

# HCV CALCULATION

Spreadsheet Documentation

# Definitions

- WHO region: designated regions provided by the World Health Organization<sup>1</sup>
- DALY: Disability-Adjusted Life Years (D)
  - Years of life taken by disease from population if it was in a healthy state free from disease
- Treatment Coverage ( $\theta$ ):
  - Ratio between number of people receiving treatment to the estimated number of people needing treatment
- Efficacy (e):
  - Percentage of population receiving treatment that were actually cured
- Data generated from WHO, UNAID database

<sup>1</sup>[http://www.who.int/neglected\\_diseases/preventive\\_chemotherapy/sch/en/](http://www.who.int/neglected_diseases/preventive_chemotherapy/sch/en/)

# Impact Formula

$$I = \frac{D * e * \Theta}{1 - e * \Theta} / n$$

- Where:
  - $D$  = DALYs
  - $e$  = Efficacy
  - $\Theta$  = Treatment Coverage
  - $n$  = Number of drugs present in regimen

# Country, DALY & Treatment Coverage Data

- Column A: Country
- Column B: Countries sorted by WHO Region
- Column C: DALYs - Acute HCV
- Column D: DALYs - Cirrhosis & other chronic liver diseases due to HCV
- Column E: Total DALYs
- Column F: Treatment Coverage

	A	B	C	D	E	F
1						
2	Country	WHO Region	DALYS - Acute HCV	DALYS - Cirrhosis & other chronic liver diseases due to HCV	Total DALYs	Treatment Coverage
3			253,293.88	10,002,047.20	10,255,341.08	6.49%
4	Afghanistan	EMR	4116.061	25440.86	29556.921	12.10%
5	Albania	EUR	6.100371	1863.454	1869.554371	4.90%
6	Algeria	AFR	228.3137	31066.77	31295.0837	2.20%
7	American Samoa	WPR	0.060677	42.42142	42.482097	4.80%
8	Andorra	EUR	0.06989	54.93601	55.0059	4.90%
9	Angola	AFR	1950.568	55181.39	57131.958	2.20%

# Genotype Distribution

- Column G-M: Genotype Distribution

	A	B	G	H	I	J	K	L	M	
1			Genotype Distribution							
2	Country	WHO Region	% Genotype 1	% Genotype 2	% Genotype 3	% Genotype 4	% Genotype 5	% Genotype 6	% Other Genotype	
3			54.79972%	12.10%	16.55%	13.60%	2.55%	4.90%	8.45%	
4	Afghanistan	EMR	38.00%	0.82%	62.00%	65.26%	0.34%	5.40%		
5	Albania	EUR	56.00%	20.00%	8.00%	16.00%	0.20%	0.02%		
6	Algeria	AFR	88.80%	8.50%	0.90%	1.20%	0.20%	5.40%	0.50%	
7	American Samoa	WPR	59.10%	14.99%	11.28%	0.08%	0.80%	14.55%		
8	Andorra	EUR	65.76%	6.43%	25.41%	2.18%	0.20%	0.02%		
9	Angola	AFR	44.38%	13.78%	2.90%	29.21%	9.74%	5.40%		
10	Anguilla	AMR	76.04%	10.84%	12.18%	0.63%	0.11%	0.19%		
11	Antigua and Barbuda	AMR	76.04%	10.84%	12.18%	0.63%	0.11%	0.19%		
12	Argentina	AMR	59.20%	21.70%	17.80%	1.30%	0.11%	0.19%		
13	Armenia	EUR	43.10%	18.90%	38.00%	2.18%	0.20%	0.02%		

