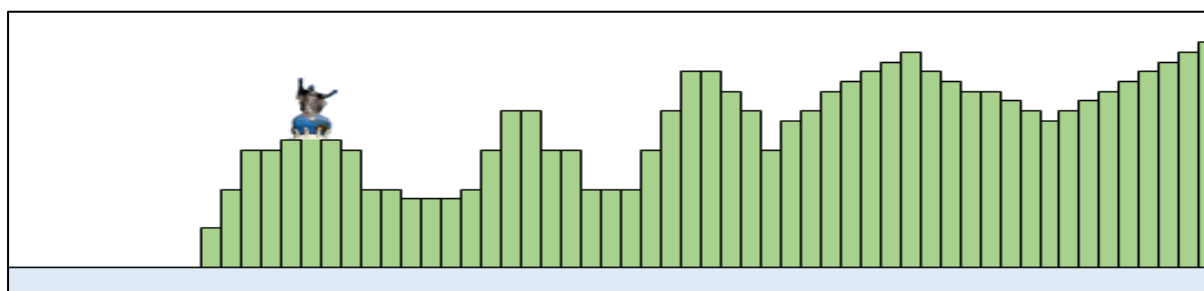




República Democrática de Timor-Leste

Ministério da Saúde

MATADALAN BA INVESTIGASAUN SURTU IHA TIMOR-LESTE



Matadalan ba investigasaun kazu, ne'ebe indika surtu

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República Democrática de Timor-Leste
Ministério da Saúde

Ho colaborasaun husi



Organizasaun Mundial de Saúde (OMS)
Timor-Leste



STRONG TL

Surveillance Training
Research Opportunities
National Guidelines
for communicable disease control in Timor-Leste

Menzies School of Health Research no
Projeitu STRONG TL

Supporta husi Governo Australia



Australian Government



Reclamasan

Governu Australia liu husi Departamentu Negocius Estranjeirus no Komersiu kontribui ba desenvolve publikasaun ida ne'e. Opiniaun nebe expresa iha publikasaun ida ne'e husi autor mesak no opiniaun siras laos nesesariamente opiniaun Governu Australia.

Edition 1.0

Novembru 2022

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Prefásiu

Matadalan ne'e, nudar matadalan dahuluk iha Timor-Leste. *Matadalan ba investigasaun surtu iha Timor-Leste*, hanesan instrumentu nebe sei guia pesoal saúde sira wainhira halo investigasaun ba surtu ruma. Matadalan ida ne'e komprehensivu, simples no fasil atu implementa.

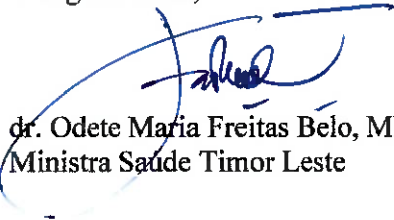
Matadalan ba investigasaun surtu iha Timor-Leste, sei utiliza hamutuk ho matadalan Vijilansia no Resposta Integradu ba Moras ou IDSR (*Integrated Diseases Surveillance*). Iha Matadalan IDSR deskreve klaru intervensaun xave nebe presija hala'o husi parte saúde pública. *Matadalan ba investigasaun surtu iha Timor-Leste*, foka liu ba moras 52 nebe frekuente akontese iha Timor-Leste.

Matadalan ba investigasaun surtu iha Timor-Leste, enfase etapas importante sanulu (10) nebe presija tebes atu halo ou pratika wainhira pesoal Saúde sira implementa investigasaun surtu iha terenu. Matadalan ida ne'e mos fornese formatu investigasaun surtu, formatu agenda enkontru ba investigasaun surtu nomos formatu relatoriu final. Ikus liu, iha matadalan ida ne'e mos, inklui guia oinsa bele kria epicurve nebe simples utiliza Microsoft excel.

Iha biban ida ne'e, hau hakarak agradece ba parseirus sira hotu nebe kontribui ona ba dezvoltamentu *Matadalan ba investigasaun surtu iha Timor-Leste*, hanesan; STRONG-TL (Surveillance, Research Opportunities and National Guidelines for Timor-Leste) liu husi Menzies School of Health Research, Darwin, Australia, nomos organizasaun Mundial de Saúde (OMS).

Hau espera pesoal saúde sira hotu bele utiliza matadalan ida ne'e, hanesan instrumentu atu guia sira nia servisu, iha area investigasaun wainhira akontese surtu hodi nune'e, bele halo investigasaun nebe diak no fornese resposta nebe los, adekua no iha tempo nebe oportunu, nune'e bele evita propagasaun surtu, hakotu transmisaun no proteje comunidade sira hotu.

Obrigada Wain,



dr. Odete Maria Freitas Belo, MPH
Ministra Saúde Timor Leste

Introdusaun

Etapas importante 10 nebe presija hala'o durante investigasaun surtu

Wainhira atu komesa hala'o investigasaun ba surtu, pesoal Saúde hotu presija tau atensaun no inklui etapas 10 nebe importante tebes hanesan guia hodi orienta investigasaun nomos resposta husi parte Saúde publica (durante implementasaun la presija tuir lolos etapas 10 ninia ordem, maibe importante tebes atu hala'o hotu etapas 10 ne'e).

Etapas 10 investigasaun Surtu mak hanesan tuir

mai:



1. konfirma surtu akontese duni ka lae, nia diagnosa no nia kauza
2. Forma ekipa investigasaun ou uza ekipa ne'ebe ejisti tiha ona. Ejemplu ERR – (Ekipa Responde Rapidu)
3. Prepara planu komunikasaun
4. Halo definisaun kazu ba surtu (tempu, ema, moras, fatin)
5. Buka tuir kazu no investiga
6. Hala'o investigasaun ambiental no koleta amostra/sampel.
7. Descreve surtu hare ba tempu wainhira no fatin nebe surtu mosu ba, inklui ema nebe afeitadu ho sira nia karateristika. Sempre halo 'epicurve'
8. Dezenvolve no halo teste ba ipoteza (*hypothesis*) nebe iha, ou mais o menus halo estudu analitiku ruma
9. Halo intervensaun Saúde publica nebe efektivu hodi evita propagasaun surtu no hakotu transmisau.
10. Avalia no apresenta relatoriu investigasaun ba entidades relevante

Saida maka surtu?

Geralmente surtu hanesan situasaun nebe ita la espera. Akontese wainhira iha aumentu numeru kazu/moras ruma nebe as liu kompara ho situasaun bai-bain, afeita populasaun balu iha fatin no tempu especificu.

Surtu mos bele define hanesan:

- Akontesementu nebe wainhira ita deteta numeru kazu/moras nebe as/barak tebes (as liu fali numeru nebe ita espera) iha populasaun nia leet no akontese iha tempu especificu.
- Wainhira iha kazu rua (2) ou liu no sira iha ligasaun ba eventu ou ‘exposure event’ nebe hanesan. Ejemplu ema nain 2 ou liu hetan moras hanesan, hafoin atende eventu ida (sira moras diarrhea depois atende festa kasamentu ida).
- Wainhira ita deteta kazu ida deit, husi moras nebe raru/jarang mosu hanesan: Sarampu, Cholera, Ebola, COVID-19. Moras sira ne’e fo ameasa ba Saúde publica tanba bele hada’et lalais iha comunidade nia leet. Iha senariu ida ne’e presija investigasaun no manejementu nebe urgente.

Definisaun surtu ba moras ida lahanesan ho moras seluk. Definisaun kazu depende mos ba tempu, fatin no numeru kazu nebe iha, ejemplu kazu dengue aumenta barak iha tempu udan. Moras sira nebe hasara moras influenza ka influenza-like illness mos akontese barak iha tempu udan. Signifika wainhira ita halo komparaun, moras balu nia numeru aumenta barak/as durante tempu especificu (udan) no menus iha tempu bai-loro. Ida ne’e hatudu katak, ita espera numeru kazu dengue aumenta iha tempu udan. No iha situasaun hanesan ne’e la significa akontese surtu.

Departementu Vijilansia Epidemiolojia (VE) nia knar ida mak, informa mai ita kona ba predisaun kazu husi moras sira nebe bele mosu (aumenta/menus) iha tempu especificu kompara ho tempu bai-bain. Numeru moras nebe mantein estavel ou normal (tuir VE nia predisaun) ita konsidera nudar ‘baseline’. No atu determina moras ida nia baseline presija halo kalkulasiun ba ‘mean number’ husi kazu tinan 5 antes, laos halo deit komparaun simplis ho numeru moras/kazu tinan kotuk nian.

Iha moras balu, wainhira ita suspeitu deit kazu ida mos ita bele konsidera hanesan surtu, no asaun responde rapidu husi parte Saúde publica presija hala’o lalais. Ejemplo moras hirak ne’e mak hanesan: Isin manas ho isin mean-mean (rash), Sarampu, Acute Flacid Paralysis (AFP), Cholera, Ebola.

Figura 1. Hatudu moras hadae’t nebe frekvente mosu iha Timor-Leste. Moras hadae’t hirak ne’e presija relata menus husi horas 24 nia laran atu nune’e departamentu Vigilancia Epidemiologia bele halo investigasaun sedu no bele responde ho lalais.

Figura 1. Moras hadae't iha Timor-Leste nebe obrigatoriamamente tenki relata menus husi horas 24 nia laran

Moras ne'ebe tenki relata menus husi oras 24 nia laran



- Acute flaccid paralysis
- Anthrax
- COVID-19
- Kolera
- Dengue
- Difteria
- Isin manas ho rash
- Japanese encephalitis virus
- Malaria
- Sarampu
- Meningitis ka encefalitis
- Monkeypox
- Tetanus naonatorum
- Pertusis
- Plague
- Poliomyelitis
- Ravies ou Raiva
- Severe acute respiratory syndrome (SARS)
- Smallpox
- Typhoid
- Viral haemorrhagic fevers (Ebola, Lassa fever, Marburg, Crimean Congo)
- Yellow fever
- Zika

Surtu – Indikasaun no oin sa atu relata surtu

Kazu/moras nebe mosu iha komidade nia let bele relata ba iha departamentu Vigilancia Epidemiolojia. Relatoriu nebe mak hatu'o bele kada fulan, semana ou menus husi horas 24 nia laran, depende ba moras ida-ida (klaru liu bele hare formatu relatoriu husi departamentu Vigilancia Epidemiolojia). Servisu departamentu Vigilancia Epidemiolojia nebe mak hala'o rutina bele mos ajuda atu deteta surtu, liu husi koleksaun no analiza dadus iha forma nebe sistematiku. Wainhira observa numeru moras ruma nebe aumenta signifika/as tebes iha komidade espesifiku nia let kompara ho situasaun bain-bain, situasaun ida ne'e mos bele sai hasesan indikasaun ba surtu. Fontes seluk nebe ita bele asesu ba hodi hatene karik iha surtu ka lae maka liu husi publikasaun dadus iha Bulletin Epidemiolojia Timor-Leste, nebe produs husi departamentu Vigilancia Epidemiolojia.

Situasaun nebe indika surtu presija relata ba iha departamentu Vigilancia Epidemiolojia menus husi horas 24 nia laran. Iha pratika bain-bain, mediku ou pesoal Saude ou populasan bele relata situasaun ruma nebe indika surtu ou surtu ba departamentu Vigilancia Epidemiolojia. No departamentu Vigilancia Epidemiolojia mos bele hetan informasan nebe indika surtu ou surtu husi media elektroniku henesan: radio no televisaun. Bele mos liu husi media social henesan: facebook.

Resposta no investigasaun ba surtu sira hotu tenki tuir etapa 10 hirak tuir mai iha Figura 2. Bainhira akontese surtu, ita la presiza tuir nia ordem, depende ba situasaun.

Durante periodu investigasaun no responde ba surtu, importante tebes atu implementa pasos sanulu hanesan tuir mai ne'e. La presija implementa tuir ordem maibe necesariu tebes atu implementa hotu pasos sanulu nee.

