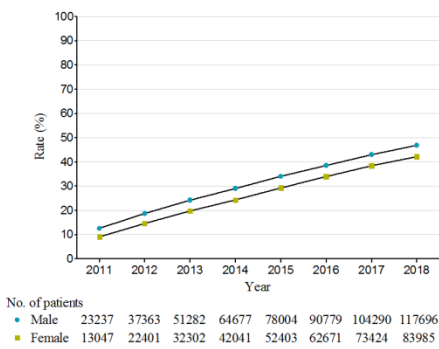
a. CHB patients ever in care, stratified by gender



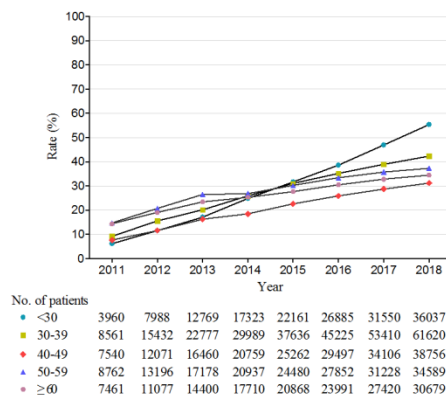
b. CHB patients ever in care, stratified by age



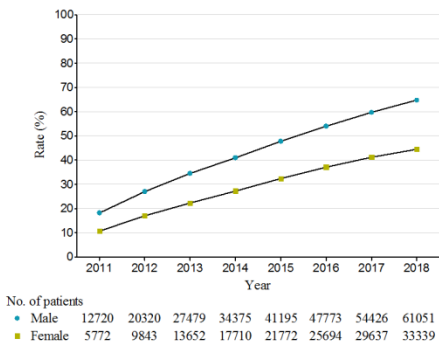
c. CHB patients ever received HBV tests, stratified by gender



d. CHB patients ever received HBV tests, stratified by age



e. CHB patients ever received antiviral therapy, stratified by gender



f. CHB patients ever received antiviral therapy, stratified by age

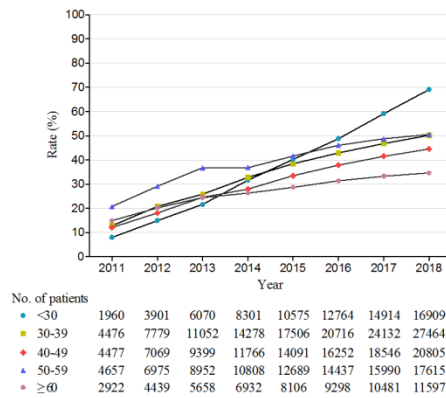
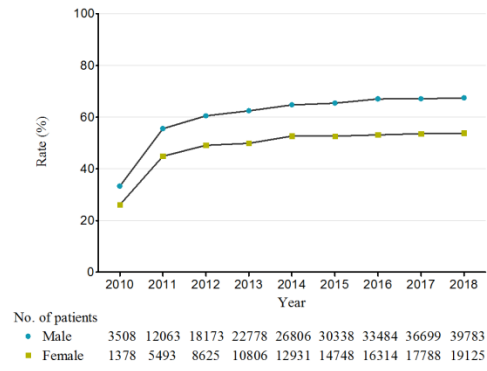


Figure S2. Cumulative rates of patients with chronic hepatitis B in care, receiving HBV tests, and on antiviral therapy stratified by gender and age. a and b is the rates of CHB patients in care among estimated HBsAg(+) population; c and d is the rates of HBV tests among estimated HBsAg(+) population; e and f is the rates of antiviral therapy among estimated eligible CHB patients for treatment. CHB, chronic hepatitis B.

