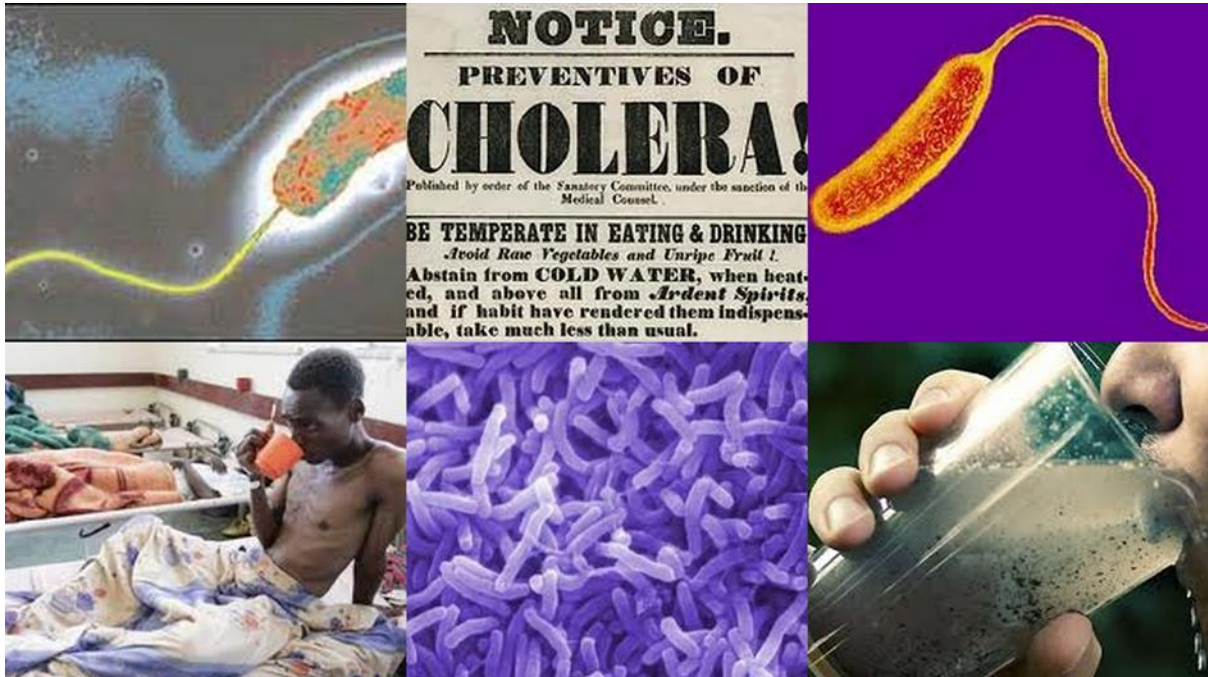


Halista cudurka Daacuunka: Sidee xal waara loogu heli karaa ka hortagiisa?

Dr. Yasin Abdi



Odhaahda tifaftirka

Cudurka Daacuunka, waxa ha'yadda Qaramada Midoobey u qaabbilsan caafimaadka adduunka ee World Health Organisation (WHO) ku sifaysay inuu yahay astaamaha ama calaamadaha ugu muhiimsan ee tilmaama horumar la'aanta bulshada. Waayo-aragnimadii laga dhaxlay la dagaallanka Daacuunka ayaa fure iyo gundhig u noqotay fahamka guud ee cudurada faafa iyo hanaqaadka sayniska caafimaadka casriga ah ee dunidu ku tallaabsatay wixii ka dambeeyey dabayaaqadii qarnigii 19^{aad}. Cudurka Daacuunku laga soo bilaabo 1994kii, wuxu noqday joogto (endemic) geeska Afrika gaar ahaan dhulka Soomaalida. Sida aan ka wada warqabnona wuxu ugu sii daran yahay sannadkan 2017ka oo uu ka dillaacay meelo dhawr ah, dad badanina ugu geeriyooden. Waxa ka mid ah goobahaas lagu arkay cudurka Daacuunka sannadkan bilowgiisii iyo badhtamihiisa Koonfurta Soomaaliya, Bariga dalka Itoobiya iyo Jamhuuriyadda Somaliland.

Haddaba, si aan wax uga ogaanno waxyaabahaas iyo qaar kale oo ku saabsan sifooyinka iyo marxaladaha kala duwan ee cudurka Daacuunka, waxa qoraalkan soo socda soo diyaariyey Saxadoon.com. Kaas oo ay bulshada Soomaalidu ka heli doonaan aqoon, macluumaad, xogo dheeraad ah iyo faa'iidooyin badan oo ku saabsan dhinaca daryeelka caafimaadka iyo caafimaadka guud (Public health). Warbixintan oo aad u dheer, waxay si guud iyo si gaarba uga eegaysaa cudurka Daacuunka dhinacyo badan oo ay ka mid yihiin siyaabaha looga hortagi karo. Waxay jawaab u raadinaysaa su'aasha ah, waa maxay sirta aan dawada iyo tallaalka ahayn ee dunida u suurtoogelisay inay ka hortagaan oo xakameeyaan cudurka Daacuunka?

Fahamka guud ee cudurka Daacuunka, waxay innoo horseedaysaa garashada mawduucyo badan oo muhiim ah sida: caafimaadka iyo xanuunka, cudurada la kala qaado, caafimaadka guud, cilmiga shaybaadhada caafimaadka, barashada xanuunka iyo nidaamyada daryeelka caafimaadka. Soo bandhigista iyo faafinta mawduucyadan iyo qaar kaleba waxay ka mid yihiin himilooyinka iyo yoolka guud ee Saxadoon.com.

Qoraalkan oo u yara badan academic, wuxu waxtar aqooneed iyo mid daraasadeedba u yeelan doonaa inay ka faa'iidaystaan qaybaha kala duwan ee bulshada Soomaalida gaar ahaan xirfadlayaasha daryeelka caafimaadka, ardada, aqoonyahanka, cilmibaadhayaasha, maamulka hay'adaha dawladda, ururada samafalka, jaamacadaha, saxaafadda iyo dejiyeyaasha siyaasadda dalka (Policy makers). Guud ahaan dadweynaha iyo bulshada inteeda kale, wuxu u noqon doonaa wacyigelin, baraarug iyo wargelin guud.

Qoraalkani, isaga oo intan ka kooban ayuu hore u baxay oo warbaahinta galay. Halista iyo dhibaataada soo noq-noqota ee cudurka Daacuunka iyo baahida loo qabo in si qotodheer loo fahmo cudurkan awgeed ayaa kalliftay inaan qoraalkii hore wax ka bedel iyo isku habayn ku samaynay isla markaana ku soo kordhinno xogo badan iyo faah-faahin dheeraad ah. Waxaan filaynaa in dhammaan akhristayaashu ay wax badan ka korodhsan doonaan warbixinta.

Tifaftirka Saxadoon.com

Hordhac

Cudurka Daacuunka oo adduunka intiisa badan ka yaraaday, dalalka qaarkoodna laga cidhibtiray muddo hore ayaan weli qaaradda Afrika ka dhammaan oo dad badani ugu dhintaan sannad walba. Waddamada geeska Afrika ayaa ka mid ah meelaha cudurka Daacuunku uu inta badan ka dillaaco gaar ahaan waqtiyada abaaraha iyo xilliyada ay roobabku da'aan.

Cudurka Daacuunku, waa cudur ka mid ah cudurada faafa (infectious diseases) ee la is qaadsiiyo ama la kala qaado waxaana sababa oo keenta bakteeriyada lagu magacaabo, *Vibrio cholerae*. Daacuunku, wuxuu ku dhacaa oo saameeyaa xiidmaha yar ama mindhicirka yar taas oo keenta inuu sababo shuban aad u fara badan oo horseeda fuuqbax (dehydration). Sidaa awgeed, waxa dhimashada keenaa ama sababaa waa shubanka badan ee qofka la xanuunsanaya cudurka Daacuunka ay biyihii jidhkiisa ku jiray ka dhammaadaan.

Daacuunku, waa cudur marka uu meel ka dillaaco dadka ku abuuri kara argagax, cabsi iyo kala yaac. Wuxu caan ku yahay oo lagu yaqaan in dadku ugu dhintaan si deg deg ah oo naxdin badan saacado gudahood haddaan laga soo gaadhin oo laga daaweyn. Waxa uu mas'uul ka ahaa oo gallaafay nolosha malaayiin dad ah, khasaare dhaqaale oo baxaad weyn leh, khalkhal iyo carqalad nololeed oo aad u adag oo uu u geystay qaybaha kala duwan ee bulshada ku noolaa meelo badan oo ka mid ah dunida sida aan ku arki doonno taariikhda cudurka Daacuunka (History of cholera infection).

In kasta oo Daacuunka, lagu xusuusto cabsi iyo jahawareer ama fowdo sidaan soo sheegnay welina dalal badan oo adduunka ka mid ah uu dhibaato ku hayo oo dad badani ugu dhintaan. Haddana, Daacuunku waa cudurka ugu halista badan ee daraasadaha ugu badan lagu sameeyey oo sida fiican aqoon ahaan loo yaqaan isla markaana aad loo fahamsan yahay waqtigan casri ah. Sidoo kale, si hawl yar baa loo daaweyn karaa cudurka Daacuunka laguna xakamayn karaa faafitaankiisa.

Sababtoo ah bakteeriyada keenta Daacuunka ee *Vibrio cholerae* iyo cudurka Daacuunka, labadaba muddo qarniyo ka badan ayaa si aad u ballaadhan loo daraasadeeyey oo waxa lagu sameeyey cilmibaadhis fara badan oo aad u qotodheer. Waxa la bartay oo la ogaaday siday bakteeriyadu cudurka u sababto, nolosheeda, hababka isu gudbinta cudurka, sida lagu garto astaamaha iyo calaamadaha cudurka, hannaanka loo daaweeyo, sida loo baadho, siyaabaha loo xakameeyo, hababka wax ku oolka ah ee aan qaaliga ahayn ee ka hortagga cudurka iyo daaweynta cudurka iwm. Kuwaas oo dhamaantood lagu guulaystay oo xogo rasmi ah laga soo saaray tusaale iyo habraacna u noqday cudurada kale.

Sidaa awgeed, cudurka Daacuunku wuxu gundhig iyo aasaas u yahay fahamka iyo horumarka laga gaadhay dhinaca hannaanka caafimaadka, cudurada faafa iyo ka hortagooda sidaan ku arki doonno qaybaha soo socda. Dhanka kalena, waxa cudurka Daacuunku tilmaam iyo calaamad ama halbeeg lagu garto u yahay horumar la'aanta bulshada. Goob Daacuun ka dillaacay waa meel aan horumar ka jirin oo aan lahayn saxadhowr (fayadhowr), nadaafad iyo biyo nadiif ah midna.

Shuban (Diarrhoea)

Ka hor inta aynaan bilaabin qormadan cudurka Daacuunka ku saabsan, waxa habboon inaan marka hore sharraxaad kooban ka bixinno shubanka (Diarrhoea) iyo noocyadiisa taas oo sahlaya fahamka guud ee cudurada iyo xanuunada kala duwan ee shubanka sababa.

Shuban ama dababax, doox, falmid, caloobax ama caloos socod maaha cudur ama xanuun ee waa calaamad (symptom) ka mid ah jawaabta ay bixiyaan ama falceliska ka dhasha marka marinka xiidmaha ama mindhiciradu (intestinal tract) ay ugu horrayntii siyaabo kala duwan uu xanuun ama cudur uga bilaabmo oo ay bukoodaan. Taas oo keenta in saxarada caadiga ah ee naflayda uu isbedel ku dhaco oo ay noqoto is daba joog iyo wax jilicsan oo dareere ah.

Sidaas darteed, shuban waxa lagu qeexaa saxaro jilicsan ama biyo ah oo aan caadi ahayn oo la dhigo si is daba joog ah ilaa saddex (3) goor ama in ka badan muddo 24 saacadood gudahood ah (WHO definitions).

Taasi, waxay caddaynaysaa inuu shubanku ka mid yahay calaamadaha cudurka ama xanuunka ee aanu isagu cudur iyo xanuun midna ahayn. Waxa shubanka sabab u noqon kara oo keenaa waa marka ay mindhiciradu bukoodaan oo cudur ama xanuun ku dhaco (infection, inflammation, and Crohn's disease etc) sidaan kor ku soo sheegnay. Shubanku, haddii uu dheeraado ama si daran u socdo wuxu keeni karaa: biyo aad u badan, cusbooyin iyo nafaqo kale oo jidhka aadanaha ka baxa taas oo keenta fuuqbax (dehydration).

Shubanka waxa loo kala soocaa saddex (3) nooc oo kala duwan (clinical classification). Kala saarista shubanku waxay ku salaysan tahay muddada ay calooshu socoto iyo sifooyinka saxarada bukaanku leedahay, kuwaas oo kala ah sidatan soo socota:

1. Shuban ba'an oo soo bood/ku soobood ah (**Acute Diarrhoea**) kaas oo qaata wax ka yar muddo 14 casho ah oo bukaanka calooshu socoto. Inta badan wuxu qaataa 3-7 maalmood isla markaana iskii buu isaga baxaa muddo yar ka dib.
2. Shuban ba'an oo soo bood ahaa oo joogtooba (**Persistent Diarrhoea**) kaas oo qaata muddo ka badan 14 casho isla markaana joogto noqda.
3. Shuban daa'ima (**Chronic Diarrhoea**) oo raaga isla markaana qaata muddo ka badan 30 casho ama bil.

Shubanka Daacuunku leeyahay wuxu ka mid yahay shubanka soo booddada ah ee muddada gaaban (Acute Diarrhoea) kaas oo aan si gaaban wax uga taaban doonno. Shubanka noocan ah inta badan waxa loo yaqaan afka qalaad **Acute infective diarrhoea** waana ta ugu waxyeellada badan ee sababta dhimashada iyo khasaaraha badan. Sababtoo ah waxa bukaanka xiidmaha keena oo sababaa waa cudur ku dhaca mindhicirada (intestinal infection) kaas oo ay sababaan noocyo kala duwan oo ka mid ah jeermisyada (viral, bacterial, parasitic or fungal).

Shubankani, inta badan wuxuu qaadataa 3 ilaa 7 casho in kastoo ay mararka qaarkood gaadho ilaa 10-14 maalmood, waxaan la socda matag oo dadku waxay noqdaan mararka qaarkood hor iyo dabo (vomiting and diarrhoea). Sidaan kor ku soo sheegnay, shubanka waxa sababa cudurada ku dhaca marinka mindhicirada ee ay sababaan jeermisyada soo raaca ama laga qaado biyaha, cuntada iyo wasakhda kala duwan ee ka dhalata saxa xumada iyo maqnaanta nadaafadda guud. Jeermisyadaasina, sida ay cudurka u kala keenaan ama u sababaan waa sidan soo socota:

1. 15-25% waxa sababa oo keena viral agents sida: Rotavirus, Norovirus, Cytomegalovirus, Herpes simplex virus, iyo viral hepatitis.
2. >75-80% waxa sababa oo keena bacterial agents sida: *E. coli* (10-20%), *Campylobacter* (10-15%), *Shigella species* (5-15%), *Vibrio cholerae* (5-10%), *Salmonella* (1-5%).
3. 5-15% waxa sababa oo keena parasitic agents sida: *Giardia intestinalis*, *Cryptosporidium parvum* iyo *Entamoeba histolytica*.

Shubanka muddada gaaban ee soo booddada ahi (Acute Diarrhoea), waxa loo sii kala qaybiyaa laba qaybood. Qaybintani waxay ku salaysan tahay nooca jeermiska sababa shubanka iyo saxarada nooceeda ama sifooyinkeeda. Kuwaas oo kala ah sidan hoos ku qoran:

1. Shuban biyood (Acute watery diarrhoea/AWD)

Marka shubanka ay sababaan jeermisyada mariidyada (enterotoxins) ku sii daayaa gudaha mindhicirka yar (small intestine), suntaasina (toxins) ay kharbudaad iyo khal-khal geliso shaqada mindhicirka yar, waxa dhacda in arrintani keento in saxaradu dareer isu bedesho oo ay kordhaan biyaha ku jira halkaasna waxa ka dhasha in saxaradii biyo noqoto sidaana, loogu magac daray shuban biyood (watery diarrhoea).

Jeermisyada noocan ah ee sababa shuban biyoodka waxa loo yaqaan noninvasive pathogens waxayna mindhicirka yar ku sii daayaan mariidyo (enterotoxins). Qaar ka mid ah jeermisyadaas iyo mariidyada ay sii daayaan waxa ka mid ah kuwan hoos ku qoran:

1. Enterotoxin associated- Cholera toxin of *V.cholerae*, heat labile enterotoxin of *E. coli*, heat stable enterotoxin of *E.coli*
2. Enteroadhesive associated aggregative, adherent of *E. coli*
3. Cytotoxic associated EPEC, Shiga-like toxin, etc.
4. Viral diarrhoeas: rota, adeno, Norwalk, etc.
5. Parasite associated Giardia, Cryptosporidium, and Isospora
6. Unknown mechanism: anaerobes, Giardia

2. Shuban xundhureed (Dysentery diarrhoea)

Marka shubanka ay sababaan jeermisyada gudaha u gala mindhicirka weyn (large intestine) oo ay dhaawacaan xuubka hoosta kaga dahaadhan mindhicirka weyn, taasina ay keento in meeshii bararto oo nabar noqoto ka dibna waxa dhacda in jidhku carto oo iska difaaco jeermiska soo galay (inflammatory response) halkaasna waxa ka dhasha iska horimaad waxana saxarada soo raaca dhiig, xab iyo axalo. Shubanka noocan oo kale ahna mararka qaarkood waxa lagu magacabaa shuban dabadhiig (dysentery diarrhea).

Jeermisyada noocan ah ee sababa shuban xundhureedka waxa loo yaqaan invasive pathogens waxayna ku tarmaan (multiplication) mindhicirka weyn gudihiisa. Jeermisyadaas waxa ka mid ah kuwan hoos ku qoran:

1. Invasive bacteria: Shigellae, Salmonellae, Campylobacter
2. Parasites: *Entamoeba histolytica*

Sidaa awgeed, ma jiro cudur la yidhaahdo shuban biyood ee waxa jira cudur sababa shuban biyood oo u baahan in la ogaado nooca uu yahay si loo helo xalkiisa oo hakad loogu sameeyo intaanu sii fidin ama faafin. Cudurka ugu badan ee inta badan sababa shuban biyoodka waa cudurka Daacuunka, waayo isagaa si deg deg ah u faafa oo loo kala qaadaa isla markaana mar keliya ku dhaca ama saameeya dad badan oo degaan ku wada nool.

Sidaas daraaddeed, sidaan hore ugu soo sheegnay, shuban ama shuban biyood ha ahaado ama mid kale ha ahaado, shubanku cudur iyo xanuuntoonna maaha ee waa calaamad (symptom) ka mid ah calaamadaha lagu arko qof u xanuunsanaya marka marinka mindhiciradu bukoodaan oo uu cudur ama xanuun kaga dhaco. Shubanku, kama duwana sida qufaca (cough) oo ah calaamad ka mid ah calaamadaha lagu arko marka habdhiska neefsashada ama neef mareenka uu cudur ama xanuun ku dhaco.

Shubanku, marka dunida oo dhan la eego sannadkii wuxu ku dhacaa in ka badan 1.7 billion qof (1.7 billion cases) sida ay sheegtay WHO. Waxa u dhinta sannadkiiba in ku dhow 7, 60,000 caruur ah, kuwaas oo ah carruurta da'adoodu ka yar tahay (<5 years)

shanta sano. Shubanku, waa mid ka mid ah sababaha ugu waaweyn silica iyo dhimashada, gaar ahaan carruurta yar yar ee ku nool dalal badan oo ah kuwa ku yaal kulaylaha (tropical countries) una badan waddamada Afrika iyo Asia.