Figura 2: Etapa 10 ba investigasaun surtu.

Etapas 10 investigasaun Surtu mak hanesan tuir mai:

1. Konfirma surtu akontese duni ka lae, nia diagnosa no nia kauza
2. Forma ekipa investigasaun ou uza ekipa ne'ebe ejisti tiha ona. Ejemplu ERR – (Ekipa Responde Rapidu)
3. Prepara planu komunikasaun
4. Halo definisaun kazu ba surtu (tempu, ema, moras, fatin)
5. Buka tuir kazu no investiga - utiliza formatu investigasaun nebe iha ona ou kria formaut espesifiku ba investigasaun
6. Hala'o investigasaun ambiental no koleta amostra/sampel.
7. Descreve surtu hare ba tempu wainhira no fatin nebe surtu mosu ba, inklui ema nebe afeitadu ho sira nia karateristika. Sempre halo 'epicurve'
8. Dezenvolve no halo teste ba ipoteza (*hypothesis*) nebe iha, ou mais o menus halo estudu analitiku ruma
9. Halo intervensaun Saude publica nebe efektivu hodi evita propagasaun surtu no hakotu transmisau.
10. Avalia no apresenta relatoriu investigasaun ba entidades relevante



Etapas 10 ba investigasaun surtu

1. Konfirma surtu akontese duni ka lae, nia diagnose, no nia kauza

Importante tebes atu determina katak, informasaun kona ba suspeitu surtu ou surtu ne'e rasik los ka lalos. Numeru kazu moras oi-oin bele aumenta ou diminui troka malu/randomly, no situasaun ida ne'e bele fo impresaun katak, numeru moras balu bele as liu moras seluk. No iha situasaun balu, relatoriu hatudu amentu iha numero kazu nebe makas tebes relasiona ho moras nebe identifika kria surtu, maibe dalaruma relatoriu ne'e rasik mos, bele inklui ema seluk nebe sofre ho moras seluk no laiha relasaun ho moras nebe ita suspeita hodi kria surtu ne'e.

Atu konfirma lolos, karik iha duni surtu ou lae, halo favor husu preguntas sira hanesan tuir mai ne'e:

- Los ka lae numeru kazu nebe mak horas ne'e relata as liu /boot liu numeru nebe bain-bain relata ou ita espera atu akontese iha momentu hanesan ne'e?
- Karik ema sira nebe mak apresenta sintomas ou moras hanesan iha kontaktu ho eventu ou aktividade nebe hanesan ejemplo: festa kazamentu?
- Karik ema ho sintomas ou moras hanesan iha kontaktu iha fatin nebe hanesan, ejemplo: iha escola ou restaurante?
- Iha ona konfirmasaun relasiona ho moras/sintomas. Ejemplo: ema sira ne'e apresenta duni kondisaun hanesan sintomas ou moras nebe mak relata?
- Karik iha esplikasaun seluk ruma kona ba oinsa ou tanba sa numeru kazu aumenta?
- karik iha eru/ salah ruma banhira halo interpretasaun ba eventu ou resultadu teste nian?

Relatoriu surtu nebe lalos/falsu bele kria konfuzaun no problema. Tanba ne'e, konfirmasaun situasaun real importante tebes atu evita failansu iha relatoriu surtu nian. Relatoriu nebe lalos/falsu akontese wainhira relatoriu refere bajeia deit ba: rumor, reportagem husi media nebe la baseai ba faktus ou bele mos husi ema ruma nebe iha intensaun atu kria problema, partikularmente ho ema ruma ou negosiu ruma.

Atu evita deklarasaun nebe "lalos/falsu kona ba surtu", presija halo asaun hirak hanesan tuir mai ne'e:

- Konfirma sintomas husi kazu refere. Ita boot rasik mak presija halo investigasaun no hakerek relatoriu ne'e - labele fiar/depende ba ema seluk.

- Labele fiar informasaun husi fontes seluk nebe la kredivel. Kontinua tau atensaun ba iha fontes informasaun nebe ita boot konsidera kredivel
- Asegura katak laiha kontagem numero kazu nebe mak repete
- Konsidera mos possibilidade falsu positivu husi resultadu laboratoriu

Karik iha ona konfirmasaun lolos kona ba surtu nia existencia, asaun Saúde publica atu responde ba surtu presija implementa imediatamente hodi prevene transmisaun. Iha situasaun balu, dalaruma mosu duvida/inseguridade kona ba kauza husi surtu ne'e rasik, maibe hanesan pesoal Saúde ita boot sira sei foti medidas nebe apropriadu atu prevene kazu aumenta barak liu tan.

Medidas atu responde no kontrola husi area Saúde publika presija konsidera iha faje dahuluk wainhira hala'o investigasaun ba surtu, laos iha etapa ikus/final. Moras ou situasaun balu bele kria resultadu adverso nebe seriu ou politikamente sensitivu wainhira ita halo asaun ansi sem hetan konfirmasaun kona ba kauza husi surtu ne'e lolos.

2. Forma ekipa investigasaun

Pontu fokal, Ekipa Responde Rapidu (ERR) ou focal point for Rapid Response Team (RRT) alokadu iha centru Saúde hotu iha Timor-Leste. Iha nivel Nacional no Municipio iha pesoal ida nebe responsavel nudar official ERR. Official ERR iha nivel nacional koloka iha departamentu Vijilansia no Epidemiolojia. Papel principal husi official ERR mak hanesan, forma ekipa investigasaun nomos hala'o investigasaun ba surtu.

Ema sira nebe presija konsidera atu forma parte iha ERR mak hanesan tuir mai ne'e:

- Oficial vijilansia
- Mediku/a, enfermeiro/a
- Tekniku laboratoriu no Sientista
- Motoristas ou official logistika
- Farmasista
- Oficial Saúde Ambiental
- Especialista ou ema nebe treinadu iha area komunikasaun
- Oficial husi AIFAESA (Autoridade de Inspeção e Fiscalização da Atividade Económica, Sanitária e Alimentar), bainhira investiga surtu suspeitu veneno hahan (*keracunan makanan*).
- Veterinariu/a husi Ministériu Agrikultura no Peskas

- Especialista ba moras hadaet, official imunizasaun, official promosaun saúde, official ba jestaun dezastre, polisia no seluk-seluk tan nebe relevantes ho surtu.

3. Prepara planu komunikasaun

Estrategia komunikasaun nebe diak forma parte iha pasos importante wainhira hasoru surtu ruma. Komunikasaun kona ba factor risiko no informasaun importante seluk ba comunidade nebe hato'o sedu sei fo benefisiu nebe diak.

Durante surtu iha planu komunikasaun tipu hat (4) nebe mak presija atu halao. Planu hirak ne'e mak hanesan tuir mai ne'e:

Planu komunikasaun entre membrus iha ekipa investigasaun

Ekipa investigasaun surtu bele halo komunikasun entre membru sira liu husi: enkontru rutina/regular, no mos bele halo komunikasaun liu husi base linha internet hanesan e-mail ou grupo [WhattsApp](#).

Wainhira halo komunikasaun via e-mail ou grupo [WhattsApp](#) no liu-liu wainhira atu responde no fo informasaun ba equipa presija uza '*reply all*' atu nune'e ema hotu iha ekipa simu no hatene informasaun nebe hanesan, asaun ida ne'e halo hodi evita membru balu iha ekipa lakon informasaun importante ruma kona ba servisu investigasaun nian.

Enkontru rutina/regular nebe mak halo entre membru sira presija hakerek nia sumariu/minutas no fahe ba membrus hotu. Formatus agenda enkontru ba investigasaun surtu no sumariu/minutas enkontru investigasaun nian fornese iha [Anexo 2](#) no [Anexo 3](#). Ekipa investigasaun bele deside hamutuk karik presija relata surtu refere ba Organizasaun Mundial Saúde (OMS) tuir obrigasaun Regulamentu Sanitariu Internasional (2005) (IHR-2005).

Ita boot sira tenki notifika ba IHR Focal Point iha Timor-Leste ne'ebe ita observa ida tuir hirak mai;

- kazu smallpox
- kazu poliomyelitis (wild-type poliovirus)
- kazu human influenza (flu) ne'ebe subtype foun
- kazu severe acute respiratory syndrome (SARS)
- moras seluk ne'ebe risiko boot atu hadaet rapidu iha Timor-Leste ka nasaun seluk
Exemplu hanesan kolera, plague, viral hemorrhagic fever (Ebola)
- eventu seluk (eventu biologiku, radiologiku, ka kemiku ne'ebe tuir kriteria IHR nian.
- Moras grave ne'ebe la hatene kauzu klaru.

Presija halo relatoriu rutina/regular kona ba situasaun (Formatu relatoriu rutina iha [Anexo 1](#))

Komunikasaun husi ekipa investigasaun surtu ba exekutivu sira iha MdS - Diretor Geral (DG), Vice Ministra/u ka Ministra/u

Importante tebes ba ekipa investigasaun atu fo informasaun ba membru ejekutivu sira iha MdS hanesan: Director/a Geral, Vice Ministru/a no Ministru/a wainhira numeru kazu aumenta barak no grave, iha risku boot atu kontinua transmisaun no karik involve interese seluk hanesan husi parte politika ou media.

Komunikasun ba media, inklui media sosial

Wainhira media iha interese boot, importante tebes atu fo sai informasaun ou halo media release kona ba surtu refere. Tanba ne'e, ekipa investigasaun surtu presija estabese relasaun diak ho media. Ekipa investigasaun mos bele utiliza media atu fahe no habelar informasaun importante no lais liu ba grupo targetu hanesan comunidade no pesoal Saúde sira.

Wainhira forma ekipa investigasaun surtu, sempre konsidera no inklui ofisial reponsavel ba komunikasaun. Atu nune'e, iha kondisaun surtu ne'ebe boot no presija kontaktu frekvente ho media nomos superiores sira iha MdS, official ne'e bele ba sai kordenador hodi organiza.

Komunikasaun ho parseirus sira. Ida ne'e bele inklui mos departamentus seluk instituisaun governu nian, kompanhia privadu, eskola no seluk-seluk tan

Wainhira surtu konfirma lolos ona, importante mos atu informa situasaun kona ba surtu ne'e ba parseirus sira. Asegura atu fahe informasaun nebe hanesan no los. No kontinua fahe informasaun foun ruma kona ba surtu ba parseirus sira atu mantein ema hotu informadu kona ba situasaun atual. Tenki konsidera halo ligasaun ho lider lokal sira hanesan Xefe Suco, Igreja, etc atu fahe informasaun ba comunidade no involve comunidade iha resposta saude publika ne'ebe prezisa kolaborasaun.

4. Halo definisaun kazu ba surtu

Definisaun kazu importante atu ajuda servisu ekipa investigasaun surtu wainhira halo klasifikasaun nomos kontagem ba numeru kazu durante surtu. Importante atu halo definisaun kazu iha etapa inisial bainhira akontese surtu. Maibe definisaun kazu iha etapa inisial ne'e bele muda/troka depende ba natureza husi surtu ne'e rasik.

Karik definisaun kazu surtu la disponivel, pesoal saúde sira bele halo kontagem ba numeru kazu tuir ema ida-idak nia hakarak ou esperensia, no situasaun ida ne'e bele kria konfuzaun no problema.

Definisaun kazu nebe halo durante surtu, especificu tebes ba surtu nebe horas ne'e daudaun atu investiga, no bele diferente ho definisaun kazu iha tempu vijilansia rutina.

Membrus ekipa investigasaun surtu presija involve wainhira dezenvolve definisaun kazu ba surtu. Definisaun kazu ba surtu presija halo simples ho esplikasaun nebe klaru atu ema hotu

iha ekipa bele kumpriende no halo tuir orintasaun nebe hanesan. Labele halo definisaun nebe sensitivu liu hodi evita detesaun kazu positivo falsu (false positive).

