

Chloride: een (an)ion selectieve electrode?

Sectie Algemene Chemie

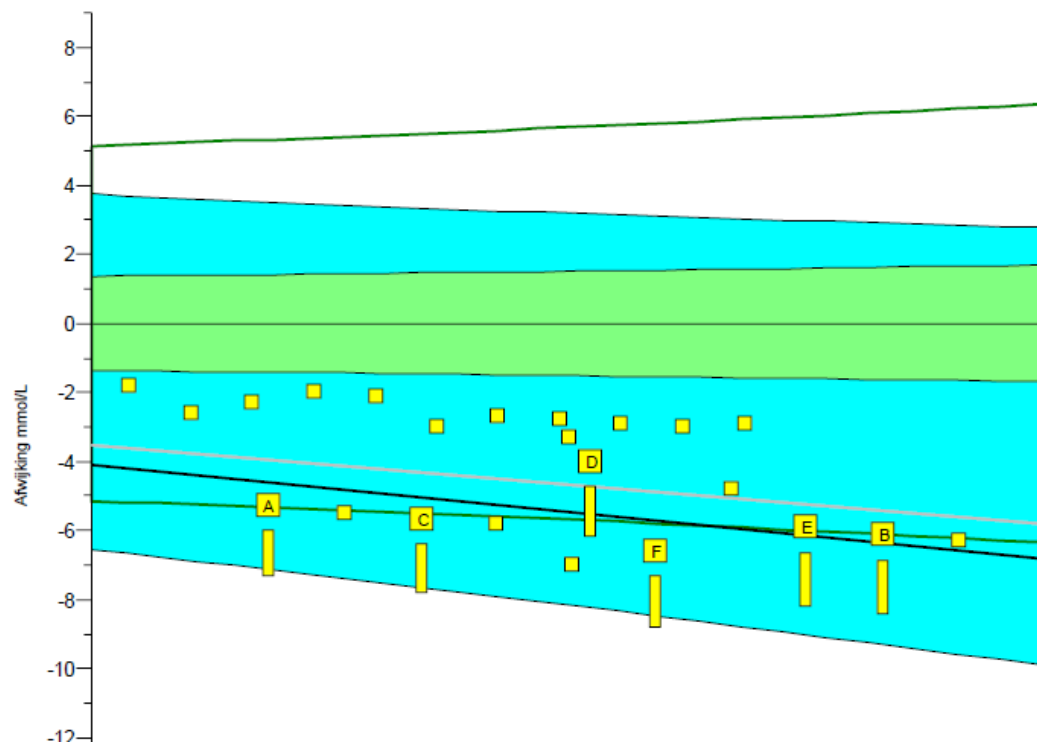
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4 juni 2019



Stichting Kwaliteitsbewaking
Medische Laboratoriumdiagnostiek

Chloride

Chloride



	2018.2
Juistheid	-5.1%
Precisie	0.55%
Aantal	6
Uitbijters	0
Sigma-TE	-3.0
Sigma-SA	1.0 0
Score pictogram	
Regressielijn	$0.0 + 0.949.x$
Consensusgroep	ISE
Methode	Roche
Analyser	Roche Cobas 8000
Uw factor	$0 + 1.000.x$
Methode factor	$0 + 1.005.x$

Experimenten

Doelwaarde	94.5	102.8	107.0	108.0	115.8	128.3
Bias Overall	-3.9	-4.1	-4.0	-2.8	-4.8	-3.8
<u>Tussenlab SD Overall</u>	3.2	4.5	3.0	1.9	3.1	3.4
Abbott	-0.4	-0.6	-0.6	-1.5	-1.2	-1.5
Beckman <u>Coulter AU</u>	-1.2	-1.6	-2.1	-1.6	-2.6	-3.1
Beckman <u>Coulter DxC</u>	-1.2	-0.1	-1.4	-1.9	-0.4	-1.1
Roche <u>Cobas 6000</u>	-5.8	-6.2	-6.1	-4.0	-6.1	-5.8
Roche <u>Cobas 8000</u>	-5.1	-4.8	-5.3	-3.0	-5.0	-4.7
Siemens <u>Advia</u>	-0.7	-1.0	-1.0	-1.4	-1.7	-0.4
Siemens Vista	-1.0	-1.3	-0.8	-1.3	-0.9	+0.5

