Supplementary Appendix

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

Supplement to: **Long-term clinical benefits of Sofosbuvir-based direct antiviral regimens for patients with chronic hepatitis C in Central and West Africa**

Appendix 1: Technical documentation on the model

- **Calculating transition probabilities from Nahon et al. (2018) study**

Probabilities of transition from CC to DC and from CC to HCC[1] were calculated as an incidence rate[2] over 3 years using data obtained from the tables of survival curves:

$$3\ years\ probabilities = \frac{Number\ of\ events\ in\ the\ 3\ years\ period}{Number\ of\ Person\text{-}Year\ in\ the\ 3\ years\ period}$$

As the number of person at risk is given annually, exact Person-Years were approximated assuming that changes in the number of person at risk occurred at mid-year. So if over 3 years, 100 person were at risk the first two years and 75 the third, the Person-Years equalled to $(100 + 75 + 75) \times 1 + (100 - 75) \times 0.5 = 262.5$.

- **Conversion of transition probabilities**

In the first cycle, yearly probabilities of transition (p_i) have been converted to 24 weeks probabilities (p_j) with the following formula: $p_j = 1 - (1 - p_i)^{\frac{d_j}{d_i}}$ where d_i and d_j are the time horizon of each probability in the same unit (here 52 and 24 weeks).

WHO non-CHC related mortality probabilities[3] and 3-years probabilities derived from Nahon (2017)[1] are also reported on a longer time horizon than one year (5 and 3 years respectively). Therefore, they have been converted in yearly probabilities using the same formula.

- **Probabilistic Sensitivity Analysis (PSA)**

Based on standard practice[4], transition probabilities were assumed to follow a Beta distribution. When studies did not report 95% CI, they were computed using the Wilson score formula[5]. Then, distribution parameters were derived using a Newton type optimisation method to match the 2.5th and 97.5th percentiles. The distribution of the SVR rate and its 95% CI was estimated using the TAC trial data with the standard bootstrap method from 10,000 random draws[6].

- *Parametrising Beta distribution in the PSA*

Given two points $(x_i, p_i), i = 1, 2$, where p_i is a probability on a scaled, recentered beta cumulative distribution function (CDF) and x_i is a value on that same CDF, we solved the following equation on α and β, the parameters of the beta distribution:

$F(\alpha, \beta; x_i) = p_i, i = 1,2$ where $F(\alpha, \beta; x_i) = \frac{\Gamma(\alpha+\beta)}{\Gamma(\alpha)\Gamma(\beta)} \int_0^x t^{\alpha-1} (1-t)^{\beta-1} dt$

As there were no closed-form general solution of the two-equation system, we used a numerical method to solve it. To avoid finding a non-reliable solution of the optimisation problem due to near zero and near one values of p_i, we minimised the sum of squared differences of the logit of p_i and the logit of the CDF. The Schnabel (1985)[7] *nlm* minimisation method implemented in R was performed[8].

We applied this method for parametrising all beta distributions, x_1 and x_2 equalled to the lower and upper bound of the confidence intervals reported from literature or calculated and $p_1$and p_2 equalled 0.025 and 0.975.

- *Calculating confidence intervals of transition probabilities*

When the confidence intervals (CI) of transition probabilities were not reported by the study, they have been calculated using the Wilson score formula[5]:

$CI(p)_\alpha = \left[\frac{p+\left(\frac{z^2}{2*n}\right)}{1+\left(\frac{z^2}{n}\right)} \pm \frac{z}{1+\left(\frac{z^2}{n}\right)} \times \sqrt{\frac{p\times(1-p)}{n} + \frac{z^2}{4\times n^2}}\right]$ where p is the probability, z is the $1-\frac{\alpha}{2}$ quantile of a standard normal distribution and α the significance level. The Wilson score interval was preferred over the normal approximation interval because the sample size and the probability were both small, so the normal approximation was not indicated[9].

- *Non-parametric bootstrap for SVR distribution*

We used the original data on SVR from the TAC clinical trial to compute its bootstrap distribution. At each iteration of the PSA, a sample of 120 patients with replacement was drawn and the SVR calculated for this sample was used for the Monte Carlo iteration.

- **Estimation of SOF/DCV SVR**

The efficacy of SOF/DCV treatment has not been assessed within the TAC clinical. We therefore estimated this parameter using unpublished data from the French national HEPATHER cohort[10]. As the SVRs of SOF/RBV and SOF/LDV in the TAC trial were different as those found in the HEPATHER cohort, we corrected the SVR of SOF/DCV found in the HEPATHER cohort to take into potential differences in treatment efficacy between the two data sources. We assumed that the difference in SVR observed for SOF/RBV and SOF/LDV in TAC and HEPATHER data also applied for SOF/DCV:

$SVR(DCV)_{TAC} = SVR(DCV)_{HEPATHER} \times \frac{SVR(overall)_{TAC}}{SVR(overall)_{HEPATHER}}$ where $SVR(overall)_{HEPATHER}$ is calculated as the mean of SVR of SOF/RBV and SOF/LDV observed in HEPATHER cohort weighted by the proportion of patients receiving each treatment in the TAC clinical trial.

Finally, $SVR(DCV)_{TAC} = 0.960 \times \frac{0.892}{\left(\frac{1}{3}\times 0.877 + \frac{2}{3}\times 0.976\right)} = 0.908$. The same correction was applied to derive confidence intervals.

