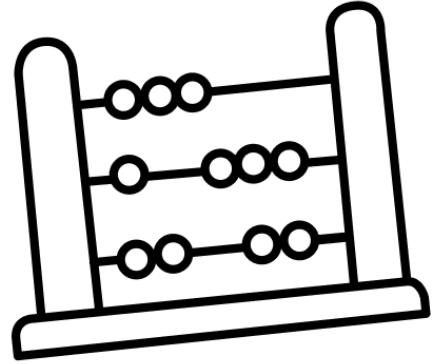


Xirfadle caafimaad (Medical professional)

Maths

Unit Xisaab goobta shaqada (Xisaab in the workplace)



Natiijo

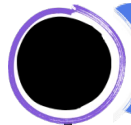
Waxaan fahmi karaa sida xisaabta loogu isticmaalo xirfadlayaasha caafimaadka.

Erayada muhiimka ah

Qaacidho (formula) waa xeer isku xira doorsoomayaal jireed (physical variables) oo macne ku leh.

Garaaf xariiq (line graph) waa garaaf dhibcahiisa ay isku xiraan qaybo xariiq ah. Wuxuu muujinayaa sida shay ugu beddelmo qiime (value), badanaa waqti ka dib.

Xirfadle caafimaad (Medical professional)



Xisaabta (Arithmetic) xirfadaha caafimaadka



Isticmaalka qaaciddooyinka (formulae) xirfadaha caafimaadka



Fahamka xogta (data) xirfadaha caafimaadka

Marka bukaan si dhow loola socdo isbitaalka, kalkaaliyayaashu waxay diiwaangelin karaan xaddiga dareeraha (fluid) jirka ku soo gala iyo ka baxa.

Dareeraha jirka soo gala waxaa ka mid ah cabitaannada, daawooyinka dareeraha ah (IV medication), dareeraha IV iyo shubista dhiigga (blood transfusions). Dareeraha jirka ka baxa waxaa ka mid ah kaadi, matag iyo dareere dheecaan ah (fluid drains).

Macluumaadkan waxaa loo isticmaalaa in lagu xisaabiyo dheelitirka dareeraha (fluid balance).

Dheelitirka dareeraha (fluid balance) wuxuu noqon karaa mid togan (positive) ama taban (negative).

Tiro togan (positive) waxay muujinaysaa in dareere ka badan uu jirka soo galay intii ka baxday. Tiro taban (negative) waxay muujinaysaa in dareere ka badan uu jirka ka baxay intii soo gashay.

Xisaabta (Arithmetic) xirfadaha caafimaadka

Kalkaaliye ayaa baaraya jaantuska dheelitirka dareeraha (fluid balance chart) ee bukaan.

soo gelin (input)			soo bixin (output)			dheelitirka dareeraha (fluid balance) (ml)
cabitaan (drink) (ml)	dawo dareere ah (ml)	IV fluids (ml)	kaadi (ml)	matagid ama neefsasho (ml)	dheecaan (ml)	
100		500	100		20	

Xisaabi dheelitirka dareeraha (fluid balance).

Wadarta soo-baxa (output): $100 + 20 = 120$

Dheelitirka dareeraha (fluid balance): $600 - 120 = 480$ ml

Dheelitirka dareeraha (fluid balance)
ee bukaanku waa togan (positive).

Xisaabta (Arithmetic) ee xirfadaha caafimaadka



Kalkaaliso ayaa baaraysa jaantuska dheelitirka dareeraha (fluid balance chart) ee bukaanka.

gelin (input)			soo-bax (output)			dheelitirka dareeraha (fluid balance) (ml)
cabitaan (ml)	dawo dareere ah (ml)	IV fluids (ml)	kaadi (ml)	matagid ama neefsasho (ml)	dheecaan (drain) (ml)	
150	10			200	10	

Xisaabi wadarta gelinta (input).

$$150 + 10 = 160 \text{ ml}$$

Xisaabta (Arithmetic) ee xirfadaha caafimaadka



Kalkaaliso ayaa baaraysa jaantuska dheelitirka dareeraha (fluid balance) ee bukaanka.

gelin (input)			soo-saar (output)			dheelitirka dareeraha (fluid balance) (ml)
cabitaan (drink) (ml)	dawo dareere ah (liquid medication) (ml)	dareeraha IV (IV fluids) (ml)	kaadi (urine) (ml)	matag ama nuugid (vomit or aspiration) (ml)	dheecaan (drain) (ml)	
150	10			200	10	

Xisaabi wadarta soo-saarka (output).

$$200 + 10 = 210 \text{ ml}$$

Xisaabta (Arithmetic) ee xirfadaha caafimaadka



Kalkaaliso ayaa baaraysa jaantuska dheelitirka dareeraha (fluid balance) ee bukaanka.

gelin (input)			soo-saar (output)			dheelitirka dareeraha (fluid balance) (ml)
cabitaan (ml)	dawo dareere ah (ml)	IV fluids (ml)	kaadi (ml)	matag ama neefsasho (ml)	dheecaan (ml)	
150	10			200	10	

Xisaabi dheelitirka dareeraha.

Dheelitirka dareeraha ee bukaanku waa taban.

1) Shaxdu waxay tusaysaa diiwaanka gelinta iyo soo-saarka dareeraha ee bukaan intii lagu jiray afar saacadood. a) Xisaabi dheelitirka dareeraha saacad kasta.

waqti	gelin			soo-saar			dheelitirka dareeraha (ml)
	cabitaan (ml)	dawo dareere ah (ml)	IV fluids (ml)	kaadi (ml)	matag ama neefsasho (ml)	dheecaan (drain) (ml)	
09:00	200	0	125	0	0	5	
10:00	0	10	125	300	0	25	
11:00	0	0	125	0	200	15	
12:00	150	0	125	0	0	10	

b) Xisaabi isku-dheellitirka guud ee dareeraha (fluid balance) muddada 4 saacadood oo dhan.

1) Jadwalku wuxuu muujinayaa diiwaanka gelinta iyo soo-saarka dareeraha (fluid input and output) ee bukaan muddo afar saacadood ah. a) Xisaabi isku-dheellitirka dareeraha (fluid balance) saacad kasta.

waqti	gelinta (input)			soo-saarka (output)			isku-dheellitirka dareeraha (fluid balance) (ml)
	cabitaan (ml)	dawo dareere ah (liquid medication) (ml)	IV fluids (ml)	kaadi (urine) (ml)	matagid ama nuugid (vomit or aspiration) (ml)	dheecaan (drain) (ml)	
09:00	200	0	125	0	0	5	320
10:00	0	10	125	300	0	25	-190
11:00	0	0	125	0	200	15	-90
12:00	150	0	125	0	0	10	265

b) Xisaabi isku-dheellitirka guud ee dareeraha (fluid balance) muddada 4 saacadood oo dhan.

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Xirfadle caafimaad (Medical professional)



Xisaabinta (Arithmetic) xirfadaha caafimaadka



Isticmaalka qaaciidooyinka (formulae) xirfadaha caafimaadka



Fahamka xogta (data) xirfadaha caafimaadka

Isticmaalka qaaciidooyinka (formulae) xirfadaha caafimaadka

Marka bukaannadu ay isbitaalka ku jiraan, waxaa laga yaabaa in loo qoro daawooyin.

Qadarka la qoro (prescribed) wuxuu ku kala duwan yahay xaaladda bukaanka iyo daawada la isticmaalayo.

Qaar ka mid ah daawooyinka waxaa la siin karaa qaab kiniin ah, qaarna waxay noqon karaan dareere (liquid).

Daawooyinka dareere (liquid) ah waxaa la siin karaa si tartiib ah muddo ka dib iyadoo la isticmaalayo duritaan xidid (intravenous (IV) drip).

Heerka (rate) daawada lagu siiyo iyada oo loo marayo duritaan (drip) wuxuu ku xirnaan karaa arrimo badan, sida qadarka daawada loo baahan yahay, muddada, iyo cufka (mass) bukaanka.

Qiimayaashan (values) waxaa lagu xisaabin karaa iyadoo la adeegsanayo qaaciidooyin (formulae).

Amiodarone waa daawo loo isticmaali karo in lagu daweeyo xaaladaha qaar ee wadnaha. Bukaani waxaa loo qoray 900 mg oo amiodarone ah. Qadarka daawada ku jira qorshe kasta (vial) waa 150 mg. Mugga dareeraha (liquid) ku jira qorshe kasta (vial) waa 3 ml.