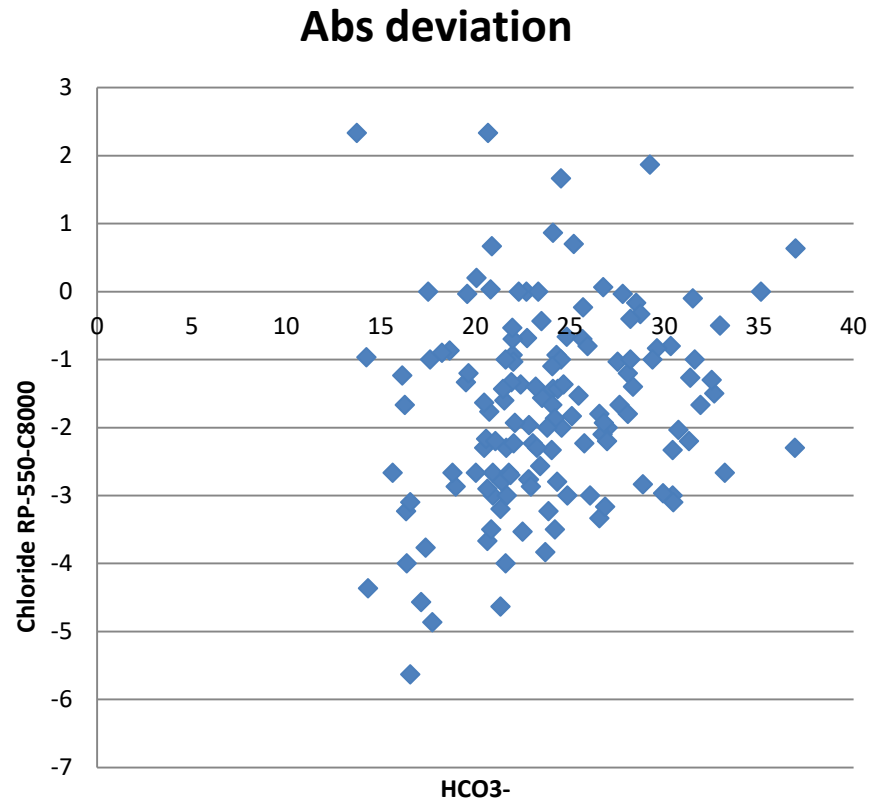
Conclusies

SKML monster is voor Roche niet volledig commuteerbaar: verschil van 2 mmol/L.

