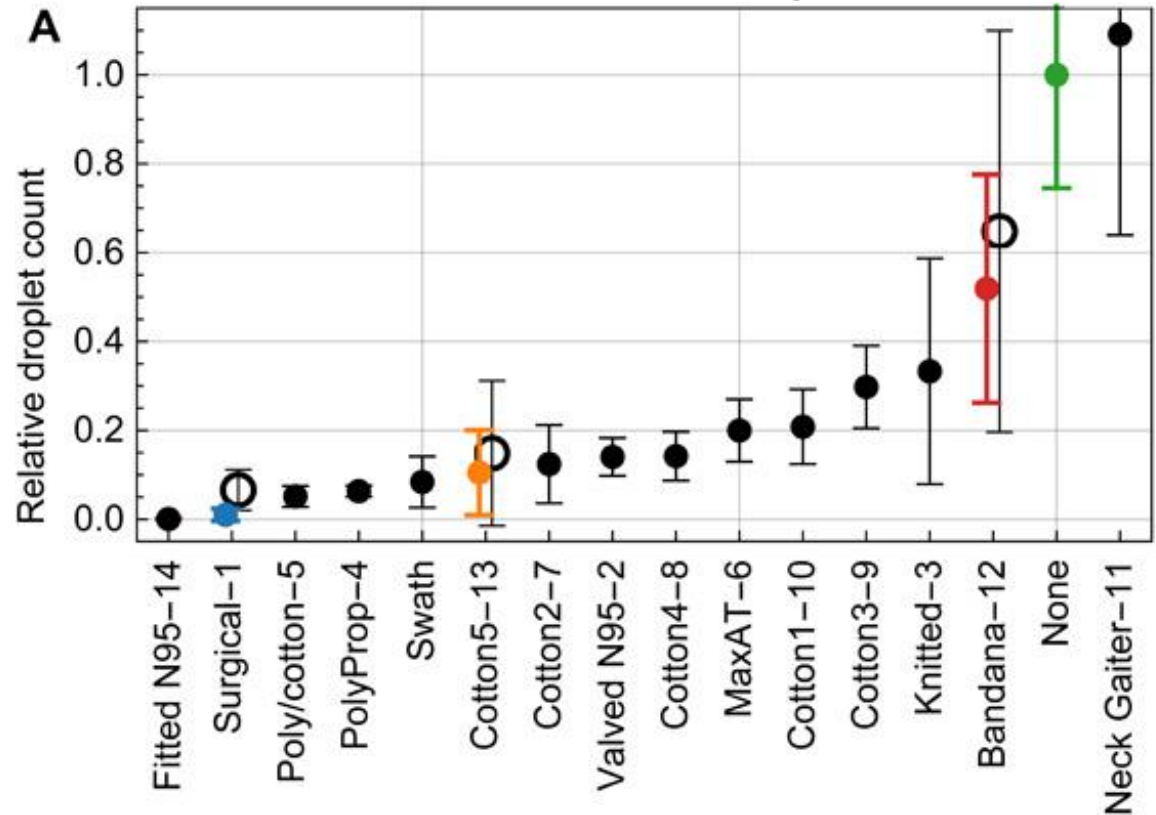


# Problem 1 – Describe the Face Mask Efficacy of a Boxplot

A recent [study](#) published in September in Science Advances demonstrated a simple measurement method to evaluate the efficacy of masks to reduce the transmission of respiratory droplets during regular speech.



**Droplet transmission through face masks.**



Your group assignment is to compare and describe the box and whisker plots above. Use statistical terms carefully and correctly. Choose two face masks and compare their shape, variability, symmetry and presence of outliers. Which mask would you choose? Which mask might you avoid?

# Problem 2 – Create a Boxplot of the F1 Speed Trap Distribution

[FIA Formula One](#) (F1) publishes distributions for every world championship race. In the 2019 F1 Brasil World Championship, the following [data](#) was published

FORMULA 1 HEINEKEN GRANDE PRÊMIO DO BRASIL 2019 - São Paulo											
Race Final Classification after 71 Laps - 305.879 km											
NO	DRIVER	NAT	ENTRANT	LAPS	TIME	GAP	INT	KM/H	FASTEST	ON	PTS
1	33 Max VERSTAPPEN		Aston Martin Red Bull Racing	71	1:33:14.678			196.823	1:10.862	61	25
2	10 Pierre GASLY		Red Bull Toro Rosso Honda	71	1:33:20.755	6.077	6.077	196.609	1:12.425	65	18
3	55 Carlos SAINZ		McLaren F1 Team	71	1:33:23.574	8.896	2.819	196.511	1:13.158	63	15
4	7 Kimi RAIKKONEN		Alfa Romeo Racing	71	1:33:24.130	9.452	0.556	196.491	1:13.135	65	12
5	99 Antonio GIOVINAZZI		Alfa Romeo Racing	71	1:33:24.879	10.201	0.749	196.485	1:13.020	49	10
6	3 Daniel RICCIARDO		Renault F1 Team	71	1:33:25.219	10.541	0.340	196.453	1:12.733	44	8
7	44 Lewis HAMILTON *		Mercedes AMG Petronas Motorsport	71	1:33:25.017	11.139	0.590	196.432	1:11.002	46	6
8	4 Lando NORRIS		McLaren F1 Team	71	1:33:25.882	11.204	0.065	196.430	1:12.328	63	4
9	11 Sergio PEREZ		SportPesa Racing Point F1 Team	71	1:33:26.207	11.529	0.325	196.418	1:12.840	64	2
10	26 Daniil KVIAT		Red Bull Toro Rosso Honda	71	1:33:26.609	11.931	0.402	196.404	1:12.385	49	1
11	20 Kevin MAGNUSSEN		Haas F1 Team	71	1:33:27.410	12.732	0.801	196.376	1:13.262	65	
12	63 George RUSSELL		ROKIT Williams Racing	71	1:33:28.277	13.599	0.867	196.346	1:13.752	57	
13	8 Romain GROSJEAN		Haas F1 Team	71	1:33:28.925	14.247	0.648	196.323	1:13.619	29	
14	23 Alexander ALBON		Aston Martin Red Bull Racing	71	1:33:29.605	14.927	0.680	196.299	1:11.087	52	
15	27 Nico HULKENBERG *		Renault F1 Team	71	1:33:32.737	18.059	3.132	196.190	1:12.934	64	
16	88 Robert KUBICA		ROKIT Williams Racing	70	1:33:32.670	1 LAP	1 LAP	193.428	1:14.553	63	
17	5 Sebastian VETTEL		Scuderia Ferrari Mission Winnow	65	1:23:25.347	DNF		201.402	1:11.384	51	
18	16 Charles LECLERC		Scuderia Ferrari Mission Winnow	65	1:23:25.801	DNF		201.384	1:11.423	63	
19	18 Lance STROLL		SportPesa Racing Point F1 Team	65	1:23:44.211	UNI-		200.646	1:12.603	65	
NOT CLASSIFIED											
	77 Valtteri BOTTAS		Mercedes AMG Petronas Motorsport	51	1:03:20.179	DNF		208.126	1:10.698	43	

Speed Trap Data (KM/H)
197
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197
196
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208

Your group assignment is to create a box and whiskers plot of the speed trap distribution. Include in the distribution the “not classified result”. Speeds are rounded to whole numbers for this exercise. Enter your speeds into your graphing calculator to calculate the five-number summary and create your plot. Be prepared to discuss.