Kazu sempre defini bajaia ba **ema, moras, tempu** no **fatin**

- **ema** – bele inklui ema hotu. Ou, bele inklui deit ema balu ho idade no sexu especifiku
- **moras** – iha ne’e deskreve sintomas nebe mosu/apresenta, bele mos inklui resultadu husi teste laboratoriu
- **tempu** – normalmente iha ne’e hare liu ba periodu/tempo bainhira ema ida hahu moras ou tempu nebe ema ida iha kontaktu ho risku atu hetan moras ida
- **fatin** – Refere ba fatin nebe ema ne’e hela ba (nasaun, municipio, aldeia), servisu fatin, eskola no seluk tan.

Definisaun kazu ba surtu bele muda/troka wainhira ita simu informasaun foun ruma liu-liu husi laboratoriu (resultadu teste). Tanba ne’e definisaun kazu surtu la permanente. Definisaun kazu surtu bele inklui kazu nebe seidauk konfirma nia resultadu husi laboratoriu ou kazu nebe iha ona resultadu laboratoriu (kazu konfirmadu).

Ejemplu definisaun kazu simples mak hanesan tuir mai ne’e:

Definisaun kazu surtu:

Ema se deit, nebe hela iha **Suco-Atoi** no ho moras **tee be’en**, nebe hahu mosu hafoin **loron 1 fulan Agostu 2019**



Ema



Fatin



Moras



Tempu

Dalaruma, ita bele kria definisaun kazu konfirmadu ba ema ne’ebe iha resultadu laboratoriu positivu ba moras espesifiku, no mos ita bele kria definisaun kazu provavel/suspeitu ba ema ne’ebe iha sintomas atu hanesan ho moras espesifiku, maibe seidauk iha konfirmasaun husi laboratoriu. Definisaun kazu hanesan ne’e iha lian ingles ema bolu ‘tiered; ou “*berlapis*” Ita bele sura kazu konfirmadu, kazu provavel no kazu suspeitu.

Ezemplu definisaun kazu “*berlapis*” hanesan hirak tuir mai.

Definisaun kazu konfirmadu ba surtu.

Ema se deit, nebe hela iha **Suco-Atoi** ho **resultadu positivu/konfirmadu rotavirus** no komesa hahu hatudu sintomas iha data **1 de Agostu 2019**



Ema



Fatin



Tempu



Moras

Definisaun kazu provavel/suspeitu ba surtu.

Ema se deit, nebe hela iha **Suco-Atoi** ho moras **tee be'en**, no hahu hatudu sintomas hafoin loron **1 fulan Agostu 2019**



Ema



Tempu



Fatin



Moras

* kazu ida ne'e, prienche kriteria husi definisaun kazu provavel tanba, apresenta sintomas hanesan kazu konfirmadu. Nia diferensa mak iha kazu provavel seidak iha resultadu laboratoriu atu konfirma.

Dezenvolve definisaun kazu nebe diak no los ajuda tebes iha contagem numeru kazu, informasaun importante nebe presija atu rekoilha no mos, hafasil atu deskobre kazu seluk. Ne'e mos sai nudar linea servisu epidemiologika bainhira akontese surtu ruma. Dezenvolve definisaun kazu durante surtu iha objetivo prinsipal seluk hanesan determina se deit mak iha risku atu hetan ou dezenvolve moras refere.

Iha etapa dahuluk durante investigasaun surtu, definisaun kazu halo ho objetivu prinsipal atu hetan/kaptura ema barak posivel, maibe nafatin rekuinhese karik entre ema hirak ne'e balu inklui iha grupu falsu positivu (falsa positive). Tanba ne'e, durante etapa dahuluk investigasaun surtu, definisaun kazu presija tenkiser sensitivu no laos espesifiku.

Importante tebes atu dezenvolve definisaun kazu sedu wainhira akontese surtu. Maibe definisaun kazu nebe halo iha etapa dahuluk laos sempre sai definisaun nebe definitivu/permanente, tanba durante iha progresu investigasaun nia laran definisaun kazu refere bele muda/troka ba; definisaun nebe konfirmadu, provavel, presuntivu no suspeitu

baseia ba dignosa nebe los/serteja. Wainhira halo duni mudansa ba definisaun kazu, data mudansa no razaun tamba sa maka halo mudansa ne'e tenki anota.

5. Buka tuir kazu, no investiga

Importante tebes buka tuir kazu nune'e bele halibur informasaun no determina fontes nebe iha potencia hamosu surtu. Iha parte seluk bele ajuda ekipa sura ou kuantifika magnitude husi surtu ne'e rasik (hatene situasaun surtu ne'e boot ou kiik). Grupu primeiru nebe presija konsidera durante investigasaun kazu mak grupu 'co-exposed/ema nebe iha kontaktu'. Grupu ne'e bele inklui familia, maluk servisu, maluk viajem, vijinhos ou ema seluk nebe atende eventu nebe hanesan ho ema nebe moras. Ema nebe bele fasilita servisu investigasaun hodi buka tuir kazu mak hanesan, pesoal Saude husi area refere, lider komunitaria no ema seluk nebe relevante. Fontes informasaun seluk ba investigasaun mak hanesan pasiente nia historia/informasaun klinika, liu-liu sira nebe apresenta sintomas espesifiku (ejemplu rejistu hospitais ou centru Saude nian)

Importante tebes atu husu preguntas hanesan; se tan mak' exposed/iha kontaktu' ou iha risku no oinsa atu hetan ema sira ne'e?

Wainhira halo entrevista ba kazu utiliza formatu rutina nebe prepara ona ba moras ida-ida. Maibe, dalaruma ita presija modifika oituan perguntas sira iha formatu, hodi bele ajuda koleta informasaun espesifiku liu tan kona ba surtu nebe ita investiga hela. Importante mos atu konsidera preguntas balu kona ba 'exposure/kontaktu' karik la inklui iha formatu investigasaun nebe ita utiliza daudaun. Iha situasaun surtu balu, ita presija kria formatu foun tanba dalaruma formatu nebe existe laos 'standar' atu bele utiliza iha situasaun refere.

- Iha questionariu sempre tenki koleta dados sira hanesan tuir mai ne'e;
 - informasaun demografiku (idade, sexu, hela fatin, numeru telefone, okupasaun, etc)
 - inklui informasaun kona ba data sintomas hahu mosu, sintomas nia tipu, sintomas nia durasaun no seluk tan
 - informasuan relasiona ho visita anterior ba facilidade Saude ruma
 - resultadu laboratorium
 - karik iha kontaktu ho ema moras ruma
- perguntas espesifiku kona ba moras balu, ejemplu (historia han/ konsumu aihan ruma, historia viajem ba fatin ruma)
- Ema nebe moras nia opiniaun kona ba saida mak halo ou kauza nia moras
- Karik ema moras ne'e, hatene ou kuinhese ema ruma ho moras nebe hanesan ho nia
- buka hatene exposure hanesan iha grupu ho sintomas/moras atu hanesan/ buka tuir ema sira.

Importante tebes atu buka kauza moras liu husi:

- ema nebe infeksiosu
- animal nebe infeksiosu
- aihan
- be'e
- ambiente

‘Line list’ (hare [Kria line list](#) atu hatene oinsa bele kria line list). Utiliza dadus/informasaun sira nebe ita rekoilha durante entrevista. Iha line list normalmente inklui: kazu (ema moras nia naran/numeru/kodigu), data moris, idade, sexu, hela fatin, numeru kontaktu, data sintomas hahu mosu, sintomas no data ‘exposure’. Karik posivel, ita bele aumenta tan preguntas balu iha line list, ejemplu: durasaun baixa iha facilidade Saúde (CHC ou Hospital), amostra/sample nebe foti atu analiza no resultadu teste laboratoriu karik iha ona.

6. Hala’o investigasaun ambiental no koleta amostra/sampel

Importante tebes halo inspeksaun no investigasaun ba ambiente atu identifika fontes potensial nebe hamosu surtu. Oficial husi Departamentu Saúde Ambiental ou AIFAESA bele halo investigasaun ba ambiente ou investigasaun ba aihan karik akontese surtu tanba veneno iha aihan (keracunan makanan). No wainhira iha surtu kona ba zoonotik (animal), veterinariu (doutor ba animal) no oficial husi Ministeriu Agrikultura no peskas iha responsabilidade atu halo investigasaun ida ne’e.

Komponente investigasaun Saúde ambiental inklui foti amostra/sampel husi aihan, be, rai ou rai-henek. Oficial husi AIFAESA mos iha poder atu foti/prende no bandu negosiantes sira faan aihan nebe mak deskonfia fo ameasa ba Saúde publika. Asaun hirak mensiona iha leten hanesan parte husi intervensaun Saúde publika nian.



Bainhira iha indikisaun surtu, ita tenki koleta amostra/sampel husi kazu!

Wainhira akontese surtu relasiona ho aihan (keracunan makanan), importante tebes atu koleta amostra/sampel hanesan feces (liur boot) no haruka ba Laboratoriu Nasional de Saúde (LNS) hodi halo analiza/teste hanaran teste ‘*Microscopy, Culture and Sensitivity (MCS)*’.

Ema nebe sofre moras diarrea (te’e been) la rekomenda atu halo servisu hanesan prepara aihan ba ema seluk. Sira tenki hein to’o diarrea para no liu ona horas 24 foin sira bele fila fali ba halo

servisu hanesan bain-bain. Asaun ne'e halo hodi prevene atu moras diarrea la bele hadaet ba ema seluk.

7. Deskreve surtu – tempu, fatin, ema no moras

Kria 'line list' ba kazu

Iha 'line list'akumula informasun kona ba kazu ida-idak inklui identifikasun hanesan: data moris, sexu, sintomas, data hahu sintomas, moras nia durasaun no tempu baixa iha hospital. Hanesan mensiona antes, iha line list dalaruma inklui informasaun kona ba 'exposure/kontaktu' no seluk tan. Line list bele kria iha komputadora utiliza programa hanesan: Microsoft Office Word ka Mirosoft Excel ou EpiInfo. Bele halo line list iha surat tahan bain-bain ou kuadru mutin (whiteboard) depende ba rekursu nebe mak iha.

Ejemplu line list nebe kria utiliza programa Microsoft excel hanesan Figura 3 tuir mai ne'e.

Figura 3. Ezemplu ba line list uza Microsoft Excel.

	A	B	C	D	E	F	G	H	I	J	K
1	studyid	naran	sexo	idade	datamoris	helafatin	munisipiu	tebeen	datamosu	sampel	numersampel
2	TL201901	COSTA, Almerio	mane	17	14/01/2002	bebonuk	dili	iha	8/10/2019	koleta	LAB20191710
3	TL201902	DE JESUS, Maria	feto	39	17/10/1980	bebonuk	dili	la iha			
4	TL201903	BONITA, Ana	feto	29	20/01/1990	akadiru-hur	dili	la hetene			
5	TL201904	CARLOS, Fatima	feto	23	20/05/1996	beloi	dili	iha	11/10/2019	la iha	
6	TL201905	MLOI, Katai	mane	20	19/04/1999	estado	ermera	iha	11/10/2019	koleta	LAB20191799
7	TL201906	SMITH, John	mane	43	20/09/1976	gricenfor	dili	la iha			
8	TL201907	GUTERRES, Maria	feto	28	15/03/1991	gricenfor	dili	la iha			
9	TL201908	MAIA, Jose	mane	17	22/11/2001	becora	dili	iha	30/09/2019	koleta	LAB20191805
10	TL201909	BRITO, Noi	feto	21	14/03/1998	becora	dili	iha	6/10/2019	la iha	
11	TL201910	GODINHO, Joao	mane	27	25/04/1992	tibar	liquica	iha	30/09/2019	koleta	LAB20191990
12	TL201911	GODINHO, Maria	feto	18	11/09/2001	tibar	liquica	iha	3/10/2019	koleta	LAB20191991
13	TL201912	DA CRUZ, Jose	mane	17	11/11/2001	bucoli	baucou	iha	3/10/2019	koleta	LAB20192003
14	TL201913	BABO, Isabela	feto	23	5/06/1996	seloi kraik	ailou	la iha			
15	TL201914	MARTINS, Jacinta	feto	23	6/06/1996	humboe	ermera	iha	8/10/2019	koleta	LAB20192019
16	TL201915	SALSINHA, Joao	mane	22	7/07/1997	estado	ermera	iha	8/01/2019	la iha	
17	TL201916	SAO PAULO, Ima	feto	24	16/03/1995	seloi kraik	ailou	la iha			
18	TL201917	GUTERRES, Joao	mane	21	21/03/1998	bucoli	baucou	iha	6/10/2019	la iha	
19	TL201918	DE MELO, Mario	mane	26	30/11/1992	lifau	oecusse	iha	9/10/2019	koleta	LAB20191989
20	TL201919	PEREIRA, Vario	mane	53	14/02/1966	aituto	ainaro	la iha			
21	TL201920	SMITH, Emma	feto	1.5	10/04/2018	aituto	ainaro	la iha			

Line list fasilita ita hodi bele deskreve surtu iha maneira nebe lais no fasil liu, tanba akumulasaun importante kona ba ema nebe moras, fatin no tempu akontese surtu ne'e.