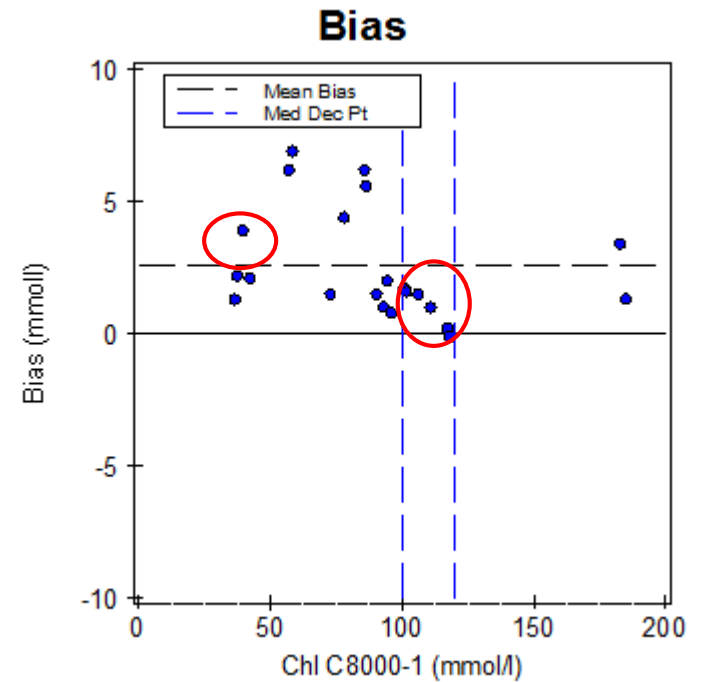
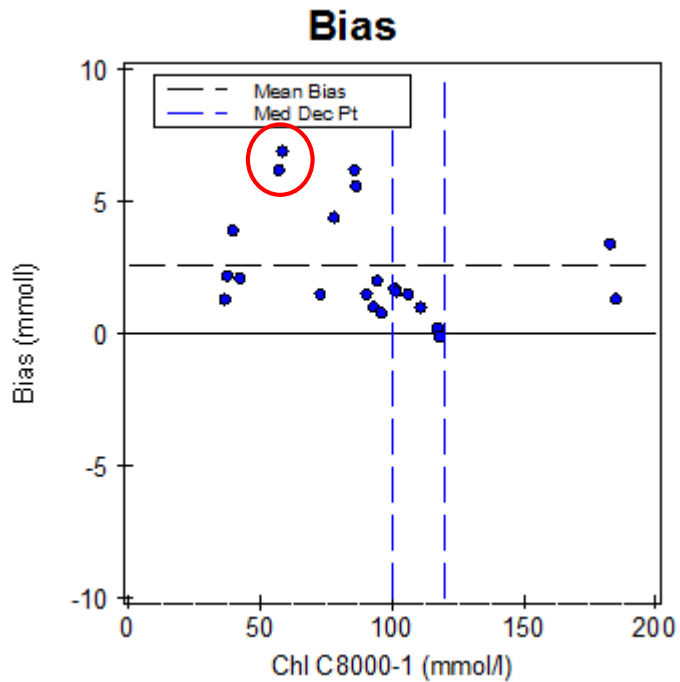
Effect lijkt veroorzaakt door de bicarbonaat gevoeligheid van de chloride electrode: bicarbonaat wordt gemeten als chloride.

Bicarbonaat in rondzend monsters is lager dan in patiënten monsters waardoor lager gemeten wordt.

En nu: patiënten monsters



Verschillende materialen



Conclusies chloride

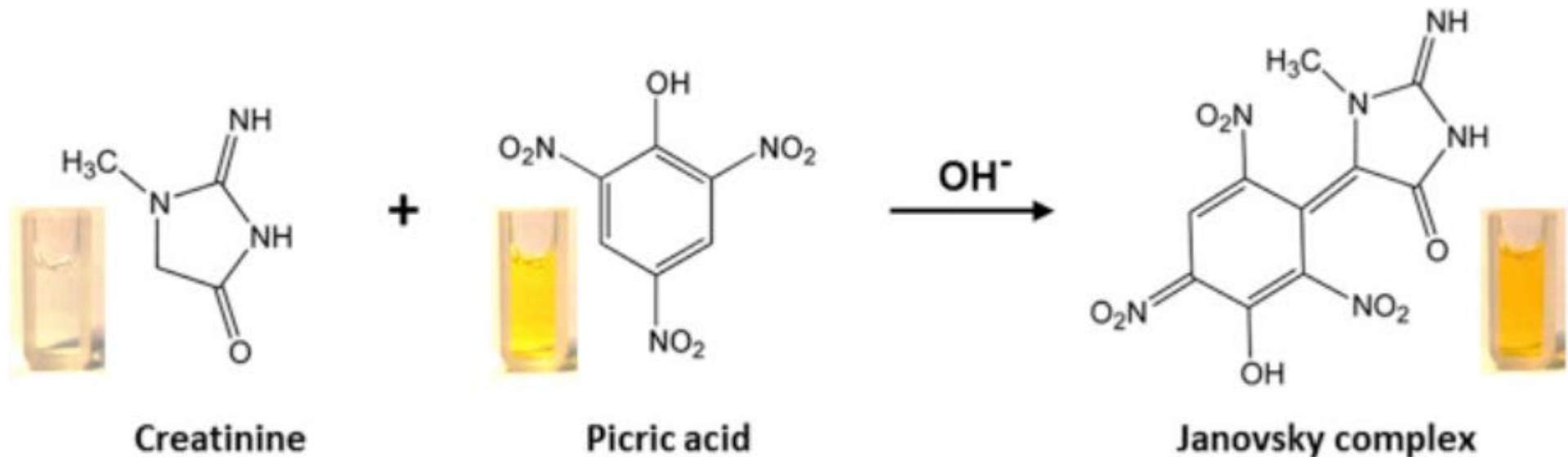
(An)ion selectieve electrode: niet alleen lage bicarbonaat stoort.