Sida ay muujinayso, warbixinta WHO ee caafimaadka Soomaaliya sannadkii 2006, xanuunnada shubanku, waxay kow ka yihiin guud ahaan dhulka Soomaalida kuwa ugu badan ee sababa dhimashada iyo bukaanka (mortality and morbidity) taas oo ay ugu wacan tahay biyaha aan nadiifta ahayn iyo saxadhowr la'aanta. Waxa ku xiga oo kaalinta labaad ah Qaaxada (Tuberculosis), halka kaalinta saddexaadna uu yahay cudurka Daacuunka oo tan iyo 1994kii wixii ka dambeeyey ku noqday joogto (endemic) dhammaan dhulka Soomaalida.

Intaas haddaan ku dhaafno shubanka, waxan guda geli doonnaa qoraalka ku saabsan cudurka Daacuunka oo ah mid aad u dheer kana kooban saddex (3) qaybood oo kala duwan oo mid walba gaarkeed iyo goonnideed loo qaadan karo.

Qaybta 1^{aad} waxay ku saabsan tahay taariikhda iyo marxaladihii kala duwanaa ee cudurka Daacuunku soo maray, meeshuu ka bilaabmay, sidii lagu ogaaday Daacuunka, siyaabihii loogu guulaystay ka hortagiisa, casharadii laga bartay iyo waayo-aragnimadii laga dhaxlay siday adduunka maanta jira wax uga bedeshay gaar ahaan ka hortagga cudurada faafa (infectious diseases) iyo caafimaadka guud iwm. Waxyeellooyinkii caafimaadka ee adduunka ka soo gaadhay gaar ahaan dhulka Soomaalida iyo sababta qaaradda Afrika weli Daacuunka looga cidhibtiri kari waayey.

Qaybta 2^{aad} waxay si kooban u sharraxaysaa cudurka Daacuunka iyo sayniska bakteeriyada keenta ama sababta Daacuunka ee *Vibrio cholerae*. Waxyaabaha ugu muhiimsan ee aan soo qaadan doonno waxa ka mid ah siyaabaha cudurka Daacuunku ku faafo, sida loo qaado, sifooyinka lagu garto, baadhitaankiisa ama ogaanshihiisa, daaweyntiisa iyo ka hortaggiisa iwm.

Qaybta 3^{aad} waa talo soo jeedin aan ku falaqayn doonno sirta aan dawada iyo tallaalka ahayn ee dunida u suurto gelisay ka hortagga iyo xakamaynta cudurka Daacuunka. Waxan wax ka taaban doonnaa waxyaabaha la samayn karo iyo tallaabooyinka la qaadi karo muddada gaaban iyo muddada dheer.

Qaybta koobaad

Taariikhda Cudurka Daacuunka (History of Cholera Infection)

Cudurka Daacuunku waa xanuun qadiimi ah (Ancient disease), oo adduunyadu intay jirtayba dhibaato iyo waxyeello badan ku hayey, waxana la aaminsan yahay inuu ka mid yahay xanuunada ugu da'da weyn ee ku dhaca aadanaha. Sida la sheegay, Hippocrates circa, ayaa waa hore (saman hore) tilmaamay xanuun sida Daacuunka oo kale ah 500 (500 BC) oo sano ka hor dhalashadii nebi Ciise (CS).

Waxa taariikhyanka Gaspar Correa oo u dhashay dalka Portugal laga soo xigtay, in cudurka Daacuunku ka jiri jirey waddanka Hindiya oo sannadkii 1543 ay dad badani ugu dhinteen degaamada ku xeeran webiga Ganges. Wuxu sheegay in waagaas Daacuunka, Hindiya looga yaqaannay Moryxy. Sida aan hoos ku arki doonno, cudurka

Daacuunku waxa uu asal ahaan ka bilaabmay dalka Hindiya gaar ahaan webiga Ganges iyo dooxooyinka ku yaal agagaarkiisa.

Webiga Ganges (waxa kale oo loo yaqaan Ganga ama Gonga) waa webiga saddexaad ee ugu weyn dunida oo dhan marka la eego socodka biyaha ka soo baxa. Dhererkiisu waa 2,510 km ama 1,560 miles, wuxu ka soo bilaabmaa galbeedka buuraha Himalaya (Himalayas) wuxuuna ku dhammaadaa oo bad weynta Hindiya kaga darsamaa Bay of Bengal sida ka muuqata khariidada hoose.



Map of India showing the route of the Ganga River

In ka badan 400 milyan oo reer Hindiya ah, ayaa noloshoodu ku xiran tahay oo nolol maalmeedkooda ka hela. Webiga Ganges wuxu ka mid yahay webiyada adduunka kuwa ugu wasakhaysan ama ugu dikhow badan (most polluted river) waxaana sida badan loo yaqaan webiga geerida. Waana sababta ay had iyo goor cuduradu uga dillaacaan siiba Daacuunka iyo cudurada kale ee shuban biyoodka keena waana ta keentay in loogu magac daro, xarunta ama hoyga Daacuunka (Cholera home base).

Cudurka Daacuunku, wuxu adduunyada aad ugu baahay qarnigii 19^{aad} waqtigaas oo ah markii cudurkan si rasmi ah loo ogaaday oo laga helay agagaarka webiga Ganges ee dalka Hindiya sidaan kor ku soo sheegnay. Dalka Hindiya iyo dalalka ku xeeran waa meelaha uu ugu badan yahay cudurka Daacuunku ilaa waqtigan xaadirka ah. Toddoba (7) jeer oo Daacuun safmarro caam (pandemics) ahi adduunyada ku faafeen, shan ka mid ah ayaa Hindiya ka dillaacay sidaan hoos ku arki doonno. Sidaa awgeed, inta badan cudurka Daacuunka waxa loo yaqaan, Asiatic cholera.

Cudurka Daacuunka, in laga qaado biyaha sadhaysan isla markaana biyuhu gudbiyaan waxa ogaaday John Snow (u dhashay dalka Boqortooyada Ingiriiska) sannadkii 1854. Waagaas, Daacuun xun baa magaalada London ka dillaacay sannadihii 1849-1854. Riig (water pump) kuwa biyaha laga cabbo ah oo ku yaal waddada Broad Street (Soho) baa dadkii ku idlaadeen cudurka Daacuunka awgii.

Bakteeriyada *Vibrio cholerae*, inay Daacuunka sababto oo keento waxa markii ugu horreysay sheegay Filippo Pacini (u dhashay Talyaaniga) sannadkii 1854. Berigaas magaalada Florence ee dalka Talyaaniga waxa ka dillaacay cudurka Daacuunka. Laakiin, waxa si rasmi ah u xaqiijiyey oo soosaary (cultural isolation) *Vibrio cholerae* Robert Koch (u dhashay Jarmal) sannadkii 1883. Waqtigaas, koox cilmibaadhayaal ah oo uu hogaaminayey Robert Koch ayaa dalalka Masar magaalada Alexandria iyo Hindiya magaalada Calcutta (Kolkata) u tegey daraasad ku saabsan cudurka Daacuunka, isla markaana sidaa ku ogaaday bakteeriyadaas.

Ka hor 1850, adduunyada waxa la aaminsanaa in cudurka Daacuunka ay sababto neefsashada hawada xun ee uumiga ah ama urta xun ee aan caafimaadka qabin (**miasma**). Arrintaasina, waxay ku salaysnayd aragtida Miasma (Miasma theory) oo tidhaahda cudurka iyo xanuunada waxa keena oo sababa waa hawada ama uumiga xun ee la neefsado.

Aragtidaa waxa bedelay, Dr John Snow oo xaqiijiyey in cudurka Daacuunka laga qaado biyaha sadhaysan ama wasakhaysan. Cudurka daacuunka inay sababto ama keento bakteeriyada *Vibrio cholerae* waxa caddeeyey Dr Robert Koch sidaan horeba u soo sheegnay. Taasina, waxay meesha ka saartay aragtidi Miasma waxaana bilaabantay aragtida cilmiga sayniska ku dhisan ee loo yaqaan aragtida jeermiska (**Germ Theory**). Aragtidan dambe waxay xaqiijisay oo caddaysay in cudurada ay sababaan noolayaasha yar yar ee ili ma aragtayda ah ee jeermiska (germs) ama (microorganisms) loo yaqaan.

Cudurka Daacuunku, wuxu sababay safmarro caama oo adduunka ku wada faafay (pandemics), toddoba (7) safmar caam ah baa ka dhacay adduunka ilaa maanta. Lixdii ugu horreeyay waxay ka dhaceen meelo badan oo ka mid ah caalamka sanadihii 1817 ilaa 1923. Waxa sababay oo keenay dhammaantood bakteeriyada *Vibrio cholerae* 01,

Classical biotype. Kii 7aadna (7th pandemic) wuxu adduunka ka dillaacay sanadihii 1961 ilaa 1970s. Waxa sababay bakteeriyada *Vibrio cholerae* 01, El Tor biotype.

Toddobadii safmar caam (Seven Cholera pandemics) ee adduunka ka dillaacy ilaa maanta waxay dhaceen sannadahan soo socda:

1. First Pandemic: 1817-1823

Safmar caamkii 1^{aad} ee cudurka Daacuunku, wuxu ka bilaabmy markii hore waddanka Hindiya webiga Ganges magaalada la yidhaahdo Jessore (imminka waa dalka Bangladesh) oo u dhaxaysa magaalada Calcutta iyo Dhaka waqti lagu guda jiray xafladda Kumbh oo ka mid ah xusaska Hinduuga. Waxa ku dhintay in ka badan 10,000 British army ah iyo boqollaan kun oo shacabka reer Hindiya ka mid ah. Ka dibna waxa cudurka Daacuunku ku faafay Koonfurta Bari ee qaaradda Asia, badhtamaha Asia, Bariga Dhexe, waddanka Ruushka, Afrikada Bari iyo xeebaha badda cad (Mediterranean coasts) waxaana ku geeriyooday malaayiin dad ah oo ku kala noolaa dalalkaas. Tusaale, ahaan magaalada Basra ee dalka Ciraaq waxa ku dhintay dad ka badan 18,000 muddo saddex toddobaad ah sannadkii 1821. Daacuunku, dunida in muddo ah waa ka yara baxay marka laga reebo xarunta Daacuunka (Bay of Bengal) iyo hareeraheeda.

2. Second Pandemic: 1829-1850

Safmar caamkii 2^{aad} ee cudurka Daacuunku wuxu ka bilaabmy mar kale waddanka Hindiya gobolka Bengal 1829. Ka dibna wuxu gaadhay oo ku faafay qaaradaha oo dhan gaar ahaan Asia, Bariga Dhexe, Yurub, USA, Ruushka, Afrika iyo Latin America. Dalka Ruushka wuxu gaadhay 1830 wuxuuna u sii dhaafay dalalka Finland, Poland iyo Jarmalka. UK wuxu soo gaadhay 1831, wuxuuna ka bilaabmay magaalada xeebta ah ee Sunderland, Kanada 1832 oo Quebec waxa ugu geeriyooday 1,000 ka dibna wuxu u sii tallaabay USA waxaana Louisiana (New Orleans) ugu dhintay 5,000. Aakhirkiina dalalka Mexico iyo Cuba ayuu gaadhay 1833.

3. Third Pandemic 1852-1859

Safmar caamkii 3^{aad} ee cudurka Daacuunku wuxu ka bilaabmy markii saddexaad waddanka Hindiya gobolka Bengal 1852 wuxuuna ahaa kii ugu halista badnaa guud ahaan adduunka oo dhan. Ka dibna aad ayuu ugu sii baahay adduunyada inteeda kale. Wuxuna ku baahay Asia, Yurub, Bariga Dhexe, USA iyo Afrika. Waxyeelladii ugu badnayd qaaradda Afrik ayuu gaadhsiiyey wuxuna gaadhay ilaa xeebta Afrikada Bari, Ethiopia iyo Uganda. Waddanka UK ilaa 23,000 ayaa u dhintay cudurka Daacuunka 1854. Waqtigaasi waa markii uu Filippo Pacini ogaaday *Vibrio cholerae* 1854. Sidoo kale waa markii uu John Snow caddeeyey in Daacuunka laga qaadi karo isla markaana ay fidiyaan biyaha sadhaysani 1854. Wixii intaa ka dambeeyey Yurub waxay ku dedaashay inay horumar ka samayaan dhinaca caafimaadka guud waxaana sii yaraaday cudurada ka dillaaca.

4. Fourth Pandemic 1863-1879

Safmar caamkii 4^{aad} ee cudurka Daacuunku wuxu ka bilaabmy waddanka Masar (Egypt) halkaas oo dad cudurka Daacuunka qabaa ay Xajka ka soo laabteen 1863. Ka dibna adduunyada kale oo dhan ayuu ku sii faafay ilaa USA, Yurub, Asia, Afrika,

China, iyo South America. Safmar caamkii 4^{aad} ee cudurka Daacuunku waa kii ugu dambeeyey ee ka dhaca waddanka UK iyo dalalka reer galbeedka badankooda.

5. Fifth Pandemic: 1881-1896

Safmar caamkii 5^{aad} ee cudurka Daacuunku wuxu ka bilaabmy markii afraad waddanka Hindiya 1881 kaas oo ku faafay bariga iyo galbeedka waddankaas. Sannadkii 1883 waa markii uu Robert Koch si rasmi ah u caddeeyey *Vibrio cholerae* ka dib markii uu ku guulaystay in lagu korin karo shaybaadhka caafimaadka (laboratory isolation of *Vibrio cholerae*). Meelo badan oo ka mid ah adduunyada ayuu ku baahay Daacuunku, tusaale ahaan waddanka Spain waxa ugu geeriyooday dad gaadhaya 60,000 sannadkii 1885, waddanka Ruushka waxa ku naf waayey dad ka badan 200,000 sannadihii 1893-1894. Magaalad Hamburg ee dalka Jarmalka waxa u dhintay 1.5% dadkii degannaa magaaladaas 1892. Wuxu ku sii fiday qaaradda Afrika, Shiinaha, dalka Jabbaan iyo South America oo uu ku wada baahay horraantii 1890s. Cudurka Daacuunku waqtigaas ma soo gaadhin dalalka USA iyo UK.

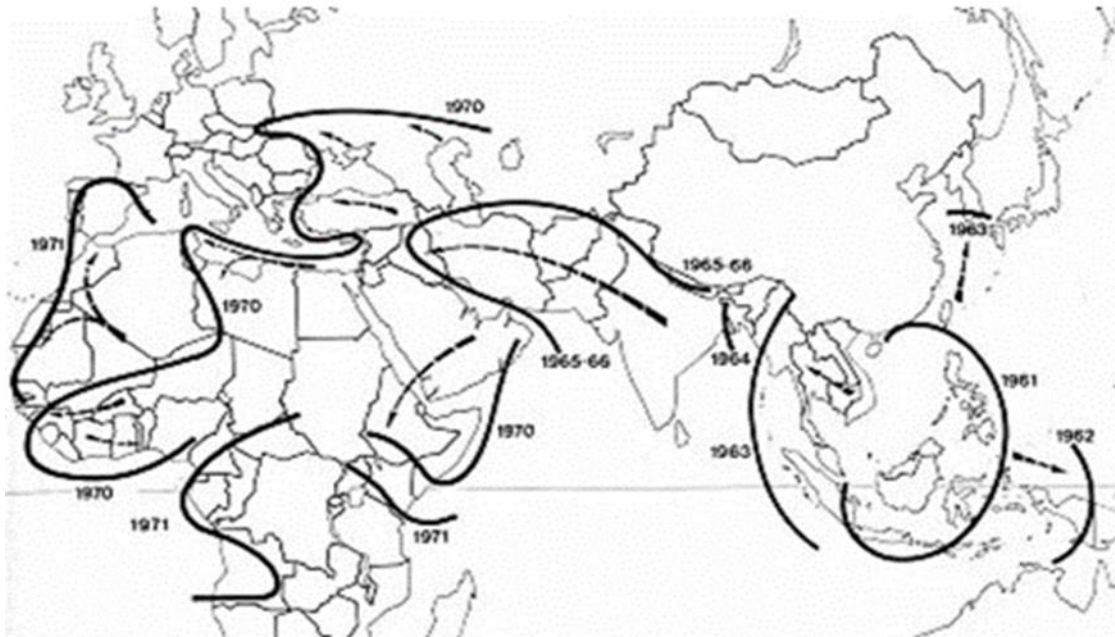
6. Sixth Pandemic: 1899-1923

Safmar caamkii 6^{aad} ee cudurka Daacuunku wuxu ka bilaabmy markii shanaad waddanka Hindiya 1899 wuxuuna ku faafay Asia oo dhan, Bariga Dhexe, Waqooyiga Afrika, Ruushka iyo meelo kooban oo ka mid ah waddamada Yurub. Daacuunku ma gaadhin USA iyo dalalka Yurubta galbeed badan kooda. Dalka Masar waxaa ugu dhintay ilaa 34,000 qof, Maka waxa ku dhintay 4,000 waqtigii Xajka ee sannadkii 1902. Wixii ka dambeeyey 1923 cudurka Daacuunku adduunyada kale badankeeda waa ka yaraaday marka laga reebo Hindiya iyo hareeraheeda.

7. Seventh Pandemic: 1961-1970 (1961-present)

Safmar caamkii 7^{aad} ee cudurka Daacuunku waa kii ugu dambeeyey safmarradaa caamka ah waxana loo yaqaan seventh pandemic (7th pandemic), kaas oo adduunka ka dillaacay sanadihii 1961 ilaa 1970s. Waxa sababay oo keenay *Vibrio cholerae* 01, El Tor biotype. 1961 ayuu ka bilaabmay waddanka Indonesia, 1966 wuxu gaadhay oo ku faafay Hindiya iyo hareeraheeda ugana sii gudbay Bariga Dhexe iyo Ruushka sida ay muujinayso khariidaddan hoose.

70 sano ka dib ayaa cudurka Daacuunku sannadkii 1970 soo gaadhay qaaradda Afrika kuna faafay guud ahaanteed sida waddamada geeska Afrika oo Soomaaliya ku jirto. Kow iyo labaatan (21) sano ayay qaadatay intii seventh pandemic ku gaadhayey South America, kiiskii (case) ugu horreeyey waxa laga helay waddanka Peru 1991. Waxa u dhintay Daacuunka 4,000 qof isla markaana wuxu ku dhacay dad gaadhaya ilaa 400,000 kiisas. Sannad gudihiis ayaa cudurka Daacuunku ku faafay Laatiin America oo dhan.



The global spread of cholera during the seventh pandemic, 1961-1971. (CDC)

1992-? Eighth Pandemic

Nooc cusub (new strain) oo ah bakteeriyada Daacuunka sababta ayaa laga helay waddanka Hindiya sannadkii 1992. Noocan cusub waxa lagu magacaabaa *Vibrio cholerae* 0139 (Bengal). Sannadihii 1993 iyo 1998, ayaa lagu arkay dhawr dal oo Aasiya ah lamana garanayo in noocan cusubi sababi doono safmar caamkii 8^{aad} (Eighth cholera pandemic) iyo in kale.

Sidaan kor ku soo sheegnay, safmarada caamka (pandemics) ahi waxay ugu dhimasho iyo dhibaato badnaayeen qarnigii 19^{aad}. Dhammaantoodna waa soo gaadheen qaaradda Afrika oo ah ta weli cudurka Daacuunku sannad walba ka dillaaco isla markaana sababo dhimashada ugu badan adduunka.