- **Model computation**

All the analysis were performed using R, version 3.6.0[11]. *Markovchain* package[12] was used for Markov chains manipulation.

References

1. Nahon P, Layese R, Bourcier V, et al. Incidence of Hepatocellular Carcinoma After Direct Antiviral Therapy for HCV in Patients With Cirrhosis Included in Surveillance Programs. *Gastroenterology*. 2018;155(5):1436-1450.e6. doi:10.1053/j.gastro.2018.07.015

2. Last JM, ed. *A Dictionary of Public Health*. Oxford, New York: Oxford University Press; 2006.

3. WHO. Global Health Observatory data repository, life table by country. WHO. http://apps.who.int/gho/data/node.main.LIFECOUNTRY?lang=en. Published 2018. Accessed February 19, 2019.

4. Briggs AH, Goeree R, Blackhouse G, O'Brien BJ. Probabilistic analysis of cost-effectiveness models: choosing between treatment strategies for gastroesophageal reflux disease. *Med Decis Mak Int J Soc Med Decis Mak*. 2002;22(4):290-308. doi:10.1177/0272989X0202200408

5. Wilson EB. Probable Inference, the Law of Succession, and Statistical Inference. *J Am Stat Assoc*. 1927;22(158):209-212. doi:10.1080/01621459.1927.10502953

6. Efron B. Bootstrap Methods: Another Look at the Jackknife. *Ann Stat*. 1979;7(1):1-26. doi:10.1214/aos/1176344552

7. Schnabel RB, Koonatz JE, Weiss BE. A modular system of algorithms for unconstrained minimization. *ACM Trans Math Softw*. 1986;11(4):419-440. doi:10.1145/6187.6192

8. R Core Team. *Non-Linear Minimization*.; 2019. https://stat.ethz.ch/R-manual/R-devel/library/stats/html/nlm.html. Accessed July 4, 2019.

9. Brown LD, Cai TT, DasGupta A. Interval Estimation for a Binomial Proportion. *Stat Sci*. 2001;16(2):101-133. doi:10.1214/ss/1009213286

10. Pol S, Bourliere M, Lucier S, et al. Safety and efficacy of daclatasvir-sofosbuvir in HCV genotype 1-mono-infected patients. *J Hepatol*. 2017;66(1):39-47. doi:10.1016/j.jhep.2016.08.021

11. R Core Team. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing; 2019.

12. Spedicato GA. *Markovchain: Easy Handling Discrete Time Markov Chains*.; 2019. https://CRAN.R-project.org/package=markovchain. Accessed July 4, 2019.

Supplementary Table A1: Number (%) of CHC patients at the different disease stages 10 and 20 years after CHC diagnosis with and without treatment (fictive cohorts, n=3224 in Cameroon, n=9748 in Côte d'Ivoire and n=6358 in Senegal)

		Cameroon		Côte d'Ivoire		Senegal	
		With Treatment	**Without Treatment**	**With Treatment**	**Without Treatment**	**With Treatment**	**Without Treatment**
Mild Fibrosis (F0-F3)	*10 years*	2296.9 (71.2)	1776.1 (55.1)	6719.0 (68.9)	5195.9 (53.3)	4858.8 (76.4)	3757.1 (59.1)
	20 years	1593.8 (49.4)	854.1 (26.5)	4197.9 (43.1)	2249.9 (23.1)	3528.8 (55.5)	1890.9 (29.7)
CC	*10 years*	143.5 (4.5)	349.5 (10.8)	419.9 (4.3)	1022.3 (10.5)	303.6 (4.8)	739.3 (11.6)
	20 years	70.8 (2.2)	256.7 (8.0)	186.5 (1.9)	676.0 (6.9)	156.8 (2.5)	568.2 (8.9)
DC	*10 years*	25.2 (0.8)	90.9 (2.8)	73.7 (0.8)	265.9 (2.7)	53.3 (0.8)	192.3 (3.0)
	20 years	15.9 (0.5)	75.6 (2.3)	41.8 (0.4)	199.2 (2.0)	35.1 (0.6)	167.5 (2.6)
HCC	*10 years*	3.2 (0.1)	28.1 (0.9)	9.5 (0.1)	82.3 (0.8)	6.8 (0.1)	59.5 (0.9)
	20 years	2.7 (0.1)	20.8 (0.6)	7.1 (0.1)	54.9 (0.6)	5.9 (0.1)	46.1 (0.7)
CHC-related Deaths	*10 years*	157.0 (4.9)	440.1 (13.6)	468.6 (4.8)	1310.3 (13.4)	322.2 (5.1)	908.1 (14.3)
	20 years	259.5 (8.0)	893.5 (27.7)	755.9 (7.8)	2578.3 (26.4)	544.7 (8.6)	1893.1 (29.8)
Non CHC-related Deaths	*10 years*	559.7 (17.4)	539.3 (16.7)	1944.9 (20.0)	1871.2 (19.2)	731.9 (11.5)	701.6 (11.0)
	20 years	1280.2 (39.7)	1123.3 (34.8)	4556.1 (46.7)	3989.7 (40.9)	2084.4 (32.8)	1792.2 (28.2)

Abbreviations: F0-F3: METAVIR fibrosis stages F0 to F3; CC: Compensated Cirrhosis; DC: Decompensated Cirrhosis; HCC: Hepatocellular Carcinoma; CHC: Chronic hepatitis C.