# DALYs by Genotype

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DALYs by Genotype													
2	G1 DALYs (Acute)	G1 DALYs (LD)	G2 DALYs (Acute)	G2 DALYs (LD)	G3 DALYs (Acute)	G3 DALYs (LD)	G4 DALYs (Acute)	G4 DALYs (LD)	G5 DALYs (Acute)	G5 DALYs (LD)	G6 DALYs (Acute)	G6 DALYs (LD)	Other DALYs (Acute)	Other DALYs (LD)
3	139091.8442	5492446.913	30142.66256	1190270.896	41879.84045	1653747.578	34450.6158	1360382.987	6456.921545	254970.3688	12420.61082	490464.0238	20868.60137	824,057.56
4	1564.10318	9667.5268	33.7517002	208.615052	2551.95782	15773.3332	2686.141409	16602.70524	13.9946074	86.498924	222.267294	1373.80644	0	0.00
5	3.41621	1043.53424	1.2200742	372.6908	0.48802968	149.07632	0.97605936	298.15264	0.012200742	3.726908	0.0012200742	0.3726908	0	0.00
6	202.74257	27587.29176	19.4066645	2640.67545	2.0548233	279.60093	2.7397644	372.80124	0.4566274	62.13354	12.3289398	1677.60558	1.1415685	155.33
7	0.03586	25.07105922	0.0090954823	6.358970858	0.0068443656	4.785136176	0.0000485416	0.033937136	0.000485416	0.33937136	0.0088285035	6.17231661	0	0.00
8	0.04596	36.12592018	0.004493927	3.532385443	0.017759049	13.95924014	0.001523602	1.197605018	0.00013978	0.10987202	0.000013978	0.010987202	0	0.00
9	865.66208	24489.50088	269	7603.995542	56.566472	1600.26031	569.7609128	16118.48402	189.9853232	5374.667386	105.330672	2979.79506	0.00	0.00
10	0.00000	0	0	0	0	0	0	0	0	0	0	0	0	0.00
11	0.12636	51.73454398	0.0180131532	7.375098064	0.0202398714	8.286779928	0.0010468899	0.428626548	0.0001827903	0.074839556	0.0003157287	0.129268324	0	0.00
12	122.77743	33013.06352	45.0045631	12101.07227	36.9161854	9926.22518	2.6961259	724.94903	0.22813373	61.341841	0.39404917	105.954089	0	0.00
13	9.48318	2660.738848	4.15851786	1166.774112	8.3610412	2345.89504	0.479659732	134.5802944	0.04400548	12.346816	0.004400548	1.2346816	0	0.00
14	0.00000	0	0	0	0	0	0	0	0	0	0	0	0	0.00
15	26.79472	9732.6608	3.02521016	1098.8488	22.79711942	8280.6106	0.70228093	255.0899	0.43217288	156.9784	0.59423771	215.8453	0.10804322	39.24
16	4.91303	6463.94832	0.3411826	448.8853	1.29649388	1705.76414	0.27294608	359.10824	0.013647304	17.955412	0.0013647304	1.7955412	0	0.00
17	315.75254	13432.36653	31.5281967	1341.23481	122.348226	5204.7918	0.9411402	40.03686	0.9411402	40.03686	0.09411402	4.003686	0	0.00
18	0.62874	280.5627349	0	40	0.1007100864	44.94021714	0.0052091424	2.32449399	0.0009095328	0.40586403	0.0015710112	0.70103787	0	0.00
19	0.65142	397.392528	0.069036318	42.114969	0.276145272	168.459876	0.4425405	269.96775	0.0060185508	3.6715614	0.095588748	58.313034	0.332790456	203.02
20	513.67919	51474.80524	83.7942639	8396.86236	1184.403249	118686.7764	42.9145016	4300.37984	2.2197156	222.43344	22.5671086	2261.40664	0	0.00
21	0.51427	172.9577705	0	24.65626292	0.0823752888	27.70417734	0.0042607908	1.43297469	0.0007439476	0.25020193	0.0012850004	0.43216697	0	0.00
22	48.97273	11698.48518	2.1036395	502.51225	21.62541406	5165.82593	11.44379888	2733.66664	0.16829116	40.20098	0.016829116	4.020098	0	0.00
23	15.67123	4626.15047	1.5936846	470.45598	5.0466679	1489.77727	3.7185974	1097.73062	0.5312282	156.81866	0.005312282	1.5681866	0	0.00
24	1.08943	291.8679819	0.1553051136	41.60769232	0.1745033472	46.75107864	0.0090260352	2.41815924	0.0015759744	0.42221828	0.0027221376	0.72928612	0	0.00

- Column N-AA: DALYs by Genotype
  - Acute
  - Chronic

# G1 Efficacy (Acute + Chronic)

	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM
1	G1 Efficacy (Acute)						G1 Efficacy (Chronic)					
2	SOF + LDV	SOF + DCV	V + RTV + DSU	G + RBV + SOF	G + RBV + SMV	SOF + SMV	SOF + LDV	SOF + DCV	V + RTV + DSU	G + RBV + SOF	G + RBV + SMV	SOF + SMV
3	95.50%	96.00%	96.67%	78.60%	81.48%	90.00%	94.97%	93.00%	100.00%	88.00%	81.48%	90.00%
4	96%	96%	97%	78.60%	81.48%	90.00%	95%	93%	100.00%	88.00%	81.48%	90.00%
5	96%	96%	97%	78.60%	81.48%	90.00%	95%	93%	100.00%	88.00%	81.48%	90.00%
6	96%	96%	97%	78.60%	81.48%	90.00%	95%	93%	100.00%	88.00%	81.48%	90.00%
7	96%	96%	97%	78.60%	81.48%	90.00%	95%	93%	100.00%	88.00%	81.48%	90.00%
8	96%	96%	97%	78.60%	81.48%	90.00%	95%	93%	100.00%	88.00%	81.48%	90.00%
9	96%	96%	97%	78.60%	81.48%	90.00%	95%	93%	100.00%	88.00%	81.48%	90.00%