Ejemplu oinsa informasaun sira iha line list bele deskreve surtu ho fasil. Tuir mai hare figura 4

Ema - idade, sexu, relijaun, okupasaun, etc. Bele hatudu liu husi grafiku.

Fatin – Ezemplu hanesan kazu/moras sira nia hela fatin (aldeia/suco/munisipiu, nasaun). Ita bele dezentolve mapa, depende kazu hira no oinsa moras ne'e hadaet.

Tempu – Sempre halo/kria grafiku ida naran epidemic curve (epicurve). Hanesan bain-bain, diak liu ita nia epicurve tuir *onset date* (data mosu sintomas/ data sintomas hahu mosu). Kazu

konfirmasi no kazu provavel/suspeitu bele hatudu hamutuk iha grafiku uza fali “stacked columns”.

Figura 4. Ezemplu dadus deskreve ona liu husi *line list* iha Figura 3.

	A	B	C	D	E	F	G	H	I	J	K
1	studyid	naran	sexo	idade	datamoris	he					mpel
2	TL201901	COSTA, Almerio	mane	17	14/01/2002	be					1710
3	TL201902	DE JESUS, Maria	feto	39	17/10/1980	be					
4											
5											
6											
7											
8											
9											
10											
11											
12	TL201911	GODINHO, Maria	feto	18	11/09/2001	tib					
13											
14											
15											
16											
17											
18											
19											
20											
21	TL201920	SMITH, Emma	feto	1.5	10/04/2018	aituto	ainaro	la iha			1989

Munisipiu

Dili 8/20 (40%)

Ermera 3/20 (15%)

Aileu 2/20 (10%)

Ainaro 2/20 (10%)

Baucau 2/20 (10%)

Liquica 2/20 (10%)

Oecusse 1/20 (5%)

Sexo

Mane = 10/20 (50%)

Feto = 10/20 (50%)

Idade

Median = 23 anos

Range (1.5 – 53 anos)

Kria Curva Epidemika/*Epidemic Curve*

Curva Epidemika: Epidemic Curve ou ‘Epicurve’ bele kria utiliza dadus husi line list. ‘Epicurve’ mak grafiku atu hatudu/relata numeru kazu nebe akontese husi tempu ba tempu. Husi ‘Epicurve’ nia forma ajuda ita bele determina tipu surtu nebe akontese daudaun, oinsa nia hadaet no mos ajuda atu halo predisaun kona ba surtu nia lalaok.



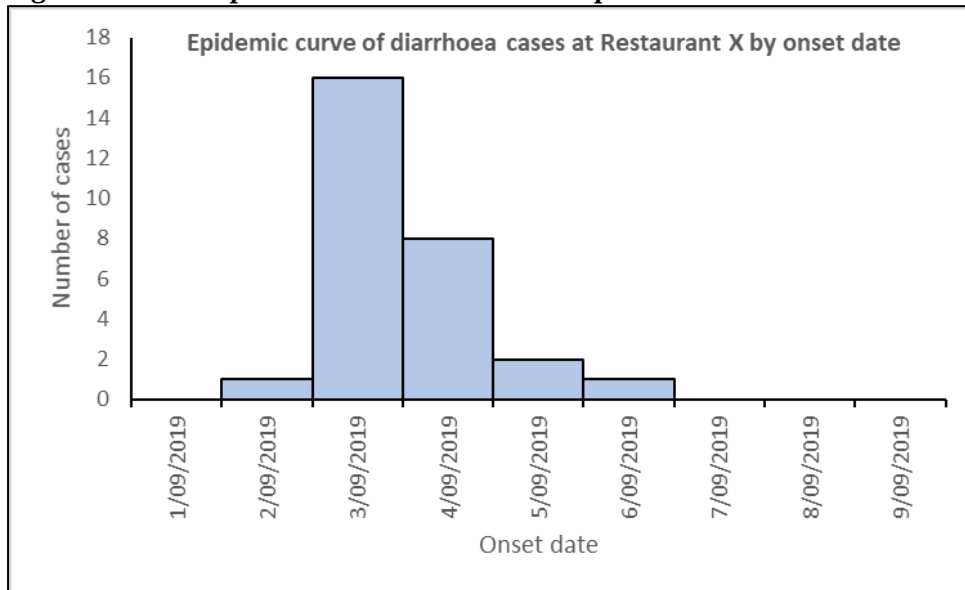
Instrusaun oinsa atu kria *epicurve* simples uza Microsoft Excel bele hare iha iha [Anexo 5](#).

Fontes Prinsipal Surtu iha epidemic curve

Hanesan bai-bain, ‘*Point source outbreaks*’ (fontes prinsipal surtu) dala barak relasiona ho eventu partikular balun ejemplu; festa kasamentu. Ou bele mos tanba iha kontaktu ou ‘exposure’ ba fontes infesaun seluk iha tempu spesifiku (ej. eventu balu nebe akontese iha aviaun laran). Kazu bele mosu mais ou menus iha periodu/tempu nebe hanesan. Bai-bain, kazu primeiru nebe hatudu iha grafiku koresponde ba moras nebe nia periodu inkubasaun badak/lalais deit; no kazu ikus liu tenki koresponde ba moras nebe nia periodu inkubasaun naruk/kleur.

Figura 5 hatudu forma tipiku *point source outbreaks* (*Fontes Principall surtu*)

Figura 5. Forma *epicurve* hanesan bele liu husi *point source outbreak*.

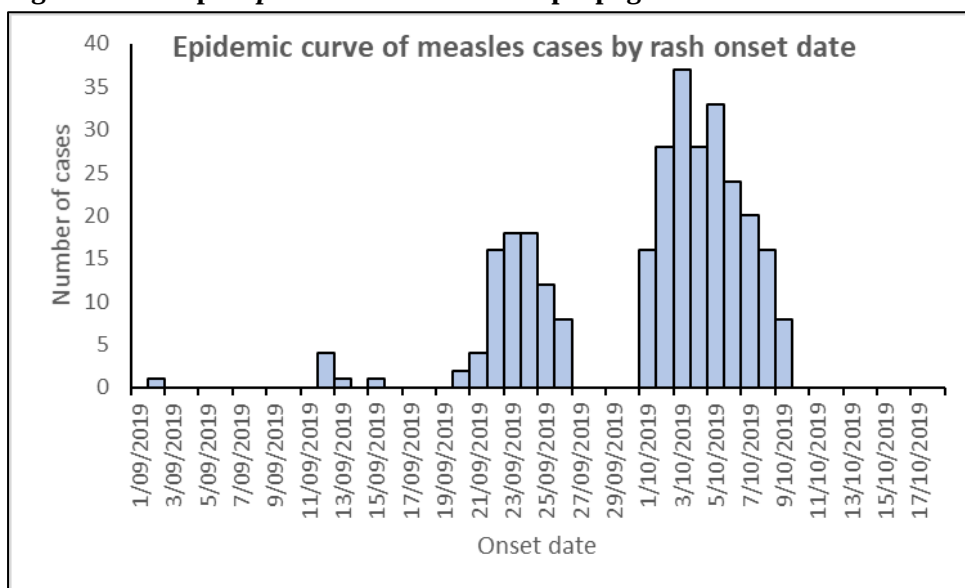


Curva Epidemika/ Epicurve ba surtu propagadu/Epicurve ba surtu nebe hadae't makas ona.

Situasaun ne'e akontese wainhira infesaun husi moras ida hada'et no kontinua ninia transmisaun iha komunidade nia leet, hodi halo aumentu iha numeru ema nebe infetadu. Iha grafiku ita bele hare nia padraun hanesan ondas (waves) nebe tun sae ho intervalu nebe regular.

Forma tipiku husi epicurve nebe hatudu propagasaun surtu ejemplu (surtu sarampu) ita bele observa iha figura 6

Figura 6. Ezemplu *epicurve* ho forma surtu propagadu.

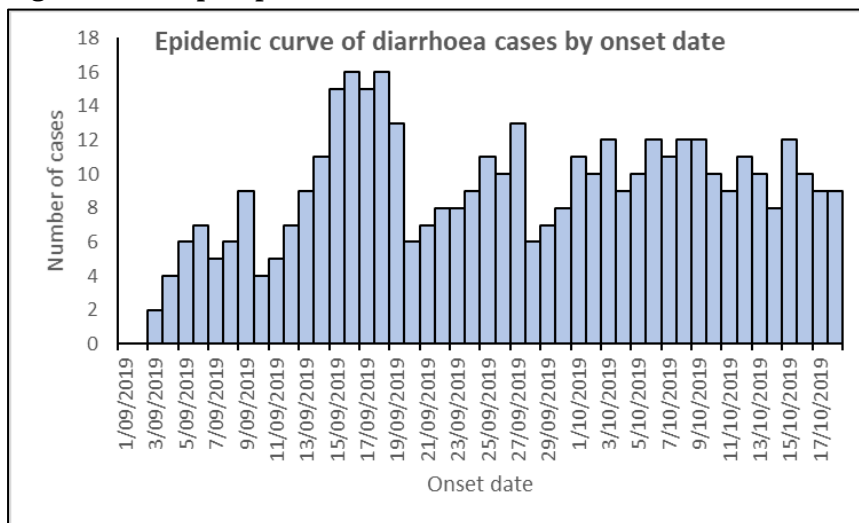


Curva Epidemika/ *Epicurve* ba fontes surtu nebe kontinua

Situasaun ne'e akontese wainhira identifika fontes infesaun surtu nebe kontinua nafatin. Ejemplu kontaminasaun be mos ou aihan nebe sirkula iha komunidadade nia leet. Kondisaun ne'e dala ruma akontese tanba dezastre naturais hanesan be sa'e (banjir), anin boot, udan boot no seluk tan. Iha situasaun hanesan ne'e bele kontribui atu hadaet moras balu tanba iha fontes infesaun surtu nian nebe existe no kontinua iha.

Curva Epidemika/*Epicurve* ba fontes surtu nebe kontinua bele observa hanesan iha figura 7 tuir mai ne'e.

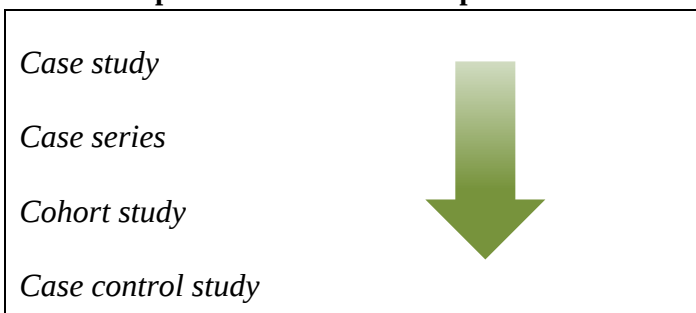
Figura 7. Ezemplu *epicurve* ho forma hanesan bele liu husi surtu fontes kontinua.