Waxyaabihii u fududeeyey in cudurka Daacuunku wada gaadho adduunka

Waxyaabaha hawl yareeyey faafitaanka Daacuunka iyo inuu wada gaadho qaaradaha adduunka oo dhan, waxa ka mid ahaa:

1. Adduunyadu, waayadaas uma lahayn aqoon badan cilmiga sayniska cudurada faafa, waxyaabaha sababa cudurada, sida ay u faafaan iyo sida looga hortago (Limited knowledge in the fields of microbiology and public health).
2. Adduunyada, waqtiyadaas waxa aad u hooseeyey hannaanka nadaafada deegaanka iyo saxada bulshada (lack of sanitation and poor hygiene practice)
3. Adduunyada xilliyadaas kama jirin hababka loo habeeyo qashinka (garbage) iyo meelaha ku habboon ee lagu tuuro ama lagu ururiyo si hadhow loogu gubo (lack of proper waste disposal system).

4. Adduunka, magaalooyinku ma lahayn badankoodu hannaanka musqulaha iyo kala xadaynta meelaha biyaha lagu kaydiyo ama laga cabbo (lack of proper sewage and drainage system).
5. Adduunka, Magaalooyinku ma lahayn nidaamyada qasabadaha biyaha iyo haamaha biyaha nadiifta ah loogu kaydiyo degmooyinka magalaada (lack of proper water systems)
6. Adduunka, waa sannadihii ay isu socodka dunidu isu furantay ganacsiga dartii iyo marinada ganacsiga oo fududeeyey in Daacuunku si hawl yar u faafo oo gaadhi karo waddan walba.
7. Adduunyada waxa beryahaas isku ballaadhiyey oo qabsaday gumaystayaalkii reer Yurub taas oo adduunka u sahashay isdhexgalka bulshada iyo isu tallowga oo suurto gelisay in Daacuunku gaadho meel walba.

Waxyaabaha sababay in cudurka Daacuunka laga cidhib tirro waddamada warshadaha leh iyo kuwa horumaray, waxa ka mid ahaa:

1. Waxa kordhay aqoonta iyo cilmiga adduunyadu u leedahay sayniska cudurada taas oo sahashay in la ogaaday bakteeriyada sababta Daacuunka, sida Daacuunku u faafo, loo kala qaado, looga hortago iyo daaweeyntiisa.
2. Waxa dib u habayn iyo isbadal xoog leh lagu sameeyey caafimaadka dadweynaha (massive public health reforms and transformation).

Dib u habayntaas iyo isbadalkaas lagu sameeyey caafimaadka guud ee dadweynaha, waxa ay bilaabantay isla markaana la hirgeliyey dabayaaqadii qarnigii 19^{aad} iyo horaantii qarnigii 20^{aad}. Tallaabooyinkaasi waxa ay suurto geliyeen oo sababeen in horumar weyn laga gaadho xagga saxadhowrka deegaanka, kaabayaasha saxadhowrka (fayodhowrka), ku dhaqanka nadaafad wanaagga, helitaanka biyo nadiif ah iyo nidaamyada biyaha magaalooyinka ee dawladaha hoose maamulaan.

Dhanka kalena, waxa xusid mudan in ilbaxnimooyinkii hore ee adduunka soo maray, sida tii Giriigga, Romanka iyo ilbaxnimadii Islaamka ay lahaan jireen nidaamyo xagga caafimaadka ku saabsan oo suga saxadhowrka iyo nadaafadda guud. Tusaale ahaan, waqtigii boqortooyadii Roomaanka (The Roman Empire) waxa ay lahayd hannaan la mid ah hababka maaraynta wasakhda godadka ama bulaacadaha (sewage management systems) kaas oo loogu talo galay in lagu ilaaliyo caafimaadka bulshada ku nool magaalooyinka.

Waxa kale oo jirtay, in muslimiinta iyo Islaamku ay aad ugu horumarsanaayeen dhinaca caafimaadka guud (public health) isla markaana ay waxyaabo badan oo xagga sayniska caafimaadka ah dunida ku soo kordhiyeen. Waxyaabahaas, waxaa ka mid ahaa: in gacmaha la maydho ama la dhaqdo (hand washing procedures), ku dhaqanka nadaafadda (hygiene practice), ilaalinta saxada sabada (environmental sanitation), habka karantiimada (quarantine) ee cudurada lagu xakameeyo si aan cudurka looga qaadin qofka cudurka qaba una sii fidin iyo waxyaabo kale oo aad u fara badan. Arrimo badan oo Islaamku ku soo kordhiyey cilmiga caafimaadka, ayaa waxa ka markhaati kacay habkan casriga ah ee cilmiga sayniska.

Ogaanshaha la ogaaday in jeermisku sababo cudurada ayaa adduunka u suurto gelisay in la dabargooyo ama halistooda la yareeyo cudurro badan oo ah kuwa

faafa sida cudurka Daacuunka sida aan hoos ku arki doonno (casharradii laga bartay cudurka Daacuunka). Waana ta maanta dunida u horseeday samaqabka iyo sareeda. Taas oo looga baahan yahay inay bulshada Soomaalidu fahamto sidii ay wax uga qaban lahaayeen dhibaatooyinka haysta ummadda gaar ahaan xagga caafimaadka iyo horumarka

Cudurka Daacuunka iyo Saamaynta Caafimaad ee Qaaradda Afrika

In kastoo dhibaataada caafimaad ee ka timaadda cudurka Daacuunku ay ka yaraatay dunida inteeda badan, haddana dadka u geeriyooda cudurka Daacuunka sannadkiiba adduunka oo dhan in ka badan 68-75% waxay ku dhintaan Afrika. Sababta cudurka Daacuunku weli qaaradda Afrika iyo meelaha kale ee la mid ka ah uga sii jiro oo joogto (endemic) u yahay waxyaabaha loo aaneeyey inay sababeen waxa ka mid ah:

1. Tayada biyaha bulshadu isticmaasho/cabto oo aad u liita ama xun (Poor water quality).
2. Nadaafad xumo iyo ku dhaqanka nadaafad wanaaga bulshada oo aad u hooseeya (Poor hygiene and lack of improved hygiene practice)
3. Saxadhowr ama fayadhowr xumo iyo nadaafadda deegaanka oo aad ugu dib dhacsan (Poor sanitation).

Arrimaha ka qayb qaata waxyaabaha loo aaneeyey in cudurka Daacuunka iyo cudurada faafa ay qaaradda Afrika ka sii jiraan una sii badanayaan, waxa ka mid ah:

1. Waxaan ka jirin Afrika inteeda badan barnaamijyada saxadhowrka (fayadhowrka) deegaanka iyo nadaafadda, isla markaana aan si hagaagsan loo abaabulin si looga hortago cudurada faafa iyo waxyeelladooda taas oo keentay saxadhowr la'aan (The lack of organised sanitation programs).
2. Waxa ay weli la' yihiin qaar badan oo ka mid ah bulshada Afrika in ay helaan daryeel caafimaad oo tayo leh ama ku filan, taas oo sababtay caafimaad la'aan (The lack of access to health care).

Cudurka Daacuunka iyo cudurada kale ee faafa (Infectious diseases), saamaynta caafimaad ee ay ku leeyihiin Afrika waxay la mid tahay ta adduunweynaha kale laakiin qaaradda Afrika waxa u sii dheer dhibaataada caafimaad xumada oo ay kaga liidato dunida inteeda kale. Caqabadaha caafimaadka Afrika hortaagan waxa ka mid ah:

1. Qaaradda Afrika waxa ku nool dadka dunida ugu saboolsan waxaana fara xun ku haya fakhri aan xad lahayn. Afrika, maaha sabool ee waxa ka maqan sidii ay khayraadkeeda ula soo bixi lahayd, sidii ay u maamuli lahayd iyo sidii ay uga faa'iidayd lahayd.
2. Qaaradda Afrika waa qaaradda ugu caafimaad darrada badan waxana haysta culays weyn oo ah xanuunno iyo cudurro halis ah oo si joogto ah uga dillaaca Afrika waxana u dambeeyey cudurka Ebola oo dhawr sano ka hore ka dillaacay galbeedka Afrika (The West African Ebola virus epidemic in 2013–2016).
3. Qaaradda Afrika waxa ka jira hannaan ama nidaam caafimaad oo daciif ah oo aan awoodin isla markaana aan awood u lahayn daryeelka caafimaad ee muwaaddaniinta reer Afrika. Tusaale ahaan cudurka Daacuunku, waa calaamad muujinaysa daciifnimada nidaamka caafimaadka Afrika, maamul

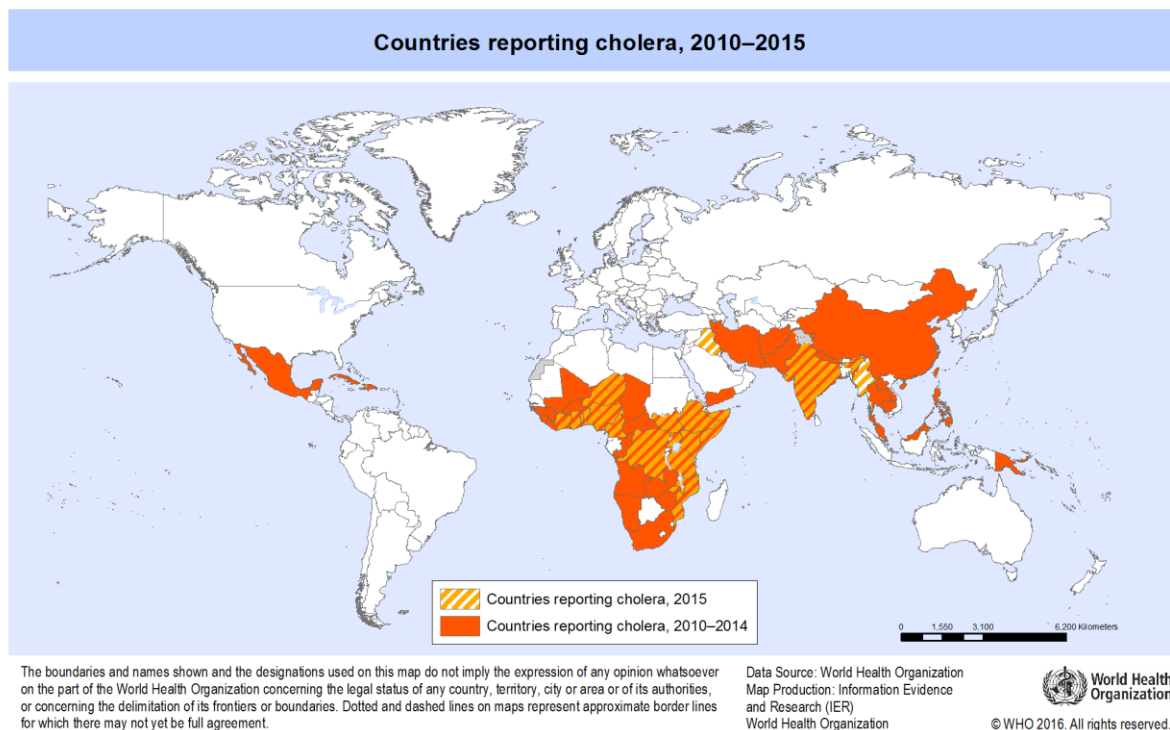
xumada iyo koobnaanta shaqaale leh xirfad caafimaad oo xakameeya xanuunada iyo cudurada faafa ee culayska ku haya qaaradda Afrika.

4. Qaaradda Afrika waxay ku tiirsan tahay deeq bixiyayaasha inay ka caawiyaan xaalad kasta oo saamaaysa xagga caafimaadka iyo dhibaatooyinka kale ee saboolnimada iyo maamul xumadu keenaan.

Arrimahaas aan kor ku soo sheegnay, waxay muujinayaan xaaladda runta ah ee caafimaadka qaaradda iyo caqabadaha xaqiiqda ah ee ka jira inta badan dalalka Afrika. Sidaas darteed, Cudurka Daacuunku weli halis weyn oo caafimaadka dadweynaha ah ayuu ku hayaa qaaradda Afrika guud ahaanteed isla markaana wuxu tilmaame u yahay caafimaad iyo horumar la'aanta haysata bulshada Afrika gaar ahaan geeska Afrika iyo dhulka Soomaalida.

In kastoo caalamku horumar weyn ka sameeyey xagga sayniska daryeelka caafimaadka iyo sanaaciga. Haddana, Daacuunku weli adduunyada khatar weyn oo ah xagga caafimaadka dadweynaha (public health) ayuu ku hayaa siiba dalalka saboolka ah ee hannaankooda caafimaadku hooseeyo bulshaduna la'dahay horumar iyo daryeel caafimaad oo tayo leh.

Sida ay sheegtay laanta caafimaadka adduunka ee WHO, cudurka Daacuunku wuxu ku dhacaa sannadkiiba dad tiradooda lagu qiyaasay 1.3 ilaa 4.0 milyan waxaana u dhinta caalamka sannadkiiba dad gaadhaya 21,000 ilaa 143,000 qof. Kuwaas oo u badan waddamada qaaradda Afrika, koonfurta Aasiya iyo badhtamaha Maraykanka (Central America) sida ay muujinayso khariiraddan hoose.

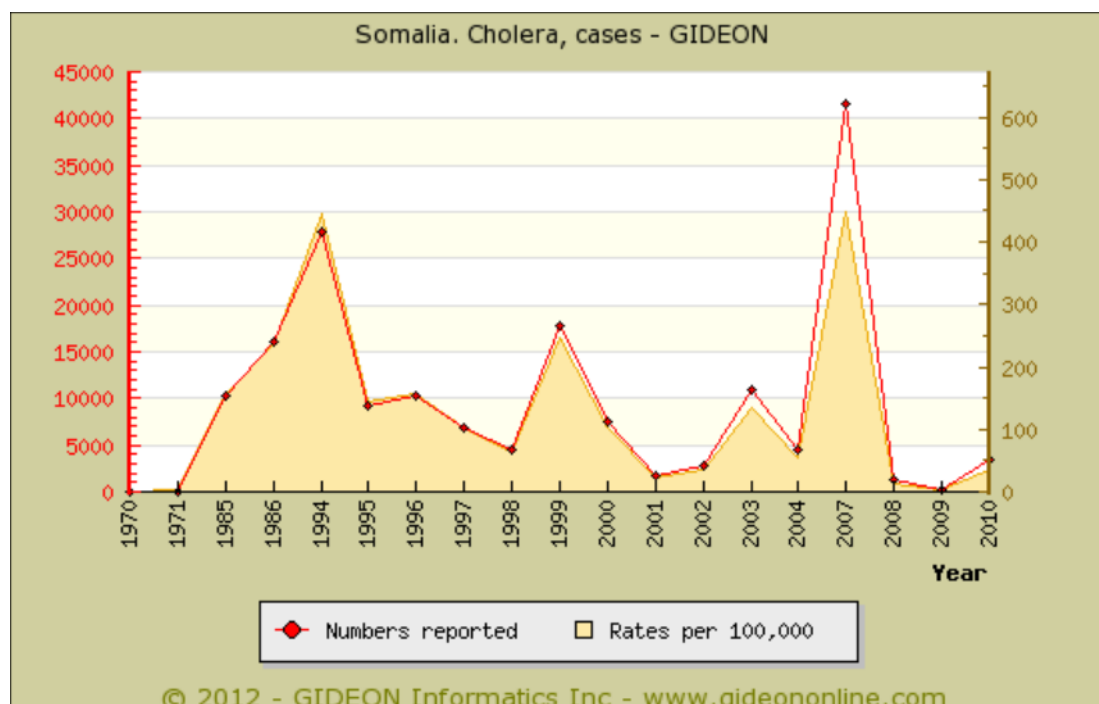


Cudurka Daacuunka iyo dhulka Soomaalida

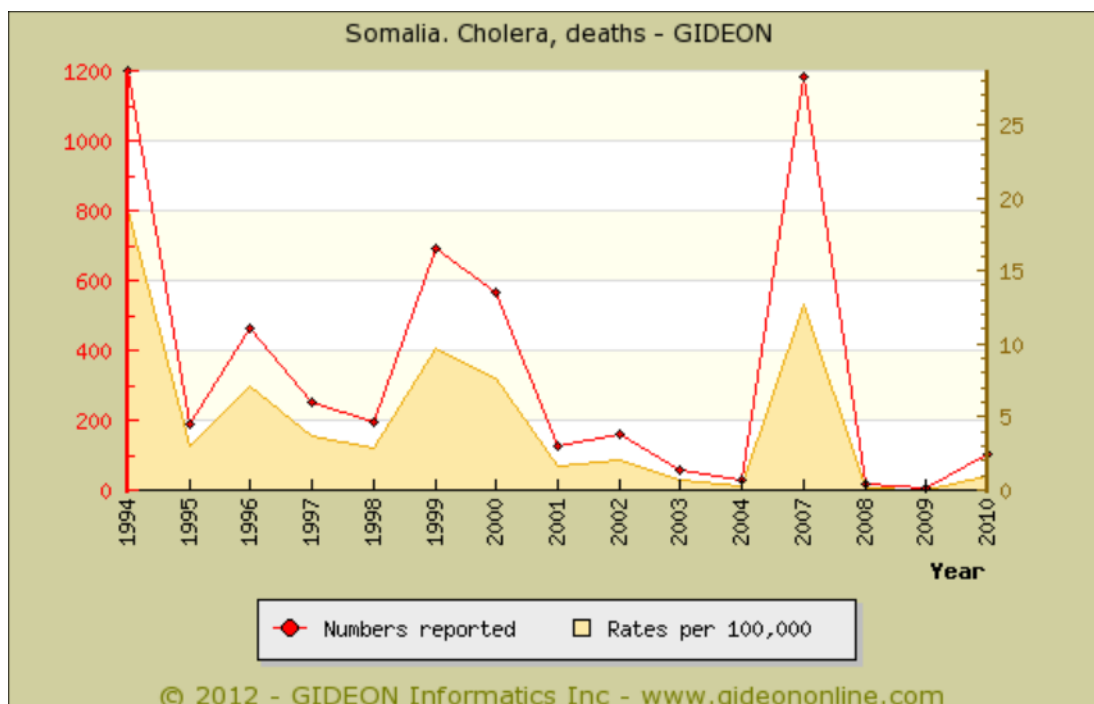
Dhulka Soomaalida sida la sheegay, xilligii ay gumaystayaashu haysteen Daacuun xun baa mar ka dillaacay oo dhimasho badan sababay (taariikhda iyo degaamada ma hubo). Ka hor burburkii dawladdii Soomaaliya, cudurka Daacuunku laba jeer/goor buu ka dillaacay dalka Soomaaliya. 1970skii iyo Daacuunkii ka dillaacay magaalada Hargeysa iyo hareeraheeda (xeryihii qaxootiga Itoobiya) sannadkii 1985 (March 22 to May 30, 1985). Safmarkaas Daacuunka ee Hargeysa, waxa ku dhintay 1,262 qof wuxuuna ku dhacay dad gaadhaya 4,815. Intii u dhaxaysay 1985 ilaa 1986, kiisaskii (cholera cases) Daacuunku gobolka Waqooyi galbeed (Hargeysa) waxay ahaayeen 33%, halka Muqdisho iyo gobolka Bay ay ka ahaayeen 18% meeshiiba.

Tan iyo wixii ka dambeeyey sannadkii 1994kii, cudurka Daacuunku wuxu noqday dhulka Soomaalida saf joogto ah (endemic), xilli ama sannad walbana waa ka dillaaca inta u dhexaysa bilaha December iyo May. Xilliyadaasi waa marka abaarta iyo biyo la'aantu baahsan tahay iyo waqti roobaadka. Waqtiyadaasina waa marka ay dadku u nugul yihiin cudurada gaar ahaan Daacuunka iyo cudurada kale ee sababa shuban biyoodka. Cudurka Daacuunku, wuxu inta badan ka dillaacaa gobollada ku yaal dhinaca koonfurta Soomaaliya ee webiyada u dhow.