Supplementary Table A2: Mortality and morbidity, with and without treatment, in fictive cohorts of patients with CHC and co-infected with HIV (n=3224 in Cameroon, n=9748 in Côte d'Ivoire and n=6358 in Senegal)

	Cameroon		Côte d'Ivoire		Senegal	
	With treatment	**Without treatment**	**With treatment**	**Without treatment**	**With treatment**	**Without treatment**
Life expectancy at 50 years and life-years saved per patient with treatment						
Mean [95% CI] LY per patient	20.5 [19.1;21.4]	18 [14.8;18.8]	19.1 [17.5;19.8]	16.9 [14;17.6]	21.9 [20.1;22.9]	19.1 [15.8;19.9]
Mean LYS [95% CI] per patient†	2.6 [1.7;5.6]		2.2 [1.3;4.9]		2.8 [1.8;6]	
Life years spent in CC (DC) and life years avoided in the CC (DC) stage per patient						
Mean [95% CI] LY in CC per patient	1.7 [1;2.2]	2.7 [1.6;3.4]	1.6 [0.9;2.1]	2.4 [1.6;3.1]	1.8 [1;2.5]	2.9 [1.7;3.6]
Mean [95% CI] LY avoided in CC‡ per patient	1.0 [0.3;2.0]		0.9 [0.2;1.8]		1.1 [0.3;2.2]	
Mean [95%CI] LY in DC	0.3 [0.1;0.5]	0.7 [0.4;0.9]	0.3 [0.1;0.4]	0.6 [0.4;0.8]	0.3 [0.1;0.5]	0.7 [0.4;0.9]
Mean [95% CI] LY avoided in DC‡ per patient	0.4 [0.2; 0.6]		0.3 [0.1; 0.6;]		0.4 [0.1; 0.7]	

† Life Years Saved (LYS) per patient are calculated as the number of life-years per patient with treatment minus the number of life-years per patient without treatment.

‡ Life-years avoided in the CC (DC) stages per patient are calculated as the number of life-years per patient spent in the CC (DC) stage without treatment minus the number of life-years per patient spent in the CC (DC) stage with treatment.

Abbreviations: CC: Compensated Cirrhosis; CI: Confidence Intervals; DC: Decompensated Cirrhosis; F0-F3: METAVIR fibrosis stages F0 to F3; HCC: Hepatocellular Carcinoma; HCV: Hepatitis C Virus; LY: Life-years; LYS: Life-years saved

Supplementary Table A3: Mortality and morbidity, with and without treatment, in fictive cohorts of CHC patients aged 35 years at model entry (n=3224 in Cameroon, n=9748 in Côte d'Ivoire and n=6358 in Senegal)

	Cameroon		Côte d'Ivoire		Senegal	
	With treatment	**Without treatment**	**With treatment**	**Without treatment**	**With treatment**	**Without treatment**
Life expectancy at 50 years and life-years saved per patient with treatment						
Mean [95% CI] LY per patient	33.4 [32;33.9]	23.9 [18.8;25.6]	31.9 [30.6;32.3]	23.3 [18.5;24.8]	37.9 [36.3;38.4]	26.4 [20.4;28.4]
Mean [95% CI] LYS per patient†	9.5 [7.8;13.5]		8.6 [7.1;12.4]		11.5 [9.5;16.2]	
Life years spent in CC (DC) and life years avoided in the CC (DC) stage per patient						
Mean [95% CI] LY in CC per patient	1.6 [1.2;1.9]	4.1 [2.3;5.1]	1.5 [1.1;1.8]	3.9 [2.2;4.9]	1.7 [1.3;2.1]	4.7 [2.5;5.8]
Mean [95% CI] LY avoided in CC‡ per patient	2.5 [1.0;3.5]		2.4 [0.9; 3.3]		3.0 [1.1;4.0;]	
Mean [95%CI] LY in DC	0.3 [0.2;0.3]	1.1 [0.6;1.4]	0.2 [0.2;0.3]	1.1 [0.6;1.4]	0.3 [0.2;0.4]	1.3 [0.7;1.6]
Mean [95% CI] LY avoided in DC‡ per patient	0.9 [0.4;1.1]		0.8 [0.4;1.1]		1.0 [0.4;1.3]	

† Life Years Saved (LYS) per patient are calculated as the number of life-years per patient with treatment minus the number of life-years per patient without treatment.

‡ Life-years avoided in the CC (DC) stages per patient are calculated as the number of life-years per patient spent in the CC (DC) stage without treatment minus the number of life-years per patient spent in the CC (DC) stage with treatment.