8. Dezemvolve ipoteza (hypothesis) no teste. Halo peskiza epidemiolojika ka analitika

Hafoin hetan no entrevista kazu dahuluk iha surtu, ekipa investigaun surtu bele iha ona ipoteza (*hypothesis*). Ipoteza hanesan idea ka teoria atu esplika surtu nia kauza. Iha etapa [5. Buka tuir kazu no investiga](#) nia objetivu atu dezemvolve ipoteza. Ita bele halo peskiza epidemiolojika atu determina ipoteza ne'ebe iha ona loos, ka la loos. Figura numeru 8 hatudu tipu peskija epidemiolojika hodi halao investigasaun surtu

Figura 8. Tipus estudu epidemiolojika nebe bele utiliza atu halo investigasaun surtu. Estudu hirak ne'e bele implementa tuir ninia kompleksidadi.



Case report

Case Report- mak hanesan relatoriu ida nebe ita halo atu deskreve kazu ida deit ou kazu uniku. Iha ne'e sei deskreve sintomas no posivel 'exposure/kontaktu' nebe bele iha relasaun ho akontesementu moras ida nian. Normalmente 'Case report' utiliza wainhira akontese moras nebe la komum/raru, ejemplu hanesan Rabies/Raiva.

Case Series

Iha estudu '*Case series*' hakerek/deskreve karakteristik kazu rua (2) ou liu/(kazu barak), inklui sintomas no posivel 'exposure'. Iha estudu ne'e ita la kompara karakteristik kazu ho karakteristik populasaun refere maibe, ita deskreve deit proporsaun kazu nia karakteristik ida-ida. Ejemplu proporsaun kazu ou ema moras nain hira mak konsumu/han nan-manu, no hira mak han modo tahan etc. Case Series mos bele informa ita katak kazu/ema barak mak 'exposed' ba buat ruma (ita bele uza informasaun ne'e atu suspeita ema nebe exposed ka iha kontaktu ona). No wainhira ita observa katak iha 'exposure'nebe raru (jarang), ita bele suspeita ou deskonfia makas tanba iha possibilidade atu dezenvolve moras. Case Series laos estudu nebe komplikadu no difisil atu halo, maibe importante tebes atu relata informasaun importante hotu hanesan: karakteristik demografiku, klinika, informasaun kona ba 'exposure' husi kazu nebe los/akurat.

Tabela numeru 1. Ejemplu tabela nebe bele uza atu deskreve dadu iha estudu case series.

Karakteristiku	Numeru/Total (proporsaun %)
Demografiku	
Feto	10/20 (50%)
Mane	10/20 (50%)
Ema boot (aged > 15 years)	5/20 (25%)
Labarik (aged ≤ 15 years)	15/20 (75%)
Sintomas	
Te'ben	20/20 (100%)
Muta	15/20 (75%)
Exposure	
Han ikan	18/20 (90%)
Han nan manu	12/20 (60%)
Han modo fila	20/20 (100%)
Han etu	20/20 (100%)

Hanesan bai-bain, *case series* hanesan investigasaun surtu nebe naruk liu iha investigasaun epidemiologika nia laran. Estudu *case series* bele fornese informasaun suficiente atu identifika kauza/fontes nebe kria surtu, nomos ajuda ekipa atu halo prevensaun hodi evita kazu aumenta barak liu tan iha comunidade.

Atu teste no komprova lolos ipoteza kona ba situasaun surtu ida nian, presija hala'o estudu/peskija epidemiologika analitiku hanesan 'cohort study ou case control study'. Estudu/peskija epidemiologika rua ne'e '*cohort no case studies*' hanesan fontes informasaun nebe boot tebes. Maibe, presija konsidera faktore lubuk ida molok foti desijaun final atu hala'o

estudu hirak ne'e, ejemplu hanesan: rekursus humanus nebe iha to'o ka lae, apoio lojistika, financeiru/orsamentu no mos apoio tekniku husi matenek nain sira hanesan: epidemiologista (Epidimiologist), especialista ba moras hadae't (Infectious disease specialist), sientista (scientist) no seluk tan. Hafoin konsulta no hetan aprovasaun husi superior sira iha MdS, xefe departamentu VE sei desidi tempu atu hahu hala'o estudu hirak ne'e.



Wainhira Xefe Departamentu VE no partes kompetentes decide atu komesa estudu/peskija epidemiologia analitika (cohort study ou case control study), responsabilidade ne'e bele entrega ba alumni FETP (*Field Epidemiology Training Program*) nebe treinadu atu hala'o investigasaun iha surtu.

Cohort study

Cohort study mak estudu ida nebe ita halo atu observa/estuda ema grupu ida/especifiku (cohort) hodi hare, ema grupu ne'e dezenvelope moras ka lae hafoin sira 'expose' ou (iha kontakto ho buat ruma/kondisaun ruma hanesan: ambiente, hahan, be'e, ema, animal ou ai-horis balu) nebe iha potencia bele hamosu moras. Objetivu husi cohort study mak atu buka hatene saida mak halo ema moras. Iha investigasaun surtu, cohort study sempre retrospective tanba ema moras akontese tiha ona. Bai-bain ema utiliza cohort study hodi investiga surtu sira nebe akontese iha festa, escola, restaurante no fatin seluk. Fatin hirak ne'e appropriadu atu defini grupu (cohort).

Karik ita bele defini grupu (cohort), ita mos bele utiliza metodolojia estatistika hodi halo estimasaun ba risku relativu 'Relative Risk'(RR) atu ema ida bele hetan moras wainhira ema ne 'expose' ba buat ruma/kondisaun ruma nebe iha potencia as atu hamosu moras, kompara ho grupu nebe la 'exposed'.

Figura numeru 9. Epidemiolojista nia tabela "2x2" utiliza hodi kalkula risk ratio/relative risk (RR) iha estudu cohort.

	Ill	Not Ill	Total	Risk (Attack Rate)
Exposed	a	b	a+b	a/a+b
Not Exposed	c	d	c+d	c/c+d

$$\text{Risk Ratio} = (a/a+b) / (c/c+d)$$

Case control study

Dalaruma la posivel ba ita atu defini lolos grupu (cohort) ou dalaruma grupu (cohort) boot liu atu ita bele halo peskija ‘cohort study’. Iha situasaun hanesan ne’e, ita bele halo deit case control study.

Iha peskija analitika ‘case control study’, ita halo komparasaun entre ema nebe moras (Kazu/case), nia exposure (ejemplu aihan ruma nebe nia han) ho ema nebe la moras (controls). Bai-bain iha case control study ita sempre hili/foti ema nain rua nebe la moras ou (controls) ba kada ema ida nebe moras ou (case) karik posivel. Rajaun ita hili/foti controls nain 2 ba kada kazu/case tanba ita hakarak halo komparasaun nebe adekuadu. (Ejemplu: kazu/case ema nain 9, ita presija control ema nain 18).

Iha peskija analitika ‘case control study’ ita halo kalkulasaun ba ‘*odds ratio*’ (OR) no sei la halo kalkulasaun ba ‘*risk ratio*’ (RR). Odds bele defini hanesan, numeru ema sira nebe ‘*exposed*’ divide ‘*divided*’ ho numeru ema sira nebe mak la exposed. Ita bele kalkula odds ba kazu no mos controls hafoin, numeru nebe ita hetan husi kalkulkasaun ne’e ita divide atu hetan ‘odds ratio’ ou ita kalkula uza tabela “2x2 iha figura numeru 10.

Figura 10. Epidemiologista nia “2x2 table” bele uza atu kalkula *odds ratio* (OR) ba *case control study*.

	Case	Control
Exposed	a	b
Not Exposed	c	d
Odds of Exposure	a/b	c/d

$$\text{Odds ratio} = (a/c) / (b/d)$$

9. Hala’o intervensaun atu prevene aumenta kazu

Objetivu investigasaun atu hapara ou kontrola surtu, nomos hamenus risku ba publiku. Importante tebes atu praktika medidas preventivu no kontrolu iha investigasaun surtu. Medidas kontrolu no preventivu seluk nebe rekomenda durante investigasaun nia laran, laos deit iha etapa final wainhira investigasaun remata. Ita bele implementa dadauk ona asaun preventivu molok iha konfirmasaun lolos kona ba kauza surtu ida nian.

Medidas intervensaun no resposta ba surtu nebe rekomenda oin-oin, depende ba moras ida-idak nomos fatin nebe surtu mosu ba. Atu bele fo resposta epecifiku tuir moras ida-idak, bele refere ba matadalan Vijilansia no Resposta integradu ba moras hadae’t (IDSR) atu bele responde ba moras ida-idak. Karik presija informasaun seluk kona ba surtu nebe la disponivel iha matadalan ida ne’e ou IDSR, bele refere mos ba fontes informasaun OMS no US CDC nian.

Wainhira iha surtu ruma nebe ita suspeita katak moras refere hadae't husi ema ba ema (person-to person transmission), presija rekomenda pratika higiene liman (fase liman ho sabaun antes no hafoin kaer buat ruma) ba ema nebe moras. Sujere mos ba ema nebe moras atu isola an/hakmatek no limita nia aktividade wainhira nia kondisaun la permiti (ejemplu: labele ba servisu, escola ou prepara hahan ba ema barak). Importante tebes atu identifika ema sira nebe iha risku boot ou vulneravel ba moras nebe kauza surtu, hanesan ejemplu: inan isin rua, pesoal saude nebe servisu iha hospital, ema sira nebe iha prizaun, ferik no katuas sira ou ema ruma nebe iha moras seluk hanesan kankru/cancer. Vasina ka aimoruk balu bele fo hanesan profilaxis atu hapara moras hadae't nia transmisaun.

Wainhira iha indikasaun surtu tanba veneno iha aihan (keracunan makanan), investigador sira presija halo intervensaun lalais hodi identifika faktore risku nebe kontribui ba surtu aihan refere ou faktore risku seluk nebe bele kontribui ba surtu aihan iha futuru.

Wainhira surtu hotu ona, ema hotu/komunidade sira hakarak hatene informasaun barak kona ba surtu liu-liu sira nebe relasiona ho saude publica. Ida ne'e konsidera hanesan tempu diak atu fahe informasaun ou halo aktividade promosaun no edukasaun saude.

10. Hakerek relatoriu no fahe ba entidade relevantes

Etapu ikus liu iha investigasaun surtu, mak hakerek relatoriu final inklui resultadu investigasaun no fahe ba partes relevantes.

Wainhira surtu akontese iha eskola, restaurante ka fatin negosiu ruma, relatoriu nebe ita halo no entrega ba sira badak deit (labele liu husi pagina 2), atu nune'e sira bele hatene oinsa surtu ne'e bele hadae't no oinsa bele prevene.

Karik presija konsidera fahe informasaun kona ba surtu ho media (media release)

Hato'o mos relatoriu final ba iha Centru Saude no Director Saude Municipio iha fatin nebe surtu akontese, inklui partes relevantes hodi bele halo planu prevensaun no kontrolu.

Relatoriu final hanesan evidencia legal kona ba resultadu investigasaun surtu nomos kontribui hanesan materia kuinhesementu ba saude publica (Formatu iha Anexu 4). Wainhira hakerek relatoriu final presija halo tuir formatu bajiku hanesan tuir mai ne'e:

- Introdusaun
- Antecedentes
- Metodolojia
- Resultadu, ezemplu, epicurve, analisa dados epidemeiolojia deskretivu ka analitika
- Diskusaun
- Konklusaun no rekomendasaun

Resultadu estudu/peskija nebe mak hala'o ona presija publika iha redi internet ' internet based peer-reviewed journals'. Resultadu estudu ne'e hanesan evidencia diak ida ba area saude publika iha Timor-Leste, nune'e mos bele sai hanesan fontes informasaun ba peskijador sira

seluk nebe hakarak hatene kona ba konkluziun no mos rekomendasaun husi estudu ida ne'e. Liu husi estudu ida ne'e, bele hasa'e no dejenolve diak liu tan official/investigador sira nia abilidade atu hakerek relatoriu sientifiku. Inklui sublinha ekipa investigador nia servisu liu-liu sira nia esforsu no atinjimentu hamutuk ho parseirus sira hotu nebe mak hala'o servisu ne'e.