Laga soo bilaabo 1994 ilaa 2017 dhowr jeer baa cudurka Daacuunka lagu arkay gobollo kala duwan oo ka mid ah dhulka Soomaalida. Tusaale ahaan, sannadkii 2007 waxa Daacuunku ku dhacay dad gaadhaya 37,000 waxaana u geeriyooday ilaa 1,000 qof, sida ka muuqata garaafyadan hoose.



Graph 1: Somalia, number of Cholera cases since 1971



Graph 2: Somalia, number of Cholera deaths since 1994

Waxyaabihii ka dhashay casharradii laga bartay cudurka Daacuunka

Sidaan hore u soo sheegnay, cudurka Daacuunku dunida dhammaanteed aad buu ugu faafay qarniyadii 19^{aad} iyo 20^{aad} wuxuna sababay dhimasho xad dhaaf ah oo ay u geeriyooden malaayin dad ah. Sidoo kale, wuxu khalkhal geliyey isu socodkii bulshada iyo marinadii ganacsiga ee u kala gudbi jiray qaaradaha adduunka.

Hase yeeshee, aqoontii iyo waayo-aragnimadii laga dhaxlay la dagaallanka cudurka Daacuunka ayaa sahashay oo horseeday fahamka guud ee cudurada faafa (understanding of infectious diseases). Taas oo suurtagelisay in aadanuhu ku guulaysto inay si cilmiyeysan oo ku salaysan cilmiga sayniska u ogaadan saddex ammuurood oo gundhig u noqday aqoonta casriga ah ee maanta adduunyadu gaadhay kuna badbaadday. Waxyaabahaas la daahfuray ee la ogaaday waqtigaas, waxa ka mid ah;

1. Waxa la ogaaday xidhiidhka ka dhexeeya biyaha sadhaysan ama wasakhaysan iyo Daacuunka taas oo uu ogaaday Dr John Snow ((1813–1858) sannadkii 1854. Ka dib markii uu xaqiijiyey in cudurka Daacuunka laga qaado biyaha sadhaysan ama wasakhaysan ee laga cabbo meelaha wasakhda leh. Soo jeedintaasi waxay tilmaantay in waxa ama shayga sababaya Daacuunku ay ku jiraan ama la socdaan biyaha wasakhaysan ayna yihiin saxaradii iyo wixii ka soo baxay dadkii u dhintay Daacuunka. Arrintan awgeed, Dr John Snow waxa loo aqoonsaday inuu yahay father of modern Epidemiology.
2. Waxa la ogaaday muhiimadda ay leedahay gacmo maydhistu (gacma dhaqistu) xagga nadaafadda iyo inay gacmaha wasakhda lehi gudbiyaan jeermiska. Arrintaasna waxa ogaaday Dr Ignaz Semmelweis 1845 ka dib markuu arkay in haddii la maydho gacmaha ka hor intaan laga ummulin ilmaha

dhalanaya in ilmaha yar aan cudur ku dhicin. Haddiise aan gacmaha la maydhiin oo faraxal la'aan laga umuliyo ay markiiba ilmaha yari xanuunsadaan oo cudur ku dhaco. Waxa arrintaas sii caddeeyey Dr Joseph Lister horraantii 1860kii oo uu hormood ka noqday nidaamka aalkolada (antiseptic systems) wax lagu nadiifiyo si ay jeermiska jidhka uga disho taas oo ah qodob muhiim ah oo horumar u noqday xagga qaliinka casri ah.

3. Waxa la ogaaday in jeermisku (microorganism) yahay kan keliya ee cudurka keena ama sababa cudurada. Ka dib markii la ogaaday in jeermisku sababo cudurro badan oo uu Daacuunku ka mid yahay. Arrintaasina waxay ka bilaabantay markii ay hirgashay aragtidiis jeermiga (Germ theory) taas oo si ku dhisan cilmiga sayniska u xaqiijisay in cudurada ay sababaan noolayaasha yar yar ee ili ma aragtayda ah ee jeermiska (germs) ama (microorganisms) loo yaqaan. Aragtidaas jeermiska, ee ah in jeermisku cudurada sababaan waxa hormood ka ahaa oo salka u dhigay Dr Louis Pasteur (French, 1822 –1895) oo inta badan loo yaqaan aasaasaha cilmiga bayoolojiyada ili ma aragtayda ee microbiolojiga, (founder of medical microbiology) iyo Dr Robert Koch (German, 1843–1910) oo isna inta badan loo yaqaan aabaha cilmiga Clinical microbiolojiga (father of clinical microbiology).

Sida ay muujinayaan saddexdan qodob ee kor ku qorani, waayo-aragnimadiis iyo casharadiis laga bartay dhibaatooyinkii cudurka Daacuunka iyo cudurada kale ee faafa, ayaa sababtay oo u horseedday in adduunka uu ka dhasho dabayaaqadiis qarnigii 19^{aad} iyo horraantii qarnigii 20^{aad} kacaanka loo yaqaan Bacteriological revolution. kaas oo feker cusub ku abuuray hannaankii daaweynta ee caafimaadka (medical) iyo farshaxanka qaliinka (surgery). Isla markaana suurtagal ka dhigtay in la isticmaallo ama la adeegsado daawooyinka (drugs), nooledilayaasha (antibiotics), iyo tallaalada si loogu daaweeyo ama looga hortago in badan oo ka mid ah cudurada ugu waaweyn ee faafa.

Kacaankaasi (Bacteriological revolution), waxa kale oo uu keenay kacaanka kale ee fayadhowrka ama saxadhowrka (The Sanitary revolution), dhaqanka nadaafadda (Hygiene practice), nadaafadda cuntada (food hygiene) iyo nidaamka siinta biyaha nadiifta ah (clean water supply). Arrimahaasi waxay waddamada horumaray uu suurto geliyeen inay isticmaalaan aqoonta sayniska. Taasina waxay maamulka dawliga ah iyo ka dadweynahaba u iftiimisay sidii ay uga gaashaaman lahaayeen waxyaabaha cudurada keena iyo siyaabaha ay u faafaan. Waxayna dagaal adag la galeen wax kasta oo abuuri kara caafimaad xumado sida wasakhda, qashinka, saboolnimada, nafaqodarrada iyo xaaladaha hoy xumada.

Arrimahaas aan kor ku soo sheegnay ka dib, waxa adduunka ka hanaqaaday qaybta ama faraca caafimaadka ee loo yaqaan ka hortagga caafimaad darrada iyo wax kasta oo caafimaadka bulshada waxyeello u keeni kara (Preventive medicine) taas oo uu saldhig u yahay caafimaadka guud ee dadweynuhu (public health medicine).

Sidaa awgeed, wixii ka dambeeyey Second Cholera Pandemic (1829-1850) waxa adduunka ka bilaabmay dhaqdhaqaaqyo badan oo kor loogu qaadayo caafimaadka bulshada iyo feker iskaashi oo u dhexeeya dalalka kaas oo ku saabsan arrimaha

caafimaadka. Shirar iyo fadhiyo badan oo caalami ah ayaa lagu qabtay Yurub iyo Ameerika waxa ka soo baxay xeerar ku saabsan caafimaadka iyo in la isugu yimaado si joogto ah shirar caalami ah si wax looga qabto dhibaatooyinka dunida ka haysta xagga caafimaadka. Waxaa ka mid ahaa:

1. England's Cholera Prevention Act of 1832
2. England's 1848 Public Health Act
3. Third and fourth International Sanitary Conferences (Paris and Vienna)
4. International Health Regulations
5. International Sanitary Commission-precursor of Pan American Health Organisation (PAHO)

Ugu dambayntiina, waxa kulamadaas iyo qaar badan oo ka dambeeyey lagu go'aansaday in la abuuro laanta adduunka u qaabilsan caafimaadka. Waxaana aakhirii la sameeyey Ururka Caafimaadka Adduunka ee World Health Organisation (WHO) 7 April 1948.

Ujeedooyinka ugu waaweyn ee WHO loo aasaasay waxa ka mid ah sidii ay kor ugu qaadi lahayd iskaashiga farsamo ee xagga caafimaadka quruumaha dhexdooda, inay fuliso barnaamijyo caafimaad si loo xakameeyo isla markaana loo cidhibtiro cudurada iyo in la hagaajiyo tayada nolosha aadanaha.

Sidoo kale waxa waddanka USA laga abuuray Centers for Disease Control and Prevention (CDC) 1946 oo xaruntiisu tahay magaalada Atlanta, gobolka Georgia. Dalka UK, waxa laga hirgeliyey The Public Health Laboratory Service (PHLS) oo mar lala aasaasay UK National Health Service (NHS) on 5 July 1948. PHLS, hadda waxa loo bixiyey The Public Health England (PHE). Himilada loo asaasay CDC iyo PHLS waxay ahayd ugu horayn xakameynta cudurada faafa, baabi'inta cudurada faafa ama cidhibtirka cudurada faafa iyo inay dejiyaan barnaamijyo sugan oo wax lagaga qabanayo haddii adduunka cuduro ka dillaacan ama ay qaar cusubi soo baxaan sidii kahortag loogu samayn lahaa.

Dedaalka adduunyadu weli ugu jirto ka hortagga, xakamaynta cudurada faafa iyo xanuunada kaleba halkaas isku ma taagin oo waa mid ilaa imminka socda. Waddamada Midowga Yurub (European Union) ayaa iyana abuuray, The European Centre of Disease Prevention and Control (ECDC) sannadkii 2005. Xarunta ECDC waa Stockholm, Sweden. ECDC, waa hay'adda Midowga Yurub (EU) u qaabilsan ka hortagga iyo xakamaynta cudurada. Ujeedadeeduna, waxay tahay in la xoojiyo difaaca Yurub ee ka dhanka ah cudurada faafa.

Dalka Itoobiya, ayaa isaguna cagaha u taagay sannadkii 2013, The Ethiopian Public Health Institute (EPHI) oo xaruntiisu tahay magaalada Addis Ababa. Machadkani, wuxu dalka Itoobiya si gaar ah ugu qaabilsan yahay dhinaca caafimaadka dadweynaha, xakamaynta cudurada iyo cilmibaadhista sayniska caafimaadka.

Midowga Afrika (African Union) ayaa dedaal dheer u galay in qaaradda Afrika yeelato Xarunta Xakamaynta iyo Kahortagga Cudurada ee Afrika ama Africa Centres for Disease Control and Prevention (Africa CDC). Sannadkii 2014 iyo bilowgii 2015 ayay ahayd markii Galbeedka Afrika cudurkii Ebola fayras (Ebola viral infection) ka dillaacay oo khasaaraha weyn gaadhsiiyey. Taasina waxay soo dedejiisay inay tahay lagama

maarmaan in Afrika loo dhiso Africa CDC, si loo xakameeyo khatarta joogtada ah ee cudurada faafa.

Sidaa awgeed, bishii April 2015 ayaa qorshihii xaruntaas lagu hirgelinaayey waxa magaalada Washington ee waddanka Maraykanka ku saxiixay heshiiskii Xoghayaha Arrimaha Dibada ee Maraykanka, John Kerry iyo Guddoomiyaha Commissionka Midowga Afrika, Dr Nkosazana Dlamini Zuma sida sawirkan hoose ka muuqata.



Secretary of State John Kerry and African Union Commission Chairperson Nkosazana Dlamini Zuma signed an agreement Monday to establish the first Centers for Disease Control and Prevention in Africa. The U.S. will provide technical advice and a few staff for the agency. Alex Wong / Getty Images

Xarunta, Africa CDC waa magaalada Addis Ababa ee dalka Itoobiya. Inta ay ka qaangaadhayso, dalka Maraykanka ayaa caawin doona oo siinaya wixii talooyin, farsamo iyo tababarka shaqaalaha ah. Waxana si rasmi ah looga furay Addis Ababa, 31-Jan 2017. Africa CDC, ayaa noqonaysa hay'addii qaaradda Afrika oo dhan ugu horreeysay ee caafimaadka dadweynaha (public health), Xakamaynta iyo Kahortagga Cudurada faafa.

Sida aan ka dheehan karno taariikhdi, marxaladihii kala duwanaa ee Daacuunka, casharradii laga bartay cudurka Daacuunka iyo go'aamadda ka dhashay ee adduunyadu ku samaysatay hay'addaha iyo machadyada caafimaad ee la dagaallanka iyo ka hortagga cudurada faafa iyo kuwa aan faafinba. Waxay muujinaysaa inaanay istaagi doonin halista ka imanaysa cudurada faafa inta dunida lagu nool yahay aadanuhuna aanu ka daali doonin xakamayntooda iyo ka hortagooda. Sidaa awgeed, waxa markaas hubanti ah oo xaqiiq ah, in loo baahan yahay in la dejiyo daryeel ama nidaam caafimaad oo abaabulan iyo hay'adda ilaalinta caafimaadka oo ka masuul ah hakinta iyo ka hortagga cudurada faafa iyo kuwa aan faafinba.

Qaybta labaad

Microbayoolojiga cudurka Daacuunka (Microbiology of Cholera infection)

Cudurka Daacuunka (Cholera infection)

Xanuunka Daacuunka ee afka qalaad loo yaqaan Cholera, waa cudur halis ah oo ku dhaca ubucda gaar ahaan xiidmaha yar/mindhicirka yar (acute infection of small intestine) isla markaana waxyeello u geysta. Taas oo sababta ama keenta shuban daran, matag, tabaryari aad ah iyo dhimasho haddaan dhakhso loo daaweeyn. Erayga, Cholera waa eray ka soo jeeda asal ahaan Giriig (Greek) oo la micno ah sida qulqulka dheecaanka bile oo kale (flow of bile, chole, bile). Taas oo ah dabafuran/qulqul iyo calool socod (shuban). Dheecaanka bile waxa soosaara beerka waxana kaydiya xamaytida.

Shubanka Daacuunka, waxa lagu meteli karaa oo la barbar dhigi karaa inuu la mid yahay sida biyaha ka soo shubmaya ama ka soo rogmanaya saqafka majaroorka (gutter of roof) oo kale ama meel biyo mareen ah oo biyuhu xoog uga soo dhacayaan. Sidaa iyo si la mid ah weeye xaalka qofka qaba cudurka Daacuunka oo si xoog iyo xawli ah ayaa qofku u shubmaa oo saxaradu (watery diarrhoea) dabada qofka buka uga soo booddaa.

Cudurka Daacuunka oo lagu sifeeyo daba-xawda (shuban xad dhaaf ah oo sida biyaha qasabadda qofka uga soo booda) sidaan kor ku soo sheegnay, waxay inta badan Soomaalidu u taqaan Daacuun calooleed iyo **shuban biyood**. Laakiin maaha shuban biyoodku (watery diarrhoea) Daacuun ama cudur sidaan horeba ugu soo sheegnay qaybta hordhaca. Shuban biyood waa mid ka mid ah noocyada shubanka waana calaamad (symptom) ka mid ah calaamadaha lagu garto cudurka Daacuunka. Dhab ahaantiina waa calaamadda ugu muhiimsan ee lagu arko qofka qaba Daacuunka.

Cudurka Daacuunku, waa cudur ba'an oo ka mid ah cudurada faafa (infectious diseases) ama la kala qaado ee soo raaca biyaha iyo cuntada (waterborne/food-borne disease). Sidaas darteed waxa laga qaadaa biyaha iyo cuntada wasakhda ah ee sadhaysan. Waxa sababta oo keenta cudurka Daacuunka, bakteeriyada la yidhaahdo/yiraahdo *Vibrio cholerae* oo ah jeermis ku dhasha inta badan biyaha la cabbo iyo meelaha wasakhdu ku fara badan tahay.

Sidaan kor ku soo sheegnay cudurka Daacuunku, wuxu keenaa shuban aad u badan iyo matag. Taasina waxay horseedi kartaa in qofka qabaa cudurka Daacuunku ay biyuhu ka dhammaadaan jidhkiisa oo uu fuuqbax (dehydration) ku dhaco taas oo haddaan si deg-deg ah wax looga qaban keeni karta geeri ama dhimasho.

Fuuqbax (dehydration) ama biyo la'aanta jidhka, waa marka qofka biyuhu jidhkiisa ay ka baxaan ama lumiyo oo ay ka dhammaadaan. Waxyaabaha sababa ee keena fuuqbaxa waxa ka mid ah: shubanka, mataga, marka qofku noqdo hor iyo dabo iyo dhididka badan ee qofka jidhkiisa ka baxa xilliyada kulaylaha, sida meelaha kulaylaha iyo saxaaraha ah ee qorraxdu aadka u kulushahay.

Fuuqcelis (rehydration) ama biyo ku celin waa marka biyihii jidhka ka baxay dib loogu soo celiyo iyadoo qofka fuuqbaxay la cabsiinayo ama xididka laga siinaayo waxyaabaha ku haboon daaweynta fuuqbaxa.

Sida badan waddamada cudurkan halista ahi uu ka dillaaco wuxu sababaa safmar (epidemic) ballaadhan taas oo ay dad badani hal mar wada qaadi karaan ama uu Daacuunku mar wada helo. Xaaladdaasina waxay dhalisaa cabsi iyo inuu isu socodku istaago oo dadka socotada ah iyo dhaqdhaqaaqa ganacsiga la joojiyo si aanu cudurku meelaha kale u gaadhin oo u sii fidin.

Bakteeriyada sababta cudurka Daacuunka (*Vibrio cholerae*)

Bakteeriyada *Vibrio cholerae* ee sababta cudurka Daacuunka, sidaan hore u soo sheegnay waxa si cilmiyan ah u ogaaday Dr. Robert Koch (bacteriology of *V. cholerae*) sannadkii 1883. Sida jaantuskan ama sawirkan hoose ka muuqata, bakteeriyadan muuqeedu waa yara qalloocaa waxayna leedahay qaabka hakadka oo kale (comma shaped). Waxa ay mid ka mid ah cidhifyadeeda ku leedahay wax jeedal oo kale ah oo afka qalaad la yidhaahdo flagellum oo ka mid ah dhismaha jidhkeeda. Jeedalkaas cidhifka kaga yaal ayaa u suurta geliya dhaqdhaqaaqa iyo inay samayso gariirin (vibrate) waana sababtaas magaca fibriyo (*Vibrio*) loogu bixiyey.