Abbreviations: CC: Compensated Cirrhosis; CI: Confidence Intervals; DC: Decompensated Cirrhosis; F0-F3: METAVIR fibrosis stages F0 to F3; HCC: Hepatocellular Carcinoma; HCV: Hepatitis C Virus; LY: Life-years; LYS: Life-years saved

Supplementary Table A4: Mortality and morbidity, with and without treatment, in fictive cohorts of CHC patients at the F0 stage at model entry (n=3224 in Cameroon, n=9748 in Côte d'Ivoire, n=6358 in Senegal)

	Cameroon		Côte d'Ivoire		Senegal	
	With treatment	**Without treatment**	**With treatment**	**Without treatment**	**With treatment**	**Without treatment**
Life expectancy at 50 years and life-years saved per patient with treatment						
Mean [95% CI] LY per patient	22.6 [22.4;22.6]	22.1 [21.3;22.3]	20.8 [20.7;20.8]	20.4 [19.7;20.6]	24.1 [24;24.1]	23.6 [22.6;23.8]
Mean [95% CI] LYS per patient†	0.5 [0.3;1.2]		0.4 [0.2;1]		0.5 [0.3;1.4]	
Life years spent in CC (DC) and life years avoided in the CC (DC) stage per patient						
Mean [95% CI] LY in CC per patient	0.1 [0;0.1]	0.5 [0.3;0.8]	0 [0;0.1]	0.4 [0.2;0.7]	0.1 [0;0.1]	0.6 [0.3;0.9]
Mean [95% CI] LY avoided in CC‡ per patient	0.5 [0.2;0.7]		0.4 [0.2;0.6]		0.5 [0.2;0.8]	
Mean [95%CI] LY in DC	0 [0;0]	0.1 [0.1;0.2]	0 [0;0]	0.1 [0.1;0.2]	0 [0;0]	0.1 [0.1;0.2]
Mean [95% CI] LY avoided in DC‡ per patient	0.1 [0.1;0.2]		0.1 [0.0;0.1]		0.1 [0.1;0.2]	

† Life Years Saved (LYS) per patient are calculated as the number of life-years per patient with treatment minus the number of life-years per patient without treatment.

‡ Life-years avoided in the CC (DC) stages per patient are calculated as the number of life-years per patient spent in the CC (DC) stage without treatment minus the number of life-years per patient spent in the CC (DC) stage with treatment.

Abbreviations: CC: Compensated Cirrhosis; CI: Confidence Intervals; DC: Decompensated Cirrhosis; F0-F3: METAVIR fibrosis stages F0 to F3; HCC: Hepatocellular Carcinoma; HCV: Hepatitis C Virus; LY: Life-years; LYS: Life-years saved.

Supplementary Table A5: Mortality and morbidity, with and without treatment, in fictive cohorts of CHC patients at the F1 stage at model entry (n=3224 in Cameroon, n=9748 in Côte d'Ivoire, n=6358 in Senegal)

	Cameroon		Côte d'Ivoire		Senegal	
	With treatment	**Without treatment**	**With treatment**	**Without treatment**	**With treatment**	**Without treatment**
Life expectancy at 50 years and life-years saved per patient with treatment						
Mean [95% CI] LY per patient	22.5 [22.2;22.5]	21 [19.2;21.5]	20.7 [20.5;20.8]	19.6 [18;20]	24 [23.7;24.1]	22.5 [20.3;22.9]
Mean [95% CI] LYS per patient†	1.4 [1;3.1]		1.1 [0.8;2.5]		1.5 [1.1;3.5]	
Life years spent in CC (DC) and life years avoided in the CC (DC) stage per patient						
Mean [95% CI] LY in CC per patient	0.1 [0.1;0.3]	1.2 [0.6;1.8]	0.1 [0.1;0.2]	1 [0.5;1.5]	0.2 [0.1;0.3]	1.4 [0.7;2]
Mean [95% CI] LY avoided in CC‡ per patient	1.1 [0.5;1.5]		0.9 [0.5;1.3]		1.2 [0.6;1.7]	
Mean [95%CI] LY in DC	0 [0;0.1]	0.3 [0.2;0.4]	0 [0;0.1]	0.3 [0.1;0.4]	0 [0;0.1]	0.3 [0.2;0.5]
Mean [95% CI] LY avoided in DC‡ per patient	0.3 [0.1;0.4]		0.2 [0.1;0.3]		0.3 [0.2; 0.4]	

† Life Years Saved (LYS) per patient are calculated as the number of life-years per patient with treatment minus the number of life-years per patient without treatment.

‡ Life-years avoided in the CC (DC) stages per patient are calculated as the number of life-years per patient spent in the CC (DC) stage without treatment minus the number of life-years per patient spent in the CC (DC) stage with treatment.

Abbreviations: CC: Compensated Cirrhosis; CI: Confidence Intervals; DC: Decompensated Cirrhosis; F0-F3: METAVIR fibrosis stages F0 to F3; HCC: Hepatocellular Carcinoma; HCV: Hepatitis C Virus; LY: Life-years; LYS: Life-years saved.

Supplementary Table A6: Mortality and morbidity, with and without treatment, in fictive cohorts of CHC patients at the F2 stage at model entry (n=3224 in Cameroon, n=9748 in Côte d'Ivoire, n=6358 in Senegal)

	Cameroon		Côte d'Ivoire		Senegal	
	With treatment	**Without treatment**	**With treatment**	**Without treatment**	**With treatment**	**Without treatment**
Life expectancy at 50 years and life-years saved per patient with treatment						
Mean [95% CI] LY per patient	22.1 [21.4;22.3]	17.8 [13.4;19.1]	20.4 [19.8;20.6]	16.9 [13.1;17.8]	23.6 [22.8;23.8]	18.9 [14.2;20.1]
Mean [95% CI] LYS per patient†	4.3 [3;8]		3.5 [2.7;6.8]		4.6 [3.7;8.8]	
Life years spent in CC (DC) and life years avoided in the CC (DC) stage per patient						
Mean [95% CI] LY in CC per patient	0.4 [0.2;0.6]	2.9 [1.5;3.9]	0.3 [0.1;0.5]	2.6 [1.3;3.5]	0.4 [0.2;0.6]	3.2 [1.7;4.3]
Mean [95% CI] LY avoided in CC‡ per patient	2.6 [1.4;3.4]		2.3 [1.2;3.1]		2.8 [1.5;3.8]	
Mean [95%CI] LY in DC	0.1 [0;0.2]	0.8 [0.4;1]	0.1 [0;0.1]	0.7 [0.4;0.9]	0.1 [0;0.2]	0.8 [0.5;1.1]
Mean [95% CI] LY avoided in DC‡ per patient	0.7 [0.4;0.9]		0.6 [0.3;0.8]		0.7 [0.4;1.0]	