Isticmaal qaaciidada (formula) si aad u xisaabiso qiyaasta daawada (drug dosage) loo baahan yahay.

Amiodarone waa daawo loo isticmaali karo in lagu daweeyo xaaladaha qaar ee wadnaha. Bukaan waxaa loo qoray 900 mg oo amiodarone ah. Qadarka daawada ku jira qorshe kasta (vial) waa 150 mg. Mugga dareeraha (liquid) ku jira qorshe kasta (vial) waa 3 ml.

Isticmaal qaaciidada (formula) si aad u xisaabiso qiyaasta daawada (drug dosage) loo baahan yahay.

$$\text{qiyaasta daawada (drug dose)} = \frac{\text{qadarka la qoray (mg)}}{\text{qadarka qorshe kasta (mg)}} \times \text{mugga qorshe kasta (ml)}$$



Isra

Halbeegyada (units) qiyaasta daawada (drug dose) waxay noqon doonaan ml.

Amiodarone waa dawo loo isticmaali karo daaweynta xaaladaha wadnaha qaarkood. Bukaanka waxaa loo qoray 900 mg oo amiodarone ah. Qadarka daawada ku jira fiishalkasta (vial) waa 150 mg. Mugga dareeraha ku jira fiishal kasta waa 3 ml.

Isticmaal qaaciidada (formula) si aad u xisaabiso qadarka daawada loo baahan yahay.

$$\text{qadarka daawada (drug dose)} = \frac{\text{qadarka la qoray (mg)}}{\text{qadarka fiishal kasta (mg)}} \times \text{mugga fiishal kasta (ml)}$$



Isra

Waxaan bedeli karaa qiimaha (values) macluumaadka si aan u xisaabiyo qadarka daawada loo baahan yahay.

Amiodarone waa dawo loo isticmaali karo daaweynta xaaladaha wadnaha qaarkood. Bukaanka waxaa loo qoray 900 mg oo amiodarone ah. Qadarka daawada ku jira fiishalkasta (vial) waa 150 mg. Mugga dareeraha ku jira fiishal kasta waa 3 ml.

Isticmaal qaaciidada (formula) si aad u xisaabiso qadarka daawada loo baahan yahay.

$$\begin{aligned} \text{qadarka daawada (drug dose)} &= \frac{\text{qadarka la qoray (mg)}}{\text{qadarka fiishal kasta (mg)}} \times \text{mugga fiishal kasta (ml)} \\ &= \frac{900}{150} \times 3 \end{aligned}$$

18 ml oo dareere ah ayaa loo baahan yahay si bukaanku u helo 900 mg oo daawada ah.



Isra

Isticmaalka qaaciidooyinka (formulae) xirfadaha caafimaadka

Qaacidada waxaa loo fasiri karaa siyaabo kala duwan marka la eego macnaha.

Bukaanka waxaa loo qoray 900 mg oo amiodarone ah. Qadarka daawada ee vial kasta waa 150 mg. Mugga dareeraha ee vial kasta waa 3 ml.

$$\text{qiyaasta daawada (mg)} = \frac{\text{qadarka la qoray (mg)}}{\text{qadarka vial kasta (mg)}} \times \text{mugga vial kasta (ml)}$$



Isra

Xaaladdan, qaybintu waxay xisaabisaa tirada vial-yada loo baahan yahay si loo siiyo 900 mg oo daawada ah.

Qaacidada waxaa loo fasiri karaa siyaabo kala duwan marka la eego macnaha.

Bukaanka waxaa loo qoray 900 mg oo amiodarone ah. Qadarka daawada ee vial kasta waa 150 mg. Mugga dareeraha ee vial kasta waa 3 ml.

$$\text{qiyaasta daawada (ml)} = \frac{\text{qadarka la qoray (mg)}}{\text{qadarka vial kasta (mg)}} \times \text{mugga vial kasta (ml)}$$

$$900 \div 150 = 6 \text{ vial}$$

$$6 \times 3 = 18 \text{ ml}$$



Isra

Isku dhufashada ayaa markaa noo sheegaysa inta dareere ee ku jira 6 vial.

Qaacidada (formula) waxaa loo fasiri karaa siyaabo kala duwan marka loo eego macnaha (context) kan.

Bukaanka waxaa loo qoray 900 mg oo amiodarone ah. Qadarka daawada ee qarqaryada (vial) kasta waa 150 mg. Culmiga dareeraha ee qarqaryada (vial) kasta waa 3 ml.

$$\text{qadarka daawada (mg dose)} = \frac{\text{culmiga qarqaryada (vial) kasta (ml)}}{\text{qadarka qarqaryada (vial) kasta (mg)}} \times \text{qadarka la qoray (mg)}$$



Isra

Haddii aan dib u habeeyno isla'egta (equation), waxaan u fasiri karnaa qaybaheeda si ka duwan.

Qaacidada (formula) waxaa loo fasiri karaa siyaabo kala duwan marka loo eego macnaha (context) kan.

Bukaanka waxaa loo qoray 900 mg oo amiodarone ah. Qadarka daawada ee qarqaryada (vial) kasta waa 150 mg. Culmiga dareeraha ee qarqaryada (vial) kasta waa 3 ml.

$$\text{qadarka daawada (mg dose)} = \frac{\text{culmiga qarqaryada (vial) kasta (ml)}}{\text{qadarka qarqaryada (vial) kasta (mg)}} \times \text{qadarka la qoray (mg)}$$

$3 \div 150 = 0.02 \text{ ml}$ wuxuu bixiyaa 1 mg oo daawad ah

Qaybintu waxay noo sheegaysaa culmiga qarqaryada (vial) ee loo baahan yahay si loo bixiyo 1 mg oo daawad ah.



Isra

Qaacidada waxaa loo fasiri karaa siyaabo kala duwan marka la eego macnahan.

Bukaanka waxaa loo qoray 900 mg oo amiodarone ah. Xaddiga daawada ee qasac kasta waa 150 mg. Culmiga dareeraha ee qasac kasta waa 3 ml.

$$\text{qiyaasta daawada} = \frac{\text{culmiga qasac kasta (ml)}}{\text{xaddiga qasac kasta (mg)}} \times \text{xaddiga la qoray (mg)}$$

$$3 \div 150 = 0.02 \text{ ml wuxuu bixiyaa 1 mg oo daawada ah}$$

$$0.02 \times 900 = 18 \text{ ml wuxuu bixiyaa 900 mg oo daawada ah}$$



Isra

Isku dhufashada ayaa markaa kor u qaadaysa ilaa 900 mg oo daawada ah.

Bukaanka waxaa loo qoray 600 mg oo amiodarone ah. Xaddiga daawada ee qasac kasta waa 150 mg. Culmiga dareeraha ee qasac kasta waa 3 ml.

Isticmaal qaacidada si aad u xisaabiso qiyaasta daawada loo baahan yahay.

$$\text{qiyaasta daawada (ml)} = \frac{\text{xaddiga la qoray (mg)}}{\text{xaddiga qasac kasta (mg)}} \times \text{culmiga qasac kasta (ml)}$$

Imisa qasac oo daawada ah ayaa loo baahan yahay?

Isticmaalka qaaciidooyinka (formulae) xirfadaha caafimaadka



Bukaanku wuxuu u baahan yahay 18 ml oo amiodarone ah. Waa in lagu milo (dilute) bac (bag) dareere ah ka hor inta aan la siin. Mugga guud ee bacdu waa inuu ahaadaa 50 ml ka dib markii la milo.

Immisa dareere ayaa loo baahan yahay?

32 ml oo dareere ah ayaa loo baahan yahay

Mararka qaarkood, qadarka daawada loo baahan yahay lama siin karo dhammaan hal mar. Waxaa laga yaabaa in loo baahdo in si tartiib ah loo siiyo saacado badan.

Qadarka la siiyo saacad kasta waxaa loo yaqaan heerka maamulka (administration rate).

Tusaale: Bukaanka waxaa la siiyaa bac 50 ml oo amiodarone ah oo la milay 24 saacadood gudahood. Waa maxay heerka maamulka (administration rate)?

Bukaanka waa in la siiyaa 2.0833333... ml saacad kasta.