Sawir muujinaya qaabka iyo jeedalka bakteeriyada *Vibrio cholerae*

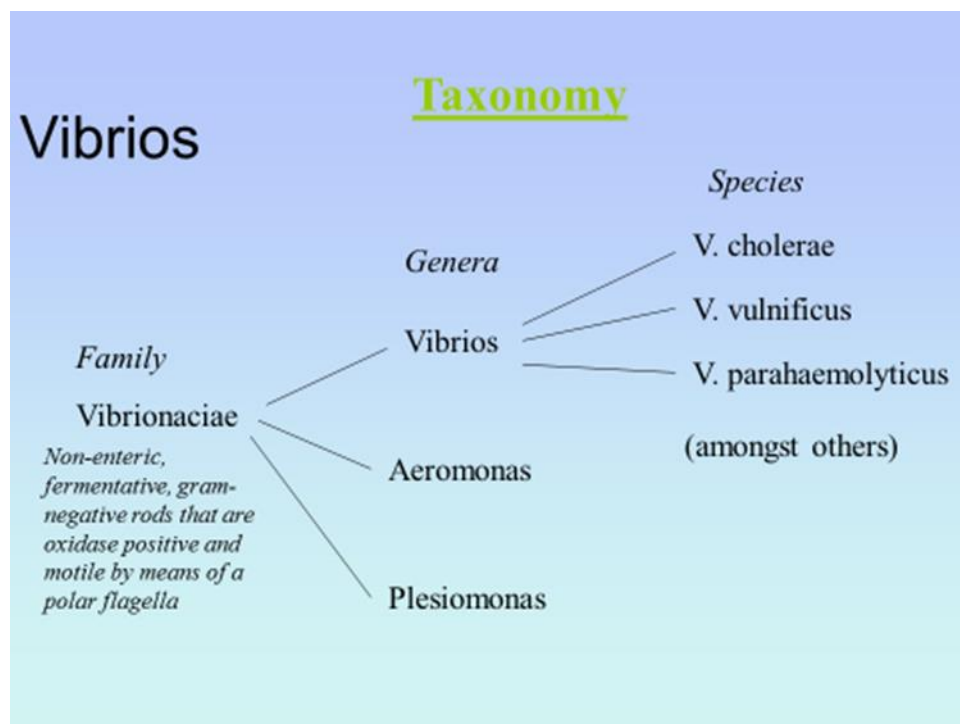
Vibrio cholerae, waxa sabo iyo degaan u ah meelaha biyaha cusbada/milixda yare leh ama yare diirran ee kulul sida agagaarka xeebaha iyo webiyada. Sababta oo ah waxay ku kortaa oo u adkaysataa cusbada ama degaanka cusbada leh (halophilic organism). Waxay si wanaagsan ugu noolaan kartaa xaalad dhexdhexaad ah ama alkaline ah. Waxay ku tahay xasaasi oo u nugushay kuna adag inay ku noolaato xaaladaha ashitada/asiidh ah (acidic conditions) sida caloosha dadka oo kale. Waana sababta

keentay in saddex meelood ay laba meelood ka badbaadaan bakteeriyada (*Vibrio cholerae*) marka ay caloosha sii dhex marayso intaanay gaadhin mindhicirka yar.

Vibrio cholerae, waa biyo ku agnool, waxayna inta badan ku dhex nooshahay dhirta yaryar ee ka baxa meelaha qoyaanka iyo biyaha leh sida algaha iwm. Halkaas ayey ku dhex kortaa waqtiyada jiilaalka ama kulaylaha waxay noqotaa hogte (dormant) oo marka xaaladdu habboonato ayay hogta ka baxdaa. Waana sababta marka roobabku da'aan ay inta badan meelaha qaarkood uu cudurka Daacuunku uga dillaaco.

Vibrio cholerae, waxa soore (host) u ah dadka oo keliya lagamana helo xayawaannada kale ee aan dadka ahayn. Bakteeriyadani marka ay soo gasho jidhka dadka, Jidhka ma ay abbaarto (attack/invasive) oo dhismaha mindhicirka yar waxba uma geysato. Waxay soo saartaa ama sii daysaa mariid (toxin) la yidhaahdo sunta mindhicirada (enterotoxin) taas oo sababta in ay mindhicirka maroojiso oo si xad-dhaaf ah dareeruhu ama hoorku (fluids) iyo cusbada (salts/electrolytes) qofka uga baxaan ka dib marka uu shubmo oo fuuqbaxo.

Vibrio cholerae, marka xagga abla'ablaynta bakteeriyada (bacterial taxonomy) laga eego waxay noqonaysaa bahda Vibrionaciae ee duulka Vibrios/Vibrio waxayna ka tahay sinjiga cholerae, sida jaantuskan hoose muujinaayo. Sidoo kale waxa jira, Vibrio kale oo an ahayn *Vibrio cholerae* oo sababa cudurro kale oo ku dhaca aadanaha sida cunto ku sumowga ama cuntada lagu sumoobo (food poisoning).



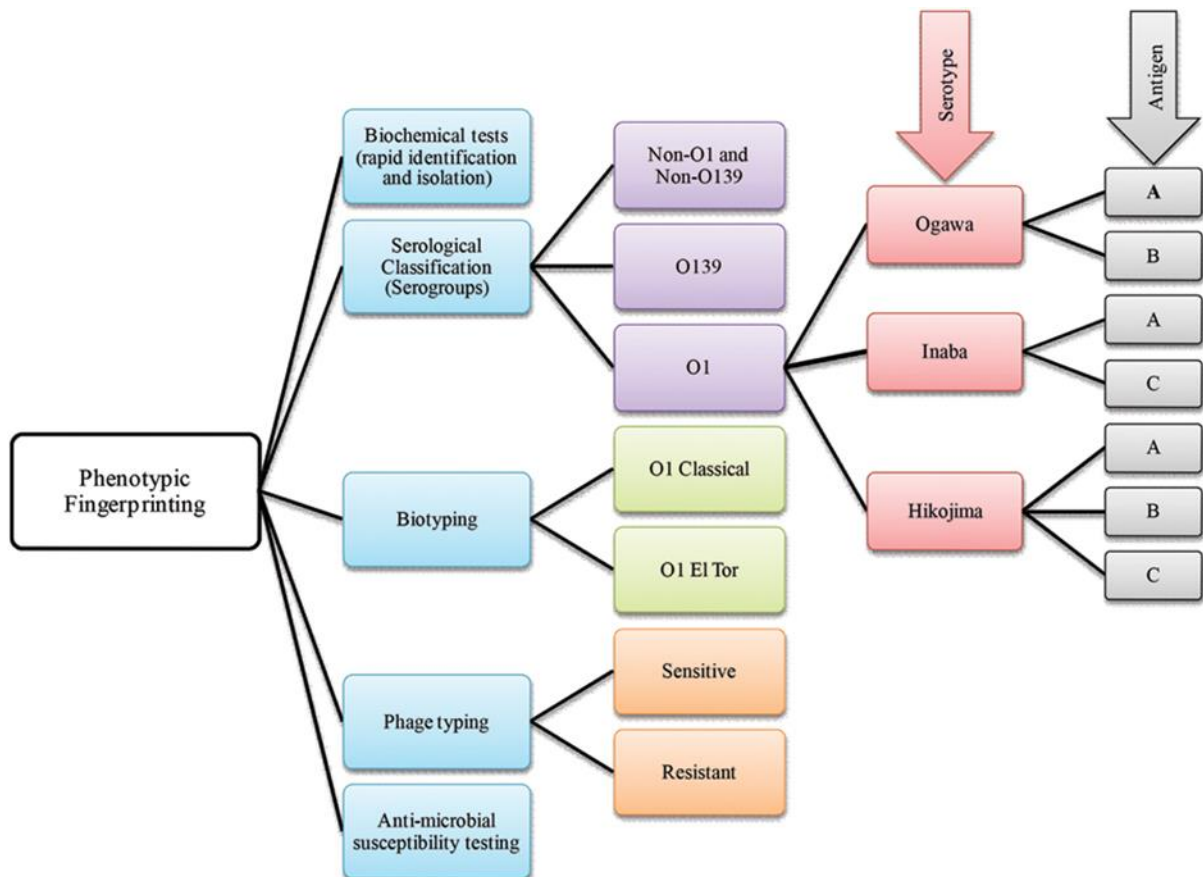
Jaantus muujinaya abla'ablaynta bakteeriyada Vibrio iyo sinjiyadeeda

Sinjiga, bakteeriyada sababta cudurka Daacuunka ee *Vibrio cholerae*, sida ka muuqata jaantuskan hoose, waxay ka kooban tahay laba (2) nooc (strains) oo kala ah:

1. *Vibrio cholerae* 01, oo loo sii qaybiyo Classical and El Tor
2. *Vibrio cholerae* 0139

Sidoo kale, *Vibrio cholerae* O1 Classical and *Vibrio cholerae* O1 El Tor waxa loo sii qaybiyaa saddex (3) qayb hoosaad oo kala ah: Ogawa, Inaba iyo Hikojima. Sidaan hore u soo sheegnay, *Vibrio cholerae* O1 Classical ayaa sababtay 6dii safmar caam (pandemics) ee adduunka ka dhacay. *Vibrio cholerae* O1 El Tor, waxay sababtay safmar caamkii toddobaad oo ah kan weli adduunyada ka jira.

Nidaamka ama habka loo kala sooco noocyada *Vibrio cholerae*, wuxu ku salaysan yahay noocyada sifooyinka muuqda ee la arki karo (phenotypes) ee bakteeriyada, sida sifooyinka kiimikada (biochemical characteristics) iyo cariyayaasha unugyada dushooda (surface antigens/serogroups, serological classifications).



Sources: *Frontiers in Microbiology* |www.frontiersin.org (Banerjee et al., 2014)

Vibrio cholerae, waxay leedahay sifooyin badan oo lagu garto si looga baadi sooco bakteeriyada kale ee ay isku bahda dhow yihiin. Faah-faahinta sifooyinkaas oo kooban waa kuwan hoos ku qoran iyaga oo ah English.

Microbiological characteristics of *Vibrio cholerae*:

Morphology

- Gram-negative rod
- Curved or comma-shaped bacterium
- Highly motile with sheathed single polar flagellum
- Small and sized 0.5-0.8 μm width and 1.4-2.6 μm length

- Non-spore forming organism

Physiology

- Sensitive to low pH and die rapidly in acidic conditions below pH 6
- Halophilic (salt loving), grow in high pH (8.5 – 9.5)
- Growth stimulated by NaCl
- Facultative anaerobe and chemoorganotroph
- Readily cultivated with simple nutritional requirements
- Grow at 18-37°C (Optimal growth 20-30 degrees).
- Fermentative bacilli and Oxidase positive
- Proliferate in summer months

Virulence & Pathogenicity

- Colonise small intestine
- Produces Cholera toxin (enterotoxin)
- Enterotoxin binds to intestinal cells and chloride channels activated
- Fluid hypersecretion causes diarrhea and dehydration
- There are pathogenic and nonpathogenic strains
- There are more than 130 serogroups of *V cholerae*, based on the presence of somatic O antigens
- Only O1 and O139 are toxigenic and cause Cholera infection
- Primarily found in water sources (associated with salt water)
- Spread by contaminated water under conditions of poor sanitation
- Cause gastrointestinal disease- Cholera infection

Tilmaamaha lagu garto cudurka Daacuunka (Clinical features of Cholera)

Astaamaha iyo calaamadaha (signs and symptoms) lagu garto cudurka Daacuunka waxa ugu horreeya shuban xoog leh oo saxarada qofka bukaa tahay sida biyaha bariiska oo kale (rice water diarrhoea). Waxay qaadataa in tilmaamaha xanuunku soo baxaan saacado yar gudahood (12 saacadood) ilaa 5 casho ka dib marka qofku uu cuno ama cabbo biyo ay ku jirto bakteeriyada *Vibrio cholerae* ee sababta cudurka Daacuunka sidaan hore u soo sheegnay. Noocyada bakteeriyada *Vibrio cholerae*, waa iskaga mid xagga sifooyinka iyo tilmaamaha lagu garto cudurka Daacuunka.

Dadka intooda badan (ilaa boqolkiiba 75%) marka ay qaadaan cudurka Daacuunka, kama muuqdaan ama malaha astaamaha iyo calaamadaha cudurka Daacuunka lagu arko (asymptomatic patients). Dadkaasi waa cudur sii sidayaal (carriers) bakteeriyada

Vibrio cholerae waxay soo raacdaa saxaradooda inta cudurku jidhkooda ku jiro oo lagu qiyaasay ilaa laba toddobaad.

Dadka inta ay ka soo baxaan astaamaha iyo calaamadaha cudurka Daacuunka boqolkiiba 80% (dadkan laftoodu waa cudur sii sidayaal gudbin kara cudurka) waxay leeyihiin shuban fudud ama sahlan (mild diarrhoea). Taas oo ay adag tahay in la kala saaro shubanka cudurka Daacuunka iyo shubanka (watery diarrhoea) ay sababaan jeermisyada kale ee bakteeriyada, faraysyada iyo deris kunoolayaasha (parasites). Cudurada kale ee astaamahooda iyo calaamadahooda uu ugu muhiimsan yahay shuban biyoodku (acute watery diarrhoea) sida daacuunka oo kale waxaa ka mid ah:

1. Salmonellosis
2. Food poisoning
3. Gastroenteritis (bacterial)
4. Gastroenteritis (viral)
5. Cryptosporidiosis
6. Yersiniosis
7. Nosocomial diarrhoea

Cudurka Daacuunka daran ah (severe cholera, cholera gravis) waxa lagu arkaa bukaanka cudurka qaba in ka yar boqolkiiba 10% (<10%). Kani waa cudurka Daacuunka rasmiga ah ee dhimashada badan iyo khasaaraha ballaadhan keena. Taa macneheedu maaha in Daacuunku ku kooban yahay oo keliya 10% ka, kuwa aanay ka muuqan astaamaha iyo calaamadaha cudurka Daacuunka iyo kuwa shubanka sahlan leh, dhammaantood waxay qabaan cudurka waana sii gudbin karaan haddaan si dhakhso ah loo xakamayn fidista cudurka Daacuunka.

Tilmaamaha ugu badan ee lagu arko cidda uu ku dhacay cudurka Daacuunku (severe cholera) waxaa ka mid ah:

1. Shuban aad iyo aad u badan oo muuqaalka biyaha bariiska oo kale leh (rice water diarrhoea).
2. Ubucda (abdominal) oo la maroojiyo xanuunna laga dareemo.
3. Matag ama hunqaaco shubanka ka dib (mararka qaarkood matagga ayaa ka soo horreeya shubanka).
4. Xummad mararka qaarkood (inta badan heerkulku hoos buu u dhacaa) siiba caruurta.
5. Harraad aad ah
6. Muruqyada ubucda iyo meelaha kale ee jidhka oo aad loo maroojiyo isla markaana xanuuna.
7. Xabeeb ay sabab u tahay fuuq-baxu oo qofka dhuuntu qallasho
8. Qofka oo yare dareema qabow iskuna soo koga
9. Jidhka qofka oo isku duma oo aad u tabaryaraada indhaha iyo daamanka oo godka gala.
10. Heerka garaaca wadnaha (pulse rate) oo daciif ah, dhakhso/deg-deg ah oo an mararka qaarkood la dareemi karin si loo cabbiro.
11. Cadaadiska dhiigga (blood pressure) oo hoos u dhaca oo aan la cabbiri karin.
12. Neefsashada oo si dhakhso/degdeg ah qofka uga soo baxaysa

13. Ogsijiinyaraan (cyanosis) oo jidhku/maqaarku isu bedello midabka buluugga.

14. Kaadida oo yaraata mararka qaarkoodna aan qofka ka iman.

Cudurka Daacuunku, marka qofka xanuunsanayaa uu noqdo hor iyo dabo wuxu halis gelin karaa nolosha bukaanka taas oo ay ugu wacan tahay fuuq-baxa (dehydration) oo biyaha ku jira jidhka dadku ay ka dhammaadaan sidaan horeba u soo sheegnay.

Haddii aan bukaanka si dhakhso ah looga daaweyn cudurka Daacuunka waxa suurto ah inay u geeriyoodaan xanuunka in ka badan boqolkiiba 50% (>50%). Halka marka ay bukaanku helaan daaweyn iyo daryeel caafiimaad ay dhimashadu ka yar tahay boqolkiiba 1% (<1%).

Daacuunku waa ku wada dhacaa dadka oo dhan qof waliba waa u nugul yahay, waxase ugu sii daran caruurta, dadka waayeelka ah, dadka qaata dawooyinka ashitada jebiya (anti-acid drugs), kuwa ay calooshooda ku yar tahay ashitadu/asiidhu iyo dadka caloosha laga saaray caafimaad ahaan. Haddaan laga daaweyn xanuunka dadku si dhakhso ah oo saacado gudahood ah bay u dhiman karaan.

Sida badan sifooyinka lagu garto cudurka Daacuunka waxay aad isugu dhow yihiin lana mid yihiin kuwa ay sababaan bakteeriyada, fayrasyada iyo deris kunoolayaasha kale ee sababa shuban biyoodka sidaan horeba u soo sheegnay. Sidaas darteed, waxa habboon in laga taxadiro oo la hubiyo inuu cudurku yahay Daacuun iyo inuu yahay cudur kale.

Si loo kala saaro, Daacuunka iyo cudurada kale waxa la adeegsadaa shaybaadhka caafimaadka, astaamaha iyo calaamadaha lagu garto xanuunka. Tusaale ahaan, haddii qofka xanuunsanaya ee shubanku ku dhacay ay saxaradiisu tahay sida biyaha bariiska oo kale (rice water stool) ama u socoto sida biyaha oo u urto sida kalluunka waxa laga yaabaa in cudurku yahay Daacuun. Haddiise, saxarada ay la socdaan axal ama xab iyo dhiig waxa dhici karta in qofka cudurka hayaa yahay xundhur (Dysentery).

Sifooyinka iyo siyaabaha kala duwan ee hunni lagu kala garto lagu heli karo ama lagu kala ogaan karo shuban biyoodka iyo jeermisyada kala duwan ee sababa waxa ka mid:

1. Shuban iyo matag wada socda, xumad yar iyo saxarada oo aan lahayn xab la socda: waxay muujinaysaa in cudurku yahay mid uu sababay fayras (Gastroenteritis viral infection).
2. Shuban iyo matag wada socda, calool maroojis, dhiig iyo xab saxarada la socda iyo qandho ama xumad: waxay muujinaysaa in cudurku yahay mid ay sababtay bakteeriyada (Gastroenteritis bacterial infection).
3. Shuban aan lahayn matag, dhiig iyo xab ay saxarada la socdaan oo aan lahayn wax qandho ama xumad ah: waxay tilmaamaysaa in cudurku yahay Amoebiasis (Dysentery)
4. Shuban miidhan ama aad iyo aad u badan (saxarada oo ah sida biyaha bariiska) iyo matag: waxay tilmaamaysaa in cudurku yahay Daacuun (cholera)
5. Shuban uu la socdo matag xad-dhaaf ah (gaar ahaan haddii uu ku dhaco in ka badan hal xubin ama qof reerka ama koox ka mid ah): waxay tilmaamaysaa in cudurku yahay cunto la cunay oo lagu sumoobay (food poisoning).

6. Baadhitaanka shaybaadhka caafimaadka ayaa si hawl yar loogu ogaan karaa cudur keenaha sababay shuban biyoodka iyo nooca uu yahayba.

Habka ay *Vibrio cholerae* cudurka u sababto (Pathogenesis process)

Sidaan hore u soo sheegnay bakteeriyada *Vibrio cholerae*, waxay soo raacdaa cuntada iyo biyaha sadhaysan ee dadku cunaan ama cabbaan. Marka dadku cuntada ama biyaha liqaan, waxa bakteeriyadu ku negaataa oo ku kortaa kuna tarantaa (growth and multiplication) isla markaana ku dhegtaa xuubka xabka ah (mucus membrane) ee hoosta kaga dahaadhan mindhicirka yar (small intestine) waxayna ku sii daysaa ama ay soo saartaa mariidyada Daacuunka (Cholera toxin or Cholera enterotoxin).

Ka dibna waxa mariidyadu ama suntu (toxins) gashaa unugyada epithelialka (epithelial cells) halkaas oo ay qalalaase iyo khalkhal geliso shaqada iyo isu dheelitirnaanta jidhka (physiological equilibrium or Homeostasis) gaar ahaan shaqada mindhicirka/malawadka yar.

Taasina waxay sababtaa in mindhicirku maroojismo oo hoorku (fluids) ka lumo ama ka baxo isla markaana sii daayo macdanta chlorideka iyo biyaha shubanku ku bilaabmo oo bukaanku fuuqbaxo (dehydration). Sidoo kale, waxa istaaga nuugitaanka (absorption) Sodium ionska oo caadi ahaan ka qayb qaata isu dheelitirnaanta jidhka xagga electrolytes (salt and water).

Qiyaasta (infective dose) loo baahan yahay ee bakteeriyada *Vibrio cholerae* ah ee sababi karta cudurka Daacuunku waxay noqonaysaa 1,000 (10^3) ilaa 1,000,000 (10^6) oo bakteeriyo ah marka ay soo raacdo biyaha la cabbo. Halka marka ay *Vibrio cholerae* soo raacdo cuntada la cuno loo baahan yahay qiyaas (infective dose) ah 100 (10^2) ilaa 10,000 (10^4) oo bakteeriyo ah inay sababto Daacuunka.