† Life Years Saved (LYS) per patient are calculated as the number of life-years per patient with treatment minus the number of life-years per patient without treatment.
‡ Life-years avoided in the CC (DC) stages per patient are calculated as the number of life-years per patient spent in the CC (DC) stage without treatment minus the number of life-years per patient spent in the CC (DC) stage with treatment.
Abbreviations: CC: Compensated Cirrhosis; CI: Confidence Intervals; DC: Decompensated Cirrhosis; F0-F3: METAVIR fibrosis stages F0 to F3; HCC: Hepatocellular Carcinoma; HCV: Hepatitis C Virus; LY: Life-years; LYS: Life-years saved

Supplementary Table A7: Mortality and morbidity, with and without treatment, in fictive cohorts of CHC patients at the F3 stage at model entry (n=3224 in Cameroon, n=9748 in Côte d'Ivoire, n=6358 in Senegal)

	Cameroon		Côte d'Ivoire		Senegal	
	With treatment	**Without treatment**	**With treatment**	**Without treatment**	**With treatment**	**Without treatment**
Life expectancy at 50 years and life-years saved per patient with treatment						
Mean [95% CI] LY per patient	21 [19.3;21.5]	13.7 [8.1;15.2]	19.5 [17.7;19.9]	13.2 [7.5;14.6]	22.4 [20.3;22.9]	14.5 [8.1;16.3]
Mean [95% CI] LYS per patient†	7.3 [6;11.3]		6.3 [5.1;10.3]		8.0 [6.5;12.5]	
Life years spent in CC (DC) and life years avoided in the CC (DC) stage per patient						
Mean [95% CI] LY in CC per patient	0.9 [0.5;1.3]	4.3 [2.2;5.4]	0.8 [0.5;1.3]	4 [2.1;5.1]	0.9 [0.5;1.4]	4.6 [2.2;5.8]
Mean [95% CI] LY avoided in CC‡ per patient	3.4 [1.6;4.3]		3.2 [1.5;4.0]		3.6 [1.7;4.6]	
Mean [95%CI] LY in DC	0.2 [0.1;0.3]	1.2 [0.6;1.5]	0.2 [0.1;0.3]	1.1 [0.6;1.4]	0.2 [0.1;0.3]	1.3 [0.6;1.6]
Mean [95% CI] LY avoided in DC‡ per patient	1.0 [0.5;1.3]		0.9 [0.4;1.2]		1.0 [0.5;1.4]	

† Life Years Saved (LYS) per patient are calculated as the number of life-years per patient with treatment minus the number of life-years per patient without treatment.
‡ Life-years avoided in the CC (DC) stages per patient are calculated as the number of life-years per patient spent in the CC (DC) stage without treatment minus the number of life-years per patient spent in the CC (DC) stage with treatment.
Abbreviations: CC: Compensated Cirrhosis; CI: Confidence Intervals; DC: Decompensated Cirrhosis; F0-F3: METAVIR fibrosis stages F0 to F3; HCC: Hepatocellular Carcinoma; HCV: Hepatitis C Virus; LY: Life-years; LYS: Life-years saved

Supplementary Table A8: Mortality and morbidity, with and without treatment, in fictive cohorts of CHC patients at CC stage at model entry (n=3224 in Cameroon, n=9748 in Côte d'Ivoire, n=6358 in Senegal)

	Cameroon		Côte d'Ivoire		Senegal	
	With treatment	**Without treatment**	**With treatment**	**Without treatment**	**With treatment**	**Without treatment**
Life expectancy at 50 years and life-years saved per patient with treatment						
Mean [95% CI] LY per patient	13.0 [10.6; 14]	10.3 [9; 11.3]	11.8 [9.8; 12.8]	9.6 [8.5; 10.5]	12.3 [10.1; 13.3]	9.9 [8.6; 10.9]
Mean [95% CI] LYS per patient†	2.7 [0.3; 4]		2.2 [0.3; 3.5]		2.5 [0.1; 3.8]	
Life years spent in CC (DC) and life years avoided in the CC (DC) stage per patient						
Mean [95% CI] LY in CC per patient	11.4 [8.9; 12.4]	7.3 [6.2; 8.2]	10.5 [8.4; 11.5]	6.8 [5.8; 7.6]	10.9 [8.5; 11.9]	7.0 [5.9; 8]
Mean [95% CI] LY avoided in CC‡ per patient	-4.1 [-5.3;-1.6]		-3.7 [-4.8;-1.6]		-3.9 [-5.2;-1.5]	
Mean [95%CI] LY in DC	1.3 [0.9; 1.8]	1.5 [1.2; 1.9]	1.1 [0.8; 1.6]	1.4 [1.1; 1.7]	1.2 [0.9; 1.6]	1.4 [1.1; 1.8]
Mean [95% CI] LY avoided in DC‡ § per patient	0.3 [0.7;0.3]		0.3 [0.7;0.3]		0.3 [0.7;0.3]	

† Life Years Saved (LYS) per patient are calculated as the number of life-years per patient with treatment minus the number of life-years per patient without treatment.