Mashiinka daawada bixiya waxaa lagu programmin karaa oo kaliya qaddarrada lagu sheegay hal meel jajab tobanle (1 decimal place). Sidaas darteed, qadarka waa in la wareejiyaa (rounded).

Mararka qaarkood, qadarka daawada loo baahan yahay lama siin karo dhammaan hal mar. Waxaa laga yaabaa in loo baahdo in si tartiib ah loo siiyo saacado badan.

Qadarka la siiyo saacad kasta waxaa loo yaqaan heerka maamulka (administration rate).

Tusaale: Bukaanka waxaa la siiyaa bac 50 ml oo amiodarone ah oo la milay 24 saacadood gudahood. Waa maxay heerka maamulka (administration rate)?

$$50 \div 24 = 2.0833333... \approx 2.1$$

Bukaanka waa in la siiyaa 2.1 ml saacad kasta.

Mashiinka daawada bixiya waxaa lagu programmin karaa oo kaliya qaddarrada lagu sheegay hal meel jajab tobanle (1 decimal place). Sidaas darteed, qadarka waa in la wareejiyaa (rounded).

Marka daawada lagu maamulo si joogto ah iyada oo loo marayo IV drip, go'aaminta drip-ka waxaa lagu hagaajiyaa iyadoo loo eegayo arrimo kala duwan, oo ay ku jiraan cufka (mass) bukaanka.

Waxaa lagu xisaabiyaa iyadoo la adeegsanayo qaacidada (formula) soo socota:

$$\frac{\text{go'aaminta drip-ka (drip settings) = heerka maamulka (administration rate) (ml/hr) \times qadarka la qoray (amount prescribed) (mcg) (mcg/kg/min)}}{\text{mugga bacda (bag volume) (ml) \times cufka bukaanka (patient mass) (kg) \times 60}}$$

Waxaa laga yaabaa inaad u baahato inaad u beddesho inta u dhaxaysa milligram (mg) iyo micrograms (mcg) ka hor intaadan isticmaalin qaacidada.

1 milligram = 1000 micrograms.

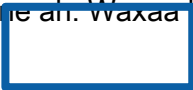
drip settings = (mcg/kg/min)

heerka maamulka (ml/hr) × qadarka la qoray (mcg)

mugga bacda (ml) × cufka bukaanka (kg) × 60

Tusaale: Amiodarone waxaa la siiyaa si joogto ah iyadoo la isticmaalayo IV drip.

Bukaanka waxaa loo qoray 900 mg oo amiodarone ah. Waxaa lagu milay ilaa 50 ml oo bac ah. Heerka maamulku waa 2.1 ml/hr. Bukaanku wuxuu leeyahay cuf 75 kg ah.



$$900 \times 1000 = 900\,000 \text{ mcg}$$

Xisaabi setting-ga mcg/kg/min ee IV drip-ka.

drip settings (mcg/kg/min) =

$$\frac{2.1 \times 900\,000}{50 \times 75 \times 60}$$

$$= 8.4 \text{ mcg/kg/min}$$

Isticmaalka qaacidooyinka (formulae) xirfadaha caafimaadka



Hubi

Bukaanka waxaa loo qoray 600 mg oo amiodarone ah.

1 milligram (mg) = 1000 micrograms (mcg).

Imisa micrograms oo amiodarone ah ayaa bukaanka loo qoray?

$$600 \times 1000 = 600\,000 \text{ mcg}$$

$$\text{drip settings} = (\text{mcg/kg/min}) \quad \frac{\text{heerka maamulka (ml/hr)} \times \text{qadarka la qoray (mcg)}}{\text{mugga bacda (ml)} \times \text{cufka bukaanka (kg)} \times 60}$$

Bukaanka waxaa loo qoray 600 000 mcg oo amiodarone ah. Waxaa lagu milay ilaa 50 ml oo bac ah. Heerka maamulku waa 2.1 ml/hr. Bukaanku wuxuu leeyahay cuf 90 kg ah.

Kee (fraction) ayaa muujinaya dhammaan qiimayaasha (values) si sax ah loo beddelay?

a

$$\frac{90 \times 600\,000}{2.1 \times 50 \times 60}$$

b

$$\frac{2.1 \times 50 \times 90}{600\,000 \times 60}$$

c ✓

$$\frac{2.1 \times 600\,000}{50 \times 90 \times 60}$$

1) Bukaanku wuxuu leeyahay cuf (mass) 90 kg Waxaa loo qoray 600 mg oo daawada rifampicin ah. Daawadu waxay ku timaadaa weelal (vials) mid kastaa wuxuu leeyahay mug (volume) 10 ml. Weel kastaa wuxuu ka kooban yahay 300 mg oo daawada ah. Waa in lagu milo ilaa 500 ml ee bacda IV. Marka la milo, waa in si joogto ah loo siiyaa muddo 3 saacadood ah.

a) Isticmaal qaaciidada (formula) hoose si aad u xisaabiso qiyaasta (dose) loo baahan yahay.

$$\text{qiyaasta daawada (ml)} = \frac{\text{cadadka daawada la qoray (mg)}}{\text{cadadka daawada ee weel kasta (mg)}} \times \text{mugga (volume) weel kasta (ml)}$$

b) 'Heerka qaadista (administration rate)' waa cadadka daawada la milay ee bukaanka la siiyo saacad kasta oo laga soo qaado bacda IV. Xisaabi heerka qaadista (administration rate) xaaladdan.

1) Bukaanku wuxuu leeyahay cuf (mass) 90 kg Waxaa loo qoray 600 mg oo daawada rifampicin ah. Daawadu waxay ku timaadaa weelal (vials) mid kastaa wuxuu leeyahay mug (volume) 10 ml. Weel kastaa wuxuu ka kooban yahay 300 mg oo daawada ah. Waa in lagu milo ilaa 500 ml ee bacda IV. Marka la milo, waa in si joogto ah loo siiyaa muddo 3 saacadood ah.

c) 1 mg = 1000 mcg. Immisa mcg oo rifampicin ah ayaa bukaanka loo qoray?

d) Isticmaal jawaabahaaga qaybaha (b) ilaa (c) iyo qaaciidada (formula) hoose si aad u xisaabiso dejinta (settings) mcg/kg/min ee duritaanka IV.

$$\text{dejinta duritaanka (drip settings)} = \frac{\text{heerka qaadista (ml/hr)} \times \text{cadadka la qoray (mcg)}}{\text{(mcg/kg/min)} \times \text{mugga bacda (ml)} \times \text{cufka bukaanka (kg)} \times 60}$$

1) Bukaanku wuxuu leeyahay cuf (mass) 90 kg Waxaa loo qoray 600 mg oo daawada rifampicin ah. Daawadu waxay ku timaadaa weelal (vials) mid kastaa wuxuu leeyahay mug (volume) 10 ml. Weel kastaa wuxuu ka kooban yahay 300 mg oo daawada ah. Waa in lagu milo ilaa 500 ml ee bacda IV. Marka la milo, waa in si joogto ah loo siiyaa muddo 3 saacadood ah.

a) Isticmaal qaaciidada (formula) hoose si aad u xisaabiso qiyaasta (dose) loo baahan yahay.

$$\text{qiyaasta daawada (ml)} = \frac{\text{cadadka daawada la qoray (mg)}}{\text{cadadka daawada ee weel kasta (mg)}} \times \text{mugga (volume) fiyalkasta (ml)}$$

$$\frac{600}{300} \times 10 = 20 \text{ ml}$$

b) 'Heerka qaadista (administration rate)' waa cadadka daawada la qasiyay ee la siiyo bukaanka saacad kasta oo laga soo qaado bacda IV. Xisaabi heerka qaadista (administration rate) xaaladdan.

$$500 \div 3 = 166.7 \text{ (to 1 d.p.)}$$

c) 1 mg = 1000 mcg. Ilaa imisa mcg oo rifampicin ah ayaa loo qoray bukaanka?

$$600 \times 1000 = 600\,000 \text{ mcg}$$

d) Isticmaal jawaabahaaga qaybaha (b) ilaa (c) iyo qaaciidada (formula) hoose si aad u xisaabiso goobaha mcg/kg/min ee IV drip.