Verschillen tussen bloedgas en chemieanalyzer zijn (te) groot.

Hebben verschillen in totaal eiwit effect?

Further research should be performed.

Kreatinine, Jaffé of enzymatisch



Kreatinine, Jaffé of enzymatisch



Experimenten

78 patiënten monsters (TE <65 g/L of >75 g/L en glucose <7 mmol/L of >15 mmol/L)

Alliquoteren en bewaren bij -70°C

Verzenden naar deelnemende laboratoria

Resultaten

Method	Total protein		Glucose	
	50 g/L	80 g/L	5 mmol/L	30 mmol/L
Jaffe methods				
Abbott	-6	+4	0	+33
Beckman	-2	+1	0	+16
Roche	-4	+4	0	+15
Siemens	-5	+4	-1	+26
Enzymatic methods				
Abbott	0	0	0	0
Beckman	0	0	0	0
Roche	0	0	0	0
Jaffe	0	0	0	0

Resultaten

Siemens	Total protein, g/L	100	56	53	50	47	44	40	Total protein, g/L	100	58	58	59	59	59	59	
		80	60	57	53	50	48	42		80	59	59	59	59	59	59	59
		70	63	59	55	52	49	44		70	59	59	59	59	59	59	59
		60	66	61	57	54	51	45		60	59	59	59	59	59	59	59
		50	69	65	60	56	53	47		50	59	59	59	59	59	59	59
		30	76	70	66	61	57	50		30	59	59	59	59	59	59	60
			0-5	5-10	10-15	15-20	20-30	30			0-5	5-10	10-15	15-20	20-30	30	
		Glucose, mmol/L								Glucose, mmol/L							

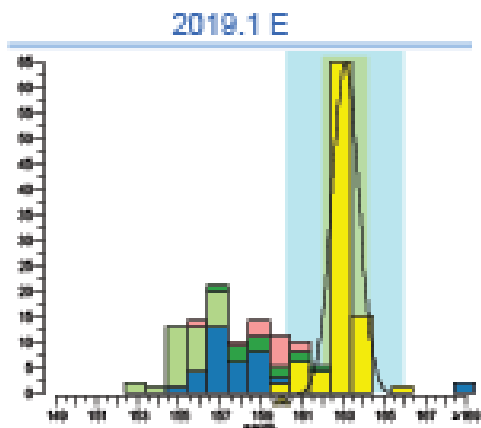
Legend:
Deviations in eGFR
>20% higher than actual eGFR
10-20% higher than actual eGFR
3-10% higher than actual eGFR
<3% difference with actual eGFR
3-10% lower than actual eGFR
10-20% lower than actual eGFR
20-30% lower than actual eGFR
>30% lower than actual eGFR