‡ Life-years avoided in the CC (DC) stages per patient are calculated as the number of life-years per patient spent in the CC (DC) stage without treatment minus the number of life-years per patient spent in the CC (DC) stage with treatment.

§ The mean number of LY avoided in the CC stage with treatment is negative (i.e. -4.1, -3.7 and -3.9 in Cameroon, Côte d'Ivoire and Senegal, respectively) as the mean number of LY spent in CC is higher with treatment. This is due to the fact that patients initiate treatment at the CC stage and consequently most of them will remain in this health state after treatment. Conversely, in the cohorts without treatment, the disease will progress to most advanced disease stages (DC and HCC) and patients will have a higher risk of death.

Abbreviations: CC: Compensated Cirrhosis; CI: Confidence Intervals; DC: Decompensated Cirrhosis; F0-F3: METAVIR fibrosis stages F0 to F3; HCC: Hepatocellular Carcinoma; HCV: Hepatitis C Virus; LY: Life-years; LYS: Life-years saved.

Supplementary Table A9: Mortality and morbidity, with and without pangenotypic DAA treatment (sofosbuvir/daclatasvir) in fictive cohorts of CHC patients (n=3224 in Cameroon, n=9748 in Côte d'Ivoire, n=6358 in Senegal)

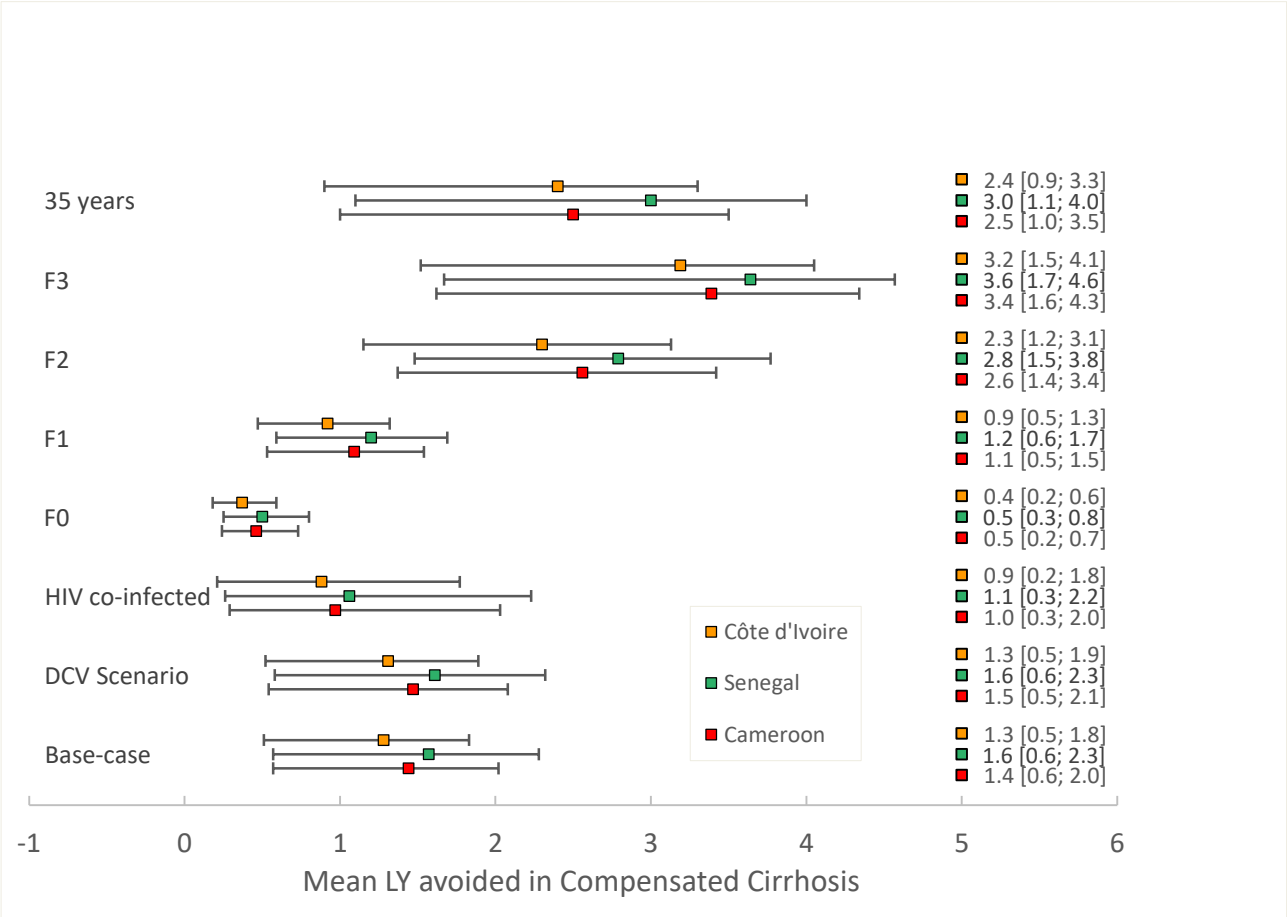
	Cameroon		Côte d'Ivoire		Senegal	
	With treatment	**Without treatment**	**With treatment**	**Without treatment**	**With treatment**	**Without treatment**
Life expectancy at 50 years and life-years saved per patient with treatment						
Mean [95% CI] LY per patient	21.3 [20.7;21.5]	18 [15.1;18.7]	19.7 [19;19.8]	16.9 [14.3;17.5]	22.7 [21.8;22.9]	19.1 [15.6;19.9]
Mean [95% CI] LYS per patient†	3.3 [2.6;5.9]		2.8 [2.1;4.8]		3.6 [2.8;6.4]	
Life years spent in CC (DC) and life years avoided in the CC (DC) stage per patient						
Mean [95% CI] LY in CC per patient	1.2 [1;1.4]	2.7 [1.6;3.4]	1.1 [0.9;1.4]	2.4 [1.5;3.1]	1.3 [1;1.5]	2.9 [1.8;3.6]
Mean [95% CI] LY avoided in CC‡ per patient	1.5 [0.5; 2.1]		1.3 [0.5;1.8]		1.6 [0.6;2.3]	
Mean [95%CI] LY in DC	0.2 [0.1;0.2]	0.7 [0.4;0.9]	0.2 [0.1;0.2]	0.6 [0.4;0.8]	0.2 [0.1;0.3]	0.7 [0.4;1]
Mean [95% CI] LY avoided in DC‡ per patient	0.5 [0.3;0.7]		0.4 [0.2;0.6]		0.5 [0.3;0.7]	