$$\text{goobaha drip (drip settings) (mcg/kg/min)} = \frac{\text{heerka qaadista (administration rate) (ml/hr)} \times \text{cadadka la qoray (mcg)}}{\text{mugga bacda (bag volume) (ml)} \times \text{cufka bukaanka (patient mass) (kg)} \times 60}$$

$$\frac{166.7 \times 600\,000}{500 \times 90 \times 60} = 37.04 \text{ mcg/kg/min}$$

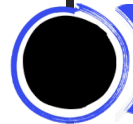
Xirfadle caafimaad (Medical professional)



Xisaabta (Arithmetic) xirfadaha caafimaadka



Isticmaalka qaaciidooyinka (formulae) xirfadaha caafimaadka



Fasiraadda xogta (Interpreting data) xirfadaha caafimaadka

Fasiraadda xogta (Interpreting data) xirfadaha caafimaadka



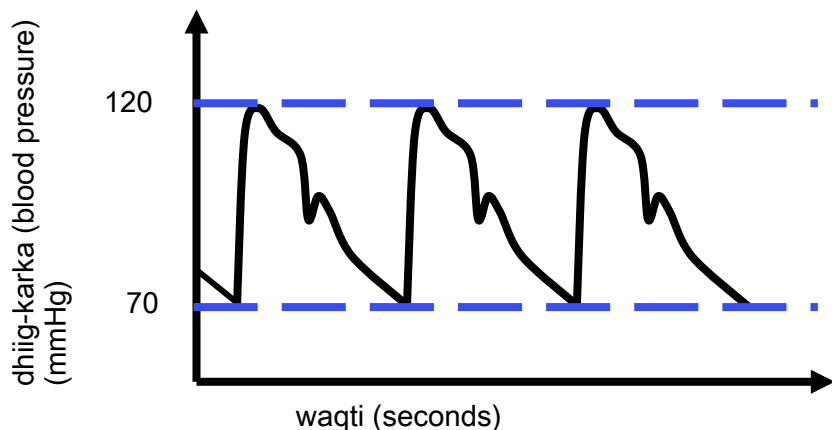
Hal hab oo ay shaqaalaha caafimaadku ku qiimeeyaan caafimaadka bukaanka waa iyada oo la eego 'calaamadaha nolosha (vital signs)'.

Calaamadaha nolosha (Vital signs) waxaa ka mid ah:

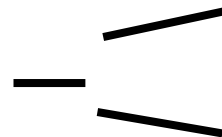
- heerka heerkulka jirka (body temperature)
- heerka neefsashada (respiratory rate) - inta jeer ee bukaanku neefsado daqiiqaddii
- heerka wadnaha (heart rate) - inta jeer ee wadnaha bukaanku garaaco daqiiqaddii
- cadaadiska dhiigga (blood pressure) - xoogga (strength) dhiiggu ku cadaadiyo halbowlayaasha (arteries) qofka marka wadnuhu ku shubo jirka.

Cabbirka cadaadiska dhiigga (blood pressure) wuxuu leeyahay laba qaybood:

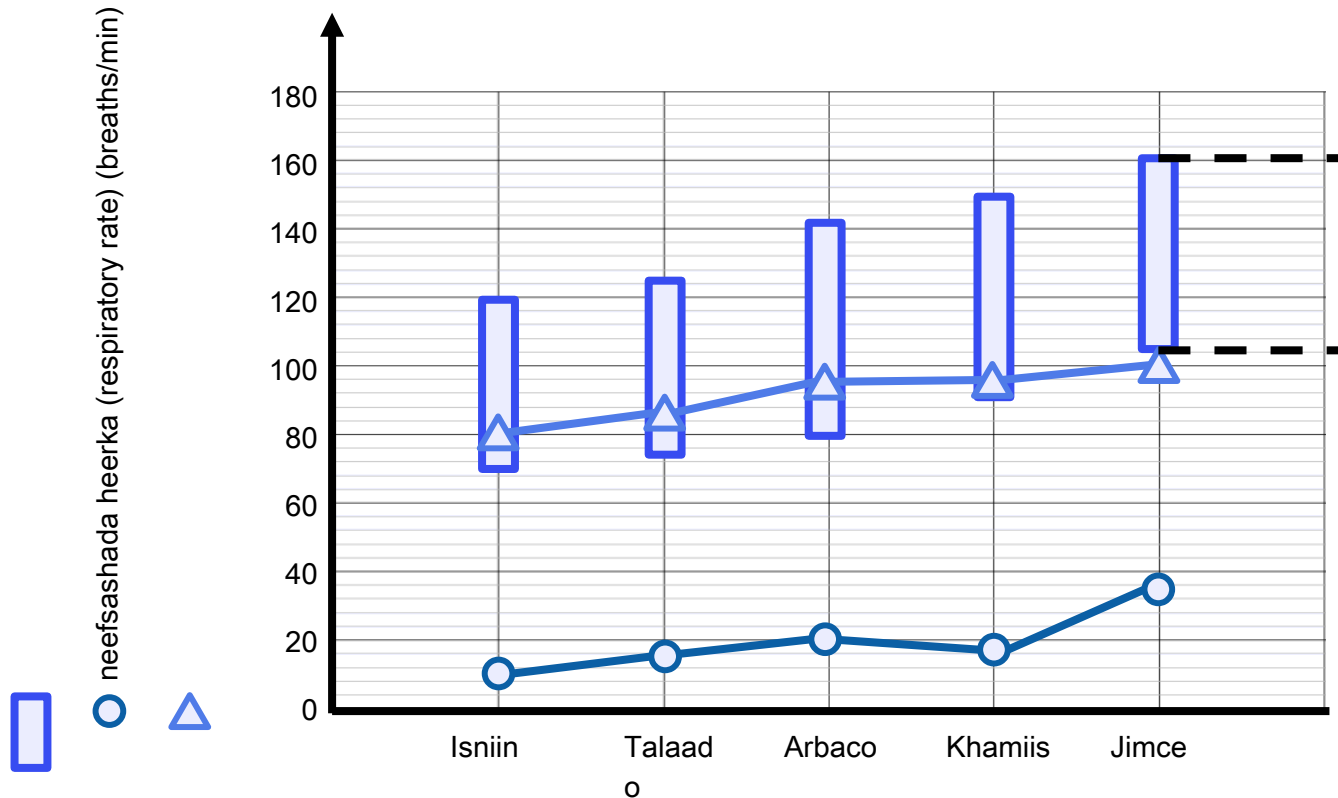
- dhiig-karka systolic (SBP) waa lambar sare oo muujinaya cadaadiska (pressure) marka wadnuhu is-buunsho;
- dhiig-karka diastolic (DBP) waa lambar hoose oo muujinaya cadaadiska (pressure) marka wadnuhu nasado.



Dhiig-karka (blood pressure) waxaa badanaa loo qoraa hal lambar oo kor ku yaal iyo mid kale oo hoos ku yaal. Si kastaba ha ahaatee, qoraalkan ma matalo jajab (fraction).