Guud ahaan, *Vibrio cholerae* waxa loo baahan yahay qiyaas weyn 10,000-1,000,000 (10^4 - 10^6 organisms) si ay cudurka daacuunka u sababto. Halka, bakteeriyada kale qaarkeed loo baahan yahay qiyaas yar/hoose (lower infective dose). Tusaale ahaan, bakteeriyada Qaaxada ama TBda sababta ee *Mycobacterium tuberculosis* waxa loo baahan yahay qiyaas ka yar (<10 organisms) oo keliya.

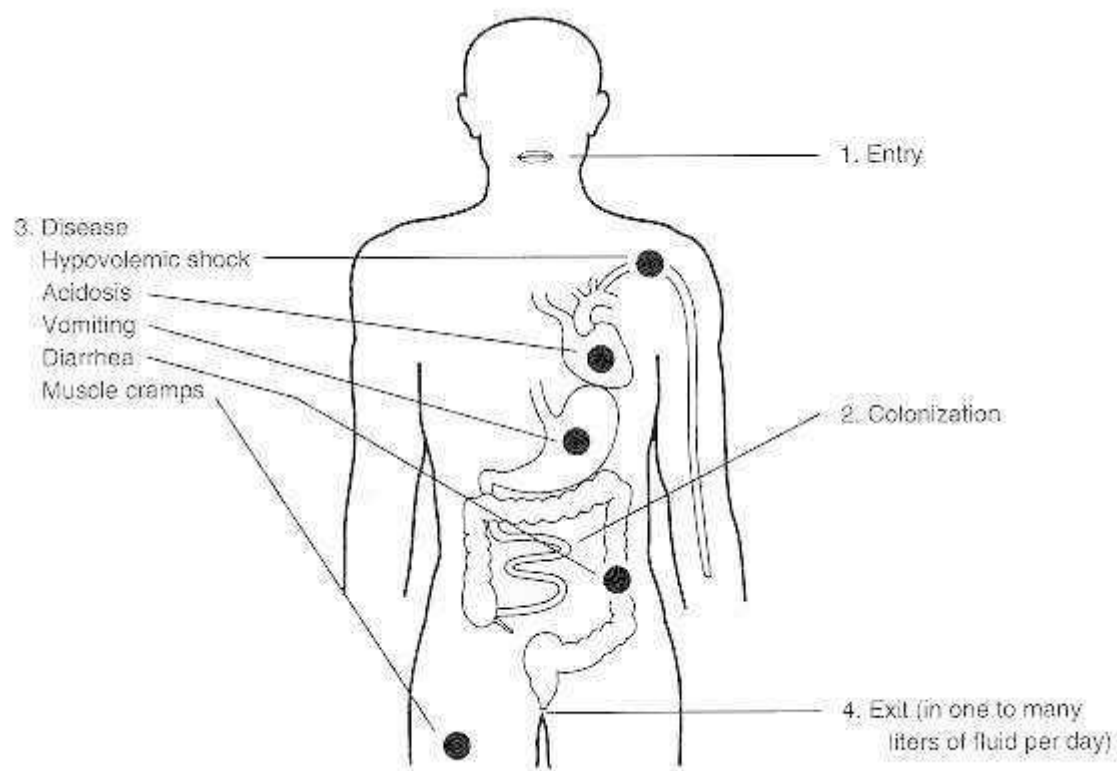
Vibrio cholerae, kuma keento dhismaha mindhicirka yar wax isbedel ah ama dhaawac ah (pathological changes or anatomical damage) isla markaana ma gasho oo ma raacdo dhiigga iyo qaybaha kale ee jidhka sida bakteeriyada kale qaarkeed.

Sidaas darteed, *Vibrio cholerae* waxay asiibtaa oo waxyeellaysaa oo keli ah shaqada mindhicirka yar oo ay ku sii dayso mariidyadeeda (cholera toxin). Taas oo khalkhal gelisa habka huleelka (transport) ee biyaha iyo macdanta jidhka (water and salt). Waana ta keenta mararka qaarkood in haddaan bukaanka la daaweyn, waxa laga yaabaa inuu qofku shubmo oo ay ka baxaan ilaa 30 litir oo biyo/shuban ah muddo 24 saacadood gudahood ah.

Halka ml (mililitir) ee shubanka (diarrhoea) ah waxa ku jira ama la socda inta u dhaxaysa 10,000,000 (10^7) ilaa 1,000,000,000 (10^9) oo ah bakteeriyada *Vibrio cholerae*. Maxaad u malaynaysaa marka ay biyaha ku darsamaan?

Dhimashada deg degga ah waxa keena marka shaqada jidhka miisaanku ka lumo (physiological imbalance) oo ah marka bukaanka dheecaanku ama hoorku ka dhammaado jidhkiisa shuban iyo matag dartood. Ugu horrayn, qofka waxa ku dhaca xanuun darran, fuuqbax, waxa istaaga wareegga dhiiga (circulatory failure), waxa fadhiista kelyaha (renal failure) iyo aysiidhka oo ku badata jidhka (metabolic acidosis) ka dibna xubnaha kale ee jidka ayaa shaqada gaba ama joojiya si tartiib tartiib ah, ugu dambeyntiina dhimashada ayaa ku xigta.

Jaantuskan hoos ka muuqdaa, wuxu tusayaa habka ay bakteeriyada *Vibrio cholerae* ay Daacuunka u sababto iyo heerarka xanuunku maro. Waa sida wax u dhacaan marka ay bakteeriyadu gaadho jidhka qofka oo ay ka gasho xagga afka. Sidaan hore u soo sheegnay, *Vibrio cholerae* waxay soo raacdaa cuntada ama biyaha sadhaysan.



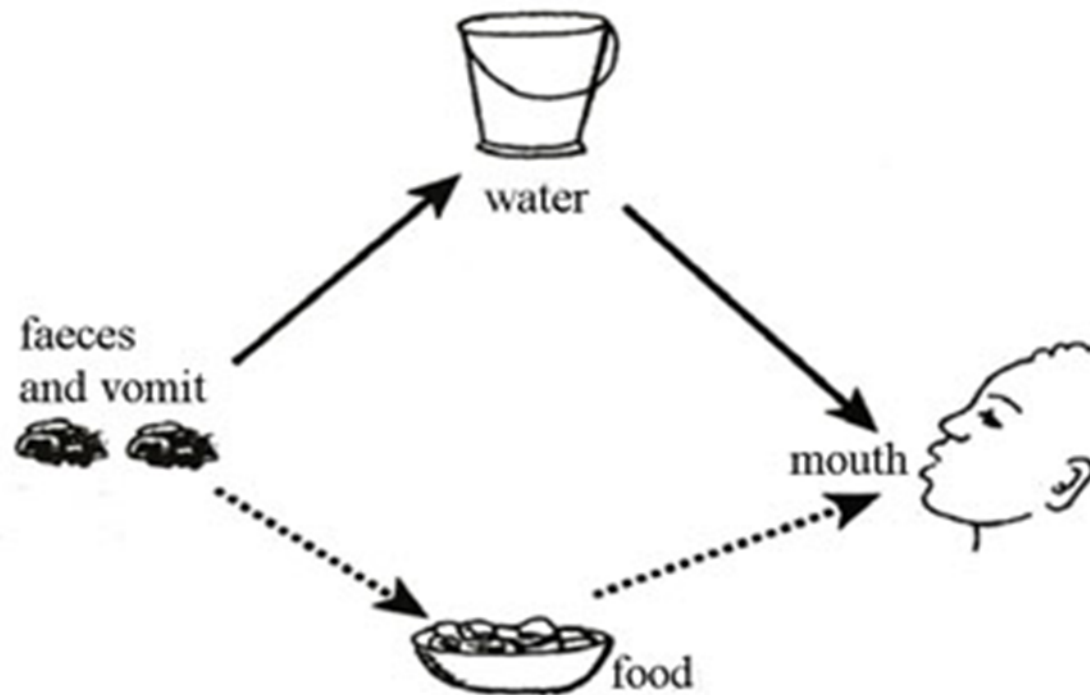
Jaantus muujinaya marxaladaha ay maro *Vibrio cholerae* si ay Daacuunka u sababto

Habka gudbinta cudurka Daacuunka (Mode of transmission)

Habka guud ee gudbinta cudurka Daacuunku waa marinka cuntada oo bakteeriyadu soo raacdo biyaha, cuntada iyo waxyaabaha kale ee wasakhaysan ama sadhaysan ee aadanuhu afka ka qaato (Mode of transmission is faecal –oral route) sida uu muujinaayo jaantuska hoos ku qarani. Ka dibna, marka qofku cudurkii qaado oo shuban ku dhaco oo ay bakteeriyadii saxarada soo raacdo oo halkaas meertadii cudurka Daacuunku ka sii socoto ilaa inta la gooyayo ama la jarayo si faafitaanka cudurka loo joojiyo ama hakiyo.

Cudurka Daacuunku waa cudur si dhakhso ah u fida oo loo kala qaadi karo. Kala qaadistiisu waxay ku xidhan tahay, bakteeriyada Daacuunka sababta (*Vibrio*

cholerae) ee soo raacda saxarada iyo mataga qofka xanuunsanaya ama jirran ka dibna ay qaadaan cayayaanka sida duqsiga oo gaadhsiiya biyaha, cuntada aan dabboolayn iyo meelaha biyaha laga cabbo.



Mode of transmission is faecal –oral route

Waxa kale oo sii fidiya biyaha roobka oo saxarada markay qaadaan ku shuba ceelasha iyo meelaha biyaha laga cabbo. Sidoo kale waxa saxarada ama hunqaacada qofka buka marka ay qallasho qaada dabaysha waxayna ku dartaa cuntada aan daboolka lahayn iyo meelaha biyaha leh.

Waxa kale oo cudurka Daacuunka fidiya ama uu ku fidaa marka ay dadku is dulbaxaan, sida goobaha gargaarka iyo xeryaha qaxootiga ee aan lahayn musqulaha hagaagsan iyo biyaha nadiifta ah.

Waxa kale oo iyana si toos ah u gudbiya ama lagu kala qaadi karaa faraha wasakhda leh sida marka dadku saxaroodaan oo aanay si wanaagsan u faraxalan ama isaga maydhin/dhiqin faraha gacmaha.

Waxyaabaha kale ee laga qaado, Daacuunka waxa ka mid ah cuntada ceedhiin ama aan sida fiican u bislaan, cuntada biyaha badda (seafood) laga helo sida kalluunka iwm, khudradda iyo guud ahaan nadaafad xumada cuntada. Waxa laga yaabaa in mararka qaarkood khudradda iyo midhaha la cuno ay biyo wasakh leh ah ku sadhaysmeen ama ku baxeen oo bakteeriyadu ku jirto, waana muhiim in la iska maydho intaan la isticmaalin.

Sidaas darteed, Daacuunka waxa gudbiya biyaha aan nadiifta ahayn ee ay wasakheeyeen saxarada iyo mataga dadka buka iyo kuwa ladnaaday ee kabaxa ah welina saxaradooda ay ku jirto bakteeriyadu (sii sidayaal). Waxa kale oo ka qayb

qaata fidista Daacuunka cuntooyinka sadhaysan gaar ahaan kuwa lagu gado ama iibiyo waddooyinka waaweyn ee magaalooyinka hareerahooda.

Habka la isugu gudbiyo ama lagu qaado cudurka Daacuunk iyo sida uu ku faafo waxa lagu soo koobi karaa siyaabahan soo socda:

1. **Cabbista** biyaha wasakhaysan
2. **Cunnida** cunto (marka lagu daro midhaha iyo khudradda) ku wasakhowday biyo wasakhaysan, ciid sadhaysan, ku wasakhowday marka la diyaarinayo iyo cunto badeed sadhaysan (contaminated seafood).
3. **Isu gudbinta qof ilaa qof** ka dhalata marka bukaanka la daryeelayo, xidhiidh toos ah lala yeesho jidhka bukaanka siiba marka ay geeriyoodaan gaar ahaan dadka maydha/dhaqa dadka meydkiisa.
4. **Gudbinta tooska ama aan tooska ahayn** ee gacmaha wasakhda leh taas oo ka timaadda nadaafad xumada sida cidiyaha gacmaha ee aan la goyn oo wasakhdu la socoto iyo faraxal la'aanta ama aan la isticmaalin saabuunta gacmaha lagu dhaqo/faraxalka.
5. **Xarumaha daaweynta Daacuunku** waxay noqon karaan meelaha ugu sadhaysan ee ugu wasakhda badan ee cudurka Daacuunku si hawl yar uga sii faafi karo. Haddaan laga shaqayn nadaafaddooda iyo saxadhowrka isla markaana aan la kala xadayn ama la kala ilaalin bukaanka iyo bulshada inteeda kale.

Waxyaabaha ugu waaweyn ee suurto geliya gudbinta Daacuunka waxaa ka mid ah:

1. Haddii degaanka nadaafaddiisu aad u xun tahay waxa suurto gal ah in Daacuunku si fudud loo qaadi karo una fidi karo (**Poor sanitation**).
2. Haddii magaalooyinku ayan lahayn marinno ay maraan qashinka iyo biyuhu, bakteeriyada cudurka keentaa way helayaan xaaladihii ay ku noolaan lahaayeen kuna kori lahaayeen (**Lack of sewage and drainage system**).
3. Haddii meelaha qashinka lagu ururiyo waajibaadkooda la marin waayo oo jeermisku ka helaan xaaladihii ay ku dhalan lahaayeen, waxa hawl yaraanaysa gudbinta cudurka (**Improper waste management system**).

Sababaha halista Daacuunka sii kordhiya inuu sii faafo waxa ka mid ah:

1. **Dhaqdhaqaaqa dadka** (Population movement)- sida safarka, socotada, ganacsiga, geediga iwm. Waxyaabahaas oo dhammi waxay qayb libaax ka qaataan qaadista bakteeriyada sababta cudurka Daacuunka oo ay gaadhsiiyaan meelaha kale ee badqaba ama fiyow, taasina waxay keentaa in Daacuunkii sii faafo oo meel kasta gaadho oo ka dillaaco.
2. **Isdulbaxa** (Overcrowding) - sida xaafadaha isku raranta ah, xeryaha qaxootiga, meelaha dadka la isugu soo ururiyo waqtiyada abaaraha, afooyinka iyo magaalooyinka aan kala habaysnayn. Goobahaas dadku isdulbaxaan (xad-dhaaf) waxay kordhiyaan halista jeermiska Daacuunka ee ka imanaysa saxarada, mataga, biyaha iyo cuntada sadhaysan ee ay ku jirto bakteeriyada keenta cudurka Daacuunka. Taasina, waxay suurtagelisaa in bulshada meesha ku nool ay si fudud ku qaadi karaan Daacuunka isla

markaana sii faafiyaan oo gaadhsiiyaan meelaha iyo degaamada kale ee aanu weli gaadhin.

3. **Helitaan la'aanta adeegyada caafimaadka** (Poor access to health services) - sida goobaha ama meelaha aanu ka jirin wax adeeg caafimaad ahi. In goor hore la ogaado oo la xakameeyo kiisaska cudurka Daacuunka ah waa muhiim si loo yareeyo isu gudbinta. Haddaanse, wax adeeg caafimaad ahi meeshu lahayn ama aanu ka ag dhoweyn cidina ogaan kari mayso in Daacuun ka dillaacay meesha isla markaana cudurkii waa sii fidayaa tan iyo inta laga ogaanayo jiritaankiisa.
4. **La'aanta biyaha nadiifta ah** (Lack of safe water or clean water) – sida ceelasha biyaha laga cabbo, meelaha biyaha lagu kaydiyo, biyaha berkedaha, balliyada iyo qasabadaha biyaha ka soo qaada ceelasha wasakhda leh ama ay isku darsameen biyaha bullaacadaha. Waa waxyaabaha ugu khatarta badan biyaha aan nadiifta ahayni ee laga qaado Daacuunka iyo cudurada kaleba. Inta biyaha noocaas ah ee sadhaysan la cabbayo ama la isticmaalayo, waa sii soconaysaa fidista iyo halista cudurka Daacuunku.
5. **Nadaafad iyo saxa xumada sabada** (Poor sanitation) - sida marka aan si haboon loo maarayn wasakhda iyo qashinka ay ka midka yihiin saxarada, mataga, cuntada xumaata ama aan nadaafaddeeda la sugin, biyaha wasakhaysan, iyo meelaha aan la hayn musqusha ama musqulaha hagaagsan oo saxaradu meel walba taal. Marka ay waxyaabahaas oo dhammi isbiirsadaan oo sabada ama deegaanka ku baahaan oo meel waliba qashin iyo wasakh la ciir ciirayso waxa sii fududaata in cudurka Daacuunku sii faafo oo noqdo mid joogto ah (endemic).

Ogaanshaha cudurka Daacuunka (Cholera diagnosis)

Qofka lagu tuhunsan yahay ee loo malaynaayo inuu qabo cudurka Daacuunka waxa lagu ogaan karaa laba siyaabood (Clinical diagnosis and Laboratory diagnosis).

1. Astaamaha iyo calaamadaha cudurka Daacuunka ee aan soo sheegnay oo lagu arko qofka qaba (**Clinical diagnosis**).

Calaamadaha iyo astaamaha cudurka Daacuunka ee aan soo sheegnay oo lagu arko qofka qaba taas oo u baahan in lagu saleeyo meesha uu degan yahay ee ku nool yahay. Sidoo kale taariikhda safarkiisa (travel history) meelaha uu qofku safarka ku tegay ama soo maray oo ah meelaha la og yahay in cudurka Daacuunku ka dillaacay ama ka jiro oo lagu sheegay.

Si loo ogaado in cudurku Daacuun yahay iyo in kale waxa la isticmaalaa qeexitaanka ay WHO (WHO standard case Definition) soo jeedisay ee qeexitaanka kiiska Daacuunka (Cholera clinical case definition). Qeexitaanka WHO wuxu tilmaamaa in kiiskii xanuunsanaya oo Daacuun looga shakisan yahayn lagu xaqiijin karo marka:

1. Meel aan hore cudurka Daacuunka loogu ogayn inuu ka jiro lagu arko, dad bukaan ah oo da'doodu tahay 5 sano ama ka badan oo si aad ah ama si daran u fuuqbaxay ama dhintay shuban biyood ba'an dartiis.

2. Meel hore loogu ogaa inuu ka jiro cudurka Daacuunku lagu arko, bukaan da'doodu tahay 5 sano ama in ka badan oo shuban biyood ba'an leh shubankaas oo leh ama aan lahayn matag.
3. Kiis lagu tuhunsan yahay cudurka Daacuunka lagu ogaado shaybaadhka caafimaadka in saxarada bukaanka ay ku jirto ama laga helo bakteeriyada *Vibrio cholerae* O1 ama O139 bukaan kasta oo leh shuban.

2. Baadhitaanka shaybaadhka caafimaadka oo lagu xaqiijiyo inuu cudurku yahay cudurka Daacuunka iyo in kale (**Laboratory diagnosis**).

Sidaan kor ku soo sheegnay, waxa kale oo lagu ogaan (xaqiijin) karaa baadhitaanka shaybaadhka caafimaadka oo xaqiijiya jiritaanka cudurka, marka laga baadho muunadaha ama saamiga (samples) qofka buka laga soo qaado taas oo lagu ogaado marka lagu sameeyo beerid ama abuurid (culture). Waxa kale oo la adeegsada mararka qaarkood qalabka molecular biolojiga noocyadiisa ay ka mid yihiin PCR iyo DNA probes kuwaas oo lagu ogaado noocyada (strains) *Vibrio cholerae* ee sababa safmarka. Tusaale ahaan inay tahay *Vibrio cholerae* O1, O139 ama *Vibrio cholerae* El Tor.

