

Appendix 5- Performance in outbreak detection according to incident patient criterion and a variety of upper control limit (UCL), with and without clustering analysis

	UCL	Sensitivity ^a	Specificity ^b	PPV ^c	NPV ^d	AUC (95% CI) ^e	
Without clustering	99% CI ^f	53.3 (16/30)	90.5 (679/750)	18.4 (16/87)	98.0 (679/693)	0.719	(0.608-0.830)
	95% CI	60.0 (18/30)	83.9 (629/750)	12.9 (18/139)	98.1 (629/641)	0.736	(0.630-0.842)
	90% CI	76.7 (23/30)	83.9 (629/750)	16.0 (23/144)	99.0 (629/636)	0.803	(0.714-0.892)
	85% CI	76.7 (23/30)	83.2 (624/750)	15.4 (23/149)	98.9 (624/631)	0.799	(0.710-0.888)
	3SD ^h	46.7 (14/30)	90.8 (681/750)	16.9 (14/83)	97.7 (681/697)	0.687	(0.574-0.801)
	2SD	60.0 (18/30)	87.7 (658/750)	16.4 (18/110)	98.2 (658/670)	0.739	(0.632-0.845)
With clustering (d=1) ^g	1SD	73.3 (22/30)	83.6 (627/750)	15.2 (22/145)	98.7 (627/635)	0.785	(0.691-0.878)
	99% CI	46.7 (14/30)	90.1 (676/750)	15.9 (14/88)	97.7 (676/692)	0.717	(0.606-0.828)
	95% CI	60.0 (18/30)	87.1 (653/750)	15.7 (18/115)	98.2 (653/665)	0.717	(0.606-0.828)
	90% CI	76.7 (23/30)	83.9 (629/750)	16.0 (23/144)	98.9 (629/636)	0.735	(0.629-0.841)
	85%CI	76.7 (23/30)	83.2 (624/750)	15.4 (23/149)	98.9 (624/631)	0.799	(0.710-0.888)
	3SD	46.7 (14/30)	90.5 (679/750)	16.5 (14/85)	97.7 (679/695)	0.803	(0.714-0.892)
With clustering (d=0)	2SD	60.0 (18/30)	87.6 (657/750)	16.2 (18/111)	98.2 (657/669)	0.738	(0.632-0.844)
	1SD	73.3 (22/30)	83.6 (627/750)	15.2 (22/145)	98.7 (627/635)	0.785	(0.691-0.878)
	99% CI	70.0 (21/30)	90.4 (678/750)	22.6 (21/93)	98.7 (678/687)	0.802	(0.704-0.900)
	95% CI	76.7 (23/30)	88.3 (662/750)	20.7 (23/111)	99.0 (662/669)	0.825	(0.735-0.914)
	90% CI	80.0 (24/30)	87.2 (654/750)	20.0 (24/120)	99.0 (654/660)	0.836	(0.752-0.920)
	85% CI	80.0 (24/30)	87.2 (654/750)	20.0 (24/120)	99.1 (654/660)	0.836	(0.752-0.920)
	3SD	70.0 (21/30)	90.4 (678/750)	22.6 (21/93)	98.7 (678/687)	0.802	(0.704-0.900)
	2SD	76.7 (23/30)	88.8	21.5	99.0	0.827	(0.738-

			(666/750)	(23/107)	(666/673)	0.917)
	1SD	80.0 (24/30)	87.3 (655/750)	20.2 (24/119)	99.1 (655/661)	0.837 (0.752- 0.921)

^a Sensitivity = TP / (TP+FN), ^b Specificity = TN / (TN+FP), ^c Positive predictive value (PPV) = TP / (TP+FP), ^d Negative predictive value (NPV) = TN / (TN+FN), ^e AUC: Area under receiver operating characteristic curve, ^f CI: confidence interval, ^g d: cutting Euclidean distance. True positive (TP): An outbreak correctly identified as an outbreak. False positive (FP): A non-outbreak wrongly identified as an outbreak. True negative (TN): A non-outbreak correctly identified as a non-outbreak. False negative (FN): An outbreak wrongly identified as a non-outbreak.