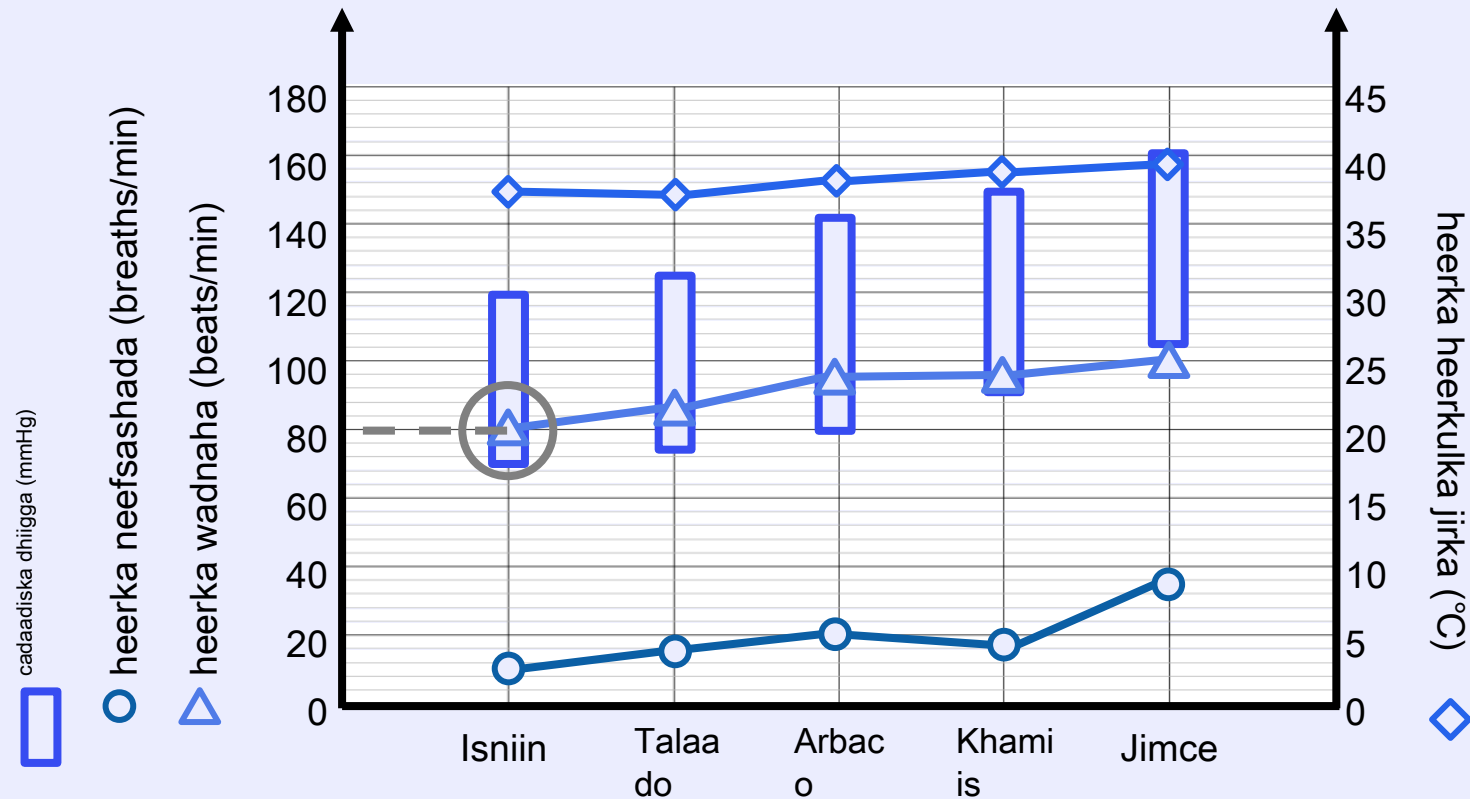
Calaamooyin badan oo nolosha muhiim u ah (vital signs) ayaa lagu muujin karaa garaaf (graph) isku mid ah.



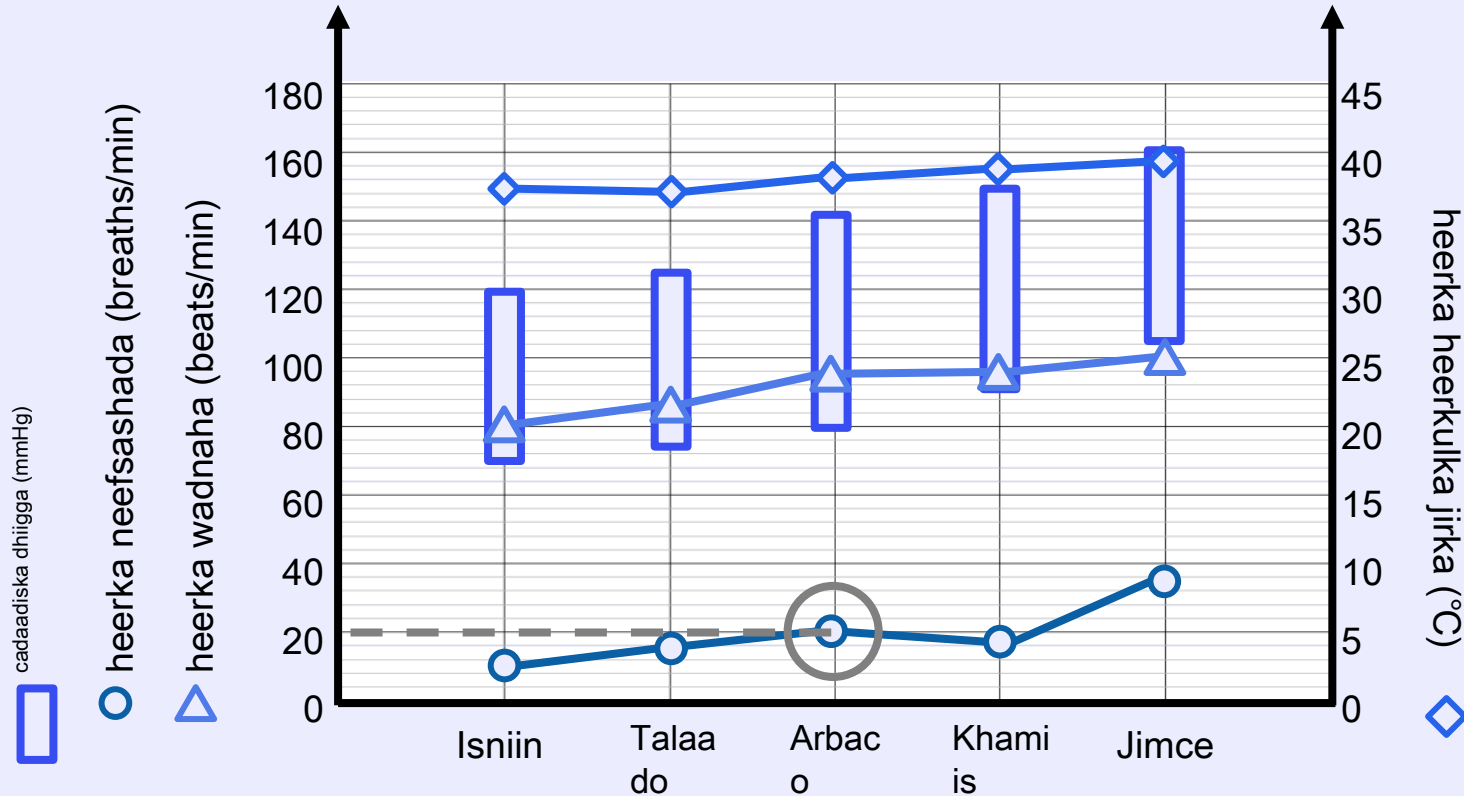
Day	Cadaadiska Dhiigga (mmHg)	Heerka Neefsashada (breaths/min)	Wadnaha Garaaca (beats/min)
Isniin	122	1	22
Talaa do	128	2	22
Arbaco	145	3	24
Khamis	153	2	25
Jimce	165	4	26

Waa maxay heerka wadnaha ee bukaanka maalinta Isniinta?