Sidaan hore u soo sheegnay, qaybta saddexaad ee ogaanshaha cudurka Daacuunka ee muhiimka ah waa in laga hubiyo bukaanka inaanu qabin cudurro badan oo ay Daacuunka iskaga mid yihiin xagga calaamadaha iyo astaamaha shuban biyoodka (watery diarrhoea). Kuwaas oo noqon kara cudurro ay sababaan bakteeriyada, derisku noosha iyo fayrasyada kale. Waxa keliya ee lagu kala saari karo oo lagu xaqiijin karo Daacuunka iyo cudurada kale inta badan waa baadhitaanka shaybaadhka caafimaadka, jawaabta laga helo muunadaha laga baadhay cuduradaas iyo iyadoo si mug leh loo adeegsado astaamaha iyo calaamadaha lagu arko bukaanka ama kiiska looga shakisan yahay inuu qabo cudurka Daacuunka.

Baadhitaanka iyo xog ururinta ka soo baxda ogaanshaha cudurka Daacuunka (Diagnosis) waxa lagu kala sooci karaa inuu kiisku yahay cudurka Daacuunka iyo in kale (case classification) taas oo lagu soo saaro go'aanka ugu dambeeye oo ah:

1. **Lagu tuhmay Daacuun** (Cholera suspected): kiis buuxiyey qeexidda kiiska cudurka Daacuunka oo lagu tuhunsan yahay inuu Daacuun yahay (meets clinical case definition).
2. **Loo malaynaayo Daacuun** (Cholera probable): kiis aan buuxin qeexitaanka kiiska Daacuunka oo aan lagu dabaqi karin ama aan dhici karin inuu Daacuun yahay (Not applicable).
3. **Lagu Xaqiijiyay Daacuun** (Cholera confirmed): kiis lagu tuhunsanaa inuu cudurka Daacuunka yahay oo lagu soo xaqiijiyay baadhitaanka shaybaarka caafimaadka (laboratory confirmed case).

Sidaas darteed, waxa khasab in la xaqiijiyo bakteeriyada sababta Daacuunka ee *Vibrio cholerae* inay ku jirto saxarada/mataga bukaanka ama kiiska ugu horreeyay ee lagu tuhunsan yahay inuu qabo cudurka Daacuunka, si loo:

1. Xaqiijiyo jiritaanka cudurka Daacuunka iyo in kale (Confirm cholera).
2. Caddeeyo oo loo ogaado noocyada *Vibrio cholerae* O1, qaybaheeda Classical ama El Tor iyo inay tahay *Vibrio cholerae* O139 (Identify the strains, biotype and serotype).

3. Qiimeeyo nuglaanta noole dilayaasha (Assess antibiotic sensitivity).

Waxa xusid mudan, inaan dib loo dhigin daaweynta bukaannada ama dadka xanuunsanaya ee fuuqbaxay oo aan lala sugin ilaa inta baadhitaanka shaybaadhka caafimaadka la soo dhammaynaayo oo jawaabta laga helaayo.

Baadhista cudurka Daacuunka iyo cudurada kale ee faafa, waxa ugu muhiimsan in marka ugu horraysa ee la soo sheego ama la ogaado in cudur shuban biyood lehi dillaacay, in la abaabulo oo la hawl geliyo kooxda baadha marka cuduradu dillaacaan (outbreak investigation team). Kooxdaas, oo inta badan isku dhaf ah (multidisciplinary team) waxay ka kooban yihiin kooxo kala xirfado duwan sida caafimaadka, saxadhowrka, caafimaadka guud, biyaha, khabiir isgaarsiinta ah iwm. Waxa hormood ka ah oo hogaamiya Wasaaradda Caafimaadka waxayna raacaan habraac iyo protocollo diyaarsan oo loogu talo galay hakinta iyo baadhitaanka cudurka dillaacay. Haddii ilaahay ka dhigo, qormo dambe oo gaar ah ayaa Saxadoon.com dhowaan si faaf-faahsan ugu eegi doontaa.

Ogaanshaha cudurka Daacuunka (Diagnosis) ee baadhitaanka shaybaadhka caafimaadku, wuxu ku salaysan yahay hab tallaabo tallaabo ah (systematic laboratory diagnostic approach). Waxayna ku xidhan tahay marxaladda loo baahan yahay, aqoonta, helitaanka shaqaale xirfad leh, qalabka iyo awoodda xagga farsamada ee waddanka. Baadhitaanka shaybaadhka ee cudurka Daacuunku, wuxu ka kooban yahay mid gaar ah oo dhinaca microbiology ah iyo mid guud ahaaneed, waxaana ka mid ah tallaabooyinkan soo socda iyaga oo ku qoran English.

Laboratory Diagnosis of *Vibrio cholerae*

- Microbiological culture-based methods using faecal or water samples.
- Rapid Tests
 - Dark-field microscopy
 - Rapid immunoassays
 - Molecular methods – PCR & DNA probes
- Organism can be seen in faeces by direct microscopy after Gram Stain and dark field illumination is used to demonstrate motility.
- Visualisation by dark field or phase microscopy-look like “typical shooting star motility”.
- Gram Stain examination by microscopy-look like stained red (Gram-negative rods) and curved rods of bacteria.
- Dipstick tests are useful to detect early stages of cholera outbreaks, preventing high mortality in locations where the skill level of personnel may be low (remote areas or refugee camp settings).

Microbiological Culture

- Cultural isolation of *Vibrio cholerae* from patient's faeces or water samples is the most specific tool and definitive diagnosis of Cholera.
- *Vibrio cholerae* grow well at 37 °C on variety of simple media including MacConkey's agar, Thiosulfate Citrate Bile salts Sucrose (TCBS) agar and Blood agar.
- *V cholerae* grows well on TCBS agar and alkaline peptone water. On TCBS agar, **yellow** colonies indicate the presence of *V cholerae* (due to sucrose fermentation) against the **dark-green** background of the agar.

Culture

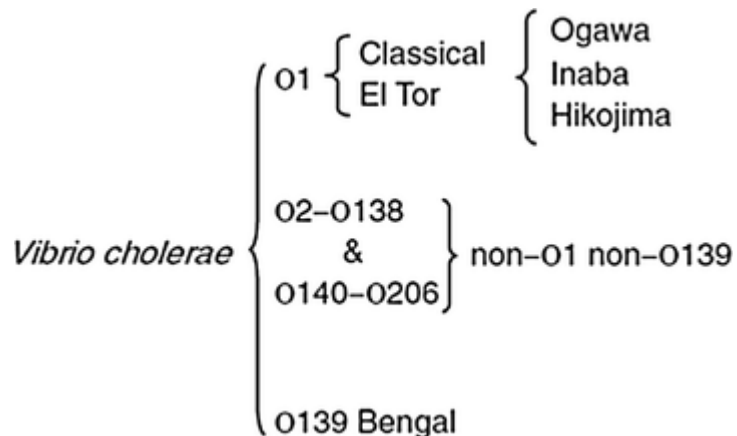
➤ *V. cholerae* grows well on **thiosulfate-citrate-bile-sucrose (TCBS)** agar, on which it produces yellow colonies.



- *V cholerae*, organisms are further identified by biochemical reaction patterns.
- Vibrios are oxidase positive, which differentiates them from enteric Gram-negative bacteria.
- *V cholerae* ferments sucrose and mannose but not arabinose.

Serology

- Measurement of serum antibodies using ELISA
- *V cholerae*, organisms are further identified by slide agglutination tests using anti-O group 1 and group O139 antisera.
- Serologic tests are available to define strains, but this is needed only during epidemics to trace the source of infection.



Antibiotic susceptibility

- Following growth and isolation of *V cholerae*, serogroup confirmation using antisera and antibiotic susceptibility testing are performed.
- Antibiotic susceptibility (antibiogram) is usually determined using the disc-diffusion method, but epsilometer (E)-test strips for rapid susceptibility tests are also used if borderline resistance is suspected.

General laboratory tests

- Full blood count may show elevated haematocrit in non-anaemic patients because of volume depletion or dehydration, and a high neutrophil count may be present in severe infection.
- Blood chemistry tests are important in assessing the degree of volume depletion; urea and creatinine levels are frequently elevated due to volume depletion.
- Arterial blood gas assessment is helpful because cholera infection often results in a low serum bicarbonate with accompanying acidosis, as well as elevated lactate with a high anion gap (due to hyperproteinaemia, lactic acid, and hyperphosphataemia).

- An electrocardiogram may demonstrate sinus tachycardia. Bradycardia is an ominous sign of severe illness. Hypokalaemia may produce a prolonged PR interval and flattened T waves.

Daaweynta Cudurka Daacuunka (Cholera treatment)

Cudurka Daacuunka, guud ahaan aad bay u sahlan tahay in la daaweeyo. Hase yeeshee, waxay ku xidhan tahay xaaladda bukaanku siday tahay, da'diisa, degaankuu ku nool yahay iyo heerka xanuunku le'eg yahay.

Xanuunka heerkiiisa waxa lagu qiyaasi karaa inta jeer iyo qiyaasta ama mugga shubanka (diarrhoea), taas oo noqon karta shuban sahlan/khafiif ah (mild diarrhoea), shuban dhexdhexaad ah (moderate diarrhoea) iyo shuban daran/xoog leh (severe diarrhoea). Sifooyinkaasi waxay tilmaamaan inta fuuqbuxu le'eg yahay kuwaas oo sahlaya sidii loo qorshayn lahaa daaweynta iyo badbaadinta bukaanka.

Tallaabooyinka ugu waaweyn ee lagu daaweyn karo Daacuunka waxaa ka mid ah:

1. In la daaweeyo lagana hortago fuuqbaxa iyo shooga si bukaanka loo badbaadiyo. Taas oo ah in sida ugu habboon ee saxda ah bukaanka loogu sameeyo fuuqcelis si jidhkiisa loogu soo celiyo biyihii iyo macdantii ka baxday (water and salt).

Waxaa si fudud loogu daaweyn karaa in bukaanka loo sameeyo fuuqcelis (rehydration therapy) iyadoo la isticmaalayo ORS (Oral Rehydration Solution). Waxa ka mid ah ORSyada la isticmaalo inta badan tusaale ahaan: Hartmann's solution oo ay WHO ku talo bixisay in lagu isticmaalo waddamada saboolka ah ee cudurka Daacuunku ku badan yahay. Waa muhiim in lagu jaangooyo ORSka qofka buka da'diisa iyo xaaladdiisa caafimaad oo la siiyo qiyaas ku habboon.

Meelaha aan lahayn goobaha iyo xarumaha caafimaadka sida miyiga ama baadiyaha waxa lagu isticmaali karaa cabbidda biyo ku celinta (fuuqcelis) ay dadku samaysan karaan. Waxay ka samaysan karaan iyaga oo isku daraya biyo la kariyey, sonkor ama malab, milix ama cusbo iyo haddii la heli karaayo soodhiyam baykaarboonayt.

2. In haddii loo baahdo ama ay noqoto lagama maarmaan in la daaweeyo cudurka laftiisa oo la isticmaalo noole dilayaasha (antibiotics) si loo dabar gooyo inaan bakteeriyadu ku korin kuna tarmin mindhicirka oo aan cudurku u sii fidin.

Marka la rabo in cudurka Daacuunka lagu daaweeyo daawooyinka noole dilayaasha ah (antibiotics), waxa la raacaa oo la adeegsadaa habraaca isticmaalka daawooyinka noole dilayaasha ah ee ay dejiyeen ama soo jeediyeen ha'yadaha adduunka u qaabbilsan dhinaca caafimaadka. Sida uu muujinaayo habraaca isticmaalka noole dilayaasha (Guidelines for Cholera Treatment with Antibiotics) ee hoos ku qorani, ha'yadahaas caalamiga ah ee qaabbilsan caafimaadka waxa ka mid ah:

1. World Health Organisation (WHO)
2. Pan American Health Organisation (PAHO)
3. International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR)

4. Medicins Sans Frontieres (MSF)

Inta badan, noole dilayaasha looma baahna in loo isticmaalo daaweeyn ahaan waxana ka haboon in lagu dedaalo sidii qofka bukaanka ah biyihii ka baxay si deg deg loogu soo celiyo. Isticmaalka noole dilayaashu haddaan loo baahnayn waxay dhiirigelisaa kakanaanta bakteeriyada (bacterial resistance).

3. In laga daaweeyo bukaanka calaamadaha iyo waxyaabaha kale ee uu ka cabanaayo oo daryeel wanaagsan loo fidiyo bukaanka.

Guidelines for Cholera Treatment with Antibiotics

Organisation	Recommendation	First-line drug choice	Alternate drug choices	Drug choices for special populations
WHO	Antibiotic treatment for cholera patients with severe dehydration only	Doxycycline	Tetracycline	Erythromycin is recommended drug for children
PAHO	Antibiotic treatment for cholera patients with moderate or severe dehydration	Doxycycline	Ciprofloxacin Azithromycin	Erythromycin or azithromycin recommended as first-line drugs for pregnant women and children Ciprofloxacin and doxycycline recommended as second-line drugs for children
ICDDR	Antibiotic treatment for cholera patients with some or severe dehydration	Doxycycline	Ciprofloxacin Azithromycin Cotrimoxazole	Erythromycin recommended as first-line drug for children and pregnant women
MSF	Antibiotic treatment for severely dehydrated patients only	Doxycycline	Erythromycin Cotrimoxazole Chloramphenicol Furazolidone	

Recommendations for the Use of Antibiotics for the Treatment of Cholera (CDC)

Xakamaynta iyo ka hortagga Daacuunka (Cholera control and prevention)

Sidaan soo sheegnay, cudurka Daacuunka fiditaankiisa waxa suurtageliya nadaafad darrada cuntada la cuno iyo saxadhowr/fayadhowr la'aanta degaanka siiba biyaha la cabbo. Taas oo sababta aakhirka in laga qaado cudurka.

Ka hortagga iyo xakamaynta cudurka Daacuunka waxa fure u ah barnaamij ama hannaan ballaadhan oo wejiyo badan kana duulaya sidii loo yarayn lahaa dhimashada dadka, sidii loo daaweyn lahaa bukaanka, nadaafadda biyaha, saxadhowrka, abaabulka bulshada, bixinta tallaalka afka laga qaato ee Daacuunka,

sahamiska/ilaalaynta (surveillance) iyo isha ku haynta xaaladda guud ee cudurka Daacuunka. Ujeedada ugu weyni, waa sidii loo samato bixin lahaa dadka xanuunsanaya isla markaana loo hakin lahaa inaan cudurku sii fidin oo gaadhin meelaha kale.

Siyaabaha looga hortagi karo si loo xakameeyo cudurka Daacuunka faafitaankiisa waxa ka mid ah in la qaado tallaabooyinka soo socda:

1. Waa in mudnaanta koowaad la siiyo sidii loo yarayn lahaa dhimashada dadka isla markaana loo daaweyn lahaa bukaanka.
2. Waa in lagu dedaalo sidii loo ogaan lahaa sidee cudurka Daacuunku ku bilaabmay, meeshee ka bilaabmay iyo sidee ku faafay si loo qorsheeyo hababka saxda ah ee lagu xakamayn karo Daacuunka.
3. Waa in biyaha la cabbo si hagaagsan loo daaweeyo oo nadaafadooda la ilaaliyo si dadku u helaan biyo nadiif ah.
4. Waa in biyaha la cabbo la iska kariyo intaan la cabbin ka hor meelaha aan lahayn biyaha nadiifta ah ee qasabada biyaha.
5. Waa in cuntada aad laysaga kariyo lagana fogaadaa cuntooyinka iyo cabbitaanka lagu gado meelaha debedda ah ee ku taxan waddooyinka hareerahooda.
6. Waa in dadka bukaanka daryeela si fiican isu nadiifiyaan oo saabuun iwm ku faraxashaan.
7. Waa in saxarada iyo waxyaabaha kale ee sadhaysan si hagaagsan loo maamulo oo meel ku haboon lagu shubo isla markaana lagu qubo si aan fidista cudurku u sii socon (proper waste management system).
8. Waa in sare loo qaadaa nadaafadda shakhsiga si looga hortago gudbinta cudurka Daacuunka bulshada dhexdeeda.
9. Waa in dadka socotada ah ee ka yimaadda degaannada lagu tuhunsan yahay cudurka Daacuunka isha lagu hayo xaaladdooda caafimaad inay wax iskabeddeleen iyo in kale. Mararka qaarkood haddii aad looga baqo inay bukaan, waa la karantiimayaa (Quarantine).
10. Waa in tababar ku saabsan saxadhowrka, nadaafadda iyo maaraynta cuntadu inay tahay tallaabo muhiima xagga ka hortagga cudurka loo fidiyo wadhatada jidadka cuntada ku iibiya (street vendors) iyo guud ahaan shaqaalaha ka shaqeeya meelaha cuntada sida makhaayadaha, hudheellada iwm.
11. Waa in la bixiyaa tallaalka Daacuunka waqtiga safmarka si dadka looga samata bixiyo cudurka Daacuunka intaanu ku dhicin ka hor.
12. Waa in bulshada lagu waaniyo inay isticmaalaan cuntooyinka ashitada ama asiidhka leh (acidifying foods) sida liinta noocyadeeda kala duwan, yaanyada ama tamaandhada, tamariinta, ciirta ama caanaha gadhoodhka/garoorka ah (yoghurt) iwm. Cuntooyinka ashitada lehi waxay ka hortagaan oo yareeyaan *V.cholerae* sababtoo ah asiidka cuntada iyo caloosha ayay bakteeriyadu u nugushahay.

Gabagabeyn (Conclusion)

Waxan qaybtan cudurka Daacuunka iyo sayniskiisa ku soo gunaanadaynaa, in cudurka Daacuunku yahay cudur halis ah oo maroojiya caloosha iyo mindhicirka isla markaana keena ama sababa shuban aad iyo aad u badan, matag iyo tabaryari aad ah. Taasina waxay horseedaa in qofka qaba cudurka Daacuunku ay biyuhu ka dhammaadaan jidhkiisa oo uu fuuqbax (dehydration) ku dhaco oo haddaan si deg-deg ah wax looga qaban oo loo daryeelin keeni kara geeri ama dhimasho dhakhso ah.

Cudurka Daacuunka, dadku waxay qaadaan marka ay cunaan cunto ama ay cabbaan biyo wasakhaysan/sadhaysan (contaminated) oo ay ku jirto bakteeriyada cudurka sababta ee *Vibrio cholerae*. Waddamada cudurkan halista ahi uu ka dillaaco inta badan wuxu sababaa safmar (epidemic) taas oo ay dad badani hal mar wada qaadi karaan ama uu Daacuunku mar wada helo.

Haddaba, si taas looga gaashaanto oo loo hakiyo faafitaanka iyo halista caafimaad ee cudurka Daacuunka, waxa habboon inaan heegan ahaanno oo raacno talooyinka iyo tusaalayaashan soo socda.