† Life Years Saved (LYS) per patient are calculated as the number of life-years per patient with treatment minus the number of life-years per patient without treatment.

‡ Life-years avoided in the CC (DC) stages per patient are calculated as the number of life-years per patient spent in the CC (DC) stage without treatment minus the number of life-years per patient spent in the CC (DC) stage with treatment.

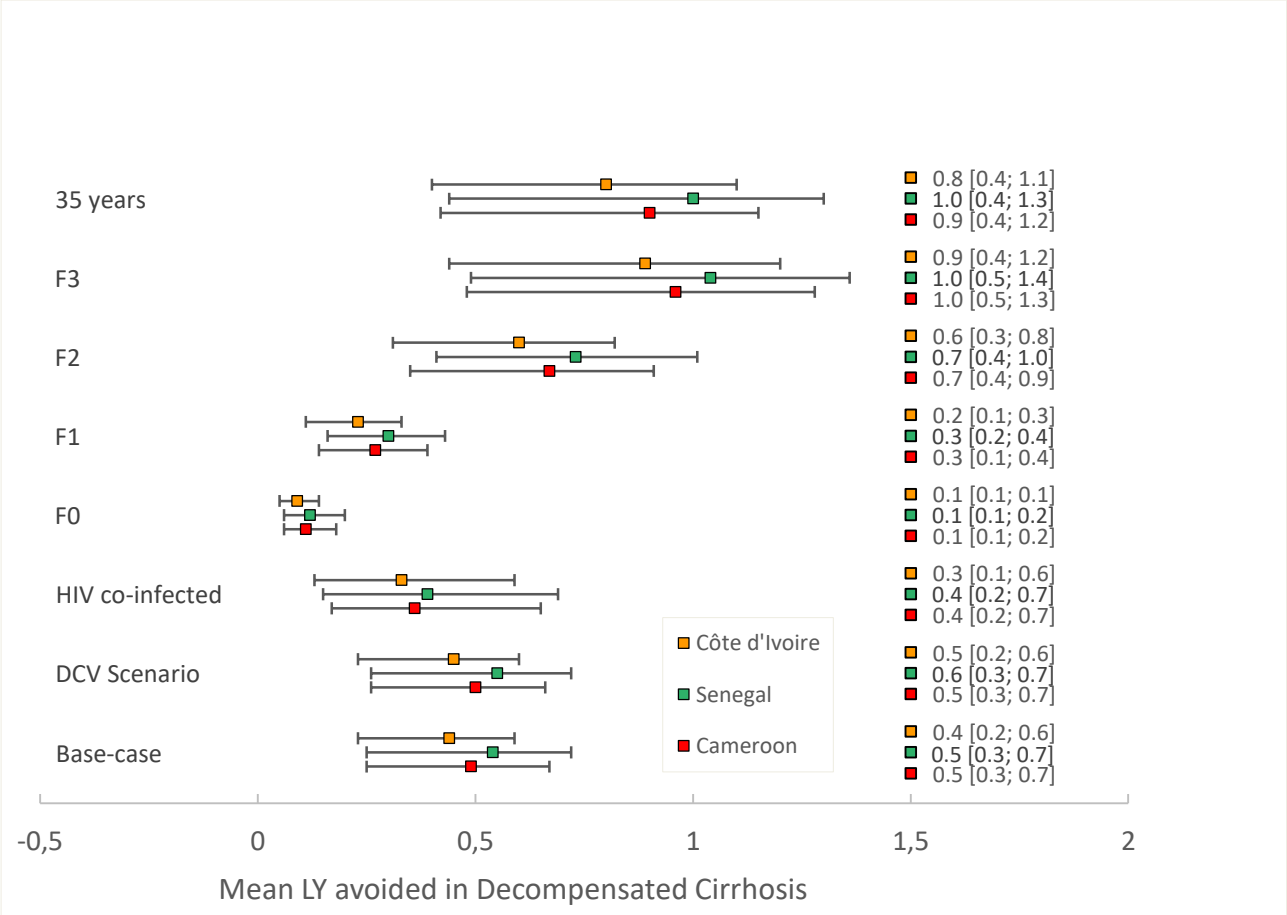
Abbreviations: CC: Compensated Cirrhosis; CI: Confidence Intervals; DC: Decompensated Cirrhosis; F0-F3: METAVIR fibrosis stages F0 to F3; HCC: Hepatocellular Carcinoma; HCV: Hepatitis C Virus; LY: Life-years; LYS: Life-years saved.