80 beats/min



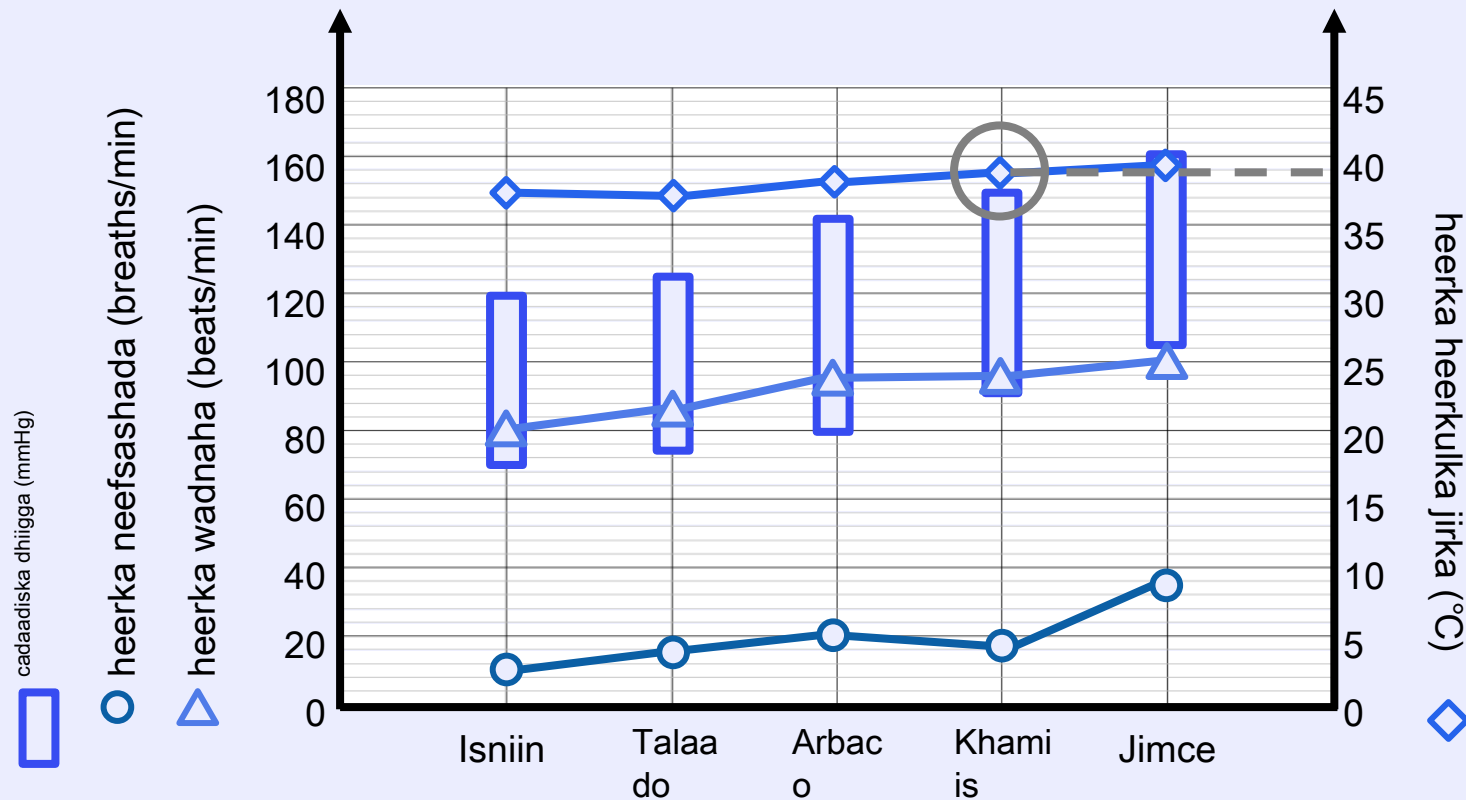
Waa maxay heerka neefsashada bukaanka Arbacada?



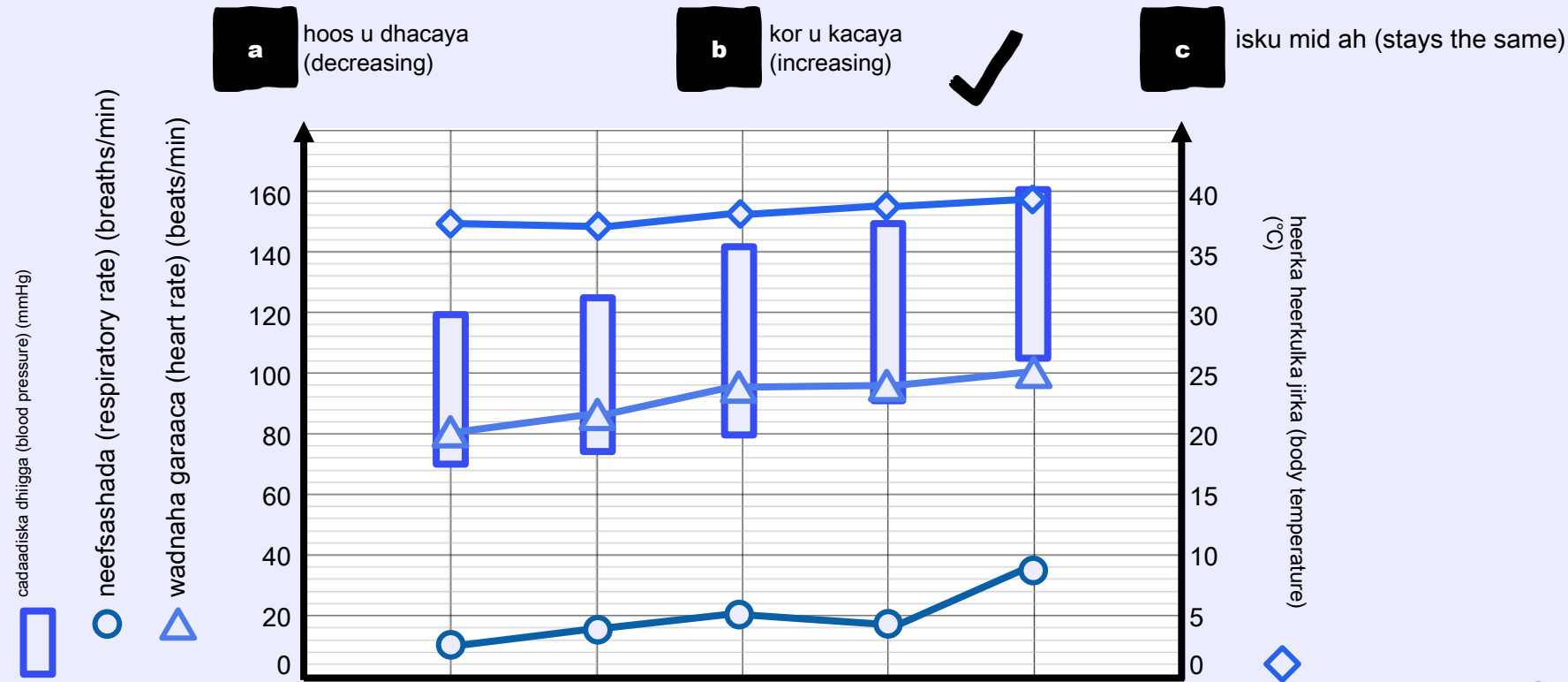
Fahamka xogta xirfadaha caafimaadka

Waa maxay heerka heerkulka jirka bukaanka Khamiista?

39 °C



Waa maxay isbeddelka lagu arkay cadaadiska dhiigga ee bukaanka?



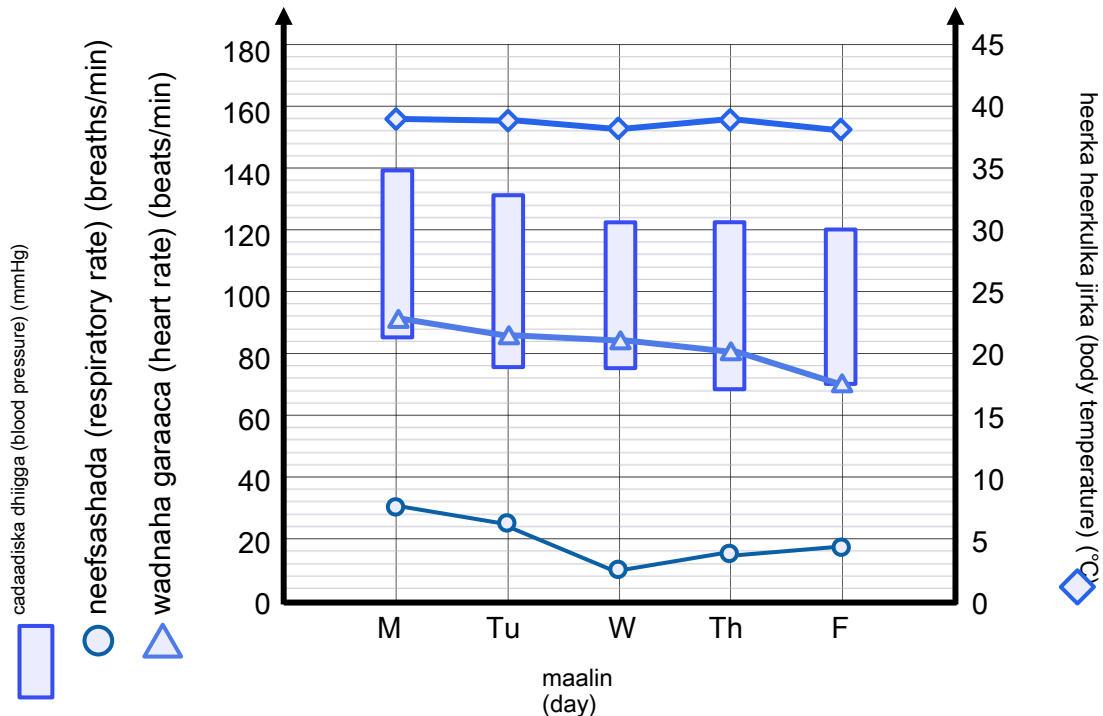
1) Jaantusku wuxuu muujinayaa astaamaha nolosha (vital signs) ee bukaan shan maalmood.

a) Maalintee ayuu neefsashadiisu (respiratory rate) ahaa midka ugu hooseeya?

b) Waa maxay wadnaha garaaca (heart rate) Talaadada?

c) Cabdi wuxuu u malaynayaa in heerkulka jirkiisu (body temperature) ahaa 155°C Isniinta. Waa maxay qaladka uu Cabdi sameeyay?