1. Halkan hoose riix si aad u daawatid film ka hadlaya Daacuunka iyo sida loo qaado iyo sida looga hortago. **The Story of Cholera in English.**

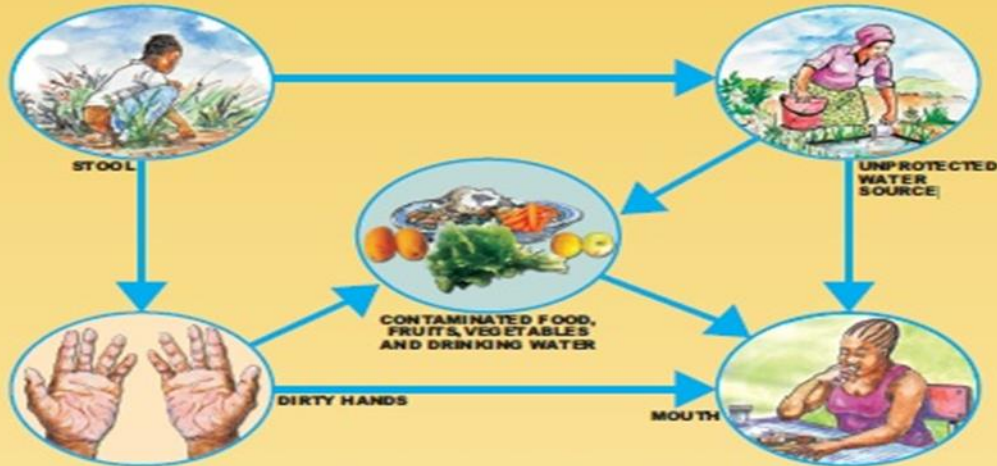
<https://globalhealthmedia.org/portfolio-items/the-story-of-cholera/?portfolioID=5492>

2. Boodhkan hoosena ka akhriso farriinta ka socota laamaha UNICEF iyo WHO ee ku saabsan cudurka Daacuunka.

CHOLERA ALERT!

Cholera is a diarrhoeal disease caused by a germ called *vibrio cholerae*. It is characterised by severe watery diarrhoea and vomiting.

HOW CHOLERA IS SPREAD:



HOW CHOLERA IS PREVENTED:

- By washing your hands thoroughly with soap or ash after taking care of a person suffering from cholera, after using the toilet and before handling, preparing and eating food.
- By only drinking water from safe sources i.e tap, borehole or protected well or spring.
- By disinfecting all water through either boiling or use of water purifying tablets or solutions.
- By cooking food thoroughly and eating it whilst hot.
- By storing all water in clean containers and keeping them covered.
- By washing fruits and vegetables under safe running water before eating them.
- By always using a recommended toilet and keeping it clean.
- By disposing of all refuse in a properly constructed refuse pit.
- By avoiding shaking hands at public gatherings, particularly funerals, during a cholera outbreak.

If you suspect Cholera in your area advise health workers at your nearest health facility immediately.

LET'S WORK TOGETHER IN PREVENTING CHOLERA!

unicef



World Health Organization

Qaybta Saddexaad

Talo soo jeedin (Recommendation)

Sidaynu wada ognahay cudurka Daacuunku, inta badan waa ku soo noqnoqdaa geyiga Soomaalida sannad kastana dhimasho iyo dhibaatooyin badan buu keenaa. Sidaas darteed, waxa loo baahan yahay in laga gaashaanto oo laga hortago dhibaataada caafimaad iyo waxyeellada kale ee bulshada Soomaaliyeed ka soo gaadha goor walba. Waxa lama huraan ah, in la sameeyo qorsheyaal iyo istaraatiijiyad leh tallaabooyin la taaban karo oo la dhaqan gelin karo muddada gaaban (short-term) iyo muddada fog (long term).

Qorshaha muddada gaaban ee waqtigan lagu jiro abaaraha iyo bilowga xilli roobaadka, waxa ugu muhiimsan in lagu dedaalo sidii ummadda tabaalaysan wax loo

tari lahaa laguna dedaalo inaan Daacuunku ku sii fidin meelaha kale. Baahida ugu weyn ee jirtaa imminka, waa macaluul iyo biyo la'aan sahlaya in xaaladda guud ee caafimaadku xumaato oo cudurada faafaa dalka ku sii kordhaan, sida Daacuunka iyo cudurada kale ee shubanka sababa.

Si looga hortago cudurka Daacuunka muddada gaaban, waxa la qaadi karaa tallaabooyinkan soo socda:

1. In daraasad iyo sahamis lagu sameeyo waddanka si loo ogaado sidee cudurka Daacuunku u bilaabmay, halkee ka bilaabmay iyo sidee ku faafay si loo qorsheeyo hababka saxda ah ee lagu xakamayn karo Daacuunka.
2. In la dejiyo barnaamajka xakamaynta iyo ka hortagga cudurka Daacuunka iyadoo la adeegsanayo tabaha ugu haboon.
3. In la bilaabo olole wacyigelin ah si bulshadu u ogaadaan caafimaad darrada ka iman karta cudurka Daacuunka iyo cudurada kale ee sababa shubanka.
4. In lagu dedaalo sidii loo yarayn laha safarka loo socdaalayo meelaha la sheegay in cudurku ka dillaacay si aan cudurku u sii gudbin ama u gaadhin gobollada kale.
5. In laga war hayo goobaha dadku Daacuunka ugu dhinteen si loo ogaado xaaladda guud ee degaamadaas isla markaana laga kaalmeeyo wixi dhibaato ah ee ka soo gaadhay cudurka Daacuunka.
6. In la diiwaangeliyo dadka la ogaaday inuu ku dhacay cudurka Daacuunku si loo ogaado tiro koobka iyo dadka u geeriyooday Daacuunka.

Guud ahaan, haddii horukac lagu sameeyo xaaladaha nolosha ee dadka deggan tuulooyinka ama magaalooyinka, cudurka Daacuunku ma huri karo qaadistiisuna aad bay u yaraataa. Haddii ay xumaadaan xaaladaha nolosha dadku (cunto, biyo iyo dawo la'aan) waxa imanaysa in caafimaadka dadku guud ahaan uu xumaanaayo, taas oo keenaysa in bulshadii oo dhammi ay u jilicsanaato qaaditaanka cudurada. Sidaan horeba u soo sheegnay badiyaa, cudurka Daacuunku wuxu keenaa dhimasho aad u fara badan, siiba waddamada saboolka ah haddii uu ku dhaco sida geeska Afrika iyo dhulka Soomaalida.

Qorshaha muddada fog (long-term) ee wax lagaga qaban karo Daacuunka iyo dhammaan cudurada faafa, waa inuu leeyahay ku talagal barnaamaj ka hortag ah oo ay ugu mudan tahay sidii bulshada Soomaaliyeed loogu heli lahaa biyo nadiif ah.

Waayo, cudurka Daacuunka waxa laga qaadaa waa biyaha wasakhda ah ee sadhaysan oo ay ku jirto bakteeriyada cudurka sababtaa (*Vibrio cholerae*). Waxa gudbiya oo faafiya ama sii fidiyaa waa biyaha, waxa lagaga hortagi karaana waa biyaha nadiifta ah. Waana xalka iyo habka keliya ee wadammada horumaray iyo dalalka kale ee soo korayaa kaga gaashaanteen cudurka Daacuunka oo looga cidhib tiray wadammadaas waa cabbista iyo isticmaalka biyaha nadiifta ah.

Sidaa awgeed, biyaha nadiifta ah ayaa ah sirta aan dawada iyo tallaalka ahayn ee dunidu kaga adkaatay ka hortagga iyo xakamaynta cudurka Daacuunka iyo cudurada kale ee sababa shubanka iwm.

Biyuhu, waa daawo aan u baahnayn in warshad lagu sameeyo oo dhul iyo cirba laga helo laakiin u baahan in la farsamaysto oo la iska hagaajiyo lagana faa'iidaysto.

Sidaas darteed, dawada keliya ee lagu daaweyn karo lagagana hortagi karo cudurka Daacuunka isla markaana ugu qiimaha jaban waa biyaha nadiifta ah (drinking and using clean water).

Sida ay sheegtay WHO, dhulka Soomaalida, boqolkiiba in ka yar 23% (<23%) ayaa hela biyo nadiif ah. Haddii biyo nadiif ah la helo waxa xal waara loo helayaa in ka badan boqolkiiba 90% (>90%) dhibaataada cudurada faafa oo ah kuwa ugu badan geeska Afrika iyo guud ahaan qaaradda Afrika. Warbixin laga soo xigtay WHO, waxay muujinaysaa in boqolkiiba 63-69% waxa qaaradda Afrika dadku u dhintaan cudurada faafa (infectious diseases).

<http://www.saxadoon.com/empfound/infectious-diseases-are-the-first-leading-cause-of-death-in-the-africa-what-can-we-do/>

Xogahan, WHO soo saartay ee aan kor ku soo sheegnay waxay caddaynayaan in dhibaatooyinka caafimaadka dadweynaha (public health) ee dhulka Soomaalidu ay aad iyo aad u waaweyn yihiin (colossal) una ballaadhan yihiin. Taas oo la odhan karo, waxay la mid tahay xaaladdihii caafimaadka guud ee adduunku ku sugnaa bilowgii qarnigii 19^{aad} gaar ahaan qaaradda Yurub (Dib u eeg taariikhda cudurka Daacuunka).

Laakiin, qarnigan iyo waqtiga hadda la joogo aad bay u fududahay in la saxo oo wax laga qabto waxyeellooyinka caafimaadka. Si xal waara loo helo aad bay u hawl yar tahay in la garto ama la ogaado tabaha iyo xeeladaha lagu hakinaayo cudurada faafa, lagu hagaajinaayo guryaha isku raranta (isdulbaxa) iyo saxada degaanka, loo dhisi lahaa nidaamka maaraynta qashinka, hirgelinta nadaafad wanaagga, loo nadiifin lahaa biyaha iyo sidii looga bixi lahaa saboolnimada.

Xallinta arrimahaas oo dhan waxa sahlaya ka faa'iidaydiga midhaha cilmiga casriga ah ee sayniska caafimaadka oo hawl yareeyey sidii waxyaabo badan oo saamayn ku leh xagga caafimaadka iyo nolosha aadanaha xal loogu heli kari lahaa.

Si arrimahaas looga midha dhaliyo, waxa loo baahan yahay tayaynta iyo koritaanka qaranka (State effectiveness) oo la yimaadda nidaamka horumarinta qaababka ugu fiican iyo hannaan abaabulan oo gaadha dhammaan hay'adaha dawladda oo ku dhisan karti iyo aqoon. Waxa kale oo iyana muhiim ah, inay ka qayb qaataan barnaamijyada kor loogu qaadayo caafimaadka dadweynaha oo kaalintooda iyo doorkooda loo baahan yahay inay ka cayaaraan bulshada rayidka ah (Civic Society).

Dhibaataada iyo halista uu ku hayo Daacuunku dhulka Soomaalida, ma'aha mid si hawl yar ku dhammaanaysa waxayna noqotay mid joogto ah (endemic) ilaa sannadkii 1994 sidaan hore ugu soo aragnay qaybta 1^{aad}. Ifafaalaha hadda muuqdaana wuxuu sheegayaa inuu sii kordhaayo cudurka Daacuunku iyo cudurada kaleba. Sidaa awgeed, waxa lama huraan ah in qorshe iyo istaraatiijiyad cad la sameeyo sidii xal waara loogu heli lahaa.

Tallaabooyinka lagaga gaashaaman karo muddada fog cudurka Daacuunka iwm waxa ka mid ah:

1. In la sameeyo oo la abaabulo maamul isku dhaf ah oo ay iska kaashadaan laamaha maamulka dawliga ah isla markaana laga qayb geliyo bulshada

ujeedadiisuna tahay sidii looga hortagi lahaa Daacuunka iyo cudurada kale ee faafa muddada gaaban iyo ta fogba.

2. In bulshada lagu wargeliyo istaraatiijiyada iyo tabaha lagu yaraynaayo Daaccunka iwm, meelaha muhiimka ah ee laga abbaaraayo iyo waxyaabaha u fududeeya gudbinta cudurkan si wacyigelintaasu u suurtoogeliso in dadweynuhuna dhinacooda ka qayb qaataan barnaamajka xakamaynta Daacuunka.
3. in la hagaajiyo nadaafada iyo saxada bulshada (Good sanitation)
4. In la habeeyo qashinka (garbage) oo si ku habboon loo tuuro, meelo loogu talagalayna lagu ururiyo aakhirka si hagaagsan loo gubo (Proper waste disposal system).
5. In hannaanka musqulaha iyo meelaha dadku ku saxaroodaan laga ilaaliyo inay ku darsamaan meelaha biyaha lagu kaydiyo iyo ceelasha biyaha laga cabbo (Proper sewage and drainage system).
6. In kor loo qaado dhaqanka nadaafad wanaagga sida gacmaha oo la iska maydho marka la isticmaalo musqusha/suuliga iyo ka hor intaan la diyaarin cuntada (Improved hygiene practice).
7. In la horumariyo waxbarashada beesha dhinaca caafimaadka (community health education) si kor loogu qaado wacyigooda caafimaadka dadweynaha si ay uga qayb qaataan ka hortagga iyo xakamaynta cudurada faafa sida Daacuunka iwm (Community health education programmes).
8. In lagu dheerigeliyo bulshada siiba degaamada uu ka dhici karo safmarka Daacuunku inay isticmaalaan waxyaabaha yarayn kara waxyeelada iyo fidista Daacuunka sida ku darista dheecaanka liita (lime juice) biyaha iyo cuntada.
9. In barnaamajyada wacyigelinta caafimaadka dadweynaha (public health) laga sii daayo idaacadaha, TVyada iyo warbaahinta baraha bulshada (social media).
10. In joogto laga dhigo wacyigelinta caafimaadka siiba xilliyada ay dillaaci karaan cudurada faafa gaar ahaan xilliga roobka iyo waqtiyada abaaraha si looga hortago cudurada.
11. In dalka laga hirgeliyo shaybaadhka caafimaadka guud ee cudurada faafa iyo saxadhowrka (Public health microbiology laboratory) kaas oo suurta gelinaya baadhitaanka cudurada (infections) iyo ka hortagooda.

Si wax looga qabto halista joogtada ah, oo looga hortago isla markaana lagu xakameeyo cudurka Daacuunka iyo cudurada kale ee faafa. Waxa mudan in la jabiyo meertada cudurka (infection cycle). Taas oo ah biyaha iyo cuntada sadhaysan (wasakhda leh ee jeermisku ku jiro), nadaafad xumada gaar iyo guud ahaaneed iyo saxadhowr la'aanta degaanka (saxarada iyo qashinka meel walba yaal). Tallaabadaasi, waxay suurtagal noqonaysaa marka lagu guulaysto in la helo biyo nadiif ah (clean drinking water), saxadhowr tayo leh iyo ku dhaqanka nadaafad wanaaga (Improved hygiene practice).

Ugu dambayntii, si xal waara loogu helo xakamaynta cudurada keena shuban biyoodka daran sida cudurka Daacuunka iyo cudurada kale ee ku dhaca habdhiska dheef shiidka waxan ku soo gunaanadaynaa qoraalkan in mudnaanta koowaad la siiyo hirgelinta arrimahan soo socda.

1. In laga qayb geliyo dadweynaha horumarinta caafimaadka, nadaafadda shakhsiga ah, cabitaanka biyo nadiif ah, fayadhowrka/saxadhowrka, nadaafadda deegaanka, ilaalinta ammaanka cuntada iyo in si ammaan leh looga takhaluso qashinka.

2. In la hirgeliyo teknoolojiyada baadhista degdegga ah ee heer caalamiga ah (Standardised Rapid Diagnostic Technology) si loogu adeegsado baadhista cudurada faafa ama la kala qaado marka ay dalka ka dillaacaan sida cudurka Daacuunka.

3. In la dejiyo nidaamka wardoona ama sahamiska ee la socodka joogtada ah ee cudurada iyo nidaamyada heegan gelinta iyo digniinta (Disease Surveillance & Disease Early Warning Systems) si loo ogaado cudurada ay dhici karto inay fidaan, sidoo kalena la sii diyaariyo kaydinta daawooyinka iyo qalabka, si loo qaado tallaabooyin iskudubaridan iyo hawlgallo degdeg ah oo waxqabad buuxa leh.

4. In la hirgeliyo nidaam shaybaadhka caafimaadka ku salaysan, oo lagula socdo cudurada laga qaado cuntada (Laboratory based Surveillance). Iyadoo isla markaasna la diyaarinayo habraac loo adeegsado ilaalinta ammaanka cuntada (Food Safety Guidelines), lana dejiyo barnaamijyo hawlgal, si loola socdo cuntada dibadda laga keeno iyo tan dalka laga soo saaro, ilaa iyo u qaadashadooda raashin ahaan oo ay bulshada gaadhayso.

Qodobadaas, aan kor ku soo sheegnay waa inay ka mid ahaadaan ujeedooyinka guud ee siyaasadda caafimaadka dalka ee ku saabsan xakamaynta cudurada la kala qaado (Control of Communicable Diseases). Si looga hortago, lana hakiyo fididda cudurada la kala qaado loona abbaarro mudnaanta wax ka qabadkooda, si loo yareeyo culeyskooda la xidhiidha dhimashada iyo naafeynta bulshada.

Guntii iyo gabagabedii, istiraatiijiyadda ka hortagga iyo xakamaynta cudurka Daacuunka iyo cudurada kale ee sababa shuban biyoodka waa inay horseeddaa:

1. Helitaanka ilo biyo nadiif ah laga cabbo goor kasta oo meel walba gaadha (Securing a source of clean water).
2. Dhismaha xarumaha daaweynta biyaha (Construction of water treatment plants).
3. Dhaqangelinta ku dhaqanka nidaamka fayadhowr wanaaga si joogto ah (Adopting better sanitation practices).
4. Gaadhsiinta barnaamajyada wacyigelinta iyo waxbarashada caafimaadka guud dhammaan bulshada qaybaheeda (Mass public health education awareness).

Haddaba, sugidda caafimaadka bulshada, sidii biyo nadiif ah lagu heli lahaa iyo sida loo hirgelinayo waa hawl u taal inta ummadda hogaanka u ah iyo cidda jaangoysa ee dejisa hannaanka siyaasadda caafimaadka dalka.

Dr. Yasin Abdi.

Senior Healthcare Scientist, Clinical Microbiologists at UK National Health Service (NHS), London, UK.

Email: Yabdi67@gmail.com

Xogta qoraalka

Dedaal iyo daryeelnimo kasta oo suurtagal ah ayaan gelinay si loo hubiyo saxnimada macluumaadka qoraalkan. Laakiin, qoraagu waa ku faraxsan yahay in loo soo gudbiyo oo lala wadaago khaladaad kasta, aqoon korodhsi iyo wixi sixitaan ah.

Tixraac

Tixraacyo (references) iyo raadraac badan baa xogta qoraalkan laga soo xigtay oo aan halkan lagu soo wada koobi karin. Ilo xogeedyada macluumaad dheeraad ah laga heli karo waxa ka mid ah:

Centers for Disease Control www.cdc.gov/nczved/divisions/dfbmd/diseases/cholera

European Centre for Disease Prevention and Control

www.ecdc.europa.eu/en/healthtopics/cholera

Net Doctor www.netdoctor.co.uk/travel/diseases/cholera.htm

BBC www.bbc.co.uk/scotland/education/int/geog/health/health/cholera/causes

World Health Organization www.who.int/cholera/vaccines/double/en

Somalia - World Health Organization

apps.who.int/medicinedocs/documents/s17309e/s17309e.pdf

Textbook of Bacteriology www.textbookofbacteriology.net/cholera.html

Cholera | pathology | Britannica.com - Encyclopedia Britannica

<https://www.britannica.com/science/cholera>

Diarrhoeal diseases <https://academic.oup.com/bmb/article-pdf/54/2/407/6703730/54-2-407.pdf>

Overview of cholera – Up-to-date www.uptodate.com/contents/overview-of-cholera

Cholera-The Lancet

[www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)60436-X/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)60436-X/abstract)

Baron Medical Microbiology Textbook Cholera, *Vibrio cholerae* O1 and O139, and Other Pathogenic Vibrios by Richard A. Finkelstein

FDA Bad Bug Book, *Vibrio cholerae* Serogroup O1

WHO. Cholera 2011. [PDF - 16 pages] Wkly Epidemiol Rec. 2012; 87: 289–304.