Ikus liu no importante tebes, ekipa investigasaun presija halo enkontru avaliasaun hodi avalia servisu nebe hala'o tiha ona. Identifika ekipa investigasaun nia forsa no desafius/frakeja nebe hasoru durante implementasaun investigasaun surtu ne'e.

Fontes informasaun

Matadalan seluk

Pacific Public Health Surveillance Network (PPHSN). (2016) Pacific Outbreak Manual. PPHSN.

https://www.spc.int/DigitalLibrary/Doc/PHD/Surveillance_and_response/Guidelines/Pacific_Outbreak_Manual_Mar_2016.html

World Health Organization. (2008). Foodborne disease outbreaks : guidelines for investigation and control. World Health Organization. <https://apps.who.int/iris/handle/10665/43771>

World Health Organization. (2005). WHO Outbreak Communication Guidelines. World Health Organization

https://apps.who.int/iris/bitstream/handle/10665/69369/WHO_CDS_2005_28_eng.pdf?sequence=1

Instrusaun atu hala'o peskiza analitika (cohort study ka case control study) ba investigasaun surtu

North Carolina Center for Public Health Preparedness—The North Carolina Institute for Public Health. (2008). FOCUS on Field Epidemiology - Cohort Studies for Outbreak Investigations. https://nciph.sph.unc.edu/focus/vol3/issue1/3-1Cohort_issue.pdf

North Carolina Center for Public Health Preparedness—The North Carolina Institute for Public Health. (2008). FOCUS on Field Epidemiology – Case Control Studies for Outbreak Investigations. https://nciph.sph.unc.edu/focus/vol3/issue2/3-2Case-Control_issue.pdf

Pathogen balu ne'ebe risku hadaet surtu veneno (keracunan makanan) - [Anexo 6](#)

Queensland Health. (2006) *Foodborne Pathogens Compendium for outbreak investigations* in Queensland Health Foodborne Illness Outbreak Management Guidelines.

https://www.health.qld.gov.au/_data/assets/pdf_file/0018/422334/31572.pdf

International Health Regulations (2005)

World Health Organization. (2005) International Health Regulations (2005) – Areas of work for implementation. World Health Organization.

<https://www.who.int/publications/i/item/9789241580410>

Lista akronimu no simbolu

Akronimu	
AIFAESA	Autoridade de Inspeção e Fiscalização da Atividade Económica, Sanitária e Alimentar
CDC	Departamentu Controlo Doencas Contagiosas, Ministério da Saúde
COVID-19	Coronavirus disease 2019
DG	Diretor Geral
EH	<i>Environmental Health/Saúde Ambiental</i>
ERR	Ekipa Responde Rápidu
IDSR	<i>Integrated Disease Surveillance and Response</i> (matadalan)
IHR	<i>International Health Regulations</i> (2005) ou Regulamento Sanitariu Internasional (2005)
INS	Instituto Nacional de Saúde
MCS	<i>Microscopy, Culture and Sensitivity</i>
MdS	Ministério da Saúde
MoH	Timor-Leste <i>Ministry of Health</i>
NHL	<i>National Health Laboratory</i>
OMS	Organizasaun Mundial Saúde
OR	<i>Odds ratio</i>
RR	<i>Relative risk / Risk ratio</i>
RRT	<i>Ekipa Responde Rápidu (Rapid Response Team)</i>
SARS	<i>Severe acute respiratory syndrome</i>
STRONG TL	<i>Surveillance, Training, Research Opportunities, National Guidelines for Timor-Leste</i>
VE	Departamentu Vijilansia Epidemiolojia, Ministério da Saúde
WHO	<i>World Health Organization</i>
Symbolu	
$\geq$	Hanesan ka aas/boot liu
$>$	Aas/boot liu
$\leq$	Hanesan ka sedauk to'o/menus liu
$<$	Sedauk to'o/Menus liu

Anexo 1 – Sit Rep ba Investigasaun Surtu (*template*)

 INVESTIGASAUN SURTU - SIT REP			
Surtu nia naran		Numeru relatoriu	
Data investigasaun komesa		Data relatoriu	
Epidemiolojista/Investigador			

Definisaun kazu ba surtu

Definisaun Kazu konfirmadu

Definisaun kazu provavel/suspeitu

Sumariu investigasaun

Kazu hira/ Numeru kazu

Hakerek/relata numeru kazu hira nebe priense kriteria tuir definisaun kazu iha surtu (konfirmadu, provavel/suspeitu)

ita mos bele hakerek/relata kazu foun hira iha sit rep ikus

<<<< tau Curva Epidemika/epicurve iha ne'e >>>>

Evidensia epidemiolojika/deskriptivu

Deskreve karakteristika ba kazu surtu (ejemplu. idade, sexo, hela fatin, etc.)

Evidensia analitika

Bainhira halo peskiza analitika (*cohort study* ka *case control*), hakerek resultadu iha ne'e.

Bainhira la iha peskiza analitika, hakerek "La iha peskiza analitika – evidensia deskretivu deit."

Investigasaun Saúde ambiental

Iha ne'e bele hakerek observasaun liu husi investigasaun Saúde ambiental. Ne'e bele inklui observasaun husi oficial Saúde Ambiental ka oficial AIFAESA.

Sura sampel/amostra nebe koleta ona inklui nia resultadu, karik iha ona.

Resposta husi parte Saúde publica

Deskreve resposta Saúde publica nebe hala'o ona

Komunikasaun

Iha ne'e hakerek informasaun kona ba komunikasaun, bele inklui estratejia komunikasaun nomos informasaun kona ba estratajia ba media (ejemplu. televisaun, radio, social media).

Atividade ne'ebe kontinua nafatin

Iha ne'e hakerek informasaun kona ba atividade nebe oras ne'e lao nafatin, inklui informasaun kona ba atividade epidemiolojika, atividade Saúde ambiental no atividade laboratoriu.

Anexo 2 – Agenda Enkontru ba Investigasaun Surtu (*template*)

 INVESTIGASAUN SURTU ENKONTRU No. X AGENDA			
Surtu nia naran			
Data enkontru		Oras	
Moderador			
Partisipantes			
konvidadu nebe la partisipa			

Numeru	Agenda	Responsavel
1.	Lia fuan makloke/introdusaun husi moderador ba partisipantes sira	Moderador
2.	Sumariu epidemiolojika	Epidemiologista ou investigador
4.	Sumariu Saúde ambiental	Ofisial responsavel husi Saúde Ambiental
5.	Sumariu AIFAESA	Ofisial responsavel husi AIFAESA
6.	Sumariu laboratorium	Ofisial responsavel husi Laboratoriu Nasional
	Sumariu komunikasaun/media	Ofisial reponsavel ba komunikasaun
7.	Evalusaun ba IHR (2005)	Pontu fokal responsavel husi core capacity ida-idak
8.	Atividade/aksaun lao ona Atividade/aksaun lao hela	Partisipantes hotu
9.	Atividade/Aksaun (foun) sedauk komesa, no planu atu komesa	Partisipantes hotu
10.	Desidi hamutuk enkontru tuir mai inklui data, horas no fatin.	Moderador no partisipantes hotu
11.	Enkontru remata	Moderador

Anexo 3 – Sumariu (minutas) Enkontru ba Investigasaun Surtu (Template)

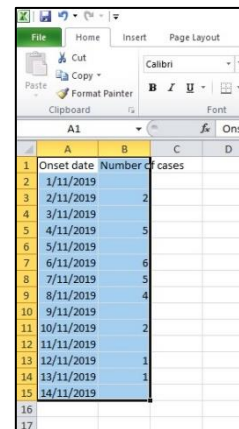
 INVESTIGASAUN SURTU ENKONTRU No. X MINUTAS (SUMARIU)			
Surtu nia naran			
Data enkontru		Oras	
Moderador			
Partisipantes			
Konvidadu nebe la participa			
Diskusaun (sumariu)			
• Sumariu situasaun epidemiolojika: • Sumariu situasaun saúde ambiental: • Sumariu husi AIFAESA: • Sumariu husi Laboratoriu Nasional: • Sumariu komunikasaun ho media: • Evaluasaun kona ba implementasaun Regulamento Sanitariu Internasional (IHR-2005): • Atividades nebe lao ona no atividades nebe lao hela:			
Asaun tuir mai:			
Hakerek asaun foun nebe presija hala’o, bajeia ba resultadu enkontru. Inklui mos official responsavel ba kada aktividade.			
Planu enkontru tuir mai			
Deside hamutuk planu enkontru tuir mai, inklui (data, oras no fatin)			

Anexo 4 –Relatoriu final investigasuan surtu

RELATORIU FINAL INVESTIGASAUN SURTU			
Surtu nia naran			
Data relatoriu		Data investigasaun komesa	
Epidemiolojista ou Investigador			
Antesedentes			
• Detesaun ba indikasaun surtu • Objetivu investigasaun epidemiolojika • Definisaun kazu			
Metodolojia			
Resultadu epidemiolojika			
• Relatoriu deskriptivu • Inklui epicurve no tabela relevante • Resultadu peskiza analitikia (depende)			
Resultadu investigasaun Saúde ambiental			
Resposta ou asaun atu kontrola surtu			
Lisaun no Experiencias			
Hakerek ou relata ekipa servisu nia forsa no frakeja nebe identifika durante hala’o investigasuan surtu ida ne’e. Hakerek ou relata experiencias hotu (diak no ladun diak) durante investigasuan nune’e, bele utiliza hodi halo advokasia ba mudansa politika, prosedimentu no investigasaun surtu seluk iha futuru.			

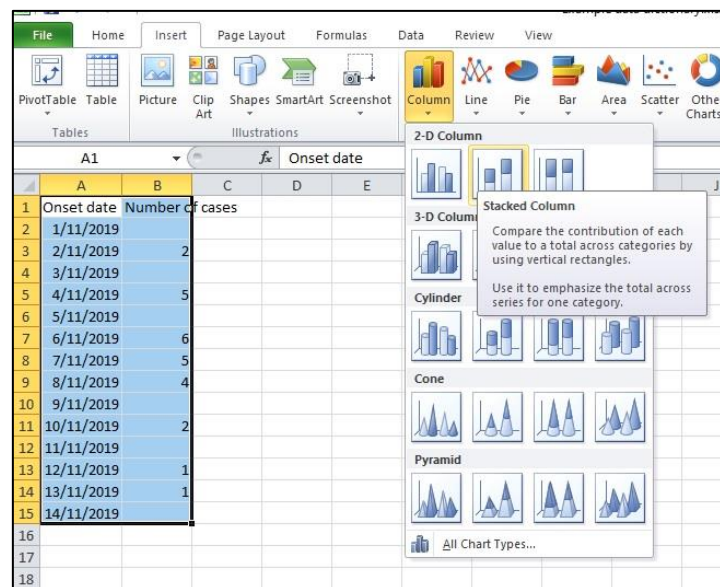
Anexo 5 –Oinsa utiliza Microsoft Excel hodi kria epicurve nebe simples.

