

## Online Supplementary Material

Table 1S: Formulation volumes measured for each syringe size

Table 1: Volumes measured per syringe size

Syringe size	Volumes Measured Per Syringe Size (each n=10)								
1ml	0.05ml	0.1ml	0.25ml	0.5ml	1ml				
2.5ml/3ml		0.1ml	0.25ml	0.5ml	1ml	2ml			
5ml			0.2ml	0.5ml	1ml	2ml	3ml	5ml	

Table 2S: Analysis of Variance table for the interaction between brand, syringe size and formulation volume

		Number of obs =	2693	R-squared =	0.4177
		Root MSE =	12.3015	Adj R-squared =	0.4107
Source	Partial SS	df	MS	F	Prob > F
Model	288800.554	32	9025.01732	59.64	0.0000
brand	84252.4058	1	84252.4058	556.76	0.0000
size_cat	2971.77868	2	1485.88934	9.82	0.0001
brand#size_cat	38137.2635	2	19068.6318	126.01	0.0000
vol_cat	31361.479	8	3920.18488	25.91	0.0000
brand#vol_cat	125801.918	8	15725.2398	103.92	0.0000
size_cat#vol_cat	3406.25573	6	567.709288	3.75	0.0010
brand#size_cat#vol_cat	47619.2302	5	9523.84604	62.94	0.0000
Residual	402526.666	2660	151.325814		
Total	691327.22	2692	256.808031		

Figure 1S: Different syringes and sizes used as part of the study

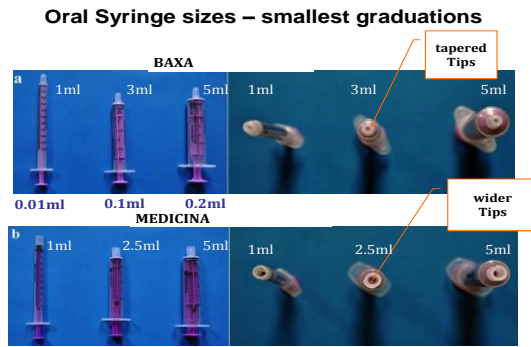


Figure 2S: Box and whisker plots showing precision for the two syringe brands using 5 mL syringes at two formulation volumes: 0.1 mL and 0.25 mL. Baxa are represented as grey boxes with outliers as crosses, Medicine are white boxes with outliers as open circles. Drug formulation abbreviations are as for figure 2 of main manuscript

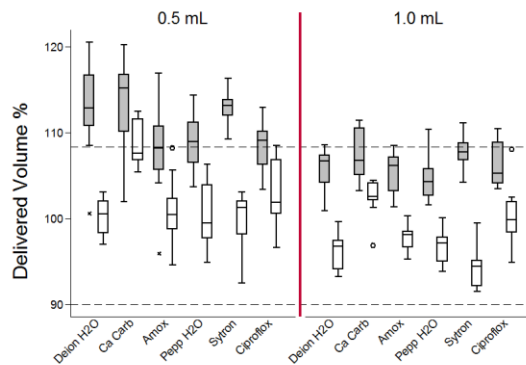


Figure 3S: Multiple linear regression-derived marginal means (+ 95% confidence intervals) for the three physicochemical properties (pH, surface tension, viscosity), when tested using a 1mL syringe.