		Jaffe methods							Enzymatic methods							
Abbott	Total protein, g/L	100	58	53	49	46	43	38	Total protein, g/L	100	60	60	59	59	59	59
		80	63	57	53	49	46	40		80	60	60	59	59	59	59
		70	66	60	55	51	47	41		70	60	60	59	59	59	59
		60	68	62	57	53	49	42		60	60	60	59	59	59	59
		50	72	65	59	55	50	44		50	60	60	59	59	59	59
		30	79	70	64	59	54	47		30	60	60	59	59	59	59
			0-5	5-10	10-15	15-20	20-30	30			0-5	5-10	10-15	15-20	20-30	30
		Glucose, mmol/L							Glucose, mmol/L							
Beckman	Total protein, g/L	100	60	57	55	53	51	47	Total protein, g/L	100	60	60	59	59	59	59
		80	61	59	57	54	52	48		80	60	60	60	60	60	59
		70	62	59	57	55	53	49		70	60	60	60	60	60	60
		60	63	60	58	55	53	49		60	60	60	60	60	60	60
		50	64	61	59	56	54	50		50	60	60	60	60	60	60
		30	66	63	60	57	55	52		30	60	60	60	60	60	60
			0-5	5-10	10-15	15-20	20-30	30			0-5	5-10	10-15	15-20	20-30	30
		Glucose, mmol/L							Glucose, mmol/L							
Roche	Total protein, g/L	100	57	53	52	50	48	45	Total protein, g/L	100	59	59	59	59	59	59
		80	59	57	55	53	51	47		80	59	59	59	59	59	59
		70	60	59	57	55	53	49		70	60	60	60	60	60	60
		60	63	60	58	56	54	50		60	60	60	60	60	60	60
		50	66	63	60	58	56	52		50	60	60	60	60	60	60
		30	70	67	65	62	60	55		30	60	60	60	60	60	60
			0-5	5-10	10-15	15-20	20-30	30			0-5	5-10	10-15	15-20	20-30	30
		Glucose, mmol/L							Glucose, mmol/L							
Siemens	Total protein, g/L	100	56	53	50	47	44	40	Total protein, g/L	100	58	58	59	59	59	59
		80	60	57	53	50	48	42		80	59	59	59	59	59	59
		70	63	59	55	52	49	44		70	59	59	59	59	59	59
		60	66	61	57	54	51	45		60	59	59	59	59	59	59
		50	69	65	60	56	53	47		50	59	59	59	59	59	59
		30	76	70	66	61	57	50		30	59	59	59	59	59	60
			0-5	5-10	10-15	15-20	20-30	30			0-5	5-10	10-15	15-20	20-30	30
		Glucose, mmol/L							Glucose, mmol/L							

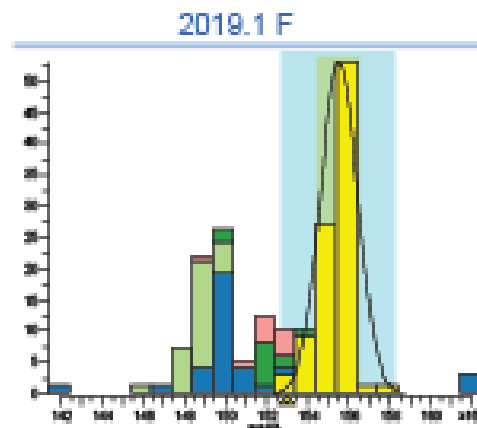
^aeGFR (CKD-EPI) of a Caucasian female aged 55 years with a creatinine concentration of 93 µmol/L

Natrium op de bloedgasanalyzer

U behoort tot de gele groep



	cons.	meth.	ALTM	lab
gem.	163.1	163.1	160.4	160
SD	0.7	0.7	3.9	
n	93	93	184	
nu	0	0	2	
rec.	98%	98%	100%	



	cons.	meth.	ALTM	lab
gem.	155.5	155.5	153.2	153
SD	0.9	0.9	3.8	
n	94	94	180	
nu	0	0	0	
rec.	98%	98%	100%	

Wat doet u?

- A. Niets
- B. Factor instellen
- C. Met leverancier in gesprek



Sectie Algemene Chemie



Miranda
van Berkel



Wendy
den Elzen



Dirk
Bakkeren



Selma
Waaijers



Roseri
Roelofsen



Christian
Ramakers



Jacqueline
Klein Gunnewiek



Cas
Weykamp



Eline van
der Hagen