1. Hili dadus sira nebe ita hakarak atu inklui iha epicurve.
2. Asegura ‘onset data’ hakerek iha kuluna primeiru (iha parte karuk) tuir kedas numeru kazu



	A	B	C	D
1	Onset date	Number of cases		
2	1/11/2019			
3	2/11/2019	2		
4	3/11/2019			
5	4/11/2019	5		
6	5/11/2019			
7	6/11/2019	6		
8	7/11/2019	5		
9	8/11/2019	4		
10	9/11/2019			
11	10/11/2019	2		
12	11/11/2019			
13	12/11/2019	1		
14	13/11/2019	1		
15	14/11/2019			
16				
17				

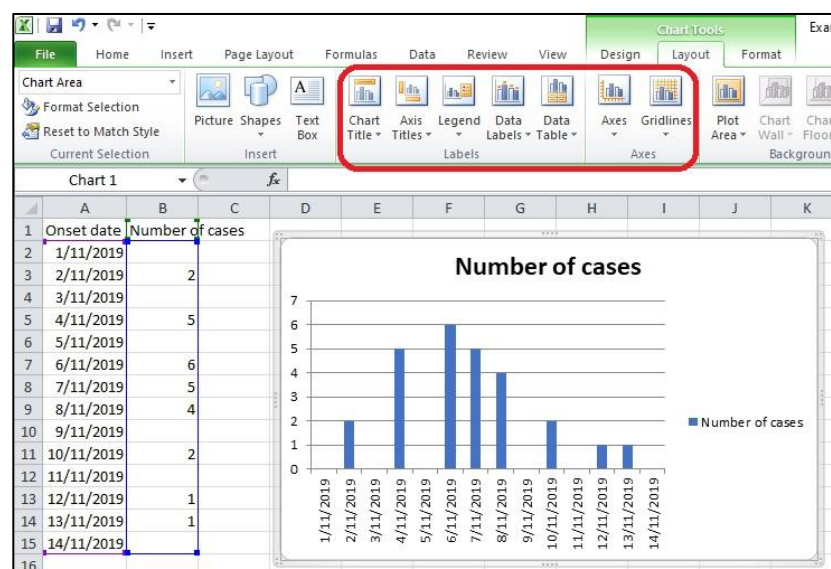
3. Hili tab naran “Insert” iha *tool bar* iha Excel nia leten.
4. Hili “Column”, depois tuir fali iha *drop menu*, hili “Stacked Column”.
5. Tuir mai hili grafiku hanesan iha figura iha sorin



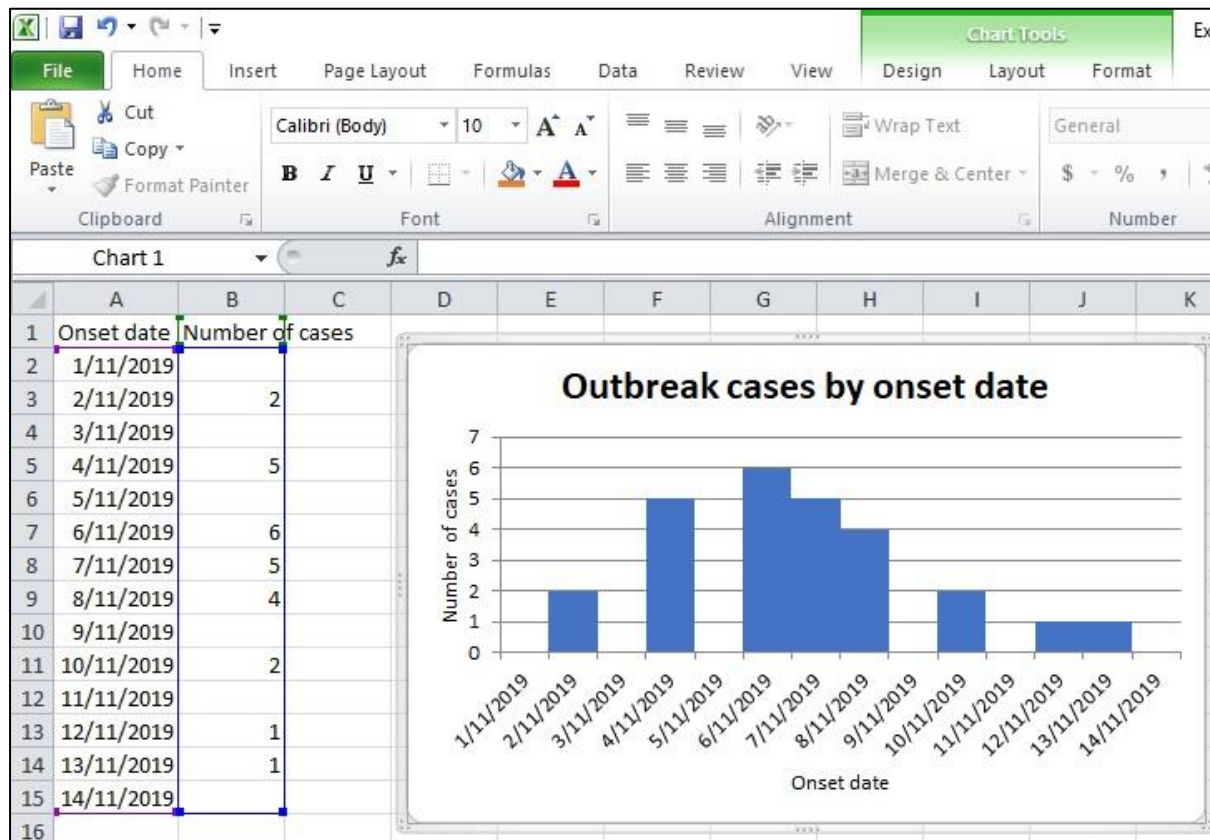
6. Tuir fali mai, hili “Chart Tools – Layout” tab: Depois ita bele hili “Chart Title” ka “Axis titles” atu kria ka hadiak titlulu sira.

7. Hili “Legend” tab: depois hili “No Legend”.

8. Hili column ida iha epicurve, depois right click. Hili “Format Data Series”. Halo “Gap width” 0%.



9. Epicurve kompletu ona – ita bele modifika stilo/estilu no ko'or depende ita nia hakarak.



* Instruksaun oin sa atu halo epicurve bele hetan online iha website 2 tuir mai:

US Centres for Disease Control and Prevention. Quick-Learn Lesson: Create an Epi Curve. Available from: <https://www.cdc.gov/training/quicklearns/createepi/>

Field Epidemiology in Action. Excel Fundamentals for Field Epis. Available from: <https://www.fieldepiinaction.com/excel-fundamentals>

Anexo 6 –Pathogen balu nebe iha potencia hamosu surtu relasiona ho aihan (keracunan makanan).

Foodborne Pathogens Compendium for outbreak investigations - 2006							
Agent	Usual incubation period (range)	Symptom profile	Duration of illness	Period of communicability	Characteristic foods	Criteria for confirmation	Specimen required (and transport requirements)
Agents characterised by nausea and vomiting, without fever, within 8 hours of eating							
<i>Bacillus cereus</i> (pre-formed emetic toxin)	2-4 hours (1-6 hours)	Sudden onset of severe nausea and vomiting. Diarrhoea may be present.	8-24 hours	Not communicable (pre-formed enterotoxin in food)	Improperly refrigerated fried or boiled rice is a common vehicle. Other implicated vehicles include other starchy foods such as cereals and pasta; and vanilla slices and cream. Toxin is heat stable to 125°C for 90 mins.	Isolation of a 10 ⁷ organism from implicated food OR Isolation of a 10 ⁵ organism from stools or vomitus of two or more persons OR Detection of <i>B. cereus</i> enterotoxin in food or stool/vomitus.	Stool/vomitus samples preferably collected within 3 days of onset of illness. Refrigerate prior to transport. DO NOT FREEZE. Collect 50-150 grams of food. Transport specimens in a cold pack.
<i>Staphylococcus aureus</i>	2-4 hours (1-7 hours)	Sudden onset of nausea, vomiting, abdominal cramps and diarrhoea. In mild cases there may be nausea and vomiting without diarrhoea or cramps.	24-48 hours	Not communicable (pre-formed toxin in food)	<i>S. aureus</i> competes poorly with other bacteria, therefore seldom causes food poisoning in raw products. <i>S. aureus</i> grow well in cooked foods in which normal flora has been killed or inhibited (eg. cooked, cured or salted meats). Foods high in protein, sugar or salt, or food with moist fillings are particularly susceptible (eg. meat and meat products, poultry, dairy products, cream sauces, custards and cream-filled bakery products). Improper temp storage of foods and poor personal hygiene of food handlers are main contributing factors. <i>Staphylococci</i> multiply in food and produce enterotoxin (>10 ⁷ organism of food are required for food to be hazardous). Organism readily killed by cooking; enterotoxin extremely heat resistant.	Isolation of a 10 ⁷ organism from implicated food OR Detection of staphylococcal enterotoxin in implicated food OR Detection of staphylococcal enterotoxin in the stools or vomitus of two or more persons OR Detection of organism of same phage type from stools or vomitus of two or more persons.	Stool or vomitus samples collected during acute phase of illness. Refrigerate prior to transport. DO NOT FREEZE. Collect 50-150 grams of suspected food. Transport specimens in a cold pack. Vomitus is the preferred specimen for detection of enterotoxin.

Agent	Usual incubation period (range)	Symptom profile	Duration of illness	Period of communicability	Characteristic foods	Criteria for confirmation	Specimen required (and transport requirements)
Agents characterised by abdominal cramps and diarrhoea, without fever, within 24 hours of eating							
<i>Bacillus cereus</i> (diarrhoeal toxin)	10-13 hours (8-16 hours)	Abdominal cramps and diarrhoea; vomiting uncommon.	12-48 hours	Not communicable (enterotoxin produced in vivo after ingestion of food)	Meats, casseroles and stews, gravies, fried and boiled rice, potato and other vegetables. Toxin is heat labile at 56°C after 5 mins.	Isolation of a 10 ⁷ organism from implicated food OR Isolation of a 10 ⁵ organism from stools of two or more persons OR Detection of <i>B. cereus</i> enterotoxin in stools of two or more persons	Stool samples preferably collected within 3 days of onset of illness. Refrigerate prior to transport. DO NOT FREEZE. Collect 50-150 grams of food. Transport specimens in a cold pack.
<i>Clostridium perfringens</i>	10-12 hours (8-24 hours)	Profuse diarrhoea and abdominal cramps (usually no vomiting or fever).	24-48 hours	Not communicable (enterotoxin produced in vivo after ingestion of food)	Meat products including stews, meat pies, sauces and gravy. Often associated with settings involving large quantities of food, especially meat and poultry dishes which are prepared in advance and allowed to cool slowly or are inadequately refrigerated. Infective dose >10 ⁷ vegetative organism food. <i>C. perfringens</i> enterotoxin is inactivated by heating for 5 mins at 60°C.	Isolation of a 10 ⁷ vegetative organism from stools of two or more persons OR Isolation of a 10 ⁵ spore/gram from stools of two or more persons OR Detection of enterotoxin in stools of two or more persons OR Isolation of a 10 ⁵ vegetative organism in implicated food OR Detection of chromosomal <i>cpe</i> gene. PFGE typing can be performed on isolates that were detected in both stools and food.	Stool samples preferably collected within 2 days of onset of illness. Refrigerate prior to transport. DO NOT FREEZE. Collect 50-150 grams of food. Transport specimens in a cold pack (frozen foods or foods held under prolonged refrigeration will reduce viable cell numbers).