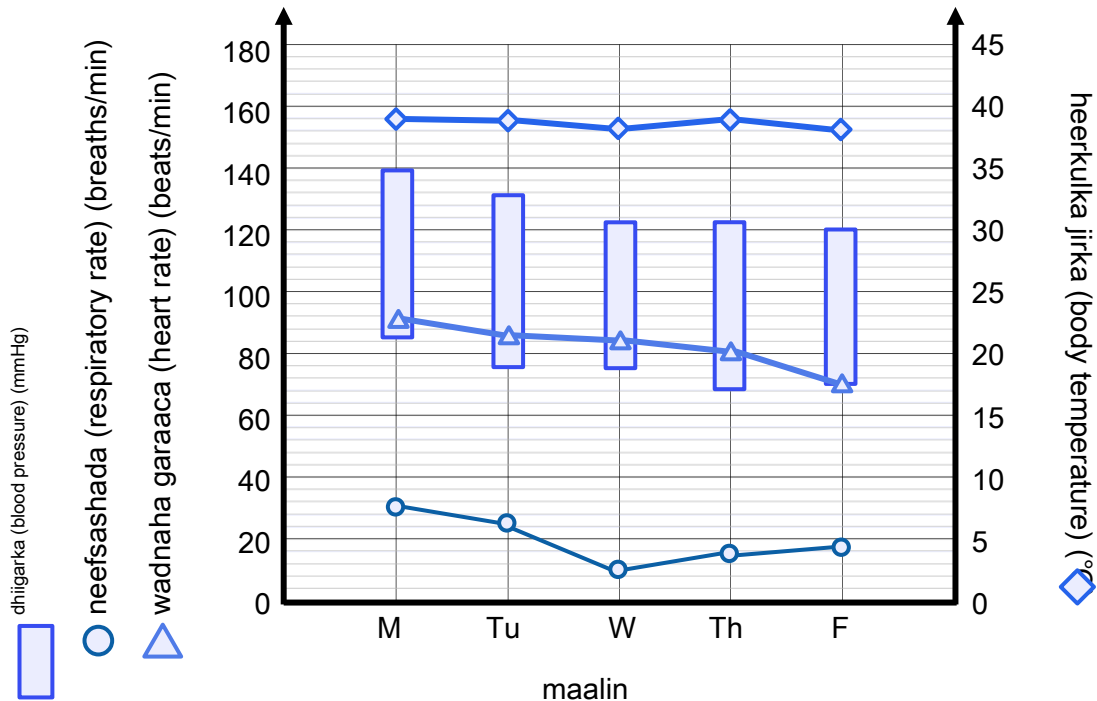
d) Waa maxay heerkulka jirkiisu (body temperature) Isniinta?



1) Jaantusku wuxuu muujinayaa astaamaha nolosha (vital signs) ee bukaan shan maalmood.

e) Sharax isbeddelka dhiigarkooda (blood pressure) muddada shanta maalmood.

f) Dhiigarka caafimaadka qaba wuxuu ku saabsan yahay 120/70. Maalmaha(day) ee dhiigarka bukaanku ku yahay heerkaan?



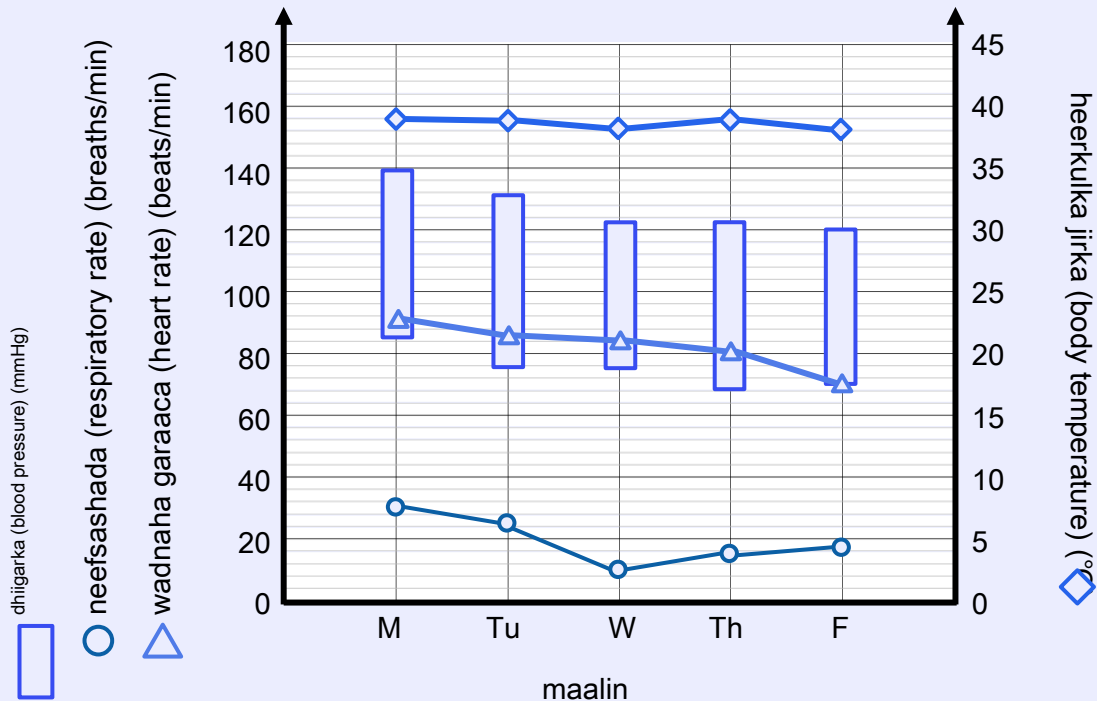
1) Jaantusku wuxuu muujinayaa astaamaha muhiimka ah ee bukaanka muddada shanta maalmood.

a) Maalintee ayuu neefsashadiisu (respiratory rate) ahaa midka ugu hooseeya?

Arbacada

b) Waa maxay wadnaha garaaca (heart rate) Talaadada?

84 garaac daqiiqaddii



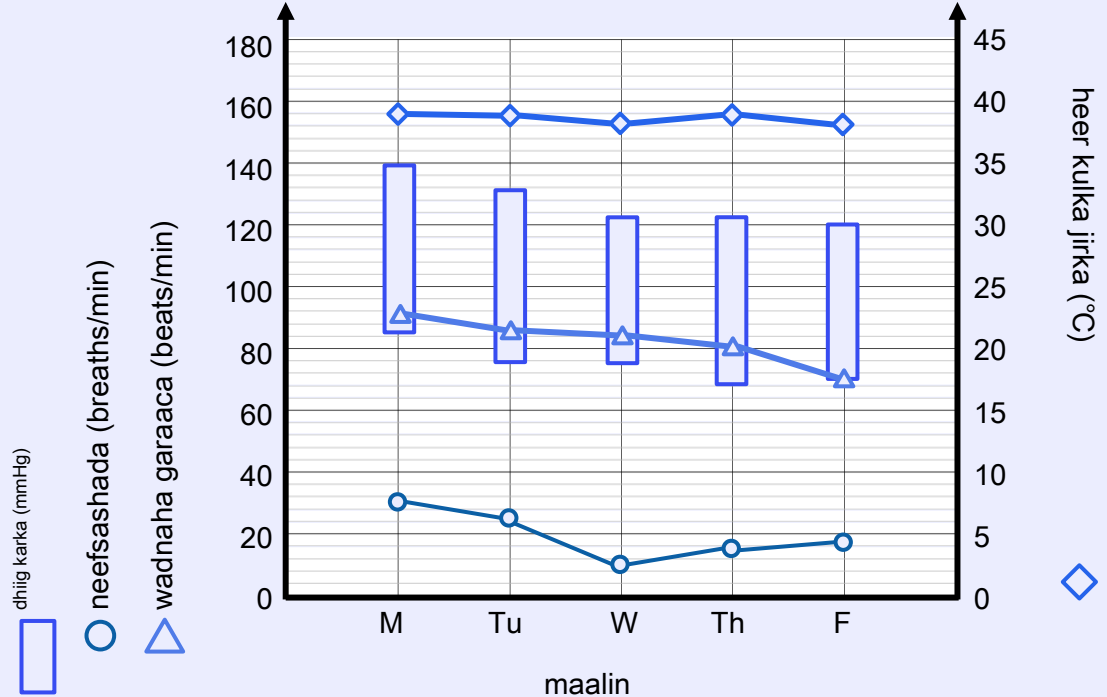
1) Jaantusku wuxuu muujinayaa astaamaha nolosha ee bukaanka muddo shan maalmood ah.