- Column AB-AG: G1 Efficacy (Acute)
- Column AH-AN: G1 Efficacy (Chronic)

# G1 Impact (Acute + Chronic)

	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV
1	<b>G1 Impact (Acute)</b>						<b>G1 Impact (Chronic)</b>					
2	SOF + LDV	SOF + DCV	V + RTV + DSV	G + RBV + SOF	G + RBV + SMV	SOF + SMV	SOF + LDV	SOF + DCV	V + RTV + DSV	G + RBV + SOF	G + RBV + SMV	SOF + SMV
3	4,956.14	4,984.11	5,021.62	4,024.09	4,180.85	4,649.99	351,412.91	343,482.54	371,722.02	323,534.71	297,777.20	331,491.75
6	4.351036582	4.374308378	4.405500787	3.567513895	3.700386698	4.095391552	588.7237562	576.2255645	620.5730253	544.6340843	503.5136414	557.2621678
7	0.001722827292	0.001732283051	0.001744961231	0.001405996614	0.00145951771	0.00161912702	1.1975512	1.171484573	1.264106693	1.105723796	1.020400049	1.131988519
8	0.002256222651	0.002268618433	0.002285238776	0.001840960526	0.001911098561	0.002120288427	1.763245432	1.724828164	1.861343175	1.627916642	1.50219101	1.666621638
9	18.57824514	18.67761207	18.81079877	15.23272591	15.80007198	17.48668088	522.6258972	511.5309166	550.8993491	483.4863108	446.9825887	494.6965998
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0.01498223801	0.01507003466	0.01518785332	0.0120775046	0.01256319537	0.01402362075	6.096459277	5.955090206	6.459288852	5.600264712	5.143730074	5.741669826
12	14.55827046	14.64358264	14.75806727	11.73573523	12.20768191	13.62678015	3890.451596	3800.237014	4121.991058	3573.805351	3282.468064	3664.042935
13	0.4655509068	0.4681086629	0.4715381188	0.3798653654	0.3943377076	0.4375021231	129.8685914	127.0390383	137.0937997	119.9011988	110.6411092	122.7519439
14	0	0	0	0	0	0	0	0	0	0	0	0

- Column CK-CP: G1 Impact (Acute)
- Column CQ-CV: G1 Impact (Chronic)



# Other Genotypes' Efficacy & Impact

	AS	AT	AU	AV	AW
1	G3 Efficacy (Acute)			G3 Efficacy (Chronic)	
2	SOF + RBV	SOF + DCV	PEG + RBV + S	SOF + DCV	PEG + RBV + S
3	97.00%	92.00%	92.00%	90.00%	88.00%
4	97%	92%	92.00%	90%	88.00%
5	97%	92%	92.00%	90%	88.00%
6	97%	92%	92.00%	90%	88.00%
7	97%	92%	92.00%	90%	88.00%
8	97%	92%	92.00%	90%	88.00%
9	97%	92%	92.00%	90%	88.00%
10	97%	92%	92.00%	90%	88.00%

DB	DC	DD	DE	DF
G3 Impact (Acute)			G3 Impact (Chronic)	
SOF + RBV	SOF + DCV	PEG + RBV + S	SOF + DCV	PEG + RBV + S
10,836.25	10,224.22	10,224.22	197,040.84	192,284.15
0.04480609121	0.04244878704	0.04244878704	5.647927376	5.519940044
0.000334109689	0.000316091874	0.000316091874	0.2159698613	0.2109588666
0.000886145327	0.000838311376	0.000838311376	0.6439566671	0.629001659
1.23242696	1.167587446	1.167587446	32.29837304	31.56646162
0	0	0	0	0
0.002442946316	0.002302699214	0.002302699214	0.9200204645	0.8973623175
4.454367422	4.198646649	4.198646649	1101.688585	1074.556339
0.4172312915	0.3947092294	0.3947092294	108.2267719	105.7133539
0	0	0	0	0
1.113267621	1.053231496	1.053231496	373.8737227	365.1989974