a. CHB patients received antiviral therapy, stratified by gender



b. CHB patients received antiviral therapy, stratified by age

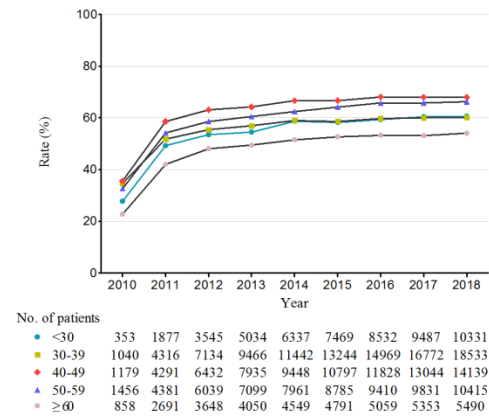
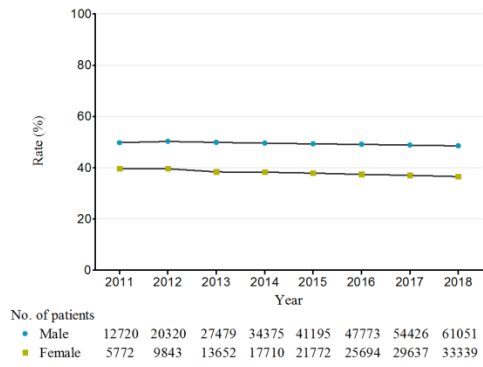


Figure S3. Annual rates of antiviral therapy among patients with chronic hepatitis B in care, stratified by gender (a) and age (b). CHB, chronic hepatitis B.

a. CHB patients ever received antiviral therapy, stratified by gender



b. CHB patients ever received antiviral therapy, stratified by age

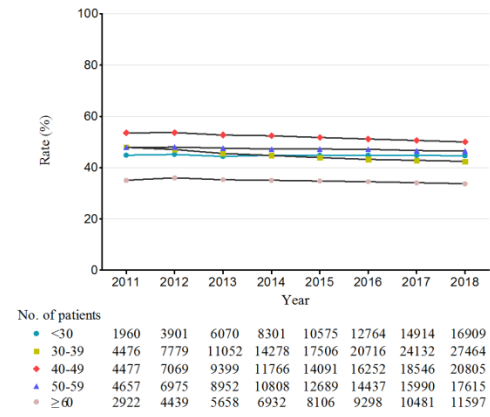


Figure S4. Cumulative rates of antiviral therapy among patients with chronic hepatitis B ever in care, stratified by gender (a) and age (b). CHB, chronic hepatitis B.

Table S3. Times of hospital visits per year for patients with chronic hepatitis B

	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of CHB patients in care	15,810	33,926	47,570	58,122	65,947	74,352	80,565	87,833	94,495
No. of hospital visits									
Median (IQR)	3 (1-7)	5 (2-11)	7 (2-13)	7 (2-13)	8 (2-13)	7 (2-13)	7 (2-13)	7 (2-13)	8 (2-13)
<4 times	8,369	13,691	17,722	20,972	23,150	26,225	28,118	30,515	32,780
4-7 times	3,682	7,223	7,038	8,384	9,573	11,016	12,734	14,257	14,269
8-11 times	1,883	5,538	7,416	9,147	10,826	12,275	13,517	14,561	15,374
≥12 times	1,876	7,474	15,394	19,619	22,398	24,836	26,196	28,500	32,072

CHB, chronic hepatitis B. IQR, interquartile range.

Table S4. Causes of patients hospitalized for CHB and its complications

	Year								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of CHB patients in care	15,810	33,926	47,570	58,122	65,947	74,352	80,565	87,833	94,495
No. of patients hospitalized for CHB	7,995	9,410	11,264	12,899	11,484	10,402	10,299	10,101	9,773
% per 100 CHB patients in care	50.57%	27.74%	23.68%	22.19%	17.41%	13.99%	12.78%	11.50%	10.34%
Causes									
Chronic hepatitis B	1155	1616	2602	3128	2372	2433	2335	1955	1774
Compensated cirrhosis	2600	3133	2895	3234	3328	2497	2210	2045	1760
Decompensated cirrhosis	506	769	1092	1239	1453	2716	3112	3558	3863
Hepatocellular carcinoma	3734	3892	4675	5298	4331	2756	2642	2543	2376

CHB, chronic hepatitis B.