Supplementary Figure 1: Life-years avoided in compensated cirrhosis stage with treatment according to different scenarios (fictive cohorts, (n=3224 in Cameroon, n=9748 in Côte d'Ivoire, n=6358 in Senegal)



Legend: The horizontal axis shows variations in the number of life-years avoided in the compensated cirrhosis stage with treatment (per patient) in the different scenarios. The vertical axis indicates the base-case and the different scenarios considered in the analysis as follows: i) "SOF/DCV" = fictive treated cohorts receiving the pangenotypic sofosbuvir/daclatasvir regimen, ii) "HIV co-infected" = fictive cohorts co-infected with HIV with a higher risk of reinfection; iii) "F0" = fictive cohorts with all patient at the F0 stage at model entry; iv) "F1" = fictive cohorts with all patients at the F1 stage at model entry; v) "F2" = fictive cohorts with all patients at the F2 stage at model entry; vi) "F3" = fictive cohorts with all patients at the F3 stage at model entry; vii) "35 years" = fictive cohorts aged 35 years at model entry. The colored squares indicate the mean number of life-years avoided in the compensated cirrhosis stage with treatment (per patient), while the horizontal lines indicate the respective 95% CI around the mean values for each country (yellow for Côte d'Ivoire, green for Senegal and red for Cameroon). The corresponding mean [95% CI] are indicated on the right.
F0-F3: METAVIR fibrosis stages F0 to F3, SOF/DCV: sofosbuvir/daclatasvir regimen.

Supplementary Figure 2: Life-years avoided in decompensated cirrhosis stage with treatment according to different scenarios (fictive cohorts, (n=3224 in Cameroon, n=9748 in Côte d'Ivoire, n=6358 in Senegal)



Legend: The horizontal axis shows variations in the number of life-years avoided in the decompensated cirrhosis stage with treatment (per patient) in the different scenarios. The vertical axis indicates the base-case and the different scenarios considered in the analysis as follows: i) "SOF/DCV" = fictive treated cohorts receiving the pangenotypic sofosbuvir/daclatasvir regimen, ii) "HIV co-infected" = fictive cohorts co-infected with HIV with a higher risk of reinfection; iii) "F0" = fictive cohorts with all patient at the F0 stage at model entry; iv) "F1" = fictive cohorts with all patients at the F1 stage at model entry; v) "F2" = fictive cohorts with all patients at the F2 stage at model entry; vi) "F3" = fictive cohorts with all patients at the F3 stage at model entry; vii) "35 years" = fictive cohorts aged 35 years at model entry. The colored squares indicate the mean number of life-years avoided in the decompensated cirrhosis stage with treatment (per patient), while the horizontal lines indicate the respective 95% CI around the mean values for each country (yellow for Côte d'Ivoire, green for Senegal and red for Cameroon). The corresponding mean [95% CI] are indicated on the right.

F0-F3: METAVIR fibrosis stages F0 to F3, SOF/DCV: sofosbuvir/daclatasvir regimen.

Supplementary data: Data on patients' willingness-to-pay collected in patients with chronic hepatitis C within the TAC trial, n=120

Supplementary Table A10: Willingness-to-Pay (WTP) in patients with chronic hepatitis C in Cameroon, Côte d'Ivoire and Senegal (n=120, TAC trial)

		Cameroon (n=53)	Cote d'Ivoire (n=45)	Senegal (n=22)	Total (n=120)
WTP for diagnosis	**N (%)**	39 (74)	42 (93)	21 (95)	102 (85)
WTP for treatment	**N (%)**	41 (77)	43 (96)	20 (91)	104 (87)
WTP for care	**N (%)**	41 (77)	38 (84)	20 (91)	99 (82)

Supplementary Table A11: Amounts Willing-to-Pay (in current US$, 2016[1]) by patients with chronic hepatitis C in Cameroon, Côte d'Ivoire and Senegal (n=120, TAC trial)

		Cameroon (n=53)	Cote d'Ivoire (n=45)	Senegal (n=22)	Total (n=120)
Diagnosis	Median	42	25	84	42
	Mean	116	49	77	84
	SD	165	64	52	122
Treatment	Median	126	78	114	88
	Mean	251	107	205	188
	SD	380	133	253	292
Care	Median	25	35	51	38
	Mean	86	49	63	68
	SD	150	53	62	109
Total	Median	219	126	205	177
	Mean	453	205	345	340
	SD	599	213	329	453

[1] US$1=598.71 CFA francs (source : https://www.exchangerates.org.uk/USD-XAF-spot-exchange-rates-history-2016.html)