Agent	Usual incubation period (range)	Symptom profile	Duration of illness	Period of communicability	Characteristic foods	Criteria for confirmation	Specimen required (and transport requirements)
Agents characterised by diarrhoea, often with fever, with a moderate to long incubation period							
<i>Campylobacter</i>	2-5 days (1-10 days)	Acute diarrhoea (stools often bloody and mucous), fever, abdominal cramps, vomiting.	Usually 2-5 days (up to 10 days).	May be excreted in faeces for 2-3 weeks, sometimes longer after symptoms resolve. Person-to-person transmission is uncommon.	Raw or undercooked poultry, off, unpasteurised milk, contaminated untreated water. The organism does not multiply in food or water (the infective dose required to cause illness is usually 10 ³ - 10 ⁵ organisms but may be as low as 400-500 organisms). No toxin produced in foods.	Isolation of organism from stools of two or more persons OR Isolation of organism from epidemiologically implicated food.	Stool samples or a swab of faecal material from stools which is then inserted into transport medium. Refrigerate prior to transport. DO NOT FREEZE. Collect 50-150 grams of food (isolation from food is difficult). Transport specimens in a cold pack.
<i>Salmonella</i> spp. (non-typhoidal)	12-36 hours (8 hours - 10 days)	Diarrhoea, fever, abdominal pain, vomiting.	2-7 days.	Through the course of infection; usually several days to several weeks. A temporary carrier state occasionally continues for months (<1% become chronic carriers).	Eggs, poultry, meat, raw milk and other faecally-contaminated raw foods (eg. fruit and vegetables) and cross-contamination of cooked foods. Infective dose 10 ³ to 10 ⁷ organism food (may be lower for immunocompromised). Toxins are not produced in foods. Inactivation 2-6 mins @60°C or <1min @71°C. Some serotypes are more heat resistant than others, particularly in low water content foods.	Isolation of organism of same serotype, phage type or genotype from stools of two or more persons OR Isolation of organism from epidemiologically implicated food.	Stool samples preferably collected within 3 days of onset of illness. Refrigerate prior to transport. DO NOT FREEZE stools. Collect 50-150 grams of suspected food and transport in a cold pack (frozen foods keep frozen; other foods refrigerate prior to transport).
<i>Shigella</i> spp.	24-48 hours (12 hours-6 days)	Watery diarrhoea (often bloody and mucoid), fever, abdominal cramps often with vomiting. Mild and asymptomatic infections occur.	4-7 days	During acute infection, asymptomatic carrier state may develop during convalescence (lasting from a few days to several months (usually < one week following appropriate therapy).	Foods contaminated by an infected foodhandler (only significant reservoir is humans). Usually person to person spread or faecal-oral transmission. Infective dose can be low (eg. 10-100 organisms). Rapidly inactivated at temps above 65°C. <i>Shigella</i> is among the most acid-resistant of foodborne pathogens and can survive exposure to pH 2.5-3.2 for 2 hours. Toxins are not produced in foods.	Isolation of organism of same serotype/biotype from stools of two or more persons OR Isolation of organism from epidemiologically implicated food.	Stool samples preferably collected within 3 days of onset of illness. Refrigerate prior to transport. Collect 50-150 grams of suspected food and transport in a cold pack (frozen foods keep frozen; other foods refrigerate prior to transport).

Agent	Usual incubation period (range)	Symptom profile	Duration of illness	Period of communicability	Characteristic foods	Criteria for confirmation	Specimen required (and transport requirements)
Agents characterised by diarrhoea, often with fever, with a moderate to long incubation period (continued)							
Shiga toxin-producing <i>E. coli</i> (STEC) includes <i>E. coli</i> O157, O111, and other enterohaemorrhagic <i>E. coli</i> (EHEC)	3-4 days (1-10 days)	Mild to severe diarrhoea (often bloody), abdominal cramps, vomiting (little or no fever)	5-10 days	1-3 weeks (toxin produced in vivo)	Mettawurst, salami, undercooked beef, unpasteurised milk, raw fruit & vegetables (eg. sprouts), salads, and untreated water. Infective dose can be low (e.g. 10-100 organisms). Rapidly inactivated at 71°C but thermal resistance may be higher if organism present in foods with high fat content. Survives well in chilled and frozen foods.	Isolation of <i>E. coli</i> O157, O111 or other STEC from stools of two or more II persons OR detection of shiga toxin in the faeces of two or more II persons OR detection of the gene (<i>stx1</i> or <i>stx2</i>) associated with production of shiga toxin by PCR in two or more II persons OR isolation of STEC from implicated food.	Stool samples preferably collected within 3 days of onset of illness. FREEZE stool samples. Collect 50-150 grams of suspected food. Transport specimens in a cold pack.
<i>Vibrio parahaemolyticus</i>	12-24 hours (4-48 hours)	Watery diarrhoea, abdominal cramps, nausea, vomiting, low-grade fever.	1-7 days	Not communicable	Naturally contaminated seafood (eg. shellfish and crustaceans) are the major source, either eaten raw or inadequately cooked. Ingestion of 10 ⁵ - 10 ⁶ orgs (Kagawa +ve strains) is required to cause illness. Organism inactivated at temps above 65°C. Temperature range for growth 5°C- 43°C. Critical Control Point: chill seafood <5°C.	Isolation of (Kagawa +ve) organism possessing <i>tdh</i> and/or <i>trh</i> genes from stool or vomitus of two or more II persons OR isolation of $\geq 10^5$ orgs/gm from epidemiologically implicated food.	Stool specimens collected during acute phase of illness. Refrigerate prior to transport. DO NOT FREEZE. Collect 50-150 grams of suspected food (DO NOT FREEZE). Transport specimens in a cold pack.
<i>Vibrio cholerae</i> O1 and O139	12-72 hours (12 hours-5 days)	Watery diarrhoea often with vomiting; mild or asymptomatic infection can occur	3-7 days	While still shedding organism (usually only a few days after recovery); carrier state may persist for several mths. (cholera toxin produced in vivo)	Contamination from infected food handlers or contaminated water. Most commonly implicated foods are seafood, including shellfish, fish and crustaceans. Rice, meat, fruits and vegetables have also been reported as vehicles. Acquired overseas.	Isolation of biogenic organism from stools of two or more II persons OR isolation of toxigenic organism from epidemiologically implicated food.	Stool samples collected during acute phase of illness. Refrigerate prior to transport. DO NOT FREEZE. Collect 50-150 grams of suspected food. Transport specimens in a cold pack.
<i>Vibrio cholerae</i> non-O1 and non-O139	12-24 hours (1-5 days)	Watery diarrhoea (milder than O1 and O139 but may be bloody), abdominal cramps and vomiting.	3-7 days	Several days; usually no long term carriage following infection.	Food usually becomes contaminated through infected food handlers or contact with contaminated water (eg. with untreated sewerage). Foods previously implicated include seafood (eg. oysters), raw fruit and vegetables. Non O1 and non-O139 strains are not uncommon in the marine environment.	Isolation of organism of same serotype from stools of two or more II persons.	Stool specimens collected during acute phase of illness. Refrigerate prior to transport. DO NOT FREEZE. Collect 50-150 grams of suspected food. Transport specimens in a cold pack.

Agent	Usual incubation period (range)	Symptom profile	Duration of illness	Period of communicability	Characteristic foods	Criteria for confirmation	Specimen required (and transport requirements)
Agents characterised by diarrhoea, often with fever, with a moderate to long incubation period (continued)							
<i>Yersinia enterocolitica</i>	36-48 hours (1-10 days)	Diarrhoea (sometimes bloody), abdominal pain (often severe and mimicking appendicitis), fever, nausea and vomiting.	2-3 days but sometimes 1-3 weeks	Faecal shedding for as long as symptoms persist, about 2-3 weeks.	Raw or undercooked pork or pork products, contaminated dairy products, contaminated water. Toxins are not produced in foods. Able to multiply at refrigeration temps but not a good competitor with other organisms. Inactivation <1 min @71°C.	Isolation of pathogenic serotype from clinical specimen (stool, vomitus, blood) of two or more II persons OR isolation of pathogenic serotype from epidemiologically implicated food.	Stool specimens collected during acute phase of illness. Refrigerate prior to transport. Collect 50-150 grams of suspected food. Transport specimens in a cold pack.
Norovirus and other caliciviruses	24-48 hours (12-72 hours)	Sudden onset nausea, vomiting, abdominal cramps and diarrhoea. Other symptoms may include headache, myalgia and low grade fever.	1-3 days	Duration of vomiting and diarrhoea. Excretion of virus in stools may occur for several days after symptoms resolve. High levels of virus may be discharged in vomit.	Shellfish harvested from contaminated waters or other faecally contaminated foods including contamination by an infected foodhandler. Infective dose can be <10 virus particles.	Detection of viral RNA in stools or vomitus of two or more II persons by reverse transcriptase-polymerase chain reaction (RT-PCR)	Stool/vomit samples preferably collected from the 1st to 7th day of illness however shedding may continue for up to 3 weeks. Refrigerate prior to transport. DO NOT FREEZE.
Rotavirus	24-48 hours (16-72 hours)	Vomiting, watery diarrhoea, malaise, headache, low-grade fever.	4-8 days	Viral shedding in faeces up to 8 days after onset of illness.	Faecally contaminated foods. Ready-to-eat foods touched by infected food workers (salads, fruits). Mainly transmitted via person-to-person spread and sometimes by food handlers.	Detection of viral RNA in stools of two or more II persons by reverse transcriptase-polymerase chain reaction (RT-PCR) at QHSB OR antigen detection Enzyme Immuno Assay (EIA) available through Royal Brisbane Hospital - Consult with the Medical Microbiologist.	Stool samples preferably collected from the 1st to 4th day of illness are optimal however shedding may continue for up to 3 weeks. Refrigerate prior to transport. DO NOT FREEZE.
Other viral agents (Astrovirus, adenoviruses, enteroviruses, parvoviruses)	24-48 hours (12-72 hours)	Nausea, vomiting, diarrhoea, malaise, abdominal pain, headache, fever.	2-9 days	Duration of vomiting and diarrhoea.	Shellfish harvested from contaminated waters or other faecally contaminated foods including contamination by an infected foodhandler.	Detection of viral DNA/RNA in stools of two or more II persons by reverse transcriptase-polymerase chain reaction (RT-PCR) and (PCR) OR antigen detection Enzyme Immuno Assay (EIA) for Adenovirus 40/41 available through Royal Brisbane Hospital - Consult with the Medical Microbiologist.	Stool samples preferably collected from the 1st to 7th day of illness are optimal. Refrigerate prior to transport. DO NOT FREEZE.

Agent	Usual incubation period (range)	Symptom profile	Duration of illness	Period of communicability	Characteristic foods	Criteria for confirmation	Specimen required (and transport requirements)
Agents characterised by diarrhoea, often with fever, with a moderate to long incubation period (continued)							
<i>Cryptosporidium parvum</i>	1-12 days	Diarrhoea (usually watery) which may be severe, stomach cramps.	4-21 days	Oocysts may be excreted in stools for several weeks after symptoms resolve.	Contaminated water or food, unpasteurised milk. Infective dose ≥ 10 cysts.	Detection of oocysts of same species or genotype from stools of two or more II persons OR detection of oocysts from epidemiologically implicated food. (May need to collect 3 stool samples/person)	Stool samples preferably collected within 7 days of onset of illness. Refrigerate prior to transport. DO NOT FREEZE. Collect suspected food or water. Transport specimens in a cold pack.
<i>Giardia lamblia</i>	1-2 weeks	Diarrhoea, abdominal pain, bloating, flatulence.	Days to weeks.	Entire period of infection.	Contaminated water or food. Infective dose 10-100 cysts.	Detection of cysts from stools or duodenal aspirates of two or more II persons. (May need to collect 3 stool samples/person)	Stool samples preferably collected within 7 days of onset of illness. Refrigerate prior to transport. DO NOT FREEZE.
<i>Cyclospora cayentanensis</i>	Usually at least a week (1-14 days)	Diarrhoea (often watery), stomach cramps, nausea, vomiting, fatigue (fever is rare).	If not treated, illness may be remitting and relapsing over weeks to months.	Oocysts are not infectious in freshly excreted stools. They require days to weeks outside the host to sporulate and become infectious.	Most likely to be transmitted by eating contaminated produce imported from a developing country. Implicated foods in overseas outbreaks include strawberries, raspberries, lettuce and basil.	Detection of oocysts in the stools of two or more II persons.	Stool samples preferably collected within 7 days of onset of illness. Refrigerate prior to transport. DO NOT FREEZE.



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