c) Cabdi wuxuu u malaynayaa in heer kulka jirkiisu ahaa 155°C Isniinta. Maxaa qalad ah oo uu Cabdi sameeyay?

Cabdi wuxuu isticmaalay miisaanka bidix halkii uu isticmaali lahaa midka midig.

d) Waa maxay heer kulka jirkiisu Isniinta?

39°C

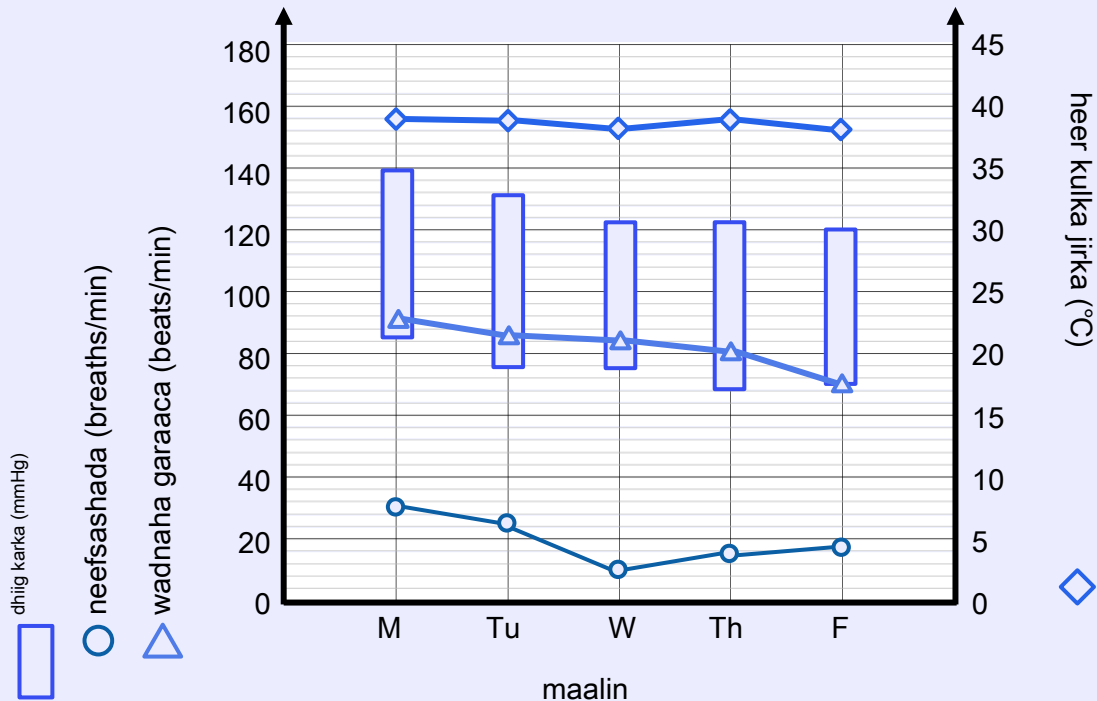


1) Jaantusku wuxuu muujinayaa astaamaha nolosha ee bukaanka muddo shan maalmood ah.

e) Sharax isbeddelka cadaadiska dhiiggooda (blood pressure) muddada shanta maalmood.

Cadaadiska dhiigga (blood pressure) ee bukaanku wuxuu si tartiib ah hoos ugu dhacay shanta maalmood.

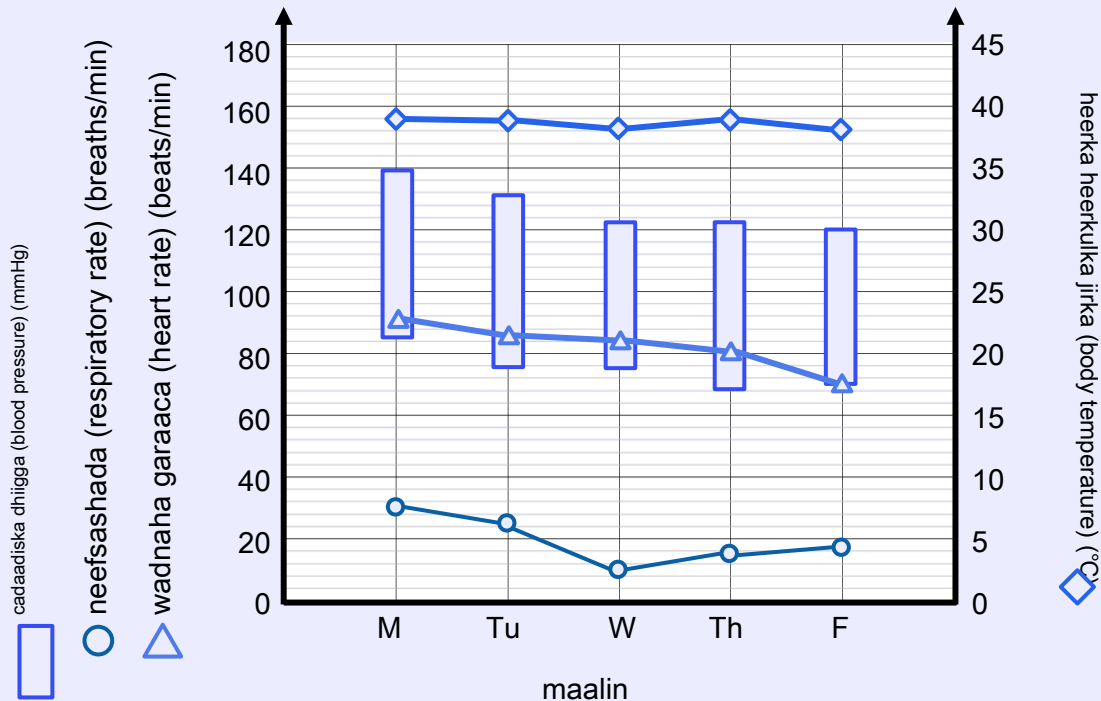
(Ama eray kasta oo muujinaya inuu hoos u dhacayo.)



1) Jaantusku wuxuu muujinayaa calaamadaha nolosha (vital signs) ee bukaan shan maalmood.

f) Cadaadiska dhiigga (blood pressure) ee caafimaadka qaba wuxuu ku saabsan yahay 120/70. Maalmaha (day) ee cadaadiska dhiigga (blood pressure) ee bukaan ku yahay heerarkan?

Cadaadiska dhiigga (blood pressure) ee bukaan wuxuu sidoo kale ku dhow yahay heerkani Khamiista iyo Arbacada.



Shuqullada xirfadda caafimaadka waxay u baahan karaan isticmaalka qaaciidooyinka (formulae) iyo xisaabinta (calculations).

Tusaale: qiyaasta daawada (drug dosage) ee saxda ah ee bukaanku waa in si sax ah loo xisaabiyaa. Waxaa jira qaaciidooyin (formulae) sida loo xisaabiyo.

Fasiraadda xogta (data) waa xirfad muhiim u ah shaqaalaha caafimaadka.

Tusaale: jaantusyada muujinaya calaamadaha nolosha (vital signs) ee bukaanka ayaa laga yaabaa in la fasiro si loo go'aamiyo tallaabada.