	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ
1	Other Efficacy (Acute)								Other Efficacy (Chronic)						
2	SOF + RBV	SOF + LDV	SOF + DCV	OMB + PTV + RTV + RTV + DSV	G + RBV + SOF	G + RBV + SMV	SOF + SMV	SOF + LDV	SOF + DCV	OMB + PTV + R	OMB + PTV + R	PEG + RBV + S	PEG + RBV + S	SOF + SMV	
3	98.50%	98.00%	91.67%	95.45%	100.00%	80.80%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%
4	98.50%	98.00%	91.67%	95.45%	100.00%	80.83%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%
5	98.50%	98.00%	91.67%	95.45%	100.00%	80.83%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%
6	98.50%	98.00%	91.67%	95.45%	100.00%	80.83%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%
7	98.50%	98.00%	91.67%	95.45%	100.00%	80.83%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%
8	98.50%	98.00%	91.67%	95.45%	100.00%	80.83%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%
9	98.50%	98.00%	91.67%	95.45%	100.00%	80.83%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%
10	98.50%	98.00%	91.67%	95.45%	100.00%	80.83%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%
11	98.50%	98.00%	91.67%	95.45%	100.00%	80.83%	81.48%	90.00%	98.00%	94.33%	95.45%	100.00%	88.00%	81.48%	90.00%

	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES
1	Other Impact (Acute)								Other Impact (Chronic)						
2	SOF + RBV	SOF + LDV	SOF + DCV	OMB + PTV + RTV + RTV + DSV	G + RBV + SOF	G + RBV + SMV	SOF + SMV	SOF + LDV	SOF + DCV	OMB + PTV + RTV + RTV + DSV	G + RBV + SOF	G + RBV + SMV	SOF + SMV		
3	620.65	617.11	572.70	370.58	389.61	498.34	502.69	347.96	26,880.25	25,790.88	26,121.89	389.61	23,925.93	22,026.30	347.96
6	0.02528573119	0.02515454894	0.02349545646	0.2644485622	0.2773381141	0.02066844704	0.02083551069	0.2490440808	3.422793228	3.292015461	3.331820413	0.2773381141	3.066633358	2.835099332	0.2490440808
7	0	0	0	0.000423912471	0.000445138791	0	0	0.000398615088	0	0	0.000445138791	0	0.000398615088	0	0.000398615088
8	0	0	0	0.000000516014	0.000000541879	0	0	0.000000485191	0	0	0.000000541879	0	0.000000485191	0	0.000000485191
9	0	0	0	2.259281432	2.36940162	0	0	2.127675276	0	0	2.36940162	0	2.127675276	0	2.127675276
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0.000036999626	0.000038983578	0	0	0.000034652550	0	0	0.000038983578	0	0.000034652550	0	0.000034652550
12	0	0	0	0.04617784896	0.04865394453	0	0	0.04324855129	0	0	0.04865394453	0	0.04324855129	0	0.04324855129
13	0	0	0	0.000162451466	0.000170594356	0	0	0.000152747894	0	0	0.000170594356	0	0.000152747894	0	0.000152747894
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Column AN-AR: G2 Efficacy (Acute/Chronic)
- Column CW-DA: G2 Impact (Acute/Chronic)
- Column AS-AW: G3 Efficacy (Acute/Chronic)
- Column DB-DF: G3 Impact (Acute/Chronic)
- Column AX-BI: G4 Efficacy (Acute/Chronic)
- Column DG-DR: G4 Impact (Acute/Chronic)
- Column BJ-BO: G5 Efficacy (Acute/Chronic)
- Column DS-DX: G5 Impact (Acute/Chronic)
- Column BP-BU: G6 Efficacy (Acute/Chronic)
- Column DY-ED: G6 Impact (Acute/Chronic)
- Column BV-CJ: Other Genotypes' Efficacy
- Column EE-ES: Other Genotypes' Impact

# Impact Data

- Column ET: Acute Impact (the total impact for the acute strains of each genotype)
- Column EU: Chronic Impact (the total impact for the chronic strains of each genotype)
- Column EV: Total Impact (the total impact of each genotype)

ET	EU	EV
<b>Acute Impact</b>	<b>Chronic Impact</b>	<b>Total Impact</b>
80,565.65	3,292,457.02	3,373,022.67
4168.55073	23994.07191	28162.62264
1.457779312	425.6764696	427.1342489
27.08397384	3686.186463	3713.270437
0.01319505042	8.812643152	8.825838202
0.01630304991	12.10140182	12.11770487
211.1041275	5893.056294	6104.160422
0	0	0
0.09789617428	38.82284652	38.9207427
111.9692161	27760.92645	27872.89566
4.560886424	1109.323792	1113.884678